M3 EAGLE
EXHIBIT INDEX

EXHIBIT NO.	EXHIBIT DESCRIPTION
	M3 EAGLE'S TECHNICAL REPORTS AND SUPPORTING DOCUMENTATION (submitted 11/26/08)
1	Drillers Logs Location Map For M3 Eagle 09-13-2007 small
2	M3 Eagle Regional Hydrogeologic Characterization Year One Progress Report
3	Map of Protestants Wells 10-14-2008
4	M3 Eagle SVR #6 Composite - FINAL
5	M3 Eagle SVR #7 Composite by Hydro Logic, Inc. 4-14-2008 - FINAL
6	M3 Eagle SVR #9 Test Well Composite Diagram by Hydro Logic, Inc 07-07-2008 smaller
7	M3 Eagle Test Well #1 Composite by Hydro Logic, Inc. 4-23-2008
8	M3 Eagle Test Well #2 Composite - FINAL
9	M3 Eagle Test Well #3 Composite Diagram by Hydro Logic, Inc. 9-27-2007
10	M3 Eagle Test Well #4 Composite Diagram by Hydro Logic, Inc 4-16-2008
11	Magnetometer Report for M3 Eagle May 20, 2007
12	RE-Analysis of 16 Aquifer Tests in the Greater Eagle-Star Area of North Ada County, Idaho
13	Seismic Reflection Profiling in the Big Gulch Area - Report by John Bradford at CGISS (BSU) - September 2006
14	Star Supply Well #3 Composite - FINAL smaller
15	SVR #10 Test Well Composite Diagram by Hydro Logic, Inc 07-07-2008 smaller
16	Modeling of Ground Water Flow in the Pierce Gulch Sand Aquifer 11-19-2008
17	Well Density by section and Quarter Section 09-13-2007
18	Water Level Measurement Survey Update to M3 Eagle Hydrogeologic Characterization
19	Documentation provided by S. H. Wood, PhD., Professor Emeritus
	19A (Wood geophysical logs)
	19B (Wood May 20, 2007 Qualitative Interpretation of Magnetic Anomalies and Progress Report on Geologic Mapping in the Foothills North of Eagle, Ada and Gem Counties, Idaho)

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UPDATED 4/14/2009

M3 EAGLE
EXHIBIT INDEX

EXHIBIT NO.	EXHIBIT DESCRIPTION
	19C (Wood/USGS 2004 Geological Field Trips in Southern Idaho, Eastern Oregon, and Northern Nevada)
	19D (Wood/Clemens 2002 Geologic and Tectonic History of the Western Snake River Plain, Idaho and Oregon)
	19E (Wood/Squires 1/8/2001 Stratigraphic Study of the Boise (Idaho) Aquifer System Using Borehole Geophysical Logs with Emphasis on Facies Identification of Sand Aquifers)
	19F (Wood August, 1997 Structure Contour Map of Top of the Mudstone Facies, Western Snake River Plain, Idaho)
	19G (Wood January, 1994 Seismic Expression and Geological Significance of a Lacustrine Delta in Neogene Deposits of the Western Snake River Plain, Idaho)
	19H (Wood/Anderson December, 1981 Geothermal Investigations in Idaho, Part II Geological, Hydrological, Geochemical and Geophysical Investigations of the Nampa-Caldwell and Adjacent Areas, Southern Idaho)
20	Test Well #1 Plot - M3 Eagle
21	Monthly Monitoring Hand Measured Water Levels
22	Figures and Tables to be included and described in upcoming Aquifer Test 2008 Report
23	2007 Regional Ground Water Level Contour Map
24	Summary of Water Chemistry Data for M3 Eagle and Select Regional Wells
25	Water Chemistry and Cross-Section Wells Map
26	Cross-Sections from wells with geophysical logs (four total)
27	Cross-Sections of wells near M3 Eagle with well construction and lithology (thirteen total)
28	Hydrographs of United Water Idaho's State and Linder Monitoring Wells (1999-2008)
29	Ground water gradient map in Eagle, Idaho area (USGS 1980)
30	Hydrograph of Vail and Miller domestic wells (1995-1998)
31	Ground Water Gradient Map from Lindholm (USGS 1991)
32	Curriculum Vitae and Summaries of Facts and Opinions of M3 Eagle Experts
	32A (Squires, Ed CV and Summary of Opinion)
	32B (Utting, Mark CV)

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EXHIBIT NO.	EXHIBIT DESCRIPTION
	32C (Pearson, Loren Facts and Opinions)
	32D (Osiensky, James CV and Summary of Opinion)
	32E (Wood, Spencer CV and Facts)
	32F (Jim Rumbaugh - NOT TESTIFYING)
	32G (Dittus, Roger Facts and Opinions, CV)
	32H (Schwartzman, Peter CV and Facts
	32I (Glanzman CV)
	32J (Del Leavitt - NOT TESTIFYING)
	32K (Wonders, Scott Facts and Opinions
	32L (Holt, Steven CV, Nov 26, 2008 Engineering Water Uses Report
	32M (Church, John CV and Facts and Opinions
33	Documentation for the Treasure Valley Hydrologic Project (includes oversize map: Structure Contour Map of Top of the Mudstone Facies, Western Snake River Plain, Idaho, by Spencer H. Wood)
	33A (Petrich Feb 2004 Treasure Valley Hydrologic Project Executive Summary)
	33B (Petrich Feb 2004 Simulation of Ground Water Flow in the Lower Boise River Basin)
	33C (Petrich Feb 2004 Simulation of Increased Ground Water Withdrawals in the Lower Boise River Basin)
	33D (Petrich & Urban Feb 2004 Characterization of Ground Water Flow in the Lower Boise River Basin
	33E (Mar 04 Appendix C: Monitoring Well Diagrams for the Report, Characterization of Ground Water Flow in the Lower Boise River Basin)
	33F (Petrich & Urban 2004 Water Quality Data for Monitoring Well TVHP #4 Municipal Park Addendum to the Report Characterization of the Ground Water Flow in Lower Boise River Basin)
	33G (Hutchings & Petrich Dec 2002 Ground Water Recharge and Flow in the Regional Treasure Valley Aquifer System Geochemistry and Isotope Study)
	33H (Hutchings & Petrich Dec 2002 Influence of Canal Seepage on Aquifer Recharge Near the New York Canal)
	33I (Urban Water Budget for the Treasure Valley Aquifer System for the Years 1996 and 2000)

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EXHIBIT NO.	EXHIBIT DESCRIPTION
	33J (Dittus, Allred, Squires Oct. 1999 Hydrogeology, Geochemistry, and Well Construction of the Treasure Valley Hydrologic Project Monitoring Well #1, Ada County, Idaho)
	33K (Treasure Valley Hydrologic Project #2 Monitoring Well Nov. 1999)
	33L (Scanlan July 2001 Final Report on the Quarry View Park Well Project)
	33M (Municipal Park Monitoring Well (TVHP#4) July 2002)
	33N (Beukelman 1997 Treasure Valley Hydrologic Project Geological and Geophysical Framework of the Treasure Valley Reports on the Ontario, Parma, Notus and Boise Cross Sections)
	33O (Squires & Wood Jan 2001 Stratigraphic Studies of the Boise (ID) Aquifer System Using Borehole Geophysical Logs with Emphasis on Facies Identification of Sand Aquifers)
	33P (Wood Aug 1997 Structure Contour Map of the Base of Quaternary Basalt, Murphy and west part of Mountain Home Map Sheets, Idaho)
	33Q (Wood Aug 1997 Structure Contour Map of Top of the Mudstone Facies, Western Snake River Plain, Idaho)
	33R (Geologic Cross-Section Across the Treasure Valley from 15 Miles Northwest of Star to the Snake River)
	33S (Geologic Cross-Section Across the Treasure Valley from 6 Miles East-Northeast of Star to the Snake River)
	33T (Othberg & Stanford 1992 Geologic map of the Boise Valley and Adjoining Area, Western Snake River Plain, Idaho)
	33U (Liberty & Wood Apr 2001Treasure Valley Seismic Reflection Project - UPRR 2000 Profile)
	33V (Treasure Valley's Water Future, Summary of the Treasure Valley Water Summit, Jan 14-15, 2000 (May 2002))
34	Map and composite diagram of Eagle Pines Water Association well
35	Draft spreadsheet containing information currently known about Protestants' wells (HLI 2008)
36	November 6, 2008 Memorandum from Dale Ralston, PhD and Professor Emeritus to Josephine Beeman
37	Compact disc of ground water level monitoring data and aquifer test data obtained by Hydro Logic, Inc. in the North Ada County Area
38	M3 Eagle Potable Water Facility Planning Progress Update Meeting #3 Presentation Slides, November 25, 2008, prepared by Stanley Consultants, Inc.
39	Map of Preliminary Sewer Plan, prepared by Stanley Consultants, Inc.
40	Demographic Forecast: Economic & Fiscal Impact Analysis, October 2008, prepared by Dr. John Church
41	Development of a Numerical Ground Water Flow Model for the M3 Eagle Development Area Near Eagle Idaho, Douglas, Stacey L., Master's Thesis (December 2007).

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EXHIBIT NO.	EXHIBIT DESCRIPTION
	M3 EAGLE'S SECOND AMENDED APPLICATION FOR PERMIT (last amended April 2008)
42	M3 Eagle's Second Amended Application for Permit No. 63-32573 with Attachments and Exhibits (filed February 1, 2008; last amended April 2008)
	M3 EAGLE'S SUPPLEMENTAL REPORTS BY HLI (submitted in 2009)
43	Ground Water Geochemistry of Wells in the North Ada County Area of Idaho (Jan. 20, 2009)
44	A Nine-Day Constant-Rate-Discharge Aquifer Test of the SVR #7 Test Well In Big Gulch, North Ada County, Idaho (Jan. 20, 2009)
45	Technical Memorandum re Response to IDWR's March 2, 2009 Staff Memorandum On M3 Eagle Hydrogeologic Studies (with exhibits), prepared by Hydro Logic Inc., dated April 1, 2009 (submitted April 3, 2009)
	DOCUMENTS SUBMITTED BY NACGUA
46	Memorandum from Dale R. Ralston to Jo Beeman regarding Initial Hydrogeologic Analysis, dated November 6, 2008
47	Hydrogeologic Analysis of the M3 Eagle Site, Expert Report Prepared for the North Ada County Groundwater Users Association, by Ralston Hydrologic Services, Inc., dated January 2009
48	Hydrogeologic Analysis of the M3 Eagle Site: Supplement #1 Comments from Review of Geochemistry Report, Expert Report Prepared for the North Ada County Groundwater Users Association, by Ralston Hydrologic Services, Inc., dated January 2009
49	Letter from Dr. Dale Ralston to NACFA c/o David Head re comments relative to IDWR's March 2, 2009 Staff Memorandum, dated March 31, 2009 (submitted April 3, 2009)
	IDWR STAFF MEMORANDUM
50	IDWR Staff Memorandum re Application for Water Right 63-32573, dated March 2, 2009
	OTHER DOCUMENTS OFFERED BY M3
51	Technical Memorandum from Ed Squires, Hydro Logic, Inc., to Dennis Owsley, IDWR, re Written Analysis of Dale Ralston's Technical Report Per Hearing Officer's February 10th, 2009 Order, dated March 2, 2009
52	Refined Analysis of 2008 Water Level Data from TW #1 and TW #4 Using BETCO to better correct for Barometric Effects, M3 Eagle Master Planned Community, dated April 8, 2009
53	M3 Eagle Master Potable Water & Wastewater Study, by Stanley Consultants (04/28/06)
54	M3 Eagle Financial Statement, dated March 30, 2009
55	Letter from J. Fereday to D. Tuthill re M3 Eagle Planned Community, dated March 23, 2007.
56	Letter from J. Fereday to D. Tuthill re M3 Eagle Amended Water Right Application, dated September 24, 2007.
57	Eagle Foothills Comprehensive Plan
58	Pre-Annexation and Development Agreement by and between City of Eagle and M3 Eagle LLC, dated/recorded December 27, 2007.
59	M3 Eagle Average Monthly Residential Housing Additions cmopared to Monthly Residential Dwelling Unit Permits Issued in Ada and Canyon Counties 2000-2008, prepared by Dr. John Church

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EXHIBIT NO.	EXHIBIT DESCRIPTION
60	M3 Eagle: A Summary of Projected 30-Year Buildout Scenario of Residential Housing Units, Households, and Polulation, prepared by Dr. John Church
61	Graphs: The Idaho Economy has Recovered from Severe Recessions in the Past, prepared by Dr. John Church
62	Water Volumes Calculated Using Peak Day Water Production Overstate Annual Water Demand, prepared by Dr. John Church
63	Map based on Figure 1 from Memorandum re Ground Water Geochemistry of Wells in the North Ada County Area of Idaho, dated January 20, 2009, with PGSA wells highlighted and noted.
64	Letter from E. Squires to Nichole Baird Spencer (City of Eagle) re Comments on Letters Submitted by NACFA and Phillip Fry Concerning the M3 Eagle Proposed Planned Community Development North of Eagle, Idaho, dated October 16, 2006.
65	M3 Eagle slide presentation (April 2009)
	OTHER DOCUMENTS BY OR FROM PROTESTANTS
100	Notices of Protest
101	Protestant Questionnaires
102	Affidavit of Dale R. Ralston in Support of NACGUA's Reply to M3 Eagle's Response to NACGUA's Motion for Stay, and Limited Discovery for Purposes of Settlement, dated November 24, 2008
103	Dale Ralston List of References Reviewed, dated Feb. 2, 2009
104	Alan Smith Response to Discovery Request of Applicant M3 Eagle LLC, dated October 27, 2008.
105	Letter from K. Pennisi to Gary Spackman re NACFA's assignment of protest to NACGUA, dated August 26, 2008.
106	David Head notes re water quantity calculations (David Head Deposition Ex. 86)
107	NACGUA bullet list re M3 Eagle water right application (Morgan Masner Deposition Ex. 107)
108	E-mail and attachments from K. Pennisi to "NACFA Supporters" (Conrad Deposition Ex. 24)
109	Letter from David Head to "NACFA Water Group a/k/a . . . . NACGWUA," dated August 12, 2008
110	Letter from David Head to Karl J. Dreher re Request for Comprehensive Groundwater Resource Evaluation and Consideration for New Water Rights Moratorium, dated January 25, 2006
111	Letter from Karl J. Dreher to David Head re Request for Comprehensive Groundwater Resource Evaluation and Consideration for New Water Rights Moratorium, dated May 2, 2006
112	Letter from David Head to David Tuthill re Status of Comprehensive Water Resource Evaluation in North Ada County / Follow-Up on May 12, 2006 Correspondence with Director Dreher, dated January 16, 2007
113	NACFA/NACGUA letter from David Head and John Thornton to M3 Water Protestants re Status on Protest with M3 Municipal water right application, dated September 28, 2008

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EXHIBIT NO.	EXHIBIT DESCRIPTION
114	NACGUA Meeting Presentation (October 2008)
	CITY OF EAGLE WATER RIGHT APPLICATION DOCUMENTS
130	Memorandum from Sean Vincent and Shane Bendixsen to Gary Spackman re Review of City of Eagle, Idaho 7-Day Aquifer Test Report in Support of Applications for Water Right Appropriation 63-32089 and 63-32090, dated November 29, 2006
131	Memorandum from Sean Vincent to Gary Spackman re Review of Addendum to City of Eagle, Idaho 7-Day Aquifer Test Report, dated February 27, 2006 [*sic - should be 2007*]
132	City of Eagle, Idaho 7-Day Aquifer Test Report prepared by Holladay Engineering Company, dated June 2006
133	Addendum to City of Eagle, Idaho 7-Day Aquifer Test Report prepared by Holladay Engineering Company and SPF Water Engineering, dated February 22, 2007
	SUNCOR WATER RIGHT APPLICATION DOCUMENTS
140	Letter from Terry Scanlan (SPF Water Engineering LLC) to Steve Lester (IDWR) re Application for Permit No. 63-32061 - SunCor Idaho, LLC, dated March 3, 2005
141	Lynn Well Water Level Measurement Table and Graph prepared by SPF Water Engineering LLC, dated 10/19/2006 (Application for Permit No. 63-32061, Ex. 38)
142	Maps regarding Avimor and Spring Valley Ranch Resource Area prepared by SPF Water Engineering LLC, all dated January 20, 2006 (Application for Permit No. 63-32061, Exs. 32-34, 36)
143	Letter from Terry Scanlan (SPF Water Engineering LLC) to Bob Taunton (SunCor) re SunCor Water Level Monitoring Program Status, dated October 16, 2006, with enclosed Stipulation to Withdraw Protest between SunCor and NACFA (Application for Permit No. 63-32061, Ex. 42)
144	Aquifer Evaluation in the Big Gulch and Little Gulch Areas of Spring Valley Ranch prepared by SPF Water Engineering LLC, dated October 2004 (Application for Permit No. 63-32061, Ex. 27)

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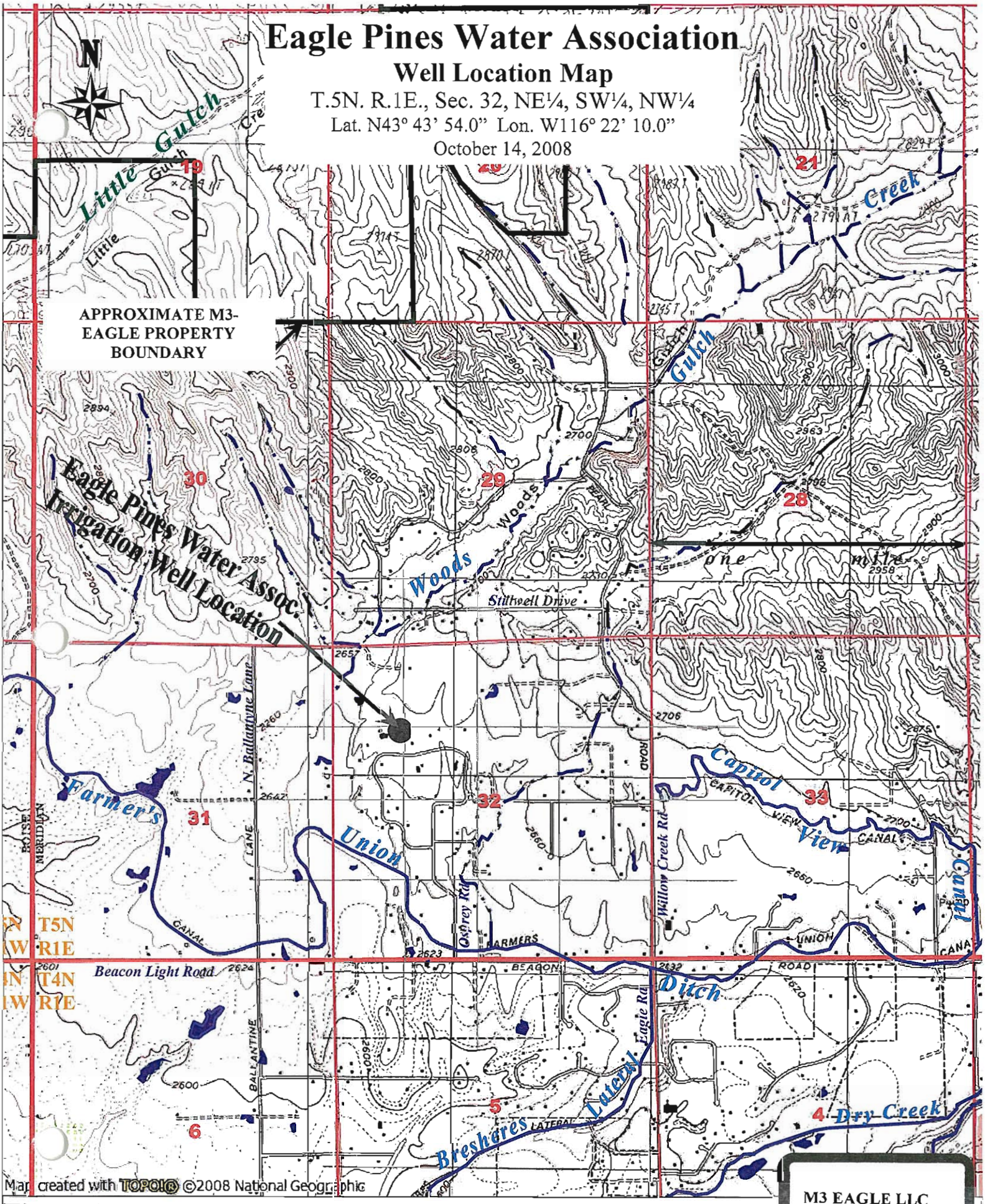
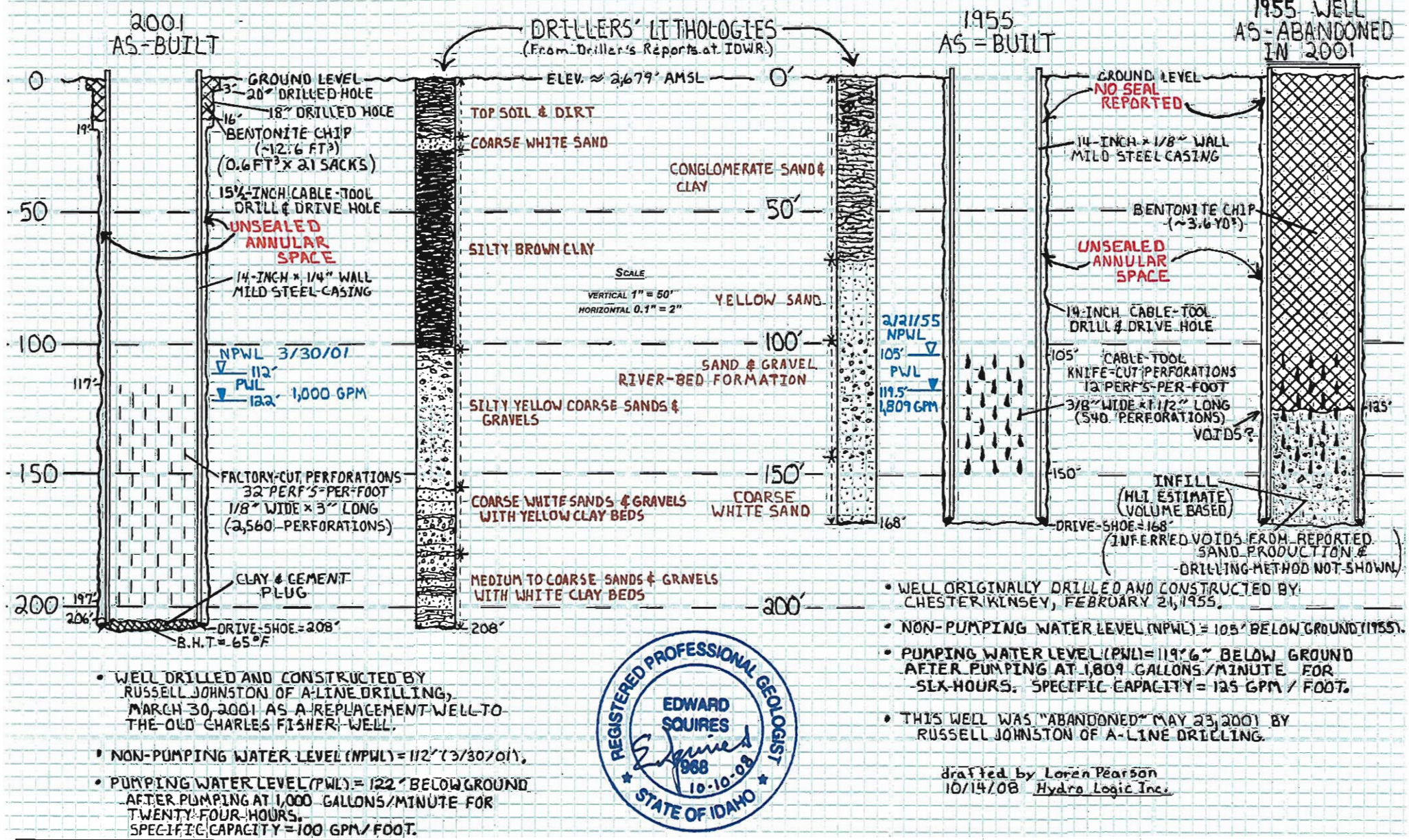


Figure 1. Base map is a (1:24,000 scale) USGS 7½ - minute map (current as of 2001).

Hydro Logic, Inc. - **Boise, Idaho**

M3 EAGLE LLC EXHIBIT 34

Eagle Pines Water Association
Well Constructions
T.5N. R.1E. Sec. 32 NE,SW,NW



- WELL DRILLED AND CONSTRUCTED BY RUSSELL JOHNSTON OF A-LINE DRILLING, MARCH 30, 2001 AS A REPLACEMENT WELL TO THE OLD CHARLES FISHER WELL.
- NON-PUMPING WATER LEVEL (NPWL) = 112' (3/30/01).
- PUMPING WATER LEVEL (PWL) = 122' BELOW GROUND AFTER PUMPING AT 1,000 GALLONS/MINUTE FOR TWENTY-FOUR HOURS. SPECIFIC CAPACITY = 100 GPM / FOOT.

REGISTERED PROFESSIONAL GEOLOGIST
EDWARD SQUIRES
988
10-10-08
STATE OF IDAHO

- WELL ORIGINALLY DRILLED AND CONSTRUCTED BY CHESTER KINSEY, FEBRUARY 21, 1955.
- NON-PUMPING WATER LEVEL (NPWL) = 105' BELOW GROUND (1955).
- PUMPING WATER LEVEL (PWL) = 119.6" BELOW GROUND AFTER PUMPING AT 1,809 GALLONS/MINUTE FOR SIX HOURS. SPECIFIC CAPACITY = 125 GPM / FOOT.
- THIS WELL WAS "ABANDONED" MAY 23, 2001 BY RUSSELL JOHNSTON OF A-LINE DRILLING.

drafted by Loren Pearson
10/14/08 Hydro Logic Inc.

Figure 1. Cross-sectional sketch of the Eagle Pines Water Association's irrigation wells (1955 and 2001) showing 1) the details of as-built construction, 2) conflicting lithologic logs of the dri[illegible] geologic section by the two drillers, and 3) the unsealed annular spaces a[illegible]le of the casing in the cable-tool, drill-and-drive wells. Also evident is t[illegible] essentially unchanged, no[illegible] pumping water level in the well(s) reported by the drillers, after 46 years o[illegible] pumping from the well and the collective pumping of other surrounding Ea[illegible]-area wells during significant population growth and increased withdrawals from the aquifer. The Eagle Pines Water Association's irrigation well is completed into the Pierce Gulch Sand Aquifer.

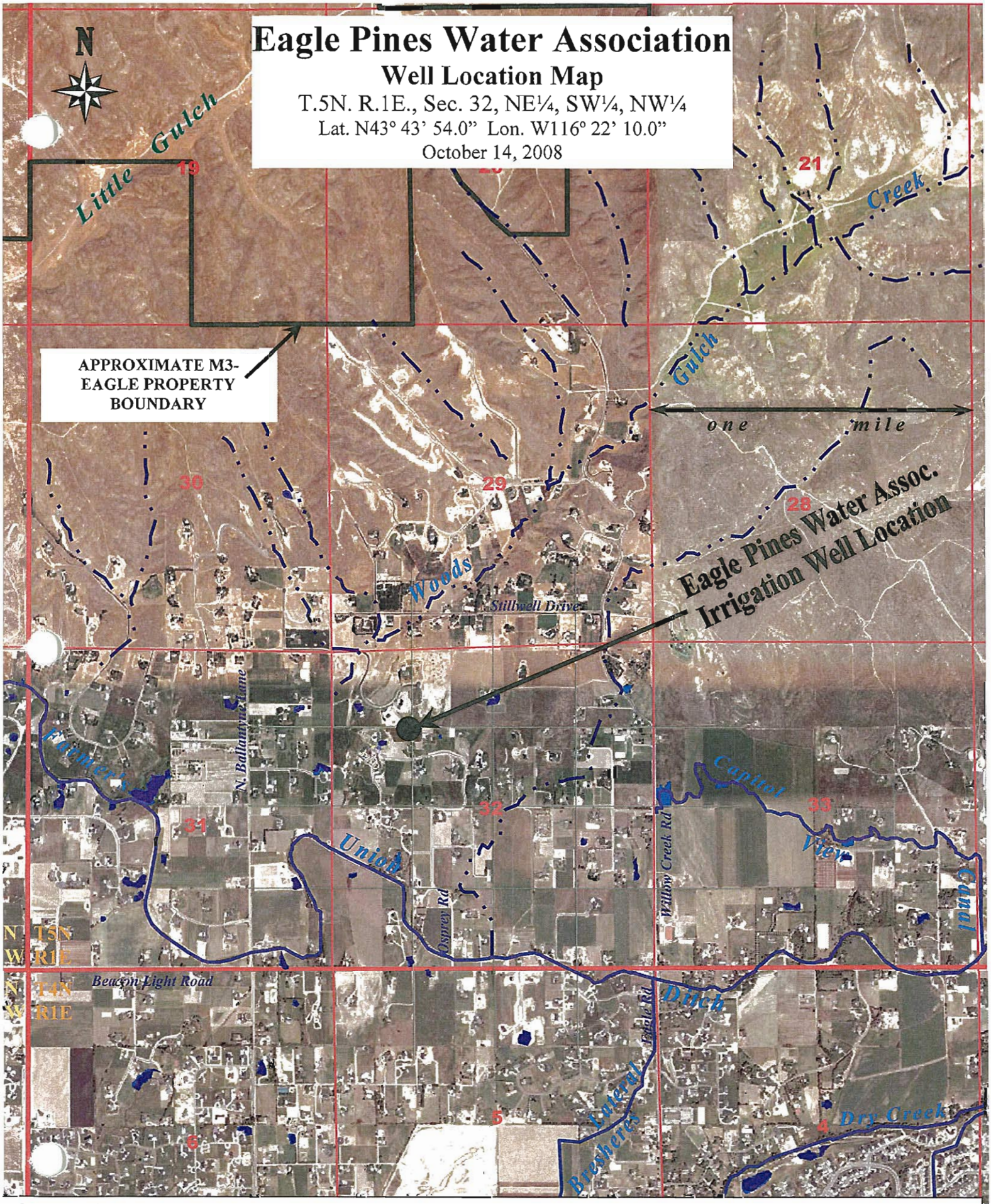


Figure 1. Base map is a (1:24,000 scale) Aerial Photo from Google Earth.

Hydro Logic, Inc. - **Boise, Idaho**

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2008 M3 Eagle Protestant Data (Draft 10-/14/2008)

Name (last)	Name (fist)	Well Location Info.	Elev.	Lat.	Long.	Water Right No	Priortity Date	Well Driller's Report No.	Drilling Permit No: 63-	Log obtained	Depth	Screen top	Screen bottom	DTW when drilled	Date Drilled	Can HLI Inspect	Contact #	Comments
Adkins	Lorn and Laurie	4440 N Croft Pl	2620	43 43 56.5	116 23 36.43			57537	96-w-0670-000	yes	123	118	oh	29	9/17/1996	yes	939-7875	Not for sure about well log, appears to be open hole, casing down to 118'
Banducci	Jim	2990 Holl Dr	2642	43 43 20.36	116 20 8.62			91664	96-W-0221-200	yes	240	179	oh	65	5/18/1996	yes	939-2223	Open hole 179' down, drilled to 240' probably caved up to 215
Burke	Linda	256 E. Beacon Light	2637	43 43 17.40	116 21 3.62					no								Can not Find Log, No Questionnaire
Collett	David and Linda	927 E. Valli Hi Ln	2677	43 43 32.44	116 20 32.91			832639	389-94	yes	206	166	206	103	4/18/2005	yes	939-1143	
Conrad	Shelby and Angela	2022 N. Eagle Rd	2603	43 42 48.36	116 21 11.66	63-16939, 63-9222	7/15/1903, 3/30/1979	789382	0-0-2-9009	yes	115	105	115	32	12/6/2002	yes	938-5104	
Dick	Stephen	3675 N. Saddleman	2670	43 43 29.97	116 19 42.56			730491	96-W-0451-000	yes	160	80	160	25	7/6/1996	yes	870-3990	Log under Dick
Evans	Loring and Julie	3900 Croft Way	2593	43 43 38.43	116 23 43.05			730348	96-W-0292	yes	120	109	119	45	5/28/1996	yes	939-9636	
Franden	Janet and John	2300 E. Buckskin Ct.	2663	43 43 30.85	116 19 32.38	63-32586, more in comments		62104	97-W-0537-000	yes	142	82	142	31	1997	yes	938-1413	Well Tag # D0001201, Additional Water Rights: 63-32588, 63-16591(split), 63-2963(split), 63-32586, 63-32587, 63-2284, 63-48591
Gaston	Dale and Mary	2862 W. Deerfield Ct.	2616	43 43 36.05	116 23 11.61					no	120			53		no		Can not find log, info from Q
Glivar	Daniel and Cheryl	3426 N. Croft Way	2604	43 43 23.53	116 23 40.44			49071	95-0222-000	yes	125	119	124	30	4/7/1995	yes	383-3958	Online log under pedersen
Groothuis	Marion and Judy	3490 N Saddleman Pl	2650	43 43 24.09	116 19 34.68	63-11847, more in comments	3/6/1992	725624	92-W-295	yes	127	47	127	10	5/25/1992	yes	850-0617	Online log under Rountree. Additional Water rights 63-11697, 63-02284, 63-02903
Head	David	855 Stillwell Dr	2709	43 44 15	116 21 56	63-03483A	1/7/1966	826617		yes	221	216	221	140	12/23/1980	yes	938-8508	Has not filed protest(M.U.), onliine log under stillwell lot 4 blk 2, DTW on Q = 158'
Iazetta	Vincent	4243 N. Croft Place	2616	43 43 48.38	116 23 43.89			59721	99 W-0514-000	yes	168	155	168	30	7/12/1999	yes	250-9801	Online log under Delo-Kal, Inc, Well Tag #D0009844
Jekel/ Tiffany	Barb/Bill	2862 Haven Dr.	2650	43 44 0.81	116 23 18.02	63-9983	9/17/2003			no	80?				1980	no		No log, depth from Q
Jones	Trish and Barry	4032 N. Croft Pl.	2612	43 43 43.04	116 23 40.5					no						yes	938-8938	Owners know nothing
Jordan	Karen and Lyle	3417 N Croft Way	2593	43 43 21.9	116 23 49.38			64269	95-W-0709-000	yes	98	98	oh	27	9/13/1995	yes	938-9259	Q has water right permit # 544 994?, open hole 6" casing down to 98'?
Keys	George	3898 N. Saddleman Pl.	2754	43 43 38.49	116 19 37.01					no						yes	938-0574	Possile log under westermier
Lage.	Richard and Dessa	1262 W. Beacon Light Rd	2624	43 43 20.86	116 22 13.5	A63-18351, A63-18350	7/28/1975	781965		yes	150	144	oh	80	5/6/1978	no		Owned by Bruce Smith Family Trust, log under Neel I believe this is the same well and Ritter
Leigh	Eric and Joyce	2257 N Park Ln	2561	43 42 56.33	116 24 20.36	63-33034	4/24/1990, 04/10/08	723571	90-z-081	yes	108	98	103	12	4/24/1990	poss.	1-800-939-1065	No WR by given date
Lyons	Robert and Joan	351 Knob Hill	2805	43 44 23.22	116 21 24.89	63-08348	9/5/1976	46600		yes	320	310	320	280	9/15/1976	yes	939-6820	TOC=0.6', HLI:06/15/2007 13:22 NPWL = 259.81& 06/24/2006 17:50 NPWL = 258.72
Masner	Morgan and Julie	4325 W Gray Teal Ct.	2578	43 43 45.24	116 24 28.8			60930	98-W-0142-000	yes	103	98	103	25	3/18/1998	yes	939-6171	Well Tag # D0001815
McDonald	G.E.	3800 N. Saddleman Pl.	2679	43 43 34.84	116 19 31.81			724725	91-w-260	yes	220	119	oh	40	8/24/1991	yes	939-4094 861-0765	Log under Brubaker
McMurray	Michael and Martha	902 W Stillwell Rd	2708	43 44 15.0	116 21 56.25	63-0301m, 63-03483n	1/3/1955, 1/7/1966	725450	92-W-136	yes	215	213	oh	147	11/30/1991	yes	939-7806 859 4324	Online log under Pnalen, I believe well was deepened and screened on 4/92, no log for deepening
Meyer	Walter	4640 N. Skyline Dr.	2713	43 44 12.03	116 22 52.69	63-10159		829825		yes	258	253	oh	158	8/2/1975	yes	939-0504	Open hole, had to replace the pump twice due to sand. Two logs is a deepening
Minkiewicz	Vincent and Patricia	3047 W. Deerfield Ct.	2613	43 43 37.12	116 23 27.28			732562	98-w-0681-000	yes	123	99	123	43	9/22/1998	yes	939-5642	Log under Swanson, Well Tag # D0007515
Niccolls	Robert and La Vonne	4238 N. Triple Ridge Pl.	2787	43 43 46.26	116 19 55.44			63083	94-w-1063-000	yes	360	184	348	120	3/11/1995	poss	939-2787	6/25/02- treasure valley pump W.L.=103', 09/12/08- IDWR W.L. = 112', from Q, log under Grey, GPS from ome owner
Purvis	Steven	3939 Brookside Ln	2674	43 43 39.93	116 19 11.89	63-10893	1974, 1981	85254		yes	46?	22	48	20	2/25/1981	no		Perforated, maybe modified, questionnaire says 100' deep, IDWR monitors well
Randall	Sherri	278 E. Beacon Light	2638	43 43 18.83	116 21 2.00	63-12015		724936	91-W-464	yes	154	149	154	60	12/10/1991	no		Open hole 149' down
Rapp	Ron and Cheryl	3954 W. Deerfield Dr.	2591	43 43 43.40	116 24 08.10					no	65?				2000?	yes	938-1967	No Log, Info From Questionnaire only, previous owner Ron Larsen
Richardson	Bruce and Jean	3171 W. Deerfield Ct.	2600	43 43 38	116 23 35.9					no					2000?	yes	939-1515	Only info on Q is date, adress, and Phone #, toc=0.92, HLI 06/27/2006 9:55 NPWL = 42.35
Ritter	Thomas and Anne	1270 W Beacon Light Rd	2624	43 43 20.86	116 22 13.5	63-19190	11/1/1981	781965		yes	150	144	oh	80	5/6/1978	yes	939-1760	IDWR W.L. = 86.5' 6/4/08, 84.2' 9/11/08, log under Neel
Tarbet	Sally and Craig	N. Willow Creek Rd.	3044	43 46 41.26	116 20 3.71	63-10376				yes	112	107	112	70	9/11/1985	yes	890-8899	May be wrong well location, Q says there sould be a map included, well log under Rowland
Thompson/Petrovsky	Carol/John	4831 Willow Crk Rd	2755	43 44 20.83	116 21 27.05	63-03483E	1/7/1966	828530		yes	307	300	305	221	05 1975	yes	938-0418	Owner Supplied Log, can find online under Stillwell
Thornton	John	5264 N. Sky High Lane	2835	43 44 34.31	116 22 25.50			835311	0-0-4-1676	yes	500	495	500	292	8/15/2005	yes	867-09??	Used owner GPS, different from mark's
Van Camp	Bruut and Rebecca	3800 N. Croft Way	2602	43 43 34.60	116 23 40.27			766925		yes	147	137	147	32	10/2/2000	yes	343-1816 938-1917	Well Tag # D0015704
Watkins	Charles	1313 W. Meander Dr.	2647	43 43 36.15	116 22 11.98					no						yes	363-1346	No log, previous owner Ron Post
West	Robert and Alasya	5035 Willow Creek Rd.	2780	43 44 26.09	116 21 23.70	63-3483m	1/7/1966	2703		?	330	330	320	220	9/18/1984	no		Used info from John West Well Log, not for sure if this is the correct well log due to discrepancies, they let us measure before, HLI: 06/22/2006 16:08 NPWL = 226.02

=no well log
=google earth
=on site data

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RHS Ralston Hydrologic Services, Inc.
GROUND WATER CONSULTING AND EDUCATION
1122 East B Street, Moscow, ID USA 83843
Voice and FAX 208-883-0533, E-mail ralston@moscow.com

MEMORANDUM

To: Jo Beeman
From: Dale R. Ralston
Subject: Initial Hydrogeologic Analysis
Date: November 6, 2008

The purpose of this memo is to provide you with my initial hydrogeologic analysis of the M3 Eagle project. I anticipate writing a more detailed hydrogeologic analysis after having more time to review existing reports and receiving and reviewing additional M3 Eagle information that may be made available. This memo is divided into four sections. The first section provides a summary description of the hydrogeologic information provided to date. The second section is my analysis of the hydrogeologic conceptual model as presented. The third section is my analysis of the ground-water flow systems as presented. The fourth section is my analysis of likely impacts from full project development. The references cited are listed at the end of the memo.

SUMMARY OF M3 EAGLE DESCRIPTION OF THE GROUND-WATER SYSTEM

The following quotes are taken from the 2007 report entitled ***"M3 Eagle Regional Hydrogeologic Characterization – North Ada Canyon and Gem Counties, Idaho – Year One Progress Report"*** (Hydro Logic Inc. 2007).

> "Hydrogeologic studies commissioned by M3 Eagle in the North Ada County area have delineated a highly productive regional sand aquifer with good quality water that underlies the area near Eagle and Star and the proposed M3 Eagle planned community. This aquifer, herein named the Pierce Gulch Sand Aquifer, underlies the north Ada County Foothills where it extends continuously from the Eagle-Star area to the Payette River Valley. Because the Payette Valley near Letha is almost 300 feet lower than the Boise Valley near Eagle, ground water flows out of the Boise River Basin and into the Payette River Basin through the sands of this aquifer.... The ground water proposed to be withdrawn by M3 Eagle for its development will be from subsurface flow that has already departed the Boise Basin, on its way to the Payette Basin, so that impacts to existing area water users in the lowlands near Eagle are predicted to be small" (page 1).
>
> "The Pierce Gulch Sand Aquifer consists of a 150-to-275-foot thick sequence of stratified sand layers with inter-bedded thin and locally discontinuous layers of silt and clay. The base of the dipping aquifer is typically 480-to-700 feet deep beneath land surface of the M3 Eagle site. The aquifer sand thickens and

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descends deeper beneath of land surface to the south and southwest in the Eagle-Star-Meridian area and is believed to do the same to the northwest toward Payette River" (page 3).

"The Pierce Gulch Sand Aquifer is bounded on its northeast side by the geologic fault system ... originally named the West Boise-Eagle fault by Wood and Anderson (1981). The base of the aquifer is underlain (and bounded) by the thick clays and mudstones of the Terteling Springs Formation. This structural dip explains why the municipals wells in Star are deeper than they are in Eagle. In the Boise River Valley near Eagle and Star, the Pierce Gulch Sand Aquifer is overlain by clays, some other minor sand aquifers, and a shallow surficial flood-plain-gravel aquifer (the present day floodplain of the Boise River). Beneath most of the M3 Eagle site, the aquifer is overlain by clay layers with no shallow surficial aquifer present" (pages 3 and 4).

"Using the derived aquifer transmissivity values and the measured water levels in wells to derive a ground water gradient, our analyses indicate that 20 to 30 mgd (million gallons per day (equivalent to approximately 22 thousand to 34 thousand ac ft/yr (acre feet per year)) of ground water currently flows in a northwesterly direction through the Pierce Gulch Sand Aquifer beneath a five-mile wide strip of the M3 site between State Highway 16 and the inferred edge of the pierce Gulch sand aquifer ..." (page 5).

ANALYSIS OF THE HYDROGEOLOGIC CONCEPTUAL MODEL

The question of primary importance relative to the hydrogeologic conceptual model presented in the Hydro Logic Inc. 2007 report is stated below.

- **Is there sufficient evidence to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?**

Supporting evidence for the lateral extent and continuity of a geologic unit comes from knowledge of the depositional environment, surface geologic maps and geologic information from wells. These topics are addressed below.

- The Hydro Logic Inc. (2007) report provides only limited information on the depositional environment for the target aquifer. However, considerable discussion of the depositional environment during emplacement of the geologic units is available in supporting documents. Most of the scientific articles describe conditions southwest of the M3 Eagle development. I was not able to find any discussion of the depositional environment that would result in the sand unit extending and being laterally continuous to the vicinity of the Payette River valley.
- I was not able to find a published geologic map that provides information on outcrops patterns of Pierce Gulch Sand in the immediate vicinity or northwest of the M3 Eagle development.

- The Hydro Logic Inc. (2007) report provides subsurface geologic information in the vicinity of the M3 Eagle development in the form of a cross section. Support documents present geologic cross sections in areas southeast of the M3 Eagle property. I was not able to find any geologic cross sections for the area between the M3 Eagle property and the Payette River.

I conclude that there is not sufficient evidence to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the M3 Eagle site to the Payette River. Also, additional work is needed to assemble and present the available information to support of presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the M3 Eagle site to the presumed recharge area in the Boise River drainage.

ANALYSIS OF THE GROUND-WATER FLOW SYSTEM

The question of primary importance relative to the ground-water flow system that is described in the Hydro Logic Inc. 2007 report is stated below.

- **Assuming that the hydrogeologic conceptual model question is answered in the affirmative, is there sufficient evidence to support the presumption that ground water flows in the manner and quantity described within what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?**

Supporting evidence for the description of the ground-water flow system comes from the hydrogeologic conceptual model, water-level data from wells and estimates of transmissivity calculated using data collected during aquifer tests. These topics are addressed below.

- The heterogeneity of what has been called the Pierce Gulch Sand Aquifer is very important relative to the description of the ground-water flow system and particularly in the estimation of the quantity of water moving in the system. The following is a description of the Pierce Park sand by Squires and Wood (2001, pp. 13-14)
    - "Because this is the uppermost delta in the lacustrine sequence, we correlate it to the Pierce Park sand that crops out in the upper part of the foothills section west of Crane Creek. In the foothills, this unit is mostly foreset beds of coarse sand typical of the 'Gilbert-type' of delta. Some foreset bed sets are 60 feet thick, and the sand unit as a whole is up to 250 feet thick in the foothills... This delta is then correlated by Wood and Clemens (in press) to the history of Lake Idaho. Since it is the uppermost major delta in the section its deposition over mudstone, is explained as a prograding sand delta in response to the slow lowering of lake levels after Lake Idaho spilled over into Hells Canyon.... We feel fairly certain that there is a 'long-term' hydraulic connection in the sands of the upper delta sequence ....; however, local lenses of mudstone in that section may prevent short-term detection of well-drawdown responses. It may take

- The above quote from Squires and Wood (2001) indicates that ground-water flow patterns in what has been called the Pierce Gulch Sand Aquifer likely are more complex than is described in the Hydro Logic Inc. (2007) report. This likely is true for the portion of the postulated flow system that has been investigated (southeast of the M3 Eagle site) as well as the area northwest of the M3 Eagle site where little information is available.

- Figure 6 of the Hydro Logic Inc. (2007) report shows a complex pattern of water-level elevation contours in what appears to be several different ground-water flow systems. In my opinion, the figure raises many questions relative to characterization of ground-water flow systems. My questions include the following. 1) Are all of the wells in the purple colored area completed only in what has been called the Pierce Gulch Sand Aquifer? 2) Is there a vertical gradient within the Pierce Gulch Sand Aquifer and, if so, how are water levels from different wells interpreted? 3) What aquifer in penetrated by the wells located on within the Payette River floodplain? 4) Is the aquifer on the Payette River floodplain hydraulically connected to what is called the Pierce Gulch Sand Aquifer and, if so, how? 5) Do the flow lines represent ground-water discharge from the Pierce Gulch Sand Aquifer into whatever aquifer underlies the Payette River Valley?

- Figure 8 of the Hydro Logic Inc. (2007) report shows calculated values of transmissivity and storativity for selected wells in the general M3 Eagle area. The range of transmissivity values shown is consistent with the expected high level of heterogeneity and anisotropy believed to characterize the sand deposit. The transmissivity value(s) used in calculating an estimated flow though a portion of the target aquifer is not identified in the Hydro Logic Inc. report (2007, page 5).

I conclude that there is not sufficient evidence to support the presumption that ground water flows in the manner and quantity described within what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?

ANALYSIS OF LIKELY IMPACTS FROM FULL PROJECT DEVELOPMENT

The question of primary importance relative to the subsurface water balance and likely impacts from full project development is stated below.

- **Has the characterization of the target aquifer system, including a pre-development water balance, been complete enough to support an analysis of impacts from full project development?**

Analysis of impacts from project development is dependent on gaining a suitable level of understanding of aquifer boundaries plus knowledge of the locations and controls for ground-water recharge and the locations and controls for ground-water discharge. These topics are addressed below.

- The Hydro Logic Inc. (2007) report identifies the northeast boundary of what has been called the Pierce Gulch Sand Aquifer but none of the other boundaries. Characterization of all of the aquifer boundaries is a necessary step for analysis of impacts from full project development.
- The Hydro Logic Inc. (2007) report indicates that recharge occurs to the aquifer within the Boise River basing with discharge within the Payette River basin. The report indicates that the "major source of ground water in the aquifer in the vicinity of Eagle is ground water underflow from areas south and east of the Boise River at Eagle. This ground water originates as direct infiltration from the Boise River in the east-central Boise area and through leakage from irrigation canals south and east of Eagle" (page 13). The report does not provide specifics relative to locations and characteristics of recharge in the Boise River basin or any information relative to locations and characteristics of ground-water discharge within the Payette River basin.
- A general description of the temporal sequence of impacts from development and operation of the project wells is presented below.
    - The initiation of consumptive withdrawal of water via wells from the aquifer would result in local water-level decline in the aquifer.
    - Continued operation of the wells would result in an ever increasing cone of depression (area of water-level decline) until pumping effects reach the recharge and/or discharge areas.
    - Water-level decline would cause an increase in recharge if recharge to the aquifer is head dependent (saturated hydraulic connection with a surface water system). Water-level decline would cause a decrease in the rate of ground-water discharge (all ground-water discharge rates are head dependent).
    - The basin water levels would stabilize if the rate of consumptive pumping was balanced by increased ground-water recharge and/or decreased ground-water discharge. The time required for the ground-water system to come into a new equilibrium is dependent on the size of the aquifer and hydraulic properties of the ground-water flow system.
    - Long-term water-level decline would occur if the consumptive withdrawal of ground water is greater than the annual rate of recharge.

I conclude that the characterization of the target aquifer system, including a pre-development water balance, has not been complete enough to support an analysis of impacts from full project development.

Please contact me if you have any questions relative to the information presented in this memorandum. Thank you.

REFERENCES CITED

Hydro Logic Inc., 2007, M3 Eagle Regional Hydrogeologic Characterization – North Ada, Canyon and Gem Counties, Idaho – Year One Progress Report: Consulting Report Prepared for M3 Companies; 19 pages plus figures.

Squires, E. and S.H. Wood, 2001, Stratigraphic Studies of the Boise (Idaho) Aquifer System Using Borehole Geophysical Logs with Emphasis on Facies Identification of Sand Aquifers: Report to the Treasure Valley Study, Idaho Department of Water Resources; Hydro Logic Inc. and Boise State University; 15 pages.

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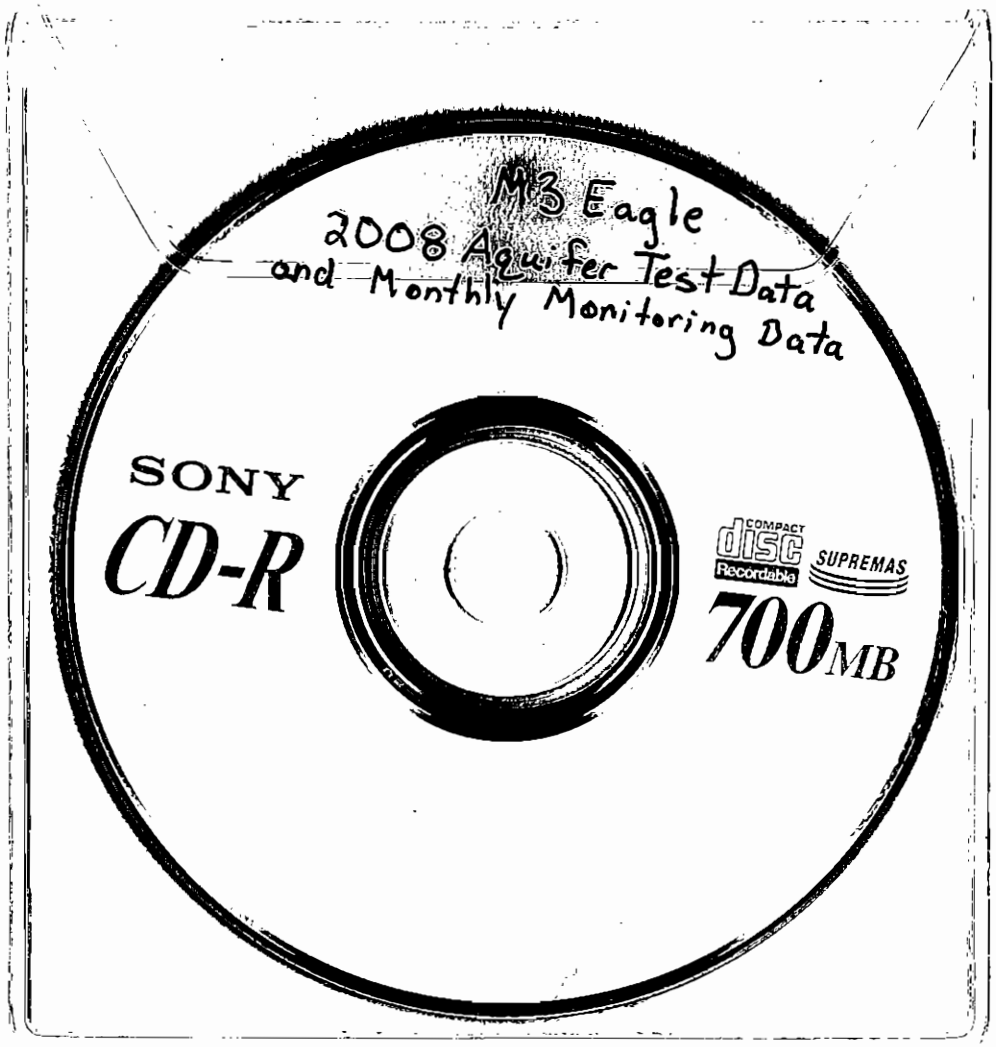

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M3 Eagle
Potable Water Facility Planning

Progress Update Meeting #3

November 25, 2008

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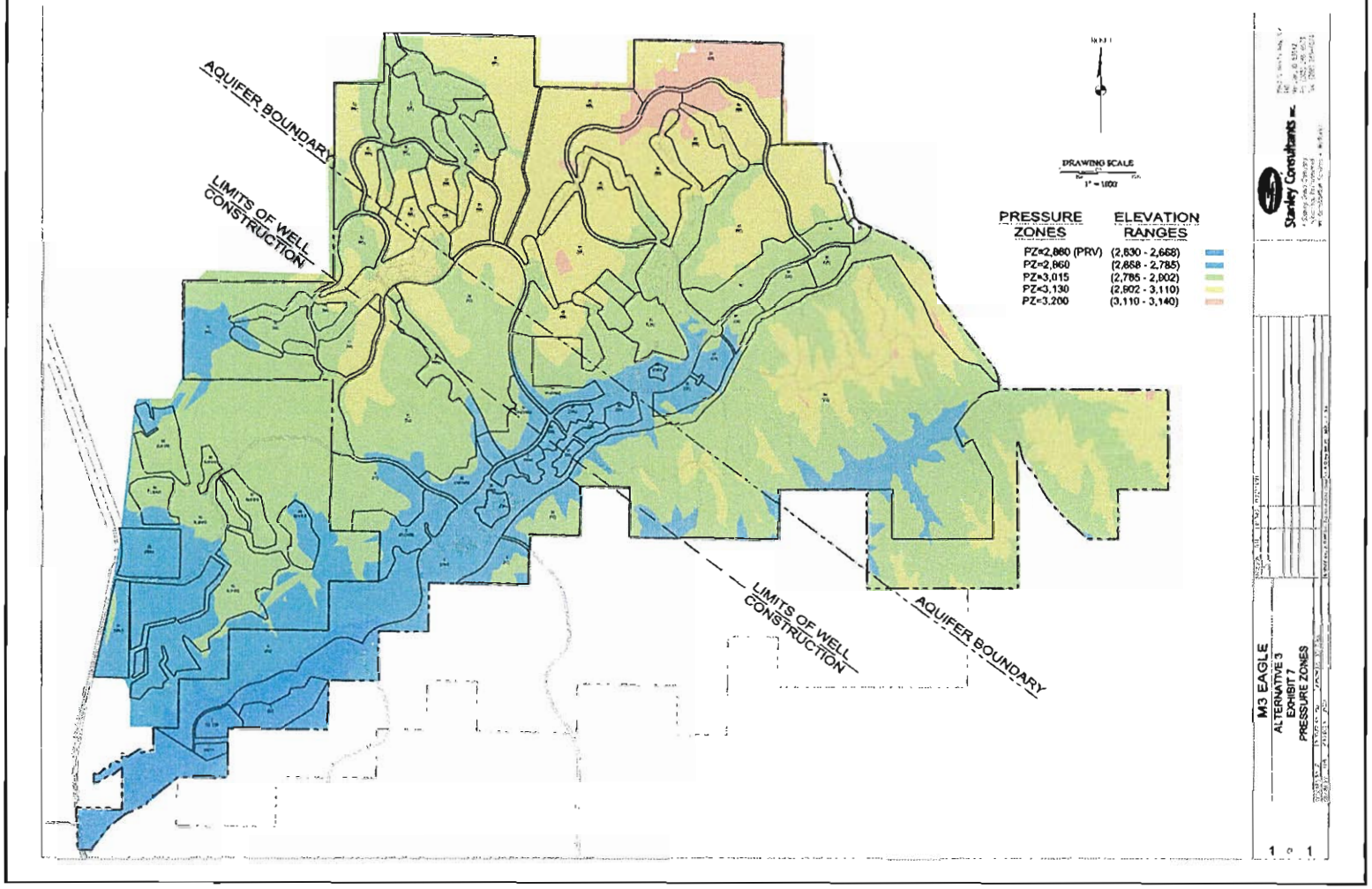
Water Demands

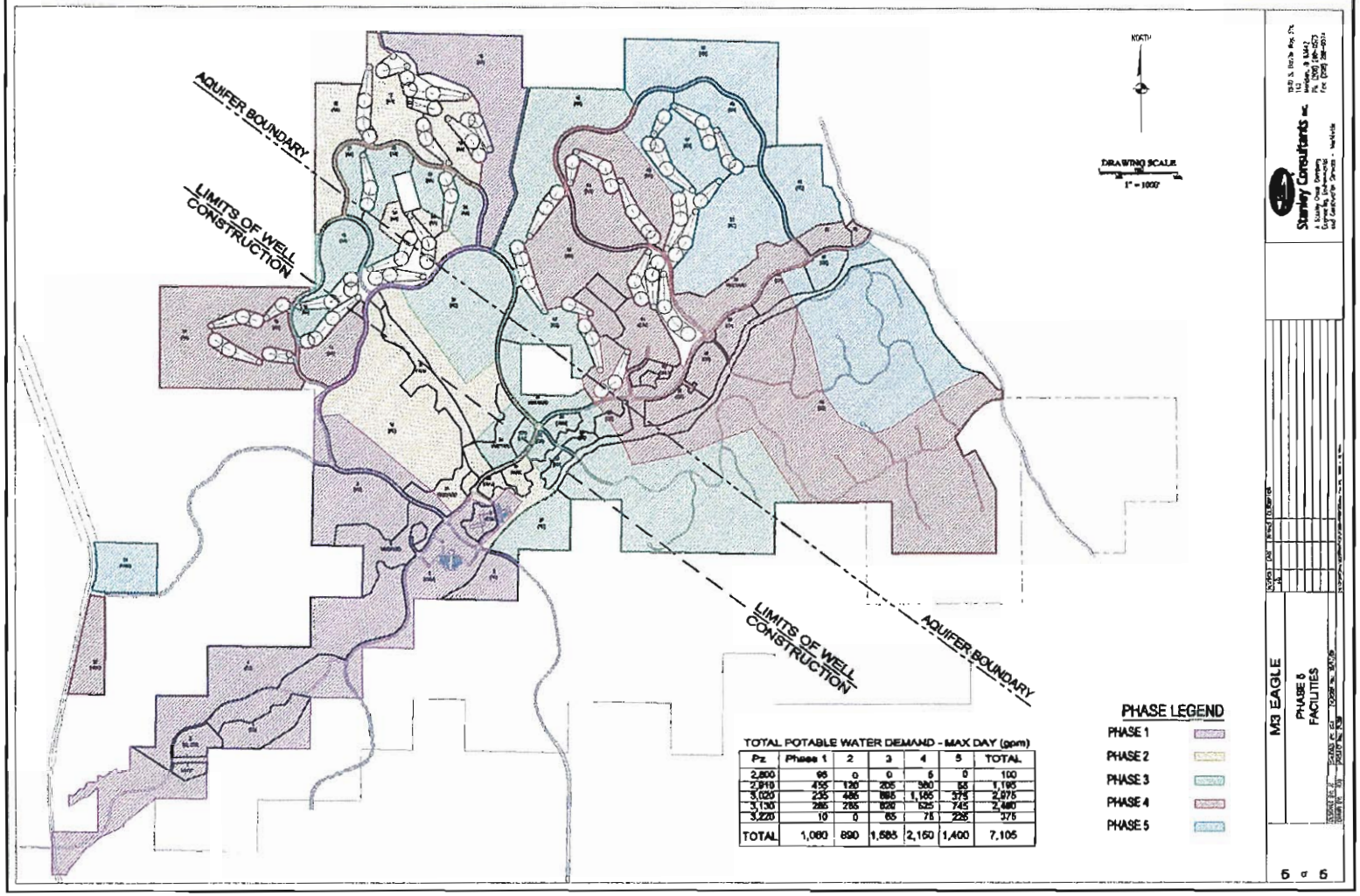
Potable Water Use	Average Day (gpm)	Maximum Day (gpm)	Peak Hour (gpm)
Indoor	1,820	2,730	5,315
Irrigation	1,200	4,375	5,790
Total	**3,020**	**7,105**	**11,105**

* Build-out demands based on M3 Eagle, LLC, Second Amended Application for Water Right Permit (Feb. 2008)
  - Indoor demands based on average days of 276 gpd per residence (7,153 residence), 12 gpd per student (5,480 students), 120 gpd per hotel room (500 rooms), and 1200 gpd per commercial acre (245 acres).
  - Average day & peak hour irrigation demands are based on monthly evapo-transpiriation values from Allen & Brockway (1983).
  - Maximum day irrigation demand based on diversion rate of 0.02 cfs/acre.
* Values rounded to nearest 5 gpm.

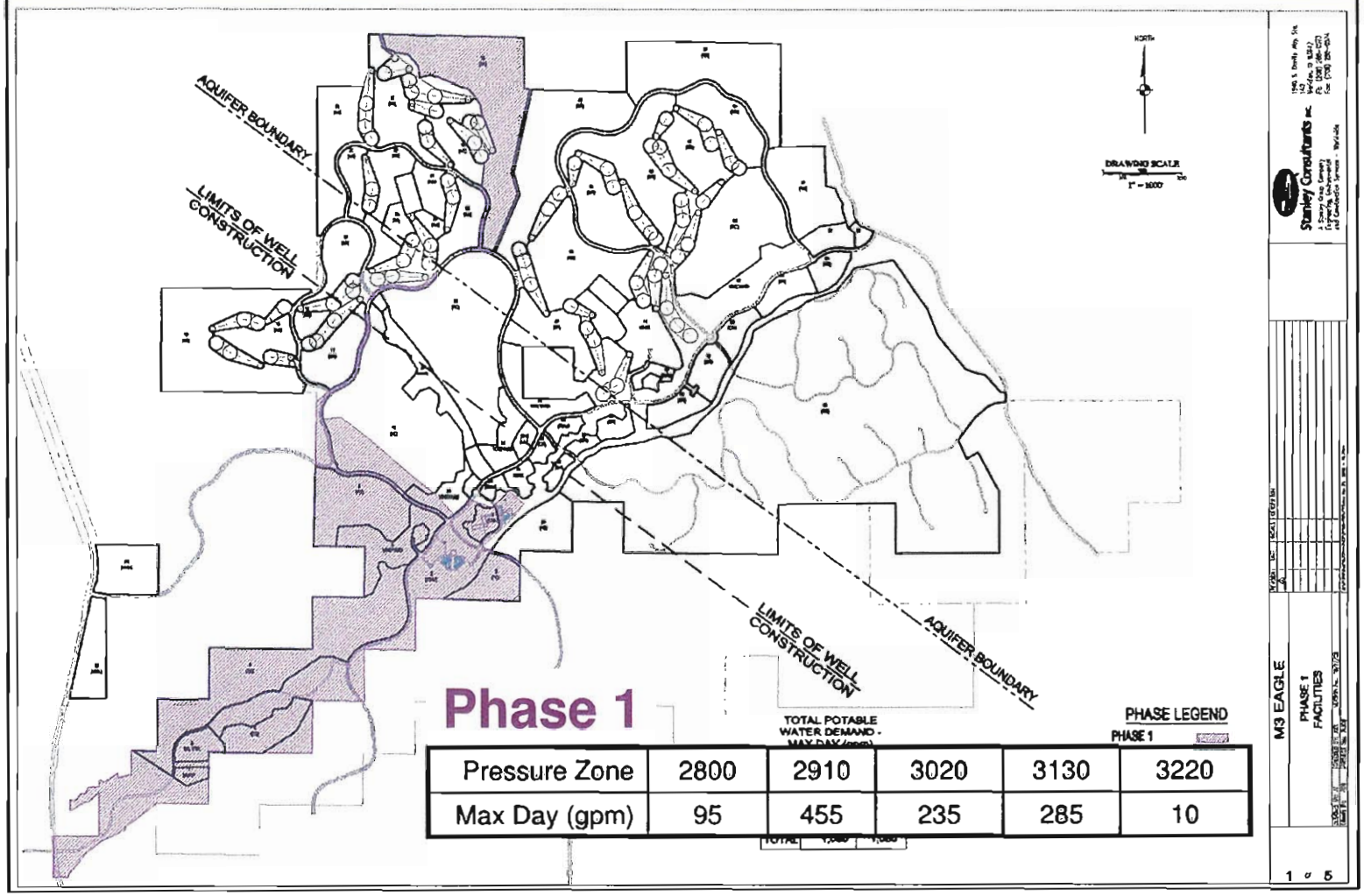
Pressure Zones



Project Phasing



Phase 1



Pressure Zone	2800	2910	3020	3130	3220
Max Day (gpm)	95	455	235	285	10

IDAHO ADMINISTRATIVE CODE

Department of Environmental Quality

552.FACILITY AND DESIGN STANDARDS - OPERATING CRITERIA FOR PUBLIC WATER SYSTEMS.

552-01-a. Minimum Quantity. **The capacity of a public drinking water system shall in no instance be less than eight hundred (800) gallons per day per residence, plus irrigation flows.** (5-3-03), *Presented in IAC 2008, April 17, 2008 Document Creation Date.*

411 gpd/unit *MAXIMUM DAY*

552-01-i **The minimum capacity of eight hundred (800) gallons per day per represents the maximum day demand rate exclusive of irrigation and fire flow requirements.** ( ), *Proposed Rulemaking for Docket No. 58-0108-0801, Vol. 08-8, dated August 6, 2008. April 17, 2008.*

800 gpd/unit *MAXIMUM DAY*

MAXIMUM DAY - WATER APP DOMESTIC UNIT DEMAND (411 gpd/unit)

Pressure Zone	Total Potable Water Demand - Maximum Day (gpm)					
	Phase 1	**Phase 2**	**Phase 3**	**Phase 4**	**Phase 5**	**TOTAL**
2800	95	0	0	5	0	100
2910	455	120	205	360	55	1195
3020	235	485	695	1185	375	2975
3130	285	285	620	525	745	2460
3220	10	0	65	75	225	375
Total	**1,080**	**890**	**1,585**	**2,150**	**1,400**	**7,105**

* Demands based Parcel-Pressure Zone Distribution and 2nd Amended Application for Water Right Permit (Feb. 2008)
* Values rounded to nearest 5gpm
* Units are in Residence

MAXIMUM DAY - IDEQ DOMESTIC UNIT DEMAND (800 gpd/unit)

Pressure Zone	Total Potable Water Demand - Maximum Day (gpm)					
	Phase 1	**Phase 2**	**Phase 3**	**Phase 4**	**Phase 5**	**TOTAL**
2800	115	0	0	5	0	120
2910	570	150	255	445	65	1485
3020	290	600	865	1470	465	3690
3130	355	350	770	655	925	3055
3220	15	0	80	90	285	470
Total	**1,345**	**1,100**	**1,970**	**2,665**	**1,740**	**8,820**

*Demand based on a IDEQ 800 gpm Maximum Indoor Demand, Parcel-Pressure Zone Distribution, and calculations from 2nd Amended Application for Water Right Permit (Feb. 2008)

* Values rounded to nearest 5gpm

* Units are in Residence

PEAK HOUR - WATER APP DOMESTIC UNIT DEMAND (411 gpd/unit)

Pressure Zone	Total Potable Water Demand - Maximum Day (gpm)					
	Phase 1	**Phase 2**	**Phase 3**	**Phase 4**	**Phase 5**	**TOTAL**
2800	150	0	0	10	0	160
2910	715	190	325	560	85	1875
3020	365	760	1085	1850	585	4645
3130	450	440	965	820	1165	3840
3220	15	0	100	115	355	585
Total	**1,695**	**1,390**	**2,475**	**3,355**	**2,190**	**11,105**

* Demands based Parcel-Pressure Zone Distribution and 2nd Amended Application for Water Right Permit (Feb. 2008)
* Values rounded to nearest 5gpm
* Units are in Residence

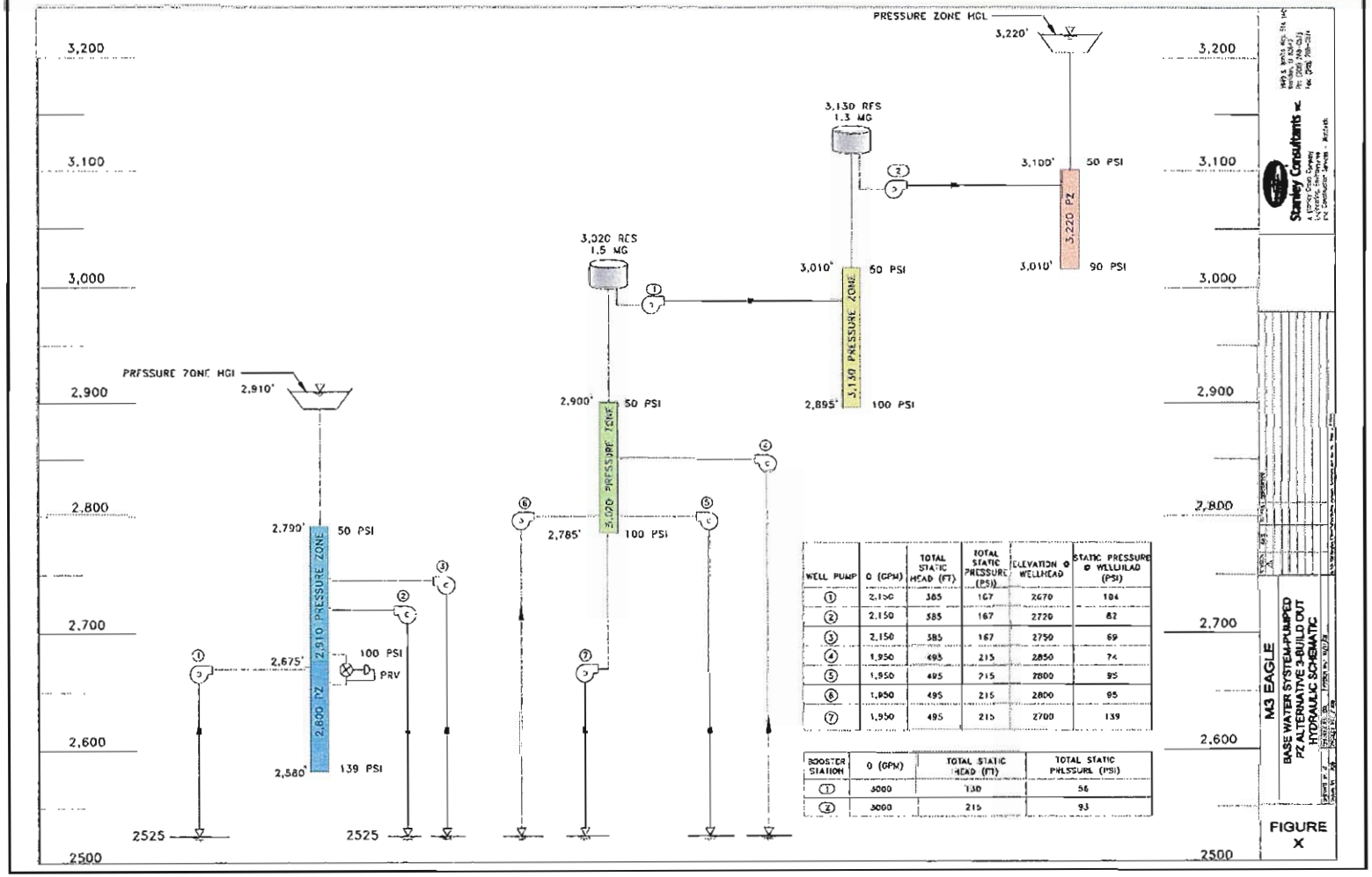
Storage Calculations per Pressure Zone

	Combined Storage	Build-Out Storage by Pressure Zone (Million Gallons)					
		2800	2910	3020	3130	3220	Total
Indoor - Peak Hour (MG)	0.88	0.012	0.149	0.370	0.306	0.047	0.883
Irrigation (MG)	1.02	0.016	0.193	0.478	0.395	0.060	1.142
Fire Flow (MG)	0.54	0	0	0.540	0.540	0	1.080
Pumping Cycle (MG)	0.17	0.002	0.029	0.071	0.059	0.009	0.170
Totals (MG)	**2.62**	**0.03**	**0.035**	**1.41**	**1.26**	**0.11**	**3.16**
Difference	0%	*WA Application Storage Volume (MG) =*		*2.62*			24.8%

Phase 1 Storage Comparison

Pressure Zone	3020	3130-3220
Build-out (MG)	1.5	1.3
Phase 1 - 411 gpm/unit (MG)	0.69	0
Phase 1 - 800 gpm/unit (MG)	0.71	0
Recommendation (MG)	**0.75**	**0**

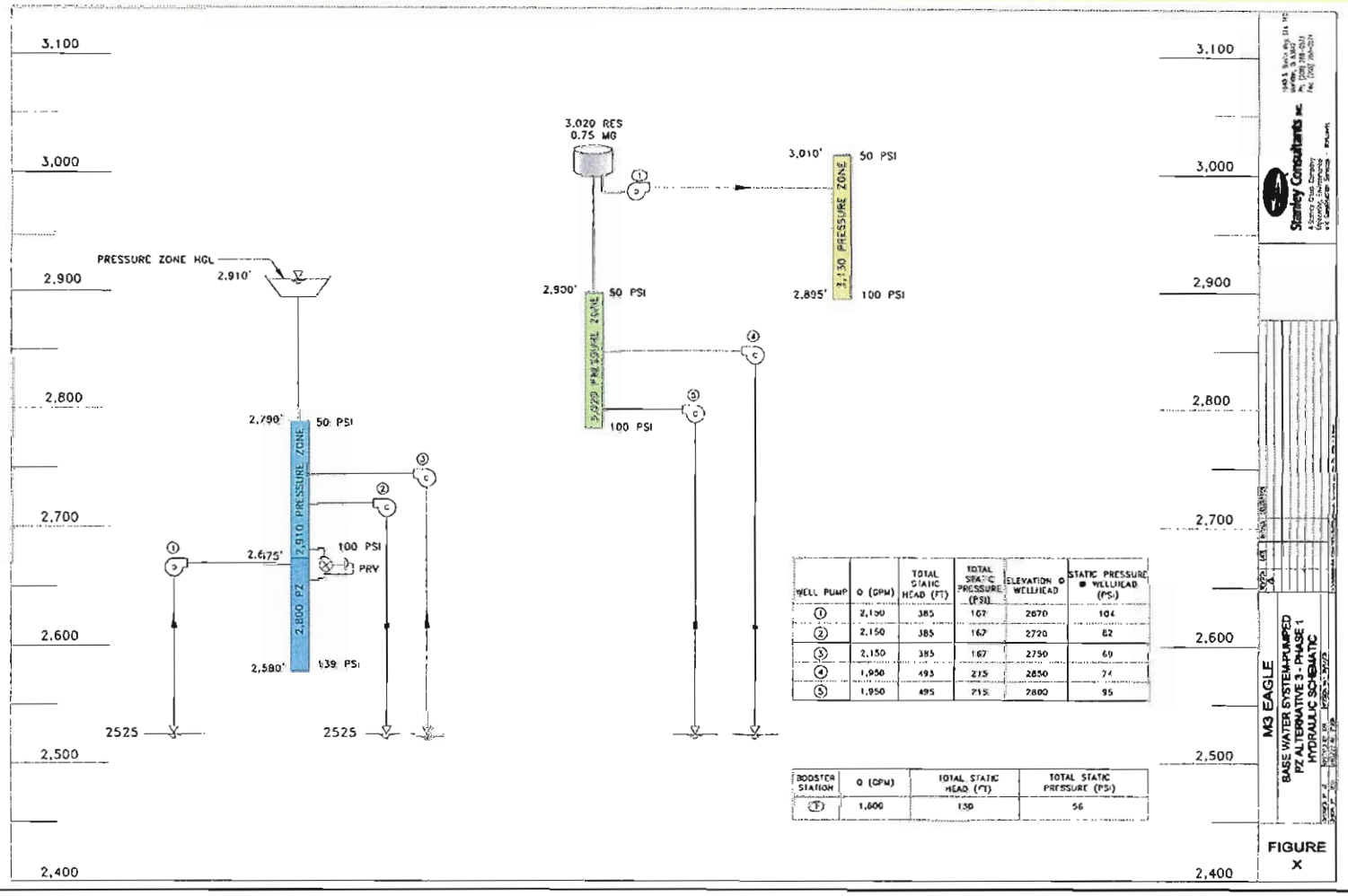
Base Water Plan Schematic



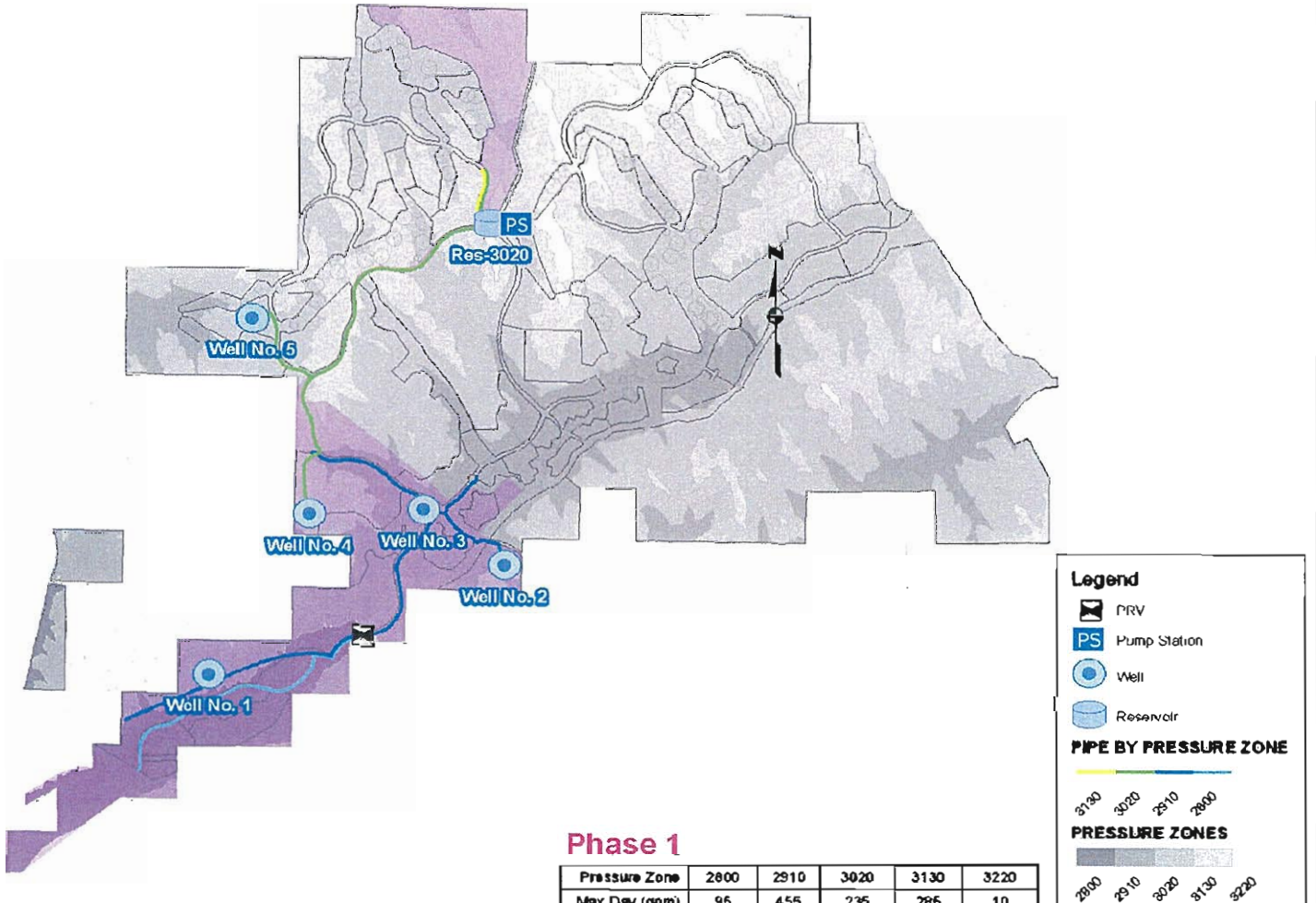
WELL PUMP	Q (GPM)	TOTAL STATIC HEAD (FT)	TOTAL STATIC PRESSURE (PSI)	ELEVATION @ WELLHEAD	STATIC PRESSURE @ WELLHEAD (PSI)
①	2,150	385	167	2670	104
②	2,150	385	167	2720	82
③	2,150	385	167	2750	69
④	1,950	495	215	2850	74
⑤	1,950	495	215	2800	95
⑥	1,950	495	215	2800	95
⑦	1,950	495	215	2700	139

BOOSTER STATION	Q (GPM)	TOTAL STATIC HEAD (FT)	TOTAL STATIC PRESSURE (PSI)
①	3000	130	56
②	3000	215	93

Base Water Plan Schematic – Phase 1



Base Water Plan Layout – Phase 1



Phase 1

Pressure Zone	2800	2910	3020	3130	3220
Max Day (gpm)	95	455	235	285	10

Unit Costs

- Reservoirs
  - Steel
    - 0.75 MG = $600,000
    - 1.50 MG = $900,000
  - Pre-stressed Concrete
    - 0.75 MG = $800,000
    - 1.50 MG = $1,125,000
- PRV Station
  - $140,000 per station
- Pumping Stations
  - 3,000 gpm = $475,000
- Wells
  - Water Application Values
  - Ontario, California

Discussion / Questions

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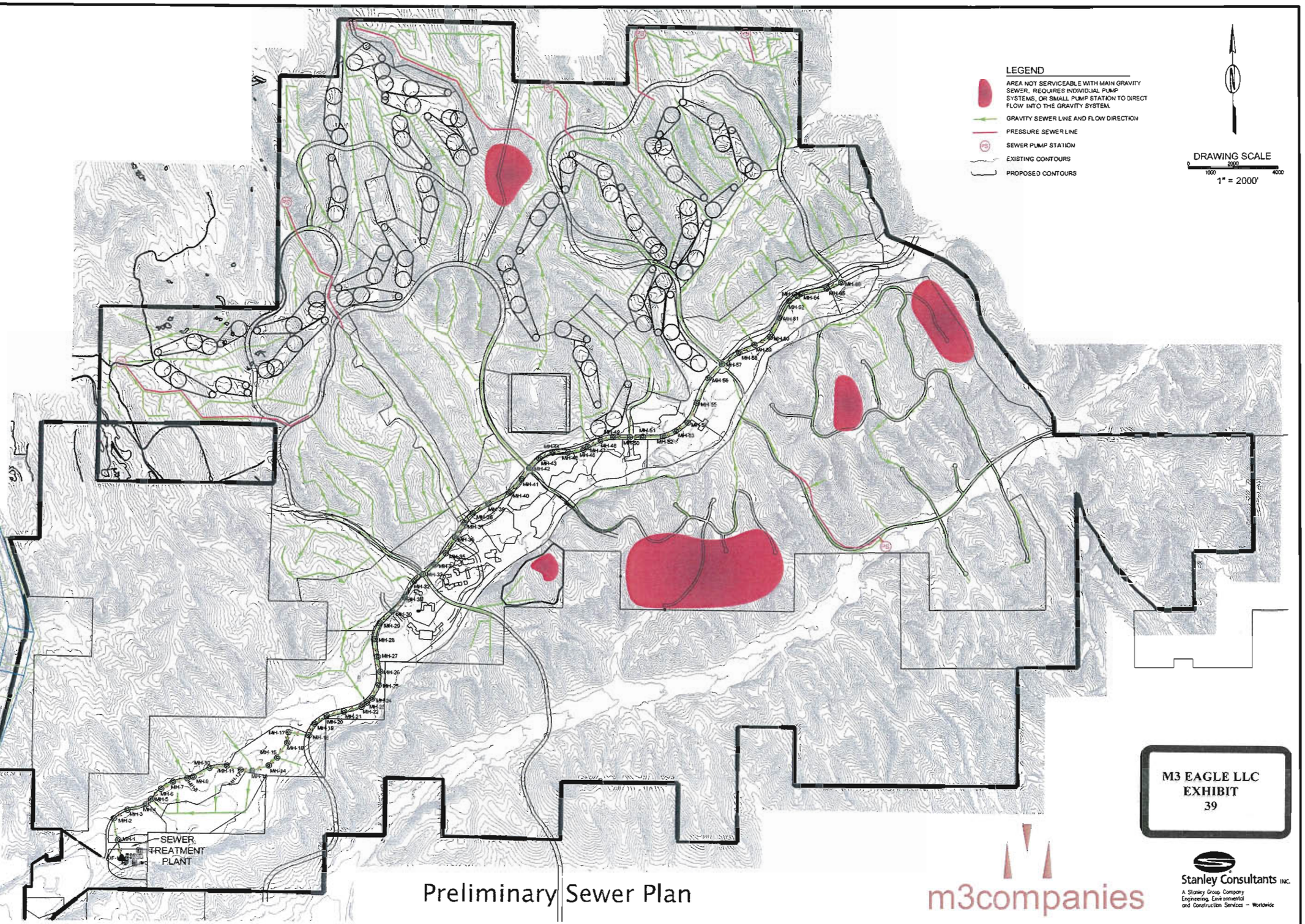

Preliminary Sewer Plan

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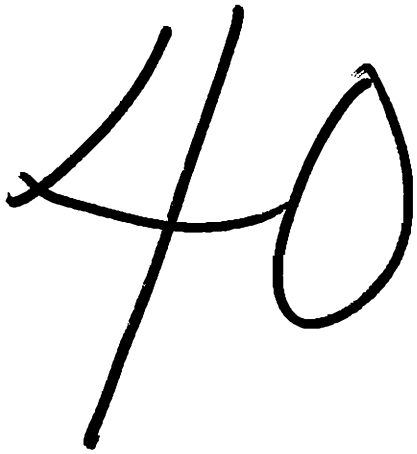
m3companies

Stanley Consultants INC.
A Stanley Group Company
Engineering, Environmental and Construction Services – Worldwide



Idaho Economics

Idaho Economics
PO Box 45694
Boise, ID 83711

Phone (208) 323-0732
Fax: (208) 323-5583
e-mail: ideconomics@earthlink.net

M3-Eagle Development

Demographic Forecast

Economic & Fiscal Impact Analysis

With Appendices A - E, J

October 2008

Updated with 7,153 Housing Units

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Idaho Economics

Idaho Economics
PO Box 45694
Boise, ID 83711

Phone (208) 323-0732
Fax: (208) 323-5583
e-mail: ideconomics@earthlink.net

M3-Eagle Development

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October 2008

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M3-Eagle Development

Economic Impact Analysis & Demographic Forecast

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M3-Eagle Development

Economic Impact Analysis & Demographic Forecast

Significant Findings

- The M3-Eagle Development of residential housing and commercial development is slated to be constructed over a 20 year period. At full build-out of the M3-Eagle Project it is anticipated that nearly 7,153 residential housing units (plus 500 lodging units associated with the commercial development of the project) will have been constructed along with a village center with ample commercial business opportunities that may not only serve the residents of the M3-Eagle Development but also provide services to other existing and future residences that are likely to be nearby.

- It is projected that, at full build-out the M3-Eagle Development will be home to nearly 17,455 persons residing in 7,010 occupied housing units. (While 7,153 residential housing units are slated to be constructed in the M3-Eagle Development, this study anticipates that at any one time nearly 2.0 percent of those housing units, nearly 143 units at full build-out, will be vacant for one reason or another.)

- At full build-out of the M3-Eagle Development it is projected that nearly 81.0 percent of the households within the community will be family households, a characteristic that is similar to the currently existing demographics of the population in the City of Eagle. Furthermore, if the demographics of the future populations residing in the M3-Eagle Development continue to mirror that in the City of Eagle it would follow, and it is projected in this study, that approximately 70.7 percent of the family households with the M3-Eagle Development will be married-couple families.

- In 20 years, it is projected that the M3-Eagle Development will be home for nearly 4,290 children of school age of which 4,050 will choose to attend the public school system. The remaining 240 school age children residing within the M3-Eagle Development are expected to be either home-schooled or attend private schools. This economic impact analysis predicts that in the first five years of the M3-Eagle Development the number of school age children in the development will average 0.69 per household. By the tenth, fifteenth, and twentieth years of the project the number of school age children per household in M3-Eagle is forecasted to decrease slightly to an average 0.64, 0.63, and 0.62 school age children per household, respectively.

- This economic impact analysis of the M3-Eagle Development projects that single-parent family households will, on average, account for nearly 9.8 percent of the total households in the project (about 679 at full build-out) of which 81.7 percent, about 555 households, would be single-parent households with children under the age of 18.

- The number of non-family households in the M3-Eagle Development is projected to comprise close to 19.5 percent (or nearly 1,367) of the project's projected 7,010 occupied housing units in the twentieth year of the project.

- The M3-Eagle Development is forecasted to yield a significant stream of property tax revenues to those public service providers in the area that have property taxing authority. At the end of the first year it is forecasted that M3-Eagle will yield close to $1.60 million in local property taxes. This estimate is based upon the sales of residential building lots, the value of the residential improvements (and also

commercial improvements) that are placed on the property tax rolls at the end of the first calendar year of the project and the residential occupancy tax that will be levied on those residences that occupied for only part of a year. (All property tax estimates are expressed in 2006 dollars.)

- By the fifth-year of the M3-Eagle project it is projected that the development will yield nearly $8.85 million in local property taxes. In the tenth and twentieth years of the project the annual local property tax collections from the M3-Eagle Development are expected to be $20.44 million and $36.99 million, respectively.

- At full build-out of the M3-Eagle Development the projected annual property tax revenues paid by properties within M3-Eagle, at 2006 levy rates, would be:

    - $9.56 million to Ada County,
    - $14.52 million to the Meridian School District,
    - $3.20 million to the City of Eagle,
    - $4.52 million to the Eagle Fire District,
    - $3.57 million to the Ada County Highway District,

  Additional, lesser, amounts will be paid to other property taxing authorities in the area.

- At full build-out of M3–Eagle it is projected that there will be 2,455 persons will be employed within the development. Nearly 1,630 persons will be employed in the commercial floor space developed within M3–Eagle, another 344 persons are projected to be employed by the public schools on or near to the M3–Eagle site, and close to 481 residents of the development are projected to choose to work at home.

- While a first glance the proposed M3-Eagle Development appears to be a development project that may be too big for the Boise market area. However, the M3-Eagle is slated to build its nearly 7,153 residential housing units over a 20 year timeframe – an average annual rate of 358 housing units per year over the 20 year life of the project.

- The projected annual average increase in the number of residential housing units to be built at the M3-Eagle Development is unlikely to overwhelm the local housing market. The M3-Eagle Development will add fewer residential housing units into the Ada County residential housing market in one year (an average of 358 units per year) than the historic average over the past 10 years – 2,632 per year.

- The projected net fiscal impacts (projected additional revenues, using 2006 property tax levy rates, with an adjustment made to the levy rate for the Meridian School District to reflect the effects of the Idaho Legislature's Summer 2006 property tax relief measure) minus the projected additional costs of providing public services) of M3-Eagle are universally positive. In the 20 year period to full build-out of M3-Eagle the projected total net fiscal impact to those public service providers affected by the project would be:

o City of Eagle	+$23.20 million
o Ada County	+$81.98 million.
o Ada County Highway District	+$64.91 million
o Ada County Emergency Medical Services	+$3.18 million
o Eagle Fire District	+$27.40 million
o Meridian Joint School District #2	+$116.18 million

M3-Eagle Development

A Planned Community

Overview

The M3 Companies has proposed the development of a planned mixed use community in Ada County, Idaho that will be incorporated into the city of Eagle, Idaho.

It is the M3 Companies' vision that the development, thereafter called either the M3–Eagle Development or M3–Eagle, would incorporate the amenities of a planned residential community consisting of nearly 7,153 residences along with the development of nearly 1.2 million square feet of commercial/mixed use space. It is anticipated that the M3–Eagle project would be developed over a period of 20 years.

The M3-Eagle Development is planned as a quality residential environment with local recreational opportunities through the project's anticipated development of parks and open space areas. In addition, the development of on-site commercial / mixed-use buildings will provide opportunities for many M3–Eagle residents to be employed within the project.

The M3-Eagle Development's combination of residential housing, along with commercial businesses serving not only the local needs of the residents of the M3-Eagle, but also the needs of a broader regional market, and recreational opportunities within the community can foster an environment that many have thought could only be in our past, an environment of neighborhood and connection. An environment where one can work close to home, or at home. M3-Eagle will be an environment where many of the necessary convenience items needed at home are as near as the local corner grocery store. An environment where there are many recreational opportunities at the local park or play field that is only a few blocks away.

But M3-Eagle will be much more than that. With nearly 1.19 million square feet of commercial/mixed use floor space planned for the development M3-Eagle can offer an environment where one can truly work within their community. To date M3-Eagle is the only development proposal in the Boise Metro area to incorporate a commercial component that can attract and accommodate a medium to large basic industry employer.

In addition, because of the increased capability of the communications technologies that are available today, the number of persons who are choosing to work at home is increasing rapidly. The M3-Eagle Development, along with the existing public service communications providers' will provide the necessary communications technical infrastructure for those M3-Eagle residents desiring the capability for a work-at-home opportunity, as well as the local environmental amenities that will encourage M3-Eagle residents to stay at home.

Purpose

The M3 Companies are seeking development approvals for the M3-Eagle Development. A necessary condition of those approvals is an examination of the potential economic impact that the project may have on local public service providers. It is the desire of all parties, the developer as well as the public service providers, that there are assurances as to the availability and adequacy of the public services and infrastructure and to avoid adverse impacts on existing public facilities and services. Accordingly, a detailed economic impact

analysis of the M3-Eagle Development was performed. This economic impact analysis provides the developer as well as the City of Eagle and the other public service providers with: 1) Annual projections of the population and the number of households as well as the demographic composition of those households, 2) An evaluation of the annual property tax revenues that the M3-Eagle Development will generate for the City of Eagle, the Meridian School District, and other local public service providers with property taxing authority, and, 3) an estimate of the costs that M3-Eagle Development may impose on public service providers in the form of new or increased operating costs or increased infrastructure needs.

In addition, to the extent possible, this analysis will provide estimates of the additional annual maintenance expenses associated with the new or additional public service infrastructure necessary for the provision of electricity; natural gas; telephone; domestic (potable) water supplies; sanitary sewers; streets and roadways; sidewalks and pathways; open spaces, parks, and landscaping; solid waste disposal; drainage and water quality facilities; local libraries; fire protection services; emergency medical services; police protection; and public schools.

One of the objectives of this analysis is to provide both the developer and the affected public service provider with an unbiased view of the probable property tax revenues that the M3-Eagle Development will generate along with an estimate of the cost of public services as a starting point for any negotiations concerning any "mitigation of negative economic impacts beyond the normally expected incremental impacts of development on affected municipalities and other agencies and/or districts."

Therefore, for each of the public service providers examined in this analysis, under the caption of "mitigation, an estimate is made of any potential negative economic externality that could occur to others outside of the by the provision of public services to the development, and a discussion is provided as to the potential need for mitigation measures to offset those negative externalities.

Lastly, the additional maintenance expenses that may be associated with the provision of additional public service infrastructure within the M3-Eagle Development or directly added as a result of the establishment of the M3-Eagle Development, as well those maintenance costs above a normally expected incremental impact are examined as to the need for possible mitigation measures.

Methodology

This M3 Eagle Development Economic Impact Analysis addresses and examines both the initial capital as well as the ongoing operational impacts upon public services. The specific public service providers which have property taxing authority within the area of the proposed M3-Eagle Development are listed below. This analysis will place particular emphasis on those public service providers that currently have, or would have with annexation into the City of Eagle, property taxing authority and provide services to the area where the M3 Eagle Development will be situated.

Those public service providers are:

- The Ada County Highway District providing public services for the post initial construction maintenance of local streets, roadways, and sidewalks.

- Ada County providing law enforcement services to the unincorporated areas of the county, district court, jail, juvenile detention, and police, fire, and paramedic dispatch services to all of Ada County, and general county government administration.

- Ada County Emergency Medical Service providing EMT and ambulance services to county residents.
- The Eagle and Star Fire Districts
- The City of Eagle
- Meridian Joint School District #2
- Ada County Weed and Pest Extermination, and the
- Mosquito Abatement District

In addition, there are other aspects of public services that are quite often of concern to the development authority that are not fully examined or fully discussed within this analysis. In the case of the M3–Eagle Development these could be:

- The provision of public parks and recreation infrastructure and the impact of the development of M3–Eagle on parks, trails, and recreation opportunities external to the M3-Eagle Development as well as the availability and public access to parks, open space, pathways, trails, and landscaping within the M3-Eagle community.
- The potential impact on Ada County's solid waste disposal site at the Hidden Hollow Landfill, and the cost of providing solid waste pick-up, transportation, and disposal service to M3-Eagle.
- The availability and adequacy of central (potable) water systems and sanitary sewer systems for the M3–Eagle Development.
- The potential impact of the M3–Eagle Development on local irrigation water districts and the availability of non-potable irrigation (NPI) water sources to the residents and businesses within the M3–Eagle.
- The impact that M3–Eagle may have on local air & water quality programs.
- The impact that the M3–Eagle Development may have upon the regulated public utilities that will service the residents and businesses within M3–Eagle. These would include services provided by the local electric (Idaho Power Company), natural gas (Intermountain Gas Company), and telephone / communications (Qwest) utilities.

As often is the case with many greenfield planned communities or developments, such as the proposed M3-Eagle Development, they will be served initially by public infrastructure which is financed and constructed by the developer. Only after the developer has provided for the project's initial public infrastructure (roadways, potable water systems, sanitary sewer systems and treatment, and the public utility infrastructure associated with the provision of electricity, natural gas, and telecommunications services) which are so necessary for the successful completion of the project, is the ownership of that public infrastructure ceded to the applicable public service provider. Sometimes, these transitions from developer owned infrastructure to ownership by the local public service provider is done in phases as the development is completed. Nevertheless, it is typically the case that the local public service provider will not incur the initial costs associated with the provision of this public infrastructure and will only experience an increase in its maintenance and repair expenditures after it has obtained ownership.

However, when an addition to capital facilities is indicated, or if the analysis indicates that an incremental increase in a public service provider's operating costs is indicated this

analysis will, when appropriate, identify a cost equivalent to the M3–Eagle Development's share of that cost, where appropriate. For example, if a new elementary school is indicated for the area, that new school would be built with the capacity to serve 600 students. If the M3-Eagle Development only contributed an estimated 200 elementary school students to that school, this analysis would only allocate one-third of those new public service costs to the M3–Eagle project.

In this analysis the estimates of the additional, and ongoing, expenditures that may be incurred by the affected public service provider are estimated by applying cost factors developed from public information sources, from reports filed by those public service entities, or by interviews with knowledgeable officials within those public service entities. Those potential information sources may include: the aforementioned interviews with representatives of the public service provider, annual reports, budgets, or other information supplied to federal or state agencies by the public service provider that is subsequently available in other reporting venues. The cost factors determined in this process are then applied to those variables within the M3–Eagle Development that would be cost determinants for that public service provider. For example: the additional street and roadway maintenance expenses that would be born by the Ada County Highway District would be a function of the number of miles streets or roadways within M3–Eagle.

Forecasts of revenues payable to the public service provider are also developed in this analysis. The major source of revenues for these entities is the property tax. The future property tax revenues generated by the residential and commercial property in the project are estimated by using the developer's estimates of the market price range of each of the different home types proposed for the project and a projection of the number and types of homes to be completed in each year of the anticipated twenty year development timeframe of the project. The forecast of future property tax revenues is discussed in greater detail in a section below.

Time Periods Used in the Population Forecasts and Economic Impact Analysis

The time periods expressed in this analysis represent static "snapshots" of the M3-Eagle Development at a point in time. These point-in-time "snapshots" do not correspond to a particular point or date on a calendar. Rather they are representations of a state of the project at year-end in each year of the anticipated twenty year development timeframe.

As is always the case with a project of this size the initial construction at the M3–Eagle site would not get underway immediately. For example, if the necessary approvals were obtained that granted M3 the right to proceed with the M3-Eagle Development, there would still be a period of time in which bids are solicited, responded to by construction companies, and finally chosen by M3 for the project's initial site preparation work. Additional bids would be solicited, responded to, and chosen for various parts of the project's infrastructure or for other phases of the development.

The uncertainty of the timeframe in which M3 Companies would receive approvals for the project as well as the uncertainty associated with the project's site preparation and the provision of the project's infrastructure makes basing this analysis on estimates of property tax revenues that may be obtained in a particular calendar year impractical.

Therefore this analysis assumes that a period of site preparation and access improvements and infrastructure construction occurs. Thereafter, the construction and sales of new residences would commence. And, after a short period of time for home construction the M3–Eagle Development would see its first move-in of new residents. It is at that point that this analysis assumes the starting of the clock which measures the changes in M3–Eagle's population and the number of households, the projected changes in property tax revenues, and the costs of providing public services to M3–Eagle residents. In this analysis that "Year

1" point in time is one year after the first resident moves into the M3–Eagle – it is not a particular calendar year.

However, because the value of property at year-end is what is certified into the county property tax rolls for the following fiscal year, this analysis presents the value of residential and commercial property at year-end. The population and household estimates as well as the projected demographics of the population are all meant to be year-end figures.

In this case forecasting population in the development so that figures correspond to a "snapshot" of the development in a particular calendar year can be too inflexible, and is subjected to possible delays that may occur as the initial stages of the project are developed. This methodology allows a high degree of forecast flexibility while allowing the forecast to maintain its relevance if there are changes in the development time schedule.

All estimated property values in this analysis are expressed in 2006 dollars. There were no assumptions made as to the growth in future residential and commercial property values within the M3–Eagle Development. In addition, it is assumed that every single family residence and two-thirds of the multi-family residences in the M3 – Eagle development will be the primary residence of its owner/occupant and therefore be eligible for the $75,000 residential property tax exemption. Further, this analysis maintains the value of the commercial property proposed for M3–Eagle at its original construction cost throughout the 20-year period of the analysis.

All of the assumptions mentioned above are conservative and will tend to reduce the projected property taxes that will be forthcoming to those affected property taxing authorities from the M3–Eagle Development.

Population & Demographic Forecasts

The projected future population and households that will reside within M3-Eagle Development are not likely to raise the overall population of Ada County. The M3-Eagle represents an alternative choice for housing and environment for the many people who will in the future either decide to reside or to stay within Ada County.

One could view the addition of planned communities in the Boise MSA (such as Harris Ranch, Avimor, and those proposed at Black's Creek southeast of Boise) as not a sufficient reason for either raising or lowering long-term expectations of the future population and household growth in the area.

The future population within the residences of M3–Eagle would have made a choice to reside in the area and in all likelihood would have made the same choice about living in the Boise MSA if the housing opportunities that the M3–Eagle Development will provide were not available.

The growth of the population in the region is, arguably, the most significant factor driving the demand for growth in public services. However, the composition of the population can have a significant impact on the degree and type of public services that the public demands. For example: a relatively younger population will be less likely, than an older population, to demand increased levels of funding for medical care and emergency medical services. On the other hand, a relatively older population may have little enthusiasm for increases in funding for public education, whereas the younger population, with a higher likelihood of having school age children would.

In other words, the composition of the population is important for determining economic impacts, and especially the economic impacts on many public service providers.

Therefore, the population and household demographic projections performed for M3-Eagle Development were carefully prepared so as to accurately reflect the anticipated future composition of this proposed community.

This analysis used population, household, and demographic parameters from the 2000 Census of the local population in order to capture the demographic composition of the population that may be likely to reside with the M3-Eagle Development.

However, one should match the characteristics that the proposed community will possess with communities or neighborhoods with similar attributes in the local area. Some of the important characteristics that are envisioned for M3-Eagle Development and that are important for drawing comparisons to the demographics of other areas locally are the types of homes in the community and the number of homes of each type, and the projected selling price of each type of new home in the development, and the number of multi-family homes in the development.

While it is known that marketing efforts directed to target a certain demographic may change the future composition of the population in the development they may not capture that market segment. The fundamental truth may be that the underlying characteristics of the population from which the community's new residents are to be drawn will be the determining factor which represents the basis of its future demographic composition.

The homes proposed within M3-Eagle vary in size, amenities, and price. The M3–Eagle Development envisions that there would be, at full build-out of the project, nearly 4,657 residences that would typically be classified as "single family detached" homes. These are the traditional one-residential-building-is-equal-to-one-household home and would account for 65.1percent of the nearly 7,153 residences that are anticipated to be built over the twenty year build-out of the project.

In contrast, statistics from the 2000 U.S. Census reveal that, on average, "single-family detached" homes represented 67.5 percent of the total housing stock in Ada County. The proposed housing mix for the M–3 Eagle Development is more akin to the 2000 Census figures found for the City of Eagle where the "single-family detached" residences accounted for nearly 74.4 percent of the total housing stock. Multi-family housing units within the proposed M–3 Eagle Development are slated to account for the remaining 24.3 percent of the development's housing stock. This figure is greater than the 2000 Census findings for the City of Eagle where 14.2 percent of the total housing stock consisted of multi-family housing units. However, as proposed, the mix of single-family versus multi-family housing units within the M3-Eagle Development is close to the single-family (76.0 percent) versus multi-family (24.0 percent) housing mix found in the 2000 Census figures for the Boise MSA (Ada and Canyon Counties). Within just Ada County the 2000 Census figures indicate that the mix of single-family versus multi-family housing was only slightly different with shares of 74.0 percent versus 26.0 percent, respectively.

The greater proportion of multi-family homes planed for the development, and the different demographic profile found in multi-family housing populations dictates that a projection of future population and demographic profile of M3-Eagle Development can not be strictly constructed from statistics that are reflective of the population and demographic composition that was found for the City of Eagle at the 2000 Census.

However, Idaho Economics expects that with the exception of a differing mix of single-family versus multi-family housing the population and demographic characteristics of the populations that are living in the City of Eagle will approximately reflect the population and demographic characteristics of those that will chose the M3–Eagle Development as a future place of residence. That being said, it is also true that because of the proposed size of the M3 – Eagle Development (at nearly 7,153 residences, or nearly 2.0 times greater than all of the residential housing units in the City of Eagle at the 2000 Census) it is likely that the

population and demographic characteristics of M3–Eagle will be the leading determinant of those characteristics for the City of Eagle.

Another factor that was considered in constructing the projections of the future population and demographics of the M3-Eagle Development was the price of the residential homes that are proposed to be built in the project. Home prices can act as a filter of the population such that future residents of the M3–Eagle community may not have a different demographic composition from that found in the City of Eagle or that found in Ada County as a whole.

Because of these factors it was decided that utilizing 2000 Census demographic averages drawn from the City of Eagle or from Ada County as a whole would not accurately reflect or predict the future population and its demographic characteristics within the M3–Eagle Development. In order to more accurately predict the future population and its composition within the M3–Eagle Development a search was made for smaller areas of Ada County where the composition of the housing stock (single-family versus multi-family) and the value (price) of that housing stock more accurately reflected the future conditions envisioned for the M3–Eagle Development.

Smaller geographic areas of the County were screened and eight areas were selected. For these eight areas population and demographic statistics from the 2000 Census were assembled for an area one-half mile in diameter centered on a judgmentally determined central point within this smaller "surrogate area". Again, these "surrogate areas" are small residential areas of the County that appear to have characteristics that are similar to the residential housing proposed for the M3–Eagle Development.

The choice of these "surrogate" residential areas was based upon them having a similar proportion of multi-family housing, having single family residential housing of newer vintage, housing with the characteristics of similar size and value, and housing within residential developments with a degree of amenities that may be comparable to those that will be found in M3–Eagle. The selected "surrogate" residential areas were then examined using data from the 2000 US Census to develop a profile of the population and households therein. These profiles were then utilized to construct a composite profile of the future population and household characteristics of the M3–Eagle project.

The demographic profiles of these eight "surrogate areas" in Ada County chosen to represent the future composition of the M3–Eagle Development, as well as a comparison of the population and demographic characteristics of the United States, the State of Idaho, the Boise MSA, Ada County, the City of Boise, and the City of Eagle, can be found in Appendix A of this report.

The population forecast, which is summarized in Table 1 below, indicates that at year-end of the twentieth year of the M3–Eagle Development nearly 17,455 of Ada County's citizens would reside within M3–Eagle. However, it is probable that not all of those housing units will be occupied at any one time. A few of the nearly 7,153 housing units projected to be in place in the community at full build-out of the project are likely to be vacant. And, because vacant housing units do not have populations that would need additional public services it is prudent to estimate the number of vacant housing units that may occur.

In order to estimate the number of potentially vacant housing units an examination of single family household vacancy rates was performed by examining the vacancy rates in the US Census Bureau's data obtained for the aforementioned "surrogate areas". The analysis of those residential areas encompassed both new and established single-family home developments. It was decided that for this analysis of vacancy rates only those vacant homes classified by the Census Bureau as either "Vacant for Sale" or "Vacant – Held for Seasonal Use" were to be utilized to determine vacancy rate for the analysis.

At the 2000 Census the average vacancy from the two classifications above was 2.2 percent of the total housing stock in the eight surrogate areas examined. In contrast, the vacancy rate in Ada County as a whole due to those two classifications was 1.8 percent while in the Boise MSA (Ada and Canyon counties) the vacancy rate was 3.1 percent.

A vacancy rate of 2.0 percent was adopted as the likely representation of the future vacancies for the residential housing units in the M3–Eagle Development. In contrast, at the 2000 Census nearly 4.3 percent of Ada County's residential housing units were vacant. Of course, rental housing in Ada County had a much higher vacancy rate – 5.1 percent. But, it was also found from the Census data that owner occupied housing units in the County had a vacancy rate that is quite close to the standard adopted for the M3–Eagle Development, 1.8 percent.

With 2.0 percent of the M3–Eagle housing stock expected to be vacant at any one time there would be nearly 33 vacant housing units out of the nearly 1,666 housing units expected to be in place at M3–Eagle at the end of the fifth year. At year-end of the tenth, fifteenth, and twentieth years it is estimated that 80, 123, and 143 housing units within the M3–Eagle Development will be vacant for one reason or another.

Table 1, below details the projected future annual total number of housing units, the number of occupied and vacant housing units, the expected population, and the number of households in the proposed M3–Eagle Development at year-end for each year of the twenty years until the anticipated full build-out of the project.

Table 1

M3-Eagle Development

Projected Total, Occupied, and Vacant Housing Units, Households, and Population at Year-end

	Projected Housing Units			Population & Households	
Year	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Number of Households	Total Population
1	239	234	5	234	661
2	478	468	10	468	1,312
3	872	855	17	855	2,375
4	1,269	1,244	25	1,244	3,422
5	1,666	1,633	33	1,633	4,447
6	2,063	2,022	41	2,022	5,452
7	2,459	2,410	49	2,410	6,436
8	2,974	2,915	59	2,915	7,706
9	3,489	3,419	70	3,419	8,946
10	4,004	3,924	80	3,924	10,163
11	4,519	4,429	90	4,429	11,426
12	5,034	4,933	101	4,933	12,677
13	5,409	5,301	108	5,301	13,571
14	5,786	5,670	116	5,670	14,458
15	6,164	6,041	123	6,041	15,345
16	6,538	6,407	131	6,407	16,209
17	6,912	6,774	138	6,774	17,069
18	6,992	6,852	140	6,852	17,199
19	7,073	6,932	141	6,932	17,331
20	7,153	7,010	143	7,010	17,455

It is anticipated that during the first five years of the M3–Eagle Development nearly 1,666 housing units will be constructed with a total population of 4,447 residing in the development at year-end of the fifth year. Between the fifth and tenth years it is projected that an additional 2,338 housing units will added bringing the total housing count at year-end of the tenth year to 4,004 with a total projected population of 10,163.

In the five years between the tenth and fifteenth year of the project the pace of housing construction remains strong with the addition of nearly 2,160 housing units and an expected population gain of close to 5,182 over this five-year span. At year end of the fifteenth year of the M3–Eagle development it is expected that 6,164 residential housing units will be in place with a total estimated population of 15,345.

In the last five years before full build-out of the M3–Eagle Development, between the fifteenth and twentieth years, it is expected that 989 addition housing units will be constructed within the M3 Eagle project and that the population residing within the development will increase by an additional 2,110 from year-end levels of the fifteenth year.

In total, at full build-out of the M3–Eagle Development, Idaho Economics predicts that nearly 17,455 persons will be residing in the nearly 7,010 occupied residential housing units within the M3–Eagle community.

The M3–Eagle Development and Ada County's Future Housing Demand:

The initial impression of these projected population and household gains within the M3–Eagle Development may be that the addition of nearly 7,153 housing units and a population gain of close to 17,455 may be impossible. However, the historical statistics of residential housing growth in Ada County during the last fifteen years (1990 – 2005) finds that nearly 68,700 residential housing units have been added to the County's housing stock. If the slate of 7,153 housing units anticipated to be constructed over twenty years at the M3–Eagle Development were compressed into a fifteen year timeframe it would represent only 10.4 percent of the total historical housing additions in Ada County over the past fifteen years. (These historical statistics of housing additions in Ada County are detailed in Appendix B of this report.)

While the M3–Eagle Development is a large project it is not a project that is so large that it will overwhelm the local housing market. Over the twenty year timeframe of the M3–Eagle development nearly 7,153 housing units are expected to be put in place. This represents an annual average addition of nearly 358 housing units in the M3–Eagle Development in each year of the project's twenty year time-frame. Today, that annual average pace of housing growth represents approximately one to one and one-half months of the residential housing permits being issued in the City of Meridian.

Idaho Power Company's Summer 2005 State of Idaho and County Economic Forecasts predict that the number of households in Ada County will increase from approximately 133,500 in 2005 to nearly 242,700 by the year 2030, a net gain of close to 109,000 households and a forecasted population increase of 259,400 over the period.

If one only considers the projected population and household growth in Ada County it is clear that the nearly 7,153 residences planned for the M3–Eagle Development only represent 7.5 percent of the total household additions that are projected for Ada County over the 2005 to 2030 period. Furthermore, if one were to consider the larger region from which a significant number of residents from adjacent counties that make the daily commute to Ada County's employment opportunities the 7,153 residential housing units proposed by the M3–Eagle Development represent a smaller 5.8 percent of the nearly

141,200 households that are expected to be added to Ada, Canyon, and Gem counties over the period 2005 to 2030.

Table 2, provides a summary of the forecasted population and households in five-year increments for the period 2000 to 2030 from Idaho Power Company's Summer 2005 State of Idaho and County Economic Forecasts for Ada, Boise, Canyon, and Gem Counties .

A complete set of the Idaho Power Company Summer 2005 Economic Forecast concepts for Ada, Boise, Canyon, and Gem Counties can be found in Appendix D of this report.

Projected Characteristics of the M3 – Eagle Development.Households:

At full build-out of the M3–Eagle Development there will be nearly 7,010 occupied residential housing units (another 143 housing units are projected to be vacant at any one time) with a total population of nearly 17,455. Based upon the demographic makeup of the surrogate areas used as a guide for the projected demographics of the M3–Eagle Development nearly 80.0 percent, or about 5,643 households, of the projected 7,010 households in the development at full build-out will be family households. The remaining 1,367 households are classified as non-family households. The circumstances of non-family households are most often single persons living alone or two or more unrelated individuals living together.

Table 2

Idaho Power Co. Summer 2005 State of Idaho and County Economic Forecast
Forecasted Population and Households in Ada, Boise, Canyon, and Gem Counties

	2000	2005	2010	2015	2020	2025	2030
Ada County:							
Population:	303,040	346,230	386,720	428,820	479,480	541,180	605,650
Absolute Change from 2005 Population			40,490	82,590	133,250	194,950	259,420
Households:	114,230	133,530	150,410	166,330	187,040	213,490	242,650
Absolute Change from 2005 Households			16,880	32,800	53,510	79,960	109,120
Boise County:							
Population:	6,750	7,580	8,200	8,930	9,730	10,620	11,650
Absolute Change from 2005 Population			620	1,350	2,150	3,040	4,070
Households:	2,630	3,080	3,400	3,730	4,090	4,500	4,910
Absolute Change from 2005 Households			320	650	1,010	1,420	1,830
Canyon County:							
Population:	133,090	161,330	178,500	195,200	212,390	228,110	241,270
Absolute Change from 2005 Population			17,170	33,870	51,060	66,780	79,940
Households:	44,380	57,010	64,950	70,900	76,760	81,500	85,770
Absolute Change from 2005 Households			7,940	13,890	19,750	24,490	28,760
Gem County:							
Population:	15,220	16,200	17,110	18,160	19,180	19,820	20,400
Absolute Change from 2005 Population			910	1,960	2,980	3,620	4,200
Households:	5,550	5,940	6,320	6,690	7,050	7,250	7,430
Absolute Change from 2005 Households			380	750	1,110	1,310	1,490
Total Ada, Boise, Canyon, & Gem Counties:							
Population:	458,100	531,340	590,530	651,110	720,780	799,730	878,970
Absolute Change from 2005 Population			59,190	119,770	189,440	268,390	347,630
Households:	166,790	199,560	225,080	247,650	274,940	306,740	340,760
Absolute Change from 2005 Households			25,520	48,090	75,380	107,180	141,200

Source: Idaho Power Company Summer 2005 State of Idaho and County Economic Forecast

In the first five years of the M3–Eagle Development it is projected that the average household size for all households will be approximately 2.79 persons per household, for family households in the development the average household size during the first five years is an estimated 3.18 persons per household with the non-family households having a smaller average of 1.57 persons per household.

At the outset of the M3–Eagle Development, the projected number of average persons per household and the average number of persons per family household are somewhat lower, but similar, to the figures found for the City of Eagle in the 2000 Census – 2.98 average persons per household and 3.51 and 1.59 as the average number of persons per family and non-family household, respectively. And while the City of Eagle's average person per household is anywhere from 7.0 to 12.0 percent higher than the average number of persons per household in the State of Idaho, or the Boise MSA, Ada County, or the City of Eagle it is not a phenomenon that is likely to hold in the long-term.

There appear to be two major underlying factors behind the City of Eagle's higher than average number of persons per household in the 2000 Census figures. First, is the fact that the number of multi-family housing units in the City of Eagle is much smaller than that found in the county or any other city that is nearby. Close to 74.4 percent of the total housing stock in the City of Eagle at the 2000 Census was considered to be single-family detached. Secondly, the City of Eagle has been successful in attracting married-couple families to reside in the community. Figures from the 2000 Census indicate that 80.8 percent of the households in the City of Eagle were classified as family households and that 70.7 percent of all households in Eagle were married-couple families. Both of these percentages are at least 10.0 percent higher than the shares found in either the State of Idaho, or the Boise MSA, or within Ada County.

However, with an ever growing population it is seems unlikely that those higher than average persons per household figures can be maintained in the long-term. First, the number of multi-family housing units proposed for M3–Eagle will, in the longer-run, bring the mix of single family detached housing versus multi-family housing more into line with the shares that are found in other nearby areas of Ada County. Secondly, the overall trend in the number of persons per household is declining in Idaho and across the nation. Neither the area around the City of Eagle nor M3–Eagle will be immune from this trend. Therefore, this analysis assumes that the average persons per family household, per non-family household, and as a result the average overall number of persons per household in the M3–Eagle project will decline over time and approach levels that are closer to those expected for the State of Idaho and Ada County as a whole.

Table 3

M3-Eagle Development

Projected Total Households, Family & Non-Family Households, and Annual Average Persons per Family & Non-Family Household

Year	Total Number of Households	Number of Family Households	Number of Non-Family Households	Average Persons Per Family Household	Average Persons Per Non-Family Household
1	234	188	46	3.13	1.59
2	468	377	91	3.10	1.58
3	855	689	167	3.07	1.56
4	1,244	1,002	243	3.04	1.55
5	1,633	1,315	318	3.01	1.53
6	2,022	1,627	394	2.98	1.52
7	2,410	1,940	470	2.95	1.50
8	2,915	2,347	568	2.92	1.49
9	3,419	2,752	667	2.89	1.47
10	3,924	3,159	765	2.86	1.46
11	4,429	3,565	864	2.85	1.45
12	4,933	3,971	962	2.84	1.45
13	5,301	4,267	1,034	2.83	1.44
14	5,670	4,564	1,106	2.82	1.44
15	6,041	4,863	1,178	2.81	1.43
16	6,407	5,158	1,249	2.80	1.43
17	6,774	5,453	1,321	2.79	1.42
18	6,852	5,516	1,336	2.78	1.41
19	6,932	5,580	1,352	2.76	1.41
20	7,010	5,643	1,367	2.75	1.40

The forecasted average number or persons per household within M3–Eagle is expected to decline from an average of 2.83 in the first year to an average of 2.49 persons per household in the twentieth year of the project. The number of persons per family household within M3–Eagle is also expected to decline in a similar fashion from a first year average of 3.13 persons per household to 2.75 in the twentieth year of the project. The forecasted annual average number of persons per family household, per non-family household, and the average number of persons per household for all households within M3–Eagle are shown below in Tables 3 and 4.

Also shown in Table 4 are projections of the annual average number of school age children residing in M3–Eagle for the first twenty years of the project. Estimates are also shown in Table 4 of the annual number of those school age children that would be likely to attend public and private school systems.

Table 4

M3-Eagle Development

Projected Total Population, Family & Non-Family Populations, and Children Attending Public and Private Schools at Year-end

	Projected Total Population and Populations in Family & Non-Family Households			Projected School Attendance at Public & Private Schools		
Year	Total Population	Family Household Population	Non-Family Household Population	School Age Population	Children in Public Schools	Children in Private Schools
1	661	589	72	162	153	9
2	1,312	1,168	144	322	305	17
3	2,375	2,115	260	583	551	32
4	3,422	3,047	375	840	794	46
5	4,447	3,960	487	1,092	1,032	60
6	5,452	4,855	597	1,339	1,266	73
7	6,436	5,731	705	1,581	1,494	87
8	7,706	6,862	844	1,893	1,789	104
9	8,946	7,966	980	2,198	2,077	121
10	10,163	9,049	1,113	2,496	2,359	137
11	11,426	10,170	1,256	2,807	2,652	155
12	12,677	11,283	1,393	3,114	2,943	171
13	13,571	12,079	1,492	3,334	3,150	184
14	14,458	12,869	1,589	3,552	3,356	196
15	15,345	13,658	1,687	3,769	3,562	207
16	16,209	14,428	1,782	3,982	3,763	219
17	17,069	15,193	1,876	4,193	3,962	231
18	17,199	15,309	1,891	4,225	3,993	232
19	17,331	15,426	1,905	4,257	4,023	234
20	17,455	15,536	1,919	4,290	4,050	240

Table 5, below, summarizes the projections of the annual number of households within M3–Eagle broken out by household size, the number of persons residing in a household. This delineation of the projected number of households indicates that at full build-out nearly 1,164, or 16.6 percent, out of the projected 7,010 occupied housing units are likely to be occupied by single person households. Two person households are predicted to account for nearly 2,399, or nearly 34.4 percent, of the nearly 7,010 occupied housing units at full build-out of the M3–Eagle Development. In total, single person and twp person households are expected to occupy nearly 51.0 percent of the residential housing projected for at the M3 – Eagle project.

Three, four, and five person households are projected to account for 45.1 percent of the total households at full build-out of the project, with 5+ person households accounting for the remaining 4.1 percent. (Appendix C of this report provides additional detail of the forecasted population and households that are expected to occur within M3–Eagle over its twenty year timeframe to full build-out.)

Table 5

M3-Eagle Development

Projected Number of Households by Size at Year-end

	Number of Households by Size of Household							
Year	Total Households	1 Person	2 Persons	3 Persons	4 Persons	5 Persons	6 Persons	7+ Persons
1	234	39	80	38	47	21	7	2
2	468	78	160	76	93	41	14	5
3	855	142	293	140	171	75	26	9
4	1,244	207	426	203	248	110	39	12
5	1,633	271	559	267	326	144	51	16
6	2,022	336	692	330	403	178	63	20
7	2,410	400	825	394	481	212	75	24
8	2,915	484	998	476	581	257	90	29
9	3,419	568	1,170	558	682	301	106	34
10	3,924	652	1,343	641	782	345	122	39
11	4,429	736	1,515	723	883	390	137	44
12	4,933	819	1,688	805	983	434	153	49
13	5,301	881	1,814	866	1,057	467	164	53
14	5,670	942	1,940	926	1,130	499	176	57
15	6,041	1,004	2,067	987	1,205	532	187	60
16	6,407	1,064	2,192	1,046	1,277	564	198	64
17	6,774	1,125	2,318	1,106	1,351	596	210	68
18	6,852	1,138	2,345	1,119	1,366	603	212	68
19	6,932	1,152	2,372	1,132	1,382	610	215	69
20	7,010	1,164	2,399	1,145	1,398	617	217	70

In Table 6, the projections of the annual number of households within M3–Eagle are further delineated with estimates of the annual number of households by age of the head of the household.

Table 6

M3-Eagle Development

Projected Number of Households at Year-end by Age of Head of Household

Year	Total Households	Projected Number of Households by Age of Head of Household						
		Age <25	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 65-74	Age 75+
1	234	3	34	69	62	29	17	19
2	468	6	69	139	124	57	34	39
3	855	10	126	254	226	105	62	71
4	1,244	15	183	370	329	153	91	104
5	1,633	20	240	486	431	201	119	136
6	2,022	24	298	601	534	248	147	169
7	2,410	29	355	717	637	296	176	201
8	2,915	35	429	867	770	358	213	243
9	3,419	41	503	1,017	903	420	249	285
10	3,924	47	577	1,167	1,036	482	286	327
11	4,429	53	652	1,317	1,170	544	323	370
12	4,933	59	726	1,467	1,303	606	360	412
13	5,301	64	780	1,577	1,400	651	387	442
14	5,670	68	834	1,686	1,498	697	414	473
15	6,041	73	889	1,797	1,596	742	441	504
16	6,407	77	943	1,905	1,692	787	467	535
17	6,774	81	997	2,015	1,789	832	494	565
18	6,852	82	1,008	2,038	1,810	842	500	572
19	6,932	83	1,020	2,062	1,831	852	506	578
20	7,010	84	1,032	2,085	1,852	861	511	585

Employment within the M3 – Eagle Development

The M3–Eagle Development is planned to have nearly 1.19 million square feet of commercial business space within its boundaries. Commencing in the fourth and fifth years of the project M3–Eagle has proposed to have in place each year 130,000 square feet of village center/mixed use commercial space. And again in the eighth and ninth year of the project another 260,000 square feet of commercial business is space is proposed to be added each year.

Commercial business space is proposed to be added to the project in a phased fashion as the development progresses toward full build-out in the twentieth year. It is envisioned and it is possible that this commercial business space would not only be local-serving retail and service industries but also be the location of larger, regional serving businesses.

A current example of this sort of development within Ada County may be the Silverstone and El Dorado business parks that are currently being developing in Meridian at the southern corners of Eagle and Overland Roads. In the Silverstone and El Dorado examples there a mix of local serving retail establishments developed or in the process of being developed. These are eating and drinking places, banks, credit unions, and entertainment venues. At the same time these two business parks are the location of some basic industry firms that employ local workers to serve markets that are much larger than just the local area, Ada County, or the State of Idaho. Along with those firms, and because of its nearby

access to the interstate highway a series of hotels and lodging places have also developed with the area (There are currently three hotels under construction near the intersection of Eagle and Overland Roads, two within the business parks, one just outside.)

Similarly, the M3–Eagle Development is a potential site of future commercial development of this kind. Underlying this potential is: First, the already ongoing population and household growth along the State Street corridor in West Eagle, Star, and Middleton in Canyon County. In addition, State Highway 16 – the Emmett highway, has become a major commuter route for the increasing number of residents in Gem County who are employed in Ada County businesses. The second underlying factor for success here is the gravity of the proposed M3–Eagle Development. A community of nearly 7,000 households, such as M3-Eagle, will attract significant numbers of local serving retail and service firms to the area. One only has to look to the west near the intersection of Eagle Road and State Street in Eagle to see an example of the gravitational attraction of a well thought out and fast growing community.

The proposed commercial space at the M3–Eagle Development also represents a significant employment potential for the residents of not only M3–Eagle but for all of Northwest Ada County.

Idaho Economics has made estimates of the potential employment at the commercial space proposed for the M3–Eagle Development. This was done by using parameters of the average number of employees per square foot of commercial floor space by type of commercial activity. These parameters were developed by the U.S, Department of Energy using rigorous surveys of commercial buildings, in various industries, in different regions if the United States for the purpose of estimating energy use in commercial buildings. The Department of Energy updates its parameters on a periodic basis in order to keep them current with new building and employment trends. The parameters used in this analysis are the most current (of 1999 vintage) that are publicly available and are specific to the states in the Western US. Table 7, below, shows these parameters in terms of number of square feet of commercial floor space per employee in various commercial businesses or institutions.

Table 8 utilizes these parameters to estimate the total employment within the 1.19 million square feet of commercial floor space in the M3–Eagle Development at full build-out of the project in the twentieth year. It is estimated that there could be as many as 1,630 persons employed in the commercial space provided in the M3–Eagle Development at full build-out. In addition, because of the nearly 4,050 public school students projected to reside within M3–Eagle the public schools at the site also represent a significant source of employment within the project – an estimated 344 jobs at full build out of the M3–Eagle Development.

Table 9, below, provides an annual breakout of the estimated employment at the developed commercial space in M3–Eagle as well as an estimate of the number of persons that would be employed at the public schools that be within the community. The public school employment is initially brought into the projections in a series of steps that are roughly equivalent to the enrollment and employment parameters necessary to open an elementary school in the M3–Eagle Development. However, after the eleventh year of the project the estimated public school employment is based upon the 2005 Meridian School District averages of 1 certified staff person for every 19 children enrolled and 1 uncertified staff for every 31 children enrolled.

Table 7

Commercial Buidings

Western US Average Sq. Ft. per Employee by Building Type

Building Type	Sqaure Footage per Employee
Religious Worship	2,059
Lodging Facilities	1,919
Warehouse & Storage	1,685
Public Assembly	1,396
Retail (other than shopping Malls)	1,021
Food Sales (Grocery Stores)	1,014
Education	969
Mercantile Stores (All)	913
Other Commercial Buildings	841
Enclosed & Strip Malls	838
All Commercial Facilities	823
Service Providing Facilities	744
Public Order & Safety	686
Inpatient Heath Facilities	557
Health Care (All)	469
Food Service Establishments	459
Office Facilities	416
Outpatient Health Facilities	367

Source: U.S. Dept. of Energy, Energy Information Admin., 1999 Commercial Energy Consumption Survey

Table 8

Projected Employment at the Proposed M3-Eagle Development

Village Center, Mixed-Use and Commercial Buildings plus Public School Facilities at Full Build-out

Building Type	Square Feet	M3 - Eagle Estimated on Site Employment
Community Center	22,000	20
General Commercial	405,000	490
Food Sales (Grocery Stores)	128,000	160
Retail	195,000	250
Office Space	205,000	255
Restaurant	25,000	90
Office Space (Outpatient Health)	103,000	260
Lodging Facilities	45,000	45
Convenience Store	12,000	10
Public Order & Safety	10,000	20
Religious Worship	40,000	30
Total Sq. Ft. or Employment	1,190,000	1,630
Employment at Local Schools*		344
Total Projected Employment		1,974

* With the projected public school enrollment from Table 4, above, and 2005 Meridian School District averages of 1 certified staff for every 19 children and 1 non-certified staff member for every 31 students.

Furthermore, Table 9 also incorporates an estimate of the number of M3-Eagle residents that would work at home. At the 2000 Census nearly 4.6 percent of the employed working-age residents of Idaho worked from home. In Ada County, at the April 2000 US Census the percentage of persons working at home was a slightly lower 4.2 percent while in the City of Eagle it was a significantly higher 5.5 percent. Nationwide the percentage of employed working-age residents that worked at home was 3.2 percent at the 2000 Census benchmark.

The number of residents in M3–Eagle that are projected to work at home increases steadily as the population of the development increases throughout the twenty years until project build-out. At the end of the first year 18 residents of M3–Eagle are projected to work from home. By the end of the fifth year the projected number has increased to 90, and by the tenth and fifteenth year of the project the estimated number of M3–Eagle residents working at home has increased to 280 and 422, respectively. At full build-out of the development Idaho Economics estimates that 481 employed working-age residents of M3–Eagle will work from home.

In total, Idaho Economics estimates that at the end of the fifth year of the project the number of persons employed in the commercial floor space developed within the boundaries of the M3–Eagle Development will reach nearly 90. By the tenth and fifteenth year of the development onsite employment at the commercial space within M3–Eagle will reach 470 and 1,110, respectively. At full build-out of the project it is projected that nearly 1,630 persons will be employed within the commercial floor space developed in M3–Eagle. Another 344 persons are projected to be employed by the public schools on or near to the M3–Eagle site, and close to 481 residents of the development are projected to choose to work at home. In total, at full build-out of the M3–Eagle Development it is projected that nearly 2,455 persons will be employed therein.

Table 9

Employment at the M3-Eagle Development

Projected Employment in Developed Commercial Space at M3 - Eagle plus the Estimated Number of M3 - Eagle Residents Working at Home and Public School Employment on the M3 - Eagle Site by Year

Year	Projected Total Commercial Floor Space (Square Feet)	Estimated Total Commercial Employment	Estimated Number of Persons Working at Home	Projected Public School Employment	Estimated Annual Total Employment at the M3 - Eagle Site
1	0	0	18	0	18
2	0	0	36	0	36
3	23,000	0	66	47	112
4	46,000	60	94	67	222
5	69,000	90	123	88	300
6	92,000	130	150	107	387
7	115,000	160	177	127	464
8	190,000	260	212	152	624
9	265,000	360	246	176	782
10	340,000	470	280	200	949
11	415,000	570	314	225	1,109
12	490,000	670	349	249	1,268
13	602,700	830	374	267	1,470
14	707,100	970	398	284	1,652
15	811,500	1,110	422	302	1,834
16	915,900	1,250	447	319	2,015
17	1,020,300	1,400	470	336	2,207
18	1,114,700	1,530	474	339	2,343
19	1,190,000	1,630	478	341	2,449
20	1,190,000	1,630	481	344	2,455

Forecasted Property Tax Revenues

A forecast of the property tax revenues that would be generated by the residential and commercial properties in the M3-Eagle project was prepared in order to properly evaluate the fiscal impacts on the affected public service providers.

In order to evaluate future property tax revenues a projected phasing of residential home construction, by type of home with its respective average price, was provided by the developer to Idaho Economics. In addition, a phasing of the construction of the project's commercial buildings, along with their estimated construction cost was also provided.

For each year of the proposed twenty year build-out of the M3–Eagle Development an estimate was made of the value of the construction put in place during that year in order to determine the year-end cumulative value of the land sold and the residential or commercial improvements upon that land.

To determine the applicable property taxes that would be assessed upon the M3–Eagle Development's residential property an examination was made at annual calendar year-end intervals after the initial move-in of the development's first residents of the market value

(assuming the developer supplied estimated average selling price by home type) of the number of occupied and vacant homes that were completed, but not developer owned, that were in the project's housing stock. This total value of the housing stock within M3-Eagle represents the estimated total market value of the residential properties at that point in time.

Using those figures, the number of completed homes at year end, an adjustment was made to the market value of those completed homes to account for the Idaho's homeowner's property tax exemption. In Idaho, an owner occupied residential property is entitled to a property tax "homeowner's exemption" equal to either 50 percent of the value of the residential improvements on the land or $75,000, which ever is less. Given the estimated home prices supplied by the developer and the difference between this estimated market price for the completed home and the estimated market price for the residential building lot on which it is erected This analysis assumes that every residence in the M3–Eagle Development would qualify for a $75,000 homeowners exemption if it was "owner occupied". In other words, 50.0 percent of the value of the residential improvements was greater than property tax exemption maximum of $75,000. Therefore, in this analysis, a $75,000 homeowner's property tax exemption is assumed to apply to every residential property as if it were "owner occupied".

In order, to maintain a conservative estimate of the future residential property tax revenues that would be received from the M3–Eagle project it was assumed that all single-family residential properties within the development (owner occupied or not, occupied or vacant) would qualify for the maximum $75,000 residential homeowners property tax exemption. In the case of the multi-family residential housing units proposed for M3-Eagle it is assumed in this analysis that two-thirds of the multi-family housing units would qualify for the $75,000 maximum of the homeowner's residential property tax exemption. The remaining one-third of the multi-family housing units slated for the development are consider not to be "owner occupied" and therefore would not receive the property tax exemption. The subtraction of the homeowner's property tax exemption to the property's residential market value yields the property's "assessed value" -- the value that is subjected to the residential property tax.

Table 10, below, shows the forecasted number of calendar year-end residential housing units that are projected to be in place at the M3–Eagle Development for each year of the estimated twenty year build-out of the project, and the estimated total market value of that residential property, and the total assessed value of those properties against which the local property tax levy is applied to determine the annual property tax.

The commercial properties at the M3-Eagle Development would be built in stages over the twenty year period to full build-out of the project. It was assumed that the construction cost of the commercial properties was the "assessed value" that would be subjected to the local property tax. This represents a conservative assumption in that commercial property can also be valued and assessed for property tax purposes based upon the income stream that the property may produce annually. This second method usually yields a higher assessed value for the property and subsequently a higher annual property tax revenue stream that what is being assumed in this analysis. In addition, the market value much of the fixtures and equipment in commercial businesses are treated as personal property and are separately assessed another form of the local property tax. This analysis does not make any projections as to the annual personal property tax revenues that may in reality be forthcoming from the commercial properties envisioned to the M3–Eagle Development.

Table 10

M3-Eagle Development

Projected Number of Residential Properties in Place at Year-end, the Estimated Total Market Value of Those Properties, and the Estimated Total Assessed Value of the Property

Year	Projected Number of Residential Properties Completed	Estimated Total Market Value of Completed Residential Properties ($ x 1,000)	Minus the Total Value of the Homeowners Property Tax Exemption ($ x 1,000)	Estimated Total Assessed Value of Completed Residential Properties ($ x 1,000)
1	239	$134,950	($17,893)	$117,057
2	478	270,142	(35,852)	234,290
3	872	492,543	(65,432)	427,111
4	1,269	717,565	(95,190)	622,375
5	1,666	942,586	(124,947)	817,639
6	2,063	1,167,608	(154,705)	1,012,903
7	2,459	1,393,091	(184,462)	1,208,629
8	2,974	1,669,889	(223,070)	1,446,819
9	3,489	1,946,686	(261,677)	1,685,009
10	4,004	2,223,484	(300,285)	1,923,199
11	4,519	2,500,281	(338,892)	2,161,389
12	5,034	2,776,867	(377,513)	2,399,354
13	5,409	2,990,036	(405,687)	2,584,349
14	5,786	3,202,141	(433,942)	2,768,199
15	6,164	3,416,046	(462,316)	2,953,730
16	6,538	3,628,666	(490,340)	3,138,326
17	6,912	3,841,286	(518,364)	3,322,922
18	6,992	3,893,969	(524,429)	3,369,540
19	7,073	3,946,651	(530,493)	3,416,158
20	7,153	$3,998,844	($536,476)	$3,462,368

Table 11, below, shows the projected annual cumulative number of square feet of commercial floor space that is expected to be in place within the M3–Eagle Development at year-end of each calendar year over the estimated twenty year build-out of the project, and the estimated total market value of that commercial property. In this case the assessed value of the commercial property, the value that would be subjected to the property tax, is the same as the market value of that property. There are no property tax exemptions that are subtracted in the valuation of commercial property. However, these estimated commercial valuations are based upon construction costs and are most likely understating the future true assessed value.

Table 11

M3 - Eagle Development

Projected Commercial Square Footage in Place at Year-end, the Projected Total Market Value of Those Commercial Properties

Year	Projected Commercial Square Footage in Place (square feet)	Estimated Construction Cost of Commercial Properties ($ / Sq. Ft.)	Estimated Total Assessed Value of Completed Commercial Properties ($ x 1,000)	Estimated Commercial Property Value as a %. of the Project's Total Assessed Value ($ x 1,000)
1	0	$0	$0	0.0%
2	0	0	0	0.0
3	23,000	0	5,175	1.7
4	46,000	225	10,350	2.4
5	69,000	225	15,525	2.7
6	92,000	225	20,700	2.9
7	115,000	225	25,875	3.0
8	190,000	225	42,750	4.1
9	265,000	225	59,625	4.8
10	340,000	225	76,500	5.4
11	415,000	225	93,375	5.8
12	490,000	225	110,250	6.1
13	602,700	225	135,608	6.9
14	707,100	225	159,098	7.5
15	811,500	225	182,588	8.1
16	915,900	225	206,078	8.5
17	1,020,300	225	229,568	9.0
18	1,114,700	225	250,808	9.6
19	1,190,000	225	267,750	10.1
20	1,190,000	225	267,750	10.0

The proposed development will result in a significant increase in assessed value of the land within the M3–Eagle Development area. An examination of property tax records for a selected number of parcels within the area proposed for the M3–Eagle Development found that the current agricultural classification of much of the land produced a valuation for property purposes of $190 to $200 per acre.

The development of the M3–Eagle project will create higher assessed values for property tax purposes as residential building lots, as homes, and as commercial properties.

This analysis only considers the value of residential and commercial real property (the value of the land and its improvements) in the estimation of property tax revenues. As was mentioned above the value of personal property in the commercial businesses is excluded from this analysis. Likewise, any residential personal property that may be taxable is also excluded from values used to estimate future property tax revenues. Residential personal property is excluded from the analysis because household goods are exempt from personal property taxes and therefore the vast majority of the average household's personal property that could be considered taxable is exempted. Nevertheless, there undoubtedly will be some taxable residential personal property in the M3-Eagle community. However, the

potential property taxes on residential personal property in the development relative to the property tax revenues that will be collected upon residential real property will not add significant amounts to the fiscal position of any affected taxing authority. This exclusion will tend to lower the projected future property tax revenues that may be forthcoming from the M3–Eagle Development.

The Occupancy Tax:

However, not all of the value of the residential or commercial property developed is taxable in the first year after its completion. Using the current year as an example, the value of the property on January 1, 2006 determines the property taxes to be paid for the fiscal year beginning October 1, 2006 and ending September 30, 2007.

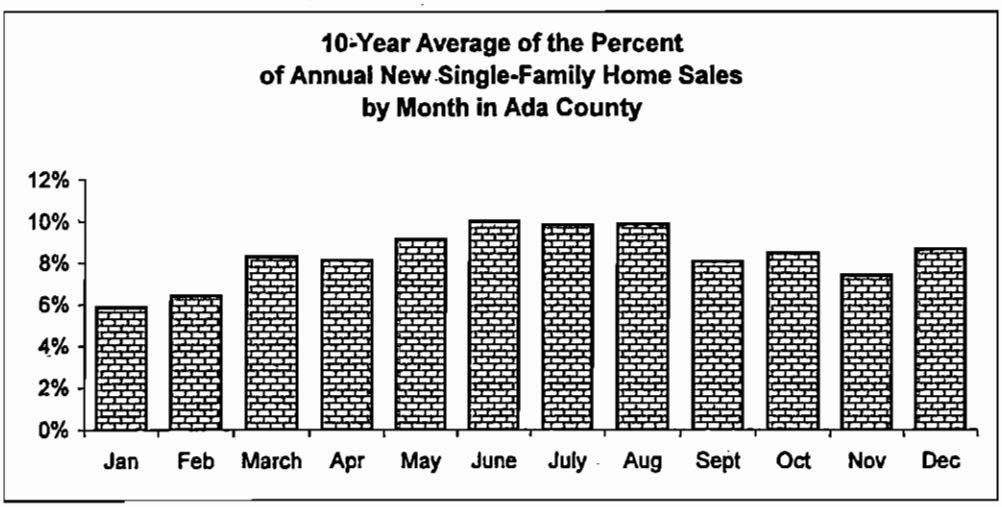
A home which is completed and occupied by its homeowner on August 1 of this year would not be on the tax rolls for the upcoming fiscal year which begins on October 1. However, the homeowner does not totally get a free ride from property taxes in that first year. An interim property tax, an occupancy tax, is assessed. The occupancy tax represents essentially the property tax levy applied to the pro-rata share of the home's taxable value based upon the portion of the calendar year that remains after the homeowner first occupies the home.

Therefore, a home sold and occupied on August 1 of this year would pay an occupancy tax for the following fiscal year based upon the full value of the residential building lot plus the five twelfths (for the five months remaining in the calendar year) of the value of the residential improvements. Therefore, if the residential building lot represents 25 percent of the home's market value and there are five months remaining in the calendar year, the residential occupancy tax would be about 56.3 percent of the full-year property tax.

In the first year, the amount of occupancy tax that the public service provider receives is dependant on when the home was sold during the calendar year. Homes sold earlier in the year would pay a higher occupancy tax because a greater proportion of its assessed value is captured in the first year than would be the case for a home that was occupied in the last months of the year.

When it comes to new home sales, not all months are created equal. An examination of Ada County residential real estate sales statistics found that the first four months were, on average, much weaker than the remaining months of the year in terms of residential home sales. Not surprisingly, the spring and summer months account for the largest proportion of the new home sales each year. The fall months, with the exception of November, remained relatively strong. Figure 1, below, displays the share of annual home sales that each calendar month represents in Ada County. Figure 1 represents the average percent of total annual residential home sales in Ada County over the ten year period 1996 – 2005 that each calendar month represents.

If the future sales of new home sales in the M3-Eagle Development follow the pattern of past new home sales in Ada County, and if the residential lot price accounts for approximately 40 percent of the home's market price, then one could find that the occupancy tax would collect, on a weighted average basis, produce nearly 48.2 percent of the revenues that would normally have come from the property tax. Homes sales in March, April, and May of the year would yield an occupancy tax that would collect nearly 79.0 percent of the normal property tax revenues. On the other hand, August, September, and October home sales will yield an occupancy tax that is only 37.5 percent of what the fully assessed property tax would have been.



The occupancy tax is only assessed in the first year of a new home. After the first year the total market value of the property is put on to the county's property tax rolls at year-end.

The projected property tax revenues that are shown on the following pages do not take into account this shortfall that occurs due the timing of the sale and homeowner occupancy. Therefore, this will cause the projected first-year property tax revenues to be overstated.

As mentioned above, this analysis of future property revenues from the M3–Eagle Development do not take into account the changes in the value of the land that will occur prior to residential homes being constructed and sold. Prior to development much of the agricultural land in the M3-Eagle site will remain classified as agricultural lands and have a average assessed value of between $190 to $200 per acre.

However, the transformation of these lands to a residential, but still vacant, building site by the developer will increase the assessed value of that land to a new, higher, market price – the developers offering price for the building lot. Here again, timing is key as to when these new residential building lots will be added to the property tax rolls. Nevertheless, this change in land use and its development will result in a increase in property values and can represent a significant increase in property tax revenues to the public service provider in the first years of the development. Potentially for some public service providers providing property tax revenues prior to the need to provide increased levels of public services. This phenomenon is not likely to completely erase the entire shortfall in property tax revenues in the first year of the development, but it will most certainly ameliorate its impact.

Table 12, below, summarizes the projected annual property taxes from residential and commercial properties slated to be in place at M3-Eagle through the first twenty years of the development for four major property taxing entities: Ada County, the City of Eagle, Meridian Joint School District #2, and the Ada County Highway District. An estimate of the annual residential occupancy tax revenues is also included in these totals.

In addition, the fiscal impact analysis does not take into account rising residential real estate prices and the increased assessed value of the previously sold residential properties. Home price inflation is an ongoing phenomenon in the Boise market. An examination of residential real estate sales statistics in Ada County over the last ten years reveals that the average price of the new homes sold has increased at an annual average rate of 3.6 percent per year, and during the last five years at an annual average pace of 5.2 percent per year. The omission of consideration for at least average home price increases on those previously sold homes will cause the projected property tax revenues herein to be understated.

Table 12

M3-Eagle Development

Projected Annual Property Tax Revenues from Residential & Commercial Properties and the Residential Occupancy Tax for Ada County, the City of Eagle, the Meridian Joint School District # 2, and the Ada County Highway District

	Projected Annual Property Tax Revenues (as Assessed)*			
Year	Ada County ($ x 1,000)	City of Eagle ($ x 1,000)	Meridian Joint School District #2 ($ x 1,000)	Ada County Highway District ($ x 1,000)
1	$208.0	$69.5	$315.8	$77.5
2	566.1	189.2	859.7	211.1
3	994.8	332.5	1,510.7	371.0
4	1,530.7	511.7	2,324.6	570.9
5	2,044.7	683.6	3,105.3	762.6
6	2,557.9	855.2	3,884.7	954.0
7	3,071.9	1,026.9	4,665.2	1,145.7
8	3,669.6	1,226.7	5,572.8	1,368.6
9	4,336.5	1,449.7	6,585.4	1,617.3
10	4,989.5	1,668.0	7,577.2	1,860.9
11	5,642.6	1,886.4	8,569.0	2,104.5
12	6,295.2	2,104.6	9,560.2	2,348.0
13	6,873.4	2,297.9	10,438.3	2,563.6
14	7,390.4	2,470.8	11,223.5	2,756.4
15	7,923.6	2,649.0	12,033.2	2,955.3
16	8,457.9	2,827.6	12,844.6	3,154.6
17	8,990.4	3,005.7	13,653.2	3,353.2
18	9,297.9	3,108.4	14,120.2	3,467.9
19	9,420.4	3,149.3	14,306.2	3,513.6
20	$9,560.7	$3,196.3	$14,519.4	$3,566.0
20+	$9,550.4	$3,192.8	$14,503.7	$3,562.1

* Projected Property taxes and residential occupancy taxes based upon 2006 levy rates and constant 2006 prices throughout the forecast period.

A summary of the projected additional property tax revenues from M3-Eagle residential and commercial properties is shown in Table 13 below. A more detailed version of this table with the forecasted annual property taxes from residential and commercial properties as well as a forecast of revenues from the residential occupancy tax forecast with annual detail of the changes in the projected total value of residential and commercial properties in M3-Eagle can be found in Appendix E of this report.

Idaho Economics projects that M3-Eagle will, at full build out of the project, provide nearly $36.86 million annual in ongoing property tax revenues to local public service providers.

Table 13
Summary of Projected Property Tax Revenues as Assessed

	5-Year Summaries of Projected Property Tax Revenues				20-Year Total
Property Tax Revenues from: **Residential Property:**					
Taxing Authority	Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20
Ada County	$5,680,100	$18,630,600	$32,944,000	$42,781,600	$100,036,300
City of Eagle	1,898,900	6,228,400	11,013,700	14,302,500	33,443,500
Meridian Joint School District #2	8,626,000	28,293,200	50,030,500	64,970,400	151,920,100
Ada County Highway District	2,118,500	6,948,800	12,287,400	15,956,700	37,311,400
Ada County Emergency Medical	251,900	826,100	1,460,800	1,896,900	4,435,700
Eagle Fire District	2,683,700	8,802,700	15,565,700	20,214,100	47,266,200
Mosquito Abatement District	61,300	200,900	355,100	461,200	1,078,500
Ada County Weed & Pest Control	269,900	885,100	1,565,000	2,032,400	4,752,400
Total	$21,590,300	$70,815,800	$125,222,200	$162,615,800	$380,244,100
Commercial Property:					
Taxing Authority	Years 1 - 5	Years 6 - 10	Years 11 - 15	Years 16 - 20	Years 1 - 20
Ada County	$79,400	$577,300	$1,743,400	$3,128,600	$5,528,700
City of Eagle	26,600	192,900	582,900	1,046,000	1,848,400
Meridian Joint School District #2	120,700	876,600	2,647,700	4,751,300	8,396,300
Ada County Highway District	29,600	215,300	650,300	1,166,900	2,062,100
Ada County Emergency Medical	3,600	25,700	77,300	138,800	245,400
Eagle Fire District	37,600	272,600	823,800	1,478,200	2,612,200
Mosquito Abatement District	800	6,200	18,700	33,700	59,400
Ada County Weed & Pest Control	3,800	27,400	82,900	148,700	262,800
Total	$302,100	$2,194,000	$6,627,000	$11,892,200	$21,015,300
Total Property Tax Revenues:					
As Assessed	Years 1 - 5	Years 6 - 10	Years 11 - 15	Years 16 - 20	Years 1 - 20
Ada County	$6,494,910	$20,132,710	$35,563,010	$46,441,210	$108,631,841
City of Eagle	2,171,353	6,730,423	11,889,323	15,526,023	36,317,123
Meridian Joint School District #2	9,863,515	30,574,215	54,007,915	70,527,815	164,973,462
Ada County Highway District	2,422,282	7,508,882	13,264,282	17,321,682	40,517,127
Ada County Emergency Medical	288,238	892,838	1,576,938	2,059,338	4,817,354
Eagle Fire District	3,068,820	9,512,120	16,803,220	21,943,220	51,327,379
Mosquito Abatement District	67,900	215,000	381,100	498,400	1,162,400
Ada County Weed & Pest Control	308,038	955,838	1,688,938	2,205,638	5,158,454
Total	$24,685,058	$76,522,028	$135,174,728	$176,523,328	$412,905,140
As Received	Years 1 - 5	Years 6 - 10	Years 11 - 15	Years 16 - 20	Years 1 - 20
Ada County	$5,344,279	$18,625,310	$34,125,110	$45,727,260	$103,821,960
City of Eagle	1,786,641	6,226,523	11,408,623	15,287,323	34,709,110
Meridian Joint School District #2	8,116,014	28,285,165	51,824,215	69,443,565	157,668,960
Ada County Highway District	1,993,134	6,946,632	12,727,982	17,055,382	38,723,129
Ada County Emergency Medical	237,195	826,038	1,513,188	2,027,638	4,604,060
Eagle Fire District	2,525,128	8,799,970	16,123,820	21,605,820	49,054,737
Mosquito Abatement District	55,700	198,750	365,650	490,650	1,110,750
Ada County Weed & Pest Control	253,395	884,288	1,620,588	2,171,738	4,930,010
Total	$20,311,485	$70,792,678	$129,709,178	$173,809,378	$394,622,717

The Fiscal Impacts

The following section of the report examines the fiscal impacts that the M3-Eagle Development may impose on those public service providers in the community. Projections of future additional revenues, predominately property tax revenues, are compared to anticipated or estimated changes in the future operating costs for public service providers.

Many of the capital projects that are necessary for the provision of public services are financed through the issuance of long-term debt obligations (bonds) that are issued by the affected public service provider. This analysis assumes that this method of paying for these long-term capital assets will remain as the preferred alternative. Further, this analysis only includes the costs of these types of long-term capital assets when it is clearly indicated that these assets are necessary in the near-term and precipitated by the additional development.

The analysis of economic and fiscal impacts of the public service providers that may be affected by the M3-Eagle Development project are presented on the following pages.

Property tax revenues shown below have been allocated so as to more closely reflect the actual time in which the public agencies would actually receive the monies. This analysis assumes that the property tax revenues that the taxing authority will receive in a year shall be comprised of one half of the last year's property tax assessment and one half of the current year's property tax assessment. In addition, an adjustment has been made for the change in value of the farmland that is transformed into development property throughout the year. A fuller discussion of this "zero year" increase in property from the M3-Eagle development can be found in Appendix E at page E-28.

1. City of Eagle

Projected Net Fiscal Impact: + $ 23.20 Million 1st Twenty Years

Other Revenue Sources:

In addition to property tax revenues originating from the M3-Eagle Development the City of Eagle would be in receipt of other revenues that are routinely collected on properties within the City of Eagle. These other revenues include: a franchise tax on gross sales of the electric and natural gas utilities, the solid waste collection services of Allied Waste Services, and the sale of cable television services to the residents and businesses within the City of Eagle. Currently these franchise tax rates are 3.0 percent of the gross sales of the electric and natural gas utilities, 8.0 percent of the gross revenue of Allied Waste Services for solid waste collection services in the City of Eagle, and 5.0 percent of the cable television sales to customers within Eagle's city limits. However, the electric utility franchise tax rate is slated to decrease to 1.0 percent after a repayment by the City of Eagle, from franchise fee revenues, to Idaho Power Company of some additional costs associated with an electric transmission line relocation and upgrade within the City. This repayment is expected to be completed in the year 2010. This analysis assumes a 1.0 percent franchise fee would apply to electric utility sales within the M3-Eagle Development.

Using annual average electricity use per residential customer within Idaho Power's southern Idaho service area (12,740 kWh per year), and the average natural gas sales per residential customer within Intermountain Gas Company's service area (500 therms) and current electric and natural gas prices (6.3 cents per kWh and $1.39 per therm, respectively) a estimate of the annual electricity and natural gas utility sales to each residential customer in the M3-Eagle Development was obtained. The average M3-Eagle

residence would have an annual electric bill of $805 and a natural gas bill of nearly $695 of which the City of Eagle would receive 1.0 percent, about $8.00 per year, and 3.0 percent (about $20.85), respectively. The franchise fees collected for solid waste collection services were estimated as a proportion of the electric utility (the only other utility subjected to a franchise fee that serves all households in the City pf Eagle) franchise tax receipts.

Franchise fees on cable television revenues were estimated assuming that 65.0 percent of the households in the M3-Eagle Development accessed cable television and of those utilizing cable television services they had an annual average bill of $480 ($40 per month). Annual City of Eagle franchise fee revenues from cable television services were then assumed to be 5.0 percent of the annual average bill per household, but applied to only 65.0 percent of the M3-Eagle households. The estimates of franchise fee revenues from the solid waste collection service assumed 8.0 percent franchise fee was applied to a monthly average fee of $16 per household for solid waste collection services.

Energy use by the commercial buildings within the M3-Eagle Development was estimated by using parameters of electricity and natural gas use per square foot of commercial building space by building type for buildings in the Mountain Census Region from the US Department of Energy's 1999 Survey on Commercial Energy Use. Energy usage in the M3-Eagle commercial buildings was then estimated using the US DOE electricity and natural gas use per square foot of commercial floor space times the total commercial floor space in place in the M3-Eagle Development by year. The annual electricity and natural gas sales to the commercial buildings in M3-Eagle were obtained by multiplying the estimated annual electricity and natural gas usage in the commercial buildings by the current electric and natural gas prices. The City of Eagle's franchise fee revenues from the commercial buildings in the M3-Eeagle Development are obtained by applying a 1.0 percent rate to electricity sales and a 3.0 percent rate to the estimated annual natural gas sales M3-Eagle's commercial buildings.

In the first ten years of the M3-Eagle Development it is estimated that the City of Eagle would realize an additional $1.66 million in franchise fee revenues from properties within M3-Eagle. Over the first twenty years of the M3-Eagle project the total additional franchise fee revenues to the City of Eagle are projected to top $8.05 million.

The estimated additional franchise fee revenues, by year, that the City of Eagle would receive from the electricity, natural gas, cable television, and solid waste collection utilities to residents and businesses within the M3-Eagle Development are shown in Table 14.

The City of Eagle also collects building permit fees on residential and commercial buildings prior to their construction. The building permit fees on the residential housing proposed for the M3-Eagle Development are estimated to be nearly $7.74 million in the first ten years of the project and to surpass $13.93 million in the twenty years until full build-out of the M3-Eagle Development. Similarly, building permit fees paid to the City of Eagle for the commercial buildings in the M3-Eagle Development are projected to be nearly $232.7 thousand in the first ten years of the project and to surpass $664.7 thousand in the twenty years until full build-out of the M3-Eagle project. In total, it is conservatively estimated that the City of Eagle would realize nearly $14.60 million in additional building permit fee revenues over the twenty years until full build-out of the M3-Eagle Development.

The projected additional building permit fee revenues, by year, that the City of Eagle would receive from residential and commercial construction at M3-Eagle are shown in Table 15.

Table 14
Projected Additional Franchise Fee Revenues to the City of Eagle
as a Result of the M3-Eagle Development

Year	Projected Franchise Fee Revenues from: Electric Utility	Natural Gas Utility	Cable Television	Solid Waste	Total Additional Franchise Fee Revenues
1	$2,274	$5,690	$4,187	$4,810	$16,961
2	4,557	11,401	8,389	9,637	33,984
3	8,839	22,163	15,366	21,121	67,489
4	13,143	32,982	22,385	32,653	101,162
5	17,447	43,800	29,403	44,184	134,835
6	21,751	54,619	36,422	55,716	168,507
7	26,055	65,438	43,440	67,247	202,180
8	32,663	82,136	52,654	89,145	256,598
9	39,272	98,834	61,868	111,043	311,017
10	45,880	115,532	71,083	132,941	365,435
11	52,488	132,230	80,297	154,838	419,854
12	59,098	148,932	89,514	176,739	474,284
13	65,236	164,535	96,377	201,623	527,771
14	71,195	179,674	103,239	225,254	579,362
15	77,169	194,851	110,130	248,917	631,067
16	83,099	209,916	116,938	272,486	682,439
17	89,029	224,982	123,746	296,054	733,811
18	91,941	232,475	125,392	312,184	761,992
19	94,420	238,842	126,991	325,381	785,633
20	95,180	240,744	128,391	326,989	791,304
Total	$990,736	$2,499,775	$1,446,213	$3,108,962	$8,045,685

Notes: Franchise fees assumed to be: 1.0% of electric utility revenues on residences and businesses in the City of Eagle, 3.0% of natural gas utility revenues, 5.0% of cable television revenues, and 8.0% of the solid waste collection company's revenues. Annual average electricity use by households was assumed to be 1,061 kWh per month purchased at a rate of 6.3 cents per kWh, annual average natural gas use in residential households was assumed to be 500 therms purchased at a rate of $1.39 per therm, cable television revenues were assumed to be $40 per month per connected household with 65.0% of the M3-Eagle households using cable television services, solid waste collection revenues were assumed to be $16 per M3-Eagle household per month.

In addition to these sources of additional revenues to the City of Eagle from the development of the M3-Eagle Project the added population and property tax base of the M3-Eagle Development would allow the City of Eagle to receive a greater portion of the State of Idaho's sales tax revenues that are available for revenue sharing with Idaho cities. In the last four quarters (2nd quarter 2005 thru the 1st quarter of 2006) the city of Eagle has received nearly $917,000 in revenue sharing from the State of Idaho.

The revenue sharing dollars from the state of Idaho are allocated on the basis of each city's population and taxable property tax base. On a currently estimated population in the City of Eagle of 16,176 and a taxable property tax base of $1,655.9 million the City of Eagle receives approximately $28.33 per person from the State in revenues sharing dollars and $0.277 per $1,000 of taxable property value in the city. Assuming that the City of Eagle can maintain its share of the total population and total taxable property value among all of the

cities in Idaho the M3-Eagle Development will allow Eagle to command a greater amount of the State's revenue sharing dollars.

Table 15
Projected Additional State of Idaho Revenue Sharing Allocated to the City of Eagle and Building Permit Fee Revenues Resulting from the M3-Eagle Development

Year	State Revenue Sharing	Building Permit Fees		
		Residential	Commercial	Total
1	$51,151	469,095	0	$469,095
2	103,089	470,038	0	470,038
3	190,793	782,422	23,593	806,015
4	280,445	779,302	23,593	802,895
5	371,259	779,302	23,593	802,895
6	463,243	777,767	23,593	801,360
7	556,543	783,852	23,593	807,445
8	676,432	965,400	38,256	1,003,656
9	797,756	965,400	38,256	1,003,656
10	920,691	965,400	38,256	1,003,656
11	1,047,469	965,400	38,256	1,003,656
12	1,176,234	966,655	38,256	1,004,911
13	1,282,207	743,610	54,243	797,853
14	1,389,000	743,610	50,365	793,975
15	1,498,311	740,490	50,365	790,855
16	1,608,652	740,490	50,365	790,855
17	1,720,891	740,490	50,365	790,855
18	1,764,729	184,799	48,946	233,745
19	1,807,879	184,799	48,946	233,745
20	$1,845,677	183,358	1,835	$185,193

Idaho Economics estimates that the M3-Eagle Development will bring an additional $4.41 million in revenue sharing from the State of Idaho in the first ten years of the project and an estimated $19.55 million in the twenty years until full project build-out. The projected annual additional State of Idaho revenue sharing monies that the City of Eagle would receive due to the development of the M3-Eagle project are also shown below in Table 15.

In total Idaho Economics predicts that the City of Eagle would realize, over the twenty years to full build-out of the M3-Eagle Development, $34.71 in additional property tax revenues, $19.55 million in additional State of Idaho revenue sharing monies, $8.05 million of additional franchise fee revenues and $14.59 million in additional revenues from building permit fees. In total, the City of Eagle is predicted to realize nearly $76.90 million in additional revenues due to the development of the M3-Eage project. Table 16 below provides an annual breakdown of these projected revenues.

After full build-out of the M3-Eagle development the City of Eagle would realize ongoing revenues from property taxes and franchise fees of nearly $3.20 million and $791.3 thousand respectively. In addition, additional income from the State of Idaho's revenue sharing would result in a further $1.85 million to the City of Eagle. Additional fees from building permits originating from the M3-Eagle development are assumed to be insignificant

after full build-out of the project. In total, the City of Eagle is projected to realize an additional $5.84 million each year after full build-out of the M3-Eagle Development. Over the first five and ten years in this post full build-out period the additional revenues attributable to M3-Eagle are projected to total nearly $29.21 and $58.41 million, respectively. These projected additional revenues to the City of Eagle after full build-out of the M3-Eagle Development are shown on an annual basis, as well as the 5-year and 10-year totals, are shown below in Table 17.

Historic budget information from the City of Eagle was examined to determine the cost of city services delivered to its citizens on a per capita basis. Annual spending by the City of Eagle minus capital spending projects was divided by the U.S. Census Bureau's intercensal estimates of the population of the City of Eagle. The historic cost of providing city services to the residents of the City of Eagle has increased over the last five years. However, the latest figures are nearly $253 per city resident per year. This analysis used a more generous figure of $275 per person per year as the parameter for estimating future costs of city services to the residents of M3-Eagle. Tables 18(a) and 18(b) on a following page show the results of that process.

Idaho Economics predicts that the City of Eagle will realize a positive net fiscal impact throughout every year of the twenty years until full build-out of the M3-Eagle Development. The additional revenues from property taxes, building permits, franchise fees, and an increase in State of Idaho revenue sharing funds minus the increased cost of delivering city services to the new residents of M3-Eagle produce a positive net fiscal impact of $498.6 thousand in the first year of the project. By the fifth year these gains have increased to an estimated positive net fiscal impact of nearly $894.2 thousand and in total a positive net fiscal impact of nearly $3.65 million to the City of Eagle over the first five years of the M3-Eagle Development.

Table 16
Projected Additional Revenues to the City of Eagle
as a Result of the M3-Eagle Development

Year	Local Property Taxes	State Revenue Sharing	City Franchise Taxes & Fees	Other Fee Revenues*	Total Additional Revenues
1	$69,527	$51,151	$16,961	$469,095	$606,734
2	189,240	103,089	33,984	470,038	796,350
3	332,525	190,793	67,489	806,015	1,396,822
4	511,725	280,445	101,162	802,895	1,696,226
5	683,625	371,259	134,835	802,895	1,992,612
6	855,175	463,243	168,507	801,360	2,288,286
7	1,026,925	556,543	202,180	807,445	2,593,093
8	1,226,725	676,432	256,598	1,003,656	3,163,411
9	1,449,675	797,756	311,017	1,003,656	3,562,104
10	1,668,025	920,691	365,435	1,003,656	3,957,807
11	1,886,375	1,047,469	419,854	1,003,656	4,357,353
12	2,104,575	1,176,234	474,284	1,004,911	4,760,004
13	2,297,875	1,282,207	527,771	797,853	4,905,705
14	2,470,775	1,389,000	579,362	793,975	5,233,111
15	2,649,025	1,498,311	631,067	790,855	5,569,257
16	2,827,625	1,608,652	682,439	790,855	5,909,571
17	3,005,675	1,720,891	733,811	790,855	6,251,232
18	3,108,425	1,764,729	761,992	233,745	5,868,890
19	3,149,325	1,807,879	785,633	233,745	5,976,582
20	3,196,275	1,845,677	791,304	185,193	6,018,449
Total	$34,709,110	$19,552,450	$8,045,685	$14,596,353	$76,903,598

* Includes Building Permit Fees.

Table 17
Projected Additional Revenues to the City of Eagle
After Full Build-out of the M3-Eagle Development

Year	Local Property Taxes	State Revenue Sharing	City Franchise Taxes & Fees	Other Fee Revenues*	Total Additional Revenues
Yearly	$3,204,412	$1,845,677	$791,304	$0	$5,841,393
Over 5 Years	16,022,060	9,228,385	3,956,520	0	29,206,965
Over 10 Years	$32,044,120	$18,456,770	$7,913,040	$0	$58,413,930

Table 18 (a)
City of Eagle

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Total
Projected M3-Eagle Population.....	663	1,311	2,379	3,421	4,443	
Projected Additional Revenues:						
Property Taxes.....	$69,527	$189,240	$332,525	$511,725	$683,625	$1,786,641
Franchise Fees.....	16,961	33,984	67,489	101,162	134,835	354,431
State Revenue Sharing.....	51,151	103,089	190,793	280,445	371,259	996,736
Building Permit Fees.....	469,095	470,038	806,015	802,895	802,895	3,350,937
Sheriff's Mitigation Fee.....	74,196	74,469	122,661	123,394	123,394	518,114
Total Additional Revenues.....	$680,930	$870,819	$1,519,483	$1,819,620	$2,116,007	$7,006,859
Projected Additional Expenses:						
O&M Expenses.....	$182,326	$360,539	$654,268	$940,869	$1,221,790	$3,359,792
Annual Net Fiscal Impact.....	**$498,604**	**$510,280**	**$865,215**	**$878,750**	**$894,217**	
			5-Year Net Fiscal Impact.....			**$3,647,067**

	Year 6	Year 7	Year 8	Year 9	Year 10	10-Year Total
Projected M3-Eagle Population.....	5,441	6,424	7,689	8,924	10,135	
Projected Additional Revenues:						
Property Taxes.....	$855,175	$1,026,925	$1,226,725	$1,449,675	$1,668,025	$8,013,164
Franchise Fees.....	168,507	202,180	256,598	311,017	365,435	1,658,169
State Revenue Sharing.....	463,243	556,543	676,432	797,756	920,691	4,411,400
Building Permit Fees.....	801,360	807,445	1,003,656	1,003,656	1,003,656	7,970,711
Sheriff's Mitigation Fee.....	123,394	123,394	160,093	160,093	160,093	1,245,181
Total Additional Revenues.....	$2,411,680	$2,716,487	$3,323,504	$3,722,197	$4,117,899	$23,298,625
Projected Additional Expenses:						
O&M Expenses.....	$1,496,379	$1,766,588	$2,114,385	$2,454,089	$2,787,177	$13,978,410
Annual Net Fiscal Impact.....	**$915,300**	**$949,899**	**$1,209,119**	**$1,268,108**	**$1,330,723**	
			10-Year Net Fiscal Impact.....			**$9,320,215**

The projected net fiscal impact of the M3-Eagle Development remains positive throughout the twenty years until full build-out of the M3-Eagle project. The first ten years of the project are expected to produce $223.30 million in additional revenues to the City of Eagle and cause additional costs to the city of supplying city services to its M3-Eagle citizens of nearly $13.98 million producing a positive net fiscal impact of $9.32 million in the first ten years of the project.

Over the twenty years until full build-out of M3-Eagle the City of Eagle is projected to receive, in total, $23.20 million more in additional revenues than it is projected to experience in increased costs. The M3-Eagle Development is projected to provide nearly $79.13 million in additional revenues to the City of Eagle while increasing the City's costs of providing services to its citizens by $55.92 million in the twenty years until full build-out of the project. In the years thereafter it is projected that revenues payable to the City of Eagle from the M3-Eagle Development will exceed the additional cost of providing city services to its citizens by $1.24 million per year.

Table 18 (b)
City of Eagle

	Year 11	Year 12	Year 13	Year 14	Year 15	15-Year Total
Projected M3-Eagle Population.....	11,393	12,643	13,541	14,431	15,314	
Projected Additional Revenues:						
Property Taxes.....	$1,886,375	$2,104,575	$2,297,875	$2,470,775	$2,649,025	$19,421,787
Franchise Fees.....	419,854	474,284	527,771	579,362	631,067	4,290,506
State Revenue Sharing.....	1,047,469	1,176,234	1,282,207	1,389,000	1,498,311	10,804,621
Building Permit Fees.....	1,003,656	1,004,911	797,853	793,975	790,855	12,361,961
Sheriff's Mitigation Fee.....	160,093	160,146	116,828	117,163	117,661	1,917,072
Total Additional Revenues.....	$4,517,446	$4,920,150	$5,022,534	$5,350,275	$5,686,919	$48,795,947
Projected Additional Expenses:						
O&M Expenses.....	$3,133,106	$3,476,890	$3,723,671	$3,968,419	$4,211,220	$32,491,716
Annual Net Fiscal Impact.....	**$1,384,340**	**$1,443,260**	**$1,298,862**	**$1,381,855**	**$1,475,699**	
			15-Year Net Fiscal Impact.....			**$16,304,231**

	Year 16	Year 17	Year 18	Year 19	Year 20	20-Year Total
Projected M3-Eagle Population.....	16,187	17,055	17,189	17,324	17,455	
Projected Additional Revenues:						
Property Taxes.....	$2,827,625	$3,005,675	$3,108,425	$3,149,325	$3,196,275	$34,709,110
Franchise Fees.....	682,439	733,811	761,992	785,633	791,304	8,045,685
State Revenue Sharing.....	1,608,652	1,720,891	1,764,729	1,807,879	1,845,677	19,552,450
Building Permit Fees.....	790,855	790,855	233,745	233,745	185,193	14,596,353
Sheriff's Mitigation Fee.....	116,206	116,206	25,147	25,147	24,808	2,224,586
Total Additional Revenues.....	$6,025,777	$6,367,438	$5,894,037	$6,001,728	$6,043,256	$79,128,184
Projected Additional Expenses:						
O&M Expenses.....	$4,451,290	$4,690,024	$4,726,901	$4,764,023	$4,800,125	$55,924,079
Annual Net Fiscal Impact.....	**$1,574,487**	**$1,677,414**	**$1,167,136**	**$1,237,705**	**$1,243,131**	
			20-Year Net Fiscal Impact.....			**$23,204,105**

2. Ada County

Projected Net Fiscal Impact: + $81.98 Million 1st Twenty Years

Ada County provides a variety of services throughout the County and in the unincorporated areas of the County. A partial list of these services includes; the provision and administration of the Magistrate division of the District Court, the County Prosecutor, the Public Defender, the juvenile justice programs, the Planning and Zoning functions in the unincorporated areas of the County, the provision of Law Enforcement in the unincorporated areas of the County and in certain areas of the County on a contract basis, and the operation of the Solid Waste Disposal operations in the County.

Two departments of County government have a separate local property tax assessment, Emergency Medical Services, and Weed and Pest Control. This report will examine the potential fiscal impacts on those departments separately in a later section of this analysis.

Many of the services provided by Ada County government have separate sources of revenue such as the two mentioned above. Many other functions are funded through the County's Current Expense budget. And, some of those functions have revenue streams that bring monies to the County's coffers. These revenues can be fees for government functions, user fees, license fees, and payments from other government entities for services that Ada County government has supplied to them. To further complicate the matter, the revenues and expenses associated with those County government services funded through the Current Expense budget are not necessarily broken out by department or function.

Therefore, this analysis will evaluate the potential fiscal impacts on County government in aggregate for most functions, with the exception of the two mentioned above: Emergency Medical Services, and Weed and Pest Control; and the Ada County Sheriff along with the Ada County Jail, and Ada County's Solid Waste Management function.

General Ada County Government

Information from the Ada County fiscal year 2004-2005 Budget the cost of the general administrative functions of Ada County government cost, on average, the citizens of Ada County about $84 per capita. Utilizing that per capita figure with the projected population of M3-Eagle Development yields an estimate of the added cost to the administrative costs of County government. (This is based upon an analysis of the Ada County budget to determine those services that are either funded or partially funded by the property tax, are not programs that are self-supporting, such as the County's Solid Waste Operations or the Ada County Fair Grounds.)

Finally, if the housing opportunities presented in M3-Eagle attract residents that would have become been homeowners in other parts of Ada County the portion of these projected general O&M expenses of the county that would apply to all citizens of the county (courts, emergency dispatch, etc.) would have occurred with or without the addition of M3-Eagle.

Sheriff's Department, Emergency Communications, and the Ada County Jail

Idaho law provides the sheriff with the power to provide police services throughout the County. However, most sheriffs in those counties with larger cities leave the law enforcement activities inside of city limits to city police departments. That is no different in Ada County.

The Ada County Sheriff provides law enforcement services to the unincorporated areas of Ada County as well as to the cities of Kuna, Eagle, and Star, as well as to Boise State University on a contract basis. The Sheriff also operates the Ada County jail as well as the emergency communications and dispatch center. The dispatch center provides emergency dispatch services for the various fire districts in the County, as well as for Ada County EMS, the Boise, Garden City, and Meridian police departments.

The Ada County jail has just completed a major expansion in capacity with the addition of 308 beds. This brings the Ada County jail up to a total capacity of 1,144. Expenses for jail operations in fiscal year 2004-2005 are projected to be nearly $13.1 million or about $40 per person in Ada County. The Sheriff's department's administrative overhead, dispatch and communications functions cost the residents of Ada County nearly $25 per capita according to the County's 2004-2005 budget figures.

The Ada County sheriff's patrol division is staffed by 57 patrol officers and nine sergeants. Ada County sheriff's deputies patrol the area west of Boise north of the Boise River including the area of the M3-Eagle Development, Eagle, Star, the Hidden Springs Planned Community, and State Highways 55 and 16 to the northern border of Ada County.

However, a future increase in population in those areas will merit higher levels of service and produce more calls for assistance. In the immediate future, the assignment of a patrol deputy to the area of the M3-Eagle Development area is not likely to be needed until the commencement of construction of the M3-Eagle project. Thereafter, when M3-Eagle begins to receive residents, the need for services from the Ada County Sheriff will increase in proportion to population growth.

The Ada County Sheriff's department has analyzed the question of what is the fiscal impact of the provision of law enforcement services for planned communities in Ada County. A letter from Ada County Sheriff Gary Raney that summarizes those findings can be found in Appendix F of this report.

In general, the sheriff's analysis stated that it would maintain a ratio of 0.88 patrol deputies per 1,000 of population in Ada County. In order to maintain that ratio of patrol deputies per 1,000 of population and to account for the Sheriff's department's support services such as the records department, the Ada County jail, and the property and evidence unit as well as the detective unit of the sheriff's department a mitigation fee of $310.87 per housing unit was warranted. That mitigation fee is included below in Table 19 as both addition revenue and as an additional expense to Ada County government.

Property tax revenues shown below have been allocated so as to more closely reflect the actual time in which the public agencies would actually receive the monies. This analysis assumes that the property tax revenues that the taxing authority will receive in a year shall be comprised of one half of the prior year's property tax assessment and one half of the current year's property tax assessment. In addition, an adjustment has been made for the change in value of the farmland that is transformed into development property throughout the year.

Mitigation:

The M3-Eagle Development Planned Community does not appear to produce any negative economic externalities that would impose a cost upon other Ada County residents. The Ada County Sheriff's analysis of the provision of law enforcement service to planned communities found that a mitigation fee of nearly $311 per housing unit was justified. Since the City of Eagle contracts with the Ada County sheriff's office for police services the Sheriff's department mitigation fee was incorporated into the examination of the fiscal impacts to the City of Eagle.

The projected additional property taxes from M3-Eagle are projected to exceed the cost of providing additional government services to residents of the community by $4.03 million in the first five years of the project. By the tenth, fifteenth, and twentieth years of the M3-Eagle project the total net positive fiscal impact to the Ada County budget is projected increase further to $18.51 million, $45.39 million, and $81.98 million. On an ongoing basis, after the twenty year full build-out of the M3-Eagle community it is projected that property tax revenues payable to Ada County originating from M3-Eagle will exceed the annual expenses attributable to M3-Eagle by nearly $7.69 million per year. The M3-Eagle Development is projected to produce a positive external benefit to the citizens served by Ada County government.

Table 19

The M3-Eagle Development - Net Fiscal Impacts on the:

Ada County

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Total
Additional Property Taxes	$207,981	$566,112	$994,762	$1,530,712	$2,044,712	$5,344,279
Other Fee Revenues	1,416	2,353	4,169	5,785	7,403	21,125
Total Addition Revenues	$209,397	$568,465	$998,931	$1,536,497	$2,052,115	$5,365,405
Projected Additional Expenses:						
O&M Expenses	$72,050	$143,010	$258,901	$372,947	$484,732	$1,331,640
Total	$72,050	$143,010	$258,901	$372,947	$484,732	$1,331,640
Annual Net Fiscal Impact	**$137,347**	**$425,455**	**$740,030**	**$1,163,550**	**$1,567,383**	
				5-Year Net Fiscal Impact		**$4,033,764**

	Year 6	Year 7	Year 8	Year 9	Year 10	10-Year Total
Projected Additional Revenues	$2,557,912	$3,071,862	$3,669,562	$4,336,462	$4,989,512	$23,969,590
Other Fee Revenues	9,015	10,639	13,004	15,225	17,446	86,453
Total Addition Revenues	$2,566,927	$3,082,501	$3,682,566	$4,351,687	$5,006,958	$24,056,043
Projected Additional Expenses:						
O&M Expenses	$594,256	$701,521	$839,947	$975,154	$1,107,727	$5,550,246
Total	$594,256	$701,521	$839,947	$975,154	$1,107,727	$5,550,246
Annual Net Fiscal Impact	**$1,972,671**	**$2,380,980**	**$2,842,618**	**$3,376,533**	**$3,899,231**	
				10-Year Net Fiscal Impact		**$18,505,797**

	Year 11	Year 12	Year 13	Year 14	Year 15	15-Year Total
Projected Additional Revenues	$5,642,562	$6,295,212	$6,873,362	$7,390,362	$7,923,612	$58,094,700
Other Fee Revenues	19,668	21,893	23,518	25,289	27,054	203,875
Total Addition Revenues	$5,662,230	$6,317,105	$6,896,880	$7,415,651	$7,950,666	$58,298,575
Projected Additional Expenses:						
O&M Expenses	$1,245,401	$1,381,742	$1,479,235	$1,575,945	$1,672,572	$12,905,141
Total	$1,245,401	$1,381,742	$1,479,235	$1,575,945	$1,672,572	$12,905,141
Annual Net Fiscal Impact	**$4,416,829**	**$4,935,363**	**$5,417,645**	**$5,839,706**	**$6,278,094**	
				15-Year Net Fiscal Impact		**$45,393,434**

	Year 16	Year 17	Year 18	Year 19	Year 20	20-Year Total
Projected Additional Revenues	8,457,912	8,990,362	9,297,912	9,420,362	9,560,712	$103,821,960
Other Fee Revenues	28,821	30,587	30,806	31,335	31,654	357,077
Total Addition Revenues	$8,486,733	$9,020,949	$9,328,718	$9,451,697	$9,592,366	$104,179,037
Projected Additional Expenses:						
O&M Expenses	$1,766,823	$1,860,552	$1,874,744	$1,889,036	$1,902,587	$22,198,882
Total	$1,766,823	$1,860,552	$1,874,744	$1,889,036	$1,902,587	$22,198,882
Annual Net Fiscal Impact	**$6,719,910**	**$7,160,397**	**$7,453,974**	**$7,562,661**	**$7,689,779**	
				20-Year Net Fiscal Impact		**$81,980,155**

3. Ada County Emergency Medical Services

Projected Net Fiscal Impact: + $3.18 million 1st Twenty Years

Ada County Emergency Medical Service (EMS) was formed on March 25, 1975 as an ambulance taxing district.

Today, Ada County EMS employs 80 emergency medical technicians (EMT's) and paramedics to staff eight ambulances, two field supervisors and one on-duty training officer to cover its operations 24 hours a day, 7 days a week. Ada County EMS provides emergency medical services to all of Ada County including the cities of Boise, Meridian, Garden City, Eagle, Star and Kuna.

Ada County EMS stations ambulances and personnel at seven locations in Ada County, including postings at the three major hospitals in the County. The two nearest EMS stations to the M3-Eagle Development community would at the Eagle Fire District fire station near downtown Eagle, and at the EMS headquarters station on Glenwood Street in Garden City.

While the specific function of the EMS service is to respond to medical emergencies, it is augmented by the emergency medical services that are provided by the local fire departments. The fire departments often act as the "first responders" to medical emergencies because of their more numerous stations and often closer proximity to the emergency. In many cases, both the local fire department and EMS will respond to a medical emergency.

Ada County EMS is partially funded (providing about one-third of annual expenditures) through a property tax. In the 2005 fiscal year the Ada County EMS property tax levy was $0.1205 per $1,000 of taxable value (this levy rate is down slightly from the level of two years earlier of $0.122 per $1,000 of taxable value). The majority of Ada County EMS funding is received from fees for its services.

However, a recent analysis performed by Ada County EMS personnel in response to inquiries by other planned community developers examined the agency's fixed and variable costs of operation in greater detail. This analysis found that Ada County EMS had an annual average cost not covered by fees for services of $7 per person. This analysis therefore assumes that the development of M3-Eagle will impose a cost that is not covered by Ada County EMS fees for services of $7 per person.

Initially, in the first years of the M3-Eagle Development response times to the project may be somewhat longer than is the average in the more urban areas of the County. However, Ada County EMS has also indicated that the projected population and demographics of the project indicate that M3-Eagle could be less costly to serve than the County average.

The developers of M3-Eagle have offered to provide two fire station sites within the project.

Ada County EMS is projected to receive nearly $237.2 thousand in additional property tax revenue during the first five years of the development and an estimated $1.00 million in the second five years of the development. The ongoing additional property taxes that will be received by Ada County EMS from M3-Eagle properties after the twentieth year of the project is projected to be nearly $425.0 thousand annually. Because Ada County EMS is largely funded on a fee for service basis there are no additional O&M expenses expected. There would be no additional expenses incurred by Ada County EMS due to the M3-Eagle Development development. These estimates are summarized in Table 20 below.

Mitigation:

The M3-Eagle Development does not appear to produce any negative economic externalities that would impose a cost upon other Ada County residents. The projected ongoing annual property tax revenues of nearly $425.0 thousand originating from the M3-Eagle Development more than offset any estimated additional, incremental, impact that the development would have on Ada County EMS's operation and maintenance costs.

Table 14
The M3-Eagle Development - Net Fiscal Impacts on the:
Ada County Emergency Medical Servces (EMS)

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Total
Additional Property Taxes.....	$9,244	$25,138	$44,138	$67,938	$90,738	$237,195
Projected Additional Expenses:						
O&M Expenses.....	$4,627	$9,184	$16,627	$23,951	$31,130	$85,518
Annual Net Fiscal Impact.....	**$4,617**	**$15,954**	**$27,511**	**$43,987**	**$59,608**	
			5-Year Net Fiscal Impact.....			**$151,676**

	Year 6	Year 7	Year 8	Year 9	Year 10	10-Year Total
Projected Additional Revenues...	$113,488	$136,238	$162,738	$192,338	$221,238	$1,063,233
Projected Additional Expenses:						
O&M Expenses.....	$38,163	$45,052	$53,942	$62,625	$71,138	$356,438
Annual Net Fiscal Impact.....	**$75,324**	**$91,186**	**$108,796**	**$129,713**	**$150,099**	
			10-Year Net Fiscal Impact.....			**$706,795**

	Year 11	Year 12	Year 13	Year 14	Year 15	15-Year Total
Projected Additional Revenues...	$250,188	$279,138	$304,788	$327,738	$351,338	$2,576,422
Projected Additional Expenses:						
O&M Expenses.....	$79,980	$88,736	$94,997	$101,207	$107,413	$828,770
Annual Net Fiscal Impact.....	**$170,208**	**$190,402**	**$209,791**	**$226,530**	**$243,925**	
			15-Year Net Fiscal Impact.....			**$1,747,651**

	Year 16	Year 17	Year 18	Year 19	Year 20	20-Year Total
Projected Additional Revenues...	$375,038	$398,688	$412,288	$417,688	$423,938	$4,604,060
Projected Additional Expenses:						
O&M Expenses.....	$113,466	$119,485	$120,396	$121,314	$122,184	$1,425,616
Annual Net Fiscal Impact.....	**$261,572**	**$279,203**	**$291,891**	**$296,373**	**$301,753**	
			20-Year Net Fiscal Impact.....			**$3,178,444**

4. Ada County Highway District

Projected Net Fiscal Impact: + $64.91 Million 1st Twenty Years

The Ada County Highway District is a special purpose taxing district that provides street construction and maintenance for those roadways that are under its jurisdiction in both the incorporated and unincorporated areas of Ada County. In 2005 there were 2,012 miles of public roads and streets in Ada County. ACHD had jurisdiction over 2,002 miles of those. The Idaho State Department of Transportation has jurisdiction and maintains the state and interstate roadways, many of which are the larger arterial roadways in Ada County.

This analysis will examine only the impact on annual operating costs that the M3-Eagle Development would put upon ACHD. Costs associated with the longer term capacity needs of the transportation infrastructure are caused by many factors and circumstances which are better examined in detailed traffic and engineering studies.

There will be many construction phases of the M3-Eagle development over the twenty-year period until its full build-out. The streets and roadways within M3-Eagle will be built in phases as well. As is standard practice in similar residential developments, each phase of the development will include sufficient roadway improvements to serve each of the new residential lots. When completed the roadways within M3-Eagle will be dedicated to the Ada County Highway District.

The addition of these new roadways will increase ACHD's maintenance and operations expenses. In fiscal year 2005 ACHD spent nearly $16.0 million on roadway maintenance and operations. With 2,002 miles of roadway under ACHD jurisdiction this translates to an annual average M&O expense of $7,992 per mile.

Roadway maintenance involves many activities; the striping and repainting of lane and directional markings, the sweeping of roadways, the repair of potholes, the replacement or repair of traffic signs or signals, and one of the more costly operations, snow removal and sanding. Not all roads are created equal from a maintenance cost perspective.

Roadways at the higher elevations in Ada County are more costly to maintain. The roadways within M3-Eagle would be of that category. Previous studies performed for the Hidden Springs Planned Community and discussions with ACHD personnel indicate that the roadways in the foothills of Ada County are 20-25 percent more costly to maintain than are the roadways in the valley floor. Furthermore, it is thought that nearly 15 percent of the streets and roadways within ACHD jurisdiction are within the foothills. The $16.00 million in FY '05 actual M&O expenses includes expenses for roadways at the higher elevations as well as those on the valley floor.

Table 21

ACHD Maintenance & Operation Expenses
with Street & Roadway Statistics

ACHD Roadway O&M Costs:	
Actual ACHD FY05 Maintenance & Operations Expenditures	$16,000,000
Projected ACHD FY04 Maintenance & Operations Budget	$13,825,000
ACHD Roadway Statistics:	
Total Public Road & Street Inventory in Ada County	2,124 miles
Roads & Streets Under ACHD jurisdiction	2002 miles
New Roads & Streets Built & Added to the ACHD System (FY05)	59 miles
O&M / Mile of Roadway	
Actual ACHD FY05 Maintenance & Operations Expenditures / Mile of Roadway	$7,992
Estimated Avg. with Higher Elevations & Added Snow Removal.....	$7,449
Estimated Avg. at Lower Elevations & Less Snow Removal.....	$6,394

Source: ACHD 2003 Fact Book, Fiscal Year 2004-2005 Budget

Using these average cost parameters and assuming that the roadways are in place approximately one year prior to the population of the project it is possible to estimate the increased M&O expenses that M3-Eagle would impose annually on ACHD. These estimates are shown in the Table 22 below.

Property tax collections accounted for the largest share (35.7 percent) of ACHD's revenues in fiscal year 2004-2005. The Highway Users Fund - tax collections from state automobile registration fees and the state gasoline taxes - are, through a prescribed formula, allocated back to various funds, cities, and to the local highway districts. In FY 20004-2005 nearly 33.8 percent of ACHD's revenues came from this source. The highway district also receives revenue from a vehicle registration fee on vehicles registered and licensed in Ada County. Revenues from the registration fee in fiscal year 2005 accounted for 6.4 percent of ACHD's total revenues.

These sources other than the property tax could be a significant source of additional revenue to ACHD if the future residents of M3-Eagle Development were from outside of the local area. However, since it more likely that M3-Eagle Development will not attract new residents to the area, enhanced revenues from new, additional, registration fees, higher gasoline tax collections, and increased total auto registration fees, are not likely to be significant revenue additions.

Applying the ACHD 2005 property tax levy to the assessed value of the property in M3-Eagle Development this analysis estimates that ACHD realizes an additional $2.0 million in property tax revenues in the first five years of the project and surpasses $8.9 million in ten years. In total over the twenty years until full build-out of the M3-Eagle project ACHD captures nearly $38.7 million in additional property tax revenues attributable to M3-Eagle. In addition to the property tax revenue stream originating from the project ACHD would be, over the twenty years to full build-out of M3-Eagle, the recipient of an estimated $38.8 million in impact fees associated with the residential and commercial buildings constructed in the project.

An estimate of additional ACHD O&M expenses was made by using the highway district's 2005 average O&M expense per mile of roadway and assuming that 7.5 miles of new roadway will be added to the M3-Eagle project each year of the twenty years until full build-out. This methodology inherently assumes that M3-Eagle would have added 150 miles of roadway to the ACHD system in its twenty year construction. If one were to assume that there were an additional 15 miles of roadway added to the ACHD system in each of the twenty years until full build-out of the M3-Eagle project it would not alter the end result that ACHD would realize a fiscal surplus from the calculus of the additional property tax revenues originating from M3-Eagle minus the additional ACHD O&M expenses.

Impact fee revenues from the M3-Eagle project are, in this analysis, assumed to apply to roadway transportation system improvements that would be needed downstream from M3-Eagle. In total, ACHD impact fees originating from the M3-Eagle project are projected to be nearly $38.8 million over the twenty years until full build-out of the project.

The highway district's additional M&O expenditures are estimated to total $899,100 in the first five years of the project, growing to $2,397,600 in the second five years, and reaching $3,896,100 in years 11 – 15 and $5,394,600 in years 16 – 20. Over the twenty years until full build-out of the M3-Eagle it is projected that the Ada County Highway District will incur an increase of $12.59 million in O&M expenses due to the project.

On the revenue side of the picture during the first twenty years of the M3-Eagle project the Ada County Highway District is projected to receive an additional $46.11 million in property tax revenues beyond what would have been realized without the project.

In addition to the additional property tax revenue that the project will bring to the district it is also expected that ACHD will collect nearly $5.9 million in impact fees in the first five years of the project, and an additional $10.7 million in the next five years. In years 11-20 of the M3-Eagle Development the absolute volume of impact fee revenues increases significantly as the bulk of the project's commercial buildings are added in these years. ACHD impact fee revenues from M3-Eagle are projected to be nearly $13.3 million in years 11-15 and to increase further to $8.8 million in years 16-20. In total, ACHD is forecasted to receive near $38.7 million in impact fees over the twenty years until full build-out of M3-Eagle.

On an ongoing basis, after the twentieth year the project, ACHD will collect $4.48 million in additional property tax revenues than can be attributed to the development of M3-Eagle. After year twenty of the project it is assumed that ACHD impact fee revenues from M3-Eagle will cease. The year-by-year breakout of the projected fiscal impact of M3-Eagle on the Ada County Highway District is shown in Table 22.

Mitigation:

In the near-term there appears to be no negative economic externalities that would impose a cost upon other Ada County residents. The projected ongoing annual property tax revenues of $4.11 million from M3-Eagle would more than offset the estimated $1.2 million in additional O&M expenses attributable to M3-Eagle. After full build-out of M3-Eagle it is projected that ACHD will realize an ongoing fiscal surplus of nearly $2.91 million per year from the M3-Eagle Development to the benefit of all of the highway district patrons.

Sidewalks:

Under some circumstances the maintenance and repair of sidewalks becomes an expense of the Ada County Highway District – for example, damage due to trees and the subsequent buckling of sidewalks. In this analysis it is anticipated that those circumstances with that sort of cost shifting would be, at the minimum, many decades in the future.

In the foreseeable future sidewalks within the M3-Eagle Development community will be constructed and maintained by the developer as the project is constructed. Maintenance of the sidewalks associated with each home in the M3-Eagle Development project becomes the responsibility of the homeowner as homes are sold. Nevertheless, the homeowner's association will maintain a reserve fund for sidewalk maintenance and repair for those sidewalks that are adjacent to common areas, parks, or other locations where there is no clear homeowner responsibility. Sidewalks damaged during construction or prior to sale will be repaired by the developer.

Maintenance of Sidewalks:

The experience of other project developers has led them to maintain a $1,500 annual budget during the project's construction phase for sidewalk repairs and maintenance. It is likely that a similar sidewalk maintenance budget for the M3-Eagle Development would be reasonable. Again at the early stages of the project the developer would provide the majority of the funding for sidewalk maintenance and repair, however, as the number of homes sold at M3-Eagle Development increases a greater proportion of this maintenance expense would be funded by homeowner association levies.

Mitigation:

In the near-term there appear to be no negative economic externalities that would impose a cost upon other Ada County residents. In the very long-term it may be possible that an encroachment of roots from nearby trees could cause some sidewalks to need repair. However, any sidewalk damage of this sort is often uncertain to occur and is usually many decades in the future.

Table 22
The M3-Eagle Development - Net Fiscal Impacts on the:
Ada County Highway District

	Year 1	Year 2	Year 3	Year 4	Year 5	Total Years 1 - 5
Projected Additional Revenues						
Property Taxes	$77,548	$211,096	$370,996	$570,896	$762,596	$1,993,134
Impact Fees	716,144	718,027	1,508,008	1,504,941	1,504,941	$5,952,061
Total	$793,692	$929,123	$1,879,004	$2,075,838	$2,267,538	$7,945,195
Projected Additional Expenses:						
O&M Expenses	$59,940	$119,880	$179,820	$239,760	$299,700	$899,100
Capital Expenses	0	0	0	0	0	$0
Total	$59,940	$119,880	$179,820	$239,760	$299,700	$899,100
Annual Net Fiscal Impact	**$733,752**	**$809,243**	**$1,699,184**	**$1,836,078**	**$1,967,838**	**$7,046,095**
				5-Year Net Fiscal Impact		***$7,046,095***

	Year 6	Year 7	Year 8	Year 9	Year 10	Total Years 6 - 10
Projected Additional Revenues						
Property Taxes	$954,046	$1,145,746	$1,368,596	$1,617,296	$1,860,946	$6,946,632
Impact Fees	1,501,570	1,508,888	2,574,416	2,574,416	2,574,416	$10,733,706
Total	$2,455,617	$2,654,634	$3,943,012	$4,191,712	$4,435,362	$17,680,338
Projected Additional Expenses:						
O&M Expenses	$359,640	$419,580	$479,520	$539,460	$599,400	$2,397,600
Capital Expenses	0	0	0	0	0	$0
Total	$359,640	$419,580	$479,520	$539,460	$599,400	$2,397,600
Annual Net Fiscal Impact	**$2,095,977**	**$2,235,054**	**$3,463,492**	**$3,652,252**	**$3,835,962**	**$15,282,738**
				10-Year Net Fiscal Impact		***$22,328,833***

	Year 11	Year 12	Year 13	Year 14	Year 15	Total Years 11 - 15
Projected Additional Revenues						
Property Taxes	$2,104,546	$2,347,996	$2,563,646	$2,756,446	$2,955,346	$12,727,982
Impact Fees	2,574,416	2,575,994	2,808,214	2,683,714	2,680,647	$13,322,985
Total	$4,678,962	$4,923,991	$5,371,860	$5,440,160	$5,635,993	$26,050,967
Projected Additional Expenses:						
O&M Expenses	$659,340	$719,280	$779,220	$839,160	$899,100	$3,896,100
Capital Expenses	0	0	0	0	0	0
Total	$659,340	$719,280	$779,220	$839,160	$899,100	$3,896,100
Annual Net Fiscal Impact	**$4,019,622**	**$4,204,711**	**$4,592,640**	**$4,601,000**	**$4,736,893**	**$22,154,867**
				15-Year Net Fiscal Impact		***$44,483,700***

	Year 16	Year 17	Year 18	Year 19	Year 20	Total Years 16 - 20
Projected Additional Revenues						
Property Taxes	$3,154,646	$3,353,196	$3,467,896	$3,513,646	$3,565,996	$17,055,382
Impact Fees	2,680,647	2,680,647	1,704,276	1,417,776	285,210	$8,768,557
Total	$5,835,293	$6,033,843	$5,172,173	$4,931,423	$3,851,206	$25,823,939
Projected Additional Expenses:						
O&M Expenses	$959,040	$1,018,980	$1,078,920	$1,138,860	$1,198,800	$5,394,600
Capital Expenses	0	0	0	0	0	0
Total	$959,040	$1,018,980	$1,078,920	$1,138,860	$1,198,800	$5,394,600
Annual Net Fiscal Impact	**$4,876,253**	**$5,014,863**	**$4,093,253**	**$3,792,563**	**$2,652,406**	**$20,429,339**
				20-Year Net Fiscal Impact		***$64,913,038***

5. Ada County Weed and Pest Control

Projected Net Fiscal Impact: + $1.33 Million 1st Twenty Years

The County collects a property tax levy to fund the control and/or elimination of noxious weeds and the extermination of pocket gophers and woodchucks in the unincorporated areas of Ada County. The Department provides its services to other areas on a fee for service basis. Most of the Department's demand for pest extermination services are generated and requested by residential development.

The M3-Eagle Development will be assessed a property tax levy of $0.1248 per $1,000 of assessed valuation for the Weed and Pest Control Department. This levy would provide the department with an estimated additional $253.4 thousand of revenue in the first five years, $1.1 million through the first ten years, and nearly $4.9 million in the first twenty years of the M3- Eagle Development.

The Weed & Pest Control Department director indicated that he did not see any additional operating expenses for the Department due to the development of the M3-Eagle Development project. Furthermore, he acknowledged that while it is likely that the Department would experience increased demand for services initially as the residential community developed, it has been the case in the past that other areas of the County that have already been developed are no longer demanding the Department's services. The bottom line is that he would not envision needing any new personnel or the need for additional capital equipment due to the development of M3-Eagle Development.

Mitigation:

In the near-term there appear to be no negative economic externalities that would impose a cost upon other Ada County residents.

Table 23
Ada County Weed and Pest Control

	Year 1-5	Year 6-10	Year 11-15	Year 16-20	Year 21+	20-Year Total
Projected Additional Revenues.....	$253,295	$884,288	$1,620,588	$2,171,738	$455,294	$4,930,010
Projected Additional Expenses:						
O&M Expenses.....	$209,350	$661,200	$1,178,700	$1,553,650	$323,850	$3,602,900
Total.....	$209,350	$661,200	$1,178,700	$1,553,650	$323,850	$3,602,900
Annual Net Fiscal Impact.....	**$43,945**	**$223,088**	**$441,888**	**$618,088**	**$131,444**	
			20-Year Net Fiscal Impact.....			**$1,327,110**

6. Eagle Fire District

Projected Net Fiscal Impact: + $27.40 Million 1st Twenty Years

The Eagle Fire District provides fire protection services to the City of Eagle and the immediate surrounding area. The proposed M3-Eagle Development residential community is within the boundaries of the Eagle Fire District. The Eagle Fire District attempts to maintain a coverage ratio of one full-time career fire-fighter and six volunteers for every one thousand of population. Currently the Eagle Fire District operates two fire stations. The main Eagle fire station is on Iron Eagle Drive near the center of the City of Eagle. Fire station number two is on Floating Feather Road on the east side of Eagle near SH-55. A third fire station is slated for construction on the west side of Eagle near Linder Road and State Street. The District's fire fighting apparatus includes pumper trucks, tankers, grassfire apparatus, and rescue trucks. An Ada County Emergency Medical Services unit is stationed at Eagle Fire Station number one.

Discussions with officials at the Eagle Fire District indicated that, because of the longer distances involved and the eventual population of the community approaching nearly 17,455 two fire station facilities would be justified for the M3-Eagle area.

Using the current ratios of full-time and part-time firefighters to population within the Eagle Fire District, the addition of M3-Eagle's full build-out population of 17,455 would translate to the Eagle Fire District needing to add nearly twenty four full-time career firefighters and sixty volunteers in order to accommodate this growth. This may not be practical or desired in a community that would have a population exceeding 40,000 at the completion of the M3-Eagle development. Therefore this analysis examines the additional operating costs that the Eagle Fire District may encounter with the addition of the M3-Eagle population.

The Eagle Fire District currently provides its services to the population it serves at an annual average cost of about $97 per person. In contrast, the latest per capita costs for fire protection in the City of Meridian is $105 per person, in Coeur d' Alene the annual cost per capita is $118, while fire protection costs per capita in the cities of Idaho Falls and Boise where $157 and $173, respectively. Differences in wage scales are the single biggest reason for the differing costs. These O&M expenses are shown below in Table 24.

This analysis examines the additional operating costs in two ways: 1) the current structure of the Eagle Fire District (part full-time and part volunteer) with an average cost of service of $97 per capita, and 2) a full-time professional firefighting force without volunteer firefighters. This second option assumes that average cost of service per capita will a composite of the costs found for the fire departments for the Cities of Meridian and Coeur d' Alene – ($105 and $118 per capita, respectively) – an average of $111 per capita. These O&M cost estimates along with the projected property taxes and fee revenues that the Eagle Fire District would receive are shown below in Table 25.

In an examination of fire station needs in the Boise foothills nearly a decade ago it was found that because of future population and household growth in the area that more fire stations would be needed to be built either near to or within the foothills. This analysis also found that these additional fire stations should ideally have a service area radius of about 1.5 miles and would be able to serve a local area population of between 7,000 and 10,000 people depending upon the population density and response times.

The projected full build-out population of the M3-Eagle – 17,455 – indicates that two full-service fire stations (manned with a total of three engines) are warranted with the project. For the purpose of examining potential fiscal impacts, it is assumed that the first fire station

Table 24
Selected Fire Departments: Population Served, FY '04-'05 Fire Department O&M Budget, and Calculated O&M Expenses per Capita

City	July 2004 Population	FY '05 -'06 Fire Dept. Budget	Fire Dept. $ per capita
Eagle Fire District	21,176	$2,045,320	$97
Boise	194,948	$33,738,428	$173
Meridian	44,962	$4,715,785	$105
Idaho Falls	52,148	$8,171,539	$157
Coeur d' Alene	38,388	$4,535,364	$118

is put in place as the population of M3-Eagle surpasses 5,000 (Year 7). A second engine company would be added to the first fire station when the population exceeds 12,000 (Year 12) and the second fire station put in place when population attains nearly 17,000 (Year 19) and when all of the commercial development is envisioned to be in place.

The Boise Fire Department estimates that the up front costs of equipping a new fire station is approximately $490,000 (fire engine: $310,000; fire equipment/hose/tools/ladders: $45,000, station equipment / communications/furnishings: $60,000; and personnel equipment /uniforms/training: $75,000). Adding a second engine company to the same station would be somewhat less expensive at nearly $430,000. A ladder company would have a higher start up cost with the truck costing an estimated $950,000 -$1,050,000.

The analysis below indicates that total property tax revenues received by the Eagle Fire District from M3-Eagle would total nearly $2.5 million during the first five years of the project. By the tenth year total property tax revenues collected by the Eagle Fire District from properties in the M3-Eagle project will total $11.3 million. And in the twentieth year of the project properties in M3-Eagle will have paid nearly $49.1 million in property taxes to the Eagle Fire District.

Population growth in M3-Eagle will increase the fire district's O&M expenses. Using Eagle Fire District's current per capita cost of service of $97 the net fiscal impact of M3-Eagle is positive from the first year. This is also the case if the higher rate of $111 per person per year is used to estimate Eagle Fire's additional O&M expenses.

Table 25, below also incorporates the startup capital costs of a new fire station in years 8 and 15 of the project and the start-up capital costs associated with a second engine company in one of the two fire stations in year 19.

The fiscal impact analysis indicates that property tax revenues to the Eagle Fire District from the M3-Eagle Development will produce a revenue surplus of nearly $27.40 million over the first twenty years of the project. In addition to projected additional O&M expenses of $111 per capita nearly $1.41 million in start-up capital costs for fire station equipment and apparatus were included in the projected additional expenses. The developers of M3-Eagle have expressed their intent to not only contribute the land necessary for the two fire station sites, but an additional $1.0 million per site ($2.0 million total) toward the start-up costs of each facility. That $2.0 million commitment is not included in the fiscal impact projections shown in Table 25 below in years 8 and 15.

Table 25

The M3-Eagle Development - Net Fiscal Impacts on the:

Eagle Fire District

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Total
Additional Property Taxes	$98,242	$267,434	$470,034	$723,284	$966,134	$2,525,128
Other Fee Revenues	1,416	2,353	4,169	5,785	7,403	21,125
Developer Capital Contribution	0	0	0	0	0	0
Total Addition Revenues	$99,658	$269,787	$474,203	$729,069	$973,537	$2,546,253
Projected Additional Expenses:						
O&M Expenses	$73,372	$145,634	$263,652	$379,790	$493,626	$1,356,074
Capital Expenses	0	0	0	0	0	0
Total	$73,372	$145,634	$263,652	$379,790	$493,626	$1,356,074
Annual Net Fiscal Impact	**$26,286**	**$124,153**	**$210,551**	**$349,279**	**$479,911**	
			5-Year Net Fiscal Impact			**$1,190,179**

	Year 6	Year 7	Year 8	Year 9	Year 10	10-Year Total
Projected Additional Revenues	$1,208,584	$1,451,384	$1,733,784	$2,048,834	$2,357,384	$11,325,098
Other Fee Revenues	9,015	10,639	13,004	15,225	17,446	86,453
Developer Capital Contribution	0	0	1,000,000	0	0	1,000,000
Total Addition Revenues	$1,217,599	$1,462,023	$2,746,788	$2,064,059	$2,374,830	$12,411,551
Projected Additional Expenses:						
O&M Expenses	$605,160	$714,393	$855,359	$993,047	$1,128,052	$5,652,085
Capital Expenses	0	0	490,000	0	0	490,000
Total	$605,160	$714,393	$1,345,359	$993,047	$1,128,052	$6,142,085
Annual Net Fiscal Impact	**$612,439**	**$747,630**	**$1,401,429**	**$1,071,012**	**$1,246,778**	
			10-Year Net Fiscal Impact			**$6,269,466**

	Year 11	Year 12	Year 13	Year 14	Year 15	15-Year Total
Projected Additional Revenues	$2,665,984	$2,974,434	$3,247,634	$3,491,934	$3,743,834	$27,448,917
Other Fee Revenues	19,668	21,893	23,518	25,289	27,054	203,875
Developer Capital Contribution	0	0	0	0	1,000,000	2,000,000
Total Addition Revenues	$2,685,652	$2,996,327	$3,271,152	$3,517,223	$4,770,888	$29,652,792
Projected Additional Expenses:						
O&M Expenses	$1,268,252	$1,407,095	$1,506,377	$1,604,862	$1,703,261	$13,141,932
Capital Expenses	0	0	0	0	430,000	920,000
Total	$1,268,252	$1,407,095	$1,506,377	$1,604,862	$2,133,261	$14,061,932
Annual Net Fiscal Impact	**$1,417,400**	**$1,589,232**	**$1,764,775**	**$1,912,361**	**$2,637,626**	
			15-Year Net Fiscal Impact			**$15,590,860**

	Year 16	Year 17	Year 18	Year 19	Year 20	20-Year Total
Projected Additional Revenues	3,996,284	4,247,934	4,393,184	4,451,034	4,517,384	$49,054,737
Other Fee Revenues	28,821	30,587	30,806	31,335	31,654	357,077
Developer Capital Contribution	0	0	0	0	0	2,000,000
Total Addition Revenues	$4,025,105	$4,278,521	$4,423,990	$4,482,369	$4,549,038	$51,411,814
Projected Additional Expenses:						
O&M Expenses	$1,799,242	$1,894,691	$1,909,143	$1,923,697	$1,937,496	$22,606,201
Capital Expenses	0	0	0	490,000	0	1,410,000
Total	$1,799,242	$1,894,691	$1,909,143	$2,413,697	$1,937,496	$24,016,201
Annual Net Fiscal Impact	**$2,225,863**	**$2,383,830**	**$2,514,847**	**$2,068,672**	**$2,611,541**	
			20-Year Net Fiscal Impact			**$27,395,613**

* The M3-Eagle developers have agreed to contribute the land necessary for the two fire station facilities as well as an addition 1.0 million per facility ($2.0 million total) toward the startup costs for those facilities.

7. Meridian Joint School District #2

Projected Net Fiscal Impact: + $116.18 Million 1st Twenty Years

The Meridian Joint School District is the largest and fastest growing school district in the State of Idaho. During the 2004-2005 school year the District provided public education for more than 28,000 students in grades through 12. The Meridian School District includes the communities of Meridian, Eagle, Star, a part of Garden City, and portions of west Boise, southwest Boise, and many of the rural areas between those communities.

Student population in the Meridian School District has grown over five-fold during the last 25 years with nearly 40 percent of that growth in the last 10 years. The District projects that its enrollment will increase another 28 percent over the next decade.

Today the Meridian School District operates 25 elementary schools in its 384 square mile district, 7 middle schools, and 4 high schools.

The M3-Eagle Development is projected to add 4,050 students residing in 7,455 new residential housing units to the Meridian School District by the end of the twentieth year of the project. .

The population projections for the M3-Eagle Development indicate that at the end of the fifth year there would be nearly 4,447 persons residing in M3-Eagle of which 1,092 would be school age children. At the tenth year of the project, a half-way point in the project's twenty year timeframe to full build-out the population of M3-Eagle is forecasted to reach 10,163 with nearly 2,496 of those being children of school age.

At full build-out of the M3-Eagle Development it is anticipated that the project's 7,153 residential housing units will be home to nearly 17,455 persons of which 4,290 persons are predicted to be children of school age. And, out of those 4,290 school age children it is expected that 94.4 percent, or 4,050, will choose to attend the local public schools. Consistent with patterns of school selection found in the 2000 Census this analysis projects that the remaining 240 not in the public schools will either attend private schools or to be individually home schooled. On average, it is projected that there will be approximately 0.59 school age children per household within M3-Eagle.

A further breakdown of the forecasted school age population within M3-Eagle at full build-out finds that nearly 2,099 children (about 52.0 percent) of the 4,050 expected to attend the public schools will be of elementary school age. Another 911 children would be of the age to attend a middle school the Meridian School District and 1,040 students would be of high school age.

At the 2006 property tax levy rate of the Meridian School District, adjusted to reflect the Idaho Legislature's Summer 2006 property tax relief legislation, this analysis projects that if the properties within M3-Eagle were taxed at the 2005 levy rate there would be the potential to raise nearly $157.67 million in additional property tax revenues over the first twenty years of the project.

On an ongoing basis, in the years after the 20-year build-out of the project it is projected that at 2006 levy rates (again adjusted to reflect the Legislature's Summer 2006 property tax relief) there could potentially be nearly $14.56 million per year in additional property taxes originating from the M3-Eagle Development.

In the latest published figures the Meridian School District's average assessed property value per average daily student attendance was nearly $276,348 in the 2004-2005 school year. Largely because of the expected 1.19 million square feet of

commercial floor space slated for M3-Eagle Idaho Economics expects that, at full build-out of the project, the average assessed value per M3-Eagle student will be close to $921.0 thousand. Simply put, when all other things are equal, the addition of the assets of M3-Eagle to the Meridian School District's property tax base could help lower the property tax burden on the other taxpayers in the district.

The increased enrollment in the Meridian School District because of children originating from the M3-Eagle project would also command additional revenues in the form of educational aid monies from the State of Idaho.

A large portion of the State funds for education allocated to the local school districts is based upon the districts average daily attendance (ADA) figures. In the 2004-2005 school year the State of Idaho funds received by the Meridian School District averaged $4,768 per full-term ADA and represented 59.4 percent of the total revenue received by the school district in that school year. Local property tax collections accounted for 30.3 percent of the total revenues received by the Meridian School District in the 2004-2005 school year.

In the 2004-2005 school year the Meridian School District's adjusted operations and maintenance expenditures (O & M expenditures excluding the costs of capital projects, payments to service the district's debt, and interest payments) per student was nearly $5,638.

The difference between the District's average spending per student ($5,638) and the monies that the District receives from the State of Idaho ($4,768) is an approximation of the locally or federally funded education expense per student – or about $870 per student.

This analysis predicts that each additional student from the M3-eagle development will increase the Meridian School District's annual O&M expenses by $5,638. Also with each additional student the State of Idaho will assist the District with the full burden of that O&M expense as it has assured the public that it would do with the enactment of the Summer 2006 property tax relief legislation.

The Need for Additional School Facilities:

Irregardless of the development of M3-Eagle the population growth trends in the area are clear and Meridian School District officials have acknowledged that the ongoing growth in and around the City of Eagle area will make it necessary for the district to construct additional school facilities of all types in the Eagle area in the future. However, some of these facilities that will be needed in the future may have the opportunity to be less costly than others.

In the case of M3-Eagle the developers have made assurances to the public and the Meridian School District that they will donate lands within the M3-Eagle Development to the school district for the 5 elementary schools, 1 middle school, and 1 senior high school that may be necessary because of the population residing in M3-Eagle.

Meridian School District officials acknowledged that continuing population growth in the Eagle area will eventually cause the district to construction additional school facilities throughout its district and that a contribution of land for a school site represents a valuable benefit (the approximate value of the nearly 10 acres necessary for an elementary school site is nearly $600,000 today). A middle school site would be at least double that amount ($1,200,000) and the land needed for a senior high school could cost as much as $1.8 to $2.4 million.

In total, the M3-Eagle offer of a donation of land for an expected 4 elementary schools, 1 K-8 school, 1 middle school, and 1 senior high school has a value to the school district, and the general public as a whole, of close to $9.6 million.

Student Transportation:

Initially, the school age population at M3-Eagle Development would not justify building an elementary school. Therefore, during the first few years of the project the Meridian School District is likely to experience an increase in its student transportation expenses. These additional transportation expenses estimated in this analysis by utilizing the Meridian School District's 2004-2005 school year annual average transportation expense per student transported of nearly $713.

However, the State of Idaho provides a degree of reimbursement to school districts for these transportation expenses. In the case of the Meridian School District the state has historically reimbursed the Meridian District about 85 percent of the monies spent of student transportation or about $606 per student. Therefore, this analysis only considers the locally paid 15.0 percent portion of the district's transportation expenses, $107 per student per year, that are not reimbursed by the State of Idaho to the district as a cost for this analysis.

In addition, this analysis expects that not all of these additional transportation expenses will apply to all of the students from M3-Eagle that will be attending school in the Meridian District. This is because not all students will or can use the school districts transportation. Students that live within 1.5 miles of the school are not offered district provided transportation unless there is some compelling reason (such as safety). In addition, even when district provided student transportation is available many young adults will choose to transport themselves and their cohorts to school each day and many parents may prefer to transport their children to school. The District's student transportation statistics submitted to the State Department of education revealed that during the 2004-2005 school year only 47.0 percent of the total number of students made use of the Meridian School District's student transportation services.

This is also likely to be the reality in the M3-Eagle Development. Therefore this analysis assumes that only 47.0 percent of the students attending the Meridian School District from M3-Eagle would utilize the District's transportation services. Further it is expected that the District would incur additional annual student transportation expenses because of the M3-Eagle Development until the first school is constructed in the Development that is equal to the number of public school students from M3-Eagle times the percent of students who utilize the district's transportation services (47.0 percent) times the District's annual average cost per student of $107. After the first school is constructed within M3-Eagle it is assumed that nearly 70.0 percent of the existing students in the development would be within the 1.5 mile radius of the school and would not qualify for transportation service. As the student population grows in M3-Eagle it is assumed that approximately 50.0 percent of the new students would be within walking distance of an existing school and the remaining 50.0 percent would be transported. This process of estimating the expenses associated with the school districts student transportation services continues thru the first twenty years of the projections for the M3-Eagle project.

Recent legislation in Idaho restricts the State of Idaho's reimbursement to school districts that have higher than the state's average cost for public school student transportation (as measured on a cost per student per year basis and on a cost per student mile basis). Because the Meridian School District has lower costs for student transportation than the overall average in the state this legislation has not had an effect on the reimbursement that Meridian receives from the State of Idaho.

In the first 5 years of the M3-Eagle development it is projected that the Meridian School district will realize nearly $8.1 million in additional property tax revenues from the project with another $13.6 million accruing to the school district from additional State of Idaho's school support funds. In the first five years of M3-Eagle the additional Meridian School District enrollment from students originating from the development would increase the District's maintenance and operating expenses by $16.0 million with an additional $0.14 million in increased student transportation expenses. In total, it is estimated that during the first five years of the M3-Eagle Development the Meridian School District would realize, at constant 2006 levy rates adjusted for the Summer 2006 property tax relief measure, an additional $8.1 million in property tax revenues originating from the M3-Eagle Development.

By the end of the tenth year of the M3-Eagle Development it is projected that the Meridian School District will have realized nearly $36.4 million in additional property tax revenues since the inception of the M3-Eagle project plus a further $56.9 million accruing to the school district from increased State of Idaho's school support funds.

By the tenth year of the project the increased enrollment of students originating from M3-Eagle would have increased the Meridian School District's maintenance and operating expenses by nearly $66.6 million over the ten-year period plus an increase in student transportation expenses of nearly $0.59 million. In total, during the first ten years of the M3-Eagle Development the Meridian School District would realize, at constant 2006 levy rates adjusted for the Summer 2006 property tax relief measure, an additional $26.0 million in property tax revenues originating from M3-Eagle.

By the twentieth year, full build-out of the M3-Eagle project, it is projected that nearly 4,050 students from M3-Eagle would be enrolled in the Meridian School District. That additional enrollment would have, over the first twenty years of the project, increased the District's total maintenance and operations expenses by nearly $268.9 million.

However, an additional $157.7 million in property taxes from the M3-Eagle Development and an additional $227.4 million is State of Idaho school support funds would have more than offset the District's additional costs. In total, during the first twenty years of the M3-Eagle Development the Meridian School District would realize, at constant 2006 levy rates adjusted for the Summer 2006 property tax relief measure, an additional $116.2 million in property tax revenues originating from M3-Eagle.

On an ongoing basis, after full build-out of the M3-Eagle community, it is projected that the Meridian School District would realize an additional property tax revenue stream of $14.56 million per year attributable to M3-Eagle.

Table 26(c), below, utilizes construction and ready-for-occupancy cost figures obtained from the Meridian School District to show that after the additional annual operating expenses associated with students from M3-Eagle there would be adequate fiscal surpluses from property tax revenues to facilitate the construction of the potential six to seven new school facilities anticipated for the M3-Eagle property.

Table 26 (a)
Meridian Joint School District #2

	Year 1	Year 2	Year 3	Year 4	Year 5	5-Year Total
Projected New Students.....	153	305	551	794	1,032	
Projected Additional Revenues:						
Property Taxes.....	$315,802	$859,653	$1,510,653	$2,324,603	$3,105,303	$8,116,014
State Support Funds.....	736,043	1,467,276	2,650,718	3,819,728	4,964,684	13,638,448
Total Additional Revenues....	$1,051,845	$2,326,929	$4,161,371	$6,144,331	$8,069,987	$21,754,462
Projected Additional Expenses:						
O&M Expenses.....	$862,614	$1,719,590	$3,106,538	$4,476,572	$5,818,416	$15,983,730
Transportation Expenses.....	7,694	15,338	27,710	39,930	51,899	142,572
Total Additional Expenses....	$870,308	$1,734,928	$3,134,248	$4,516,502	$5,870,315	$16,126,302
Annual Net Fiscal Impact.....	**$181,536**	**$592,000**	**$1,027,123**	**$1,627,828**	**$2,199,671**	
			5-Year Net Fiscal Impact.....			**$5,628,160**

	Year 6	Year 7	Year 8	Year 9	Year 10	10-Year Total
Projected New Students.....	1,266	1,494	1,789	2,077	2,359	
Projected Additional Revenues:						
Property Taxes.....	$3,884,653	$4,665,153	$5,572,753	$6,585,403	$7,577,203	$36,401,179
State Support Funds.....	6,090,397	7,187,246	8,606,414	9,991,907	11,348,536	56,862,947
Total Additional Revenues....	$9,975,050	$11,852,399	$14,179,167	$16,577,310	$18,925,739	$93,264,126
Projected Additional Expenses:						
O&M Expenses.....	$7,137,708	$8,423,172	$10,086,382	$11,710,126	$13,300,042	$66,641,160
Transportation Expenses.....	63,667	75,133	89,969	104,452	118,634	594,428
Total Additional Expenses....	$7,201,375	$8,498,305	$10,176,351	$11,814,578	$13,418,676	$67,235,588
Annual Net Fiscal Impact.....	**$2,773,675**	**$3,354,093**	**$4,002,816**	**$4,762,732**	**$5,507,063**	
			10-Year Net Fiscal Impact.....			**$26,028,538**

Maintenance:

The estimated additional operation and maintenance expenses to the Meridian School district attributable to the M3-Eagle Development are discussed above.

Mitigation:

Because of the increased property tax revenues generated by residences and businesses in the M3-Eagle Development more than offset the estimated additional costs that the development may impose upon the school district there appear to be no negative economic externalities that would impose a cost upon other Meridian School District or Ada County residents.

Furthermore, the developer's willingness to donate land to the Meridian School District for a school or schools clearly puts this development in the category of providing a positive externality to the other residents of the Meridian School District.

Table 26 (b)
Meridian Joint School District #2

	Year 11	Year 12	Year 13	Year 14	Year 15	15-Year Total
Projected New Students.....	2,652	2,943	3,150	3,356	3,562	
Projected Additional Revenues:						
Property Taxes.....	$8,569,003	$9,560,203	$10,438,303	$11,223,503	$12,033,203	$88,225,395
State Support Funds.....	12,758,082	14,158,008	15,153,831	16,144,843	17,135,856	132,213,567
Total Additional Revenues.....	$21,327,086	$23,718,211	$25,592,134	$27,368,347	$29,169,059	$220,438,962
Projected Additional Expenses:						
O&M Expenses.....	$14,951,976	$16,592,634	$17,759,700	$18,921,128	$20,082,556	$154,949,154
Transportation Expenses.....	133,369	148,003	158,414	168,773	179,133	1,382,120
Total Additional Expenses.....	$15,085,345	$16,740,637	$17,918,114	$19,089,901	$20,261,689	$156,331,274
Annual Net Fiscal Impact.....	**$6,241,740**	**$6,977,573**	**$7,674,021**	**$8,278,445**	**$8,907,370**	
			15-Year Net Fiscal Impact.....			**$64,107,688**

	Year 16	Year 17	Year 18	Year 19	Year 20	20-Year Total
Projected New Students.....	3,763	3,962	3,993	4,023	4,050	
Projected Additional Revenues:						
Property Taxes.....	$12,844,603	$13,653,203	$14,120,153	$14,306,203	$14,519,403	$157,668,960
State Support Funds.....	18,102,815	19,060,152	19,209,285	19,353,607	19,483,497	227,422,923
Total Additional Revenues.....	$30,947,418	$32,713,355	$33,329,438	$33,659,810	$34,002,900	$385,091,883
Projected Additional Expenses:						
O&M Expenses.....	$21,215,794	$22,337,756	$22,512,534	$22,681,674	$22,833,900	$266,530,812
Transportation Expenses.....	189,241	199,249	200,808	202,317	203,675	2,377,409
Total Additional Expenses.....	$21,405,035	$22,537,005	$22,713,342	$22,883,991	$23,037,575	$268,908,221
Annual Net Fiscal Impact.....	**$9,542,382**	**$10,176,350**	**$10,616,096**	**$10,775,819**	**$10,965,326**	
			20-Year Net Fiscal Impact.....			**$116,183,662**

Table 26(c) **Property Tax Revenues from M3-Eagle Will be More Than Enough to Cover the Construction of Schools**

Type of School	School Construction Costs (Millions of $)	Full Cost at Occupancy (Millions of $)	Projected Number of Schools in M3-Eagle	Projected Cost of School Facilities at M3-Eagle (Millions of $)
Elementary	$8.9	$10.9	4	$43.6
K-8 School	$12.0	$15.0	1	$15.0
Middle School	$17.0	$20.2	1	$20.2
High School	$46.5	$53.5	1	$53.5
Projected Total Cost of School Facilities at M3-Eagle Development.....				$132.3
Sum of the Projected Fiscal Surpluses from M3-Eagle in Years 1 - 30:.....				$225.8
Projected Net Fiscal Impact with School Facilities Included:.....				$93.6

8. Mosquito Abatement District

Projected Net Fiscal Impact: + $0.55 Million 1st Twenty Years

The Mosquito Abatement District of Ada County is funded by property taxes and is responsible for minimizing the mosquito population in Ada County.

The District collects a property tax at the 2006 levy rate of $0.00276 per $1,000 of assessed value.

The fiscal impact study projects that the Mosquito Abatement District will receive in the fifth and tenth years additional annual property tax revenues of approximately $21,650 and $53,350, respectively, from the property within the M3-Eagle Development.

There are no projected negative fiscal impacts, nor additional maintenance expenses, or need for any mitigation measures associated with the development of M3-Eagle and its effect on the Mosquito Abatement District.

9. Central Water and Sewer Systems

Central (Potable) Water Systems:

The M3-Eagle Development will consist of residential, commercial, and public water users. The water supply for the planned community will meet the demands associated with domestic use, irrigation, commercial, and fire protection. Water will be supplied to all residential, commercial, and public users through a public water system for potable purposes. Non-potable water for irrigation of the project's open spaces and common areas will also be supplied.

Projected Potable Water Demands:

Potable water demand estimates were developed for the M3-Eagle Development for approximately 10,839 residential connections with many additional commercial and public water connections. Most of the connections for the irrigation of the project's common areas are expected to be served from water effluent of the project's waste water treatment system.

Water conservation efforts planned for the project may result in further reductions of water usage on both the annual peak day and annual total basis.

Sources of Water Supply:

The M3-Eagle Development's water demands will likely be met through a combination of municipal water supply, ground water well sources, wastewater effluent reuse, and limited surface water supplies.

Ground Water: Preliminarily it appears that productive wells have been located on the M3-Eagle property. These wells are being examined for use as production facilities for a domestic water supply to the M3-eagle project. In addition, a series of monitoring wells are being put into place so that it can be determined if the utilization of these water sources for the M3-Eagle project could have a potential negative impact on other nearby groundwater facilities.

An existing irrigation well on the M3-Eagle Development property may be rehabilitated and used as a monitoring well for maintaining a record of the effects that water withdrawals may have on other users of the aquifer.

A new municipal supply well will likely be drilled on M3-Eagle property. The pumping rate and volume of the municipal well will be limited by the amount of water rights available for municipal use. This well would be conveyed to the appropriate water supply utility as part of the potable water facilities constructed for M3-Eagle Development.

Wastewater Effluent: Treated wastewater effluent from the project may be utilized for irrigation of selected lands. Wastewater effluent would be delivered through a separate non-potable pressurized irrigation water supply system. The use of the wastewater effluent is further discussed below.

Water Rights: Water rights appurtenant to M3-Eagle Development include (1) irrigation rights from surface water and well sources for agricultural fields within M3-Eagle Development, (2) stock water rights from wells, and (3) water rights from wells for domestic purposes.

Water System Operation and Management:

The potable water system serving M3-Eagle Development will be constructed by the developer and conveyed to a municipal water system after completion of construction.

There will be no significant fiscal impacts on the existing public service provider or their existing water customers. The developer will construct the necessary infrastructure to serve the M3-Eagle project.

Mitigation:

All of the M3-Eagle project's water system initial development: exploration, testing, development of production wells, construction of a water transmission and distribution system as well as the construction of water storage tanks will be funded by the developer. Therefore, there will be no adverse economic impact on other citizens of the City of Eagle or Ada County due to the development of a potable water system for the residents of the M3-Eagle. After initial development the ongoing water system operations and maintenance expenses will be funded from revenues received from water customers within M3-Eagle.

Sanitary Sewers:

The developers have proposed a conventional gravity sanitary sewer system for the M3-Eagle Development development. The design, engineering, and construction of this sanitary sewer system will be funded by the developer. The ongoing operational and maintenance costs of the system will be funded by user fees paid by M3-Eagle project's future homeowners and businesses.

In addition, waste water from the Water Reclamation Facility will be pumped to a holding pond within the M3-Eagle Development community and will be used, when enough water becomes available for the summertime irrigation of common areas, including parks, recreation areas, and roadway landscaping. During the winter the effluent will be discharged into the ground using a subsurface infiltration system. Although it is not anticipated to occur, if the necessary permits are obtained, the sanitary effluent could be discharged into another surface drainage if necessary.

The M3-Eagle Development is not projected to put any demands upon or use up valuable capacity other municipal sanitary sewer systems. Furthermore, the developers, in

conjunction with its engineering and construction consultants have shown the ability, both technically and financially to successfully complete the provision of this necessary and valuable community infrastructure for the M3-Eagle project.

Sanitary Sewer System Maintenance Costs:

Using cost figures from other planned community owned and operated sanitary sewer systems that are similar to that which is proposed for M3-Eagle the annual maintenance expenses have translated to nearly $380 per year for each residential household within the development. At the end of the 5th, 10th, 15th, and 20th years of the M3-Eagle project the total annual O&M expenses associated the provision of sanitary sewer service to the residences and businesses in M3-Eagle is estimated to be $817,000 and $1,634,000, respectively.

Mitigation:

The sanitary sewer system serving the M3-Eagle Development Planned Community will be independent from other existing municipal sanitary sewer systems that may be nearby. The expenses associated with the design, engineering, and construction of the project's sanitary sewer system are being funded by the developer and will be maintained by either the development of an independent sanitary sewer service entity or be jointly owned by the community's homeowner's association after the project is completed. It is expected that sanitary sewer system service to the M3-Eagle Development Planned Community will not present a negative economic externality to other citizens of Ada County.

The developer's investment in the M3-Eagle Development's independent sanitary sewer system for the treatment and management of wastewater will allow other areas of the county to husband their valuable sewer treatment capacity. This in turn will forestall the need for future sewer treatment capacity additions and thereby provide a positive externality (a benefit) to others in Ada County.

10. Solid Waste Disposal

Solid waste disposal is an enterprise operation of Ada County government. The County owns the landfill site. Ada County has recently decided to expand the Seaman's Gulch landfill site while at the same time negotiate with a private company to operate a second land fill in Ada County. Existing landfill capacity appears to be adequate.

Maintenance:

Solid waste disposal tipping fees at the Ada County landfill reflect the costs of the County's ongoing waste disposal operations. Solid waste collection in Ada County and the cities of Ada County are contracted to and performed by independent waste collection contractors. The negotiated rates of those waste collection contracts provide the hauler with coverage of collection costs, amortization of equipment costs, and a return on investment.

Mitigation:

Because of the M3-Eagle project's relative proximity to the Ada County landfill, solid waste collection costs per household at M3-Eagle may be lower than in other areas of Ada County. According to Allied Waste System's haulage times from sites near the M3-Eagle project travel to the Ada County landfill could be as little one-fourth to one-half of the time necessary to serve similar households in East Boise or in Boise's Central Bench area. This shorter and speedier haulage of solid waste to the Ada County landfill may potentially lower

the overall cost of service for future solid waste disposal services and could provide a benefit in the form of lower future rates to other residents of the County.

There appear to be no negative economic externalities from the M3-Eagle Development that would impose a cost upon other residents of Ada County.

11. Regulated Public Utilities

The provision of electricity, natural gas, telephone, and cable television infrastructure to the M3-Eagle Development will be provided for via the line extension policies of each utility as approved by the Idaho Public Utilities Commission. Initial infrastructure inside of the development (underground utility wiring and piping) will be provided by the developer.

Electric Service:

Electrical service to the M3-Eagle Development community will be provided by Idaho Power Company from many possible sources. Whatever the source of the electrical circuits that will serve the M3-Eagle project the Idaho Public Utilities Commission (IPUC) has established rules and regulations which govern the extensions of electrical service and the need for addition of electrical distribution and/or transmission lines and stations for new developments. These regulations define the sharing of the costs between Idaho Power Company and the new electrical customer for the installation of new or additional electrical system facilities. In general, the IPUC line extension rules are designed so as to eliminate the potential negative economic impacts upon existing Idaho Power electric customers caused by the expansion or addition of facilities to serve new electric customers. Specifically, Idaho Power Company's Rule H: New Service Attachments and Distribution Line Installations or Alterations as ordered and approved by the Idaho Public Utilities Commission apply. (Rule H is attached to this report as Appendix G.)

In general Rule H allows the prospective new electrical customer a limited dollar credits toward the cost of extending distribution facilities. Costs over and above the prescribed amount of the credit must be paid, or assured with a letter of credit, by the prospective new electric customer prior to the start of any electric system additions. These conditions will apply to the M3-Eagle project. Either M3-Eagle will prepay Idaho Power Company for the construction of the necessary additional electrical distribution and/or transmission facilities outside of the M3-Eagle project or M3-Eagle will contract with an approved electrical contractor to make the necessary improvements or additions to the electrical facilities.

It is anticipated that the underground electrical distribution system within the M3-Eagle project will be constructed by independent contractors hired by M3-Eagle. These newly constructed facilities will become part of the Idaho Power Company electrical distribution system. In addition, so as to assure that these facilities will not become a maintenance liability that would impose a cost upon those already existing electricity customers of Idaho Power, all electrical distribution facilities constructed within M3-Eagle Development must meet or exceed Idaho Power's electrical system engineering and quality standards.

The IPUC line extension rules allow for a refund to the developer, within a prescribed timeframe, of a portion of the prepayments for the construction of the additional electrical distribution and transmission facilities necessary to serve the development as new electrical customers within the development are connected to the Idaho Power system.

Electrical System Maintenance Costs:

According to Idaho Power Company's Federal Energy Regulatory Commission (FERC) Form 1 filing for 2004 the Company spent nearly $20.2 million on distribution line maintenance for its 402,250 distribution system customers, an average of $50.20 per customer per year. Utilizing this average figure, the electrical distribution system for the M3-Eagle project would, at full development, increase Idaho Power's annual distribution system maintenance budget by nearly $30,300. However, it should be noted that a significant portion of an electric utility's distribution system maintenance budget involves repair and replacement of older lines and lines that have been damaged by storms, contact with trees, or automobile accidents. Because the M3-Eagle electrical distribution system will be newly constructed and largely underground (the higher voltage transmission additions and station equipment will likely be above ground) actual maintenance costs per customer are likely to be much less than Idaho Power's 2004 system-wide average of $50.20 per customer.

Mitigation:

Existing IPUC approved policies concerning the extension of electrical service to new customers, together with M3-Eagle Development's prepayment of the costs associated with an extension to its site, will not produce any expense in need of addition mitigation measures. Further, existing electricity rates account for Idaho Power's annual expenses associated with customer service and the maintenance and operation of the distribution system

Natural Gas Utility Services:

Intermountain Gas Company will provide natural gas service to the M3-Eagle Project with upgrades to the 6-inch high pressure gas main from near the intersection of State Highway 16 and US Highway 44 (State Street) to the site.

The Idaho Public Utilities Commission (IPUC) has established rules and regulations governing extensions of natural gas service and the need for the addition new gas distribution facilities to serve new customers. Specifically, the IPUC approved Intermountain Gas Company rules in Section A: General Service Provisions, Paragraphs 12 and 13: Installation of Pipes and Connections, and Extensions of Mains, apply, respectively and is attached as Appendix H to this report.

Similar to the provisions for the extension of electrical service, the Intermountain Gas Company, IPUC approved, natural gas main extension policy is designed to prevent adverse impacts upon the currently existing natural gas customers or to Intermountain Gas resulting from the extension of natural gas service to a new or prospective customers. According to Intermountain Gas Company's IPUC approved natural gas service extension policies any extension of the distribution system that does not provide Intermountain Gas with a 12.5 percent internal rate of return will be required to either provide additional funds, or financial assurances, prior to the construction of the new distribution facilities.

Natural Gas System Maintenance Costs:

According to Intermountain Gas Company's Federal Energy Regulatory Commission (FERC) Form 2 filing for 2004 the Company spent nearly $1.8 million on distribution system maintenance for its 241,830 non-industrial natural gas customers – an average of $7.63 per customer per year. Utilizing this average figure, the natural gas distribution system for the M3-Eagle project would, at full development, increase Intermountain Gas Company's annual distribution system maintenance budget by nearly $5,215.

Average maintenance expenses per customer for Intermountain Gas Company are significantly less, on a per customer basis, than those experienced by the electric utility. According to Intermountain Gas and Idaho Power this is because of the fact that the natural gas distribution system is underground, and therefore not subjected to the above-ground hazards of storms, interference from trees or animals, or automobile accidents. In addition, because the majority of Intermountain Gas Company's 241,830 customers are located within Idaho's more densely populated urban or suburban areas there are not as many miles of distribution network to maintain as there are within the franchise of the electric utilities which also serve the rural areas of Idaho. This fact leads to a further lowering of Intermountain Gas Company's average maintenance cost per customer.

Mitigation:

Existing IPUC approved policies concerning the extension of natural gas service to new customers, together with any prepayments that may be required of M3-Eagle for the extension of natural gas service to the site, should not produce any expenses that dictate the need for addition mitigation measures. Further, the existing natural gas rates are designed to account for Intermountain Gas Company's annual expenses associated with customer service and the maintenance and operation of the distribution system

Telephone & Communication Utility Services:

Qwest Communications will provide telephone and ISDN communications lines to the M3-Eagle Development from existing lines and some upgrades of existing communications facilities already in place along State Highway 16.

In the past the Idaho Public Utilities Commission (IPUC) has established rules and regulations governing extensions of telephone service and the need for the addition new telephone facilities in order to serve new customers. However, a new deregulation law recently passed by the Idaho Legislature could significantly change those rules.

However, as the rules stand today, Qwest Corporation's Basic Local Exchange Tariff, Section 104.4.1 Extensions for New Real Estate Additions (Attached as Appendix I to this report.) require the developer reach an agreement with Qwest as the facilities charge necessary to serve the project.

Similar to the provisions for the extension of electrical and natural gas service, the Qwest Communications service extension policy is designed to prevent an adverse impact upon existing telephone customers or to Qwest Communications resulting from an extension of service to the new or prospective customer. For developers an extension of telephone facilities must be prepaid by the developer prior to any construction work commencing. Thereafter the developer may receive refunds of those prepaid construction expenses, within a prescribed timeframe, as new telephone customers within the development connect to the telephone system.

Telephone Service Maintenance Costs:

According to Qwest Communications' required annual report to the IPUC the Company provided approximately 500,000 telephone service lines to customers within its Southern Idaho service area. Maintenance expenses in 2004 associated with serving those customers were nearly $38.5 million, an average maintenance expense of $77.05 per customer per year.

Utilizing this average figure, the addition of the telephone communications system for the M3-Eagle Development would, at its full build-out, increase Qwest's annual system

maintenance budget by nearly $331,300. Again, it should be recognized that a significant portion of the telephone system maintenance budget involves the repair and replacement of older telecommunications lines and the integration of newer communications technologies into the system. Because the telecommunications lines and facilities within M3-Eagle will be new it is likely that the associated maintenance expenses will be significantly lower than Qwest's Southern Idaho system average.

Mitigation:

Existing IPUC approved policies concerning the extension of telephone service to new developments and subsequently new customers, together with any prepayments that may be required of M3-Eagle for the telephone communications to the development will not produce any expenses that dictate the need for addition mitigation measures. Furthermore, the existing telephone service rates are designed to account for Qwest's annual expenses associated with customer service and the maintenance and operation of the communications system

12. Air and Water Quality Programs

The developers are aware of the potential air quality issues that may occur as a result of a large construction site. Of highest concern is the maintenance of airborne dust resulting from the exposure of soils during construction. In addition, stockpiles of top soil and other building and landscaping materials could be susceptible to winds and generate airborne particulates.

Maintenance:

Many other residential development projects have maintained an ongoing program of dust suppression throughout the construction phases of the development. Those projects have indicated that annual expenses associated the cost of dust suppression activities are approximately $5,000 -$10,000 per year during project construction, depending upon the size of the ground area exposed and in need of dust suppression at any one time. A similar dust suppression budget, funded by the developer, would be reasonable for the anticipated twenty years of construction at the M3-Eagle Development.

Mitigation:

There appear to be no negative economic externalities that would impose a cost upon other Ada County residents. At this time there are no known potential impacts on Air or Water Quality Programs due to the development of M3-Eagle project.

However, the M3-Eagle Development Planned community will be much closer to many of Ada County's employment centers than are many other alternative choices for housing in the Boise Valley today. Because of this closer proximity there is a probability that M3-Eagle Development residents will utilize the roadways less than the average Treasure Valley commuter and, thereby contribute less to overall air quality problems.

Summary of Fiscal Impacts

The projected annual net fiscal impacts for the first ten years of the M3-Eagle Development are summarized below and on the following pages in Tables 27(a) – the first five years of the M3-Eagle project. Table 27(b) depicts the net fiscal impact to public service providers for years 6 – 1, while Table 27(c) and Table 27(d) provide the forecasted net fiscal impact to the affected public service providers for years 11 – 15 and 16 – 20, respectively.

Lastly, Table 27(e) on a following page summarizes, for 5 year increments, the projected net fiscal impact of the M3-Eagle Development on the public service providers examined in this analysis the first twenty years of the project as well as provides the estimated ongoing annual net fiscal impact for the period after full build-out of M3-Eagle.

Table 27 (a)
M3-Eagle
Summary of Projected Fiscal Impacts: Fiscal Surplus/(Deficit)
Years 1 - 5

Pubic Service Provider	Year 1	Year 2	Year 3	Year 4	Year 5	Total Years 1 - 5
City of Eagle	$498,604	$510,280	$865,215	$878,750	$894,217	$3,647,067
Ada County	137,347	425,455	740,030	1,163,550	1,567,383	4,033,764
Ada County EMS	4,617	15,954	27,511	43,987	59,608	151,676
ACHD	733,752	809,243	1,699,184	1,836,078	1,967,838	7,046,095
Weed & Pest Control	4,897	13,369	23,569	36,319	48,544	126,697
Eagle Fire District	26,286	124,153	210,551	349,279	479,911	1,190,179
Meridian School District	181,536	592,000	1,027,123	1,627,828	2,199,671	5,628,160
Water & Sewer Systems	(3)	(3)	(3)	(3)	(3)	(3)
Solid Waste Disposal	(3)	(3)	(3)	(3)	(3)	(3)
Parks & Recreation	(2)	(2)	(2)	(2)	(2)	(2)
Utilites	(4)	(4)	(4)	(4)	(4)	(4)
Air & Water Quality Prog.	(1)	(1)	(1)	(1)	(1)	(1)
Total	$1,587,039	$2,490,453	$4,593,183	$5,935,792	$7,217,172	$21,823,639

(1)...No impact on the demand for services.
(2)...No impact identified based upon current services.
(3)...:Services are intended to be self-supporting.
(4)...Extension of services covered by IPUC regulations.

Table 27 (d)

M3-Eagle

Summary of Projected Fiscal Impacts: Fiscal Surplus/(Deficit)
Years 16 - 20

Pubic Service Provider	Year 16	Year 17	Year 18	Year 19	Year 20	Total Years 16 - 20
City of Eagle	$1,574,487	$1,677,414	$1,167,136	$1,237,705	$1,243,131	$6,899,873
Ada County	6,719,910	7,160,397	7,453,974	7,562,661	7,689,779	36,586,721
Ada County EMS	261,572	279,203	291,891	296,373	301,753	1,430,793
ACHD	4,876,253	5,014,863	4,093,253	3,792,563	2,652,406	20,429,339
Weed & Pest Control	200,844	213,469	220,794	223,719	227,044	1,085,869
Eagle Fire District	2,225,863	2,383,830	2,514,847	2,068,672	2,611,541	11,804,753
Meridian School District	9,542,382	10,176,350	10,616,096	10,775,819	10,965,326	52,075,973
Water & Sewer Systems	(3)	(3)	(3)	(3)	(3)	(3)
Solid Waste Disposal	(3)	(3)	(3)	(3)	(3)	(3)
Parks & Recreation	(2)	(2)	(2)	(2)	(2)	(2)
Utilites	(4)	(4)	(4)	(4)	(4)	(4)
Air & Water Quality Prog.	(1)	(1)	(1)	(1)	(1)	(1)
Total	$25,401,311	$26,905,525	$26,357,991	$25,957,513	$25,690,981	$130,313,321

(1)...No impact on the demand for services.
(2)...No impact identified based upon current services.
(3)...Services are intended to be self-supporting.
(4)...Extension of services covered by IPUC regulations.

Table 27 (e)

M3-Eagle

Summary of Projected Fiscal Impacts: Fiscal Surplus/(Deficit)
5- Year Increments, 20-Year Total, and Projected Annual Ongoing

Pubic Service Provider	Years 1 - 5	Years 6 - 10	Years 11- 15	Years 16 - 20	Total Years 1 - 20	Annual Ongoing
City of Eagle	$3,647,067	$5,673,148	$6,984,016	$6,899,873	$23,204,104	$1,243,131
Ada County	4,033,764	14,472,033	26,887,637	36,586,721	81,980,155	7,689,779
Ada County EMS	151,676	555,119	1,040,856	1,430,793	3,178,444	301,753
ACHD	7,046,095	15,282,738	22,154,867	20,429,339	64,913,039	2,652,406
Weed & Pest Control	126,697	442,144	810,294	1,085,869	2,465,004	227,044
Eagle Fire District	1,190,179	5,079,287	9,321,294	11,804,753	27,395,513	2,611,541
Meridian School District	5,628,160	20,400,379	38,079,150	52,075,973	116,183,662	10,965,326
Water & Sewer Systems	(3)	(3)	(3)	(3)	(3)	(3)
Solid Waste Disposal	(3)	(3)	(3)	(3)	(3)	(3)
Parks & Recreation	(2)	(2)	(2)	(2)	(2)	(2)
Utilites	(4)	(4)	(4)	(4)	(4)	(4)
Air & Water Quality Prog.	(1)	(1)	(1)	(1)	(1)	(1)
Total	$21,823,638	$61,904,848	$105,278,114	$130,313,321	$319,319,921	$25,690,980

(1)...No impact on the demand for services.
(2)...No impact identified based upon current services.
(3)...Services are intended to be self-supporting.
(4)...Extension of services covered by IPUC regulations.

M3-Eagle Project Phases:

The analysis above provided an annual view of the projected population, households, and fiscal impacts of the M3-Eagle Development for each of the twenty years until full build-out of the project. The developers of M3-Eagle envision that there will be five phases in the development of the project over the twenty years until full build-out.

Phase 1 of the development will include the first two years of the twenty years that are anticipated until full build-out of M3-Eagle. In the preceding demographic and fiscal impact analysis Phase 1 would correspond to Years 1 and 2. Phases 2, 3, and 4 are anticipated to be five years in length and would incorporate the projections in the demographic and fiscal impact analysis above for Years 3 - 7, Years 8 – 12, and Years 13 – 17, respectively. The fifth and final phase of the M3-Eagle project includes Years 18 - 20 of the above demographic and fiscal impact analysis.

Table 28, below, provides a view of M3-Eagle's projected number of residential housing units and commercial floor space that is anticipated to be added in each phase of the development as well as a cumulative totals through the five phases of the M3-Eagle.

Table 28

M3-Eagle: Projected Residential Housing Additions & Commercial Floor Space by Phase

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Total Acreage:	1,696	937	1,310	1,073	989
Residential Housing:					
Single Family Detached:	330	1,313	1,504	1,266	246
Single Family Attached:	107	624	838	535	0
Multi-Family:	41	41	224	83	0
Total Housing Units:	478	1,979	2,566	1,884	246
Commercial Floor Space: (square feet)					
Retail Space:	0	121,000	182,500	269,700	70,100
Office Space:	0	0	192,500	260,600	99,600
Total Commercial:		121,000	375,000	530,300	169,700

Cumulative Totals	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Total Acreage:	*1,696*	*2,633*	*3,943*	*5,016*	*6,005*
Residential Housing:					
Single Family Detached:	*330*	*1,643*	*3,147*	*4,413*	*4,659*
Single Family Attached:	*107*	*731*	*1,570*	*2,105*	*2,105*
Multi-Family:	*41*	*82*	*306*	*389*	*389*
Total Housing Units:	*478*	*2,456*	*5,023*	*6,907*	*7,153*
***Commercial Floor Space**: (square feet)*					
Retail Space:	*0*	*121,000*	*303,500*	*573,200*	*643,300*
Office Space:	*0*	*0*	*192,500*	*453,100*	*552,700*
Total Commercial:	*0*	*121,000*	*496,000*	*1,026,300*	*1,196,000*

Table 29 shows a summary of the projected population, households, school age populations and employment within M3-Eagle at the end of each off the five projected project phases as well as cumulative totals through each of the five phases of M3-Eagle.

Table 29

M3-Eagle: Projected Populations and Employment by Project Phase

(Populations and Employment at the end of Each Phase of the Project)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Total Population:	1,312	6,436	12,677	17,069	17,455
Total Housing Units:	478	2,459	5,034	6,912	7,153
Vacant Housing Units	10	49	101	38	143
Households	468	2,410	4,933	6,874	7,010
Average Household Size	2.80	2.67	2.57	2.52	2.49
Total Housing Units:					
Family Households	377	1,940	3,971	5,453	5,643
Non-Family Households	91	470	962	1,321	1,367
School Age Populations:					
Total School Aged Children:	322	1,581	3,114	4,193	4,290
in Public Schools:	305	1,494	2,943	3,962	4,050
in Private Schools:	17	87	171	231	240
Avg. Number of School Age Children per Household:	0.689	0.656	0.631	0.619	0.611
Avg. number of children in public schools by type of school:					
Elementary (ages 5 -11)	158	774	1,525	2,053	2,099
Middle School (ages 12 -14)	69	336	709	891	911
High School (ages 15 -18)	78	384	809	1,018	1,040
Commercial Floor Space in Place at the End of Each Phase: (square feet)	0	115,000	490,000	1,020,300	1,190,000
Total Employment:	36	464	1,268	2,206	2,455
In Commercial Facilities	0	160	670	1,400	1,630
Working from Home	36	177	349	470	481
School Employment	0	127	249	336	344

Table 30 shows the projected property tax revenues that the M3-Eagle Development would generate in each of the five phases of the project, as well as cumulative totals through each of the five phases of M3-Eagle.

Table 27 (b)

M3-Eagle

Summary of Projected Fiscal Impacts: Fiscal Surplus/(Deficit)

Years 6 - 10

Pubic Service Provider	Year 6	Year 7	Year 8	Year 9	Year 10	Total Years 6 - 10
City of Eagle	$915,300	$949,899	$1,209,119	$1,268,108	$1,330,723	$5,673,148
Ada County	1,972,671	2,380,980	2,842,618	3,376,533	3,899,231	14,472,033
Ada County EMS	75,324	91,186	108,796	129,713	150,099	555,119
ACHD	2,095,977	2,235,054	3,463,492	3,652,252	3,835,962	15,282,738
Weed & Pest Control	60,719	72,894	87,094	102,969	118,469	442,144
Eagle Fire District	612,439	747,630	1,401,429	1,071,012	1,246,778	5,079,287
Meridian School District	2,773,675	3,354,093	4,002,816	4,762,732	5,507,063	20,400,379
Water & Sewer Systems	(3)	(3)	(3)	(3)	(3)	(3)
Solid Waste Disposal	(3)	(3)	(3)	(3)	(3)	(3)
Parks & Recreation	(2)	(2)	(2)	(2)	(2)	(2)
Utilites	(4)	(4)	(4)	(4)	(4)	(4)
Air & Water Quality Prog.	(1)	(1)	(1)	(1)	(1)	(1)
Total	$8,506,104	$9,831,737	$13,115,364	$14,363,319	$16,088,324	$61,904,848

(1)...No impact on the demand for services.
(2)...No impact identified based upon current services.
(3)...Services are intended to be self-supporting.
(4)...Extension of services covered by IPUC regulations.

Table 27 (c)

M3-Eagle

Summary of Projected Fiscal Impacts: Fiscal Surplus/(Deficit)

Years 11 - 15

Pubic Service Provider	Year 11	Year 12	Year 13	Year 14	Year 15	Total Years 11 - 15
City of Eagle	$1,384,340	$1,443,260	$1,298,862	$1,381,855	$1,475,699	$6,984,016
Ada County	4,416,829	4,935,363	5,417,645	5,839,706	6,278,094	26,887,637
Ada County EMS	170,208	190,402	209,791	226,530	243,925	1,040,856
ACHD	4,019,622	4,204,711	4,592,640	4,601,000	4,736,893	22,154,867
Weed & Pest Control	133,969	149,469	163,194	175,494	188,169	810,294
Eagle Fire District	1,417,400	1,589,232	1,764,775	1,912,361	2,637,626	9,321,394
Meridian School District	6,241,740	6,977,573	7,674,021	8,278,445	8,907,370	38,079,150
Water & Sewer Systems	(3)	(3)	(3)	(3)	(3)	(3)
Solid Waste Disposal	(3)	(3)	(3)	(3)	(3)	(3)
Parks & Recreation	(2)	(2)	(2)	(2)	(2)	(2)
Utilites	(4)	(4)	(4)	(4)	(4)	(4)
Air & Water Quality Prog.	(1)	(1)	(1)	(1)	(1)	(1)
Total	$17,784,108	$19,490,009	$21,120,928	$22,415,392	$24,467,776	$105,278,214

(1)...No impact on the demand for services.
(2)...No impact identified based upon current services.
(3)...Services are intended to be self-supporting.
(4)...Extension of services covered by IPUC regulations.

Table 30

M3-Eagle: Projected Property Tax Revenues During Each Phase of the Project

$ x 1,000)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Ada County	$774	$10,200	$24,933	$39,636	$33,247
City of Eagle	259	3,410	8,335	13,251	11,115
Meridian Joint School District #2	1,175	15,490	37,865	60,193	50,491
Ada County Highway District	289	3,804	9,299	14,783	12,400
Ada County Emergency Medical	34	453	1,106	1,758	1,474
Eagle Fire District	366	4,819	11,780	18,728	15,709
Mosquito Abatement District	8	108	267	425	359
Ada Cnty. Weed & Pest Control	37	484	1,184	1,882	1,580
Total	$2,941	$38,769	$94,769	$150,655	$126,375

Cumulative Totals	*Phase 1* (Years 1 - 2)	*Phase 2* (Years 3 - 7)	*Phase 3* (Years 8 - 12)	*Phase 4* (Years 13 - 17)	*Phase 5* (Years 18 - 20)
Ada County	*$1,205*	*$11,405*	*$36,338*	*$75,974*	*$109,221*
City of Eagle	*403*	*3,813*	*12,148*	*25,399*	*36,514*
Meridian Joint School District #2	*1,830*	*17,320*	*55,185*	*115,378*	*165,869*
Ada County Highway District	*450*	*4,254*	*13,553*	*28,336*	*40,737*
Ada County Emergency Medical	*54*	*506*	*1,612*	*3,369*	*4,844*
Eagle Fire District	*569*	*5,389*	*17,169*	*35,897*	*51,606*
Mosquito Abatement District	*13*	*121*	*388*	*813*	*1,171*
Ada Cnty. Weed & Pest Control	*57*	*541*	*1,725*	*3,607*	*5,187*
Total	*$4,581*	*$43,349*	*$138,119*	*$288,774*	*$415,149*

Tables 31 through 36 provide a break out by each of the five project phases of the projected additional revenues generated by M3-Eagle, as well as the estimated additional costs that public service providers would experience in serving the M3-Eagle community. Cumulative totals are also shown for each of the five project phases.

Table 31 depicts these projected additional revenues and expenses as well as the net fiscal impact of M3-Eagle for each of the five phases of the project as well as cumulative impacts through all five M3-Eagle project phases. Table 32 depicts the above information for Ada County government. Tables 33 and 34 show the projected fiscal impacts on Ada County Emergency Medical Services and the Ada County Highway District, respectively, by project phase. Tables 35 and 36 show the projected fiscal impacts on the Eagle Fire District and the Meridian School District for each of the project's five construction phases as well as cumulative totals through each of the five phases.

Table 31

M3-Eagle: Projected Fiscal Impacts on the City of Eagle

(At the End of Each Phase of the Project, $ x 1,000)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Projected M3-Eagle Population	1,312	6,436	12,677	17,069	17,455
Projected Additional Revenues:					
Property Taxes	$258.8	$3,410.0	$8,335.4	$13,251.0	$9,454.0
Franchise Fees	50.9	674.2	1,827.2	3,154.4	2,338.9
State Revenue Sharing	154.2	1,862.3	4,618.6	7,499.1	5,418.3
Building Permit Fees	939.1	4,020.6	5,019.5	3,964.4	652.7
Total Additional Revenues	$1,551.7	$10,115.7	$20,601.2	$28,452.9	$17,939.0
Projected Additional Expenses:					
O&M Expenses	$542.9	$6,079.9	$13,965.6	$21,044.6	$14,291.0
Net Fiscal Impact	$1,008.9	$4,035.8	$6,635.5	$7,408.3	$3,648.0

Cumulative Totals	*Phase 1* (Years 1 - 2)	*Phase 2* (Years 3 - 7)	*Phase 3* (Years 8 - 12)	*Phase 4* (Years 13 - 17)	*Phase 5* (Years 18 - 20)
Projected M3-Eagle Population	*1,497*	*7,329*	*14,423*	*19,457*	*19,913*
Projected Additional Revenues:					
Property Taxes	*$258.8*	*$3,668.7*	*$12,004.1*	*$25,255.1*	*$34,709.1*
Franchise Fees	*$50.9*	*$725.1*	*$2,552.3*	*$5,706.8*	*$8,045.7*
State Revenue Sharing	*$154.2*	*$2,016.5*	*$6,635.1*	*$14,134.2*	*$19,552.4*
Building Permit Fees	*$939.1*	*$4,959.7*	*$9,979.3*	*$13,943.7*	*$14,596.4*
Total Additional Revenues	*$1,551.7*	*$11,667.5*	*$32,268.6*	*$60,721.6*	*$78,660.6*
Projected Additional Expenses:					
O&M Expenses	*$542.9*	*$6,622.8*	*$20,588.4*	*$41,633.0*	*$55,924.1*
Net Fiscal Impact	*$1,008.9*	*$5,044.7*	*$11,680.2*	*$19,088.6*	*$22,736.5*

Table 32

M3-Eagle: Projected Fiscal Impacts on Ada County Government

(At the End of Each Phase of the Project, $ x 1,000)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Projected Additional Revenues	$774.1	$10,200.0	$24,933.3	$39,635.6	$28,279.0
Other Fee Revenues	3.8	37.0	87.2	135.3	93.8
Total Addition Revenues	$777.9	$10,237.0	$25,020.5	$39,770.9	$28,372.8
Projected Additional Expenses:					
O&M Expenses	$215.1	$2,412.4	$5,550.0	$8,355.1	$5,666.4
Capital Expenses	0.0	0.0	0.0	0.0	0.0
Total	$415.0	$3,450.6	$7,225.4	$10,186.4	$6,550.1
Net Fiscal Impact	$362.8	$6,786.4	$17,795.1	$29,584.4	$21,822.7

Cumulative Totals	*Phase 1* (Years 1 - 2)	*Phase 2* (Years 3 - 7)	*Phase 3* (Years 8 - 12)	*Phase 4* (Years 13 - 17)	*Phase 5* (Years 18 - 20)
Projected Additional Revenues	*$774.1*	*$10,974.1*	*$35,907.4*	*$75,543.0*	*$103,822.0*
Other Fee Revenues					
Total Addition Revenues	*$777.9*	*$11,014.8*	*$36,035.4*	*$75,806.3*	*$104,179.0*
Projected Additional Expenses:					
O&M Expenses	*$215.1*	*$2,627.4*	*$8,177.4*	*$16,532.5*	*$22,198.9*
Capital Expenses	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Total	*$415.0*	*$3,865.6*	*$11,091.0*	*$21,277.5*	*$27,827.5*
Net Fiscal Impact	*$362.8*	*$7,149.2*	*$24,944.4*	*$54,528.8*	*$76,351.5*

Table 33

M3-Eagle: Projected Fiscal Impacts on Ada County Emergency Medical Services

(At the End of Each Phase of the Project, $ x 1,000)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Projected Additional Revenues	$34.4	$452.5	$1,105.6	$1,757.6	$1,253.9
Projected Additional Expenses:					
O&M Expenses	$13.8	$154.9	$356.4	$536.6	$363.9
Net Fiscal Impact	$20.6	$297.6	$749.2	$1,221.0	$890.0

Cumulative Totals	*Phase 1* (Years 1 - 2)	*Phase 2* (Years 3 - 7)	*Phase 3* (Years 8 - 12)	*Phase 4* (Years 13 - 17)	*Phase 5* (Years 18 - 20)
Projected Additional Revenues	*$53.6*	*$570.8*	*$1,333.9*	*$2,070.7*	*$1,453.4*
Projected Additional Expenses:					
O&M Expenses	*$15.8*	*$176.5*	*$405.6*	*$611.2*	*$415.0*
Net Fiscal Impact	*$37.8*	*$429.7*	*$928.3*	*$1,459.5*	*$1,038.4*

Table 34

M3-Eagle: Projected Fiscal Impacts on Ada County Highway District

(At the End of Each Phase of the Project, $ x 1,000)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Projected Additional Revenues					
Property Taxes	$288.6	$3,804.3	$9,299.4	$14,783.3	$10,547.5
Impact Fees	1,434.2	7,528.3	12,873.7	13,533.9	3,407.3
Total	$1,722.8	$11,332.6	$22,173.0	$28,317.2	$13,954.8
Projected Additional Expenses:					
O&M Expenses	$179.8	$1,498.5	$2,997.0	$4,495.5	$3,416.6
Capital Expenses	0.0	0.0	0.0	0.0	0.0
Total	$179.8	$1,498.5	$2,997.0	$4,495.5	$3,416.6
Net Fiscal Impact	$1,543.0	$9,834.1	$19,176.0	$23,821.7	$10,538.2

Cumulative Totals	*Phase 1* (Years 1 - 2)	*Phase 2* (Years 3 - 7)	*Phase 3* (Years 8 - 12)	*Phase 4* (Years 13 - 17)	*Phase 5* (Years 18 - 20)
Projected Additional Revenues					
Property Taxes	*$289*	*$4,093*	*$13,392*	*$28,176*	*$38,723*
Impact Fees	*$1,434.2*	*8,962.5*	*21,836.2*	*35,370.0*	*38,777.3*
Total	*$1,723*	*$13,055*	*$35,228*	*$63,546*	*$77,500*
Projected Additional Expenses:					
O&M Expenses	*$180*	*$1,678*	*$4,675*	*$9,171*	*$12,587*
Capital Expenses	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Total	*$180*	*$1,678*	*$4,675*	*$9,171*	*$12,587*
Net Fiscal Impact	*$1,543*	*$11,377*	*$30,553*	*$54,375*	*$64,913*

Table 35

M3-Eagle: Projected Fiscal Impacts on the Eagle Fire District

(At the End of Each Phase of the Project, $ x 1,000)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Projected Additional Revenues	$365.7	$4,819.4	$11,780.4	$18,727.6	$13,361.6
Other Fee Revenues	3.8	37.0	87.2	135.3	93.8
Total Addition Revenues	$369.4	$4,856.4	$11,867.7	$18,862.9	$13,455.4
Projected Additional Expenses:					
O&M Expenses	$219.0	$2,456.6	$5,651.8	$8,508.4	$5,770.3
Capital Expenses	0.0	0.0	490.0	430.0	490.0
Total	$219.0	$2,456.6	$6,141.8	$8,938.4	$6,260.3
Net Fiscal Impact	$150.4	$2,399.8	$5,725.8	$9,924.5	$7,195.1

Cumulative Totals	*Phase 1* (Years 1 - 2)	*Phase 2* (Years 3 - 7)	*Phase 3* (Years 8 - 12)	*Phase 4* (Years 13 - 17)	*Phase 5* (Years 18 - 20)
Projected Additional Revenues	*$569.3*	*$5,388.7*	*$17,169.1*	*$35,896.8*	*$49,258.4*
Other Fee Revenues	*5.7*	*42.7*	*129.9*	*265.2*	*359.0*
Total Addition Revenues	*$575.0*	*$5,431.4*	*$17,299.1*	*$36,162.0*	*$49,617.4*
Projected Additional Expenses:					
O&M Expenses	*$250.0*	*$2,706.7*	*$8,358.5*	*$16,866.9*	*$22,637.2*
Capital Expenses	*0.0*	*0.0*	*490.0*	*920.0*	*1,410.0*
Total	*$250.0*	*$2,706.7*	*$8,848.5*	*$17,786.9*	*$24,047.2*
Net Fiscal Impact	*$325.0*	*$2,724.8*	*$8,450.6*	*$18,375.1*	*$25,570.1*

Table 36

M3-Eagle: Projected Fiscal Impacts on the Meridian School District

(At the End of Each Phase of the Project, $ x 1,000)

Totals for Each Phase	Phase 1 (Years 1 - 2)	Phase 2 (Years 3 - 7)	Phase 3 (Years 8 - 12)	Phase 4 (Years 13 - 17)	Phase 5 (Years 18 - 20)
Projected New Students	305	1,494	2,943	3,962	4,050
Projected Additional Revenues:					
Property Taxes	$1,175.5	$15,490.4	$37,864.6	$60,192.8	$42,945.8
State Support Funds	2,203.3	24,712.8	56,862.9	85,597.5	58,046.4
Total Additional Revenues	$3,378.8	$40,203.1	$94,727.5	$145,790.3	$100,992.1
Projected Additional Expenses:					
O&M Expenses	$2,582.2	$28,962.4	$66,641.2	$100,316.9	$68,028.1
Transportation Expenses	23.0	258.3	594.4	894.8	606.8
Total Additional Expenses	$2,605.2	$29,220.7	$67,235.6	$101,211.7	$68,634.9
Net Fiscal Impact	$773.5	$10,982.4	$27,491.9	$44,578.6	$32,357.2

Cumulative Totals	*Phase 1* (Years 1 - 2)	*Phase 2* (Years 3 - 7)	*Phase 3* (Years 8 - 12)	*Phase 4* (Years 13 - 17)	*Phase 5* (Years 18 - 20)
Projected New Students	*348*	*1,701*	*3,348*	*4,517*	*4,620*
Projected Additional Revenues:					
Property Taxes	*$1,830.1*	*$17,320.5*	*$55,185.0*	*$115,377.8*	*$158,323.6*
State Support Funds	*2,493.7*	*27,206.4*	*84,069.4*	*169,666.9*	*227,713.3*
Total Additional Revenues	*$4,323.8*	*$44,526.9*	*$139,254.4*	*$285,044.7*	*$386,036.9*
Projected Additional Expenses:					
O&M Expenses	*$2,948.7*	*$31,911.1*	*$98,552.2*	*$198,869.2*	*$266,897.3*
Transportation Expenses	*11.7*	*281.4*	*852.8*	*1,489.2*	*1,501.6*
Total Additional Expenses	*$2,960.3*	*$32,181.1*	*$99,416.7*	*$200,628.4*	*$269,263.3*
Net Fiscal Impact	*$1,363.4*	*$12,345.8*	*$39,837.8*	*$84,416.3*	*$116,773.6*

M3 – Eagle Development

Appendix A:

2000 Census Demographic Comparisons of the U.S., State of Idaho, the Boise MSA, Ada County, the City of Boise, and the City of Eagle

2000 Demographic Profile Comparison: US, Idaho, Boise MSA, Ada County, City of Boise, and the City of Eagle, Idaho

Description	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
Square Miles:	3,537,842	82,739	1,642	1,054	318	8
Population Density: Persons per Sq. Mile	79.5	15.6	263.4	285.5	583.7	1,310.4
POPULATION BY YEAR						
Population (4/1/1990):	248,703,944	1,006,742	295,849	205,772	140,399	4,763
Population (4/1/2000):	281,421,906	1,293,953	432,345	300,904	185,788	11,085
Population (1/1/2003):	288,849,960	1,360,095	473,713	326,725	198,305	13,707
HOUSEHOLDS BY YEAR						
Households (4/1/1990):	91,990,941	361,431	108,781	77,501	55,571	1,741
Households (4/1/2000):	105,539,122	470,133	158,642	113,577	74,577	3,907
GENERAL FAMILY CHARACTERISTICS						
Family Population:	232,472,248	1,091,555	362,715	247,520	146,080	10,173
Non-Family Population:	41,165,148	170,842	59,563	46,266	35,789	902
Families:	72,261,780	337,884	112,389	78,150	47,227	3,145
as % of Total Households:	*68.5%*	*71.9%*	*70.8%*	*68.8%*	*63.3%*	*80.5%*
Non-Family Households:	33,277,342	132,249	46,253	35,427	27,350	762
as % of Total Households:	*31.5%*	*28.1%*	*29.2%*	*31.2%*	*36.7%*	*19.5%*
Married Families Characteristics						
Families, Married:	55,458,451	280,206	91,630	63,669	37,423	2,761
as % of Total Households:	*52.5%*	*59.6%*	*57.8%*	*56.1%*	*50.2%*	*70.7%*
Married with Children Under 18:	25,674,582	135,821	46,523	32,302	18,094	1,493
as % of Total Households:	*24.3%*	*28.9%*	*29.3%*	*28.4%*	*24.3%*	*38.2%*
Families, Married with No Children Under 18:	29,783,869	144,385	45,107	31,367	19,329	1,268
as % of Total Households:	*28.2%*	*30.7%*	*28.4%*	*27.6%*	*25.9%*	*32.5%*
Other Families Characteristics						
Other Families:	16,803,329	57,678	20,759	14,481	9,804	384
as % of Total Households:	*15.9%*	*12.3%*	*13.1%*	*12.7%*	*13.1%*	*9.8%*
Male HH, no Wife:	4,302,568	17,981	6,090	4,181	2,701	127
as % of Total Households:	*4.1%*	*3.8%*	*3.8%*	*3.7%*	*3.6%*	*3.3%*
Female HH, no Husband:	12,500,761	39,697	14,669	10,300	7,103	257
as % of Total Households:	*11.8%*	*8.4%*	*9.2%*	*9.1%*	*9.5%*	*6.6%*
Male HH, no Wife w Children < 18:	2,190,654	11,412	3,876	2,638	1,669	127
as % of Total Households:	*2.1%*	*2.4%*	*2.4%*	*2.3%*	*2.2%*	*3.3%*
Male HH, no Wife w No Children < 18:	2,111,914	6,569	2,214	1,543	1,032	0
as % of Total Households:	*2.0%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*	*0.0%*
Female HH, no Husb. w Children < 18:	7,369,167	26,386	9,850	6,936	4,763	183
as % of Total Households:	*7.0%*	*5.6%*	*6.2%*	*6.1%*	*6.4%*	*4.7%*
Female HH, no Husb. w no Children < 18:	5,131,594	13,311	4,819	3,364	2,340	74
as % of Total Households:	*4.9%*	*2.8%*	*3.0%*	*3.0%*	*3.1%*	*1.9%*

2000 Demographic Profile Comparison: US, Idaho, Boise MSA, Ada County, City of Boise, and the City of Eagle, Idaho

	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
Non-Family Households Characteristics						
Non-Family Households, Male Householder:	15,139,328	63,283	21,765	16,994	12,956	365
as % of Total Households:	*14.3%*	*13.5%*	*13.7%*	*15.0%*	*17.4%*	*9.3%*
Non-Family Households, Female Householder:	18,138,014	68,966	24,488	18,433	14,394	397
as % of Total Households:	*17.2%*	*14.7%*	*15.4%*	*16.2%*	*19.3%*	*10.2%*
POPULATION CHARACTERISTICS						
Density						
Urban:	222,358,309	859,104	376,875	280,506	184,133	11,085
Rural:	59,063,597	434,849	55,470	20,398	1,655	0
Gender						
Male:	137,916,186	648,699	215,833	150,685	92,144	5,554
Female:	143,505,720	645,254	216,512	150,219	93,644	5,531
Age						
Median Age:	35.4	33.3	32.4	33.0	33.1	35.6
Aged 0 to 5 Years:	23,026,164	116,441	41,721	27,332	15,599	1,098
Aged 6 to 11 Years:	25,041,785	122,450	40,849	27,368	15,561	1,228
Aged 12 to17 Years:	24,074,808	129,240	39,862	27,033	15,760	1,225
Aged 18 to 24 Years:	27,067,510	138,317	44,632	30,509	21,627	609
Aged 25 to 34 Years:	39,577,357	168,703	66,701	47,796	29,999	1,260
Aged 35 to 44 Years:	45,905,471	195,711	69,166	50,884	29,903	2,152
Aged 45 to 54 Years:	37,578,609	169,995	56,157	40,969	25,343	1,688
Aged 55 to 64 Years:	24,171,230	107,151	31,511	21,648	13,237	927
Aged 65 to 74 Years:	18,501,149	76,184	20,757	13,660	8,962	497
Aged 75 to 84 Years:	12,317,262	51,775	15,444	10,149	7,117	326
Aged 85 Years and Older:	4,160,561	17,986	5,545	3,556	2,680	75
School Aged Children:	57,588,613	294,738	95,431	64,226	37,530	2,760
School Aged Children per Household:	0.546	0.627	0.602	0.565	0.503	0.706
Male Population By Age						
Median Age:	34.1	32.4	31.6	32.3	32.1	35.2
Aged 0 to 5 Years:	11,798,492	59,477	21,165	13,770	8,029	557
Aged 6 to 11 Years:	12,827,998	63,397	21,023	14,271	7,985	660
Aged 12 to17 Years:	12,380,424	67,086	20,411	13,756	8,122	654
Aged 18 to 24 Years:	13,831,586	70,694	22,746	15,547	10,721	311
Aged 25 to 34 Years:	19,902,737	86,497	34,348	24,778	15,849	577
Aged 35 to 44 Years:	22,797,615	98,450	35,103	25,887	15,008	1,045
Aged 45 to 54 Years:	18,425,577	85,473	28,174	20,634	12,668	878
Aged 55 to 64 Years:	11,569,387	53,542	15,538	10,747	6,357	474
Aged 65 to 74 Years:	8,355,575	36,267	9,332	6,186	3,934	238
Aged 75 to 84 Years:	4,823,419	21,755	6,169	3,972	2,686	129
Aged 85 Years and Older:	1,203,376	6,061	1,824	1,137	785	31

2000 Demographic Profile Comparison: US, Idaho, Boise MSA, Ada County, City of Boise, and the City of Eagle, Idaho

	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
Female Population By Age						
Median Age:	36.6	34.3	33.2	33.8	34.3	35.9
Aged 0 to 5 Years:	11,227,672	56,964	20,556	13,562	7,570	541
Aged 6 to 11 Years:	12,213,787	59,053	19,826	13,097	7,576	568
Aged 12 to17 Years:	11,694,384	62,154	19,451	13,277	7,638	571
Aged 18 to 24 Years:	13,235,924	67,623	21,886	14,962	10,906	298
Aged 25 to 34 Years:	19,674,620	82,206	32,353	23,018	14,150	683
Aged 35 to 44 Years:	23,107,856	97,261	34,063	24,997	14,895	1,107
Aged 45 to 54 Years:	19,153,032	84,522	27,983	20,335	12,675	810
Aged 55 to 64 Years:	12,601,843	53,609	15,973	10,901	6,880	453
Aged 65 to 74 Years:	10,145,574	39,917	11,425	7,474	5,028	259
Aged 75 to 84 Years:	7,493,843	30,020	9,275	6,177	4,431	197
Aged 85 Years and Older:	2,957,185	11,925	3,721	2,419	1,895	44
Marital Status (Pop 15+)						
Males Never Married:	32,381,377	128,613	43,921	31,923	22,569	819
Males Married:	62,691,839	305,660	100,274	69,839	40,148	2,826
Males Widowed:	2,699,175	10,140	2,681	1,770	1,077	32
Males Divorced:	9,255,014	48,632	16,742	12,267	8,275	333
Females Never Married:	27,531,993	97,945	33,272	24,177	16,837	541
Females Married:	62,308,654	300,947	98,364	67,961	40,184	2,944
Females Widowed:	11,975,325	42,773	12,839	8,514	6,063	286
Females Divorced:	12,305,294	56,914	21,971	16,228	11,595	366
HOUSEHOLD CHARACTERISTICS						
Household, Average Size:	2.59	2.69	2.66	2.59	2.44	2.83
School Age Population per Household	0.55	0.63	0.60	0.57	0.50	0.71
Household by Age of Head						
Median Age:	47.3	46.8	44.3	43.9	43.8	46.6
Aged Under 25 Years:	5,435,076	33,583	11,355	8,053	6,421	47
Aged 25 to 34 Years:	18,138,214	80,197	32,813	23,816	15,598	575
Aged 35 to 44 Years:	24,276,270	104,146	37,821	27,942	17,354	1,162
Aged 45 to 54 Years:	21,212,043	95,932	31,597	23,450	14,890	1,032
Aged 55 to 64 Years:	14,202,066	62,559	18,384	12,702	8,011	480
Aged 65 to 74 Years:	11,617,977	47,632	13,164	8,835	5,754	285
Aged 75 Years and Over:	10,657,476	46,084	13,508	8,779	6,549	326
Household by Age of Head as a % of Total Hshlds.						
Aged Under 25 Years:	*5.1%*	*7.1%*	*7.2%*	*7.1%*	*8.6%*	*1.2%*
Aged 25 to 34 Years:	*17.2%*	*17.1%*	*20.7%*	*21.0%*	*20.9%*	*14.7%*
Aged 35 to 44 Years:	*23.0%*	*22.2%*	*23.8%*	*24.6%*	*23.3%*	*29.7%*
Aged 45 to 54 Years:	*20.1%*	*20.4%*	*19.9%*	*20.6%*	*20.0%*	*26.4%*
Aged 55 to 64 Years:	*13.5%*	*13.3%*	*11.6%*	*11.2%*	*10.7%*	*12.3%*
Aged 65 to 74 Years:	*11.0%*	*10.1%*	*8.3%*	*7.8%*	*7.7%*	*7.3%*
Aged 75 Years and Over:	*10.1%*	*9.8%*	*8.5%*	*7.7%*	*8.8%*	*8.3%*

2000 Demographic Profile Comparison: US, Idaho, Boise MSA, Ada County, City of Boise, and the City of Eagle, Idaho

	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
Household by Size						
Median Size:	2.75	2.80	2.81	2.77	2.65	2.98
1 Person :	27,203,724	105,024	35,757	26,909	20,707	649
2 Person:	34,261,844	162,731	53,509	38,765	25,704	1,337
3 Person:	17,378,773	74,603	26,373	18,940	11,979	638
4 Person:	15,041,414	67,741	24,354	17,278	9,967	779
5 Person:	7,067,874	34,435	11,295	7,405	4,001	344
6 Person:	2,815,726	16,317	5,012	3,178	1,651	121
7 or More Person:	1,769,767	9,282	2,342	1,102	568	39
Household by Size as a % of Total Hshlds.:						
1 Person :	*25.8%*	*22.3%*	*22.5%*	*23.7%*	*27.8%*	*16.6%*
2 Person:	*32.5%*	*34.6%*	*33.7%*	*34.1%*	*34.5%*	*34.2%*
3 Person:	*16.5%*	*15.9%*	*16.6%*	*16.7%*	*16.1%*	*16.3%*
4 Person:	*14.3%*	*14.4%*	*15.4%*	*15.2%*	*13.4%*	*19.9%*
5 Person:	*6.7%*	*7.3%*	*7.1%*	*6.5%*	*5.4%*	*8.8%*
6 Person:	*2.7%*	*3.5%*	*3.2%*	*2.8%*	*2.2%*	*3.1%*
7 or More Person:	*1.7%*	*2.0%*	*1.5%*	*1.0%*	*0.8%*	*1.0%*
HOUSING UNITS CHARACTERISTICS						
Total Units:	115,904,641	527,824	166,481	118,516	78,144	4,074
Occupied Units:	105,480,101	469,645	158,426	113,408	74,577	3,907
as % of Total Housing Units:	*91.0%*	*89.0%*	*95.2%*	*95.7%*	*95.4%*	*95.9%*
Vacant Units:	10,424,540	58,179	8,055	5,108	3,567	167
as % of Total Housing Units:	*9.0%*	*11.0%*	*4.8%*	*4.3%*	*4.6%*	*4.1%*
Occupancy						
Owner Occupied:	69,816,513	339,913	113,143	80,133	48,007	3,256
as % of Total Housing Units:	*60.2%*	*64.4%*	*68.0%*	*67.6%*	*61.4%*	*79.9%*
Renter Occupied:	35,663,588	129,732	45,283	33,275	26,570	651
as % of Total Housing Units:	*30.8%*	*24.6%*	*27.2%*	*28.1%*	*34.0%*	*16.0%*
Occupied Structure with 1 Unit Detached:	64,787,510	334,431	113,766	80,599	48,728	3,033
as % of Total Housing Units:	*55.9%*	*63.4%*	*68.3%*	*68.0%*	*62.4%*	*74.4%*
Occupied Structure with 1 Unit Attached:	5,907,804	13,349	6,068	5,009	4,077	147
Occupied Structure with 2 Units:	4,466,529	12,821	4,689	3,436	2,899	15
Occupied Structure with 3-4 Units:	4,905,354	18,795	6,904	5,366	4,410	92
Occupied Structure with 5-9 Units:	4,820,542	11,562	3,993	3,197	2,853	69
Occupied Structure with 10+ Units	13,097,647	22,149	10,177	8,728	7,931	87
Occupied Structure Trailer:	7,384,276	55,311	12,560	6,896	3,597	426
Occupied Structure Other:	110,439	1,227	269	177	82	38

2000 Demographic Profile Comparison: US, Idaho, Boise MSA*, Ada County, City of Boise, and the City of Eagle, Idaho

	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
HOUSING UNITS CHARACTERISTICS						
Vacancy						
Vacant Units For Rent:	2,676,107	10,921	2,886	1,970	1,604	20
as % of Total Housing Units:	*2.3%*	*2.1%*	*1.7%*	*1.7%*	*2.1%*	*0.5%*
Vacant Units For Sale:	1,423,490	8,919	2,545	1,621	874	107
as % of Total Housing Units:	*1.2%*	*1.7%*	*1.5%*	*1.4%*	*1.1%*	*2.6%*
Vacant Units Seasonal:	3,872,468	28,987	819	519	397	10
as % of Total Housing Units:	*3.3%*	*5.5%*	*0.5%*	*0.4%*	*0.5%*	*0.2%*
Vacant Units Vacant Other:	2,452,475	9,352	1,805	998	692	30
as % of Total Housing Units:	*2.1%*	*1.8%*	*1.1%*	*0.8%*	*0.9%*	*0.7%*
Mortgage						
Any Mortgage:	38,663,887	186,647	75,931	56,370	38,056	2,536
No Mortgage:	16,548,221	68,430	18,519	12,629	9,951	720
Owner Occupied Home Value						
Median Value ($):	111,833	102,117	114,643	122,388	117,999	165,143
Less than $20,000:	2,971,183	15,179	3,228	1,893	1,112	111
$20,000-$39,999:	4,657,882	16,349	3,250	1,718	1,089	130
$40,000-$59,999:	6,142,972	24,896	3,802	1,406	935	54
$60,000-$79,999:	8,107,557	44,145	9,797	4,285	3,120	57
$80,000-$99,999:	9,240,336	64,539	22,417	14,116	9,681	141
$100,000-$124,999:	8,003,853	57,256	24,034	18,591	11,204	305
$125,000-$149,999:	7,190,118	39,188	16,079	12,878	7,513	512
$150,000-$174,999:	5,466,573	24,171	9,732	7,765	4,041	525
$175,000-$199,999:	3,900,943	13,780	5,588	4,632	2,277	367
$200,000-$249,999:	4,727,813	16,393	6,507	5,446	3,012	437
$250,000-$299,999:	3,073,248	9,248	3,715	3,044	1,861	249
$300,000-$399,999:	2,910,231	6,588	2,576	2,194	1,135	218
$400,000-$499,999:	1,364,279	2,761	999	913	468	78
$500,000-$749,999:	1,192,681	2,648	834	739	346	52
$750,000-$999,999:	420,835	1,089	325	303	112	0
More than $1,000,000:	446,009	1,683	260	210	101	20
Year Built						
Median Year Built:	1970	1974	1978	1978	1976	1991
Built 1999 or Later:	2,755,075	18,884	8,381	5,460	2,412	468
Built 1995 to 1998:	8,478,975	63,475	26,321	18,194	8,647	1,161
Built 1990 to 1994:	8,467,008	51,909	21,503	16,964	10,820	706
Built 1980 to 1989:	18,326,847	65,869	21,221	16,648	12,052	474
Built 1970 to 1979:	21,438,863	129,261	40,700	29,834	18,028	1,019
Built 1960 to 1969:	15,911,903	52,263	13,799	9,648	7,708	91
Built 1950 to 1959:	14,710,149	51,019	13,535	9,179	7,893	51
Built 1940 to 1949:	8,435,768	34,381	8,682	5,157	4,476	28
Built 1939 or Earlier:	17,380,053	60,763	12,339	7,432	6,108	76

2000 Demographic Profile Comparison: US, Idaho, Boise MSA, Ada County, City of Boise, and the City of Eagle, Idaho

	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
Year Moved In						
Median Year Moved In:	1994	1994	1995	1995	1995	1995
Year Moved in 1999 or Later:	21,041,090	104,998	39,562	28,976	20,331	1,029
Year Moved in 1995 to 1998:	30,479,848	142,561	53,584	38,429	23,689	1,475
Year Moved in 1990 to 1994:	16,948,257	81,970	27,537	19,971	12,987	785
Year Moved in 1980 to 1989:	16,429,173	64,522	19,229	13,939	8,992	420
Year Moved in 1970 to 1979:	10,399,015	43,150	11,575	7,685	4,813	182
Year Moved in 1969 or Earlier:	10,182,718	32,444	6,939	4,408	3,765	
INCOME CHARACTERISTICS						
Total Household Income ($ x 1,000,000):	5,978,107	22,620	8,630	6,674	4,186	287
Median Household Income ($):	42,729	38,121	43,247	46,560	43,269	63,306
Average Household Income ($):	56,644	48,114	54,401	58,763	56,130	73,508
Per Capita Household Income ($):	21,243	17,481	19,961	22,180	22,531	25,908
Household High Income Average ($):	361,383	373,992	361,919	363,671	417,864	316,323
INCOME CHARACTERISTICS						
Households By Income						
Less than $15,000:	16,724,255	74,107	19,057	12,090	9,386	329
$15,000 to $24,999:	13,536,965	71,921	21,797	14,308	10,258	312
$25,000 to $34,999:	13,519,242	70,391	22,120	14,679	10,241	416
$35,000 to $49,999:	17,446,272	89,612	29,734	20,387	13,430	426
$50,000 to $74,999:	20,540,604	90,462	33,497	25,071	15,315	884
$75,000 to $99,999:	10,799,245	39,249	16,573	13,438	7,575	776
$100,000 to $124,999:	5,491,526	15,951	7,266	6,145	3,487	311
$125,000 to $149,999:	2,656,300	6,846	3,230	2,752	1,841	126
$150,000 to $199,999:	2,322,038	5,395	2,624	2,313	1,407	194
$200,000 and Over:	2,502,675	6,199	2,744	2,394	1,637	133
Households By Income as a % of Total Hshlds:						
Less than $15,000:	*15.8%*	*15.8%*	*12.0%*	*10.6%*	*12.6%*	*8.4%*
$15,000 to $24,999:	*12.8%*	*15.3%*	*13.7%*	*12.6%*	*13.8%*	*8.0%*
$25,000 to $34,999:	*12.8%*	*15.0%*	*13.9%*	*12.9%*	*13.7%*	*10.6%*
$35,000 to $49,999:	*16.5%*	*19.1%*	*18.7%*	*17.9%*	*18.0%*	*10.9%*
$50,000 to $74,999:	*19.5%*	*19.2%*	*21.1%*	*22.1%*	*20.5%*	*22.6%*
$75,000 to $99,999:	*10.2%*	*8.3%*	*10.4%*	*11.8%*	*10.2%*	*19.9%*
$100,000 to $124,999:	*5.2%*	*3.4%*	*4.6%*	*5.4%*	*4.7%*	*8.0%*
$125,000 to $149,999:	*2.5%*	*1.5%*	*2.0%*	*2.4%*	*2.5%*	*3.2%*
$150,000 to $199,999:	*2.2%*	*1.1%*	*1.7%*	*2.0%*	*1.9%*	*5.0%*
$200,000 and Over:	*2.4%*	*1.3%*	*1.7%*	*2.1%*	*2.2%*	*3.4%*

2000 Demographic Profile Comparison: US, Idaho, Boise M..., Ada County, City of Boise, and the City of Eagle, Idaho

	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
EMPLOYMENT CHARACTERISTICS						
Labor Force Characteristics (Pop 16+)						
Civilian Total:	129,721,512	599,453	216,268	156,634	99,369	5,563
Civilian Males:	69,091,443	327,508	117,509	84,552	53,074	3,060
Civilian Females:	60,630,069	271,945	98,759	72,082	46,295	2,503
Armed Forces Male:	987,898	3,984	887	726	425	20
Armed Forces Female:	164,239	867	205	184	137	0
Unemployed Males:	4,193,862	21,065	5,622	3,645	2,459	117
Unemployed Female:	3,753,424	15,719	4,498	2,766	1,920	65
Not in the Labor Force Male:	30,709,079	129,021	36,107	24,421	14,579	717
Not in the Labor Force Female:	47,638,063	199,763	59,674	39,541	25,232	1,460
Not in the Civilian Labor Force	78,347,142	328,784	95,781	63,962	39,811	2,177
In the Civilian Labor Force:	138,820,935	641,088	227,480	163,955	104,310	5,765
Industry (Pop 16+)						
Agriculture, Forestry, Fishing & Mining:	2,426,053	34,503	4,489	1,696	738	84
Construction:	8,801,507	48,388	17,698	11,839	6,734	272
Manufacturing:	18,286,005	78,625	33,899	22,467	13,956	870
Wholesale Trade:	4,666,757	21,495	8,838	6,505	3,804	256
Retail Trade:	15,221,716	75,477	26,857	19,948	12,751	612
Transportation & Ware. & Utilities:	6,740,102	27,891	9,644	6,462	4,024	219
Information:	3,996,564	13,779	6,075	4,853	3,148	203
Finance, Ins., Real Est. & Rental & Leasing:	8,934,972	30,618	13,841	11,208	7,114	496
Prof., Scientific, Mgmnt., Admin., etc.:	12,061,885	47,744	18,729	14,913	9,911	715
Educational, Health & Social Services:	25,843,029	115,154	38,051	27,227	17,524	918
Arts, Entert., Accom. & Food Svc., etc.:	10,210,295	47,902	15,998	12,602	8,791	445
Other Services:	6,320,632	27,228	9,647	7,068	4,478	185
Public Administration:	6,212,015	30,649	12,502	9,846	6,396	288
Occupation (Pop 16+)						
Management, Business, & Fin. Op.:	17,448,038	77,299	31,362	24,914	15,704	1,095
Professional and Related:	26,198,693	110,795	44,025	34,908	22,899	1,304
Sales and Office:	34,621,390	151,835	58,229	44,133	27,803	1,827
Service:	19,276,947	93,467	31,275	22,188	14,613	577
Farming, Fishing, and Forestry:	951,810	16,249	2,424	732	350	25
Construction, Extraction, & Maintenance:	12,256,138	64,747	21,600	13,776	8,043	288
Production, Transportation, & Material Moving:	18,968,496	85,061	27,353	15,983	9,957	447

	USA	State of Idaho	Boise MSA *	Ada County	City of Boise	City of Eagle
Transportation to Work (Empl 16+)						
Car, Truck, Van:	114,046,367	535,758	197,361	142,818	89,779	5,100
Public Transportation:	6,138,224	6,328	1,474	1,299	1,205	7
Other Transportation:	5,352,698	29,354	8,554	5,890	4,506	149
Work at Home:	4,184,223	28,013	8,879	6,627	3,879	307
Percent that work at Home:	*3.2%*	*4.6%*	*4.1%*	*4.2%*	*3.9%*	*5.5%*
Travel Time to Work (Empl 16+)						
Less than 15 Min:	36,486,316	245,682	68,100	49,153	36,251	1,066
15-29 Min:	44,806,624	199,493	94,408	74,609	46,264	2,745
30-59 Min:	32,904,317	94,353	37,771	21,590	10,685	1,327
60+ Min:	9,897,748	27,113	5,491	3,687	2,290	118
EDUCATION CHARACTERISTICS						
Education Enrollment (Pop 3+)						
Public Preprimary	2,663,695	10,968	3,420	2,018	1,211	84
Private Preprimary	2,285,989	9,766	3,979	2,987	1,667	164
Public School	48,229,911	250,997	86,130	53,817	31,098	2,362
Percent.	*89.3%*	*93.0%*	*91.9%*	*91.6%*	*91.5%*	*94.5%*
Public School Enrollment per Household	*0.457*	*0.534*	*0.543*	*0.474*	*0.417*	*0.605*
Private School	5,800,036	18,937	7,608	4,912	2,898	138
Percent.	*10.7%*	*7.0%*	*8.1%*	*8.4%*	*8.5%*	*5.5%*
	54,029,947	269,934	93,738	58,729	33,996	2,500
Public College	13,033,430	61,274	20,010	15,907	11,745	353
Private College	4,441,093	16,235	4,372	2,128	1,323	89
Not Enrolled in School	193,395,449	867,242	317,034	205,392	128,047	7,346
Education Attainment (Pop 25+)						
Less Than High School	35,673,207	120,237	40,375	17,296	10,570	419
High School	52,111,770	223,970	73,731	43,390	24,995	1,175
Some College	38,306,352	214,833	79,250	54,878	34,156	2,122
Associate Degree	11,499,759	56,968	19,295	13,832	8,294	648
College	28,273,323	116,554	50,625	40,780	26,787	1,921
Graduate Degree	16,120,229	53,532	22,042	17,771	12,439	640
Percent with Associate Degree or higher	30.7%	28.9%	32.2%	38.5%	40.5%	46.3%

M3 – Eagle Development

Appendix B:

Ada County: Residential Housing Additions by Housing Type and City: 1990 – 2006

Annual Value of Commercial Construction Permits Issued in Ada & Canyon Counties by City & County: 1990 - 2006

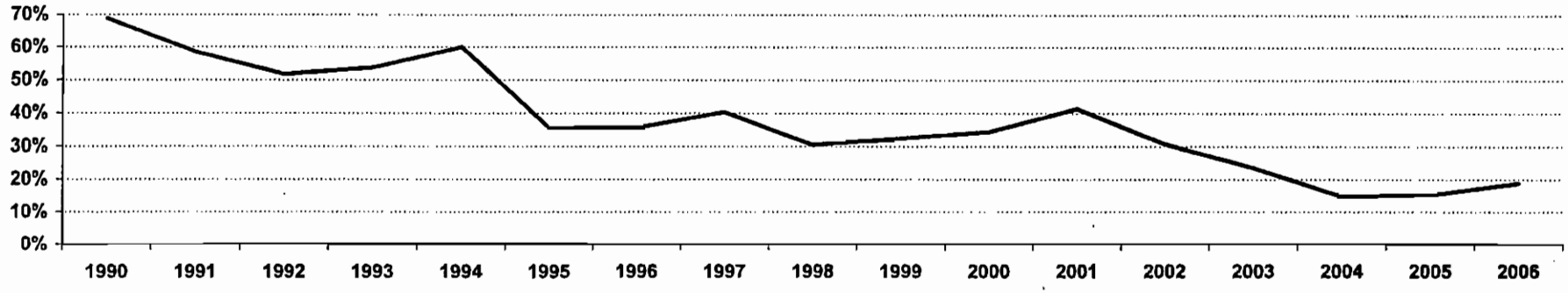
Total Residential Housing Permits Issued in Ada County by City, 1990 - 2006

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual Average '90 - '06
Boise	1,534	1,589	2,061	2,916	3,208	1,255	1,150	1,437	1,255	1,385	1,300	1,815	1,204	1,119	815	1,189	877	1,536
Eagle	35	74	223	266	300	356	164	287	339	379	452	353	266	421	483	530	258	305
Garden City	65	111	224	198	153	119	119	78	271	297	94	85	196	88	69	70	53	135
Kuna	16	25	21	19	99	132	142	195	253	211	336	316	410	232	230	563	296	206
Meridian	230	442	743	1,183	977	1,200	1,082	889	1,020	807	755	914	949	1,766	2,567	3,314	1,688	1,207
Star									93	109	71	42	46	102	146	548	300	162
Unincorp. Ada County	350	483	724	862	627	483	579	677	914	1,100	784	869	859	1,036	1,200	1,617	1,209	845
Total Ada County	2,230	2,724	3,996	5,444	5,364	3,545	3,236	3,563	4,145	4,288	3,792	4,394	3,930	4,764	5,510	7,831	4,681	4,320
Annual % Change		22.2%	46.7%	36.2%	-1.5%	-33.9%	-8.7%	10.1%	16.3%	3.4%	-11.6%	15.9%	-10.6%	21.2%	15.7%	42.1%	-40.2%	

Percentage of Total Residential Housing Permits Issued in Ada County by City, 1990 - 2006

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2005
Boise	68.8%	58.3%	51.6%	53.6%	59.8%	35.4%	35.5%	40.3%	30.3%	32.3%	34.3%	41.3%	30.6%	23.5%	14.8%	15.2%	18.7%
Eagle	1.6	2.7	5.6	4.9	5.6	10.0	5.1	8.1	8.2	8.8	11.9	8.0	6.8	8.8	8.8	6.8	5.5
Garden City	2.9	4.1	5.6	3.6	2.9	3.4	3.7	2.2	6.5	6.9	2.5	1.9	5.0	1.8	1.3	0.9	1.1
Kuna	0.7	0.9	0.5	0.3	1.8	3.7	4.4	5.5	6.1	4.9	8.9	7.2	10.4	4.9	4.2	7.2	6.3
Meridian	10.3	16.2	18.6	21.7	18.2	33.9	33.4	25.0	24.6	18.8	19.9	20.8	24.1	37.1	46.6	42.3	36.1
Star	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	2.5	1.9	1.0	1.2	2.1	2.6	7.0	6.4
Unincorp. Ada County	15.7	17.7	18.1	15.8	11.7	13.6	17.9	19.0	22.1	25.7	20.7	19.8	21.9	21.7	21.8	20.6	25.8
Total Ada County	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Boise City's Share of Total Residential Housing Permits Issued in Ada County: 1990 - 2006



Source: COMPASS Development Monitoring Reports 1990-2004., 2005 permit numbers from U.S. Bureau (census.gov).

Note: Total housing units above will not equal the sum of the single-family and multi-family housing units below due to the inclusion of mobile and/or manufactured homes.

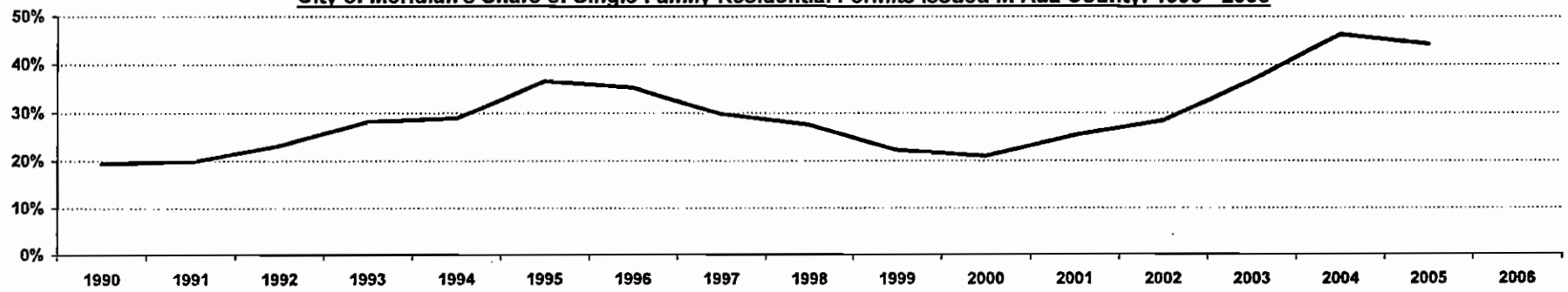
Single-Family Residential Housing Permits Issued in Ada County by City, 1990 - 2006

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual Average '90 - '06
Boise	452	1,077	1,266	1,602	1,185	805	966	916	988	950	993	778	709	677	564	799	415	891
Eagle	35	62	218	250	300	252	164	268	339	379	452	345	265	421	479	505	226	292
Garden City	63	111	220	198	153	119	115	60	70	106	57	83	102	65	38	58	32	97
Kuna	16	25	21	19	99	130	142	193	249	196	327	284	390	229	227	522	295	198
Meridian	220	430	737	1,125	953	1,030	1,066	889	1,004	807	709	812	919	1,433	2,243	3,161	1,556	1,123
Star	0	0	0	0	0	0	0	0	93	108	71	42	41	100	143	547	268	83
Unincorp. Ada County	350	483	720	806	615	483	578	667	912	1,100	784	869	815	981	1,173	1,573	1,054	821
Total Ada County	1,136	2,188	3,182	4,000	3,305	2,819	3,031	2,993	3,655	3,646	3,393	3,213	3,241	3,906	4,867	7,165	3,846	3,505
Annual % Change		92.6%	45.4%	25.7%	-17.4%	-14.7%	7.5%	-1.3%	22.1%	-0.2%	-6.9%	-5.3%	0.9%	20.5%	24.6%	151.8%	-46.3%	

Percentage of Single-Family Residential Housing Permits Issued in Ada County by City, 1990 - 2006

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Boise	39.8%	49.2%	39.8%	40.1%	35.9%	28.6%	31.9%	30.6%	27.0%	26.1%	29.3%	24.2%	21.9%	17.3%	11.6%	11.2%	10.8%
Eagle	3.1	2.8	6.9	6.3	9.1	8.9	5.4	9.0	9.3	10.4	13.3	10.7	8.2	10.8	9.8	7.0	5.9
Garden City	5.5	5.1	6.9	5.0	4.6	4.2	3.8	2.0	1.9	2.9	1.7	2.6	3.1	1.7	0.8	0.8	0.8
Kuna	1.4	1.1	0.7	0.5	3.0	4.6	4.7	6.4	6.8	5.4	9.6	8.8	12.0	5.9	4.7	7.3	7.7
Meridian	19.4	19.7	23.2	28.1	28.8	36.5	35.2	29.7	27.5	22.1	20.9	25.3	28.4	36.7	46.1	44.1	40.5
Star	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	3.0	2.1	1.3	1.3	2.6	2.9	7.6	7.0
Unincorp. Ada County	30.8	22.1	22.6	20.2	18.6	17.1	19.1	22.3	25.0	30.2	23.1	27.0	25.1	25.1	24.1	22.0	27.4
Total Ada County	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

City of Meridian's Share of Single Family Residential Permits Issued in Ada County: 1990 - 2006



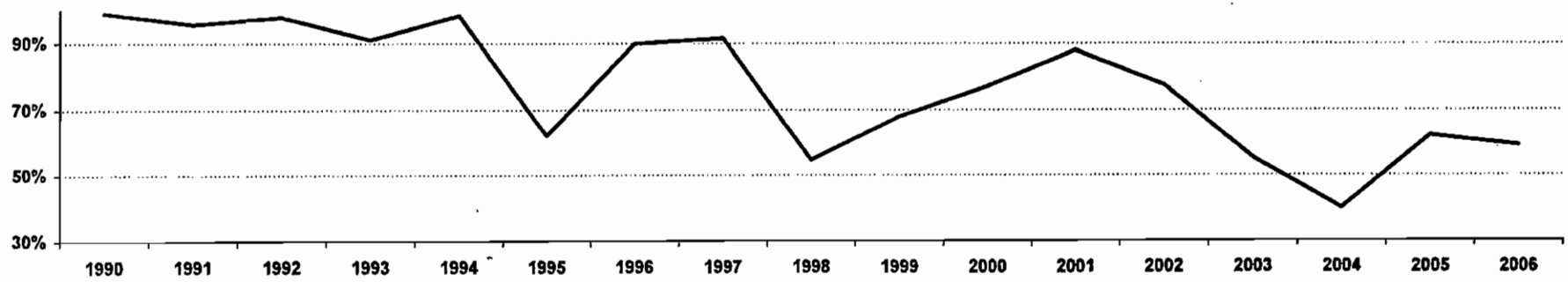
Multi-Family Residential Housing Permits Issued in Ada County by City, 1990 - 2006

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Annual Average '90 - '06
Boise	1,082	512	795	1,314	2,023	450	184	521	267	435	307	1,037	489	433	235	377	452	642
Eagle	0	12	5	16	0	104	0	19	0	0	0	8	0	0	0	24	28	13
Garden City	2	0	4	0	0	0	4	18	201	191	37	2	92	21	29	12	15	37
Kuna	0	0	0	0	0	2	0	2	4	15	9	32	20	0	2	30	0	7
Meridian	10	12	6	58	24	170	16	0	16	0	46	102	28	330	323	148	112	82
Star										1	0	0	0	0	2	0	32	4
Unincorp. Ada County	0	0	4	56	12	0	1	10	2	0	0	0	2	0	0	17	128	14
Total Ada County	1,094	536	814	1,444	2,059	726	205	570	490	642	399	1,181	631	784	591	608	767	797
Annual % Change		-51.0%	51.9%	77.4%	42.6%	-64.7%	-71.8%	178.0%	-14.0%	31.0%	-37.9%	196.0%	-46.6%	24.2%	-24.6%	2.9%	26.2%	

Percentage of Multi-Family Residential Housing Permits Issued in Ada County by City, 1990 - 2006

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Boise	98.9%	95.5%	97.7%	91.0%	98.3%	62.0%	89.8%	91.4%	54.5%	67.8%	76.9%	87.8%	77.5%	55.2%	39.8%	62.0%	58.9%
Eagle	0.0	2.2	0.6	1.1	0.0	14.3	0.0	3.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	3.9	3.7
Garden City	0.2	0.0	0.5	0.0	0.0	0.0	2.0	3.2	41.0	29.8	9.3	0.2	14.6	2.7	4.9	2.0	2.0
Kuna	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4	0.8	2.3	2.3	2.7	3.2	0.0	0.3	4.9	0.0
Meridian	0.9	2.2	0.7	4.0	1.2	23.4	7.8	0.0	3.3	0.0	11.5	8.6	4.4	42.1	54.7	24.3	14.6
Star	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	4.2
Unincorp. Ada County	0.0	0.0	0.5	3.9	0.6	0.0	0.5	1.8	0.4	0.0	0.0	0.0	0.3	0.0	0.0	2.8	16.7
Total Ada County	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Boise City's Share of Multi-Family Residential Housing Permits Issued in Ada County: 1990 - 2006



Non-Residential Building Permit Values in Ada and Canyon Counties: 1990 - 2006

(millions of $)

Quarter	Boise City New NonRes	Boise City Add,Alts,Reprs	Total Boise City	Meridian New NonRes	Meridian Add,Alts,Reprs	Total Meridian	Ada Uninc. New NonRes	Ada Uninc. Add,Alts,Reprs	Total Ada Uninc.
Q1.90	0.96	34.32	35.29	0.44	0.42	0.86	2.62	0.93	3.54
Q2.90	24.20	19.55	43.76	1.12	0.91	2.03	1.43	1.39	2.83
Q3.90	26.68	25.26	51.94	1.07	0.93	2.00	1.32	1.22	2.53
Q4.90	4.52	16.84	21.36	2.94	1.34	4.28	0.56	1.58	2.14
Q1.91	1.26	15.86	17.12	4.31	0.16	4.47	1.70	1.13	2.83
Q2.91	9.32	19.79	29.11	0.67	0.89	1.56	0.70	2.94	3.64
Q3.91	1.96	25.90	27.86	0.16	0.61	0.76	1.12	1.97	3.09
Q4.91	29.41	23.30	52.71	3.69	0.20	3.89	0.61	2.18	2.79
Q1.92	10.80	20.57	31.37	0.21	1.31	1.52	0.61	6.11	6.71
Q2.92	8.30	63.12	71.42	1.38	0.46	1.84	0.74	1.56	2.30
Q3.92	2.19	23.89	26.09	0.70	1.38	2.08	0.40	1.26	1.67
Q4.92	4.60	20.29	24.88	2.26	1.12	3.38	2.28	1.53	3.81
Q1.93	12.59	22.26	34.85	0.27	0.26	0.53	0.85	0.77	1.61
Q2.93	8.96	46.96	55.92	0.78	1.55	2.33	0.94	3.03	3.97
Q3.93	28.01	34.20	62.21	0.46	0.47	0.93	0.07	1.52	1.59
Q4.93	23.90	38.06	61.96	0.88	0.28	1.16	6.08	2.10	8.18
Q1.94	24.51	69.03	93.55	3.67	0.29	3.97	1.10	2.18	3.28
Q2.94	5.93	54.68	60.61	1.00	0.60	1.60	16.86	2.07	18.93
Q3.94	12.66	44.93	57.59	3.03	1.82	4.85	1.57	1.60	3.18
Q4.94	74.80	44.30	119.10	4.40	0.75	5.16	2.95	1.33	4.29
Q1.95	75.20	81.33	156.53	5.81	1.21	7.02	1.08	1.12	2.20
Q2.95	8.58	96.53	105.11	4.63	1.27	5.90	1.45	3.80	5.25
Q3.95	64.65	167.53	232.18	12.51	1.86	14.37	1.53	1.81	3.34
Q4.95	2.93	85.09	88.03	4.57	0.64	5.21	0.65	0.71	1.36
Q1.96	17.54	86.07	103.61	10.20	3.10	13.30	1.13	2.34	3.46
Q2.96	19.81	77.59	97.40	13.55	2.88	16.43	2.35	2.11	4.46
Q3.96	22.08	61.49	83.58	6.74	0.87	7.60	8.17	1.64	9.81
Q4.96	38.78	53.78	92.57	0.90	2.11	3.00	6.36	1.79	8.15
Q1.97	5.54	84.12	89.66	15.44	1.14	16.58	0.91	3.15	4.06
Q2.97	33.49	97.82	131.31	2.71	3.81	6.52	2.90	3.38	6.28
Q3.97	19.28	80.34	99.63	1.74	1.45	3.18	3.82	7.58	11.40
Q4.97	13.09	61.41	74.50	2.19	1.28	3.47	1.08	2.37	3.45
Q1.98	34.59	63.02	97.60	2.17	0.86	3.03	2.44	1.52	3.97
Q2.98	20.64	71.82	92.47	8.73	1.59	10.32	3.46	1.54	5.00
Q3.98	26.40	72.38	98.78	9.64	1.86	11.50	2.05	3.30	5.35
Q4.98	20.16	44.24	64.40	6.95	1.40	8.36	14.72	1.83	16.54
Q1.99	14.63	52.45	67.08	3.53	4.45	7.98	41.71	2.22	43.93
Q2.99	13.96	67.08	81.05	11.74	4.27	16.01	10.39	4.94	15.33
Q3.99	20.80	63.30	84.10	30.67	2.26	32.93	4.00	2.11	6.11
Q4.99	19.82	52.74	72.55	13.12	6.63	19.75	7.67	1.81	9.48
Q1.00	10.33	73.58	83.91	9.45	3.41	12.85	2.87	1.49	4.37
Q2.00	65.72	53.53	119.25	18.06	8.71	26.77	8.94	1.79	10.73
Q3.00	36.31	71.50	107.81	41.25	10.93	52.18	4.79	1.67	6.46
Q4.00	25.45	158.64	184.09	5.59	2.50	8.09	2.18	1.32	3.51
Q1.01	27.45	77.88	105.33	2.16	3.93	6.09	2.22	2.45	4.67
Q2.01	18.15	70.23	88.37	6.07	3.43	9.49	5.68	2.48	8.16
Q3.01	83.36	80.27	163.63	28.77	6.44	35.21	4.94	2.58	7.52
Q4.01	13.46	35.74	49.20	10.25	3.09	13.34	6.83	2.31	9.14
Q1.02	2.66	70.47	73.13	4.41	2.49	6.90	2.77	1.56	4.33
Q2.02	12.15	46.71	58.86	5.89	5.53	11.42	3.20	2.34	5.54
Q3.02	7.00	36.20	43.20	7.76	4.82	12.58	3.14	1.76	4.90

(millions of $)

Quarter	Caldwell New NonRes	Caldwell Add,Alts,Reprs	Total Caldwell	Canyon Uninc. New NonRes	Canyon Uninc. Add,Alts,Reprs	Total Canyon Uninc.	Nampa New NonRes	Nampa Add,Alts,Reprs	Total Nampa
Q1.90	0.04	0.47	0.51	1.36	0.34	1.70	1.27	0.47	1.74
Q2.90	0.85	0.17	1.02	0.81	0.44	1.25	0.86	1.15	2.01
Q3.90	6.46	0.39	6.84	0.13	0.67	0.80	0.21	1.61	1.82
Q4.90	5.33	0.45	5.78	0.85	0.55	1.40	0.33	0.60	0.93
Q1.91	1.14	0.14	1.28	0.30	0.35	0.66	1.35	1.21	2.56
Q2.91	1.74	0.29	2.03	1.06	0.96	2.02	1.35	1.39	2.74
Q3.91	0.93	1.51	2.44	4.29	0.69	4.98	1.20	1.52	2.72
Q4.91	0.37	0.28	0.66	0.37	1.65	2.02	0.40	1.02	1.42
Q1.92	0.08	0.11	0.19	1.87	1.00	2.87	0.35	0.91	1.25
Q2.92	0.25	0.23	0.48	3.06	2.79	5.85	3.32	0.70	4.03
Q3.92	1.28	0.92	2.21	0.63	1.07	1.70	0.40	0.55	0.95
Q4.92	0.31	0.36	0.67	0.29	1.51	1.80	0.44	0.82	1.26
Q1.93	1.03	0.41	1.43	0.20	0.91	1.10	0.30	0.89	1.18
Q2.93	0.55	0.91	1.47	1.37	1.37	2.75	0.48	1.27	1.75
Q3.93	3.22	0.71	3.93	0.38	1.79	2.17	2.48	6.92	9.40
Q4.93	1.77	0.37	2.14	0.47	1.17	1.64	0.75	1.06	1.81
Q1.94	0.78	0.84	1.62	0.50	1.21	1.71	3.20	1.13	4.33
Q2.94	0.37	0.71	1.08	2.00	2.28	4.28	6.44	3.36	9.80
Q3.94	1.06	0.64	1.70	3.01	1.61	4.61	35.95	1.24	37.19
Q4.94	2.70	0.97	3.67	0.59	1.69	2.28	2.87	1.70	4.57
Q1.95	14.68	1.80	16.48	2.52	2.64	5.16	4.02	0.60	4.62
Q2.95	2.91	0.80	3.71	5.31	2.47	7.78	19.74	2.35	22.08
Q3.95	0.58	1.22	1.80	1.03	1.00	2.03	6.51	2.21	8.72
Q4.95	0.49	0.55	1.04	0.26	1.96	2.22	4.58	2.51	7.09
Q1.96	15.22	0.63	15.85	2.81	1.59	4.40	10.99	4.09	15.07
Q2.96	14.91	0.61	15.53	3.59	1.73	5.32	20.35	4.51	24.86
Q3.96	5.59	0.68	6.27	2.31	2.16	4.47	9.52	5.42	14.95
Q4.96	3.24	0.73	3.97	1.11	1.03	2.14	11.61	4.04	15.65
Q1.97	0.86	1.67	2.52	1.38	1.59	2.97	16.47	4.07	20.53
Q2.97	5.54	3.41	8.95	0.54	2.49	3.03	3.15	1.40	4.55
Q3.97	2.11	1.69	3.80	1.50	1.83	3.33	4.94	1.33	6.26
Q4.97	1.72	1.05	2.77	1.72	4.19	5.91	6.74	1.13	7.88
Q1.98	2.95	3.88	6.83	0.62	1.60	2.22	3.60	2.58	6.18
Q2.98	2.90	0.22	3.12	0.92	2.12	3.04	14.43	3.80	18.24
Q3.98	8.29	0.39	8.68	0.67	2.02	2.68	2.08	1.49	3.58
Q4.98	2.08	0.43	2.51	1.16	1.17	2.33	2.43	0.83	3.26
Q1.99	0.50	0.86	1.36	2.59	1.36	3.95	8.15	2.59	10.73
Q2.99	6.32	1.95	8.27	6.38	1.97	8.35	7.44	4.66	12.10
Q3.99	11.32	0.45	11.78	3.91	1.74	5.66	18.54	1.55	20.08
Q4.99	0.63	0.56	1.18	1.59	1.08	2.67	4.23	3.30	7.52
Q1.00	2.24	0.30	2.54	9.50	1.08	10.58	3.57	4.60	8.17
Q2.00	4.00	3.03	7.03	2.92	3.38	6.30	12.42	3.32	15.75
Q3.00	4.90	1.78	6.68	3.13	1.98	5.12	5.58	8.41	13.99
Q4.00	2.52	2.76	5.27	0.45	1.20	1.66	7.40	1.55	8.95
Q1.01	1.23	0.65	1.87	2.45	1.29	3.74	4.95	2.78	7.73
Q2.01	2.29	1.96	4.25	1.29	6.63	7.92	12.99	3.46	16.44
Q3.01	1.64	1.24	2.88	1.06	1.15	2.21	4.67	6.95	11.62
Q4.01	0.97	0.95	1.92	0.97	1.28	2.24	19.85	2.28	22.13
Q1.02	1.37	0.80	2.17	5.29	1.02	6.31	4.58	1.87	6.45
Q2.02	4.28	0.69	4.97	7.88	1.14	9.02	14.63	1.49	16.12
Q3.02	1.75	1.57	3.32	5.80	1.04	6.84	15.34	2.11	17.45

Non-Residential Building Permit Values in Ada and Canyon Counties: 1990 - 2006

(millions of $)

Quarter	Boise City New NonRes	Boise City Add,Alts,Repra	Total Boise City	Meridian New NonRes	Meridian Add,Alts,Repra	Total Meridian	Ada Uninc. New NonRes	Ada Uninc. Add,Alts,Repra	Total Ada Uninc.
Q4.02	18.61	38.78	57.40	7.20	5.66	12.86	10.61	1.81	12.41
Q1.03	22.43	38.80	61.23	26.43	3.13	29.56	1.13	1.62	2.75
Q2.03	6.93	48.83	55.76	8.80	2.77	11.56	0.77	1.36	2.13
Q3.03	19.83	37.45	57.28	13.98	6.69	20.67	4.71	2.28	6.98
Q4.03	13.68	51.13	64.81	8.77	2.77	11.54	7.12	1.21	8.33
Q1.04	5.62	45.12	50.74	23.01	2.84	25.84	3.95	2.74	6.70
Q2.04	14.83	37.80	52.64	17.49	4.80	22.29	4.03	1.24	5.27
Q3.04	35.73	41.47	77.20	21.26	12.30	33.56	10.50	1.76	12.26
Q4.04	22.05	51.29	73.33	11.83	10.44	22.27	2.17	2.81	4.98
Q1.05	4.62	39.41	44.03	14.95	4.66	19.61	3.37	1.14	4.52
Q2.05	45.90	63.01	108.91	29.41	7.40	36.81	5.20	1.69	6.90
Q3.05	9.23	43.90	53.14	30.80	9.63	40.43	2.83	2.49	5.33
Q4.05	16.96	134.94	151.90	29.63	6.05	35.68	12.57	2.73	15.29
Q1.06	16.12	59.14	75.25	21.70	5.08	26.78	4.53	1.46	5.99
Q2.06	39.85	72.48	112.32	45.37	9.10	54.47	4.55	3.94	8.49
Q3.06	43.55	81.62	125.17	22.86	11.46	34.33	4.31	2.31	6.62
Q4.06	15.24	70.07	85.31	74.37	5.08	79.45	2.50	2.31	4.81
17-Yr. Avg	21.48	57.55	79.03	11.01	3.32	14.33	4.34	2.15	6.48
'96-'06 Avg	22.59	64.08	86.67	15.63	4.66	20.29	5.58	2.28	7.86

(millions of $)

Quarter	Caldwell New NonRes	Caldwell Add,Alts,Repra	Total Caldwell	Canyon Uninc. New NonRes	Canyon Uninc. Add,Alts,Repra	Total Canyon Uninc.	Nampa New NonRes	Nampa Add,Alts,Repra	Total Nampa
Q4.02	0.61	0.31	0.93	2.51	0.85	3.35	12.94	1.39	14.33
Q1.03	1.65	0.83	2.47	1.67	0.89	2.56	8.31	6.02	14.33
Q2.03	2.47	0.60	3.07	4.11	1.16	5.27	11.69	2.07	13.76
Q3.03	5.34	3.86	9.20	3.86	1.17	5.03	14.04	2.16	16.20
Q4.03	0.93	0.49	1.43	1.91	0.81	2.72	5.75	1.35	7.10
Q1.04	0.10	0.50	0.60	5.83	0.39	6.22	4.19	3.47	7.66
Q2.04	6.76	0.71	7.47	4.00	1.27	5.27	13.01	3.10	16.11
Q3.04	11.98	1.13	13.11	3.31	1.36	4.67	10.24	2.49	12.73
Q4.04	2.20	0.44	2.65	4.06	0.46	4.52	1.11	2.95	4.06
Q1.05	4.34	0.44	4.79	7.26	0.68	7.93	30.60	1.75	32.35
Q2.05	0.57	2.10	2.67	6.49	1.12	7.62	12.77	8.22	20.99
Q3.05	14.88	5.23	20.11	3.15	1.52	4.67	19.04	3.18	22.22
Q4.05	2.50	0.77	3.27	2.92	0.68	3.60	24.66	3.80	28.47
Q1.06	7.41	0.24	7.65	2.96	0.90	3.86	20.22	2.65	22.87
Q2.06	16.00	1.05	17.05	3.76	2.07	5.83	22.07	5.67	27.73
Q3.06	6.12	3.12	9.24	3.31	1.05	4.36	37.89	22.30	60.19
Q4.06	1.45	1.09	2.53	0.75	0.31	3.43	24.46	5.46	29.93
17-Yr. Avg	3.61	1.07	4.69	2.47	1.47	3.97	9.15	2.95	12.11
'96-'06 Avg	4.47	1.31	5.78	3.08	1.54	4.67	11.90	3.72	15.62

Annual Totals:

1990	$56.4	$96.0	$152.3	$5.6	$3.6	$9.2	$5.9	$5.1	$11.0	$12.7	$1.5	$14.2	$3.2	$2.0	$5.2	$2.7	$3.8	$6.5
1991	41.9	84.9	126.8	8.8	1.9	10.7	4.1	8.2	12.3	4.2	2.2	6.4	6.0	3.7	9.7	4.3	5.1	9.4
1992	25.9	127.9	153.8	4.5	4.3	8.8	4.0	10.5	14.5	1.9	1.6	3.5	5.9	6.4	12.2	4.5	3.0	7.5
1993	73.5	141.5	214.9	2.4	2.6	4.9	7.9	7.4	15.3	6.6	2.4	9.0	2.4	5.2	7.7	4.0	10.1	14.1
1994	117.9	212.9	330.9	12.1	3.5	15.6	22.5	7.2	29.7	4.9	3.2	8.1	6.1	6.8	12.9	48.5	7.4	55.9
1995	158.2	408.0	566.2	28.2	4.7	32.9	5.3	7.2	12.5	18.7	4.3	23.0	10.8	7.8	18.6	34.0	6.3	40.3
1996	85.0	269.5	354.5	23.6	8.6	32.2	17.5	7.2	24.7	24.1	2.7	26.8	7.3	6.4	13.7	44.6	16.6	61.2
1997	71.4	323.7	395.1	22.1	7.7	29.8	8.7	16.5	25.2	10.2	7.8	18.0	5.1	10.1	15.2	31.3	7.9	39.2
1998	101.8	251.5	353.2	27.5	5.7	33.2	22.7	8.2	30.9	16.2	4.9	21.1	3.4	6.9	10.3	22.5	8.7	31.3
1999	69.2	235.6	304.8	59.1	17.6	76.7	63.8	11.1	74.8	18.8	3.8	22.6	14.5	6.2	20.6	38.4	12.1	50.4
2000	137.8	357.3	495.1	74.3	25.5	99.9	18.8	6.3	25.1	13.6	7.9	21.5	16.0	7.7	23.7	29.0	17.9	46.9
2001	142.4	264.1	406.5	47.2	16.9	64.1	19.7	9.8	29.5	6.1	4.8	10.9	5.8	10.3	16.1	42.5	15.5	57.9
2002	40.4	192.2	232.6	25.3	18.5	43.8	19.7	7.5	27.2	8.0	3.4	11.4	21.5	4.0	25.5	47.5	6.9	54.4
2003	62.9	176.2	239.1	58.0	15.4	73.3	13.7	6.5	20.2	10.4	5.8	16.2	11.5	4.0	15.6	39.8	11.6	51.4
2004	78.2	175.7	253.9	73.6	30.4	104.0	20.6	8.6	29.2	21.1	2.8	23.8	17.2	3.5	20.7	28.5	12.0	40.6
2005	76.7	281.3	358.0	104.8	27.7	132.5	24.0	8.1	32.0	22.3	8.5	30.8	19.8	4.0	23.8	87.1	16.9	104.0
2006	114.8	283.3	398.1	164.3	30.7	195.0	15.9	10.0	25.9	31.0	5.5	36.5	10.8	4.3	17.5	104.6	36.1	140.7
17-Yr. Avg	$85.6	$228.3	$313.9	$43.6	$13.2	$56.9	$17.4	$8.5	$25.9	$13.6	$4.3	$17.9	$9.8	$5.8	$15.8	$36.1	$11.6	$47.7
'96-'06 Avg	$89.2	$255.5	$344.6	$61.8	$18.6	$80.4	$22.3	$9.1	$31.3	$16.5	$5.3	$21.8	$12.1	$6.1	$18.4	$46.9	$14.7	$61.6

Non-Residential Building Permit Values in [illegible]a and Canyon Counties: 1990 - 2006

(millions of $)

Quarter	ADA County New NonRes	ADA County Add,Alts,Reprs	Total ADA County	Canyon County New NonRes	Canyon County Add,Alts,Reprs	Total Canyon County	Boise MSA New NonRes	Boise MSA Add,Alts,Reprs	Total Boise MSA	YTD MSA New NonRes	YTD MSA Add,Alts,Reprs	Total MSA YTD
Q1.90	4.02	35.67	39.69	2.68	1.27	3.96	6.70	36.95	43.65	6.70	36.95	43.65
Q2.90	26.75	21.86	48.61	2.51	1.77	4.28	29.26	23.63	52.89	35.96	60.58	96.54
Q3.90	29.07	27.41	56.48	6.80	2.66	9.46	35.87	30.07	65.94	71.83	90.65	162.48
Q4.90	8.02	19.76	27.78	6.51	1.60	8.11	14.53	21.36	35.89	86.36	112.01	198.37
Q1.91	7.28	17.15	24.43	2.78	1.70	4.49	10.06	18.85	28.91	10.06	18.85	28.91
Q2.91	10.68	23.63	34.31	4.15	2.64	6.79	14.83	26.27	41.10	24.89	45.12	70.02
Q3.91	3.23	28.48	31.71	6.41	3.73	10.14	9.64	32.21	41.85	34.53	77.33	111.87
Q4.91	33.70	25.68	59.38	1.14	2.96	4.09	34.84	28.63	63.48	69.38	105.97	175.34
Q1.92	11.62	27.99	39.60	2.30	2.02	4.31	13.91	30.00	43.92	13.91	30.00	43.92
Q2.92	10.42	65.13	75.55	6.64	3.72	10.36	17.06	68.85	85.91	30.97	98.86	129.83
Q3.92	3.29	26.54	29.83	2.32	2.54	4.86	5.61	29.08	34.69	36.58	127.94	164.52
Q4.92	9.13	22.94	32.07	1.04	2.69	3.73	10.18	25.62	35.80	46.76	153.56	200.32
Q1.93	13.71	23.29	37.00	1.52	2.20	3.72	15.23	25.48	40.71	15.23	25.48	40.71
Q2.93	13.06	51.53	64.59	4.60	3.56	8.16	17.66	55.10	72.76	32.89	80.58	113.47
Q3.93	28.54	36.18	64.72	6.08	9.42	15.50	34.62	45.60	80.23	67.52	126.18	193.70
Q4.93	30.86	40.44	71.30	2.98	2.60	5.59	33.84	43.04	76.89	101.36	169.22	270.59
Q1.94	29.29	71.50	100.80	4.48	3.18	7.66	33.77	74.69	108.46	33.77	74.69	108.46
Q2.94	23.78	57.36	81.14	8.81	6.35	15.16	32.59	63.71	96.30	66.37	138.40	204.77
Q3.94	17.26	48.36	65.62	40.02	3.48	43.50	57.28	51.84	109.12	123.65	190.23	313.88
Q4.94	82.16	46.39	128.54	6.16	4.35	10.51	88.32	50.74	139.05	211.97	240.97	452.94
Q1.95	82.09	83.66	165.75	21.22	5.04	26.26	103.31	88.70	192.01	103.31	88.70	192.01
Q2.95	14.66	101.61	116.26	27.96	5.61	33.57	42.62	107.21	149.83	145.93	195.92	341.85
Q3.95	78.82	171.20	250.02	8.07	4.43	12.50	86.89	175.63	262.53	232.82	371.55	604.37
Q4.95	8.15	86.45	94.59	5.32	5.02	10.35	13.47	91.47	104.94	246.29	463.01	709.31
Q1.96	28.86	91.51	120.37	29.01	6.31	35.32	57.87	97.82	155.69	57.87	97.82	155.69
Q2.96	35.71	82.58	118.30	38.86	6.85	45.71	74.57	89.43	164.00	132.45	187.25	319.69
Q3.96	36.99	64.01	100.99	17.43	8.27	25.69	54.41	72.27	126.69	186.86	259.52	446.38
Q4.96	46.04	57.68	103.72	15.96	5.80	21.76	62.00	63.48	125.48	248.86	323.00	571.86
Q1.97	21.89	88.41	110.31	18.71	7.32	26.03	40.60	95.74	136.34	40.60	95.74	136.34
Q2.97	39.10	105.01	144.11	9.23	7.30	16.53	48.33	112.31	160.64	88.93	208.05	296.97
Q3.97	24.84	89.37	114.21	8.55	4.85	13.40	33.39	94.22	127.61	122.32	302.26	424.58
Q4.97	16.36	65.06	81.42	10.18	6.37	16.55	26.54	71.43	97.97	148.86	373.69	522.56
Q1.98	39.20	65.40	104.60	7.17	8.06	15.23	46.37	73.46	119.83	46.37	73.46	119.83
Q2.98	32.84	74.95	107.79	18.25	6.14	24.40	51.09	81.09	132.19	97.46	154.55	252.02
Q3.98	38.09	77.54	115.63	11.04	3.90	14.95	49.13	81.44	130.57	146.60	235.99	382.59
Q4.98	41.83	47.47	89.30	5.67	2.43	8.09	47.49	49.90	97.39	194.09	285.89	479.98
Q1.99	59.87	59.12	118.99	11.23	4.81	16.04	71.10	63.93	135.03	71.10	63.93	135.03
Q2.99	36.09	76.29	112.39	20.14	8.58	28.72	56.23	84.87	141.11	127.33	148.81	276.14
Q3.99	55.47	67.66	123.13	33.78	3.74	37.52	89.25	71.40	160.65	216.58	220.21	436.79
Q4.99	40.60	61.18	101.79	6.44	4.94	11.37	47.04	66.12	113.16	263.62	286.32	549.95
Q1.00	22.64	78.48	101.13	15.32	5.98	21.30	37.96	84.46	122.42	37.96	84.46	122.42
Q2.00	92.72	64.03	156.75	19.34	9.74	29.08	112.05	73.77	185.83	150.02	158.23	308.25
Q3.00	82.35	84.10	166.45	13.61	12.17	25.79	95.97	96.27	192.24	245.98	254.50	500.48
Q4.00	33.23	162.46	195.69	10.37	5.51	15.88	43.59	167.97	211.57	289.58	422.47	712.05
Q1.01	31.84	84.26	116.10	8.63	4.72	13.35	40.47	88.98	129.45	40.47	88.98	129.45
Q2.01	29.90	76.13	106.03	16.57	12.04	28.61	46.46	88.17	134.64	86.93	177.15	264.08
Q3.01	117.07	89.29	206.36	7.37	9.34	16.71	124.44	98.63	223.07	211.37	275.78	487.15
Q4.01	30.54	41.14	71.68	21.78	4.51	26.29	52.32	45.65	97.97	263.69	321.43	585.12
Q1.02	9.84	74.52	84.36	11.23	3.70	14.93	21.07	78.22	99.29	21.07	78.22	99.29
Q2.02	21.24	54.58	75.83	26.79	3.33	30.11	48.03	57.91	105.94	69.11	136.13	205.24
Q3.02	17.90	42.78	60.68	22.89	4.72	27.60	40.78	47.50	88.28	109.89	183.63	293.52

Non-Residential Building Permit Values in Ada and Canyon Counties: 1990 - 2006

Quarter	(millions of $) ADA County New NonRes	ADA County Add,Alts,Reprs	Total ADA County	Canyon County New NonRes	Canyon County Add,Alts,Reprs	Total Canyon County	Boise MSA New NonRes	Boise MSA Add,Alts,Reprs	Total Boise MSA	YTD MSA New NonRes	YTD MSA Add,Alts,Reprs	Total MSA YTD
Q4.02	36.41	46.25	82.67	16.06	2.56	18.61	52.47	48.81	101.28	162.36	232.44	394.80
Q1.03	49.99	43.54	93.53	11.62	7.73	19.36	61.61	51.28	112.89	61.61	51.28	112.89
Q2.03	16.50	52.96	69.46	16.27	3.84	22.11	34.77	56.79	91.57	96.39	108.07	204.46
Q3.03	38.51	46.42	84.93	23.24	7.20	30.43	61.75	53.61	115.36	158.14	161.68	319.82
Q4.03	29.57	55.11	84.69	8.59	2.66	11.25	38.16	57.77	95.93	196.30	219.45	415.75
Q1.04	32.57	50.70	83.28	10.12	4.36	14.48	42.69	55.06	97.76	42.69	55.06	97.76
Q2.04	36.35	43.84	80.20	23.77	5.08	28.85	60.12	48.93	109.05	102.82	103.99	206.80
Q3.04	67.49	55.53	123.02	25.53	4.98	30.51	93.02	60.51	153.53	195.84	164.49	360.33
Q4.04	36.05	64.54	100.59	7.37	3.85	11.22	43.42	68.39	111.81	239.26	232.89	472.14
Q1.05	22.95	45.22	68.16	42.20	2.86	45.07	65.15	48.08	113.23	65.15	48.08	113.23
Q2.05	80.52	72.11	152.62	19.83	11.44	31.27	100.35	83.55	183.89	165.49	131.63	297.12
Q3.05	42.86	56.03	98.90	37.07	9.93	47.00	79.94	65.96	145.90	245.43	197.59	443.02
Q4.05	59.16	143.72	202.88	30.09	5.25	35.34	89.25	148.97	238.22	334.68	346.56	681.24
Q1.06	42.35	65.68	108.03	30.59	3.79	34.38	72.94	69.48	142.41	72.94	69.48	142.41
Q2.06	136.70	83.78	220.48	41.83	8.79	50.62	178.53	92.57	271.10	251.46	162.05	413.51
Q3.06	70.72	95.39	166.11	47.33	26.47	73.80	118.05	121.86	239.91	369.52	283.90	653.42
Q4.06	87.76	77.46	165.22	28.39	7.50	35.89	116.15	84.96	201.11	485.66	368.87	854.53
17-Yr. Avg	37.49	62.99	100.48	15.29	5.50	20.80	52.78	68.50	121.28			
'96-'06 Avg	44.76	70.98	115.75	19.49	6.58	26.07	64.25	77.57	141.82			
1990	$67.9	$104.7	$172.6	$18.5	$7.3	$25.8	$86.4	$112.0	$198.4			
1991	54.9	94.9	149.8	14.5	11.0	25.5	69.4	106.0	175.3			
1992	34.5	142.6	177.1	12.3	11.0	23.3	46.8	153.6	200.3			
1993	86.2	151.4	237.6	15.2	17.8	33.0	101.4	169.2	270.6			
1994	152.5	223.6	376.1	59.5	17.4	76.8	212.0	241.0	452.9			
1995	191.8	420.0	611.8	63.4	18.3	81.7	255.2	438.3	693.5			
1996	126.2	285.2	411.4	76.1	25.7	101.8	202.3	310.9	513.2			
1997	102.2	347.9	450.0	46.7	25.8	72.5	148.9	373.7	522.6			
1998	152.0	265.4	417.3	42.1	20.5	62.7	194.1	285.9	480.0			
1999	192.0	264.3	456.3	71.6	22.1	93.7	263.6	286.3	549.9			
2000	230.9	389.1	620.0	58.6	33.4	92.0	289.6	422.5	712.1			
2001	209.3	290.8	500.2	54.3	30.6	85.0	263.7	321.4	585.1			
2002	85.4	218.1	303.5	77.0	14.3	91.3	162.4	232.4	394.8			
2003	134.6	198.0	332.6	61.7	21.4	83.1	196.3	219.5	415.8			
2004	172.5	214.6	387.1	66.8	18.3	85.1	239.3	232.9	472.1			
2005	205.5	317.1	522.6	129.2	29.5	158.7	334.7	346.6	681.2			
2006	337.5	322.3	659.8	148.1	46.6	194.7	485.7	368.9	854.5			
17-Yr. Avg	$149.2	$250.0	$399.2	$59.7	$21.8	$81.6	$208.9	$271.8	$480.7			
'96-'06 Avg	$177.1	$283.0	$460.1	$75.7	$26.2	$101.9	$252.8	$309.2	$561.9			

M3 – Eagle Development

Appendix C:

Projected Population, Households, and Household Characteristics of the M3 – Eagle Development

M3 - Eagle Development: Projected Population & Household Characteristics

Summary of Projected Population and Households at Year-End

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20+	Absolute Change Years 0 - 5	Years 5 - 10	Years 10 - 15	Years 15 - 20	Absolute Change Years 0 - 20
Projected Total Population:	661	1,312	2,375	3,422	4,447	10,163	15,345	17,455	4,447	5,716	5,182	2,110	17,455
Number School Aged Children:	162	322	583	840	1,092	2,496	3,769	4,290	1,092	1,404	1,273	521	4,290
Residential Households at Year-End													
Total Residential Housing Units	239	478	872	1,269	1,666	4,004	6,164	7,153	1,666	2,338	2,160	989	7,153
less Unoccupied Residential Housing Units	5	10	17	25	33	80	123	143	33	47	43	20	143
Occupied Residential Households	234	468	855	1,244	1,633	3,924	6,041	7,010	1,633	2,291	2,117	969	7,010
Average Household Size:	2.83	2.80	2.78	2.75	2.72	2.59	2.54	2.49					
Average Family Household Size:	3.13	3.10	3.07	3.04	3.01	2.86	2.81	2.75					
Average Non-Family Household Size:	1.59	1.58	1.56	1.55	1.53	1.46	1.43	1.40					
Projected Total Population:	661	1,312	2,375	3,422	4,447	10,163	15,345	17,455	2,342	4,687	8,604	13,868	29,502
Total Population by Age Cohort:													
Aged 0 to 5 Years:	65	130	235	339	440	1,007	1,520	1,729	440	566	513	209	1,729
Aged 6 to 11 Years:	73	145	263	379	493	1,126	1,700	1,934	493	633	574	234	1,934
Aged 12 to 17 Years:	73	145	262	378	491	1,123	1,696	1,929	491	632	573	233	1,929
Aged 18 to 24 Years:	36	72	130	188	244	558	843	959	244	314	285	116	959
Aged 25 to 34 Years:	75	149	270	389	505	1,155	1,744	1,984	505	650	589	240	1,984
Aged 35 to 44 Years:	128	255	461	664	863	1,973	2,979	3,389	863	1,110	1,006	410	3,389
Aged 45 to 54 Years:	101	200	362	521	677	1,548	2,337	2,658	677	870	789	321	2,658
Aged 55 to 64 Years:	55	110	199	286	372	850	1,283	1,460	372	478	433	176	1,460
Aged 65 to 74 Years:	30	59	106	153	199	456	688	783	199	256	232	95	783
Aged 75 to 84 Years:	19	39	70	101	131	299	451	513	131	168	152	62	513
Aged 85 Years and Older:	4	9	16	23	30	69	104	118	30	39	35	14	118
Total Population:	661	1,312	2,375	3,422	4,447	10,163	15,345	17,455	4,447	5,716	5,182	2,110	17,455
Male Population by Age Cohort:													
Aged 0 to 5 Years:	33	66	119	172	223	511	771	877	223	287	260	106	877
Aged 6 to 11 Years:	39	78	141	204	265	605	914	1,039	265	340	309	126	1,039
Aged 12 to 17 Years:	39	77	140	202	262	600	905	1,030	262	337	306	125	1,030
Aged 18 to 24 Years:	19	37	67	96	125	285	431	490	125	160	145	59	490
Aged 25 to 34 Years:	34	68	124	178	231	529	799	909	231	298	270	110	909
Aged 35 to 44 Years:	62	124	224	323	419	958	1,447	1,646	419	539	489	199	1,646
Aged 45 to 54 Years:	52	104	188	271	352	805	1,215	1,383	352	453	410	167	1,383
Aged 55 to 64 Years:	28	56	102	146	190	435	656	746	190	244	222	90	746
Aged 65 to 74 Years:	14	28	51	73	95	218	329	375	95	123	111	45	375
Aged 75 to 84 Years:	8	15	28	40	52	118	179	203	52	67	60	25	203
Aged 85 Years and Older:	2	4	7	10	12	28	43	49	12	16	14	6	49
Total Male Population:	331	657	1,190	1,714	2,228	5,092	7,688	8,746	2,228	2,864	2,596	1,057	8,746
Female Population by Age Cohort:													
Aged 0 to 5 Years:	32	64	116	167	217	496	749	852	217	279	253	103	852
Aged 6 to 11 Years:	34	67	122	175	228	521	786	894	228	293	266	108	894
Aged 12 to 17 Years:	34	68	122	176	229	523	790	899	229	294	267	109	899
Aged 18 to 24 Years:	18	35	64	92	120	273	413	469	120	154	139	57	469
Aged 25 to 34 Years:	41	81	146	211	274	626	945	1,075	274	352	319	130	1,075
Aged 35 to 44 Years:	66	131	237	342	444	1,015	1,532	1,743	444	571	518	211	1,743
Aged 45 to 54 Years:	48	96	174	250	325	743	1,121	1,275	325	418	379	154	1,275
Aged 55 to 64 Years:	27	54	97	140	182	415	627	713	182	234	212	86	713
Aged 65 to 74 Years:	15	31	55	80	104	237	359	408	104	134	121	49	408
Aged 75 to 84 Years:	12	23	42	61	79	181	273	310	79	102	92	38	310
Aged 85 Years and Older:	3	5	9	14	18	40	61	69	18	23	21	8	69
Total Female Population:	330	655	1,185	1,707	2,219	5,071	7,656	8,709	2,219	2,852	2,586	1,053	8,709

M3 - Eagle Development: Projected Population & Household Characteristics

Summary of Projected Population and Households at Year-End

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20+	Absolute Change Years 0 - 5	Absolute Change Years 5 - 10	Absolute Change Years 10 - 15	Absolute Change Years 15 - 20	Absolute Change Years 0 - 20
Projected Number of School Age Children:													
School Aged Children:	162	322	583	840	1,092	2,496	3,769	4,290	1,092	1,404	1,273	521	4,290
In Public Schools:	153	305	551	794	1,032	2,359	3,562	4,050	1,032	1,327	1,203	488	4,050
In Private Schools:	9	17	32	46	60	137	207	240	60	77	70	33	240
School Aged Children per Household:	0.695	0.689	0.682	0.676	0.669	0.636	0.624	0.612					
Projected Household Characteristics:													
Family Households	188	377	689	1,002	1,315	3,159	4,863	5,643	1,315	1,844	1,705	780	5,643
Non-Family Households	46	91	167	243	318	765	1,178	1,367	318	447	413	189	1,367
Married Couple Familes	133	266	487	708	929	2,233	3,438	3,990	929	1,304	1,205	551	3,990
with children < 18	89	179	327	475	624	1,499	2,308	2,678	624	875	809	370	2,678
Single Parent Households	23	46	84	122	160	385	592	687	160	225	208	95	687
with children < 18	19	37	68	100	131	314	483	561	131	183	169	78	561
Households by Age of Head of Household:													
Aged Under 25 Years:	3	6	10	15	20	47	73	84	20	28	25	12	84
Aged 25 to 34 Years:	34	69	126	183	240	577	889	1,032	240	337	312	143	1,032
Aged 35 to 44 Years:	69	139	254	370	486	1,167	1,797	2,085	486	681	630	288	2,085
Aged 45 to 54 Years:	62	124	226	329	431	1,036	1,596	1,852	431	605	559	256	1,852
Aged 55 to 64 Years:	29	57	105	153	201	482	742	861	201	281	260	119	861
Aged 65 to 74 Years:	17	34	62	91	119	286	441	511	119	167	154	71	511
Aged 75 Years and Over:	19	39	71	104	136	327	504	585	136	191	177	81	585
Total Households:	234	468	855	1,244	1,633	3,924	6,041	7,010	1,633	2,291	2,117	969	7,010
Households by Size:													
1 Person :	39	78	142	207	271	652	1,004	1,164	271	381	352	161	1,164
2 Person:	80	160	293	426	559	1,343	2,067	2,399	559	784	725	332	2,399
3 Person:	38	76	140	203	267	641	987	1,145	267	374	346	158	1,145
4 Person:	47	93	171	248	326	782	1,205	1,398	326	457	422	193	1,398
5 Person:	21	41	75	110	144	345	532	617	144	202	186	85	617
6 Person:	7	14	26	39	51	122	187	217	51	71	66	30	217
7 or More Persons:	2	5	9	12	16	39	60	70	16	23	21	10	70
Total Households:	234	468	855	1,244	1,633	3,924	6,041	7,010	1,633	2,291	2,117	969	7,010

M3 - Eagle Development: Projected Population & Household Characteristics

Summary of Projected Population and Households at Year-End

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20+	Absolute Change Years 0 - 5	Absolute Change Years 5 - 10	Absolute Change Years 10 - 15	Absolute Change Years 15 - 20	Absolute Change Years 0 - 20
Family Households by Age of Head of Household:													
Aged Under 25 Years:	1	3	5	7	10	23	36	41	10	13	12	6	41
Aged 25 to 34 Years:	29	58	106	154	203	487	750	870	203	284	263	120	870
Aged 35 to 44 Years:	64	128	233	339	446	1,071	1,648	1,913	446	625	578	264	1,913
Aged 45 to 54 Years:	50	100	182	265	348	836	1,287	1,493	348	488	451	206	1,493
Aged 55 to 64 Years:	21	43	78	114	150	360	554	642	150	210	194	89	642
Aged 65 to 74 Years:	12	23	43	62	82	197	303	352	82	115	106	49	352
Aged 75 Years and Over:	11	22	41	59	77	186	286	332	77	108	100	46	332
Total Family Households	188	377	689	1,002	1,315	3,159	4,863	5,643	1,315	1,844	1,705	780	5,643
Family Households by Size:													
1 Person :	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Person:	75	149	273	397	521	1,252	1,928	2,237	521	731	676	309	2,237
3 Person:	38	76	140	203	267	641	987	1,145	267	374	346	158	1,145
4 Person:	45	91	166	241	316	759	1,169	1,356	316	443	410	187	1,356
5 Person:	21	41	75	110	144	345	532	617	144	202	186	85	617
6 Person:	7	14	26	39	51	122	187	217	51	71	66	30	217
7 or More Persons:	2	5	9	12	18	39	60	70	16	23	21	10	70
Total Family Households	188	377	689	1,002	1,315	3,159	4,863	5,643	1,315	1,844	1,705	780	5,643
Non-Family Hshlds by Age of Head of Household:													
Aged Under 25 Years:	6	12	23	33	43	104	160	186	43	61	56	26	186
Aged 25 to 34 Years:	10	19	35	51	67	162	249	289	67	94	87	40	289
Aged 35 to 44 Years:	8	15	28	40	53	127	196	227	53	74	69	31	227
Aged 45 to 54 Years:	7	15	27	39	51	123	190	220	51	72	67	30	220
Aged 55 to 64 Years:	5	9	17	24	32	78	117	135	32	44	41	19	135
Aged 65 to 74 Years:	4	8	15	22	28	68	104	121	28	40	37	17	121
Aged 75 Years and Over:	6	13	23	33	44	105	162	188	44	62	57	26	188
Total Non-Family Households	46	91	167	243	318	765	1,178	1,367	318	447	413	189	1,367
Non-Family Households by Size:													
1 Person :	34	69	126	184	241	579	892	1,035	241	338	313	143	1,035
2 Person:	9	18	33	48	63	152	235	272	63	89	82	38	272
3 Person:	2	3	6	8	11	26	40	46	11	15	14	6	46
4 Person:	0	1	1	2	2	6	9	10	2	3	3	1	10
5 Person:	0	0	0	0	1	1	2	2	1	1	1	0	2
6 Person:	0	0	0	0	0	1	1	1	0	0	0	0	1
7 or More Persons:	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Non-Family Households	46	91	167	243	318	765	1,178	1,367	318	447	413	189	1,367
Projected number of persons working at home	14	36	66	94	123	280	423	481	123	158	143	58	481
Projected number of children attending public schools by type of school:													
Elementary (approx. ages 5 -11)	79	158	286	411	535	1,222	1,846	2,099	535	688	623	253	2,099
Middle School (approx. ages 12 -14)	34	69	124	179	232	531	801	911	232	298	271	110	911
High School (approx. ages 15 -18)	39	78	142	204	265	606	915	1,040	265	341	309	125	1,040

M3 - Eagle Development: Estimated Population & Household Characteristics

Summary of Estimated Population and Households at Year-End

Population/Household Characteristic	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Estimated Total Population:	661	1,312	2,375	3,422	4,447	5,452	6,436	7,706	8,946	10,163	11,426	12,677
School Aged Children:	162	322	583	840	1,092	1,339	1,581	1,893	2,198	2,496	2,807	3,114
Residential Households at Year-End												
Total Residential Housing Units	239	478	872	1,269	1,666	2,063	2,459	2,974	3,489	4,004	4,519	5,034
less Unoccupied Residential Housing Units	5	10	17	25	33	41	49	59	70	80	90	101
Residential Households	234	468	855	1,244	1,633	2,022	2,410	2,915	3,419	3,924	4,429	4,933
Average Household Size:	2.83	2.80	2.78	2.75	2.72	2.70	2.67	2.64	2.62	2.59	2.58	2.57
Average Family Household Size:	3.13	3.10	3.07	3.04	3.01	2.98	2.95	2.92	2.89	2.86	2.85	2.84
Average Non-Family Household Size:	1.59	1.58	1.56	1.55	1.53	1.52	1.50	1.49	1.47	1.46	1.45	1.45
Projected Total Population:	661	1,312	2,375	3,422	4,447	5,452	6,436	7,706	8,946	10,163	11,426	12,677
Total Population by Age Cohort:												
Aged 0 to 5 Years:	65	130	235	339	440	540	638	763	886	1,007	1,132	1,256
Aged 6 to 11 Years:	73	145	263	379	493	604	713	854	991	1,126	1,266	1,404
Aged 12 to 17 Years:	73	145	262	378	491	602	711	852	989	1,123	1,263	1,401
Aged 18 to 24 Years:	36	72	130	188	244	300	354	423	492	558	628	696
Aged 25 to 34 Years:	75	149	270	389	505	620	732	876	1,017	1,155	1,299	1,441
Aged 35 to 44 Years:	128	255	461	664	863	1,058	1,249	1,496	1,737	1,973	2,218	2,461
Aged 45 to 54 Years:	101	200	362	521	677	830	980	1,173	1,362	1,548	1,740	1,930
Aged 55 to 64 Years:	55	110	199	286	372	456	538	644	748	850	955	1,060
Aged 65 to 74 Years:	30	59	106	153	199	244	289	345	401	456	512	568
Aged 75 to 84 Years:	19	39	70	101	131	160	189	227	263	299	336	373
Aged 85 Years and Older:	4	9	16	23	30	37	44	52	61	69	77	86
Total Population:	661	1,312	2,375	3,422	4,447	5,452	6,436	7,706	8,946	10,163	11,426	12,677
Male Population by Age Cohort:												
Aged 0 to 5 Years:	33	66	119	172	223	274	323	387	450	511	574	637
Aged 6 to 11 Years:	39	78	141	204	265	325	383	459	533	605	680	755
Aged 12 to 17 Years:	39	77	140	202	262	322	380	455	528	600	674	748
Aged 18 to 24 Years:	19	37	67	96	125	153	181	216	251	285	321	356
Aged 25 to 34 Years:	34	68	124	178	231	284	335	401	466	529	595	660
Aged 35 to 44 Years:	62	124	224	323	419	514	607	726	843	958	1,077	1,195
Aged 45 to 54 Years:	52	104	188	271	352	432	510	610	709	805	905	1,004
Aged 55 to 64 Years:	28	56	102	146	190	233	275	330	383	435	489	542
Aged 65 to 74 Years:	14	28	51	73	95	117	138	165	192	218	245	272
Aged 75 to 84 Years:	8	15	28	40	52	63	75	90	104	118	133	148
Aged 85 Years and Older:	2	4	7	10	12	15	18	22	25	28	32	35
Total Male Population:	331	657	1,190	1,714	2,228	2,732	3,225	3,861	4,482	5,092	5,725	6,351
Female Population by Age Cohort:												
Aged 0 to 5 Years:	32	64	116	167	217	266	314	376	437	496	558	619
Aged 6 to 11 Years:	34	67	122	175	228	279	330	395	458	521	585	650
Aged 12 to 17 Years:	34	68	122	176	229	281	332	397	461	523	589	653
Aged 18 to 24 Years:	18	35	64	92	120	147	173	207	241	273	307	341
Aged 25 to 34 Years:	41	81	146	211	274	336	397	475	551	626	704	781
Aged 35 to 44 Years:	66	131	237	342	444	544	643	770	893	1,015	1,141	1,266
Aged 45 to 54 Years:	48	96	174	250	325	398	470	563	654	743	835	926
Aged 55 to 64 Years:	27	54	97	140	182	223	263	315	366	415	467	518
Aged 65 to 74 Years:	15	31	55	80	104	127	150	180	209	237	267	296
Aged 75 to 84 Years:	12	23	42	61	79	97	114	137	159	181	203	225
Aged 85 Years and Older:	3	5	9	14	18	22	26	31	36	40	45	50
Total Female Population:	330	655	1,185	1,707	2,219	2,720	3,211	3,845	4,464	5,071	5,701	6,325

M3 Companies Development: Estimated Popu[illegible]n & Household Characteristics

Summary of Estimated Population and Households at Year-End

Population/Household Characteristic	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Absolute Change Years 0 - 5	Years 5 - 10	Years 10 - 15	Years 15 - 20	Years 0 - 20
Estimated Total Population:	13,571	14,458	15,345	16,209	17,069	17,199	17,331	17,455	4,447	5,716	5,182	2,110	17,455
School Aged Children:	3,334	3,552	3,769	3,982	4,193	4,225	4,257	4,290	1,092	1,404	1,273	521	4,290
Residential Households at Year-End													
Total Residential Housing Units	5,409	5,786	6,164	6,538	6,912	6,992	7,073	7,153	1,668	2,338	2,160	989	7,153
less Unoccupied Residential Housing Units	108	116	123	131	138	140	141	143	33	47	43	20	143
Residential Households	5,301	5,670	6,041	6,407	6,774	6,852	6,932	7,010	1,633	2,291	2,117	969	7,010
Average Household Size:	2.56	2.55	2.54	2.53	2.52	2.51	2.50	2.49					
Average Family Household Size:	2.83	2.82	2.81	2.80	2.79	2.78	2.76	2.75					
Average Non-Family Household Size:	1.44	1.44	1.43	1.43	1.42	1.41	1.41	1.40					
Projected Total Population:	13,571	14,458	15,345	16,209	17,069	17,199	17,331	17,455	4,447	5,716	5,182	2,110	17,455
Total Population by Age Cohort:													
Aged 0 to 5 Years:	1,344	1,432	1,520	1,606	1,691	1,704	1,717	1,729	440	566	513	209	1,729
Aged 6 to 11 Years:	1,503	1,602	1,700	1,796	1,891	1,905	1,920	1,934	493	633	574	234	1,934
Aged 12 to 17 Years:	1,500	1,598	1,696	1,791	1,886	1,901	1,915	1,929	491	632	573	233	1,929
Aged 18 to 24 Years:	746	794	843	891	938	945	952	959	244	314	285	116	959
Aged 25 to 34 Years:	1,543	1,643	1,744	1,842	1,940	1,955	1,970	1,984	505	650	589	240	1,984
Aged 35 to 44 Years:	2,635	2,807	2,979	3,147	3,314	3,339	3,364	3,389	863	1,110	1,006	410	3,389
Aged 45 to 54 Years:	2,067	2,202	2,337	2,468	2,599	2,619	2,639	2,658	677	870	789	321	2,658
Aged 55 to 64 Years:	1,135	1,209	1,283	1,356	1,427	1,438	1,449	1,460	372	478	433	176	1,460
Aged 65 to 74 Years:	608	648	688	727	765	771	777	783	199	256	232	95	783
Aged 75 to 84 Years:	399	425	451	477	502	506	510	513	131	168	152	62	513
Aged 85 Years and Older:	92	98	104	110	115	116	117	118	30	39	35	14	118
Total Population:	13,571	14,458	15,345	16,209	17,069	17,199	17,331	17,455	4,447	5,716	5,182	2,110	17,455
Male Population by Age Cohort:													
Aged 0 to 5 Years:	682	726	771	814	858	864	871	877	223	287	260	106	877
Aged 6 to 11 Years:	808	861	914	965	1,016	1,024	1,032	1,039	265	340	309	126	1,039
Aged 12 to 17 Years:	801	853	905	956	1,007	1,015	1,022	1,030	262	337	306	125	1,030
Aged 18 to 24 Years:	381	406	431	455	479	483	486	490	125	160	145	59	490
Aged 25 to 34 Years:	706	753	799	844	888	895	902	909	231	298	270	110	909
Aged 35 to 44 Years:	1,279	1,363	1,447	1,528	1,609	1,621	1,634	1,646	419	539	489	199	1,646
Aged 45 to 54 Years:	1,075	1,145	1,215	1,284	1,352	1,362	1,373	1,383	352	453	410	167	1,383
Aged 55 to 64 Years:	580	618	656	693	730	735	741	746	190	244	222	90	746
Aged 65 to 74 Years:	291	310	329	348	366	369	372	375	95	123	111	45	375
Aged 75 to 84 Years:	158	168	179	189	199	200	202	203	52	67	60	25	203
Aged 85 Years and Older:	38	40	43	45	48	48	48	49	12	16	14	6	49
Total Male Population:	6,800	7,244	7,688	8,122	8,552	8,618	8,683	8,746	2,228	2,864	2,596	1,057	8,746
Female Population by Age Cohort:													
Aged 0 to 5 Years:	662	706	749	791	833	839	846	852	217	279	253	103	852
Aged 6 to 11 Years:	695	741	786	831	875	881	888	894	228	293	266	108	894
Aged 12 to 17 Years:	699	745	790	835	879	886	893	899	229	294	267	109	899
Aged 18 to 24 Years:	365	389	413	436	459	462	466	469	120	154	139	57	469
Aged 25 to 34 Years:	836	891	945	999	1,052	1,060	1,068	1,075	274	352	319	130	1,075
Aged 35 to 44 Years:	1,355	1,444	1,532	1,619	1,705	1,718	1,731	1,743	444	571	518	211	1,743
Aged 45 to 54 Years:	992	1,056	1,121	1,184	1,247	1,257	1,266	1,275	325	418	379	154	1,275
Aged 55 to 64 Years:	555	591	627	662	698	703	708	713	182	234	212	86	713
Aged 65 to 74 Years:	317	338	359	379	399	402	405	408	104	134	121	49	408
Aged 75 to 84 Years:	241	257	273	288	303	306	308	310	79	102	92	38	310
Aged 85 Years and Older:	54	57	61	64	68	68	69	69	18	23	21	8	69
Total Female Population:	6,771	7,214	7,656	8,088	8,517	8,582	8,647	8,709	2,219	2,852	2,586	1,053	8,709

M3 - Eagle Development: Estimated Population & Household Characteristics

Summary of Estimated Population and Households at Year-End

Population/Household Characteristic	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Estimated Number of School Age Children:												
School Aged Children:	162	322	583	840	1,092	1,339	1,581	1,893	2,198	2,496	2,807	3,114
in Public Schools:	153	305	551	794	1,032	1,266	1,494	1,789	2,077	2,359	2,652	2,943
in Private Schools:	9	17	32	46	60	73	87	104	121	137	155	171
in Public Schools using MSD Parameter:	187	374	684	995	1,306	1,617	1,928	2,332	2,735	3,139	3,543	3,946
Number of School Aged Children per Household:	0.695	0.689	0.682	0.676	0.669	0.662	0.656	0.649	0.643	0.636	0.634	0.631
Estimated Household Characteristics:												
Family Households	188	377	689	1,002	1,315	1,627	1,940	2,347	2,752	3,159	3,565	3,971
Non-Family Households	46	91	167	243	318	394	470	568	667	765	864	962
Married Couple Familes	133	266	487	708	929	1,151	1,372	1,659	1,946	2,233	2,520	2,807
with children < 18	89	179	327	475	624	772	921	1,114	1,306	1,499	1,692	1,884
Single Parent Households	23	46	84	122	160	198	236	286	335	385	434	483
with children < 18	19	37	68	100	131	162	193	233	274	314	354	395
Households by Age of Head of Household:												
Aged Under 25 Years:	3	6	10	15	20	24	29	35	41	47	53	59
Aged 25 to 34 Years:	34	69	126	183	240	298	355	429	503	577	652	726
Aged 35 to 44 Years:	69	139	254	370	486	601	717	867	1,017	1,167	1,317	1,467
Aged 45 to 54 Years:	62	124	226	329	431	534	637	770	903	1,036	1,170	1,303
Aged 55 to 64 Years:	29	57	105	153	201	248	296	358	420	482	544	606
Aged 65 to 74 Years:	17	34	62	91	119	147	176	213	249	286	323	360
Aged 75 Years and Over:	19	39	71	104	136	169	201	243	285	327	370	412
Total Households:	234	468	855	1,244	1,633	2,022	2,410	2,915	3,419	3,924	4,429	4,933
Households by Size:												
1 Person :	39	78	142	207	271	336	400	484	568	652	736	819
2 Person:	80	160	293	426	559	692	825	998	1,170	1,343	1,515	1,688
3 Person:	38	76	140	203	267	330	394	476	558	641	723	805
4 Person:	47	93	171	248	326	403	481	581	682	782	883	983
5 Person:	21	41	75	110	144	178	212	257	301	345	390	434
6 Person:	7	14	26	39	51	63	75	90	106	122	137	153
7 or More Persons:	2	5	9	12	16	20	24	29	34	39	44	49
Total Households:	234	468	855	1,244	1,633	2,022	2,410	2,915	3,419	3,924	4,429	4,933
Family Households by Age of Head of Household:												
Aged Under 25 Years:	1	3	5	7	10	12	14	17	20	23	26	29
Aged 25 to 34 Years:	29	58	106	154	203	251	299	362	424	487	550	612
Aged 35 to 44 Years:	64	128	233	339	446	552	658	795	933	1,071	1,208	1,346
Aged 45 to 54 Years:	50	100	182	265	348	431	513	621	728	836	943	1,050
Aged 55 to 64 Years:	21	43	78	114	150	185	221	267	313	360	406	452
Aged 65 to 74 Years:	12	23	43	62	82	101	121	146	172	197	222	247
Aged 75 Years and Over:	11	22	41	59	77	96	114	138	162	186	210	234
Total Family Households	188	377	689	1,002	1,315	1,627	1,940	2,347	2,752	3,159	3,565	3,971

M3 Companies Development: Estimated Population & Household Characteristics

Population/Household Characteristic	Summary of Estimated Population and Households at Year-End								Absolute Change				
	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Years 0 - 5	Years 5 - 10	Years 10 - 15	Years 15 - 20	Years 0 - 20
Estimated Number of School Age Children:													
School Aged Children:	3,334	3,552	3,769	3,982	4,193	4,225	4,257	4,290	1,092	1,404	1,273	521	4,290
in Public Schools:	3,150	3,356	3,562	3,763	3,962	3,993	4,023	4,050					
in Private Schools:	184	196	207	219	231	232	234	240					
in Public Schools using MSD Parameter:	4,241	4,536	4,833	5,125	5,419	5,482	5,546	5,608	1,306	1,833	1,694	775	5,608
Number of School Aged Children per Household:	0.629	0.626	0.624	0.621	0.619	0.617	0.614	0.612					
Estimated Household Characteristics:													
Family Households	4,267	4,564	4,863	5,158	5,453	5,516	5,580	5,643	1,315	1,844	1,705	780	5,643
Non-Family Households	1,034	1,106	1,178	1,249	1,321	1,336	1,352	1,367	318	447	413	189	1,367
Married Couple Families	3,017	3,227	3,438	3,646	3,855	3,900	3,945	3,990	929	1,304	1,205	551	3,990
with children < 18	2,025	2,166	2,308	2,447	2,587	2,618	2,648	2,678	624	875	809	370	2,678
Single Parent Households	520	556	592	628	664	672	679	687	160	225	208	95	687
with children < 18	424	454	483	513	542	548	555	561	131	183	169	78	561
Households by Age of Head of Household:													
Aged Under 25 Years:	64	68	73	77	81	82	83	84	20	28	25	12	84
Aged 25 to 34 Years:	780	834	889	943	997	1,008	1,020	1,032	240	337	312	143	1,032
Aged 35 to 44 Years:	1,577	1,686	1,797	1,905	2,015	2,038	2,062	2,085	486	681	630	288	2,085
Aged 45 to 54 Years:	1,400	1,498	1,596	1,692	1,789	1,810	1,831	1,852	431	605	559	256	1,852
Aged 55 to 64 Years:	651	697	742	787	832	842	852	861	201	281	260	119	861
Aged 65 to 74 Years:	387	414	441	467	494	500	506	511	119	167	154	71	511
Aged 75 Years and Over:	442	473	504	535	565	572	578	585	136	191	177	81	585
Total Households:	5,301	5,670	6,041	6,407	6,774	6,852	6,932	7,010	1,633	2,291	2,117	969	7,010
Households by Size:													
1 Person :	881	942	1,004	1,064	1,125	1,138	1,152	1,164	271	381	352	161	1,164
2 Person:	1,814	1,940	2,067	2,192	2,318	2,345	2,372	2,399	559	784	725	332	2,399
3 Person:	866	926	987	1,046	1,106	1,119	1,132	1,145	267	374	346	158	1,145
4 Person:	1,057	1,130	1,205	1,277	1,351	1,366	1,382	1,398	326	457	422	193	1,398
5 Person:	467	499	532	564	596	603	610	617	144	202	186	85	617
6 Person:	164	176	187	198	210	212	215	217	51	71	66	30	217
7 or More Persons:	53	57	60	64	68	68	69	70	16	23	21	10	70
Total Households:	5,301	5,670	6,041	6,407	6,774	6,852	6,932	7,010	1,633	2,291	2,117	969	7,010
Family Households by Age of Head of Household:													
Aged Under 25 Years:	31	33	36	38	40	40	41	41	10	13	12	6	41
Aged 25 to 34 Years:	658	704	750	795	841	851	861	870	203	284	263	120	870
Aged 35 to 44 Years:	1,446	1,547	1,648	1,748	1,848	1,870	1,891	1,913	446	625	578	264	1,913
Aged 45 to 54 Years:	1,129	1,207	1,287	1,364	1,442	1,459	1,476	1,493	348	488	451	206	1,493
Aged 55 to 64 Years:	486	520	554	587	621	628	635	642	150	210	194	89	642
Aged 65 to 74 Years:	266	284	303	321	340	344	348	352	82	115	106	49	352
Aged 75 Years and Over:	251	268	286	303	321	324	328	332	77	108	100	46	332
Total Family Households	4,267	4,564	4,863	5,158	5,453	5,516	5,580	5,643	1,315	1,844	1,705	780	5,643

M3 - Eagle Development: Estimated Population & Household Characteristics

Summary of Estimated Population and Households at Year-End

Population/Household Characteristic	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Family Households by Size:												
1 Person :	0	0	0	0	0	0	0	0	0	0	0	0
2 Person:	75	149	273	397	521	645	769	931	1,091	1,252	1,414	1,574
3 Person:	38	76	140	203	267	330	394	476	558	641	723	805
4 Person:	45	91	166	241	316	391	466	564	662	759	857	954
5 Person:	21	41	75	110	144	178	212	257	301	345	390	434
6 Person:	7	14	26	39	51	63	75	90	106	122	137	153
7 or More Persons:	2	5	9	12	16	20	24	29	34	39	44	49
Total Family Households	188	377	689	1,002	1,315	1,627	1,940	2,347	2,752	3,159	3,565	3,971
Non-Family Hshlds by Age of Head of Household:												
Aged Under 25 Years:	6	12	23	33	43	54	64	77	91	104	117	131
Aged 25 to 34 Years:	10	19	35	51	67	83	99	120	141	162	182	203
Aged 35 to 44 Years:	8	15	28	40	53	66	78	95	111	127	144	160
Aged 45 to 54 Years:	7	15	27	39	51	64	76	92	108	123	139	155
Aged 55 to 64 Years:	5	9	17	24	32	39	47	56	66	76	86	95
Aged 65 to 74 Years:	4	8	15	22	28	35	42	50	59	68	77	85
Aged 75 Years and Over:	6	13	23	33	44	54	65	78	92	105	119	133
Total Non-Family Households	46	91	167	243	318	394	470	568	667	765	864	962
Non-Family Households by Size:												
1 Person :	34	69	126	184	241	298	356	430	505	579	654	728
2 Person:	9	18	33	48	63	78	94	113	133	152	172	191
3 Person:	2	3	6	8	11	13	16	19	23	26	29	33
4 Person:	0	1	1	2	2	3	3	4	5	6	6	7
5 Person:	0	0	0	0	1	1	1	1	1	1	2	2
6 Person:	0	0	0	0	0	0	0	0	0	1	1	1
7 or More Persons:	0	0	0	0	0	0	0	0	0	0	0	0
Total Non-Family Households	46	91	167	243	318	394	470	568	667	765	864	962
Projected number of persons working at home	18	36	66	94	123	150	178	213	247	280	315	350
Projected number of children attending public schools by type of school:												
Elementary (approx. ages 5 -11)	79	158	286	411	535	656	774	927	1,076	1,222	1,374	1,525
Middle School (approx. ages 12 -14)	34	69	124	179	232	285	336	402	467	531	597	662
High School (approx. ages 15 -18)	39	78	142	204	265	325	384	460	534	606	681	756
Using MSD Parameter of 0.8 children per HH. Projected number of children attending public schools by type of school:												
Elementary (approx. ages 5 -11)	97	194	355	516	677	838	999	1,209	1,417	1,627	1,836	2,045
Middle School (approx. ages 12 -14)	42	84	154	224	294	364	434	525	615	706	797	888
High School (approx. ages 15 -18)	48	96	176	256	336	415	495	599	703	806	910	1,014

M3 Companies Development: Estimated Population & Household Characteristics

Summary of Estimated Population and Households at Year-End

Population/Household Characteristic	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Absolute Change Years 0 - 5	Years 5 - 10	Years 10 - 15	Years 15 - 20	Years 0 - 20
Family Households by Size:													
1 Person :	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Person:	1,692	1,810	1,928	2,045	2,162	2,187	2,213	2,237	521	731	676	309	2,237
3 Person:	866	926	987	1,046	1,106	1,119	1,132	1,145	267	374	346	158	1,145
4 Person:	1,026	1,097	1,169	1,240	1,311	1,326	1,341	1,356	316	443	410	187	1,356
5 Person:	467	499	532	564	596	603	610	617	144	202	186	85	617
6 Person:	164	176	187	198	210	212	215	217	51	71	66	30	217
7 or More Persons:	53	57	60	64	68	68	69	70	16	23	21	10	70
Total Family Households	4,267	4,564	4,863	5,158	5,453	5,516	5,580	5,643	1,315	1,844	1,705	780	5,643
Non-Family Hshlds by Age of Head of Household:													
Aged Under 25 Years:	140	150	160	170	179	182	184	186	43	61	56	26	186
Aged 25 to 34 Years:	218	233	249	264	279	282	285	289	67	94	87	40	289
Aged 35 to 44 Years:	172	184	196	208	220	222	225	227	53	74	69	31	227
Aged 45 to 54 Years:	167	178	190	201	213	215	218	220	51	72	67	30	220
Aged 55 to 64 Years:	102	109	117	124	131	132	134	135	32	44	41	19	135
Aged 65 to 74 Years:	92	98	104	111	117	118	120	121	28	40	37	17	121
Aged 75 Years and Over:	142	152	162	172	182	184	186	188	44	62	57	26	188
Total Non-Family Households	1,034	1,106	1,178	1,249	1,321	1,336	1,352	1,367	318	447	413	189	1,367
Non-Family Households by Size:													
1 Person :	783	837	892	946	1,000	1,012	1,023	1,035	241	338	313	143	1,035
2 Person:	206	220	235	249	263	266	269	272	63	89	82	38	272
3 Person:	35	37	40	42	45	45	46	46	11	15	14	6	46
4 Person:	8	8	9	9	10	10	10	10	2	3	3	1	10
5 Person:	2	2	2	2	2	2	2	2	1	1	1	0	2
6 Person:	1	1	1	1	1	1	1	1	0	0	0	0	1
7 or More Persons:	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Non-Family Households	1,034	1,106	1,178	1,249	1,321	1,336	1,352	1,367	318	447	413	189	1,367
Projected number of persons working at home	374	399	423	447	471	474	478	481	123	158	143	58	481
Projected number of children attending public schools by type of school:													
Elementary (approx. ages 5 -11)	1,632	1,739	1,846	1,950	2,053	2,069	2,085	2,099	535	688	623	253	2,099
Middle School (approx. ages 12 -14)	709	755	801	846	891	898	905	911	232	298	271	110	911
High School (approx. ages 15 -18)	809	862	915	967	1,018	1,026	1,033	1,040	265	341	309	125	1,040
Using MSD Parameter of 0.8 children per HH. Projected number of children attending public schools by type of school:													
Elementary (approx. ages 5 -11)	2,198	2,350	2,504	2,656	2,808	2,841	2,874	2,906	677	950	878	402	2,906
Middle School (approx. ages 12 -14)	954	1,020	1,087	1,153	1,219	1,233	1,247	1,261	294	412	381	174	1,261
High School (approx. ages 15 -18)	1,089	1,165	1,242	1,317	1,392	1,408	1,425	1,441	336	471	435	199	1,441

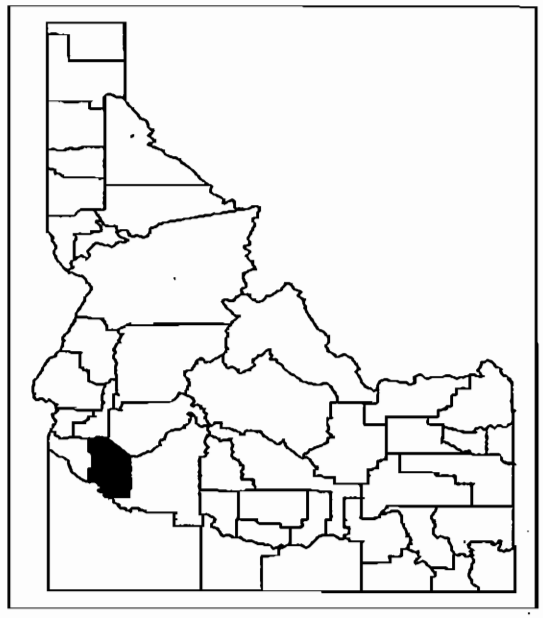
M3 – Eagle Development

Appendix D:

Idaho Power Company Summer 2005 State of Idaho and County Economic Forecasts: Forecasts for Ada, Boise, Canyon, and Gem Counties.

Idaho Economics
Summer 2005 County Economic Forecasts

Ada County



Summary Information	Historical			Forecast					
	1980	1990	2000	2005	2010	2015	2020	2025	2030
Population & Households:									
Total Population:	174,090	207,720	303,040	346,230	386,720	428,820	479,480	541,180	605,650
Population per Square Mile	165.5	197.5	288.1	329.2	367.7	407.7	455.9	514.5	575.8
Total Households:	63,140	77,460	114,230	133,530	150,410	166,330	187,040	213,490	242,650
Persons per Household	2.69	2.60	2.59	2.53	2.51	2.51	2.50	2.47	2.43
Employment:									
Total Nonagricultural	80,990	108,100	181,720	196,870	225,180	253,930	286,640	324,020	363,300
Manufacturing:	8,580	16,500	25,960	21,650	23,830	25,570	27,330	29,330	30,440
Wholesale & Retail Trade	21,060	26,930	45,680	47,390	54,940	63,890	73,490	85,110	97,550

Ada County

Employment:	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Manufacturing	8,580	10,920	10,520	11,190	13,380	15,080	16,500	17,490	18,590	20,550	21,760	21,610	22,640	23,290	25,230
Mining	90	70	100	60	60	80	110	100	70	80	100	90	80	80	80
Construction	6,230	5,510	5,000	4,650	4,960	5,790	6,300	6,760	7,850	8,750	10,580	10,470	10,490	10,850	10,830
Transp., Comm., & Util.	5,230	5,530	5,640	5,190	5,240	5,560	6,080	6,150	6,030	6,320	6,580	6,920	7,080	7,740	8,600
Wholesale & Retail Trade	21,060	22,290	20,780	22,680	23,910	26,110	26,930	27,490	28,930	30,600	33,890	35,320	37,100	38,850	40,520
Fin., Ins., & Real Est.	9,220	8,240	9,530	7,410	7,660	7,730	8,210	8,810	8,940	9,850	10,550	10,550	10,500	10,170	9,860
Services	14,380	17,570	18,850	19,190	20,620	21,980	24,110	25,590	26,770	30,060	32,420	35,440	37,650	41,310	44,010
Government	16,200	15,990	16,520	16,910	17,550	18,570	19,850	20,410	21,480	22,170	22,530	23,640	23,600	24,600	25,690
Total Nonagricultural	80,990	86,120	86,950	87,280	93,380	100,900	108,100	112,800	118,650	128,390	138,420	144,050	149,150	156,890	164,810
Population & Households:															
Population:	174,090	189,810	191,040	192,930	195,510	200,950	207,720	216,800	225,270	236,480	247,230	256,860	266,290	274,330	284,950
Households:	63,140	70,010	70,790	71,910	73,470	75,860	77,460	81,470	85,100	89,360	92,970	97,070	100,400	103,770	107,310
Persons per Household:	2.69	2.65	2.64	2.63	2.62	2.61	2.60	2.60	2.59	2.59	2.60	2.59	2.59	2.58	2.59
Personal Income:	(Millions)														
Current Year $:	1,876.4	2,813.9	2,925.6	3,094.0	3,395.6	3,765.2	4,097.2	4,404.9	5,010.7	5,615.2	6,353.4	6,870.4	7,273.0	7,625.1	8,310.0
1992 $:	3,196.8	3,672.8	3,747.5	3,823.1	4,031.4	4,264.4	4,402.7	4,537.4	5,012.2	5,452.1	6,014.9	6,325.2	6,504.0	6,666.0	7,153.4
Per Capita Personal Income:															
Current Year $:	10,780	14,820	15,310	16,040	17,370	18,740	19,720	20,320	22,240	23,750	25,700	26,750	27,310	27,800	29,160
1992 $:	18,360	19,350	19,620	19,820	20,620	21,220	21,200	20,930	22,250	23,060	24,330	24,630	24,420	24,300	25,100

Ada County

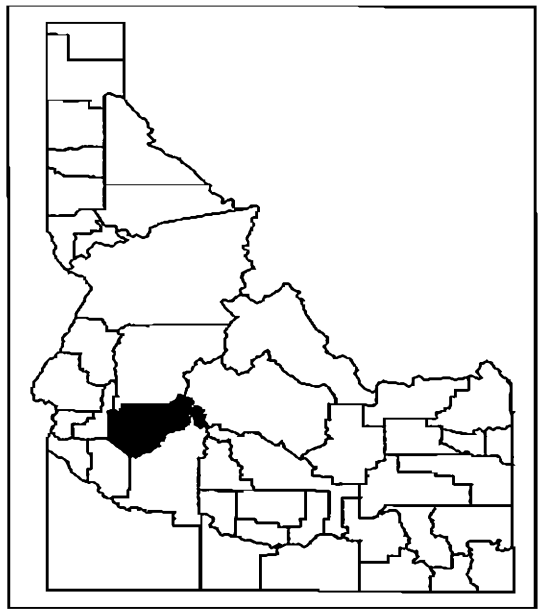
Employment:	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Manufacturing	25,140	25,960	26,180	22,560	21,390	21,120	21,650	22,230	22,770	23,030	23,330	23,830	24,310	24,640	24,920	25,250
Mining	110	100	90	80	80	80	80	80	80	80	80	80	80	80	70	70
Construction	11,800	12,600	13,320	12,950	13,060	14,170	15,190	15,830	16,310	16,800	17,290	17,670	17,880	17,700	17,890	18,300
Transp., Comm., & Util.	9,170	9,940	10,260	9,900	9,890	10,060	10,280	10,500	10,730	10,940	11,150	11,370	11,570	11,770	11,970	12,180
Wholesale & Retail Trade	42,570	45,680	45,240	44,940	44,810	45,860	47,390	48,800	50,110	51,540	53,190	54,940	56,740	58,530	60,250	61,990
Fin., Ins., & Real Est.	10,290	10,210	9,930	10,460	10,980	11,370	11,770	12,000	12,240	12,460	12,680	12,900	13,120	13,330	13,550	13,780
Services	45,660	49,250	52,010	53,430	56,010	58,680	61,850	64,410	67,000	69,680	72,460	75,180	77,990	80,900	83,720	86,540
Government	26,580	27,990	28,140	28,400	28,440	28,540	28,660	28,780	28,890	29,000	29,110	29,220	29,330	29,440	29,570	29,680
Total Nonagricultural	171,320	181,720	185,170	182,720	184,660	189,880	196,870	202,640	208,130	213,520	219,290	225,180	231,010	236,390	241,960	247,800
Population & Households:																
Population:	294,290	303,040	312,860	319,840	325,480	334,700	346,230	353,960	362,210	370,200	378,340	386,720	395,190	403,200	411,230	419,860
Households:	111,040	114,230	117,910	121,880	124,840	128,480	133,530	137,080	141,070	144,650	147,630	150,410	154,290	157,060	159,990	163,370
Persons per Household:	2.59	2.59	2.59	2.56	2.54	2.54	2.53	2.52	2.50	2.50	2.50	2.51	2.50	2.50	2.51	2.51
Personal Income:	(Millions)															
Current Year $:	9,041.7	9,964.8	10,750.4	11,253.2	11,617.5	12,494.3	13,462.0	14,336.3	15,255.6	16,248.3	17,286.5	18,386.5	19,606.4	20,919.4	22,271.6	23,710.9
1992 $:	7,615.2	8,129.4	8,524.6	8,782.4	8,864.7	9,286.4	9,813.4	10,285.2	10,736.3	11,193.6	11,651.6	12,096.8	12,575.3	13,065.3	13,548.3	14,046.5
Per Capita Personal Income:																
Current Year $:	30,720	32,880	34,360	35,180	35,690	37,330	38,880	40,500	42,120	43,890	45,690	47,550	49,610	51,880	54,160	56,470
1992 $:	25,880	26,830	27,250	27,460	27,240	27,750	28,340	29,060	29,640	30,240	30,800	31,280	31,820	32,400	32,950	33,460

Ada County

Employment:	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Manufacturing	25,570	25,860	26,170	26,480	26,750	27,330	27,680	28,170	28,610	28,970	29,330	29,560	29,790	30,030	30,230	30,440
Mining	70	70	70	70	70	70	70	70	70	60	60	60	60	60	60	60
Construction	18,760	19,240	19,740	20,250	20,770	21,310	21,880	22,460	23,060	23,680	24,320	24,980	25,670	26,370	27,100	27,840
Transp., Comm., & Util.	12,390	12,560	12,740	12,930	13,120	13,310	13,500	13,700	13,900	14,100	14,290	14,510	14,730	14,930	15,140	15,350
Wholesale & Retail Trade	63,890	65,800	67,680	69,560	71,490	73,490	75,540	77,910	80,250	82,650	85,110	87,650	90,030	92,480	94,980	97,550
Fin., Ins., & Real Est.	14,010	14,240	14,460	14,680	14,910	15,140	15,370	15,590	15,820	16,040	16,270	16,490	16,710	16,930	17,150	17,380
Services	89,450	92,440	95,530	98,720	102,120	105,630	109,070	112,620	116,270	120,040	123,710	127,490	131,380	135,380	139,200	143,110
Government	29,800	29,920	30,030	30,140	30,260	30,370	30,480	30,590	30,700	30,800	30,910	31,040	31,170	31,310	31,440	31,570
Total Nonagricultural	253,930	260,130	266,430	272,830	279,490	286,640	293,590	301,110	308,670	316,350	324,020	331,790	339,550	347,500	355,300	363,300
Population & Households:																
Population:	428,820	437,940	446,840	455,890	467,420	479,480	491,490	503,980	516,190	528,600	541,180	554,050	567,090	579,810	592,610	605,650
Households:	166,330	169,830	173,850	177,340	181,650	187,040	192,080	197,770	202,840	207,950	213,490	219,250	227,070	232,210	237,380	242,650
Persons per Household:	2.51	2.51	2.51	2.51	2.51	2.50	2.50	2.48	2.48	2.48	2.47	2.46	2.44	2.43	2.43	2.43
Personal Income:	(Millions)															
Current Year $:	25,228.8	26,864.8	28,605.7	30,458.0	32,403.1	34,471.3	36,631.0	38,945.7	41,405.4	44,018.9	46,796.0	49,784.5	52,961.5	56,339.0	59,929.3	63,711.9
1992 $:	14,558.7	15,093.3	15,645.7	16,210.4	16,781.2	17,371.7	17,969.9	18,592.2	19,243.0	19,904.2	20,596.1	21,329.7	22,084.3	22,867.9	23,674.9	24,500.6
Per Capita Personal Income:																
Current Year $:	58,830	61,340	64,020	66,810	69,320	71,890	74,530	77,280	80,210	83,270	86,470	89,860	93,390	97,170	101,130	105,200
1992 $:	33,950	34,460	35,010	35,560	35,900	36,230	36,560	36,890	37,280	37,650	38,060	38,500	38,940	39,440	39,950	40,450

Idaho Economics
Summer 2005 County Economic Forecasts

Boise County



Summary Information	Historical			Forecast					
	1980	1990	2000	2005	2010	2015	2020	2025	2030
Population & Households:									
Total Population:	3,020	3,570	6,750	7,580	8,200	8,930	9,730	10,620	11,650
Population per Square Mile	1.6	1.9	3.5	4.0	4.3	4.7	5.1	5.6	6.1
Total Households:	1,110	1,360	2,630	3,080	3,400	3,730	4,090	4,500	4,910
Persons per Household	2.71	2.59	2.47	2.43	2.39	2.35	2.33	2.33	2.33
Employment:									
Total Nonagricultural	920	930	1,330	1,670	1,990	2,350	2,760	3,240	3,780
Manufacturing:	410	170	70	60	70	70	70	70	70
Wholesale & Retail Trade	80	140	210	240	290	350	410	490	580

Boise County

Employment:	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Manufacturing	410	250	210	210	190	170	170	170	160	150	190	140	137	123	100
Mining	20	10	10	10	10	10	10	10	10	10	10	8	8	8	8
Construction	0	0	0	0	0	0	20	20	20	20	40	36	36	43	56
Transp., Comm., & Util.	10	20	10	10	10	10	20	40	40	40	40	30	29	32	37
Wholesale & Retail Trade	80	70	70	80	100	110	140	150	170	190	190	208	221	192	199
Fin., Ins., & Real Est.	30	40	30	20	10	10	10	10	20	30	30	24	23	21	11
Services	70	180	160	140	200	200	240	270	310	400	400	457	475	460	452
Government	290	260	260	270	300	290	320	350	390	390	440	444	473	513	533
Total Nonagricultural	920	830	760	730	820	790	930	1,020	1,120	1,210	1,330	1,346	1,402	1,393	1,395
Population & Households:															
Population:	3,020	3,290	3,270	3,360	3,300	3,320	3,570	3,810	4,150	4,550	4,850	5,178	5,543	5,821	6,036
Households:	1,110	1,230	1,240	1,280	1,270	1,280	1,360	1,470	1,620	1,770	1,860	2,020	2,137	2,259	2,383
Persons per Household:	2.71	2.65	2.64	2.63	2.61	2.60	2.59	2.58	2.56	2.56	2.59	2.55	2.58	2.56	2.51
Personal Income:	(Millions)														
Current Year $:	26	35	35	36	42	46	51	54	62	67	80	85	92	98	107
1992 $:	44	45	44	45	50	53	55	56	62	65	75	79	82	86	93
Per Capita Personal Income:															
Current Year $:	9,020	11,620	11,830	12,800	13,190	13,860	14,430	14,320	14,920	14,770	16,410	16,488	16,568	16,862	17,808
1992 $:	15,360	15,170	15,160	15,820	15,650	15,700	15,500	14,750	14,930	14,340	15,540	15,180	14,816	14,741	15,330

Boise County

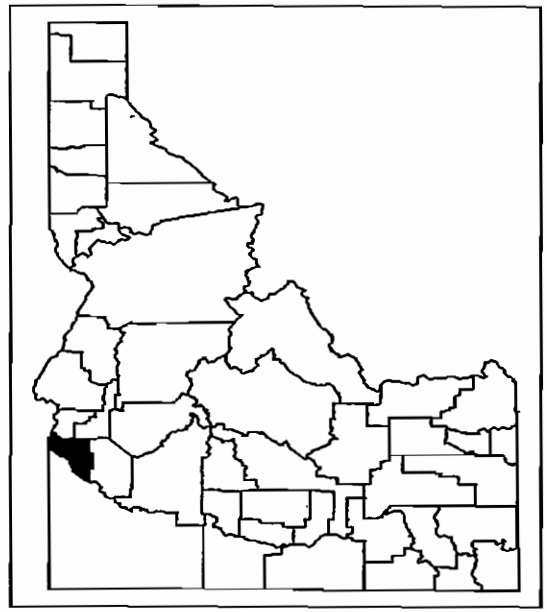
Employment:	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Manufacturing	86	70	60	70	60	60	60	70	70	70	70	70	70	70	70	70
Mining	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Construction	75	80	80	70	70	70	80	80	80	80	80	80	80	80	80	80
Transp., Comm., & Util.	35	30	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Wholesale & Retail Trade	210	210	220	230	230	230	240	250	260	270	280	290	300	310	330	340
Fin., Ins., & Real Est.	11	10	10	10	10	20	20	20	20	20	20	20	20	20	20	20
Services	462	400	540	540	570	610	650	680	720	760	800	830	870	910	950	1,000
Government	515	520	540	560	570	580	600	610	630	640	660	670	690	700	720	740
Total Nonagricultural	1,403	1,330	1,480	1,510	1,540	1,600	1,670	1,730	1,790	1,860	1,920	1,990	2,060	2,130	2,200	2,270
Population & Households:																
Population:	6,390	6,750	6,920	7,060	7,240	7,350	7,580	7,700	7,820	7,940	8,070	8,200	8,340	8,490	8,640	8,780
Households:	2,511	2,630	2,720	2,800	2,930	2,970	3,080	3,150	3,220	3,290	3,350	3,400	3,470	3,540	3,610	3,670
Persons per Household:	2.48	2.47	2.46	2.45	2.44	2.44	2.43	2.42	2.41	2.40	2.40	2.39	2.38	2.37	2.36	2.36
Personal Income:	(Millions)															
Current Year $:	114	126	135	141	145	154	165	174	183	193	203	214	226	239	252	265
1992 $:	96	103	107	110	110	115	120	125	129	133	137	141	145	149	153	157
Per Capita Personal Income:																
Current Year $:	17,828	18,720	19,480	19,920	20,000	20,990	21,720	22,600	23,440	24,320	25,200	26,130	27,120	28,120	29,120	30,200
1992 $:	15,016	15,270	15,450	15,550	15,260	15,600	15,830	16,210	16,490	16,750	16,990	17,190	17,400	17,570	17,720	17,890

Boise County

Employment:	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Manufacturing	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Mining	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Construction	80	90	90	90	90	90	90	90	90	100	100	100	100	100	100	100
Transp., Comm., & Util.	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Wholesale & Retail Trade	350	360	380	390	400	410	430	440	460	480	490	510	530	540	560	580
Fin., Ins., & Real Est.	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Services	1,040	1,080	1,130	1,180	1,230	1,280	1,340	1,390	1,450	1,510	1,570	1,630	1,690	1,760	1,820	1,890
Government	760	780	800	820	840	860	880	900	920	940	960	990	1,010	1,040	1,060	1,090
Total Nonagricultural	2,350	2,430	2,510	2,590	2,670	2,760	2,850	2,950	3,040	3,140	3,240	3,350	3,450	3,560	3,670	3,780
Population & Households:																
Population:	8,930	9,080	9,230	9,390	9,560	9,730	9,900	10,070	10,250	10,440	10,620	10,820	11,020	11,230	11,440	11,650
Households:	3,730	3,790	3,870	3,940	4,020	4,090	4,170	4,240	4,320	4,410	4,500	4,580	4,640	4,730	4,820	4,910
Persons per Household:	2.35	2.35	2.34	2.34	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Personal Income:	(Millions)															
Current Year $:	279	294	310	327	344	363	382	402	423	445	469	493	520	547	576	607
1992 $:	161	165	170	174	178	183	187	192	197	201	206	211	217	222	228	233
Per Capita Personal Income:																
Current Year $:	31,280	32,420	33,610	34,820	36,030	37,290	38,560	39,890	41,250	42,650	44,110	45,620	47,160	48,740	50,410	52,110
1992 $:	18,050	18,210	18,380	18,530	18,660	18,790	18,920	19,040	19,170	19,280	19,410	19,540	19,660	19,780	19,910	20,040

Idaho Economics
Summer 2005 County Economic Forecasts

Canyon County



Summary Information	Historical			Forecast					
	1980	1990	2000	2005	2010	2015	2020	2025	2030
Population & Households:									
Total Population:	83,940	90,680	133,090	161,330	178,500	195,200	212,390	228,110	241,270
Population per Square Mile	142.3	153.7	225.7	273.5	302.6	331.0	360.1	386.8	409.1
Total Households:	28,460	31,280	44,380	57,010	64,950	70,900	76,760	81,500	85,770
Persons per Household	2.86	2.79	2.93	2.77	2.69	2.69	2.71	2.74	2.75
Employment:									
Total Nonagricultural	25,640	30,140	45,830	48,590	52,790	56,580	60,830	65,350	69,120
Manufacturing:	6,210	8,050	11,310	10,720	11,060	11,310	11,550	11,800	11,930
Wholesale & Retail Trade	6,530	7,340	10,760	11,100	12,020	13,020	14,010	15,120	16,220

Canyon County

Employment:	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Manufacturing	6,210	6,450	6,760	6,750	7,410	8,080	8,050	7,680	8,320	8,860	9,440	9,970	10,900	11,510	11,210
Mining	110	90	50	20	20	30	30	40	40	30	30	30	20	40	40
Construction	1,020	850	800	880	870	1,050	1,170	1,470	1,680	1,860	2,490	2,510	2,630	2,890	3,070
Transp., Comm., & Util.	1,800	1,720	1,410	1,490	1,740	1,790	1,590	1,580	1,600	1,670	1,730	1,720	1,830	1,890	1,950
Wholesale & Retail Trade	6,530	6,740	6,480	7,080	6,920	7,290	7,340	7,850	7,750	7,660	8,310	8,540	8,810	9,120	9,070
Fin., Ins., & Real Est.	1,160	1,450	1,400	1,010	1,070	1,200	1,250	1,270	1,370	1,530	1,480	1,430	1,350	1,410	1,290
Services	4,880	4,980	5,080	5,180	5,580	5,570	5,940	6,100	6,600	6,760	7,480	7,650	8,180	8,720	8,630
Government	3,930	3,950	3,980	4,250	4,220	4,500	4,770	4,870	5,090	5,120	5,320	5,410	5,670	5,800	6,170
Total Nonagricultural	25,640	26,220	25,970	26,650	27,840	29,510	30,140	30,850	32,440	33,490	36,280	37,260	39,390	41,380	41,430
Population & Households:															
Population:	83,940	87,820	88,460	87,590	87,680	88,800	90,680	93,980	97,010	101,090	105,490	109,980	113,740	118,120	122,380
Households:	28,460	30,030	30,370	30,230	30,480	30,990	31,280	32,640	33,750	35,010	36,330	38,110	39,610	40,430	41,340
Persons per Household:	2.86	2.83	2.82	2.81	2.80	2.80	2.79	2.80	2.79	2.81	2.83	2.81	2.80	2.85	2.89
Personal Income:	(Millions)														
Current Year $:	628.8	891.0	921.8	960.4	1,033.3	1,125.6	1,234.7	1,308.9	1,415.4	1,574.3	1,655.0	1,781.0	1,904.1	2,002.7	2,178.3
1992 $:	1,071.2	1,163.0	1,180.8	1,186.7	1,226.7	1,274.8	1,326.7	1,348.3	1,415.8	1,528.6	1,566.8	1,639.7	1,702.8	1,750.8	1,875.1
Per Capita Personal Income:															
Current Year $:	9,020	11,620	11,830	12,800	13,190	13,860	13,620	13,930	14,590	15,570	15,690	16,190	16,740	16,950	17,800
1992 $:	15,360	15,170	15,160	15,820	15,650	15,700	14,630	14,350	14,600	15,120	14,850	14,910	14,970	14,820	15,320

Canyon County

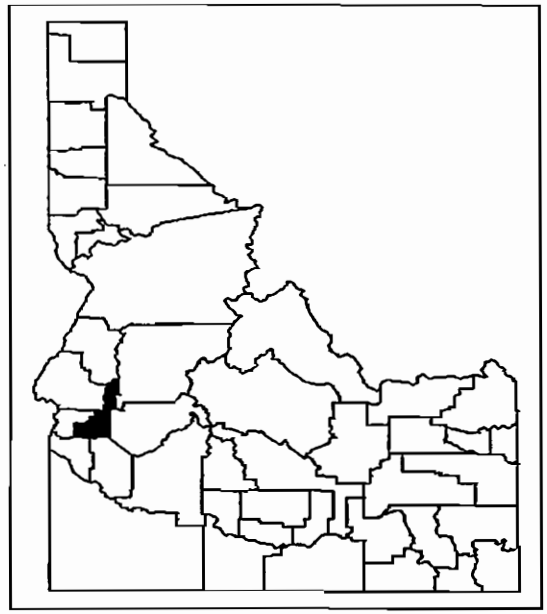
Employment:	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Manufacturing	11,380	11,310	10,610	10,860	10,670	10,630	10,720	10,810	10,900	10,940	10,990	11,060	11,130	11,180	11,220	11,270
Mining	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Construction	3,480	3,780	3,750	3,620	3,660	3,980	4,280	4,470	4,610	4,760	4,900	5,010	5,080	5,020	5,080	5,200
Transp., Comm., & Util.	1,960	1,950	2,110	2,100	2,140	2,180	2,210	2,250	2,290	2,320	2,360	2,390	2,430	2,460	2,500	2,530
Wholesale & Retail Trade	9,480	10,760	11,070	10,780	10,770	10,900	11,100	11,280	11,440	11,610	11,810	12,020	12,220	12,430	12,620	12,810
Fin., Ins., & Real Est.	1,280	1,400	1,440	1,450	1,510	1,550	1,590	1,620	1,640	1,670	1,690	1,720	1,740	1,760	1,780	1,810
Services	9,220	9,820	10,080	10,400	10,650	10,910	11,200	11,430	11,660	11,890	12,130	12,350	12,580	12,810	13,020	13,240
Government	6,600	6,770	6,790	6,990	7,130	7,290	7,450	7,610	7,750	7,900	8,050	8,210	8,360	8,520	8,680	8,840
Total Nonagricultural	43,460	45,830	45,880	46,250	46,560	47,470	48,590	49,500	50,330	51,130	51,970	52,790	53,570	54,220	54,940	55,740
Population & Households:																
Population:	126,720	133,090	139,180	145,550	152,000	157,710	161,330	164,930	168,430	171,820	175,140	178,500	181,820	184,840	188,040	191,580
Households:	42,300	44,380	46,200	48,000	50,820	55,150	57,010	59,170	61,090	62,620	63,780	64,950	66,230	67,380	68,500	69,660
Persons per Household:	2.93	2.93	2.95	2.97	2.92	2.80	2.77	2.73	2.70	2.68	2.69	2.69	2.68	2.68	2.68	2.69
Personal Income:	(Millions)															
Current Year $:	2,308.7	2,477.0	2,577.5	2,672.3	2,770.5	2,949.9	3,145.4	3,341.1	3,546.2	3,766.7	3,996.7	4,239.4	4,505.2	4,789.4	5,082.3	5,392.4
1992 $:	1,944.5	2,020.8	2,043.9	2,085.5	2,114.0	2,192.5	2,292.9	2,397.0	2,495.7	2,594.9	2,693.9	2,789.2	2,889.6	2,991.3	3,091.7	3,194.5
Per Capita Personal Income:																
Current Year $:	18,220	18,610	18,520	18,360	18,230	18,700	19,500	20,260	21,050	21,920	22,820	23,750	24,780	25,910	27,030	28,150
1992 $:	15,340	15,180	14,690	14,330	13,910	13,900	14,210	14,530	14,820	15,100	15,380	15,630	15,890	16,180	16,440	16,670

Canyon County

Employment:	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Manufacturing	11,310	11,350	11,400	11,440	11,480	11,550	11,600	11,660	11,710	11,760	11,800	11,830	11,860	11,880	11,910	11,930
Mining	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	30
Construction	5,340	5,480	5,630	5,780	5,940	6,100	6,270	6,440	6,620	6,810	7,000	7,200	7,400	7,620	7,840	8,060
Transp., Comm., & Util.	2,570	2,610	2,640	2,680	2,710	2,740	2,780	2,810	2,850	2,880	2,910	2,920	2,920	2,920	2,930	2,930
Wholesale & Retail Trade	13,020	13,220	13,420	13,610	13,810	14,010	14,210	14,440	14,670	14,890	15,120	15,350	15,560	15,780	16,000	16,220
Fin., Ins., & Real Est.	1,830	1,860	1,880	1,900	1,930	1,950	1,970	2,000	2,020	2,040	2,060	2,090	2,110	2,130	2,150	2,180
Services	13,450	13,670	13,890	14,120	14,350	14,590	14,820	15,050	15,280	15,510	15,740	15,970	16,200	16,430	16,640	16,860
Government	9,010	9,180	9,350	9,520	9,680	9,850	10,010	10,180	10,350	10,510	10,680	10,720	10,770	10,820	10,860	10,910
Total Nonagricultural	56,580	57,410	58,240	59,080	59,930	60,830	61,700	62,620	63,530	64,440	65,350	66,110	66,860	67,620	68,360	69,120
Population & Households:																
Population:	195,200	198,870	202,390	205,950	209,140	212,390	215,660	218,900	221,940	224,980	228,110	230,780	233,510	236,030	238,640	241,270
Households:	70,900	72,180	73,320	74,570	75,770	76,760	77,770	78,720	79,680	80,630	81,500	82,380	82,970	83,880	84,820	85,770
Persons per Household:	2.69	2.69	2.70	2.70	2.70	2.71	2.71	2.72	2.72	2.73	2.74	2.74	2.75	2.75	2.75	2.75
Personal Income:	(Millions)															
Current Year $:	5,718.2	6,007.2	6,310.5	6,628.8	7,027.6	7,449.4	7,888.8	8,356.7	8,851.1	9,373.7	9,925.8	10,419.0	10,936.1	11,478.5	12,047.2	12,638.3
1992 $:	3,299.8	3,375.0	3,451.5	3,528.0	3,639.5	3,754.1	3,870.0	3,989.4	4,113.5	4,238.5	4,368.6	4,463.9	4,560.2	4,659.1	4,759.2	4,860.1
Per Capita Personal Income:																
Current Year $:	29,290	30,210	31,180	32,190	33,600	35,070	36,580	38,180	39,880	41,660	43,510	45,150	46,830	48,630	50,480	52,380
1992 $:	16,900	16,970	17,050	17,130	17,400	17,680	17,950	18,220	18,530	18,840	19,150	19,340	19,530	19,740	19,940	20,140

Idaho Economics
Summer 2005 County Economic Forecasts

Gem County



Summary Information	Historical			Forecast					
	1980	1990	2000	2005	2010	2015	2020	2025	2030
Population & Households:									
Total Population:	11,970	11,940	15,220	16,200	17,110	18,160	19,180	19,820	20,400
Population per Square Mile	21.3	21.2	27.1	28.8	30.4	32.3	34.1	35.2	36.3
Total Households:	4,220	4,420	5,550	5,940	6,320	6,690	7,050	7,250	7,430
Persons per Household	2.81	2.64	2.71	2.69	2.67	2.68	2.69	2.70	2.71
Employment:									
Total Nonagricultural	2,650	2,490	3,210	2,990	3,270	3,540	3,840	4,150	4,480
Manufacturing:	620	650	550	110	110	110	120	120	130
Wholesale & Retail Trade	690	590	820	810	880	970	1,050	1,140	1,230

Gem County

Employment:	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Manufacturing	620	650	620	620	610	660	650	640	650	670	650	630	630	590	580
Mining	10	10	20	20	20	10	20	20	10	10	10	10	10	10	10
Construction	50	40	30	30	40	50	60	80	90	110	110	110	120	160	190
Transp., Comm., & Util.	60	80	100	100	100	110	110	100	110	110	120	120	130	140	140
Wholesale & Retail Trade	690	550	490	510	550	560	590	580	590	630	710	750	770	790	800
Fin., Ins., & Real Est.	120	130	110	90	70	80	70	70	100	110	110	110	110	100	90
Services	460	320	320	300	300	290	350	400	420	440	450	470	510	510	500
Government	640	540	550	570	580	620	630	670	700	730	750	780	790	800	810
Total Nonagricultural	2,650	2,320	2,230	2,230	2,270	2,380	2,490	2,550	2,690	2,800	2,910	2,980	3,070	3,110	3,110
Population & Households:															
Population:	11,970	11,790	11,600	11,410	11,540	11,530	11,940	12,270	12,600	13,110	13,470	13,790	14,050	14,420	14,800
Households:	4,220	4,250	4,210	4,180	4,280	4,300	4,420	4,560	4,690	4,910	5,010	5,140	5,280	5,370	5,460
Persons per Household:	2.81	2.73	2.71	2.69	2.67	2.66	2.64	2.65	2.65	2.63	2.65	2.65	2.62	2.65	2.67
Personal Income:	(Millions)														
Current Year $:	94.9	131.4	133.4	130.4	138.9	150.1	160.2	168.8	184.6	200.9	209.7	222.7	237.9	247.4	263.5
1992 $:	161.6	171.5	170.9	161.2	164.9	170.0	172.1	173.9	184.6	195.0	198.5	205.0	212.8	216.3	226.8
Per Capita Personal Income:															
Current Year $:	9,020	11,620	11,830	12,800	13,190	13,860	13,420	13,760	14,650	15,320	15,560	16,140	16,930	17,160	17,800
1992 $:	15,360	15,170	15,160	15,820	15,650	15,700	14,420	14,170	14,650	14,870	14,730	14,860	15,140	15,000	15,320

Gem County

Employment:	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Manufacturing	590	550	340	100	100	100	110	110	110	110	110	110	110	110	110	110
Mining	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Construction	210	220	240	210	210	230	240	250	250	260	270	270	280	270	280	280
Transp., Comm., & Util.	140	130	110	130	130	130	130	130	130	140	140	140	140	150	150	150
Wholesale & Retail Trade	810	820	760	780	780	790	810	820	840	850	870	880	900	920	930	950
Fin., Ins., & Real Est.	80	90	90	90	90	100	100	110	110	110	110	120	120	120	120	120
Services	500	540	670	680	700	720	740	760	770	790	810	830	840	860	880	900
Government	810	850	830	830	830	840	850	860	870	890	900	910	920	930	940	960
Total Nonagricultural	3,160	3,210	3,060	2,820	2,850	2,920	2,990	3,050	3,100	3,160	3,210	3,270	3,320	3,370	3,430	3,480
Population & Households:																
Population:	15,050	15,220	15,440	15,580	15,780	15,930	16,200	16,330	16,460	16,680	16,900	17,110	17,310	17,510	17,710	17,930
Households:	5,560	5,550	5,600	5,650	5,730	5,840	5,940	6,020	6,070	6,180	6,250	6,320	6,400	6,480	6,550	6,610
Persons per Household:	2.67	2.71	2.72	2.72	2.72	2.70	2.69	2.68	2.68	2.67	2.67	2.67	2.67	2.67	2.67	2.68
Personal Income:	(Millions)															
Current Year $:	278.0	298.6	315.5	326.9	334.9	354.2	375.1	393.7	412.9	433.4	454.5	476.6	500.7	526.2	552.2	579.3
1992 $:	234.2	243.6	250.2	255.1	255.5	263.2	273.5	282.4	290.6	298.6	306.4	313.6	321.1	328.7	335.9	343.2
Per Capita Personal Income:																
Current Year $:	18,470	19,620	20,430	20,980	21,220	22,230	23,160	24,100	25,080	25,980	26,900	27,860	28,920	30,060	31,180	32,300
1992 $:	15,560	16,010	16,200	16,370	16,190	16,520	16,880	17,290	17,650	17,900	18,130	18,330	18,550	18,770	18,960	19,140

Gem County

Employment:	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Manufacturing	110	110	120	120	120	120	120	120	120	120	120	120	120	120	130	130
Mining	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Construction	290	290	300	310	310	320	330	340	340	350	360	370	380	390	400	410
Transp., Comm., & Util.	150	160	160	160	160	160	170	170	170	170	170	180	180	180	180	190
Wholesale & Retail Trade	970	980	1,000	1,020	1,030	1,050	1,070	1,080	1,100	1,120	1,140	1,160	1,180	1,200	1,210	1,230
Fin., Ins., & Real Est.	130	130	130	130	140	140	140	140	150	150	150	150	160	160	160	160
Services	910	930	950	960	980	1,000	1,020	1,040	1,060	1,070	1,090	1,110	1,130	1,150	1,170	1,180
Government	970	980	1,000	1,010	1,020	1,030	1,050	1,060	1,070	1,090	1,100	1,110	1,130	1,140	1,160	1,180
Total Nonagricultural	3,540	3,600	3,660	3,720	3,780	3,840	3,900	3,960	4,020	4,090	4,150	4,220	4,280	4,350	4,420	4,480
Population & Households:																
Population:	18,160	18,390	18,610	18,820	19,010	19,180	19,360	19,480	19,590	19,700	19,820	19,940	20,070	20,180	20,290	20,400
Households:	6,690	6,770	6,840	6,920	7,000	7,050	7,110	7,150	7,180	7,220	7,250	7,290	7,300	7,340	7,380	7,430
Persons per Household:	2.68	2.68	2.69	2.69	2.68	2.69	2.69	2.69	2.69	2.70	2.70	2.70	2.72	2.71	2.71	2.71
Personal Income:	(Millions)															
Current Year $:	607.6	637.7	669.3	702.5	736.6	772.4	809.3	848.2	889.0	931.7	976.4	1,024.0	1,073.9	1,126.1	1,180.9	1,237.7
1992 $:	350.6	358.3	366.1	373.9	381.5	389.3	397.0	404.9	413.1	421.3	429.7	438.7	447.8	457.1	466.5	476.0
Per Capita Personal Income:																
Current Year $:	33,450	34,670	35,970	37,320	38,760	40,280	41,810	43,540	45,370	47,280	49,260	51,340	53,500	55,810	58,200	60,670
1992 $:	19,300	19,480	19,670	19,860	20,070	20,300	20,510	20,780	21,090	21,380	21,680	22,000	22,310	22,650	22,990	23,330

M3 – Eagle Development

Appendix E:

Projected Property Tax Revenues by Year and Property Taxing Authority.

M3 - Eagle Development: Annual S[illegible]ary of Projected Property Taxes

Projected Property Tax Revenues

Estimated Taxable Property Value at Year-End	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Residential Properties	$117,057,000	$234,290,000	$427,111,000	$622,375,000	$817,639,000	$1,012,903,000	$1,208,629,000	$1,446,819,000	$1,685,009,000
Commercial Properties	$0	$0	$5,175,000	$10,350,000	$15,525,000	$20,700,000	$25,875,000	$42,750,000	$59,625,000
Total Taxable Property Value	$ 117,057,000	$234,290,000	$432,286,000	$632,725,000	$833,164,000	$1,033,603,000	$1,234,504,000	$1,489,569,000	$1,744,634,000

Estimated Annual Property Tax Revenues:

Residential Property:

(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Ada County	0.002560344	$299,700	$599,900	$1,093,600	$1,593,500	$2,093,400	$2,593,400	$3,094,500	$3,704,400	$4,314,200
City of Eagle	0.000855955	100,200	200,500	365,600	532,700	699,900	867,000	1,034,500	1,238,400	1,442,300
Meridian Joint School District #2	0.003888275	455,100	911,000	1,660,700	2,420,000	3,179,200	3,938,400	4,699,500	5,625,600	6,551,800
Ada County Highway District	0.000954955	111,800	223,700	407,900	594,300	780,800	967,300	1,154,200	1,381,600	1,609,100
Ada County Emergency Medical	0.000113527	13,300	26,600	48,500	70,700	92,800	115,000	137,200	164,300	191,300
Eagle Fire District	0.001209738	141,600	283,400	516,700	752,900	989,100	1,225,300	1,462,100	1,750,300	2,038,400
Mosquito Abatement District	0.000027599	3,200	6,500	11,800	17,200	22,600	28,000	33,400	39,900	46,500
Ada County Weed & Pest Control	0.000121634	14,200	28,500	52,000	75,700	99,500	123,200	147,000	176,000	205,000
Star Cemetery Distrct	0.000113733	13,300	141,100	48,600	70,800	93,000	115,200	137,500	164,600	191,600
Total	0.011863518	$1,152,400	$2,421,200	$4,205,400	$6,127,800	$8,050,300	$9,972,800	$11,899,900	$14,245,100	$16,590,200

Commercial Property:

(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Ada County	0.002560344	$0	$0	$13,200	$26,500	$39,700	$53,000	$66,200	$109,500	$152,700
City of Eagle	0.000855955	0	0	$4,400	8,900	13,300	17,700	22,100	36,600	51,000
Meridian Joint School District #2	0.003888275	0	0	$20,100	40,200	60,400	80,500	100,600	166,200	231,800
Ada County Highway District	0.000954955	0	0	$4,900	9,900	14,800	19,800	24,700	40,800	56,900
Ada County Emergency Medical	0.000113527	0	0	$600	1,200	1,800	2,400	2,900	4,900	6,800
Eagle Fire District	0.001209738	0	0	$6,300	12,500	18,800	25,000	31,300	51,700	72,100
Mosquito Abatement District	0.000027599	0	0	$100	300	400	600	700	1,200	1,600
Ada County Weed & Pest Control	0.000121634	0	0	$600	1,300	1,900	2,500	3,100	5,200	7,300
Star Cemetery Distrct	0.000113733	0	0	$600	1,200	1,800	2,400	2,900	4,900	6,800
Total	0.011863518	$0	$0	$50,800	$102,000	$152,900	$203,900	$254,500	$421,000	$587,000

M3 - Eagle Development: Annual Summary of Projected Property Taxes

Projected Property Tax Revenues

Estimated Taxable Property Value at Year-End	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Residential Properties	$117,057,000	$234,290,000	$427,111,000	$622,375,000	$817,639,000	$1,012,903,000	$1,208,629,000	$1,446,819,000	$1,685,009,000
Commercial Properties	$0	$0	$5,175,000	$10,350,000	$15,525,000	$20,700,000	$25,875,000	$42,750,000	$59,625,000
Total Taxable Property Value	$ 117,057,000	$234,290,000	$432,286,000	$632,725,000	$833,164,000	$1,033,603,000	$1,234,504,000	$1,489,569,000	$1,744,634,000

Projected Annual Residential Occupancy Tax Revenues:
(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Ada County	0.002560344	$78,200	$78,300	$128,400	$130,100	$130,100	$130,100	$130,400	$158,000	$158,000
City of Eagle	0.000855955	26,130	26,200	42,900	43,500	43,500	43,500	43,600	52,800	52,800
Meridian Joint School District #2	0.003888275	118,700	118,900	195,000	197,600	197,600	197,600	198,100	239,900	239,900
Ada County Highway District	0.000954955	29,100	29,200	47,900	48,500	48,500	48,500	48,600	58,900	58,900
Ada County Emergency Medical	0.000113527	3,500	3,500	5,700	5,800	5,800	5,800	5,800	7,000	7,000
Eagle Fire District	0.001209738	36,900	37,000	60,700	61,500	61,500	61,500	61,600	74,600	74,600
Mosquito Abatement District	0.000027599	800	800	1,400	1,400	1,400	1,400	1,400	1,700	1,700
Ada County Weed & Pest Control	0.000121634	3,700	3,700	6,100	6,200	6,200	6,200	6,200	7,500	7,500
Star Cemetery Distrct	0.000113733	3,500	3,500	5,700	5,800	5,800	5,800	5,800	7,000	7,000
Total	0.011863518	$300,530	$301,100	$493,800	$500,400	$500,400	$500,400	$501,500	$607,400	$607,400

Estimated Total Annual Property Tax Revenues:
Residential, Commercial, & Occupancy Tax Revenues:
(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Ada County	0.002560344	$415,962	$716,262	$1,273,262	$1,788,162	$2,301,262	$2,814,562	$3,329,162	$4,009,962	$4,662,962
City of Eagle	0.000855955	$139,055	$239,425	$425,625	$597,825	$769,425	$940,925	$1,112,925	$1,340,525	$1,558,825
Meridian Joint School District #2	0.003888275	$631,603	$1,087,703	$1,933,603	$2,715,603	$3,495,003	$4,274,303	$5,056,003	$6,089,503	$7,081,303
Ada County Highway District	0.000954955	$155,096	$267,096	$474,896	$666,896	$858,296	$1,049,796	$1,241,696	$1,495,496	$1,739,096
Ada County Emergency Medical	0.000113527	$18,488	$31,788	$56,488	$79,388	$102,088	$124,888	$147,588	$177,888	$206,788
Eagle Fire District	0.001209738	$196,484	$338,384	$601,684	$844,884	$1,087,384	$1,329,784	$1,572,984	$1,894,584	$2,203,084
Mosquito Abatement District	0.000027599	$4,000	$7,300	$13,300	$18,900	$24,400	$30,000	$35,500	$42,800	$49,800
Ada County Weed & Pest Control	0.000121634	$19,588	$33,888	$60,388	$84,888	$109,288	$133,588	$157,988	$190,388	$221,488
Star Cemetery Distrct	0.000113733	$16,800	$144,600	$54,900	$77,800	$100,600	$123,400	$146,200	$176,500	$205,400
Total	0.011863518	$1,597,076	$2,866,446	$4,894,146	$6,874,346	$8,847,746	$10,821,246	$12,800,046	$15,417,646	$17,928,746

Estimated Total Annual Property Tax Revenues:
(Estimated Fiscal Year Basis)

Taxing Authority	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Ada County	$207,981	$566,112	$994,762	$1,530,712	$2,044,712	$2,557,912	$3,071,862	$3,689,562	$4,336,462
City of Eagle	69,527	189,240	332,525	511,725	683,625	855,175	1,026,925	1,226,725	1,449,675
Meridian Joint School District #2	315,802	859,653	1,510,653	2,324,603	3,105,303	3,884,653	4,665,153	5,572,753	6,585,403
Ada County Highway District	77,548	211,096	370,996	570,896	762,596	954,046	1,145,746	1,368,596	1,617,296
Ada County Emergency Medical	9,244	25,138	44,138	67,938	90,738	113,488	136,238	162,738	192,338
Eagle Fire District	98,242	267,434	470,034	723,284	966,134	1,208,584	1,451,384	1,733,784	2,048,834
Mosquito Abatement District	2,000	5,650	10,300	16,100	21,650	27,200	32,750	39,150	46,300
Ada County Weed & Pest Control	9,794	26,738	47,138	72,638	97,088	121,438	145,788	174,188	205,938
Star Cemetery Distrct	8,400	80,700	99,750	66,350	89,200	112,000	134,800	161,350	190,950
Total	$798,538	$2,231,761	$3,880,296	$5,884,246	$7,861,046	$9,834,496	$11,810,646	$14,108,846	$16,673,196

M3 - Eagle Development: Annual Summary of Projected Property Taxes

Projected Property Tax Revenues

Estimated Taxable Property Value at Year-End	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
Residential Properties	$1,923,199,000	$2,161,389,000	$2,399,354,000	$2,584,349,000	$2,768,199,000	$2,953,730,000	$3,138,326,000	$3,322,922,000	$3,369,540,000
Commercial Properties	$76,500,000	$93,375,000	$110,250,000	$135,607,500	$159,097,500	$182,587,500	$206,077,500	$229,567,500	$250,807,500
Total Taxable Property Value	$1,999,699,000	$2,254,764,000	$2,509,604,000	$2,719,956,500	$2,927,296,500	$3,136,317,500	$3,344,403,500	$3,552,489,500	$3,620,347,500

Estimated Annual Property Tax Revenues:

Residential Property:

(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
Ada County	0.002560344	$4,924,100	$5,533,900	$6,143,200	$6,616,800	$7,087,500	$7,562,600	$8,035,200	$8,507,800	$8,627,200
City of Eagle	0.000855955	1,646,200	1,850,100	2,053,700	2,212,100	2,369,500	2,528,300	2,686,300	2,844,300	2,884,200
Meridian Joint School District #2	0.003888275	7,477,900	8,404,100	9,329,300	10,048,700	10,763,500	11,484,900	12,202,700	12,920,400	13,101,700
Ada County Highway District	0.000954955	1,836,600	2,064,000	2,291,300	2,467,900	2,643,500	2,820,700	2,997,000	3,173,200	3,217,800
Ada County Emergency Medical	0.000113527	218,300	245,400	272,400	293,400	314,300	335,300	356,300	377,200	382,500
Eagle Fire District	0.001209738	2,326,600	2,614,700	2,902,600	3,126,400	3,348,800	3,573,200	3,796,600	4,019,900	4,076,300
Mosquito Abatement District	0.000027599	53,100	59,700	66,200	71,300	76,400	81,500	86,600	91,700	93,000
Ada County Weed & Pest Control	0.000121634	233,900	262,900	291,800	314,300	336,700	359,300	381,700	404,200	409,900
Star Cemetery Distrct	0.000113733	218,700	245,800	272,900	293,900	314,800	335,900	356,900	377,900	383,200
Total	0.011863518	$18,935,400	$21,280,600	$23,623,400	$25,444,800	$27,255,000	$29,081,700	$30,899,300	$32,716,600	$33,175,800

Commercial Property:

(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
Ada County	0.002560344	$195,900	$239,100	$282,300	$347,200	$407,300	$467,500	$527,600	$587,800	$642,200
City of Eagle	0.000855955	65,500	79,900	94,400	116,100	136,200	156,300	176,400	196,500	214,700
Meridian Joint School District #2	0.003888275	297,500	363,100	428,700	527,300	618,600	710,000	801,300	892,600	975,200
Ada County Highway District	0.000954955	73,100	89,200	105,300	129,500	151,900	174,400	196,800	219,200	239,500
Ada County Emergency Medical	0.000113527	8,700	10,600	12,500	15,400	18,100	20,700	23,400	26,100	28,500
Eagle Fire District	0.001209738	92,500	113,000	133,400	164,000	192,500	220,900	249,300	277,700	303,400
Mosquito Abatement District	0.000027599	2,100	2,600	3,000	3,700	4,400	5,000	5,700	6,300	6,900
Ada County Weed & Pest Control	0.000121634	9,300	11,400	13,400	16,500	19,400	22,200	25,100	27,900	30,500
Star Cemetery Distrct	0.000113733	8,700	10,600	12,500	15,400	18,100	20,800	23,400	26,100	28,500
Total	0.011863518	$753,300	$919,500	$1,085,500	$1,335,100	$1,568,500	$1,797,800	$2,029,000	$2,260,200	$2,469,400

M3 - Eagle Development: Annual Summary of Projected Property Taxes

Projected Property Tax Revenues

Estimated Taxable Property Value at Year-End	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
Residential Properties	$1,923,199,000	$2,161,389,000	$2,399,354,000	$2,584,349,000	$2,768,199,000	$2,953,730,000	$3,138,326,000	$3,322,922,000	$3,369,540,000
Commercial Properties	$76,500,000	$93,375,000	$110,250,000	$135,607,500	$159,097,500	$182,587,500	$206,077,500	$229,567,500	$250,807,500
Total Taxable Property Value	$1,999,699,000	$2,254,764,000	$2,509,604,000	$2,719,956,500	$2,927,296,500	$3,136,317,500	$3,344,403,500	$3,552,489,500	$3,620,347,500

Projected Annual Residential Occupancy Tax Revenues:
(Calendar Year Basis)

Taxing Authority	2008 Mill Levy	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
Ada County	0.002560344	$158,000	$158,000	$157,800	$123,300	$122,500	$123,700	$123,100	$123,100	$31,600
City of Eagle	0.000855955	52,800	52,800	52,800	41,200	41,000	41,300	41,200	41,200	10,500
Meridian Joint School District #2	0.003888275	239,900	239,900	239,700	187,300	186,000	187,800	186,900	186,900	47,900
Ada County Highway District	0.000954955	58,900	58,900	58,900	46,000	45,700	46,100	45,900	45,900	11,800
Ada County Emergency Medical	0.000113527	7,000	7,000	7,000	5,500	5,400	5,500	5,500	5,500	1,400
Eagle Fire District	0.001209738	74,600	74,600	74,600	58,300	57,900	58,400	58,200	58,200	14,900
Mosquito Abatement District	0.000027599	1,700	1,700	1,700	1,300	1,300	1,300	1,300	1,300	300
Ada County Weed & Pest Control	0.000121634	7,500	7,500	7,500	5,900	5,800	5,900	5,800	5,800	1,500
Star Cemetery Distrct	0.000113733	7,000	7,000	7,000	5,500	5,400	5,500	5,500	5,500	1,400
Total	0.011863518	$607,400	$607,400	$607,000	$474,300	$471,000	$475,500	$473,400	$473,400	$121,300

Estimated Total Annual Property Tax Revenues:
Residential, Commercial, & Occupancy Tax Revenues:
(Calendar Year Basis)

Taxing Authority	2008 Mill Levy	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
Ada County	0.002560344	$5,316,062	$5,969,062	$6,621,362	$7,125,362	$7,655,362	$8,191,862	$8,723,962	$9,256,762	$9,339,062
City of Eagle	0.000855955	$1,777,225	$1,995,525	$2,213,625	$2,382,125	$2,559,425	$2,738,625	$2,916,625	$3,094,725	$3,122,125
Meridian Joint School District #2	0.003888275	$8,073,103	$9,064,903	$10,055,503	$10,821,103	$11,625,903	$12,440,503	$13,248,703	$14,057,703	$14,182,603
Ada County Highway District	0.000954955	$1,982,796	$2,226,296	$2,469,696	$2,657,596	$2,855,296	$3,055,396	$3,253,896	$3,452,496	$3,483,296
Ada County Emergency Medical	0.000113527	$235,688	$264,688	$293,588	$315,988	$339,488	$363,188	$386,888	$410,488	$414,088
Eagle Fire District	0.001209738	$2,511,684	$2,820,284	$3,128,584	$3,366,684	$3,617,184	$3,870,484	$4,122,084	$4,373,784	$4,412,584
Mosquito Abatement District	0.000027599	$56,900	$64,000	$70,900	$76,300	$82,100	$87,800	$93,600	$99,300	$100,200
Ada County Weed & Pest Control	0.000121634	$252,388	$283,488	$314,388	$338,388	$363,588	$389,088	$414,288	$439,588	$443,588
Star Cemetery Distrct	0.000113733	$234,400	$263,400	$292,400	$314,800	$338,300	$362,200	$385,800	$409,500	$413,100
Total	0.011863518	$20,440,246	$22,951,646	$25,460,046	$27,398,346	$29,436,646	$31,499,146	$33,545,846	$35,594,346	$35,910,646

Estimated Total Annual Property Tax Revenues:
(Estimated Fiscal Year Basis)

Taxing Authority	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18
Ada County	$4,989,512	$5,642,562	$6,295,212	$6,873,362	$7,390,362	$7,923,612	$8,457,912	$8,990,362	$9,297,912
City of Eagle	1,668,025	1,886,375	2,104,575	2,297,875	2,470,775	2,649,025	2,827,625	3,005,675	3,108,425
Meridian Joint School District #2	7,577,203	8,569,003	9,560,203	10,438,303	11,223,503	12,033,203	12,844,603	13,653,203	14,120,153
Ada County Highway District	1,860,946	2,104,546	2,347,996	2,563,646	2,758,446	2,955,346	3,154,646	3,353,196	3,467,896
Ada County Emergency Medical	221,238	250,188	279,138	304,788	327,738	351,338	375,038	398,688	412,288
Eagle Fire District	2,357,384	2,665,984	2,974,434	3,247,634	3,491,934	3,743,834	3,996,284	4,247,934	4,393,184
Mosquito Abatement District	53,350	60,450	67,450	73,600	79,200	84,950	90,700	96,450	99,750
Ada County Weed & Pest Control	236,938	267,938	298,938	326,388	350,988	376,338	401,688	426,938	441,588
Star Cemetery Distrct	219,900	248,900	277,900	303,600	326,550	350,250	374,000	397,650	411,300
Total	$19,184,496	$21,695,946	$24,205,846	$26,429,196	$28,417,496	$30,467,896	$32,522,496	$34,570,096	$35,752,496

M3 - Eagle Development: Annual Summary of Projected Property Taxes

Projected Property Tax Revenues

Estimated Taxable Property Value at Year-End	Year 19	Year 20	Year 21+
Residential Properties	$3,416,158,000	$3,462,368,000	$3,462,368,000
Commercial Properties	$267,750,000	$267,750,000	$267,750,000
Total Taxable Property Value	$3,683,908,000	$3,730,118,000	$3,730,118,000

Summary of Projected Property Tax Revenues

5-Year Summaries of Projected Property Tax Revenues				20-Year Total
Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20
$21,957,100	$71,643,400	$126,685,500	$164,516,100	$384,802,100
$305,700	$2,219,700	$6,704,400	$12,031,200	$21,261,000

Estimated Annual Property Tax Revenues:

Residential Property:

(Calendar Year Basis) Taxing Authority	2006 Mill Levy	Year 19	Year 20	Year 21+	Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20
Ada County	0.002560344	$8,746,500	$8,864,900	$8,864,900	$5,680,100	$18,630,600	$32,944,000	$42,781,600	$100,036,300
City of Eagle	0.000855955	2,924,100	2,963,600	2,963,600	1,898,900	6,228,400	11,013,700	14,302,500	33,443,500
Meridian Joint School District #2	0.003888275	13,283,000	13,462,600	13,462,600	8,626,000	28,293,200	50,030,500	64,970,400	151,920,100
Ada County Highway District	0.000954955	3,262,300	3,306,400	3,306,400	2,118,500	6,948,800	12,287,400	15,956,700	37,311,400
Ada County Emergency Medical	0.000113527	387,800	393,100	393,100	251,900	826,100	1,460,800	1,896,900	4,435,700
Eagle Fire District	0.001209738	4,132,700	4,188,600	4,188,600	2,683,700	8,802,700	15,565,700	20,214,100	47,266,200
Mosquito Abatement District	0.000027599	94,300	95,600	95,600	61,300	200,900	355,100	461,200	1,078,500
Ada County Weed & Pest Control	0.000121634	415,500	421,100	421,100	269,900	885,100	1,565,000	2,032,400	4,752,400
Star Cemetery District	0.000113733	388,500	393,800	393,800	366,800	827,600	1,463,300	1,900,300	4,558,000
Total	0.011863518	$33,634,700	$34,089,700	$34,089,700	$21,957,100	$71,643,400	$126,685,500	$164,516,100	$384,802,100

Commercial Property:

(Calendar Year Basis) Taxing Authority	2006 Mill Levy	Year 19	Year 20	Year 21+	Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20
Ada County	0.002560344	$685,500	$685,500	$685,500	$79,400	$577,300	$1,743,400	$3,128,600	$5,528,700
City of Eagle	0.000855955	229,200	229,200	229,200	26,600	192,900	582,900	1,046,000	1,848,400
Meridian Joint School District #2	0.003888275	1,041,100	1,041,100	1,041,100	120,700	876,600	2,647,700	4,751,300	8,396,300
Ada County Highway District	0.000954955	255,700	255,700	255,700	29,600	215,300	650,300	1,166,900	2,062,100
Ada County Emergency Medical	0.000113527	30,400	30,400	30,400	3,600	25,700	77,300	138,800	245,400
Eagle Fire District	0.001209738	323,900	323,900	323,900	37,600	272,600	823,800	1,478,200	2,612,200
Mosquito Abatement District	0.000027599	7,400	7,400	7,400	800	6,200	18,700	33,700	59,400
Ada County Weed & Pest Control	0.000121634	32,600	32,600	32,600	3,800	27,400	82,900	148,700	262,800
Star Cemetery District	0.000113733	30,500	30,500	30,500	3,600	25,700	77,400	139,000	245,700
Total	0.011863518	$2,636,300	$2,636,300	$2,636,300	$305,700	$2,219,700	$6,704,400	$12,031,200	$21,261,000

M3 - Eagle Development: Annual Summary of Projected Property Taxes

Projected Property Tax Revenues

Estimated Taxable Property Value at Year-End	Year 19	Year 20	Year 21+
Residential Properties	$3,416,158,000	$3,462,368,000	$3,462,368,000
Commercial Properties	$267,750,000	$267,750,000	$267,750,000
Total Taxable Property Value	$3,683,908,000	$3,730,118,000	$3,730,118,000

Summary of Projected Property Tax Revenues

5-Year Summaries of Projected Property Tax Revenues					20-Year Total
Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20	
$2,096,230	$2,824,100	$2,635,200	$1,309,800	$8,865,330	
$25,079,758	$77,407,928	$136,745,828	$178,577,828	$417,811,340	
20,655,885	71,611,678	131,216,378	175,832,128	399,316,067	

Projected Annual Residential Occupancy Tax Revenues:

(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 19	Year 20	Year 21+	Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20
Ada County	0.002560344	$31,600	$31,300	$0	$545,100	$734,500	$685,300	$340,700	$2,305,600
City of Eagle	0.000855955	10,500	10,500	0	182,230	245,500	229,100	113,900	770,730
Meridian Joint School District #2	0.003888275	47,900	47,500	0	827,800	1,115,400	1,040,700	517,100	3,501,000
Ada County Highway District	0.000954955	11,800	11,700	0	203,200	273,800	255,600	127,100	859,700
Ada County Emergency Medical	0.000113527	1,400	1,400	0	24,300	32,600	30,400	15,200	102,500
Eagle Fire District	0.001209738	14,900	14,800	0	257,600	346,900	323,800	161,000	1,089,300
Mosquito Abatement District	0.000027599	300	300	0	5,800	7,900	7,300	3,500	24,500
Ada County Weed & Pest Control	0.000121634	1,500	1,500	0	25,900	34,900	32,600	16,100	109,500
Star Cemetery District	0.000113733	1,400	1,400	0	24,300	32,600	30,400	15,200	102,500
Total	0.011863518	$121,300	$120,400	$0	$2,096,230	$2,824,100	$2,635,200	$1,309,800	$8,865,330

Estimated Total Annual Property Tax Revenues: Residential, Commercial, & Occupancy Tax Revenues:

(Calendar Year Basis)

Taxing Authority	2006 Mill Levy	Year 19	Year 20	Year 21+	Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20
Ada County	0.002560344	$9,501,662	$9,619,762	$9,550,400	$6,494,910	$20,132,710	$35,563,010	$46,441,210	$108,631,841
City of Eagle	0.000855955	$3,176,525	$3,216,025	$3,192,800	2,171,353	6,730,423	11,889,323	15,526,023	36,317,123
Meridian Joint School District #2	0.003888275	$14,429,803	$14,609,003	$14,503,700	9,863,515	30,574,215	54,007,915	70,527,815	164,973,462
Ada County Highway District	0.000954955	$3,543,996	$3,587,996	$3,562,100	2,422,282	7,508,882	13,264,282	17,321,682	40,517,127
Ada County Emergency Medical	0.000113527	$421,288	$426,588	$423,500	288,238	892,838	1,576,938	2,059,338	4,817,354
Eagle Fire District	0.001209738	$4,489,484	$4,545,284	$4,512,500	3,068,820	9,512,120	16,803,220	21,943,220	51,327,379
Mosquito Abatement District	0.000027599	$102,000	$103,300	$103,000	67,900	215,000	381,100	498,400	1,162,400
Ada County Weed & Pest Control	0.000121634	$451,288	$456,888	$453,700	308,038	955,838	1,688,938	2,205,638	5,158,454
Star Cemetery District	0.000113733	$420,400	$425,700	$424,300	394,700	885,900	1,571,100	2,054,500	4,906,200
Total	0.011863518	$36,536,446	$36,990,546	$36,726,000	$25,079,758	$77,407,928	$136,745,828	$178,577,828	$417,811,340

Estimated Total Annual Property Tax Revenues:

(Estimated Fiscal Year Basis)

Taxing Authority	Year 19	Year 20	Year 21+	Total Years 1 - 5	Total Years 6 - 10	Total Years 11 - 15	Total Years 16 - 20	Total Years 1 - 20
Ada County	$9,420,362	$9,560,712	$9,585,081	$5,344,279	$18,625,310	$34,125,110	$45,727,260	$103,821,960
City of Eagle	3,149,325	3,196,275	3,204,412	1,786,641	6,226,523	11,408,623	15,287,323	34,709,110
Meridian Joint School District #2	14,306,203	14,519,403	14,556,352	8,116,014	28,285,165	51,824,215	69,443,565	157,668,960
Ada County Highway District	3,513,646	3,565,996	3,575,048	1,993,134	6,946,632	12,727,982	17,055,382	38,723,129
Ada County Emergency Medical	417,688	423,938	425,044	237,195	826,038	1,513,188	2,027,638	4,604,060
Eagle Fire District	4,451,034	4,517,384	4,528,892	2,525,128	8,799,970	16,123,820	21,605,820	49,054,737
Mosquito Abatement District	101,100	102,650	103,150	55,700	198,750	365,850	490,650	1,110,750
Ada County Weed & Pest Control	447,438	454,088	455,294	253,395	884,288	1,620,588	2,171,738	4,930,010
Star Cemetery District	416,750	423,050	425,000	344,400	819,000	1,507,200	2,022,750	4,693,350
Total	$36,223,546	$36,763,496	$36,858,273	20,655,885	71,611,678	131,216,378	175,832,128	399,316,067

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 1 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000	$ -	$ -	$ -	$ -
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	20	$ 9,000,000	$ 675,000	$ 13,500,000	$ 22,500,000	$ (1,500,000)	$ 21,000,000
R-1	$800,000	1,083	$320,000	$800,000	39	$ 12,359,000	$ 480,000	$ 18,539,000	$ 30,898,000	$ (2,897,000)	$ 28,001,000
R-2	$612,500	1,431	$245,000	$612,500	50	$ 12,258,000	$ 367,500	$ 18,388,000	$ 30,646,000	$ (3,753,000)	$ 26,893,000
R-3	$450,000	1,575	$180,000	$450,000	56	$ 10,112,000	$ 270,000	$ 15,168,000	$ 25,280,000	$ (4,213,000)	$ 21,067,000
R-4	$375,000	2,106	$150,000	$375,000	54	$ 8,032,000	$ 225,000	$ 12,048,000	$ 20,080,000	$ (4,016,000)	$ 16,064,000
Multi-family	$250,000	379	$100,000	$250,000	20	$ 2,019,000	$ 150,000	$ 3,028,000	$ 5,047,000	$ (1,015,000)	$ 4,032,000
Total Residential	$557,086	7,153			239	$ 53,780,000		$ 80,671,000	$ 134,451,000	$ (17,394,000)	$ 117,057,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			0			$ -	$ -	$ -	$ -
Total Commercial		1,190,000			0			$ -	$ -	$ -	$ -
Residential - Cumulative Values					239	$ 53,780,000		$ 80,671,000	$ 134,451,000	$ (17,394,000)	$ 117,057,000
Commercial - Cumulative Values					0			$ -	$ -	$ -	$ -
Total - Cumulative Value						$ 53,780,000		$ 80,671,000	$ 134,451,000	$ (17,394,000)	$ 117,057,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 2 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000	$ -	$ -	$ -	$ -
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	20	$ 9,000,000	$ 675,000	$ 13,500,000	$ 22,500,000	$ (1,500,000)	$ 21,000,000
R-1	$800,000	1,083	$320,000	$800,000	39	$ 12,359,000	$ 480,000	$ 18,539,000	$ 30,898,000	$ (2,897,000)	$ 28,001,000
R-2	$612,500	1,431	$245,000	$612,500	50	$ 12,258,000	$ 367,500	$ 18,388,000	$ 30,646,000	$ (3,753,000)	$ 26,893,000
R-3	$450,000	1,575	$180,000	$450,000	56	$ 10,112,000	$ 270,000	$ 15,168,000	$ 25,280,000	$ (4,213,000)	$ 21,067,000
R-4	$375,000	2,106	$150,000	$375,000	54	$ 8,032,000	$ 225,000	$ 12,048,000	$ 20,080,000	$ (4,016,000)	$ 16,064,000
Multi-family	$250,000	379	$100,000	$250,000	21	$ 2,107,000	$ 150,000	$ 3,160,000	$ 5,267,000	$ (1,059,000)	$ 4,208,000
Total Residential	$557,086	7,153			239	$ 53,868,000		$ 80,803,000	$ 134,671,000	$ (17,438,000)	$ 117,233,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			0			$ -	$ -	$ -	$ -
Total Commercial		1,190,000			0			$ -	$ -	$ -	$ -
Residential - Cumulative Values					478	$ 107,648,000		$ 161,474,000	$ 269,122,000	$ (34,832,000)	$ 234,290,000
Commercial - Cumulative Values					0			$ -	$ -	$ -	$ -
Total - Cumulative Value						$ 107,648,000		$ 161,474,000	$ 269,122,000	$ (34,832,000)	$ 234,290,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues					Year 3						
Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	1	$ 550,000	$ 825,000	$ 825,000	$ 1,375,000	$ (75,000)	$ 1,300,000
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	30	$ 13,500,000	$ 675,000	$ 20,250,000	$ 33,750,000	$ (2,250,000)	$ 31,500,000
R-1	$800,000	1,083	$320,000	$800,000	61	$ 19,663,000	$ 480,000	$ 29,494,000	$ 49,157,000	$ (4,608,000)	$ 44,549,000
R-2	$612,500	1,431	$245,000	$612,500	81	$ 19,786,000	$ 367,500	$ 29,678,000	$ 49,464,000	$ (6,057,000)	$ 43,407,000
R-3	$450,000	1,575	$180,000	$450,000	88	$ 15,800,000	$ 270,000	$ 23,701,000	$ 39,501,000	$ (6,584,000)	$ 32,917,000
R-4	$375,000	2,106	$150,000	$375,000	125	$ 18,697,000	$ 225,000	$ 28,046,000	$ 46,743,000	$ (9,349,000)	$ 37,394,000
Multi-family	$250,000	379	$100,000	$250,000	9	$ 878,000	$ 150,000	$ 1,317,000	$ 2,195,000	$ (441,000)	$ 1,754,000
Total Residential	$557,086	7,153			394	$ 88,874,000		$ 133,311,000	$ 222,185,000	$ (29,364,000)	$ 192,821,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Total Commercial		1,190,000			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Residential - Cumulative Values					872	$ 196,522,000		$ 294,785,000	$ 491,307,000	$ (64,196,000)	$ 427,111,000
Commercial - Cumulative Values					23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Total - Cumulative Value						$ 196,522,000		$ 299,385,000	$ 496,482,000	$ (64,196,000)	$ 432,286,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 4 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	1	$ 483,000	$ 825,000	$ 724,000	$ 1,207,000	$ (66,000)	$ 1,141,000
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,615,000	$ 675,000	$ 21,923,000	$ 36,538,000	$ (2,436,000)	$ 34,102,000
R-1	$800,000	1,083	$320,000	$800,000	61	$ 19,663,000	$ 480,000	$ 29,494,000	$ 49,157,000	$ (4,608,000)	$ 44,549,000
R-2	$612,500	1,431	$245,000	$612,500	81	$ 19,786,000	$ 367,500	$ 29,678,000	$ 49,464,000	$ (6,057,000)	$ 43,407,000
R-3	$450,000	1,575	$180,000	$450,000	88	$ 15,800,000	$ 270,000	$ 23,701,000	$ 39,501,000	$ (6,584,000)	$ 32,917,000
R-4	$375,000	2,106	$150,000	$375,000	125	$ 18,697,000	$ 225,000	$ 28,046,000	$ 46,743,000	$ (9,349,000)	$ 37,394,000
Multi-family	$250,000	379	$100,000	$250,000	9	$ 878,000	$ 150,000	$ 1,317,000	$ 2,195,000	$ (441,000)	$ 1,754,000
Total Residential	$557,086	7,153			397	$ 89,922,000		$ 134,883,000	$ 224,805,000	$ (29,541,000)	$ 195,264,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Total Commercial		1,190,000			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Residential - Cumulative Values					1,269	$ 286,444,000		$ 429,668,000	$ 716,112,000	$ (93,737,000)	$ 622,375,000
Commercial - Cumulative Values					46,000			$ 9,200,000	$ 10,350,000	$ -	$ 10,350,000
Total - Cumulative Value						$ 286,444,000		$ 438,868,000	$ 726,462,000	$ (93,737,000)	$ 632,725,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues					Year 5						
Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	1	$ 483,000	$ 825,000	$ 724,000	$ 1,207,000	$ (66,000)	$ 1,141,000
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,615,000	$ 675,000	$ 21,923,000	$ 36,538,000	$ (2,436,000)	$ 34,102,000
R-1	$800,000	1,083	$320,000	$800,000	61	$ 19,663,000	$ 480,000	$ 29,494,000	$ 49,157,000	$ (4,608,000)	$ 44,549,000
R-2	$612,500	1,431	$245,000	$612,500	81	$ 19,786,000	$ 367,500	$ 29,678,000	$ 49,464,000	$ (6,057,000)	$ 43,407,000
R-3	$450,000	1,575	$180,000	$450,000	88	$ 15,800,000	$ 270,000	$ 23,701,000	$ 39,501,000	$ (6,584,000)	$ 32,917,000
R-4	$375,000	2,106	$150,000	$375,000	125	$ 18,697,000	$ 225,000	$ 28,046,000	$ 46,743,000	$ (9,349,000)	$ 37,394,000
Multi-family	$250,000	379	$100,000	$250,000	9	$ 878,000	$ 150,000	$ 1,317,000	$ 2,195,000	$ (441,000)	$ 1,754,000
Total Residential	$557,086	7,153			397	$ 89,922,000		$ 134,883,000	$ 224,805,000	$ (29,541,000)	$ 195,264,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Total Commercial		1,190,000			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Residential - Cumulative Values					1,666	$ 376,366,000		$ 564,551,000	$ 940,917,000	$ (123,278,000)	$ 817,639,000
Commercial - Cumulative Values					69,000			$ 13,800,000	$ 15,525,000	$ -	$ 15,525,000
Total - Cumulative Value						$ 376,366,000		$ 578,351,000	$ 956,442,000	$ (123,278,000)	$ 833,164,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues					Year 6						
Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	1	$ 483,000	$ 825,000	$ 724,000	$ 1,207,000	$ (66,000)	$ 1,141,000
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,615,000	$ 675,000	$ 21,923,000	$ 36,538,000	$ (2,436,000)	$ 34,102,000
R-1	$800,000	1,083	$320,000	$800,000	61	$ 19,663,000	$ 480,000	$ 29,494,000	$ 49,157,000	$ (4,608,000)	$ 44,549,000
R-2	$612,500	1,431	$245,000	$612,500	81	$ 19,786,000	$ 367,500	$ 29,678,000	$ 49,464,000	$ (6,057,000)	$ 43,407,000
R-3	$450,000	1,575	$180,000	$450,000	88	$ 15,800,000	$ 270,000	$ 23,701,000	$ 39,501,000	$ (6,584,000)	$ 32,917,000
R-4	$375,000	2,106	$150,000	$375,000	125	$ 18,697,000	$ 225,000	$ 28,046,000	$ 46,743,000	$ (9,349,000)	$ 37,394,000
Multi-family	$250,000	379	$100,000	$250,000	9	$ 878,000	$ 150,000	$ 1,317,000	$ 2,195,000	$ (441,000)	$ 1,754,000
Total Residential	$557,086	7,153			397	$ 89,922,000		$ 134,883,000	$ 224,805,000	$ (29,541,000)	$ 195,264,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Total Commercial		1,190,000			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Residential - Cumulative Values					2,063	$ 466,288,000		$ 699,434,000	$ 1,165,722,000	$ (152,819,000)	$ 1,012,903,000
Commercial - Cumulative Values					92,000			$ 18,400,000	$ 20,700,000	$ -	$ 20,700,000
Total - Cumulative Value						$ 466,288,000		$ 717,834,000	$ 1,186,422,000	$ (152,819,000)	$ 1,033,603,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues					Year 7						
Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	2	$ 966,000	$ 825,000	$ 1,448,000	$ 2,414,000	$ (132,000)	$ 2,282,000
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,220,000	$ 675,000	$ 21,331,000	$ 35,551,000	$ (2,370,000)	$ 33,181,000
R-1	$800,000	1,083	$320,000	$800,000	61	$ 19,663,000	$ 480,000	$ 29,494,000	$ 49,157,000	$ (4,608,000)	$ 44,549,000
R-2	$612,500	1,431	$245,000	$612,500	81	$ 19,786,000	$ 367,500	$ 29,678,000	$ 49,464,000	$ (6,057,000)	$ 43,407,000
R-3	$450,000	1,575	$180,000	$450,000	89	$ 15,958,000	$ 270,000	$ 23,938,000	$ 39,896,000	$ (6,649,000)	$ 33,247,000
R-4	$375,000	2,106	$150,000	$375,000	126	$ 18,829,000	$ 225,000	$ 28,243,000	$ 47,072,000	$ (9,414,000)	$ 37,658,000
Multi-family	$250,000	379	$100,000	$250,000	7	$ 702,000	$ 150,000	$ 1,053,000	$ 1,755,000	$ (353,000)	$ 1,402,000
Total Residential	$557,086	7,153			397	$ 90,124,000		$ 135,185,000	$ 225,309,000	$ (29,583,000)	$ 195,726,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Total Commercial		1,190,000			23,000			$ 4,600,000	$ 5,175,000	$ -	$ 5,175,000
Residential - Cumulative Values					2,459	$ 556,412,000		$ 834,619,000	$ 1,391,031,000	$ (182,402,000)	$ 1,208,629,000
Commercial - Cumulative Values					115,000			$ 23,000,000	$ 25,875,000	$ -	$ 25,875,000
Total - Cumulative Value						$ 556,412,000		$ 857,619,000	$ 1,416,906,000	$ (182,402,000)	$ 1,234,504,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 8 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	39	$ 17,550,000	$ 675,000	$ 26,325,000	$ 43,875,000	$ (2,925,000)	$ 40,950,000
R-1	$800,000	1,083	$320,000	$800,000	69	$ 22,191,000	$ 480,000	$ 33,286,000	$ 55,477,000	$ (5,201,000)	$ 50,276,000
R-2	$612,500	1,431	$245,000	$612,500	92	$ 22,581,000	$ 367,500	$ 33,872,000	$ 56,453,000	$ (6,913,000)	$ 49,540,000
R-3	$450,000	1,575	$180,000	$450,000	102	$ 18,328,000	$ 270,000	$ 27,493,000	$ 45,821,000	$ (7,637,000)	$ 38,184,000
R-4	$375,000	2,106	$150,000	$375,000	168	$ 25,149,000	$ 225,000	$ 37,723,000	$ 62,872,000	$ (12,574,000)	$ 50,298,000
Multi-family	$250,000	379	$100,000	$250,000	45	$ 4,477,000	$ 150,000	$ 6,715,000	$ 11,192,000	$ (2,250,000)	$ 8,942,000
Total Residential	$557,086	7,153			515	$ 110,276,000		$ 165,414,000	$ 275,690,000	$ (37,500,000)	$ 238,190,000
Commercial:											
VC/MU		522,300			36,500			$ 7,300,000	$ 8,212,500	$ -	$ 8,212,500
RE		667,700			38,500			$ 7,700,000	$ 8,662,500	$ -	$ 8,662,500
Total Commercial		1,190,000			75,000			$ 15,000,000	$ 16,875,000	$ -	$ 16,875,000
Residential - Cumulative Values					2,974	$ 666,688,000		$ 1,000,033,000	$ 1,666,721,000	$ (219,902,000)	$ 1,446,819,000
Commercial - Cumulative Values					190,000			$ 38,000,000	$ 42,750,000	$ -	$ 42,750,000
Total - Cumulative Value						$ 666,688,000		$ 1,038,033,000	$ 1,709,471,000	$ (219,902,000)	$ 1,489,569,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 9 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	39	$ 17,550,000	$ 675,000	$ 26,325,000	$ 43,875,000	$ (2,925,000)	$ 40,950,000
R-1	$800,000	1,083	$320,000	$800,000	69	$ 22,191,000	$ 480,000	$ 33,286,000	$ 55,477,000	$ (5,201,000)	$ 50,276,000
R-2	$612,500	1,431	$245,000	$612,500	92	$ 22,581,000	$ 367,500	$ 33,872,000	$ 56,453,000	$ (6,913,000)	$ 49,540,000
R-3	$450,000	1,575	$180,000	$450,000	102	$ 18,328,000	$ 270,000	$ 27,493,000	$ 45,821,000	$ (7,637,000)	$ 38,184,000
R-4	$375,000	2,106	$150,000	$375,000	168	$ 25,149,000	$ 225,000	$ 37,723,000	$ 62,872,000	$ (12,574,000)	$ 50,298,000
Multi-family	$250,000	379	$100,000	$250,000	45	$ 4,477,000	$ 150,000	$ 6,715,000	$ 11,192,000	$ (2,250,000)	$ 8,942,000
Total Residential	$557,086	7,153			515	$ 110,276,000		$ 165,414,000	$ 275,690,000	$ (37,500,000)	$ 238,190,000
Commercial:											
VC/MU		522,300			36,500			$ 7,300,000	$ 8,212,500	$ -	$ 8,212,500
RE		667,700			38,500			$ 7,700,000	$ 8,662,500	$ -	$ 8,662,500
Total Commercial		1,190,000			75,000			$ 15,000,000	$ 16,875,000	$ -	$ 16,875,000
Residential - Cumulative Values					3,489	$ 776,964,000		$ 1,165,447,000	$ 1,942,411,000	$ (257,402,000)	$ 1,685,009,000
Commercial - Cumulative Values					265,000			$ 53,000,000	$ 59,625,000	$ -	$ 59,625,000
Total - Cumulative Value						$ 776,964,000		$ 1,218,447,000	$ 2,002,036,000	$ (257,402,000)	$ 1,744,634,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 10 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	39	$ 17,550,000	$ 675,000	$ 26,325,000	$ 43,875,000	$ (2,925,000)	$ 40,950,000
R-1	$800,000	1,083	$320,000	$800,000	69	$ 22,191,000	$ 480,000	$ 33,286,000	$ 55,477,000	$ (5,201,000)	$ 50,276,000
R-2	$612,500	1,431	$245,000	$612,500	92	$ 22,581,000	$ 367,500	$ 33,872,000	$ 56,453,000	$ (6,913,000)	$ 49,540,000
R-3	$450,000	1,575	$180,000	$450,000	102	$ 18,328,000	$ 270,000	$ 27,493,000	$ 45,821,000	$ (7,637,000)	$ 38,184,000
R-4	$375,000	2,106	$150,000	$375,000	168	$ 25,149,000	$ 225,000	$ 37,723,000	$ 62,872,000	$ (12,574,000)	$ 50,298,000
Multi-family	$250,000	379	$100,000	$250,000	45	$ 4,477,000	$ 150,000	$ 6,715,000	$ 11,192,000	$ (2,250,000)	$ 8,942,000
Total Residential	$557,086	7,153			515	$ 110,276,000		$ 165,414,000	$ 275,690,000	$ (37,500,000)	$ 238,190,000
Commercial:											
VC/MU		522,300			36,500			$ 7,300,000	$ 8,212,500	$ -	$ 8,212,500
RE		667,700			38,500			$ 7,700,000	$ 8,662,500	$ -	$ 8,662,500
Total Commercial		1,190,000			75,000			$ 15,000,000	$ 16,875,000	$ -	$ 16,875,000
Residential - Cumulative Values					4,004	$ 887,240,000		$ 1,330,861,000	$ 2,218,101,000	$ (294,902,000)	$ 1,923,199,000
Commercial - Cumulative Values					340,000			$ 68,000,000	$ 76,500,000	$ -	$ 76,500,000
Total - Cumulative Value						$ 887,240,000		$ 1,398,861,000	$ 2,294,601,000	$ (294,902,000)	$ 1,999,699,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 11 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	39	$ 17,550,000	$ 675,000	$ 26,325,000	$ 43,875,000	$ (2,925,000)	$ 40,950,000
R-1	$800,000	1,083	$320,000	$800,000	69	$ 22,191,000	$ 480,000	$ 33,286,000	$ 55,477,000	$ (5,201,000)	$ 50,276,000
R-2	$612,500	1,431	$245,000	$612,500	92	$ 22,581,000	$ 367,500	$ 33,872,000	$ 56,453,000	$ (6,913,000)	$ 49,540,000
R-3	$450,000	1,575	$180,000	$450,000	102	$ 18,328,000	$ 270,000	$ 27,493,000	$ 45,821,000	$ (7,637,000)	$ 38,184,000
R-4	$375,000	2,106	$150,000	$375,000	168	$ 25,149,000	$ 225,000	$ 37,723,000	$ 62,872,000	$ (12,574,000)	$ 50,298,000
Multi-family	$250,000	379	$100,000	$250,000	45	$ 4,477,000	$ 150,000	$ 6,715,000	$ 11,192,000	$ (2,250,000)	$ 8,942,000
Total Residential	$557,086	7,153			515	$ 110,276,000		$ 165,414,000	$ 275,690,000	$ (37,500,000)	$ 238,190,000
Commercial:											
VC/MU		522,300			36,500			$ 7,300,000	$ 8,212,500	$ -	$ 8,212,500
RE		667,700			38,500			$ 7,700,000	$ 8,662,500	$ -	$ 8,662,500
Total Commercial		1,190,000			75,000			$ 15,000,000	$ 16,875,000	$ -	$ 16,875,000
Residential - Cumulative Values					4,519	$ 997,516,000		$ 1,496,275,000	$ 2,493,791,000	$ (332,402,000)	$ 2,161,389,000
Commercial - Cumulative Values					415,000			$ 83,000,000	$ 93,375,000	$ -	$ 93,375,000
Total - Cumulative Value						$ 997,516,000		$ 1,579,275,000	$ 2,587,166,000	$ (332,402,000)	$ 2,254,764,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 12 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	39	$ 17,550,000	$ 675,000	$ 26,325,000	$ 43,875,000	$ (2,925,000)	$ 40,950,000
R-1	$800,000	1,083	$320,000	$800,000	69	$ 22,191,000	$ 480,000	$ 33,286,000	$ 55,477,000	$ (5,201,000)	$ 50,276,000
R-2	$612,500	1,431	$245,000	$612,500	91	$ 22,295,000	$ 367,500	$ 33,443,000	$ 55,738,000	$ (6,825,000)	$ 48,913,000
R-3	$450,000	1,575	$180,000	$450,000	102	$ 18,328,000	$ 270,000	$ 27,493,000	$ 45,821,000	$ (7,637,000)	$ 38,184,000
R-4	$375,000	2,106	$150,000	$375,000	169	$ 25,350,000	$ 225,000	$ 38,025,000	$ 63,375,000	$ (12,675,000)	$ 50,700,000
Multi-family	$250,000	379	$100,000	$250,000	45	$ 4,477,000	$ 150,000	$ 6,715,000	$ 11,192,000	$ (2,250,000)	$ 8,942,000
Total Residential	$557,086	7,153			515	$ 110,191,000		$ 165,287,000	$ 275,478,000	$ (37,513,000)	$ 237,965,000
Commercial:											
VC/MU		522,300			36,500			$ 7,300,000	$ 8,212,500	$ -	$ 8,212,500
RE		667,700			38,500			$ 7,700,000	$ 8,662,500	$ -	$ 8,662,500
Total Commercial		1,190,000			75,000			$ 15,000,000	$ 16,875,000	$ -	$ 16,875,000
Residential - Cumulative Values					5,034	$ 1,107,707,000		$ 1,661,562,000	$ 2,769,269,000	$ (369,915,000)	$ 2,399,354,000
Commercial - Cumulative Values					490,000			$ 98,000,000	$ 110,250,000	$ -	$ 110,250,000
Total - Cumulative Value						$ 1,107,707,000		$ 1,759,562,000	$ 2,879,519,000	$ (369,915,000)	$ 2,509,604,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 13 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,220,000	$ 675,000	$ 21,331,000	$ 35,551,000	$ (2,370,000)	$ 33,181,000
R-1	$800,000	1,083	$320,000	$800,000	59	$ 18,820,000	$ 480,000	$ 28,230,000	$ 47,050,000	$ (4,411,000)	$ 42,639,000
R-2	$612,500	1,431	$245,000	$612,500	78	$ 19,140,000	$ 367,500	$ 28,711,000	$ 47,851,000	$ (5,859,000)	$ 41,992,000
R-3	$450,000	1,575	$180,000	$450,000	86	$ 15,484,000	$ 270,000	$ 23,227,000	$ 38,711,000	$ (6,452,000)	$ 32,259,000
R-4	$375,000	2,106	$150,000	$375,000	107	$ 16,064,000	$ 225,000	$ 24,096,000	$ 40,160,000	$ (8,032,000)	$ 32,128,000
Multi-family	$250,000	379	$100,000	$250,000	14	$ 1,400,000	$ 150,000	$ 2,100,000	$ 3,500,000	$ (704,000)	$ 2,796,000
Total Residential	$557,086	7,153			376	$ 85,128,000		$ 127,695,000	$ 212,823,000	$ (27,828,000)	$ 184,995,000
Commercial:											
VC/MU		522,300			57,300			$ 11,460,000	$ 12,892,500	$ -	$ 12,892,500
RE		667,700			55,400			$ 11,080,000	$ 12,465,000	$ -	$ 12,465,000
Total Commercial		1,190,000			112,700			$ 22,540,000	$ 25,357,500	$ -	$ 25,357,500
Residential - Cumulative Values					5,409	$ 1,192,835,000		$ 1,789,257,000	$ 2,982,092,000	$ (397,743,000)	$ 2,584,349,000
Commercial - Cumulative Values					602,700			$ 120,540,000	$ 135,607,500	$ -	$ 135,607,500
Total - Cumulative Value						$ 1,192,835,000		$ 1,909,797,000	$ 3,117,699,500	$ (397,743,000)	$ 2,719,956,500

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 14 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	30	$ 13,500,000	$ 675,000	$ 20,250,000	$ 33,750,000	$ (2,250,000)	$ 31,500,000
R-1	$800,000	1,083	$320,000	$800,000	59	$ 18,820,000	$ 480,000	$ 28,230,000	$ 47,050,000	$ (4,411,000)	$ 42,639,000
R-2	$612,500	1,431	$245,000	$612,500	78	$ 19,140,000	$ 367,500	$ 28,711,000	$ 47,851,000	$ (5,859,000)	$ 41,992,000
R-3	$450,000	1,575	$180,000	$450,000	86	$ 15,484,000	$ 270,000	$ 23,227,000	$ 38,711,000	$ (6,452,000)	$ 32,259,000
R-4	$375,000	2,106	$150,000	$375,000	107	$ 16,064,000	$ 225,000	$ 24,096,000	$ 40,160,000	$ (8,032,000)	$ 32,128,000
Multi-family	$250,000	379	$100,000	$250,000	17	$ 1,668,000	$ 150,000	$ 2,502,000	$ 4,170,000	$ (838,000)	$ 3,332,000
Total Residential	$557,086	7,153			377	$ 84,676,000		$ 127,016,000	$ 211,692,000	$ (27,842,000)	$ 183,850,000
Commercial:											
VC/MU		522,300			53,100			$ 10,620,000	$ 11,947,500	$ -	$ 11,947,500
RE		667,700			51,300			$ 10,260,000	$ 11,542,500	$ -	$ 11,542,500
Total Commercial		1,190,000			104,400			$ 20,880,000	$ 23,490,000	$ -	$ 23,490,000
Residential - Cumulative Values					5,786	$ 1,277,511,000		$ 1,916,273,000	$ 3,193,784,000	$ (425,585,000)	$ 2,768,199,000
Commercial - Cumulative Values					707,100			$ 141,420,000	$ 159,097,500	$ -	$ 159,097,500
Total - Cumulative Value						$ 1,277,511,000		$ 2,057,693,000	$ 3,352,881,500	$ (425,585,000)	$ 2,927,296,500

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues		Total			Year 15						
Product Type	Average Home Value (1)	Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,220,000	$ 675,000	$ 21,331,000	$ 35,551,000	$ (2,370,000)	$ 33,181,000
R-1	$800,000	1,083	$320,000	$800,000	59	$ 18,820,000	$ 480,000	$ 28,230,000	$ 47,050,000	$ (4,411,000)	$ 42,639,000
R-2	$612,500	1,431	$245,000	$612,500	78	$ 19,140,000	$ 367,500	$ 28,711,000	$ 47,851,000	$ (5,859,000)	$ 41,992,000
R-3	$450,000	1,575	$180,000	$450,000	86	$ 15,484,000	$ 270,000	$ 23,227,000	$ 38,711,000	$ (6,452,000)	$ 32,259,000
R-4	$375,000	2,106	$150,000	$375,000	107	$ 16,064,000	$ 225,000	$ 24,096,000	$ 40,160,000	$ (8,032,000)	$ 32,128,000
Multi-family	$250,000	379	$100,000	$250,000	17	$ 1,668,000	$ 150,000	$ 2,502,000	$ 4,170,000	$ (838,000)	$ 3,332,000
Total Residential	$557,086	7,153			378	$ 85,396,000		$ 128,097,000	$ 213,493,000	$ (27,962,000)	$ 185,531,000
Commercial:											
VC/MU		522,300			53,100			$ 10,620,000	$ 11,947,500	$ -	$ 11,947,500
RE		667,700			51,300			$ 10,260,000	$ 11,542,500	$ -	$ 11,542,500
Total Commercial		1,190,000			104,400			$ 20,880,000	$ 23,490,000	$ -	$ 23,490,000
Residential - Cumulative Values					6,164	$ 1,362,907,000		$ 2,044,370,000	$ 3,407,277,000	$ (453,547,000)	$ 2,953,730,000
Commercial - Cumulative Values					811,500			$ 162,300,000	$ 182,587,500	$ -	$ 182,587,500
Total - Cumulative Value						$ 1,362,907,000		$ 2,206,670,000	$ 3,589,864,500	$ (453,547,000)	$ 3,136,317,500

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 16 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,220,000	$ 675,000	$ 21,331,000	$ 35,551,000	$ (2,370,000)	$ 33,181,000
R-1	$800,000	1,083	$320,000	$800,000	59	$ 18,820,000	$ 480,000	$ 28,230,000	$ 47,050,000	$ (4,411,000)	$ 42,639,000
R-2	$612,500	1,431	$245,000	$612,500	78	$ 19,140,000	$ 367,500	$ 28,711,000	$ 47,851,000	$ (5,859,000)	$ 41,992,000
R-3	$450,000	1,575	$180,000	$450,000	86	$ 15,484,000	$ 270,000	$ 23,227,000	$ 38,711,000	$ (6,452,000)	$ 32,259,000
R-4	$375,000	2,106	$150,000	$375,000	107	$ 16,064,000	$ 225,000	$ 24,096,000	$ 40,160,000	$ (8,032,000)	$ 32,128,000
Multi-family	$250,000	379	$100,000	$250,000	12	$ 1,200,000	$ 150,000	$ 1,800,000	$ 3,000,000	$ (603,000)	$ 2,397,000
Total Residential	$557,086	7,153			374	$ 84,928,000		$ 127,395,000	$ 212,323,000	$ (27,727,000)	$ 184,596,000
Commercial:											
VC/MU		522,300			53,100			$ 10,620,000	$ 11,947,500	$ -	$ 11,947,500
RE		667,700			51,300			$ 10,260,000	$ 11,542,500	$ -	$ 11,542,500
Total Commercial		1,190,000			104,400			$ 20,880,000	$ 23,490,000	$ -	$ 23,490,000
Residential - Cumulative Values					6,538	$ 1,447,835,000		$ 2,171,765,000	$ 3,619,600,000	$ (481,274,000)	$ 3,138,326,000
Commercial - Cumulative Values					915,900			$ 183,180,000	$ 206,077,500	$ -	$ 206,077,500
Total - Cumulative Value						$ 1,447,835,000		$ 2,354,945,000	$ 3,825,677,500	$ (481,274,000)	$ 3,344,403,500

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 17 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	32	$ 14,220,000	$ 675,000	$ 21,331,000	$ 35,551,000	$ (2,370,000)	$ 33,181,000
R-1	$800,000	1,083	$320,000	$800,000	59	$ 18,820,000	$ 480,000	$ 28,230,000	$ 47,050,000	$ (4,411,000)	$ 42,639,000
R-2	$612,500	1,431	$245,000	$612,500	78	$ 19,140,000	$ 367,500	$ 28,711,000	$ 47,851,000	$ (5,859,000)	$ 41,992,000
R-3	$450,000	1,575	$180,000	$450,000	86	$ 15,484,000	$ 270,000	$ 23,227,000	$ 38,711,000	$ (6,452,000)	$ 32,259,000
R-4	$375,000	2,106	$150,000	$375,000	107	$ 16,064,000	$ 225,000	$ 24,096,000	$ 40,160,000	$ (8,032,000)	$ 32,128,000
Multi-family	$250,000	379	$100,000	$250,000	12	$ 1,200,000	$ 150,000	$ 1,800,000	$ 3,000,000	$ (603,000)	$ 2,397,000
Total Residential	$557,086	7,153			374	$ 84,928,000		$ 127,395,000	$ 212,323,000	$ (27,727,000)	$ 184,596,000
Commercial:											
VC/MU		522,300			53,100			$ 10,620,000	$ 11,947,500	$ -	$ 11,947,500
RE		667,700			51,300			$ 10,260,000	$ 11,542,500	$ -	$ 11,542,500
Total Commercial		1,190,000			104,400			$ 20,880,000	$ 23,490,000	$ -	$ 23,490,000
Residential - Cumulative Values					6,912	$ 1,532,763,000		$ 2,299,160,000	$ 3,831,923,000	$ (509,001,000)	$ 3,322,922,000
Commercial - Cumulative Values					1,020,300			$ 204,060,000	$ 229,567,500	$ -	$ 229,567,500
Total - Cumulative Value						$ 1,532,763,000		$ 2,503,220,000	$ 4,061,490,500	$ (509,001,000)	$ 3,552,489,500

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues					Year 18						
Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	8	$ 3,600,000	$ 675,000	$ 5,400,000	$ 9,000,000	$ (600,000)	$ 8,400,000
R-1	$800,000	1,083	$320,000	$800,000	19	$ 6,180,000	$ 480,000	$ 9,270,000	$ 15,450,000	$ (1,448,000)	$ 14,002,000
R-2	$612,500	1,431	$245,000	$612,500	25	$ 6,237,000	$ 367,500	$ 9,355,000	$ 15,592,000	$ (1,909,000)	$ 13,683,000
R-3	$450,000	1,575	$180,000	$450,000	28	$ 5,056,000	$ 270,000	$ 7,584,000	$ 12,640,000	$ (2,107,000)	$ 10,533,000
R-4	$375,000	2,106	$150,000	$375,000	0	$ -	$ 225,000	$ -	$ -	$ -	$ -
Multi-family	$250,000	379	$100,000	$250,000	0	$ -	$ 150,000	$ -	$ -	$ -	$ -
Total Residential	$557,086	7,153			81	$ 21,073,000		$ 31,609,000	$ 52,682,000	$ (6,064,000)	$ 46,618,000
Commercial:											
VC/MU		522,300			44,600			$ 8,920,000	$ 10,035,000	$ -	$ 10,035,000
RE		667,700			49,800			$ 9,960,000	$ 11,205,000	$ -	$ 11,205,000
Total Commercial		1,190,000			94,400			$ 18,880,000	$ 21,240,000	$ -	$ 21,240,000
Residential - Cumulative Values					6,992	$ 1,553,836,000		$ 2,330,769,000	$ 3,884,605,000	$ (515,065,000)	$ 3,369,540,000
Commercial - Cumulative Values					1,114,700			$ 222,940,000	$ 250,807,500	$ -	$ 250,807,500
Total - Cumulative Value						$ 1,553,836,000		$ 2,553,709,000	$ 4,135,412,500	$ (515,065,000)	$ 3,620,347,500

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 19 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	8	$ 3,600,000	$ 675,000	$ 5,400,000	$ 9,000,000	$ (600,000)	$ 8,400,000
R-1	$800,000	1,083	$320,000	$800,000	19	$ 6,180,000	$ 480,000	$ 9,270,000	$ 15,450,000	$ (1,448,000)	$ 14,002,000
R-2	$612,500	1,431	$245,000	$612,500	25	$ 6,237,000	$ 367,500	$ 9,355,000	$ 15,592,000	$ (1,909,000)	$ 13,683,000
R-3	$450,000	1,575	$180,000	$450,000	28	$ 5,056,000	$ 270,000	$ 7,584,000	$ 12,640,000	$ (2,107,000)	$ 10,533,000
R-4	$375,000	2,106	$150,000	$375,000	0	$ -	$ 225,000	$ -	$ -	$ -	$ -
Multi-family	$250,000	379	$100,000	$250,000	0	$ -	$ 150,000	$ -	$ -	$ -	$ -
Total Residential	$557,086	7,153			81	$ 21,073,000		$ 31,609,000	$ 52,682,000	$ (6,064,000)	$ 46,618,000
Commercial:											
VC/MU		522,300			25,500			$ 5,100,000	$ 5,737,500	$ -	$ 5,737,500
RE		667,700			49,800			$ 9,960,000	$ 11,205,000	$ -	$ 11,205,000
Total Commercial		1,190,000			75,300			$ 15,060,000	$ 16,942,500	$ -	$ 16,942,500
Residential - Cumulative Values					7,073	$ 1,574,909,000		$ 2,362,378,000	$ 3,937,287,000	$ (521,129,000)	$ 3,416,158,000
Commercial - Cumulative Values					1,190,000			$ 238,000,000	$ 267,750,000	$ -	$ 267,750,000
Total - Cumulative Value						$ 1,574,909,000		$ 2,600,378,000	$ 4,205,037,000	$ (521,129,000)	$ 3,683,908,000

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 20 Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0	$ -	$ 825,000				
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	8	$ 3,600,000	$ 675,000	$ 5,400,000	$ 9,000,000	$ (600,000)	$ 8,400,000
R-1	$800,000	1,083	$320,000	$800,000	19	$ 6,180,000	$ 480,000	$ 9,270,000	$ 15,450,000	$ (1,448,000)	$ 14,002,000
R-2	$612,500	1,431	$245,000	$612,500	25	$ 6,237,000	$ 367,500	$ 9,355,000	$ 15,592,000	$ (1,909,000)	$ 13,683,000
R-3	$450,000	1,575	$180,000	$450,000	27	$ 4,860,000	$ 270,000	$ 7,290,000	$ 12,150,000	$ (2,025,000)	$ 10,125,000
R-4	$375,000	2,106	$150,000	$375,000	0	$ -	$ 225,000	$ -	$ -	$ -	$ -
Multi-family	$250,000	379	$100,000	$250,000	0	$ -	$ 150,000	$ -	$ -	$ -	$ -
Total Residential	$557,086	7,153			80	$ 20,877,000		$ 31,315,000	$ 52,192,000	$ (5,982,000)	$ 46,210,000
Commercial:											
VC/MU		522,300			0			$ -	$ -	$ -	$ -
RE		667,700			0			$ -	$ -	$ -	$ -
Total Commercial		1,190,000			0			$ -	$ -	$ -	$ -
Residential - Cumulative Values					7,153	$ 1,595,786,000		$ 2,393,693,000	$ 3,989,479,000	$ (527,111,000)	$ 3,462,368,000
Commercial - Cumulative Values					1,190,000			$ 238,000,000	$ 267,750,000	$ -	$ 267,750,000
Total - Cumulative Value						$ 1,595,786,000		$ 2,631,693,000	$ 4,257,229,000	$ (527,111,000)	$ 3,730,118,000

Notes: Projected property values round to the nearest $1,000. Projected property tax revenues rounded to the nearest $100.

(1) The anticipated lot price and average home value for each residetial product type was provided by the developer. (2) Estimated value of the residential improvements per lot is the average home value minus the lot price for each residential housing product. (3) The analysis assumes that the $75,000 homeowners property tax exemption applies to all of the projected number of single-family residential housing units and to two-thirds of the multi-family housing units.

M3 Eagle Development: Detail of Projected Property Tax Revenues

M3 - Eagle Development: Projected Property Tax Revenues Product Type	Average Home Value (1)	Total Residential Lots or Comm. Sq. Ft.	Lot Price (1)	Average Home Value (1)	Year 21+ Residential Lot Sales or Comm. Sq. Ft.	Total Valuation Lot Sales	Est. Value of Improvements Per Lot (2)	Total Value of Improvements	Total Value of Lot & Improvements	Total (3) Non-Taxable Property Value	Total Property Tax Valuation
Residential:											
AR	$1,375,000	5	$550,000	$1,375,000	0						
RE - Residential Estates	$1,125,000	574	$450,000	$1,125,000	0	$ -	$ 55,157,000	$ -	$ -	$ -	$ -
R-1	$800,000	1,083	$320,000	$800,000	0	$ -	$ 110,346,000	$ -	$ -	$ -	$ -
R-2	$612,500	1,431	$245,000	$612,500	0	$ -	$ 34,539,500	$ -	$ -	$ -	$ -
R-3	$450,000	1,575	$180,000	$450,000	0	$ -	$ 98,694,000	$ -	$ -	$ -	$ -
R-4	$375,000	2,106	$150,000	$375,000	0	$ -	$ 83,621,000	$ -	$ -	$ -	$ -
Multi-family	$250,000	379	$100,000	$250,000	0	$ -	$ 127,449,000	$ -	$ -	$ -	$ -
Total Residential	$557,086	7,153			0	$ -		$ -	$ -	$ -	$ -
Commercial:											
VC/MU		522,300			0						
RE		667,700			0						
Total Commercial		1,190,000									
Residential - Cumulative Values					7,153	$ 1,595,786,000		$ 2,393,693,000	$ 3,989,479,000	$ (527,111,000)	$ 3,462,368,000
Commercial - Cumulative Values					1,190,000			$ 238,000,000	$ 267,750,000	$ -	$ 267,750,000
Total - Cumulative Value						$ 1,595,786,000		$ 2,631,693,000	$ 4,257,229,000	$ (527,111,000)	$ 3,730,118,000

The Change in Property Tax Revenues in the "Zero Year": A Comparison of the Assessed Value per Acre of Selected Parcels in the M3-Eagle Development Area versus "Bare Land" Parcels in North Meridian that are Facing Imminent Development but Have Not Begun Construction

Parcel #	Acres	Classification	Assessed Valuation	Assessed Value per Acre
Selected Land Parcels within Proposed M3-Eagle Development:				
S0327130000	160.000	Agriculture	$6,800	$43
S0328449250	29.451	Agriculture	91,200	3,097
S0334240000	40.000	Agriculture	33,100	828
S0333142322	44.080	Agriculture	24,700	560
S0326220000	40.000	Agriculture	1,700	43
S0334120800	21.590	Agriculture	900	42
S0327311100	120.000	Agriculture	5,100	43
S0326336200	20.500	Agriculture	12,200	595
Total/Average	**475.621**		**$175,700**	**$369**
Selected "Bare Land" Parcels in North Meridian Facing Imminent Development:				
S0426336040	15.293	Bare Land	1,065,900	$69,699
S0425142110	5.000	Bare Land	348,500	69,700
S0425311500	10.668	Bare Land	743,600	69,704
R1002730100	10.060	Bare Land	905,400	90,000
Total/Average	**41.021**		**$3,063,400**	**$74,679**

M3-Eagle Development Estimated "Year Zero" Change in Property Tax Revenues: Change in Property Tax Revenues and Land Value from a Agriculture Classification to Land Facing Imminent Development

Comparative Value of 200 Acres:

Value of 200 Acres Assessed at $370 / Acre	$74,000
Value of 200 Acres Assessed at $74,700 / Acre	$14,940,000
Difference in Assessed Value	$14,866,000

Estimated Change in Property Tax Revenues Using 2005 Levy Rates:

City of Eagle	0.001008173	.....	$14,987
Ada County	0.002834671	.....	42,140
Meridian School District #2	0.006553372	.....	97,422
Eagle Fire District	0.001081546	.....	16,078
Ada County EMS	0.000120598	.....	1,793
Ada County Highway District	0.001010326	.....	15,020

* The "Zero Year" - Prior to the construction of residential or commercial buildings the land under development has often ceased to be used for agriculture as site preparation activities and the addition of utility and roadway infrastructure is undertaken. When the land's agricultural use ceases it is reclassified, often as "Bare Land", and reassessed. The above sampling of land parcels from the area of the proposed M3-Eagle development and of "Bare Land" parcels in north Meridian that are facing immenient development reflect the potential change in value. That higher assessed value produces an increase in property tax revenues from the land prior to any additional population or employment on the land.

41

DEVELOPMENT OF A NUMERICAL GROUND WATER FLOW MODEL FOR THE M3 EAGLE DEVELOPMENT AREA NEAR EAGLE, IDAHO

A Thesis

Presented in Partial Fulfillment of the Requirements for the

Degree of Master of Science

With a

Major in Hydrology

In the

College of Graduate Studies

University of Idaho

by

Stacey L. Douglas

December 2007

Major Professor: Dr. James L. Osiensky, Ph.D.

M3 EAGLE LLC
EXHIBIT
– 41

AUTHORIZATION TO SUBMIT

THESIS

This thesis of Stacey L. Douglas, submitted for the degree of Master of Science with a major in Hydrology and titled "Development of a Numerical Ground Water Flow Model for the M3 Eagle Development Area Near Eagle, Idaho," has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies to the College of Graduate Studies for approval.

Major Professor _____ Date_____
Dr. James L. Osiensky, Ph. D.

Committee Members _____ Date_____
Dr. Gary S. Johnson, Ph. D.

_____ Date_____
Dr. Karen S. Humes, Ph. D.

Department Administrator _____ Date_____
Dr. Mickey Gunter, Ph.D.

Discipline's College Dean _____ Date_____
Dr. Scott A. Wood, Ph.D.

Final approval and acceptance by the College of Graduate Studies

_____ Date_____
Dr. Margrit C. von Braun, Ph.D.

ABSTRACT

M3 Eagle, LLC of Eagle, Idaho has proposed the development a master-planned, community encompassing 6,005 acres in the Eagle foothills north of Eagle and Star, Idaho. Currently (12/2007) a maximum of 7,140 homes are planned for the community. It has been estimated that M3 Eagle would require a sustainable water supply of 7.5 million gallons per day at full development 30 years after building starts.

This MS thesis research is part of a larger hydrogeologic investigation currently being conducted for M3 Companies by Hydro Logic, Inc. (HLI) of Boise, Idaho. The current need is to develop a calibrated, three-dimensional, finite-difference, ground water flow model to help evaluate the ground water flow conditions postulated in a conceptual hydrogeologic model for the M3 Eagle area developed by Hydro Logic, Inc. The M3 Eagle Big Gulch Model was developed and constructed to simulate the regional, ground water flow conditions that exist within the model domain between the Boise River valley and the Payette River valley. This modeling study was funded by M3 Companies of Phoenix, Arizona, and was completed with the cooperation and assistance of Hydro Logic, Inc.

The M3 Eagle Big Gulch Model was constructed with the code MODFLOW-2000™ in Visual MODFLOW™ Pro 4.2. The model consists of eight layers with two layers simulating the dipping Pierce Gulch Sand aquifer system. The hydraulic conductivity distributions were derived from aquifer test data, and values estimated from well logs and textbook ranges for specific lithologies. Ground water recharge was estimated based on (1) land-use maps, (2) potential recharge from precipitation, (3) potential irrigation applications based on irrigation water rights, and (4) potential wastewater discharges to domestic septic systems. Ground water discharges were estimated based on water rights

information for domestic wells and large pumping entities such as municipal, irrigation, and commercial pumping.

The model was calibrated under "quasi-steady-state" conditions using a combination of trial-and-error manual calibration and automated parameter estimation using the code PEST™. After several simulations, the model was calibrated to water levels measured during the summer and fall 2006 by adjusting hydraulic conductivity and recharge values spatially throughout the model domain.

An attempt was made to calibrate a transient model to test the ability of the model to reproduce aquifer test results; however, the database proved to be inadequate to achieve model calibration for transient conditions.

The model is limited in its ability to simulate some of the conditions of ground water flow within the model domain. However, based on all of the information available to date for model input, the preliminary model results strongly support the conceptual model developed by HLI that ground water flows from the Boise River valley to the Payette River valley through much of the lower Boise River valley and the southern half of the M3 Eagle property.

ACKNOWLEDGEMENTS

I would like to thank everyone who has helped with the completion of this degree. I would like to first express a very special thanks to my major professor, Dr. Jim Osiensky, for providing me with the opportunity to complete this project for my thesis work and for all the guidance, support, and advice along the way. I would also like to thank my other committee members, Dr. Gary Johnson and Dr. Karen Humes, for their advice and contributions as well as for reviewing my thesis manuscript. Thank you to Ed Squires of Hydro Logic, Inc. (HLI) for providing me with the opportunity to work on the modeling project and for aiding tremendously with my data collection for the model. Thanks also to Loren Pearson, Susan Joy, Katie Rhode, and Mark Utting of HLI who collected and provided data for the project. I want to express my gratitude to M3 Companies for providing the funding for this project for my master's thesis. Appreciation also is extended to all of the private homeowners who allowed access to their wells for water level measurements. To my roommates, Seth, Alyssa, and Tysen for all of your support and motivation during the last stages of my master's work, my sincere thank you. Finally, I would like to express my appreciation to Blake for believing in me and providing me with support and encouragement from a distance.

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CHAPTER 1

INTRODUCTION

1.0 PURPOSE AND SCOPE

This thesis describes the development and construction of a computer-generated numerical model to simulate ground water flow over a rectangular area of approximately 700 mi^2 in the vicinity of Eagle, Idaho, and includes the Boise River and Payette River (hereinafter termed the M3 Eagle Big Gulch Model) (Figure 1). The general approach was to construct and calibrate a numerical model to simulate the ground water flow conditions that are believed to exist between the Boise River valley and the Payette River valley (hereinafter termed the "model domain"). The specific objectives of the study were to (1) define the model domain, (2) define the areal and vertical extents of the model domain, (3) describe the basic hydrogeologic conceptual model of ground water flow within the model domain, (4) define boundary conditions, (5) test the basic hydrogeologic conceptual model for the model domain, (6) calibrate the model by adjusting input parameters reasonably, and (7) use the model to evaluate possible effects related to increased ground water withdrawals related to changing land use practices within the model domain. This thesis documents hydrogeologic data required to develop the numerical model, provides descriptions of the aquifer systems, and describes the numerical model in terms of appropriate uses, limitations, and data requirements.

Funding for this investigation was provided by M3 Companies of Phoenix, Arizona; the investigation was completed in cooperation and with the assistance of Hydro Logic, Inc. (HLI) in Boise, Idaho. HLI developed the basic hydrogeologic conceptual model, and

provided detailed information and data on the hydrogeologic conditions that exist within the model domain. HLI provided water level data, well construction details, pumping information, and water rights information for many of the wells that exist within the model domain. HLI also supplied information on potential recharge within the model domain based on actual and estimated land use practices. Information needed for the model also was taken from the Idaho Department of Water Resources (IDWR) Online Ground Water Level Database, estimated from satellite imagery, and/or extrapolated from surrounding areas.

The primary purpose for the model was to provide a tool to help evaluate the present-day ground water flow conditions that exist within the model domain. The scale of the model, and the level of detail were intended to allow for simulations of ground water flow through the entire regional area. This study was designed as an extension of several previous investigations (discussed in section 1.2) conducted in the general area; however, some of these investigations provided conflicting interpretations of the hydrogeology within the model domain. In constructing the model, it was necessary to carefully consider and choose between some of the information reported by the previous investigations, as well as expand upon the information that was chosen. New data collected after August 21, 2007 was not included in this investigation.

1.1 DESCRIPTION OF STUDY AREA

The areal extent of the M3 Eagle Big Gulch Model domain, along the fringe of the Western Snake River Plain in southwestern Idaho, is shown in Figure 1. The Western Snake River Plain is approximately 70 km (43 mi) wide and 300 km (186 mi) long (Wood and Clemens, 2002); however, the model domain for the M3 Eagle Big Gulch Model only includes a specific area of the western plain. The model domain encompasses an area of

approximately 700 mi^2. The model domain incorporates the northern portion of the area included in the Treasure Valley model (Petrich, 2004), and extends north into the Payette River valley.

Within the model domain, land surface elevations range from about 2,250 ft in the Payette River valley to about 4,850 ft within the uplands area of the Idaho batholith near the eastern limits of the model. The climate is typically dry and temperate, and is characterized by cool, wet winters and warm, dry summers (Dion, 1972). A part of the winter precipitation is in the form of snow, but snow cover is characteristically thin and melts rapidly with more snowfall occurring in the higher elevations. Mean annual precipitation (1991-2000) for the model domain ranged from approximately 11 inches in the Boise River valley to about 27 inches in the Boise foothills.

The model domain includes an area east of the Snake River in southwestern Idaho including the Boise River and the Payette River. The northwestern corner of the model is just east of New Plymouth, Idaho. The northeastern corner of the model includes Horseshoebend, Idaho. The southwestern corner of the model is approximately six miles southwest of Caldwell, Idaho. The southeastern corner of the model includes the northwestern city limits of Boise, Idaho. Portions of the following counties exist within the model domain: (1) Payette, (2) Canyon, (3) Gem, (4) Ada, and (5) Boise counties. The main cities and towns that exist within the model domain are Eagle, Star, Emmett, Caldwell, part of Meridian, and part of Boise.

1.2 PREVIOUS INVESTIGATIONS

This section summarizes information from earlier studies conducted in areas within or near the model domain. The area of the model domain has been part of the study areas of

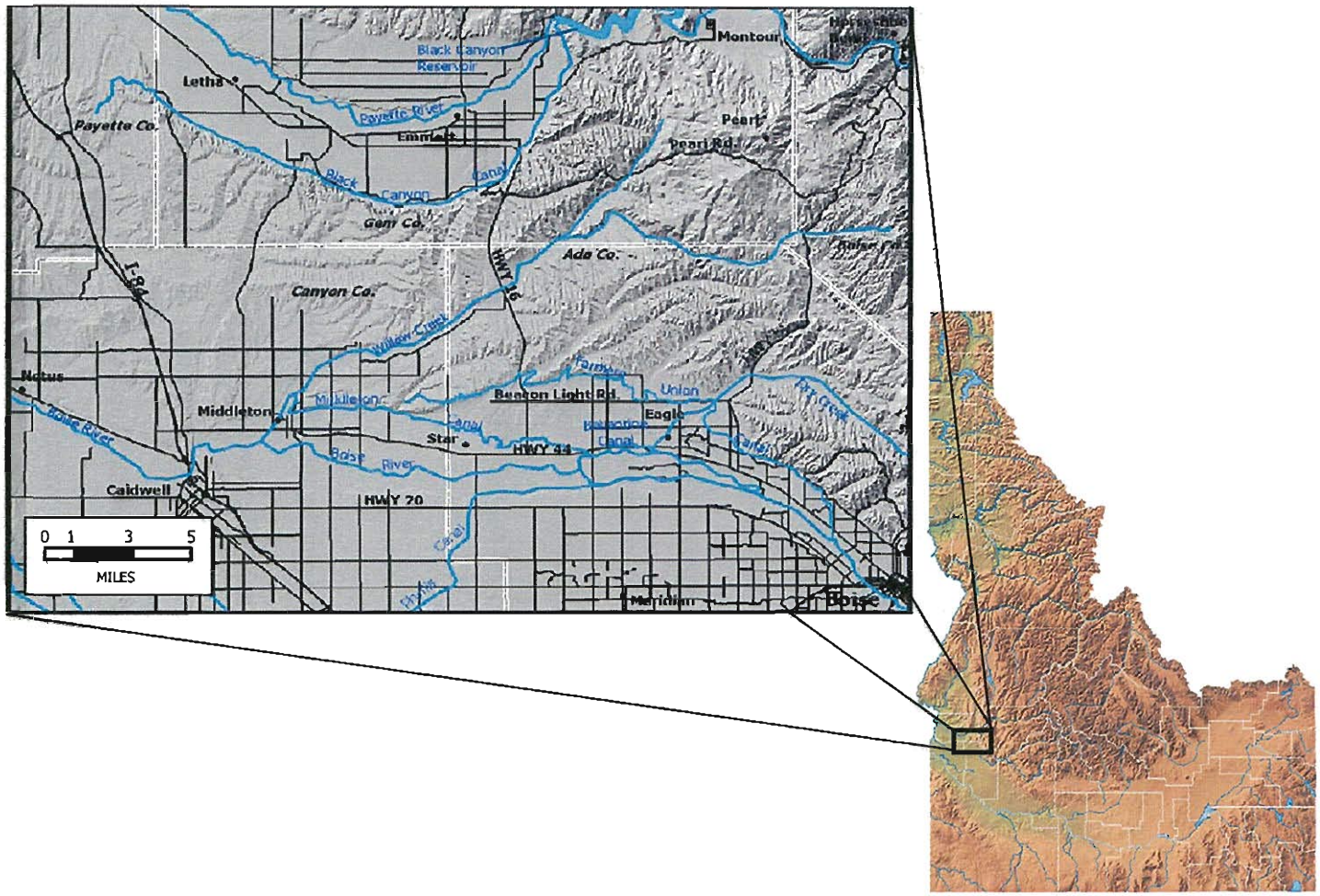


Figure 1. Map detailing the location of the M3 Eagle Big Gulch Model domain. The model domain is located in southwestern Idaho along the northern fringe of the Western Snake River Plain. Adapted from the U.S. Geological Survey (2006) and Geology.com.

several previous investigations; however, the model domain was not the primary focus of those investigations.

1.2.1 N. P. Dion

Dion (1972) described the effects of land use changes on the shallow ground water system in the Boise-Nampa area. He described the development of ground water in the area, the occurrence and distribution of aquifer units, the effects of land use changes between 1953 and 1970 on the shallow aquifer regimen, and hydrologic information to which present and future data can be compared. Increased recharge to shallow aquifers in 1970 relative to 1953 was expected to produce higher water levels; however, these results were not realized because they were masked by large seasonal changes in recharge, by large year-to-year fluctuations in the surface water diversions, and by the limiting effects of drains.

An observed increase in recharge to the shallow aquifer during the 1953-1970 period was the result of an increase in irrigated acreage over that period. Dion correctly predicted, over the long term, that agricultural land would decrease in acreage due to increases in urban development resulting in a corresponding reduction in the amount of recharge to shallow aquifers.

1.2.1 G. F. Lindholm

Lindholm (1981) outlined a plan by the USGS to begin a comprehensive study of the regional ground water system in the Snake River Plain. Figure 2 shows the study area. In the report, the objectives, approach, and plan of study were described. The purpose of the study was to refine knowledge of the regional ground water flow system, determine effects of conjunctive use of the ground and surface water, and describe water quality. Regional

ground water flow models were used in the study to aid analyses and test hypotheses along with the system's response to various potential ground water management alternatives.

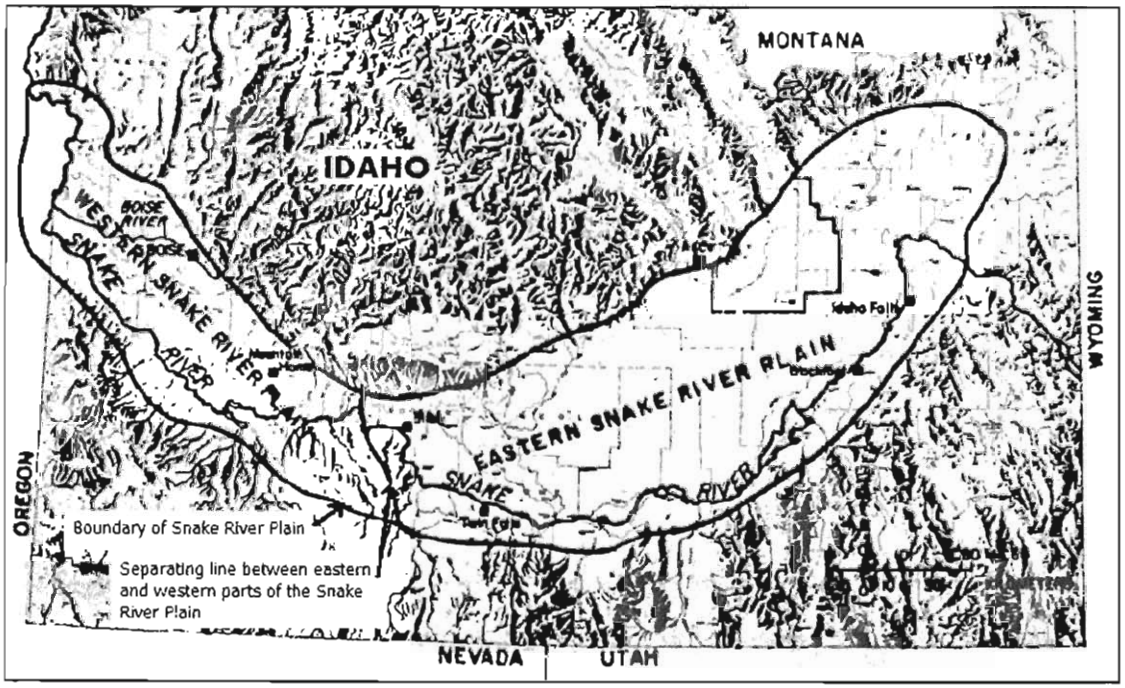


Figure 2. Study area of Lindholm (1981) showing the Western and Eastern Snake River plains. Adapted from Figure 1 of Lindholm (1981).

Lindholm noted that the Western Snake River Plain is flanked on the northeast and southwest by a series of faults, and structurally appears to be a graben. The graben is filled with a sequence of Tertiary and Quaternary sedimentary and volcanic rocks. Overlying the volcanics are low permeable sedimentary rocks of the Payette Formation, which are overlain by rocks of the Idaho Group with thicknesses ranging between several hundred and several thousand feet. Sand and gravel zones in the Idaho Group were identified as the best aquifers. Sand and gravel units overlying the Idaho group compose an unconfined aquifer that is extensively used as a ground water resource.

Sources of recharge were identified as direct precipitation, deep percolation of excess irrigation water, leakage from irrigation canals, seepage from streams flowing onto the plain,

and underflow from highlands bordering the plain. The application of surface water for irrigation since the 1860s in the Boise Valley has raised ground water levels as much as 140 ft (Nace et al., 1957). In places where water levels have increased, ground water in the unconfined aquifer is in direct hydraulic connection with the Boise River as noted by Thomas and Dion (1974). Discharge from the ground water system was identified as losses to streams, pumping wells, and evapotranspiration. A largely undefined geothermal system, referred to by Lindholm as the "hot-water system," underlies the cold-water system of the Snake River Plain. Lindholm noted that additional studies would be needed to delineate the geothermal system and its relationship to the cold-water system above.

During Lindholm's investigation, ground water supplied about one-third of all the irrigation water used on the Snake River Plain as well as most of the municipal, industrial, and domestic needs. Increasing ground water use was a concern with respect to quantity and quality for future water needs. Lindholm stated that ground water and surface water both must be evaluated in studying the regional ground water system because man's exploitation and management have significantly complicated the system's operation. Aquifer discharge as spring flow has changed with time in response to irrigation. Spring flow increased as surface-water irrigation increased; however, it was showing signs of decreasing as ground water withdrawals increased.

At this point, no ground water flow model was made for the Western Snake River Plain because subsurface information was lacking to define the geologic framework. Most of the available data were for the shallow, unconfined aquifer.

1.2.3 J. E. Lindgren

Lindgren (1982) constructed a two-dimensional model to analyze the effects of flood control projects, and federally controlled irrigation on the hydrology and economy of the lower Boise River valley. This model consisted of one layer and used a finite difference code.

Lindgren modeled an area in which the northern boundary was placed along the northern highlands bounding the Boise River; the boundary was simulated as an impermeable, no-flow boundary. Two segments of another no-flow boundary were located to the southeast between the Snake River south of Melba to a point six miles east of Kuna, and from a point 11 miles east of Kuna to the Diversion Dam (seven miles southeast of Boise) on the Boise River. A constant head boundary was placed between the no-flow segments because it was believed that ground water flowed across the boundary in this area based on water level contours. Head-dependent boundaries were assigned to the Boise River (from Diversion Dam to its confluence with the Snake River), Lake Lowell, and remaining Snake River reaches. Figure 3 shows the locations of the features discussed previously.

Lindgren estimated aquifer thickness for the model based on well logs. In areas where no well logs were found, a 1,000 ft thickness was assumed. Aquifer recharge due to irrigation was estimated from values of mapped irrigation. Seepage from canals was applied on a reach-by-reach basis. The average annual precipitation was 12.4 inches, and 5% (0.05) of this value was assumed to infiltrate in dry or non-irrigated areas. In irrigated areas, the infiltration from precipitation was assumed to be all of the average annual precipitation. In areas north of the Boise River, underflow was simulated based on hydraulic conductivity and hydraulic gradient estimates.

The Lindgren model was calibrated to steady-state conditions representative of 1972. A transient calibration was performed for the time period between April 1, 1970 and March 31, 1971 with two-week time steps. Calibration difficulties occurred in areas south and northwest of Lake Lowell due to unknowns related to leakage.

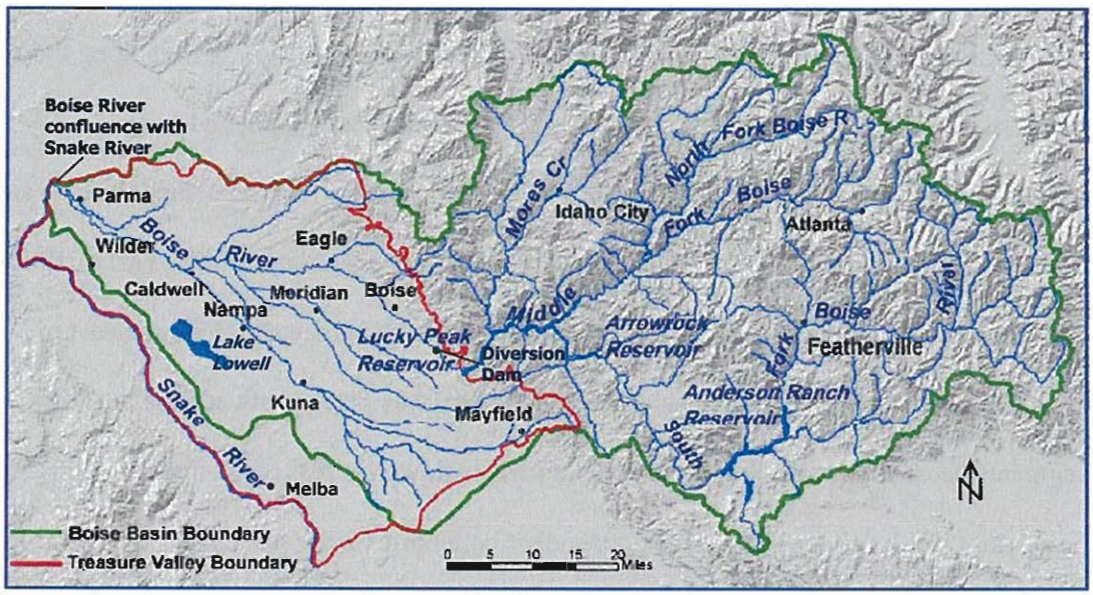


Figure 3. Map showing the Boise River basin, lower Boise River Sub-basin, and the Treasure Valley Boundary. Adapted from Figure 2-1 of Petrich and Urban (2004).

1.2.4 G. D. Newton

Newton (1991) of the USGS constructed a large three-dimensional model simulating the regional aquifer system of the Western Snake River Plain. The model was developed as one part of the USGS Regional Aquifer System Analysis (RASA) program that began in 1979. The model was designed to simulate vertical ground water flow between major rock units. The boundaries of the modeled area (Figure 4) approximated the boundary of the Western Snake River Plain from the confluence of the Payette River with the Snake River southeast to the confluence of Salmon Falls Creek with the Snake River. The grid consisted of 25 rows, 72 columns, and three layers with each square cell representing four square miles

(2,560 acres). The grid was oriented north 45 degrees west to align the grid with the principal direction of ground water flow and to minimize the number of inactive cells in the model.

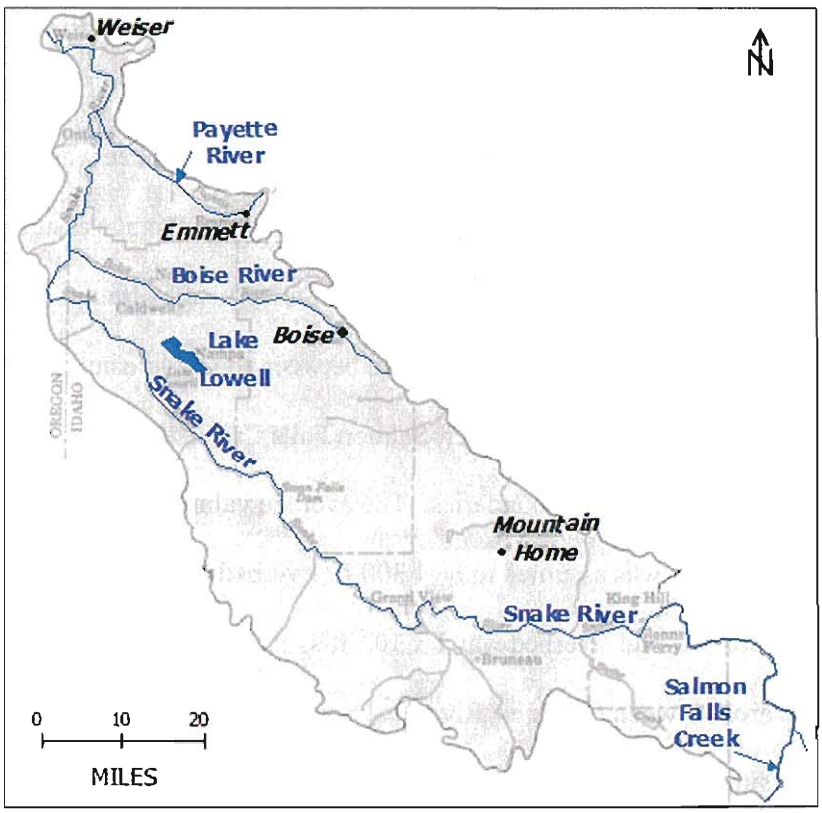


Figure 4. Boundaries of the Western Snake River Plain model by Newton (1991). Adapted from Figure 1 of Newton (1991).

The model boundaries were simulated as constant flux, no flow, or head dependent. The north, south, and west sides of the model were simulated as constant flux boundaries, which were estimated from the water budget because of the lack of underflow data. The modeled area was divided into 11 sub-areas based on geologic and hydrologic characteristics of the aquifer system. These same sub-areas were used for all three layers. The upper unit of the model (top layer) represented the sedimentary (sand and gravel) and volcanic rocks of the unconfined aquifer. The middle unit (middle layer) represented a confined aquifer in about

4,000 feet of mostly fine-grained sedimentary rocks along with some sand lenses. The lower unit (bottom layer) represented the volcanic rocks with a thickness of about 7,000 feet.

Boundaries between layers were simulated as head dependent, and individual confining layers were not simulated because they were poorly defined. Instead, effective vertical conductance estimates were used between adjacent layers. The model required vertical leakance values between layers as input. Vertical leakance was calculated by dividing the assumed vertical hydraulic conductivity by the average assumed thickness between layers. A value of nine ft/d was used as the vertical hydraulic conductivity between the top and middle layer and 22 ft/d was used between the middle and bottom layer.

The Snake River, Payette River, Salmon Falls Creek, and Lake Lowell were simulated as head dependent boundaries. The average values used for each river were as follows: river width was assumed to be 1,300 ft, riverbed thickness was 10 ft, hydraulic conductivity for a gravel riverbed was 1×10^{-5} ft/s, and the riverbed conductance was 14 ft^2/s. Parts of the area between the Boise River and Snake River, and part of the Payette River valley were simulated with drains in Layer 1. During the simulated time period, the Boise River was always a gaining stream. Canals in the Boise River valley were simulated with average widths of 20 ft and the average length of major canals in a cell was about nine miles. A canal bed thickness of one foot was assumed along with a canal bed hydraulic conductivity of 1×10^{-6} ft/s, and a canal-bottom conductance of 14 ft^2/s.

The model was developed and calibrated in two stages. Stage one consisted of a simulation of 1980 steady-state conditions where 1980 hydrologic data were used. Transmissivity, river and drain conductance, and vertical hydraulic conductivity were adjusted within reasonable limits. Stage two consisted of a transient analysis of simulated

aquifer responses to pumping and recharge stresses designed to reproduce long-term water level changes between 1880 (pre-irrigation times) and 1980 (post irrigation). In stage two, storage coefficients were adjusted until measured water level changes were reasonable.

Few field data were available for the hydraulic properties used in the model, so a range of values was considered to be more appropriate. Estimates of recharge and discharge were generally assumed to be accurate to within a factor of ten. However, distribution of recharge, such as underflow, may not have been properly simulated. Calibrated values of transmissivity, vertical hydraulic conductivity, storage coefficient, and specific yield were probably the same order of magnitude as the estimated values that were based on field data. The general concept of the ground water flow system presented in the report was considered reasonable. The model was useful for understanding the ground water flow system, but not for detailed management evaluations. Model calibration suggested that the most important data are the vertical hydraulic head distribution in the upper and middle rocks units, hydraulic properties for the aquifers and confining beds, quantity of underflow, and refined knowledge of the subsurface hydrogeology.

1.2.5 C. R. Petrich

Petrich (2004) collaborated with the IDWR in Boise to construct a numerical model to simulate regional-scale ground water flow in the Treasure Valley of southwestern Idaho for the Treasure Valley Hydrologic Project (TVHP). The three-dimensional, finite difference model was constructed with MODFLOW (McDonald and Harbaugh, 1988; McDonald and Harbaugh, 1996).

The model domain encompassed an area between the Boise Foothills and the Snake River, and included the lower Boise River sub-basin. The northeastern/eastern model

boundary followed the base of the Boise Foothills. The southern and southwestern boundaries were defined by the Snake River. Figure 3 in section 1.2.3 shows the model domain (Treasure Valley) in red outline.

The model simulated ground water flow on a regional scale and was suitable for evaluating regional changes in water levels resulting from increases in withdrawals, or regional land use changes. The model was composed of four layers and consisted of a uniform grid of 61 x 49 square cells with each cell representing an area of one square mile. The grid consisted of 11,956 cells, 5,448 of which were active. The TVHP model grid was aligned in the east and west direction for two reasons: (1) ground water flow generally occurs in the westerly direction and (2) the east-west orientation simplified model construction because most of the data were linked to the east-west land survey system. The model surface was based on the average of the Boise River and Snake River elevations and was considered to represent a layer datum. This was chosen as the datum because (1) it represents a relatively uniform surface throughout the model domain, (2) ground water was believed to be in direct hydraulic connection with these two rivers, (3) the surface was dipping basinward, not unlike some of the dipping strata existing in the basin, and (4) the surface offered a basis for defining relatively uniform layer surfaces at depth. The first layer extended 200 feet below the datum, and consisted of coarse-grained Snake River sediments. It represented the continuous, unconfined aquifer. The second layer extended 200 feet below the base of the first layer (400 feet below the datum). It corresponded to the geologic unconformity separating the Chalk Hills Formation and overlying sediments. Layer 3 extended 400 feet below Layer 2, and Layer 4 was 400 feet below Layer 3. Layers 3 and 4 represented the deeper Idaho Group sediments from which the valley's deeper wells draw

water. Most of the water-producing wells in the Treasure Valley are completed at depths above the base of Layer 4.

Boundary conditions were simulated as no-flow, specified flux, head-dependent flux, or free surface. No-flow boundaries were used for the northern and southeastern sides of the model. Specified flux boundaries were used to simulate discharge as withdrawals from wells, and as underflow. Components of recharge included canal seepage, river and stream seepage, seepage from Lake Lowell, underflow, infiltration of precipitation and irrigation water, and seepage from septic systems; these were simulated with the MODFLOW Recharge Package. Underflow was assumed along the northeastern edge of the model.

Head-dependent flux boundaries were used to simulate losses to and gains from streams, lakes, and flow to drains. Fluxes into and out of the Boise River were simulated with the MODFLOW River Package. The MODFLOW Drain Package simulated discharge to drains. Fluxes into and out of Lake Lowell were simulated by the MODFLOW General Head Boundary package.

The River Package in MODFLOW was used to simulate the Boise River and allow for gaining and losing reaches; the lower Boise River was simulated as a predominantly gaining reach. The Snake River was simulated as a constant head boundary. The river stage elevations were based on topographic contour elevations, and the rivers were assumed to have an average depth of 10 feet. Because river stages vary throughout the year, average elevations were assumed. Major canals were not simulated as river features because seepage from the channels was included in the recharge estimates.

Wells were selected for mass measurements by the USGS from the USGS Ground Water Site Inventory (GWSI) database. Observation wells were chosen based on available

driller's reports, completion depths falling within the layer intervals, and the horizontal and vertical distribution throughout the model domain. Spring and fall 1996 mass measurements were collected from 339 and 331 wells, respectively.

Potentiometric maps based on 1996 water level measurements were completed for all four layers of the model. The potentiometric surface contours for shallow aquifers show ground water flow toward and discharge to the Boise River in mid- and lower reaches. The potentiometric surface contours in the deeper zones indicate a more uniform westerly flow. Potentiometric surface contours in the shallow aquifer zones reflected surface hydrologic conditions, such as mounding under the New York and Mora Canals, or discharge to the Boise River. The mounding north of the New York Canal represented shallow ground water flow to the Boise River. The mounding south of the canal represented flow to the Snake River. Downward hydraulic gradients were indicated in the Boise Foothills in the eastern part of the study area.

The Treasure Valley model simulations were solved with the PCG2 solver. The model was calibrated to the 1996 steady-state hydraulic conditions using the PEST automated parameter estimation code (Doherty, 2000). PEST-calibrations indicated relatively higher horizontal and vertical hydraulic conductivity values in areas of the eastern and central portion of the valley associated with fluvial deltaic deposits. Simulations generally resulted in reasonable agreement between simulated and observed water levels with median absolute residuals ranging from 8.5 to 9.5 feet. These magnitudes are probably within the error associated with some of the well elevations, which were taken from USGS quadrangle maps and field-grade GPS devices. A transient model was not constructed because detailed temporal flux data are required to help calibrate aquifer storativity in a

transient simulation, and successful transient simulations depend on well-defined temporal water level changes, both of which were not available.

Three sensitivity analyses were conducted for the model: (1) a 10% (0.10) increase in recharge relative to the original model simulated 1996 water levels, (2) a 10% (0.10) decrease in recharge relative to the original model simulated 1996 water levels, and (3) an increase in underflow along the northeastern model boundary. The first and second sensitivity analyses resulted in minimal changes in water levels or parameter value estimates because the shallow ground water levels in the central portions of the basin are controlled, in part, by elevations of surface water channels. In the third analysis, the underflow did not appear to be consistently distributed along the Boise Front and the modelers experienced difficulty applying high values in certain model areas.

1.2.6 SPF Water Engineering, LLC

SPF Water Engineering, LLC (2004) of Boise prepared a report for the SunCor Development Company of Eagle, Idaho to identify and evaluate potential water supplies for the Spring Valley Ranch project in the Little Gulch and Big Gulch portions of the ranch. For this project, SPF constructed four exploration wells, conducted well tests, documented lithology, and evaluated potential for ground water production in the Big Gulch and Little Gulch areas. The study area (Figure 5) was delimited as follows: the northwestern corner was near Emmett, the northeastern corner was the intersection of the Gem County, Ada County, and Boise County near Highway 55, the southeastern corner was approximately one mile south of the intersection between Beacon Light Road and Highway 55, and the southwestern corner was approximately the intersection of Highway 16 and Highway 44.

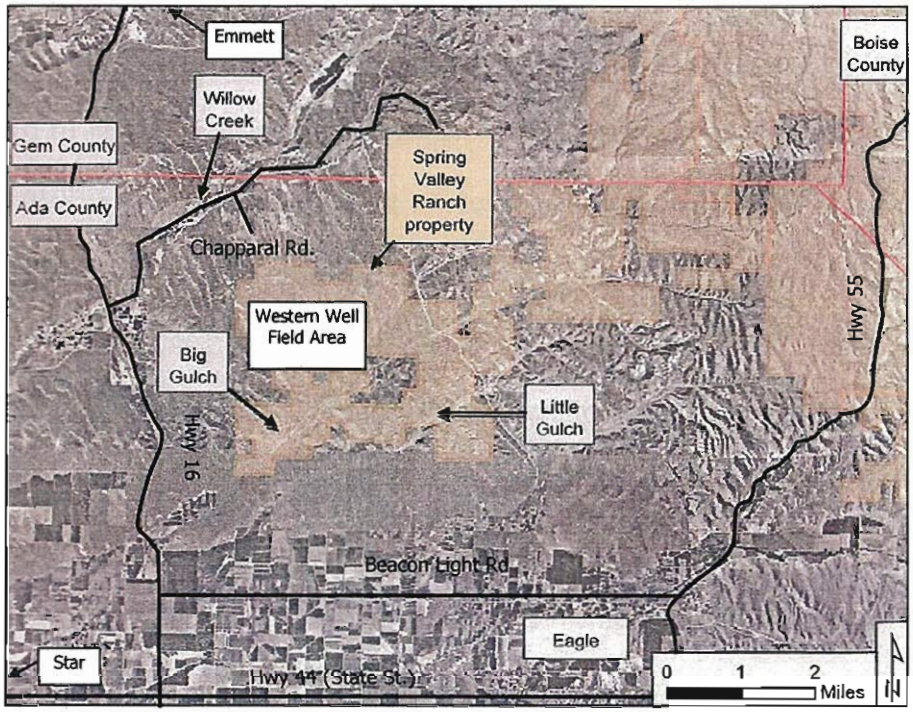


Figure 5. Study area of the SPF investigation for SunCor. Adapted from Figure 1 of SPF Water Engineering, LLC (2004).

SPF concluded that the western portion of the Spring Valley Ranch, which is now partially enveloped by the M3 Eagle development area, overlies complex geology. At least two aquifers were believed to be present in the western portion of the ranch; SPF called onethe Willow Creek aquifer, and the other aquifer(s) was considered to be associated with the Lake Margin Sands of Squires (1992) and referred to as the Northern Margin aquifers found in areas north of Eagle (The Northern Margin aquifer likely is a portion of the Pierce Gulch Sand aquifer delineated by HLI as part of this investigation). The aquifers were believed to represent significant potential ground water resource systems for the planned future developments. As a result, SPF concluded that high capacity wells could be constructed in both the Willow Creek and Northern Margin aquifers.

The Willow Creek aquifer is believed to be a highly productive sedimentary aquifer composed of a sequence of thick, coarse-grained sand beds with occasional fine gravel zones. Wells tapping the aquifer generally have static water levels of about 2,400 feet above sea level with depths to water ranging from about 325 to 425 feet below ground surface. This aquifer is tapped by wells located along Chapparal Road between Highway 16 and the confluence of the North and South Forks of Willow Creek.

South of the Spring Valley Ranch property, wells between Eagle and Star, and just north of the Boise River, produce water from one or more aquifers composed of sand, silt, and clay sediments; these aquifers typically are underlain by thick clay beds associated with the mudstone facies of the Terteling Springs Formation; the Northern Margin aquifers contain productive, coarse-grained layers, but are commonly interbedded with silt and clay layers (Burnham and Wood, 1992).

According to SPF (2004), the approximate sustainable yield from the Willow Creek and Northern Margin aquifers in the project area was estimated to be about 3,500 acre-feet annually, which is the amount of precipitation on the surface of the foothills above Eagle. The Willow Creek aquifer was believed by SPF to be more sustainable than the Northern Margin aquifer.

SPF constructed a potentiometric surface map that included the "Western Well Field" area (Figure 5), which encompasses the areas of the Spring Valley Ranch along Big Gulch and Little Gulch. The Western Well Field includes the four exploratory wells (SVR 6, SVR 7, SVR 9, and SVR 10). Wells within the Northern Margin Aquifer have lower pumping lifts (150 to 300 feet) than the Willow Creek aquifer, which have lifts of 400 to 500 feet.

SPF recommended providing additional (artificial) recharge to the area of the Western Well Field. It was also recommended that a long-term contingency plan be established to focus on importing water from the Payette River drainage, the Boise River drainage, or municipal sources in the Boise Valley for managed recharge. SPF also recommended that the areal extent of the Willow Creek aquifer should be delineated accurately through additional exploration drilling.

1.2.7 S. H. Wood and E. Squires

S. H. Wood and his students from Boise State University have conducted substantial research on the regional geology of the northwestern United States; this research includes extensive investigations on the geologic and tectonic history of the Western Snake Plain. Many of Wood's investigations have focused on the significance of buried lacustrine delta system deposits, and more specifically on the Lake Idaho system. Wood and Clemens (2002) noted that the earliest sedimentation in the western plain was the Chalk Hills Formation. Between six and four million years ago, lake levels rose and a transgressive, sedimentary sequence was deposited over the surface of an unconformity on the Chalk Hills Formation. This sequence is characterized by pebbly sands and oolitic-sand deposits. The lake levels were hypothesized to have risen due to captured drainages associated with the eastward-migrating hot-spot uplift. The lake later breached its spillway into Hell's Canyon of the Snake River along the Idaho-Oregon border (Figure 2) approximately four million years ago.

Squires et al. (1992) developed a hydrogeologic framework report on the Boise aquifer system in Ada County. The Boise aquifer system is contained within the eastern portion of the same sedimentary basin as the M3 Eagle Big Gulch Model domain. The Boise aquifer system is delimited on the north by crystalline rocks of the Idaho batholith where

sedimentary and volcanic strata exist above, and are faulted against, the relatively impermeable granitic rocks. A thick section of relatively impermeable volcanic rocks underlies the basin-fill sediments.

The purpose of the report was to provide data necessary to design aquifer tests to estimate aquifer coefficients and understand the three-dimensional hydrogeology of the system necessary as input for a computer model. Squires et al. (1992) concluded that the primary sources of recharge to the Boise aquifer system are the Boise River, diversion canals and their laterals, and flood irrigation. Increased ground water withdrawals, combined with the wide availability of potential recharge water due to the existence of extensive, leaky, irrigation distribution systems, and heavily irrigated cropland, have increased ground water recharge by increasing vertical hydraulic gradients. However, urban development of agricultural land, and lining of large canals has caused a gradual decrease in recharge that will continue with future urbanization. Over a 20-year period prior to the report date (1992), water levels in wells had declined at least 40 feet in the southeast Boise area. Suggestions to improve the conditions as outlined by Squires et al. (1992) included artificial recharge to the Boise Fan aquifer, geochemical studies to better understand recharge mechanisms, and prioritization of uses for the ground waters aquifers of different ground water geochemistry.

1.2.8 Hydro Logic, Inc.

Hydro Logic, Inc. (Squires et al., 2007) conducted a regional hydrogeological characterization project for the areas including north Ada, Canyon, and Gem Counties for M3 Companies and the proposed M3 Eagle Development. A preliminary conclusion for the area is that a primary regionally extensive aquifer underlies Eagle, Star, and portions of the M3 Eagle project site (Figure 6). The aquifer was named the "Pierce Gulch Sand aquifer"

after a significant geologic unit of the Boise foothills (Wood and Clemens, 2002). The aquifer has been delineated by a series of exploratory wells, surface geologic mapping, geophysical surveys, aquifer test analyses, water level data, and geochemical ground water analyses. The Pierce Gulch Sand aquifer is composed of granitic sands with thin, interbedded and locally discontinuous clay layers, dipping at low angles to the southwest.

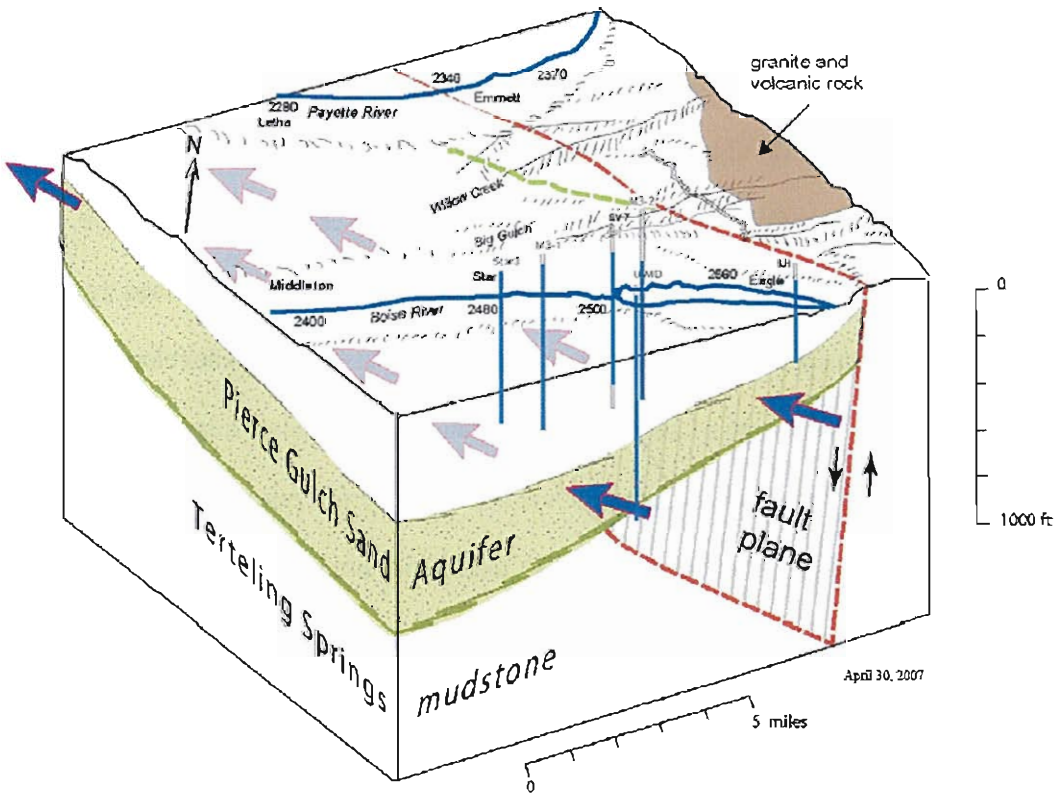


Figure 6. Three-dimensional block diagram displaying the sub-surface geologic features between the Boise River Basin and the Payette River Basin. Figure is Figure 4 from Squires et al. (2007).

Squires et al. (2007) concluded that the major source of ground water in the aquifer in the vicinity of Eagle is underflow from areas south and east of the Boise River near Eagle. The ground water originates as direct percolation from the Boise River in the east-central Boise area, through leakage from many irrigation canals south and east of Eagle, and from the infiltration of excess irrigation water. Water levels in wells in the region appear stable at

the current rates of ground water withdrawal in the Eagle area based on the monitoring of 70 wells by state and federal agencies, and local water utilities.

The Pierce Gulch Sand aquifer is believed to be moderately to highly productive. Potential well yields are projected to be on the order of 1,000 gpm to 2,000 gpm. Estimated transmissivity values derived from 15 aquifer tests range from 30,000 gpd/ft (4,000 ft^2/d) to over 300,000 gpd/ft (40,000 ft^2/d).

Squires et al. (2007) concluded that sufficient quantities of ground water appear to be flowing through the M3 Eagle development property to adequately supply the entire development from water wells on site. A total average daily water demand of about 7.5 million gallons per day will be needed to supply the project. Squires et al. (2007) concluded that it is not likely water would need to be transported from wells in the lowlands of the valley near Eagle and Star or from the Payette River valley to the M3 Eagle Development.

CHAPTER 2

HYDROGEOLOGY OF THE STUDY AREA

2.0 HYDROGEOLOGIC SETTING

The M3 Eagle model area is located along the northern fringe of the Western Snake River Plain. Figure 7 shows the location of the M3 Eagle Development property. The Western Snake River Plain is a northwest-trending plain with a graben form, and normal fault boundaries, located between the northern Rocky Mountains province and the northern Basin and Range extensional province (Wood, 1994). The graben-form basin evolved after Columbia River basalt volcanism occurred 17-14 million years ago on the north side, and after voluminous rhyolite volcanism occurred 16-9 million years ago on the south side of the basin (Leeman, 1989; Wood, 1989).

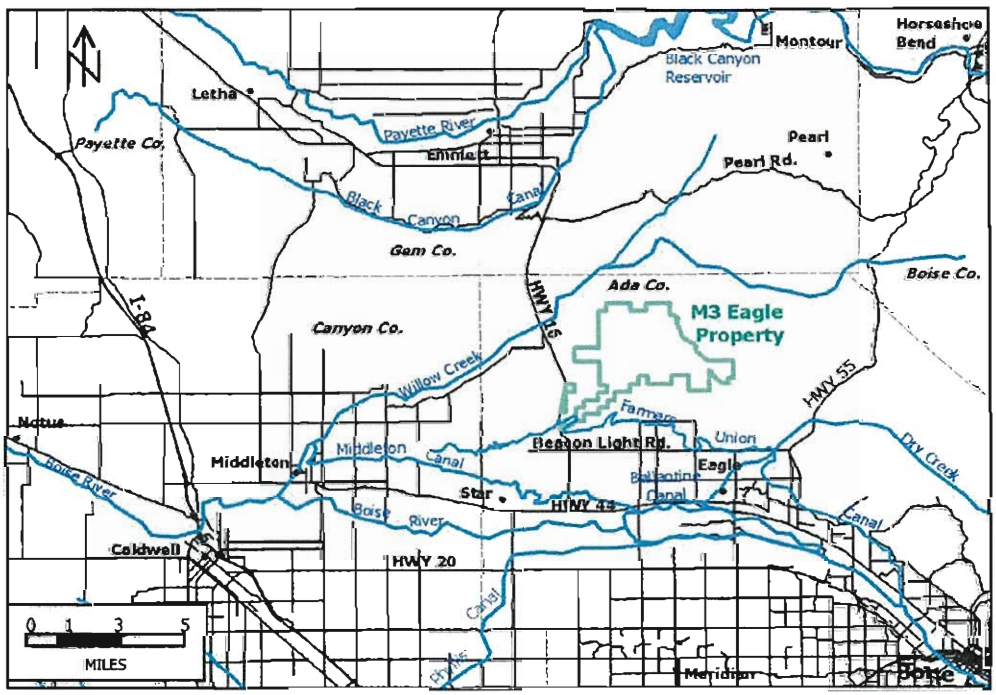


Figure 7. Map of the M3 Eagle Big Gulch Ground Water Flow Model domain showing the location of the M3 Eagle property. The future development, M3 Eagle, is outlined in green in the central area of the map.

The base of the Western Snake River Plain consists of layers of Miocene basalt overlying the granitic Idaho batholith. The basalt is the result of a series of basaltic eruptions associated with the migration of the widely advocated Yellowstone hotspot. According to Wood and Anderson (1981), the basalt is overlain by a sequence of up to 6,000 ft of lacustrine and fluvial sediments of the Idaho Group in some places. Sediments that rest on the older basalts constitute the Chalk Hills Formation, which represents the earliest sedimentary units defined in the western plain (Wood and Clemens, 2002). These sediments generally consist of coarse sands and pebble gravels derived mostly from the Idaho Group batholith or older volcanics, and contain interbedded mudstones locally. These mudstones become more dominant progressing up in the sequence. The sequence generally grades upward into tuffaceous muds and clays, which composes the Terteling Springs Formation.

Freshwater lakes and river systems existed in the center of the basin approximately 8.5 to 2.0 million years ago (Wood, 1994). Figure 8 is a map of the Idaho lacustrine deposits in the Western Snake River Plain. A thick accumulation of fine siliciclastic sediment formed in the center of the basin; compaction caused the sediments to dip downward, and basin relief developed from faulting. Due to the fluctuating lake levels caused by structural downwarping, an unconformity exists between the Chalk Hills Formation and overlying sediments and basalts of the Glenns Ferry Formation.

A portion of the normal fault-bounded basin exists within the model domain. One fault that exists within the domain is known as the West Boise-Eagle fault; it generally separates the granitic Idaho batholith from sediments (Figure 9). Wood and Clemens (2002) refer to this fault as a "buried" fault; evidence of the normal fault is more clearly visible at depth through well logs and on seismic reflection surveys. The fault formed approximately

11 million years ago, and movement along the fault has resulted in an offset of about 800 ft from one side of the fault plane to the other. Other normal faults of the Western Snake River Plain have a cumulative vertical throw (offset) in excess of 6,000 feet.

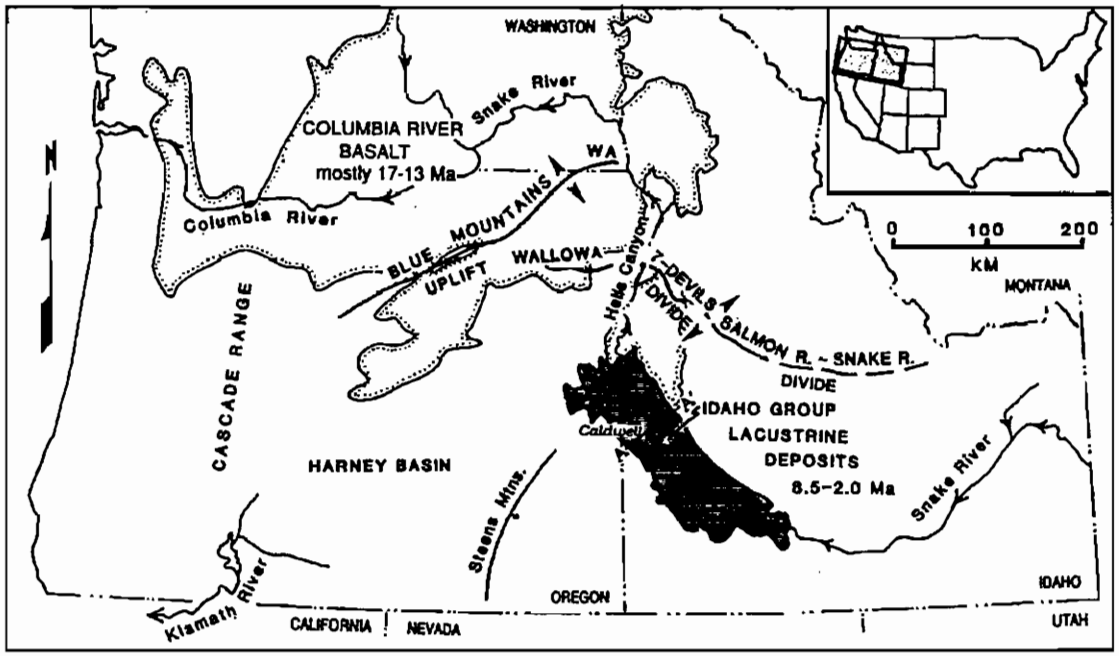


Figure 8. Map detailing the location of the Idaho Group lacustrine deposits in the Western Snake River Plain. Adapted from Figure 2 of Wood (1994).

Lake Idaho is the name commonly used to refer to the large Pliocene lake(s) that once inundated the western plain; however, relatively little is known of the geologic history of the lake system(s). The lake system was once fed by a large river system that transported sediment over a long, low-gradient flood plain and delta plain to the lake edge; a fine-grained delta advanced into the lake as fine to medium sand was deposited at the delta front along with clays and silts (Wood, 1994). Beyond the delta front, a buried, sloping, sediment layer consisting of mostly silt and clay was delineated by seismic reflection patterns (Wood, 1994). Figure 10 shows the position of the lacustrine delta system during the Pliocene.

Wheeler and Cook (1954) proposed that the headward erosion by a tributary to the Salmon-Columbia river system caused Lake Idaho to spill over into Hell's Canyon. The

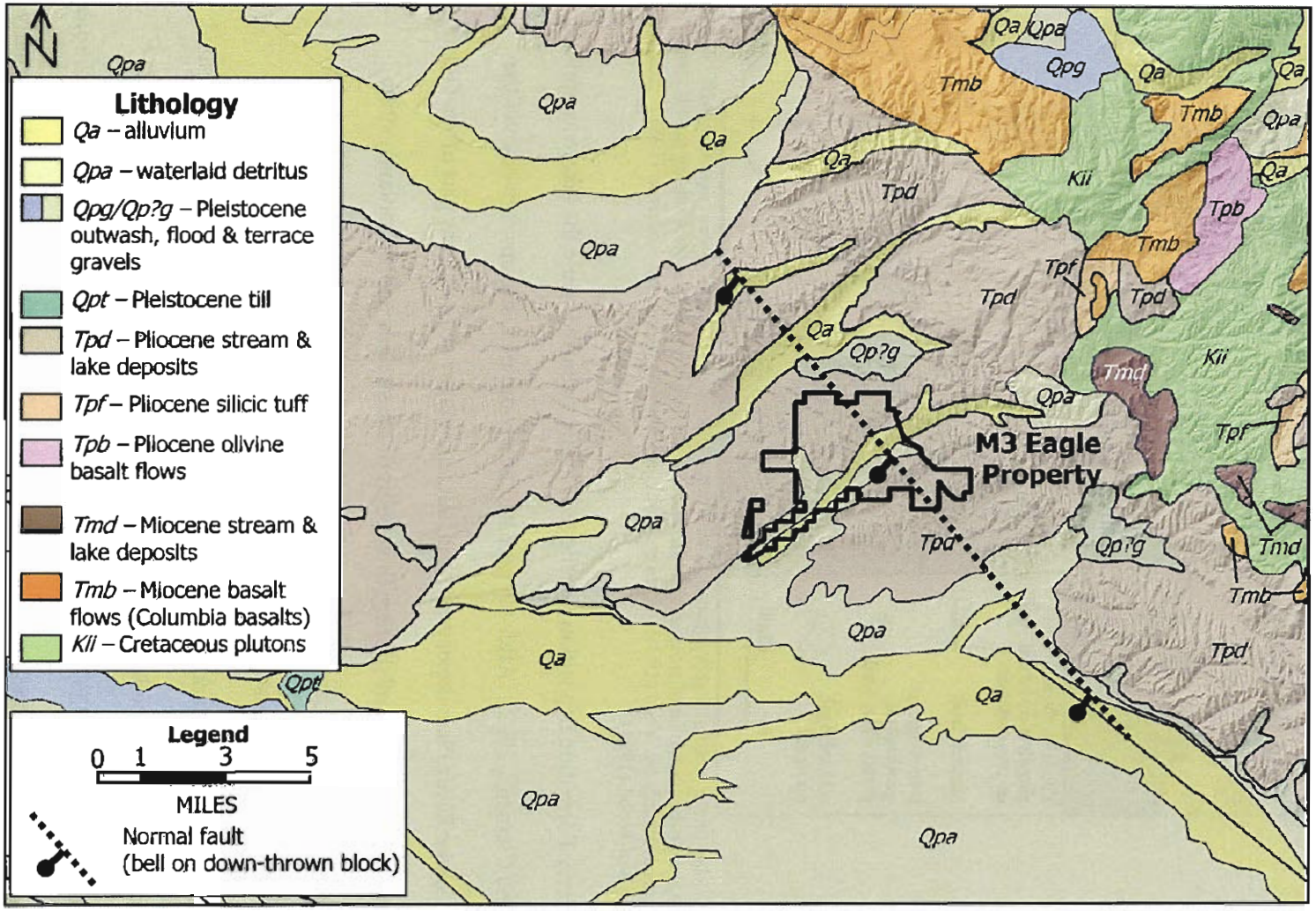


Figure 9. Surface geology of the M3 Eagle Big Gulch Model domain. The black dashed line represents the West Boise-Eagle fault. The source for the geological map is the U.S. Geological Survey (2006). The fault was inferred from topographic maps provided by HLI and maps in Wood and Clemens (2002).

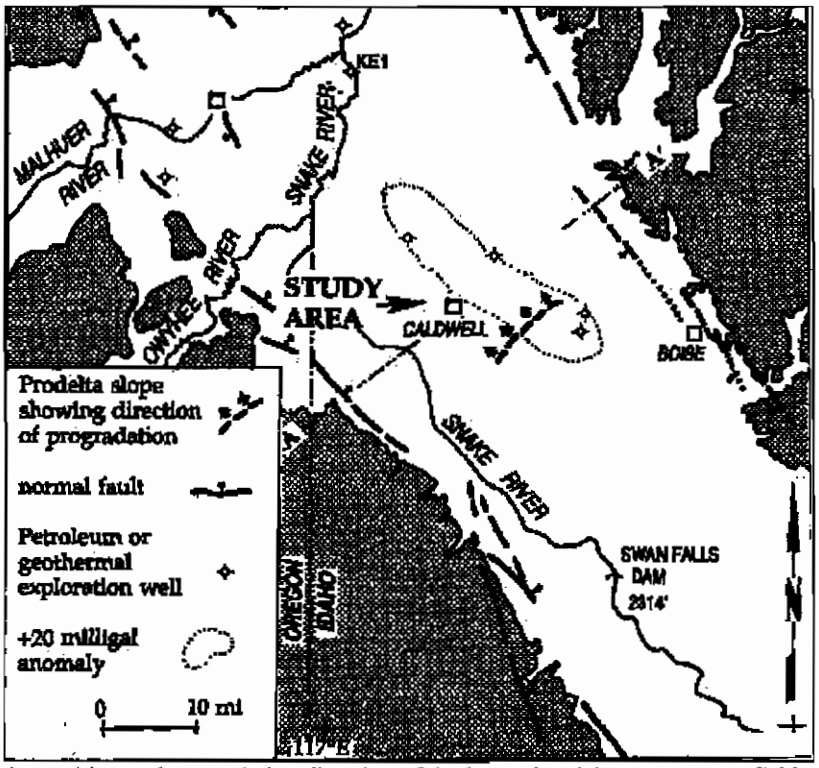


Figure 10. Map of the position and progradation direction of the lacustrine delta system near Caldwell. The dashed line shows the position and progradation direction of the lacustrine delta system during the Pliocene interpreted from a study by Wood (1994) and from a previous study by Wood and Anderson (1981). Adapted from Figure 2 of Wood (1994).

Glenns Ferry Formation deposition is believed to have occurred while the lake was draining (Wood and Clemens, 2002). After the lake had nearly drained, streams flowed over the Western Snake River Plain depositing sand, silt, and clayey sediments as part of the Glenns Ferry Formation. Because of shifting flow paths of the streams and floodplains, strata accumulated at one point may be a succession of alternating layers of clayey sediments deposited in lakes, and sands and gravels deposited by streams.

The Pierce Gulch Sand aquifer was deposited as a regressive sand delta that formed by Pliocene streams as Lake Idaho drained from the north and east of present day Eagle (Figure 11) (Squires et al., 2007). According to Squires and Wood (2001), these depositional environments typically did not produce broadly distributed sand layers because they usually

were restricted in their horizontal and vertical continuity by the deposition of slackwater muds. While the depth of the Pierce Gulch Sand aquifer system has been well documented by HLI in the area of the M3 Eagle development property, and it laterally is believed to extend to the Snake River. According to Squires et al. (2007), the Pierce Gulch Sand aquifer system underlies the cities of Eagle, Star, and Meridian, and extends to the northwest at least as far as the city of Payette, which is beyond the model domain.

The Willow Creek aquifer is an isolated foothills aquifer consisting of coarse sands and gravels overlying granite and volcanic bedrock. The approximate location of the Willow Creek aquifer is shown in Figure 11. It is present on the up-thrown and down-thrown block of the West Boise-Eagle fault system (normal fault), and is stratigraphically older and deeper than the Pierce Gulch Sand aquifer system. According to Squires et al. (2007), the Willow Creek aquifer is related to the sand facies of the Terteling Springs Formation, described by Wood and Clemens (2002), that is bounded by clays beneath the Pierce Gulch Sand aquifer system to the southwest and by bedrock northwest of the fault system.

2.1 HYDRAULIC PROPERTIES

The Pierce Gulch Sand aquifer system is believed to be moderately to highly productive (Squires et al., 2007). Yields from properly designed and constructed wells are projected to be 1,000 gallons per minute to 2,000 gallons per minute. Based on derived aquifer transmissivity values and measured water levels in wells, Squires et al. (2007) concluded that about 20 to 30 million gallons per day currently flows in the northwesterly direction through the Pierce Gulch Sand aquifer system in a five-mile swath near the proposed M3 Eagle Development property.

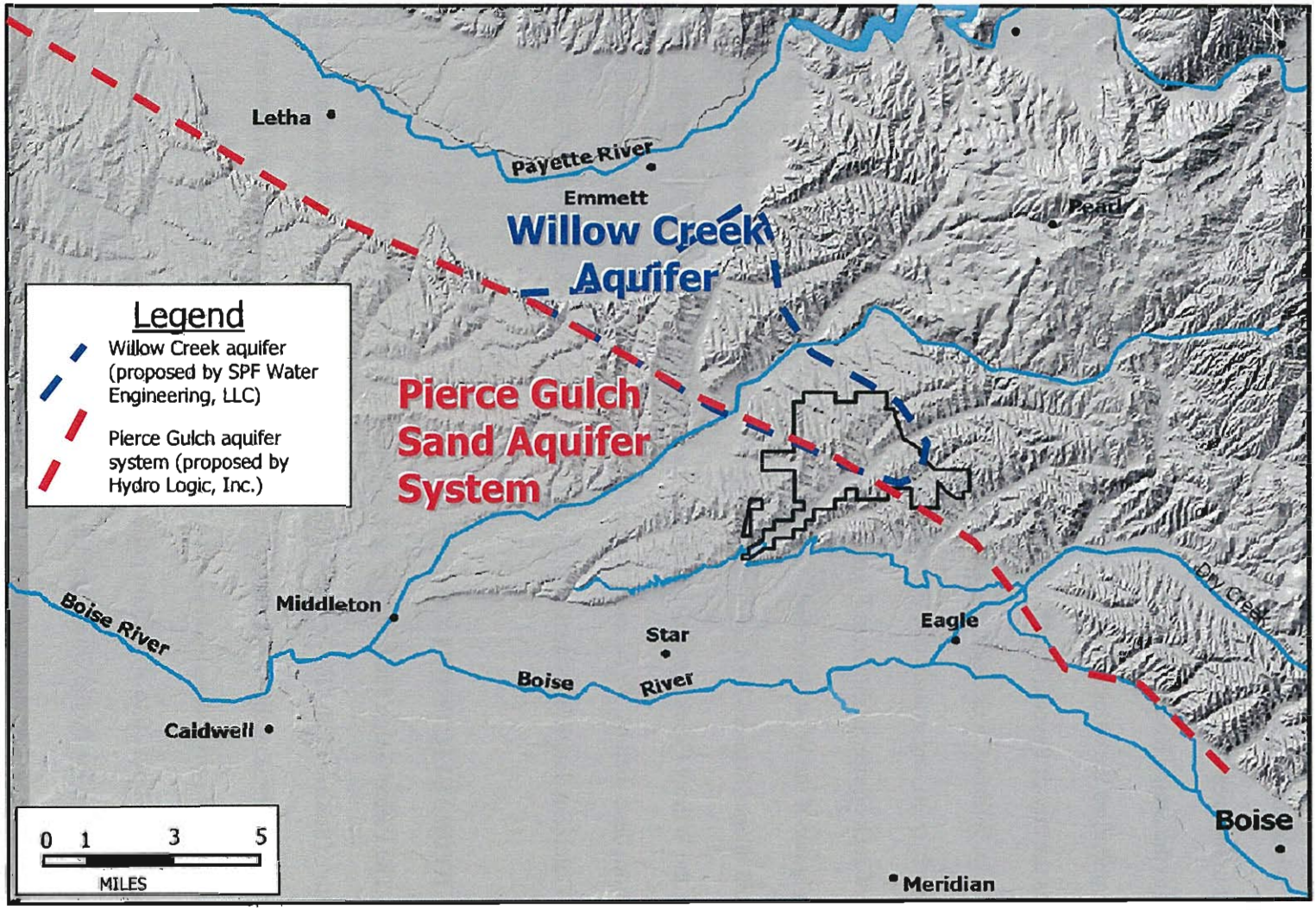


Figure 11. Map of the main aquifers within the model domain. The Pierce Gulch Sand aquifer system is located under the southwestern half of the M3 Eagle property and dips to the southwest. The Willow Creek Aquifer is located under the northeastern half of the M3 Eagle property. The lateral extent of both aquifers to the northwest is relatively unknown. NED map (National Elevation Dataset map) adapted from U.S. Geological Survey (2006).

2.1.1 Hydraulic Conductivity

Hydraulic conductivity is a constant of proportionality in Darcy's law, which is expressed in general terms as

$$Q = -KA\frac{dh}{dl} \tag{2.1}$$

where: Q is discharge (L^3/T), K is hydraulic conductivity (L/T), A is the cross-sectional area through which flow occurs (L^2), and $\frac{dh}{dl}$ is the hydraulic gradient in which dh is the change in head between two points and dl is the distance between those points. K is a function of properties of the porous medium and the fluid (e.g., water) passing through the medium. K is related to the sizes of the open spaces through which ground water moves (Figure 12).

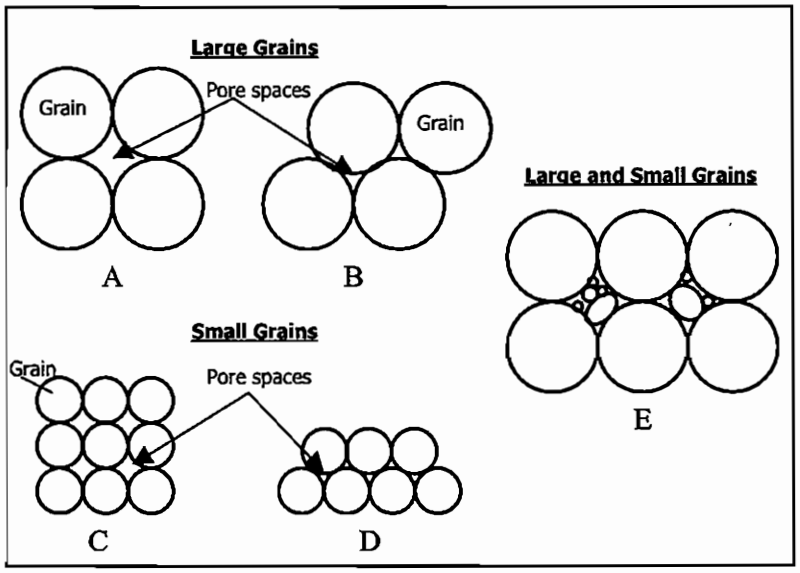


Figure 12. Grain sizes and pore spaces. (A) Large grains in cubic packing with large pore spaces. (B) Large grains in rhombohedral packing with small pore spaces relative to the grains in (A). (C) Small grains in cubic packing with large pore spaces. (D) Small grains in rhombohedral packing with small pore spaces relative to (C). (E) Large grains in cubic packing with smaller grains filling in the pore spaces.

Large pore spaces typically exist in media composed of large grains while small pore spaces generally are associated with media composed of small grains. The shapes, arrangement, and packing of grains in a soil affects the pore size distribution of the sediments, and in turn affects the hydrologic properties of the soil such as infiltration capacity, storage capability, and rate of ground water movement.

Unconsolidated, coarse-grained sediments, such as coarse sand, commonly form the most productive aquifers. These sediments generally have high hydraulic conductivity. However, compacted, fine-grained sediments, such as clays, commonly form barriers to ground water flow and have low hydraulic conductivities.

Hydraulic conductivity is difficult to measure because sediment samples must be collected and shipped to a laboratory for analysis. These types of analyses were not performed as part of this investigation. Therefore, for areas of the model domain not included in the aquifer tests, K values were estimated by analysis of available driller's logs in relation to representative values for lithologic rock types reported in textbooks, and through a trial-and-error model calibration process.

Several aquifer tests were conducted within the model domain by various investigators over the years. Results from 15 different regional aquifer tests were collected and analyzed by HLI using AQTESOLV™ Pro version 4.5 software. Using this program and various methods for aquifer test analysis, HLI estimated values for transmissivity (T) and storativity (S) for parts of the model domain. Hydraulic conductivity values for the model were derived from the T values based on aquifer thicknesses estimated by HLI from drilling information and geophysical logs. The distribution of aquifer-test derived transmissivity values for the Pierce Gulch Sand aquifer system is very limited spatially relative to the entire

model domain; therefore, many values for hydraulic conductivity were estimated by interpolation, interpretation of well logs, and/or through model calibration.

2.2 INFLOWS

Inflows to the aquifer systems within the model domain include (1) recharge from precipitation, (2) percolation of canal seepage, (3) percolation of excess irrigation, (4) percolation of effluent from septic systems, and (5) underflows from adjacent areas. These inflows are described in the following sections.

2.2.1 Precipitation

Sources of recharge varied between the steady-state model and the quasi-steady-state model. In the steady-state model, the only source of areally distributed recharge water was precipitation. In the quasi-steady-state model, areally distributed recharge from precipitation is only a small part of the total recharge that occurs annually. Recharge from precipitation refers to the portion of precipitation that infiltrates into the subsurface and percolates to the aquifer(s). Figure 13 is a map of the precipitation within the area of the model domain. The values for precipitation within the model domain range between nine and 25 inches per year.

According to Newton (1991), only 2% (0.02) of the total annual precipitation on the Western Snake River Plain (WSRP) actually recharges the ground water. In the steady-state model, precipitation and stream losses were assumed to represent the only sources of recharge because canals and ditches did not exist and irrigation was not practiced.

2.2.2 Canal Seepage

Beginning in the 1880s, the extensive canal system of the Treasure Valley was developed for irrigation purposes. According to D. Palmer of the IDWR as referenced by

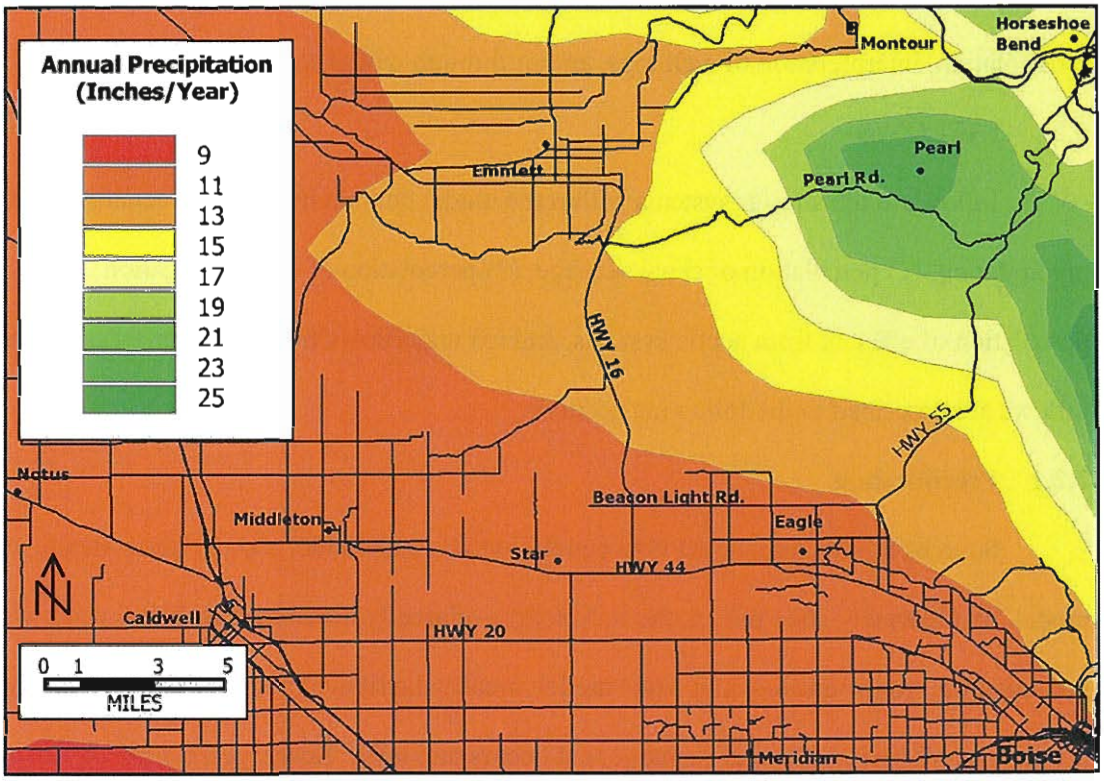


Figure 13. Map of the precipitation distribution within the model domain. More precipitation occurs over the Idaho batholith in the Boise Foothills and less occurs in the Boise River valley. Adapted from Idaho Department of Water Resources GIS data (http://www. idwr.state.id.us/ftp/gisdata/spatial).

Urban (2004), about 1,170 miles of major irrigation canals existed throughout the Treasure Valley as of 2004. Some of these canals exist within the M3 Eagle Big Gulch Model domain. Many smaller feeder canals and ditches branch from the main canals and form a complex network. The total number of canals and ditches within the model domain is not known; however, the primary canals include (Hydro Logic, Inc., 2007):

1. Farmers Union Canal
2. Middleton Canal
3. Ballantine Canal
4. Black Canyon Canal

More canals or ditches likely exist; however, it is difficult to determine the lengths and spatial distribution of these canals because minor canal/ditches typically are not presented on land use maps.

Seepage from these canals is believed to constitute a major contribution to ground water recharge; however, seepage is difficult to quantify without specific measurements and canal construction details. According to CH2M HILL (1991), canal leakage can be estimated using the following equation:

$$q' = \frac{K(B+2d)}{3.5} \tag{2.2}$$

where: q' is the seepage rate in cubic feet per day per linear ft, K is the hydraulic conductivity of the canal bed (ft/d), d is the depth of water in the canal (ft), B is the width of the water channel (ft), and the factor 3.5 is used to adjust hydraulic conductivity values to seepage losses based on ponding tests. This technique of determining seepage rate from canals was not used in the M3 Eagle Big Gulch Model.

2.2.3 Irrigation

The areal application of irrigation water within the model domain varies spatially and temporally depending upon availability of water and crop demand. Urban (2004) found that 2.5 acre-feet per acre of water were delivered annually to fields in the southern portion of the Treasure Valley during the 1985-1990 time period; in addition, the Black Canyon Irrigation District delivered about 5.2 acre-feet per acre to fields near Payette, Idaho during 1992. According to Newton (1991), the U.S. Bureau of Reclamation (USBR) reported that typical farm delivery requirements for the Boise River valley averaged about 3.8 acre-feet per acre. Lindgren (1982) analyzed average diversions for several areas in the Treasure Valley and found that the net application ranges from less than two acre-feet per acre to over eight acre-

feet per acre whereas the average was 4.3 acre-feet per acre. Total amounts of water delivered from other irrigation districts are unknown.

While most of the historical information applies to the Treasure Valley, the actual amount of irrigation water delivered throughout the model domain varies. A map of land use was acquired from the USGS (2006) and forwarded to HLI for use in estimating recharge from precipitation for the model domain. Figure 14 is map of the model domain showing the different land cover types, which are related to how the land is used and irrigated. Each color represents a different classification of land use using values from Urban (2004) the amount of recharge for each land use area. Table 1 lists the recharge values assigned within the model domain based on land use (Hydro Logic, Inc., 2007).

Land Use	Recharge Rate (ft/yr)
Urban	0.25
Dry cropland pasture	0.02
Irrigated cropland pasture (ground water)	0.20
Irrigated cropland pasture (surface water)	0.45
Grassland/cropland mosaic	0.11
Grassland	0.02
Shrubland	0.02

Table 1. Recharge values assigned within the model domain by land use type.

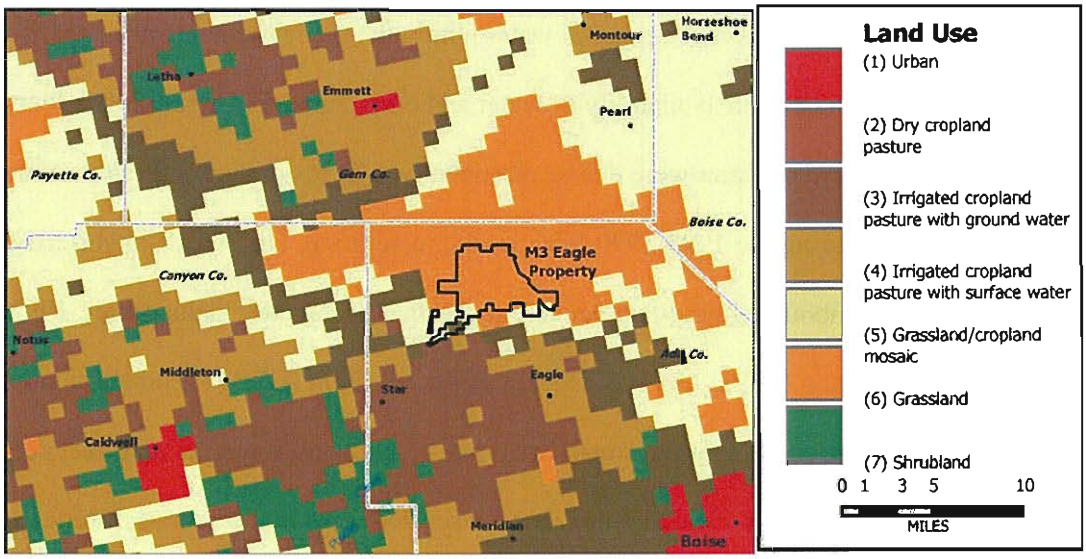


Figure 14. Map of the land uses in the model domain (U.S. Geological Survey, 2006). Values for recharge are estimated for each land use type.

2.2.4 Effluent from Septic Systems

Recharge from septic system effluent is significant in some regions of the model domain. In rural housing areas, septic system recharge is important to quantify because it is assumed that all septic discharge percolates back to the aquifer as septic recharge. It is assumed that none of the wastewater produced by households with sewer systems recharges the ground water. Septic effluent recharge was estimated based on the approximate number of households per model cell. The number of households counted was based on the number of wells identified (i.e., one well per house) from the IDWR Well Information Search online.

Several assumptions were made to estimate the amount of recharge from septic systems based on the number of wells found. It was assumed that only one well belonged to each household. Based on Census data used in the Treasure Valley model (Urban, 2004), an average of 2.9 people per household were reported for Ada and Canyon Counties. It was assumed that three people live in each household per well for every county in the model domain. The U.S. Environmental Protection Agency reported that typical septic discharge is about 45 gallons per day per person (EPA, 1980). Septic recharge (*SR*) in gallons per day was estimated on a cell-by-cell basis as follows:

$$SR = (number\ of\ wells)\ x\ (3\ people\ per\ household)\ x\ (45\ gpd) \qquad (2.3)$$

Net ground water discharge from each well is treated separately from *SR* in the model as described in Section 2.3.3.

2.2.5 Basin Inflows

The Pierce Gulch Sand aquifer system receives underflow from the Treasure Valley aquifer systems. According to Squires et al. (2007), it is assumed that a significant amount of recharge may occurs in the network of canals that branch from the New York canal;

however, the amount that actually leaks is not quantified. This seepage creates relatively high heads in the aquifer beneath the Boise River valley. Because heads are higher in the Boise River valley than in the Payette River valley, ground water flows northwesterly through strata that connect the two regions. This concept was not recognized by Newton (1991) or Petrich (2004) who assumed that ground water inflow to the Eagle area occurred as underflow from recharge in the foothills to the north and east of Eagle.

2.3 OUTFLOWS

Outflows from the model domain include (1) evapotranspiration, (2) gaining river segments, and (3) well withdrawals.

2.3.1 Evapotranspiration

Evapotranspiration is the loss of soil water and ground water through transpiration by plants, and evaporation from bare land surfaces and water surfaces. The amount of evapotranspiration varies spatially and temporally, depending on air and soil temperatures, relative humidity, soil moisture conditions, precipitation, irrigation, and the type, stage, and degree of vegetation cover, etc. While evapotranspiration losses from areas of the model domain with shallow water tables may be substantial during the summer months, evapotranspiration losses were not simulated as a separate, spatially variable, component of ground water discharge in the M3 Eagle Big Gulch Model. Instead, evapotranspiration was included in the land-use based recharge noted in Table 1.

2.3.2 Gaining River Segments

The Boise River is predominantly a gaining reach throughout the model domain (Dion, 1972; Petrich, 2004). A gaining reach gains water from the aquifer directly through the riverbed because the hydraulic heads in that portion of the aquifer are higher than the

stream stage of the river. Along identified gaining reaches, ground water discharges from the aquifer into the river and becomes surface flow (i.e., river water). A thin layer of clay exists below portions of the Boise River valley in the Eagle, Idaho area; the presence of this clay layer confines the wells in the area and is associated with the artesian pressures. This clay may be partially responsible for the large number of flowing artesian wells that exist in the area. No information for the Payette River gains and losses was available for the model.

2.3.3 Ground Water Withdrawals from Wells

Ground water withdrawals from wells consist of water that is pumped from the model domain to provide the following water supplies: (1) rural domestic, (2) municipal, (3) industrial, and (4) stock. Information on pumping locations and rates in the vicinity of the M3 Eagle Development property was derived by HLI from the IDWR Water Rights and Adjudication Search. However, municipal pumping for areas of the model domain beyond the vicinity of the M3 Eagle Development property, were not estimated by water rights information. Instead this process involved estimating water use by approximating how much ground water is pumped by each city based on the U.S. Bureau of the Census 2000 populations (2003). Based on an estimate of the Treasure Valley water usage (Urban, 2004), an individual on average uses approximately 230 gallons per day. Using this estimate to multiply by the population for each city (where a ground water use estimate from water rights information was not available), total use for that city was approximated and converted to gallons per minute. By using this total in gallons per minute, the value was applied to the entire area of the city limits. Ground water pumping by the cities of Emmett, Letha, and Caldwell was estimated in this fashion. Figure 15 shows the spatial distribution of ground water pumping, by rate in gallons per minute (gpm), within the model domain. The white

areas show where very little groundwater is withdrawn per model cell (0 to 1 gpm), the blue and purple areas show where 2 to 1,000 gpm are withdrawn per model cell, and the red areas show where the most groundwater (> 1000 gpm) is withdrawn within the model domain.

Rural domestic ground water use refers to water that is used by rural residences located outside the boundaries of municipal distribution systems. Values for rural ground water use were based on the number of wells found per quarter section (or cell in the model). This information was provided by HLI (Hydro Logic, Inc., 2007) for most of the model domain; however, in outlying areas where values were not provided, estimates were made based on available maps. Consistent with previous calculations, it was assumed that each house had one well. The EPA estimate of three people per house (EPA, 1980) was assumed. Considering that rural households may have access to surface water supplies as well as ground water, and many urban areas use mostly ground water, the water budget (Urban, 2004) for the Treasure Valley model estimated that each person uses approximately 230 gallons of ground water per day (gpd). The following calculation was used to estimate domestic ground water discharge (*DGWD*) per cell in gallons per day (gpd) for the M3 Eagle Big Gulch Model:

$$DGWD = (number\ of\ wells\ in\ cell)\ x\ (3\ people\ per\ household)\ x\ (230\ gpd) \quad (2.4)$$

Municipal water use in the model refers to the water that is used to supply the domestic (urban areas) and commercial users within the model domain. Domestic use implies water used for individual homes within limits of municipal distribution systems. Commercial use refers to water that is used for apartment buildings, businesses, industries, schools, golf courses, or parks. Municipal use also applies to water withdrawn for irrigation for domestic and commercial users. IDWR provides this information in their online water

rights database; these data were used to estimate the amount of water pumped. Pumping limits in water rights are assigned based on an instantaneous rate limit and/or an annual rate limit. In most cases, the annual rate limit was assigned to each well in the model because it is assumed to be more representative of how much water actually is pumped. Municipal wells rarely reach the instantaneous rate limit when pumping; therefore, this value was not used in the model because it would have overestimated actual pumping.

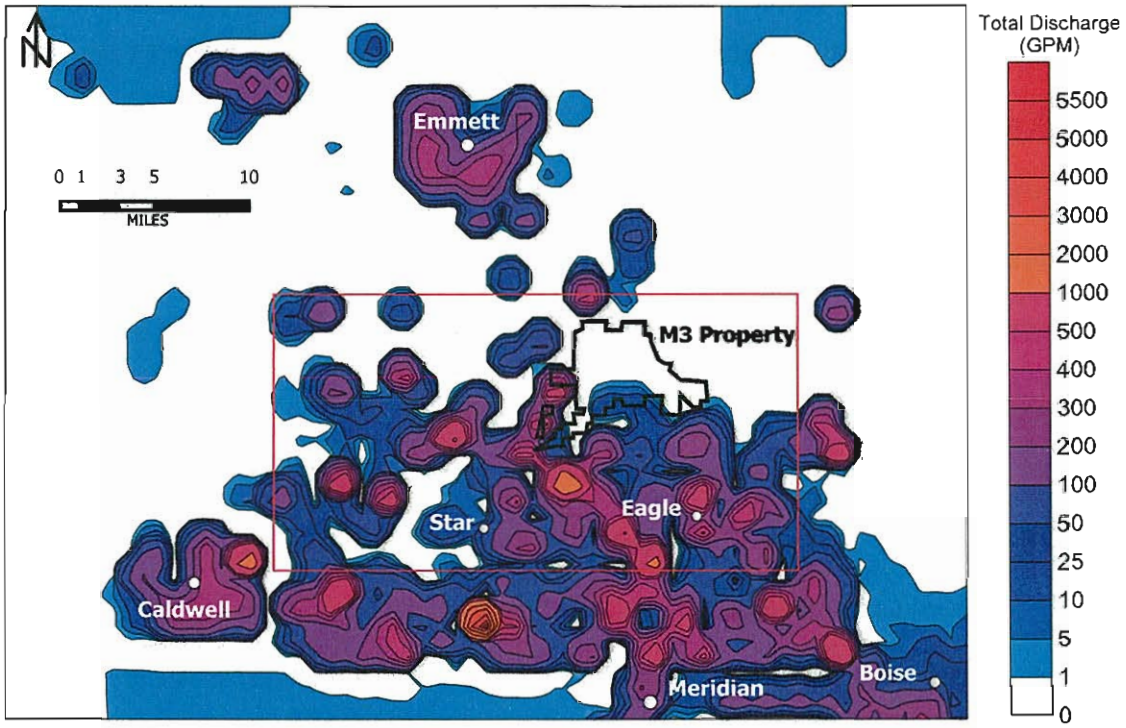


Figure 15. Map of groundwater withdrawal rates from wells within the model domain.

Industrial water use refers to water that is pumped for industries, for example, microprocessor and paper industries. Many industries are self-suppliers where they use local wells and/or surface water. Other industries may be self-suppliers, but also rely on water from municipal sources. The IDWR water rights database supplies information on industrial water rights, and the limits specified in the database were used to assign the amount of water

pumped in the model as discussed previously. Stock water is water pumped for livestock, such as cattle, horses, and small farm animals. This information is also provided in the IDWR Well Information Search online.

2.4 GROUND WATER LEVELS AND CONCEPTUAL MODEL

During the summer/fall of 2006, several ground water levels were acquired as part of a ground water level database for the model. Measurements were made manually by steel tape for several wells, most of which were located within the vicinity of the M3 Eagle Development property; handheld GPS units were used to estimate the wellhead elevation for each well (± about 20 ft). Most of the water level measurements and GPS measurements were recorded by HLI during the summer and fall of 2006. Additional water level information was derived from records of recently constructed wells; wells were selected carefully based on the driller of record, and the confidence level of the driller's measurements. For many areas beyond the vicinity of the M3 Eagle Development property where water levels were not measured, recent water level elevations were obtained from the IDWR Online Ground Water Level Database.

Based on the hand measurements taken during the summer and fall of 2006, water levels acquired from the IDWR database for summer and fall of 2006 (or as close in time as available), and driller water level measurements, a ground water level contour map for the model domain was constructed with Surfer® 7 (Golden Software, Inc., 1999). Figure 16 is a map of the wells used to construct the water level contour map. Information on these wells is provided in Appendix A.

The water level contour map derived for the model domain is shown in Figure 17. Ground water flows from higher water level elevations to lower water level elevations.

Based on the actual measured water levels, the general direction of ground water flow is from the southeast corner of the model domain (the Boise vicinity) toward the northwest corner of the model domain (the Letha, Idaho vicinity) near the southeastern corner of Payette County. A steep hydraulic gradient exists within the granite of the Idaho batholith located in the northeastern portion of the model domain (the southeastern area of Gem County and the northeastern area of Ada County). This steep hydraulic gradient reflects the relatively low hydraulic conductivity of the granite. Several viable wells exist in the granite within the model domain; however, several dry wells also have been found.

Limited data are available to determine whether ground water level fluctuations are common within the model domain. HLI measured many of the same wells during the summer of 2007 as were measured in 2006 and additional outlying wells determined to be completed in the Pierce Gulch Sand aquifer system. These measurements were coupled with base-station GPS measurements to sub-meter accuracy to better constrain the gradient (Squires, 2007). Based on those measurements with better vertical GPS control, aquifer heads in the Meridian area are higher, and aquifer heads in the Payette River valley are lower, than the water levels used to calibrate the ground water flow model (Figure 17). HLI concluded that the hydraulic gradient between the Boise River valley and the Payette River valley is slightly steeper than originally shown in Figure 17.

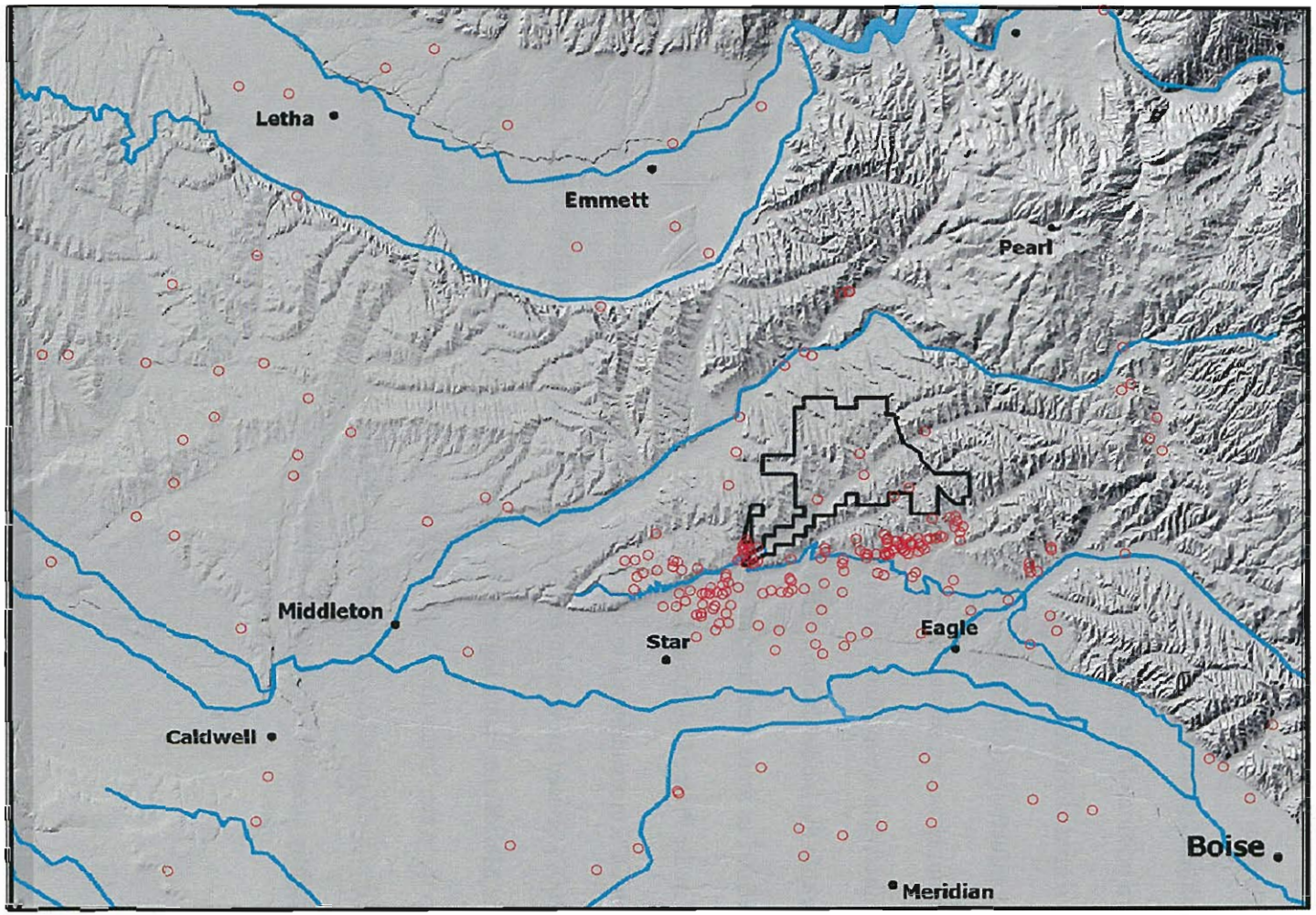


Figure 16. Map of wells used in the model. Most of the wells are in the vicinity of the M3 Eagle Development property, Star, and Eagle. Some of the measurements were acquired from the IDWR Online Ground Water Level Database.

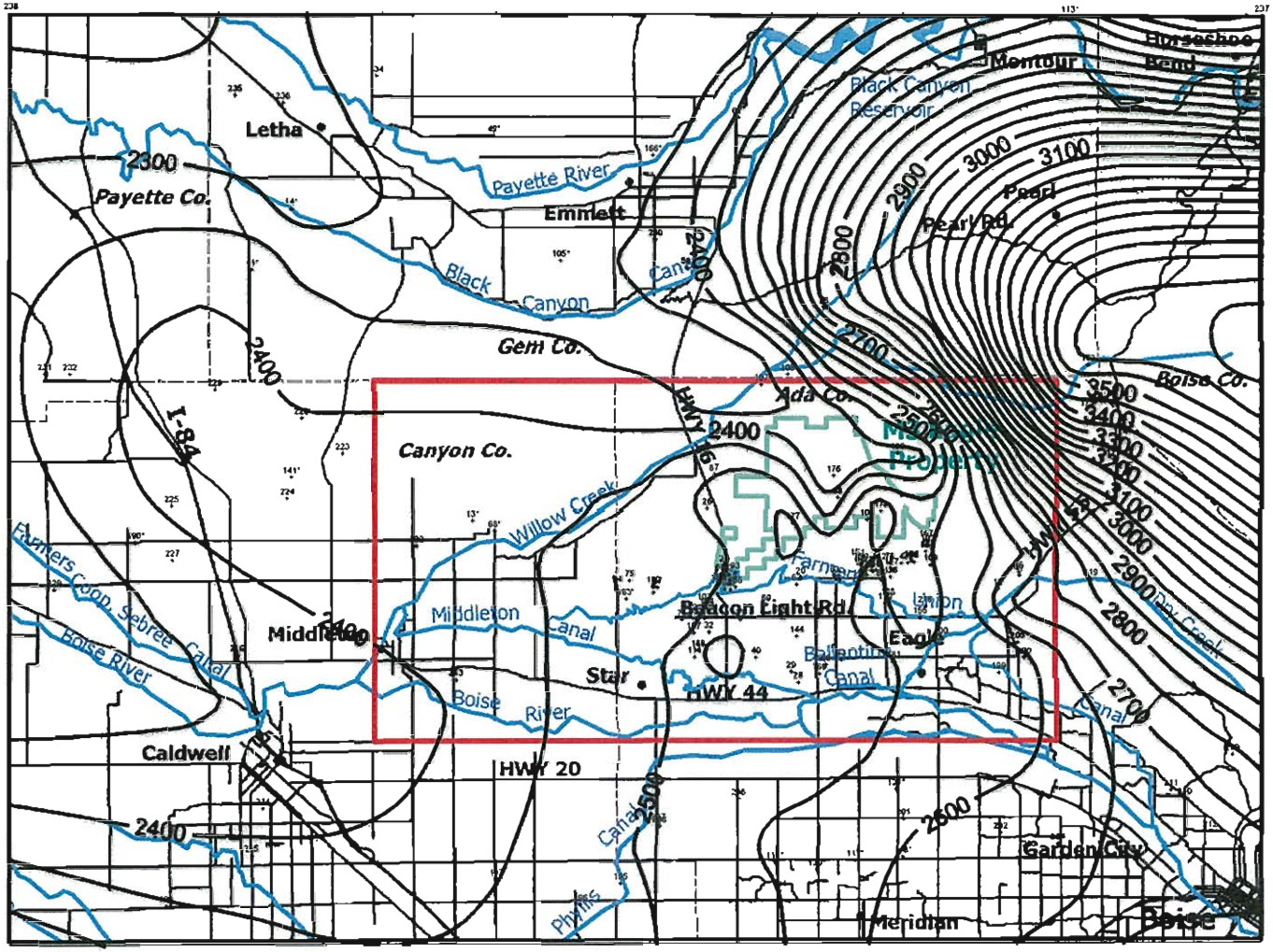


Figure 17. Ground water level contour map for the area of the model domain. The map was constructed based on water levels measured in 2006 for the wells shown in Figure 16. The red rectangle shows the model window area where data collection was concentrated.

CHAPTER 3

GROUND WATER FLOW MODEL

3.0 INTRODUCTION

Mathematical models are used to simulate ground water flow indirectly by means of a governing equation known as the three-dimensional ground water flow equation for a heterogeneous medium:

$$\frac{\partial}{\partial x}\left(K_{(x,y,z)}\frac{\partial h}{\partial x}\right)+\frac{\partial}{\partial y}\left(K_{(x,y,z)}\frac{\partial h}{\partial y}\right)+\frac{\partial}{\partial z}\left(K_{(x,y,z)}\frac{\partial h}{\partial z}\right)+W=S_s\frac{\partial h}{\partial t} \qquad (3.1)$$

where: $K_{(x,y,z)}$ is the hydraulic conductivity value as a function of the position in space at coordinates (x, y, z), h is the hydraulic head, W is the volumetric flux per unit volume representing sources and/or sinks of water, S_s is the specific storage, and t is time. The volumetric flux, W, is negative when it represents a source of water in the system and is positive when it represents a sink (Todd and Mays, 2005). In general, equation 3.1 means that the rate of flow to and from some segment of an aquifer system in the model equals the rate of change in volume of water stored in that segment plus the rate at which water is being added or removed from the segment of the aquifer system.

MODFLOW-2000™ is the computer code used to simulate ground water flow in the M3 Eagle Big Gulch Model. This computer program solves the three-dimensional ground water flow equation numerically by the finite-difference method. Use of this method requires subdividing the modeled area into a grid of layers, rows, and columns, which are called cells. A finite-difference form of the flow equation is applied to each cell and solved based on the volume of water entering and exiting each cell. The amount of water exiting a

cell affects nearby cells so the model functions as a system to simulate physical processes in the field.

The following section is taken from Harbaugh et al. (2000). Figure 18 illustrates a three-dimensional aquifer system consisting of cells recognized by rows, columns, and layers. The letters i (columns), j (rows), and k (layers) are used to reference the cells. For each cell, a node exists in the center of the cell where the head is calculated. Equations for the *x*-, *y*-, and *z*- directions exist, but the following equations (3.2 through 3.6) are presented for the y-direction. According to Harbaugh et al. (2000), the finite-difference equation for the effective hydraulic conductance of between two cells in the y-direction is:

$$KY_{i-\frac{1}{2},j,k} = \frac{\frac{\Delta y_{i-1} + \Delta y_i}{2}}{\frac{\frac{\Delta y_{i-1}}{2}}{KY_{i-1,j,k}} + \frac{\frac{\Delta y_i}{2}}{KY_{i,j,k}}} = \frac{KY_{i-1,j,k} KY_{i,j,k} \left(\Delta y_{i-1} + \Delta y_i\right)}{KY_{i,j,k} \Delta y_{i-1} + KY_{i-1,j,k} \Delta y_i} \tag{3.2}$$

where: $KY_{i-\frac{1}{2},j,k}$ is the effective conductance for the entire region between the nodes for two adjacent cells and Δy is the distance between nodes. If Δy is constant, then equation 3.2 is expressed as:

$$KY_{i-\frac{1}{2},j,k} = \frac{2K_{i,j,k} K_{i-1,j,k}}{KY_{i,j,k} + KY_{i-1,j,k}} \tag{3.3}$$

In MODFLOW-2000™, flows are positive if they are entering a cell and the negative sign incorporated into Darcy's law is dropped from all terms to simplify the development.

Flow into a cell (i,j,k) from another cell (i,j-1,k) is expressed by Darcy's law as (Harbaugh et al., 2000):

$$q_{i,j-\frac{1}{2},k} = KY_{i,j-\frac{1}{2},k}\Delta x_i \Delta z_k \frac{\left(h_{i,j-1,k} - h_{i,j,k}\right)}{\Delta y_{j-\frac{1}{2}}} \tag{3.4}$$

where: $q_{i,j-\frac{1}{2},k}$ is the volumetric fluid discharge through one face of one cell and an adjacent cell, $h_{i,j-1,k}$ and $h_{i,j,k}$ are heads at the respective nodes, $\Delta x_i \Delta z_k$ is the area of the face of the cell perpendicular to the row direction, and $\Delta y_{j-\frac{1}{2}}$ is the distance between a node at j and an adjacent node to the left, $j-1$. Darcy's law is used to describe flow through the remaining five sides of the cell.

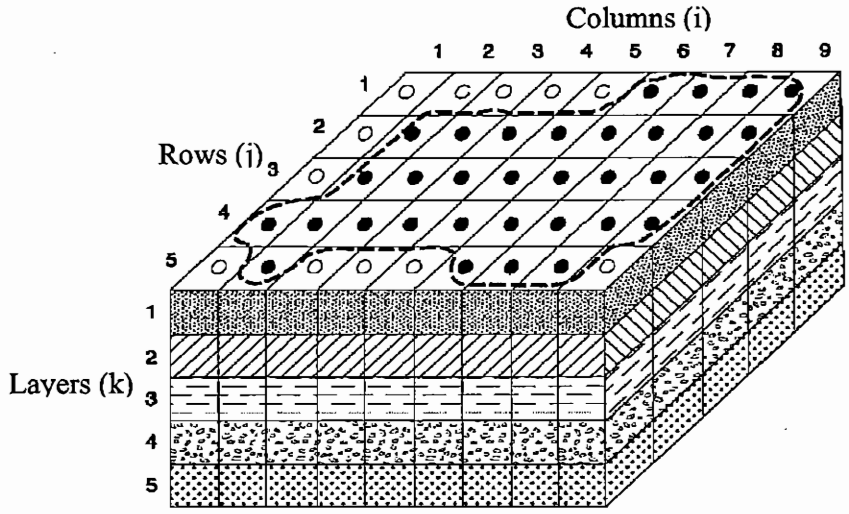


Figure 18. Example three-dimensional finite difference grid used in MODFLOW (Adapted from McDonald and Harbaugh, 1988).

The hydraulic conductance, KY, can be simplified by combining the grid dimensions and hydraulic conductivity. Hydraulic conductance, or simply conductance, is the product of the effective hydraulic conductivity and cross-sectional flow, divided by the length of the

flow path (distance between cell nodes). The following formula is used by MODFLOW-2000™ for hydraulic conductance:

$$CY_{i,j-\frac{1}{2},k} = KY_{i,j-\frac{1}{2},k} \frac{\Delta x_i \Delta z_k}{\Delta y_{j-\frac{1}{2}}} \tag{3.5}$$

where: $CY_{i,j-\frac{1}{2},k}$ is the conductance in row i and layer k between cell nodes $(i, j-1, k)$ and (i, j, k) in a units of length-squared per unit time. The formula for flow into a specific cell can now be simplified and written as

$$q_{i,j-\frac{1}{2},k} = CY_{i,j-\frac{1}{2},k}\left(h_{i,j-1,k} - h_{i,j,k}\right) \tag{3.6}$$

External sources or stresses from outside the aquifer, such as streams, rivers, canals, recharge, evapotranspiration, or well discharge are represented by the W term in the three-dimensional ground water flow equation, and are described through additional terms in the finite difference equation. The rate at which water is stored or released in a cell is described as:

$$\frac{\Delta V}{\Delta t} = SS_{i,j,k}\Delta x_i \Delta y_j \Delta z_k \frac{\Delta h_{i,j,k}}{\Delta t} \tag{3.7}$$

where: $SS_{i,j,k}$ is the specific storage of cell (i, j, k), $\frac{\Delta h_{i,j,k}}{\Delta t}$ is the finite difference approximation for the derivative of head over time, and $\Delta x_i \Delta y_j \Delta z_k$ is the volume of the cell (i, j, k). The total external flow for cell (i, j, k) is represented by $W_{i,j,k}$ in the following equation:

$$W_{i,j,k} = \sum_{n=1}^{N} p_{i,j,k,n} h_{i,j,k} + \sum_{n=1}^{N} q_{i,j,k,n} = P_{i,j,k} h_{i,j,k} + Q_{i,j,k} \tag{3.8}$$

where: n is the number of external sources or stresses affecting the cell, and p and q are constants describing the individual sources or stresses.

Based on the continuity equation, where $Inflow = Outflow \pm \Delta S$, the continuity equation can be written for a single cell (i, j, k) as

$$q_{i,j-\frac{1}{2},k} + q_{i,j+\frac{1}{2},k} + q_{i-\frac{1}{2},j,k} + q_{i+\frac{1}{2},j,k} + q_{i,j,k-\frac{1}{2}} + q_{i,j,k+\frac{1}{2}} + W_{i,j,k} = SS_{i,j,k}\left(\frac{\Delta h_{i,j,k}}{\Delta t}\right)\Delta x_i \Delta y_j \Delta z_k \quad (3.9)$$

The equation for conductance in the column and layer directions using the terms *CX*, *CY*, and *CZ*, can be substituted into each of the flow terms of equation 3.9 along with the equation for $W_{i,j,k}$:

$$\begin{aligned} &CY_{i,j-\frac{1}{2},k}\left(h_{i,j-1,k} - h_{i,j,k}\right) + CY_{i,j+\frac{1}{2},k}\left(h_{i,j+1,k} - h_{i,j,k}\right) + CX_{i-\frac{1}{2},j,k}\left(h_{i-1,j,k} - h_{i,j,k}\right) + \\ &CX_{i+\frac{1}{2},j,k}\left(h_{i+1,j,k} - h_{i,j,k}\right) + CZ_{i,j,k-\frac{1}{2}}\left(h_{i,j,k-1} - h_{i,j,k}\right) + CZ_{i,j,k+\frac{1}{2}}\left(h_{i,j,k+1} - h_{i,j,k}\right) \\ &+ P_{i,j,k}h_{i,j,k} + Q_{i,j,k} = SS_{i,j,k}\left(\frac{\Delta h_{i,j,k}}{\Delta t}\right)\Delta x_i \Delta y_j \Delta z_k \end{aligned} \quad (3.10)$$

Equation 3.10 is used to describe flow into and out of a cell based on cell size, hydraulic conductivity, storativity, and sources and/or sinks for each cell in each layer of the model.

Visual MODFLOW™ Pro 4.2 (Waterloo Hydrogeologic, Inc., 2006) is the graphical user interface used to develop and run the M3 Eagle Big Gulch Model. MODFLOW-2000™ is the code used by Visual MODFLOW™ Pro 4.2 to solve the finite difference equations for the parameters and coefficients (model input) developed for the M3 Eagle Big Gulch Model.

3.1 DESCRIPTION OF THE MODEL

A model grid of 62 columns, 46 rows, and eight layers is used to represent the M3 Eagle Big Gulch Model as shown in Figure 19. Each square cell has the dimensions of 2,640 ft by 2,640 ft (one half mile by one half mile). The grid is oriented in a north-south direction

and is aligned with the intersection of the Boise Meridian and Beacon Light Road, near Eagle, Idaho. As a result, each legal section within each township and range contains four model cells. The grid encompasses a rectangular shaped, model domain that extends east to west from the city of Boise in the lower right corner to approximately six miles southwest of Caldwell in the lower left corner, and north to the Payette River between Horseshoe Bend and eight miles northwest of Letha. The main focus area of the model is the rectangular window outlined in red, which encompasses the M3 Eagle Development property plus the Star and Eagle areas. The model originally was designed for the area of the model window only; however, it was enlarged as the conceptual hydrogeologic model evolved, and to

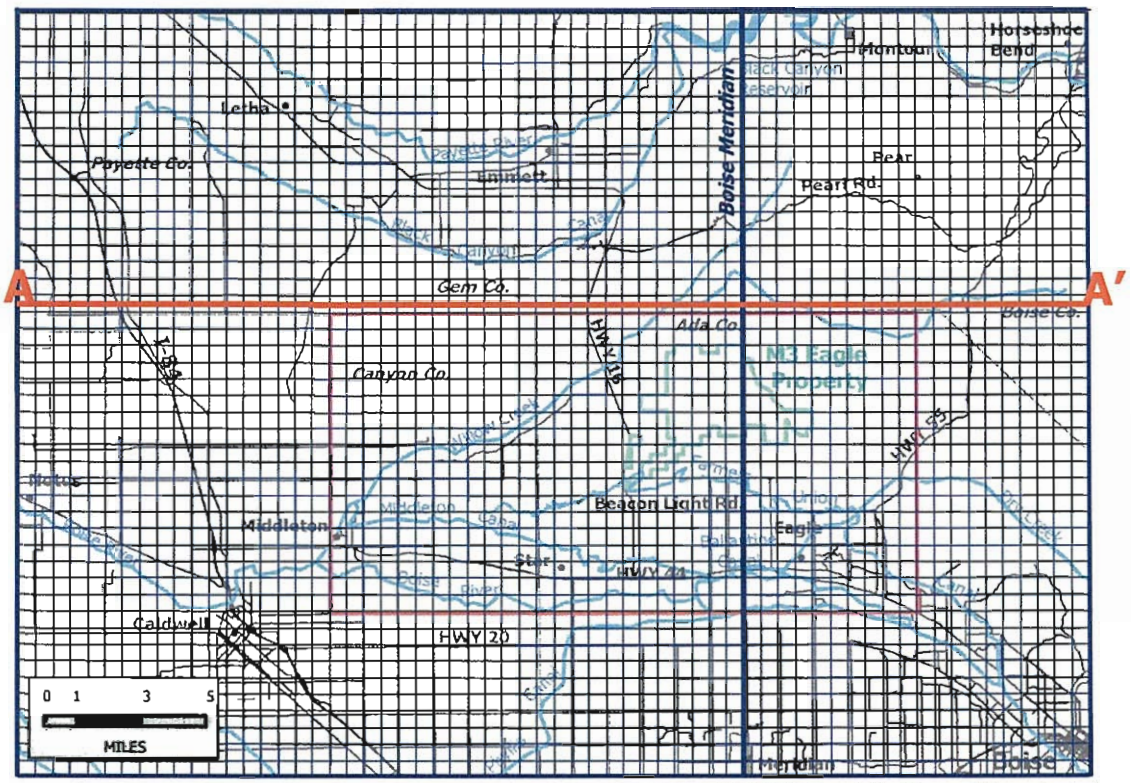


Figure 19. Model grid over the model domain as seen in Visual MODFLOW™ Pro 4.2. The grid is oriented north and south, and is aligned with the Boise Meridian and Beacon Light Road. The grid consists of 62 columns and 46 rows for a total of 2,852 cells per layer. A-A' shows the location of the cross-section presented in Figure 21.

preclude boundary effects in the water level contours, accommodate for future studies, include important rivers and canals, and include more field water level measurements and geological information. All cells in each layer are active in the model.

The M3 Eagle Big Gulch Model is composed of eight layers from ground surface (top) to sea level (bottom). Land surface topography is represented in the model such that the top of each cell is assigned an independent, specific elevation, where needed, to simulate the variable land surface within the model domain (Figure 20). The highest elevation in the model is 4,854 ft. Figure 21 is a west-east cross-section located just north of the M3 Eagle Development property. Some of the layers in the model appear to pinch out in Figure 21; however, MODFLOW-2000™ requires all layers to have a minimum thickness. As a result, the nonvisible portions of Layer 1, Layer 2, and Layer 3 on the western side of the model domain are assigned a minimum thickness of one foot. The assigned thicknesses for the model layers are listed in Table 2. The potential for numerical instability and inaccuracies due to the variability of the layer thicknesses in the model was recognized; however, these errors were considered to be relatively insignificant compared to other errors in the model.

The M3 Eagle Big Gulch Model consists of two parts: a steady-state model and a quasi-steady-state model. The steady-state model is a numerical representation of the conditions within the model domain that are believed to have existed prior to any development of the land, and prior any stresses imposed on the system by man. Data control for the steady-state conditions was not incorporated into the model because data dating back to the time before man settled the area were not available. Instead, this model was adapted from the quasi-steady-state model where values for hydraulic conductivity were used, but

boundary conditions were modified to reflect the hydraulic conditions believed to exist prior to the perturbations of development (e.g., no canals, wells, or water diversions for irrigation).

A quasi-steady-state model was developed for the M3 Eagle Big Gulch Model. The adjective, "quasi", simply implies that this model is very similar to the steady-state model in that the model has reached a state of equilibrium, but that equilibrium is for a "snapshot" of the ground water conditions measured in 2006 (not true steady-state).

An attempt to develop a transient model for the M3 Eagle Big Gulch Model was made. This model is representative of nonequilibrium flow conditions where selected wells within the model domain were pumped to simulate aquifer test conditions (i.e., cones of depression that grow with time). Transmissivity and storativity values for the aquifer system(s) simulated in the transient model were derived through analysis of the transient time-drawdown data collected during several aquifer tests conducted within the model domain by previous investigators and by HLI. The conditions of selected aquifer tests were simulated in the model for the seasonal conditions applicable at the time of the tests.

3.2 HYDRAULIC CHARACTERISTICS OF THE MODEL

Ground water models require a number of boundary conditions to represent the relationships between the aquifer system(s) of interest and the regional hydrogeology. These conditions describe the exchange of flow between the model and some system(s) external to the model. The following is a list of boundary conditions developed in Visual MODFLOW™ Pro 4.2 for the M3 Eagle Big Gulch Model: (1) no-flow, (2) general head, (3) recharge, and (4) rivers.

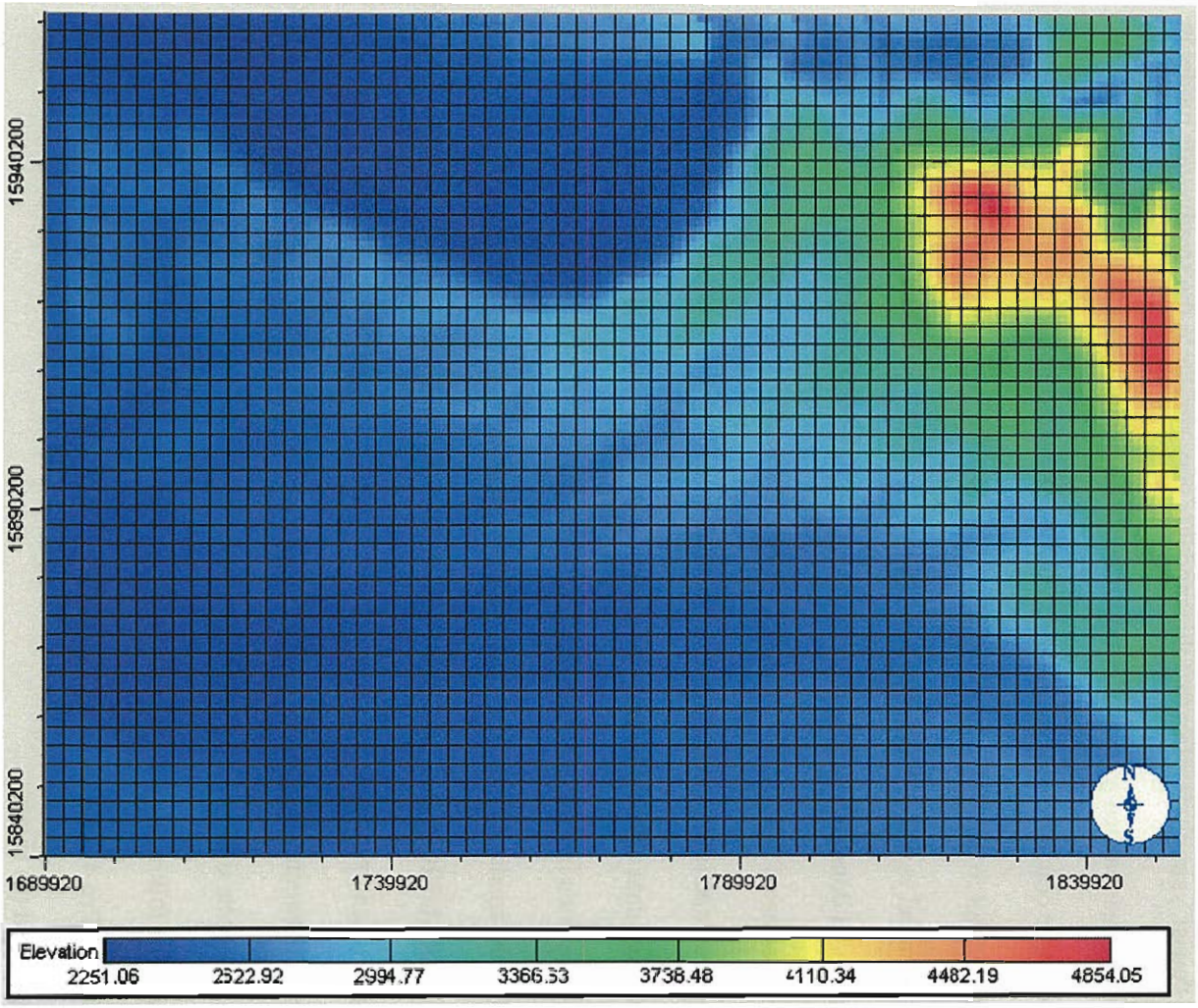


Figure 20. Distribution of elevation within the model domain. Each cell is assigned a value of elevation. The highest elevations (dark red) exist on the eastern side of the model domain in the Boise foothills while the lowest elevations (dark blue) exist in the Payette River valley.

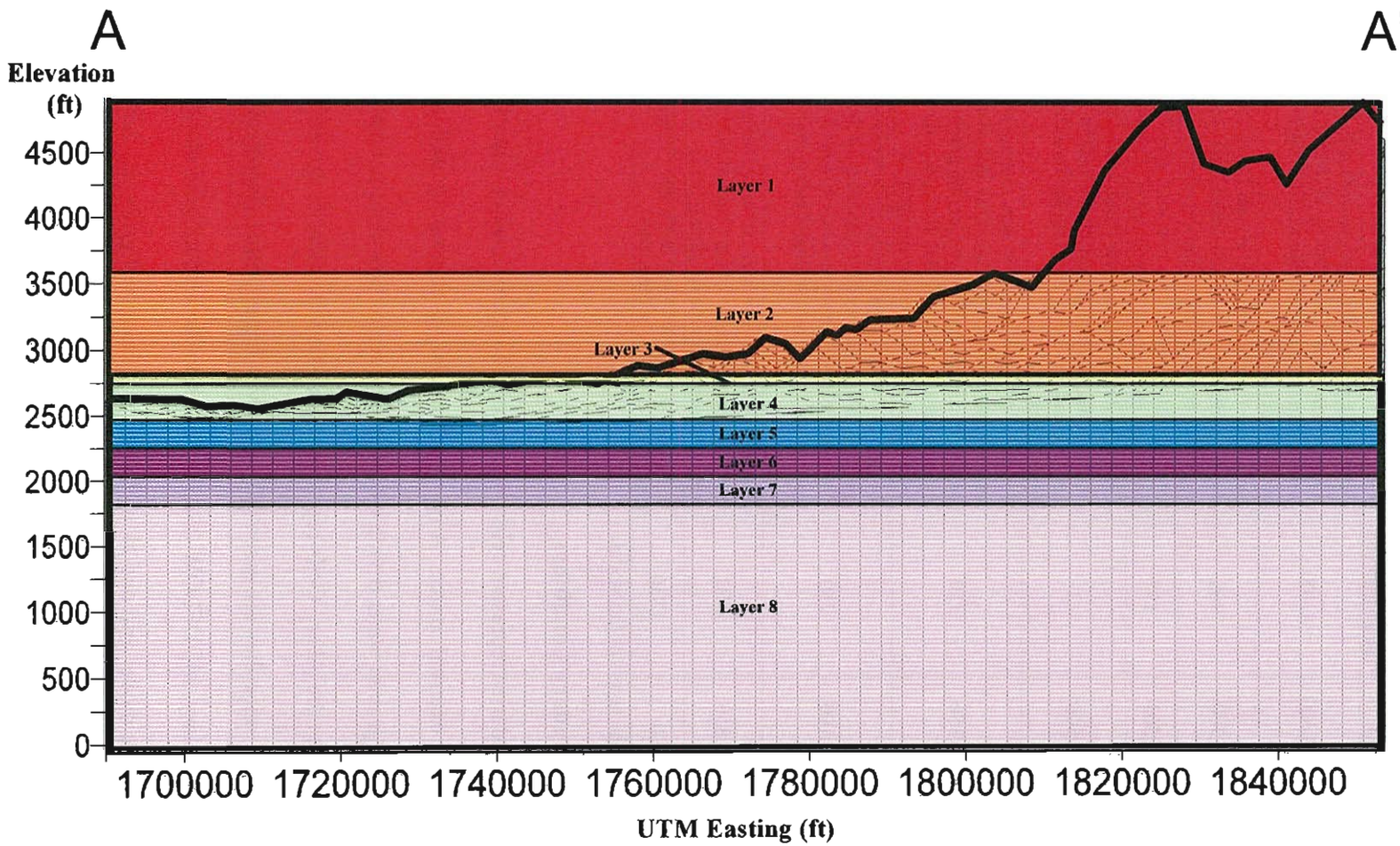


Figure 21. A-A' cross-section across the model domain. The cross-section is taken approximately one mile north of the M3 Eagle Development property as shown in Figure 19. The model contains eight layers. Layer(s) 5 and/or 6 represent the Pierce Gulch Sand aquifer system depending on location within the model domain.

Layer Number	Layer Elevation (ft amsl)	Layer Thickness (ft)	Lithology of the Layer
1	~5,000 to 3,600	1,400	Granite (Idaho batholith) on the eastern side of the model domain; volcanics, Columbia River basalts in the northeastern area; and sediments covering the remainder of the model domain
2	3,600 to 2,700	900	Granite on the eastern side beneath Layer 1; Columbia River basalts in the northeast under Layer 1; and sediments covering the remainder of the model domain
3	2,700 to 2,503	197	Granite on the eastern side beneath Layer 2; and sediments covering the remainder of the model domain
4	2,503 to 2,500	3	Clay beneath the Boise River in the southeastern portion of the model domain; granite on the eastern side beneath Layer 3; and sediments covering the remainder of the model domain
5	2,500 to 2,350	150	Pierce Gulch Sand aquifer system dipping at an angle of approximately one degree in reality intersects the land surface in this layer of the model; the granite body extends between Layer 4 and the base of the model; and sediment composes the remaining areas
6	2,350 to 2,100	250	Layer 6 is composed primarily of Pierce Gulch Sand from the fault to the southwestern boundary of the model domain; the granite body extends through Layer 6 to the base of the model; and sediment composes the remaining areas
7	2,100 to 1,850	250	Pierce Gulch Sand dips into this layer; the granite body extends through Layer 7 to the base of the model; and sediment composes the remaining areas
8	1,850 to 0	1850	Clay largely composes this layer; and the granite body extends to the base of the model.

Table 2. Description of the layers of the model.

3.2.1 No-Flow Boundary Conditions

No-flow boundaries represent cells where no exchange of ground water flow occurs between a cell and an external source. A no-flow boundary is commonly used to represent an igneous body or a ground water divide where ground water flow does not pass from one side of the boundary to the other. Cells representing no-flow boundaries are not used to calculate head values since they are essentially inactive. Unless otherwise specified by another type of boundary, MODFLOW-2000™ places no-flow boundaries along the perimeter of the entire model grid and along the base of the model grid (i.e., default boundary conditions). The perimeter no-flow boundaries exist in all model layers unless another boundary condition is assigned. For the M3 Eagle Big Gulch Model, the basal no-flow

boundary is located at the bottom of the model domain at an elevation of zero feet (i.e., mean sea level). The model grid (model domain) was made considerably larger than the primary area of interest (model window) to help minimize the effects of the perimeter no-flow boundaries on the model results.

3.2.2 General-Head Boundary Conditions

General-head boundaries represent flow into or out of a cell from an external source. The purpose of a general head is to avoid unnecessarily extending the model domain outward while using an outside source of water to influence the head in the model (Waterloo Hydrogeologic, Inc., 2006). As a result, general-heads are commonly placed along the outside edges of a model domain. Each general head requires a boundary head value and a conductance value for each grid cell. Conductance represents the resistance to flow between the boundary head and the model domain. Conductance (C) is calculated for each grid cell using the following formula:

$$C = \frac{LWK}{D} \tag{3.11}$$

where: LW is the surface area (length times width) (L^2) of the grid cell face exchanging flow with the external source of water, K is the hydraulic conductivity (L/T) of the aquifer material separating the model from the source, and D is the distance (L) between the model and the source. The steady-state and quasi-steady-state model contain general-heads based on different sources and conditions.

3.2.2.1 Steady-state model

The steady-state model contains general-head boundaries in Layer 8 along the western and southern boundaries of the model domain. These general-head boundaries represent the Snake River. Approximate river elevations, based on topographic maps, were

used to assign the elevations of the general-head boundaries in the model; conductance values were set to represent the average hydraulic conductivity (K) for basalt. General-head boundaries representing canals were not used in the steady-state model because no canals existed prior to basin development by man. Figure 22 shows the cells in the model domain that represent general-head boundaries in Layer 8.

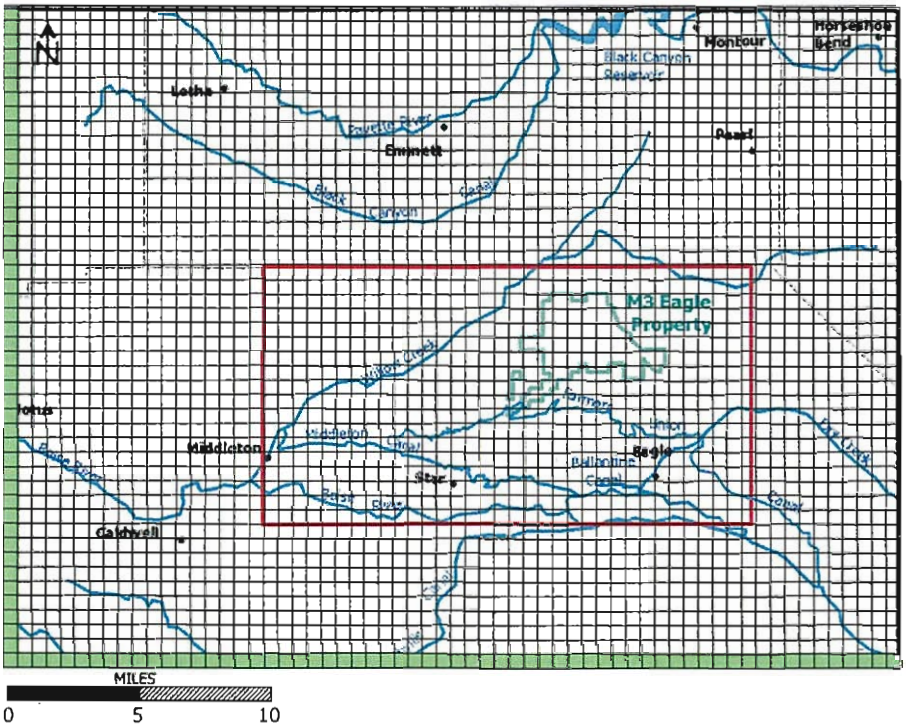


Figure 22. General-head cells in the steady-state model grid Layer 8. The general-heads cells are shown in green.

3.2.2.2 Quasi-Steady State Model

In the quasi-steady-state model, Layer 6 and Layer 7 contain general-head boundaries to simulate the conditions of underflow entering the model domain on the up-gradient side and underflow exiting the model domain on the down-gradient side. The purpose of these general heads is to allow the model to simulate the continuous throughput of ground water from one side of the model domain to the other.

Layer 6 in the quasi-steady-state model contains a general-head boundary on the eastern side of the model grid starting at Dry Creek and extending to the southeastern corner of the model domain (Figure 23). This general-head represents underflow into the model domain from canals and ditches in the Boise vicinity. Layer 6 contains another general-head boundary along the western side and in the northwestern corner of the model grid (Figure 23). This general head is not representative of any single, identifiable system, but was placed to simulate the northwesterly underflow of ground water from the model domain based on the water level contour map (Figure 17). The head values were assigned directly from the water level contour map for 2006.

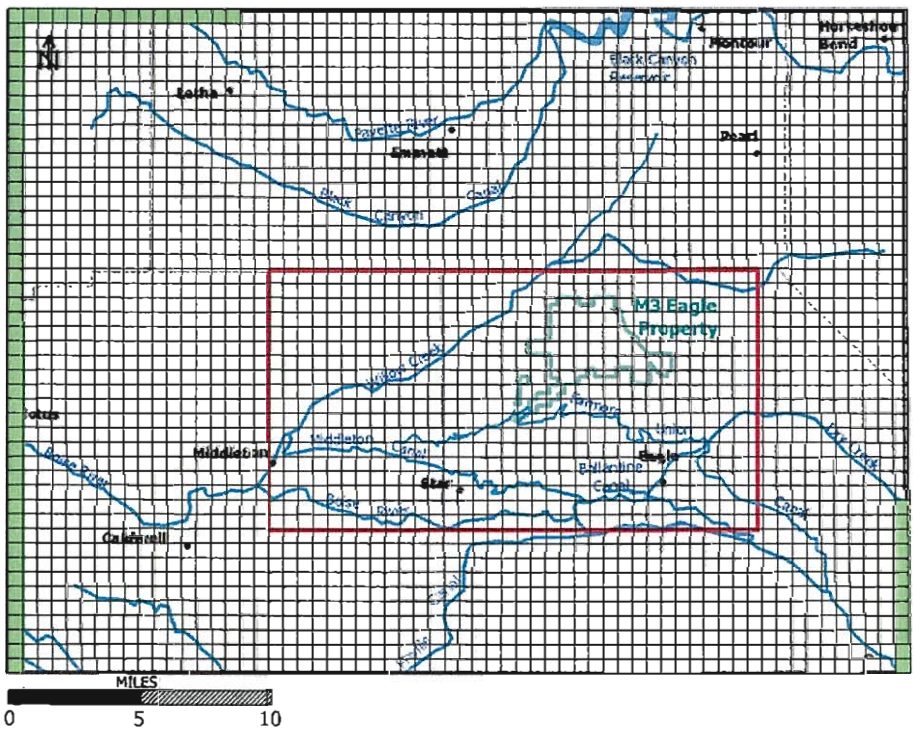


Figure 23. General-head boundaries in the quasi-steady-state model grid Layer 6. The green cells represent the general heads.

Layer 7 of the quasi-steady-state model contains a general head boundary along the southern edge of the model domain (Figure 24). This general-head boundary includes head

values that were based on the water level contour map for 2006 (Figure 17). The general-head boundary at this location represents underflow to the model domain from canal and ditch seepage originating from the New York Canal system to the south.

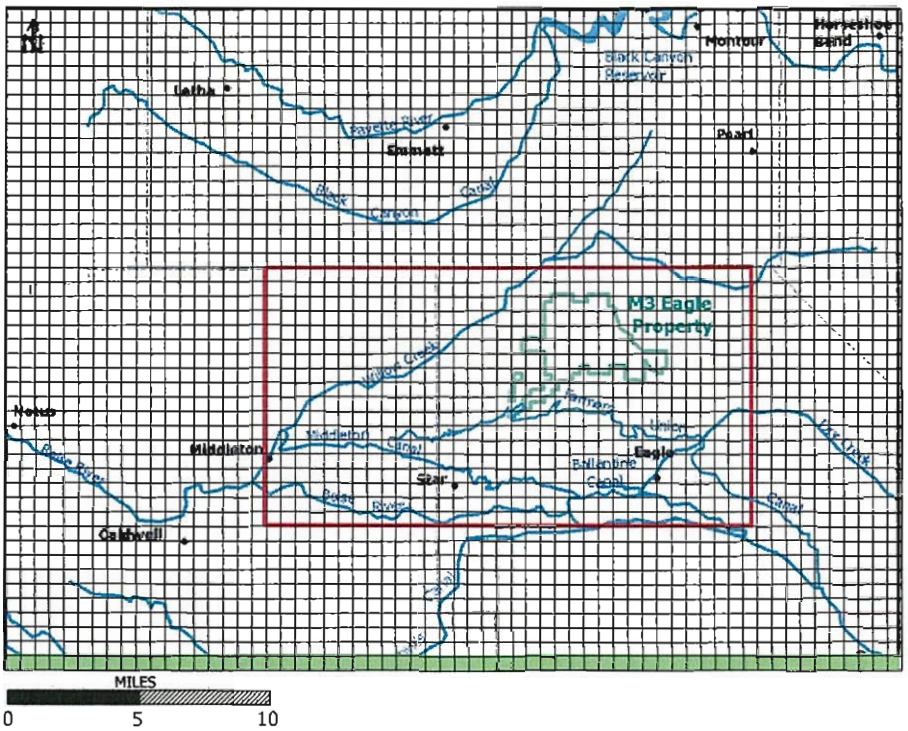


Figure 24. General-head boundaries in the quasi-steady-state model grid Layer 7. The green cells represent the general heads.

3.2.3 Recharge

3.2.3.1 Recharge to steady-state model

The Recharge Package in MODFLOW-2000™ was used to simulate recharge from natural precipitation in the steady-state model. An annual precipitation shapefile from the online IDWR GIS spatial database (Idaho Department of Water Resources, 2006) was used to estimate recharge for each cell in the model; the annual average precipitation (Figure 13) for each zone was multiplied by 2% (0.02) to approximate recharge to Layer 1 of the model. Recharge that originated from river and creek seepage was applied to the steady-state model by use of the River Package in MODFLOW-2000™.

3.2.3.1 Recharge to the quasi-steady-state model

The Recharge Package was used in the quasi-steady-state model to represent recharge from precipitation, irrigation, and septic system discharge. Recharge rates from precipitation were estimated by HLI for the land use categories within the model domain based on criteria presented in the Treasure Valley Water Budget (Urban, 2004). These rates were assigned within the model domain based on land use categories (Figure 14). Recharge rates from irrigation were compiled by HLI on a cell-by-cell basis based on land use areal photographs plus the position of the irrigated land relative to irrigation canals within the model domain. All septic system discharge was assumed to become ground water recharge. Septic recharge was estimated from data provided by HLI (Hydro Logic, Inc., 2007). By using the number of wells per model cell delineated by HLI, and equation 2.3 in section 2.2.4, a septic system recharge rate was estimated for each cell in the model.

Recharge from precipitation, irrigation, and septic recharge were compiled into a spreadsheet, and the units were converted from gallons per minute (GPM) to cubic feet per day (ft^3/d), and then divided by the cell area (6,969,600 ft^2) to derive a recharge rate in feet per day (ft/d) to apply to the model. The values calculated per cell are provided in Appendix B. A shaded cell map of recharge is presented in Figure 25. The recharge values delineated in Figure 25 were assigned to the quasi-steady-state model. These values were preliminary estimates that were later believed to be too low for the model. This topic will be discussed in further detail in section 4.4.3.2 of Chapter 4.

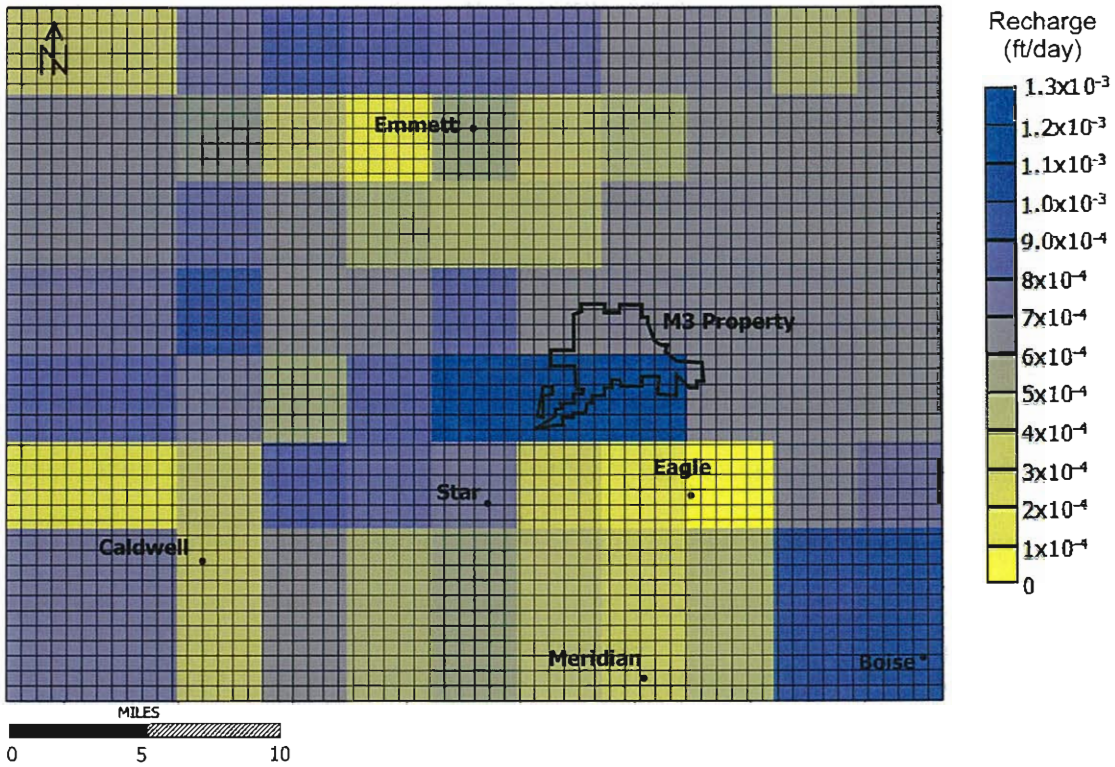


Figure 25. Shaded cell map of total estimated recharge within the model domain from all sources.

3.2.4 Seepage From Surface Water Bodies

Bodies of surface water such as rivers, creeks, canals/ditches, lakes, and reservoirs may contribute to ground water flow when some degree of seepage exists. The model domain contains two major rivers, several creek drainages, and several canals. According to Urban (2004), seepage from canals is a major contribution to ground water recharge. Figure 26 is a map of the rivers and canals simulated in the model. HLI provided information on the locations of the known canals within the model window. Many small canals and ditches exist throughout the entire region; however, many have not been mapped making it difficult to estimate canal seepage accurately for the model.

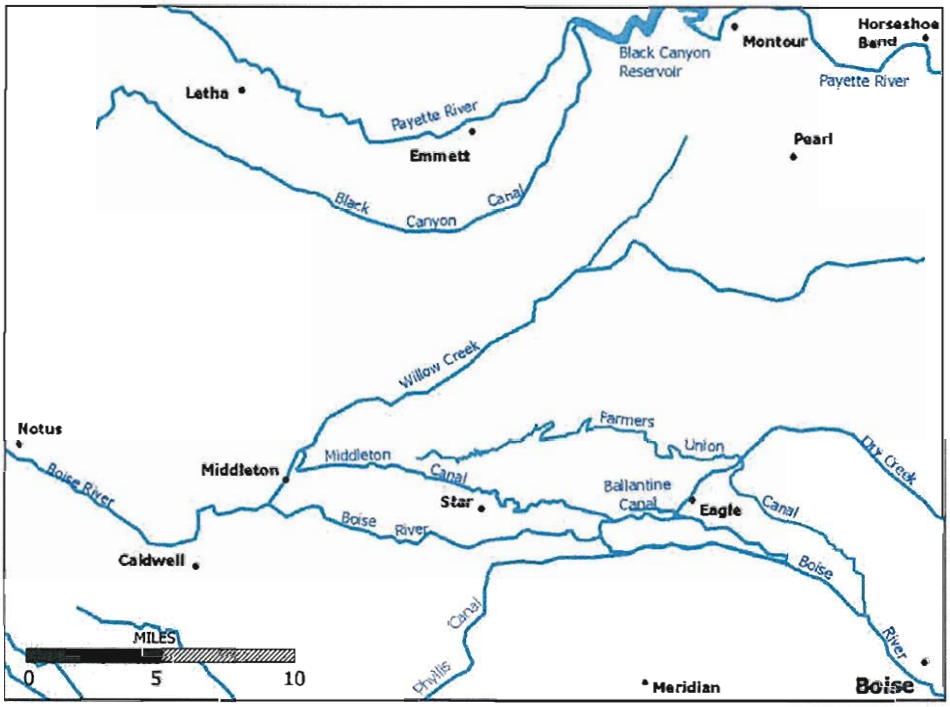


Figure 26. Map of rivers, canals, creeks, and reservoirs that exist within the model domain (U.S. Geological Survey, 2006).

The River Package in MODFLOW-2000™ was used to simulate the Boise River, Payette River, and Black Canyon reservoir, and canals within the model domain that were identified and are believed to contribute seepage water to the aquifer systems. As described in the Visual MODFLOW™ Pro 4.2 User's Manual (Waterloo Hydrogeologic, Inc., 2006), the following information is needed for each cell in the model containing a river or canal boundary:

1. River/Canal stage, which is the free water surface elevation of the surface water body,

2. River/Canal bottom, which is the elevation of the bottom of the seepage layer of the surface body of water, and

3. Conductance of the river/canal bed, which represents the resistance to seepage between a surface water body and the ground water.

MODFLOW-2000™ calculates conductance (C) for each river/canal cell of the model based on the river/canal stage elevation, river/canal bottom elevation, river/canal reach length, and the vertical hydraulic conductivity of the riverbed/canal bed associated with the cell as:

$$C = \frac{K_z LW}{M} \tag{3.12}$$

where: K_z is the vertical hydraulic conductivity of the riverbed/canal bed (L/T), L is the length of the reach of the river or canal (L) in a cell, W is the width of the river/canal in the cell (L), and M is the thickness of the riverbed/canal bed material (L). In all cases, the length of the river/canal (L) in each cell was assumed to be equal to the length of the cell (2,640 ft). No data were available for the hydraulic conductivity and thickness of the riverbed/canal bed materials for any of the rivers, canals or creeks within the model domain. Therefore, values for conductance were based on model calibration needs only and were adjusted within reasonable limits.

3.2.4.1 Surface water seepage in the steady-state model

The River Package was used in the steady-state model to simulate the Boise River and the Payette River. Canals, creeks, and the Black Canyon reservoir were not simulated in the steady-state model. Information for the river stages was based on the USGS National Water Information System web interface where stream characteristics are provided for all times at various gaging stations located along each river in 2006. Along the Boise River, gaging stations exist near Boise, Eagle, and Parma, Idaho. While Parma is not located within the model domain, information at this station was used to estimate the width and stream elevation for the Boise River on the western side of the model domain because a closer gage does not exist. Values for April through August were used to calculate the average stream elevation for each cell in the model, and to find an average stream width. Values for the

Boise River assigned within the model domain are listed in Table 3. The bed of the Boise River consists of river gravels that lie above a thin (approximately five ft thick) clay layer. A riverbed K_z (vertical hydraulic conductivity) of 2.8 x 10^{-4} ft/d was used for the Boise River to represent the clay unit.

River	River Stage (ft): Highest Stage to Lowest Stage	Riverbed Bottom	Riverbed Thickness (ft)	Riverbed K_z (ft/d)	Average River Width (ft)	Conductance (ft^2/d)
Boise River	2,680 – 2,290	10 ft below stage in cell	3	2.8 x 10^{-4}	127	31
Payette River	2,600 – 2,235	12 ft below stage in cell	3	2.8 x 10^{-4} to 2.8 x 10^{-1}	250	61.6 to 61,600

Table 3. River information used in the River Package.

Gaging stations exist along the Payette River near Horseshoe Bend, Emmett, and Letha, Idaho. Stream stage values for April through August were used to calculate the average stream elevation for each cell in the model and to find the average stream width. Values assigned for the Payette River in the model are also listed in Table 3. The Payette River flows over granite and basalt in the northeastern area of the model domain, and flows over sediments in the north-central and northwestern portions of the model domain. A riverbed K_z of 2.8 x 10^{-4} ft/d (granite) was used to calculate the conductance for basalt and granite cells of the model, and a K_z of 2.8 x 10^{-1} ft/d (fine sand) was used to calculate the conductance for sediment cells of the model.

3.2.4.2 Surface water seepage in the quasi-steady-state model

The Boise and Payette rivers, several canals, and Dry Creek were simulated in the quasi-steady-state model. It is not known how many canals actually exist within the model domain. The following list identifies important surface water bodies within the model domain:

1. Farmers Union Canal
2. Middleton Canal

3. Ballantine Canal
4. Phyllis Canal
5. Black Canyon Canal
6. Dry Creek

Willow Creek was not simulated in the model due to the lack of available information. The locations of the canals and creeks are shown in Figure 26. Limited information was recovered for these canals, and average conditions were assumed for the model. The canals and Dry Creek were simulated in the model by the River Package. Stage head elevations were approximated from topographic maps. Initially, the canal bed and creek bed hydraulic conductivities for all canals and Dry Creek were set to the same value for a clay (K_z = 2.8 x 10^{-4} ft/d) to calculate conductance (C). However, these values were changed by trial-and-error testing during model calibration along specific reaches where more or less seepage was needed. Table 4 lists the final K_z values used in calculating conductances for the canals. The Ballantine Canal was not simulated in the model as an independent feature because it would have been located in the same cells as the Boise River in certain reaches. In those overlapping cells, seepage from the Ballantine Canal was not simulated in the model. Instead seepage from the Ballantine Canal was only simulated where the river and the canal shared cells. Note that the conductance for Farmers Union Canal (24,640 ft^2/d to 246,400 ft^2/d) is one to two orders of magnitude greater than the other canals. This will be discussed further in section 4.4 on calibration of the model.

Several creeks also exist within the model domain; however, only Dry Creek was simulated. According to CH2M HILL (1991), seasonal losses occur from Dry Creek. Table

5 lists the characteristics of Dry Creek input into the model. The stage information was based on topographic maps.

Canal	Canal Stage (ft): Highest Stage to Lowest Stage	Canal Bed Bottom	Canal Bed Thickness (ft)	Canal Bed K_z (ft/d)	Average Canal Width (ft)	Conductance (ft^2/d)
Farmers Union	2,640 to 2,460	3 ft below stage in cell	3	2.8×10^{0} to 2.8×10^{1}	10	24,640 to 246,400
Middleton	2,515 to 2,430	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Phyllis	2,520 to 2,500	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Black Canyon	3,400 to 2,470	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464

Table 4. Canal information used in the River Package.

Creek	Creek Stage (ft) - Highest Stage to Lowest Stage	Creek bed Bottom	Creek bed Thickness (ft)	Creek bed K_z (ft/d)	Average Creek Width (ft)	Conductance (ft^2/d)
Dry Creek	2,700 to 2,550	3 ft below stage in cell	3	2.8×10^{0}	10	24,640

Table 5. Dry Creek information used in the River Package.

The Black Canyon Reservoir exists within the model domain and was simulated in the quasi-steady-state model. The Payette River flows into and out of Black Canyon Reservoir in the north-central area of the model domain. Elevation of the stage height at the dam was estimated based on information provided by the U.S. Bureau of Reclamation website (2003). The River Package was used to simulate reservoir seepage; the same stage height was used for all cells. Table 6 lists the information for the reservoir used in the model. Note that Table 6 does not include a column for the average width of the reservoir. Instead a conductance of 100 ft^2/day was assigned to each cell containing the Black Canyon Reservoir. This assumes a hydraulic conductivity of 4.3×10^{-5} ft/d, which is on the high end of the range of K for unfractured basalt (Freeze and Cherry, 1979).

Reservoir	Reservoir Stage (ft) - Highest Stage to Lowest Stage	Reservoir Bed Bottom	Reservoir bed Thickness (ft)	Reservoir bed K_z	Conductance (ft^2/d)
Black Canyon Reservoir	2,500	20 ft below stage in cell	3	4.3×10^{-5}	100

Table 6. Reservoir information used in the River Package.

3.2.5 Hydraulic Conductivity

Figure 27 is a map showing locations of several aquifer tests completed by previous investigators and HLI within the model window. Transmissivity values derived for these aquifer tests (Utting and Squires, *in review*) were used to estimate initial hydraulic conductivity values for Layer 5, Layer 6, and Layer 7 in the model. The arithmetic mean transmissivity for each test was used to assign representative *K* values to specific areas of the model window. For the remaining areas inside the model window, cross-sections constructed by HLI were analyzed, and representative (textbook estimates) *K* values were assigned to each material type detailed in well logs. For areas of the model domain not covered by aquifer tests, or HLI cross-sections, representative (textbook estimates) *K* values were assigned based on material types recorded in well logs obtained from the IDWR Well Information Search.

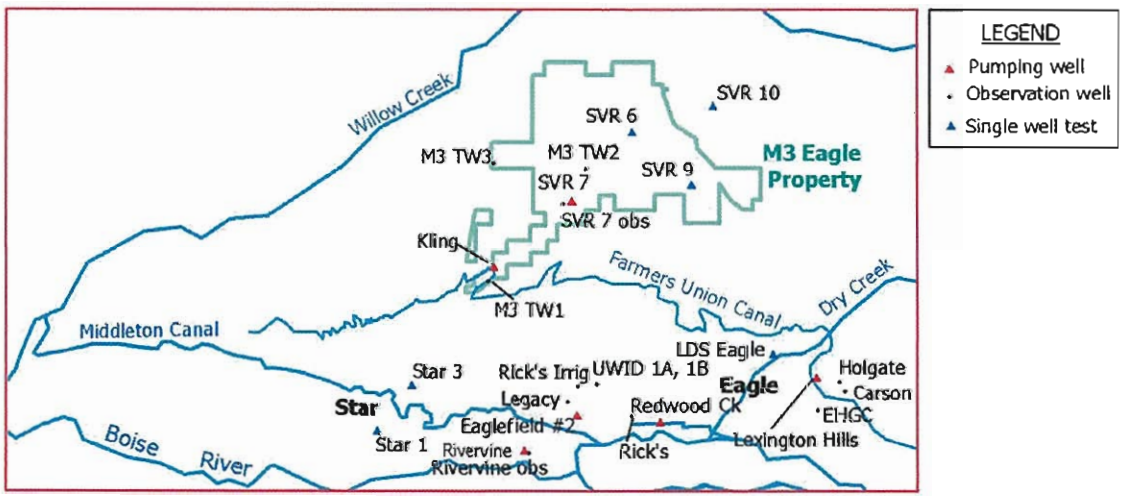


Figure 27. Locations of aquifer tests within the model window portion of the model domain.

Hydraulic conductivity values for aquifer tests, well logs, and cross-sections, and manual calibration efforts, were "kriged into" the steady-state and quasi-steady-state model as zones that represent ranges of interpolated *K* values (ft/d). Kriging is a geostatistical gridding method that attempts to express trends suggested in the data (Golden Software, Inc., 1999). Visual MODFLOW™ Pro 4.2 (Waterloo Hydrogeologic, Inc., 2006) provides a graphical user interface to krige aquifer properties directly into the model grid. The following description of the kriging process is taken from the Visual MODFLOW™ Pro 4.2 User's Manual (p. 599):

> Kriging is a geostatistical method that produces visually appealing maps from irregularly spaced data. Anisotropy and underlying trends suggested in raw data can be incorporated in an efficient manner through Kriging. The program used, called kt3d, is available in the public domain from the Geostatistical Software Library (GSLIB), distributed by Stanford University, and is well-documented by Deustch and Journel (1998). The program kt3d from GSLIB performs simple Kriging, ordinary Kriging, or Kriging with a polynomial trend, and uses the standard parameter file used by GSLIB. If the semi-variogram components have already been modeled by the user, they can be incorporated into the program by choosing the appropriate set of parameters in the parameter file. The semi-variograms available include Spherical, Exponential, Gaussian, Power, and the Hole effect models. If the variogram information is not available, the default linear variogram with no nugget effect should be used. This option is a special case of the Power model with the exponent equal to 1.

Several settings may be changed for the method of kriging, such as the type of kriging (stationary kriging, ordinary kriging, non-stationary kriging, etc.); however, for the M3 Eagle Big Gulch Models, all defaults were used. As recommended by the Visual MODFLOW™ Pro 4.2 User's Manual (Waterloo Hydrogeologic, Inc., 2006), ordinary kriging was used

where values are recalculated everywhere depending on the location of the neighborhood of values.

Ordinary kriging assumes a constant, but unknown mean. After values are kriged into MODFLOW-2000™, certain values fall into certain zones represented by a single color. However, when kriging is used, each color zone no longer represents a single *K* value. Instead the zones are heterogeneous and anisotropic in the vertical/horizontal, and cells differ in K where each zone has a range of different values. In Visual MODFLOW™ Pro 4.2, each zone is assigned a K factor. This factor can be any number, because this is the number that is changed when the values in a zone are changed during calibration. For example, a zone may have a range of K values between 2 and 4 ft/d, and the K factor associated with the zone is 1. If the K factor is changed to 2 ft/d, all the values within the zone will be recalculated to range between 4 and 8 ft/d.

Kriging produced 27 zones of hydraulic conductivity within the M3 Eagle Big Gulch Model domain distributed between the eight model layers. Figure 28 illustrates the spatial distributions of hydraulic conductivity assigned for each layer in the model. The vertical hydraulic conductivity within each zone is non-uniform because the anisotropy ratio $\frac{K_z}{K_h} = 0.10$ is assigned throughout the model domain.

Very little information is available on the hydraulic conductivity distributions within materials that comprise Layer 1, Layer 2, and Layer 3 of the model. Due to the rule of minimum layer thickness in MODFLOW-2000™, Layer 1, Layer 2 and Layer 3 are very thin (i.e., 1 ft thick) over a majority of the central and western areas in the model domain; therefore, a single *K* zone is assigned to all three layers to the west of the granite/sediment interface. Figure 28B illustrates the calibrated *K* distribution for Layer 4. The *K* distribution

in Layer 4 is identical to that in Layers 1 through 3 (Figure 28A) with the exception of an embedded low K zone placed in the southeastern portion of the model domain to represent the thin clay layer that exists beneath the Boise River in this area. Figure 28C illustrates the calibrated K distribution in Layer 5 above the Pierce Gulch Sand aquifer system. The shapes and distribution of the K zones in this layer are very similar to those for Layer 6 and Layer 7; however, slight differences exist because some aquifer test data are available for this layer that are not available for the deeper layers. Figure 28D illustrates the calibrated K distribution for Layer 6 and Layer 7 representing the Pierce Gulch Sand aquifer. The Pierce Gulch Sand layer is split between Layer 6 and Layer 7 in the model to represent the dipping stratum. Figure 28E illustrates the distribution of calibrated K values in Layer 8 of the model. Granite exists in the eastern portion of Layer 8; however, most of Layer 8 is assumed to contain clay to the bottom of the model because little information is available below the elevation of 1,500 ft.

3.2.6 Storativity and Specific Yield

The storativity (S) is the volume of water that a permeable unit will take in or release from storage per unit surface area per unit head change (Fetter, 1998). The expression for dimensionless storativity (S) in a confined aquifer is as follows:

$$S = bS_s \tag{3.13}$$

where: b is the aquifer thickness (L), and S_s is the specific storage (L^{-1}). The specific storage is the amount of water per unit volume of a saturated formation that is taken into or released from storage due to expansion or compression of the formation skeleton, and the expansion or compression of the pore water per unit change in head; for unit decline in the water table

(Freeze and Cherry, 1979). Values for storativity in unconfined aquifers ranges from 0.02 to 0.30 (Fetter, 1998).

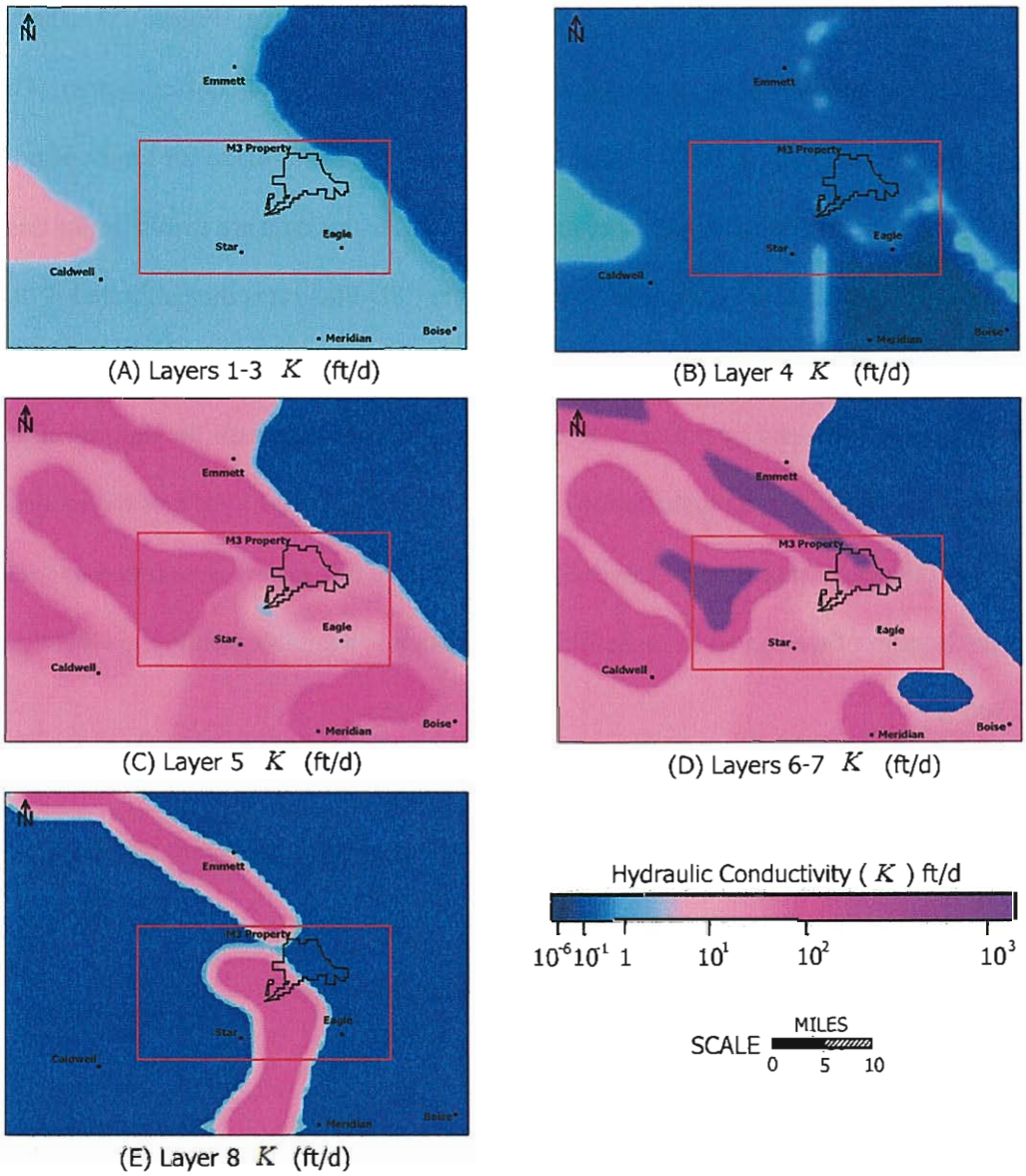


Figure 28. Hydraulic conductivity distributions assigned within the model domain by layer for the steady-state and the final quasi-steady-state model. (A) Calibrated K for Layers 1, 2, and 3. (B) Calibrated K for Layer 4. (C) Calibrated K for Layer 5. (D) Calibrated K for Layers 6 and 7. (E) Calibrated K for Layer 8.

confined aquifers, the storativity is on the order of 0.005 or less (Fetter, 1998).

In unconfined aquifers, water drains from the pore spaces or fills the pore spaces as the water table falls or rises, respectively. The specific yield is defined as the volume of water that an unconfined aquifer releases from storage per unit surface area of aquifer per

In the M3 Eagle Big Gulch Model, the same single average value for storativity, and the same single average value for specific yield, based on results from aquifer tests (Utting and Squires, *in review*), were assigned to all eight layers. Values for storativity and specific yield were only assigned for the transient model. In MODFLOW-2000™, each layer was assigned a layer-type array index. The Visual MODFLOW™ Pro 4.2 User's Manual (Waterloo Hydrogeologic, Inc., 2006) describes four layer-type options as follows:

1. Type 0 – Confined: Transmissivity and storativity values for the layer are constant for the entire simulation
2. Type 1 – Unconfined: Transmissivity of the layer varies and is calculated from the saturated thickness and hydraulic conductivity. The storativity is constant; valid only for Layer 1.
3. Type 2 – Confined/Unconfined: Transmissivity of the layer is constant. The storativity may alternate between confined and unconfined values.
4. Type 3 – Confined/Unconfined: Transmissivity of the layer varies. It is calculated from the saturated thickness and hydraulic conductivity. The storativity may alternate between confined and unconfined values. Vertical leakage from above is limited if the aquifer becomes de-saturated.

For the M3 Eagle Big Gulch Model, each layer was assigned the default setting of Type 3. This setting allowed MODFLOW-2000™ to assign a value for storativity or a value for specific yield on a per model cell basis depending on whether the layer was confined or unconfined in that cell. In the M3 Eagle Big Gulch Model, a single value for S_s was assigned for all cells, and the storativity for each cell in the model was calculated by MODFLOW-2000™ based on the layer thickness in the cell. The value for S_s was estimated from the average statistics for the Pierce Gulch Sand aquifer system. The Pierce

Gulch aquifer system is on average about 250 ft thick. Given that the average $S = 0.001$ from aquifer test results, and $b = 250$ ft, then $S_s = 4 \times 10^{-6}$ ft^{-1}. Based on the aquifer test results for unconfined aquifers compiled by Utting and Squires (*in review*), the average specific yield is approximately 0.2. This value was assigned to each cell in the model.

3.2.7 Well Discharge

Well discharges in the M3 Eagle Big Gulch Model were based on water rights information for municipal wells and domestic wells located within the model domain. These discharges were compiled on a cell-by-cell basis and include pumping from all known wells. Well discharges located outside of the model domain were not considered. The sum of all well discharges within the area of each cell of the model was assigned to a single well within that cell for simulation purposes. For example, if three domestic wells and one municipal well exist within a single model cell, a single pumping well was assigned to the center of that cell (at node) with a pumping rate equal to the sum of discharges for the four wells. All wells pumped continuously for 24 hr/day for the entire time period simulated in each model.

A pumping well was placed in each cell of the model domain to represent all the pumping assumed to occur in that cell. Some cells lacked domestic and municipal wells; however, a well was still assigned to that cell with a pumping rate of zero gallons per minute. The purpose for placing a well at that location was to accommodate for future changes such as the drilling of a new well, or if an unidentified well not in the IDWR well database is found.

CHAPTER 4

MODEL CALIBRATION

4.0 INTRODUCTION

The process of calibrating a model involves adjusting selected model parameters within reasonable limits so that the differences between simulated values and measured or estimated observations are minimal. This process can be performed under steady-state and/or transient conditions if sufficient data are available. Steady-state calibration generally includes modification of hydraulic conductivity values while transient calibration generally requires modification of specific storage values together with the hydraulic conductivity values. Most ground water flow models are calibrated to steady-state conditions first and then to transient conditions if the appropriate data are available. This model was calibrated to quasi-steady-state conditions first, and then an attempt to calibrate the model for transient conditions also was made.

Model calibration is an important step in producing a ground water flow model because the quality of the calibration determines the reliability of conclusions and recommendations made using the simulation results. The following sections discuss the calibration of the M3 Eagle Big Gulch Model under quasi-steady-state, and transient conditions. The steady-state model was not calibrated since no data was available for the time period simulated in this model.

4.1 MANUAL CALIBRATION

Water levels measured in 137 wells were used to construct the water level contour map (Figure 17), plus several selected water levels that were interpolated between actual wells (pilot points) were used to calibrate the quasi-steady-state model to conditions believed

to exist in 2006. Figure 29 shows all the points used in the model calibration process. Note that a majority of the pilot points within the model window are actual wells measured in 2006. Water levels for most pilot points located outside of the model window were interpolated by the method of minimum curvature (Briggs, 1974) from actual water level measurements taken in 2006 (Figure 17). These points were added to improve model calibration in areas where actual well measurements do not exist. All pilot points are identified in Appendix A.

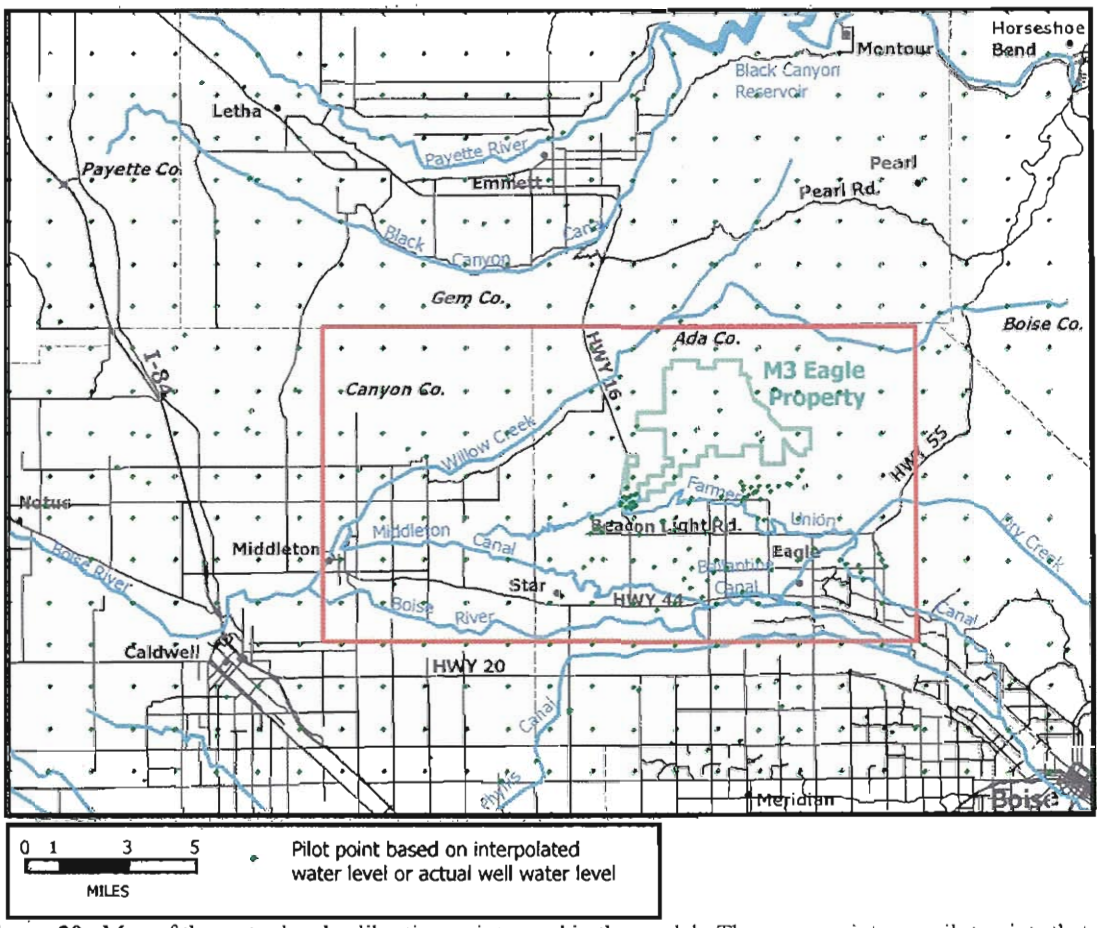


Figure 29. Map of the water level calibration points used in the model. The green points are pilot points that identify real wells plus points selected off the water level contour map (Figure 17); water levels for 540 points were interpolated from the water level contour map, and water levels for 137 points were measured in real wells.

Phase 1 of model calibration initially was performed by adjusting the K values within individual zones of cells systematically using trial-and-error testing in the quasi-steady-state model. Values for hydraulic conductivity, recharge, and canal conductance were modified manually to change the simulated head output values. This technique of calibration involved changing the parameter values within reasonable limits until simulated head values matched the measured head values as closely as possible.

Prior to obtaining aquifer test results, several K values estimated for the lithology reported (well logs) were tested in the model. For example, where several well logs indicated the existence of clay, a middle range value for clay was assigned to the model based on values from Freeze and Cherry (1979). Representative K values were assigned spatially within the entire model domain for all lithologies reported by well logs. The model was then run to simulate water levels within the model domain. The simulated water levels for Layer 6 were contoured in Visual MODFLOW™ Pro 4.2, and compared visually to the water level contour map presented in Figure 17. Hydraulic conductivity adjustments were repeated multiple times for each layer until the simulated water levels for Layer 6 most closely matched the water level contours presented in Figure 17.

After the first phase (Phase 1) of manual calibration was completed with the estimated K values from Freeze and Cherry (1979), aquifer test results became available for the model window area. The K values derived for the aquifer tests conducted in the Eagle-Star area were at least one order of magnitude less than the K values estimated during Phase 1 calibration. Therefore, Phase 2 of manual calibration was initiated to rectify the discrepancies between the K values estimated by aquifer testing, and the K values estimated during Phase 1 calibration.

Phase 2 of model calibration was initiated with the emplacement of a new K zone in the vicinity of the aquifer tests. This new zone with a mean, kriged K value of approximately 54 ft/d (approximately the mean of the aquifer test values) was emplaced in the Eagle-Star vicinity to conform with best data available for the model. The remaining values of K were decreased one order of magnitude throughout the model domain. The values for recharge across the model domain also were decreased by one order of magnitude to compensate for the decreased K values. It was assumed that the recharge for the model was overestimated.

Because aquifer test derived K values were only available for a centrally located area in the model domain, K values for the remaining areas of the model domain were estimated from driller's well logs. Most well logs lack the detail needed to produce an accurate ground water model; estimation of K values within several orders of magnitude of the actual values is about the best that can be expected. For example, the term "silty sand" listed in a well log lithology may refer to a range of 1×10^{-5} cm/s to 1×10^{-1} cm/s (Freeze and Cherry, 1979). Due to the large ranges, K values were adjusted by orders of magnitude in some areas depending on which value best suited the model.

During the manual calibration process, only recharge rates and K values were varied spatially in an attempt to reproduce the water level contour map (Figure 17). After the quasi-steady-state model was calibrated as closely as possible by trial-and-error manual calibration, additional calibration efforts were deemed necessary to improve the model results.

4.2 PEST CALIBRATION

The parameter estimation program PEST developed by Doherty (2004) was used to refine model calibration. Visual MODFLOW™ Pro 4.2 implements a version of PEST

known as WinPEST, which is a user-friendly version of PEST version 10. In this report, WinPEST will be referred to simply as PEST.

PEST was used in the calibration process because of its unique ability to adjust parameters within suitable value ranges designated by the user. The goal of PEST is to adjust model parameters to minimize discrepancies between model-generated data and the corresponding measurements. PEST attempts to accomplish this by running the model as many times as necessary to determine the most favorable combination between parameters. PEST is capable of calculating mismatches between simulated data and measured data and evaluating the best way to adjust the model input data to obtain a more favorable result. In order for PEST to correct model input files realistically, the user must define reasonable limits. For example, if a specific area within the model in a certain layer must contain a K value for that of fine sand, an upper and lower limit based on an accepted range for fine sand must be defined within PEST.

PEST works by applying a nonlinear least-squares regression method to estimate model parameters by minimizing the sum of squared weighted residuals given by the objective function:

$$\Phi = \sum_{i=1}^{N} (w_i r_i)^2 \tag{4.1}$$

where: Φ is the sum of squared weighted residuals, N is the number of measurements involved, w_i is the weight applied to the i^{th} measurement, r_i is the i^{th} residual (i.e., the difference between the model outcome and the observed measurement for the i^{th} observation). The purpose of the regression is to calculate values of defined parameters that minimize the objective function.

PEST was applied to the quasi-steady-state model during various stages of the manual calibration process. PEST was found to be most stable, and to yield the best calibration results when applied to the "best" manually calibrated model.

For the M3 Eagle Big Gulch Model, a default weight of one (w=1) was assigned to each measurement. According to Hill (1998), the weights are an important part of the regression since the weights reflect measurement errors. For models with observations of a single type, and measured with apparently equal error, it is easiest to set all weights equal to 1.0. For data collected for the M3 Eagle Big Gulch Model, most water level measurements were measured with a steel tape, and elevations were approximated using a handheld GPS unit. As a result, most measurements are subject to human error and/or error associated with the GPS error which can be ± 20 ft. Each head measurement and pilot point was assigned a weight of 1.0 so that all points were treated in the objective function as having the same error so all points had the same influence on the calibration.

After running PEST several times to improve the model, additional changes were made manually to further improve the water level contours. This calibration process included changing the following:

1. increasing recharge within the model window,
2. increasing values of conductance in the Farmers Union Canal, and
3. adding a thin layer above Layer 4 to represent clay beneath the Boise River.

Because values for K were set at reasonable limits, recharge was increased in the cells within the model window to the highest value of recharge estimated by HLI, which was a uniform value of 1.3×10^{-3} ft/d. It was assumed that recharge should be increased because of the many canals that exist within this area. Figure 30 is a map of recharge for the quasi-

steady-state model. Along with increasing recharge, it was also necessary to increase conductance (seepage) of the Farmers Union Canal to increase water levels within the model window. The conductance was increased to 246,400 ft^2/day in each cell of Farmers Union Canal. This rate assumes that the K_z of the canal bed is approximately 28 ft/d (1 x 10^{-2} cm/s), which is the median value for a clean sand (Freeze and Cherry, 1979). Along with these changes, an additional model layer was placed below Layer 3. This layer (now Layer 4) is three feet thick and exists between elevations 2503 ft and 2500 ft (Table 2). The new Layer 4 is similar to Layers 1, 2, and 3 in the model; however, it consists of a K value representative of clay in the southeastern area of the model. The portion of the layer located beneath the Boise River bed represents the clay layer known to exist in Eagle Island area.

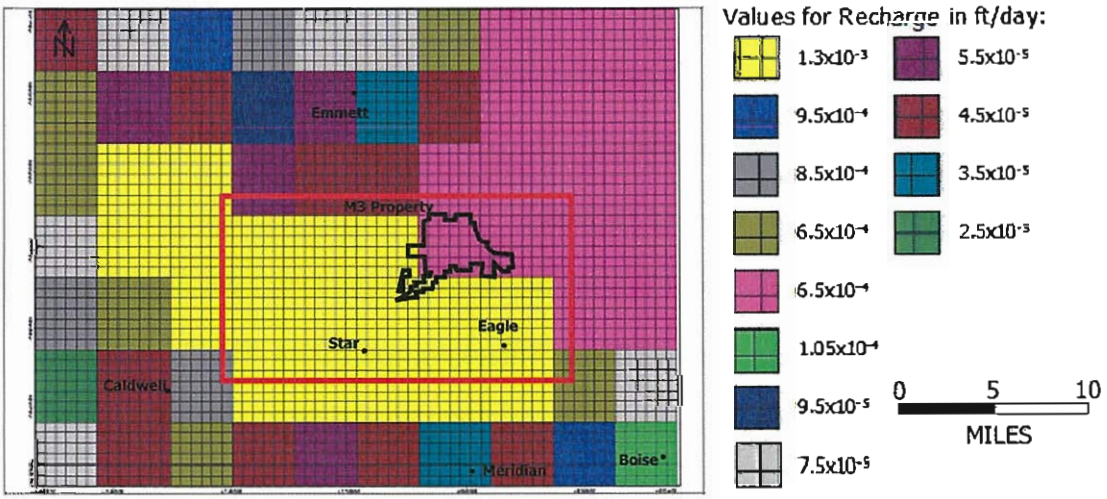


Figure 30. Recharge within the model domain. Each color represents a different rate of recharge. The zone with greatest rate of recharge is the yellow zone ($1.3x10^{-3}$ft/d), and the zone with lowest rate of recharge is the dark green zone ($2.5x10^{-5}$ ft/d).

4.4 MODEL CALIBRATION PROCEDURES AND SEQUENCE

Several different models were developed over the course of this investigation in an attempt to create the best working model possible. This section of the chapter discusses how each model was calibrated, and provides information on how each model evolved in the

order that the models were developed. The quasi-steady-state models were developed first, followed by attempts to construct the transient models; the steady-state model is based on results of the previous models. The main focus of this effort has been the Pierce Gulch Sand aquifer system because it is believed to constitute the primary producing zone within the model domain. Therefore, the layer(s) needed to simulate this aquifer system were the main focus during model calibration. This section also presents figures for each model showing (1) the spatial distribution of K simulated for the Pierce Gulch Sand aquifer system layer(s), and modifications made in the model K values relative to the previous model, (2) modifications made in the recharge values over the model domain between models, and (3) modifications made in the bed conductances for surface water bodies between models. Six quasi-steady-state models will be discussed in the order that they were developed, with Quasi-Steady-State Model 1 representing the initial conditions and Quasi-Steady-State Model 6 representing the final conditions.

4.4.1 Quasi-Steady-State Model 1 (Model 1)

Quasi-Steady-State Model 1 (hereinafter termed Model 1) was developed based on the geologic framework provided by HLI, K values estimated from driller's well logs for wells within the model domain, recharge estimates provided by HLI, and boundary conditions interpreted from available water level measurements provided by HLI. Model 1 consists of seven layers with Layer 5 and Layer 6 representing the Pierce Gulch Sand aquifer system. The simulation represents the months of June through September because this is the time during which water level measurements were acquired. This model was calibrated manually by trial-and-error adjustment of model parameters. PEST was not used to calibrate the model. The following sections on (1) hydraulic conductivity, (2) recharge, and (3) rivers

and canals, provide information on the model parameters adjusted during the calibration process.

4.4.1.1 Hydraulic conductivity for Model 1

Hydraulic conductivity values used for this model were largely based on cross-sections created by HLI, driller well logs outside of the model window, and previous consulting work completed by SPF Water Engineering, LLC. With these sources of information, K values were based on an interpretation of grain sizes associated with the lithologies reported by well drillers on the well logs, and a few aquifer test values. This method of estimation was chosen because little information was available at the time of development of this model.

Figure 31 shows the spatial distribution of K for the Pierce Gulch Sand aquifer system in the calibrated model. Although it is not apparent in Figure 31, MODFLOW-2000™ was told to assign transversely isotropic $K_x = K_y \neq K_z$ and $K_z = 0.10K_x$ conditions for each zone. Information for the other layers of the model not presented in this section is presented in Appendix E. The lowest values of K are shown in blue in the northeastern area of the model domain where the Idaho batholith exists. The highest values of K exist adjacent to the West Boise-Eagle fault zone.

4.4.1.2 Recharge for Model 1

Values for recharge were based on the estimates provided by HLI (Hydro Logic, Inc., 2007). A description of how these values were calculated is presented in section 3.2.3.1. Figure 32 is a map showing the areal distribution of recharge within the model domain. The values range from 5×10^{-5} ft/d to 1.25×10^{-3} ft/d. The greatest recharge rates are in the

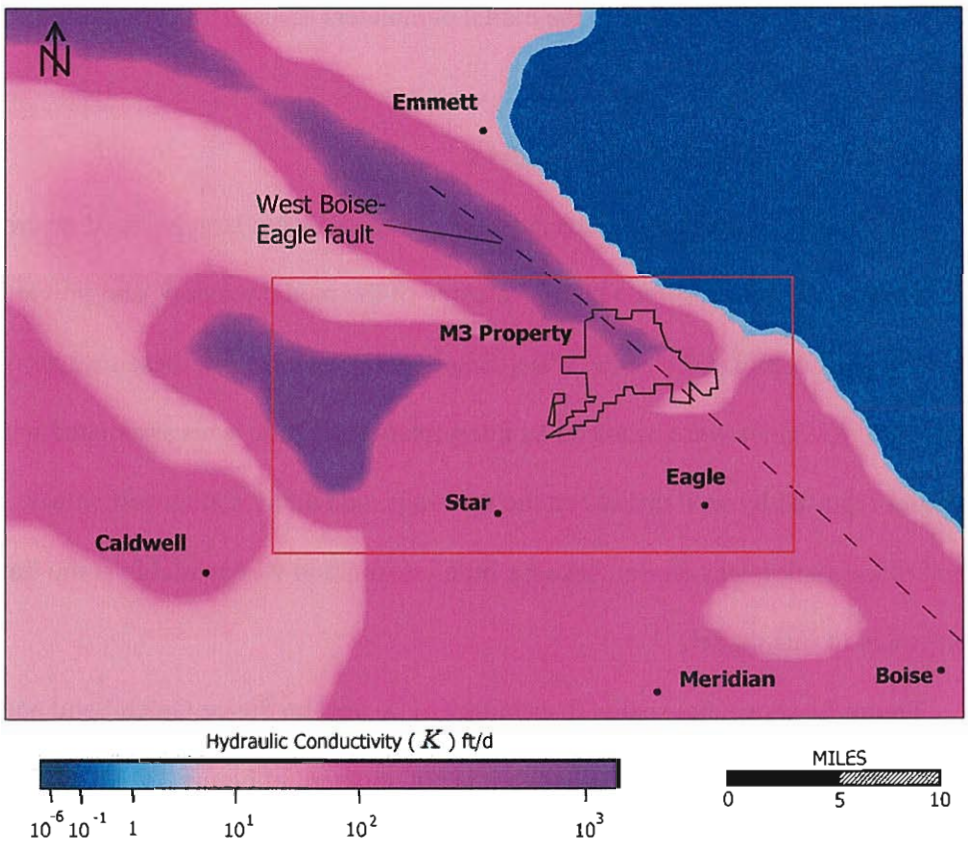


Figure 31. Hydraulic conductivity (K) distribution for the Pierce Gulch Sand aquifer system (Layer 5) in Model 1.

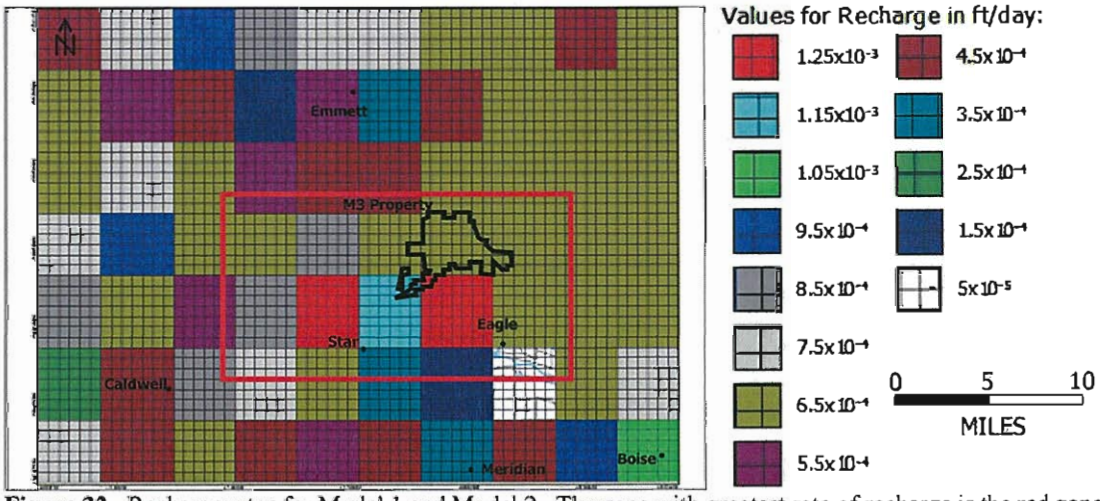


Figure 32. Recharge rates for Model 1 and Model 2. The zone with greatest rate of recharge is the red zone (1.23×10^{-3} ft/d), and the zone with lowest rate of recharge is the dark green zone (5×10^{-5} ft/d).

vicinity of Eagle and Star near Farmers Union Canal. The lowest recharge rates occur in the southeastern area of the model domain.

4.4.1.3 Bed Conductance values for surface water bodies for Model 1

Table 7 lists values for bed conductance assigned to the surface water bodies for Model 1 using the River Package in MODFLOW-2000™. The major bodies of water that exist within the model domain include the Boise River, Payette River, Black Canyon Reservoir, Farmers Union Canal, Middleton Canal, Phyllis Canal, and Black Canyon Canal.

Surface Water Body	Stage (ft): Highest Stage to Lowest Stage	Bed Bottom	Bed Thickness (ft)	Bed K_z (ft/d)	Average Canal Width (ft)	Conductance (ft^2/d)
Boise River	2,680 – 2,290	10 ft below stage in cell	3	2.8×10^{-4}	127	31
Payette River	2,600 – 2,235	12 ft below stage in cell	3	2.8×10^{-4} to 2.8×10^{-1}	250	61.6 to 61,600
Black Canyon Reservoir	2,500	20 ft below stage in cell	3	--	--	100
Farmers Union Canal	2,640 to 2,460	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Middleton Canal	2,515 to 2,430	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Phyllis Canal	2,520 to 2,500	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Black Canyon Canal	3,400 to 2,470	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464

Table 7. Surface water body information used in the River Package for Model 1 and Model 2.

4.4.2 Quasi-Steady-State Model 2 (Model 2)

Model 2 was developed from Model 1. Model 2 has seven layers with Layer 5 representing the Pierce Gulch Sand aquifer system. Calibration for Model 2 was performed with a combination of manual calibration and PEST calibration. The following sections on hydraulic conductivity, recharge, and surface water body bed conductance describe how the model parameters for Model 2 were changed from those in Model 1.

4.4.2.1 Hydraulic conductivity for Model 2

Hydraulic conductivity values used for Model 2 were developed differently than for Model 1. First, instead of dividing the model domain into 13 different homogeneous zones of K as was done for Model 1, a unique value for K was assigned to each cell of the model domain through interpolation between the 13 zones of Model 1. The K values for Model 1 were used as spatially distributed point values (points are located at the center of the cells) within Visual MODFLOW™ Pro 4.2 to krige (i.e., interpolate) a new K distribution into all the cells within the model domain for Model 2. Interpolation between points was used within Visual MODFLOW™ Pro 4.2 to smooth the K distribution in areas of the model domain with steep K contrasts.

The kriged K distribution was adjusted manually at selected locations within the model domain in accordance with preliminary aquifer test estimates for the vicinity of Eagle and Star. After changing these K values, other zones within the model domain were adjusted by trial-and-error in an attempt to simulate the measured results as closely as possible. Figure 33 shows the distribution of K in the Pierce Gulch Sand aquifer system (Layer 5 and Layer 6). Information on the values for K in the other layers in Model 2 is presented in Appendix E.

The K values were changed in Model 2 relative to the K values used for Model 1. Figure 34 shows the spatial distribution of the K modifications made in Layers 5 and 6 (Pierce Gulch Sand aquifer system) between the two models. The warmer colors (yellow and orange) indicate the values for K were increased from Model 1 to Model 2 while the cooler colors (blue) indicate that the values for K were decreased between the models. The color scale bar on the bottom in Figure 34 signifies the factor required to multiply the K values for

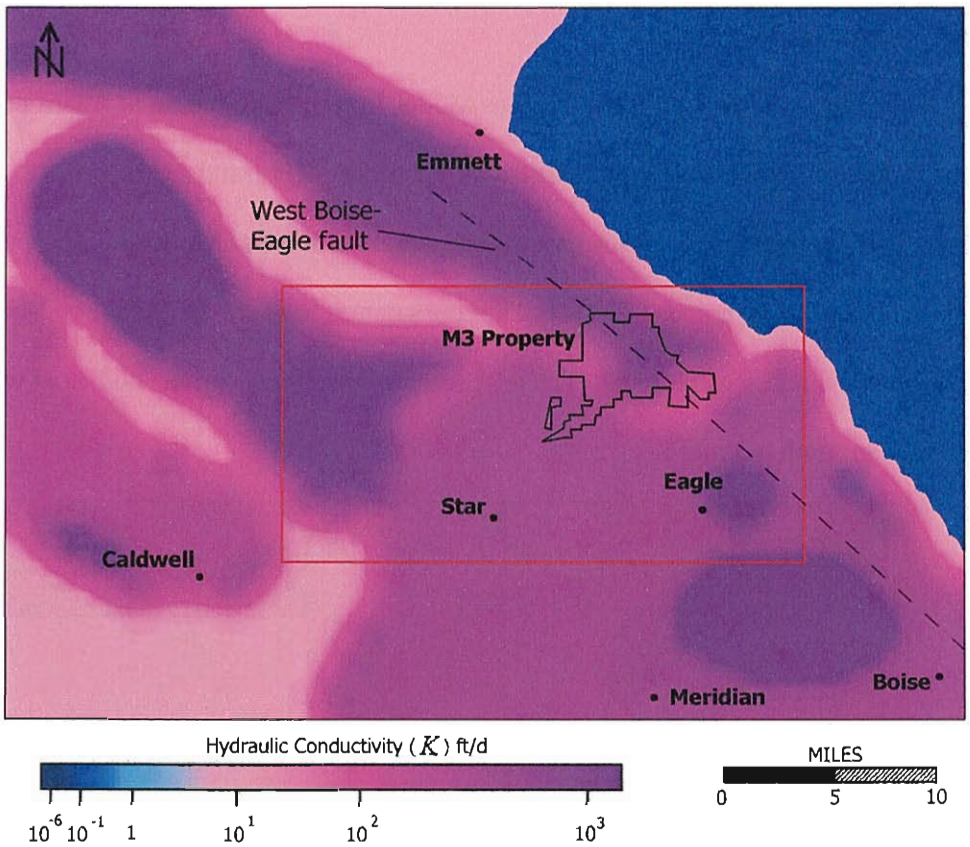


Figure 33. Hydraulic conductivity (K) distribution for the Pierce Gulch Sand aquifer system (Layers 5 and 6) in Model 2.

Model 1 (Figure 31) to generate the K values in Model 2 (Figure 33). More specifically, the orange areas represent regions within the model domain where values for K were increased from Model 1 to Model 2 by about one order of magnitude (10 times the previous values). White areas represent locations within the model domain where K values did not vary between the two models. The yellow areas depict regions where the values for K were doubled. The light blue areas indicate areas where the K values were reduced by a factor of 2. The K values were increased to create higher water levels. K values near the fault zone were increased to create steeper hydraulic gradients around the fault.

4.4.2.2 Recharge for Model 2

Recharge in Model 2 is the same as Model 1. These are the same values provided by HLI. Figure 32 shows the recharge distributions for Models 1 and 2.

4.4.2.3 Bed Conductance values for surface water bodies for Model 2

Surface water bodies in Model 2 are the same as they are for Model 1. No changes to the bed conductances were made. Table 7 presents information on the bodies of water simulated in Models 1 and 2.

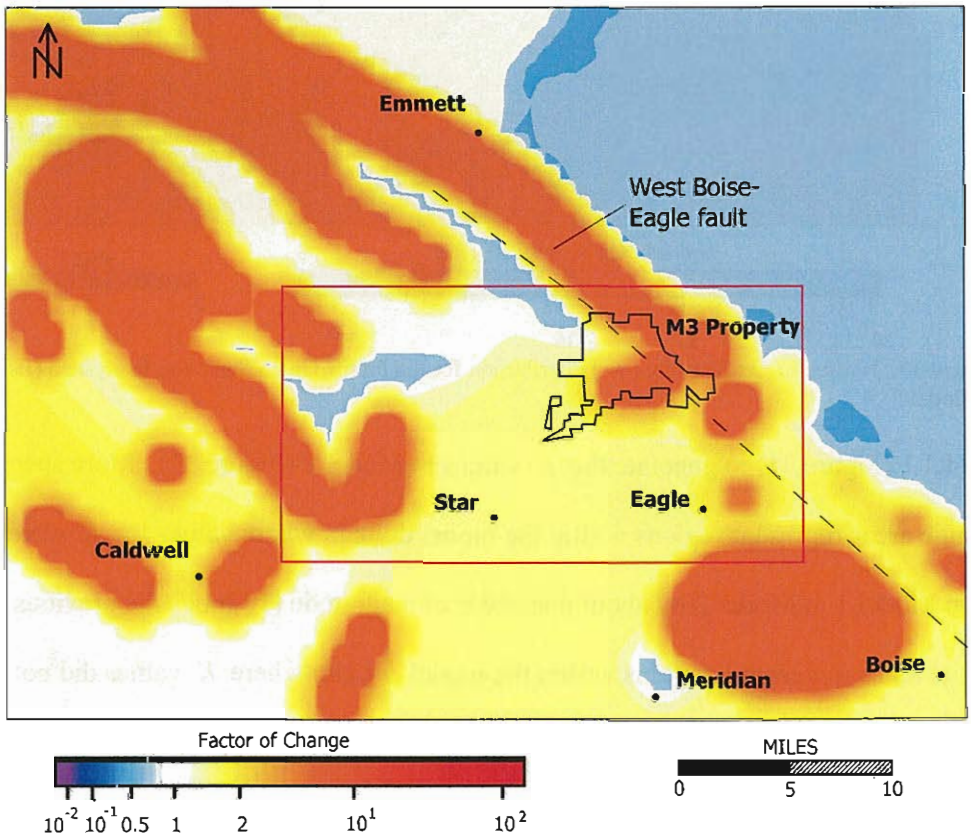


Figure 34. Spatial distribution of changes in K between Model 1 and Model 2. The color scale represents the factor required to multiply the K values for Model 1 to generate the K values in Model 2. Values <1 represent decreases in K. Values >1 represent increases in K.

4.4.3 Quasi-Steady-State Model 3 (Model 3)

Model 3 was developed from Model 2. Model 3 consists of the same layers as Model 2. Calibration of Model 3 combined manual trial-and-error parameter adjustments with

automated calibration with PEST. The following sections discuss how the model conditions for hydraulic conductivity, (2) recharge, and (3) rivers and canals were modified between Model 2 and Model 3.

4.4.3.1 Hydraulic conductivity for Model 3

During the development of Model 3, more aquifer test estimates for the area of the model window became available. These new estimates were substituted manually into the appropriate cells within the kriged K distribution for the model domain. The distribution of K zones for Model 3 is the same as the distribution for Model 2, except that Model 3 zones incorporate the results of the aquifer tests. Figure 35 shows the distribution of K zones in Model 3. The lowest values of K are near the Idaho batholith while the highest values of K

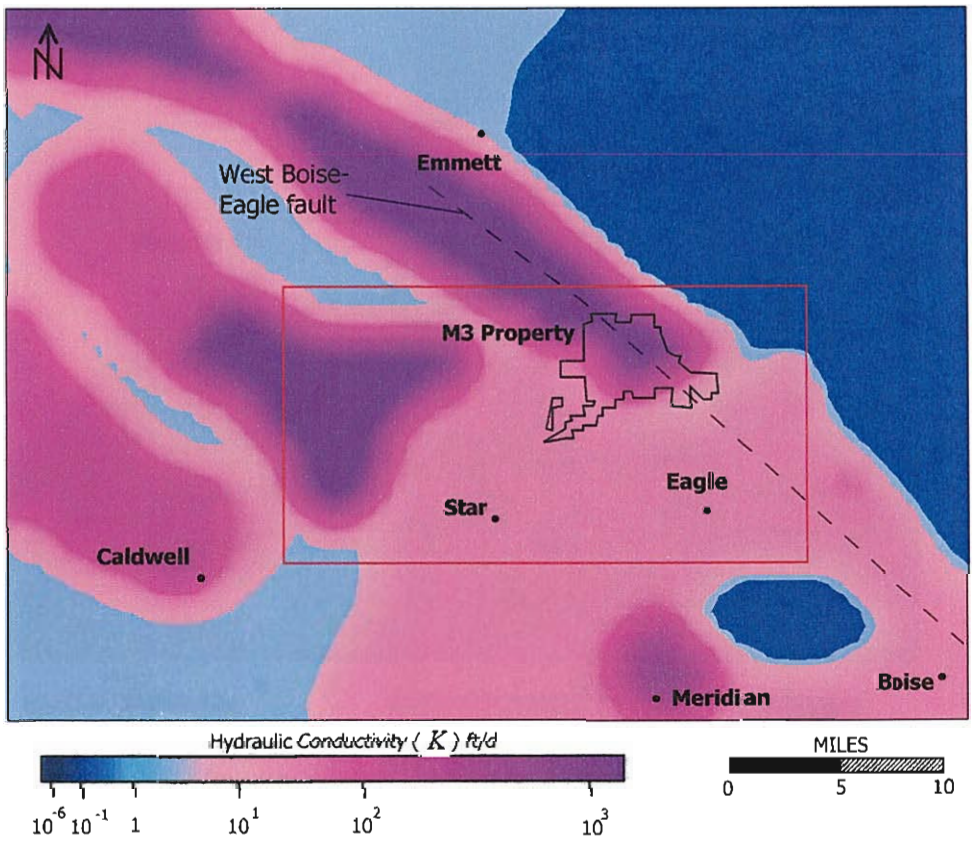


Figure 35. Hydraulic conductivity (K) distribution for the Pierce Gulch Sand aquifer system (Layers 5 and 6) in Model 3.

are near the West Boise-Eagle fault. An extra zone of low K was added to layers 5 and 6 for this model southeast of Eagle (blue egg-shaped zone). This zone was added to cause the simulated water level contours to bend in a manner consistent with the water level contour map (Figure 17).

The K distribution for Model 3 was modified from the K distribution for Model 2 as shown in Figure 36. The color scale on the bottom in Figure 36 indicates the factor of change between Model 2 (Figure 33) and Model 3 (Figure 35). The white areas show where little to no changes occurred in K. The light blue areas show where the K values were decreased by one half (½). The darker blue areas show where the K values were decreased

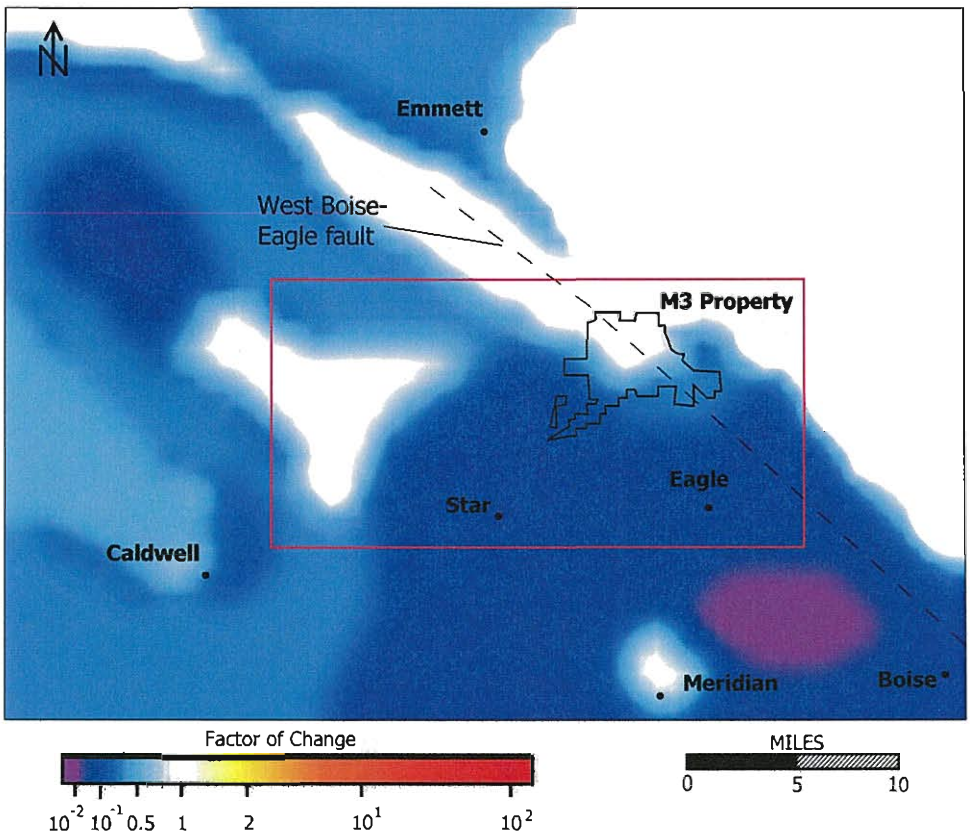


Figure 36. Spatial distribution of changes in K between Model 2 and Model 3. The color scale represents the factor required to multiply the K values for Model 2 to generate the K values in Model 3. Values <1 represent decreases in K. Values >1 represent increases in K.

by one order of magnitude. The purple areas indicate the areas where K values were decreased by two orders of magnitude. Note that most of the values for K were decreased in Model 3 relative to Model 2. Many of the K values derived from the aquifer test data proved to be lower than those estimated from well logs. Lowering of K values in selected areas of the model required the K values to be decreased by a similar quantity in other areas to maintain the water level contour shapes.

4.4.3.2 Recharge for Model 3

Because values of hydraulic conductivity were decreased in Model 3 to correspond with aquifer test estimates for K, values for recharge were decreased accordingly; however, after several model runs it became apparent that more water needed to be added to the model through recharge to increase water levels over the model window. Figure 37 shows the distribution of recharge for Model 3. Within the model window, values of recharge were kept the same or increased to 1.3×10^{-3} ft/d (yellow cells). The recharge rate of 1.3×10^{-3} ft/d was the highest value of recharge found in a cell in the original recharge estimates.

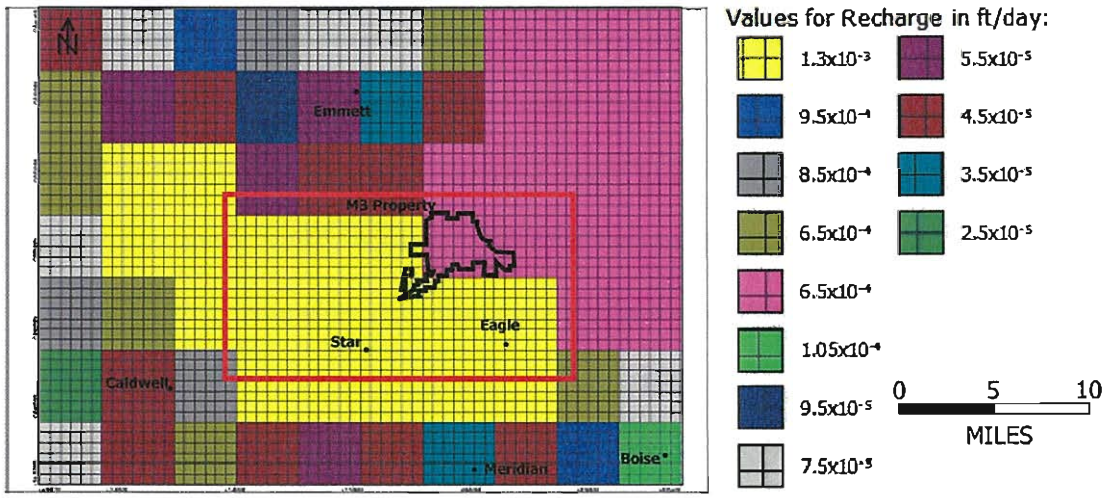


Figure 37. Recharge rates for Models 3, 4, and 6. Each color represents a different rate of recharge. The zone with greatest rate of recharge is the yellow zone (1.3×10^{-3} ft/d), and the zone with lowest rate of recharge is the dark green zone (2.5×10^{-5} ft/d).

The numerical differences (residuals) in recharge rates between Model 2 and Model 3 are shown in Figure 38. Areas in white within the model domain represent no changes in recharge. Colored areas represent zones where recharge rates were increased in an attempt to raise the simulated water levels.

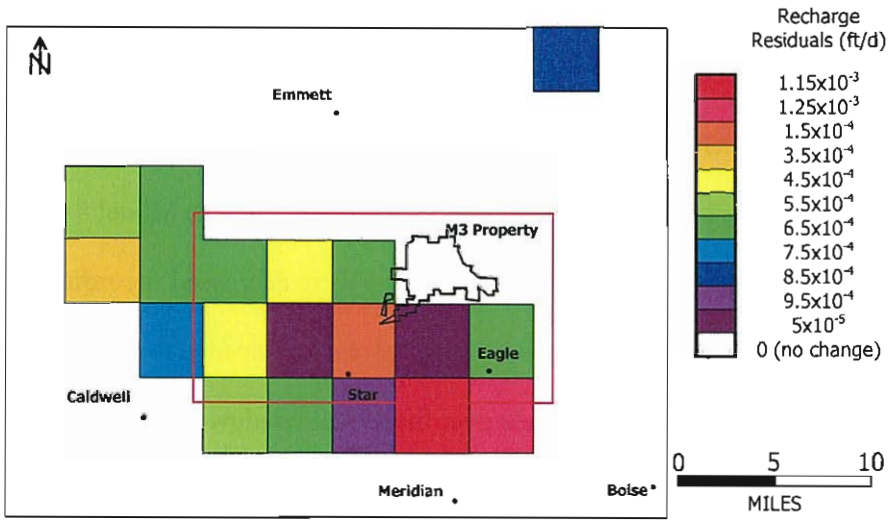


Figure 38. Changes in recharge within the model domain between Models 2 and 3 plotted as numerical differences (residuals).

4.4.3.3 Bed Conductance values for surface water bodies for Model 3

Surface water bodies in Model 3 are very similar to Model 2 with a few minor adjustments. The canal bed conductance value for Farmers Union Canal was increased because the simulated water levels in Model 2 were too low relative to the water levels measured in the vicinity of the Farmers Union Canal in 2006. The higher seepage rates were needed to increase the simulated water levels in the vicinity of Farmers Union Canal to match the water level contour map (Figure 17). Seepage from Dry Creek also was added to Model 3; seepage from Dry Creek was zero for Model 1 and Model 2. Dry Creek is located just north of Boise and intersects Farmers Union Canal in the southeastern corner of the model (Figure 26). Although no information on Dry Creek was available for this model,

seepage from the creek was added to the model in an attempt to increase water levels within the model window. It was assumed that the addition of more water to the system would increase the water levels to the west. Table 8 lists information used to simulate the surface water bodies for Model 3.

Surface Water Body	Stage (ft): Highest Stage to Lowest Stage	Bed Bottom	Bed Thickness (ft)	Bed K_z (ft/d)	Average Canal Width (ft)	Conductance (ft^2/d)
Boise River	2,680 – 2,290	10 ft below stage in cell	3	2.8×10^{-4}	127	31
Payette River	2,600 – 2,235	12 ft below stage in cell	3	2.8×10^{-4} to 2.8×10^{-1}	250	61.6 to 61,600
Black Canyon Reservoir	2,500	20 ft below stage in cell	3	--	--	100
Farmers Union Canal	2,640 to 2,460	3 ft below stage in cell	3	2.8×10^{1}	10	246,400
Middleton Canal	2,515 to 2,430	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Phyllis Canal	2,520 to 2,500	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Black Canyon Canal	3,400 to 2,470	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Dry Creek	2,700 to 2,550	3 ft below stage in cell	3	2.8×10^{-1}	10	246,400

Table 8. Surface water body information used for Model 3.

4.4.4 Quasi-Steady-State Model 4 (Model 4)

The K distributions for Model 4 generally are similar to the previous models; however, one additional layer was added. Model 4 consists of eight layers. A 3 ft thick layer was added between Layer 3 and Layer 4 of the previous model. This new Layer 4 was added to the model to simulate the thin layer of clay that exists beneath the Boise River. The clay layer was added to retard the upward leakage of ground water into the Boise River from the Pierce Gulch Sand aquifer system, and to reduce the head losses across this region of the model domain.

4.4.4.1 Hydraulic conductivity for Model 4

During the development of this model, better estimates of K became available for 15 different aquifer tests (Utting and Squires, *in review*). Instead of manually substituting these new estimates into the specific model cells to represent the zones of influence of the aquifer tests, an arithmetic average of the K values derived from all of the aquifer tests was used. This average value was applied to the zone that includes the Eagle and Star areas. Figure 39 shows the distribution of K for the layer containing the Pierce Gulch Sand aquifer (Layers 6 and 7) within the model domain. The northeastern corner of the model domain (Idaho

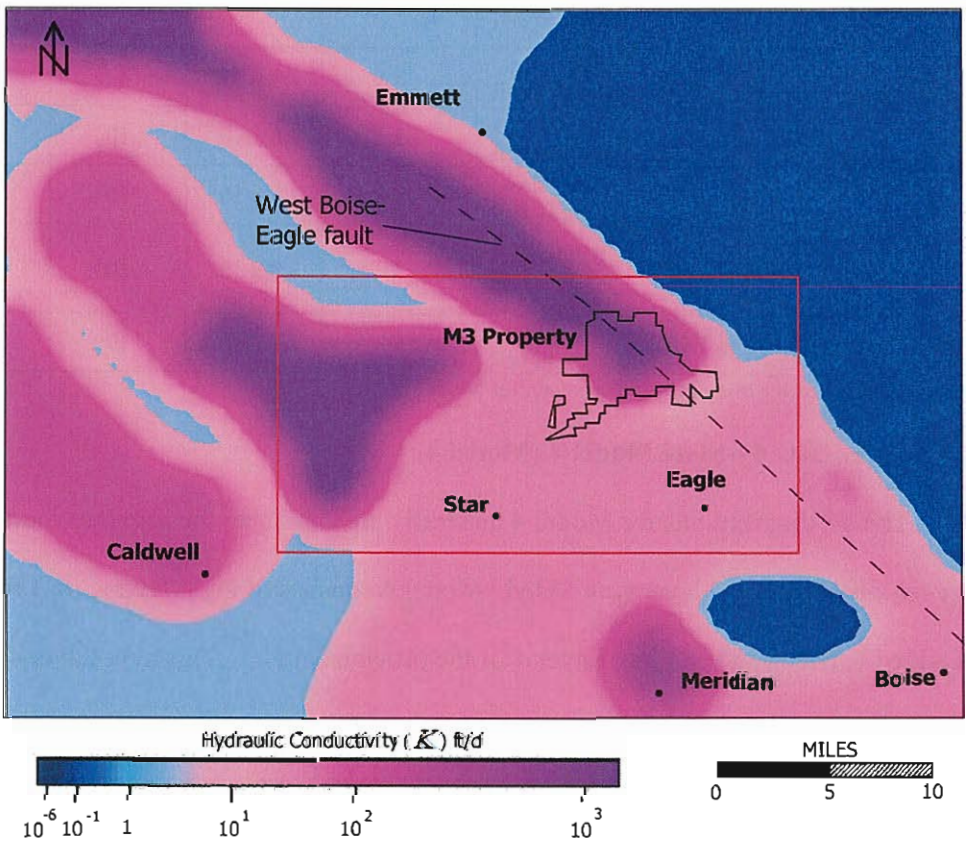


Figure 39. Hydraulic conductivity (K) distribution for the Pierce Gulch Sand aquifer system (Layers 6 and 7) in Model 4.

batholith) still consists of the lowest hydraulic conductivity values (1 x 10^{-1} ft/d). The area between and including Star and Eagle has an average K of approximately 50 ft/d (based on the average of the aquifer test estimates of transmissivity). The distributions of K values in other layers in the model are presented in Appendix E.

Minor modifications in the K distributions were made between Model 3 and Model 4. Changes in Layer 6 and Layer 7 are illustrated in Figure 40; areas in white represent locations with no changes in K between the two models. The small changes in the K distribution were made to help simulate the water level contour map (Figure 17). For

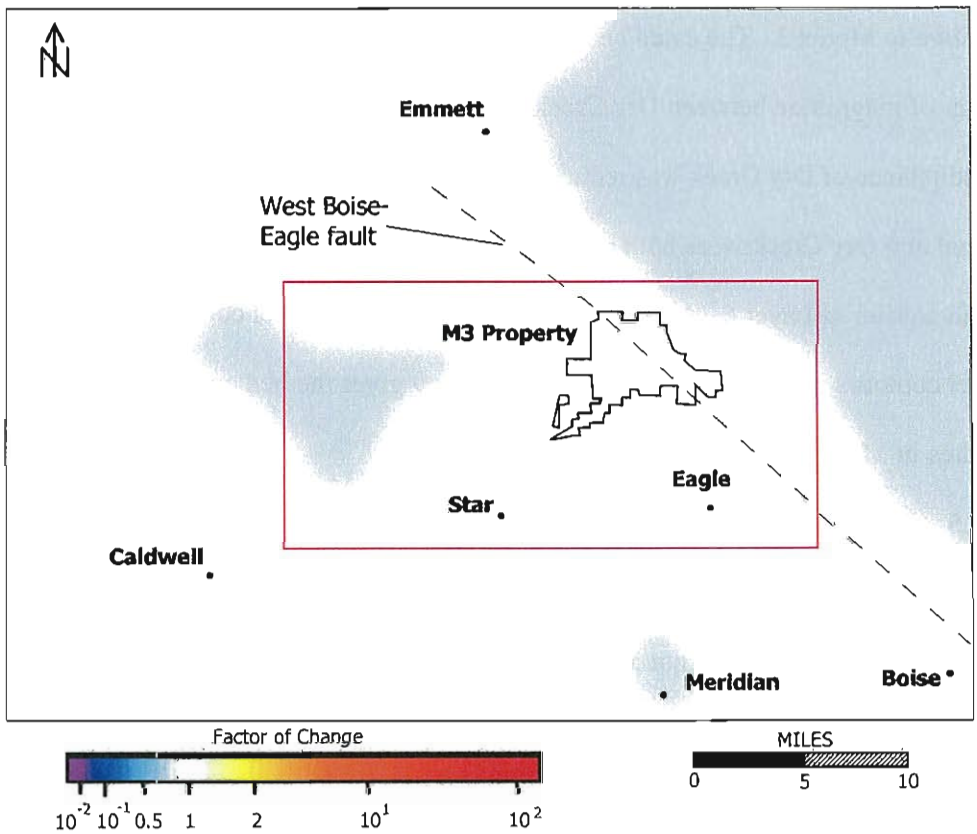


Figure 40. Spatial distribution of changes in K between Model 3 and Model 4. The color scale represents the factor required to multiply the K values for Model 3 to generate the K values in Model 4. Values <1 represent decreases in K. Values >1 represent increases in K.

example, the K for the northeastern area of the model domain was reduced from 0.14 ft/d to 0.13 ft/d to create a slightly steeper hydraulic gradient in the granite. Most of the changes to Model 4 will be discussed in the section on conductance (4.4.4.3).

4.4.4.2 Recharge for Model 4

Values for recharge were held constant in this model and are the same as Model 3 (Figure 37).

4.4.4.3 Bed Conductance values for surface water bodies for Model 4

The simulated characteristics of surface water bodies in Model 4 were changed relative to Model 3. The canal bed conductance for Farmers Union Canal was reduced one order of magnitude between Dry Creek and the west end of the canal. Also, the streambed conductance of Dry Creek was reduced by one order of magnitude as well. Farmers Union Canal and Dry Creek were both adjusted so that less water was added to the Pierce Gulch Sand aquifer in Layer 6. As a result, the simulated water level contours matched the water level contours in Figure 17 more closely. Table 9 gives the bed conductances for the water bodies in Model 4.

4.4.5 Transient Models

Construction of a transient model generally requires detailed temporal flux data. However, these data were not available at the time of development of the transient model. Transient model simulations also require aquifer storativity values; and temporal water level data are required to justify the calibration of the model storativity values.

Based on Quasi-Steady-State Model 4, a transient model was developed in order to test the capability of the model to reproduce aquifer test results. Results for 15 aquifer tests were presented by HLI (Utting and Squires, *in review*); three of those aquifer tests were

Surface Water Body	Stage (ft): Highest Stage to Lowest Stage	Bed Bottom	Bed Thickness (ft)	Bed K_z (ft/d)	Average Canal Width (ft)	Conductance (ft^2/d)
Boise River	2,680 – 2,290	10 ft below stage in cell	3	2.8×10^{-4}	127	31
Payette River	2,600 – 2,235	12 ft below stage in cell	3	2.8×10^{-4} to 2.8×10^{-1}	250	61.6 to 61,600
Black Canyon Reservoir	2,500	20 ft below stage in cell	3	--	--	100
Farmers Union Canal	2,640 to 2,460	3 ft below stage in cell	3	2.8×10^{0} to 2.8×10^{1}	10	24,640 to 246,400
Middleton Canal	2,515 to 2,430	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Phyllis Canal	2,520 to 2,500	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Black Canyon Canal	3,400 to 2,470	3 ft below stage in cell	3	2.8×10^{-1}	10	2,464
Dry Creek	2,700 to 2,550	3 ft below stage in cell	3	2.8×10^{-1}	10	24,640

Table 9. Surface water body information used for Model 4 and Model 6.

selected for simulation based on how closely the results matched theoretical Theis (1935) conditions. The same model parameters and initial heads as for the Model 4 quasi-steady-state conditions were used to simulate the three aquifer tests. The three aquifer tests simulated were the Lexington Hills 30-day aquifer test, Kling irrigation 50-hour aquifer test, and Eaglefield 7-day aquifer test (Utting and Squires, *in review*) (Figure 27). Several model runs were completed in an attempt to simulate measured drawdown in the observation wells. For each of the three tests simulated, the calculated drawdown was much less than the measured drawdown. The best simulations of the aquifer tests resulted from decreasing the K in the vicinity of the aquifer test locations. The K values in the areas of the aquifer tests (in the Pierce Gulch Sand aquifer system) were decreased from approximately 54 ft/d to about 10ft/d over the course of several model simulations in an attempt to calibrate the transient model.

Aquifer storativity values were available for a small area within the model window; however, more data are necessary for the remainder of the domain to better calibrate a transient model. Model results for the transient simulations are presented in Appendix F.

4.4.6 Quasi-Steady-State Model 5 (Model 5)

Model 5 was developed after attempts were made to calibrate an accurate transient model. The hydraulic conductivity distribution was adjusted based on the results of simulated aquifer tests. Model 5 consists of eight layers (i.e., same as Model 4); however, an additional zone of low K was added in the vicinity of the aquifer tests. These conditions will be described in more detail in section 4.4.6.1. Recharge and streambed/canal bed conductance were also modified as will be discussed in sections 4.4.6.2 and 4.4.6.3, respectively.

Model 5 was constructed differently from previous models in terms of model simulation time. This model was created to evaluate how well different periods of time can be simulated. The model simulation period was divided into different portions of a year (2006) among four different models (i.e., four sub-models). Table 10 shows the simulation time for each sub-model. Note that the sub-models are separate models with different simulation periods. Sub-Model 5a simulates the first three months of the year, Sub-Model 5b simulates the first 6 months of the year, Sub-Model 5c simulates the first 9 months of the year, and Sub-Model 5d simulates the full year. The sub-models were constructed in this way to evaluate discrepancies created in the quasi-steady-state models by treating seasonal sources of water (i.e., canals, irrigation, and seasonal precipitation) as steady features rather than as transient features.

Model	Simulation Months	Number of Days Simulated
Sub-Model 5a	January – March	91
Sub-Model 5b	January - June	182
Sub-Model 5c	January – September	273
Sub-Model 5d	January - December	365

Table 10. Simulation times for Sub-Models 5a, 5b, 5c, and 5d.

4.4.6.1 Hydraulic conductivity for Model 5

Sub-Models 5a, 5b, 5c, and 5d consist of the same K distributions for all layers. A new K zone was added to Layers 5, 6, and 7 based on the aquifer test data (Utting and Squires, *in review*). In the vicinity of the aquifer test locations, the K was reduced to approximately 10 ft/day from 50 ft/day (as in Model 4). Layer 6 and Layer 7 represent the Pierce Gulch Sand aquifer system. Figure 41 shows the distribution of K in the Pierce Gulch Sand aquifer system.

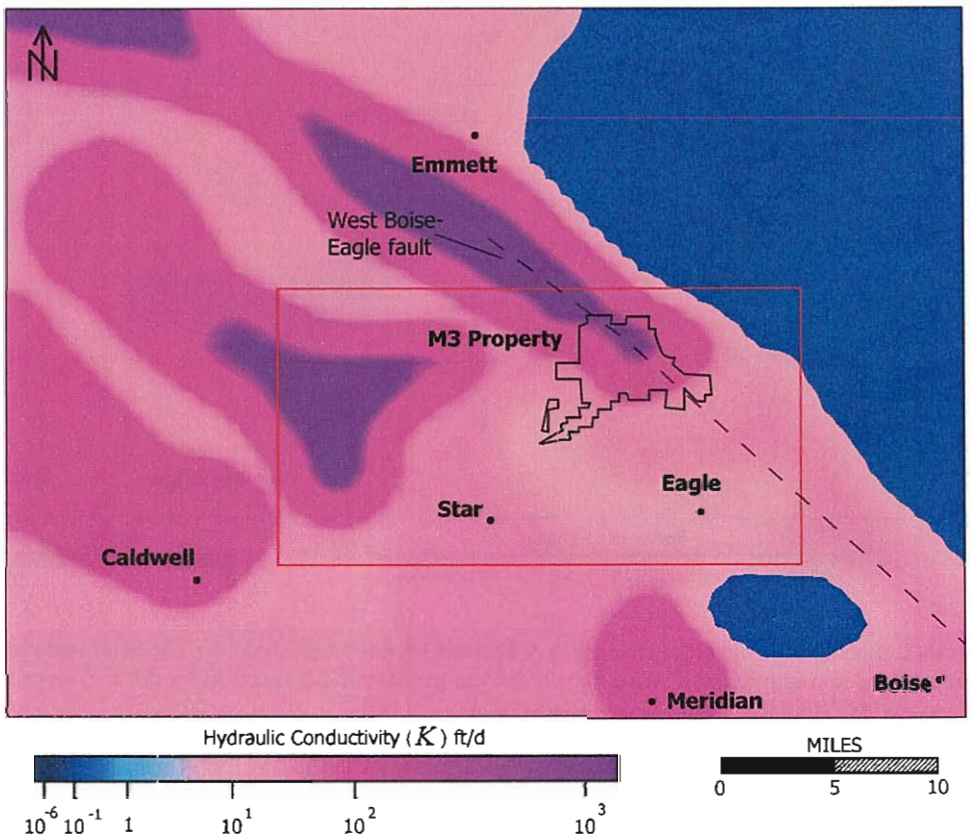


Figure 41. Hydraulic conductivity (K) distribution for the Pierce Gulch Sand aquifer system (Layers 6 and 7) in Model 5 and Model 6.

Modifications in the K distributions were made between Model 4 and Model 5. Changes in Layers 6 and 7 are illustrated in Figure 42; areas in white represent locations with no changes in K between the two models. The area in blue reflects the lower K values delineated by the aquifer tests. These modifications to the K distribution were made to evaluate their effects on the simulated water level contours. Minor modifications to the K distribution were made elsewhere in the model domain as indicated by the yellow areas in Figure 42 to help maintain the desired shapes of the simulated water level contours.

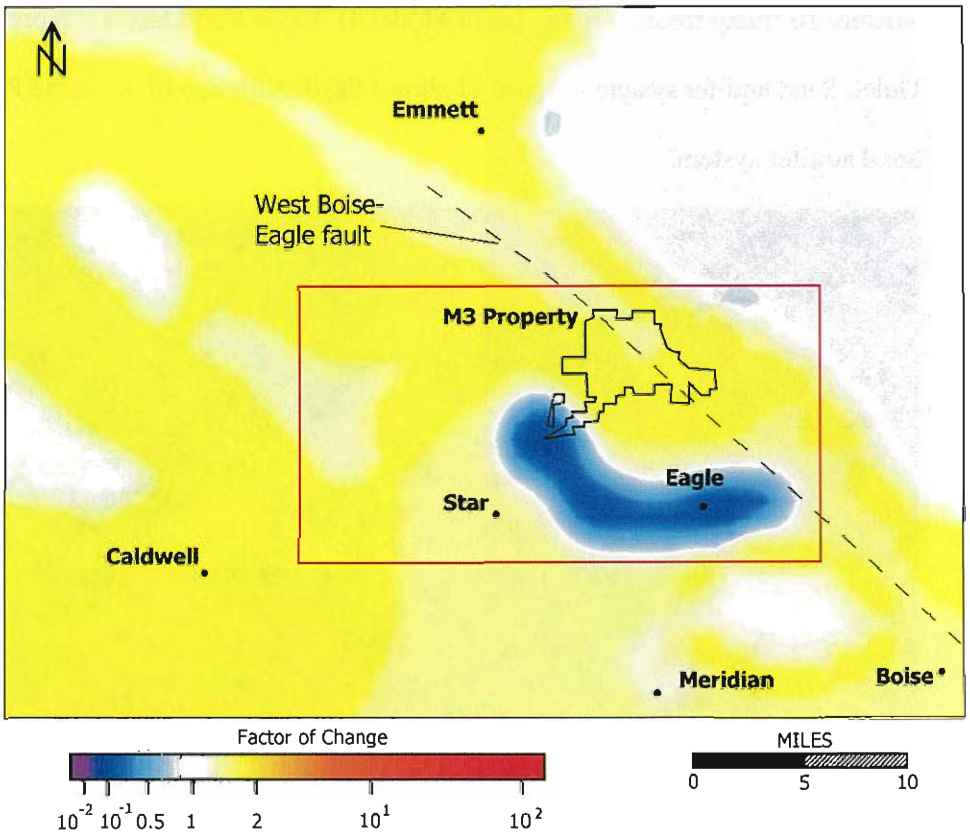


Figure 42. Spatial distribution of changes in K between Model 4 and Model 5. The color scale represents the factor required to multiply the K values for Model 4 to generate the K values in Model 5. Values <1 represent decreases in K. Values >1 represent increases in K.

4.4.6.2 Recharge for Model 5

The previous models applied recharge rates typical of the summer and early fall; therefore, those models were designed to simulate the ground water conditions that existed during the summer and early fall months of 2006. Model 5 was developed to simulate an entire year (four seasons); therefore, efforts were made to estimate recharge during the winter and spring seasons. This information was not available; however, for the purpose of the model simulation, it was assumed that most of the recharge during the non-irrigation seasons was due to precipitation only. Two percent (2% or 0.02) of the average precipitation of 11 in/yr was assumed to be recharge distributed evenly over the entire model domain for Sub-Models 5a, 5b, 5c, and 5d during the winter months (January – March and October – December) as 5×10^{-5} ft/day. For simulation of the spring months (April-June) and summer months (July – September), the recharge rates estimated for Models 3 and 4, based on precipitation and land use, were applied in Model 5 (Figure 37).

4.4.6.3 Bed Conductance of surface water bodies for Model 5

All previous models assigned a constant bed conductance to each surface water body for the entire simulation time. In Sub-Models 5a through 5d, bed conductance was varied with time (seasonally) to control the simulated rate of seepage from the surface water bodies. For example, most canals are not running during the winter months; therefore, in Sub-Models 5a through 5d, the canals were not seeping any water during January through March or October through December (simulated by a canal bed conductance of zero). The average conditions for the Boise River and Payette River were assumed to be constant for the entire year. Dry Creek was simulated as a losing stream from January through March, and as dry (no seepage) for the rest of the year.

4.4.7 Quasi-Steady-State Model 6 (Model 6)

Most of the data available to calibrate the M3 Eagle Big Gulch Model consist of water level measurements for summer and early fall; based on these data, the simulations performed by Sub-Models 5a through 5d (results in Appendix F) are not believed to accurately reflect average annual conditions within the model domain for the year 2006. Therefore, Model 6 was developed from Sub-Models 5a through 5d, plus Model 4. Model 6 simulates the conditions of summer/fall 2006 (same as Models 1 through 4). The results for Model 6 are considered to be the most representative of the data available for the model domain. Results for this model are presented in Chapter 5.

4.4.7.1 Hydraulic conductivity for Model 6

The hydraulic conductivity distribution for Model 6 is identical to Model 5. Figure 41 shows the spatial distribution of K for Layer 6 and Layer 7 in this model.

4.4.7.2 Recharge for Model 6

Recharge rates for Model 6 are identical to those simulated in Models 3 and 4. Figure 37 shows the distribution of recharge within the model domain for Model 6.

4.4.7.3 Bed Conductance of surface water bodies for Model 6

Streambed and canal bed conductance estimates used for Model 4 were used for Model 6. Table 9 lists the conductance values used for the canals, rivers, and Dry Creek.

4.4.8 Steady-State Model

Quasi-Steady-State Model 6 is considered the best working model to simulate the hydrologic conditions within the model domain for the summer/fall 2006. Therefore, Model 6 was used to develop the general framework for the Steady-State Model. Several parameters used in Model 6 were applied directly to the steady-state model to simulate pre-

development conditions. However, several conditions where changed. The Steady-State Model was not calibrated because data for the time period simulated (pre-development of the Treasure Valley) do not exist. The following conditions in the Steady-State Model were changed from Model 6:

(1) general head boundaries

(2) recharge from precipitation and land use estimates

(3) seepage from surface water bodies

(4) pumping wells

Because canals were not present during pre-development times, the general-head boundaries were changed to simulate the Snake River (discussed in section 3.2.2.1). Recharge was assumed to be 2% (0.02) of the precipitation that occurs over the model domain (Figure 43). Canals were not simulated, and seepage from Dry Creek was considered to be zero. Seepage from/to the Boise and Payette Rivers was assumed to be the same as for Model 6. No pumping wells were simulated. Results for this model are presented in Chapter 5.

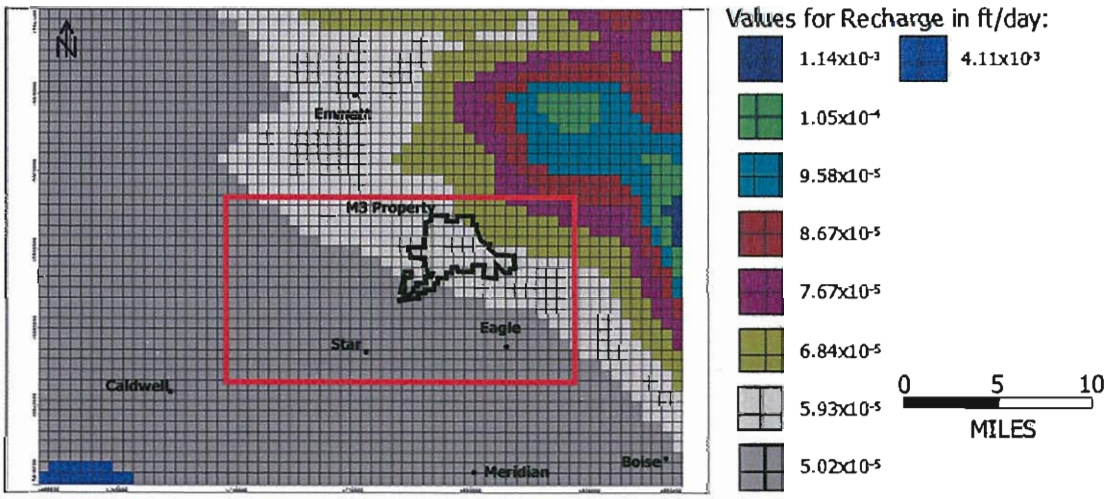


Figure 43. Distribution of Recharge within the model domain for the Steady-State Model.

CHAPTER 5

MODEL RESULTS

5.0 INTRODUCTION

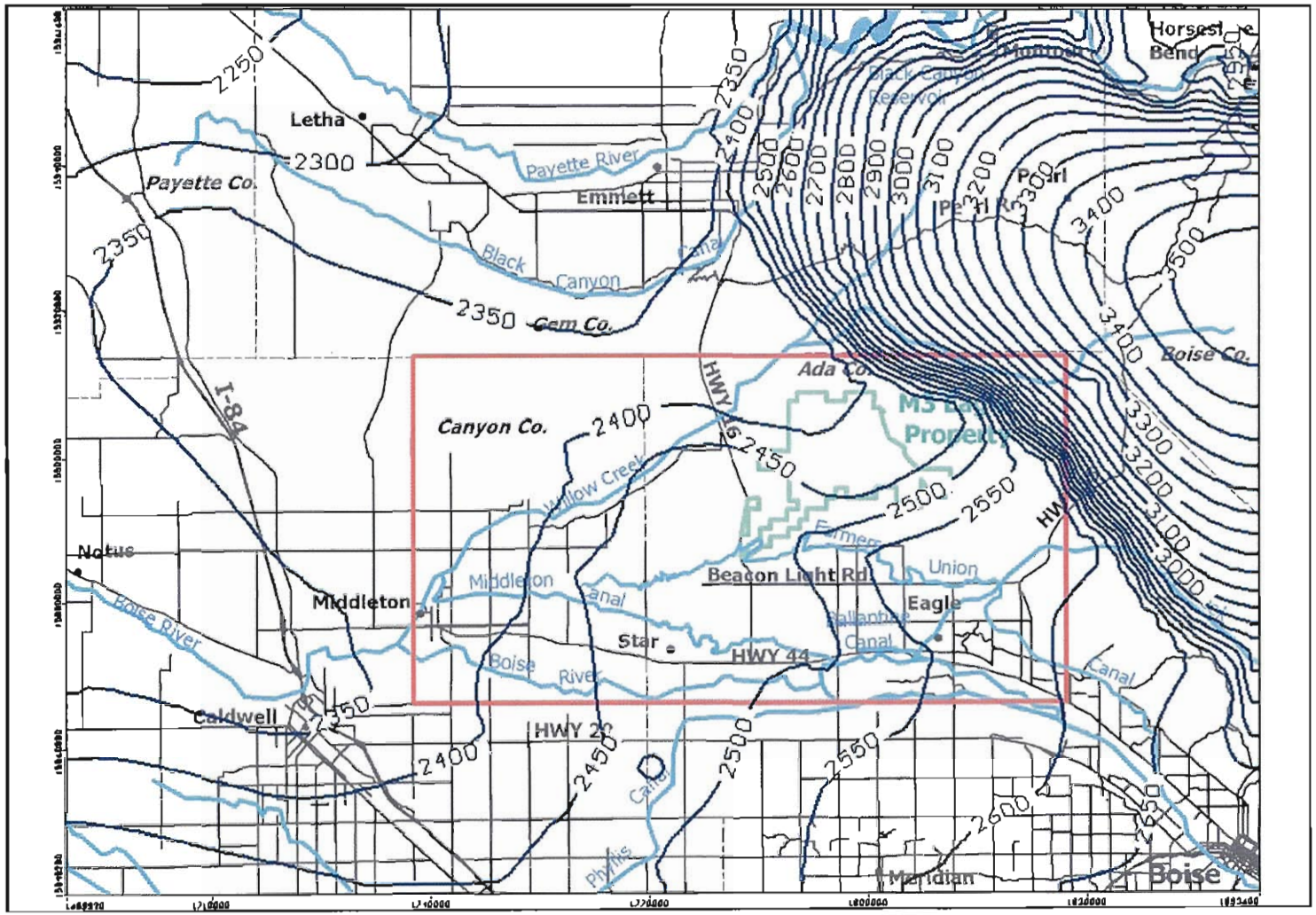
This chapter presents the results for the Steady-State Model and Model 6 (the best quasi-steady-state model). Results for the Steady-State Model are presented as a simulated potentiometric surface map for the Pierce Gulch Sand aquifer system (Layer 6). Results for Model 6 for the Pierce Gulch Sand aquifer system consist of the following: (1) a simulated potentiometric surface map of the aquifer system in Layer 6, (2) a plot comparing simulated and measured heads for wells within the model domain, and (3) information on the distribution of residuals (differences between the measured water levels and the simulated water levels) for the model domain. Results for the other models described in Chapter 4 are presented in Appendix F.

5.1 QUASI-STEADY-STATE MODEL 6 RESULTS

Development and calibration of the quasi-steady-state models required many model simulations. The simulation described in this section was the product of these efforts. Quasi-Steady-State Model 6 is considered to be the "best" working model produced to date (August 2007) because it incorporates modifications derived from several, transient test simulations. Model 6 did not produce the best simulated water levels (when compared to Figure 17) of the six quasi-steady-state models developed; however, Model 6 does incorporate the best data available to date. The results for Model 1 through Model 6 are presented in Appendix F.

Simulated potentiometric surface contours based on the model input data can be compared visually to the contour map of water levels measured in 2006 (Figure 17) as a qualitative measure of model calibration. Figure 44 shows the simulated, potentiometric surface contours for the Pierce Gulch Sand aquifer system in Layer 6. The highest head (~3,500 ft) is in the northeastern area of the model domain within the vicinity of the Idaho batholith. The lowest head (~2,250 ft) is in the northwestern corner of the model domain. The general direction of groundwater flow is from the southeast corner of the model domain toward the northwest corner, where the gradient generally decreases. A steep east-to-west gradient exists within area of the Idaho batholith, where ground water recharge is generated from precipitation in the highlands on the eastern side of the model domain.

Another method to access model calibration is the direct, graphical comparison of simulated water levels with measured water levels. Figure 45 is a plot of simulated water level elevations for wells in Layer 6 and Layer 7 (Model 6) plotted against measured water level elevations for those wells. In a perfect model calibration, the equation displayed would read "y = x" where the slope of the line would be 1, and the measured water level = simulated water level. This 1:1 line is shown as the black dashed line in Figure 45. For Model 6, the slope of the line is 0.9531 and the R^2 value is 0.9338. The equation for the red line plotted through the points shows that the model results are not perfect; however, the simulated water levels generally mimic the measured water levels. Note that simulated water levels for wells at lower elevations (2,200 ft to 2,600 ft) more closely correspond with measured water levels than those at higher elevations (2,600 ft to 3,600 ft).



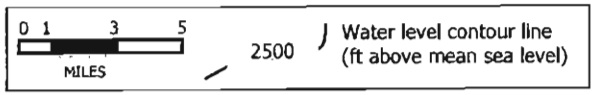


Figure 44. Simulated potentiometric surface for the Pierce Gulch Sand aquifer system in Layer 6 of Quasi-Steady-State Model 6. The red rectangle represents the model window.

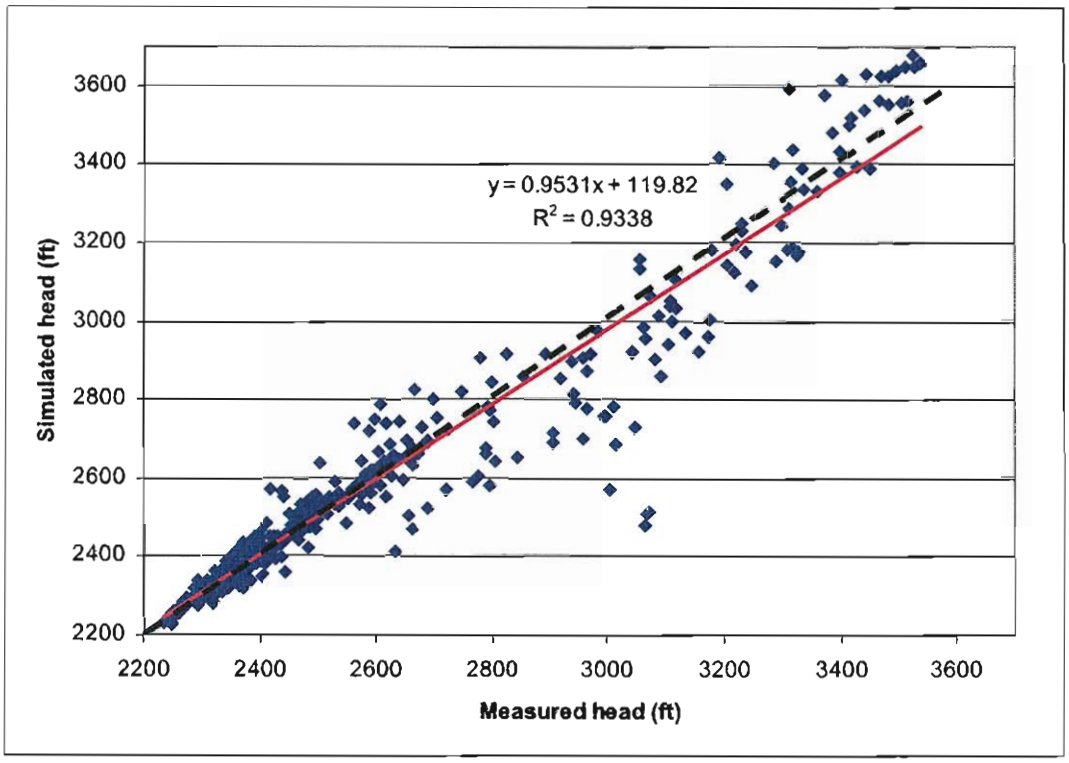


Figure 45. Arithmetic plot of simulated water levels for Model 6 versus water levels measured in 2006.

Evaluation of the spatial distribution of residuals between measured water levels and simulated water levels within the model domain is another way to assess the model calibration results. Figure 46 is a map of the residuals within the model domain. The residuals were calculated by subtracting the measured and interpolated water level elevations (from Figure 17) from the simulated water level elevations. Positive values (blue) represent residuals where the simulated water levels are greater than the measured water levels. Blue areas in the map constitute areas where the model overestimated the water levels relative to what was measured in summer/fall 2006. Negative values (green) represent residuals where the simulated water levels are less than the measured water levels. Green areas in the map constitute areas where the model underestimated the water levels compared to what was measured in the summer/fall 2006. Note that within the M3 property, a negative residual

exists as shown in green. HLI later determined that actual water level measured at this location was likely an incorrect representation of the water level at that point. The white areas on the residual map represent areas where the residuals are within ± 20 feet, or within "measurement error" for the water level elevations measured in summer/fall 2006. These white areas also generally are areas where more data are available compared to the green and blue areas. Simulated water levels within the white areas of the map are within the measurement errors associated with the handheld GPS unit used to measure wellhead elevations.

5.2 STEADY-STATE MODEL RESULTS

The Steady-State Model was not calibrated because no data exist for pre-development times. The Steady-State Model was based on parameters from Model 6 together with adjustments to the general-head boundary conditions primarily to reflect conditions prior to irrigated agriculture. The steady-state potentiometric surface is assumed to have been virtually constant with time, so it is also assumed that the elements of recharge and discharge were constant with time. Figure 47 is a simulated steady-state water level contour map for the model domain. Generally, the water table is gently sloping and ground water is flowing from the southeast to the northwest through the model domain. As was shown in Figure 44 for Model 6, steeper east-to-west gradients exist in the Idaho batholith where the ground water originates as recharge from precipitation in the highlands on the east side of the model domain. Ground water also is predicted to flow to the southwest toward the Snake River.

The simulated water levels in the Steady-State Model are considerably lower than the water levels in Model 6. In pre-development times, this is expected because the only source

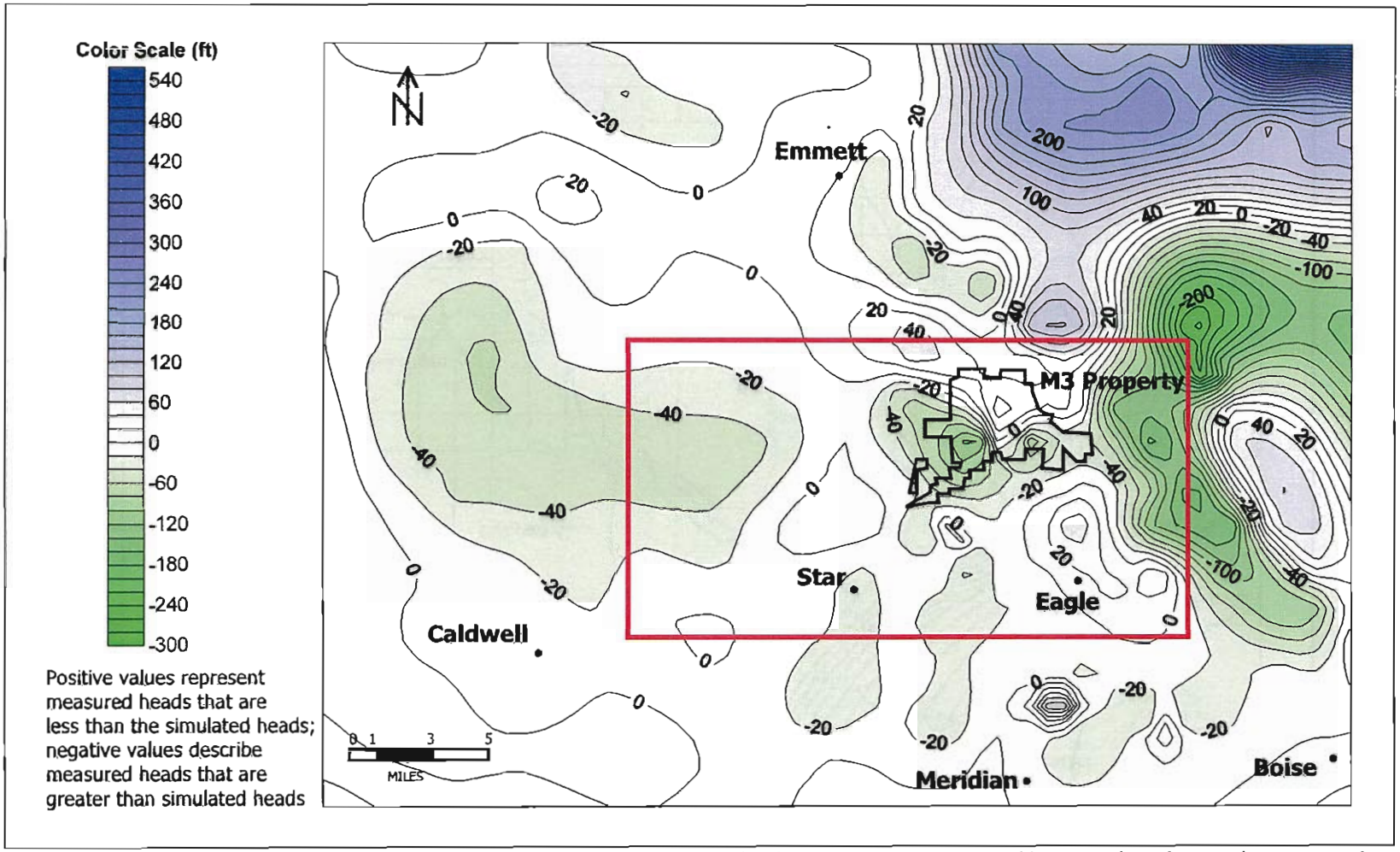


Figure 46. Residuals for Model 6 detailing the differences between simulated water levels and water levels measured in 2006. The red rectangle represents the model window.

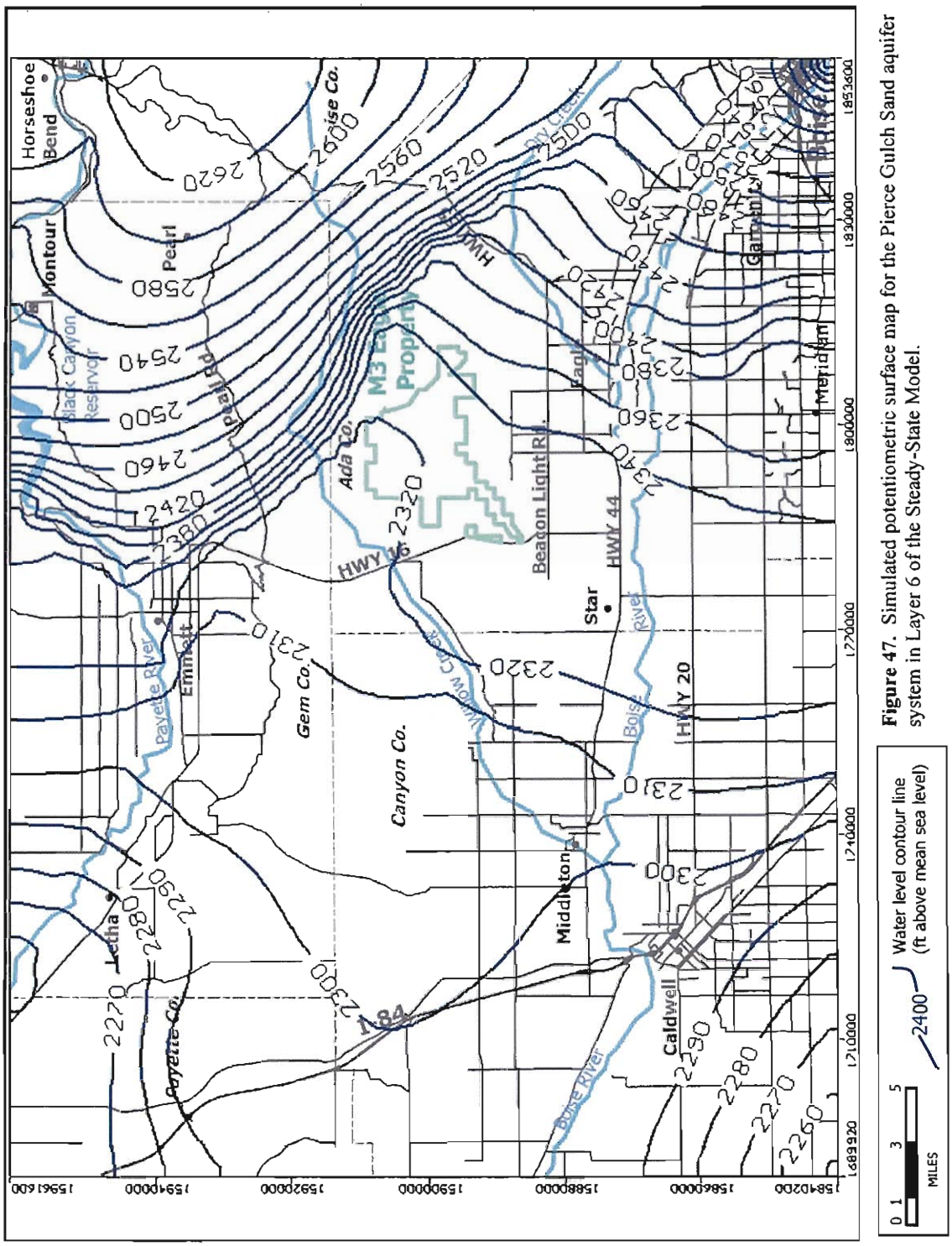


Figure 47. Simulated potentiometric surface map for the Pierce Gulch Sand aquifer system in Layer 6 of the Steady-State Model.

of recharge was precipitation. Post-development, canals and ditches were built, and the onset of irrigation caused water levels to rise due to new potential sources of recharge.

5.3 MODEL ASSUMPTIONS AND LIMITATIONS

Many assumptions and limitations are associated with the simulation of ground water flow in the M3 Eagle Big Gulch Model. The model is capable of simulating steady-state ground water flow directions fairly well based on water levels measured during summer/fall 2006; however, the model does not work very well for transient conditions. The model is subject to several general assumptions/conditions as well as certain limitations. Such limitations should be considered carefully when using the model.

5.3.1 Model Scale

The scale of the model is very large due the sparse data for the model domain. The level of detail associated with the model simulations is intended for analysis of the regional hydrogeologic conditions of the Pierce Gulch Sand aquifer system across the entire model domain. As a result, small-scale simulations are not appropriate when evaluating local hydraulic conditions, for example, drawdown created by proposed M3 Eagle wells. The model input database lacks sufficient details for direct application to small-scale investigations due to the size of the grid and the spatial distribution of available data. As more data become available, and the grid is fine-tuned (more cells created), smaller scale simulations will become more feasible.

5.3.2 Potential Conceptualization Errors

Several specific potential sources of error exist in the M3 Eagle Big Gulch Model. For example, considerable uncertainty exists pertaining to the geology within the model domain. The Pierce Gulch Sand aquifer system has been well defined by HLI; however, the

thicknesses, heterogeneity, geologic structures, hydraulic conductivity, and specific storage of strata above and below the Pierce Gulch Sand aquifer system have not been adequately defined throughout the model domain. As a result, it is very likely that several of the model layers are not proportioned correctly relative to the real hydrostratigraphic conditions that exist within the model domain. Most of model input data are based on interpretation of driller's well logs.

The base of the Pierce Gulch Sand aquifer system is believed to dip downward about 100 ft per mile (about 1° angle) to the southwest (Squires et al., 2007); however, all strata are treated as horizontal layers in the model. Simulation of dipping layers in the model was explored; however, due to the difficulty in correlating plan view visuals of the model with the cross-sectional view visuals of the layers, the option was not pursued. A dip of approximately 1° is almost negligible when compared to horizontal layers for a model of this scale.

The Pierce Gulch Sand aquifer system is bounded on its northeast side by a geologic fault system known as the West Boise-Eagle fault (Wood and Anderson, 1981). A large hydraulic conductivity contrast was used to simulate the steep water level gradient across the fault, and to represent the linear, northwest trending, outcrop of the Pierce Gulch Sand in contact with mudstone on the up-thrown side of the normal fault. Simulations of the fault/outcrop condition by use of a wall boundary condition in the Horizontal Flow Barrier Package in MODFLOW-2000™ were performed. However, the large K contrast used to represent the fault/outcrop condition proved to be better than the wall boundary for simulating the steep hydraulic gradient, and sharp bends in the water level contours caused

by the fault/outcrop condition. More information on how the fault inhibits ground water flow is essential to determine the best way to develop a fault barrier in the model.

5.3.3 MODFLOW Assumptions

Two main assumptions are associated with using MODFLOW as defined by Reilly and Harbaugh (2004). The first assumption is that MODFLOW assumes confined three-dimensional flow with water table approximations. With confined flow represented in the model, the potentiometric surface in one layer is not influenced by surface topography, surface-water features, or layers above and below. In the M3 Eagle Big Gulch Model, it is assumed that surface water irrigation and canals influence water levels in the Pierce Gulch Sand aquifer system. The second assumption in MODFLOW is that the principal directions of hydraulic conductivity are aligned with the coordinate axes. Anderson and Woessner (1992) recommend orienting the grid parallel to the features that control flow within the aquifer to minimize error and minimize the number of nodes that fall outside the boundaries (inactive nodes) of the modeled area. The M3 Eagle Big Gulch Model was not oriented in this fashion because the current north and south orientation simplified the model construction, and all nodes remained active during the simulation. As a result of the north and south grid orientation, and ground water flow from the southeast to the northwest, the finite difference calculations may result in water balance errors when flow is diagonal across grid cells (Anderson and Woessner, 1992).

5.3.4 Observation Measurement Errors

Observation data were collected from a number of wells in the model domain, and a number of errors potentially are associated with the collection of such measurements. Depths to water in wells were measured by hand with steel tapes, and the water level elevations were

estimated by handheld GPS devices and/or estimated from USGS topographic maps. Water levels measured by hand naturally incorporate human errors, which to some degree are unavoidable. Handheld GPS units typically are capable of elevation measurements within about ± 10 ft under ideal conditions; however, under non-ideal conditions involving poor satellite communications, errors associated with elevation measurements can be as large as ± 20 feet. Other errors associated with the well observation data involve the potential for water levels to be influenced by pumping of the well being measured or pumping of nearby wells. Most well owners were asked to turn off their pumps prior to the water level measurement; however, some wells may not have fully recovered prior to measurement of the water level.

Other water level measurements were obtained from the IDWR Online Ground Water Level Database, or from well logs. The IDWR Online Ground Water Level Database provides data for wells measured periodically each year; however, it is not known how the water levels are measured or how the elevation of the water level is determined. Water levels estimated from well logs may incorporate significant errors because of the unknowns associated with the methods of measurement, and the time elapsed since the well was drilled. It also is possible that the water level had not equilibrated from the effects of drilling.

5.3.5 Surface Water Body Assumptions

Certain assumptions are associated with the bodies of surface water simulated in the model, which include the rivers, canals, creeks, and Black Canyon Reservoir. In order to assign a body of water such as a river or canal to cells in the model, the bed conductance is required. Bed conductance is calculated by the width of the body of water, bed thickness, and the K of the bed material in specific cells in the model. Such properties are difficult to

measure in the field so they were estimated for the purpose of the M3 Eagle Big Gulch Model. For the rivers, canals, creeks, and Black Canyon Reservoir, the K of the geologic materials at specific locations under the water body was estimated from available geologic maps. As a result, errors are associated with the amount of water estimated to seep from these bodies of water.

5.3.6 Well Discharge Assumptions

The total number of wells within the model domain is not known. The number of wells in each cell of the model was based on the number reported in the IDWR well database (IDWR Well Information Search), and the number of houses detected by examining available satellite imagery. Many wells (especially older wells) are not reported to IDWR; therefore, estimates of numbers of wells are prone to errors. Due to the inability to accurately quantify the number of wells in each cell, error is associated with the amount of pumping assigned to each cell.

Another error associated with the amount of pumping assigned to each cell is related to estimates of the number of people per household (one well per household), and the amount of water used per person. Assuming that each household has three people, the amount of water pumped per day was estimated by assuming that each person uses 230 gallons per day every day.

Estimated pumping discharges from other wells (municipal, commercial, irrigation, and stock wells) were based on water rights information found on IDWR website. Water rights are commonly given as an instantaneous limit as rate in cubic feet per second (CFS) and/or an annual limit of acre-feet per year (AF/yr). To estimate the pumping discharge from these wells, the annual limits of all wells within each cell were summed. For pumping

estimates based on water rights where the annual limit was not provided, the instantaneous limit of the water right was used. Both limits usually overestimate the amount of water actually pumped; therefore, the amount of water pumped per cell may be overestimated in the model, especially where cells contain large pumping wells (e.g., a municipal well).

5.3.7 Recharge Assumptions

Recharge estimates were based on the amount of precipitation, excess irrigation water, and septic system discharge that actually percolates to the ground water. At every location in the model, recharge from precipitation was estimated to be 2% (0.02) of the annual precipitation. The amount of precipitation that actually infiltrates may be more or less (spatially) depending upon conditions at the land surface (permeable or not). Estimates of recharge from irrigation were based on a map of land use, and typical water needs associated with such land types. Estimates of recharge from septic system discharge were based on the number of wells (i.e., households) per cell, and estimates of the amount of wastewater produced per person per day.

While the above assumptions were made to estimate recharge rates, trial-and-error estimates tested during model calibration suggested that the rates were underestimated. In certain models, the recharge rates over most of the model window were increased.

5.3.8 Transient Model Simulation Complications

Several aquifer tests were simulated within the model window; however, a successfully calibrated, transient model could not be constructed based on the results of the aquifer tests alone. Unfortunately, certain challenges posed problems in the development of a working transient model.

The first problem is that transient simulations require detailed temporal flux data; however, only data for summer/fall 2006 were available for this model. Another problem is that aquifer transmissivity and storativity values were not available for the entire model domain. In addition, no information exists to evaluate the transient effects of boundary conditions known to exist within the model window.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.0 INTRODUCTION

The M3 Eagle Big Gulch Model provides a preliminary mathematical representation of a new, conceptual hydrogeologic model for ground water flow in the region between the Boise River near Eagle, Idaho and the Payette River near Emmett, Idaho. Although this preliminary ground water model is a work in progress, it provides a user-friendly, visual tool to help test and refine conceptual understanding of the ground water flow conditions that exist within the model domain. This chapter presents conclusions and recommendations developed during an 18-month investigation.

6.0.1 Conclusions

6.0.1.1 Hydrogeologic conclusions of the investigation

The following conclusions are derived from interpretation of hydrogeologic data presented by Squires et al. (2007), independent evaluation of well driller's reports, available water level data, aquifer test data summarized by HLI, and general accepted hydrogeologic theory:

(1) Ground water flow between the Boise River valley and the Payette River valley occurs primarily through sediments of the Pierce Gulch Sand aquifer system. The Pierce Gulch Sand aquifer system is 150 to 275 feet thick (possibly thicker in other areas) consisting of stratified granitic sand layers with interbedded layers of silt and clay. It is bounded on the north side by a southeast-northwest trending normal fault known as the West Boise-Eagle fault (Wood and Anderson, 1981). The Pierce Gulch Sand aquifer is generally underlain by clays and mudstones of the Terteling Springs

Formation and dips at an angle of about 1° to the southwest in the model domain. The aquifer system is truncated at by the unsaturated water table in the vicinity of Black Canyon Canal southwest of Emmett, the West Boise-Eagle fault northwest of Boise, and by the mudstones of the Terteling Springs Formation underneath in the vicinity of the fault.

(2) The Willow Creek aquifer (SPF, 2004) exists mostly on the north side of the West Boise-Eagle fault and extends from the foothills to the Payette River near Emmett, Idaho. The Willow Creek aquifer consists primarily of high hydraulic conductivity gravels and sands; however, the aquifer appears to be isolated from the regional ground water flow system in the Pierce Gulch Sand aquifer system by the West Boise-Eagle fault and mudstones of the Terteling Springs formation. Granite of the Idaho batholith, and overlying tertiary volcanics bound the Willow Creek aquifer on the eastern side of the model domain.

(3) The Pierce Gulch Sand aquifer system constitutes the primary ground water source for the cities of Star and Eagle, and the proposed M3 Eagle planned community. The aquifer system is believed to be moderately to highly productive based on the existence of many large production supply wells completed in the aquifer, and aquifer tests conducted in the vicinity of Eagle and the M3 Eagle Development property.

(4) Ground water recharge to the Pierce Gulch Sand aquifer system originates southeast of the model domain from seepage from the Boise River downstream of Diversion Dam, and from the dense network of canals in the Boise-Meridian area; ground water flows northwesterly under the Boise River in the Eagle, Idaho area in the direction of

the hydraulic gradient toward the natural ground water discharge areas in the Payette River valley near Letha, Idaho and the Snake River valley to the west.

6.0.1.2 M3 Eagle Big Gulch Model conclusions

The M3 Eagle Big Gulch Model is based predominantly on the conceptual hydrogeologic model developed for the model window area by HLI, water levels measured within the model window during the summer/fall of 2006, and water levels derived from the IDWR Ground Water Level Database for the rest of the model domain. The following conclusions are derived from the many simulations performed during development of the numerical model:

(1) The M3 Eagle Big Gulch Model is limited by the lack of a comprehensive database for model input.

(2) Preliminary results strongly support the conceptual model developed by HLI that ground water flows from the Boise River valley to the Payette River valley throughout the lower Boise River basin and the southern half of the proposed M3 Eagle development property.

(3) The general direction of ground water flow through the Pierce Gulch Sand aquifer system is from areas of higher head (water level) in the Boise River valley to areas of lower head in the Payette River valley. Seepage from the Boise River upriver from the modeled area and the New York canal is the primary source of recharge to the Pierce Gulch Sand aquifer.

(4) Based on model calibration of hydraulic conductivity and recharge, driving heads (higher heads) in the Pierce Gulch Sand aquifer system originate in the south and east Boise areas. However, canal seepage and surface irrigation just north of the Eagle

and Star areas contribute significant recharge to the shallow water table aquifer near the southwestern edge of the proposed M3 Eagle development property.

(5) Calibrated model values for hydraulic conductivity in the Eagle-Star vicinity are lower than previously expected based on results from aquifer tests conducted in the area.

(6) Based on model calibration of hydraulic conductivity and canal seepage, recharge estimates for the model window area are underestimated.

(7) Simulation of the steep water level contours between the outcrop of the Pierce Gulch Sand and the West Boise-Eagle fault zone is difficult. Additional work is needed to adequately define the ground water flow conditions in this area.

(8) Changes in land use and/or development that reduce canal leakage and/or irrigated areas are expected to reduce local recharge and cause ground water levels in domestic wells in the vicinity of Eagle to decline.

6.0.2 Recommendations

The M3 Eagle Big Gulch Model provides a useful tool for the mathematical evaluation of evolving conceptual, hydrogeologic models of the regional ground water flow conditions between the Boise River valley and the Payette River valley. The present model must be considered preliminary in nature, and more data and more simulations are required to calibrate the model. The following recommendations are suggested to improve the predictive capability of the M3 Eagle Big Gulch Model and are ranked according to priority with the first recommendation being the most important:

(1) Establish a water level monitoring network comprised of wells in the Pierce Gulch Sand aquifer system and other aquifers within the model domain. Monitor on a

regular basis to document seasonal changes that may occur and incorporate average water level conditions when simulating the model in steady-state conditions.

(2) Expand the monitoring network to acquire more water level measurements outside the model window.

(3) Incorporate new monitoring data into the model as it becomes available.

(4) Develop a detailed water budget for the model domain.

(5) Perform a more detailed analysis on recharge to incorporate better estimates into the model.

(6) Update recharge estimates as land use changes and as certain areas become more developed.

(7) Locate and map all canals within the model domain that were not previously simulated (specifically in the northwestern area of the model window) and incorporate all new data into the model.

(8) Improve the canal and river seepage estimates.

(9) Improve discharge estimates for municipal entities (cities and towns) in the model domain by acquiring year-to-year seasonal pumping estimates.

(10) Update domestic discharge estimates by documenting actual well withdrawals from the wells known to exist in each cell.

(11) Better define temporal conditions such as irrigation diversion rates, urban and rural domestic water use, periods of canal use, and seasonal water levels in wells.

(12) Conduct long-term aquifer tests in the M3 Eagle property vicinity to better understand the effects of increased water development in the area.

(13) Estimate storage coefficients for all layers in the model throughout the model domain to prepare for transient model simulations.

(14) Conduct additional aquifer tests near the West Boise-Eagle fault to better understand the effects caused by pumping near that zone, and determine the best way to simulate the fault in MODFLOW.

(15) Obtain hydrogeologic data on the layers above and below the Pierce Gulch Sand aquifer system.

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APPENDIX A:
WATER LEVEL MEASUREMENTS AND WATER LEVEL PILOT POINTS

This appendix consists of the water level measurements acquired for the model simulation. The measurements are based on hand measurements, measurements acquired from well logs, measurements from the IDWR Online Ground Water Level Database, and calibration pilot points (for example, PP23) implied from the water level contour map (Figure 17).

NOTES to include in Appendix A:

* denotes that the screened interval is unknown

^ denotes well or point used in model calibration

# denotes pumping well or observation well used in aquifer testing

All pilot points were points chosen (not real wells) from the water level contour map (Figure 17)

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
1	1782323.417	15883357.876	2073	2498.79	#8 (old Jensen well)
2*	1796315.242	15923456.021		2760.91	3 Horse Ranch
3*	1816457.466	15881702.613		2576.52	Alfred, Keith & Christine
4^	1806521.023	15889874.628	2487	2538.85	Amick, Dave
5*	1810743.150	15891465.897		2552.62	Anderson, Gloria
6*	1777176.216	15885916.371		2483.51	Bailey, Gene
7*	1780811.301	15879906.649		2504.23	Ballard, Patrick & Lori
8	1774077.646	15886099.681	2293	2502.22	Baramore, Kagathaleen
9*	1780346.974	15882484.790		2496.10	Barfuss, Ray
10*	1803045.131	15888522.521		2543.99	Barker, Byron
11*^	1721523.050	15928201.934		2374.00	Barns 6N/3W 15CC
12	1819096.943	15886633.296	2724	2710.37	Barsby
13*^	1750389.405	15895411.642		2441.00	Berry 5N/2W 21CA
14*^	1726590.132	15936157.008		2282.00	Black Canyon Irr. 6N/3W 10DC
15*	1780785.110	15885139.565		2508.29	Boatiglia
16*	1803044.832	15888563.010		2562.76	Bodily La Thare (abandoned)
17*	1803304.326	15888210.661		2552.95	Bodily La Thare (domestic)
18	1801069.410	15889722.597	2468	2554.41	Bothwell, Glenn
19*	1716163.404	15906329.517		2433.00	Bower 5N3W 8AD
20^	1793309.104	15888077.850	2462	2544.52	Brecht, George and Leigh
21*	1820155.963	15885488.016		2655.83	Brookside (owner unknown)
22^	1783324.550	15889680.550	2316	2486.40	Buchert, Troy
23*	1806170.082	15889699.890		2540.82	Burke, Tim & Mary
24*	1776247.789	15882944.848		2477.88	Campbell, Morris
25	1807364.551	15889931.655	2479	2551.80	Canegaly, Paul & Karen
26^	1781090.267	15897045.069	2334	2500.75	Capps, Eric & Heather
27	1774631.484	15886750.877	2319	2479.78	Chukar (Ray Irving - original owner)
28^#	1792983.481	15874442.132	2255	2532.88	City of Eagle - Eaglefield
29^#	1792090.064	15875774.069	2231	2528.73	City of Eagle - Legacy
30*	1804318.074	15889068.491		2543.14	Clark, Lynnwood
31^	1785419.005	15882588.628	2330	2540.90	Cornell, Thomas & Vickie
32	1781369.500	15881013.500	2350	2495.13	Cosgrove, Ralph
33*	1707540.225	15913437.217		2399.00	Country Camp Grounds 5N/3W 6BA
34*	1771922.659	15890499.825		2419.00	Crow 5N/2W 26BC
35*	1796315.243	15923456.020		2746.91	Cunningham (domestic)
36^	1796337.946	15923354.961	2598	2738.80	Cunningham (irrigation)
37*	1795313.870	15923104.732		2799.86	Cunningham (new domestic)
38*	1787752.487	15882735.787		2510.90	Curtright

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
39^	1782657.137	15887358.248	2447	2519.42	Davis, Bob
40^	1787485.821	15877622.359	2438	2491.96	Decker, Charles
41	1780814.450	15882852.175	2395	2482.42	Densmore, Jackie
42*	1795455.851	15886524.014		2554.53	Duble, Gaylord
43^	1798567.778	15877395.857	2463	2532.64	Eagle Family Worship Center
44^	1801324.075	15888023.942	2539	2554.82	Edmunson, Johnny
45*	1799927.552	15885280.736		2562.55	Edwards, Stephen
46	1821868.850	15888721.044	2318	2649.00	Elguren, Tony & Tara (domestic)
47	1821922.908	15888397.577	2700	2635.47	Elguren, Tony & Tara (irrigation)
48*^	1778533.188	15928534.416		2383.10	Emmet Well #9
49*^	1753129.696	15945709.578		2338.93	Emmett Well #10
50*^	1778533.188	15928534.416		2383.78	EmmettTW-9D
51*^	1778533.188	15928534.416		2383.06	EmmettTW-9M
52*^	1778533.188	15928534.416		2382.80	EmmettTW-9S
53*	1781098.341	15878653.361		2487.85	Fahrner, Sharon
54	1769301.557	15886982.028	2345	2445.19	Falash Construction
55^	1808192.857	15890059.453	2477	2549.77	Ferri, Frank & Linda
56*	1782925.748	15888939.039		2498.85	Fiorino, 1 Chris, domestic
57	1783415.652	15889215.528	2297	2487.20	Fiorino, 2 Chris, abandoned
58	1798188.389	15898447.219	2360	2548.26	Flack Corral
59^	1788812.098	15884534.546	2452	2532.76	Flack Rental Property
60^	1788819.027	15884595.324	2516	2533.09	Flack Rental Property
61*^	1785151.817	15948280.010		2395.00	Flowers 7N/1W 33DD
62^	1792771.874	15887232.956	2497	2520.15	Fry, Diane
63^	1797726.070	15888260.973	2490	2549.28	Fry, Phillip
64*	1775173.923	15885671.152		2557.40	Gallia, J & L
65*	1815096.713	15961679.338		2504.00	Gatfield 7N/1E 15 DD
66	1809686.886	15891407.095	2476	2552.25	Geary, Tim
67*	1780361.236	15883699.525		2465.45	Gillis, Bert
68*^	1753191.464	15894089.811		2444.00	Godsill 5N/2W 33AA
69^	1796553.116	15876743.722	2434	2520.82	Gonzales, Curtis
70^	1782321.960	15886981.559	2457	2495.36	Green, Jay & Kim (M3 owned)
71^	1777791.927	15882539.475	2472	2490.61	Grupe, Robert
72^	1783429.999	15888142.682	2296	2502.31	Gwynn (M3 owned)
73^	1784145.096	15886537.958	2305	2519.76	Hamilton, Ken & Linda (well 1)
74*	1784210.752	15886599.119		2527.02	Hamilton, Ken & Linda (well 2)
75	1770934.175	15887669.872	2301	2444.45	Haws, Scott
76^	1795467.967	15882738.425	2513	2544.36	Heck, Bill
77*	1798698.319	15887782.115		2554.53	Hendricks, John
78^	1804994.179	15889923.830	2431	2542.92	Herteux, Darrick & Carrie
79*	1769542.025	15884786.977		2440.23	Hinkley, Clint & Regina
80*	1806816.413	15892528.897		2551.30	Hondo (unknown owner)
81*	1787004.536	15874926.675		2510.01	Howarth, Charles
82	1782854.994	15888533.695	2255	2517.95	Hudson, Paul
83*	1774862.520	15882592.152		2481.17	Hudson, Richard & Cheryl
84*	1775639.670	15881564.493		2483.03	Hutton, C. Hank
85*	1819072.868	15885985.272		2656.79	Jackson, Milan
86^	1803784.529	15887789.107	2546	2555.57	Jones, Robert
87^	1782036.908	15901535.274	2312	2507.97	Kallbrier, John
88^	1803099.707	15889079.649	2446	2557.85	Keulman, Gloria
89*	1712213.953	15903208.791		2387.00	Kimball 5N/3W 19BB

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
90*	1777815.431	15881132.664		2487.23	Kinder, Richard & Tracy
91*	1777649.512	15879491.860		2470.38	Klein, Milton
92^	1783890.560	15888418.991	2331	2504.80	Kling Domestic Well (M3 owned)
93^#	1784761.946	15888718.259	2417	2511.96	Kling Irrigation Well (M3 owned)
94*	1783057.494	15887866.958		2576.90	Koeppen, Dave
95*	1777053.437	15879710.819		2469.78	Kuck, Lonn Domestic
96*	1777632.291	15879896.633		2467.81	Kuck, Lonn, Irrigation
97*	1795675.513	15885563.967		2552.31	Lane, K. & Tina
98*	1788948.463	15887157.090		2535.48	Langdon, Ken & Joan
99*	1793176.591	15883926.857		2528.29	Langley, B
100^#	1811718.414	15880298.548	2204	2561.15	LDS Church/Eagle Stake Center
101	1802031.567	15895580.318	2526	2568.56	Little Gulch
102^	1809989.198	15892168.603	2486	2544.63	Lombardo, Chris & Carey
103*	1780736.258	15884744.494		2471.67	Longhi, Michael & Christi
104^	1807824.626	15890228.715	2376	2548.55	Loveless, Brent
105*^	1761909.588	15929381.470		2337.00	Lyman 6N/2W 13AAC
106*	1790679.132	15915126.349		2368.00	Lynn, Corbett
107^	1788155.315	15913287.130	2177	2337.90	Lynn, Mark
108^	1791613.392	15914646.927	2202	2372.39	Lynn, Phil
109^	1810346.215	15889661.052	2485	2536.88	Lyons, Robert
110^	1804313.498	15884776.642	2427	2565.83	Maddox, Kenneth
111*^	1779474.561	15877671.286		2559.00	Maitot, Karl
112^	1803555.632	15889943.427	2402	2555.16	Martinez, Jorge
113*^	1828440.994	15961446.470		2642.00	McDonough 7N/1E 23DD
114*	1795576.750	15887071.467		2553.67	Mc Peak, Orval
115*	1777035.088	15876765.212		2518.00	McLeod
116^	1783017.766	15888332.314	2290	2487.91	Meek, Janis
117*^	1800455.777	15851082.082		2578.67	Meridain Well #20
118*^	1806701.382	15851533.341		2599.61	Meridian #18
119*^	1789944.692	15850805.602		2560.19	Meridian #19
120*^	1795465.413	15849831.668		2567.15	Meridian #24
121*^	1805826.414	15860332.927		2570.91	Meridian #26
122^	1801922.961	15888423.115	2472	2558.42	Michaud, Dan & Terry
123*	1778716.931	15882535.171		2491.78	Mike
124*	1805863.783	15888472.783		2538.88	Milam, Margie & Ben
125^	1801003.088	15887758.408	2492	2556.91	Mingus, Gary & Heather (domestic)
126*	1800945.191	15887646.640		2557.19	Mingus, Gary & Heather (irrigation)
127^	1805212.859	15889146.063	2439	2548.49	Mitchell, James & Eileen
128	1804720.291	15885346.533	2459	2555.76	Moi, Obert
129^	1778873.119	15883376.284	2411	2493.52	Monroe, Troy & Yvette
130^	1784051.980	15887306.621	2268	2510.68	Moody, John & Betty (M3 owned)
131^	1801213.002	15889156.811	2471	2548.28	Moore, Steve & Sue
132*	1788633.447	15882731.607		2502.62	Morton, Del & Robin
133^	1779625.709	15882773.733	2458	2493.86	Moyle, Rex & Marjorie
134*	1793298.303	15888573.761		2555.32	Nahas, Robert & Kelly
135*	1722412.992	15913599.327		2331.00	Nishitani 5N/3W 3BA
136	1805103.129	15888122.892	2433	2557.57	O'Connor, Mike & Cindy
137*	1778202.503	15882623.028		2492.26	Olson, L
138*	1772062.000	15885631.982		2439.54	Palmore Dennis & Judy
139*	1795313.872	15923104.731		2782.86	Pearl (unknown owner)
140*	1764915.000	15921300.000		2329.60	Perrin

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
141*^	1726699.103	15901145.691		2435.00	Pokorney 5N/3W 15AD
142*	1804207.087	15889189.127		2560.08	Prescott, William
143*	1800796.704	15887878.362		2554.65	Prin, J & V
144^	1792826.877	15880381.687	2436	2527.80	Purdy, Carol
145*	1819297.857	15885400.014		2649.15	Purdy, Pat & Debra
146*	1791550.889	15878034.651		2514.25	Purdy, Vickie & Dane (dairy)
147*	1784852.687	15878293.145		2490.64	Purdy, Vickie & Dane (rental)
148*	1801421.266	15887781.722		2557.55	Redfern, Dennis
149*	1769148.020	15883134.779		2442.05	Reich, Norman
150^	1801236.630	15889936.393	2311	2539.65	Reimbolt, Tom well 1
151^	1800741.107	15890459.111	2528	2544.39	Reimbolt, Tom well 2
152*	1800729.752	15884993.053		2558.57	Richardson, Bruce & Jean
153*	1802223.564	15889457.798		2562.25	Rid
154^	1781085.660	15884058.435	2340	2510.36	River Birch Golf Course, domestic
155	1808864.470	15882887.949	2035	2469.25	Rodgers, Steve & Cheri
156^	1784796.040	15886886.389	2629	2515.50	Schirmer, Doris
157	1779373.256	15880909.682	2419	2488.84	Shervik Builders
158*	1789026.888	15884252.585		2530.14	Shrum, Gary & Karen
159*	1809031.093	15892707.804		2561.20	Smith, David
160*	1805501.432	15888834.449		2556.16	Snyder, Garry & Joyce
161^	1802719.295	15888914.869	2360	2534.24	Spano, Joe & Jennifer
162*	1768017.655	15886893.535		2421.20	Spencer, Brent & Joan
163*#	1770331.745	15885297.747		2507.00	Star #3
164*	1710847.665	15924348.890		2402.00	Steenson 6N/3W 19DD
165^	1782482.534	15906325.933	2150	2448.59	Steiner, Richard
166*^	1773984.634	15943238.580		2330.00	Stevens 6N/1W 6BD
167	1809763.585	15892875.416	2467	2518.13	Stillwell, Gary & Merry Lou
168^	1783388.605	15886613.981	2469	2515.75	Stillwell, Glenn
169^	1795709.814	15875543.324	2360	2514.20	Strickland
170*	1779148.302	15880493.255		2491.43	Sutro Corp
171^#	1834285.131	15903433.196	3138	3219.20	SVR #1
172^#	1830887.306	15915854.028	3318	3603.00	SVR #2
173^	1830762.992	15910014.266	3433	3425.00	SVR #3
174	1835224.420	15906260.668	3040	3249.10	SVR #4
175	1835880.511	15901778.196	3201	3220.03	SVR #5
176^#	1797646.680	15901348.394	2244	2353.08	SVR #6
177^#	1792305.936	15895146.244	2436	2555.44	SVR #7
178^	1831913.403	15910853.355	3252	3425.80	SVR #8
179^#	1803857.521	15896687.085	2515	2557.05	SVR #9
180^#	1805919.584	15904375.275	2290	2388.67	SVR #10 (Suncor 10)
181^	1805435.054	15877183.308	2427	2556.85	Swank, Jim
182*	1789137.347	15883119.661		2503.96	Taylor, Jerry
183*	1804058.875	15889380.341		2553.51	Thompson
184*	1786480.853	15882980.321		2514.00	Treasure Valley Turf (domestic)
185*	1772810.349	15880828.553		2483.88	VanHouten, Jay
186*	1798503.893	15887264.479		2574.04	Walker, Brandon
187*	1799784.209	15887830.478		2565.80	Watson, Thomas & Lumia
188^	1779931.397	15878575.047	2344	2482.90	Welton, Stu
189*	1797186.363	15889836.157		2544.97	West, Robert
190*^	1706334.855	15892602.916		2361.00	Whitehead Cons. 5N/3W 30 BBA
191*	1810367.554	15890693.688		2584.44	Willow Ck (unknown owner)

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
192^	1774109.526	15886889.391	2304	2472.35	Woods
193*	1774476.832	15880838.688		2459.65	Yeakly
194^	1790558.389	15847064.677	2490	2549.90	IDWR 3N1W3DADD1
195^	1769669.609	15848146.540	2322	2488.40	IDWR 3N1W6CBBB1
196^	1764391.949	15845282.048	2430	2479.80	IDWR 3N2W12BBB1
197^	1753491.991	15848563.444	2150	2452.70	IDWR 3N2W4ADD1
198^	1710271.583	15845245.908	2429	2453.80	IDWR 3N3W6DDC1
199^	1819222.662	15875722.498	2487	2570.40	IDWR 4N1E10ACB3
200^	1822585.382	15877572.197	2570	2581.70	IDWR 4N1E11BBB1
201^	1806810.836	15856493.977	2521	2579.60	IDWR 4N1E29CCCD1
202^	1819541.295	15854670.908	2168	2619.40	IDWR 4N1E34ACBC1
203^	1823310.134	15852272.642	2570	2633.30	IDWR 4N1E35CCA1
204^	1827051.427	15853215.103	2500	2638.00	IDWR 4N1E35DAA1
205^	1821760.949	15879589.818	2600	2634.70	IDWR 4N1E3DAD1
206^	1785185.060	15859073.698	2463	2524.20	IDWR 4N1W28ADD1
207^	1774622.165	15855868.816	2053	2521.90	IDWR 4N1W31AAA1
208^	1774771.017	15855566.070	2450	2500.00	IDWR 4N1W32BBBC1
209^	1849876.601	15864859.223	2406	2738.50	IDWR 4N2E22BCDA1
210	1843610.716	15859131.770	1795	2720.60	IDWR 4N2E28CBBB1
211^	1841836.787	15860228.886	2627	2643.50	IDWR 4N2E29ACA1
212^	1846958.610	15854810.376	2648	2676.90	IDWR 4N2E33ACAC1
213^	1748216.699	15874752.245	2347	2405.60	IDWR 4N2W8ADD1
214^	1722945.002	15857941.811	2304	2375.00	IDWR 4N3W27CBAD1
215^	1721424.122	15851863.190	2092	2408.20	IDWR 4N3W33DADC1
216^	1719565.650	15877970.245	2171	2357.90	IDWR 4N3W4DCB1
217^	1802376.924	15889560.155	2455	2534.50	IDWR 5N1E30CAC1
218	1809535.906	15884350.723	2540	2573.90	IDWR 5N1E32DBD1
219	1831233.975	15887869.399	2636	2759.50	IDWR 5N1E36AAB1
220^	1790678.390	15883201.031	2538	2532.40	IDWR 5N1W35CCC1
221	1798353.164	15887809.989	2414	2538.90	IDWR 5N1W36ABB1
222^	1743068.185	15892137.070	2341	2449.00	IDWR 5N2W29BBC2
223^	1733404.416	15904240.104	2500	2426.00	IDWR 5N3W12CCA
224^	1726167.346	15898339.851	2348	2437.30	IDWR 5N3W15DDC1
225^	1711059.384	15897374.882	2309	2408.40	IDWR 5N3W19AAD1
226	1728032.352	15908873.976	2180	2399.30	IDWR 5N3W2CCD1
227^	1711155.640	15890289.967	2317	2388.10	IDWR 5N3W30ADD1
228^	1716728.206	15912576.661	2320	2435.40	IDWR 5N3W4BCB1
229^	1695608.118	15886601.441	2256	2314.30	IDWR 5N4W35BBB1
230^	1774302.040	15932085.808	2350	2365.70	IDWR 6N1W18DAA2
231^	1694438.172	15914534.524	2336	2365.70	IDWR 6N4W34DDB1
232^	1697738.172	15914534.524	2338	2366.60	IDWR 6N4W34DDB1
233*	1743865.564	15956010.810		2380.00	IDWR 7N2W29BBA2
234^	1737731.400	15953451.966	2290	2338.00	IDWR 7N2W30BCC1
235^	1719228.440	15950947.785	2213	2259.90	IDWR 7N3W28CDD1
236^	1725525.634	15949959.291	2250	2271.00	IDWR 7N3W34ABD3
237^	1853599.000	15961599.000	2561	2511.00	IDWR 7N2E23CAC1
238^	1689921.000	15961599.000	2145	2234.90	IDWR 7N4W13CBB1
239^#	1794935.000	15873007.000	2238	2531.00	UWID 1A and 1B
240^#	1816707.000	15878030.000	2430	2574.00	Lexington Hills #1
241^#	1818473.000	15877753.000	2225	2579.40	Holgate
242^#	1818872.000	15876759.000	2225	2567.50	Carson

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
243^#	1816287.000	15874970.000	2225	2532.00	Eagle Hills Golf Course
244^#	1784298.000	15887488.000	2260	2521.80	M3-TW#1
245^#	1773569.000	15872984.000	2013	2505.60	Star #1
246^#	1776899.000	15877422.000	1924	2507.00	Star #3
247^#	1793978.000	15898377.000	2225	2570.00	M3-TW#2
248^#	1784951.000	15898983.000	2225	2510.00	M3-TW#3
249^#	1787875.000	15870997.000	2428	2549.70	Rivervine
250^#	1793239.000	15877355.000	2225	2557.00	Rick's well
251^#	1800988.000	15873779.000	2247	2549.70	Redwood Creek
PP1	1689920.000	15840200.000	2225	2533.77	Pilot point
PP10	1746578.462	15840200.000	2225	2452.42	Pilot point
PP100	1803236.923	15859368.421	2225	2562.11	Pilot point
PP101	1809532.308	15859368.421	2225	2589.01	Pilot point
PP102	1815827.692	15859368.421	2225	2598.95	Pilot point
PP103	1822123.077	15859368.421	2225	2609.79	Pilot point
PP104	1828418.462	15859368.421	2225	2629.09	Pilot point
PP105	1834713.846	15859368.421	2225	2651.87	Pilot point
PP106	1841009.231	15859368.421	2225	2676.25	Pilot point
PP107	1847304.615	15859368.421	2225	2697.38	Pilot point
PP108	1853599.000	15859368.421	2225	2722.31	Pilot point
PP109	1689920.000	15865757.895	2225	2355.75	Pilot point
PP11	1752873.846	15840200.000	2225	2460.51	Pilot point
PP110	1696215.385	15865757.895	2225	2355.50	Pilot point
PP111	1702510.769	15865757.895	2225	2355.19	Pilot point
PP112	1708806.154	15865757.895	2225	2354.59	Pilot point
PP113	1715101.538	15865757.895	2225	2354.00	Pilot point
PP114	1721396.923	15865757.895	2225	2355.58	Pilot point
PP115	1727692.308	15865757.895	2225	2364.62	Pilot point
PP116	1733987.692	15865757.895	2225	2375.81	Pilot point
PP117	1740283.077	15865757.895	2225	2387.77	Pilot point
PP118	1746578.462	15865757.895	2225	2402.38	Pilot point
PP119	1752873.846	15865757.895	2225	2423.80	Pilot point
PP12	1759169.231	15840200.000	2225	2472.06	Pilot point
PP120	1759169.231	15865757.895	2225	2448.15	Pilot point
PP121	1765464.615	15865757.895	2225	2471.87	Pilot point
PP122	1771760.000	15865757.895	2225	2491.75	Pilot point
PP123	1778055.385	15865757.895	2225	2505.19	Pilot point
PP124	1784350.769	15865757.895	2225	2513.95	Pilot point
PP125	1790646.154	15865757.895	2225	2530.61	Pilot point
PP126	1796941.538	15865757.895	2225	2539.35	Pilot point
PP127	1803236.923	15865757.895	2225	2550.87	Pilot point
PP128	1809532.308	15865757.895	2225	2567.31	Pilot point
PP129	1815827.692	15865757.895	2225	2576.32	Pilot point
PP13	1765464.615	15840200.000	2225	2483.78	Pilot point
PP130	1822123.077	15865757.895	2225	2589.98	Pilot point
PP131	1828418.462	15865757.895	2225	2619.61	Pilot point
PP132	1834713.846	15865757.895	2225	2657.01	Pilot point
PP133	1841009.231	15865757.895	2225	2695.06	Pilot point
PP134	1847304.615	15865757.895	2225	2729.91	Pilot point
PP135	1853599.000	15865757.895	2225	2773.51	Pilot point
PP136	1689920.000	15872147.368	2225	2325.74	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP137	1696215.385	15872147.368	2225	2331.32	Pilot point
PP138	1702510.769	15872147.368	2225	2337.17	Pilot point
PP139	1708806.154	15872147.368	2225	2342.60	Pilot point
PP14	1771760.000	15840200.000	2225	2493.64	Pilot point
PP140	1715101.538	15872147.368	2225	2347.72	Pilot point
PP141	1721396.923	15872147.368	2225	2354.26	Pilot point
PP142	1727692.308	15872147.368	2225	2365.46	Pilot point
PP143	1733987.692	15872147.368	2225	2377.36	Pilot point
PP144	1740283.077	15872147.368	2225	2388.25	Pilot point
PP145	1746578.462	15872147.368	2225	2399.86	Pilot point
PP146	1752873.846	15872147.368	2225	2421.61	Pilot point
PP147	1759169.231	15872147.368	2225	2445.71	Pilot point
PP148	1765464.615	15872147.368	2225	2469.36	Pilot point
PP149	1771760.000	15872147.368	2225	2490.15	Pilot point
PP15	1778055.385	15840200.000	2225	2507.91	Pilot point
PP150	1778055.385	15872147.368	2225	2504.18	Pilot point
PP151	1784350.769	15872147.368	2225	2505.40	Pilot point
PP152	1790646.154	15872147.368	2225	2524.81	Pilot point
PP153	1796941.538	15872147.368	2225	2530.10	Pilot point
PP154	1803236.923	15872147.368	2225	2545.98	Pilot point
PP155	1809532.308	15872147.368	2225	2556.32	Pilot point
PP156	1815827.692	15872147.368	2225	2563.22	Pilot point
PP157	1822123.077	15872147.368	2225	2580.10	Pilot point
PP158	1828418.462	15872147.368	2225	2626.76	Pilot point
PP159	1834713.846	15872147.368	2225	2683.82	Pilot point
PP16	1784350.769	15840200.000	2225	2525.39	Pilot point
PP160	1841009.231	15872147.368	2225	2742.38	Pilot point
PP161	1847304.615	15872147.368	2225	2799.41	Pilot point
PP162	1853599.000	15872147.368	2225	2859.18	Pilot point
PP163	1689920.000	15878536.842	2225	2306.46	Pilot point
PP164	1696215.385	15878536.842	2225	2317.84	Pilot point
PP165	1702510.769	15878536.842	2225	2330.60	Pilot point
PP166	1708806.154	15878536.842	2225	2342.69	Pilot point
PP167	1715101.538	15878536.842	2225	2353.69	Pilot point
PP168	1721396.923	15878536.842	2225	2364.12	Pilot point
PP169	1727692.308	15878536.842	2225	2378.45	Pilot point
PP17	1790646.154	15840200.000	2225	2546.83	Pilot point
PP170	1733987.692	15878536.842	2225	2391.23	Pilot point
PP171	1740283.077	15878536.842	2225	2401.80	Pilot point
PP172	1746578.462	15878536.842	2225	2412.01	Pilot point
PP173	1752873.846	15878536.842	2225	2427.62	Pilot point
PP174	1759169.231	15878536.842	2225	2446.81	Pilot point
PP175	1765464.615	15878536.842	2225	2467.16	Pilot point
PP176	1771760.000	15878536.842	2225	2487.47	Pilot point
PP177	1778055.385	15878536.842	2225	2505.02	Pilot point
PP178	1784350.769	15878536.842	2225	2493.22	Pilot point
PP179	1790646.154	15878536.842	2225	2522.20	Pilot point
PP18	1796941.538	15840200.000	2225	2575.65	Pilot point
PP180	1796941.538	15878536.842	2225	2522.71	Pilot point
PP181	1803236.923	15878536.842	2225	2549.56	Pilot point
PP182	1809532.308	15878536.842	2225	2553.64	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP183	1815827.692	15878536.842	2225	2568.93	Pilot point
PP184	1822123.077	15878536.842	2225	2598.82	Pilot point
PP185	1828418.462	15878536.842	2225	2665.44	Pilot point
PP186	1834713.846	15878536.842	2225	2740.23	Pilot point
PP187	1841009.231	15878536.842	2225	2818.45	Pilot point
PP188	1847304.615	15878536.842	2225	2896.04	Pilot point
PP189	1853599.000	15878536.842	2225	2972.99	Pilot point
PP19	1803236.923	15840200.000	2225	2604.43	Pilot point
PP190	1689920.000	15884926.316	2225	2299.88	Pilot point
PP191	1696215.385	15884926.316	2225	2316.20	Pilot point
PP192	1702510.769	15884926.316	2225	2335.95	Pilot point
PP193	1708806.154	15884926.316	2225	2354.39	Pilot point
PP194	1715101.538	15884926.316	2225	2371.60	Pilot point
PP195	1721396.923	15884926.316	2225	2386.83	Pilot point
PP196	1727692.308	15884926.316	2225	2401.44	Pilot point
PP197	1733987.692	15884926.316	2225	2412.86	Pilot point
PP198	1740283.077	15884926.316	2225	2421.64	Pilot point
PP199	1746578.462	15884926.316	2225	2427.70	Pilot point
PP2	1696215.385	15840200.000	2225	2515.62	Pilot point
PP20	1809532.308	15840200.000	2225	2627.78	Pilot point
PP200	1752873.846	15884926.316	2225	2435.90	Pilot point
PP201	1759169.231	15884926.316	2225	2448.18	Pilot point
PP202	1765464.615	15884926.316	2225	2461.32	Pilot point
PP203	1771760.000	15884926.316	2225	2473.43	Pilot point
PP204	1778055.385	15884926.316	2225	2484.59	Pilot point
PP205	1784350.769	15884926.316	2225	2516.83	Pilot point
PP206	1790646.154	15884926.316	2225	2531.75	Pilot point
PP207	1796941.538	15884926.316	2225	2541.70	Pilot point
PP208	1803236.923	15884926.316	2225	2558.32	Pilot point
PP209	1809532.308	15884926.316	2225	2522.80	Pilot point
PP21	1815827.692	15840200.000	2225	2642.68	Pilot point
PP210	1815827.692	15884926.316	2225	2597.56	Pilot point
PP211	1822123.077	15884926.316	2225	2720.42	Pilot point
PP212	1828418.462	15884926.316	2225	2749.77	Pilot point
PP213	1834713.846	15884926.316	2225	2825.54	Pilot point
PP214	1841009.231	15884926.316	2225	2918.51	Pilot point
PP215	1847304.615	15884926.316	2225	3013.04	Pilot point
PP216	1853599.000	15884926.316	2225	3105.03	Pilot point
PP217	1689920.000	15891315.789	2225	2307.31	Pilot point
PP218	1696215.385	15891315.789	2225	2329.24	Pilot point
PP219	1702510.769	15891315.789	2225	2352.72	Pilot point
PP22	1822123.077	15840200.000	2225	2650.33	Pilot point
PP220	1708806.154	15891315.789	2225	2374.74	Pilot point
PP221	1715101.538	15891315.789	2225	2395.74	Pilot point
PP222	1721396.923	15891315.789	2225	2412.70	Pilot point
PP223	1727692.308	15891315.789	2225	2425.96	Pilot point
PP224	1733987.692	15891315.789	2225	2433.40	Pilot point
PP225	1740283.077	15891315.789	2225	2439.55	Pilot point
PP226	1746578.462	15891315.789	2225	2440.76	Pilot point
PP227	1752873.846	15891315.789	2225	2442.69	Pilot point
PP228	1759169.231	15891315.789	2225	2449.27	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP229	1765464.615	15891315.789	2225	2457.23	Pilot point
PP23	1828418.462	15840200.000	2225	2652.68	Pilot point
PP230	1771760.000	15891315.789	2225	2467.65	Pilot point
PP231	1778055.385	15891315.789	2225	2481.25	Pilot point
PP232	1784350.769	15891315.789	2225	2502.78	Pilot point
PP233	1790646.154	15891315.789	2225	2552.18	Pilot point
PP234	1796941.538	15891315.789	2225	2546.90	Pilot point
PP235	1803236.923	15891315.789	2225	2549.73	Pilot point
PP236	1809532.308	15891315.789	2225	2545.42	Pilot point
PP237	1815827.692	15891315.789	2225	2573.70	Pilot point
PP238	1822123.077	15891315.789	2225	2643.23	Pilot point
PP239	1828418.462	15891315.789	2225	2785.43	Pilot point
PP24	1834713.846	15840200.000	2225	2650.33	Pilot point
PP240	1834713.846	15891315.789	2225	2914.35	Pilot point
PP241	1841009.231	15891315.789	2225	3033.70	Pilot point
PP242	1847304.615	15891315.789	2225	3143.82	Pilot point
PP243	1853599.000	15891315.789	2225	3246.48	Pilot point
PP244	1689920.000	15897705.263	2225	2321.34	Pilot point
PP245	1696215.385	15897705.263	2225	2347.16	Pilot point
PP246	1702510.769	15897705.263	2225	2374.40	Pilot point
PP247	1708806.154	15897705.263	2225	2400.84	Pilot point
PP248	1715101.538	15897705.263	2225	2419.58	Pilot point
PP249	1721396.923	15897705.263	2225	2433.10	Pilot point
PP25	1841009.231	15840200.000	2225	2645.19	Pilot point
PP250	1727692.308	15897705.263	2225	2442.38	Pilot point
PP251	1733987.692	15897705.263	2225	2440.98	Pilot point
PP252	1740283.077	15897705.263	2225	2441.81	Pilot point
PP253	1746578.462	15897705.263	2225	2444.33	Pilot point
PP254	1752873.846	15897705.263	2225	2449.56	Pilot point
PP255	1759169.231	15897705.263	2225	2446.42	Pilot point
PP256	1765464.615	15897705.263	2225	2449.07	Pilot point
PP257	1771760.000	15897705.263	2225	2462.25	Pilot point
PP258	1778055.385	15897705.263	2225	2490.58	Pilot point
PP259	1784350.769	15897705.263	2225	2533.58	Pilot point
PP26	1847304.615	15840200.000	2225	2638.79	Pilot point
PP260	1790646.154	15897705.263	2225	2550.07	Pilot point
PP261	1796941.538	15897705.263	2225	2413.95	Pilot point
PP262	1803236.923	15897705.263	2225	2563.92	Pilot point
PP263	1809532.308	15897705.263	2225	2510.98	Pilot point
PP264	1815827.692	15897705.263	2225	2589.40	Pilot point
PP265	1822123.077	15897705.263	2225	2738.42	Pilot point
PP266	1828418.462	15897705.263	2225	2916.32	Pilot point
PP267	1834713.846	15897705.263	2225	3050.42	Pilot point
PP268	1841009.231	15897705.263	2225	3173.89	Pilot point
PP269	1847304.615	15897705.263	2225	3286.23	Pilot point
PP27	1853599.000	15840200.000	2225	2631.76	Pilot point
PP270	1853599.000	15897705.263	2225	3389.16	Pilot point
PP271	1689920.000	15904094.737	2225	2334.66	Pilot point
PP272	1696215.385	15904094.737	2225	2361.45	Pilot point
PP273	1702510.769	15904094.737	2225	2389.08	Pilot point
PP274	1708806.154	15904094.737	2225	2414.38	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP275	1715101.538	15904094.737	2225	2431.17	Pilot point
PP276	1721396.923	15904094.737	2225	2436.90	Pilot point
PP277	1727692.308	15904094.737	2225	2438.60	Pilot point
PP278	1733987.692	15904094.737	2225	2427.95	Pilot point
PP279	1740283.077	15904094.737	2225	2425.50	Pilot point
PP28	1689920.000	15846589.474	2225	2485.08	Pilot point
PP280	1746578.462	15904094.737	2225	2426.36	Pilot point
PP281	1752873.846	15904094.737	2225	2427.36	Pilot point
PP282	1759169.231	15904094.737	2225	2423.36	Pilot point
PP283	1765464.615	15904094.737	2225	2421.87	Pilot point
PP284	1771760.000	15904094.737	2225	2429.03	Pilot point
PP285	1778055.385	15904094.737	2225	2451.05	Pilot point
PP286	1784350.769	15904094.737	2225	2485.34	Pilot point
PP287	1790646.154	15904094.737	2225	2437.05	Pilot point
PP288	1796941.538	15904094.737	2225	2350.94	Pilot point
PP289	1803236.923	15904094.737	2225	2379.61	Pilot point
PP29	1696215.385	15846589.474	2225	2471.30	Pilot point
PP290	1809532.308	15904094.737	2225	2393.06	Pilot point
PP291	1815827.692	15904094.737	2225	2638.10	Pilot point
PP292	1822123.077	15904094.737	2225	2908.90	Pilot point
PP293	1828418.462	15904094.737	2225	3131.82	Pilot point
PP294	1834713.846	15904094.737	2225	3228.06	Pilot point
PP295	1841009.231	15904094.737	2225	3332.98	Pilot point
PP296	1847304.615	15904094.737	2225	3430.37	Pilot point
PP297	1853599.000	15904094.737	2225	3519.29	Pilot point
PP298	1689920.000	15910484.211	2225	2342.93	Pilot point
PP299	1696215.385	15910484.211	2225	2368.25	Pilot point
PP3	1702510.769	15840200.000	2225	2499.23	Pilot point
PP30	1702510.769	15846589.474	2225	2458.87	Pilot point
PP300	1702510.769	15910484.211	2225	2394.39	Pilot point
PP301	1708806.154	15910484.211	2225	2417.17	Pilot point
PP302	1715101.538	15910484.211	2225	2429.74	Pilot point
PP303	1721396.923	15910484.211	2225	2419.33	Pilot point
PP304	1727692.308	15910484.211	2225	2398.29	Pilot point
PP305	1733987.692	15910484.211	2225	2395.96	Pilot point
PP306	1740283.077	15910484.211	2225	2396.43	Pilot point
PP307	1746578.462	15910484.211	2225	2396.93	Pilot point
PP308	1752873.846	15910484.211	2225	2395.42	Pilot point
PP309	1759169.231	15910484.211	2225	2389.61	Pilot point
PP31	1708806.154	15846589.474	2225	2448.98	Pilot point
PP310	1765464.615	15910484.211	2225	2381.29	Pilot point
PP311	1771760.000	15910484.211	2225	2370.41	Pilot point
PP312	1778055.385	15910484.211	2225	2353.58	Pilot point
PP313	1784350.769	15910484.211	2225	2327.80	Pilot point
PP314	1790646.154	15910484.211	2225	2341.51	Pilot point
PP315	1796941.538	15910484.211	2225	2387.59	Pilot point
PP316	1803236.923	15910484.211	2225	2463.76	Pilot point
PP317	1809532.308	15910484.211	2225	2581.56	Pilot point
PP318	1815827.692	15910484.211	2225	2845.69	Pilot point
PP319	1822123.077	15910484.211	2225	3158.22	Pilot point
PP32	1715101.538	15846589.474	2225	2442.07	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP320	1828418.462	15910484.211	2225	3417.14	Pilot point
PP321	1834713.846	15910484.211	2225	3435.20	Pilot point
PP322	1841009.231	15910484.211	2225	3496.23	Pilot point
PP323	1847304.615	15910484.211	2225	3560.15	Pilot point
PP324	1853599.000	15910484.211	2225	3621.69	Pilot point
PP325	1689920.000	15916873.684	2225	2344.98	Pilot point
PP326	1696215.385	15916873.684	2225	2366.78	Pilot point
PP327	1702510.769	15916873.684	2225	2390.07	Pilot point
PP328	1708806.154	15916873.684	2225	2408.98	Pilot point
PP329	1715101.538	15916873.684	2225	2416.85	Pilot point
PP33	1721396.923	15846589.474	2225	2437.43	Pilot point
PP330	1721396.923	15916873.684	2225	2405.97	Pilot point
PP331	1727692.308	15916873.684	2225	2383.20	Pilot point
PP332	1733987.692	15916873.684	2225	2372.16	Pilot point
PP333	1740283.077	15916873.684	2225	2368.54	Pilot point
PP334	1746578.462	15916873.684	2225	2367.31	Pilot point
PP335	1752873.846	15916873.684	2225	2364.97	Pilot point
PP336	1759169.231	15916873.684	2225	2359.71	Pilot point
PP337	1765464.615	15916873.684	2225	2351.86	Pilot point
PP338	1771760.000	15916873.684	2225	2340.46	Pilot point
PP339	1778055.385	15916873.684	2225	2325.78	Pilot point
PP34	1727692.308	15846589.474	2225	2431.61	Pilot point
PP340	1784350.769	15916873.684	2225	2322.52	Pilot point
PP341	1790646.154	15916873.684	2225	2369.32	Pilot point
PP342	1796941.538	15916873.684	2225	2533.73	Pilot point
PP343	1803236.923	15916873.684	2225	2659.38	Pilot point
PP344	1809532.308	15916873.684	2225	2814.30	Pilot point
PP345	1815827.692	15916873.684	2225	3058.55	Pilot point
PP346	1822123.077	15916873.684	2225	3348.53	Pilot point
PP347	1828418.462	15916873.684	2225	3594.77	Pilot point
PP348	1834713.846	15916873.684	2225	3611.65	Pilot point
PP349	1841009.231	15916873.684	2225	3622.38	Pilot point
PP35	1733987.692	15846589.474	2225	2428.88	Pilot point
PP350	1847304.615	15916873.684	2225	3645.43	Pilot point
PP351	1853599.000	15916873.684	2225	3675.61	Pilot point
PP352	1689920.000	15923263.158	2225	2342.09	Pilot point
PP353	1696215.385	15923263.158	2225	2360.16	Pilot point
PP354	1702510.769	15923263.158	2225	2378.68	Pilot point
PP355	1708806.154	15923263.158	2225	2394.04	Pilot point
PP356	1715101.538	15923263.158	2225	2401.15	Pilot point
PP357	1721396.923	15923263.158	2225	2393.32	Pilot point
PP358	1727692.308	15923263.158	2225	2365.79	Pilot point
PP359	1733987.692	15923263.158	2225	2349.00	Pilot point
PP36	1740283.077	15846589.474	2225	2430.93	Pilot point
PP360	1740283.077	15923263.158	2225	2343.38	Pilot point
PP361	1746578.462	15923263.158	2225	2342.39	Pilot point
PP362	1752873.846	15923263.158	2225	2341.53	Pilot point
PP363	1759169.231	15923263.158	2225	2339.94	Pilot point
PP364	1765464.615	15923263.158	2225	2340.58	Pilot point
PP365	1771760.000	15923263.158	2225	2344.40	Pilot point
PP366	1778055.385	15923263.158	2225	2355.04	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP367	1784350.769	15923263.158	2225	2408.04	Pilot point
PP368	1790646.154	15923263.158	2225	2536.27	Pilot point
PP369	1796941.538	15923263.158	2225	2751.91	Pilot point
PP37	1746578.462	15846589.474	2225	2438.19	Pilot point
PP370	1803236.923	15923263.158	2225	2852.94	Pilot point
PP371	1809532.308	15923263.158	2225	2985.53	Pilot point
PP372	1815827.692	15923263.158	2225	3179.46	Pilot point
PP373	1822123.077	15923263.158	2225	3400.04	Pilot point
PP374	1828418.462	15923263.158	2225	3577.02	Pilot point
PP375	1834713.846	15923263.158	2225	3627.33	Pilot point
PP376	1841009.231	15923263.158	2225	3638.39	Pilot point
PP377	1847304.615	15923263.158	2225	3645.79	Pilot point
PP378	1853599.000	15923263.158	2225	3656.88	Pilot point
PP379	1689920.000	15929652.632	2225	2332.84	Pilot point
PP38	1752873.846	15846589.474	2225	2450.45	Pilot point
PP380	1696215.385	15929652.632	2225	2345.97	Pilot point
PP381	1702510.769	15929652.632	2225	2359.04	Pilot point
PP382	1708806.154	15929652.632	2225	2370.16	Pilot point
PP383	1715101.538	15929652.632	2225	2376.72	Pilot point
PP384	1721396.923	15929652.632	2225	2373.70	Pilot point
PP385	1727692.308	15929652.632	2225	2335.69	Pilot point
PP386	1733987.692	15929652.632	2225	2321.29	Pilot point
PP387	1740283.077	15929652.632	2225	2321.02	Pilot point
PP388	1746578.462	15929652.632	2225	2324.32	Pilot point
PP389	1752873.846	15929652.632	2225	2326.33	Pilot point
PP39	1759169.231	15846589.474	2225	2466.87	Pilot point
PP390	1759169.231	15929652.632	2225	2327.79	Pilot point
PP391	1765464.615	15929652.632	2225	2337.04	Pilot point
PP392	1771760.000	15929652.632	2225	2356.93	Pilot point
PP393	1778055.385	15929652.632	2225	2381.59	Pilot point
PP394	1784350.769	15929652.632	2225	2462.19	Pilot point
PP395	1790646.154	15929652.632	2225	2602.78	Pilot point
PP396	1796941.538	15929652.632	2225	2781.35	Pilot point
PP397	1803236.923	15929652.632	2225	2908.26	Pilot point
PP398	1809532.308	15929652.632	2225	3038.12	Pilot point
PP399	1815827.692	15929652.632	2225	3192.89	Pilot point
PP4	1708806.154	15840200.000	2225	2485.70	Pilot point
PP40	1765464.615	15846589.474	2225	2483.52	Pilot point
PP400	1822123.077	15929652.632	2225	3353.50	Pilot point
PP401	1828418.462	15929652.632	2225	3479.60	Pilot point
PP402	1834713.846	15929652.632	2225	3535.89	Pilot point
PP403	1841009.231	15929652.632	2225	3552.77	Pilot point
PP404	1847304.615	15929652.632	2225	3556.58	Pilot point
PP405	1853599.000	15929652.632	2225	3558.78	Pilot point
PP406	1689920.000	15936042.105	2225	2317.50	Pilot point
PP407	1696215.385	15936042.105	2225	2324.95	Pilot point
PP408	1702510.769	15936042.105	2225	2331.48	Pilot point
PP409	1708806.154	15936042.105	2225	2335.07	Pilot point
PP41	1771760.000	15846589.474	2225	2495.31	Pilot point
PP410	1715101.538	15936042.105	2225	2332.30	Pilot point
PP411	1721396.923	15936042.105	2225	2317.45	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP412	1727692.308	15936042.105	2225	2285.70	Pilot point
PP413	1733987.692	15936042.105	2225	2292.71	Pilot point
PP414	1740283.077	15936042.105	2225	2306.14	Pilot point
PP415	1746578.462	15936042.105	2225	2316.37	Pilot point
PP416	1752873.846	15936042.105	2225	2320.81	Pilot point
PP417	1759169.231	15936042.105	2225	2321.34	Pilot point
PP418	1765464.615	15936042.105	2225	2326.48	Pilot point
PP419	1771760.000	15936042.105	2225	2343.99	Pilot point
PP42	1778055.385	15846589.474	2225	2511.57	Pilot point
PP420	1778055.385	15936042.105	2225	2384.14	Pilot point
PP421	1784350.769	15936042.105	2225	2468.17	Pilot point
PP422	1790646.154	15936042.105	2225	2596.18	Pilot point
PP423	1796941.538	15936042.105	2225	2744.80	Pilot point
PP424	1803236.923	15936042.105	2225	2874.42	Pilot point
PP425	1809532.308	15936042.105	2225	2997.73	Pilot point
PP426	1815827.692	15936042.105	2225	3123.37	Pilot point
PP427	1822123.077	15936042.105	2225	3240.96	Pilot point
PP428	1828418.462	15936042.105	2225	3330.84	Pilot point
PP429	1834713.846	15936042.105	2225	3377.57	Pilot point
PP43	1784350.769	15846589.474	2225	2529.84	Pilot point
PP430	1841009.231	15936042.105	2225	3392.65	Pilot point
PP431	1847304.615	15936042.105	2225	3393.17	Pilot point
PP432	1853599.000	15936042.105	2225	3389.79	Pilot point
PP433	1689920.000	15942431.579	2225	2297.98	Pilot point
PP434	1696215.385	15942431.579	2225	2300.48	Pilot point
PP435	1702510.769	15942431.579	2225	2301.74	Pilot point
PP436	1708806.154	15942431.579	2225	2300.27	Pilot point
PP437	1715101.538	15942431.579	2225	2294.51	Pilot point
PP438	1721396.923	15942431.579	2225	2284.15	Pilot point
PP439	1727692.308	15942431.579	2225	2276.11	Pilot point
PP44	1790646.154	15846589.474	2225	2550.16	Pilot point
PP440	1733987.692	15942431.579	2225	2289.91	Pilot point
PP441	1740283.077	15942431.579	2225	2309.16	Pilot point
PP442	1746578.462	15942431.579	2225	2322.02	Pilot point
PP443	1752873.846	15942431.579	2225	2325.58	Pilot point
PP444	1759169.231	15942431.579	2225	2319.89	Pilot point
PP445	1765464.615	15942431.579	2225	2315.25	Pilot point
PP446	1771760.000	15942431.579	2225	2322.44	Pilot point
PP447	1778055.385	15942431.579	2225	2363.32	Pilot point
PP448	1784350.769	15942431.579	2225	2438.15	Pilot point
PP449	1790646.154	15942431.579	2225	2548.75	Pilot point
PP45	1796941.538	15846589.474	2225	2574.44	Pilot point
PP450	1796941.538	15942431.579	2225	2674.33	Pilot point
PP451	1803236.923	15942431.579	2225	2792.74	Pilot point
PP452	1809532.308	15942431.579	2225	2902.50	Pilot point
PP453	1815827.692	15942431.579	2225	3003.76	Pilot point
PP454	1822123.077	15942431.579	2225	3089.64	Pilot point
PP455	1828418.462	15942431.579	2225	3151.00	Pilot point
PP456	1834713.846	15942431.579	2225	3180.63	Pilot point
PP457	1841009.231	15942431.579	2225	3185.49	Pilot point
PP458	1847304.615	15942431.579	2225	3178.30	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP459	1853599.000	15942431.579	2225	3168.24	Pilot point
PP46	1803236.923	15846589.474	2225	2598.45	Pilot point
PP460	1689920.000	15948821.053	2225	2276.82	Pilot point
PP461	1696215.385	15948821.053	2225	2275.98	Pilot point
PP462	1702510.769	15948821.053	2225	2274.37	Pilot point
PP463	1708806.154	15948821.053	2225	2271.72	Pilot point
PP464	1715101.538	15948821.053	2225	2268.46	Pilot point
PP465	1721396.923	15948821.053	2225	2267.02	Pilot point
PP466	1727692.308	15948821.053	2225	2278.20	Pilot point
PP467	1733987.692	15948821.053	2225	2301.41	Pilot point
PP468	1740283.077	15948821.053	2225	2325.59	Pilot point
PP469	1746578.462	15948821.053	2225	2337.63	Pilot point
PP47	1809532.308	15846589.474	2225	2619.77	Pilot point
PP470	1752873.846	15948821.053	2225	2338.33	Pilot point
PP471	1759169.231	15948821.053	2225	2324.36	Pilot point
PP472	1765464.615	15948821.053	2225	2311.60	Pilot point
PP473	1771760.000	15948821.053	2225	2311.59	Pilot point
PP474	1778055.385	15948821.053	2225	2337.73	Pilot point
PP475	1784350.769	15948821.053	2225	2392.35	Pilot point
PP476	1790646.154	15948821.053	2225	2484.37	Pilot point
PP477	1796941.538	15948821.053	2225	2588.58	Pilot point
PP478	1803236.923	15948821.053	2225	2689.42	Pilot point
PP479	1809532.308	15948821.053	2225	2781.31	Pilot point
PP48	1815827.692	15846589.474	2225	2632.75	Pilot point
PP480	1815827.692	15948821.053	2225	2860.67	Pilot point
PP481	1822123.077	15948821.053	2225	2922.00	Pilot point
PP482	1828418.462	15948821.053	2225	2959.81	Pilot point
PP483	1834713.846	15948821.053	2225	2967.95	Pilot point
PP484	1841009.231	15948821.053	2225	2956.42	Pilot point
PP485	1847304.615	15948821.053	2225	2938.07	Pilot point
PP486	1853599.000	15948821.053	2225	2921.92	Pilot point
PP487	1689920.000	15955210.526	2225	2255.80	Pilot point
PP488	1696215.385	15955210.526	2225	2253.21	Pilot point
PP489	1702510.769	15955210.526	2225	2250.95	Pilot point
PP49	1822123.077	15846589.474	2225	2641.38	Pilot point
PP490	1708806.154	15955210.526	2225	2250.34	Pilot point
PP491	1715101.538	15955210.526	2225	2253.67	Pilot point
PP492	1721396.923	15955210.526	2225	2264.25	Pilot point
PP493	1727692.308	15955210.526	2225	2286.85	Pilot point
PP494	1733987.692	15955210.526	2225	2317.97	Pilot point
PP495	1740283.077	15955210.526	2225	2318.00	Pilot point
PP496	1746578.462	15955210.526	2225	2320.00	Pilot point
PP497	1752873.846	15955210.526	2225	2325.00	Pilot point
PP498	1759169.231	15955210.526	2225	2330.00	Pilot point
PP499	1765464.615	15955210.526	2225	2335.00	Pilot point
PP5	1715101.538	15840200.000	2225	2474.94	Pilot point
PP50	1828418.462	15846589.474	2225	2648.75	Pilot point
PP500	1771760.000	15955210.526	2225	2340.00	Pilot point
PP501	1778055.385	15955210.526	2225	2340.00	Pilot point
PP502	1784350.769	15955210.526	2225	2354.28	Pilot point
PP503	1790646.154	15955210.526	2225	2420.92	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP504	1796941.538	15955210.526	2225	2500.51	Pilot point
PP505	1803236.923	15955210.526	2225	2580.13	Pilot point
PP506	1809532.308	15955210.526	2225	2652.42	Pilot point
PP507	1815827.692	15955210.526	2225	2712.59	Pilot point
PP508	1822123.077	15955210.526	2225	2756.45	Pilot point
PP509	1828418.462	15955210.526	2225	2778.98	Pilot point
PP51	1834713.846	15846589.474	2225	2652.75	Pilot point
PP510	1834713.846	15955210.526	2225	2759.33	Pilot point
PP511	1841009.231	15955210.526	2225	2726.75	Pilot point
PP512	1847304.615	15955210.526	2225	2698.08	Pilot point
PP513	1853599.000	15955210.526	2225	2685.91	Pilot point
PP514	1689920.000	15961600.000	2225	2234.90	Pilot point
PP515	1696215.385	15961600.000	2225	2231.91	Pilot point
PP516	1702510.769	15961600.000	2225	2230.16	Pilot point
PP517	1708806.154	15961600.000	2225	2232.74	Pilot point
PP518	1715101.538	15961600.000	2225	2242.99	Pilot point
PP519	1721396.923	15961600.000	2225	2263.47	Pilot point
PP52	1841009.231	15846589.474	2225	2655.73	Pilot point
PP520	1727692.308	15961600.000	2225	2294.55	Pilot point
PP521	1733987.692	15961600.000	2225	2310.00	Pilot point
PP522	1740283.077	15961600.000	2225	2312.00	Pilot point
PP523	1746578.462	15961600.000	2225	2315.00	Pilot point
PP524	1752873.846	15961600.000	2225	2320.00	Pilot point
PP525	1759169.231	15961600.000	2225	2325.00	Pilot point
PP526	1765464.615	15961600.000	2225	2330.00	Pilot point
PP527	1771760.000	15961600.000	2225	2335.00	Pilot point
PP528	1778055.385	15961600.000	2225	2340.00	Pilot point
PP529	1784350.769	15961600.000	2225	2340.00	Pilot point
PP53	1847304.615	15846589.474	2225	2658.26	Pilot point
PP530	1790646.154	15961600.000	2225	2357.52	Pilot point
PP531	1796941.538	15961600.000	2225	2413.29	Pilot point
PP532	1803236.923	15961600.000	2225	2471.35	Pilot point
PP533	1809532.308	15961600.000	2225	2524.51	Pilot point
PP534	1815827.692	15961600.000	2225	2568.96	Pilot point
PP535	1822123.077	15961600.000	2225	2605.32	Pilot point
PP536	1828418.462	15961600.000	2225	2641.94	Pilot point
PP537	1834713.846	15961600.000	2225	2568.04	Pilot point
PP538	1841009.231	15961600.000	2225	2508.92	Pilot point
PP539	1847304.615	15961600.000	2225	2477.63	Pilot point
PP54	1853599.000	15846589.474	2225	2660.09	Pilot point
PP540	1853599.000	15961599.000	2225	2511.00	Pilot point
PP55	1689920.000	15852978.947	2225	2437.79	Pilot point
PP56	1696215.385	15852978.947	2225	2428.21	Pilot point
PP57	1702510.769	15852978.947	2225	2419.46	Pilot point
PP58	1708806.154	15852978.947	2225	2412.55	Pilot point
PP59	1715101.538	15852978.947	2225	2408.47	Pilot point
PP6	1721396.923	15840200.000	2225	2465.97	Pilot point
PP60	1721396.923	15852978.947	2225	2408.20	Pilot point
PP61	1727692.308	15852978.947	2225	2405.14	Pilot point
PP62	1733987.692	15852978.947	2225	2406.67	Pilot point
PP63	1740283.077	15852978.947	2225	2412.99	Pilot point

Well Name	Easting (ft) - X	Northing (ft) - Y	Top of Screened Interval (ft amsl)	Head Elevation (ft amsl)	Description of Well
PP64	1746578.462	15852978.947	2225	2424.29	Pilot point
PP65	1752873.846	15852978.947	2225	2440.72	Pilot point
PP66	1759169.231	15852978.947	2225	2460.96	Pilot point
PP67	1765464.615	15852978.947	2225	2481.99	Pilot point
PP68	1771760.000	15852978.947	2225	2500.83	Pilot point
PP69	1778055.385	15852978.947	2225	2515.48	Pilot point
PP7	1727692.308	15840200.000	2225	2457.23	Pilot point
PP70	1784350.769	15852978.947	2225	2534.82	Pilot point
PP71	1790646.154	15852978.947	2225	2562.74	Pilot point
PP72	1796941.538	15852978.947	2225	2572.39	Pilot point
PP73	1803236.923	15852978.947	2225	2588.20	Pilot point
PP74	1809532.308	15852978.947	2225	2609.27	Pilot point
PP75	1815827.692	15852978.947	2225	2619.38	Pilot point
PP76	1822123.077	15852978.947	2225	2628.66	Pilot point
PP77	1828418.462	15852978.947	2225	2642.58	Pilot point
PP78	1834713.846	15852978.947	2225	2653.53	Pilot point
PP79	1841009.231	15852978.947	2225	2665.75	Pilot point
PP8	1733987.692	15840200.000	2225	2451.04	Pilot point
PP80	1847304.615	15852978.947	2225	2677.91	Pilot point
PP81	1853599.000	15852978.947	2225	2689.16	Pilot point
PP82	1689920.000	15859368.421	2225	2394.10	Pilot point
PP83	1696215.385	15859368.421	2225	2388.71	Pilot point
PP84	1702510.769	15859368.421	2225	2383.47	Pilot point
PP85	1708806.154	15859368.421	2225	2378.49	Pilot point
PP86	1715101.538	15859368.421	2225	2373.68	Pilot point
PP87	1721396.923	15859368.421	2225	2369.91	Pilot point
PP88	1727692.308	15859368.421	2225	2377.34	Pilot point
PP89	1733987.692	15859368.421	2225	2386.34	Pilot point
PP9	1740283.077	15840200.000	2225	2449.20	Pilot point
PP90	1740283.077	15859368.421	2225	2397.15	Pilot point
PP91	1746578.462	15859368.421	2225	2411.54	Pilot point
PP92	1752873.846	15859368.421	2225	2431.12	Pilot point
PP93	1759169.231	15859368.421	2225	2453.90	Pilot point
PP94	1765464.615	15859368.421	2225	2476.61	Pilot point
PP95	1771760.000	15859368.421	2225	2495.84	Pilot point
PP96	1778055.385	15859368.421	2225	2509.21	Pilot point
PP97	1784350.769	15859368.421	2225	2521.42	Pilot point
PP98	1790646.154	15859368.421	2225	2543.61	Pilot point
PP99	1796941.538	15859368.421	2225	2552.95	Pilot point

APPENDIX B:
GROUND WATER RECHARGE MODEL DATA

This appendix consists of the data that was acquired to simulate recharge in Quasi-Steady-State Model 6. Recharge was based on precipitation, evapotranspiration, septic discharge, and irrigation data.

NOTES:

*Blank cells in the "Number of domestic wells in the cell" column indicates no data was collected at that location.

*The number of domestic wells in a cell was based on information from the IDWR Well Information Search (HLI, 2007)

Assuming 3 people per well (per household).

Assuming each person accounts for 45 gal/day (GPD) of water of septic discharge.

Assuming the recharge is applied over the entire quarter section (6,969,600 ft2)

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of domestic wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1	1694291.000	15960209.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R2	1699571.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R3	1704851.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R4	1705107.000	15954929.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R5	1699827.000	15954929.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R6	1694547.000	15954929.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R7	1694547.000	15949649.000		0	0.0	5.9E-07	3.0E-04	3.02E-04
R8	1699827.000	15949649.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R9	1705107.000	15949649.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R10	1710131.000	15960209.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R11	1715411.000	15960209.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R12	1720691.000	15960209.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R13	1725971.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R14	1731251.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R15	1736531.000	15960209.000		0	0.0	3.8E-05	5.5E-05	9.33E-05
R16	1736445.000	15954845.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R17	1731165.000	15954845.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R18	1725885.000	15954845.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R19	1720605.000	15954845.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R20	1715325.000	15954845.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R21	1710045.000	15954845.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R22	1710387.000	15949649.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R23	1715667.000	15949649.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R24	1720947.000	15949649.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R25	1726227.000	15949649.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R26	1731507.000	15949649.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R27	1736787.000	15949649.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R28	1741811.000	15960209.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R29	1747091.000	15960209.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R30	1752371.000	15960209.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R31	1757651.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R32	1762931.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R33	1768211.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R34	1768125.000	15954845.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R35	1762845.000	15954845.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R36	1757565.000	15954845.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R37	1752285.000	15954845.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R38	1747005.000	15954845.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R39	1741725.000	15954845.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R40	1742067.000	15949649.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R41	1747347.000	15949649.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R42	1752627.000	15949649.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R43	1757907.000	15949649.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R44	1763187.000	15949649.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R45	1768467.000	15949649.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R46	1773491.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R47	1778771.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R48	1784051.000	15960209.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R49	1789331.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R50	1794611.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R51	1799891.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R52	1799805.000	15954845.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R53	1794525.000	15954845.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R54	1789245.000	15954845.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R55	1783965.000	15954845.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R56	1778685.000	15954845.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R57	1773405.000	15954845.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R58	1773747.000	15949649.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R59	1779027.000	15949649.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R60	1784307.000	15949649.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R61	1789587.000	15949649.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R62	1794867.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R63	1800147.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R64	1805171.000	15960209.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R65	1810451.000	15960209.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R66	1815731.000	15960209.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R67	1821011.000	15960209.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R68	1826291.000	15960209.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R69	1831571.000	15960209.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R70	1831485.000	15954845.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R71	1826205.000	15954845.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R72	1820925.000	15954845.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R73	1815645.000	15954845.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R74	1810365.000	15954845.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R75	1805085.000	15954845.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R76	1805427.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R77	1810707.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R78	1815987.000	15949649.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R79	1821267.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R80	1826547.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R81	1831827.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R82	1836851.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R83	1842131.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R84	1847411.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R85	1852691.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R86	1852605.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R87	1847325.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R88	1842045.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R89	1836765.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R90	1837107.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R91	1842387.000	15949649.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R92	1847667.000	15949649.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R93	1852947.000	15949649.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R94	1704511.000	15944115.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R95	1699231.000	15944115.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R96	1693951.000	15944115.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R97	1693951.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R98	1699231.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R99	1704511.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R100	1704511.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R101	1699231.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R102	1693951.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R103	1693951.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R104	1699231.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R105	1704511.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R106	1704511.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R107	1699231.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R108	1693951.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R109	1693913.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R110	1699193.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R111	1704473.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R112	1736191.000	15944115.000		0	0.0	0.0E+00	1.2E-03	1.23E-03
R113	1730911.000	15944115.000		0	0.0	0.0E+00	1.2E-03	1.23E-03
R114	1725631.000	15944115.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R115	1720351.000	15944115.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R116	1715071.000	15944115.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R117	1709791.000	15944115.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R118	1709791.000	15938835.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R119	1715071.000	15938835.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R120	1720351.000	15938835.000		0	0.0	0.0E+00	5.5E-04	5.48E-04
R121	1725631.000	15938835.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R122	1730911.000	15938835.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R123	1736191.000	15938835.000		0	0.0	0.0E+00	1.2E-03	1.23E-03
R124	1736191.000	15933555.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R125	1730911.000	15933555.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R126	1725631.000	15933555.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R127	1720351.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R128	1715071.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R129	1709791.000	15933555.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R130	1709791.000	15928275.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R131	1715071.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R132	1720351.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R133	1725631.000	15928275.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R134	1730911.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R135	1736191.000	15928275.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R136	1736191.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R137	1730911.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R138	1725631.000	15922995.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R139	1720351.000	15922995.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R140	1715071.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R141	1709791.000	15922995.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R142	1709753.000	15918000.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R143	1715033.000	15918000.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R144	1720313.000	15918000.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R145	1725593.000	15918000.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R146	1730873.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R147	1736153.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R148	1767871.000	15944115.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R149	1762591.000	15944115.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R150	1757311.000	15944115.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R151	1752031.000	15944115.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R152	1746751.000	15944115.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R153	1741471.000	15944115.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R154	1741471.000	15938835.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R155	1746751.000	15938835.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R156	1752031.000	15938835.000	8	1080	144.4	2.1E-05	6.8E-04	7.06E-04
R157	1757311.000	15938835.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R158	1762591.000	15938835.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R159	1767871.000	15938835.000	19	2565	342.9	4.9E-05	6.8E-04	7.34E-04
R160	1767871.000	15933555.000	18	2430	324.9	4.7E-05	3.0E-04	3.48E-04
R161	1762591.000	15933555.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R162	1757311.000	15933555.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R163	1752031.000	15933555.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R164	1746751.000	15933555.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R165	1741471.000	15933555.000	4	540	72.2	1.0E-05	6.8E-04	6.95E-04
R166	1741471.000	15928275.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R167	1746751.000	15928275.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R168	1752031.000	15928275.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R169	1757311.000	15928275.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R170	1762591.000	15928275.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R171	1767871.000	15928275.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R172	1767871.000	15922995.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R173	1762591.000	15922995.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R174	1757311.000	15922995.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R175	1752031.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R176	1746751.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R177	1741471.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R178	1741433.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R179	1746713.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R180	1751993.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R181	1757273.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R182	1762553.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R183	1767833.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R184	1799551.000	15944115.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R185	1794271.000	15944115.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R186	1788991.000	15944115.000	16	2160	288.8	4.1E-05	3.0E-04	3.43E-04
R187	1783711.000	15944115.000	37	4995	667.8	9.6E-05	3.0E-04	3.97E-04
R188	1778431.000	15944115.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R189	1773151.000	15944115.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R190	1773151.000	15938835.000	17	2295	306.8	4.4E-05	6.8E-04	7.29E-04
R191	1778431.000	15938835.000	18	2430	324.9	4.7E-05	3.0E-04	3.48E-04
R192	1783711.000	15938835.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R193	1788991.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R194	1794271.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R195	1799551.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R196	1799551.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R197	1794271.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R198	1788991.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R199	1783711.000	15933555.000	44	5940	794.2	1.1E-04	5.5E-05	1.69E-04
R200	1778431.000	15933555.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R201	1773151.000	15933555.000	22	2970	397.1	5.7E-05	3.0E-04	3.58E-04
R202	1773151.000	15928275.000	40	5400	722.0	1.0E-04	3.0E-04	4.05E-04
R203	1778431.000	15928275.000	22	2970	397.1	5.7E-05	3.0E-04	3.58E-04
R204	1783711.000	15928275.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R205	1788991.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R206	1794271.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R207	1799551.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R208	1799551.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R209	1794271.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R210	1788991.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R211	1783711.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R212	1778431.000	15922995.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R213	1773151.000	15922995.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R214	1773113.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R215	1778393.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R216	1783673.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R217	1788953.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R218	1794233.000	15918000.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R219	1799513.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R220	1831231.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R221	1825951.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R222	1820671.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R223	1815391.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R224	1810111.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R225	1804831.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R226	1804831.000	15938835.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R227	1810111.000	15938835.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R228	1815391.000	15938835.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R229	1820671.000	15938835.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R230	1825951.000	15938835.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R231	1831231.000	15938835.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R232	1831231.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R233	1825951.000	15933555.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R234	1820671.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R235	1815391.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R236	1810111.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R237	1804831.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R238	1804831.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R239	1810111.000	15928275.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R240	1815391.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R241	1820671.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R242	1825951.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R243	1831231.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R244	1831231.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R245	1825951.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R246	1820671.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R247	1815391.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R248	1810111.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R249	1804831.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R250	1804793.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R251	1810073.000	15918000.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R252	1815353.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R253	1820633.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R254	1825913.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R255	1831193.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R256	1852351.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R257	1847071.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R258	1841791.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R259	1836511.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R260	1836511.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R261	1841791.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R262	1847071.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R263	1852351.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R264	1852351.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R265	1847071.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R266	1841791.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R267	1836511.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R268	1836511.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R269	1841791.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R270	1847071.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R271	1852351.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R272	1852351.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R273	1847071.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R274	1841791.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R275	1836511.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R276	1836473.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R277	1841753.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R278	1847033.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R279	1852313.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R280	1704511.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R281	1699231.000	15912324.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R282	1693951.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R283	1693951.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R284	1699231.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R285	1704511.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R286	1704511.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R287	1699231.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R288	1693951.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R289	1693951.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R290	1699231.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R291	1704511.000	15896484.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R292	1704511.000	15891204.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R293	1699231.000	15891204.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R294	1693951.000	15891204.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R295	1693951.000	15885924.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R296	1699231.000	15885924.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R297	1704511.000	15885924.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R298	1736191.000	15912324.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R299	1730911.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R300	1725631.000	15912324.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R301	1720351.000	15912324.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R302	1715071.000	15912324.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R303	1709791.000	15912324.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R304	1709791.000	15907044.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R305	1715071.000	15907044.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R306	1720351.000	15907044.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R307	1725631.000	15907044.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R308	1730911.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R309	1736191.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R310	1736191.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R311	1730911.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R312	1725631.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R313	1720351.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R314	1715071.000	15901764.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R315	1709791.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R316	1709791.000	15896484.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R317	1715071.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R318	1720351.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R319	1725631.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R320	1730911.000	15896484.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R321	1736191.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R322	1736191.000	15891204.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R323	1730911.000	15891204.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R324	1725631.000	15891204.000		0	0.0	5.9E-06	5.5E-04	5.54E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R325	1720351.000	15891204.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R326	1715071.000	15891204.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R327	1709791.000	15891204.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R328	1709791.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R329	1715071.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R330	1720351.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R331	1725631.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R332	1730911.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R333	1736191.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R334	1767871.000	15912324.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R335	1762591.000	15912324.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R336	1757311.000	15912324.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R337	1752031.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R338	1746751.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R339	1741471.000	15912324.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R340	1741471.000	15907044.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R341	1746751.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R342	1752031.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R343	1757311.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R344	1762591.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R345	1767871.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R346	1767871.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R347	1762591.000	15901764.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R348	1757311.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R349	1752031.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R350	1746751.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R351	1741471.000	15901764.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R352	1741471.000	15896484.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R353	1746751.000	15896484.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R354	1752031.000	15896484.000	19	2565	342.9	4.9E-05	5.5E-05	1.04E-04
R355	1757311.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R356	1762591.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R357	1767871.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R358	1767871.000	15891204.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R359	1762591.000	15891204.000	27	3645	487.3	7.0E-05	5.5E-05	1.25E-04
R360	1757311.000	15891204.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R361	1752031.000	15891204.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R362	1746751.000	15891204.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R363	1741471.000	15891204.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R364	1741471.000	15885924.000	16	2160	288.8	4.1E-05	3.0E-04	3.43E-04
R365	1746751.000	15885924.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R366	1752031.000	15885924.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R367	1757311.000	15885924.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R368	1762591.000	15885924.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R369	1767871.000	15885924.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R370	1799551.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R371	1794271.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R372	1788991.000	15912324.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R373	1783711.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R374	1778431.000	15912324.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R375	1773151.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R376	1773151.000	15907044.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R377	1778431.000	15907044.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R378	1783711.000	15907044.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R379	1788991.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R380	1794271.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R381	1799551.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R382	1799551.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R383	1794271.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R384	1788991.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R385	1783711.000	15901764.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R386	1778431.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R387	1773151.000	15901764.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R388	1773151.000	15896484.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R389	1778431.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R390	1783711.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R391	1788991.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R392	1794271.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R393	1799551.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R394	1799551.000	15891204.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R395	1794271.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R396	1788991.000	15891204.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R397	1783711.000	15891204.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R398	1778431.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R399	1773151.000	15891204.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R400	1773151.000	15885924.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R401	1778431.000	15885924.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R402	1783711.000	15885924.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R403	1788991.000	15885924.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R404	1794271.000	15885924.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R405	1799551.000	15885924.000	20	2700	361.0	5.2E-05	5.5E-05	1.07E-04
R406	1831231.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R407	1825951.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R408	1820671.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R409	1815391.000	15912324.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R410	1810111.000	15912324.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R411	1804831.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R412	1804831.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R413	1810111.000	15907044.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R414	1815391.000	15907044.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R415	1820671.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R416	1825951.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R417	1831231.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R418	1831231.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R419	1825951.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R420	1820671.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R421	1815391.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R422	1810111.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R423	1804831.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R424	1804831.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R425	1810111.000	15896484.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R426	1815391.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R427	1820671.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R428	1825951.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R429	1831231.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R430	1831231.000	15891204.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R431	1825951.000	15891204.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R432	1820671.000	15891204.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R433	1815391.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R434	1810111.000	15891204.000	9	1215	162.4	2.3E-05	5.5E-05	7.81E-05
R435	1804831.000	15891204.000	16	2160	288.8	4.1E-05	5.5E-05	9.62E-05
R436	1804831.000	15885924.000	20	2700	361.0	5.2E-05	5.5E-05	1.07E-04
R437	1810111.000	15885924.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R438	1815391.000	15885924.000	17	2295	306.8	4.4E-05	5.5E-05	9.88E-05
R439	1820671.000	15885924.000	29	3915	523.4	7.5E-05	5.5E-05	1.30E-04
R440	1825951.000	15885924.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R441	1831231.000	15885924.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R442	1852351.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R443	1847071.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R444	1841791.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R445	1836511.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R446	1836511.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R447	1841791.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R448	1847071.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R449	1852351.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R450	1852351.000	15901764.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R451	1847071.000	15901764.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R452	1841791.000	15901764.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R453	1836511.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R454	1836511.000	15896484.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R455	1841791.000	15896484.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R456	1847071.000	15896484.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R457	1852351.000	15896484.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R458	1852351.000	15891204.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R459	1847071.000	15891204.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R460	1841791.000	15891204.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R461	1836511.000	15891204.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R462	1836511.000	15885924.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R463	1841791.000	15885924.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R464	1847071.000	15885924.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R465	1852351.000	15885924.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R466	1704709.000	15880733.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R467	1699429.000	15880733.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R468	1694149.000	15880733.000		0	0.0	1.2E-05	6.8E-04	6.97E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R469	1694149.000	15875453.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R470	1699429.000	15875453.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R471	1704709.000	15875453.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R472	1704709.000	15870173.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R473	1699429.000	15870173.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R474	1694149.000	15870173.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R475	1694149.000	15864893.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R476	1699429.000	15864893.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R477	1704709.000	15864893.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R478	1704709.000	15859613.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R479	1699429.000	15859613.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R480	1694149.000	15859613.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R481	1694149.000	15854333.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R482	1699429.000	15854333.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R483	1704709.000	15854333.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R484	1736389.000	15880733.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R485	1731109.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R486	1725829.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R487	1720549.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R488	1715269.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R489	1709989.000	15880733.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R490	1709989.000	15875453.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R491	1715269.000	15875453.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R492	1720549.000	15875453.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R493	1725829.000	15875453.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R494	1731109.000	15875453.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R495	1736389.000	15875453.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R496	1736389.000	15870173.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R497	1731109.000	15870173.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R498	1725829.000	15870173.000		0	0.0	4.7E-05	3.0E-04	3.49E-04
R499	1720549.000	15870173.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R500	1715269.000	15870173.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R501	1709989.000	15870173.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R502	1709989.000	15864893.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R503	1715269.000	15864893.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R504	1720549.000	15864893.000		0	0.0	4.7E-05	3.0E-04	3.49E-04
R505	1725829.000	15864893.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R506	1731109.000	15864893.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R507	1736389.000	15864893.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R508	1736389.000	15859613.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R509	1731109.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R510	1725829.000	15859613.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R511	1720549.000	15859613.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R512	1715269.000	15859613.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R513	1709989.000	15859613.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R514	1709989.000	15854333.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R515	1715269.000	15854333.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R516	1720549.000	15854333.000		0	0.0	5.9E-06	3.0E-04	3.07E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R517	1725829.000	15854333.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R518	1731109.000	15854333.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R519	1736389.000	15854333.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R520	1768069.000	15880733.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R521	1762789.000	15880733.000	9	1215	162.4	2.3E-05	5.5E-05	7.81E-05
R522	1757509.000	15880733.000	21	2835	379.0	5.4E-05	5.5E-05	1.09E-04
R523	1752229.000	15880733.000	10	1350	180.5	2.6E-05	3.0E-04	3.27E-04
R524	1746949.000	15880733.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R525	1741669.000	15880733.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R526	1741669.000	15875453.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R527	1746949.000	15875453.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R528	1752229.000	15875453.000	12	1620	216.6	3.1E-05	6.8E-04	7.16E-04
R529	1757509.000	15875453.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R530	1762789.000	15875453.000	6	810	108.3	1.6E-05	6.8E-04	7.00E-04
R531	1768069.000	15875453.000	12	1620	216.6	3.1E-05	1.2E-03	1.26E-03
R532	1768069.000	15870173.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R533	1762789.000	15870173.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R534	1757509.000	15870173.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R535	1752229.000	15870173.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R536	1746949.000	15870173.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R537	1741669.000	15870173.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R538	1741669.000	15864893.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R539	1746949.000	15864893.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R540	1752229.000	15864893.000	8	1080	144.4	2.1E-05	5.5E-04	5.69E-04
R541	1757509.000	15864893.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R542	1762789.000	15864893.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R543	1768069.000	15864893.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R544	1768069.000	15859613.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R545	1762789.000	15859613.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R546	1757509.000	15859613.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R547	1752229.000	15859613.000	37	4995	667.8	9.6E-05	5.5E-04	6.44E-04
R548	1746949.000	15859613.000	8	1080	144.4	2.1E-05	5.5E-04	5.69E-04
R549	1741669.000	15859613.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R550	1741669.000	15854333.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R551	1746949.000	15854333.000	6	810	108.3	1.6E-05	6.8E-04	7.00E-04
R552	1752229.000	15854333.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R553	1757509.000	15854333.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R554	1762789.000	15854333.000	15	2025	270.7	3.9E-05	6.8E-04	7.24E-04
R555	1768069.000	15854333.000	4	540	72.2	1.0E-05	6.8E-04	6.95E-04
R556	1799749.000	15880733.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R557	1794469.000	15880733.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R558	1789189.000	15880733.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R559	1783909.000	15880733.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R560	1778629.000	15880733.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R561	1773349.000	15880733.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R562	1773349.000	15875453.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R563	1778629.000	15875453.000	25	3375	451.2	6.5E-05	1.2E-03	1.30E-03
R564	1783909.000	15875453.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R565	1789189.000	15875453.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R566	1794469.000	15875453.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R567	1799749.000	15875453.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R568	1799749.000	15870173.000	12	1620	216.6	3.1E-05	1.2E-03	1.26E-03
R569	1794469.000	15870173.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R570	1789189.000	15870173.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R571	1783909.000	15870173.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R572	1778629.000	15870173.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R573	1773349.000	15870173.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R574	1773349.000	15864893.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R575	1778629.000	15864893.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R576	1783909.000	15864893.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R577	1789189.000	15864893.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R578	1794469.000	15864893.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R579	1799749.000	15864893.000	17	2295	306.8	4.4E-05	5.5E-04	5.92E-04
R580	1799749.000	15859613.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R581	1794469.000	15859613.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R582	1789189.000	15859613.000	9	1215	162.4	2.3E-05	5.5E-04	5.71E-04
R583	1783909.000	15859613.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R584	1778629.000	15859613.000	12	1620	216.6	3.1E-05	5.5E-04	5.79E-04
R585	1773349.000	15859613.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R586	1773349.000	15854333.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R587	1778629.000	15854333.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R588	1783909.000	15854333.000	13	1755	234.6	3.4E-05	5.5E-04	5.82E-04
R589	1789189.000	15854333.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R590	1794469.000	15854333.000	8	1080	144.4	2.1E-05	5.5E-04	5.69E-04
R591	1799749.000	15854333.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R592	1831429.000	15880733.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R593	1826149.000	15880733.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R594	1820869.000	15880733.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R595	1815589.000	15880733.000	17	2295	306.8	4.4E-05	1.2E-03	1.28E-03
R596	1810309.000	15880733.000	21	2835	379.0	5.4E-05	3.0E-04	3.56E-04
R597	1805029.000	15880733.000	10	1350	180.5	2.6E-05	1.2E-03	1.26E-03
R598	1805029.000	15875453.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R599	1810309.000	15875453.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R600	1815589.000	15875453.000	31	4185	559.5	8.0E-05	3.0E-04	3.82E-04
R601	1820869.000	15875453.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R602	1826149.000	15875453.000	9	1215	162.4	2.3E-05	5.5E-05	7.81E-05
R603	1831429.000	15875453.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R604	1831429.000	15870173.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R605	1826149.000	15870173.000	52	7020	938.6	1.3E-04	5.5E-05	1.89E-04
R606	1820869.000	15870173.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R607	1815589.000	15870173.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R608	1810309.000	15870173.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R609	1805029.000	15870173.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R610	1805029.000	15864893.000	23	3105	415.1	6.0E-05	5.5E-04	6.08E-04
R611	1810309.000	15864893.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R612	1815589.000	15864893.000	14	1890	252.7	3.6E-05	5.5E-04	5.84E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R613	1820869.000	15864893.000	15	2025	270.7	3.9E-05	3.0E-04	3.40E-04
R614	1826149.000	15864893.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R615	1831429.000	15864893.000	14	1890	252.7	3.6E-05	6.8E-04	7.21E-04
R616	1831429.000	15859613.000	7	945	126.3	1.8E-05	6.8E-04	7.03E-04
R617	1826149.000	15859613.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R618	1820869.000	15859613.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R619	1815589.000	15859613.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R620	1810309.000	15859613.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R621	1805029.000	15859613.000	12	1620	216.6	3.1E-05	5.5E-04	5.79E-04
R622	1805029.000	15854333.000	18	2430	324.9	4.7E-05	3.0E-04	3.48E-04
R623	1810309.000	15854333.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R624	1815589.000	15854333.000	11	1485	198.5	2.8E-05	5.5E-05	8.33E-05
R625	1820869.000	15854333.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R626	1826149.000	15854333.000	23	3105	415.1	6.0E-05	5.5E-05	1.14E-04
R627	1831429.000	15854333.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R628	1852549.000	15880733.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R629	1847269.000	15880733.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R630	1841989.000	15880733.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R631	1836709.000	15880733.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R632	1836709.000	15875453.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R633	1841989.000	15875453.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R634	1847269.000	15875453.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R635	1852549.000	15875453.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R636	1852549.000	15870173.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R637	1847269.000	15870173.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R638	1841989.000	15870173.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R639	1836709.000	15870173.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R640	1836709.000	15864893.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R641	1841989.000	15864893.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R642	1847269.000	15864893.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R643	1852549.000	15864893.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R644	1852549.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R645	1847269.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R646	1841989.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R647	1836709.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R648	1836709.000	15854333.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R649	1841989.000	15854333.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R650	1847269.000	15854333.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R651	1852549.000	15854333.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R652	1704710.000	15848942.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R653	1699430.000	15848942.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R654	1694150.000	15848942.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R655	1694150.000	15843662.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R656	1699430.000	15843662.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R657	1704710.000	15843662.000		0	0.0	1.2E-05	5.5E-04	5.60E-04
R658	1736390.000	15848942.000		0	0.0	1.8E-05	5.5E-04	5.66E-04
R659	1731110.000	15848942.000		0	0.0	1.8E-05	6.8E-04	7.03E-04
R660	1725830.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R661	1720550.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R662	1715270.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R663	1709990.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R664	1709990.000	15843662.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R665	1715270.000	15843662.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R666	1720550.000	15843662.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R667	1725830.000	15843662.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R668	1731110.000	15843662.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R669	1736390.000	15843662.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R670	1768070.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R671	1762790.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R672	1757510.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R673	1752230.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R674	1746950.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R675	1741670.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R676	1741670.000	15843662.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R677	1746950.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R678	1752230.000	15843662.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R679	1757510.000	15843662.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R680	1762790.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R681	1768070.000	15843662.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R682	1799750.000	15848942.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R683	1794470.000	15848942.000		0	0.0	3.6E-05	5.5E-04	5.83E-04
R684	1789190.000	15848942.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R685	1783910.000	15848942.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R686	1778630.000	15848942.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R687	1773350.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R688	1773350.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R689	1778630.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R690	1783910.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R691	1789190.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R692	1794470.000	15843662.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R693	1799750.000	15843662.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R694	1831430.000	15848942.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R695	1826150.000	15848942.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R696	1820870.000	15848942.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R697	1815590.000	15848942.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R698	1810310.000	15848942.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R699	1805030.000	15848942.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R700	1805030.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R701	1810310.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R702	1815590.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R703	1820870.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R704	1826150.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R705	1831430.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R706	1852550.000	15848942.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R707	1847270.000	15848942.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R708	1841990.000	15848942.000		0	0.0	5.9E-05	6.8E-04	7.44E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R709	1836710.000	15848942.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R710	1836710.000	15843662.000		0	0.0	5.3E-05	5.5E-05	1.08E-04
R711	1841990.000	15843662.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R712	1847270.000	15843662.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R713	1852550.000	15843662.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R714	1691907.000	15960209.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R715	1696931.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R716	1702211.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R717	1702467.000	15954929.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R718	1697187.000	15954929.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R719	1691907.000	15954929.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R720	1691907.000	15949649.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R721	1697187.000	15949649.000		0	0.0	5.9E-07	3.0E-04	3.02E-04
R722	1702467.000	15949649.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R723	1707491.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R724	1712771.000	15960209.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R725	1718051.000	15960209.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R726	1723331.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R727	1728611.000	15960209.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R728	1733891.000	15960209.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R729	1733805.000	15954845.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R730	1728525.000	15954845.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R731	1723245.000	15954845.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R732	1717965.000	15954845.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R733	1712685.000	15954845.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R734	1707405.000	15954845.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R735	1707747.000	15949649.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R736	1713027.000	15949649.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R737	1718307.000	15949649.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R738	1723587.000	15949649.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R739	1728867.000	15949649.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R740	1734147.000	15949649.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R741	1739171.000	15960209.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R742	1744451.000	15960209.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R743	1749731.000	15960209.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R744	1755011.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R745	1760291.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R746	1765571.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R747	1765485.000	15954845.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R748	1760205.000	15954845.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R749	1754925.000	15954845.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R750	1749645.000	15954845.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R751	1744365.000	15954845.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R752	1739085.000	15954845.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R753	1739427.000	15949649.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R754	1744707.000	15949649.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R755	1749987.000	15949649.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R756	1755267.000	15949649.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R757	1760547.000	15949649.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R758	1765827.000	15949649.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R759	1770851.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R760	1776131.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R761	1781411.000	15960209.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R762	1786691.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R763	1791971.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R764	1797251.000	15960209.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R765	1797165.000	15954845.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R766	1791885.000	15954845.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R767	1786605.000	15954845.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R768	1781325.000	15954845.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R769	1776045.000	15954845.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R770	1770765.000	15954845.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R771	1771107.000	15949649.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R772	1776387.000	15949649.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R773	1781667.000	15949649.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R774	1786947.000	15949649.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R775	1792227.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R776	1797507.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R777	1802531.000	15960209.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R778	1807811.000	15960209.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R779	1813091.000	15960209.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R780	1818371.000	15960209.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R781	1823651.000	15960209.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R782	1828931.000	15960209.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R783	1828845.000	15954845.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R784	1823565.000	15954845.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R785	1818285.000	15954845.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R786	1813005.000	15954845.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R787	1807725.000	15954845.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R788	1802445.000	15954845.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R789	1802787.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R790	1808067.000	15949649.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R791	1813347.000	15949649.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R792	1818627.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R793	1823907.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R794	1829187.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R795	1834211.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R796	1839491.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R797	1844771.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R798	1850051.000	15960209.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R799	1849965.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R800	1844685.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R801	1839405.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R802	1834125.000	15954845.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R803	1834467.000	15949649.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R804	1839747.000	15949649.000		0	0.0	5.9E-07	5.5E-05	5.54E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R805	1845027.000	15949649.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R806	1850307.000	15949649.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R807	1701871.000	15944115.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R808	1696591.000	15944115.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R809	1691311.000	15944115.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R810	1691311.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R811	1696591.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R812	1701871.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R813	1701871.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R814	1696591.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R815	1691311.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R816	1691311.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R817	1696591.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R818	1701871.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R819	1701871.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R820	1696591.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R821	1691311.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R822	1691273.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R823	1696553.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R824	1701833.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R825	1733551.000	15944115.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R826	1728271.000	15944115.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R827	1722991.000	15944115.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R828	1717711.000	15944115.000		0	0.0	0.0E+00	1.2E-03	1.23E-03
R829	1712431.000	15944115.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R830	1707151.000	15944115.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R831	1707151.000	15938835.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R832	1712431.000	15938835.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R833	1717711.000	15938835.000		0	0.0	0.0E+00	5.5E-04	5.48E-04
R834	1722991.000	15938835.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R835	1728271.000	15938835.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R836	1733551.000	15938835.000		0	0.0	0.0E+00	1.2E-03	1.23E-03
R837	1733551.000	15933555.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R838	1728271.000	15933555.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R839	1722991.000	15933555.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R840	1717711.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R841	1712431.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R842	1707151.000	15933555.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R843	1707151.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R844	1712431.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R845	1717711.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R846	1722991.000	15928275.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R847	1728271.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R848	1733551.000	15928275.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R849	1733551.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R850	1728271.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R851	1722991.000	15922995.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R852	1717711.000	15922995.000		0	0.0	2.4E-06	5.5E-05	5.72E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R853	1712431.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R854	1707151.000	15922995.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R855	1707113.000	15918000.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R856	1712393.000	15918000.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R857	1717673.000	15918000.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R858	1722953.000	15918000.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R859	1728233.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R860	1733513.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R861	1765231.000	15944115.000	47	6345	848.3	1.2E-04	3.0E-04	4.23E-04
R862	1759951.000	15944115.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R863	1754671.000	15944115.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R864	1749391.000	15944115.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R865	1744111.000	15944115.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R866	1738831.000	15944115.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R867	1738831.000	15938835.000	7	945	126.3	1.8E-05	6.8E-04	7.03E-04
R868	1744111.000	15938835.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R869	1749391.000	15938835.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R870	1754671.000	15938835.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R871	1759951.000	15938835.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R872	1765231.000	15938835.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R873	1765231.000	15933555.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R874	1759951.000	15933555.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R875	1754671.000	15933555.000	14	1890	252.7	3.6E-05	3.0E-04	3.38E-04
R876	1749391.000	15933555.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R877	1744111.000	15933555.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R878	1738831.000	15933555.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R879	1738831.000	15928275.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R880	1744111.000	15928275.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R881	1749391.000	15928275.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R882	1754671.000	15928275.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R883	1759951.000	15928275.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R884	1765231.000	15928275.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R885	1765231.000	15922995.000	9	1215	162.4	2.3E-05	3.0E-04	3.25E-04
R886	1759951.000	15922995.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R887	1754671.000	15922995.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R888	1749391.000	15922995.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R889	1744111.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R890	1738831.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R891	1738793.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R892	1744073.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R893	1749353.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R894	1754633.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R895	1759913.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R896	1765193.000	15918000.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R897	1796911.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R898	1791631.000	15944115.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R899	1786351.000	15944115.000	48	6480	866.4	1.2E-04	3.0E-04	4.26E-04
R900	1781071.000	15944115.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R901	1775791.000	15944115.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R902	1770511.000	15944115.000	32	4320	577.6	8.3E-05	3.0E-04	3.84E-04
R903	1770511.000	15938835.000	7	945	126.3	1.8E-05	6.8E-04	7.03E-04
R904	1775791.000	15938835.000	29	3915	523.4	7.5E-05	6.8E-04	7.60E-04
R905	1781071.000	15938835.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R906	1786351.000	15938835.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R907	1791631.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R908	1796911.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R909	1796911.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R910	1791631.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R911	1786351.000	15933555.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R912	1781071.000	15933555.000	82	11070	1480.1	2.1E-04	3.0E-04	5.14E-04
R913	1775791.000	15933555.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R914	1770511.000	15933555.000	40	5400	722.0	1.0E-04	3.0E-04	4.05E-04
R915	1770511.000	15928275.000	21	2835	379.0	5.4E-05	3.0E-04	3.56E-04
R916	1775791.000	15928275.000	9	1215	162.4	2.3E-05	3.0E-04	3.25E-04
R917	1781071.000	15928275.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R918	1786351.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R919	1791631.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R920	1796911.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R921	1796911.000	15922995.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R922	1791631.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R923	1786351.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R924	1781071.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R925	1775791.000	15922995.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R926	1770511.000	15922995.000	9	1215	162.4	2.3E-05	5.5E-05	7.81E-05
R927	1770473.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R928	1775753.000	15918000.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R929	1781033.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R930	1786313.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R931	1791593.000	15918000.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R932	1796873.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R933	1828591.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R934	1823311.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R935	1818031.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R936	1812751.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R937	1807471.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R938	1802191.000	15944115.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R939	1802191.000	15938835.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R940	1807471.000	15938835.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R941	1812751.000	15938835.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R942	1818031.000	15938835.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R943	1823311.000	15938835.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R944	1828591.000	15938835.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R945	1828591.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R946	1823311.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R947	1818031.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R948	1812751.000	15933555.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R949	1807471.000	15933555.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R950	1802191.000	15933555.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R951	1802191.000	15928275.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R952	1807471.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R953	1812751.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R954	1818031.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R955	1823311.000	15928275.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R956	1828591.000	15928275.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R957	1828591.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R958	1823311.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R959	1818031.000	15922995.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R960	1812751.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R961	1807471.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R962	1802191.000	15922995.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R963	1802153.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R964	1807433.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R965	1812713.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R966	1817993.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R967	1823273.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R968	1828553.000	15918000.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R969	1849711.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R970	1844431.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R971	1839151.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R972	1833871.000	15944115.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R973	1833871.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R974	1839151.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R975	1844431.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R976	1849711.000	15938835.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R977	1849711.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R978	1844431.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R979	1839151.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R980	1833871.000	15933555.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R981	1833871.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R982	1839151.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R983	1844431.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R984	1849711.000	15928275.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R985	1849711.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R986	1844431.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R987	1839151.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R988	1833871.000	15922995.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R989	1833833.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R990	1839113.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R991	1844393.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R992	1849673.000	15918000.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R993	1701871.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R994	1696591.000	15912324.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R995	1691311.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R996	1691311.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R997	1696591.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R998	1701871.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R999	1701871.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1000	1696591.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1001	1691311.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1002	1691311.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1003	1696591.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1004	1701871.000	15896484.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1005	1701871.000	15891204.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1006	1696591.000	15891204.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1007	1691311.000	15891204.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1008	1691311.000	15885924.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1009	1696591.000	15885924.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1010	1701871.000	15885924.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1011	1733551.000	15912324.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1012	1728271.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1013	1722991.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1014	1717711.000	15912324.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1015	1712431.000	15912324.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1016	1707151.000	15912324.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1017	1707151.000	15907044.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1018	1712431.000	15907044.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1019	1717711.000	15907044.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1020	1722991.000	15907044.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1021	1728271.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1022	1733551.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1023	1733551.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1024	1728271.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1025	1722991.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1026	1717711.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1027	1712431.000	15901764.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1028	1707151.000	15901764.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1029	1707151.000	15896484.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1030	1712431.000	15896484.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1031	1717711.000	15896484.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1032	1722991.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1033	1728271.000	15896484.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1034	1733551.000	15896484.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1035	1733551.000	15891204.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1036	1728271.000	15891204.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1037	1722991.000	15891204.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1038	1717711.000	15891204.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1039	1712431.000	15891204.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1040	1707151.000	15891204.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1041	1707151.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1042	1712431.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1043	1717711.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1044	1722991.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1045	1728271.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1046	1733551.000	15885924.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1047	1765231.000	15912324.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1048	1759951.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1049	1754671.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1050	1749391.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1051	1744111.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1052	1738831.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1053	1738831.000	15907044.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1054	1744111.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1055	1749391.000	15907044.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1056	1754671.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1057	1759951.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1058	1765231.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1059	1765231.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1060	1759951.000	15901764.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1061	1754671.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1062	1749391.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1063	1744111.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1064	1738831.000	15901764.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1065	1738831.000	15896484.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R1066	1744111.000	15896484.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R1067	1749391.000	15896484.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R1068	1754671.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1069	1759951.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1070	1765231.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1071	1765231.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1072	1759951.000	15891204.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R1073	1754671.000	15891204.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R1074	1749391.000	15891204.000	15	2025	270.7	3.9E-05	5.5E-05	9.36E-05
R1075	1744111.000	15891204.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1076	1738831.000	15891204.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1077	1738831.000	15885924.000	8	1080	144.4	2.1E-05	5.5E-04	5.69E-04
R1078	1744111.000	15885924.000	9	1215	162.4	2.3E-05	3.0E-04	3.25E-04
R1079	1749391.000	15885924.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1080	1754671.000	15885924.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1081	1759951.000	15885924.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1082	1765231.000	15885924.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1083	1796911.000	15912324.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1084	1791631.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1085	1786351.000	15912324.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1086	1781071.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1087	1775791.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1088	1770511.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1089	1770511.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1090	1775791.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1091	1781071.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1092	1786351.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1093	1791631.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1094	1796911.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1095	1796911.000	15901764.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1096	1791631.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1097	1786351.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1098	1781071.000	15901764.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1099	1775791.000	15901764.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R1100	1770511.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1101	1770511.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1102	1775791.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1103	1781071.000	15896484.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R1104	1786351.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1105	1791631.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1106	1796911.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1107	1796911.000	15891204.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1108	1791631.000	15891204.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1109	1786351.000	15891204.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1110	1781071.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1111	1775791.000	15891204.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1112	1770511.000	15891204.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R1113	1770511.000	15885924.000	15	2025	270.7	3.9E-05	5.5E-05	9.36E-05
R1114	1775791.000	15885924.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R1115	1781071.000	15885924.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1116	1786351.000	15885924.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1117	1791631.000	15885924.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R1118	1796911.000	15885924.000	15	2025	270.7	3.9E-05	1.2E-03	1.27E-03
R1119	1828591.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1120	1823311.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1121	1818031.000	15912324.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1122	1812751.000	15912324.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1123	1807471.000	15912324.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1124	1802191.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1125	1802191.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1126	1807471.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1127	1812751.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1128	1818031.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1129	1823311.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1130	1828591.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1131	1828591.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1132	1823311.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1133	1818031.000	15901764.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1134	1812751.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1135	1807471.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1136	1802191.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1137	1802191.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1138	1807471.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1139	1812751.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1140	1818031.000	15896484.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1141	1823311.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1142	1828591.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1143	1828591.000	15891204.000	10	1350	180.5	2.6E-05	5.5E-05	8.07E-05
R1144	1823311.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1145	1818031.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1146	1812751.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1147	1807471.000	15891204.000	13	1755	234.6	3.4E-05	5.5E-05	8.85E-05
R1148	1802191.000	15891204.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1149	1802191.000	15885924.000	12	1620	216.6	3.1E-05	5.5E-05	8.59E-05
R1150	1807471.000	15885924.000	23	3105	415.1	6.0E-05	3.0E-04	3.61E-04
R1151	1812751.000	15885924.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R1152	1818031.000	15885924.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R1153	1823311.000	15885924.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R1154	1828591.000	15885924.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R1155	1849711.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1156	1844431.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1157	1839151.000	15912324.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1158	1833871.000	15912324.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1159	1833871.000	15907044.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1160	1839151.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1161	1844431.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1162	1849711.000	15907044.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1163	1849711.000	15901764.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1164	1844431.000	15901764.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1165	1839151.000	15901764.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1166	1833871.000	15901764.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1167	1833871.000	15896484.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1168	1839151.000	15896484.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1169	1844431.000	15896484.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1170	1849711.000	15896484.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1171	1849711.000	15891204.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1172	1844431.000	15891204.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1173	1839151.000	15891204.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1174	1833871.000	15891204.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1175	1833871.000	15885924.000	10	1350	180.5	2.6E-05	5.5E-05	8.07E-05
R1176	1839151.000	15885924.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1177	1844431.000	15885924.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1178	1849711.000	15885924.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1179	1702069.000	15880733.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1180	1696789.000	15880733.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R1181	1691509.000	15880733.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1182	1691509.000	15875453.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1183	1696789.000	15875453.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1184	1702069.000	15875453.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1185	1702069.000	15870173.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1186	1696789.000	15870173.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1187	1691509.000	15870173.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1188	1691509.000	15864893.000		0	0.0	1.2E-05	1.2E-03	1.24E-03

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1189	1696789.000	15864893.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R1190	1702069.000	15864893.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1191	1702069.000	15859613.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1192	1696789.000	15859613.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1193	1691509.000	15859613.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1194	1691509.000	15854333.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1195	1696789.000	15854333.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1196	1702069.000	15854333.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1197	1733749.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1198	1728469.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1199	1723189.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1200	1717909.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1201	1712629.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1202	1707349.000	15880733.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1203	1707349.000	15875453.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1204	1712629.000	15875453.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1205	1717909.000	15875453.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1206	1723189.000	15875453.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1207	1728469.000	15875453.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1208	1733749.000	15875453.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1209	1733749.000	15870173.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1210	1728469.000	15870173.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1211	1723189.000	15870173.000		0	0.0	4.7E-05	3.0E-04	3.49E-04
R1212	1717909.000	15870173.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1213	1712629.000	15870173.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1214	1707349.000	15870173.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1215	1707349.000	15864893.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1216	1712629.000	15864893.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1217	1717909.000	15864893.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1218	1723189.000	15864893.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1219	1728469.000	15864893.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1220	1733749.000	15864893.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1221	1733749.000	15859613.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1222	1728469.000	15859613.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1223	1723189.000	15859613.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1224	1717909.000	15859613.000		0	0.0	4.7E-05	3.0E-04	3.49E-04
R1225	1712629.000	15859613.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1226	1707349.000	15859613.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1227	1707349.000	15854333.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1228	1712629.000	15854333.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1229	1717909.000	15854333.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1230	1723189.000	15854333.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1231	1728469.000	15854333.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1232	1733749.000	15854333.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1233	1765429.000	15880733.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R1234	1760149.000	15880733.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R1235	1754869.000	15880733.000	22	2970	397.1	5.7E-05	3.0E-04	3.58E-04
R1236	1749589.000	15880733.000	14	1890	252.7	3.6E-05	3.0E-04	3.38E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1237	1744309.000	15880733.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1238	1739029.000	15880733.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1239	1739029.000	15875453.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1240	1744309.000	15875453.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R1241	1749589.000	15875453.000	8	1080	144.4	2.1E-05	6.8E-04	7.06E-04
R1242	1754869.000	15875453.000	19	2565	342.9	4.9E-05	3.0E-04	3.51E-04
R1243	1760149.000	15875453.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R1244	1765429.000	15875453.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R1245	1765429.000	15870173.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R1246	1760149.000	15870173.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1247	1754869.000	15870173.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R1248	1749589.000	15870173.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1249	1744309.000	15870173.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1250	1739029.000	15870173.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R1251	1739029.000	15864893.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1252	1744309.000	15864893.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1253	1749589.000	15864893.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1254	1754869.000	15864893.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1255	1760149.000	15864893.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1256	1765429.000	15864893.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R1257	1765429.000	15859613.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R1258	1760149.000	15859613.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R1259	1754869.000	15859613.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1260	1749589.000	15859613.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1261	1744309.000	15859613.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1262	1739029.000	15859613.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1263	1739029.000	15854333.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R1264	1744309.000	15854333.000	6	810	108.3	1.6E-05	6.8E-04	7.00E-04
R1265	1749589.000	15854333.000	8	1080	144.4	2.1E-05	6.8E-04	7.06E-04
R1266	1754869.000	15854333.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1267	1760149.000	15854333.000	10	1350	180.5	2.6E-05	6.8E-04	7.11E-04
R1268	1765429.000	15854333.000	6	810	108.3	1.6E-05	6.8E-04	7.00E-04
R1269	1797109.000	15880733.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R1270	1791829.000	15880733.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1271	1786549.000	15880733.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03
R1272	1781269.000	15880733.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R1273	1775989.000	15880733.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R1274	1770709.000	15880733.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1275	1770709.000	15875453.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03
R1276	1775989.000	15875453.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R1277	1781269.000	15875453.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R1278	1786549.000	15875453.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1279	1791829.000	15875453.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1280	1797109.000	15875453.000	13	1755	234.6	3.4E-05	1.2E-03	1.27E-03
R1281	1797109.000	15870173.000	12	1620	216.6	3.1E-05	1.2E-03	1.26E-03
R1282	1791829.000	15870173.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R1283	1786549.000	15870173.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R1284	1781269.000	15870173.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1285	1775989.000	15870173.000	40	5400	722.0	1.0E-04	1.2E-03	1.34E-03
R1286	1770709.000	15870173.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R1287	1770709.000	15864893.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R1288	1775989.000	15864893.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1289	1781269.000	15864893.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R1290	1786549.000	15864893.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R1291	1791829.000	15864893.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1292	1797109.000	15864893.000	16	2160	288.8	4.1E-05	5.5E-04	5.89E-04
R1293	1797109.000	15859613.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1294	1791829.000	15859613.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1295	1786549.000	15859613.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R1296	1781269.000	15859613.000	19	2565	342.9	4.9E-05	6.8E-04	7.34E-04
R1297	1775989.000	15859613.000	6	810	108.3	1.6E-05	6.8E-04	7.00E-04
R1298	1770709.000	15859613.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R1299	1770709.000	15854333.000	4	540	72.2	1.0E-05	6.8E-04	6.95E-04
R1300	1775989.000	15854333.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1301	1781269.000	15854333.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1302	1786549.000	15854333.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1303	1791829.000	15854333.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1304	1797109.000	15854333.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R1305	1828789.000	15880733.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1306	1823509.000	15880733.000	15	2025	270.7	3.9E-05	5.5E-05	9.36E-05
R1307	1818229.000	15880733.000	23	3105	415.1	6.0E-05	5.5E-05	1.14E-04
R1308	1812949.000	15880733.000	34	4590	613.7	8.8E-05	3.0E-04	3.89E-04
R1309	1807669.000	15880733.000	36	4860	649.8	9.3E-05	3.0E-04	3.95E-04
R1310	1802389.000	15880733.000	15	2025	270.7	3.9E-05	1.2E-03	1.27E-03
R1311	1802389.000	15875453.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03
R1312	1807669.000	15875453.000	38	5130	685.9	9.8E-05	3.0E-04	4.00E-04
R1313	1812949.000	15875453.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1314	1818229.000	15875453.000	10	1350	180.5	2.6E-05	5.5E-05	8.07E-05
R1315	1823509.000	15875453.000	40	5400	722.0	1.0E-04	5.5E-05	1.58E-04
R1316	1828789.000	15875453.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1317	1828789.000	15870173.000	12	1620	216.6	3.1E-05	5.5E-05	8.59E-05
R1318	1823509.000	15870173.000	45	6075	812.2	1.2E-04	3.0E-04	4.18E-04
R1319	1818229.000	15870173.000	32	4320	577.6	8.3E-05	3.0E-04	3.84E-04
R1320	1812949.000	15870173.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R1321	1807669.000	15870173.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R1322	1802389.000	15870173.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R1323	1802389.000	15864893.000	20	2700	361.0	5.2E-05	5.5E-04	6.00E-04
R1324	1807669.000	15864893.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1325	1812949.000	15864893.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R1326	1818229.000	15864893.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R1327	1823509.000	15864893.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1328	1828789.000	15864893.000	24	3240	433.2	6.2E-05	3.0E-04	3.64E-04
R1329	1828789.000	15859613.000	11	1485	198.5	2.8E-05	6.8E-04	7.13E-04
R1330	1823509.000	15859613.000	19	2565	342.9	4.9E-05	3.0E-04	3.51E-04
R1331	1818229.000	15859613.000	25	3375	451.2	6.5E-05	5.5E-05	1.20E-04
R1332	1812949.000	15859613.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1333	1807669.000	15859613.000	34	4590	613.7	8.8E-05	5.5E-05	1.43E-04
R1334	1802389.000	15859613.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R1335	1802389.000	15854333.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1336	1807669.000	15854333.000	38	5130	685.9	9.8E-05	3.0E-04	4.00E-04
R1337	1812949.000	15854333.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R1338	1818229.000	15854333.000	42	5670	758.1	1.1E-04	5.5E-05	1.64E-04
R1339	1823509.000	15854333.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R1340	1828789.000	15854333.000	13	1755	234.6	3.4E-05	5.5E-05	8.85E-05
R1341	1849909.000	15880733.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1342	1844629.000	15880733.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1343	1839349.000	15880733.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1344	1834069.000	15880733.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1345	1834069.000	15875453.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1346	1839349.000	15875453.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1347	1844629.000	15875453.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1348	1849909.000	15875453.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1349	1849909.000	15870173.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1350	1844629.000	15870173.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1351	1839349.000	15870173.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1352	1834069.000	15870173.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1353	1834069.000	15864893.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1354	1839349.000	15864893.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1355	1844629.000	15864893.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1356	1849909.000	15864893.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1357	1849909.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1358	1844629.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1359	1839349.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1360	1834069.000	15859613.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1361	1834069.000	15854333.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1362	1839349.000	15854333.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1363	1844629.000	15854333.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R1364	1849909.000	15854333.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1365	1702070.000	15848942.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1366	1696790.000	15848942.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R1367	1691510.000	15848942.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R1368	1691510.000	15843662.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R1369	1696790.000	15843662.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R1370	1702070.000	15843662.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R1371	1733750.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R1372	1728470.000	15848942.000		0	0.0	1.8E-05	6.8E-04	7.03E-04
R1373	1723190.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R1374	1717910.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R1375	1712630.000	15848942.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R1376	1707350.000	15848942.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R1377	1707350.000	15843662.000		0	0.0	1.8E-05	5.5E-04	5.66E-04
R1378	1712630.000	15843662.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R1379	1717910.000	15843662.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R1380	1723190.000	15843662.000		0	0.0	1.8E-05	3.0E-04	3.19E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1381	1728470.000	15843662.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R1382	1733750.000	15843662.000		0	0.0	1.8E-05	5.5E-04	5.66E-04
R1383	1765430.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1384	1760150.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1385	1754870.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1386	1749590.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1387	1744310.000	15848942.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R1388	1739030.000	15848942.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R1389	1739030.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1390	1744310.000	15843662.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R1391	1749590.000	15843662.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1392	1754870.000	15843662.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1393	1760150.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1394	1765430.000	15843662.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1395	1797110.000	15848942.000		0	0.0	3.6E-05	5.5E-04	5.83E-04
R1396	1791830.000	15848942.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R1397	1786550.000	15848942.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1398	1781270.000	15848942.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1399	1775990.000	15848942.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1400	1770710.000	15848942.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R1401	1770710.000	15843662.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R1402	1775990.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1403	1781270.000	15843662.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R1404	1786550.000	15843662.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1405	1791830.000	15843662.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R1406	1797110.000	15843662.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R1407	1828790.000	15848942.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1408	1823510.000	15848942.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1409	1818230.000	15848942.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1410	1812950.000	15848942.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R1411	1807670.000	15848942.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R1412	1802390.000	15848942.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R1413	1802390.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1414	1807670.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1415	1812950.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1416	1818230.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1417	1823510.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1418	1828790.000	15843662.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1419	1849910.000	15848942.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R1420	1844630.000	15848942.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R1421	1839350.000	15848942.000		0	0.0	5.9E-05	6.8E-04	7.44E-04
R1422	1834070.000	15848942.000		0	0.0	5.3E-05	5.5E-05	1.08E-04
R1423	1834070.000	15843662.000		0	0.0	5.3E-05	5.5E-05	1.08E-04
R1424	1839350.000	15843662.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R1425	1844630.000	15843662.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R1426	1849910.000	15843662.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R1427	1691907.000	15957569.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R1428	1696931.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1429	1702211.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R1430	1702467.000	15952289.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R1431	1697187.000	15952289.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R1432	1691907.000	15952289.000		0	0.0	5.9E-07	3.0E-04	3.02E-04
R1433	1691907.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1434	1697187.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1435	1702467.000	15947009.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R1436	1707491.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R1437	1712771.000	15957569.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R1438	1718051.000	15957569.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R1439	1723331.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R1440	1728611.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R1441	1733891.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R1442	1733805.000	15952205.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R1443	1728525.000	15952205.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R1444	1723245.000	15952205.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R1445	1717965.000	15952205.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R1446	1712685.000	15952205.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R1447	1707405.000	15952205.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R1448	1707747.000	15947009.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R1449	1713027.000	15947009.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R1450	1718307.000	15947009.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R1451	1723587.000	15947009.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R1452	1728867.000	15947009.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R1453	1734147.000	15947009.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R1454	1739171.000	15957569.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R1455	1744451.000	15957569.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R1456	1749731.000	15957569.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1457	1755011.000	15957569.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1458	1760291.000	15957569.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1459	1765571.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1460	1765485.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1461	1760205.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1462	1754925.000	15952205.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R1463	1749645.000	15952205.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1464	1744365.000	15952205.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1465	1739085.000	15952205.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1466	1739427.000	15947009.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1467	1744707.000	15947009.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1468	1749987.000	15947009.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1469	1755267.000	15947009.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1470	1760547.000	15947009.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1471	1765827.000	15947009.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R1472	1770851.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1473	1776131.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1474	1781411.000	15957569.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1475	1786691.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1476	1791971.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1477	1797251.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1478	1797165.000	15952205.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1479	1791885.000	15952205.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1480	1786605.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1481	1781325.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1482	1776045.000	15952205.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R1483	1770765.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1484	1771107.000	15947009.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1485	1776387.000	15947009.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1486	1781667.000	15947009.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1487	1786947.000	15947009.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1488	1792227.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1489	1797507.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1490	1802531.000	15957569.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1491	1807811.000	15957569.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1492	1813091.000	15957569.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1493	1818371.000	15957569.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1494	1823651.000	15957569.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R1495	1828931.000	15957569.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1496	1828845.000	15952205.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1497	1823565.000	15952205.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1498	1818285.000	15952205.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1499	1813005.000	15952205.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1500	1807725.000	15952205.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1501	1802445.000	15952205.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1502	1802787.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1503	1808067.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1504	1813347.000	15947009.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1505	1818627.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1506	1823907.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1507	1829187.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1508	1834211.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1509	1839491.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1510	1844771.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1511	1850051.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1512	1849965.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1513	1844685.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1514	1839405.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1515	1834125.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1516	1834467.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1517	1839747.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1518	1845027.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1519	1850307.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1520	1701871.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1521	1696591.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1522	1691311.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1523	1691311.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1524	1696591.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1525	1701871.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1526	1701871.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1527	1696591.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1528	1691311.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1529	1691311.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1530	1696591.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1531	1701871.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1532	1701871.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1533	1696591.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1534	1691311.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1535	1691273.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1536	1696553.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1537	1701833.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1538	1733551.000	15941475.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R1539	1728271.000	15941475.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R1540	1722991.000	15941475.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R1541	1717711.000	15941475.000		0	0.0	0.0E+00	5.5E-04	5.48E-04
R1542	1712431.000	15941475.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R1543	1707151.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1544	1707151.000	15936195.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1545	1712431.000	15936195.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1546	1717711.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1547	1722991.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1548	1728271.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1549	1733551.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1550	1733551.000	15930915.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1551	1728271.000	15930915.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1552	1722991.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1553	1717711.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1554	1712431.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1555	1707151.000	15930915.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1556	1707151.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1557	1712431.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1558	1717711.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1559	1722991.000	15925635.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1560	1728271.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1561	1733551.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1562	1733551.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1563	1728271.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1564	1722991.000	15920355.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1565	1717711.000	15920355.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1566	1712431.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1567	1707151.000	15920355.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1568	1707113.000	15915360.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1569	1712393.000	15915360.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1570	1717673.000	15915360.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1571	1722953.000	15915360.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R1572	1728233.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1573	1733513.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1574	1765231.000	15941475.000	28	3780	505.4	7.3E-05	3.0E-04	3.74E-04
R1575	1759951.000	15941475.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1576	1754671.000	15941475.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R1577	1749391.000	15941475.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1578	1744111.000	15941475.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R1579	1738831.000	15941475.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R1580	1738831.000	15936195.000	7	945	126.3	1.8E-05	6.8E-04	7.03E-04
R1581	1744111.000	15936195.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R1582	1749391.000	15936195.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R1583	1754671.000	15936195.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R1584	1759951.000	15936195.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R1585	1765231.000	15936195.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1586	1765231.000	15930915.000	25	3375	451.2	6.5E-05	3.0E-04	3.66E-04
R1587	1759951.000	15930915.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1588	1754671.000	15930915.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R1589	1749391.000	15930915.000	10	1350	180.5	2.6E-05	3.0E-04	3.27E-04
R1590	1744111.000	15930915.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R1591	1738831.000	15930915.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R1592	1738831.000	15925635.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R1593	1744111.000	15925635.000	12	1620	216.6	3.1E-05	5.5E-05	8.59E-05
R1594	1749391.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1595	1754671.000	15925635.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R1596	1759951.000	15925635.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R1597	1765231.000	15925635.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R1598	1765231.000	15920355.000	9	1215	162.4	2.3E-05	5.5E-05	7.81E-05
R1599	1759951.000	15920355.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R1600	1754671.000	15920355.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1601	1749391.000	15920355.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1602	1744111.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1603	1738831.000	15920355.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1604	1738793.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1605	1744073.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1606	1749353.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1607	1754633.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1608	1759913.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1609	1765193.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1610	1796911.000	15941475.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1611	1791631.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1612	1786351.000	15941475.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R1613	1781071.000	15941475.000	51	6885	920.5	1.3E-04	3.0E-04	4.33E-04
R1614	1775791.000	15941475.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R1615	1770511.000	15941475.000	44	5940	794.2	1.1E-04	6.8E-04	7.99E-04
R1616	1770511.000	15936195.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R1617	1775791.000	15936195.000	22	2970	397.1	5.7E-05	3.0E-04	3.58E-04
R1618	1781071.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1619	1786351.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1620	1791631.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1621	1796911.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1622	1796911.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1623	1791631.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1624	1786351.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1625	1781071.000	15930915.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R1626	1775791.000	15930915.000	18	2430	324.9	4.7E-05	3.0E-04	3.48E-04
R1627	1770511.000	15930915.000	21	2835	379.0	5.4E-05	3.0E-04	3.56E-04
R1628	1770511.000	15925635.000	15	2025	270.7	3.9E-05	3.0E-04	3.40E-04
R1629	1775791.000	15925635.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R1630	1781071.000	15925635.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R1631	1786351.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1632	1791631.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1633	1796911.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1634	1796911.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1635	1791631.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1636	1786351.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1637	1781071.000	15920355.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1638	1775791.000	15920355.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1639	1770511.000	15920355.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R1640	1770473.000	15915360.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1641	1775753.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1642	1781033.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1643	1786313.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1644	1791593.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1645	1796873.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1646	1828591.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1647	1823311.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1648	1818031.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1649	1812751.000	15941475.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1650	1807471.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1651	1802191.000	15941475.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R1652	1802191.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1653	1807471.000	15936195.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1654	1812751.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1655	1818031.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1656	1823311.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1657	1828591.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1658	1828591.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1659	1823311.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1660	1818031.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1661	1812751.000	15930915.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1662	1807471.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1663	1802191.000	15930915.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1664	1802191.000	15925635.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1665	1807471.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1666	1812751.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1667	1818031.000	15925635.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1668	1823311.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1669	1828591.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1670	1828591.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1671	1823311.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1672	1818031.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1673	1812751.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1674	1807471.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1675	1802191.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1676	1802153.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1677	1807433.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1678	1812713.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1679	1817993.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1680	1823273.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1681	1828553.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1682	1849711.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1683	1844431.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1684	1839151.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1685	1833871.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1686	1833871.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1687	1839151.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1688	1844431.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1689	1849711.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1690	1849711.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1691	1844431.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1692	1839151.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1693	1833871.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1694	1833871.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1695	1839151.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1696	1844431.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1697	1849711.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1698	1849711.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1699	1844431.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1700	1839151.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1701	1833871.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1702	1833833.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1703	1839113.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1704	1844393.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1705	1849673.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1706	1701871.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1707	1696591.000	15909684.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R1708	1691311.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1709	1691311.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1710	1696591.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1711	1701871.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1712	1701871.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1713	1696591.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1714	1691311.000	15899124.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1715	1691311.000	15893844.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1716	1696591.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1717	1701871.000	15893844.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1718	1701871.000	15888564.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1719	1696591.000	15888564.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1720	1691311.000	15888564.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1721	1691311.000	15883284.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1722	1696591.000	15883284.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1723	1701871.000	15883284.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1724	1733551.000	15909684.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1725	1728271.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1726	1722991.000	15909684.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R1727	1717711.000	15909684.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1728	1712431.000	15909684.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1729	1707151.000	15909684.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1730	1707151.000	15904404.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1731	1712431.000	15904404.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1732	1717711.000	15904404.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1733	1722991.000	15904404.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1734	1728271.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1735	1733551.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1736	1733551.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1737	1728271.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1738	1722991.000	15899124.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1739	1717711.000	15899124.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1740	1712431.000	15899124.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R1741	1707151.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1742	1707151.000	15893844.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1743	1712431.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1744	1717711.000	15893844.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1745	1722991.000	15893844.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1746	1728271.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1747	1733551.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1748	1733551.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1749	1728271.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1750	1722991.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1751	1717711.000	15888564.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1752	1712431.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1753	1707151.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1754	1707151.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1755	1712431.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1756	1717711.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1757	1722991.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1758	1728271.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1759	1733551.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1760	1765231.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1761	1759951.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1762	1754671.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1763	1749391.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1764	1744111.000	15909684.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1765	1738831.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1766	1738831.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1767	1744111.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1768	1749391.000	15904404.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1769	1754671.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1770	1759951.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1771	1765231.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1772	1765231.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1773	1759951.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1774	1754671.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1775	1749391.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1776	1744111.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1777	1738831.000	15899124.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R1778	1738831.000	15893844.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R1779	1744111.000	15893844.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R1780	1749391.000	15893844.000	13	1755	234.6	3.4E-05	5.5E-05	8.85E-05
R1781	1754671.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1782	1759951.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1783	1765231.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1784	1765231.000	15888564.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1785	1759951.000	15888564.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1786	1754671.000	15888564.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1787	1749391.000	15888564.000	14	1890	252.7	3.6E-05	5.5E-05	9.11E-05
R1788	1744111.000	15888564.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1789	1738831.000	15888564.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R1790	1738831.000	15883284.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1791	1744111.000	15883284.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R1792	1749391.000	15883284.000	16	2160	288.8	4.1E-05	3.0E-04	3.43E-04
R1793	1754671.000	15883284.000	24	3240	433.2	6.2E-05	5.5E-05	1.17E-04
R1794	1759951.000	15883284.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1795	1765231.000	15883284.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R1796	1796911.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1797	1791631.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1798	1786351.000	15909684.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R1799	1781071.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1800	1775791.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1801	1770511.000	15909684.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1802	1770511.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1803	1775791.000	15904404.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R1804	1781071.000	15904404.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1805	1786351.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1806	1791631.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1807	1796911.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1808	1796911.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1809	1791631.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1810	1786351.000	15899124.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1811	1781071.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1812	1775791.000	15899124.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1813	1770511.000	15899124.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1814	1770511.000	15893844.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R1815	1775791.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1816	1781071.000	15893844.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1817	1786351.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1818	1791631.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1819	1796911.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1820	1796911.000	15888564.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1821	1791631.000	15888564.000	0	0	0.0	0.0E+00	0.0E+00	0.00E+00
R1822	1786351.000	15888564.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1823	1781071.000	15888564.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1824	1775791.000	15888564.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1825	1770511.000	15888564.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R1826	1770511.000	15883284.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R1827	1775791.000	15883284.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R1828	1781071.000	15883284.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R1829	1786351.000	15883284.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R1830	1791631.000	15883284.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R1831	1796911.000	15883284.000	19	2565	342.9	4.9E-05	1.2E-03	1.28E-03
R1832	1828591.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1833	1823311.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1834	1818031.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1835	1812751.000	15909684.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1836	1807471.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1837	1802191.000	15909684.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1838	1802191.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1839	1807471.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1840	1812751.000	15904404.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1841	1818031.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1842	1823311.000	15904404.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1843	1828591.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1844	1828591.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1845	1823311.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1846	1818031.000	15899124.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1847	1812751.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1848	1807471.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1849	1802191.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1850	1802191.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1851	1807471.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1852	1812751.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1853	1818031.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1854	1823311.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1855	1828591.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1856	1828591.000	15888564.000	14	1890	252.7	3.6E-05	3.0E-04	3.38E-04
R1857	1823311.000	15888564.000	10	1350	180.5	2.6E-05	5.5E-05	8.07E-05
R1858	1818031.000	15888564.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1859	1812751.000	15888564.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1860	1807471.000	15888564.000	13	1755	234.6	3.4E-05	5.5E-05	8.85E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1861	1802191.000	15888564.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1862	1802191.000	15883284.000	21	2835	379.0	5.4E-05	3.0E-04	3.56E-04
R1863	1807471.000	15883284.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1864	1812751.000	15883284.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R1865	1818031.000	15883284.000	20	2700	361.0	5.2E-05	3.0E-04	3.53E-04
R1866	1823311.000	15883284.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1867	1828591.000	15883284.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R1868	1849711.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1869	1844431.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1870	1839151.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1871	1833871.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1872	1833871.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1873	1839151.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1874	1844431.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1875	1849711.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1876	1849711.000	15899124.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1877	1844431.000	15899124.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1878	1839151.000	15899124.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1879	1833871.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R1880	1833871.000	15893844.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R1881	1839151.000	15893844.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1882	1844431.000	15893844.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1883	1849711.000	15893844.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1884	1849711.000	15888564.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1885	1844431.000	15888564.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1886	1839151.000	15888564.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1887	1833871.000	15888564.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R1888	1833871.000	15883284.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R1889	1839151.000	15883284.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1890	1844431.000	15883284.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1891	1849711.000	15883284.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R1892	1702069.000	15878093.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1893	1696789.000	15878093.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1894	1691509.000	15878093.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1895	1691509.000	15872813.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1896	1696789.000	15872813.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1897	1702069.000	15872813.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1898	1702069.000	15867533.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1899	1696789.000	15867533.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1900	1691509.000	15867533.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1901	1691509.000	15862253.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R1902	1696789.000	15862253.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1903	1702069.000	15862253.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1904	1702069.000	15856973.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1905	1696789.000	15856973.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1906	1691509.000	15856973.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1907	1691509.000	15851693.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1908	1696789.000	15851693.000		0	0.0	1.2E-05	6.8E-04	6.97E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1909	1702069.000	15851693.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R1910	1733749.000	15878093.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1911	1728469.000	15878093.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1912	1723189.000	15878093.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1913	1717909.000	15878093.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1914	1712629.000	15878093.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1915	1707349.000	15878093.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1916	1707349.000	15872813.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1917	1712629.000	15872813.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1918	1717909.000	15872813.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R1919	1723189.000	15872813.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1920	1728469.000	15872813.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1921	1733749.000	15872813.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1922	1733749.000	15867533.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1923	1728469.000	15867533.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1924	1723189.000	15867533.000		0	0.0	4.7E-05	3.0E-04	3.49E-04
R1925	1717909.000	15867533.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1926	1712629.000	15867533.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1927	1707349.000	15867533.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1928	1707349.000	15862253.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1929	1712629.000	15862253.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1930	1717909.000	15862253.000		0	0.0	4.7E-05	3.0E-04	3.49E-04
R1931	1723189.000	15862253.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1932	1728469.000	15862253.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1933	1733749.000	15862253.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R1934	1733749.000	15856973.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1935	1728469.000	15856973.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1936	1723189.000	15856973.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1937	1717909.000	15856973.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R1938	1712629.000	15856973.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1939	1707349.000	15856973.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R1940	1707349.000	15851693.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1941	1712629.000	15851693.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1942	1717909.000	15851693.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1943	1723189.000	15851693.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R1944	1728469.000	15851693.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1945	1733749.000	15851693.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R1946	1765429.000	15878093.000	11	1485	198.5	2.8E-05	5.5E-05	8.33E-05
R1947	1760149.000	15878093.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R1948	1754869.000	15878093.000	26	3510	469.3	6.7E-05	3.0E-04	3.69E-04
R1949	1749589.000	15878093.000	31	4185	559.5	8.0E-05	3.0E-04	3.82E-04
R1950	1744309.000	15878093.000	12	1620	216.6	3.1E-05	6.8E-04	7.16E-04
R1951	1739029.000	15878093.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R1952	1739029.000	15872813.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R1953	1744309.000	15872813.000	13	1755	234.6	3.4E-05	1.2E-03	1.27E-03
R1954	1749589.000	15872813.000	22	2970	397.1	5.7E-05	1.2E-03	1.29E-03
R1955	1754869.000	15872813.000	31	4185	559.5	8.0E-05	1.2E-03	1.31E-03
R1956	1760149.000	15872813.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R1957	1765429.000	15872813.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R1958	1765429.000	15867533.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R1959	1760149.000	15867533.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1960	1754869.000	15867533.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R1961	1749589.000	15867533.000	9	1215	162.4	2.3E-05	1.2E-03	1.26E-03
R1962	1744309.000	15867533.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1963	1739029.000	15867533.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1964	1739029.000	15862253.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R1965	1744309.000	15862253.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R1966	1749589.000	15862253.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R1967	1754869.000	15862253.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1968	1760149.000	15862253.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R1969	1765429.000	15862253.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R1970	1765429.000	15856973.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R1971	1760149.000	15856973.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R1972	1754869.000	15856973.000	13	1755	234.6	3.4E-05	5.5E-04	5.82E-04
R1973	1749589.000	15856973.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1974	1744309.000	15856973.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R1975	1739029.000	15856973.000	6	810	108.3	1.6E-05	6.8E-04	7.00E-04
R1976	1739029.000	15851693.000	7	945	126.3	1.8E-05	6.8E-04	7.03E-04
R1977	1744309.000	15851693.000	15	2025	270.7	3.9E-05	6.8E-04	7.24E-04
R1978	1749589.000	15851693.000	4	540	72.2	1.0E-05	6.8E-04	6.95E-04
R1979	1754869.000	15851693.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R1980	1760149.000	15851693.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R1981	1765429.000	15851693.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R1982	1797109.000	15878093.000	19	2565	342.9	4.9E-05	1.2E-03	1.28E-03
R1983	1791829.000	15878093.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R1984	1786549.000	15878093.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R1985	1781269.000	15878093.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R1986	1775989.000	15878093.000	14	1890	252.7	3.6E-05	1.2E-03	1.27E-03
R1987	1770709.000	15878093.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R1988	1770709.000	15872813.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R1989	1775989.000	15872813.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R1990	1781269.000	15872813.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1991	1786549.000	15872813.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1992	1791829.000	15872813.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R1993	1797109.000	15872813.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R1994	1797109.000	15867533.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1995	1791829.000	15867533.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1996	1786549.000	15867533.000	14	1890	252.7	3.6E-05	1.2E-03	1.27E-03
R1997	1781269.000	15867533.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R1998	1775989.000	15867533.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R1999	1770709.000	15867533.000	9	1215	162.4	2.3E-05	1.2E-03	1.26E-03
R2000	1770709.000	15862253.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R2001	1775989.000	15862253.000	4	540	72.2	1.0E-05	6.8E-04	6.95E-04
R2002	1781269.000	15862253.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R2003	1786549.000	15862253.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R2004	1791829.000	15862253.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2005	1797109.000	15862253.000	20	2700	361.0	5.2E-05	5.5E-04	6.00E-04
R2006	1797109.000	15856973.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R2007	1791829.000	15856973.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2008	1786549.000	15856973.000	0	0	0.0	0.0E+00	5.5E-04	5.48E-04
R2009	1781269.000	15856973.000	13	1755	234.6	3.4E-05	6.8E-04	7.19E-04
R2010	1775989.000	15856973.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R2011	1770709.000	15856973.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R2012	1770709.000	15851693.000	8	1080	144.4	2.1E-05	5.5E-04	5.69E-04
R2013	1775989.000	15851693.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R2014	1781269.000	15851693.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R2015	1786549.000	15851693.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R2016	1791829.000	15851693.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R2017	1797109.000	15851693.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R2018	1828789.000	15878093.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2019	1823509.000	15878093.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2020	1818229.000	15878093.000	39	5265	703.9	1.0E-04	5.5E-05	1.56E-04
R2021	1812949.000	15878093.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R2022	1807669.000	15878093.000	59	7965	1064.9	1.5E-04	3.0E-04	4.54E-04
R2023	1802389.000	15878093.000	20	2700	361.0	5.2E-05	1.2E-03	1.28E-03
R2024	1802389.000	15872813.000	10	1350	180.5	2.6E-05	1.2E-03	1.26E-03
R2025	1807669.000	15872813.000	41	5535	740.0	1.1E-04	3.0E-04	4.08E-04
R2026	1812949.000	15872813.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2027	1818229.000	15872813.000	19	2565	342.9	4.9E-05	5.5E-05	1.04E-04
R2028	1823509.000	15872813.000	11	1485	198.5	2.8E-05	5.5E-05	8.33E-05
R2029	1828789.000	15872813.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2030	1828789.000	15867533.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2031	1823509.000	15867533.000	9	1215	162.4	2.3E-05	3.0E-04	3.25E-04
R2032	1818229.000	15867533.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R2033	1812949.000	15867533.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03
R2034	1807669.000	15867533.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R2035	1802389.000	15867533.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R2036	1802389.000	15862253.000	10	1350	180.5	2.6E-05	5.5E-04	5.74E-04
R2037	1807669.000	15862253.000	8	1080	144.4	2.1E-05	5.5E-04	5.69E-04
R2038	1812949.000	15862253.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R2039	1818229.000	15862253.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R2040	1823509.000	15862253.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R2041	1828789.000	15862253.000	8	1080	144.4	2.1E-05	6.8E-04	7.06E-04
R2042	1828789.000	15856973.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R2043	1823509.000	15856973.000	10	1350	180.5	2.6E-05	5.5E-05	8.07E-05
R2044	1818229.000	15856973.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R2045	1812949.000	15856973.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2046	1807669.000	15856973.000	6	810	108.3	1.6E-05	5.5E-05	7.03E-05
R2047	1802389.000	15856973.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R2048	1802389.000	15851693.000	25	3375	451.2	6.5E-05	3.0E-04	3.66E-04
R2049	1807669.000	15851693.000	16	2160	288.8	4.1E-05	3.0E-04	3.43E-04
R2050	1812949.000	15851693.000	28	3780	505.4	7.3E-05	3.0E-04	3.74E-04
R2051	1818229.000	15851693.000	25	3375	451.2	6.5E-05	5.5E-05	1.20E-04
R2052	1823509.000	15851693.000	27	3645	487.3	7.0E-05	5.5E-05	1.25E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2053	1828789.000	15851693.000	9	1215	162.4	2.3E-05	5.5E-05	7.81E-05
R2054	1849909.000	15878093.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2055	1844629.000	15878093.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2056	1839349.000	15878093.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2057	1834069.000	15878093.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2058	1834069.000	15872813.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2059	1839349.000	15872813.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2060	1844629.000	15872813.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2061	1849909.000	15872813.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2062	1849909.000	15867533.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2063	1844629.000	15867533.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2064	1839349.000	15867533.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2065	1834069.000	15867533.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2066	1834069.000	15862253.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2067	1839349.000	15862253.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2068	1844629.000	15862253.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2069	1849909.000	15862253.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2070	1849909.000	15856973.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2071	1844629.000	15856973.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2072	1839349.000	15856973.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2073	1834069.000	15856973.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2074	1834069.000	15851693.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2075	1839349.000	15851693.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2076	1844629.000	15851693.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2077	1849909.000	15851693.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2078	1702070.000	15846302.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R2079	1696790.000	15846302.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R2080	1691510.000	15846302.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R2081	1691510.000	15841022.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R2082	1696790.000	15841022.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R2083	1702070.000	15841022.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R2084	1733750.000	15846302.000		0	0.0	1.8E-05	5.5E-04	5.66E-04
R2085	1728470.000	15846302.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2086	1723190.000	15846302.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2087	1717910.000	15846302.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2088	1712630.000	15846302.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2089	1707350.000	15846302.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2090	1707350.000	15841022.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2091	1712630.000	15841022.000		0	0.0	1.8E-05	6.8E-04	7.03E-04
R2092	1717910.000	15841022.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2093	1723190.000	15841022.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2094	1728470.000	15841022.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2095	1733750.000	15841022.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2096	1765430.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2097	1760150.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2098	1754870.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2099	1749590.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2100	1744310.000	15846302.000		0	0.0	3.0E-05	5.5E-04	5.78E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2101	1739030.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2102	1739030.000	15841022.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2103	1744310.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2104	1749590.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2105	1754870.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2106	1760150.000	15841022.000		0	0.0	3.0E-05	1.2E-03	1.26E-03
R2107	1765430.000	15841022.000		0	0.0	3.0E-05	1.2E-03	1.26E-03
R2108	1797110.000	15846302.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R2109	1791830.000	15846302.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R2110	1786550.000	15846302.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2111	1781270.000	15846302.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R2112	1775990.000	15846302.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2113	1770710.000	15846302.000		0	0.0	3.0E-05	5.5E-04	5.78E-04
R2114	1770710.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2115	1775990.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2116	1781270.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2117	1786550.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2118	1791830.000	15841022.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R2119	1797110.000	15841022.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2120	1828790.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2121	1823510.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2122	1818230.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2123	1812950.000	15846302.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2124	1807670.000	15846302.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2125	1802390.000	15846302.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2126	1802390.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2127	1807670.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2128	1812950.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2129	1818230.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2130	1823510.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2131	1828790.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2132	1849910.000	15846302.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2133	1844630.000	15846302.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2134	1839350.000	15846302.000		0	0.0	5.9E-05	6.8E-04	7.44E-04
R2135	1834070.000	15846302.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2136	1834070.000	15841022.000		0	0.0	5.3E-05	5.5E-05	1.08E-04
R2137	1839350.000	15841022.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2138	1844630.000	15841022.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2139	1849910.000	15841022.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2140	1694291.000	15957569.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R2141	1699571.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R2142	1704851.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R2143	1705107.000	15952289.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R2144	1699827.000	15952289.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R2145	1694547.000	15952289.000		0	0.0	5.9E-07	3.0E-04	3.02E-04
R2146	1694547.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2147	1699827.000	15947009.000		0	0.0	5.9E-07	5.5E-04	5.49E-04
R2148	1705107.000	15947009.000		0	0.0	5.9E-07	3.0E-04	3.02E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2149	1710131.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R2150	1715411.000	15957569.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R2151	1720691.000	15957569.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R2152	1725971.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R2153	1731251.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R2154	1736531.000	15957569.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R2155	1736445.000	15952205.000		0	0.0	3.8E-05	5.5E-04	5.86E-04
R2156	1731165.000	15952205.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R2157	1725885.000	15952205.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R2158	1720605.000	15952205.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R2159	1715325.000	15952205.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R2160	1710045.000	15952205.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R2161	1710387.000	15947009.000		0	0.0	3.8E-05	3.0E-04	3.40E-04
R2162	1715667.000	15947009.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R2163	1720947.000	15947009.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R2164	1726227.000	15947009.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R2165	1731507.000	15947009.000		0	0.0	3.8E-05	6.8E-04	7.23E-04
R2166	1736787.000	15947009.000		0	0.0	3.8E-05	1.2E-03	1.27E-03
R2167	1741811.000	15957569.000	9	1215	162.4	2.3E-05	5.5E-04	5.71E-04
R2168	1747091.000	15957569.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2169	1752371.000	15957569.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2170	1757651.000	15957569.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R2171	1762931.000	15957569.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2172	1768211.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2173	1768125.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2174	1762845.000	15952205.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R2175	1757565.000	15952205.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R2176	1752285.000	15952205.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2177	1747005.000	15952205.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2178	1741725.000	15952205.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R2179	1742067.000	15947009.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R2180	1747347.000	15947009.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2181	1752627.000	15947009.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2182	1757907.000	15947009.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R2183	1763187.000	15947009.000	10	1350	180.5	2.6E-05	3.0E-04	3.27E-04
R2184	1768467.000	15947009.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R2185	1773491.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2186	1778771.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2187	1784051.000	15957569.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2188	1789331.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2189	1794611.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2190	1799891.000	15957569.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2191	1799805.000	15952205.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2192	1794525.000	15952205.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2193	1789245.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2194	1783965.000	15952205.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2195	1778685.000	15952205.000		0	0.0	2.4E-06	5.5E-04	5.50E-04
R2196	1773405.000	15952205.000		0	0.0	2.4E-06	5.5E-04	5.50E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2197	1773747.000	15947009.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2198	1779027.000	15947009.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2199	1784307.000	15947009.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2200	1789587.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2201	1794867.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2202	1800147.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2203	1805171.000	15957569.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2204	1810451.000	15957569.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2205	1815731.000	15957569.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2206	1821011.000	15957569.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2207	1826291.000	15957569.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2208	1831571.000	15957569.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2209	1831485.000	15952205.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2210	1826205.000	15952205.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2211	1820925.000	15952205.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2212	1815645.000	15952205.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2213	1810365.000	15952205.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2214	1805085.000	15952205.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2215	1805427.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2216	1810707.000	15947009.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2217	1815987.000	15947009.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2218	1821267.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2219	1826547.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2220	1831827.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2221	1836851.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2222	1842131.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2223	1847411.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2224	1852691.000	15957569.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2225	1852605.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2226	1847325.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2227	1842045.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2228	1836765.000	15952205.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2229	1837107.000	15947009.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2230	1842387.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2231	1847667.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2232	1852947.000	15947009.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2233	1704511.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2234	1699231.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2235	1693951.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2236	1693951.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2237	1699231.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2238	1704511.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2239	1704511.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2240	1699231.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2241	1693951.000	15930915.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2242	1693951.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2243	1699231.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2244	1704511.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2245	1704511.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2246	1699231.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2247	1693951.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2248	1693913.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2249	1699193.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2250	1704473.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2251	1736191.000	15941475.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R2252	1730911.000	15941475.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2253	1725631.000	15941475.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R2254	1720351.000	15941475.000		0	0.0	0.0E+00	6.8E-04	6.85E-04
R2255	1715071.000	15941475.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2256	1709791.000	15941475.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2257	1709791.000	15936195.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2258	1715071.000	15936195.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2259	1720351.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2260	1725631.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2261	1730911.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2262	1736191.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2263	1736191.000	15930915.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2264	1730911.000	15930915.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2265	1725631.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2266	1720351.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2267	1715071.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2268	1709791.000	15930915.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2269	1709791.000	15925635.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2270	1715071.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2271	1720351.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2272	1725631.000	15925635.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2273	1730911.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2274	1736191.000	15925635.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2275	1736191.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2276	1730911.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2277	1725631.000	15920355.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2278	1720351.000	15920355.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2279	1715071.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2280	1709791.000	15920355.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2281	1709753.000	15915360.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2282	1715033.000	15915360.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2283	1720313.000	15915360.000		0	0.0	2.4E-06	5.5E-05	5.72E-05
R2284	1725593.000	15915360.000		0	0.0	2.4E-06	3.0E-04	3.04E-04
R2285	1730873.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2286	1736153.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2287	1767871.000	15941475.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R2288	1762591.000	15941475.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2289	1757311.000	15941475.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R2290	1752031.000	15941475.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R2291	1746751.000	15941475.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R2292	1741471.000	15941475.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2293	1741471.000	15936195.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R2294	1746751.000	15936195.000	10	1350	180.5	2.6E-05	3.0E-04	3.27E-04
R2295	1752031.000	15936195.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R2296	1757311.000	15936195.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2297	1762591.000	15936195.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R2298	1767871.000	15936195.000	29	3915	523.4	7.5E-05	3.0E-04	3.76E-04
R2299	1767871.000	15930915.000	13	1755	234.6	3.4E-05	3.0E-04	3.35E-04
R2300	1762591.000	15930915.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R2301	1757311.000	15930915.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2302	1752031.000	15930915.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R2303	1746751.000	15930915.000	10	1350	180.5	2.6E-05	3.0E-04	3.27E-04
R2304	1741471.000	15930915.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R2305	1741471.000	15925635.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2306	1746751.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2307	1752031.000	15925635.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2308	1757311.000	15925635.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R2309	1762591.000	15925635.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R2310	1767871.000	15925635.000	20	2700	361.0	5.2E-05	3.0E-04	3.53E-04
R2311	1767871.000	15920355.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2312	1762591.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2313	1757311.000	15920355.000	0	0	0.0	0.0E+00	3.0E-04	3.01E-04
R2314	1752031.000	15920355.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R2315	1746751.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2316	1741471.000	15920355.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2317	1741433.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2318	1746713.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2319	1751993.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2320	1757273.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2321	1762553.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2322	1767833.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2323	1799551.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2324	1794271.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2325	1788991.000	15941475.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2326	1783711.000	15941475.000	14	1890	252.7	3.6E-05	3.0E-04	3.38E-04
R2327	1778431.000	15941475.000	19	2565	342.9	4.9E-05	3.0E-04	3.51E-04
R2328	1773151.000	15941475.000	9	1215	162.4	2.3E-05	6.8E-04	7.08E-04
R2329	1773151.000	15936195.000	12	1620	216.6	3.1E-05	3.0E-04	3.32E-04
R2330	1778431.000	15936195.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R2331	1783711.000	15936195.000		0	0.0	0.0E+00	3.0E-04	3.01E-04
R2332	1788991.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2333	1794271.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2334	1799551.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2335	1799551.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2336	1794271.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2337	1788991.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2338	1783711.000	15930915.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R2339	1778431.000	15930915.000	23	3105	415.1	6.0E-05	3.0E-04	3.61E-04
R2340	1773151.000	15930915.000	19	2565	342.9	4.9E-05	3.0E-04	3.51E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2341	1773151.000	15925635.000	20	2700	361.0	5.2E-05	3.0E-04	3.53E-04
R2342	1778431.000	15925635.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2343	1783711.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2344	1788991.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2345	1794271.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2346	1799551.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2347	1799551.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2348	1794271.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2349	1788991.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2350	1783711.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2351	1778431.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2352	1773151.000	15920355.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2353	1773113.000	15915360.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2354	1778393.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2355	1783673.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2356	1788953.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2357	1794233.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2358	1799513.000	15915360.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2359	1831231.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2360	1825951.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2361	1820671.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2362	1815391.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2363	1810111.000	15941475.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2364	1804831.000	15941475.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R2365	1804831.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2366	1810111.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2367	1815391.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2368	1820671.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2369	1825951.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2370	1831231.000	15936195.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2371	1831231.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2372	1825951.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2373	1820671.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2374	1815391.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2375	1810111.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2376	1804831.000	15930915.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2377	1804831.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2378	1810111.000	15925635.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2379	1815391.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2380	1820671.000	15925635.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2381	1825951.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2382	1831231.000	15925635.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2383	1831231.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2384	1825951.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2385	1820671.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2386	1815391.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2387	1810111.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2388	1804831.000	15920355.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2389	1804793.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2390	1810073.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2391	1815353.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2392	1820633.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2393	1825913.000	15915360.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2394	1831193.000	15915360.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2395	1852351.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2396	1847071.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2397	1841791.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2398	1836511.000	15941475.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2399	1836511.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2400	1841791.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2401	1847071.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2402	1852351.000	15936195.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2403	1852351.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2404	1847071.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2405	1841791.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2406	1836511.000	15930915.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2407	1836511.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2408	1841791.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2409	1847071.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2410	1852351.000	15925635.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2411	1852351.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2412	1847071.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2413	1841791.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2414	1836511.000	15920355.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2415	1836473.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2416	1841753.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2417	1847033.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2418	1852313.000	15915360.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2419	1704511.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2420	1699231.000	15909684.000		0	0.0	5.9E-07	5.5E-05	5.54E-05
R2421	1693951.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2422	1693951.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2423	1699231.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2424	1704511.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2425	1704511.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2426	1699231.000	15899124.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2427	1693951.000	15899124.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2428	1693951.000	15893844.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2429	1699231.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2430	1704511.000	15893844.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2431	1704511.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2432	1699231.000	15888564.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2433	1693951.000	15888564.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R2434	1693951.000	15883284.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R2435	1699231.000	15883284.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2436	1704511.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2437	1736191.000	15909684.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2438	1730911.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2439	1725631.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2440	1720351.000	15909684.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2441	1715071.000	15909684.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2442	1709791.000	15909684.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2443	1709791.000	15904404.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2444	1715071.000	15904404.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2445	1720351.000	15904404.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2446	1725631.000	15904404.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2447	1730911.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2448	1736191.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2449	1736191.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2450	1730911.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2451	1725631.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2452	1720351.000	15899124.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2453	1715071.000	15899124.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2454	1709791.000	15899124.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2455	1709791.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2456	1715071.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2457	1720351.000	15893844.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2458	1725631.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2459	1730911.000	15893844.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2460	1736191.000	15893844.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2461	1736191.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2462	1730911.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2463	1725631.000	15888564.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R2464	1720351.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2465	1715071.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2466	1709791.000	15888564.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2467	1709791.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2468	1715071.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2469	1720351.000	15883284.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2470	1725631.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2471	1730911.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2472	1736191.000	15883284.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2473	1767871.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2474	1762591.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2475	1757311.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2476	1752031.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2477	1746751.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2478	1741471.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2479	1741471.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2480	1746751.000	15904404.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2481	1752031.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2482	1757311.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2483	1762591.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2484	1767871.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2485	1767871.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2486	1762591.000	15899124.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2487	1757311.000	15899124.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2488	1752031.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2489	1746751.000	15899124.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2490	1741471.000	15899124.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R2491	1741471.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2492	1746751.000	15893844.000	9	1215	162.4	2.3E-05	5.5E-05	7.81E-05
R2493	1752031.000	15893844.000	36	4860	649.8	9.3E-05	5.5E-05	1.48E-04
R2494	1757311.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2495	1762591.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2496	1767871.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2497	1767871.000	15888564.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2498	1762591.000	15888564.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R2499	1757311.000	15888564.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R2500	1752031.000	15888564.000	34	4590	613.7	8.8E-05	5.5E-05	1.43E-04
R2501	1746751.000	15888564.000	11	1485	198.5	2.8E-05	5.5E-05	8.33E-05
R2502	1741471.000	15888564.000	15	2025	270.7	3.9E-05	5.5E-04	5.87E-04
R2503	1741471.000	15883284.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R2504	1746751.000	15883284.000	16	2160	288.8	4.1E-05	3.0E-04	3.43E-04
R2505	1752031.000	15883284.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2506	1757311.000	15883284.000	12	1620	216.6	3.1E-05	5.5E-05	8.59E-05
R2507	1762591.000	15883284.000	12	1620	216.6	3.1E-05	5.5E-05	8.59E-05
R2508	1767871.000	15883284.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R2509	1799551.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2510	1794271.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2511	1788991.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2512	1783711.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2513	1778431.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2514	1773151.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2515	1773151.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2516	1778431.000	15904404.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2517	1783711.000	15904404.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2518	1788991.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2519	1794271.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2520	1799551.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2521	1799551.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2522	1794271.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2523	1788991.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2524	1783711.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2525	1778431.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2526	1773151.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2527	1773151.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2528	1778431.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2529	1783711.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2530	1788991.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2531	1794271.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2532	1799551.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2533	1799551.000	15888564.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2534	1794271.000	15888564.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R2535	1788991.000	15888564.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2536	1783711.000	15888564.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R2537	1778431.000	15888564.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2538	1773151.000	15888564.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R2539	1773151.000	15883284.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R2540	1778431.000	15883284.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2541	1783711.000	15883284.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R2542	1788991.000	15883284.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03
R2543	1794271.000	15883284.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03
R2544	1799551.000	15883284.000	19	2565	342.9	4.9E-05	3.0E-04	3.51E-04
R2545	1831231.000	15909684.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2546	1825951.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2547	1820671.000	15909684.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2548	1815391.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2549	1810111.000	15909684.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2550	1804831.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2551	1804831.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2552	1810111.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2553	1815391.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2554	1820671.000	15904404.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2555	1825951.000	15904404.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2556	1831231.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2557	1831231.000	15899124.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2558	1825951.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2559	1820671.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2560	1815391.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2561	1810111.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2562	1804831.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2563	1804831.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2564	1810111.000	15893844.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2565	1815391.000	15893844.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2566	1820671.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2567	1825951.000	15893844.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2568	1831231.000	15893844.000	7	945	126.3	1.8E-05	5.5E-05	7.29E-05
R2569	1831231.000	15888564.000	2	270	36.1	5.2E-06	3.0E-04	3.07E-04
R2570	1825951.000	15888564.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R2571	1820671.000	15888564.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2572	1815391.000	15888564.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2573	1810111.000	15888564.000	23	3105	415.1	6.0E-05	5.5E-05	1.14E-04
R2574	1804831.000	15888564.000	21	2835	379.0	5.4E-05	5.5E-05	1.09E-04
R2575	1804831.000	15883284.000	15	2025	270.7	3.9E-05	3.0E-04	3.40E-04
R2576	1810111.000	15883284.000	6	810	108.3	1.6E-05	3.0E-04	3.17E-04
R2577	1815391.000	15883284.000	22	2970	397.1	5.7E-05	3.0E-04	3.58E-04
R2578	1820671.000	15883284.000	30	4050	541.5	7.8E-05	5.5E-05	1.32E-04
R2579	1825951.000	15883284.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2580	1831231.000	15883284.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2581	1852351.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2582	1847071.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2583	1841791.000	15909684.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2584	1836511.000	15909684.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2585	1836511.000	15904404.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2586	1841791.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2587	1847071.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2588	1852351.000	15904404.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2589	1852351.000	15899124.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2590	1847071.000	15899124.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2591	1841791.000	15899124.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2592	1836511.000	15899124.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2593	1836511.000	15893844.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2594	1841791.000	15893844.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2595	1847071.000	15893844.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2596	1852351.000	15893844.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2597	1852351.000	15888564.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2598	1847071.000	15888564.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2599	1841791.000	15888564.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2600	1836511.000	15888564.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2601	1836511.000	15883284.000	4	540	72.2	1.0E-05	5.5E-05	6.52E-05
R2602	1841791.000	15883284.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2603	1847071.000	15883284.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2604	1852351.000	15883284.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2605	1704709.000	15878093.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2606	1699429.000	15878093.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2607	1694149.000	15878093.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2608	1694149.000	15872813.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2609	1699429.000	15872813.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2610	1704709.000	15872813.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2611	1704709.000	15867533.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2612	1699429.000	15867533.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2613	1694149.000	15867533.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2614	1694149.000	15862253.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2615	1699429.000	15862253.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2616	1704709.000	15862253.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2617	1704709.000	15856973.000		0	0.0	1.2E-05	5.5E-04	5.60E-04
R2618	1699429.000	15856973.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2619	1694149.000	15856973.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2620	1694149.000	15851693.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R2621	1699429.000	15851693.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2622	1704709.000	15851693.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2623	1736389.000	15878093.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2624	1731109.000	15878093.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R2625	1725829.000	15878093.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2626	1720549.000	15878093.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2627	1715269.000	15878093.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2628	1709989.000	15878093.000		0	0.0	5.9E-06	6.8E-04	6.91E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2629	1709989.000	15872813.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2630	1715269.000	15872813.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2631	1720549.000	15872813.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2632	1725829.000	15872813.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2633	1731109.000	15872813.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R2634	1736389.000	15872813.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2635	1736389.000	15867533.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R2636	1731109.000	15867533.000		0	0.0	5.9E-06	1.2E-03	1.24E-03
R2637	1725829.000	15867533.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2638	1720549.000	15867533.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2639	1715269.000	15867533.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2640	1709989.000	15867533.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2641	1709989.000	15862253.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2642	1715269.000	15862253.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2643	1720549.000	15862253.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2644	1725829.000	15862253.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2645	1731109.000	15862253.000		0	0.0	4.7E-05	3.0E-04	3.49E-04
R2646	1736389.000	15862253.000		0	0.0	5.9E-06	5.5E-04	5.54E-04
R2647	1736389.000	15856973.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2648	1731109.000	15856973.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2649	1725829.000	15856973.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2650	1720549.000	15856973.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2651	1715269.000	15856973.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2652	1709989.000	15856973.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2653	1709989.000	15851693.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2654	1715269.000	15851693.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2655	1720549.000	15851693.000		0	0.0	5.9E-06	3.0E-04	3.07E-04
R2656	1725829.000	15851693.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2657	1731109.000	15851693.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2658	1736389.000	15851693.000		0	0.0	5.9E-06	6.8E-04	6.91E-04
R2659	1768069.000	15878093.000	8	1080	144.4	2.1E-05	3.0E-04	3.22E-04
R2660	1762789.000	15878093.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R2661	1757509.000	15878093.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R2662	1752229.000	15878093.000	34	4590	613.7	8.8E-05	3.0E-04	3.89E-04
R2663	1746949.000	15878093.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R2664	1741669.000	15878093.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R2665	1741669.000	15872813.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2666	1746949.000	15872813.000	12	1620	216.6	3.1E-05	1.2E-03	1.26E-03
R2667	1752229.000	15872813.000	30	4050	541.5	7.8E-05	1.2E-03	1.31E-03
R2668	1757509.000	15872813.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R2669	1762789.000	15872813.000	6	810	108.3	1.6E-05	6.8E-04	7.00E-04
R2670	1768069.000	15872813.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R2671	1768069.000	15867533.000	0	0	0.0	0.0E+00	6.8E-04	6.85E-04
R2672	1762789.000	15867533.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R2673	1757509.000	15867533.000	1	135	18.0	2.6E-06	1.2E-03	1.24E-03
R2674	1752229.000	15867533.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R2675	1746949.000	15867533.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R2676	1741669.000	15867533.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2677	1741669.000	15862253.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R2678	1746949.000	15862253.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R2679	1752229.000	15862253.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2680	1757509.000	15862253.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R2681	1762789.000	15862253.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R2682	1768069.000	15862253.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R2683	1768069.000	15856973.000	1	135	18.0	2.6E-06	6.8E-04	6.88E-04
R2684	1762789.000	15856973.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R2685	1757509.000	15856973.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2686	1752229.000	15856973.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R2687	1746949.000	15856973.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R2688	1741669.000	15856973.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R2689	1741669.000	15851693.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R2690	1746949.000	15851693.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R2691	1752229.000	15851693.000	2	270	36.1	5.2E-06	6.8E-04	6.90E-04
R2692	1757509.000	15851693.000	12	1620	216.6	3.1E-05	5.5E-04	5.79E-04
R2693	1762789.000	15851693.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R2694	1768069.000	15851693.000	12	1620	216.6	3.1E-05	6.8E-04	7.16E-04
R2695	1799749.000	15878093.000	11	1485	198.5	2.8E-05	1.2E-03	1.26E-03
R2696	1794469.000	15878093.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R2697	1789189.000	15878093.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R2698	1783909.000	15878093.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R2699	1778629.000	15878093.000	11	1485	198.5	2.8E-05	1.2E-03	1.26E-03
R2700	1773349.000	15878093.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R2701	1773349.000	15872813.000	27	3645	487.3	7.0E-05	1.2E-03	1.30E-03
R2702	1778629.000	15872813.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R2703	1783909.000	15872813.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R2704	1789189.000	15872813.000	9	1215	162.4	2.3E-05	1.2E-03	1.26E-03
R2705	1794469.000	15872813.000	6	810	108.3	1.6E-05	1.2E-03	1.25E-03
R2706	1799749.000	15872813.000	14	1890	252.7	3.6E-05	1.2E-03	1.27E-03
R2707	1799749.000	15867533.000	5	675	90.2	1.3E-05	1.2E-03	1.25E-03
R2708	1794469.000	15867533.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R2709	1789189.000	15867533.000	2	270	36.1	5.2E-06	1.2E-03	1.24E-03
R2710	1783909.000	15867533.000	0	0	0.0	0.0E+00	1.2E-03	1.23E-03
R2711	1778629.000	15867533.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R2712	1773349.000	15867533.000	7	945	126.3	1.8E-05	1.2E-03	1.25E-03
R2713	1773349.000	15862253.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04
R2714	1778629.000	15862253.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2715	1783909.000	15862253.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R2716	1789189.000	15862253.000	10	1350	180.5	2.6E-05	5.5E-04	5.74E-04
R2717	1794469.000	15862253.000	21	2835	379.0	5.4E-05	3.0E-04	3.56E-04
R2718	1799749.000	15862253.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R2719	1799749.000	15856973.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R2720	1794469.000	15856973.000	7	945	126.3	1.8E-05	5.5E-04	5.66E-04
R2721	1789189.000	15856973.000	2	270	36.1	5.2E-06	5.5E-04	5.53E-04
R2722	1783909.000	15856973.000	1	135	18.0	2.6E-06	5.5E-04	5.51E-04
R2723	1778629.000	15856973.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R2724	1773349.000	15856973.000	5	675	90.2	1.3E-05	6.8E-04	6.98E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2725	1773349.000	15851693.000	6	810	108.3	1.6E-05	5.5E-04	5.63E-04
R2726	1778629.000	15851693.000	3	405	54.1	7.8E-06	6.8E-04	6.93E-04
R2727	1783909.000	15851693.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2728	1789189.000	15851693.000	4	540	72.2	1.0E-05	5.5E-04	5.58E-04
R2729	1794469.000	15851693.000	8	1080	144.4	2.1E-05	5.5E-04	5.69E-04
R2730	1799749.000	15851693.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R2731	1831429.000	15878093.000	1	135	18.0	2.6E-06	5.5E-05	5.74E-05
R2732	1826149.000	15878093.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2733	1820869.000	15878093.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2734	1815589.000	15878093.000	9	1215	162.4	2.3E-05	3.0E-04	3.25E-04
R2735	1810309.000	15878093.000	16	2160	288.8	4.1E-05	3.0E-04	3.43E-04
R2736	1805029.000	15878093.000	22	2970	397.1	5.7E-05	1.2E-03	1.29E-03
R2737	1805029.000	15872813.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R2738	1810309.000	15872813.000	31	4185	559.5	8.0E-05	3.0E-04	3.82E-04
R2739	1815589.000	15872813.000	15	2025	270.7	3.9E-05	3.0E-04	3.40E-04
R2740	1820869.000	15872813.000	11	1485	198.5	2.8E-05	5.5E-05	8.33E-05
R2741	1826149.000	15872813.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2742	1831429.000	15872813.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R2743	1831429.000	15867533.000	11	1485	198.5	2.8E-05	3.0E-04	3.30E-04
R2744	1826149.000	15867533.000	18	2430	324.9	4.7E-05	3.0E-04	3.48E-04
R2745	1820869.000	15867533.000	1	135	18.0	2.6E-06	3.0E-04	3.04E-04
R2746	1815589.000	15867533.000	4	540	72.2	1.0E-05	1.2E-03	1.24E-03
R2747	1810309.000	15867533.000	8	1080	144.4	2.1E-05	1.2E-03	1.25E-03
R2748	1805029.000	15867533.000	3	405	54.1	7.8E-06	1.2E-03	1.24E-03
R2749	1805029.000	15862253.000	5	675	90.2	1.3E-05	5.5E-04	5.61E-04
R2750	1810309.000	15862253.000	3	405	54.1	7.8E-06	5.5E-04	5.56E-04
R2751	1815589.000	15862253.000	7	945	126.3	1.8E-05	3.0E-04	3.19E-04
R2752	1820869.000	15862253.000	4	540	72.2	1.0E-05	3.0E-04	3.12E-04
R2753	1826149.000	15862253.000	3	405	54.1	7.8E-06	3.0E-04	3.09E-04
R2754	1831429.000	15862253.000	24	3240	433.2	6.2E-05	5.5E-05	1.17E-04
R2755	1831429.000	15856973.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R2756	1826149.000	15856973.000	5	675	90.2	1.3E-05	3.0E-04	3.14E-04
R2757	1820869.000	15856973.000	11	1485	198.5	2.8E-05	5.5E-05	8.33E-05
R2758	1815589.000	15856973.000	3	405	54.1	7.8E-06	5.5E-05	6.26E-05
R2759	1810309.000	15856973.000	5	675	90.2	1.3E-05	5.5E-05	6.77E-05
R2760	1805029.000	15856973.000	20	2700	361.0	5.2E-05	3.0E-04	3.53E-04
R2761	1805029.000	15851693.000	16	2160	288.8	4.1E-05	3.0E-04	3.43E-04
R2762	1810309.000	15851693.000	23	3105	415.1	6.0E-05	3.0E-04	3.61E-04
R2763	1815589.000	15851693.000	82	11070	1480.1	2.1E-04	5.5E-05	2.67E-04
R2764	1820869.000	15851693.000	13	1755	234.6	3.4E-05	5.5E-05	8.85E-05
R2765	1826149.000	15851693.000	42	5670	758.1	1.1E-04	5.5E-05	1.64E-04
R2766	1831429.000	15851693.000	8	1080	144.4	2.1E-05	5.5E-05	7.55E-05
R2767	1852549.000	15878093.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2768	1847269.000	15878093.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2769	1841989.000	15878093.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2770	1836709.000	15878093.000	0	0	0.0	0.0E+00	5.5E-05	5.48E-05
R2771	1836709.000	15872813.000	2	270	36.1	5.2E-06	5.5E-05	6.00E-05
R2772	1841989.000	15872813.000		0	0.0	0.0E+00	5.5E-05	5.48E-05

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2773	1847269.000	15872813.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2774	1852549.000	15872813.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2775	1852549.000	15867533.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2776	1847269.000	15867533.000		0	0.0	0.0E+00	5.5E-05	5.48E-05
R2777	1841989.000	15867533.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2778	1836709.000	15867533.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2779	1836709.000	15862253.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2780	1841989.000	15862253.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2781	1847269.000	15862253.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2782	1852549.000	15862253.000		0	0.0	5.9E-06	5.5E-05	6.07E-05
R2783	1852549.000	15856973.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2784	1847269.000	15856973.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2785	1841989.000	15856973.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2786	1836709.000	15856973.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2787	1836709.000	15851693.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2788	1841989.000	15851693.000		0	0.0	4.7E-05	5.5E-05	1.02E-04
R2789	1847269.000	15851693.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2790	1852549.000	15851693.000		0	0.0	4.7E-05	6.8E-04	7.32E-04
R2791	1704710.000	15846302.000		0	0.0	1.2E-05	6.8E-04	6.97E-04
R2792	1699430.000	15846302.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2793	1694150.000	15846302.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R2794	1694150.000	15841022.000		0	0.0	1.2E-05	3.0E-04	3.13E-04
R2795	1699430.000	15841022.000		0	0.0	1.2E-05	5.5E-05	6.66E-05
R2796	1704710.000	15841022.000		0	0.0	1.2E-05	1.2E-03	1.24E-03
R2797	1736390.000	15846302.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2798	1731110.000	15846302.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2799	1725830.000	15846302.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2800	1720550.000	15846302.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2801	1715270.000	15846302.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2802	1709990.000	15846302.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2803	1709990.000	15841022.000		0	0.0	1.8E-05	6.8E-04	7.03E-04
R2804	1715270.000	15841022.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2805	1720550.000	15841022.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2806	1725830.000	15841022.000		0	0.0	1.8E-05	5.5E-05	7.25E-05
R2807	1731110.000	15841022.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2808	1736390.000	15841022.000		0	0.0	1.8E-05	3.0E-04	3.19E-04
R2809	1768070.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2810	1762790.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2811	1757510.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2812	1752230.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2813	1746950.000	15846302.000		0	0.0	3.0E-05	6.8E-04	7.15E-04
R2814	1741670.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2815	1741670.000	15841022.000		0	0.0	3.0E-05	1.2E-03	1.26E-03
R2816	1746950.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2817	1752230.000	15841022.000		0	0.0	3.0E-05	1.2E-03	1.26E-03
R2818	1757510.000	15841022.000		0	0.0	3.0E-05	1.2E-03	1.26E-03
R2819	1762790.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2820	1768070.000	15841022.000		0	0.0	3.0E-05	6.8E-04	7.15E-04

Recharge Cell Number	Easting (ft) - X	Northing (ft) - Y	Number of Domestic Wells in the cell	Septic Recharge (GPD)	Septic Recharge (ft3/d)	Septic Recharge (ft/d)	Precipitation + Irrigation Recharge (ft/d)	Sum of Recharge (Septic Recharge + Precipitation + Irrigation) (ft/d)
R2821	1799750.000	15846302.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2822	1794470.000	15846302.000		0	0.0	3.6E-05	5.5E-04	5.83E-04
R2823	1789190.000	15846302.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2824	1783910.000	15846302.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2825	1778630.000	15846302.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2826	1773350.000	15846302.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2827	1773350.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2828	1778630.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2829	1783910.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2830	1789190.000	15841022.000		0	0.0	3.0E-05	3.0E-04	3.31E-04
R2831	1794470.000	15841022.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2832	1799750.000	15841022.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2833	1831430.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2834	1826150.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2835	1820870.000	15846302.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2836	1815590.000	15846302.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2837	1810310.000	15846302.000		0	0.0	3.6E-05	3.0E-04	3.37E-04
R2838	1805030.000	15846302.000		0	0.0	3.6E-05	5.5E-05	9.03E-05
R2839	1805030.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2840	1810310.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2841	1815590.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2842	1820870.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2843	1826150.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2844	1831430.000	15841022.000		0	0.0	3.0E-05	5.5E-05	8.44E-05
R2845	1852550.000	15846302.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2846	1847270.000	15846302.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2847	1841990.000	15846302.000		0	0.0	5.9E-05	6.8E-04	7.44E-04
R2848	1836710.000	15846302.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2849	1836710.000	15841022.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2850	1841990.000	15841022.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2851	1847270.000	15841022.000		0	0.0	5.3E-05	6.8E-04	7.38E-04
R2852	1852550.000	15841022.000		0	0.0	5.3E-05	6.8E-04	7.38E-04

APPENDIX C:
GROUND WATER DISCHARGE MODEL DATA

This appendix is composed of the ground water pumping data that was used to simulate ground water discharge in each cell in the model.

NOTES:

Pumping well name: unique name given to the well in MODFLOW

Easting and Northing: X and Y coordinates for the pumping well at the center of the cell in MODFLOW

Screen ID: number of screens assumed for the well (all wells were assumed to have 1 screened interval)

Top of Screen: elevation of top of well screen

Bottom of Screen: elevation of the bottom of well screen

Stop time: time when pumping rate is applicable

Total Discharge: negative value indicates the well is pumping; 0 value indicates that no discharge occured at that point in the model

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1	1694291.000	15960209.000	T7N	R4W	22	NE	1	2200	1850	120	-3.62E-02
P10	1710131.000	15960209.000	T7N	R3W	19	NE	1	2200	1850	120	-2.35E+00
P100	1704511.000	15933555.000	T6N	R4W	13	NE	1	2100	1850	120	0.00E+00
P1000	1696591.000	15901764.000	T5N	R4W	14	NW	1	2100	1850	120	-3.62E-01
P1001	1691311.000	15901764.000	T5N	R4W	15	NW	1	2100	1850	120	-3.62E-01
P1002	1691311.000	15896484.000	T5N	R4W	22	NW	1	2100	1850	120	-3.62E-01
P1003	1696591.000	15896484.000	T5N	R4W	23	NW	1	2100	1850	120	-3.62E-01
P1004	1701871.000	15896484.000	T5N	R4W	24	NW	1	2100	1850	120	-3.62E-01
P1005	1701871.000	15891204.000	T5N	R4W	25	NW	1	2100	1850	120	-3.62E-01
P1006	1696591.000	15891204.000	T5N	R4W	26	NW	1	2100	1850	120	-3.62E-01
P1007	1691311.000	15891204.000	T5N	R4W	27	NW	1	2100	1850	120	-3.62E-01
P1008	1691311.000	15885924.000	T5N	R4W	34	NW	1	2100	1850	120	-3.62E-01
P1009	1696591.000	15885924.000	T5N	R4W	35	NW	1	2100	1850	120	-3.62E-01
P101	1699231.000	15933555.000	T6N	R4W	14	NE	1	2100	1850	120	0.00E+00
P1010	1701871.000	15885924.000	T5N	R4W	36	NW	1	2100	1850	120	-3.62E-01
P1011	1733551.000	15912324.000	T5N	R3W	1	NW	1	2350	1850	120	-3.62E-01
P1012	1728271.000	15912324.000	T5N	R3W	2	NW	1	2350	1850	120	0.00E+00
P1013	1722991.000	15912324.000	T5N	R3W	3	NW	1	2350	1850	120	0.00E+00
P1014	1717711.000	15912324.000	T5N	R3W	4	NW	1	2350	1850	120	-1.81E+00
P1015	1712431.000	15912324.000	T5N	R3W	5	NW	1	2350	1850	120	-3.62E-01
P1016	1707151.000	15912324.000	T5N	R3W	6	NW	1	2350	1850	120	-3.62E-01
P1017	1707151.000	15907044.000	T5N	R3W	7	NW	1	2350	1850	120	-3.62E-01
P1018	1712431.000	15907044.000	T5N	R3W	8	NW	1	2350	1850	120	-1.81E+00
P1019	1717711.000	15907044.000	T5N	R3W	9	NW	1	2350	1850	120	-3.62E-01
P102	1693951.000	15933555.000	T6N	R4W	15	NE	1	2100	1850	120	0.00E+00
P1020	1722991.000	15907044.000	T5N	R3W	10	NW	1	2350	1850	120	-3.62E-01
P1021	1728271.000	15907044.000	T5N	R3W	11	NW	1	2350	1850	120	0.00E+00
P1022	1733551.000	15907044.000	T5N	R3W	12	NW	1	2350	1850	120	0.00E+00
P1023	1733551.000	15901764.000	T5N	R3W	13	NW	1	2350	1850	120	-3.62E-01
P1024	1728271.000	15901764.000	T5N	R3W	14	NW	1	2350	1850	120	-3.62E-01
P1025	1722991.000	15901764.000	T5N	R3W	15	NW	1	2350	1850	120	-3.62E-01
P1026	1717711.000	15901764.000	T5N	R3W	16	NW	1	2350	1850	120	-3.62E-01
P1027	1712431.000	15901764.000	T5N	R3W	17	NW	1	2350	1850	120	-1.81E+00
P1028	1707151.000	15901764.000	T5N	R3W	18	NW	1	2350	1850	120	-3.62E-01
P1029	1707151.000	15896484.000	T5N	R3W	19	NW	1	2350	1850	120	-3.62E-01
P103	1693951.000	15928275.000	T6N	R4W	22	NE	1	2100	1850	120	0.00E+00
P1030	1712431.000	15896484.000	T5N	R3W	20	NW	1	2350	1850	120	-3.62E-01
P1031	1717711.000	15896484.000	T5N	R3W	21	NW	1	2350	1850	120	-3.62E-01
P1032	1722991.000	15896484.000	T5N	R3W	22	NW	1	2350	1850	120	-3.62E-01
P1033	1728271.000	15896484.000	T5N	R3W	23	NW	1	2350	1850	120	-3.62E-01
P1034	1733551.000	15896484.000	T5N	R3W	24	NW	1	2350	1850	120	-3.62E-01
P1035	1733551.000	15891204.000	T5N	R3W	25	NW	1	2350	1850	120	-3.62E-01
P1036	1728271.000	15891204.000	T5N	R3W	26	NW	1	2350	1850	120	-3.62E-01
P1037	1722991.000	15891204.000	T5N	R3W	27	NW	1	2350	1850	120	-3.62E-01
P1038	1717711.000	15891204.000	T5N	R3W	28	NW	1	2350	1850	120	-3.62E-01
P1039	1712431.000	15891204.000	T5N	R3W	29	NW	1	2350	1850	120	-3.62E-01
P104	1699231.000	15928275.000	T6N	R4W	23	NE	1	2100	1850	120	0.00E+00
P1040	1707151.000	15891204.000	T5N	R3W	30	NW	1	2350	1850	120	-3.62E-01
P1041	1707151.000	15885924.000	T5N	R3W	31	NW	1	2350	1850	120	-3.62E-01
P1042	1712431.000	15885924.000	T5N	R3W	32	NW	1	2350	1850	120	-3.62E-01
P1043	1717711.000	15885924.000	T5N	R3W	33	NW	1	2350	1850	120	-3.62E-01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1044	1722991.000	15885924.000	T5N	R3W	34	NW	1	2350	1850	120	-3.62E-01
P1045	1728271.000	15885924.000	T5N	R3W	35	NW	1	2350	1850	120	-3.62E-01
P1046	1733551.000	15885924.000	T5N	R3W	36	NW	1	2350	1850	120	-3.62E-01
P1047	1765231.000	15912324.000	T5N	R2W	1	NW	1	2500	2100	120	-3.19E-01
P1048	1759951.000	15912324.000	T5N	R2W	2	NW	1	2500	2100	120	0.00E+00
P1049	1754671.000	15912324.000	T5N	R2W	3	NW	1	2500	2100	120	0.00E+00
P105	1704511.000	15928275.000	T6N	R4W	24	NE	1	2100	1850	120	0.00E+00
P1050	1749391.000	15912324.000	T5N	R2W	4	NW	1	2350	1850	120	0.00E+00
P1051	1744111.000	15912324.000	T5N	R2W	5	NW	1	2350	1850	120	0.00E+00
P1052	1738831.000	15912324.000	T5N	R2W	6	NW	1	2350	1850	120	0.00E+00
P1053	1738831.000	15907044.000	T5N	R2W	7	NW	1	2350	1850	120	-4.31E+01
P1054	1744111.000	15907044.000	T5N	R2W	8	NW	1	2350	1850	120	0.00E+00
P1055	1749391.000	15907044.000	T5N	R2W	9	NW	1	2350	1850	120	-1.60E-01
P1056	1754671.000	15907044.000	T5N	R2W	10	NW	1	2500	2100	120	0.00E+00
P1057	1759951.000	15907044.000	T5N	R2W	11	NW	1	2500	2100	120	0.00E+00
P1058	1765231.000	15907044.000	T5N	R2W	12	NW	1	2500	2100	120	0.00E+00
P1059	1765231.000	15901764.000	T5N	R2W	13	NW	1	2500	2100	120	0.00E+00
P106	1704511.000	15922995.000	T6N	R4W	25	NE	1	2100	1850	120	0.00E+00
P1060	1759951.000	15901764.000	T5N	R2W	14	NW	1	2500	2100	120	-1.60E-01
P1061	1754671.000	15901764.000	T5N	R2W	15	NW	1	2350	1850	120	0.00E+00
P1062	1749391.000	15901764.000	T5N	R2W	16	NW	1	2350	1850	120	0.00E+00
P1063	1744111.000	15901764.000	T5N	R2W	17	NW	1	2350	1850	120	0.00E+00
P1064	1738831.000	15901764.000	T5N	R2W	18	NW	1	2350	1850	120	-4.79E-01
P1065	1738831.000	15896484.000	T5N	R2W	19	NW	1	2350	1850	120	-8.08E+00
P1066	1744111.000	15896484.000	T5N	R2W	20	NW	1	2350	1850	120	-1.04E+02
P1067	1749391.000	15896484.000	T5N	R2W	21	NW	1	2350	1850	120	-6.39E-01
P1068	1754671.000	15896484.000	T5N	R2W	22	NW	1	2500	2100	120	-1.60E-01
P1069	1759951.000	15896484.000	T5N	R2W	23	NW	1	2500	2100	120	-2.41E+02
P107	1699231.000	15922995.000	T6N	R4W	26	NE	1	2100	1850	120	0.00E+00
P1070	1765231.000	15896484.000	T5N	R2W	24	NW	1	2500	2100	120	0.00E+00
P1071	1765231.000	15891204.000	T5N	R2W	25	NW	1	2500	2100	120	-1.60E-01
P1072	1759951.000	15891204.000	T5N	R2W	26	NW	1	2500	2100	120	-6.19E+01
P1073	1754671.000	15891204.000	T5N	R2W	27	NW	1	2500	2100	120	-1.12E+00
P1074	1749391.000	15891204.000	T5N	R2W	28	NW	1	2350	1850	120	-5.63E+01
P1075	1744111.000	15891204.000	T5N	R2W	29	NW	1	2350	1850	120	-4.79E-01
P1076	1738831.000	15891204.000	T5N	R2W	30	NW	1	2350	1850	120	-4.79E-01
P1077	1738831.000	15885924.000	T5N	R2W	31	NW	1	2350	1850	120	-1.28E+00
P1078	1744111.000	15885924.000	T5N	R2W	32	NW	1	2350	1850	120	-1.44E+00
P1079	1749391.000	15885924.000	T5N	R2W	33	NW	1	2350	1850	120	-9.58E-01
P108	1693951.000	15922995.000	T6N	R4W	27	NE	1	2100	1850	120	0.00E+00
P1080	1754671.000	15885924.000	T5N	R2W	34	NW	1	2500	2100	120	-4.79E-01
P1081	1759951.000	15885924.000	T5N	R2W	35	NW	1	2500	2100	120	-6.55E+02
P1082	1765231.000	15885924.000	T5N	R2W	36	NW	1	2500	2100	120	0.00E+00
P1083	1796911.000	15912324.000	T5N	R1W	1	NW	1	2600	2500	120	-1.60E-01
P1084	1791631.000	15912324.000	T5N	R1W	2	NW	1	2600	2500	120	0.00E+00
P1085	1786351.000	15912324.000	T5N	R1W	3	NW	1	2200	1850	120	-1.60E-01
P1086	1781071.000	15912324.000	T5N	R1W	4	NW	1	2200	1850	120	0.00E+00
P1087	1775791.000	15912324.000	T5N	R1W	5	NW	1	2200	1850	120	0.00E+00
P1088	1770511.000	15912324.000	T5N	R1W	6	NW	1	2500	2100	120	0.00E+00
P1089	1770511.000	15907044.000	T5N	R1W	7	NW	1	2500	2100	120	0.00E+00
P109	1693913.000	15918000.000	T6N	R4W	34	NE	1	2100	1850	120	0.00E+00
P1090	1775791.000	15907044.000	T5N	R1W	8	NW	1	2500	2100	120	0.00E+00
P1091	1781071.000	15907044.000	T5N	R1W	9	NW	1	2500	2100	120	0.00E+00
P1092	1786351.000	15907044.000	T5N	R1W	10	NW	1	2200	1850	120	0.00E+00
P1093	1791631.000	15907044.000	T5N	R1W	11	NW	1	2200	1850	120	0.00E+00
P1094	1796911.000	15907044.000	T5N	R1W	12	NW	1	2700	2500	120	0.00E+00
P1095	1796911.000	15901764.000	T5N	R1W	13	NW	1	2500	2100	120	-1.60E-01
P1096	1791631.000	15901764.000	T5N	R1W	14	NW	1	2500	2100	120	0.00E+00
P1097	1786351.000	15901764.000	T5N	R1W	15	NW	1	2500	2100	120	0.00E+00
P1098	1781071.000	15901764.000	T5N	R1W	16	NW	1	2500	2100	120	-6.64E+00
P1099	1775791.000	15901764.000	T5N	R1W	17	NW	1	2500	2100	120	-1.84E+02
P11	1715411.000	15960209.000	T7N	R3W	20	NE	1	2200	1850	120	-2.35E+00
P110	1699193.000	15918000.000	T6N	R4W	35	NE	1	2100	1850	120	0.00E+00
P1100	1770511.000	15901764.000	T5N	R1W	18	NW	1	2500	2100	120	0.00E+00
P1101	1770511.000	15896484.000	T5N	R1W	19	NW	1	2500	2100	120	0.00E+00
P1102	1775791.000	15896484.000	T5N	R1W	20	NW	1	2500	2100	120	0.00E+00
P1103	1781071.000	15896484.000	T5N	R1W	21	NW	1	2500	2100	120	-7.99E-01
P1104	1786351.000	15896484.000	T5N	R1W	22	NW	1	2500	2100	120	-1.60E-01
P1105	1791631.000	15896484.000	T5N	R1W	23	NW	1	2500	2100	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1106	1796911.000	15896484.000	T5N	R1W	24	NW	1	2500	2100	120	0.00E+00
P1107	1796911.000	15891204.000	T5N	R1W	25	NW	1	2500	2100	120	0.00E+00
P1108	1791631.000	15891204.000	T5N	R1W	26	NW	1	2500	2100	120	0.00E+00
P1109	1786351.000	15891204.000	T5N	R1W	27	NW	1	2500	2100	120	0.00E+00
P111	1704473.000	15918000.000	T6N	R4W	36	NE	1	2100	1850	120	0.00E+00
P1110	1781071.000	15891204.000	T5N	R1W	28	NW	1	2500	2100	120	-1.35E+03
P1111	1775791.000	15891204.000	T5N	R1W	29	NW	1	2500	2100	120	-4.79E-01
P1112	1770511.000	15891204.000	T5N	R1W	30	NW	1	2500	2100	120	0.00E+00
P1113	1770511.000	15885924.000	T5N	R1W	31	NW	1	2500	2100	120	-2.40E+00
P1114	1775791.000	15885924.000	T5N	R1W	32	NW	1	2500	2100	120	-6.62E+01
P1115	1781071.000	15885924.000	T5N	R1W	33	NW	1	2500	2100	120	-4.79E-01
P1116	1786351.000	15885924.000	T5N	R1W	34	NW	1	2500	2100	120	-3.19E-01
P1117	1791631.000	15885924.000	T5N	R1W	35	NW	1	2500	2100	120	-9.53E+02
P1118	1796911.000	15885924.000	T5N	R1W	36	NW	1	2500	2100	120	-2.27E+02
P1119	1828591.000	15912324.000	T5N	R1E	1	NW	1	3300	2500	120	0.00E+00
P112	1736191.000	15944115.000	T6N	R3W	1	NE	1	2200	1850	120	-3.77E+00
P1120	1823311.000	15912324.000	T5N	R1E	2	NW	1	3300	2500	120	0.00E+00
P1121	1818031.000	15912324.000	T5N	R1E	3	NW	1	3300	2500	120	-1.60E-01
P1122	1812751.000	15912324.000	T5N	R1E	4	NW	1	3000	2500	120	-4.79E-01
P1123	1807471.000	15912324.000	T5N	R1E	5	NW	1	3000	2500	120	-4.79E-01
P1124	1802191.000	15912324.000	T5N	R1E	6	NW	1	3000	2500	120	0.00E+00
P1125	1802191.000	15907044.000	T5N	R1E	7	NW	1	3000	2500	120	0.00E+00
P1126	1807471.000	15907044.000	T5N	R1E	8	NW	1	3000	2500	120	0.00E+00
P1127	1812751.000	15907044.000	T5N	R1E	9	NW	1	3000	2500	120	0.00E+00
P1128	1818031.000	15907044.000	T5N	R1E	10	NW	1	3000	2500	120	0.00E+00
P1129	1823311.000	15907044.000	T5N	R1E	11	NW	1	3300	2500	120	0.00E+00
P113	1730911.000	15944115.000	T6N	R3W	2	NE	1	2200	1850	120	-3.64E+01
P1130	1828591.000	15907044.000	T5N	R1E	12	NW	1	3300	2500	120	0.00E+00
P1131	1828591.000	15901764.000	T5N	R1E	13	NW	1	3300	2500	120	0.00E+00
P1132	1823311.000	15901764.000	T5N	R1E	14	NW	1	3300	2500	120	0.00E+00
P1133	1818031.000	15901764.000	T5N	R1E	15	NW	1	3000	2500	120	-1.60E-01
P1134	1812751.000	15901764.000	T5N	R1E	16	NW	1	3000	2500	120	0.00E+00
P1135	1807471.000	15901764.000	T5N	R1E	17	NW	1	3000	2500	120	0.00E+00
P1136	1802191.000	15901764.000	T5N	R1E	18	NW	1	2800	2500	120	0.00E+00
P1137	1802191.000	15896484.000	T5N	R1E	19	NW	1	2600	2100	120	0.00E+00
P1138	1807471.000	15896484.000	T5N	R1E	20	NW	1	2800	2500	120	-1.60E-01
P1139	1812751.000	15896484.000	T5N	R1E	21	NW	1	3000	2500	120	0.00E+00
P114	1725631.000	15944115.000	T6N	R3W	3	NE	1	2200	1850	120	0.00E+00
P1140	1818031.000	15896484.000	T5N	R1E	22	NW	1	2900	2500	120	-1.60E-01
P1141	1823311.000	15896484.000	T5N	R1E	23	NW	1	3000	2500	120	0.00E+00
P1142	1828591.000	15896484.000	T5N	R1E	24	NW	1	3000	2500	120	0.00E+00
P1143	1828591.000	15891204.000	T5N	R1E	25	NW	1	2800	2500	120	-1.14E+03
P1144	1823311.000	15891204.000	T5N	R1E	26	NW	1	3000	2500	120	-1.60E-01
P1145	1818031.000	15891204.000	T5N	R1E	27	NW	1	2900	2500	120	-1.60E-01
P1146	1812751.000	15891204.000	T5N	R1E	28	NW	1	2800	2500	120	-1.60E-01
P1147	1807471.000	15891204.000	T5N	R1E	29	NW	1	2600	2100	120	-2.08E+00
P1148	1802191.000	15891204.000	T5N	R1E	30	NW	1	2600	2100	120	-1.60E-01
P1149	1802191.000	15885924.000	T5N	R1E	31	NW	1	2600	2100	120	-1.51E+02
P115	1720351.000	15944115.000	T6N	R3W	4	NE	1	2200	1850	120	0.00E+00
P1150	1807471.000	15885924.000	T5N	R1E	32	NW	1	2600	2100	120	-2.78E+02
P1151	1812751.000	15885924.000	T5N	R1E	33	NW	1	2600	2100	120	-6.39E-01
P1152	1818031.000	15885924.000	T5N	R1E	34	NW	1	2700	2500	120	-1.28E+00
P1153	1823311.000	15885924.000	T5N	R1E	35	NW	1	2700	2500	120	-9.58E-01
P1154	1828591.000	15885924.000	T5N	R1E	36	NW	1	2700	2500	120	0.00E+00
P1155	1849711.000	15912324.000	T5N	R2E	3	NW	1	3300	2500	120	0.00E+00
P1156	1844431.000	15912324.000	T5N	R2E	4	NW	1	3300	2500	120	0.00E+00
P1157	1839151.000	15912324.000	T5N	R2E	5	NW	1	3300	2500	120	0.00E+00
P1158	1833871.000	15912324.000	T5N	R2E	6	NW	1	3300	2500	120	0.00E+00
P1159	1833871.000	15907044.000	T5N	R2E	7	NW	1	3300	2500	120	0.00E+00
P116	1715071.000	15944115.000	T6N	R3W	5	NE	1	2350	1850	120	-1.45E-01
P1160	1839151.000	15907044.000	T5N	R2E	8	NW	1	3300	2500	120	0.00E+00
P1161	1844431.000	15907044.000	T5N	R2E	9	NW	1	3300	2500	120	0.00E+00
P1162	1849711.000	15907044.000	T5N	R2E	10	NW	1	3300	2500	120	0.00E+00
P1163	1849711.000	15901764.000	T5N	R2E	15	NW	1	3300	2500	120	0.00E+00
P1164	1844431.000	15901764.000	T5N	R2E	16	NW	1	3300	2500	120	0.00E+00
P1165	1839151.000	15901764.000	T5N	R2E	17	NW	1	3300	2500	120	0.00E+00
P1166	1833871.000	15901764.000	T5N	R2E	18	NW	1	3300	2500	120	0.00E+00
P1167	1833871.000	15896484.000	T5N	R2E	19	NW	1	3000	2500	120	0.00E+00
P1168	1839151.000	15896484.000	T5N	R2E	20	NW	1	3300	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1169	1844431.000	15896484.000	T5N	R2E	21	NW	1	3300	2500	120	0.00E+00
P117	1709791.000	15944115.000	T6N	R3W	6	NE	1	2350	1850	120	-1.45E-01
P1170	1849711.000	15896484.000	T5N	R2E	22	NW	1	3300	2500	120	0.00E+00
P1171	1849711.000	15891204.000	T5N	R2E	27	NW	1	3300	2500	120	0.00E+00
P1172	1844431.000	15891204.000	T5N	R2E	28	NW	1	3300	2500	120	0.00E+00
P1173	1839151.000	15891204.000	T5N	R2E	29	NW	1	3000	2500	120	0.00E+00
P1174	1833871.000	15891204.000	T5N	R2E	30	NW	1	2900	2500	120	-3.19E-01
P1175	1833871.000	15885924.000	T5N	R2E	31	NW	1	2800	2500	120	-1.60E+00
P1176	1839151.000	15885924.000	T5N	R2E	32	NW	1	2900	2500	120	0.00E+00
P1177	1844431.000	15885924.000	T5N	R2E	33	NW	1	3300	2500	120	0.00E+00
P1178	1849711.000	15885924.000	T5N	R2E	34	NW	1	3300	2500	120	0.00E+00
P1179	1702069.000	15880733.000	T4N	R4W	1	NW	1	2100	1850	120	-7.24E-01
P118	1709791.000	15938835.000	T6N	R3W	7	NE	1	2350	1850	120	-1.45E-01
P1180	1696789.000	15880733.000	T4N	R4W	2	NW	1	2100	1850	120	-7.24E-01
P1181	1691509.000	15880733.000	T4N	R4W	3	NW	1	2100	1850	120	-7.24E-01
P1182	1691509.000	15875453.000	T4N	R4W	10	NW	1	2100	1850	120	-7.24E-01
P1183	1696789.000	15875453.000	T4N	R4W	11	NW	1	2100	1850	120	-7.24E-01
P1184	1702069.000	15875453.000	T4N	R4W	12	NW	1	2100	1850	120	-7.24E-01
P1185	1702069.000	15870173.000	T4N	R4W	13	NW	1	2100	1850	120	-7.24E-01
P1186	1696789.000	15870173.000	T4N	R4W	14	NW	1	2100	1850	120	-7.24E-01
P1187	1691509.000	15870173.000	T4N	R4W	15	NW	1	2100	1850	120	-7.24E-01
P1188	1691509.000	15864893.000	T4N	R4W	22	NW	1	2100	1850	120	-7.24E-01
P1189	1696789.000	15864893.000	T4N	R4W	23	NW	1	2100	1850	120	-7.24E-01
P119	1715071.000	15938835.000	T6N	R3W	8	NE	1	2350	1850	120	-1.45E-01
P1190	1702069.000	15864893.000	T4N	R4W	24	NW	1	2100	1850	120	-7.24E-01
P1191	1702069.000	15859613.000	T4N	R4W	25	NW	1	2100	1850	120	-7.24E-01
P1192	1696789.000	15859613.000	T4N	R4W	26	NW	1	2100	1850	120	-7.24E-01
P1193	1691509.000	15859613.000	T4N	R4W	27	NW	1	2100	1850	120	-7.24E-01
P1194	1691509.000	15854333.000	T4N	R4W	34	NW	1	2100	1850	120	-7.24E-01
P1195	1696789.000	15854333.000	T4N	R4W	35	NW	1	2100	1850	120	-7.24E-01
P1196	1702069.000	15854333.000	T4N	R4W	36	NW	1	2100	1850	120	-7.24E-01
P1197	1733749.000	15880733.000	T4N	R3W	1	NW	1	2350	1850	120	-3.62E-01
P1198	1728469.000	15880733.000	T4N	R3W	2	NW	1	2350	1850	120	-3.62E-01
P1199	1723189.000	15880733.000	T4N	R3W	3	NW	1	2350	1850	120	-3.62E-01
P12	1720691.000	15960209.000	T7N	R3W	21	NE	1	2200	1850	120	-2.35E+00
P120	1720351.000	15938835.000	T6N	R3W	9	NE	1	2350	1850	120	0.00E+00
P1200	1717909.000	15880733.000	T4N	R3W	4	NW	1	2350	1850	120	-3.62E-01
P1201	1712629.000	15880733.000	T4N	R3W	5	NW	1	2350	1850	120	-3.62E-01
P1202	1707349.000	15880733.000	T4N	R3W	6	NW	1	2350	1850	120	-3.62E-01
P1203	1707349.000	15875453.000	T4N	R3W	7	NW	1	2200	1850	120	-3.62E-01
P1204	1712629.000	15875453.000	T4N	R3W	8	NW	1	2200	1850	120	-3.62E-01
P1205	1717909.000	15875453.000	T4N	R3W	9	NW	1	2350	1850	120	-3.62E-01
P1206	1723189.000	15875453.000	T4N	R3W	10	NW	1	2350	1850	120	-3.62E-01
P1207	1728469.000	15875453.000	T4N	R3W	11	NW	1	2350	1850	120	-3.62E-01
P1208	1733749.000	15875453.000	T4N	R3W	12	NW	1	2350	1850	120	-3.62E-01
P1209	1733749.000	15870173.000	T4N	R3W	13	NW	1	2350	1850	120	-3.62E-01
P121	1725631.000	15938835.000	T6N	R3W	10	NE	1	2200	1850	120	0.00E+00
P1210	1728469.000	15870173.000	T4N	R3W	14	NW	1	2350	1850	120	-3.62E-01
P1211	1723189.000	15870173.000	T4N	R3W	15	NW	1	2350	1850	120	-3.65E+02
P1212	1717909.000	15870173.000	T4N	R3W	16	NW	1	2200	1850	120	-3.98E+00
P1213	1712629.000	15870173.000	T4N	R3W	17	NW	1	2200	1850	120	-3.62E-01
P1214	1707349.000	15870173.000	T4N	R3W	18	NW	1	2200	1850	120	-3.62E-01
P1215	1707349.000	15864893.000	T4N	R3W	19	NW	1	2200	1850	120	-3.62E-01
P1216	1712629.000	15864893.000	T4N	R3W	20	NW	1	2200	1850	120	-3.62E+02
P1217	1717909.000	15864893.000	T4N	R3W	21	NW	1	2200	1850	120	-6.52E+00
P1218	1723189.000	15864893.000	T4N	R3W	22	NW	1	2350	1850	120	-3.65E+02
P1219	1728469.000	15864893.000	T4N	R3W	23	NW	1	2350	1850	120	-3.91E+01
P122	1730911.000	15938835.000	T6N	R3W	11	NE	1	2200	1850	120	-3.62E-02
P1220	1733749.000	15864893.000	T4N	R3W	24	NW	1	2350	1850	120	-3.62E-01
P1221	1733749.000	15859613.000	T4N	R3W	25	NW	1	2350	1850	120	-3.62E-01
P1222	1728469.000	15859613.000	T4N	R3W	26	NW	1	2350	1850	120	-3.65E+02
P1223	1723189.000	15859613.000	T4N	R3W	27	NW	1	2350	1850	120	-3.65E+02
P1224	1717909.000	15859613.000	T4N	R3W	28	NW	1	2350	1850	120	-3.65E+02
P1225	1712629.000	15859613.000	T4N	R3W	29	NW	1	2200	1850	120	-3.66E+01
P1226	1707349.000	15859613.000	T4N	R3W	30	NW	1	2200	1850	120	-3.62E-01
P1227	1707349.000	15854333.000	T4N	R3W	31	NW	1	2350	1850	120	-3.62E-01
P1228	1712629.000	15854333.000	T4N	R3W	32	NW	1	2350	1850	120	-3.62E-01
P1229	1717909.000	15854333.000	T4N	R3W	33	NW	1	2350	1850	120	-3.62E-01
P123	1736191.000	15938835.000	T6N	R3W	12	NE	1	2200	1850	120	-3.62E-02

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1230	1723189.000	15854333.000	T4N	R3W	34	NW	1	2350	1850	120	-3.62E-01
P1231	1728469.000	15854333.000	T4N	R3W	35	NW	1	2350	1850	120	-3.62E-01
P1232	1733749.000	15854333.000	T4N	R3W	36	NW	1	2350	1850	120	-3.62E-01
P1233	1765429.000	15880733.000	T4N	R2W	1	NW	1	2500	2100	120	-2.24E+00
P1234	1760149.000	15880733.000	T4N	R2W	2	NW	1	2400	2100	120	-1.12E+00
P1235	1754869.000	15880733.000	T4N	R2W	3	NW	1	2400	2100	120	-3.51E+00
P1236	1749589.000	15880733.000	T4N	R2W	4	NW	1	2350	1850	120	-2.24E+00
P1237	1744309.000	15880733.000	T4N	R2W	5	NW	1	2350	1850	120	-4.51E+01
P1238	1739029.000	15880733.000	T4N	R2W	6	NW	1	2350	1850	120	-6.74E+01
P1239	1739029.000	15875453.000	T4N	R2W	7	NW	1	2350	1850	120	-7.68E+01
P124	1736191.000	15933555.000	T6N	R3W	13	NE	1	2350	1850	120	0.00E+00
P1240	1744309.000	15875453.000	T4N	R2W	8	NW	1	2350	1850	120	-1.28E+00
P1241	1749589.000	15875453.000	T4N	R2W	9	NW	1	2350	1850	120	-1.36E+02
P1242	1754869.000	15875453.000	T4N	R2W	10	NW	1	2400	2100	120	-5.24E+01
P1243	1760149.000	15875453.000	T4N	R2W	11	NW	1	2400	2100	120	-1.60E-01
P1244	1765429.000	15875453.000	T4N	R2W	12	NW	1	2400	2100	120	-1.92E+00
P1245	1765429.000	15870173.000	T4N	R2W	13	NW	1	2400	2100	120	-3.19E-01
P1246	1760149.000	15870173.000	T4N	R2W	14	NW	1	2400	2100	120	-1.60E-01
P1247	1754869.000	15870173.000	T4N	R2W	15	NW	1	2400	2100	120	-1.28E+00
P1248	1749589.000	15870173.000	T4N	R2W	16	NW	1	2350	1850	120	-1.60E-01
P1249	1744309.000	15870173.000	T4N	R2W	17	NW	1	2350	1850	120	-1.60E-01
P125	1730911.000	15933555.000	T6N	R3W	14	NE	1	2350	1850	120	0.00E+00
P1250	1739029.000	15870173.000	T4N	R2W	18	NW	1	2350	1850	120	-3.19E-01
P1251	1739029.000	15864893.000	T4N	R2W	19	NW	1	2350	1850	120	-3.19E-01
P1252	1744309.000	15864893.000	T4N	R2W	20	NW	1	2350	1850	120	-2.16E+02
P1253	1749589.000	15864893.000	T4N	R2W	21	NW	1	2350	1850	120	-5.85E+01
P1254	1754869.000	15864893.000	T4N	R2W	22	NW	1	2400	2100	120	-5.42E+01
P1255	1760149.000	15864893.000	T4N	R2W	23	NW	1	2400	2100	120	-3.19E-01
P1256	1765429.000	15864893.000	T4N	R2W	24	NW	1	2400	2100	120	-4.50E+01
P1257	1765429.000	15859613.000	T4N	R2W	25	NW	1	2400	2100	120	-1.90E+02
P1258	1760149.000	15859613.000	T4N	R2W	26	NW	1	2400	2100	120	-8.20E+01
P1259	1754869.000	15859613.000	T4N	R2W	27	NW	1	2400	2100	120	-4.79E-01
P126	1725631.000	15933555.000	T6N	R3W	15	NE	1	2350	1850	120	0.00E+00
P1260	1749589.000	15859613.000	T4N	R2W	28	NW	1	2350	1850	120	-1.81E+02
P1261	1744309.000	15859613.000	T4N	R2W	29	NW	1	2350	1850	120	-1.19E+03
P1262	1739029.000	15859613.000	T4N	R2W	30	NW	1	2350	1850	120	-8.92E+02
P1263	1739029.000	15854333.000	T4N	R2W	31	NW	1	2350	1850	120	-1.23E+02
P1264	1744309.000	15854333.000	T4N	R2W	32	NW	1	2350	1850	120	-2.02E+02
P1265	1749589.000	15854333.000	T4N	R2W	33	NW	1	2350	1850	120	-1.27E+02
P1266	1754869.000	15854333.000	T4N	R2W	34	NW	1	2400	2100	120	-6.55E+02
P1267	1760149.000	15854333.000	T4N	R2W	35	NW	1	2400	2100	120	-6.89E+01
P1268	1765429.000	15854333.000	T4N	R2W	36	NW	1	2400	2100	120	-4.28E+02
P1269	1797109.000	15880733.000	T4N	R1W	1	NW	1	2500	2100	120	-1.92E+00
P127	1720351.000	15933555.000	T6N	R3W	16	NE	1	2350	1850	120	0.00E+00
P1270	1791829.000	15880733.000	T4N	R1W	2	NW	1	2500	2100	120	-1.60E-01
P1271	1786549.000	15880733.000	T4N	R1W	3	NW	1	2500	2100	120	-2.53E+03
P1272	1781269.000	15880733.000	T4N	R1W	4	NW	1	2500	2100	120	-6.39E-01
P1273	1775989.000	15880733.000	T4N	R1W	5	NW	1	2500	2100	120	-1.28E+00
P1274	1770709.000	15880733.000	T4N	R1W	6	NW	1	2500	2100	120	-9.58E-01
P1275	1770709.000	15875453.000	T4N	R1W	7	NW	1	2400	2100	120	-1.12E+00
P1276	1775989.000	15875453.000	T4N	R1W	8	NW	1	2400	2100	120	-3.12E+02
P1277	1781269.000	15875453.000	T4N	R1W	9	NW	1	2400	2100	120	-9.58E-01
P1278	1786549.000	15875453.000	T4N	R1W	10	NW	1	2400	2100	120	-9.89E+01
P1279	1791829.000	15875453.000	T4N	R1W	11	NW	1	2500	2100	120	-1.60E-01
P128	1715071.000	15933555.000	T6N	R3W	17	NE	1	2350	1850	120	0.00E+00
P1280	1797109.000	15875453.000	T4N	R1W	12	NW	1	2500	2100	120	-2.08E+00
P1281	1797109.000	15870173.000	T4N	R1W	13	NW	1	2500	2100	120	-5.13E+01
P1282	1791829.000	15870173.000	T4N	R1W	14	NW	1	2500	2100	120	-1.28E+00
P1283	1786549.000	15870173.000	T4N	R1W	15	NW	1	2400	2100	120	-8.16E+01
P1284	1781269.000	15870173.000	T4N	R1W	16	NW	1	2400	2100	120	-2.08E+02
P1285	1775989.000	15870173.000	T4N	R1W	17	NW	1	2400	2100	120	-3.00E+02
P1286	1770709.000	15870173.000	T4N	R1W	18	NW	1	2400	2100	120	-7.99E-01
P1287	1770709.000	15864893.000	T4N	R1W	19	NW	1	2400	2100	120	-6.39E-01
P1288	1775989.000	15864893.000	T4N	R1W	20	NW	1	2400	2100	120	-1.60E-01
P1289	1781269.000	15864893.000	T4N	R1W	21	NW	1	2400	2100	120	0.00E+00
P129	1709791.000	15933555.000	T6N	R3W	18	NE	1	2350	1850	120	-1.45E-01
P1290	1786549.000	15864893.000	T4N	R1W	22	NW	1	2400	2100	120	0.00E+00
P1291	1791829.000	15864893.000	T4N	R1W	23	NW	1	2500	2100	120	-2.37E+01
P1292	1797109.000	15864893.000	T4N	R1W	24	NW	1	2500	2100	120	-8.78E+01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1293	1797109.000	15859613.000	T4N	R1W	25	NW	1	2500	2100	120	-3.19E-01
P1294	1791829.000	15859613.000	T4N	R1W	26	NW	1	2500	2100	120	-6.39E-01
P1295	1786549.000	15859613.000	T4N	R1W	27	NW	1	2500	2100	120	-1.12E+00
P1296	1781269.000	15859613.000	T4N	R1W	28	NW	1	2500	2100	120	-2.54E+02
P1297	1775989.000	15859613.000	T4N	R1W	29	NW	1	2500	2100	120	-5.29E+01
P1298	1770709.000	15859613.000	T4N	R1W	30	NW	1	2500	2100	120	-1.12E+02
P1299	1770709.000	15854333.000	T4N	R1W	31	NW	1	2400	2100	120	-6.39E-01
P13	1725971.000	15960209.000	T7N	R3W	22	NE	1	2200	1850	120	-2.35E+00
P130	1709791.000	15928275.000	T6N	R3W	19	NE	1	2350	1850	120	0.00E+00
P1300	1775989.000	15854333.000	T4N	R1W	32	NW	1	2500	2100	120	-3.12E+02
P1301	1781269.000	15854333.000	T4N	R1W	33	NW	1	2500	2100	120	-9.53E+00
P1302	1786549.000	15854333.000	T4N	R1W	34	NW	1	2500	2100	120	-4.79E-01
P1303	1791829.000	15854333.000	T4N	R1W	35	NW	1	2500	2100	120	-4.79E-01
P1304	1797109.000	15854333.000	T4N	R1W	36	NW	1	2500	2100	120	-1.67E+02
P1305	1828789.000	15880733.000	T4N	R1E	1	NW	1	2900	2500	120	-1.60E-01
P1306	1823509.000	15880733.000	T4N	R1E	2	NW	1	2800	2500	120	-2.40E+00
P1307	1818229.000	15880733.000	T4N	R1E	3	NW	1	2600	2100	120	-3.67E+00
P1308	1812949.000	15880733.000	T4N	R1E	4	NW	1	2600	2100	120	-5.43E+00
P1309	1807669.000	15880733.000	T4N	R1E	5	NW	1	2600	2100	120	-4.40E+01
P131	1715071.000	15928275.000	T6N	R3W	20	NE	1	2350	1850	120	0.00E+00
P1310	1802389.000	15880733.000	T4N	R1E	6	NW	1	2500	2100	120	-4.73E+01
P1311	1802389.000	15875453.000	T4N	R1E	7	NW	1	2500	2100	120	-4.01E+01
P1312	1807669.000	15875453.000	T4N	R1E	8	NW	1	2500	2100	120	-6.07E+00
P1313	1812949.000	15875453.000	T4N	R1E	9	NW	1	2600	2100	120	-4.79E-01
P1314	1818229.000	15875453.000	T4N	R1E	10	NW	1	2600	2100	120	-5.55E+01
P1315	1823509.000	15875453.000	T4N	R1E	11	NW	1	2600	2100	120	-6.39E+00
P1316	1828789.000	15875453.000	T4N	R1E	12	NW	1	2900	2500	120	0.00E+00
P1317	1828789.000	15870173.000	T4N	R1E	13	NW	1	2600	2100	120	-4.72E+01
P1318	1823509.000	15870173.000	T4N	R1E	14	NW	1	2500	2100	120	-6.55E+01
P1319	1818229.000	15870173.000	T4N	R1E	15	NW	1	2500	2100	120	-3.14E+02
P132	1720351.000	15928275.000	T6N	R3W	21	NE	1	2350	1850	120	0.00E+00
P1320	1812949.000	15870173.000	T4N	R1E	16	NW	1	2500	2100	120	-7.99E-01
P1321	1807669.000	15870173.000	T4N	R1E	17	NW	1	2500	2100	120	-1.12E+01
P1322	1802389.000	15870173.000	T4N	R1E	18	NW	1	2500	2100	120	-3.19E-01
P1323	1802389.000	15864893.000	T4N	R1E	19	NW	1	2500	2100	120	-1.08E+01
P1324	1807669.000	15864893.000	T4N	R1E	20	NW	1	2500	2100	120	-3.19E-01
P1325	1812949.000	15864893.000	T4N	R1E	21	NW	1	2500	2100	120	-7.99E-01
P1326	1818229.000	15864893.000	T4N	R1E	22	NW	1	2500	2100	120	-1.60E-01
P1327	1823509.000	15864893.000	T4N	R1E	23	NW	1	2500	2100	120	-9.58E-01
P1328	1828789.000	15864893.000	T4N	R1E	24	NW	1	2600	2100	120	-1.89E+02
P1329	1828789.000	15859613.000	T4N	R1E	25	NW	1	2600	2100	120	-3.89E+02
P133	1725631.000	15928275.000	T6N	R3W	22	NE	1	2350	1850	120	-1.45E-01
P1330	1823509.000	15859613.000	T4N	R1E	26	NW	1	2600	2100	120	-3.04E+00
P1331	1818229.000	15859613.000	T4N	R1E	27	NW	1	2600	2100	120	-4.89E+01
P1332	1812949.000	15859613.000	T4N	R1E	28	NW	1	2600	2100	120	-2.20E+02
P1333	1807669.000	15859613.000	T4N	R1E	29	NW	1	2600	2100	120	-5.43E+00
P1334	1802389.000	15859613.000	T4N	R1E	30	NW	1	2500	2100	120	-9.58E-01
P1335	1802389.000	15854333.000	T4N	R1E	31	NW	1	2500	2100	120	-1.58E+02
P1336	1807669.000	15854333.000	T4N	R1E	32	NW	1	2600	2100	120	-1.10E+02
P1337	1812949.000	15854333.000	T4N	R1E	33	NW	1	2600	2100	120	-9.77E+00
P1338	1818229.000	15854333.000	T4N	R1E	34	NW	1	2600	2100	120	-6.71E+00
P1339	1823509.000	15854333.000	T4N	R1E	35	NW	1	2600	2100	120	-7.82E+02
P134	1730911.000	15928275.000	T6N	R3W	23	NE	1	2350	1850	120	0.00E+00
P1340	1828789.000	15854333.000	T4N	R1E	36	NW	1	2600	2100	120	-8.86E+02
P1341	1849909.000	15880733.000	T4N	R2E	3	NW	1	3300	2500	120	0.00E+00
P1342	1844629.000	15880733.000	T4N	R2E	4	NW	1	3000	2500	120	0.00E+00
P1343	1839349.000	15880733.000	T4N	R2E	5	NW	1	2900	2500	120	0.00E+00
P1344	1834069.000	15880733.000	T4N	R2E	6	NW	1	3000	2500	120	0.00E+00
P1345	1834069.000	15875453.000	T4N	R2E	7	NW	1	3000	2500	120	0.00E+00
P1346	1839349.000	15875453.000	T4N	R2E	8	NW	1	3000	2500	120	0.00E+00
P1347	1844629.000	15875453.000	T4N	R2E	9	NW	1	3000	2500	120	0.00E+00
P1348	1849909.000	15875453.000	T4N	R2E	10	NW	1	3000	2500	120	0.00E+00
P1349	1849909.000	15870173.000	T4N	R2E	15	NW	1	3300	2500	120	0.00E+00
P135	1736191.000	15928275.000	T6N	R3W	24	NE	1	2350	1850	120	0.00E+00
P1350	1844629.000	15870173.000	T4N	R2E	16	NW	1	3300	2500	120	0.00E+00
P1351	1839349.000	15870173.000	T4N	R2E	17	NW	1	3000	2500	120	-3.62E-01
P1352	1834069.000	15870173.000	T4N	R2E	18	NW	1	2900	2500	120	-2.90E+00
P1353	1834069.000	15864893.000	T4N	R2E	19	NW	1	2600	2100	120	-2.90E+00
P1354	1839349.000	15864893.000	T4N	R2E	20	NW	1	2800	2500	120	-2.90E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1355	1844629.000	15864893.000	T4N	R2E	21	NW	1	3000	2500	120	-3.62E-01
P1356	1849909.000	15864893.000	T4N	R2E	22	NW	1	3000	2500	120	-3.62E-01
P1357	1849909.000	15859613.000	T4N	R2E	27	NW	1	3000	2500	120	-2.90E+00
P1358	1844629.000	15859613.000	T4N	R2E	28	NW	1	2700	2500	120	-2.90E+00
P1359	1839349.000	15859613.000	T4N	R2E	29	NW	1	2600	2400	120	-2.90E+00
P136	1736191.000	15922995.000	T6N	R3W	25	NE	1	2350	1850	120	0.00E+00
P1360	1834069.000	15859613.000	T4N	R2E	30	NW	1	2600	2100	120	-2.90E+00
P1361	1834069.000	15854333.000	T4N	R2E	31	NW	1	2600	2100	120	-2.90E+00
P1362	1839349.000	15854333.000	T4N	R2E	32	NW	1	2600	2100	120	-6.52E+00
P1363	1844629.000	15854333.000	T4N	R2E	33	NW	1	2600	2400	120	-6.52E+00
P1364	1849909.000	15854333.000	T4N	R2E	34	NW	1	2700	2500	120	-6.52E+00
P1365	1702070.000	15848942.000	T3N	R4W	1	NW	1	2100	1850	120	-7.24E-01
P1366	1696790.000	15848942.000	T3N	R4W	2	NW	1	2100	1850	120	-7.24E-01
P1367	1691510.000	15848942.000	T3N	R4W	3	NW	1	2100	1850	120	-7.24E-01
P1368	1691510.000	15843662.000	T3N	R4W	10	NW	1	2100	1850	120	-7.24E-01
P1369	1696790.000	15843662.000	T3N	R4W	11	NW	1	2100	1850	120	-7.24E-01
P137	1730911.000	15922995.000	T6N	R3W	26	NE	1	2350	1850	120	0.00E+00
P1370	1702070.000	15843662.000	T3N	R4W	12	NW	1	2100	1850	120	-7.24E-01
P1371	1733750.000	15848942.000	T3N	R3W	1	NW	1	2350	1850	120	-1.09E+00
P1372	1728470.000	15848942.000	T3N	R3W	2	NW	1	2350	1850	120	-1.09E+00
P1373	1723190.000	15848942.000	T3N	R3W	3	NW	1	2350	1850	120	-1.09E+00
P1374	1717910.000	15848942.000	T3N	R3W	4	NW	1	2350	1850	120	-1.09E+00
P1375	1712630.000	15848942.000	T3N	R3W	5	NW	1	2350	1850	120	-1.09E+00
P1376	1707350.000	15848942.000	T3N	R3W	6	NW	1	2350	1850	120	-1.09E+00
P1377	1707350.000	15843662.000	T3N	R3W	7	NW	1	2350	1850	120	-1.09E+00
P1378	1712630.000	15843662.000	T3N	R3W	8	NW	1	2350	1850	120	-1.09E+00
P1379	1717910.000	15843662.000	T3N	R3W	9	NW	1	2350	1850	120	-1.09E+00
P138	1725631.000	15922995.000	T6N	R3W	27	NE	1	2350	1850	120	-1.45E-01
P1380	1723190.000	15843662.000	T3N	R3W	10	NW	1	2350	1850	120	-1.09E+00
P1381	1728470.000	15843662.000	T3N	R3W	11	NW	1	2350	1850	120	-1.09E+00
P1382	1733750.000	15843662.000	T3N	R3W	12	NW	1	2350	1850	120	-1.09E+00
P1383	1765430.000	15848942.000	T3N	R2W	1	NW	1	2400	2100	120	-1.81E+00
P1384	1760150.000	15848942.000	T3N	R2W	2	NW	1	2400	2100	120	-1.81E+00
P1385	1754870.000	15848942.000	T3N	R2W	3	NW	1	2400	2100	120	-1.81E+00
P1386	1749590.000	15848942.000	T3N	R2W	4	NW	1	2350	1850	120	-1.81E+00
P1387	1744310.000	15848942.000	T3N	R2W	5	NW	1	2350	1850	120	-1.81E+00
P1388	1739030.000	15848942.000	T3N	R2W	6	NW	1	2350	1850	120	-1.81E+00
P1389	1739030.000	15843662.000	T3N	R2W	7	NW	1	2350	1850	120	-1.81E+00
P139	1720351.000	15922995.000	T6N	R3W	28	NE	1	2350	1850	120	-1.45E-01
P1390	1744310.000	15843662.000	T3N	R2W	8	NW	1	2350	1850	120	-1.81E+00
P1391	1749590.000	15843662.000	T3N	R2W	9	NW	1	2350	1850	120	-1.81E+00
P1392	1754870.000	15843662.000	T3N	R2W	10	NW	1	2400	2100	120	-1.81E+00
P1393	1760150.000	15843662.000	T3N	R2W	11	NW	1	2400	2100	120	-1.81E+00
P1394	1765430.000	15843662.000	T3N	R2W	12	NW	1	2400	2100	120	-1.81E+00
P1395	1797110.000	15848942.000	T3N	R1W	1	NW	1	2500	2100	120	-2.17E+00
P1396	1791830.000	15848942.000	T3N	R1W	2	NW	1	2500	2100	120	-2.17E+00
P1397	1786550.000	15848942.000	T3N	R1W	3	NW	1	2500	2100	120	-1.81E+00
P1398	1781270.000	15848942.000	T3N	R1W	4	NW	1	2500	2100	120	-1.81E+00
P1399	1775990.000	15848942.000	T3N	R1W	5	NW	1	2500	2100	120	-1.81E+00
P14	1731251.000	15960209.000	T7N	R3W	23	NE	1	2200	1850	120	-2.35E+00
P140	1715071.000	15922995.000	T6N	R3W	29	NE	1	2350	1850	120	0.00E+00
P1400	1770710.000	15848942.000	T3N	R1W	6	NW	1	2500	2100	120	-1.81E+00
P1401	1770710.000	15843662.000	T3N	R1W	7	NW	1	2500	2100	120	-1.81E+00
P1402	1775990.000	15843662.000	T3N	R1W	8	NW	1	2500	2100	120	-1.81E+00
P1403	1781270.000	15843662.000	T3N	R1W	9	NW	1	2500	2100	120	-1.81E+00
P1404	1786550.000	15843662.000	T3N	R1W	10	NW	1	2500	2100	120	-1.81E+00
P1405	1791830.000	15843662.000	T3N	R1W	11	NW	1	2500	2100	120	-2.17E+00
P1406	1797110.000	15843662.000	T3N	R1W	12	NW	1	2500	2100	120	-2.17E+00
P1407	1828790.000	15848942.000	T3N	R1E	1	NW	1	2600	2100	120	-1.81E+00
P1408	1823510.000	15848942.000	T3N	R1E	2	NW	1	2600	2100	120	-1.81E+00
P1409	1818230.000	15848942.000	T3N	R1E	3	NW	1	2600	2100	120	-1.81E+00
P141	1709791.000	15922995.000	T6N	R3W	30	NE	1	2350	1850	120	-1.45E-01
P1410	1812950.000	15848942.000	T3N	R1E	4	NW	1	2600	2100	120	-2.17E+00
P1411	1807670.000	15848942.000	T3N	R1E	5	NW	1	2600	2100	120	-2.17E+00
P1412	1802390.000	15848942.000	T3N	R1E	6	NW	1	2500	2100	120	-3.84E+01
P1413	1802390.000	15843662.000	T3N	R1E	7	NW	1	2500	2100	120	-3.80E+01
P1414	1807670.000	15843662.000	T3N	R1E	8	NW	1	2600	2100	120	-3.80E+01
P1415	1812950.000	15843662.000	T3N	R1E	9	NW	1	2600	2100	120	-3.64E+02
P1416	1818230.000	15843662.000	T3N	R1E	10	NW	1	2600	2100	120	-3.64E+02

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1417	1823510.000	15843662.000	T3N	R1E	11	NW	1	2600	2100	120	-3.64E+02
P1418	1828790.000	15843662.000	T3N	R1E	12	NW	1	2600	2100	120	-3.64E+02
P1419	1849910.000	15848942.000	T3N	R2E	3	NW	1	2600	2100	120	-3.95E+01
P142	1709753.000	15918000.000	T6N	R3W	31	NE	1	2350	1850	120	-1.45E-01
P1420	1844630.000	15848942.000	T3N	R2E	4	NW	1	2600	2100	120	-3.26E+00
P1421	1839350.000	15848942.000	T3N	R2E	5	NW	1	2600	2100	120	-3.62E+00
P1422	1834070.000	15848942.000	T3N	R2E	6	NW	1	2600	2100	120	-3.26E+00
P1423	1834070.000	15843662.000	T3N	R2E	7	NW	1	2600	2100	120	-3.26E+00
P1424	1839350.000	15843662.000	T3N	R2E	8	NW	1	2600	2100	120	-3.26E+00
P1425	1844630.000	15843662.000	T3N	R2E	9	NW	1	2600	2100	120	-3.26E+00
P1426	1849910.000	15843662.000	T3N	R2E	10	NW	1	2600	2100	120	-3.26E+00
P1427	1691907.000	15957569.000	T7N	R4W	22	SW	1	2200	1850	120	-3.62E-02
P1428	1696931.000	15957569.000	T7N	R4W	23	SW	1	2200	1850	120	-2.35E+00
P1429	1702211.000	15957569.000	T7N	R4W	24	SW	1	2200	1850	120	-2.35E+00
P143	1715033.000	15918000.000	T6N	R3W	32	NE	1	2350	1850	120	-1.45E-01
P1430	1702467.000	15952289.000	T7N	R4W	25	SW	1	2200	1850	120	-2.35E+00
P1431	1697187.000	15952289.000	T7N	R4W	26	SW	1	2100	1850	120	-3.62E-02
P1432	1691907.000	15952289.000	T7N	R4W	27	SW	1	2100	1850	120	-3.62E-02
P1433	1691907.000	15947009.000	T7N	R4W	34	SW	1	2100	1850	120	-3.62E-02
P1434	1697187.000	15947009.000	T7N	R4W	35	SW	1	2100	1850	120	-3.62E-02
P1435	1702467.000	15947009.000	T7N	R4W	36	SW	1	2100	1850	120	-3.62E-02
P1436	1707491.000	15957569.000	T7N	R3W	19	SW	1	2200	1850	120	-2.35E+00
P1437	1712771.000	15957569.000	T7N	R3W	20	SW	1	2200	1850	120	-2.35E+00
P1438	1718051.000	15957569.000	T7N	R3W	21	SW	1	2200	1850	120	-2.35E+00
P1439	1723331.000	15957569.000	T7N	R3W	22	SW	1	2200	1850	120	-2.35E+00
P144	1720313.000	15918000.000	T6N	R3W	33	NE	1	2350	1850	120	-1.45E-01
P1440	1728611.000	15957569.000	T7N	R3W	23	SW	1	2200	1850	120	-2.35E+00
P1441	1733891.000	15957569.000	T7N	R3W	24	SW	1	2200	1850	120	-2.35E+00
P1442	1733805.000	15952205.000	T7N	R3W	25	SW	1	2200	1850	120	-2.35E+00
P1443	1728525.000	15952205.000	T7N	R3W	26	SW	1	2200	1850	120	-2.35E+00
P1444	1723245.000	15952205.000	T7N	R3W	27	SW	1	2200	1850	120	-2.35E+00
P1445	1717965.000	15952205.000	T7N	R3W	28	SW	1	2200	1850	120	-2.35E+00
P1446	1712685.000	15952205.000	T7N	R3W	29	SW	1	2200	1850	120	-2.35E+00
P1447	1707405.000	15952205.000	T7N	R3W	30	SW	1	2200	1850	120	-2.35E+00
P1448	1707747.000	15947009.000	T7N	R3W	31	SW	1	2200	1850	120	-2.35E+00
P1449	1713027.000	15947009.000	T7N	R3W	32	SW	1	2200	1850	120	-2.35E+00
P145	1725593.000	15918000.000	T6N	R3W	34	NE	1	2350	1850	120	-1.45E-01
P1450	1718307.000	15947009.000	T7N	R3W	33	SW	1	2200	1850	120	-2.35E+00
P1451	1723587.000	15947009.000	T7N	R3W	34	SW	1	2200	1850	120	-2.35E+00
P1452	1728867.000	15947009.000	T7N	R3W	35	SW	1	2200	1850	120	-5.97E+00
P1453	1734147.000	15947009.000	T7N	R3W	36	SW	1	2200	1850	120	-5.97E+00
P1454	1739171.000	15957569.000	T7N	R2W	19	SW	1	2200	1850	120	0.00E+00
P1455	1744451.000	15957569.000	T7N	R2W	20	SW	1	2200	1850	120	0.00E+00
P1456	1749731.000	15957569.000	T7N	R2W	21	SW	1	2500	2350	120	0.00E+00
P1457	1755011.000	15957569.000	T7N	R2W	22	SW	1	2500	2350	120	0.00E+00
P1458	1760291.000	15957569.000	T7N	R2W	23	SW	1	2500	2350	120	0.00E+00
P1459	1765571.000	15957569.000	T7N	R2W	24	SW	1	2500	2350	120	0.00E+00
P146	1730873.000	15918000.000	T6N	R3W	35	NE	1	2350	1850	120	0.00E+00
P1460	1765485.000	15952205.000	T7N	R2W	25	SW	1	2200	1850	120	-1.45E-01
P1461	1760205.000	15952205.000	T7N	R2W	26	SW	1	2200	1850	120	-1.45E-01
P1462	1754925.000	15952205.000	T7N	R2W	27	SW	1	2200	1850	120	0.00E+00
P1463	1749645.000	15952205.000	T7N	R2W	28	SW	1	2400	2350	120	-3.19E-01
P1464	1744365.000	15952205.000	T7N	R2W	29	SW	1	2300	2100	120	-6.39E-01
P1465	1739085.000	15952205.000	T7N	R2W	30	SW	1	2300	2100	120	-6.39E-01
P1466	1739427.000	15947009.000	T7N	R2W	31	SW	1	2200	2000	120	-1.60E-01
P1467	1744707.000	15947009.000	T7N	R2W	32	SW	1	2200	1850	120	-4.79E-01
P1468	1749987.000	15947009.000	T7N	R2W	33	SW	1	2200	1850	120	-6.39E-01
P1469	1755267.000	15947009.000	T7N	R2W	34	SW	1	2400	2350	120	-9.58E-01
P147	1736153.000	15918000.000	T6N	R3W	36	NE	1	2350	1850	120	0.00E+00
P1470	1760547.000	15947009.000	T7N	R2W	35	SW	1	2400	2350	120	-9.58E-01
P1471	1765827.000	15947009.000	T7N	R2W	36	SW	1	2400	2350	120	0.00E+00
P1472	1770851.000	15957569.000	T7N	R1W	19	SW	1	2500	2350	120	0.00E+00
P1473	1776131.000	15957569.000	T7N	R1W	20	SW	1	2500	2350	120	0.00E+00
P1474	1781411.000	15957569.000	T7N	R1W	21	SW	1	2500	2350	120	-1.45E-01
P1475	1786691.000	15957569.000	T7N	R1W	22	SW	1	2500	2350	120	0.00E+00
P1476	1791971.000	15957569.000	T7N	R1W	23	SW	1	2500	2350	120	0.00E+00
P1477	1797251.000	15957569.000	T7N	R1W	24	SW	1	2500	2350	120	0.00E+00
P1478	1797165.000	15952205.000	T7N	R1W	25	SW	1	2500	2350	120	0.00E+00
P1479	1791885.000	15952205.000	T7N	R1W	26	SW	1	2500	2350	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P148	1767871.000	15944115.000	T6N	R2W	1	NE	1	2200	1850	120	-5.54E+00
P1480	1786605.000	15952205.000	T7N	R1W	27	SW	1	2400	2350	120	-1.45E-01
P1481	1781325.000	15952205.000	T7N	R1W	28	SW	1	2400	2350	120	-1.45E-01
P1482	1776045.000	15952205.000	T7N	R1W	29	SW	1	2500	2350	120	-1.45E-01
P1483	1770765.000	15952205.000	T7N	R1W	30	SW	1	2500	2350	120	-1.45E-01
P1484	1771107.000	15947009.000	T7N	R1W	31	SW	1	2400	2350	120	-1.45E-01
P1485	1776387.000	15947009.000	T7N	R1W	32	SW	1	2400	2350	120	-1.45E-01
P1486	1781667.000	15947009.000	T7N	R1W	33	SW	1	2400	2350	120	-1.45E-01
P1487	1786947.000	15947009.000	T7N	R1W	34	SW	1	2400	2350	120	-1.45E-01
P1488	1792227.000	15947009.000	T7N	R1W	35	SW	1	2500	2350	120	-1.45E-01
P1489	1797507.000	15947009.000	T7N	R1W	36	SW	1	2500	2350	120	-1.45E-01
P149	1762591.000	15944115.000	T6N	R2W	2	NE	1	2200	1850	120	-3.62E+02
P1490	1802531.000	15957569.000	T7N	R1E	19	SW	1	2500	2350	120	-1.45E-01
P1491	1807811.000	15957569.000	T7N	R1E	20	SW	1	2500	2350	120	-1.45E-01
P1492	1813091.000	15957569.000	T7N	R1E	21	SW	1	2500	2350	120	-1.81E+00
P1493	1818371.000	15957569.000	T7N	R1E	22	SW	1	2500	2350	120	-1.81E+00
P1494	1823651.000	15957569.000	T7N	R1E	23	SW	1	2500	2350	120	-1.81E+00
P1495	1828931.000	15957569.000	T7N	R1E	24	SW	1	2600	2400	120	-1.81E+00
P1496	1828845.000	15952205.000	T7N	R1E	25	SW	1	2700	2500	120	-1.81E+00
P1497	1823565.000	15952205.000	T7N	R1E	26	SW	1	2600	2400	120	0.00E+00
P1498	1818285.000	15952205.000	T7N	R1E	27	SW	1	2700	2500	120	0.00E+00
P1499	1813005.000	15952205.000	T7N	R1E	28	SW	1	2500	2350	120	-1.81E+00
P15	1736531.000	15960209.000	T7N	R3W	24	NE	1	2200	1850	120	-2.35E+00
P150	1757311.000	15944115.000	T6N	R2W	3	NE	1	2200	1850	120	-3.19E-01
P1500	1807725.000	15952205.000	T7N	R1E	29	SW	1	2500	2350	120	-1.45E-01
P1501	1802445.000	15952205.000	T7N	R1E	30	SW	1	2500	2350	120	-1.45E-01
P1502	1802787.000	15947009.000	T7N	R1E	31	SW	1	2500	2350	120	-1.45E-01
P1503	1808067.000	15947009.000	T7N	R1E	32	SW	1	2500	2350	120	-1.45E-01
P1504	1813347.000	15947009.000	T7N	R1E	33	SW	1	3000	2500	120	-1.81E+00
P1505	1818627.000	15947009.000	T7N	R1E	34	SW	1	3300	2500	120	0.00E+00
P1506	1823907.000	15947009.000	T7N	R1E	35	SW	1	3000	2500	120	0.00E+00
P1507	1829187.000	15947009.000	T7N	R1E	36	SW	1	3000	2500	120	0.00E+00
P1508	1834211.000	15957569.000	T7N	R2E	19	SW	1	3000	2500	120	-3.62E-02
P1509	1839491.000	15957569.000	T7N	R2E	20	SW	1	3300	2500	120	-3.62E-02
P151	1752031.000	15944115.000	T6N	R2W	4	NE	1	2200	1850	120	0.00E+00
P1510	1844771.000	15957569.000	T7N	R2E	21	SW	1	3300	2500	120	-3.62E-02
P1511	1850051.000	15957569.000	T7N	R2E	22	SW	1	3000	2500	120	-3.62E-02
P1512	1849965.000	15952205.000	T7N	R2E	27	SW	1	2600	2400	120	-3.62E-02
P1513	1844685.000	15952205.000	T7N	R2E	28	SW	1	2700	2500	120	-3.62E-02
P1514	1839405.000	15952205.000	T7N	R2E	29	SW	1	3000	2500	120	-3.62E-02
P1515	1834125.000	15952205.000	T7N	R2E	30	SW	1	2800	2500	120	-3.62E-02
P1516	1834467.000	15947009.000	T7N	R2E	31	SW	1	3300	2500	120	0.00E+00
P1517	1839747.000	15947009.000	T7N	R2E	32	SW	1	3300	2500	120	-3.62E-02
P1518	1845027.000	15947009.000	T7N	R2E	33	SW	1	3000	2500	120	-3.62E-02
P1519	1850307.000	15947009.000	T7N	R2E	34	SW	1	2700	2500	120	-3.62E-02
P152	1746751.000	15944115.000	T6N	R2W	5	NE	1	2200	1850	120	-3.19E-01
P1520	1701871.000	15941475.000	T6N	R4W	1	SW	1	2100	1850	120	-1.45E-01
P1521	1696591.000	15941475.000	T6N	R4W	2	SW	1	2100	1850	120	-1.45E-01
P1522	1691311.000	15941475.000	T6N	R4W	3	SW	1	2100	1850	120	-1.45E-01
P1523	1691311.000	15936195.000	T6N	R4W	10	SW	1	2100	1850	120	0.00E+00
P1524	1696591.000	15936195.000	T6N	R4W	11	SW	1	2100	1850	120	0.00E+00
P1525	1701871.000	15936195.000	T6N	R4W	12	SW	1	2100	1850	120	0.00E+00
P1526	1701871.000	15930915.000	T6N	R4W	13	SW	1	2100	1850	120	0.00E+00
P1527	1696591.000	15930915.000	T6N	R4W	14	SW	1	2100	1850	120	0.00E+00
P1528	1691311.000	15930915.000	T6N	R4W	15	SW	1	2100	1850	120	0.00E+00
P1529	1691311.000	15925635.000	T6N	R4W	22	SW	1	2100	1850	120	0.00E+00
P153	1741471.000	15944115.000	T6N	R2W	6	NE	1	2200	1850	120	-3.19E-01
P1530	1696591.000	15925635.000	T6N	R4W	23	SW	1	2100	1850	120	0.00E+00
P1531	1701871.000	15925635.000	T6N	R4W	24	SW	1	2100	1850	120	0.00E+00
P1532	1701871.000	15920355.000	T6N	R4W	25	SW	1	2100	1850	120	0.00E+00
P1533	1696591.000	15920355.000	T6N	R4W	26	SW	1	2100	1850	120	0.00E+00
P1534	1691311.000	15920355.000	T6N	R4W	27	SW	1	2100	1850	120	0.00E+00
P1535	1691273.000	15915360.000	T6N	R4W	34	SW	1	2100	1850	120	0.00E+00
P1536	1696553.000	15915360.000	T6N	R4W	35	SW	1	2100	1850	120	0.00E+00
P1537	1701833.000	15915360.000	T6N	R4W	36	SW	1	2100	1850	120	0.00E+00
P1538	1733551.000	15941475.000	T6N	R3W	1	SW	1	2200	1850	120	0.00E+00
P1539	1728271.000	15941475.000	T6N	R3W	2	SW	1	2200	1850	120	-3.62E+01
P154	1741471.000	15938835.000	T6N	R2W	7	NE	1	2200	1850	120	-7.99E-01
P1540	1722991.000	15941475.000	T6N	R3W	3	SW	1	2200	1850	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1541	1717711.000	15941475.000	T6N	R3W	4	SW	1	2200	1850	120	0.00E+00
P1542	1712431.000	15941475.000	T6N	R3W	5	SW	1	2350	1850	120	-1.45E-01
P1543	1707151.000	15941475.000	T6N	R3W	6	SW	1	2350	1850	120	-1.45E-01
P1544	1707151.000	15936195.000	T6N	R3W	7	SW	1	2350	1850	120	-1.45E-01
P1545	1712431.000	15936195.000	T6N	R3W	8	SW	1	2350	1850	120	-1.45E-01
P1546	1717711.000	15936195.000	T6N	R3W	9	SW	1	2350	1850	120	0.00E+00
P1547	1722991.000	15936195.000	T6N	R3W	10	SW	1	2350	1850	120	0.00E+00
P1548	1728271.000	15936195.000	T6N	R3W	11	SW	1	2200	1850	120	0.00E+00
P1549	1733551.000	15936195.000	T6N	R3W	12	SW	1	2200	1850	120	0.00E+00
P155	1746751.000	15938835.000	T6N	R2W	8	NE	1	2200	1850	120	-1.28E+00
P1550	1733551.000	15930915.000	T6N	R3W	13	SW	1	2350	1850	120	0.00E+00
P1551	1728271.000	15930915.000	T6N	R3W	14	SW	1	2350	1850	120	0.00E+00
P1552	1722991.000	15930915.000	T6N	R3W	15	SW	1	2350	1850	120	0.00E+00
P1553	1717711.000	15930915.000	T6N	R3W	16	SW	1	2350	1850	120	0.00E+00
P1554	1712431.000	15930915.000	T6N	R3W	17	SW	1	2350	1850	120	0.00E+00
P1555	1707151.000	15930915.000	T6N	R3W	18	SW	1	2350	1850	120	-1.45E-01
P1556	1707151.000	15925635.000	T6N	R3W	19	SW	1	2350	1850	120	0.00E+00
P1557	1712431.000	15925635.000	T6N	R3W	20	SW	1	2350	1850	120	0.00E+00
P1558	1717711.000	15925635.000	T6N	R3W	21	SW	1	2350	1850	120	0.00E+00
P1559	1722991.000	15925635.000	T6N	R3W	22	SW	1	2350	1850	120	-1.45E-01
P156	1752031.000	15938835.000	T6N	R2W	9	NE	1	2200	1850	120	-1.28E+00
P1560	1728271.000	15925635.000	T6N	R3W	23	SW	1	2350	1850	120	0.00E+00
P1561	1733551.000	15925635.000	T6N	R3W	24	SW	1	2350	1850	120	0.00E+00
P1562	1733551.000	15920355.000	T6N	R3W	25	SW	1	2350	1850	120	0.00E+00
P1563	1728271.000	15920355.000	T6N	R3W	26	SW	1	2350	1850	120	0.00E+00
P1564	1722991.000	15920355.000	T6N	R3W	27	SW	1	2350	1850	120	-1.45E-01
P1565	1717711.000	15920355.000	T6N	R3W	28	SW	1	2350	1850	120	-1.45E-01
P1566	1712431.000	15920355.000	T6N	R3W	29	SW	1	2350	1850	120	0.00E+00
P1567	1707151.000	15920355.000	T6N	R3W	30	SW	1	2350	1850	120	-1.45E-01
P1568	1707113.000	15915360.000	T6N	R3W	31	SW	1	2350	1850	120	-1.45E-01
P1569	1712393.000	15915360.000	T6N	R3W	32	SW	1	2350	1850	120	-1.45E-01
P157	1757311.000	15938835.000	T6N	R2W	10	NE	1	2200	1850	120	-1.28E+00
P1570	1717673.000	15915360.000	T6N	R3W	33	SW	1	2350	1850	120	-1.45E-01
P1571	1722953.000	15915360.000	T6N	R3W	34	SW	1	2350	1850	120	-1.45E-01
P1572	1728233.000	15915360.000	T6N	R3W	35	SW	1	2350	1850	120	0.00E+00
P1573	1733513.000	15915360.000	T6N	R3W	36	SW	1	2350	1850	120	0.00E+00
P1574	1765231.000	15941475.000	T6N	R2W	1	SW	1	2200	1850	120	-4.07E+01
P1575	1759951.000	15941475.000	T6N	R2W	2	SW	1	2200	1850	120	-3.63E+02
P1576	1754671.000	15941475.000	T6N	R2W	3	SW	1	2200	1850	120	-9.58E-01
P1577	1749391.000	15941475.000	T6N	R2W	4	SW	1	2200	1850	120	-4.79E-01
P1578	1744111.000	15941475.000	T6N	R2W	5	SW	1	2200	1850	120	-3.19E-01
P1579	1738831.000	15941475.000	T6N	R2W	6	SW	1	2200	1850	120	-3.19E-01
P158	1762591.000	15938835.000	T6N	R2W	11	NE	1	2200	1850	120	-3.62E+02
P1580	1738831.000	15936195.000	T6N	R2W	7	SW	1	2200	1850	120	-1.12E+00
P1581	1744111.000	15936195.000	T6N	R2W	8	SW	1	2200	1850	120	-6.39E-01
P1582	1749391.000	15936195.000	T6N	R2W	9	SW	1	2200	1850	120	0.00E+00
P1583	1754671.000	15936195.000	T6N	R2W	10	SW	1	2200	1850	120	-1.60E-01
P1584	1759951.000	15936195.000	T6N	R2W	11	SW	1	2200	1850	120	-3.62E+02
P1585	1765231.000	15936195.000	T6N	R2W	12	SW	1	2200	1850	120	-4.58E+00
P1586	1765231.000	15930915.000	T6N	R2W	13	SW	1	2200	1850	120	-3.99E+00
P1587	1759951.000	15930915.000	T6N	R2W	14	SW	1	2200	1850	120	-1.12E+00
P1588	1754671.000	15930915.000	T6N	R2W	15	SW	1	2200	1850	120	-7.99E-01
P1589	1749391.000	15930915.000	T6N	R2W	16	SW	1	2200	1850	120	-1.60E+00
P159	1767871.000	15938835.000	T6N	R2W	12	NE	1	2200	1850	120	-3.92E+01
P1590	1744111.000	15930915.000	T6N	R2W	17	SW	1	2200	1850	120	-3.19E-01
P1591	1738831.000	15930915.000	T6N	R2W	18	SW	1	2200	1850	120	-4.79E-01
P1592	1738831.000	15925635.000	T6N	R2W	19	SW	1	2350	1850	120	-3.19E-01
P1593	1744111.000	15925635.000	T6N	R2W	20	SW	1	2350	1850	120	-1.92E+00
P1594	1749391.000	15925635.000	T6N	R2W	21	SW	1	2200	1850	120	0.00E+00
P1595	1754671.000	15925635.000	T6N	R2W	22	SW	1	2200	1850	120	-1.60E-01
P1596	1759951.000	15925635.000	T6N	R2W	23	SW	1	2200	1850	120	-6.39E-01
P1597	1765231.000	15925635.000	T6N	R2W	24	SW	1	2200	1850	120	-9.58E-01
P1598	1765231.000	15920355.000	T6N	R2W	25	SW	1	2200	1850	120	-1.44E+00
P1599	1759951.000	15920355.000	T6N	R2W	26	SW	1	2200	1850	120	-6.39E-01
P16	1736445.000	15954845.000	T7N	R3W	25	NE	1	2200	1850	120	-2.35E+00
P160	1767871.000	15933555.000	T6N	R2W	13	NE	1	2200	1850	120	-3.65E+02
P1600	1754671.000	15920355.000	T6N	R2W	27	SW	1	2200	1850	120	-1.12E+00
P1601	1749391.000	15920355.000	T6N	R2W	28	SW	1	2350	1850	120	-1.60E-01
P1602	1744111.000	15920355.000	T6N	R2W	29	SW	1	2350	1850	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1603	1738831.000	15920355.000	T6N	R2W	30	SW	1	2350	1850	120	-1.60E-01
P1604	1738793.000	15915360.000	T6N	R2W	31	SW	1	2350	1850	120	0.00E+00
P1605	1744073.000	15915360.000	T6N	R2W	32	SW	1	2350	1850	120	0.00E+00
P1606	1749353.000	15915360.000	T6N	R2W	33	SW	1	2350	1850	120	0.00E+00
P1607	1754633.000	15915360.000	T6N	R2W	34	SW	1	2500	2100	120	0.00E+00
P1608	1759913.000	15915360.000	T6N	R2W	35	SW	1	2500	2100	120	0.00E+00
P1609	1765193.000	15915360.000	T6N	R2W	36	SW	1	2200	1850	120	0.00E+00
P161	1762591.000	15933555.000	T6N	R2W	14	NE	1	2200	1850	120	-3.63E+02
P1610	1796911.000	15941475.000	T6N	R1W	1	SW	1	3300	2500	120	-1.60E-01
P1611	1791631.000	15941475.000	T6N	R1W	2	SW	1	2500	2350	120	0.00E+00
P1612	1786351.000	15941475.000	T6N	R1W	3	SW	1	2400	2300	120	-1.12E+00
P1613	1781071.000	15941475.000	T6N	R1W	4	SW	1	2300	2100	120	-8.15E+00
P1614	1775791.000	15941475.000	T6N	R1W	5	SW	1	2300	2100	120	-1.60E-01
P1615	1770511.000	15941475.000	T6N	R1W	6	SW	1	2300	2100	120	-4.32E+01
P1616	1770511.000	15936195.000	T6N	R1W	7	SW	1	2300	2100	120	-3.64E+02
P1617	1775791.000	15936195.000	T6N	R1W	8	SW	1	2300	2100	120	-3.66E+02
P1618	1781071.000	15936195.000	T6N	R1W	9	SW	1	2400	2300	120	0.00E+00
P1619	1786351.000	15936195.000	T6N	R1W	10	SW	1	2700	2500	120	0.00E+00
P162	1757311.000	15933555.000	T6N	R2W	15	NE	1	2200	1850	120	-1.76E+00
P1620	1791631.000	15936195.000	T6N	R1W	11	SW	1	3000	2500	120	0.00E+00
P1621	1796911.000	15936195.000	T6N	R1W	12	SW	1	3000	2500	120	0.00E+00
P1622	1796911.000	15930915.000	T6N	R1W	13	SW	1	3300	2500	120	0.00E+00
P1623	1791631.000	15930915.000	T6N	R1W	14	SW	1	3000	2500	120	0.00E+00
P1624	1786351.000	15930915.000	T6N	R1W	15	SW	1	2800	2500	120	0.00E+00
P1625	1781071.000	15930915.000	T6N	R1W	16	SW	1	2500	2300	120	-7.99E-01
P1626	1775791.000	15930915.000	T6N	R1W	17	SW	1	2300	2200	120	-2.88E+00
P1627	1770511.000	15930915.000	T6N	R1W	18	SW	1	2300	2200	120	-3.65E+02
P1628	1770511.000	15925635.000	T6N	R1W	19	SW	1	2200	1850	120	-3.64E+02
P1629	1775791.000	15925635.000	T6N	R1W	20	SW	1	2400	2300	120	-6.39E-01
P163	1752031.000	15933555.000	T6N	R2W	16	NE	1	2200	1850	120	0.00E+00
P1630	1781071.000	15925635.000	T6N	R1W	21	SW	1	2900	2500	120	-6.39E-01
P1631	1786351.000	15925635.000	T6N	R1W	22	SW	1	3000	2500	120	0.00E+00
P1632	1791631.000	15925635.000	T6N	R1W	23	SW	1	3000	2500	120	0.00E+00
P1633	1796911.000	15925635.000	T6N	R1W	24	SW	1	3000	2500	120	0.00E+00
P1634	1796911.000	15920355.000	T6N	R1W	25	SW	1	2900	2500	120	0.00E+00
P1635	1791631.000	15920355.000	T6N	R1W	26	SW	1	3000	2500	120	0.00E+00
P1636	1786351.000	15920355.000	T6N	R1W	27	SW	1	3000	2500	120	0.00E+00
P1637	1781071.000	15920355.000	T6N	R1W	28	SW	1	2900	2500	120	-1.60E-01
P1638	1775791.000	15920355.000	T6N	R1W	29	SW	1	2200	1850	120	-1.60E-01
P1639	1770511.000	15920355.000	T6N	R1W	30	SW	1	2200	1850	120	-7.99E-01
P164	1746751.000	15933555.000	T6N	R2W	17	NE	1	2200	1850	120	0.00E+00
P1640	1770473.000	15915360.000	T6N	R1W	31	SW	1	2200	1850	120	-1.60E-01
P1641	1775753.000	15915360.000	T6N	R1W	32	SW	1	2200	1850	120	-1.03E+02
P1642	1781033.000	15915360.000	T6N	R1W	33	SW	1	2200	1850	120	0.00E+00
P1643	1786313.000	15915360.000	T6N	R1W	34	SW	1	2800	2500	120	0.00E+00
P1644	1791593.000	15915360.000	T6N	R1W	35	SW	1	2800	2500	120	0.00E+00
P1645	1796873.000	15915360.000	T6N	R1W	36	SW	1	2800	2500	120	0.00E+00
P1646	1828591.000	15941475.000	T6N	R1E	1	SW	1	3300	2500	120	0.00E+00
P1647	1823311.000	15941475.000	T6N	R1E	2	SW	1	3300	2500	120	0.00E+00
P1648	1818031.000	15941475.000	T6N	R1E	3	SW	1	3300	2500	120	0.00E+00
P1649	1812751.000	15941475.000	T6N	R1E	4	SW	1	3300	2500	120	-1.60E-01
P165	1741471.000	15933555.000	T6N	R2W	18	NE	1	2200	1850	120	-6.39E-01
P1650	1807471.000	15941475.000	T6N	R1E	5	SW	1	3000	2500	120	0.00E+00
P1651	1802191.000	15941475.000	T6N	R1E	6	SW	1	3300	2500	120	0.00E+00
P1652	1802191.000	15936195.000	T6N	R1E	7	SW	1	3300	2500	120	0.00E+00
P1653	1807471.000	15936195.000	T6N	R1E	8	SW	1	3300	2500	120	-1.60E-01
P1654	1812751.000	15936195.000	T6N	R1E	9	SW	1	3300	2500	120	0.00E+00
P1655	1818031.000	15936195.000	T6N	R1E	10	SW	1	3300	2500	120	0.00E+00
P1656	1823311.000	15936195.000	T6N	R1E	11	SW	1	3300	2500	120	0.00E+00
P1657	1828591.000	15936195.000	T6N	R1E	12	SW	1	3300	2500	120	0.00E+00
P1658	1828591.000	15930915.000	T6N	R1E	13	SW	1	3300	2500	120	0.00E+00
P1659	1823311.000	15930915.000	T6N	R1E	14	SW	1	3300	2500	120	0.00E+00
P166	1741471.000	15928275.000	T6N	R2W	19	NE	1	2350	1850	120	-1.60E-01
P1660	1818031.000	15930915.000	T6N	R1E	15	SW	1	3300	2500	120	0.00E+00
P1661	1812751.000	15930915.000	T6N	R1E	16	SW	1	3300	2500	120	-4.79E-01
P1662	1807471.000	15930915.000	T6N	R1E	17	SW	1	3300	2500	120	0.00E+00
P1663	1802191.000	15930915.000	T6N	R1E	18	SW	1	3000	2500	120	-4.79E-01
P1664	1802191.000	15925635.000	T6N	R1E	19	SW	1	3000	2500	120	-4.79E-01
P1665	1807471.000	15925635.000	T6N	R1E	20	SW	1	3000	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1666	1812751.000	15925635.000	T6N	R1E	21	SW	1	3300	2500	120	0.00E+00
P1667	1818031.000	15925635.000	T6N	R1E	22	SW	1	3300	2500	120	-1.60E-01
P1668	1823311.000	15925635.000	T6N	R1E	23	SW	1	3300	2500	120	0.00E+00
P1669	1828591.000	15925635.000	T6N	R1E	24	SW	1	3300	2500	120	0.00E+00
P167	1746751.000	15928275.000	T6N	R2W	20	NE	1	2350	1850	120	0.00E+00
P1670	1828591.000	15920355.000	T6N	R1E	25	SW	1	3300	2500	120	0.00E+00
P1671	1823311.000	15920355.000	T6N	R1E	26	SW	1	3300	2500	120	0.00E+00
P1672	1818031.000	15920355.000	T6N	R1E	27	SW	1	3300	2500	120	0.00E+00
P1673	1812751.000	15920355.000	T6N	R1E	28	SW	1	3300	2500	120	0.00E+00
P1674	1807471.000	15920355.000	T6N	R1E	29	SW	1	3300	2500	120	0.00E+00
P1675	1802191.000	15920355.000	T6N	R1E	30	SW	1	3000	2500	120	0.00E+00
P1676	1802153.000	15915360.000	T6N	R1E	31	SW	1	3000	2500	120	0.00E+00
P1677	1807433.000	15915360.000	T6N	R1E	32	SW	1	3000	2500	120	0.00E+00
P1678	1812713.000	15915360.000	T6N	R1E	33	SW	1	3300	2500	120	0.00E+00
P1679	1817993.000	15915360.000	T6N	R1E	34	SW	1	3300	2500	120	0.00E+00
P168	1752031.000	15928275.000	T6N	R2W	21	NE	1	2200	1850	120	-3.19E-01
P1680	1823273.000	15915360.000	T6N	R1E	35	SW	1	3300	2500	120	0.00E+00
P1681	1828553.000	15915360.000	T6N	R1E	36	SW	1	3300	2500	120	0.00E+00
P1682	1849711.000	15941475.000	T6N	R2E	3	SW	1	2800	2500	120	0.00E+00
P1683	1844431.000	15941475.000	T6N	R2E	4	SW	1	3000	2500	120	0.00E+00
P1684	1839151.000	15941475.000	T6N	R2E	5	SW	1	3300	2500	120	0.00E+00
P1685	1833871.000	15941475.000	T6N	R2E	6	SW	1	3300	2500	120	0.00E+00
P1686	1833871.000	15936195.000	T6N	R2E	7	SW	1	3300	2500	120	0.00E+00
P1687	1839151.000	15936195.000	T6N	R2E	8	SW	1	3300	2500	120	0.00E+00
P1688	1844431.000	15936195.000	T6N	R2E	9	SW	1	3300	2500	120	0.00E+00
P1689	1849711.000	15936195.000	T6N	R2E	10	SW	1	3300	2500	120	0.00E+00
P169	1757311.000	15928275.000	T6N	R2W	22	NE	1	2200	1850	120	-2.08E+00
P1690	1849711.000	15930915.000	T6N	R2E	15	SW	1	3300	2500	120	0.00E+00
P1691	1844431.000	15930915.000	T6N	R2E	16	SW	1	3300	2500	120	0.00E+00
P1692	1839151.000	15930915.000	T6N	R2E	17	SW	1	3300	2500	120	0.00E+00
P1693	1833871.000	15930915.000	T6N	R2E	18	SW	1	3300	2500	120	0.00E+00
P1694	1833871.000	15925635.000	T6N	R2E	19	SW	1	3300	2500	120	0.00E+00
P1695	1839151.000	15925635.000	T6N	R2E	20	SW	1	3300	2500	120	0.00E+00
P1696	1844431.000	15925635.000	T6N	R2E	21	SW	1	3300	2500	120	0.00E+00
P1697	1849711.000	15925635.000	T6N	R2E	22	SW	1	3300	2500	120	0.00E+00
P1698	1849711.000	15920355.000	T6N	R2E	27	SW	1	3300	2500	120	0.00E+00
P1699	1844431.000	15920355.000	T6N	R2E	28	SW	1	3300	2500	120	0.00E+00
P17	1731165.000	15954845.000	T7N	R3W	26	NE	1	2200	1850	120	-2.35E+00
P170	1762591.000	15928275.000	T6N	R2W	23	NE	1	2200	1850	120	0.00E+00
P1700	1839151.000	15920355.000	T6N	R2E	29	SW	1	3300	2500	120	0.00E+00
P1701	1833871.000	15920355.000	T6N	R2E	30	SW	1	3300	2500	120	0.00E+00
P1702	1833833.000	15915360.000	T6N	R2E	31	SW	1	3300	2500	120	0.00E+00
P1703	1839113.000	15915360.000	T6N	R2E	32	SW	1	3300	2500	120	0.00E+00
P1704	1844393.000	15915360.000	T6N	R2E	33	SW	1	3300	2500	120	0.00E+00
P1705	1849673.000	15915360.000	T6N	R2E	34	SW	1	3300	2500	120	0.00E+00
P1706	1701871.000	15909684.000	T5N	R4W	1	SW	1	2100	1850	120	0.00E+00
P1707	1696591.000	15909684.000	T5N	R4W	2	SW	1	2100	1850	120	-3.62E-02
P1708	1691311.000	15909684.000	T5N	R4W	3	SW	1	2100	1850	120	0.00E+00
P1709	1691311.000	15904404.000	T5N	R4W	10	SW	1	2100	1850	120	0.00E+00
P171	1767871.000	15928275.000	T6N	R2W	24	NE	1	2200	1850	120	0.00E+00
P1710	1696591.000	15904404.000	T5N	R4W	11	SW	1	2100	1850	120	0.00E+00
P1711	1701871.000	15904404.000	T5N	R4W	12	SW	1	2100	1850	120	0.00E+00
P1712	1701871.000	15899124.000	T5N	R4W	13	SW	1	2100	1850	120	-3.62E-01
P1713	1696591.000	15899124.000	T5N	R4W	14	SW	1	2100	1850	120	-3.62E-01
P1714	1691311.000	15899124.000	T5N	R4W	15	SW	1	2100	1850	120	-3.62E-01
P1715	1691311.000	15893844.000	T5N	R4W	22	SW	1	2100	1850	120	-3.62E-01
P1716	1696591.000	15893844.000	T5N	R4W	23	SW	1	2100	1850	120	-3.62E-01
P1717	1701871.000	15893844.000	T5N	R4W	24	SW	1	2100	1850	120	-3.62E-01
P1718	1701871.000	15888564.000	T5N	R4W	25	SW	1	2100	1850	120	-3.62E-01
P1719	1696591.000	15888564.000	T5N	R4W	26	SW	1	2100	1850	120	-3.62E-01
P172	1767871.000	15922995.000	T6N	R2W	25	NE	1	2200	1850	120	-6.39E-01
P1720	1691311.000	15888564.000	T5N	R4W	27	SW	1	2100	1850	120	-3.62E-01
P1721	1691311.000	15883284.000	T5N	R4W	34	SW	1	2100	1850	120	-3.62E-01
P1722	1696591.000	15883284.000	T5N	R4W	35	SW	1	2100	1850	120	-3.62E-01
P1723	1701871.000	15883284.000	T5N	R4W	36	SW	1	2100	1850	120	-3.62E-01
P1724	1733551.000	15909684.000	T5N	R3W	1	SW	1	2350	1850	120	-3.62E-01
P1725	1728271.000	15909684.000	T5N	R3W	2	SW	1	2350	1850	120	0.00E+00
P1726	1722991.000	15909684.000	T5N	R3W	3	SW	1	2350	1850	120	0.00E+00
P1727	1717711.000	15909684.000	T5N	R3W	4	SW	1	2350	1850	120	-1.81E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1728	1712431.000	15909684.000	T5N	R3W	5	SW	1	2350	1850	120	-3.62E-01
P1729	1707151.000	15909684.000	T5N	R3W	6	SW	1	2350	1850	120	-3.62E-01
P173	1762591.000	15922995.000	T6N	R2W	26	NE	1	2200	1850	120	-3.19E-01
P1730	1707151.000	15904404.000	T5N	R3W	7	SW	1	2350	1850	120	-3.62E-01
P1731	1712431.000	15904404.000	T5N	R3W	8	SW	1	2350	1850	120	-1.81E+00
P1732	1717711.000	15904404.000	T5N	R3W	9	SW	1	2350	1850	120	-3.62E-01
P1733	1722991.000	15904404.000	T5N	R3W	10	SW	1	2350	1850	120	-3.62E-01
P1734	1728271.000	15904404.000	T5N	R3W	11	SW	1	2350	1850	120	0.00E+00
P1735	1733551.000	15904404.000	T5N	R3W	12	SW	1	2350	1850	120	0.00E+00
P1736	1733551.000	15899124.000	T5N	R3W	13	SW	1	2350	1850	120	-3.62E-01
P1737	1728271.000	15899124.000	T5N	R3W	14	SW	1	2350	1850	120	-3.62E-01
P1738	1722991.000	15899124.000	T5N	R3W	15	SW	1	2350	1850	120	-3.62E-01
P1739	1717711.000	15899124.000	T5N	R3W	16	SW	1	2350	1850	120	-3.62E-01
P174	1757311.000	15922995.000	T6N	R2W	27	NE	1	2200	1850	120	0.00E+00
P1740	1712431.000	15899124.000	T5N	R3W	17	SW	1	2350	1850	120	-1.81E+00
P1741	1707151.000	15899124.000	T5N	R3W	18	SW	1	2350	1850	120	-3.62E-01
P1742	1707151.000	15893844.000	T5N	R3W	19	SW	1	2350	1850	120	-3.62E-01
P1743	1712431.000	15893844.000	T5N	R3W	20	SW	1	2350	1850	120	-3.62E-01
P1744	1717711.000	15893844.000	T5N	R3W	21	SW	1	2350	1850	120	-3.62E-01
P1745	1722991.000	15893844.000	T5N	R3W	22	SW	1	2350	1850	120	-3.62E-01
P1746	1728271.000	15893844.000	T5N	R3W	23	SW	1	2350	1850	120	-3.62E-01
P1747	1733551.000	15893844.000	T5N	R3W	24	SW	1	2350	1850	120	-3.62E-01
P1748	1733551.000	15888564.000	T5N	R3W	25	SW	1	2350	1850	120	-3.62E-01
P1749	1728271.000	15888564.000	T5N	R3W	26	SW	1	2350	1850	120	-3.62E-01
P175	1752031.000	15922995.000	T6N	R2W	28	NE	1	2350	1850	120	0.00E+00
P1750	1722991.000	15888564.000	T5N	R3W	27	SW	1	2350	1850	120	-3.62E-01
P1751	1717711.000	15888564.000	T5N	R3W	28	SW	1	2350	1850	120	-3.62E-01
P1752	1712431.000	15888564.000	T5N	R3W	29	SW	1	2350	1850	120	-3.62E-01
P1753	1707151.000	15888564.000	T5N	R3W	30	SW	1	2350	1850	120	-3.62E-01
P1754	1707151.000	15883284.000	T5N	R3W	31	SW	1	2350	1850	120	-3.62E-01
P1755	1712431.000	15883284.000	T5N	R3W	32	SW	1	2350	1850	120	-3.62E-01
P1756	1717711.000	15883284.000	T5N	R3W	33	SW	1	2350	1850	120	-3.62E-01
P1757	1722991.000	15883284.000	T5N	R3W	34	SW	1	2350	1850	120	-3.62E-01
P1758	1728271.000	15883284.000	T5N	R3W	35	SW	1	2350	1850	120	-3.62E-01
P1759	1733551.000	15883284.000	T5N	R3W	36	SW	1	2350	1850	120	-3.62E-01
P176	1746751.000	15922995.000	T6N	R2W	29	NE	1	2350	1850	120	0.00E+00
P1760	1765231.000	15909684.000	T5N	R2W	1	SW	1	2500	2100	120	0.00E+00
P1761	1759951.000	15909684.000	T5N	R2W	2	SW	1	2500	2100	120	0.00E+00
P1762	1754671.000	15909684.000	T5N	R2W	3	SW	1	2500	2100	120	0.00E+00
P1763	1749391.000	15909684.000	T5N	R2W	4	SW	1	2350	1850	120	0.00E+00
P1764	1744111.000	15909684.000	T5N	R2W	5	SW	1	2350	1850	120	-4.85E+02
P1765	1738831.000	15909684.000	T5N	R2W	6	SW	1	2350	1850	120	-5.39E+01
P1766	1738831.000	15904404.000	T5N	R2W	7	SW	1	2350	1850	120	0.00E+00
P1767	1744111.000	15904404.000	T5N	R2W	8	SW	1	2350	1850	120	0.00E+00
P1768	1749391.000	15904404.000	T5N	R2W	9	SW	1	2350	1850	120	-1.60E-01
P1769	1754671.000	15904404.000	T5N	R2W	10	SW	1	2500	2100	120	0.00E+00
P177	1741471.000	15922995.000	T6N	R2W	30	NE	1	2350	1850	120	0.00E+00
P1770	1759951.000	15904404.000	T5N	R2W	11	SW	1	2500	2100	120	0.00E+00
P1771	1765231.000	15904404.000	T5N	R2W	12	SW	1	2500	2100	120	0.00E+00
P1772	1765231.000	15899124.000	T5N	R2W	13	SW	1	2500	2100	120	0.00E+00
P1773	1759951.000	15899124.000	T5N	R2W	14	SW	1	2500	2100	120	0.00E+00
P1774	1754671.000	15899124.000	T5N	R2W	15	SW	1	2350	1850	120	0.00E+00
P1775	1749391.000	15899124.000	T5N	R2W	16	SW	1	2350	1850	120	0.00E+00
P1776	1744111.000	15899124.000	T5N	R2W	17	SW	1	2350	1850	120	-4.94E+01
P1777	1738831.000	15899124.000	T5N	R2W	18	SW	1	2350	1850	120	0.00E+00
P1778	1738831.000	15893844.000	T5N	R2W	19	SW	1	2350	1850	120	-7.60E+00
P1779	1744111.000	15893844.000	T5N	R2W	20	SW	1	2350	1850	120	-4.55E+01
P178	1741433.000	15918000.000	T6N	R2W	31	NE	1	2350	1850	120	0.00E+00
P1780	1749391.000	15893844.000	T5N	R2W	21	SW	1	2350	1850	120	-1.56E+01
P1781	1754671.000	15893844.000	T5N	R2W	22	SW	1	2500	2100	120	-5.40E+01
P1782	1759951.000	15893844.000	T5N	R2W	23	SW	1	2500	2100	120	0.00E+00
P1783	1765231.000	15893844.000	T5N	R2W	24	SW	1	2500	2100	120	0.00E+00
P1784	1765231.000	15888564.000	T5N	R2W	25	SW	1	2500	2100	120	-2.04E+03
P1785	1759951.000	15888564.000	T5N	R2W	26	SW	1	2500	2100	120	-8.26E+01
P1786	1754671.000	15888564.000	T5N	R2W	27	SW	1	2500	2100	120	-4.50E+01
P1787	1749391.000	15888564.000	T5N	R2W	28	SW	1	2350	1850	120	-2.24E+00
P1788	1744111.000	15888564.000	T5N	R2W	29	SW	1	2350	1850	120	-9.58E-01
P1789	1738831.000	15888564.000	T5N	R2W	30	SW	1	2350	1850	120	-1.60E-01
P179	1746713.000	15918000.000	T6N	R2W	32	NE	1	2350	1850	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1790	1738831.000	15883284.000	T5N	R2W	31	SW	1	2350	1850	120	-1.12E+00
P1791	1744111.000	15883284.000	T5N	R2W	32	SW	1	2350	1850	120	-9.58E-01
P1792	1749391.000	15883284.000	T5N	R2W	33	SW	1	2350	1850	120	-7.44E+01
P1793	1754671.000	15883284.000	T5N	R2W	34	SW	1	2500	2100	120	-9.36E+01
P1794	1759951.000	15883284.000	T5N	R2W	35	SW	1	2500	2100	120	-1.12E+00
P1795	1765231.000	15883284.000	T5N	R2W	36	SW	1	2500	2100	120	-6.39E-01
P1796	1796911.000	15909684.000	T5N	R1W	1	SW	1	2900	2500	120	-1.60E-01
P1797	1791631.000	15909684.000	T5N	R1W	2	SW	1	2800	2500	120	0.00E+00
P1798	1786351.000	15909684.000	T5N	R1W	3	SW	1	2200	1850	120	-6.39E-01
P1799	1781071.000	15909684.000	T5N	R1W	4	SW	1	2200	1850	120	0.00E+00
P18	1725885.000	15954845.000	T7N	R3W	27	NE	1	2200	1850	120	-2.35E+00
P180	1751993.000	15918000.000	T6N	R2W	33	NE	1	2350	1850	120	0.00E+00
P1800	1775791.000	15909684.000	T5N	R1W	5	SW	1	2200	1850	120	0.00E+00
P1801	1770511.000	15909684.000	T5N	R1W	6	SW	1	2500	2100	120	-3.19E-01
P1802	1770511.000	15904404.000	T5N	R1W	7	SW	1	2500	2100	120	0.00E+00
P1803	1775791.000	15904404.000	T5N	R1W	8	SW	1	2500	2100	120	-6.39E-01
P1804	1781071.000	15904404.000	T5N	R1W	9	SW	1	2500	2100	120	-2.80E+02
P1805	1786351.000	15904404.000	T5N	R1W	10	SW	1	2200	1850	120	0.00E+00
P1806	1791631.000	15904404.000	T5N	R1W	11	SW	1	2200	1850	120	0.00E+00
P1807	1796911.000	15904404.000	T5N	R1W	12	SW	1	3000	2500	120	0.00E+00
P1808	1796911.000	15899124.000	T5N	R1W	13	SW	1	2500	2100	120	0.00E+00
P1809	1791631.000	15899124.000	T5N	R1W	14	SW	1	2500	2100	120	0.00E+00
P181	1757273.000	15918000.000	T6N	R2W	34	NE	1	2500	2100	120	0.00E+00
P1810	1786351.000	15899124.000	T5N	R1W	15	SW	1	2500	2100	120	-1.60E-01
P1811	1781071.000	15899124.000	T5N	R1W	16	SW	1	2500	2100	120	-2.48E+00
P1812	1775791.000	15899124.000	T5N	R1W	17	SW	1	2500	2100	120	-4.79E-01
P1813	1770511.000	15899124.000	T5N	R1W	18	SW	1	2500	2100	120	-1.60E-01
P1814	1770511.000	15893844.000	T5N	R1W	19	SW	1	2500	2100	120	-4.17E+02
P1815	1775791.000	15893844.000	T5N	R1W	20	SW	1	2500	2100	120	0.00E+00
P1816	1781071.000	15893844.000	T5N	R1W	21	SW	1	2500	2100	120	-4.79E-01
P1817	1786351.000	15893844.000	T5N	R1W	22	SW	1	2500	2100	120	-1.60E-01
P1818	1791631.000	15893844.000	T5N	R1W	23	SW	1	2500	2100	120	-5.39E+01
P1819	1796911.000	15893844.000	T5N	R1W	24	SW	1	2500	2100	120	-5.40E+01
P182	1762553.000	15918000.000	T6N	R2W	35	NE	1	2500	2100	120	0.00E+00
P1820	1796911.000	15888564.000	T5N	R1W	25	SW	1	2500	2100	120	0.00E+00
P1821	1791631.000	15888564.000	T5N	R1W	26	SW	1	2500	2100	120	-5.47E+01
P1822	1786351.000	15888564.000	T5N	R1W	27	SW	1	2500	2100	120	-1.60E-01
P1823	1781071.000	15888564.000	T5N	R1W	28	SW	1	2500	2100	120	-3.19E-01
P1824	1775791.000	15888564.000	T5N	R1W	29	SW	1	2500	2100	120	-1.60E-01
P1825	1770511.000	15888564.000	T5N	R1W	30	SW	1	2500	2100	120	-1.60E-01
P1826	1770511.000	15883284.000	T5N	R1W	31	SW	1	2500	2100	120	-9.17E+01
P1827	1775791.000	15883284.000	T5N	R1W	32	SW	1	2500	2100	120	-1.22E+02
P1828	1781071.000	15883284.000	T5N	R1W	33	SW	1	2500	2100	120	-7.23E+00
P1829	1786351.000	15883284.000	T5N	R1W	34	SW	1	2500	2100	120	-3.19E-01
P183	1767833.000	15918000.000	T6N	R2W	36	NE	1	2200	1850	120	0.00E+00
P1830	1791631.000	15883284.000	T5N	R1W	35	SW	1	2500	2100	120	-2.82E+01
P1831	1796911.000	15883284.000	T5N	R1W	36	SW	1	2500	2100	120	-1.20E+02
P1832	1828591.000	15909684.000	T5N	R1E	1	SW	1	3300	2500	120	0.00E+00
P1833	1823311.000	15909684.000	T5N	R1E	2	SW	1	3300	2500	120	0.00E+00
P1834	1818031.000	15909684.000	T5N	R1E	3	SW	1	3300	2500	120	0.00E+00
P1835	1812751.000	15909684.000	T5N	R1E	4	SW	1	3000	2500	120	-4.79E-01
P1836	1807471.000	15909684.000	T5N	R1E	5	SW	1	3000	2500	120	0.00E+00
P1837	1802191.000	15909684.000	T5N	R1E	6	SW	1	3000	2500	120	-3.19E-01
P1838	1802191.000	15904404.000	T5N	R1E	7	SW	1	3000	2500	120	0.00E+00
P1839	1807471.000	15904404.000	T5N	R1E	8	SW	1	2900	2500	120	0.00E+00
P184	1799551.000	15944115.000	T6N	R1W	1	NE	1	3300	2500	120	-1.60E-01
P1840	1812751.000	15904404.000	T5N	R1E	9	SW	1	3000	2500	120	-1.60E-01
P1841	1818031.000	15904404.000	T5N	R1E	10	SW	1	3000	2500	120	0.00E+00
P1842	1823311.000	15904404.000	T5N	R1E	11	SW	1	3300	2500	120	-1.60E-01
P1843	1828591.000	15904404.000	T5N	R1E	12	SW	1	3300	2500	120	0.00E+00
P1844	1828591.000	15899124.000	T5N	R1E	13	SW	1	3300	2500	120	0.00E+00
P1845	1823311.000	15899124.000	T5N	R1E	14	SW	1	3000	2500	120	0.00E+00
P1846	1818031.000	15899124.000	T5N	R1E	15	SW	1	3000	2500	120	-3.19E-01
P1847	1812751.000	15899124.000	T5N	R1E	16	SW	1	3000	2500	120	0.00E+00
P1848	1807471.000	15899124.000	T5N	R1E	17	SW	1	2900	2500	120	0.00E+00
P1849	1802191.000	15899124.000	T5N	R1E	18	SW	1	2900	2500	120	0.00E+00
P185	1794271.000	15944115.000	T6N	R1W	2	NE	1	2500	2350	120	-3.19E-01
P1850	1802191.000	15893844.000	T5N	R1E	19	SW	1	2600	2100	120	0.00E+00
P1851	1807471.000	15893844.000	T5N	R1E	20	SW	1	2800	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1852	1812751.000	15893844.000	T5N	R1E	21	SW	1	2700	2500	120	-1.60E-01
P1853	1818031.000	15893844.000	T5N	R1E	22	SW	1	2900	2500	120	0.00E+00
P1854	1823311.000	15893844.000	T5N	R1E	23	SW	1	3000	2500	120	-1.60E-01
P1855	1828591.000	15893844.000	T5N	R1E	24	SW	1	2900	2500	120	0.00E+00
P1856	1828591.000	15888564.000	T5N	R1E	25	SW	1	2800	2500	120	-3.28E+01
P1857	1823311.000	15888564.000	T5N	R1E	26	SW	1	2800	2500	120	-5.10E+01
P1858	1818031.000	15888564.000	T5N	R1E	27	SW	1	2900	2500	120	-1.60E-01
P1859	1812751.000	15888564.000	T5N	R1E	28	SW	1	2800	2500	120	-1.49E+01
P186	1788991.000	15944115.000	T6N	R1W	3	NE	1	2500	2350	120	-2.56E+00
P1860	1807471.000	15888564.000	T5N	R1E	29	SW	1	2600	2100	120	-3.89E+02
P1861	1802191.000	15888564.000	T5N	R1E	30	SW	1	2600	2100	120	-1.60E-01
P1862	1802191.000	15883284.000	T5N	R1E	31	SW	1	2600	2100	120	-3.35E+00
P1863	1807471.000	15883284.000	T5N	R1E	32	SW	1	2600	2100	120	-3.43E+01
P1864	1812751.000	15883284.000	T5N	R1E	33	SW	1	2600	2100	120	-2.08E+00
P1865	1818031.000	15883284.000	T5N	R1E	34	SW	1	2600	2500	120	-2.97E+02
P1866	1823311.000	15883284.000	T5N	R1E	35	SW	1	2700	2500	120	-7.83E+00
P1867	1828591.000	15883284.000	T5N	R1E	36	SW	1	2900	2500	120	-1.60E-01
P1868	1849711.000	15909684.000	T5N	R2E	3	SW	1	3300	2500	120	0.00E+00
P1869	1844431.000	15909684.000	T5N	R2E	4	SW	1	3300	2500	120	0.00E+00
P187	1783711.000	15944115.000	T6N	R1W	4	NE	1	2400	2350	120	-5.91E+00
P1870	1839151.000	15909684.000	T5N	R2E	5	SW	1	3300	2500	120	0.00E+00
P1871	1833871.000	15909684.000	T5N	R2E	6	SW	1	3300	2500	120	0.00E+00
P1872	1833871.000	15904404.000	T5N	R2E	7	SW	1	3300	2500	120	0.00E+00
P1873	1839151.000	15904404.000	T5N	R2E	8	SW	1	3300	2500	120	0.00E+00
P1874	1844431.000	15904404.000	T5N	R2E	9	SW	1	3300	2500	120	0.00E+00
P1875	1849711.000	15904404.000	T5N	R2E	10	SW	1	3300	2500	120	0.00E+00
P1876	1849711.000	15899124.000	T5N	R2E	15	SW	1	3300	2500	120	0.00E+00
P1877	1844431.000	15899124.000	T5N	R2E	16	SW	1	3300	2500	120	0.00E+00
P1878	1839151.000	15899124.000	T5N	R2E	17	SW	1	3300	2500	120	0.00E+00
P1879	1833871.000	15899124.000	T5N	R2E	18	SW	1	3000	2500	120	0.00E+00
P188	1778431.000	15944115.000	T6N	R1W	5	NE	1	2300	2200	120	-3.63E+02
P1880	1833871.000	15893844.000	T5N	R2E	19	SW	1	3000	2500	120	-4.79E-01
P1881	1839151.000	15893844.000	T5N	R2E	20	SW	1	3300	2500	120	0.00E+00
P1882	1844431.000	15893844.000	T5N	R2E	21	SW	1	3300	2500	120	0.00E+00
P1883	1849711.000	15893844.000	T5N	R2E	22	SW	1	3300	2500	120	0.00E+00
P1884	1849711.000	15888564.000	T5N	R2E	27	SW	1	3300	2500	120	0.00E+00
P1885	1844431.000	15888564.000	T5N	R2E	28	SW	1	3300	2500	120	0.00E+00
P1886	1839151.000	15888564.000	T5N	R2E	29	SW	1	3000	2500	120	0.00E+00
P1887	1833871.000	15888564.000	T5N	R2E	30	SW	1	2800	2500	120	-3.19E-01
P1888	1833871.000	15883284.000	T5N	R2E	31	SW	1	2800	2500	120	-9.58E-01
P1889	1839151.000	15883284.000	T5N	R2E	32	SW	1	2800	2500	120	0.00E+00
P189	1773151.000	15944115.000	T6N	R1W	6	NE	1	2400	2350	120	-4.74E+00
P1890	1844431.000	15883284.000	T5N	R2E	33	SW	1	3000	2500	120	0.00E+00
P1891	1849711.000	15883284.000	T5N	R2E	34	SW	1	3300	2500	120	0.00E+00
P1892	1702069.000	15878093.000	T4N	R4W	1	SW	1	2100	1850	120	-7.24E-01
P1893	1696789.000	15878093.000	T4N	R4W	2	SW	1	2100	1850	120	-7.24E-01
P1894	1691509.000	15878093.000	T4N	R4W	3	SW	1	2100	1850	120	-7.24E-01
P1895	1691509.000	15872813.000	T4N	R4W	10	SW	1	2100	1850	120	-7.24E-01
P1896	1696789.000	15872813.000	T4N	R4W	11	SW	1	2100	1850	120	-7.24E-01
P1897	1702069.000	15872813.000	T4N	R4W	12	SW	1	2100	1850	120	-7.24E-01
P1898	1702069.000	15867533.000	T4N	R4W	13	SW	1	2100	1850	120	-7.24E-01
P1899	1696789.000	15867533.000	T4N	R4W	14	SW	1	2100	1850	120	-7.24E-01
P19	1720605.000	15954845.000	T7N	R3W	28	NE	1	2200	1850	120	-2.35E+00
P190	1773151.000	15938835.000	T6N	R1W	7	NE	1	2300	2200	120	-3.89E+01
P1900	1691509.000	15867533.000	T4N	R4W	15	SW	1	2100	1850	120	-7.24E-01
P1901	1691509.000	15862253.000	T4N	R4W	22	SW	1	2100	1850	120	-7.24E-01
P1902	1696789.000	15862253.000	T4N	R4W	23	SW	1	2100	1850	120	-7.24E-01
P1903	1702069.000	15862253.000	T4N	R4W	24	SW	1	2100	1850	120	-7.24E-01
P1904	1702069.000	15856973.000	T4N	R4W	25	SW	1	2100	1850	120	-7.24E-01
P1905	1696789.000	15856973.000	T4N	R4W	26	SW	1	2100	1850	120	-7.24E-01
P1906	1691509.000	15856973.000	T4N	R4W	27	SW	1	2100	1850	120	-7.24E-01
P1907	1691509.000	15851693.000	T4N	R4W	34	SW	1	2100	1850	120	-7.24E-01
P1908	1696789.000	15851693.000	T4N	R4W	35	SW	1	2100	1850	120	-7.24E-01
P1909	1702069.000	15851693.000	T4N	R4W	36	SW	1	2100	1850	120	-7.24E-01
P191	1778431.000	15938835.000	T6N	R1W	8	NE	1	2300	2200	120	-3.91E+01
P1910	1733749.000	15878093.000	T4N	R3W	1	SW	1	2350	1850	120	-3.62E-01
P1911	1728469.000	15878093.000	T4N	R3W	2	SW	1	2350	1850	120	-3.62E-01
P1912	1723189.000	15878093.000	T4N	R3W	3	SW	1	2350	1850	120	-3.62E-01
P1913	1717909.000	15878093.000	T4N	R3W	4	SW	1	2350	1850	120	-3.62E-01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1914	1712629.000	15878093.000	T4N	R3W	5	SW	1	2350	1850	120	-3.62E-01
P1915	1707349.000	15878093.000	T4N	R3W	6	SW	1	2200	1850	120	-3.62E-01
P1916	1707349.000	15872813.000	T4N	R3W	7	SW	1	2200	1850	120	-3.62E-01
P1917	1712629.000	15872813.000	T4N	R3W	8	SW	1	2200	1850	120	-3.62E-01
P1918	1717909.000	15872813.000	T4N	R3W	9	SW	1	2350	1850	120	-3.62E-01
P1919	1723189.000	15872813.000	T4N	R3W	10	SW	1	2350	1850	120	-3.62E-01
P192	1783711.000	15938835.000	T6N	R1W	9	NE	1	2400	2200	120	0.00E+00
P1920	1728469.000	15872813.000	T4N	R3W	11	SW	1	2350	1850	120	-3.62E-01
P1921	1733749.000	15872813.000	T4N	R3W	12	SW	1	2350	1850	120	-3.62E-01
P1922	1733749.000	15867533.000	T4N	R3W	13	SW	1	2350	1850	120	-3.62E-01
P1923	1728469.000	15867533.000	T4N	R3W	14	SW	1	2350	1850	120	-3.62E-01
P1924	1723189.000	15867533.000	T4N	R3W	15	SW	1	2350	1850	120	-3.65E+02
P1925	1717909.000	15867533.000	T4N	R3W	16	SW	1	2200	1850	120	-3.62E-01
P1926	1712629.000	15867533.000	T4N	R3W	17	SW	1	2200	1850	120	-3.62E-01
P1927	1707349.000	15867533.000	T4N	R3W	18	SW	1	2200	1850	120	-3.62E-01
P1928	1707349.000	15862253.000	T4N	R3W	19	SW	1	2200	1850	120	-3.62E-01
P1929	1712629.000	15862253.000	T4N	R3W	20	SW	1	2200	1850	120	-3.62E-01
P193	1788991.000	15938835.000	T6N	R1W	10	NE	1	2400	2200	120	0.00E+00
P1930	1717909.000	15862253.000	T4N	R3W	21	SW	1	2350	1850	120	-6.52E+00
P1931	1723189.000	15862253.000	T4N	R3W	22	SW	1	2350	1850	120	-3.65E+02
P1932	1728469.000	15862253.000	T4N	R3W	23	SW	1	2350	1850	120	-3.65E+02
P1933	1733749.000	15862253.000	T4N	R3W	24	SW	1	2350	1850	120	-3.62E-01
P1934	1733749.000	15856973.000	T4N	R3W	25	SW	1	2350	1850	120	-3.62E-01
P1935	1728469.000	15856973.000	T4N	R3W	26	SW	1	2350	1850	120	-6.52E+00
P1936	1723189.000	15856973.000	T4N	R3W	27	SW	1	2350	1850	120	-3.65E+02
P1937	1717909.000	15856973.000	T4N	R3W	28	SW	1	2350	1850	120	-3.65E+02
P1938	1712629.000	15856973.000	T4N	R3W	29	SW	1	2350	1850	120	-3.66E+01
P1939	1707349.000	15856973.000	T4N	R3W	30	SW	1	2350	1850	120	-3.62E-01
P194	1794271.000	15938835.000	T6N	R1W	11	NE	1	3000	2500	120	0.00E+00
P1940	1707349.000	15851693.000	T4N	R3W	31	SW	1	2350	1850	120	-3.62E-01
P1941	1712629.000	15851693.000	T4N	R3W	32	SW	1	2350	1850	120	-3.62E-01
P1942	1717909.000	15851693.000	T4N	R3W	33	SW	1	2350	1850	120	-3.62E-01
P1943	1723189.000	15851693.000	T4N	R3W	34	SW	1	2350	1850	120	-3.62E-01
P1944	1728469.000	15851693.000	T4N	R3W	35	SW	1	2350	1850	120	-3.62E-01
P1945	1733749.000	15851693.000	T4N	R3W	36	SW	1	2350	1850	120	-3.62E-01
P1946	1765429.000	15878093.000	T4N	R2W	1	SW	1	2400	2100	120	-1.76E+00
P1947	1760149.000	15878093.000	T4N	R2W	2	SW	1	2400	2100	120	-2.08E+00
P1948	1754869.000	15878093.000	T4N	R2W	3	SW	1	2400	2100	120	-1.76E+03
P1949	1749589.000	15878093.000	T4N	R2W	4	SW	1	2350	1850	120	-4.95E+00
P195	1799551.000	15938835.000	T6N	R1W	12	NE	1	3300	2500	120	0.00E+00
P1950	1744309.000	15878093.000	T4N	R2W	5	SW	1	2350	1850	120	-1.92E+00
P1951	1739029.000	15878093.000	T4N	R2W	6	SW	1	2350	1850	120	-2.08E+01
P1952	1739029.000	15872813.000	T4N	R2W	7	SW	1	2350	1850	120	-1.76E+00
P1953	1744309.000	15872813.000	T4N	R2W	8	SW	1	2350	1850	120	-2.08E+00
P1954	1749589.000	15872813.000	T4N	R2W	9	SW	1	2350	1850	120	-3.51E+00
P1955	1754869.000	15872813.000	T4N	R2W	10	SW	1	2300	2100	120	-6.56E+00
P1956	1760149.000	15872813.000	T4N	R2W	11	SW	1	2300	2100	120	-1.12E+00
P1957	1765429.000	15872813.000	T4N	R2W	12	SW	1	2300	2100	120	-7.84E+01
P1958	1765429.000	15867533.000	T4N	R2W	13	SW	1	2300	2100	120	-7.99E-01
P1959	1760149.000	15867533.000	T4N	R2W	14	SW	1	2300	2100	120	-1.60E-01
P196	1799551.000	15933555.000	T6N	R1W	13	NE	1	3300	2500	120	0.00E+00
P1960	1754869.000	15867533.000	T4N	R2W	15	SW	1	2300	2100	120	0.00E+00
P1961	1749589.000	15867533.000	T4N	R2W	16	SW	1	2350	1850	120	-1.44E+00
P1962	1744309.000	15867533.000	T4N	R2W	17	SW	1	2350	1850	120	-1.48E+02
P1963	1739029.000	15867533.000	T4N	R2W	18	SW	1	2350	1850	120	-4.79E-01
P1964	1739029.000	15862253.000	T4N	R2W	19	SW	1	2350	1850	120	-9.58E-01
P1965	1744309.000	15862253.000	T4N	R2W	20	SW	1	2350	1850	120	0.00E+00
P1966	1749589.000	15862253.000	T4N	R2W	21	SW	1	2350	1850	120	-2.27E+02
P1967	1754869.000	15862253.000	T4N	R2W	22	SW	1	2300	2100	120	-9.67E+01
P1968	1760149.000	15862253.000	T4N	R2W	23	SW	1	2300	2100	120	-4.79E-01
P1969	1765429.000	15862253.000	T4N	R2W	24	SW	1	2300	2100	120	-6.39E-01
P197	1794271.000	15933555.000	T6N	R1W	14	NE	1	2300	2100	120	0.00E+00
P1970	1765429.000	15856973.000	T4N	R2W	25	SW	1	2300	2100	120	-3.19E-01
P1971	1760149.000	15856973.000	T4N	R2W	26	SW	1	2300	2100	120	-4.57E+01
P1972	1754869.000	15856973.000	T4N	R2W	27	SW	1	2300	2100	120	-6.48E+02
P1973	1749589.000	15856973.000	T4N	R2W	28	SW	1	2350	1850	120	-1.17E+02
P1974	1744309.000	15856973.000	T4N	R2W	29	SW	1	2350	1850	120	-3.35E+00
P1975	1739029.000	15856973.000	T4N	R2W	30	SW	1	2350	1850	120	-9.58E-01
P1976	1739029.000	15851693.000	T4N	R2W	31	SW	1	2350	1850	120	-1.12E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P1977	1744309.000	15851693.000	T4N	R2W	32	SW	1	2350	1850	120	-2.74E+02
P1978	1749589.000	15851693.000	T4N	R2W	33	SW	1	2350	1850	120	-2.46E+02
P1979	1754869.000	15851693.000	T4N	R2W	34	SW	1	2300	2100	120	-2.91E+00
P198	1788991.000	15933555.000	T6N	R1W	15	NE	1	2900	2500	120	0.00E+00
P1980	1760149.000	15851693.000	T4N	R2W	35	SW	1	2400	2100	120	-1.60E-01
P1981	1765429.000	15851693.000	T4N	R2W	36	SW	1	2400	2100	120	-8.60E+00
P1982	1797109.000	15878093.000	T4N	R1W	1	SW	1	2500	2100	120	-1.42E+02
P1983	1791829.000	15878093.000	T4N	R1W	2	SW	1	2500	2100	120	-9.33E+02
P1984	1786549.000	15878093.000	T4N	R1W	3	SW	1	2500	2100	120	-2.38E+02
P1985	1781269.000	15878093.000	T4N	R1W	4	SW	1	2500	2100	120	-6.34E+01
P1986	1775989.000	15878093.000	T4N	R1W	5	SW	1	2400	2100	120	-7.43E+02
P1987	1770709.000	15878093.000	T4N	R1W	6	SW	1	2400	2100	120	-7.99E-01
P1988	1770709.000	15872813.000	T4N	R1W	7	SW	1	2400	2100	120	-5.60E+01
P1989	1775989.000	15872813.000	T4N	R1W	8	SW	1	2400	2100	120	-4.77E+01
P199	1783711.000	15933555.000	T6N	R1W	16	NE	1	2500	2300	120	-7.03E+00
P1990	1781269.000	15872813.000	T4N	R1W	9	SW	1	2400	2100	120	-3.50E+01
P1991	1786549.000	15872813.000	T4N	R1W	10	SW	1	2400	2100	120	-5.27E+02
P1992	1791829.000	15872813.000	T4N	R1W	11	SW	1	2500	2100	120	-6.39E-01
P1993	1797109.000	15872813.000	T4N	R1W	12	SW	1	2500	2100	120	-8.42E+01
P1994	1797109.000	15867533.000	T4N	R1W	13	SW	1	2500	2100	120	-4.06E+01
P1995	1791829.000	15867533.000	T4N	R1W	14	SW	1	2500	2100	120	-1.60E-01
P1996	1786549.000	15867533.000	T4N	R1W	15	SW	1	2400	2100	120	-2.24E+00
P1997	1781269.000	15867533.000	T4N	R1W	16	SW	1	2400	2100	120	-3.13E+01
P1998	1775989.000	15867533.000	T4N	R1W	17	SW	1	2400	2100	120	-1.60E-01
P1999	1770709.000	15867533.000	T4N	R1W	18	SW	1	2400	2100	120	-1.44E+00
P2	1699571.000	15960209.000	T7N	R4W	23	NE	1	2200	1850	120	-2.35E+00
P20	1715325.000	15954845.000	T7N	R3W	29	NE	1	2200	1850	120	-2.35E+00
P200	1778431.000	15933555.000	T6N	R1W	17	NE	1	2400	2200	120	-9.58E-01
P2000	1770709.000	15862253.000	T4N	R1W	19	SW	1	2400	2100	120	-1.71E+01
P2001	1775989.000	15862253.000	T4N	R1W	20	SW	1	2500	2100	120	-1.88E+02
P2002	1781269.000	15862253.000	T4N	R1W	21	SW	1	2500	2100	120	-1.30E+02
P2003	1786549.000	15862253.000	T4N	R1W	22	SW	1	2500	2100	120	-2.60E+02
P2004	1791829.000	15862253.000	T4N	R1W	23	SW	1	2500	2100	120	-7.87E+02
P2005	1797109.000	15862253.000	T4N	R1W	24	SW	1	2500	2100	120	-4.63E+02
P2006	1797109.000	15856973.000	T4N	R1W	25	SW	1	2500	2100	120	-1.12E+00
P2007	1791829.000	15856973.000	T4N	R1W	26	SW	1	2500	2100	120	-5.03E+02
P2008	1786549.000	15856973.000	T4N	R1W	27	SW	1	2500	2100	120	0.00E+00
P2009	1781269.000	15856973.000	T4N	R1W	28	SW	1	2500	2100	120	-1.14E+02
P201	1773151.000	15933555.000	T6N	R1W	18	NE	1	2300	2100	120	-3.66E+02
P2010	1775989.000	15856973.000	T4N	R1W	29	SW	1	2500	2100	120	-1.16E+03
P2011	1770709.000	15856973.000	T4N	R1W	30	SW	1	2400	2100	120	-1.40E+04
P2012	1770709.000	15851693.000	T4N	R1W	31	SW	1	2500	2100	120	-8.29E+01
P2013	1775989.000	15851693.000	T4N	R1W	32	SW	1	2500	2100	120	-2.67E+02
P2014	1781269.000	15851693.000	T4N	R1W	33	SW	1	2500	2100	120	-2.92E+02
P2015	1786549.000	15851693.000	T4N	R1W	34	SW	1	2500	2100	120	-1.71E+02
P2016	1791829.000	15851693.000	T4N	R1W	35	SW	1	2500	2100	120	-4.79E-01
P2017	1797109.000	15851693.000	T4N	R1W	36	SW	1	2500	2100	120	-2.34E+01
P2018	1828789.000	15878093.000	T4N	R1E	1	SW	1	3000	2500	120	-3.19E-01
P2019	1823509.000	15878093.000	T4N	R1E	2	SW	1	2700	2500	120	-1.60E-01
P202	1773151.000	15928275.000	T6N	R1W	19	NE	1	2200	1850	120	-6.39E+00
P2020	1818229.000	15878093.000	T4N	R1E	3	SW	1	2600	2100	120	-4.42E+02
P2021	1812949.000	15878093.000	T4N	R1E	4	SW	1	2600	2100	120	-5.05E+00
P2022	1807669.000	15878093.000	T4N	R1E	5	SW	1	2500	2100	120	-1.59E+03
P2023	1802389.000	15878093.000	T4N	R1E	6	SW	1	2500	2100	120	-1.72E+02
P2024	1802389.000	15872813.000	T4N	R1E	7	SW	1	2500	2100	120	-5.08E+01
P2025	1807669.000	15872813.000	T4N	R1E	8	SW	1	2500	2100	120	-1.14E+03
P2026	1812949.000	15872813.000	T4N	R1E	9	SW	1	2500	2100	120	-6.37E+02
P2027	1818229.000	15872813.000	T4N	R1E	10	SW	1	2500	2100	120	-3.09E+01
P2028	1823509.000	15872813.000	T4N	R1E	11	SW	1	2600	2100	120	-7.99E+01
P2029	1828789.000	15872813.000	T4N	R1E	12	SW	1	2800	2500	120	-4.79E-01
P203	1778431.000	15928275.000	T6N	R1W	20	NE	1	2400	2200	120	-3.51E+00
P2030	1828789.000	15867533.000	T4N	R1E	13	SW	1	2600	2100	120	-6.83E+01
P2031	1823509.000	15867533.000	T4N	R1E	14	SW	1	2500	2100	120	-4.17E+00
P2032	1818229.000	15867533.000	T4N	R1E	15	SW	1	2500	2100	120	-7.42E+02
P2033	1812949.000	15867533.000	T4N	R1E	16	SW	1	2500	2100	120	-1.08E+02
P2034	1807669.000	15867533.000	T4N	R1E	17	SW	1	2500	2100	120	-2.58E+01
P2035	1802389.000	15867533.000	T4N	R1E	18	SW	1	2500	2100	120	-6.39E-01
P2036	1802389.000	15862253.000	T4N	R1E	19	SW	1	2500	2100	120	-1.60E+00
P2037	1807669.000	15862253.000	T4N	R1E	20	SW	1	2600	2100	120	-1.45E+02

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2038	1812949.000	15862253.000	T4N	R1E	21	SW	1	2500	2100	120	-3.19E-01
P2039	1818229.000	15862253.000	T4N	R1E	22	SW	1	2500	2100	120	-2.94E+02
P204	1783711.000	15928275.000	T6N	R1W	21	NE	1	2900	2500	120	-1.60E-01
P2040	1823509.000	15862253.000	T4N	R1E	23	SW	1	2500	2100	120	-1.92E+00
P2041	1828789.000	15862253.000	T4N	R1E	24	SW	1	2600	2100	120	-1.28E+00
P2042	1828789.000	15856973.000	T4N	R1E	25	SW	1	2600	2100	120	-3.62E+01
P2043	1823509.000	15856973.000	T4N	R1E	26	SW	1	2600	2100	120	-1.60E+00
P2044	1818229.000	15856973.000	T4N	R1E	27	SW	1	2600	2100	120	-6.20E+02
P2045	1812949.000	15856973.000	T4N	R1E	28	SW	1	2600	2100	120	-5.98E+02
P2046	1807669.000	15856973.000	T4N	R1E	29	SW	1	2600	2100	120	-9.58E-01
P2047	1802389.000	15856973.000	T4N	R1E	30	SW	1	2500	2100	120	-1.39E+02
P2048	1802389.000	15851693.000	T4N	R1E	31	SW	1	2500	2100	120	-3.53E+02
P2049	1807669.000	15851693.000	T4N	R1E	32	SW	1	2600	2100	120	-1.11E+03
P205	1788991.000	15928275.000	T6N	R1W	22	NE	1	3000	2500	120	0.00E+00
P2050	1812949.000	15851693.000	T4N	R1E	33	SW	1	2600	2100	120	-2.61E+02
P2051	1818229.000	15851693.000	T4N	R1E	34	SW	1	2600	2100	120	-5.04E+02
P2052	1823509.000	15851693.000	T4N	R1E	35	SW	1	2600	2100	120	-1.19E+02
P2053	1828789.000	15851693.000	T4N	R1E	36	SW	1	2600	2100	120	-1.26E+01
P2054	1849909.000	15878093.000	T4N	R2E	3	SW	1	3300	2500	120	0.00E+00
P2055	1844629.000	15878093.000	T4N	R2E	4	SW	1	3000	2500	120	0.00E+00
P2056	1839349.000	15878093.000	T4N	R2E	5	SW	1	3000	2500	120	0.00E+00
P2057	1834069.000	15878093.000	T4N	R2E	6	SW	1	3000	2500	120	0.00E+00
P2058	1834069.000	15872813.000	T4N	R2E	7	SW	1	3000	2500	120	0.00E+00
P2059	1839349.000	15872813.000	T4N	R2E	8	SW	1	3000	2500	120	0.00E+00
P206	1794271.000	15928275.000	T6N	R1W	23	NE	1	3000	2500	120	0.00E+00
P2060	1844629.000	15872813.000	T4N	R2E	9	SW	1	3000	2500	120	0.00E+00
P2061	1849909.000	15872813.000	T4N	R2E	10	SW	1	3300	2500	120	0.00E+00
P2062	1849909.000	15867533.000	T4N	R2E	15	SW	1	3000	2500	120	0.00E+00
P2063	1844629.000	15867533.000	T4N	R2E	16	SW	1	3000	2500	120	0.00E+00
P2064	1839349.000	15867533.000	T4N	R2E	17	SW	1	3000	2500	120	-3.62E-01
P2065	1834069.000	15867533.000	T4N	R2E	18	SW	1	2700	2500	120	-2.90E+00
P2066	1834069.000	15862253.000	T4N	R2E	19	SW	1	2600	2100	120	-2.90E+00
P2067	1839349.000	15862253.000	T4N	R2E	20	SW	1	2700	2500	120	-2.90E+00
P2068	1844629.000	15862253.000	T4N	R2E	21	SW	1	3000	2500	120	-3.62E-01
P2069	1849909.000	15862253.000	T4N	R2E	22	SW	1	2900	2500	120	-3.62E-01
P207	1799551.000	15928275.000	T6N	R1W	24	NE	1	3000	2500	120	0.00E+00
P2070	1849909.000	15856973.000	T4N	R2E	27	SW	1	2800	2500	120	-2.90E+00
P2071	1844629.000	15856973.000	T4N	R2E	28	SW	1	2700	2500	120	-2.90E+00
P2072	1839349.000	15856973.000	T4N	R2E	29	SW	1	2600	2400	120	-2.90E+00
P2073	1834069.000	15856973.000	T4N	R2E	30	SW	1	2600	2100	120	-2.90E+00
P2074	1834069.000	15851693.000	T4N	R2E	31	SW	1	2600	2100	120	-2.90E+00
P2075	1839349.000	15851693.000	T4N	R2E	32	SW	1	2600	2100	120	-6.52E+00
P2076	1844629.000	15851693.000	T4N	R2E	33	SW	1	2600	2400	120	-6.52E+00
P2077	1849909.000	15851693.000	T4N	R2E	34	SW	1	2700	2500	120	-6.52E+00
P2078	1702070.000	15846302.000	T3N	R4W	1	SW	1	2100	1850	120	-7.24E-01
P2079	1696790.000	15846302.000	T3N	R4W	2	SW	1	2100	1850	120	-7.24E-01
P208	1799551.000	15922995.000	T6N	R1W	25	NE	1	2900	2500	120	0.00E+00
P2080	1691510.000	15846302.000	T3N	R4W	3	SW	1	2100	1850	120	-7.24E-01
P2081	1691510.000	15841022.000	T3N	R4W	10	SW	1	2100	1850	120	-7.24E-01
P2082	1696790.000	15841022.000	T3N	R4W	11	SW	1	2100	1850	120	-7.24E-01
P2083	1702070.000	15841022.000	T3N	R4W	12	SW	1	2100	1850	120	-7.24E-01
P2084	1733750.000	15846302.000	T3N	R3W	1	SW	1	2350	1850	120	-1.09E+00
P2085	1728470.000	15846302.000	T3N	R3W	2	SW	1	2350	1850	120	-1.09E+00
P2086	1723190.000	15846302.000	T3N	R3W	3	SW	1	2350	1850	120	-1.09E+00
P2087	1717910.000	15846302.000	T3N	R3W	4	SW	1	2350	1850	120	-1.09E+00
P2088	1712630.000	15846302.000	T3N	R3W	5	SW	1	2350	1850	120	-1.09E+00
P2089	1707350.000	15846302.000	T3N	R3W	6	SW	1	2350	1850	120	-1.09E+00
P209	1794271.000	15922995.000	T6N	R1W	26	NE	1	3000	2500	120	0.00E+00
P2090	1707350.000	15841022.000	T3N	R3W	7	SW	1	2350	1850	120	-1.09E+00
P2091	1712630.000	15841022.000	T3N	R3W	8	SW	1	2350	1850	120	-1.09E+00
P2092	1717910.000	15841022.000	T3N	R3W	9	SW	1	2350	1850	120	-1.09E+00
P2093	1723190.000	15841022.000	T3N	R3W	10	SW	1	2350	1850	120	-1.09E+00
P2094	1728470.000	15841022.000	T3N	R3W	11	SW	1	2350	1850	120	-1.09E+00
P2095	1733750.000	15841022.000	T3N	R3W	12	SW	1	2350	1850	120	-1.09E+00
P2096	1765430.000	15846302.000	T3N	R2W	1	SW	1	2400	2100	120	-1.81E+00
P2097	1760150.000	15846302.000	T3N	R2W	2	SW	1	2400	2100	120	-1.81E+00
P2098	1754870.000	15846302.000	T3N	R2W	3	SW	1	2400	2100	120	-1.81E+00
P2099	1749590.000	15846302.000	T3N	R2W	4	SW	1	2350	1850	120	-1.81E+00
P21	1710045.000	15954845.000	T7N	R3W	30	NE	1	2200	1850	120	-2.35E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P210	1788991.000	15922995.000	T6N	R1W	27	NE	1	3000	2500	120	0.00E+00
P2100	1744310.000	15846302.000	T3N	R2W	5	SW	1	2350	1850	120	-1.81E+00
P2101	1739030.000	15846302.000	T3N	R2W	6	SW	1	2350	1850	120	-1.81E+00
P2102	1739030.000	15841022.000	T3N	R2W	7	SW	1	2350	1850	120	-1.81E+00
P2103	1744310.000	15841022.000	T3N	R2W	8	SW	1	2350	1850	120	-1.81E+00
P2104	1749590.000	15841022.000	T3N	R2W	9	SW	1	2350	1850	120	-1.81E+00
P2105	1754870.000	15841022.000	T3N	R2W	10	SW	1	2400	2100	120	-1.81E+00
P2106	1760150.000	15841022.000	T3N	R2W	11	SW	1	2400	2100	120	-1.81E+00
P2107	1765430.000	15841022.000	T3N	R2W	12	SW	1	2500	2100	120	-1.81E+00
P2108	1797110.000	15846302.000	T3N	R1W	1	SW	1	2500	2100	120	-3.64E+02
P2109	1791830.000	15846302.000	T3N	R1W	2	SW	1	2500	2100	120	-2.17E+00
P211	1783711.000	15922995.000	T6N	R1W	28	NE	1	3000	2500	120	0.00E+00
P2110	1786550.000	15846302.000	T3N	R1W	3	SW	1	2500	2100	120	-1.81E+00
P2111	1781270.000	15846302.000	T3N	R1W	4	SW	1	2500	2100	120	-1.81E+00
P2112	1775990.000	15846302.000	T3N	R1W	5	SW	1	2500	2100	120	-1.81E+00
P2113	1770710.000	15846302.000	T3N	R1W	6	SW	1	2500	2100	120	-1.81E+00
P2114	1770710.000	15841022.000	T3N	R1W	7	SW	1	2500	2100	120	-1.81E+00
P2115	1775990.000	15841022.000	T3N	R1W	8	SW	1	2500	2100	120	-1.81E+00
P2116	1781270.000	15841022.000	T3N	R1W	9	SW	1	2500	2100	120	-1.81E+00
P2117	1786550.000	15841022.000	T3N	R1W	10	SW	1	2500	2100	120	-1.81E+00
P2118	1791830.000	15841022.000	T3N	R1W	11	SW	1	2500	2100	120	-2.17E+00
P2119	1797110.000	15841022.000	T3N	R1W	12	SW	1	2500	2100	120	-3.64E+02
P212	1778431.000	15922995.000	T6N	R1W	29	NE	1	2200	1850	120	0.00E+00
P2120	1828790.000	15846302.000	T3N	R1E	1	SW	1	2600	2100	120	-1.81E+00
P2121	1823510.000	15846302.000	T3N	R1E	2	SW	1	2600	2100	120	-1.81E+00
P2122	1818230.000	15846302.000	T3N	R1E	3	SW	1	2600	2100	120	-1.81E+00
P2123	1812950.000	15846302.000	T3N	R1E	4	SW	1	2600	2100	120	-5.79E+00
P2124	1807670.000	15846302.000	T3N	R1E	5	SW	1	2600	2100	120	-3.84E+01
P2125	1802390.000	15846302.000	T3N	R1E	6	SW	1	2500	2100	120	-2.17E+00
P2126	1802390.000	15841022.000	T3N	R1E	7	SW	1	2500	2100	120	-5.43E+00
P2127	1807670.000	15841022.000	T3N	R1E	8	SW	1	2500	2100	120	-1.81E+00
P2128	1812950.000	15841022.000	T3N	R1E	9	SW	1	2500	2100	120	-5.43E+00
P2129	1818230.000	15841022.000	T3N	R1E	10	SW	1	2600	2100	120	-1.81E+00
P213	1773151.000	15922995.000	T6N	R1W	30	NE	1	2200	1850	120	-1.60E-01
P2130	1823510.000	15841022.000	T3N	R1E	11	SW	1	2600	2100	120	-1.81E+00
P2131	1828790.000	15841022.000	T3N	R1E	12	SW	1	2600	2100	120	-1.81E+00
P2132	1849910.000	15846302.000	T3N	R2E	3	SW	1	2600	2100	120	-3.95E+01
P2133	1844630.000	15846302.000	T3N	R2E	4	SW	1	2600	2100	120	-3.95E+01
P2134	1839350.000	15846302.000	T3N	R2E	5	SW	1	2600	2100	120	-3.98E+01
P2135	1834070.000	15846302.000	T3N	R2E	6	SW	1	2600	2100	120	-3.65E+02
P2136	1834070.000	15841022.000	T3N	R2E	7	SW	1	2600	2100	120	-3.65E+02
P2137	1839350.000	15841022.000	T3N	R2E	8	SW	1	2600	2100	120	-3.65E+02
P2138	1844630.000	15841022.000	T3N	R2E	9	SW	1	2600	2100	120	-3.65E+02
P2139	1849910.000	15841022.000	T3N	R2E	10	SW	1	2600	2100	120	-3.95E+01
P214	1773113.000	15918000.000	T6N	R1W	31	NE	1	2200	1850	120	0.00E+00
P2140	1694291.000	15957569.000	T7N	R4W	22	SE	1	2200	1850	120	-3.62E-02
P2141	1699571.000	15957569.000	T7N	R4W	23	SE	1	2200	1850	120	-2.35E+00
P2142	1704851.000	15957569.000	T7N	R4W	24	SE	1	2200	1850	120	-2.35E+00
P2143	1705107.000	15952289.000	T7N	R4W	25	SE	1	2200	1850	120	-2.35E+00
P2144	1699827.000	15952289.000	T7N	R4W	26	SE	1	2100	1850	120	-3.62E-02
P2145	1694547.000	15952289.000	T7N	R4W	27	SE	1	2100	1850	120	-3.62E-02
P2146	1694547.000	15947009.000	T7N	R4W	34	SE	1	2100	1850	120	-3.62E-02
P2147	1699827.000	15947009.000	T7N	R4W	35	SE	1	2100	1850	120	-3.62E-02
P2148	1705107.000	15947009.000	T7N	R4W	36	SE	1	2100	1850	120	-3.62E-02
P2149	1710131.000	15957569.000	T7N	R3W	19	SE	1	2200	1850	120	-2.35E+00
P215	1778393.000	15918000.000	T6N	R1W	32	NE	1	2200	1850	120	0.00E+00
P2150	1715411.000	15957569.000	T7N	R3W	20	SE	1	2200	1850	120	-2.35E+00
P2151	1720691.000	15957569.000	T7N	R3W	21	SE	1	2200	1850	120	-2.35E+00
P2152	1725971.000	15957569.000	T7N	R3W	22	SE	1	2200	1850	120	-2.35E+00
P2153	1731251.000	15957569.000	T7N	R3W	23	SE	1	2200	1850	120	-2.35E+00
P2154	1736531.000	15957569.000	T7N	R3W	24	SE	1	2200	1850	120	-2.35E+00
P2155	1736445.000	15952205.000	T7N	R3W	25	SE	1	2200	1850	120	-2.35E+00
P2156	1731165.000	15952205.000	T7N	R3W	26	SE	1	2200	1850	120	-2.35E+00
P2157	1725885.000	15952205.000	T7N	R3W	27	SE	1	2200	1850	120	-2.35E+00
P2158	1720605.000	15952205.000	T7N	R3W	28	SE	1	2200	1850	120	-2.35E+00
P2159	1715325.000	15952205.000	T7N	R3W	29	SE	1	2200	1850	120	-2.35E+00
P216	1783673.000	15918000.000	T6N	R1W	33	NE	1	2200	1850	120	0.00E+00
P2160	1710045.000	15952205.000	T7N	R3W	30	SE	1	2200	1850	120	-2.35E+00
P2161	1710387.000	15947009.000	T7N	R3W	31	SE	1	2200	1850	120	-2.35E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2162	1715667.000	15947009.000	T7N	R3W	32	SE	1	2200	1850	120	-2.35E+00
P2163	1720947.000	15947009.000	T7N	R3W	33	SE	1	2200	1850	120	-2.35E+00
P2164	1726227.000	15947009.000	T7N	R3W	34	SE	1	2200	1850	120	-2.35E+00
P2165	1731507.000	15947009.000	T7N	R3W	35	SE	1	2200	1850	120	-3.64E+02
P2166	1736787.000	15947009.000	T7N	R3W	36	SE	1	2200	1850	120	-3.64E+02
P2167	1741811.000	15957569.000	T7N	R2W	19	SE	1	2200	1850	120	-1.44E+00
P2168	1747091.000	15957569.000	T7N	R2W	20	SE	1	2200	1850	120	-1.60E-01
P2169	1752371.000	15957569.000	T7N	R2W	21	SE	1	2400	2350	120	-1.60E-01
P217	1788953.000	15918000.000	T6N	R1W	34	NE	1	3000	2500	120	0.00E+00
P2170	1757651.000	15957569.000	T7N	R2W	22	SE	1	2500	2350	120	0.00E+00
P2171	1762931.000	15957569.000	T7N	R2W	23	SE	1	2500	2350	120	0.00E+00
P2172	1768211.000	15957569.000	T7N	R2W	24	SE	1	2500	2350	120	0.00E+00
P2173	1768125.000	15952205.000	T7N	R2W	25	SE	1	2200	1850	120	-1.45E-01
P2174	1762845.000	15952205.000	T7N	R2W	26	SE	1	2200	1850	120	-1.45E-01
P2175	1757565.000	15952205.000	T7N	R2W	27	SE	1	2200	1850	120	-6.39E-01
P2176	1752285.000	15952205.000	T7N	R2W	28	SE	1	2400	2350	120	-1.60E-01
P2177	1747005.000	15952205.000	T7N	R2W	29	SE	1	2300	2200	120	-6.39E-01
P2178	1741725.000	15952205.000	T7N	R2W	30	SE	1	2300	2200	120	-1.12E+00
P2179	1742067.000	15947009.000	T7N	R2W	31	SE	1	2300	2200	120	-3.19E-01
P218	1794233.000	15918000.000	T6N	R1W	35	NE	1	2800	2500	120	-6.39E-01
P2180	1747347.000	15947009.000	T7N	R2W	32	SE	1	2200	1850	120	-6.39E-01
P2181	1752627.000	15947009.000	T7N	R2W	33	SE	1	2200	1850	120	-9.58E-01
P2182	1757907.000	15947009.000	T7N	R2W	34	SE	1	2400	2350	120	-1.76E+00
P2183	1763187.000	15947009.000	T7N	R2W	35	SE	1	2400	2350	120	-1.60E+00
P2184	1768467.000	15947009.000	T7N	R2W	36	SE	1	2400	2350	120	0.00E+00
P2185	1773491.000	15957569.000	T7N	R1W	19	SE	1	2500	2350	120	0.00E+00
P2186	1778771.000	15957569.000	T7N	R1W	20	SE	1	2500	2350	120	0.00E+00
P2187	1784051.000	15957569.000	T7N	R1W	21	SE	1	2500	2350	120	-1.45E-01
P2188	1789331.000	15957569.000	T7N	R1W	22	SE	1	2500	2350	120	0.00E+00
P2189	1794611.000	15957569.000	T7N	R1W	23	SE	1	2500	2350	120	0.00E+00
P219	1799513.000	15918000.000	T6N	R1W	36	NE	1	2800	2500	120	0.00E+00
P2190	1799891.000	15957569.000	T7N	R1W	24	SE	1	2500	2350	120	0.00E+00
P2191	1799805.000	15952205.000	T7N	R1W	25	SE	1	2500	2350	120	0.00E+00
P2192	1794525.000	15952205.000	T7N	R1W	26	SE	1	2500	2350	120	0.00E+00
P2193	1789245.000	15952205.000	T7N	R1W	27	SE	1	2500	2350	120	-1.45E-01
P2194	1783965.000	15952205.000	T7N	R1W	28	SE	1	2400	2350	120	-1.45E-01
P2195	1778685.000	15952205.000	T7N	R1W	29	SE	1	2500	2350	120	-1.45E-01
P2196	1773405.000	15952205.000	T7N	R1W	30	SE	1	2400	2350	120	-1.45E-01
P2197	1773747.000	15947009.000	T7N	R1W	31	SE	1	2400	2350	120	-1.45E-01
P2198	1779027.000	15947009.000	T7N	R1W	32	SE	1	2400	2350	120	-1.45E-01
P2199	1784307.000	15947009.000	T7N	R1W	33	SE	1	2400	2350	120	-1.45E-01
P22	1710387.000	15949649.000	T7N	R3W	31	NE	1	2200	1850	120	-2.35E+00
P220	1831231.000	15944115.000	T6N	R1E	1	NE	1	3300	2500	120	0.00E+00
P2200	1789587.000	15947009.000	T7N	R1W	34	SE	1	2400	2350	120	-1.45E-01
P2201	1794867.000	15947009.000	T7N	R1W	35	SE	1	2500	2350	120	-1.45E-01
P2202	1800147.000	15947009.000	T7N	R1W	36	SE	1	2500	2350	120	-1.45E-01
P2203	1805171.000	15957569.000	T7N	R1E	19	SE	1	2500	2350	120	-1.45E-01
P2204	1810451.000	15957569.000	T7N	R1E	20	SE	1	2500	2350	120	-1.45E-01
P2205	1815731.000	15957569.000	T7N	R1E	21	SE	1	2500	2350	120	-1.81E+00
P2206	1821011.000	15957569.000	T7N	R1E	22	SE	1	2500	2350	120	-1.81E+00
P2207	1826291.000	15957569.000	T7N	R1E	23	SE	1	2500	2350	120	-1.81E+00
P2208	1831571.000	15957569.000	T7N	R1E	24	SE	1	2700	2500	120	-1.81E+00
P2209	1831485.000	15952205.000	T7N	R1E	25	SE	1	2800	2500	120	-1.81E+00
P221	1825951.000	15944115.000	T6N	R1E	2	NE	1	3000	2500	120	0.00E+00
P2210	1826205.000	15952205.000	T7N	R1E	26	SE	1	2700	2500	120	0.00E+00
P2211	1820925.000	15952205.000	T7N	R1E	27	SE	1	2600	2500	120	0.00E+00
P2212	1815645.000	15952205.000	T7N	R1E	28	SE	1	2500	2350	120	-1.81E+00
P2213	1810365.000	15952205.000	T7N	R1E	29	SE	1	2500	2350	120	-1.45E-01
P2214	1805085.000	15952205.000	T7N	R1E	30	SE	1	2500	2350	120	-1.45E-01
P2215	1805427.000	15947009.000	T7N	R1E	31	SE	1	2500	2350	120	-1.45E-01
P2216	1810707.000	15947009.000	T7N	R1E	32	SE	1	2500	2350	120	-1.45E-01
P2217	1815987.000	15947009.000	T7N	R1E	33	SE	1	3300	2500	120	-1.81E+00
P2218	1821267.000	15947009.000	T7N	R1E	34	SE	1	3000	2500	120	0.00E+00
P2219	1826547.000	15947009.000	T7N	R1E	35	SE	1	2900	2500	120	0.00E+00
P222	1820671.000	15944115.000	T6N	R1E	3	NE	1	3300	2500	120	0.00E+00
P2220	1831827.000	15947009.000	T7N	R1E	36	SE	1	3300	2500	120	0.00E+00
P2221	1836851.000	15957569.000	T7N	R2E	19	SE	1	3300	2500	120	-3.62E-02
P2222	1842131.000	15957569.000	T7N	R2E	20	SE	1	3300	2500	120	-3.62E-02
P2223	1847411.000	15957569.000	T7N	R2E	21	SE	1	3300	2500	120	-3.62E-02

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2224	1852691.000	15957569.000	T7N	R2E	22	SE	1	2800	2500	120	-3.62E-02
P2225	1852605.000	15952205.000	T7N	R2E	27	SE	1	2800	2500	120	-3.62E-02
P2226	1847325.000	15952205.000	T7N	R2E	28	SE	1	3000	2500	120	-3.62E-02
P2227	1842045.000	15952205.000	T7N	R2E	29	SE	1	2700	2500	120	-3.62E-02
P2228	1836765.000	15952205.000	T7N	R2E	30	SE	1	3000	2500	120	-3.62E-02
P2229	1837107.000	15947009.000	T7N	R2E	31	SE	1	3000	2500	120	0.00E+00
P223	1815391.000	15944115.000	T6N	R1E	4	NE	1	3300	2500	120	0.00E+00
P2230	1842387.000	15947009.000	T7N	R2E	32	SE	1	3300	2500	120	-3.62E-02
P2231	1847667.000	15947009.000	T7N	R2E	33	SE	1	3000	2500	120	-3.62E-02
P2232	1852947.000	15947009.000	T7N	R2E	34	SE	1	2700	2500	120	-3.62E-02
P2233	1704511.000	15941475.000	T6N	R4W	1	SE	1	2100	1850	120	-1.45E-01
P2234	1699231.000	15941475.000	T6N	R4W	2	SE	1	2100	1850	120	-1.45E-01
P2235	1693951.000	15941475.000	T6N	R4W	3	SE	1	2100	1850	120	-1.45E-01
P2236	1693951.000	15936195.000	T6N	R4W	10	SE	1	2100	1850	120	0.00E+00
P2237	1699231.000	15936195.000	T6N	R4W	11	SE	1	2100	1850	120	0.00E+00
P2238	1704511.000	15936195.000	T6N	R4W	12	SE	1	2100	1850	120	0.00E+00
P2239	1704511.000	15930915.000	T6N	R4W	13	SE	1	2100	1850	120	0.00E+00
P224	1810111.000	15944115.000	T6N	R1E	5	NE	1	3000	2500	120	0.00E+00
P2240	1699231.000	15930915.000	T6N	R4W	14	SE	1	2100	1850	120	0.00E+00
P2241	1693951.000	15930915.000	T6N	R4W	15	SE	1	2100	1850	120	0.00E+00
P2242	1693951.000	15925635.000	T6N	R4W	22	SE	1	2100	1850	120	0.00E+00
P2243	1699231.000	15925635.000	T6N	R4W	23	SE	1	2100	1850	120	0.00E+00
P2244	1704511.000	15925635.000	T6N	R4W	24	SE	1	2100	1850	120	0.00E+00
P2245	1704511.000	15920355.000	T6N	R4W	25	SE	1	2100	1850	120	0.00E+00
P2246	1699231.000	15920355.000	T6N	R4W	26	SE	1	2100	1850	120	0.00E+00
P2247	1693951.000	15920355.000	T6N	R4W	27	SE	1	2100	1850	120	0.00E+00
P2248	1693913.000	15915360.000	T6N	R4W	34	SE	1	2100	1850	120	0.00E+00
P2249	1699193.000	15915360.000	T6N	R4W	35	SE	1	2100	1850	120	0.00E+00
P225	1804831.000	15944115.000	T6N	R1E	6	NE	1	3000	2500	120	0.00E+00
P2250	1704473.000	15915360.000	T6N	R4W	36	SE	1	2100	1850	120	0.00E+00
P2251	1736191.000	15941475.000	T6N	R3W	1	SE	1	2200	1850	120	0.00E+00
P2252	1730911.000	15941475.000	T6N	R3W	2	SE	1	2200	1850	120	0.00E+00
P2253	1725631.000	15941475.000	T6N	R3W	3	SE	1	2200	1850	120	0.00E+00
P2254	1720351.000	15941475.000	T6N	R3W	4	SE	1	2200	1850	120	0.00E+00
P2255	1715071.000	15941475.000	T6N	R3W	5	SE	1	2350	1850	120	-1.45E-01
P2256	1709791.000	15941475.000	T6N	R3W	6	SE	1	2350	1850	120	-1.45E-01
P2257	1709791.000	15936195.000	T6N	R3W	7	SE	1	2350	1850	120	-1.45E-01
P2258	1715071.000	15936195.000	T6N	R3W	8	SE	1	2350	1850	120	-1.45E-01
P2259	1720351.000	15936195.000	T6N	R3W	9	SE	1	2350	1850	120	0.00E+00
P226	1804831.000	15938835.000	T6N	R1E	7	NE	1	3300	2500	120	0.00E+00
P2260	1725631.000	15936195.000	T6N	R3W	10	SE	1	2350	1850	120	0.00E+00
P2261	1730911.000	15936195.000	T6N	R3W	11	SE	1	2200	1850	120	0.00E+00
P2262	1736191.000	15936195.000	T6N	R3W	12	SE	1	2200	1850	120	0.00E+00
P2263	1736191.000	15930915.000	T6N	R3W	13	SE	1	2350	1850	120	0.00E+00
P2264	1730911.000	15930915.000	T6N	R3W	14	SE	1	2350	1850	120	0.00E+00
P2265	1725631.000	15930915.000	T6N	R3W	15	SE	1	2350	1850	120	0.00E+00
P2266	1720351.000	15930915.000	T6N	R3W	16	SE	1	2350	1850	120	0.00E+00
P2267	1715071.000	15930915.000	T6N	R3W	17	SE	1	2350	1850	120	0.00E+00
P2268	1709791.000	15930915.000	T6N	R3W	18	SE	1	2350	1850	120	-1.45E-01
P2269	1709791.000	15925635.000	T6N	R3W	19	SE	1	2350	1850	120	0.00E+00
P227	1810111.000	15938835.000	T6N	R1E	8	NE	1	3300	2500	120	-1.60E-01
P2270	1715071.000	15925635.000	T6N	R3W	20	SE	1	2350	1850	120	0.00E+00
P2271	1720351.000	15925635.000	T6N	R3W	21	SE	1	2350	1850	120	0.00E+00
P2272	1725631.000	15925635.000	T6N	R3W	22	SE	1	2350	1850	120	-1.45E-01
P2273	1730911.000	15925635.000	T6N	R3W	23	SE	1	2350	1850	120	0.00E+00
P2274	1736191.000	15925635.000	T6N	R3W	24	SE	1	2350	1850	120	0.00E+00
P2275	1736191.000	15920355.000	T6N	R3W	25	SE	1	2350	1850	120	0.00E+00
P2276	1730911.000	15920355.000	T6N	R3W	26	SE	1	2350	1850	120	0.00E+00
P2277	1725631.000	15920355.000	T6N	R3W	27	SE	1	2350	1850	120	-1.45E-01
P2278	1720351.000	15920355.000	T6N	R3W	28	SE	1	2350	1850	120	-1.45E-01
P2279	1715071.000	15920355.000	T6N	R3W	29	SE	1	2350	1850	120	0.00E+00
P228	1815391.000	15938835.000	T6N	R1E	9	NE	1	3300	2500	120	-3.19E-01
P2280	1709791.000	15920355.000	T6N	R3W	30	SE	1	2350	1850	120	-1.45E-01
P2281	1709753.000	15915360.000	T6N	R3W	31	SE	1	2350	1850	120	-1.45E-01
P2282	1715033.000	15915360.000	T6N	R3W	32	SE	1	2350	1850	120	-1.45E-01
P2283	1720313.000	15915360.000	T6N	R3W	33	SE	1	2350	1850	120	-1.45E-01
P2284	1725593.000	15915360.000	T6N	R3W	34	SE	1	2350	1850	120	-1.45E-01
P2285	1730873.000	15915360.000	T6N	R3W	35	SE	1	2350	1850	120	0.00E+00
P2286	1736153.000	15915360.000	T6N	R3W	36	SE	1	2350	1850	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2287	1767871.000	15941475.000	T6N	R2W	1	SE	1	2200	1850	120	-4.79E-01
P2288	1762591.000	15941475.000	T6N	R2W	2	SE	1	2200	1850	120	-9.58E-01
P2289	1757311.000	15941475.000	T6N	R2W	3	SE	1	2200	1850	120	-4.79E-01
P229	1820671.000	15938835.000	T6N	R1E	10	NE	1	3300	2500	120	-1.60E-01
P2290	1752031.000	15941475.000	T6N	R2W	4	SE	1	2200	1850	120	-1.60E-01
P2291	1746751.000	15941475.000	T6N	R2W	5	SE	1	2200	1850	120	0.00E+00
P2292	1741471.000	15941475.000	T6N	R2W	6	SE	1	2200	1850	120	-7.99E-01
P2293	1741471.000	15936195.000	T6N	R2W	7	SE	1	2200	1850	120	-1.60E-01
P2294	1746751.000	15936195.000	T6N	R2W	8	SE	1	2200	1850	120	-1.60E+00
P2295	1752031.000	15936195.000	T6N	R2W	9	SE	1	2200	1850	120	-7.99E-01
P2296	1757311.000	15936195.000	T6N	R2W	10	SE	1	2200	1850	120	-1.60E-01
P2297	1762591.000	15936195.000	T6N	R2W	11	SE	1	2200	1850	120	-3.63E+02
P2298	1767871.000	15936195.000	T6N	R2W	12	SE	1	2200	1850	120	-4.08E+01
P2299	1767871.000	15930915.000	T6N	R2W	13	SE	1	2200	1850	120	-3.64E+02
P23	1715667.000	15949649.000	T7N	R3W	32	NE	1	2200	1850	120	-2.35E+00
P230	1825951.000	15938835.000	T6N	R1E	11	NE	1	3300	2500	120	0.00E+00
P2300	1762591.000	15930915.000	T6N	R2W	14	SE	1	2200	1850	120	-3.63E+02
P2301	1757311.000	15930915.000	T6N	R2W	15	SE	1	2200	1850	120	-1.60E-01
P2302	1752031.000	15930915.000	T6N	R2W	16	SE	1	2200	1850	120	-3.19E-01
P2303	1746751.000	15930915.000	T6N	R2W	17	SE	1	2200	1850	120	-1.60E+00
P2304	1741471.000	15930915.000	T6N	R2W	18	SE	1	2200	1850	120	-3.19E-01
P2305	1741471.000	15925635.000	T6N	R2W	19	SE	1	2350	1850	120	-1.60E-01
P2306	1746751.000	15925635.000	T6N	R2W	20	SE	1	2350	1850	120	0.00E+00
P2307	1752031.000	15925635.000	T6N	R2W	21	SE	1	2200	1850	120	-9.58E-01
P2308	1757311.000	15925635.000	T6N	R2W	22	SE	1	2200	1850	120	0.00E+00
P2309	1762591.000	15925635.000	T6N	R2W	23	SE	1	2200	1850	120	-1.60E-01
P231	1831231.000	15938835.000	T6N	R1E	12	NE	1	3300	2500	120	0.00E+00
P2310	1767871.000	15925635.000	T6N	R2W	24	SE	1	2200	1850	120	-3.19E+00
P2311	1767871.000	15920355.000	T6N	R2W	25	SE	1	2200	1850	120	-4.79E-01
P2312	1762591.000	15920355.000	T6N	R2W	26	SE	1	2200	1850	120	0.00E+00
P2313	1757311.000	15920355.000	T6N	R2W	27	SE	1	2200	1850	120	0.00E+00
P2314	1752031.000	15920355.000	T6N	R2W	28	SE	1	2350	1850	120	0.00E+00
P2315	1746751.000	15920355.000	T6N	R2W	29	SE	1	2350	1850	120	0.00E+00
P2316	1741471.000	15920355.000	T6N	R2W	30	SE	1	2350	1850	120	-3.19E-01
P2317	1741433.000	15915360.000	T6N	R2W	31	SE	1	2350	1850	120	0.00E+00
P2318	1746713.000	15915360.000	T6N	R2W	32	SE	1	2350	1850	120	0.00E+00
P2319	1751993.000	15915360.000	T6N	R2W	33	SE	1	2350	1850	120	0.00E+00
P232	1831231.000	15933555.000	T6N	R1E	13	NE	1	3300	2500	120	0.00E+00
P2320	1757273.000	15915360.000	T6N	R2W	34	SE	1	2500	2100	120	0.00E+00
P2321	1762553.000	15915360.000	T6N	R2W	35	SE	1	2500	2100	120	0.00E+00
P2322	1767833.000	15915360.000	T6N	R2W	36	SE	1	2200	1850	120	0.00E+00
P2323	1799551.000	15941475.000	T6N	R1W	1	SE	1	3300	2500	120	0.00E+00
P2324	1794271.000	15941475.000	T6N	R1W	2	SE	1	2500	2350	120	0.00E+00
P2325	1788991.000	15941475.000	T6N	R1W	3	SE	1	2500	2350	120	-1.60E-01
P2326	1783711.000	15941475.000	T6N	R1W	4	SE	1	2400	2350	120	-2.24E+00
P2327	1778431.000	15941475.000	T6N	R1W	5	SE	1	2300	2100	120	-3.65E+02
P2328	1773151.000	15941475.000	T6N	R1W	6	SE	1	2300	2100	120	-3.76E+01
P2329	1773151.000	15936195.000	T6N	R1W	7	SE	1	2300	2100	120	-3.64E+02
P233	1825951.000	15933555.000	T6N	R1E	14	NE	1	3300	2500	120	-1.60E-01
P2330	1778431.000	15936195.000	T6N	R1W	8	SE	1	2300	2100	120	-4.74E+00
P2331	1783711.000	15936195.000	T6N	R1W	9	SE	1	2400	2200	120	-1.09E+00
P2332	1788991.000	15936195.000	T6N	R1W	10	SE	1	2900	2500	120	0.00E+00
P2333	1794271.000	15936195.000	T6N	R1W	11	SE	1	3000	2500	120	0.00E+00
P2334	1799551.000	15936195.000	T6N	R1W	12	SE	1	3300	2500	120	0.00E+00
P2335	1799551.000	15930915.000	T6N	R1W	13	SE	1	3000	2500	120	0.00E+00
P2336	1794271.000	15930915.000	T6N	R1W	14	SE	1	3300	2500	120	0.00E+00
P2337	1788991.000	15930915.000	T6N	R1W	15	SE	1	2900	2500	120	0.00E+00
P2338	1783711.000	15930915.000	T6N	R1W	16	SE	1	2600	2500	120	-7.99E-01
P2339	1778431.000	15930915.000	T6N	R1W	17	SE	1	2400	2300	120	-3.67E+00
P234	1820671.000	15933555.000	T6N	R1E	15	NE	1	3300	2500	120	0.00E+00
P2340	1773151.000	15930915.000	T6N	R1W	18	SE	1	2300	2100	120	-3.65E+02
P2341	1773151.000	15925635.000	T6N	R1W	19	SE	1	2200	1850	120	-3.94E+01
P2342	1778431.000	15925635.000	T6N	R1W	20	SE	1	2600	2500	120	-3.63E+02
P2343	1783711.000	15925635.000	T6N	R1W	21	SE	1	3000	2500	120	0.00E+00
P2344	1788991.000	15925635.000	T6N	R1W	22	SE	1	3000	2500	120	0.00E+00
P2345	1794271.000	15925635.000	T6N	R1W	23	SE	1	3000	2500	120	0.00E+00
P2346	1799551.000	15925635.000	T6N	R1W	24	SE	1	2900	2500	120	0.00E+00
P2347	1799551.000	15920355.000	T6N	R1W	25	SE	1	2900	2500	120	0.00E+00
P2348	1794271.000	15920355.000	T6N	R1W	26	SE	1	2900	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2349	1788991.000	15920355.000	T6N	R1W	27	SE	1	3000	2500	120	0.00E+00
P235	1815391.000	15933555.000	T6N	R1E	16	NE	1	3300	2500	120	0.00E+00
P2350	1783711.000	15920355.000	T6N	R1W	28	SE	1	3000	2500	120	0.00E+00
P2351	1778431.000	15920355.000	T6N	R1W	29	SE	1	2200	1850	120	0.00E+00
P2352	1773151.000	15920355.000	T6N	R1W	30	SE	1	2200	1850	120	-1.60E-01
P2353	1773113.000	15915360.000	T6N	R1W	31	SE	1	2200	1850	120	-1.60E-01
P2354	1778393.000	15915360.000	T6N	R1W	32	SE	1	2200	1850	120	0.00E+00
P2355	1783673.000	15915360.000	T6N	R1W	33	SE	1	2200	1850	120	0.00E+00
P2356	1788953.000	15915360.000	T6N	R1W	34	SE	1	2800	2500	120	-1.12E+02
P2357	1794233.000	15915360.000	T6N	R1W	35	SE	1	2800	2500	120	0.00E+00
P2358	1799513.000	15915360.000	T6N	R1W	36	SE	1	2900	2500	120	-1.60E-01
P2359	1831231.000	15941475.000	T6N	R1E	1	SE	1	3300	2500	120	0.00E+00
P236	1810111.000	15933555.000	T6N	R1E	17	NE	1	3300	2500	120	0.00E+00
P2360	1825951.000	15941475.000	T6N	R1E	2	SE	1	3300	2500	120	0.00E+00
P2361	1820671.000	15941475.000	T6N	R1E	3	SE	1	3300	2500	120	0.00E+00
P2362	1815391.000	15941475.000	T6N	R1E	4	SE	1	3300	2500	120	0.00E+00
P2363	1810111.000	15941475.000	T6N	R1E	5	SE	1	3300	2500	120	0.00E+00
P2364	1804831.000	15941475.000	T6N	R1E	6	SE	1	3000	2500	120	0.00E+00
P2365	1804831.000	15936195.000	T6N	R1E	7	SE	1	3300	2500	120	0.00E+00
P2366	1810111.000	15936195.000	T6N	R1E	8	SE	1	3300	2500	120	0.00E+00
P2367	1815391.000	15936195.000	T6N	R1E	9	SE	1	3300	2500	120	0.00E+00
P2368	1820671.000	15936195.000	T6N	R1E	10	SE	1	3300	2500	120	0.00E+00
P2369	1825951.000	15936195.000	T6N	R1E	11	SE	1	3300	2500	120	0.00E+00
P237	1804831.000	15933555.000	T6N	R1E	18	NE	1	3300	2500	120	0.00E+00
P2370	1831231.000	15936195.000	T6N	R1E	12	SE	1	3300	2500	120	0.00E+00
P2371	1831231.000	15930915.000	T6N	R1E	13	SE	1	3300	2500	120	0.00E+00
P2372	1825951.000	15930915.000	T6N	R1E	14	SE	1	3300	2500	120	0.00E+00
P2373	1820671.000	15930915.000	T6N	R1E	15	SE	1	3300	2500	120	0.00E+00
P2374	1815391.000	15930915.000	T6N	R1E	16	SE	1	3300	2500	120	0.00E+00
P2375	1810111.000	15930915.000	T6N	R1E	17	SE	1	3300	2500	120	0.00E+00
P2376	1804831.000	15930915.000	T6N	R1E	18	SE	1	3000	2500	120	0.00E+00
P2377	1804831.000	15925635.000	T6N	R1E	19	SE	1	3000	2500	120	0.00E+00
P2378	1810111.000	15925635.000	T6N	R1E	20	SE	1	3300	2500	120	-1.60E-01
P2379	1815391.000	15925635.000	T6N	R1E	21	SE	1	3300	2500	120	0.00E+00
P238	1804831.000	15928275.000	T6N	R1E	19	NE	1	3000	2500	120	0.00E+00
P2380	1820671.000	15925635.000	T6N	R1E	22	SE	1	3300	2500	120	-1.60E-01
P2381	1825951.000	15925635.000	T6N	R1E	23	SE	1	3300	2500	120	0.00E+00
P2382	1831231.000	15925635.000	T6N	R1E	24	SE	1	3300	2500	120	0.00E+00
P2383	1831231.000	15920355.000	T6N	R1E	25	SE	1	3300	2500	120	0.00E+00
P2384	1825951.000	15920355.000	T6N	R1E	26	SE	1	3300	2500	120	0.00E+00
P2385	1820671.000	15920355.000	T6N	R1E	27	SE	1	3300	2500	120	0.00E+00
P2386	1815391.000	15920355.000	T6N	R1E	28	SE	1	3300	2500	120	0.00E+00
P2387	1810111.000	15920355.000	T6N	R1E	29	SE	1	3300	2500	120	0.00E+00
P2388	1804831.000	15920355.000	T6N	R1E	30	SE	1	3000	2500	120	0.00E+00
P2389	1804793.000	15915360.000	T6N	R1E	31	SE	1	3000	2500	120	0.00E+00
P239	1810111.000	15928275.000	T6N	R1E	20	NE	1	3300	2500	120	-3.19E-01
P2390	1810073.000	15915360.000	T6N	R1E	32	SE	1	3000	2500	120	0.00E+00
P2391	1815353.000	15915360.000	T6N	R1E	33	SE	1	3300	2500	120	0.00E+00
P2392	1820633.000	15915360.000	T6N	R1E	34	SE	1	3300	2500	120	0.00E+00
P2393	1825913.000	15915360.000	T6N	R1E	35	SE	1	3300	2500	120	0.00E+00
P2394	1831193.000	15915360.000	T6N	R1E	36	SE	1	3300	2500	120	-3.19E-01
P2395	1852351.000	15941475.000	T6N	R2E	3	SE	1	3000	2500	120	0.00E+00
P2396	1847071.000	15941475.000	T6N	R2E	4	SE	1	3000	2500	120	0.00E+00
P2397	1841791.000	15941475.000	T6N	R2E	5	SE	1	3300	2500	120	0.00E+00
P2398	1836511.000	15941475.000	T6N	R2E	6	SE	1	3300	2500	120	0.00E+00
P2399	1836511.000	15936195.000	T6N	R2E	7	SE	1	3300	2500	120	0.00E+00
P24	1720947.000	15949649.000	T7N	R3W	33	NE	1	2200	1850	120	-2.35E+00
P240	1815391.000	15928275.000	T6N	R1E	21	NE	1	3300	2500	120	0.00E+00
P2400	1841791.000	15936195.000	T6N	R2E	8	SE	1	3300	2500	120	0.00E+00
P2401	1847071.000	15936195.000	T6N	R2E	9	SE	1	3300	2500	120	0.00E+00
P2402	1852351.000	15936195.000	T6N	R2E	10	SE	1	3300	2500	120	0.00E+00
P2403	1852351.000	15930915.000	T6N	R2E	15	SE	1	3300	2500	120	0.00E+00
P2404	1847071.000	15930915.000	T6N	R2E	16	SE	1	3300	2500	120	0.00E+00
P2405	1841791.000	15930915.000	T6N	R2E	17	SE	1	3300	2500	120	0.00E+00
P2406	1836511.000	15930915.000	T6N	R2E	18	SE	1	3300	2500	120	0.00E+00
P2407	1836511.000	15925635.000	T6N	R2E	19	SE	1	3300	2500	120	0.00E+00
P2408	1841791.000	15925635.000	T6N	R2E	20	SE	1	3300	2500	120	0.00E+00
P2409	1847071.000	15925635.000	T6N	R2E	21	SE	1	3300	2500	120	0.00E+00
P241	1820671.000	15928275.000	T6N	R1E	22	NE	1	3300	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2410	1852351.000	15925635.000	T6N	R2E	22	SE	1	3300	2500	120	0.00E+00
P2411	1852351.000	15920355.000	T6N	R2E	27	SE	1	3300	2500	120	0.00E+00
P2412	1847071.000	15920355.000	T6N	R2E	28	SE	1	3300	2500	120	0.00E+00
P2413	1841791.000	15920355.000	T6N	R2E	29	SE	1	3300	2500	120	0.00E+00
P2414	1836511.000	15920355.000	T6N	R2E	30	SE	1	3300	2500	120	0.00E+00
P2415	1836473.000	15915360.000	T6N	R2E	31	SE	1	3300	2500	120	0.00E+00
P2416	1841753.000	15915360.000	T6N	R2E	32	SE	1	3300	2500	120	0.00E+00
P2417	1847033.000	15915360.000	T6N	R2E	33	SE	1	3300	2500	120	0.00E+00
P2418	1852313.000	15915360.000	T6N	R2E	34	SE	1	3300	2500	120	0.00E+00
P2419	1704511.000	15909684.000	T5N	R4W	1	SE	1	2100	1850	120	0.00E+00
P242	1825951.000	15928275.000	T6N	R1E	23	NE	1	3300	2500	120	0.00E+00
P2420	1699231.000	15909684.000	T5N	R4W	2	SE	1	2100	1850	120	-3.62E-02
P2421	1693951.000	15909684.000	T5N	R4W	3	SE	1	2100	1850	120	0.00E+00
P2422	1693951.000	15904404.000	T5N	R4W	10	SE	1	2100	1850	120	0.00E+00
P2423	1699231.000	15904404.000	T5N	R4W	11	SE	1	2100	1850	120	0.00E+00
P2424	1704511.000	15904404.000	T5N	R4W	12	SE	1	2100	1850	120	0.00E+00
P2425	1704511.000	15899124.000	T5N	R4W	13	SE	1	2100	1850	120	-3.62E-01
P2426	1699231.000	15899124.000	T5N	R4W	14	SE	1	2100	1850	120	-3.62E-01
P2427	1693951.000	15899124.000	T5N	R4W	15	SE	1	2100	1850	120	-3.62E-01
P2428	1693951.000	15893844.000	T5N	R4W	22	SE	1	2100	1850	120	-3.62E-01
P2429	1699231.000	15893844.000	T5N	R4W	23	SE	1	2100	1850	120	-3.62E-01
P243	1831231.000	15928275.000	T6N	R1E	24	NE	1	3300	2500	120	0.00E+00
P2430	1704511.000	15893844.000	T5N	R4W	24	SE	1	2100	1850	120	-3.62E-01
P2431	1704511.000	15888564.000	T5N	R4W	25	SE	1	2100	1850	120	-3.62E-01
P2432	1699231.000	15888564.000	T5N	R4W	26	SE	1	2100	1850	120	-3.62E-01
P2433	1693951.000	15888564.000	T5N	R4W	27	SE	1	2100	1850	120	-3.62E-01
P2434	1693951.000	15883284.000	T5N	R4W	34	SE	1	2100	1850	120	-3.62E-01
P2435	1699231.000	15883284.000	T5N	R4W	35	SE	1	2100	1850	120	-3.62E-01
P2436	1704511.000	15883284.000	T5N	R4W	36	SE	1	2100	1850	120	-3.62E-01
P2437	1736191.000	15909684.000	T5N	R3W	1	SE	1	2350	1850	120	-3.62E-01
P2438	1730911.000	15909684.000	T5N	R3W	2	SE	1	2350	1850	120	0.00E+00
P2439	1725631.000	15909684.000	T5N	R3W	3	SE	1	2350	1850	120	0.00E+00
P244	1831231.000	15922995.000	T6N	R1E	25	NE	1	3300	2500	120	0.00E+00
P2440	1720351.000	15909684.000	T5N	R3W	4	SE	1	2350	1850	120	-1.81E+00
P2441	1715071.000	15909684.000	T5N	R3W	5	SE	1	2350	1850	120	-3.62E-01
P2442	1709791.000	15909684.000	T5N	R3W	6	SE	1	2350	1850	120	-3.62E-01
P2443	1709791.000	15904404.000	T5N	R3W	7	SE	1	2350	1850	120	-3.62E-01
P2444	1715071.000	15904404.000	T5N	R3W	8	SE	1	2350	1850	120	-1.81E+00
P2445	1720351.000	15904404.000	T5N	R3W	9	SE	1	2350	1850	120	-3.62E-01
P2446	1725631.000	15904404.000	T5N	R3W	10	SE	1	2350	1850	120	-3.62E-01
P2447	1730911.000	15904404.000	T5N	R3W	11	SE	1	2350	1850	120	0.00E+00
P2448	1736191.000	15904404.000	T5N	R3W	12	SE	1	2350	1850	120	0.00E+00
P2449	1736191.000	15899124.000	T5N	R3W	13	SE	1	2350	1850	120	-3.62E-01
P245	1825951.000	15922995.000	T6N	R1E	26	NE	1	3300	2500	120	0.00E+00
P2450	1730911.000	15899124.000	T5N	R3W	14	SE	1	2350	1850	120	-3.62E-01
P2451	1725631.000	15899124.000	T5N	R3W	15	SE	1	2350	1850	120	-3.62E-01
P2452	1720351.000	15899124.000	T5N	R3W	16	SE	1	2350	1850	120	-3.62E-01
P2453	1715071.000	15899124.000	T5N	R3W	17	SE	1	2350	1850	120	-1.81E+00
P2454	1709791.000	15899124.000	T5N	R3W	18	SE	1	2350	1850	120	-3.62E-01
P2455	1709791.000	15893844.000	T5N	R3W	19	SE	1	2350	1850	120	-3.62E-01
P2456	1715071.000	15893844.000	T5N	R3W	20	SE	1	2350	1850	120	-3.62E-01
P2457	1720351.000	15893844.000	T5N	R3W	21	SE	1	2350	1850	120	-3.62E-01
P2458	1725631.000	15893844.000	T5N	R3W	22	SE	1	2350	1850	120	-3.62E-01
P2459	1730911.000	15893844.000	T5N	R3W	23	SE	1	2350	1850	120	-3.62E-01
P246	1820671.000	15922995.000	T6N	R1E	27	NE	1	3300	2500	120	0.00E+00
P2460	1736191.000	15893844.000	T5N	R3W	24	SE	1	2350	1850	120	-3.62E-01
P2461	1736191.000	15888564.000	T5N	R3W	25	SE	1	2350	1850	120	-3.62E-01
P2462	1730911.000	15888564.000	T5N	R3W	26	SE	1	2350	1850	120	-3.62E-01
P2463	1725631.000	15888564.000	T5N	R3W	27	SE	1	2350	1850	120	-3.62E-01
P2464	1720351.000	15888564.000	T5N	R3W	28	SE	1	2350	1850	120	-3.62E-01
P2465	1715071.000	15888564.000	T5N	R3W	29	SE	1	2350	1850	120	-3.62E-01
P2466	1709791.000	15888564.000	T5N	R3W	30	SE	1	2350	1850	120	-3.62E-01
P2467	1709791.000	15883284.000	T5N	R3W	31	SE	1	2350	1850	120	-3.62E-01
P2468	1715071.000	15883284.000	T5N	R3W	32	SE	1	2350	1850	120	-3.62E-01
P2469	1720351.000	15883284.000	T5N	R3W	33	SE	1	2350	1850	120	-3.62E-01
P247	1815391.000	15922995.000	T6N	R1E	28	NE	1	3300	2500	120	0.00E+00
P2470	1725631.000	15883284.000	T5N	R3W	34	SE	1	2350	1850	120	-3.62E-01
P2471	1730911.000	15883284.000	T5N	R3W	35	SE	1	2350	1850	120	-3.62E-01
P2472	1736191.000	15883284.000	T5N	R3W	36	SE	1	2350	1850	120	-3.62E-01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2473	1767871.000	15909684.000	T5N	R2W	1	SE	1	2500	2100	120	0.00E+00
P2474	1762591.000	15909684.000	T5N	R2W	2	SE	1	2500	2100	120	-1.60E-01
P2475	1757311.000	15909684.000	T5N	R2W	3	SE	1	2500	2100	120	-1.03E+02
P2476	1752031.000	15909684.000	T5N	R2W	4	SE	1	2350	1850	120	-1.60E-01
P2477	1746751.000	15909684.000	T5N	R2W	5	SE	1	2350	1850	120	0.00E+00
P2478	1741471.000	15909684.000	T5N	R2W	6	SE	1	2350	1850	120	-7.66E+00
P2479	1741471.000	15904404.000	T5N	R2W	7	SE	1	2350	1850	120	0.00E+00
P248	1810111.000	15922995.000	T6N	R1E	29	NE	1	3300	2500	120	0.00E+00
P2480	1746751.000	15904404.000	T5N	R2W	8	SE	1	2350	1850	120	-1.60E-01
P2481	1752031.000	15904404.000	T5N	R2W	9	SE	1	2350	1850	120	0.00E+00
P2482	1757311.000	15904404.000	T5N	R2W	10	SE	1	2500	2100	120	0.00E+00
P2483	1762591.000	15904404.000	T5N	R2W	11	SE	1	2500	2100	120	0.00E+00
P2484	1767871.000	15904404.000	T5N	R2W	12	SE	1	2500	2100	120	0.00E+00
P2485	1767871.000	15899124.000	T5N	R2W	13	SE	1	2500	2100	120	0.00E+00
P2486	1762591.000	15899124.000	T5N	R2W	14	SE	1	2500	2100	120	-1.60E-01
P2487	1757311.000	15899124.000	T5N	R2W	15	SE	1	2350	1850	120	-1.09E+03
P2488	1752031.000	15899124.000	T5N	R2W	16	SE	1	2350	1850	120	0.00E+00
P2489	1746751.000	15899124.000	T5N	R2W	17	SE	1	2350	1850	120	-1.60E-01
P249	1804831.000	15922995.000	T6N	R1E	30	NE	1	3000	2500	120	0.00E+00
P2490	1741471.000	15899124.000	T5N	R2W	18	SE	1	2350	1850	120	-3.19E-01
P2491	1741471.000	15893844.000	T5N	R2W	19	SE	1	2350	1850	120	-1.60E-01
P2492	1746751.000	15893844.000	T5N	R2W	20	SE	1	2350	1850	120	-5.08E+01
P2493	1752031.000	15893844.000	T5N	R2W	21	SE	1	2350	1850	120	-3.28E+01
P2494	1757311.000	15893844.000	T5N	R2W	22	SE	1	2500	2100	120	0.00E+00
P2495	1762591.000	15893844.000	T5N	R2W	23	SE	1	2500	2100	120	-1.60E-01
P2496	1767871.000	15893844.000	T5N	R2W	24	SE	1	2500	2100	120	-1.03E+02
P2497	1767871.000	15888564.000	T5N	R2W	25	SE	1	2500	2100	120	-8.92E+02
P2498	1762591.000	15888564.000	T5N	R2W	26	SE	1	2500	2100	120	-6.39E-01
P2499	1757311.000	15888564.000	T5N	R2W	27	SE	1	2500	2100	120	-7.71E+01
P25	1726227.000	15949649.000	T7N	R3W	34	NE	1	2200	1850	120	-3.64E+02
P250	1804793.000	15918000.000	T6N	R1E	31	NE	1	3000	2500	120	0.00E+00
P2500	1752031.000	15888564.000	T5N	R2W	28	SE	1	2350	1850	120	-5.43E+00
P2501	1746751.000	15888564.000	T5N	R2W	29	SE	1	2350	1850	120	-1.76E+00
P2502	1741471.000	15888564.000	T5N	R2W	30	SE	1	2350	1850	120	-2.40E+00
P2503	1741471.000	15883284.000	T5N	R2W	31	SE	1	2350	1850	120	-1.76E+00
P2504	1746751.000	15883284.000	T5N	R2W	32	SE	1	2350	1850	120	-2.56E+00
P2505	1752031.000	15883284.000	T5N	R2W	33	SE	1	2350	1850	120	-4.79E-01
P2506	1757311.000	15883284.000	T5N	R2W	34	SE	1	2500	2100	120	-1.92E+00
P2507	1762591.000	15883284.000	T5N	R2W	35	SE	1	2500	2100	120	-1.92E+00
P2508	1767871.000	15883284.000	T5N	R2W	36	SE	1	2500	2100	120	-6.39E-01
P2509	1799551.000	15909684.000	T5N	R1W	1	SE	1	3000	2500	120	-1.60E-01
P251	1810073.000	15918000.000	T6N	R1E	32	NE	1	3300	2500	120	-1.60E-01
P2510	1794271.000	15909684.000	T5N	R1W	2	SE	1	2900	2500	120	0.00E+00
P2511	1788991.000	15909684.000	T5N	R1W	3	SE	1	2200	1850	120	-1.60E-01
P2512	1783711.000	15909684.000	T5N	R1W	4	SE	1	2200	1850	120	-1.60E-01
P2513	1778431.000	15909684.000	T5N	R1W	5	SE	1	2200	1850	120	0.00E+00
P2514	1773151.000	15909684.000	T5N	R1W	6	SE	1	2500	2100	120	-1.60E-01
P2515	1773151.000	15904404.000	T5N	R1W	7	SE	1	2500	2100	120	0.00E+00
P2516	1778431.000	15904404.000	T5N	R1W	8	SE	1	2500	2100	120	-4.79E-01
P2517	1783711.000	15904404.000	T5N	R1W	9	SE	1	2500	2100	120	-4.79E-01
P2518	1788991.000	15904404.000	T5N	R1W	10	SE	1	2200	1850	120	0.00E+00
P2519	1794271.000	15904404.000	T5N	R1W	11	SE	1	2200	1850	120	0.00E+00
P252	1815353.000	15918000.000	T6N	R1E	33	NE	1	3300	2500	120	0.00E+00
P2520	1799551.000	15904404.000	T5N	R1W	12	SE	1	2900	2500	120	0.00E+00
P2521	1799551.000	15899124.000	T5N	R1W	13	SE	1	2500	2100	120	0.00E+00
P2522	1794271.000	15899124.000	T5N	R1W	14	SE	1	2500	2100	120	0.00E+00
P2523	1788991.000	15899124.000	T5N	R1W	15	SE	1	2500	2100	120	0.00E+00
P2524	1783711.000	15899124.000	T5N	R1W	16	SE	1	2500	2100	120	0.00E+00
P2525	1778431.000	15899124.000	T5N	R1W	17	SE	1	2500	2100	120	0.00E+00
P2526	1773151.000	15899124.000	T5N	R1W	18	SE	1	2500	2100	120	0.00E+00
P2527	1773151.000	15893844.000	T5N	R1W	19	SE	1	2500	2100	120	0.00E+00
P2528	1778431.000	15893844.000	T5N	R1W	20	SE	1	2500	2100	120	0.00E+00
P2529	1783711.000	15893844.000	T5N	R1W	21	SE	1	2500	2100	120	-1.60E-01
P253	1820633.000	15918000.000	T6N	R1E	34	NE	1	3300	2500	120	0.00E+00
P2530	1788991.000	15893844.000	T5N	R1W	22	SE	1	2500	2100	120	0.00E+00
P2531	1794271.000	15893844.000	T5N	R1W	23	SE	1	2500	2100	120	0.00E+00
P2532	1799551.000	15893844.000	T5N	R1W	24	SE	1	2500	2100	120	-1.60E-01
P2533	1799551.000	15888564.000	T5N	R1W	25	SE	1	2500	2100	120	-5.40E+01
P2534	1794271.000	15888564.000	T5N	R1W	26	SE	1	2500	2100	120	-7.99E-01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2535	1788991.000	15888564.000	T5N	R1W	27	SE	1	2500	2100	120	0.00E+00
P2536	1783711.000	15888564.000	T5N	R1W	28	SE	1	2500	2100	120	-1.56E+02
P2537	1778431.000	15888564.000	T5N	R1W	29	SE	1	2500	2100	120	0.00E+00
P2538	1773151.000	15888564.000	T5N	R1W	30	SE	1	2500	2100	120	-3.19E-01
P2539	1773151.000	15883284.000	T5N	R1W	31	SE	1	2500	2100	120	-3.19E-01
P254	1825913.000	15918000.000	T6N	R1E	35	NE	1	3300	2500	120	0.00E+00
P2540	1778431.000	15883284.000	T5N	R1W	32	SE	1	2500	2100	120	-3.19E-01
P2541	1783711.000	15883284.000	T5N	R1W	33	SE	1	2500	2100	120	-6.66E+02
P2542	1788991.000	15883284.000	T5N	R1W	34	SE	1	2500	2100	120	-1.45E+02
P2543	1794271.000	15883284.000	T5N	R1W	35	SE	1	2500	2100	120	-1.12E+00
P2544	1799551.000	15883284.000	T5N	R1W	36	SE	1	2500	2100	120	-3.04E+00
P2545	1831231.000	15909684.000	T5N	R1E	1	SE	1	3300	2500	120	-7.41E+02
P2546	1825951.000	15909684.000	T5N	R1E	2	SE	1	3300	2500	120	0.00E+00
P2547	1820671.000	15909684.000	T5N	R1E	3	SE	1	3300	2500	120	-3.19E-01
P2548	1815391.000	15909684.000	T5N	R1E	4	SE	1	3300	2500	120	0.00E+00
P2549	1810111.000	15909684.000	T5N	R1E	5	SE	1	3000	2500	120	-1.60E-01
P255	1831193.000	15918000.000	T6N	R1E	36	NE	1	3300	2500	120	0.00E+00
P2550	1804831.000	15909684.000	T5N	R1E	6	SE	1	3000	2500	120	0.00E+00
P2551	1804831.000	15904404.000	T5N	R1E	7	SE	1	2900	2500	120	0.00E+00
P2552	1810111.000	15904404.000	T5N	R1E	8	SE	1	3000	2500	120	0.00E+00
P2553	1815391.000	15904404.000	T5N	R1E	9	SE	1	3000	2500	120	0.00E+00
P2554	1820671.000	15904404.000	T5N	R1E	10	SE	1	3300	2500	120	-3.19E-01
P2555	1825951.000	15904404.000	T5N	R1E	11	SE	1	3300	2500	120	-1.60E-01
P2556	1831231.000	15904404.000	T5N	R1E	12	SE	1	3300	2500	120	0.00E+00
P2557	1831231.000	15899124.000	T5N	R1E	13	SE	1	3300	2500	120	-3.19E-01
P2558	1825951.000	15899124.000	T5N	R1E	14	SE	1	3000	2500	120	0.00E+00
P2559	1820671.000	15899124.000	T5N	R1E	15	SE	1	2900	2500	120	0.00E+00
P256	1852351.000	15944115.000	T6N	R2E	3	NE	1	3000	2500	120	0.00E+00
P2560	1815391.000	15899124.000	T5N	R1E	16	SE	1	3000	2500	120	0.00E+00
P2561	1810111.000	15899124.000	T5N	R1E	17	SE	1	3000	2500	120	0.00E+00
P2562	1804831.000	15899124.000	T5N	R1E	18	SE	1	2900	2500	120	0.00E+00
P2563	1804831.000	15893844.000	T5N	R1E	19	SE	1	2600	2100	120	0.00E+00
P2564	1810111.000	15893844.000	T5N	R1E	20	SE	1	2700	2500	120	-4.79E-01
P2565	1815391.000	15893844.000	T5N	R1E	21	SE	1	2800	2500	120	-1.60E-01
P2566	1820671.000	15893844.000	T5N	R1E	22	SE	1	3000	2500	120	0.00E+00
P2567	1825951.000	15893844.000	T5N	R1E	23	SE	1	3000	2500	120	0.00E+00
P2568	1831231.000	15893844.000	T5N	R1E	24	SE	1	3000	2500	120	-1.12E+00
P2569	1831231.000	15888564.000	T5N	R1E	25	SE	1	2800	2500	120	-3.19E-01
P257	1847071.000	15944115.000	T6N	R2E	4	NE	1	2800	2500	120	0.00E+00
P2570	1825951.000	15888564.000	T5N	R1E	26	SE	1	2800	2500	120	-2.52E+02
P2571	1820671.000	15888564.000	T5N	R1E	27	SE	1	2900	2500	120	-1.58E+02
P2572	1815391.000	15888564.000	T5N	R1E	28	SE	1	2800	2500	120	0.00E+00
P2573	1810111.000	15888564.000	T5N	R1E	29	SE	1	2600	2100	120	-1.31E+02
P2574	1804831.000	15888564.000	T5N	R1E	30	SE	1	2600	2100	120	-9.58E+01
P2575	1804831.000	15883284.000	T5N	R1E	31	SE	1	2600	2100	120	-2.40E+00
P2576	1810111.000	15883284.000	T5N	R1E	32	SE	1	2600	2100	120	-5.52E+01
P2577	1815391.000	15883284.000	T5N	R1E	33	SE	1	2600	2100	120	-5.89E+01
P2578	1820671.000	15883284.000	T5N	R1E	34	SE	1	2600	2500	120	-3.11E+01
P2579	1825951.000	15883284.000	T5N	R1E	35	SE	1	2800	2500	120	-3.19E-01
P258	1841791.000	15944115.000	T6N	R2E	5	NE	1	3300	2500	120	0.00E+00
P2580	1831231.000	15883284.000	T5N	R1E	36	SE	1	2900	2500	120	-3.19E-01
P2581	1852351.000	15909684.000	T5N	R2E	3	SE	1	3300	2500	120	0.00E+00
P2582	1847071.000	15909684.000	T5N	R2E	4	SE	1	3300	2500	120	0.00E+00
P2583	1841791.000	15909684.000	T5N	R2E	5	SE	1	3300	2500	120	0.00E+00
P2584	1836511.000	15909684.000	T5N	R2E	6	SE	1	3300	2500	120	0.00E+00
P2585	1836511.000	15904404.000	T5N	R2E	7	SE	1	3300	2500	120	0.00E+00
P2586	1841791.000	15904404.000	T5N	R2E	8	SE	1	3300	2500	120	0.00E+00
P2587	1847071.000	15904404.000	T5N	R2E	9	SE	1	3300	2500	120	0.00E+00
P2588	1852351.000	15904404.000	T5N	R2E	10	SE	1	3300	2500	120	0.00E+00
P2589	1852351.000	15899124.000	T5N	R2E	15	SE	1	3300	2500	120	0.00E+00
P259	1836511.000	15944115.000	T6N	R2E	6	NE	1	3300	2500	120	0.00E+00
P2590	1847071.000	15899124.000	T5N	R2E	16	SE	1	3300	2500	120	0.00E+00
P2591	1841791.000	15899124.000	T5N	R2E	17	SE	1	3300	2500	120	0.00E+00
P2592	1836511.000	15899124.000	T5N	R2E	18	SE	1	3300	2500	120	0.00E+00
P2593	1836511.000	15893844.000	T5N	R2E	19	SE	1	3000	2500	120	-3.19E-01
P2594	1841791.000	15893844.000	T5N	R2E	20	SE	1	3300	2500	120	0.00E+00
P2595	1847071.000	15893844.000	T5N	R2E	21	SE	1	3300	2500	120	0.00E+00
P2596	1852351.000	15893844.000	T5N	R2E	22	SE	1	3300	2500	120	0.00E+00
P2597	1852351.000	15888564.000	T5N	R2E	27	SE	1	3300	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2598	1847071.000	15888564.000	T5N	R2E	28	SE	1	3300	2500	120	0.00E+00
P2599	1841791.000	15888564.000	T5N	R2E	29	SE	1	3000	2500	120	0.00E+00
P26	1731507.000	15949649.000	T7N	R3W	35	NE	1	2200	1850	120	-3.64E+02
P260	1836511.000	15938835.000	T6N	R2E	7	NE	1	3300	2500	120	0.00E+00
P2600	1836511.000	15888564.000	T5N	R2E	30	SE	1	2800	2500	120	-4.79E-01
P2601	1836511.000	15883284.000	T5N	R2E	31	SE	1	2800	2500	120	-6.39E-01
P2602	1841791.000	15883284.000	T5N	R2E	32	SE	1	3000	2500	120	0.00E+00
P2603	1847071.000	15883284.000	T5N	R2E	33	SE	1	3300	2500	120	0.00E+00
P2604	1852351.000	15883284.000	T5N	R2E	34	SE	1	3300	2500	120	0.00E+00
P2605	1704709.000	15878093.000	T4N	R4W	1	SE	1	2100	1850	120	-7.24E-01
P2606	1699429.000	15878093.000	T4N	R4W	2	SE	1	2100	1850	120	-7.24E-01
P2607	1694149.000	15878093.000	T4N	R4W	3	SE	1	2100	1850	120	-7.24E-01
P2608	1694149.000	15872813.000	T4N	R4W	10	SE	1	2100	1850	120	-7.24E-01
P2609	1699429.000	15872813.000	T4N	R4W	11	SE	1	2100	1850	120	-7.24E-01
P261	1841791.000	15938835.000	T6N	R2E	8	NE	1	3300	2500	120	0.00E+00
P2610	1704709.000	15872813.000	T4N	R4W	12	SE	1	2100	1850	120	-7.24E-01
P2611	1704709.000	15867533.000	T4N	R4W	13	SE	1	2100	1850	120	-7.24E-01
P2612	1699429.000	15867533.000	T4N	R4W	14	SE	1	2100	1850	120	-7.24E-01
P2613	1694149.000	15867533.000	T4N	R4W	15	SE	1	2100	1850	120	-7.24E-01
P2614	1694149.000	15862253.000	T4N	R4W	22	SE	1	2100	1850	120	-7.24E-01
P2615	1699429.000	15862253.000	T4N	R4W	23	SE	1	2100	1850	120	-7.24E-01
P2616	1704709.000	15862253.000	T4N	R4W	24	SE	1	2100	1850	120	-7.24E-01
P2617	1704709.000	15856973.000	T4N	R4W	25	SE	1	2100	1850	120	-7.24E-01
P2618	1699429.000	15856973.000	T4N	R4W	26	SE	1	2100	1850	120	-7.24E-01
P2619	1694149.000	15856973.000	T4N	R4W	27	SE	1	2100	1850	120	-7.24E-01
P262	1847071.000	15938835.000	T6N	R2E	9	NE	1	3000	2500	120	0.00E+00
P2620	1694149.000	15851693.000	T4N	R4W	34	SE	1	2100	1850	120	-7.24E-01
P2621	1699429.000	15851693.000	T4N	R4W	35	SE	1	2100	1850	120	-7.24E-01
P2622	1704709.000	15851693.000	T4N	R4W	36	SE	1	2100	1850	120	-7.24E-01
P2623	1736389.000	15878093.000	T4N	R3W	1	SE	1	2350	1850	120	-3.62E+02
P2624	1731109.000	15878093.000	T4N	R3W	2	SE	1	2350	1850	120	-3.66E+01
P2625	1725829.000	15878093.000	T4N	R3W	3	SE	1	2350	1850	120	-3.62E-01
P2626	1720549.000	15878093.000	T4N	R3W	4	SE	1	2350	1850	120	-3.62E-01
P2627	1715269.000	15878093.000	T4N	R3W	5	SE	1	2350	1850	120	-3.62E-01
P2628	1709989.000	15878093.000	T4N	R3W	6	SE	1	2350	1850	120	-3.62E-01
P2629	1709989.000	15872813.000	T4N	R3W	7	SE	1	2300	1850	120	-3.62E-01
P263	1852351.000	15938835.000	T6N	R2E	10	NE	1	3300	2500	120	0.00E+00
P2630	1715269.000	15872813.000	T4N	R3W	8	SE	1	2300	1850	120	-3.62E-01
P2631	1720549.000	15872813.000	T4N	R3W	9	SE	1	2350	1850	120	-3.62E-01
P2632	1725829.000	15872813.000	T4N	R3W	10	SE	1	2350	1850	120	-3.62E-01
P2633	1731109.000	15872813.000	T4N	R3W	11	SE	1	2350	1850	120	-3.62E-01
P2634	1736389.000	15872813.000	T4N	R3W	12	SE	1	2350	1850	120	-3.62E-01
P2635	1736389.000	15867533.000	T4N	R3W	13	SE	1	2350	1850	120	-3.62E-01
P2636	1731109.000	15867533.000	T4N	R3W	14	SE	1	2350	1850	120	-3.62E+03
P2637	1725829.000	15867533.000	T4N	R3W	15	SE	1	2350	1850	120	-3.65E+02
P2638	1720549.000	15867533.000	T4N	R3W	16	SE	1	2350	1850	120	-3.62E-01
P2639	1715269.000	15867533.000	T4N	R3W	17	SE	1	2300	1850	120	-3.62E+02
P264	1852351.000	15933555.000	T6N	R2E	15	NE	1	3300	2500	120	0.00E+00
P2640	1709989.000	15867533.000	T4N	R3W	18	SE	1	2300	1850	120	-3.62E-01
P2641	1709989.000	15862253.000	T4N	R3W	19	SE	1	2300	1850	120	-3.66E+01
P2642	1715269.000	15862253.000	T4N	R3W	20	SE	1	2300	1850	120	-3.62E+02
P2643	1720549.000	15862253.000	T4N	R3W	21	SE	1	2350	1850	120	-6.52E+00
P2644	1725829.000	15862253.000	T4N	R3W	22	SE	1	2350	1850	120	-3.65E+02
P2645	1731109.000	15862253.000	T4N	R3W	23	SE	1	2350	1850	120	-3.65E+02
P2646	1736389.000	15862253.000	T4N	R3W	24	SE	1	2350	1850	120	-3.62E-01
P2647	1736389.000	15856973.000	T4N	R3W	25	SE	1	2350	1850	120	-3.62E-01
P2648	1731109.000	15856973.000	T4N	R3W	26	SE	1	2350	1850	120	-3.65E+02
P2649	1725829.000	15856973.000	T4N	R3W	27	SE	1	2350	1850	120	-3.65E+02
P265	1847071.000	15933555.000	T6N	R2E	16	NE	1	3300	2500	120	0.00E+00
P2650	1720549.000	15856973.000	T4N	R3W	28	SE	1	2350	1850	120	-3.65E+02
P2651	1715269.000	15856973.000	T4N	R3W	29	SE	1	2350	1850	120	-3.66E+01
P2652	1709989.000	15856973.000	T4N	R3W	30	SE	1	2350	1850	120	-3.62E-01
P2653	1709989.000	15851693.000	T4N	R3W	31	SE	1	2350	1850	120	-3.62E-01
P2654	1715269.000	15851693.000	T4N	R3W	32	SE	1	2350	1850	120	-3.62E-01
P2655	1720549.000	15851693.000	T4N	R3W	33	SE	1	2350	1850	120	-3.62E-01
P2656	1725829.000	15851693.000	T4N	R3W	34	SE	1	2350	1850	120	-3.62E-01
P2657	1731109.000	15851693.000	T4N	R3W	35	SE	1	2350	1850	120	-3.62E-01
P2658	1736389.000	15851693.000	T4N	R3W	36	SE	1	2350	1850	120	-3.62E-01
P2659	1768069.000	15878093.000	T4N	R2W	1	SE	1	2400	2100	120	-3.04E+01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P266	1841791.000	15933555.000	T6N	R2E	17	NE	1	3300	2500	120	0.00E+00
P2660	1762789.000	15878093.000	T4N	R2W	2	SE	1	2400	2100	120	-7.99E-01
P2661	1757509.000	15878093.000	T4N	R2W	3	SE	1	2400	2100	120	-4.79E-01
P2662	1752229.000	15878093.000	T4N	R2W	4	SE	1	2350	1850	120	-5.43E+00
P2663	1746949.000	15878093.000	T4N	R2W	5	SE	1	2350	1850	120	-8.16E+01
P2664	1741669.000	15878093.000	T4N	R2W	6	SE	1	2350	1850	120	-1.69E+01
P2665	1741669.000	15872813.000	T4N	R2W	7	SE	1	2350	1850	120	-1.60E-01
P2666	1746949.000	15872813.000	T4N	R2W	8	SE	1	2350	1850	120	-1.92E+00
P2667	1752229.000	15872813.000	T4N	R2W	9	SE	1	2350	1850	120	-1.57E+02
P2668	1757509.000	15872813.000	T4N	R2W	10	SE	1	2400	2100	120	-1.28E+00
P2669	1762789.000	15872813.000	T4N	R2W	11	SE	1	2400	2100	120	-5.48E+01
P267	1836511.000	15933555.000	T6N	R2E	18	NE	1	3300	2500	120	0.00E+00
P2670	1768069.000	15872813.000	T4N	R2W	12	SE	1	2400	2100	120	-1.28E+00
P2671	1768069.000	15867533.000	T4N	R2W	13	SE	1	2400	2100	120	0.00E+00
P2672	1762789.000	15867533.000	T4N	R2W	14	SE	1	2400	2100	120	-3.19E-01
P2673	1757509.000	15867533.000	T4N	R2W	15	SE	1	2400	2100	120	-1.60E-01
P2674	1752229.000	15867533.000	T4N	R2W	16	SE	1	2350	1850	120	0.00E+00
P2675	1746949.000	15867533.000	T4N	R2W	17	SE	1	2350	1850	120	-1.60E-01
P2676	1741669.000	15867533.000	T4N	R2W	18	SE	1	2350	1850	120	-4.95E+01
P2677	1741669.000	15862253.000	T4N	R2W	19	SE	1	2350	1850	120	-2.28E+02
P2678	1746949.000	15862253.000	T4N	R2W	20	SE	1	2350	1850	120	-2.01E+03
P2679	1752229.000	15862253.000	T4N	R2W	21	SE	1	2350	1850	120	-4.10E+01
P268	1836511.000	15928275.000	T6N	R2E	19	NE	1	3300	2500	120	0.00E+00
P2680	1757509.000	15862253.000	T4N	R2W	22	SE	1	2400	2100	120	-2.26E+02
P2681	1762789.000	15862253.000	T4N	R2W	23	SE	1	2400	2100	120	-1.60E-01
P2682	1768069.000	15862253.000	T4N	R2W	24	SE	1	2400	2100	120	-2.21E+02
P2683	1768069.000	15856973.000	T4N	R2W	25	SE	1	2400	2100	120	-3.19E+01
P2684	1762789.000	15856973.000	T4N	R2W	26	SE	1	2400	2100	120	-3.19E-01
P2685	1757509.000	15856973.000	T4N	R2W	27	SE	1	2400	2100	120	-1.33E+02
P2686	1752229.000	15856973.000	T4N	R2W	28	SE	1	2350	1850	120	-3.19E-01
P2687	1746949.000	15856973.000	T4N	R2W	29	SE	1	2350	1850	120	-4.84E+02
P2688	1741669.000	15856973.000	T4N	R2W	30	SE	1	2350	1850	120	-2.06E+02
P2689	1741669.000	15851693.000	T4N	R2W	31	SE	1	2350	1850	120	-7.99E-01
P269	1841791.000	15928275.000	T6N	R2E	20	NE	1	3300	2500	120	0.00E+00
P2690	1746949.000	15851693.000	T4N	R2W	32	SE	1	2350	1850	120	-1.50E+02
P2691	1752229.000	15851693.000	T4N	R2W	33	SE	1	2350	1850	120	-5.16E+02
P2692	1757509.000	15851693.000	T4N	R2W	34	SE	1	2400	2100	120	-1.24E+03
P2693	1762789.000	15851693.000	T4N	R2W	35	SE	1	2400	2100	120	-3.19E-01
P2694	1768069.000	15851693.000	T4N	R2W	36	SE	1	2400	2100	120	-7.36E+01
P2695	1799749.000	15878093.000	T4N	R1W	1	SE	1	2500	2100	120	-2.87E+02
P2696	1794469.000	15878093.000	T4N	R1W	2	SE	1	2500	2100	120	-3.19E-01
P2697	1789189.000	15878093.000	T4N	R1W	3	SE	1	2500	2100	120	-2.92E+02
P2698	1783909.000	15878093.000	T4N	R1W	4	SE	1	2500	2100	120	-6.56E+02
P2699	1778629.000	15878093.000	T4N	R1W	5	SE	1	2500	2100	120	-1.69E+02
P27	1736787.000	15949649.000	T7N	R3W	36	NE	1	2200	1850	120	-3.64E+02
P270	1847071.000	15928275.000	T6N	R2E	21	NE	1	3300	2500	120	0.00E+00
P2700	1773349.000	15878093.000	T4N	R1W	6	SE	1	2400	2100	120	-4.79E-01
P2701	1773349.000	15872813.000	T4N	R1W	7	SE	1	2400	2100	120	-4.68E+01
P2702	1778629.000	15872813.000	T4N	R1W	8	SE	1	2400	2100	120	-3.24E+01
P2703	1783909.000	15872813.000	T4N	R1W	9	SE	1	2400	2100	120	-8.08E+01
P2704	1789189.000	15872813.000	T4N	R1W	10	SE	1	2500	2100	120	-1.44E+00
P2705	1794469.000	15872813.000	T4N	R1W	11	SE	1	2500	2100	120	-2.01E+03
P2706	1799749.000	15872813.000	T4N	R1W	12	SE	1	2500	2100	120	-4.24E+02
P2707	1799749.000	15867533.000	T4N	R1W	13	SE	1	2500	2100	120	-2.96E+03
P2708	1794469.000	15867533.000	T4N	R1W	14	SE	1	2500	2100	120	-3.13E+00
P2709	1789189.000	15867533.000	T4N	R1W	15	SE	1	2400	2100	120	-1.26E+02
P271	1852351.000	15928275.000	T6N	R2E	22	NE	1	3300	2500	120	0.00E+00
P2710	1783909.000	15867533.000	T4N	R1W	16	SE	1	2400	2100	120	0.00E+00
P2711	1778629.000	15867533.000	T4N	R1W	17	SE	1	2400	2100	120	-4.79E-01
P2712	1773349.000	15867533.000	T4N	R1W	18	SE	1	2400	2100	120	-1.12E+00
P2713	1773349.000	15862253.000	T4N	R1W	19	SE	1	2500	2100	120	-3.47E+02
P2714	1778629.000	15862253.000	T4N	R1W	20	SE	1	2500	2100	120	-1.94E+01
P2715	1783909.000	15862253.000	T4N	R1W	21	SE	1	2500	2100	120	-7.99E-01
P2716	1789189.000	15862253.000	T4N	R1W	22	SE	1	2500	2100	120	-2.39E+02
P2717	1794469.000	15862253.000	T4N	R1W	23	SE	1	2500	2100	120	-9.12E+01
P2718	1799749.000	15862253.000	T4N	R1W	24	SE	1	2500	2100	120	-1.05E+03
P2719	1799749.000	15856973.000	T4N	R1W	25	SE	1	2500	2100	120	-2.31E+01
P272	1852351.000	15922995.000	T6N	R2E	27	NE	1	3300	2500	120	0.00E+00
P2720	1794469.000	15856973.000	T4N	R1W	26	SE	1	2500	2100	120	-1.02E+03

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2721	1789189.000	15856973.000	T4N	R1W	27	SE	1	2500	2100	120	-3.19E-01
P2722	1783909.000	15856973.000	T4N	R1W	28	SE	1	2500	2100	120	-1.60E-01
P2723	1778629.000	15856973.000	T4N	R1W	29	SE	1	2500	2100	120	-7.99E-01
P2724	1773349.000	15856973.000	T4N	R1W	30	SE	1	2500	2100	120	-3.46E+02
P2725	1773349.000	15851693.000	T4N	R1W	31	SE	1	2500	2100	120	-2.77E+02
P2726	1778629.000	15851693.000	T4N	R1W	32	SE	1	2500	2100	120	-2.93E+02
P2727	1783909.000	15851693.000	T4N	R1W	33	SE	1	2500	2100	120	-6.39E-01
P2728	1789189.000	15851693.000	T4N	R1W	34	SE	1	2500	2100	120	-7.26E+02
P2729	1794469.000	15851693.000	T4N	R1W	35	SE	1	2500	2100	120	-1.28E+00
P273	1847071.000	15922995.000	T6N	R2E	28	NE	1	3300	2500	120	0.00E+00
P2730	1799749.000	15851693.000	T4N	R1W	36	SE	1	2500	2100	120	-1.52E+03
P2731	1831429.000	15878093.000	T4N	R1E	1	SE	1	3000	2500	120	-1.60E-01
P2732	1826149.000	15878093.000	T4N	R1E	2	SE	1	2800	2500	120	-2.69E+01
P2733	1820869.000	15878093.000	T4N	R1E	3	SE	1	2600	2100	120	-3.19E-01
P2734	1815589.000	15878093.000	T4N	R1E	4	SE	1	2600	2100	120	-5.10E+01
P2735	1810309.000	15878093.000	T4N	R1E	5	SE	1	2600	2100	120	-2.01E+02
P2736	1805029.000	15878093.000	T4N	R1E	6	SE	1	2500	2100	120	-2.73E+02
P2737	1805029.000	15872813.000	T4N	R1E	7	SE	1	2500	2100	120	-4.55E+01
P2738	1810309.000	15872813.000	T4N	R1E	8	SE	1	2500	2100	120	-7.40E+01
P2739	1815589.000	15872813.000	T4N	R1E	9	SE	1	2500	2100	120	-4.95E+01
P274	1841791.000	15922995.000	T6N	R2E	29	NE	1	3300	2500	120	0.00E+00
P2740	1820869.000	15872813.000	T4N	R1E	10	SE	1	2600	2100	120	-4.14E+01
P2741	1826149.000	15872813.000	T4N	R1E	11	SE	1	2600	2100	120	-3.19E-01
P2742	1831429.000	15872813.000	T4N	R1E	12	SE	1	2800	2500	120	-7.99E-01
P2743	1831429.000	15867533.000	T4N	R1E	13	SE	1	2600	2100	120	-1.76E+00
P2744	1826149.000	15867533.000	T4N	R1E	14	SE	1	2500	2100	120	-2.88E+00
P2745	1820869.000	15867533.000	T4N	R1E	15	SE	1	2500	2100	120	-4.34E+01
P2746	1815589.000	15867533.000	T4N	R1E	16	SE	1	2500	2100	120	-7.69E+01
P2747	1810309.000	15867533.000	T4N	R1E	17	SE	1	2500	2100	120	-8.66E+01
P2748	1805029.000	15867533.000	T4N	R1E	18	SE	1	2500	2100	120	-9.92E+01
P2749	1805029.000	15862253.000	T4N	R1E	19	SE	1	2500	2100	120	-2.40E+02
P275	1836511.000	15922995.000	T6N	R2E	30	NE	1	3300	2500	120	0.00E+00
P2750	1810309.000	15862253.000	T4N	R1E	20	SE	1	2600	2100	120	-4.79E-01
P2751	1815589.000	15862253.000	T4N	R1E	21	SE	1	2500	2100	120	-1.12E+00
P2752	1820869.000	15862253.000	T4N	R1E	22	SE	1	2500	2100	120	-4.02E+00
P2753	1826149.000	15862253.000	T4N	R1E	23	SE	1	2600	2100	120	-7.11E+02
P2754	1831429.000	15862253.000	T4N	R1E	24	SE	1	2600	2100	120	-2.25E+02
P2755	1831429.000	15856973.000	T4N	R1E	25	SE	1	2600	2100	120	-1.76E+02
P2756	1826149.000	15856973.000	T4N	R1E	26	SE	1	2600	2100	120	-4.60E+02
P2757	1820869.000	15856973.000	T4N	R1E	27	SE	1	2600	2100	120	-1.76E+00
P2758	1815589.000	15856973.000	T4N	R1E	28	SE	1	2600	2100	120	-4.23E+01
P2759	1810309.000	15856973.000	T4N	R1E	29	SE	1	2600	2100	120	-3.29E+01
P276	1836473.000	15918000.000	T6N	R2E	31	NE	1	3300	2500	120	0.00E+00
P2760	1805029.000	15856973.000	T4N	R1E	30	SE	1	2600	2100	120	-1.33E+03
P2761	1805029.000	15851693.000	T4N	R1E	31	SE	1	2600	2100	120	-4.72E+01
P2762	1810309.000	15851693.000	T4N	R1E	32	SE	1	2600	2100	120	-3.32E+02
P2763	1815589.000	15851693.000	T4N	R1E	33	SE	1	2600	2100	120	-6.25E+01
P2764	1820869.000	15851693.000	T4N	R1E	34	SE	1	2600	2100	120	-4.70E+01
P2765	1826149.000	15851693.000	T4N	R1E	35	SE	1	2600	2100	120	-2.17E+02
P2766	1831429.000	15851693.000	T4N	R1E	36	SE	1	2600	2100	120	-2.33E+03
P2767	1852549.000	15878093.000	T4N	R2E	3	SE	1	3300	2500	120	0.00E+00
P2768	1847269.000	15878093.000	T4N	R2E	4	SE	1	3000	2500	120	0.00E+00
P2769	1841989.000	15878093.000	T4N	R2E	5	SE	1	3000	2500	120	0.00E+00
P277	1841753.000	15918000.000	T6N	R2E	32	NE	1	3300	2500	120	0.00E+00
P2770	1836709.000	15878093.000	T4N	R2E	6	SE	1	3000	2500	120	0.00E+00
P2771	1836709.000	15872813.000	T4N	R2E	7	SE	1	3000	2500	120	-3.19E-01
P2772	1841989.000	15872813.000	T4N	R2E	8	SE	1	3000	2500	120	0.00E+00
P2773	1847269.000	15872813.000	T4N	R2E	9	SE	1	3300	2500	120	0.00E+00
P2774	1852549.000	15872813.000	T4N	R2E	10	SE	1	3300	2500	120	0.00E+00
P2775	1852549.000	15867533.000	T4N	R2E	15	SE	1	3000	2500	120	0.00E+00
P2776	1847269.000	15867533.000	T4N	R2E	16	SE	1	3300	2500	120	0.00E+00
P2777	1841989.000	15867533.000	T4N	R2E	17	SE	1	3000	2500	120	-3.62E-01
P2778	1836709.000	15867533.000	T4N	R2E	18	SE	1	2900	2500	120	-2.90E+00
P2779	1836709.000	15862253.000	T4N	R2E	19	SE	1	2600	2100	120	-2.90E+00
P278	1847033.000	15918000.000	T6N	R2E	33	NE	1	3300	2500	120	0.00E+00
P2780	1841989.000	15862253.000	T4N	R2E	20	SE	1	2900	2500	120	-2.90E+00
P2781	1847269.000	15862253.000	T4N	R2E	21	SE	1	2800	2500	120	-3.62E-01
P2782	1852549.000	15862253.000	T4N	R2E	22	SE	1	3000	2500	120	-3.62E-01
P2783	1852549.000	15856973.000	T4N	R2E	27	SE	1	2900	2500	120	-6.52E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2784	1847269.000	15856973.000	T4N	R2E	28	SE	1	2800	2500	120	-6.52E+00
P2785	1841989.000	15856973.000	T4N	R2E	29	SE	1	2600	2500	120	-6.52E+00
P2786	1836709.000	15856973.000	T4N	R2E	30	SE	1	2600	2100	120	-6.52E+00
P2787	1836709.000	15851693.000	T4N	R2E	31	SE	1	2600	2100	120	-6.52E+00
P2788	1841989.000	15851693.000	T4N	R2E	32	SE	1	2600	2100	120	-6.52E+00
P2789	1847269.000	15851693.000	T4N	R2E	33	SE	1	2600	2500	120	-3.91E+01
P279	1852313.000	15918000.000	T6N	R2E	34	NE	1	3300	2500	120	0.00E+00
P2790	1852549.000	15851693.000	T4N	R2E	34	SE	1	2800	2500	120	-6.52E+00
P2791	1704710.000	15846302.000	T3N	R4W	1	SE	1	2100	1850	120	-7.24E-01
P2792	1699430.000	15846302.000	T3N	R4W	2	SE	1	2100	1850	120	-7.24E-01
P2793	1694150.000	15846302.000	T3N	R4W	3	SE	1	2100	1850	120	-7.24E-01
P2794	1694150.000	15841022.000	T3N	R4W	10	SE	1	2100	1850	120	-7.24E-01
P2795	1699430.000	15841022.000	T3N	R4W	11	SE	1	2100	1850	120	-7.24E-01
P2796	1704710.000	15841022.000	T3N	R4W	12	SE	1	2100	1850	120	-7.24E-01
P2797	1736390.000	15846302.000	T3N	R3W	1	SE	1	2350	1850	120	-1.09E+00
P2798	1731110.000	15846302.000	T3N	R3W	2	SE	1	2350	1850	120	-1.09E+00
P2799	1725830.000	15846302.000	T3N	R3W	3	SE	1	2350	1850	120	-1.09E+00
P28	1741811.000	15960209.000	T7N	R2W	19	NE	1	2200	1850	120	-1.60E-01
P280	1704511.000	15912324.000	T5N	R4W	1	NE	1	2100	1850	120	0.00E+00
P2800	1720550.000	15846302.000	T3N	R3W	4	SE	1	2350	1850	120	-1.09E+00
P2801	1715270.000	15846302.000	T3N	R3W	5	SE	1	2350	1850	120	-1.09E+00
P2802	1709990.000	15846302.000	T3N	R3W	6	SE	1	2350	1850	120	-1.09E+00
P2803	1709990.000	15841022.000	T3N	R3W	7	SE	1	2350	1850	120	-1.09E+00
P2804	1715270.000	15841022.000	T3N	R3W	8	SE	1	2350	1850	120	-1.09E+00
P2805	1720550.000	15841022.000	T3N	R3W	9	SE	1	2350	1850	120	-1.09E+00
P2806	1725830.000	15841022.000	T3N	R3W	10	SE	1	2350	1850	120	-1.09E+00
P2807	1731110.000	15841022.000	T3N	R3W	11	SE	1	2350	1850	120	-1.09E+00
P2808	1736390.000	15841022.000	T3N	R3W	12	SE	1	2350	1850	120	-1.09E+00
P2809	1768070.000	15846302.000	T3N	R2W	1	SE	1	2400	2100	120	-1.81E+00
P281	1699231.000	15912324.000	T5N	R4W	2	NE	1	2100	1850	120	-3.62E-02
P2810	1762790.000	15846302.000	T3N	R2W	2	SE	1	2400	2100	120	-1.81E+00
P2811	1757510.000	15846302.000	T3N	R2W	3	SE	1	2400	2100	120	-1.81E+00
P2812	1752230.000	15846302.000	T3N	R2W	4	SE	1	2350	1850	120	-1.81E+00
P2813	1746950.000	15846302.000	T3N	R2W	5	SE	1	2350	1850	120	-1.81E+00
P2814	1741670.000	15846302.000	T3N	R2W	6	SE	1	2350	1850	120	-1.81E+00
P2815	1741670.000	15841022.000	T3N	R2W	7	SE	1	2350	1850	120	-1.81E+00
P2816	1746950.000	15841022.000	T3N	R2W	8	SE	1	2350	1850	120	-1.81E+00
P2817	1752230.000	15841022.000	T3N	R2W	9	SE	1	2350	1850	120	-1.81E+00
P2818	1757510.000	15841022.000	T3N	R2W	10	SE	1	2400	2100	120	-1.81E+00
P2819	1762790.000	15841022.000	T3N	R2W	11	SE	1	2400	2100	120	-1.81E+00
P282	1693951.000	15912324.000	T5N	R4W	3	NE	1	2350	1850	120	0.00E+00
P2820	1768070.000	15841022.000	T3N	R2W	12	SE	1	2500	2100	120	-1.81E+00
P2821	1799750.000	15846302.000	T3N	R1W	1	SE	1	2500	2100	120	-3.64E+02
P2822	1794470.000	15846302.000	T3N	R1W	2	SE	1	2500	2100	120	-2.17E+00
P2823	1789190.000	15846302.000	T3N	R1W	3	SE	1	2500	2100	120	-1.81E+00
P2824	1783910.000	15846302.000	T3N	R1W	4	SE	1	2500	2100	120	-1.81E+00
P2825	1778630.000	15846302.000	T3N	R1W	5	SE	1	2500	2100	120	-1.81E+00
P2826	1773350.000	15846302.000	T3N	R1W	6	SE	1	2500	2100	120	-1.81E+00
P2827	1773350.000	15841022.000	T3N	R1W	7	SE	1	2500	2100	120	-1.81E+00
P2828	1778630.000	15841022.000	T3N	R1W	8	SE	1	2500	2100	120	-1.81E+00
P2829	1783910.000	15841022.000	T3N	R1W	9	SE	1	2500	2100	120	-1.81E+00
P283	1693951.000	15907044.000	T5N	R4W	10	NE	1	2100	1850	120	0.00E+00
P2830	1789190.000	15841022.000	T3N	R1W	10	SE	1	2500	2100	120	-1.81E+00
P2831	1794470.000	15841022.000	T3N	R1W	11	SE	1	2500	2100	120	-5.79E+00
P2832	1799750.000	15841022.000	T3N	R1W	12	SE	1	2500	2100	120	-2.17E+00
P2833	1831430.000	15846302.000	T3N	R1E	1	SE	1	2600	2100	120	-1.81E+00
P2834	1826150.000	15846302.000	T3N	R1E	2	SE	1	2600	2100	120	-1.81E+00
P2835	1820870.000	15846302.000	T3N	R1E	3	SE	1	2600	2100	120	-1.81E+00
P2836	1815590.000	15846302.000	T3N	R1E	4	SE	1	2600	2100	120	-5.79E+00
P2837	1810310.000	15846302.000	T3N	R1E	5	SE	1	2600	2100	120	-3.84E+01
P2838	1805030.000	15846302.000	T3N	R1E	6	SE	1	2600	2100	120	-2.17E+00
P2839	1805030.000	15841022.000	T3N	R1E	7	SE	1	2500	2100	120	-5.43E+00
P284	1699231.000	15907044.000	T5N	R4W	11	NE	1	2100	1850	120	0.00E+00
P2840	1810310.000	15841022.000	T3N	R1E	8	SE	1	2500	2100	120	-1.81E+00
P2841	1815590.000	15841022.000	T3N	R1E	9	SE	1	2600	2100	120	-5.43E+00
P2842	1820870.000	15841022.000	T3N	R1E	10	SE	1	2600	2100	120	-1.81E+00
P2843	1826150.000	15841022.000	T3N	R1E	11	SE	1	2600	2100	120	-1.81E+00
P2844	1831430.000	15841022.000	T3N	R1E	12	SE	1	2600	2100	120	-1.81E+00
P2845	1852550.000	15846302.000	T3N	R2E	3	SE	1	2600	2100	120	-3.95E+01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P2846	1847270.000	15846302.000	T3N	R2E	4	SE	1	2600	2100	120	-3.95E+01
P2847	1841990.000	15846302.000	T3N	R2E	5	SE	1	2600	2100	120	-3.98E+01
P2848	1836710.000	15846302.000	T3N	R2E	6	SE	1	2600	2100	120	-3.95E+01
P2849	1836710.000	15841022.000	T3N	R2E	7	SE	1	2600	2100	120	-3.95E+01
P285	1704511.000	15907044.000	T5N	R4W	12	NE	1	2100	1850	120	0.00E+00
P2850	1841990.000	15841022.000	T3N	R2E	8	SE	1	2600	2100	120	-3.95E+01
P2851	1847270.000	15841022.000	T3N	R2E	9	SE	1	2600	2100	120	-3.65E+02
P2852	1852550.000	15841022.000	T3N	R2E	10	SE	1	2600	2100	120	-3.95E+01
P286	1704511.000	15901764.000	T5N	R4W	13	NE	1	2100	1850	120	-3.62E-01
P287	1699231.000	15901764.000	T5N	R4W	14	NE	1	2100	1850	120	-3.62E-01
P288	1693951.000	15901764.000	T5N	R4W	15	NE	1	2100	1850	120	-3.62E-01
P289	1693951.000	15896484.000	T5N	R4W	22	NE	1	2100	1850	120	-3.62E-01
P29	1747091.000	15960209.000	T7N	R2W	20	NE	1	2200	1850	120	-7.99E-01
P290	1699231.000	15896484.000	T5N	R4W	23	NE	1	2100	1850	120	-3.62E-01
P291	1704511.000	15896484.000	T5N	R4W	24	NE	1	2100	1850	120	-3.62E-01
P292	1704511.000	15891204.000	T5N	R4W	25	NE	1	2100	1850	120	-3.62E-01
P293	1699231.000	15891204.000	T5N	R4W	26	NE	1	2100	1850	120	-3.62E-01
P294	1693951.000	15891204.000	T5N	R4W	27	NE	1	2100	1850	120	-3.62E-01
P295	1693951.000	15885924.000	T5N	R4W	34	NE	1	2100	1850	120	-3.62E-01
P296	1699231.000	15885924.000	T5N	R4W	35	NE	1	2100	1850	120	-3.62E-01
P297	1704511.000	15885924.000	T5N	R4W	36	NE	1	2100	1850	120	-3.62E-01
P298	1736191.000	15912324.000	T5N	R3W	1	NE	1	2350	1850	120	-3.62E-01
P299	1730911.000	15912324.000	T5N	R3W	2	NE	1	2350	1850	120	0.00E+00
P3	1704851.000	15960209.000	T7N	R4W	24	NE	1	2200	1850	120	-2.35E+00
P30	1752371.000	15960209.000	T7N	R2W	21	NE	1	2500	2350	120	-1.60E-01
P300	1725631.000	15912324.000	T5N	R3W	3	NE	1	2350	1850	120	0.00E+00
P301	1720351.000	15912324.000	T5N	R3W	4	NE	1	2350	1850	120	-1.81E+00
P302	1715071.000	15912324.000	T5N	R3W	5	NE	1	2350	1850	120	-3.62E-01
P303	1709791.000	15912324.000	T5N	R3W	6	NE	1	2350	1850	120	-3.62E-01
P304	1709791.000	15907044.000	T5N	R3W	7	NE	1	2350	1850	120	-3.62E-01
P305	1715071.000	15907044.000	T5N	R3W	8	NE	1	2350	1850	120	-1.81E+00
P306	1720351.000	15907044.000	T5N	R3W	9	NE	1	2350	1850	120	-3.62E-01
P307	1725631.000	15907044.000	T5N	R3W	10	NE	1	2350	1850	120	-3.62E-01
P308	1730911.000	15907044.000	T5N	R3W	11	NE	1	2350	1850	120	0.00E+00
P309	1736191.000	15907044.000	T5N	R3W	12	NE	1	2350	1850	120	0.00E+00
P31	1757651.000	15960209.000	T7N	R2W	22	NE	1	2500	2350	120	0.00E+00
P310	1736191.000	15901764.000	T5N	R3W	13	NE	1	2350	1850	120	-3.62E-01
P311	1730911.000	15901764.000	T5N	R3W	14	NE	1	2350	1850	120	-3.62E-01
P312	1725631.000	15901764.000	T5N	R3W	15	NE	1	2350	1850	120	-3.62E-01
P313	1720351.000	15901764.000	T5N	R3W	16	NE	1	2350	1850	120	-3.62E-01
P314	1715071.000	15901764.000	T5N	R3W	17	NE	1	2350	1850	120	-1.81E+00
P315	1709791.000	15901764.000	T5N	R3W	18	NE	1	2350	1850	120	-3.62E-01
P316	1709791.000	15896484.000	T5N	R3W	19	NE	1	2350	1850	120	-3.62E-01
P317	1715071.000	15896484.000	T5N	R3W	20	NE	1	2350	1850	120	-3.62E-01
P318	1720351.000	15896484.000	T5N	R3W	21	NE	1	2350	1850	120	-3.62E-01
P319	1725631.000	15896484.000	T5N	R3W	22	NE	1	2350	1850	120	-3.62E-01
P32	1762931.000	15960209.000	T7N	R2W	23	NE	1	2500	2350	120	0.00E+00
P320	1730911.000	15896484.000	T5N	R3W	23	NE	1	2350	1850	120	-3.62E-01
P321	1736191.000	15896484.000	T5N	R3W	24	NE	1	2350	1850	120	-3.62E-01
P322	1736191.000	15891204.000	T5N	R3W	25	NE	1	2350	1850	120	-3.62E-01
P323	1730911.000	15891204.000	T5N	R3W	26	NE	1	2350	1850	120	-3.62E-01
P324	1725631.000	15891204.000	T5N	R3W	27	NE	1	2350	1850	120	-3.62E-01
P325	1720351.000	15891204.000	T5N	R3W	28	NE	1	2350	1850	120	-3.62E-01
P326	1715071.000	15891204.000	T5N	R3W	29	NE	1	2350	1850	120	-3.62E-01
P327	1709791.000	15891204.000	T5N	R3W	30	NE	1	2350	1850	120	-3.62E-01
P328	1709791.000	15885924.000	T5N	R3W	31	NE	1	2350	1850	120	-3.62E-01
P329	1715071.000	15885924.000	T5N	R3W	32	NE	1	2350	1850	120	-3.62E-01
P33	1768211.000	15960209.000	T7N	R2W	24	NE	1	2500	2350	120	0.00E+00
P330	1720351.000	15885924.000	T5N	R3W	33	NE	1	2350	1850	120	-3.62E-01
P331	1725631.000	15885924.000	T5N	R3W	34	NE	1	2350	1850	120	-3.62E-01
P332	1730911.000	15885924.000	T5N	R3W	35	NE	1	2350	1850	120	-3.62E-01
P333	1736191.000	15885924.000	T5N	R3W	36	NE	1	2350	1850	120	-3.62E-01
P334	1767871.000	15912324.000	T5N	R2W	1	NE	1	2500	2100	120	-1.60E-01
P335	1762591.000	15912324.000	T5N	R2W	2	NE	1	2500	2100	120	-3.19E-01
P336	1757311.000	15912324.000	T5N	R2W	3	NE	1	2500	2100	120	-6.39E-01
P337	1752031.000	15912324.000	T5N	R2W	4	NE	1	2350	1850	120	0.00E+00
P338	1746751.000	15912324.000	T5N	R2W	5	NE	1	2350	1850	120	0.00E+00
P339	1741471.000	15912324.000	T5N	R2W	6	NE	1	2350	1850	120	-4.79E-01
P34	1768125.000	15954845.000	T7N	R2W	25	NE	1	2200	1850	120	-1.45E-01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P340	1741471.000	15907044.000	T5N	R2W	7	NE	1	2350	1850	120	-3.19E-01
P341	1746751.000	15907044.000	T5N	R2W	8	NE	1	2350	1850	120	0.00E+00
P342	1752031.000	15907044.000	T5N	R2W	9	NE	1	2350	1850	120	0.00E+00
P343	1757311.000	15907044.000	T5N	R2W	10	NE	1	2500	2100	120	0.00E+00
P344	1762591.000	15907044.000	T5N	R2W	11	NE	1	2500	2100	120	0.00E+00
P345	1767871.000	15907044.000	T5N	R2W	12	NE	1	2500	2100	120	0.00E+00
P346	1767871.000	15901764.000	T5N	R2W	13	NE	1	2500	2100	120	0.00E+00
P347	1762591.000	15901764.000	T5N	R2W	14	NE	1	2500	2100	120	-1.60E-01
P348	1757311.000	15901764.000	T5N	R2W	15	NE	1	2350	1850	120	0.00E+00
P349	1752031.000	15901764.000	T5N	R2W	16	NE	1	2350	1850	120	0.00E+00
P35	1762845.000	15954845.000	T7N	R2W	26	NE	1	2200	1850	120	-1.45E-01
P350	1746751.000	15901764.000	T5N	R2W	17	NE	1	2350	1850	120	0.00E+00
P351	1741471.000	15901764.000	T5N	R2W	18	NE	1	2350	1850	120	-6.39E-01
P352	1741471.000	15896484.000	T5N	R2W	19	NE	1	2350	1850	120	-6.39E-01
P353	1746751.000	15896484.000	T5N	R2W	20	NE	1	2350	1850	120	-5.07E+02
P354	1752031.000	15896484.000	T5N	R2W	21	NE	1	2350	1850	120	-3.04E+00
P355	1757311.000	15896484.000	T5N	R2W	22	NE	1	2500	2100	120	-1.60E-01
P356	1762591.000	15896484.000	T5N	R2W	23	NE	1	2500	2100	120	-1.60E-01
P357	1767871.000	15896484.000	T5N	R2W	24	NE	1	2500	2100	120	0.00E+00
P358	1767871.000	15891204.000	T5N	R2W	25	NE	1	2500	2100	120	-3.84E+02
P359	1762591.000	15891204.000	T5N	R2W	26	NE	1	2500	2100	120	-4.31E+00
P36	1757565.000	15954845.000	T7N	R2W	27	NE	1	2200	1850	120	0.00E+00
P360	1757311.000	15891204.000	T5N	R2W	27	NE	1	2500	2100	120	-9.40E+00
P361	1752031.000	15891204.000	T5N	R2W	28	NE	1	2350	1850	120	-1.73E+01
P362	1746751.000	15891204.000	T5N	R2W	29	NE	1	2350	1850	120	-2.24E+00
P363	1741471.000	15891204.000	T5N	R2W	30	NE	1	2350	1850	120	-1.12E+00
P364	1741471.000	15885924.000	T5N	R2W	31	NE	1	2350	1850	120	-2.56E+00
P365	1746751.000	15885924.000	T5N	R2W	32	NE	1	2350	1850	120	-6.33E+01
P366	1752031.000	15885924.000	T5N	R2W	33	NE	1	2350	1850	120	-6.39E-01
P367	1757311.000	15885924.000	T5N	R2W	34	NE	1	2500	2100	120	-7.99E-01
P368	1762591.000	15885924.000	T5N	R2W	35	NE	1	2500	2100	120	-1.92E+02
P369	1767871.000	15885924.000	T5N	R2W	36	NE	1	2500	2100	120	-9.58E-01
P37	1752285.000	15954845.000	T7N	R2W	28	NE	1	2400	2200	120	-3.65E+01
P370	1799551.000	15912324.000	T5N	R1W	1	NE	1	2900	2500	120	0.00E+00
P371	1794271.000	15912324.000	T5N	R1W	2	NE	1	2800	2500	120	-3.51E+01
P372	1788991.000	15912324.000	T5N	R1W	3	NE	1	2200	1850	120	-1.20E+03
P373	1783711.000	15912324.000	T5N	R1W	4	NE	1	2200	1850	120	0.00E+00
P374	1778431.000	15912324.000	T5N	R1W	5	NE	1	2200	1850	120	-1.60E-01
P375	1773151.000	15912324.000	T5N	R1W	6	NE	1	2500	2100	120	0.00E+00
P376	1773151.000	15907044.000	T5N	R1W	7	NE	1	2500	2100	120	-1.60E-01
P377	1778431.000	15907044.000	T5N	R1W	8	NE	1	2500	2100	120	-4.79E-01
P378	1783711.000	15907044.000	T5N	R1W	9	NE	1	2500	2100	120	-1.12E+00
P379	1788991.000	15907044.000	T5N	R1W	10	NE	1	2200	1850	120	0.00E+00
P38	1747005.000	15954845.000	T7N	R2W	29	NE	1	2400	2350	120	-4.79E-01
P380	1794271.000	15907044.000	T5N	R1W	11	NE	1	2200	1850	120	0.00E+00
P381	1799551.000	15907044.000	T5N	R1W	12	NE	1	3000	2500	120	0.00E+00
P382	1799551.000	15901764.000	T5N	R1W	13	NE	1	2500	2100	120	0.00E+00
P383	1794271.000	15901764.000	T5N	R1W	14	NE	1	2500	2100	120	0.00E+00
P384	1788991.000	15901764.000	T5N	R1W	15	NE	1	2500	2100	120	0.00E+00
P385	1783711.000	15901764.000	T5N	R1W	16	NE	1	2500	2100	120	-1.28E+00
P386	1778431.000	15901764.000	T5N	R1W	17	NE	1	2500	2100	120	-3.72E+01
P387	1773151.000	15901764.000	T5N	R1W	18	NE	1	2500	2100	120	-1.60E-01
P388	1773151.000	15896484.000	T5N	R1W	19	NE	1	2500	2100	120	-6.39E-01
P389	1778431.000	15896484.000	T5N	R1W	20	NE	1	2500	2100	120	0.00E+00
P39	1741725.000	15954845.000	T7N	R2W	30	NE	1	2300	2200	120	-9.58E-01
P390	1783711.000	15896484.000	T5N	R1W	21	NE	1	2500	2100	120	-1.67E+03
P391	1788991.000	15896484.000	T5N	R1W	22	NE	1	2500	2100	120	0.00E+00
P392	1794271.000	15896484.000	T5N	R1W	23	NE	1	2500	2100	120	-1.60E-01
P393	1799551.000	15896484.000	T5N	R1W	24	NE	1	2500	2100	120	0.00E+00
P394	1799551.000	15891204.000	T5N	R1W	25	NE	1	2500	2100	120	-7.01E+01
P395	1794271.000	15891204.000	T5N	R1W	26	NE	1	2500	2100	120	-1.60E-01
P396	1788991.000	15891204.000	T5N	R1W	27	NE	1	2500	2100	120	0.00E+00
P397	1783711.000	15891204.000	T5N	R1W	28	NE	1	2500	2100	120	-3.19E-01
P398	1778431.000	15891204.000	T5N	R1W	29	NE	1	2500	2100	120	-1.60E-01
P399	1773151.000	15891204.000	T5N	R1W	30	NE	1	2500	2100	120	-1.12E+00
P4	1705107.000	15954929.000	T7N	R4W	25	NE	1	2200	1850	120	-2.35E+00
P40	1742067.000	15949649.000	T7N	R2W	31	NE	1	2300	2200	120	-6.39E-01
P400	1773151.000	15885924.000	T5N	R1W	31	NE	1	2500	2100	120	-5.10E+02
P401	1778431.000	15885924.000	T5N	R1W	32	NE	1	2500	2100	120	-1.50E+03

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P402	1783711.000	15885924.000	T5N	R1W	33	NE	1	2500	2100	120	-6.39E-01
P403	1788991.000	15885924.000	T5N	R1W	34	NE	1	2500	2100	120	-3.19E-01
P404	1794271.000	15885924.000	T5N	R1W	35	NE	1	2500	2100	120	-9.58E-01
P405	1799551.000	15885924.000	T5N	R1W	36	NE	1	2500	2100	120	-3.19E+00
P406	1831231.000	15912324.000	T5N	R1E	1	NE	1	3300	2500	120	0.00E+00
P407	1825951.000	15912324.000	T5N	R1E	2	NE	1	3300	2500	120	0.00E+00
P408	1820671.000	15912324.000	T5N	R1E	3	NE	1	3300	2500	120	0.00E+00
P409	1815391.000	15912324.000	T5N	R1E	4	NE	1	3300	2500	120	-1.60E-01
P41	1747347.000	15949649.000	T7N	R2W	32	NE	1	2200	1850	120	-6.39E-01
P410	1810111.000	15912324.000	T5N	R1E	5	NE	1	3000	2500	120	-3.19E-01
P411	1804831.000	15912324.000	T5N	R1E	6	NE	1	3000	2500	120	0.00E+00
P412	1804831.000	15907044.000	T5N	R1E	7	NE	1	3000	2500	120	0.00E+00
P413	1810111.000	15907044.000	T5N	R1E	8	NE	1	3000	2500	120	-3.19E-01
P414	1815391.000	15907044.000	T5N	R1E	9	NE	1	3000	2500	120	-1.60E-01
P415	1820671.000	15907044.000	T5N	R1E	10	NE	1	3300	2500	120	0.00E+00
P416	1825951.000	15907044.000	T5N	R1E	11	NE	1	3300	2500	120	0.00E+00
P417	1831231.000	15907044.000	T5N	R1E	12	NE	1	3300	2500	120	0.00E+00
P418	1831231.000	15901764.000	T5N	R1E	13	NE	1	3300	2500	120	0.00E+00
P419	1825951.000	15901764.000	T5N	R1E	14	NE	1	3300	2500	120	0.00E+00
P42	1752627.000	15949649.000	T7N	R2W	33	NE	1	2200	1850	120	-1.60E-01
P420	1820671.000	15901764.000	T5N	R1E	15	NE	1	3000	2500	120	0.00E+00
P421	1815391.000	15901764.000	T5N	R1E	16	NE	1	3000	2500	120	0.00E+00
P422	1810111.000	15901764.000	T5N	R1E	17	NE	1	2900	2500	120	0.00E+00
P423	1804831.000	15901764.000	T5N	R1E	18	NE	1	2900	2500	120	0.00E+00
P424	1804831.000	15896484.000	T5N	R1E	19	NE	1	2600	2100	120	0.00E+00
P425	1810111.000	15896484.000	T5N	R1E	20	NE	1	2900	2500	120	-4.79E-01
P426	1815391.000	15896484.000	T5N	R1E	21	NE	1	2900	2500	120	0.00E+00
P427	1820671.000	15896484.000	T5N	R1E	22	NE	1	2900	2500	120	0.00E+00
P428	1825951.000	15896484.000	T5N	R1E	23	NE	1	3000	2500	120	0.00E+00
P429	1831231.000	15896484.000	T5N	R1E	24	NE	1	3000	2500	120	-1.60E-01
P43	1757907.000	15949649.000	T7N	R2W	34	NE	1	2400	2350	120	-4.79E-01
P430	1831231.000	15891204.000	T5N	R1E	25	NE	1	2900	2500	120	-7.99E-01
P431	1825951.000	15891204.000	T5N	R1E	26	NE	1	2600	2500	120	-7.99E-01
P432	1820671.000	15891204.000	T5N	R1E	27	NE	1	2900	2500	120	0.00E+00
P433	1815391.000	15891204.000	T5N	R1E	28	NE	1	2900	2500	120	-1.60E-01
P434	1810111.000	15891204.000	T5N	R1E	29	NE	1	2600	2100	120	-6.14E+01
P435	1804831.000	15891204.000	T5N	R1E	30	NE	1	2600	2100	120	-2.56E+00
P436	1804831.000	15885924.000	T5N	R1E	31	NE	1	2600	2100	120	-3.80E+02
P437	1810111.000	15885924.000	T5N	R1E	32	NE	1	2600	2100	120	-2.83E+02
P438	1815391.000	15885924.000	T5N	R1E	33	NE	1	2600	2100	120	-1.67E+01
P439	1820671.000	15885924.000	T5N	R1E	34	NE	1	2700	2500	120	-5.07E+01
P44	1763187.000	15949649.000	T7N	R2W	35	NE	1	2400	2350	120	-1.60E-01
P440	1825951.000	15885924.000	T5N	R1E	35	NE	1	2700	2500	120	-3.19E+02
P441	1831231.000	15885924.000	T5N	R1E	36	NE	1	2700	2500	120	-2.12E+03
P442	1852351.000	15912324.000	T5N	R2E	3	NE	1	3300	2500	120	0.00E+00
P443	1847071.000	15912324.000	T5N	R2E	4	NE	1	3300	2500	120	0.00E+00
P444	1841791.000	15912324.000	T5N	R2E	5	NE	1	3300	2500	120	0.00E+00
P445	1836511.000	15912324.000	T5N	R2E	6	NE	1	3300	2500	120	0.00E+00
P446	1836511.000	15907044.000	T5N	R2E	7	NE	1	3300	2500	120	0.00E+00
P447	1841791.000	15907044.000	T5N	R2E	8	NE	1	3300	2500	120	0.00E+00
P448	1847071.000	15907044.000	T5N	R2E	9	NE	1	3300	2500	120	0.00E+00
P449	1852351.000	15907044.000	T5N	R2E	10	NE	1	3300	2500	120	0.00E+00
P45	1768467.000	15949649.000	T7N	R2W	36	NE	1	2400	2350	120	0.00E+00
P450	1852351.000	15901764.000	T5N	R2E	15	NE	1	3300	2500	120	0.00E+00
P451	1847071.000	15901764.000	T5N	R2E	16	NE	1	3300	2500	120	0.00E+00
P452	1841791.000	15901764.000	T5N	R2E	17	NE	1	3300	2500	120	0.00E+00
P453	1836511.000	15901764.000	T5N	R2E	18	NE	1	3000	2500	120	0.00E+00
P454	1836511.000	15896484.000	T5N	R2E	19	NE	1	3000	2500	120	-3.19E-01
P455	1841791.000	15896484.000	T5N	R2E	20	NE	1	3300	2500	120	0.00E+00
P456	1847071.000	15896484.000	T5N	R2E	21	NE	1	3300	2500	120	0.00E+00
P457	1852351.000	15896484.000	T5N	R2E	22	NE	1	3300	2500	120	0.00E+00
P458	1852351.000	15891204.000	T5N	R2E	27	NE	1	3300	2500	120	0.00E+00
P459	1847071.000	15891204.000	T5N	R2E	28	NE	1	3300	2500	120	0.00E+00
P46	1773491.000	15960209.000	T7N	R1W	19	NE	1	2500	2350	120	0.00E+00
P460	1841791.000	15891204.000	T5N	R2E	29	NE	1	3300	2500	120	0.00E+00
P461	1836511.000	15891204.000	T5N	R2E	30	NE	1	3000	2500	120	-7.99E-01
P462	1836511.000	15885924.000	T5N	R2E	31	NE	1	2800	2500	120	-6.39E-01
P463	1841791.000	15885924.000	T5N	R2E	32	NE	1	3000	2500	120	0.00E+00
P464	1847071.000	15885924.000	T5N	R2E	33	NE	1	3300	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P465	1852351.000	15885924.000	T5N	R2E	34	NE	1	3300	2500	120	0.00E+00
P466	1704709.000	15880733.000	T4N	R4W	1	NE	1	2100	1850	120	-7.24E-01
P467	1699429.000	15880733.000	T4N	R4W	2	NE	1	2100	1850	120	-7.24E-01
P468	1694149.000	15880733.000	T4N	R4W	3	NE	1	2100	1850	120	-7.24E-01
P469	1694149.000	15875453.000	T4N	R4W	10	NE	1	2100	1850	120	-7.24E-01
P47	1778771.000	15960209.000	T7N	R1W	20	NE	1	2500	2350	120	0.00E+00
P470	1699429.000	15875453.000	T4N	R4W	11	NE	1	2100	1850	120	-7.24E-01
P471	1704709.000	15875453.000	T4N	R4W	12	NE	1	2100	1850	120	-7.24E-01
P472	1704709.000	15870173.000	T4N	R4W	13	NE	1	2100	1850	120	-7.24E-01
P473	1699429.000	15870173.000	T4N	R4W	14	NE	1	2100	1850	120	-7.24E-01
P474	1694149.000	15870173.000	T4N	R4W	15	NE	1	2100	1850	120	-7.24E-01
P475	1694149.000	15864893.000	T4N	R4W	22	NE	1	2100	1850	120	-7.24E-01
P476	1699429.000	15864893.000	T4N	R4W	23	NE	1	2100	1850	120	-7.24E-01
P477	1704709.000	15864893.000	T4N	R4W	24	NE	1	2100	1850	120	-7.24E-01
P478	1704709.000	15859613.000	T4N	R4W	25	NE	1	2100	1850	120	-7.24E-01
P479	1699429.000	15859613.000	T4N	R4W	26	NE	1	2100	1850	120	-7.24E-01
P48	1784051.000	15960209.000	T7N	R1W	21	NE	1	2500	2350	120	-1.45E-01
P480	1694149.000	15859613.000	T4N	R4W	27	NE	1	2100	1850	120	-7.24E-01
P481	1694149.000	15854333.000	T4N	R4W	34	NE	1	2100	1850	120	-7.24E-01
P482	1699429.000	15854333.000	T4N	R4W	35	NE	1	2100	1850	120	-7.24E-01
P483	1704709.000	15854333.000	T4N	R4W	36	NE	1	2100	1850	120	-7.24E-01
P484	1736389.000	15880733.000	T4N	R3W	1	NE	1	2350	1850	120	-3.62E-01
P485	1731109.000	15880733.000	T4N	R3W	2	NE	1	2350	1850	120	-3.62E-01
P486	1725829.000	15880733.000	T4N	R3W	3	NE	1	2350	1850	120	-3.62E-01
P487	1720549.000	15880733.000	T4N	R3W	4	NE	1	2350	1850	120	-3.62E-01
P488	1715269.000	15880733.000	T4N	R3W	5	NE	1	2350	1850	120	-3.62E-01
P489	1709989.000	15880733.000	T4N	R3W	6	NE	1	2350	1850	120	-3.62E-01
P49	1789331.000	15960209.000	T7N	R1W	22	NE	1	2500	2350	120	0.00E+00
P490	1709989.000	15875453.000	T4N	R3W	7	NE	1	2300	1850	120	-3.62E-01
P491	1715269.000	15875453.000	T4N	R3W	8	NE	1	2350	1850	120	-3.62E-01
P492	1720549.000	15875453.000	T4N	R3W	9	NE	1	2350	1850	120	-3.62E-01
P493	1725829.000	15875453.000	T4N	R3W	10	NE	1	2350	1850	120	-3.62E-01
P494	1731109.000	15875453.000	T4N	R3W	11	NE	1	2350	1850	120	-3.62E-01
P495	1736389.000	15875453.000	T4N	R3W	12	NE	1	2350	1850	120	-3.62E-01
P496	1736389.000	15870173.000	T4N	R3W	13	NE	1	2350	1850	120	-3.62E-01
P497	1731109.000	15870173.000	T4N	R3W	14	NE	1	2350	1850	120	-3.62E-01
P498	1725829.000	15870173.000	T4N	R3W	15	NE	1	2350	1850	120	-3.65E+02
P499	1720549.000	15870173.000	T4N	R3W	16	NE	1	2350	1850	120	-3.98E+00
P5	1699827.000	15954929.000	T7N	R4W	26	NE	1	2100	1850	120	-3.62E-02
P50	1794611.000	15960209.000	T7N	R1W	23	NE	1	2500	2350	120	0.00E+00
P500	1715269.000	15870173.000	T4N	R3W	17	NE	1	2300	1850	120	-7.28E+01
P501	1709989.000	15870173.000	T4N	R3W	18	NE	1	2300	1850	120	-3.62E-01
P502	1709989.000	15864893.000	T4N	R3W	19	NE	1	2300	1850	120	-3.62E-01
P503	1715269.000	15864893.000	T4N	R3W	20	NE	1	2300	1850	120	-3.62E-01
P504	1720549.000	15864893.000	T4N	R3W	21	NE	1	2350	1850	120	-6.52E+00
P505	1725829.000	15864893.000	T4N	R3W	22	NE	1	2350	1850	120	-3.65E+02
P506	1731109.000	15864893.000	T4N	R3W	23	NE	1	2350	1850	120	-2.90E+00
P507	1736389.000	15864893.000	T4N	R3W	24	NE	1	2350	1850	120	-3.62E-01
P508	1736389.000	15859613.000	T4N	R3W	25	NE	1	2350	1850	120	-3.62E-01
P509	1731109.000	15859613.000	T4N	R3W	26	NE	1	2350	1850	120	-3.65E+02
P51	1799891.000	15960209.000	T7N	R1W	24	NE	1	2500	2350	120	0.00E+00
P510	1725829.000	15859613.000	T4N	R3W	27	NE	1	2350	1850	120	-3.65E+02
P511	1720549.000	15859613.000	T4N	R3W	28	NE	1	2350	1850	120	-3.65E+02
P512	1715269.000	15859613.000	T4N	R3W	29	NE	1	2300	1850	120	-3.66E+01
P513	1709989.000	15859613.000	T4N	R3W	30	NE	1	2300	1850	120	-3.62E-01
P514	1709989.000	15854333.000	T4N	R3W	31	NE	1	2350	1850	120	-3.62E-01
P515	1715269.000	15854333.000	T4N	R3W	32	NE	1	2350	1850	120	-3.62E-01
P516	1720549.000	15854333.000	T4N	R3W	33	NE	1	2350	1850	120	-3.62E-01
P517	1725829.000	15854333.000	T4N	R3W	34	NE	1	2350	1850	120	-3.62E-01
P518	1731109.000	15854333.000	T4N	R3W	35	NE	1	2350	1850	120	-3.62E-01
P519	1736389.000	15854333.000	T4N	R3W	36	NE	1	2350	1850	120	-3.62E-01
P52	1799805.000	15954845.000	T7N	R1W	25	NE	1	2500	2350	120	0.00E+00
P520	1768069.000	15880733.000	T4N	R2W	1	NE	1	2500	2100	120	-1.33E+01
P521	1762789.000	15880733.000	T4N	R2W	2	NE	1	2500	2100	120	-1.44E+00
P522	1757509.000	15880733.000	T4N	R2W	3	NE	1	2400	2100	120	-3.35E+00
P523	1752229.000	15880733.000	T4N	R2W	4	NE	1	2350	1850	120	-5.78E+00
P524	1746949.000	15880733.000	T4N	R2W	5	NE	1	2350	1850	120	-1.99E+03
P525	1741669.000	15880733.000	T4N	R2W	6	NE	1	2350	1850	120	-4.79E-01
P526	1741669.000	15875453.000	T4N	R2W	7	NE	1	2350	1850	120	-5.83E+01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P527	1746949.000	15875453.000	T4N	R2W	8	NE	1	2350	1850	120	-5.88E+01
P528	1752229.000	15875453.000	T4N	R2W	9	NE	1	2350	1850	120	-1.92E+00
P529	1757509.000	15875453.000	T4N	R2W	10	NE	1	2400	2100	120	-1.21E+01
P53	1794525.000	15954845.000	T7N	R1W	26	NE	1	2500	2350	120	0.00E+00
P530	1762789.000	15875453.000	T4N	R2W	11	NE	1	2400	2100	120	-9.58E-01
P531	1768069.000	15875453.000	T4N	R2W	12	NE	1	2400	2100	120	-1.92E+00
P532	1768069.000	15870173.000	T4N	R2W	13	NE	1	2400	2100	120	0.00E+00
P533	1762789.000	15870173.000	T4N	R2W	14	NE	1	2400	2100	120	-1.60E-01
P534	1757509.000	15870173.000	T4N	R2W	15	NE	1	2400	2100	120	0.00E+00
P535	1752229.000	15870173.000	T4N	R2W	16	NE	1	2350	1850	120	-1.60E-01
P536	1746949.000	15870173.000	T4N	R2W	17	NE	1	2350	1850	120	-1.60E-01
P537	1741669.000	15870173.000	T4N	R2W	18	NE	1	2350	1850	120	-1.32E+02
P538	1741669.000	15864893.000	T4N	R2W	19	NE	1	2350	1850	120	-4.55E+01
P539	1746949.000	15864893.000	T4N	R2W	20	NE	1	2350	1850	120	-9.95E+01
P54	1789245.000	15954845.000	T7N	R1W	27	NE	1	2500	2350	120	-1.45E-01
P540	1752229.000	15864893.000	T4N	R2W	21	NE	1	2350	1850	120	-9.10E+01
P541	1757509.000	15864893.000	T4N	R2W	22	NE	1	2400	2100	120	-9.58E-01
P542	1762789.000	15864893.000	T4N	R2W	23	NE	1	2400	2100	120	-1.60E-01
P543	1768069.000	15864893.000	T4N	R2W	24	NE	1	2400	2100	120	0.00E+00
P544	1768069.000	15859613.000	T4N	R2W	25	NE	1	2400	2100	120	-3.51E+02
P545	1762789.000	15859613.000	T4N	R2W	26	NE	1	2400	2100	120	-3.50E+02
P546	1757509.000	15859613.000	T4N	R2W	27	NE	1	2400	2100	120	-1.44E+02
P547	1752229.000	15859613.000	T4N	R2W	28	NE	1	2350	1850	120	-5.91E+00
P548	1746949.000	15859613.000	T4N	R2W	29	NE	1	2350	1850	120	-1.28E+00
P549	1741669.000	15859613.000	T4N	R2W	30	NE	1	2350	1850	120	-4.60E+01
P55	1783965.000	15954845.000	T7N	R1W	28	NE	1	2500	2350	120	-1.45E-01
P550	1741669.000	15854333.000	T4N	R2W	31	NE	1	2350	1850	120	-1.18E+02
P551	1746949.000	15854333.000	T4N	R2W	32	NE	1	2350	1850	120	-5.93E+01
P552	1752229.000	15854333.000	T4N	R2W	33	NE	1	2350	1850	120	-5.42E+01
P553	1757509.000	15854333.000	T4N	R2W	34	NE	1	2400	2100	120	-6.39E-01
P554	1762789.000	15854333.000	T4N	R2W	35	NE	1	2400	2100	120	-1.81E+02
P555	1768069.000	15854333.000	T4N	R2W	36	NE	1	2400	2100	120	-1.49E+02
P556	1799749.000	15880733.000	T4N	R1W	1	NE	1	2500	2100	120	-8.14E+01
P557	1794469.000	15880733.000	T4N	R1W	2	NE	1	2500	2100	120	-3.19E-01
P558	1789189.000	15880733.000	T4N	R1W	3	NE	1	2500	2100	120	-4.15E+02
P559	1783909.000	15880733.000	T4N	R1W	4	NE	1	2500	2100	120	-1.85E+03
P56	1778685.000	15954845.000	T7N	R1W	29	NE	1	2500	2350	120	-1.45E-01
P560	1778629.000	15880733.000	T4N	R1W	5	NE	1	2500	2100	120	-7.15E+00
P561	1773349.000	15880733.000	T4N	R1W	6	NE	1	2500	2100	120	-1.53E+02
P562	1773349.000	15875453.000	T4N	R1W	7	NE	1	2400	2100	120	-4.79E-01
P563	1778629.000	15875453.000	T4N	R1W	8	NE	1	2400	2100	120	-3.99E+00
P564	1783909.000	15875453.000	T4N	R1W	9	NE	1	2400	2100	120	-1.91E+02
P565	1789189.000	15875453.000	T4N	R1W	10	NE	1	2500	2100	120	-3.17E+02
P566	1794469.000	15875453.000	T4N	R1W	11	NE	1	2500	2100	120	-1.58E+02
P567	1799749.000	15875453.000	T4N	R1W	12	NE	1	2500	2100	120	-1.53E+02
P568	1799749.000	15870173.000	T4N	R1W	13	NE	1	2500	2100	120	-1.03E+02
P569	1794469.000	15870173.000	T4N	R1W	14	NE	1	2500	2100	120	-9.06E+02
P57	1773405.000	15954845.000	T7N	R1W	30	NE	1	2500	2350	120	-1.45E-01
P570	1789189.000	15870173.000	T4N	R1W	15	NE	1	2500	2100	120	-1.64E+02
P571	1783909.000	15870173.000	T4N	R1W	16	NE	1	2400	2100	120	-6.81E+01
P572	1778629.000	15870173.000	T4N	R1W	17	NE	1	2400	2100	120	-6.88E+02
P573	1773349.000	15870173.000	T4N	R1W	18	NE	1	2400	2100	120	-2.53E+02
P574	1773349.000	15864893.000	T4N	R1W	19	NE	1	2400	2100	120	-9.06E+01
P575	1778629.000	15864893.000	T4N	R1W	20	NE	1	2400	2100	120	-1.34E+02
P576	1783909.000	15864893.000	T4N	R1W	21	NE	1	2400	2100	120	-7.99E-01
P577	1789189.000	15864893.000	T4N	R1W	22	NE	1	2500	2100	120	-6.39E-01
P578	1794469.000	15864893.000	T4N	R1W	23	NE	1	2500	2100	120	-3.97E+01
P579	1799749.000	15864893.000	T4N	R1W	24	NE	1	2500	2100	120	-2.33E+02
P58	1773747.000	15949649.000	T7N	R1W	31	NE	1	2400	2350	120	-1.45E-01
P580	1799749.000	15859613.000	T4N	R1W	25	NE	1	2500	2100	120	-1.94E+02
P581	1794469.000	15859613.000	T4N	R1W	26	NE	1	2500	2100	120	-1.14E+03
P582	1789189.000	15859613.000	T4N	R1W	27	NE	1	2500	2100	120	-1.05E+02
P583	1783909.000	15859613.000	T4N	R1W	28	NE	1	2500	2100	120	-1.66E+02
P584	1778629.000	15859613.000	T4N	R1W	29	NE	1	2500	2100	120	-1.17E+01
P585	1773349.000	15859613.000	T4N	R1W	30	NE	1	2500	2100	120	-1.51E+02
P586	1773349.000	15854333.000	T4N	R1W	31	NE	1	2500	2100	120	-5.04E+02
P587	1778629.000	15854333.000	T4N	R1W	32	NE	1	2500	2100	120	-1.58E+02
P588	1783909.000	15854333.000	T4N	R1W	33	NE	1	2500	2100	120	-1.12E+02
P589	1789189.000	15854333.000	T4N	R1W	34	NE	1	2500	2100	120	-5.19E+01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P59	1779027.000	15949649.000	T7N	R1W	32	NE	1	2400	2350	120	-1.45E-01
P590	1794469.000	15854333.000	T4N	R1W	35	NE	1	2500	2100	120	-1.28E+00
P591	1799749.000	15854333.000	T4N	R1W	36	NE	1	2500	2100	120	-1.51E+02
P592	1831429.000	15880733.000	T4N	R1E	1	NE	1	3000	2500	120	-6.39E-01
P593	1826149.000	15880733.000	T4N	R1E	2	NE	1	2800	2500	120	-7.99E-01
P594	1820869.000	15880733.000	T4N	R1E	3	NE	1	2600	2100	120	-6.39E-01
P595	1815589.000	15880733.000	T4N	R1E	4	NE	1	2600	2100	120	-1.22E+01
P596	1810309.000	15880733.000	T4N	R1E	5	NE	1	2600	2100	120	-5.16E+02
P597	1805029.000	15880733.000	T4N	R1E	6	NE	1	2600	2100	120	-1.21E+01
P598	1805029.000	15875453.000	T4N	R1E	7	NE	1	2500	2100	120	-1.33E+01
P599	1810309.000	15875453.000	T4N	R1E	8	NE	1	2500	2100	120	-8.52E+00
P5	1694547.000	15954929.000	T7N	R4W	27	NE	1	2100	1850	120	-3.62E-02
P60	1784307.000	15949649.000	T7N	R1W	33	NE	1	2400	2350	120	-1.45E-01
P600	1815589.000	15875453.000	T4N	R1E	9	NE	1	2600	2100	120	-1.13E+03
P601	1820869.000	15875453.000	T4N	R1E	10	NE	1	2600	2100	120	-4.53E+02
P602	1826149.000	15875453.000	T4N	R1E	11	NE	1	2600	2100	120	-1.44E+00
P603	1831429.000	15875453.000	T4N	R1E	12	NE	1	3000	2500	120	-1.60E-01
P604	1831429.000	15870173.000	T4N	R1E	13	NE	1	2600	2100	120	-1.28E+00
P605	1826149.000	15870173.000	T4N	R1E	14	NE	1	2600	2100	120	-3.07E+01
P606	1820869.000	15870173.000	T4N	R1E	15	NE	1	2500	2100	120	-4.79E-01
P607	1815589.000	15870173.000	T4N	R1E	16	NE	1	2500	2100	120	-8.86E+01
P608	1810309.000	15870173.000	T4N	R1E	17	NE	1	2500	2100	120	-2.63E+02
P609	1805029.000	15870173.000	T4N	R1E	18	NE	1	2500	2100	120	-4.79E-01
P61	1789587.000	15949649.000	T7N	R1W	34	NE	1	2400	2350	120	-1.45E-01
P610	1805029.000	15864893.000	T4N	R1E	19	NE	1	2500	2100	120	-3.67E+00
P611	1810309.000	15864893.000	T4N	R1E	20	NE	1	2500	2100	120	-1.24E+02
P612	1815589.000	15864893.000	T4N	R1E	21	NE	1	2500	2100	120	-4.71E+01
P613	1820869.000	15864893.000	T4N	R1E	22	NE	1	2500	2100	120	-2.40E+00
P614	1826149.000	15864893.000	T4N	R1E	23	NE	1	2500	2100	120	-3.48E+02
P615	1831429.000	15864893.000	T4N	R1E	24	NE	1	2600	2100	120	-7.05E+01
P616	1831429.000	15859613.000	T4N	R1E	25	NE	1	2600	2100	120	-5.30E+00
P617	1826149.000	15859613.000	T4N	R1E	26	NE	1	2600	2100	120	-1.44E+02
P618	1820869.000	15859613.000	T4N	R1E	27	NE	1	2600	2100	120	-2.01E+03
P619	1815589.000	15859613.000	T4N	R1E	28	NE	1	2600	2100	120	-1.28E+00
P62	1794867.000	15949649.000	T7N	R1W	35	NE	1	2500	2350	120	-1.45E-01
P620	1810309.000	15859613.000	T4N	R1E	29	NE	1	2600	2100	120	-8.64E+01
P621	1805029.000	15859613.000	T4N	R1E	30	NE	1	2500	2100	120	-4.22E+02
P622	1805029.000	15854333.000	T4N	R1E	31	NE	1	2600	2100	120	-2.40E+02
P623	1810309.000	15854333.000	T4N	R1E	32	NE	1	2600	2100	120	-1.76E+00
P624	1815589.000	15854333.000	T4N	R1E	33	NE	1	2600	2100	120	-8.92E+00
P625	1820869.000	15854333.000	T4N	R1E	34	NE	1	2600	2100	120	-4.75E+01
P626	1826149.000	15854333.000	T4N	R1E	35	NE	1	2600	2100	120	-6.84E+00
P627	1831429.000	15854333.000	T4N	R1E	36	NE	1	2600	2100	120	-2.82E+01
P628	1852549.000	15880733.000	T4N	R2E	3	NE	1	3300	2500	120	0.00E+00
P629	1847269.000	15880733.000	T4N	R2E	4	NE	1	3300	2500	120	0.00E+00
P63	1800147.000	15949649.000	T7N	R1W	36	NE	1	2500	2350	120	-1.45E-01
P630	1841989.000	15880733.000	T4N	R2E	5	NE	1	2900	2500	120	0.00E+00
P631	1836709.000	15880733.000	T4N	R2E	6	NE	1	2900	2500	120	-4.79E-01
P632	1836709.000	15875453.000	T4N	R2E	7	NE	1	3000	2500	120	-7.99E-01
P633	1841989.000	15875453.000	T4N	R2E	8	NE	1	3000	2500	120	0.00E+00
P634	1847269.000	15875453.000	T4N	R2E	9	NE	1	3000	2500	120	0.00E+00
P635	1852549.000	15875453.000	T4N	R2E	10	NE	1	3300	2500	120	0.00E+00
P636	1852549.000	15870173.000	T4N	R2E	15	NE	1	3300	2500	120	0.00E+00
P637	1847269.000	15870173.000	T4N	R2E	16	NE	1	3300	2500	120	0.00E+00
P638	1841989.000	15870173.000	T4N	R2E	17	NE	1	3000	2500	120	-3.62E-01
P639	1836709.000	15870173.000	T4N	R2E	18	NE	1	3000	2500	120	-2.90E+00
P64	1805171.000	15960209.000	T7N	R1E	19	NE	1	2500	2350	120	-1.45E-01
P640	1836709.000	15864893.000	T4N	R2E	19	NE	1	2600	2100	120	-2.90E+00
P641	1841989.000	15864893.000	T4N	R2E	20	NE	1	3000	2500	120	-2.90E+00
P642	1847269.000	15864893.000	T4N	R2E	21	NE	1	3000	2500	120	-3.62E-01
P643	1852549.000	15864893.000	T4N	R2E	22	NE	1	3000	2500	120	-3.62E-01
P644	1852549.000	15859613.000	T4N	R2E	27	NE	1	3000	2500	120	-2.90E+00
P645	1847269.000	15859613.000	T4N	R2E	28	NE	1	2900	2500	120	-2.90E+00
P646	1841989.000	15859613.000	T4N	R2E	29	NE	1	2600	2500	120	-2.90E+00
P647	1836709.000	15859613.000	T4N	R2E	30	NE	1	2600	2100	120	-2.90E+00
P648	1836709.000	15854333.000	T4N	R2E	31	NE	1	2600	2100	120	-2.90E+00
P649	1841989.000	15854333.000	T4N	R2E	32	NE	1	2600	2100	120	-6.52E+00
P65	1810451.000	15960209.000	T7N	R1E	20	NE	1	2500	2350	120	-1.45E-01
P650	1847269.000	15854333.000	T4N	R2E	33	NE	1	2600	2500	120	-6.52E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P651	1852549.000	15854333.000	T4N	R2E	34	NE	1	2900	2500	120	-6.52E+00
P652	1704710.000	15848942.000	T3N	R4W	1	NE	1	2100	1850	120	-7.24E-01
P653	1699430.000	15848942.000	T3N	R4W	2	NE	1	2100	1850	120	-7.24E-01
P654	1694150.000	15848942.000	T3N	R4W	3	NE	1	2100	1850	120	-7.24E-01
P655	1694150.000	15843662.000	T3N	R4W	10	NE	1	2100	1850	120	-7.24E-01
P656	1699430.000	15843662.000	T3N	R4W	11	NE	1	2100	1850	120	-7.24E-01
P657	1704710.000	15843662.000	T3N	R4W	12	NE	1	2100	1850	120	-7.24E-01
P658	1736390.000	15848942.000	T3N	R3W	1	NE	1	2350	1850	120	-1.09E+00
P659	1731110.000	15848942.000	T3N	R3W	2	NE	1	2350	1850	120	-1.09E+00
P66	1815731.000	15960209.000	T7N	R1E	21	NE	1	2500	2350	120	-1.81E+00
P660	1725830.000	15848942.000	T3N	R3W	3	NE	1	2350	1850	120	-1.09E+00
P661	1720550.000	15848942.000	T3N	R3W	4	NE	1	2350	1850	120	-1.09E+00
P662	1715270.000	15848942.000	T3N	R3W	5	NE	1	2350	1850	120	-1.09E+00
P663	1709990.000	15848942.000	T3N	R3W	6	NE	1	2350	1850	120	-1.09E+00
P664	1709990.000	15843662.000	T3N	R3W	7	NE	1	2350	1850	120	-1.09E+00
P665	1715270.000	15843662.000	T3N	R3W	8	NE	1	2350	1850	120	-1.09E+00
P666	1720550.000	15843662.000	T3N	R3W	9	NE	1	2350	1850	120	-1.09E+00
P667	1725830.000	15843662.000	T3N	R3W	10	NE	1	2350	1850	120	-1.09E+00
P668	1731110.000	15843662.000	T3N	R3W	11	NE	1	2350	1850	120	-1.09E+00
P669	1736390.000	15843662.000	T3N	R3W	12	NE	1	2350	1850	120	-1.09E+00
P67	1821011.000	15960209.000	T7N	R1E	22	NE	1	2500	2350	120	-1.81E+00
P670	1768070.000	15848942.000	T3N	R2W	1	NE	1	2400	2100	120	-1.81E+00
P671	1762790.000	15848942.000	T3N	R2W	2	NE	1	2400	2100	120	-1.81E+00
P672	1757510.000	15848942.000	T3N	R2W	3	NE	1	2400	2100	120	-1.81E+00
P673	1752230.000	15848942.000	T3N	R2W	4	NE	1	2350	1850	120	-1.81E+00
P674	1746950.000	15848942.000	T3N	R2W	5	NE	1	2350	1850	120	-1.81E+00
P675	1741670.000	15848942.000	T3N	R2W	6	NE	1	2350	1850	120	-1.81E+00
P676	1741670.000	15843662.000	T3N	R2W	7	NE	1	2350	1850	120	-1.81E+00
P677	1746950.000	15843662.000	T3N	R2W	8	NE	1	2350	1850	120	-1.81E+00
P678	1752230.000	15843662.000	T3N	R2W	9	NE	1	2350	1850	120	-1.81E+00
P679	1757510.000	15843662.000	T3N	R2W	10	NE	1	2400	2100	120	-1.81E+00
P68	1826291.000	15960209.000	T7N	R1E	23	NE	1	2500	2350	120	-1.81E+00
P680	1762790.000	15843662.000	T3N	R2W	11	NE	1	2400	2100	120	-1.81E+00
P681	1768070.000	15843662.000	T3N	R2W	12	NE	1	2400	2100	120	-1.81E+00
P682	1799750.000	15848942.000	T3N	R1W	1	NE	1	2500	2100	120	-3.64E+02
P683	1794470.000	15848942.000	T3N	R1W	2	NE	1	2500	2100	120	-2.17E+00
P684	1789190.000	15848942.000	T3N	R1W	3	NE	1	2500	2100	120	-1.81E+00
P685	1783910.000	15848942.000	T3N	R1W	4	NE	1	2500	2100	120	-1.81E+00
P686	1778630.000	15848942.000	T3N	R1W	5	NE	1	2500	2100	120	-1.81E+00
P687	1773350.000	15848942.000	T3N	R1W	6	NE	1	2500	2100	120	-1.81E+00
P688	1773350.000	15843662.000	T3N	R1W	7	NE	1	2500	2100	120	-1.81E+00
P689	1778630.000	15843662.000	T3N	R1W	8	NE	1	2500	2100	120	-1.81E+00
P69	1831571.000	15960209.000	T7N	R1E	24	NE	1	2800	2500	120	-1.81E+00
P690	1783910.000	15843662.000	T3N	R1W	9	NE	1	2500	2100	120	-1.81E+00
P691	1789190.000	15843662.000	T3N	R1W	10	NE	1	2500	2100	120	-1.81E+00
P692	1794470.000	15843662.000	T3N	R1W	11	NE	1	2500	2100	120	-2.17E+00
P693	1799750.000	15843662.000	T3N	R1W	12	NE	1	2500	2100	120	-3.64E+02
P694	1831430.000	15848942.000	T3N	R1E	1	NE	1	2600	2100	120	-1.81E+00
P695	1826150.000	15848942.000	T3N	R1E	2	NE	1	2600	2100	120	-1.81E+00
P696	1820870.000	15848942.000	T3N	R1E	3	NE	1	2600	2100	120	-1.81E+00
P697	1815590.000	15848942.000	T3N	R1E	4	NE	1	2600	2100	120	-5.79E+00
P698	1810310.000	15848942.000	T3N	R1E	5	NE	1	2600	2100	120	-3.84E+01
P699	1805030.000	15848942.000	T3N	R1E	6	NE	1	2600	2100	120	-3.84E+01
P7	1694547.000	15949649.000	T7N	R4W	34	NE	1	2100	1850	120	-3.62E-02
P70	1831485.000	15954845.000	T7N	R1E	25	NE	1	2700	2500	120	-1.81E+00
P700	1805030.000	15843662.000	T3N	R1E	7	NE	1	2500	2100	120	-5.43E+00
P701	1810310.000	15843662.000	T3N	R1E	8	NE	1	2600	2100	120	-5.43E+00
P702	1815590.000	15843662.000	T3N	R1E	9	NE	1	2600	2100	120	-5.43E+00
P703	1820870.000	15843662.000	T3N	R1E	10	NE	1	2600	2100	120	-1.81E+00
P704	1826150.000	15843662.000	T3N	R1E	11	NE	1	2600	2100	120	-1.81E+00
P705	1831430.000	15843662.000	T3N	R1E	12	NE	1	2600	2100	120	-1.81E+00
P706	1852550.000	15848942.000	T3N	R2E	3	NE	1	2600	2100	120	-3.95E+01
P707	1847270.000	15848942.000	T3N	R2E	4	NE	1	2600	2100	120	-3.95E+01
P708	1841990.000	15848942.000	T3N	R2E	5	NE	1	2600	2100	120	-3.98E+01
P709	1836710.000	15848942.000	T3N	R2E	6	NE	1	2600	2100	120	-3.65E+02
P71	1826205.000	15954845.000	T7N	R1E	26	NE	1	2600	2500	120	0.00E+00
P710	1836710.000	15843662.000	T3N	R2E	7	NE	1	2600	2100	120	-3.65E+02
P711	1841990.000	15843662.000	T3N	R2E	8	NE	1	2600	2100	120	-3.65E+02
P712	1847270.000	15843662.000	T3N	R2E	9	NE	1	2600	2100	120	-3.65E+02

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P713	1852550.000	15843662.000	T3N	R2E	10	NE	1	2600	2100	120	-3.95E+01
P714	1691907.000	15960209.000	T7N	R4W	22	NW	1	2200	1850	120	-3.62E-02
P715	1696931.000	15960209.000	T7N	R4W	23	NW	1	2200	1850	120	-2.35E+00
P716	1702211.000	15960209.000	T7N	R4W	24	NW	1	2200	1850	120	-2.35E+00
P717	1702467.000	15954929.000	T7N	R4W	25	NW	1	2200	1850	120	-2.35E+00
P718	1697187.000	15954929.000	T7N	R4W	26	NW	1	2100	1850	120	-3.62E-02
P719	1691907.000	15954929.000	T7N	R4W	27	NW	1	2100	1850	120	-3.62E-02
P72	1820925.000	15954845.000	T7N	R1E	27	NE	1	2500	2400	120	0.00E+00
P720	1691907.000	15949649.000	T7N	R4W	34	NW	1	2100	1850	120	-3.62E-02
P721	1697187.000	15949649.000	T7N	R4W	35	NW	1	2100	1850	120	-3.66E+00
P722	1702467.000	15949649.000	T7N	R4W	36	NW	1	2100	1850	120	-3.62E+01
P723	1707491.000	15960209.000	T7N	R3W	19	NW	1	2200	1850	120	-2.35E+00
P724	1712771.000	15960209.000	T7N	R3W	20	NW	1	2200	1850	120	-2.35E+00
P725	1718051.000	15960209.000	T7N	R3W	21	NW	1	2200	1850	120	-2.35E+00
P726	1723331.000	15960209.000	T7N	R3W	22	NW	1	2200	1850	120	-2.35E+00
P727	1728611.000	15960209.000	T7N	R3W	23	NW	1	2200	1850	120	-2.35E+00
P728	1733891.000	15960209.000	T7N	R3W	24	NW	1	2200	1850	120	-2.35E+00
P729	1733805.000	15954845.000	T7N	R3W	25	NW	1	2200	1850	120	-2.35E+00
P73	1815645.000	15954845.000	T7N	R1E	28	NE	1	2500	2350	120	-1.81E+00
P730	1728525.000	15954845.000	T7N	R3W	26	NW	1	2200	1850	120	-2.35E+00
P731	1723245.000	15954845.000	T7N	R3W	27	NW	1	2200	1850	120	-2.35E+00
P732	1717965.000	15954845.000	T7N	R3W	28	NW	1	2200	1850	120	-2.35E+00
P733	1712685.000	15954845.000	T7N	R3W	29	NW	1	2200	1850	120	-2.35E+00
P734	1707405.000	15954845.000	T7N	R3W	30	NW	1	2200	1850	120	-2.35E+00
P735	1707747.000	15949649.000	T7N	R3W	31	NW	1	2200	1850	120	-2.35E+00
P736	1713027.000	15949649.000	T7N	R3W	32	NW	1	2200	1850	120	-2.35E+00
P737	1718307.000	15949649.000	T7N	R3W	33	NW	1	2200	1850	120	-2.35E+00
P738	1723587.000	15949649.000	T7N	R3W	34	NW	1	2200	1850	120	-2.35E+00
P739	1728867.000	15949649.000	T7N	R3W	35	NW	1	2200	1850	120	-2.35E+00
P74	1810365.000	15954845.000	T7N	R1E	29	NE	1	2500	2350	120	-1.45E-01
P740	1734147.000	15949649.000	T7N	R3W	36	NW	1	2200	1850	120	-2.35E+00
P741	1739171.000	15960209.000	T7N	R2W	19	NW	1	2200	1850	120	-1.60E-01
P742	1744451.000	15960209.000	T7N	R2W	20	NW	1	2200	1850	120	0.00E+00
P743	1749731.000	15960209.000	T7N	R2W	21	NW	1	2500	2350	120	0.00E+00
P744	1755011.000	15960209.000	T7N	R2W	22	NW	1	2500	2350	120	0.00E+00
P745	1760291.000	15960209.000	T7N	R2W	23	NW	1	2500	2350	120	0.00E+00
P746	1765571.000	15960209.000	T7N	R2W	24	NW	1	2500	2350	120	0.00E+00
P747	1765485.000	15954845.000	T7N	R2W	25	NW	1	2200	1850	120	-1.45E-01
P748	1760205.000	15954845.000	T7N	R2W	26	NW	1	2200	1850	120	-1.45E-01
P749	1754925.000	15954845.000	T7N	R2W	27	NW	1	2200	1850	120	0.00E+00
P75	1805085.000	15954845.000	T7N	R1E	30	NE	1	2500	2350	120	-1.45E-01
P750	1749645.000	15954845.000	T7N	R2W	28	NW	1	2400	2350	120	-4.79E-01
P751	1744365.000	15954845.000	T7N	R2W	29	NW	1	2400	2350	120	-1.60E-01
P752	1739085.000	15954845.000	T7N	R2W	30	NW	1	2300	2200	120	0.00E+00
P753	1739427.000	15949649.000	T7N	R2W	31	NW	1	2300	2200	120	0.00E+00
P754	1744707.000	15949649.000	T7N	R2W	32	NW	1	2200	1850	120	-7.99E-01
P755	1749987.000	15949649.000	T7N	R2W	33	NW	1	2200	1850	120	-6.39E-01
P756	1755267.000	15949649.000	T7N	R2W	34	NW	1	2400	2350	120	-9.58E-01
P757	1760547.000	15949649.000	T7N	R2W	35	NW	1	2400	2350	120	-1.60E-01
P758	1765827.000	15949649.000	T7N	R2W	36	NW	1	2400	2350	120	0.00E+00
P759	1770851.000	15960209.000	T7N	R1W	19	NW	1	2500	2350	120	0.00E+00
P76	1805427.000	15949649.000	T7N	R1E	31	NE	1	2500	2350	120	-1.45E-01
P760	1776131.000	15960209.000	T7N	R1W	20	NW	1	2500	2350	120	0.00E+00
P761	1781411.000	15960209.000	T7N	R1W	21	NW	1	2500	2350	120	-1.45E-01
P762	1786691.000	15960209.000	T7N	R1W	22	NW	1	2500	2350	120	0.00E+00
P763	1791971.000	15960209.000	T7N	R1W	23	NW	1	2500	2350	120	0.00E+00
P764	1797251.000	15960209.000	T7N	R1W	24	NW	1	2500	2350	120	0.00E+00
P765	1797165.000	15954845.000	T7N	R1W	25	NW	1	2500	2350	120	0.00E+00
P766	1791885.000	15954845.000	T7N	R1W	26	NW	1	2500	2350	120	0.00E+00
P767	1786605.000	15954845.000	T7N	R1W	27	NW	1	2400	2350	120	-1.45E-01
P768	1781325.000	15954845.000	T7N	R1W	28	NW	1	2500	2350	120	-1.45E-01
P769	1776045.000	15954845.000	T7N	R1W	29	NW	1	2500	2350	120	-1.45E-01
P77	1810707.000	15949649.000	T7N	R1E	32	NE	1	2500	2350	120	-1.45E-01
P770	1770765.000	15954845.000	T7N	R1W	30	NW	1	2500	2350	120	-1.45E-01
P771	1771107.000	15949649.000	T7N	R1W	31	NW	1	2400	2350	120	-1.45E-01
P772	1776387.000	15949649.000	T7N	R1W	32	NW	1	2400	2350	120	-1.45E-01
P773	1781667.000	15949649.000	T7N	R1W	33	NW	1	2400	2350	120	-1.45E-01
P774	1786947.000	15949649.000	T7N	R1W	34	NW	1	2400	2350	120	-1.45E-01
P775	1792227.000	15949649.000	T7N	R1W	35	NW	1	2500	2350	120	-1.45E-01

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P776	1797507.000	15949649.000	T7N	R1W	36	NW	1	2500	2350	120	-1.45E-01
P777	1802531.000	15960209.000	T7N	R1E	19	NW	1	2500	2350	120	-1.45E-01
P778	1807811.000	15960209.000	T7N	R1E	20	NW	1	2500	2350	120	-1.45E-01
P779	1813091.000	15960209.000	T7N	R1E	21	NW	1	2500	2350	120	-1.81E+00
P78	1815987.000	15949649.000	T7N	R1E	33	NE	1	3000	2500	120	-1.81E+00
P780	1818371.000	15960209.000	T7N	R1E	22	NW	1	2500	2350	120	-1.81E+00
P781	1823651.000	15960209.000	T7N	R1E	23	NW	1	2500	2350	120	-1.81E+00
P782	1828931.000	15960209.000	T7N	R1E	24	NW	1	2700	2500	120	-1.81E+00
P783	1828845.000	15954845.000	T7N	R1E	25	NW	1	2600	2500	120	-1.81E+00
P784	1823565.000	15954845.000	T7N	R1E	26	NW	1	2600	2500	120	0.00E+00
P785	1818285.000	15954845.000	T7N	R1E	27	NW	1	2500	2400	120	0.00E+00
P786	1813005.000	15954845.000	T7N	R1E	28	NW	1	2500	2350	120	-1.81E+00
P787	1807725.000	15954845.000	T7N	R1E	29	NW	1	2500	2350	120	-1.45E-01
P788	1802445.000	15954845.000	T7N	R1E	30	NW	1	2500	2350	120	-1.45E-01
P789	1802787.000	15949649.000	T7N	R1E	31	NW	1	2500	2350	120	-1.45E-01
P79	1821267.000	15949649.000	T7N	R1E	34	NE	1	2900	2500	120	0.00E+00
P790	1808067.000	15949649.000	T7N	R1E	32	NW	1	2500	2350	120	-1.45E-01
P791	1813347.000	15949649.000	T7N	R1E	33	NW	1	2900	2500	120	-1.81E+00
P792	1818627.000	15949649.000	T7N	R1E	34	NW	1	3000	2500	120	0.00E+00
P793	1823907.000	15949649.000	T7N	R1E	35	NW	1	2700	2500	120	0.00E+00
P794	1829187.000	15949649.000	T7N	R1E	36	NW	1	3000	2500	120	0.00E+00
P795	1834211.000	15960209.000	T7N	R2E	19	NW	1	3000	2500	120	-3.62E-02
P796	1839491.000	15960209.000	T7N	R2E	20	NW	1	3300	2500	120	-3.62E-02
P797	1844771.000	15960209.000	T7N	R2E	21	NW	1	3300	2500	120	-3.62E-02
P798	1850051.000	15960209.000	T7N	R2E	22	NW	1	3000	2500	120	-3.62E-02
P799	1849965.000	15954845.000	T7N	R2E	27	NW	1	2700	2500	120	-3.62E-02
P8	1699827.000	15949649.000	T7N	R4W	35	NE	1	2100	1850	120	-3.62E-02
P80	1826547.000	15949649.000	T7N	R1E	35	NE	1	2800	2500	120	0.00E+00
P800	1844685.000	15954845.000	T7N	R2E	28	NW	1	3000	2500	120	-3.62E-02
P801	1839405.000	15954845.000	T7N	R2E	29	NW	1	3300	2500	120	-3.62E-02
P802	1834125.000	15954845.000	T7N	R2E	30	NW	1	3000	2500	120	-3.62E-02
P803	1834467.000	15949649.000	T7N	R2E	31	NW	1	3000	2500	120	0.00E+00
P804	1839747.000	15949649.000	T7N	R2E	32	NW	1	2600	2500	120	-3.62E-02
P805	1845027.000	15949649.000	T7N	R2E	33	NW	1	2700	2500	120	-3.62E-02
P806	1850307.000	15949649.000	T7N	R2E	34	NW	1	2700	2500	120	-3.62E-02
P807	1701871.000	15944115.000	T6N	R4W	1	NW	1	2100	1850	120	-1.45E-01
P808	1696591.000	15944115.000	T6N	R4W	2	NW	1	2100	1850	120	-1.45E-01
P809	1691311.000	15944115.000	T6N	R4W	3	NW	1	2100	1850	120	-1.45E-01
P81	1831827.000	15949649.000	T7N	R1E	36	NE	1	3000	2500	120	0.00E+00
P810	1691311.000	15938835.000	T6N	R4W	10	NW	1	2100	1850	120	0.00E+00
P811	1696591.000	15938835.000	T6N	R4W	11	NW	1	2100	1850	120	0.00E+00
P812	1701871.000	15938835.000	T6N	R4W	12	NW	1	2100	1850	120	0.00E+00
P813	1701871.000	15933555.000	T6N	R4W	13	NW	1	2100	1850	120	0.00E+00
P814	1696591.000	15933555.000	T6N	R4W	14	NW	1	2100	1850	120	0.00E+00
P815	1691311.000	15933555.000	T6N	R4W	15	NW	1	2100	1850	120	0.00E+00
P816	1691311.000	15928275.000	T6N	R4W	22	NW	1	2100	1850	120	0.00E+00
P817	1696591.000	15928275.000	T6N	R4W	23	NW	1	2100	1850	120	0.00E+00
P818	1701871.000	15928275.000	T6N	R4W	24	NW	1	2100	1850	120	0.00E+00
P819	1701871.000	15922995.000	T6N	R4W	25	NW	1	2100	1850	120	0.00E+00
P82	1836851.000	15960209.000	T7N	R2E	19	NE	1	3000	2500	120	-3.62E-02
P820	1696591.000	15922995.000	T6N	R4W	26	NW	1	2100	1850	120	0.00E+00
P821	1691311.000	15922995.000	T6N	R4W	27	NW	1	2100	1850	120	0.00E+00
P822	1691273.000	15918000.000	T6N	R4W	34	NW	1	2100	1850	120	0.00E+00
P823	1696553.000	15918000.000	T6N	R4W	35	NW	1	2100	1850	120	0.00E+00
P824	1701833.000	15918000.000	T6N	R4W	36	NW	1	2100	1850	120	0.00E+00
P825	1733551.000	15944115.000	T6N	R3W	1	NW	1	2200	1850	120	-3.62E+00
P826	1728271.000	15944115.000	T6N	R3W	2	NW	1	2200	1850	120	-3.62E+00
P827	1722991.000	15944115.000	T6N	R3W	3	NW	1	2200	1850	120	0.00E+00
P828	1717711.000	15944115.000	T6N	R3W	4	NW	1	2200	1850	120	0.00E+00
P829	1712431.000	15944115.000	T6N	R3W	5	NW	1	2350	1850	120	-1.45E-01
P83	1842131.000	15960209.000	T7N	R2E	20	NE	1	3300	2500	120	-3.62E-02
P830	1707151.000	15944115.000	T6N	R3W	6	NW	1	2350	1850	120	-1.45E-01
P831	1707151.000	15938835.000	T6N	R3W	7	NW	1	2350	1850	120	-1.45E-01
P832	1712431.000	15938835.000	T6N	R3W	8	NW	1	2350	1850	120	-1.45E-01
P833	1717711.000	15938835.000	T6N	R3W	9	NW	1	2350	1850	120	0.00E+00
P834	1722991.000	15938835.000	T6N	R3W	10	NW	1	2300	1850	120	0.00E+00
P835	1728271.000	15938835.000	T6N	R3W	11	NW	1	2200	1850	120	0.00E+00
P836	1733551.000	15938835.000	T6N	R3W	12	NW	1	2200	1850	120	0.00E+00
P837	1733551.000	15933555.000	T6N	R3W	13	NW	1	2350	1850	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P838	1728271.000	15933555.000	T6N	R3W	14	NW	1	2350	1850	120	0.00E+00
P839	1722991.000	15933555.000	T6N	R3W	15	NW	1	2350	1850	120	0.00E+00
P84	1847411.000	15960209.000	T7N	R2E	21	NE	1	3000	2500	120	-3.62E-02
P840	1717711.000	15933555.000	T6N	R3W	16	NW	1	2350	1850	120	0.00E+00
P841	1712431.000	15933555.000	T6N	R3W	17	NW	1	2350	1850	120	0.00E+00
P842	1707151.000	15933555.000	T6N	R3W	18	NW	1	2350	1850	120	-1.45E-01
P843	1707151.000	15928275.000	T6N	R3W	19	NW	1	2350	1850	120	0.00E+00
P844	1712431.000	15928275.000	T6N	R3W	20	NW	1	2350	1850	120	0.00E+00
P845	1717711.000	15928275.000	T6N	R3W	21	NW	1	2350	1850	120	0.00E+00
P846	1722991.000	15928275.000	T6N	R3W	22	NW	1	2350	1850	120	-1.45E-01
P847	1728271.000	15928275.000	T6N	R3W	23	NW	1	2350	1850	120	0.00E+00
P848	1733551.000	15928275.000	T6N	R3W	24	NW	1	2350	1850	120	0.00E+00
P849	1733551.000	15922995.000	T6N	R3W	25	NW	1	2350	1850	120	0.00E+00
P85	1852691.000	15960209.000	T7N	R2E	22	NE	1	2800	2500	120	-3.62E-02
P850	1728271.000	15922995.000	T6N	R3W	26	NW	1	2350	1850	120	0.00E+00
P851	1722991.000	15922995.000	T6N	R3W	27	NW	1	2350	1850	120	-1.45E-01
P852	1717711.000	15922995.000	T6N	R3W	28	NW	1	2350	1850	120	-1.45E-01
P853	1712431.000	15922995.000	T6N	R3W	29	NW	1	2350	1850	120	0.00E+00
P854	1707151.000	15922995.000	T6N	R3W	30	NW	1	2350	1850	120	-1.45E-01
P855	1707113.000	15918000.000	T6N	R3W	31	NW	1	2350	1850	120	-1.45E-01
P856	1712393.000	15918000.000	T6N	R3W	32	NW	1	2350	1850	120	-1.45E-01
P857	1717673.000	15918000.000	T6N	R3W	33	NW	1	2350	1850	120	-1.45E-01
P858	1722953.000	15918000.000	T6N	R3W	34	NW	1	2350	1850	120	-1.45E-01
P859	1728233.000	15918000.000	T6N	R3W	35	NW	1	2350	1850	120	0.00E+00
P86	1852605.000	15954845.000	T7N	R2E	27	NE	1	2800	2500	120	-3.62E-02
P860	1733513.000	15918000.000	T6N	R3W	36	NW	1	2350	1850	120	0.00E+00
P861	1765231.000	15944115.000	T6N	R2W	1	NW	1	2200	1850	120	-3.70E+02
P862	1759951.000	15944115.000	T6N	R2W	2	NW	1	2200	1850	120	-3.63E+02
P863	1754671.000	15944115.000	T6N	R2W	3	NW	1	2200	1850	120	-7.99E-01
P864	1749391.000	15944115.000	T6N	R2W	4	NW	1	2200	1850	120	-4.79E-01
P865	1744111.000	15944115.000	T6N	R2W	5	NW	1	2200	1850	120	-4.79E-01
P866	1738831.000	15944115.000	T6N	R2W	6	NW	1	2200	1850	120	0.00E+00
P867	1738831.000	15938835.000	T6N	R2W	7	NW	1	2200	1850	120	-1.12E+00
P868	1744111.000	15938835.000	T6N	R2W	8	NW	1	2200	1850	120	-9.58E-01
P869	1749391.000	15938835.000	T6N	R2W	9	NW	1	2200	1850	120	-6.39E-01
P87	1847325.000	15954845.000	T7N	R2E	28	NE	1	2800	2500	120	-3.62E-02
P870	1754671.000	15938835.000	T6N	R2W	10	NW	1	2200	1850	120	0.00E+00
P871	1759951.000	15938835.000	T6N	R2W	11	NW	1	2200	1850	120	-3.62E+02
P872	1765231.000	15938835.000	T6N	R2W	12	NW	1	2200	1850	120	-3.63E+02
P873	1765231.000	15933555.000	T6N	R2W	13	NW	1	2200	1850	120	-3.64E+02
P874	1759951.000	15933555.000	T6N	R2W	14	NW	1	2200	1850	120	-3.63E+02
P875	1754671.000	15933555.000	T6N	R2W	15	NW	1	2200	1850	120	-2.24E+00
P876	1749391.000	15933555.000	T6N	R2W	16	NW	1	2200	1850	120	-4.79E-01
P877	1744111.000	15933555.000	T6N	R2W	17	NW	1	2200	1850	120	-9.58E-01
P878	1738831.000	15933555.000	T6N	R2W	18	NW	1	2200	1850	120	-6.39E-01
P879	1738831.000	15928275.000	T6N	R2W	19	NW	1	2350	1850	120	-3.19E-01
P88	1842045.000	15954845.000	T7N	R2E	29	NE	1	3000	2500	120	-3.62E-02
P880	1744111.000	15928275.000	T6N	R2W	20	NW	1	2350	1850	120	-3.19E-01
P881	1749391.000	15928275.000	T6N	R2W	21	NW	1	2200	1850	120	-7.99E-01
P882	1754671.000	15928275.000	T6N	R2W	22	NW	1	2200	1850	120	-9.58E-01
P883	1759951.000	15928275.000	T6N	R2W	23	NW	1	2200	1850	120	-3.19E-01
P884	1765231.000	15928275.000	T6N	R2W	24	NW	1	2200	1850	120	-9.58E-01
P885	1765231.000	15922995.000	T6N	R2W	25	NW	1	2200	1850	120	-1.44E+00
P886	1759951.000	15922995.000	T6N	R2W	26	NW	1	2200	1850	120	-7.99E-01
P887	1754671.000	15922995.000	T6N	R2W	27	NW	1	2200	1850	120	-4.79E-01
P888	1749391.000	15922995.000	T6N	R2W	28	NW	1	2350	1850	120	-1.60E-01
P889	1744111.000	15922995.000	T6N	R2W	29	NW	1	2350	1850	120	0.00E+00
P89	1836765.000	15954845.000	T7N	R2E	30	NE	1	3300	2500	120	-3.62E-02
P890	1738831.000	15922995.000	T6N	R2W	30	NW	1	2350	1850	120	0.00E+00
P891	1738793.000	15918000.000	T6N	R2W	31	NW	1	2350	1850	120	0.00E+00
P892	1744073.000	15918000.000	T6N	R2W	32	NW	1	2350	1850	120	0.00E+00
P893	1749353.000	15918000.000	T6N	R2W	33	NW	1	2350	1850	120	0.00E+00
P894	1754633.000	15918000.000	T6N	R2W	34	NW	1	2500	2100	120	0.00E+00
P895	1759913.000	15918000.000	T6N	R2W	35	NW	1	2500	2100	120	0.00E+00
P896	1765193.000	15918000.000	T6N	R2W	36	NW	1	2200	1850	120	-1.60E-01
P897	1796911.000	15944115.000	T6N	R1W	1	NW	1	3000	2500	120	0.00E+00
P898	1791631.000	15944115.000	T6N	R1W	2	NW	1	2500	2350	120	-3.19E-01
P899	1786351.000	15944115.000	T6N	R1W	3	NW	1	2400	2350	120	-7.67E+00
P9	1705107.000	15949649.000	T7N	R4W	36	NE	1	2100	1850	120	-3.62E-02

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P90	1837107.000	15949649.000	T7N	R2E	31	NE	1	2700	2500	120	0.00E+00
P900	1781071.000	15944115.000	T6N	R1W	4	NW	1	2300	2200	120	-1.28E+00
P901	1775791.000	15944115.000	T6N	R1W	5	NW	1	2400	2350	120	-3.75E+01
P902	1770511.000	15944115.000	T6N	R1W	6	NW	1	2400	2350	120	-8.73E+00
P903	1770511.000	15938835.000	T6N	R1W	7	NW	1	2300	2200	120	-3.73E+01
P904	1775791.000	15938835.000	T6N	R1W	8	NW	1	2300	2200	120	-3.67E+02
P905	1781071.000	15938835.000	T6N	R1W	9	NW	1	2300	2200	120	0.00E+00
P906	1786351.000	15938835.000	T6N	R1W	10	NW	1	2500	2500	120	0.00E+00
P907	1791631.000	15938835.000	T6N	R1W	11	NW	1	3000	2500	120	0.00E+00
P908	1796911.000	15938835.000	T6N	R1W	12	NW	1	3300	2500	120	0.00E+00
P909	1796911.000	15933555.000	T6N	R1W	13	NW	1	3300	2500	120	0.00E+00
P91	1842387.000	15949649.000	T7N	R2E	32	NE	1	2600	2500	120	-3.62E-02
P910	1791631.000	15933555.000	T6N	R1W	14	NW	1	3000	2500	120	0.00E+00
P911	1786351.000	15933555.000	T6N	R1W	15	NW	1	2700	2500	120	-1.60E-01
P912	1781071.000	15933555.000	T6N	R1W	16	NW	1	2400	2400	120	-1.31E+01
P913	1775791.000	15933555.000	T6N	R1W	17	NW	1	2300	2200	120	-1.92E+00
P914	1770511.000	15933555.000	T6N	R1W	18	NW	1	2300	2200	120	-3.68E+02
P915	1770511.000	15928275.000	T6N	R1W	19	NW	1	2200	1850	120	-3.35E+00
P916	1775791.000	15928275.000	T6N	R1W	20	NW	1	2300	2200	120	-1.44E+00
P917	1781071.000	15928275.000	T6N	R1W	21	NW	1	2600	2500	120	-1.60E-01
P918	1786351.000	15928275.000	T6N	R1W	22	NW	1	3000	2500	120	0.00E+00
P919	1791631.000	15928275.000	T6N	R1W	23	NW	1	3000	2500	120	0.00E+00
P92	1847667.000	15949649.000	T7N	R2E	33	NE	1	3000	2500	120	-3.62E-02
P920	1796911.000	15928275.000	T6N	R1W	24	NW	1	3000	2500	120	0.00E+00
P921	1796911.000	15922995.000	T6N	R1W	25	NW	1	2800	2500	120	-1.79E+02
P922	1791631.000	15922995.000	T6N	R1W	26	NW	1	3000	2500	120	0.00E+00
P923	1786351.000	15922995.000	T6N	R1W	27	NW	1	3000	2500	120	0.00E+00
P924	1781071.000	15922995.000	T6N	R1W	28	NW	1	2800	2500	120	0.00E+00
P925	1775791.000	15922995.000	T6N	R1W	29	NW	1	2200	1850	120	-4.79E-01
P926	1770511.000	15922995.000	T6N	R1W	30	NW	1	2200	1850	120	-1.44E+00
P927	1770473.000	15918000.000	T6N	R1W	31	NW	1	2200	1850	120	0.00E+00
P928	1775753.000	15918000.000	T6N	R1W	32	NW	1	2200	1850	120	-3.19E-01
P929	1781033.000	15918000.000	T6N	R1W	33	NW	1	2200	1850	120	0.00E+00
P93	1852947.000	15949649.000	T7N	R2E	34	NE	1	2800	2500	120	-3.62E-02
P930	1786313.000	15918000.000	T6N	R1W	34	NW	1	3000	2500	120	0.00E+00
P931	1791593.000	15918000.000	T6N	R1W	35	NW	1	2800	2500	120	-1.60E-01
P932	1796873.000	15918000.000	T6N	R1W	36	NW	1	2800	2500	120	-7.18E+01
P933	1828591.000	15944115.000	T6N	R1E	1	NW	1	3300	2500	120	0.00E+00
P934	1823311.000	15944115.000	T6N	R1E	2	NW	1	3300	2500	120	0.00E+00
P935	1818031.000	15944115.000	T6N	R1E	3	NW	1	3300	2500	120	0.00E+00
P936	1812751.000	15944115.000	T6N	R1E	4	NW	1	3300	2500	120	0.00E+00
P937	1807471.000	15944115.000	T6N	R1E	5	NW	1	2900	2500	120	0.00E+00
P938	1802191.000	15944115.000	T6N	R1E	6	NW	1	3000	2500	120	0.00E+00
P939	1802191.000	15938835.000	T6N	R1E	7	NW	1	3300	2500	120	-1.60E-01
P94	1704511.000	15944115.000	T6N	R4W	1	NE	1	2100	1850	120	-1.45E-01
P940	1807471.000	15938835.000	T6N	R1E	8	NW	1	3300	2500	120	-1.60E-01
P941	1812751.000	15938835.000	T6N	R1E	9	NW	1	3300	2500	120	0.00E+00
P942	1818031.000	15938835.000	T6N	R1E	10	NW	1	3300	2500	120	0.00E+00
P943	1823311.000	15938835.000	T6N	R1E	11	NW	1	3300	2500	120	0.00E+00
P944	1828591.000	15938835.000	T6N	R1E	12	NW	1	3300	2500	120	0.00E+00
P945	1828591.000	15933555.000	T6N	R1E	13	NW	1	3300	2500	120	0.00E+00
P946	1823311.000	15933555.000	T6N	R1E	14	NW	1	3300	2500	120	0.00E+00
P947	1818031.000	15933555.000	T6N	R1E	15	NW	1	3300	2500	120	0.00E+00
P948	1812751.000	15933555.000	T6N	R1E	16	NW	1	3300	2500	120	-3.19E-01
P949	1807471.000	15933555.000	T6N	R1E	17	NW	1	3300	2500	120	-1.60E-01
P95	1699231.000	15944115.000	T6N	R4W	2	NE	1	2100	1850	120	-1.45E-01
P950	1802191.000	15933555.000	T6N	R1E	18	NW	1	3300	2500	120	0.00E+00
P951	1802191.000	15928275.000	T6N	R1E	19	NW	1	3000	2500	120	-1.60E-01
P952	1807471.000	15928275.000	T6N	R1E	20	NW	1	3000	2500	120	0.00E+00
P953	1812751.000	15928275.000	T6N	R1E	21	NW	1	3300	2500	120	0.00E+00
P954	1818031.000	15928275.000	T6N	R1E	22	NW	1	3300	2500	120	0.00E+00
P955	1823311.000	15928275.000	T6N	R1E	23	NW	1	3300	2500	120	-1.60E-01
P956	1828591.000	15928275.000	T6N	R1E	24	NW	1	3300	2500	120	0.00E+00
P957	1828591.000	15922995.000	T6N	R1E	25	NW	1	3300	2500	120	0.00E+00
P958	1823311.000	15922995.000	T6N	R1E	26	NW	1	3300	2500	120	0.00E+00
P959	1818031.000	15922995.000	T6N	R1E	27	NW	1	3300	2500	120	-1.60E-01
P96	1693951.000	15944115.000	T6N	R4W	3	NE	1	2100	1850	120	-1.45E-01
P960	1812751.000	15922995.000	T6N	R1E	28	NW	1	3300	2500	120	0.00E+00
P961	1807471.000	15922995.000	T6N	R1E	29	NW	1	3000	2500	120	0.00E+00

Pumping Well Name	Easting (ft) - X	Northing (ft) - Y	Township	Range	Section	Quarter Section	SCREEN ID	Top of Screen	Bottom of Screen	Stop Time (days)	Total Discharge (GPM)
P962	1802191.000	15922995.000	T6N	R1E	30	NW	1	3000	2500	120	0.00E+00
P963	1802153.000	15918000.000	T6N	R1E	31	NW	1	2900	2500	120	0.00E+00
P964	1807433.000	15918000.000	T6N	R1E	32	NW	1	3300	2500	120	0.00E+00
P965	1812713.000	15918000.000	T6N	R1E	33	NW	1	3300	2500	120	0.00E+00
P966	1817993.000	15918000.000	T6N	R1E	34	NW	1	3300	2500	120	0.00E+00
P967	1823273.000	15918000.000	T6N	R1E	35	NW	1	3300	2500	120	0.00E+00
P968	1828553.000	15918000.000	T6N	R1E	36	NW	1	3300	2500	120	0.00E+00
P969	1849711.000	15944115.000	T6N	R2E	3	NW	1	2700	2500	120	0.00E+00
P97	1693951.000	15938835.000	T6N	R4W	10	NE	1	2100	1850	120	0.00E+00
P970	1844431.000	15944115.000	T6N	R2E	4	NW	1	3000	2500	120	0.00E+00
P971	1839151.000	15944115.000	T6N	R2E	5	NW	1	3300	2500	120	0.00E+00
P972	1833871.000	15944115.000	T6N	R2E	6	NW	1	3300	2500	120	0.00E+00
P973	1833871.000	15938835.000	T6N	R2E	7	NW	1	3300	2500	120	0.00E+00
P974	1839151.000	15938835.000	T6N	R2E	8	NW	1	3300	2500	120	0.00E+00
P975	1844431.000	15938835.000	T6N	R2E	9	NW	1	3000	2500	120	0.00E+00
P976	1849711.000	15938835.000	T6N	R2E	10	NW	1	3000	2500	120	0.00E+00
P977	1849711.000	15933555.000	T6N	R2E	15	NW	1	3300	2500	120	0.00E+00
P978	1844431.000	15933555.000	T6N	R2E	16	NW	1	3300	2500	120	0.00E+00
P979	1839151.000	15933555.000	T6N	R2E	17	NW	1	3300	2500	120	0.00E+00
P98	1699231.000	15938835.000	T6N	R4W	11	NE	1	2100	1850	120	0.00E+00
P980	1833871.000	15933555.000	T6N	R2E	18	NW	1	3300	2500	120	0.00E+00
P981	1833871.000	15928275.000	T6N	R2E	19	NW	1	3300	2500	120	0.00E+00
P982	1839151.000	15928275.000	T6N	R2E	20	NW	1	3300	2500	120	0.00E+00
P983	1844431.000	15928275.000	T6N	R2E	21	NW	1	3300	2500	120	0.00E+00
P984	1849711.000	15928275.000	T6N	R2E	22	NW	1	3300	2500	120	0.00E+00
P985	1849711.000	15922995.000	T6N	R2E	27	NW	1	3300	2500	120	0.00E+00
P986	1844431.000	15922995.000	T6N	R2E	28	NW	1	3300	2500	120	0.00E+00
P987	1839151.000	15922995.000	T6N	R2E	29	NW	1	3300	2500	120	0.00E+00
P988	1833871.000	15922995.000	T6N	R2E	30	NW	1	3300	2500	120	0.00E+00
P989	1833833.000	15918000.000	T6N	R2E	31	NW	1	3300	2500	120	0.00E+00
P99	1704511.000	15938835.000	T6N	R4W	12	NE	1	2100	1850	120	0.00E+00
P990	1839113.000	15918000.000	T6N	R2E	32	NW	1	3300	2500	120	0.00E+00
P991	1844393.000	15918000.000	T6N	R2E	33	NW	1	3300	2500	120	0.00E+00
P992	1849673.000	15918000.000	T6N	R2E	34	NW	1	3300	2500	120	0.00E+00
P993	1701871.000	15912324.000	T5N	R4W	1	NW	1	2100	1850	120	0.00E+00
P994	1696591.000	15912324.000	T5N	R4W	2	NW	1	2100	1850	120	-3.62E-02
P995	1691311.000	15912324.000	T5N	R4W	3	NW	1	2100	1850	120	0.00E+00
P996	1691311.000	15907044.000	T5N	R4W	10	NW	1	2100	1850	120	0.00E+00
P997	1696591.000	15907044.000	T5N	R4W	11	NW	1	2100	1850	120	0.00E+00
P998	1701871.000	15907044.000	T5N	R4W	12	NW	1	2100	1850	120	0.00E+00
P999	1701871.000	15901764.000	T5N	R4W	13	NW	1	2100	1850	120	-3.62E-01

APPENDIX D:
QUASI-STEADY-STATE MODEL 6 HYDRAULIC CONDUCTIVITY VALUES

This appendix is composed of the values of K (ft/d) for each cell in the quasi-steady-state model (Model 6) and the steady-state model.

			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
1	1691242.000	15960302.500	4.4E+00	3.0E-01	7.0E+02	1.4E+03	2.7E-03
2	1693884.000	15960302.500	4.4E+00	3.0E-01	7.6E+02	1.5E+03	1.2E-01
3	1696524.000	15960302.500	4.4E+00	3.0E-01	7.5E+02	1.5E+03	3.7E+01
4	1699164.000	15960302.500	4.4E+00	3.0E-01	7.4E+02	1.5E+03	2.5E+02
5	1701804.000	15960302.500	4.4E+00	3.0E-01	7.3E+02	1.4E+03	5.2E+02
6	1704444.000	15960302.500	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.9E+02
7	1707084.000	15960302.500	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.9E+02
8	1709724.000	15960302.500	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.9E+02
9	1712364.000	15960302.500	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.9E+02
10	1715004.000	15960302.500	4.4E+00	3.0E-01	7.3E+02	1.4E+03	4.9E+02
11	1717644.000	15960302.500	4.4E+00	3.0E-01	7.0E+02	1.3E+03	4.9E+02
12	1720284.000	15960302.500	4.4E+00	3.0E-01	4.5E+02	7.5E+02	4.9E+02
13	1722924.000	15960302.500	4.4E+00	3.0E-01	1.4E+02	5.4E+02	5.1E+02
14	1725564.000	15960302.500	4.4E+00	3.0E-01	8.9E+01	7.7E+01	3.9E+02
15	1728204.000	15960302.500	4.4E+00	3.0E-01	3.0E+01	3.0E+01	1.9E+01
16	1730844.000	15960302.500	4.4E+00	3.0E-01	3.9E+01	3.2E+01	5.0E-02
17	1733484.000	15960302.500	4.4E+00	3.0E-01	3.4E+01	2.9E+01	3.3E-03
18	1736124.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.9E-04
19	1738764.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.1E-04
20	1741404.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.6E-04
21	1744044.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
22	1746684.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
23	1749324.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
24	1751964.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
25	1754604.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
26	1757244.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
27	1759884.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
28	1762524.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
29	1765164.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
30	1767804.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
31	1770444.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
32	1773084.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
33	1775724.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
34	1778364.000	15960302.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
35	1781004.000	15960302.500	4.4E+00	3.1E-01	3.7E+01	3.1E+01	2.7E-04
36	1783644.000	15960302.500	4.6E+00	3.2E-01	3.6E+01	3.1E+01	2.6E-04
37	1786284.000	15960302.500	4.4E+00	2.4E-01	2.6E+00	1.6E+01	2.7E-04
38	1788924.000	15960302.500	4.4E-02	9.5E-02	1.8E-01	1.9E+00	9.1E-04
39	1791564.000	15960302.500	3.2E-01	4.2E-01	1.0E-01	3.2E-01	3.4E-02
40	1794204.000	15960302.500	1.3E-01	1.6E-01	1.1E-01	1.5E-01	1.2E-01
41	1796844.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
42	1799484.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
43	1802124.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
44	1804764.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
45	1807404.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
46	1810044.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
47	1812684.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
48	1815324.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
49	1817964.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
50	1820604.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
51	1823244.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
52	1825884.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
53	1828524.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
54	1831164.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
55	1833804.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
56	1836444.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
57	1839084.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
58	1841724.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
59	1844364.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
60	1847004.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
61	1849644.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
62	1852282.000	15960302.500	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
63	1691242.000	15957685.000	4.4E+00	3.0E-01	3.9E+02	6.3E+02	5.6E-04
64	1693884.000	15957685.000	4.4E+00	3.0E-01	4.0E+02	7.1E+02	4.6E-03
65	1696524.000	15957685.000	4.4E+00	3.0E-01	4.0E+02	7.2E+02	3.8E-02
66	1699164.000	15957685.000	4.4E+00	3.0E-01	4.6E+02	8.6E+02	2.6E-01
67	1701804.000	15957685.000	4.4E+00	3.0E-01	6.5E+02	1.2E+03	2.2E+00
68	1704444.000	15957685.000	4.4E+00	3.0E-01	7.6E+02	1.5E+03	2.0E+00
69	1707084.000	15957685.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	2.0E+00
70	1709724.000	15957685.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	2.0E+00
71	1712364.000	15957685.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	2.0E+00
72	1715004.000	15957685.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	2.0E+00
73	1717644.000	15957685.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	2.0E+00
74	1720284.000	15957685.000	4.4E+00	3.0E-01	6.6E+02	1.2E+03	2.0E+00
75	1722924.000	15957685.000	4.4E+00	3.0E-01	2.9E+02	4.5E+02	2.0E+00
76	1725564.000	15957685.000	4.4E+00	3.0E-01	8.6E+01	3.2E+02	2.1E+01
77	1728204.000	15957685.000	4.4E+00	3.0E-01	5.9E+01	4.9E+01	1.0E+02
78	1730844.000	15957685.000	4.4E+00	3.0E-01	8.7E+01	2.8E+01	2.0E+01
79	1733484.000	15957685.000	4.4E+00	3.0E-01	3.8E+01	3.2E+01	3.8E-01
80	1736124.000	15957685.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.2E-02
81	1738764.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	5.3E-03
82	1741404.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	4.2E-04
83	1744044.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.3E-04
84	1746684.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
85	1749324.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
86	1751964.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
87	1754604.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
88	1757244.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
89	1759884.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
90	1762524.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
91	1765164.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
92	1767804.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
93	1770444.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
94	1773084.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
95	1775724.000	15957685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
96	1778364.000	15957685.000	4.4E+00	3.1E-01	3.7E+01	3.1E+01	2.7E-04
97	1781004.000	15957685.000	4.6E+00	3.2E-01	3.6E+01	3.1E+01	2.6E-04
98	1783644.000	15957685.000	9.4E-02	2.4E-01	2.8E+00	1.6E+01	2.9E-04
99	1786284.000	15957685.000	4.1E-02	1.1E-01	1.2E+00	2.6E+00	1.0E-03
100	1788924.000	15957685.000	2.0E-02	1.5E+00	1.1E-01	1.1E+00	3.1E-03
101	1791564.000	15957685.000	2.1E-01	2.6E-01	1.4E-01	2.2E-01	6.5E-02
102	1794204.000	15957685.000	1.3E-01	1.4E-01	1.3E-01	1.4E-01	1.4E-01
103	1796844.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
104	1799484.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
105	1802124.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
106	1804764.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
107	1807404.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
108	1810044.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
109	1812684.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
110	1815324.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
111	1817964.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
112	1820604.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
113	1823244.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
114	1825884.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
115	1828524.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
116	1831164.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
117	1833804.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
118	1836444.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
119	1839084.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
120	1841724.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
121	1844364.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
122	1847004.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
123	1849644.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
124	1852282.000	15957685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
125	1691242.000	15955045.000	4.4E+00	3.0E-01	1.3E+02	4.6E+02	2.5E-04
126	1693884.000	15955045.000	4.4E+00	3.0E-01	1.3E+02	4.5E+02	2.0E-04
127	1696524.000	15955045.000	4.4E+00	3.0E-01	1.3E+02	4.8E+02	5.2E-04
128	1699164.000	15955045.000	4.4E+00	3.0E-01	1.6E+02	6.8E+02	4.7E-03

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
129	1701804.000	15955045.000	4.4E+00	3.0E-01	3.3E+02	4.9E+02	4.9E-03
130	1704444.000	15955045.000	4.4E+00	3.0E-01	4.1E+02	7.1E+02	4.5E-03
131	1707084.000	15955045.000	4.4E+00	3.0E-01	4.1E+02	7.4E+02	4.5E-03
132	1709724.000	15955045.000	4.4E+00	3.0E-01	4.1E+02	7.3E+02	4.5E-03
133	1712364.000	15955045.000	4.4E+00	3.0E-01	4.0E+02	7.3E+02	4.5E-03
134	1715004.000	15955045.000	4.4E+00	3.0E-01	4.6E+02	8.7E+02	4.5E-03
135	1717644.000	15955045.000	4.4E+00	3.0E-01	6.6E+02	1.3E+03	4.5E-03
136	1720284.000	15955045.000	4.4E+00	3.0E-01	7.7E+02	1.5E+03	4.5E-03
137	1722924.000	15955045.000	4.4E+00	3.0E-01	4.9E+02	8.7E+02	4.2E-03
138	1725564.000	15955045.000	4.4E+00	3.0E-01	1.1E+02	6.4E+02	5.1E-02
139	1728204.000	15955045.000	4.4E+00	3.0E-01	9.2E+01	3.0E+02	4.1E+01
140	1730844.000	15955045.000	4.4E+00	3.0E-01	8.6E+01	6.6E+01	7.9E+02
141	1733484.000	15955045.000	4.4E+00	3.0E-01	8.5E+01	2.9E+01	2.8E+02
142	1736124.000	15955045.000	4.4E+00	3.0E-01	3.7E+01	3.2E+01	1.9E+01
143	1738764.000	15955045.000	4.4E+00	3.0E-01	3.3E+01	2.8E+01	4.5E-01
144	1741404.000	15955045.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	1.0E-02
145	1744044.000	15955045.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	3.4E-04
146	1746684.000	15955045.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.4E-04
147	1749324.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
148	1751964.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
149	1754604.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
150	1757244.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
151	1759884.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
152	1762524.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
153	1765164.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
154	1767804.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
155	1770444.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
156	1773084.000	15955045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
157	1775724.000	15955045.000	4.4E+00	3.1E-01	3.6E+01	3.1E+01	2.7E-04
158	1778364.000	15955045.000	4.6E+00	3.2E-01	3.6E+01	3.1E+01	2.6E-04
159	1781004.000	15955045.000	4.4E+00	2.3E-01	2.8E+00	1.6E+01	2.7E-04
160	1783644.000	15955045.000	2.7E-02	2.6E+00	1.7E-01	1.7E+00	1.9E-03
161	1786284.000	15955045.000	5.4E-01	7.4E-01	1.3E-01	5.0E-01	1.5E-02
162	1788924.000	15955045.000	3.4E-01	3.9E-01	1.1E-01	3.2E-01	3.0E-02
163	1791564.000	15955045.000	1.5E-01	1.7E-01	1.5E-01	1.7E-01	1.0E-01
164	1794204.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
165	1796844.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
166	1799484.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
167	1802124.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
168	1804764.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
169	1807404.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
170	1810044.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
171	1812684.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
172	1815324.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
173	1817964.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
174	1820604.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
175	1823244.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
176	1825884.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
177	1828524.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
178	1831164.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
179	1833804.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
180	1836444.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
181	1839084.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
182	1841724.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
183	1844364.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
184	1847004.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
185	1849644.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
186	1852282.000	15955045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
187	1691242.000	15952405.000	4.4E+00	3.0E-01	8.8E+01	6.6E+01	2.7E-04
188	1693884.000	15952405.000	4.4E+00	3.0E-01	9.5E+01	6.2E+01	2.7E-04
189	1696524.000	15952405.000	4.4E+00	3.0E-01	9.4E+01	6.8E+01	2.5E-04
190	1699164.000	15952405.000	4.4E+00	3.0E-01	7.6E+01	2.4E+02	2.1E-04
191	1701804.000	15952405.000	4.4E+00	3.0E-01	1.1E+02	3.3E+02	2.0E-04
192	1704444.000	15952405.000	4.4E+00	3.0E-01	1.3E+02	4.3E+02	2.0E-04
193	1707084.000	15952405.000	4.4E+00	3.0E-01	1.3E+02	4.7E+02	2.0E-04
194	1709724.000	15952405.000	4.4E+00	3.0E-01	1.3E+02	4.6E+02	2.0E-04
195	1712364.000	15952405.000	4.4E+00	3.0E-01	1.3E+02	4.7E+02	2.0E-04
196	1715004.000	15952405.000	4.4E+00	3.0E-01	1.5E+02	6.7E+02	2.0E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
197	1717644.000	15952405.000	4.4E+00	3.0E-01	3.3E+02	5.0E+02	2.0E-04
198	1720284.000	15952405.000	4.4E+00	3.0E-01	4.2E+02	7.3E+02	2.0E-04
199	1722924.000	15952405.000	4.4E+00	3.0E-01	4.2E+02	7.6E+02	1.9E-04
200	1725564.000	15952405.000	4.4E+00	3.0E-01	4.3E+02	7.5E+02	2.3E-03
201	1728204.000	15952405.000	4.4E+00	3.0E-01	3.5E+02	5.1E+02	1.6E-01
202	1730844.000	15952405.000	4.4E+00	3.0E-01	1.4E+02	4.9E+02	2.7E+01
203	1733484.000	15952405.000	4.4E+00	3.0E-01	8.4E+01	6.8E+01	2.4E+02
204	1736124.000	15952405.000	4.4E+00	3.0E-01	3.0E+01	3.2E+01	5.7E+02
205	1738764.000	15952405.000	4.4E+00	3.0E-01	7.3E+01	2.3E+01	2.8E+02
206	1741404.000	15952405.000	4.4E+00	3.0E-01	7.5E+01	2.3E+01	1.1E+00
207	1744044.000	15952405.000	4.4E+00	3.0E-01	6.6E+01	2.2E+01	8.6E-03
208	1746684.000	15952405.000	4.4E+00	3.0E-01	3.8E+01	3.1E+01	3.2E-04
209	1749324.000	15952405.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.0E-04
210	1751964.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.6E-04
211	1754604.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
212	1757244.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
213	1759884.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
214	1762524.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
215	1765164.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
216	1767804.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
217	1770444.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
218	1773084.000	15952405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
219	1775724.000	15952405.000	4.5E+00	3.2E-01	3.6E+01	3.1E+01	2.7E-04
220	1778364.000	15952405.000	9.5E-02	2.8E-01	3.3E+00	1.9E+01	2.9E-04
221	1781004.000	15952405.000	2.8E-02	2.7E+00	1.7E-01	1.8E+00	1.8E-03
222	1783644.000	15952405.000	4.4E-01	5.5E-01	1.1E-01	3.9E-01	2.1E-02
223	1786284.000	15952405.000	1.4E-01	2.0E-01	1.1E-01	1.8E-01	1.2E-01
224	1788924.000	15952405.000	1.2E-01	1.5E-01	1.0E-01	1.5E-01	1.4E-01
225	1791564.000	15952405.000	1.3E-01	1.4E-01	1.3E-01	1.3E-01	1.3E-01
226	1794204.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
227	1796844.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
228	1799484.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
229	1802124.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
230	1804764.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
231	1807404.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
232	1810044.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
233	1812684.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
234	1815324.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
235	1817964.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
236	1820604.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
237	1823244.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
238	1825884.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
239	1828524.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
240	1831164.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
241	1833804.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
242	1836444.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
243	1839084.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
244	1841724.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
245	1844364.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
246	1847004.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
247	1849644.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
248	1852282.000	15952405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
249	1691242.000	15949765.000	4.4E+00	3.0E-01	8.1E+01	2.7E+01	2.7E-04
250	1693884.000	15949765.000	4.4E+00	3.0E-01	7.6E+01	2.4E+01	2.7E-04
251	1696524.000	15949765.000	4.4E+00	3.0E-01	7.5E+01	2.5E+01	2.7E-04
252	1699164.000	15949765.000	4.4E+00	3.0E-01	3.3E+01	3.2E+01	2.7E-04
253	1701804.000	15949765.000	4.4E+00	3.0E-01	7.0E+01	4.7E+01	2.7E-04
254	1704444.000	15949765.000	4.4E+00	3.0E-01	6.8E+01	6.0E+01	2.7E-04
255	1707084.000	15949765.000	4.4E+00	3.0E-01	6.6E+01	6.4E+01	2.7E-04
256	1709724.000	15949765.000	4.4E+00	3.0E-01	6.6E+01	6.2E+01	2.7E-04
257	1712364.000	15949765.000	4.4E+00	3.0E-01	6.6E+01	6.8E+01	2.7E-04
258	1715004.000	15949765.000	4.4E+00	3.0E-01	7.6E+01	2.4E+02	2.7E-04
259	1717644.000	15949765.000	4.4E+00	3.0E-01	1.1E+02	3.2E+02	2.7E-04
260	1720284.000	15949765.000	4.4E+00	3.0E-01	1.3E+02	4.4E+02	2.7E-04
261	1722924.000	15949765.000	4.4E+00	3.0E-01	1.5E+02	6.8E+02	2.7E-04
262	1725564.000	15949765.000	4.4E+00	3.0E-01	3.5E+02	5.5E+02	5.6E-04
263	1728204.000	15949765.000	4.4E+00	3.0E-01	4.0E+02	6.9E+02	5.1E-03
264	1730844.000	15949765.000	4.4E+00	3.0E-01	2.0E+02	9.4E+02	2.2E-02

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
265	1733484.000	15949765.000	4.4E+00	3.0E-01	1.2E+02	4.3E+02	8.4E-01
266	1736124.000	15949765.000	4.4E+00	3.0E-01	7.6E+01	2.5E+02	2.6E+02
267	1738764.000	15949765.000	4.4E+00	3.0E-01	6.6E+01	6.5E+01	4.3E+02
268	1741404.000	15949765.000	4.4E+00	3.0E-01	6.7E+01	6.1E+01	2.6E+02
269	1744044.000	15949765.000	4.4E+00	3.0E-01	7.9E+01	5.0E+01	1.2E+00
270	1746684.000	15949765.000	4.4E+00	3.0E-01	8.3E+01	2.7E+01	1.3E-02
271	1749324.000	15949765.000	4.4E+00	3.0E-01	3.6E+01	3.1E+01	4.9E-03
272	1751964.000	15949765.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	3.6E-04
273	1754604.000	15949765.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.4E-04
274	1757244.000	15949765.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
275	1759884.000	15949765.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
276	1762524.000	15949765.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
277	1765164.000	15949765.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
278	1767804.000	15949765.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
279	1770444.000	15949765.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
280	1773084.000	15949765.000	4.4E+00	3.0E-01	3.6E+01	3.1E+01	2.7E-04
281	1775724.000	15949765.000	4.7E+00	3.2E-01	3.1E+01	2.9E+01	2.5E-04
282	1778364.000	15949765.000	6.9E-02	2.1E-01	1.9E+00	8.2E+00	4.6E-04
283	1781004.000	15949765.000	4.7E-01	6.8E-01	1.3E-01	4.7E-01	1.8E-02
284	1783644.000	15949765.000	1.4E-01	1.9E-01	1.1E-01	1.8E-01	1.2E-01
285	1786284.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
286	1788924.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
287	1791564.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
288	1794204.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
289	1796844.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
290	1799484.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
291	1802124.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
292	1804764.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
293	1807404.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
294	1810044.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
295	1812684.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
296	1815324.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
297	1817964.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
298	1820604.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
299	1823244.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
300	1825884.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
301	1828524.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
302	1831164.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
303	1833804.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
304	1836444.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
305	1839084.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
306	1841724.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
307	1844364.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
308	1847004.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
309	1849644.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
310	1852282.000	15949765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
311	1691242.000	15947125.000	4.4E+00	3.0E-01	3.6E+01	3.1E+01	2.7E-04
312	1693884.000	15947125.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
313	1696524.000	15947125.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
314	1699164.000	15947125.000	4.4E+00	3.0E-01	3.9E+01	3.2E+01	2.7E-04
315	1701804.000	15947125.000	4.4E+00	3.0E-01	6.2E+01	2.1E+01	2.7E-04
316	1704444.000	15947125.000	4.4E+00	3.0E-01	7.7E+01	2.4E+01	2.7E-04
317	1707084.000	15947125.000	4.4E+00	3.0E-01	7.6E+01	2.4E+01	2.7E-04
318	1709724.000	15947125.000	4.4E+00	3.0E-01	7.6E+01	2.3E+01	2.7E-04
319	1712364.000	15947125.000	4.4E+00	3.0E-01	7.5E+01	2.5E+01	2.7E-04
320	1715004.000	15947125.000	4.4E+00	3.0E-01	3.2E+01	3.1E+01	2.7E-04
321	1717644.000	15947125.000	4.4E+00	3.0E-01	7.3E+01	4.7E+01	2.7E-04
322	1720284.000	15947125.000	4.4E+00	3.0E-01	6.9E+01	6.6E+01	2.7E-04
323	1722924.000	15947125.000	4.4E+00	3.0E-01	7.6E+01	2.4E+02	2.7E-04
324	1725564.000	15947125.000	4.4E+00	3.0E-01	1.1E+02	3.2E+02	2.6E-04
325	1728204.000	15947125.000	4.4E+00	3.0E-01	1.2E+02	4.5E+02	2.1E-04
326	1730844.000	15947125.000	4.4E+00	3.0E-01	1.4E+02	5.8E+02	3.8E-04
327	1733484.000	15947125.000	4.4E+00	3.0E-01	1.6E+02	7.0E+02	1.5E-02
328	1736124.000	15947125.000	4.4E+00	3.0E-01	1.4E+02	5.8E+02	5.2E+01
329	1738764.000	15947125.000	4.4E+00	3.0E-01	1.2E+02	4.6E+02	6.0E+02
330	1741404.000	15947125.000	4.4E+00	3.0E-01	1.2E+02	4.2E+02	4.7E+02
331	1744044.000	15947125.000	4.4E+00	3.0E-01	1.1E+02	3.3E+02	2.9E+02
332	1746684.000	15947125.000	4.4E+00	3.0E-01	9.0E+01	6.8E+01	2.1E+01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
333	1749324.000	15947125.000	4.4E+00	3.0E-01	8.9E+01	2.9E+01	6.6E-01
334	1751964.000	15947125.000	4.4E+00	3.0E-01	6.4E+01	2.1E+01	7.6E-03
335	1754604.000	15947125.000	4.4E+00	3.0E-01	3.7E+01	3.0E+01	2.9E-04
336	1757244.000	15947125.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.1E-04
337	1759884.000	15947125.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.6E-04
338	1762524.000	15947125.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
339	1765164.000	15947125.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
340	1767804.000	15947125.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
341	1770444.000	15947125.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
342	1773084.000	15947125.000	4.4E+00	3.1E-01	3.7E+01	3.1E+01	2.7E-04
343	1775724.000	15947125.000	4.8E+00	3.3E-01	2.9E+01	2.9E+01	2.4E-04
344	1778364.000	15947125.000	5.9E-02	1.7E-01	1.2E+00	2.6E+00	5.9E-04
345	1781004.000	15947125.000	2.0E-01	3.1E-01	7.6E-02	2.6E-01	6.8E-02
346	1783644.000	15947125.000	1.3E-01	1.4E-01	1.4E-01	1.4E-01	1.3E-01
347	1786284.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
348	1788924.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
349	1791564.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
350	1794204.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
351	1796844.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
352	1799484.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
353	1802124.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
354	1804764.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
355	1807404.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
356	1810044.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
357	1812684.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
358	1815324.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
359	1817964.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
360	1820604.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
361	1823244.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
362	1825884.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
363	1828524.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
364	1831164.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
365	1833804.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
366	1836444.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
367	1839084.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
368	1841724.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
369	1844364.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
370	1847004.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
371	1849644.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
372	1852282.000	15947125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
373	1691242.000	15944485.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
374	1693884.000	15944485.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
375	1696524.000	15944485.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
376	1699164.000	15944485.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
377	1701804.000	15944485.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.7E-04
378	1704444.000	15944485.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
379	1707084.000	15944485.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
380	1709724.000	15944485.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
381	1712364.000	15944485.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
382	1715004.000	15944485.000	4.4E+00	3.0E-01	3.9E+01	3.1E+01	2.7E-04
383	1717644.000	15944485.000	4.4E+00	3.0E-01	6.2E+01	2.0E+01	2.7E-04
384	1720284.000	15944485.000	4.4E+00	3.0E-01	7.5E+01	2.4E+01	2.7E-04
385	1722924.000	15944485.000	4.4E+00	3.0E-01	3.1E+01	3.1E+01	2.7E-04
386	1725564.000	15944485.000	4.4E+00	3.0E-01	7.6E+01	4.8E+01	2.7E-04
387	1728204.000	15944485.000	4.4E+00	3.0E-01	7.2E+01	6.6E+01	2.7E-04
388	1730844.000	15944485.000	4.4E+00	3.0E-01	7.7E+01	2.5E+02	2.6E-04
389	1733484.000	15944485.000	4.4E+00	3.0E-01	1.2E+02	4.2E+02	2.1E-03
390	1736124.000	15944485.000	4.4E+00	3.0E-01	2.0E+02	9.9E+02	2.5E-01
391	1738764.000	15944485.000	4.4E+00	3.0E-01	3.9E+02	7.3E+02	1.7E+01
392	1741404.000	15944485.000	4.4E+00	3.0E-01	4.2E+02	7.8E+02	2.3E+01
393	1744044.000	15944485.000	4.4E+00	3.0E-01	3.6E+02	5.5E+02	2.9E+02
394	1746684.000	15944485.000	4.4E+00	3.0E-01	1.3E+02	4.6E+02	6.2E+02
395	1749324.000	15944485.000	4.4E+00	3.0E-01	7.6E+01	2.3E+02	3.3E+02
396	1751964.000	15944485.000	4.4E+00	3.0E-01	8.5E+01	5.2E+01	1.6E+00
397	1754604.000	15944485.000	4.4E+00	3.0E-01	8.7E+01	2.7E+01	9.1E-03
398	1757244.000	15944485.000	4.4E+00	3.0E-01	6.3E+01	2.1E+01	4.5E-03
399	1759884.000	15944485.000	4.4E+00	3.0E-01	3.6E+01	3.0E+01	3.1E-04
400	1762524.000	15944485.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.1E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y(ft/d)	Layer 4 K_x K_y(ft/d)	Layer 5 K_x K_y(ft/d)	Layers 6-7 K_x K_y(ft/d)	Layer 8 K_z K_y(ft/d)
401	1765164.000	15944485.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.6E-04
402	1767804.000	15944485.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
403	1770444.000	15944485.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
404	1773084.000	15944485.000	4.4E+00	3.1E-01	3.7E+01	3.1E+01	2.7E-04
405	1775724.000	15944485.000	4.8E+00	3.3E-01	2.9E+01	2.9E+01	2.4E-04
406	1778364.000	15944485.000	6.4E-02	1.5E-01	1.1E+00	2.3E+00	5.2E-04
407	1781004.000	15944485.000	2.1E-01	2.8E-01	9.4E-02	2.4E-01	6.2E-02
408	1783644.000	15944485.000	1.3E-01	1.4E-01	1.4E-01	1.4E-01	1.3E-01
409	1786284.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
410	1788924.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
411	1791564.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
412	1794204.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
413	1796844.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
414	1799484.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
415	1802124.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
416	1804764.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
417	1807404.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
418	1810044.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
419	1812684.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
420	1815324.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
421	1817964.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
422	1820604.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
423	1823244.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
424	1825884.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
425	1828524.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
426	1831164.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
427	1833804.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
428	1836444.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
429	1839084.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
430	1841724.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
431	1844364.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
432	1847004.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
433	1849644.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
434	1852282.000	15944485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
435	1691242.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
436	1693884.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
437	1696524.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
438	1699164.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
439	1701804.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
440	1704444.000	15941845.000	4.4E+00	3.0E-01	3.4E+01	3.1E+01	2.7E-04
441	1707084.000	15941845.000	4.4E+00	3.0E-01	3.4E+01	3.1E+01	2.7E-04
442	1709724.000	15941845.000	4.4E+00	3.0E-01	3.4E+01	3.1E+01	2.7E-04
443	1712364.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
444	1715004.000	15941845.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
445	1717644.000	15941845.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.7E-04
446	1720284.000	15941845.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
447	1722924.000	15941845.000	4.4E+00	3.0E-01	3.8E+01	3.1E+01	2.7E-04
448	1725564.000	15941845.000	4.4E+00	3.0E-01	6.1E+01	2.0E+01	2.7E-04
449	1728204.000	15941845.000	4.4E+00	3.0E-01	7.4E+01	2.4E+01	2.7E-04
450	1730844.000	15941845.000	4.4E+00	3.0E-01	3.0E+01	3.1E+01	2.7E-04
451	1733484.000	15941845.000	4.4E+00	3.0E-01	8.8E+01	6.9E+01	5.0E-04
452	1736124.000	15941845.000	4.4E+00	3.0E-01	1.4E+02	4.7E+02	4.4E-03
453	1738764.000	15941845.000	4.4E+00	3.0E-01	4.2E+02	6.8E+02	3.4E-03
454	1741404.000	15941845.000	4.4E+00	3.0E-01	7.3E+02	1.5E+03	1.3E-02
455	1744044.000	15941845.000	4.4E+00	3.0E-01	7.1E+02	1.4E+03	7.4E-01
456	1746684.000	15941845.000	4.4E+00	3.0E-01	4.1E+02	6.7E+02	2.8E+01
457	1749324.000	15941845.000	4.4E+00	3.0E-01	1.3E+02	5.6E+02	3.0E+02
458	1751964.000	15941845.000	4.4E+00	3.0E-01	1.1E+02	3.3E+02	3.3E+02
459	1754604.000	15941845.000	4.4E+00	3.0E-01	7.9E+01	2.3E+02	2.3E+01
460	1757244.000	15941845.000	4.4E+00	3.0E-01	8.9E+01	5.3E+01	9.8E-01
461	1759884.000	15941845.000	4.4E+00	3.0E-01	8.3E+01	2.6E+01	7.7E-03
462	1762524.000	15941845.000	4.4E+00	3.0E-01	6.2E+01	2.0E+01	4.3E-03
463	1765164.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.9E-04
464	1767804.000	15941845.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.2E-04
465	1770444.000	15941845.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.6E-04
466	1773084.000	15941845.000	4.5E+00	3.1E-01	3.8E+01	3.2E+01	2.7E-04
467	1775724.000	15941845.000	4.5E+00	2.9E-01	5.2E+00	2.5E+01	2.7E-04
468	1778364.000	15941845.000	2.8E-02	2.2E+00	1.2E-01	1.2E+00	1.8E-03

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
469	1781004.000	15941845.000	1.9E-01	2.4E-01	8.0E-02	2.0E-01	7.2E-02
470	1783644.000	15941845.000	1.3E-01	1.4E-01	1.4E-01	1.4E-01	1.3E-01
471	1786284.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
472	1788924.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
473	1791564.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
474	1794204.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
475	1796844.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
476	1799484.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
477	1802124.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
478	1804764.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
479	1807404.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
480	1810044.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
481	1812684.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
482	1815324.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
483	1817964.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
484	1820604.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
485	1823244.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
486	1825884.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
487	1828524.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
488	1831164.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
489	1833804.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
490	1836444.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
491	1839084.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
492	1841724.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
493	1844364.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
494	1847004.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
495	1849644.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
496	1852282.000	15941845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
497	1691242.000	15939205.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
498	1693884.000	15939205.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
499	1696524.000	15939205.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
500	1699164.000	15939205.000	4.4E+00	3.0E-01	3.4E+01	3.1E+01	2.7E-04
501	1701804.000	15939205.000	4.4E+00	3.0E-01	4.0E+01	1.8E+01	2.7E-04
502	1704444.000	15939205.000	4.4E+00	3.0E-01	5.8E+01	2.4E+01	2.7E-04
503	1707084.000	15939205.000	4.4E+00	3.0E-01	6.9E+01	2.7E+01	2.7E-04
504	1709724.000	15939205.000	4.4E+00	3.0E-01	5.8E+01	2.4E+01	2.7E-04
505	1712364.000	15939205.000	4.4E+00	3.0E-01	4.0E+01	1.8E+01	2.7E-04
506	1715004.000	15939205.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
507	1717644.000	15939205.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
508	1720284.000	15939205.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
509	1722924.000	15939205.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
510	1725564.000	15939205.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.7E-04
511	1728204.000	15939205.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
512	1730844.000	15939205.000	4.4E+00	3.0E-01	3.7E+01	3.1E+01	2.7E-04
513	1733484.000	15939205.000	4.4E+00	3.0E-01	7.9E+01	2.8E+01	2.6E-04
514	1736124.000	15939205.000	4.4E+00	3.0E-01	9.1E+01	6.9E+01	2.1E-04
515	1738764.000	15939205.000	4.4E+00	3.0E-01	1.3E+02	4.4E+02	1.9E-04
516	1741404.000	15939205.000	4.4E+00	3.0E-01	4.0E+02	6.4E+02	3.4E-04
517	1744044.000	15939205.000	4.4E+00	3.0E-01	7.0E+02	1.3E+03	3.8E-03
518	1746684.000	15939205.000	4.4E+00	3.0E-01	7.0E+02	1.4E+03	1.1E-02
519	1749324.000	15939205.000	4.4E+00	3.0E-01	4.8E+02	9.1E+02	1.4E+00
520	1751964.000	15939205.000	4.4E+00	3.0E-01	3.7E+02	6.2E+02	3.4E+02
521	1754604.000	15939205.000	4.4E+00	3.0E-01	1.3E+02	5.5E+02	5.1E+02
522	1757244.000	15939205.000	4.4E+00	3.0E-01	1.1E+02	3.3E+02	3.5E+02
523	1759884.000	15939205.000	4.4E+00	3.0E-01	8.1E+01	2.3E+02	2.5E+01
524	1762524.000	15939205.000	4.4E+00	3.0E-01	6.5E+01	5.5E+01	1.3E+00
525	1765164.000	15939205.000	4.4E+00	3.0E-01	7.8E+01	2.5E+01	5.8E-03
526	1767804.000	15939205.000	4.4E+00	3.0E-01	6.1E+01	2.0E+01	4.1E-03
527	1770444.000	15939205.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
528	1773084.000	15939205.000	4.6E+00	3.2E-01	3.7E+01	3.2E+01	2.6E-04
529	1775724.000	15939205.000	7.3E-02	2.2E-01	2.6E+00	1.5E+01	4.3E-04
530	1778364.000	15939205.000	4.0E-01	6.5E-01	1.1E-01	4.8E-01	2.4E-02
531	1781004.000	15939205.000	1.5E-01	1.7E-01	1.4E-01	1.5E-01	1.1E-01
532	1783644.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
533	1786284.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
534	1788924.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
535	1791564.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
536	1794204.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y(ft/d)	Layer 4 K_x K_y(ft/d)	Layer 5 K_x K_y(ft/d)	Layers 6-7 K_x K_y(ft/d)	Layer 8 K_x K_y(ft/d)
537	1796844.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
538	1799484.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
539	1802124.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
540	1804764.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
541	1807404.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
542	1810044.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
543	1812684.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
544	1815324.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
545	1817964.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
546	1820604.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
547	1823244.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
548	1825884.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
549	1828524.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
550	1831164.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
551	1833804.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
552	1836444.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
553	1839084.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
554	1841724.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
555	1844364.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
556	1847004.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
557	1849644.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
558	1852282.000	15939205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
559	1691242.000	15936565.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
560	1693884.000	15936565.000	4.4E+00	3.0E-01	3.4E+01	3.1E+01	2.7E-04
561	1696524.000	15936565.000	4.4E+00	3.0E-01	4.0E+01	1.8E+01	2.7E-04
562	1699164.000	15936565.000	4.4E+00	3.0E-01	5.5E+01	2.4E+01	2.7E-04
563	1701804.000	15936565.000	4.4E+00	3.0E-01	3.3E+01	3.9E+01	2.7E-04
564	1704444.000	15936565.000	4.4E+00	3.0E-01	9.4E+01	7.3E+01	2.7E-04
565	1707084.000	15936565.000	4.4E+00	3.0E-01	1.1E+02	2.8E+02	2.7E-04
566	1709724.000	15936565.000	4.4E+00	3.0E-01	6.6E+01	7.3E+01	2.7E-04
567	1712364.000	15936565.000	4.4E+00	3.0E-01	8.9E+01	3.3E+01	2.7E-04
568	1715004.000	15936565.000	4.4E+00	3.0E-01	3.8E+01	3.6E+01	2.7E-04
569	1717644.000	15936565.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
570	1720284.000	15936565.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
571	1722924.000	15936565.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
572	1725564.000	15936565.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
573	1728204.000	15936565.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
574	1730844.000	15936565.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
575	1733484.000	15936565.000	4.4E+00	3.0E-01	3.7E+01	3.2E+01	2.7E-04
576	1736124.000	15936565.000	4.4E+00	3.0E-01	7.8E+01	2.7E+01	2.7E-04
577	1738764.000	15936565.000	4.4E+00	3.0E-01	9.4E+01	6.9E+01	2.7E-04
578	1741404.000	15936565.000	4.4E+00	3.0E-01	1.3E+02	4.7E+02	2.6E-04
579	1744044.000	15936565.000	4.4E+00	3.0E-01	5.8E+02	9.5E+02	2.2E-04
580	1746684.000	15936565.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	3.2E-04
581	1749324.000	15936565.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	6.5E-03
582	1751964.000	15936565.000	4.4E+00	3.0E-01	7.1E+02	1.4E+03	9.3E+01
583	1754604.000	15936565.000	4.4E+00	3.0E-01	4.8E+02	9.3E+02	5.4E+02
584	1757244.000	15936565.000	4.4E+00	3.0E-01	3.9E+02	6.6E+02	4.5E+02
585	1759884.000	15936565.000	4.4E+00	3.0E-01	1.2E+02	5.3E+02	5.0E+02
586	1762524.000	15936565.000	4.4E+00	3.0E-01	1.1E+02	3.4E+02	3.7E+02
587	1765164.000	15936565.000	4.4E+00	3.0E-01	1.3E+02	3.1E+02	2.8E+01
588	1767804.000	15936565.000	4.4E+00	3.0E-01	7.2E+01	5.8E+01	1.7E+00
589	1770444.000	15936565.000	4.4E+00	3.0E-01	7.1E+01	2.3E+01	3.5E-03
590	1773084.000	15936565.000	4.7E+00	3.2E-01	3.3E+01	3.0E+01	2.8E-04
591	1775724.000	15936565.000	6.7E-02	2.1E-01	2.4E+00	9.4E+00	4.9E-04
592	1778364.000	15936565.000	3.9E-01	6.6E-01	9.4E-02	4.6E-01	2.5E-02
593	1781004.000	15936565.000	1.4E-01	1.8E-01	1.1E-01	1.6E-01	1.2E-01
594	1783644.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
595	1786284.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
596	1788924.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
597	1791564.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
598	1794204.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
599	1796844.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
600	1799484.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
601	1802124.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
602	1804764.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
603	1807404.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
604	1810044.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
605	1812684.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
606	1815324.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
607	1817964.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
608	1820604.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
609	1823244.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
610	1825884.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
611	1828524.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
612	1831164.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
613	1833804.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
614	1836444.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
615	1839084.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
616	1841724.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
617	1844364.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
618	1847004.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
619	1849644.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
620	1852282.000	15936565.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
621	1691242.000	15933925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
622	1693884.000	15933925.000	4.4E+00	3.0E-01	3.9E+01	1.8E+01	2.7E-04
623	1696524.000	15933925.000	4.4E+00	3.0E-01	9.0E+01	3.3E+01	2.7E-04
624	1699164.000	15933925.000	4.4E+00	3.0E-01	9.4E+01	7.3E+01	2.7E-04
625	1701804.000	15933925.000	4.4E+00	3.0E-01	1.3E+02	3.4E+02	2.7E-04
626	1704444.000	15933925.000	4.4E+00	3.0E-01	1.8E+02	4.5E+02	2.7E-04
627	1707084.000	15933925.000	4.4E+00	3.0E-01	2.8E+02	5.3E+02	2.7E-04
628	1709724.000	15933925.000	4.4E+00	3.0E-01	1.9E+02	4.5E+02	2.7E-04
629	1712364.000	15933925.000	4.4E+00	3.0E-01	8.0E+01	2.4E+02	2.7E-04
630	1715004.000	15933925.000	4.4E+00	3.0E-01	8.5E+01	3.3E+01	2.7E-04
631	1717644.000	15933925.000	4.4E+00	3.0E-01	3.8E+01	3.5E+01	2.7E-04
632	1720284.000	15933925.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
633	1722924.000	15933925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
634	1725564.000	15933925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
635	1728204.000	15933925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
636	1730844.000	15933925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
637	1733484.000	15933925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
638	1736124.000	15933925.000	4.4E+00	3.0E-01	3.7E+01	3.2E+01	2.7E-04
639	1738764.000	15933925.000	4.4E+00	3.0E-01	7.6E+01	2.7E+01	2.7E-04
640	1741404.000	15933925.000	4.4E+00	3.0E-01	8.1E+01	2.6E+02	2.7E-04
641	1744044.000	15933925.000	4.4E+00	3.0E-01	4.0E+02	5.1E+02	2.7E-04
642	1746684.000	15933925.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	2.7E-04
643	1749324.000	15933925.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	1.2E-03
644	1751964.000	15933925.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	7.7E-01
645	1754604.000	15933925.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	3.0E+01
646	1757244.000	15933925.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	3.1E+01
647	1759884.000	15933925.000	4.4E+00	3.0E-01	4.9E+02	9.6E+02	3.5E+02
648	1762524.000	15933925.000	4.4E+00	3.0E-01	4.6E+02	7.8E+02	4.6E+02
649	1765164.000	15933925.000	4.4E+00	3.0E-01	5.3E+02	5.7E+02	5.0E+02
650	1767804.000	15933925.000	4.4E+00	3.0E-01	1.2E+02	3.7E+02	3.8E+02
651	1770444.000	15933925.000	4.4E+00	3.0E-01	7.6E+01	6.9E+01	1.6E+01
652	1773084.000	15933925.000	4.5E+00	3.1E-01	6.9E+01	2.3E+01	2.8E-03
653	1775724.000	15933925.000	9.2E-02	2.8E-01	3.1E+01	2.6E+01	3.4E-04
654	1778364.000	15933925.000	3.5E-02	9.1E-02	1.7E-01	1.8E+00	1.3E-03
655	1781004.000	15933925.000	3.6E-01	5.1E-01	9.2E-02	3.5E-01	2.7E-02
656	1783644.000	15933925.000	1.4E-01	1.7E-01	1.1E-01	1.7E-01	1.2E-01
657	1786284.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
658	1788924.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
659	1791564.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
660	1794204.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
661	1796844.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
662	1799484.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
663	1802124.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
664	1804764.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
665	1807404.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
666	1810044.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
667	1812684.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
668	1815324.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
669	1817964.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
670	1820604.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
671	1823244.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
672	1825884.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
673	1828524.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
674	1831164.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
675	1833804.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
676	1836444.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
677	1839084.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
678	1841724.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
679	1844364.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
680	1847004.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
681	1849644.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
682	1852282.000	15933925.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
683	1691242.000	15931285.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
684	1693884.000	15931285.000	4.4E+00	3.0E-01	6.5E+01	2.6E+01	2.7E-04
685	1696524.000	15931285.000	4.4E+00	3.0E-01	6.6E+01	7.4E+01	2.7E-04
686	1699164.000	15931285.000	4.4E+00	3.0E-01	1.9E+02	4.5E+02	2.7E-04
687	1701804.000	15931285.000	4.4E+00	3.0E-01	2.7E+02	5.4E+02	2.7E-04
688	1704444.000	15931285.000	4.4E+00	3.0E-01	2.0E+02	5.4E+02	2.7E-04
689	1707084.000	15931285.000	4.4E+00	3.0E-01	2.0E+02	5.4E+02	2.7E-04
690	1709724.000	15931285.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
691	1712364.000	15931285.000	4.4E+00	3.0E-01	1.9E+02	4.6E+02	2.7E-04
692	1715004.000	15931285.000	4.4E+00	3.0E-01	8.1E+01	2.4E+02	2.7E-04
693	1717644.000	15931285.000	4.4E+00	3.0E-01	8.4E+01	3.3E+01	2.7E-04
694	1720284.000	15931285.000	4.4E+00	3.0E-01	3.8E+01	3.5E+01	2.7E-04
695	1722924.000	15931285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
696	1725564.000	15931285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
697	1728204.000	15931285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
698	1730844.000	15931285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
699	1733484.000	15931285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
700	1736124.000	15931285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
701	1738764.000	15931285.000	4.4E+00	3.0E-01	3.7E+01	3.3E+01	2.7E-04
702	1741404.000	15931285.000	4.4E+00	3.0E-01	7.5E+01	3.3E+01	2.7E-04
703	1744044.000	15931285.000	4.4E+00	3.0E-01	9.2E+01	3.3E+02	2.7E-04
704	1746684.000	15931285.000	4.4E+00	3.0E-01	4.3E+02	7.1E+02	2.8E-04
705	1749324.000	15931285.000	4.4E+00	3.0E-01	7.1E+02	1.4E+03	4.1E-04
706	1751964.000	15931285.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.9E-03
707	1754604.000	15931285.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	5.1E-03
708	1757244.000	15931285.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	4.7E-03
709	1759884.000	15931285.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	2.2E+00
710	1762524.000	15931285.000	4.4E+00	3.0E-01	7.6E+02	1.5E+03	4.0E+01
711	1765164.000	15931285.000	4.4E+00	3.0E-01	7.1E+02	1.3E+03	3.8E+02
712	1767804.000	15931285.000	4.4E+00	3.0E-01	4.6E+02	7.9E+02	4.1E+02
713	1770444.000	15931285.000	4.4E+00	3.0E-01	1.1E+02	4.2E+02	3.5E+02
714	1773084.000	15931285.000	4.4E+00	3.1E-01	1.4E+02	3.1E+02	1.6E+01
715	1775724.000	15931285.000	4.6E+00	3.2E-01	8.2E+01	6.3E+01	2.3E-03
716	1778364.000	15931285.000	4.4E+00	2.6E-01	3.4E+01	2.9E+01	3.1E-04
717	1781004.000	15931285.000	3.6E-02	9.2E-02	1.7E-01	1.9E+00	1.2E-03
718	1783644.000	15931285.000	3.6E-01	4.9E-01	9.2E-02	3.5E-01	2.8E-02
719	1786284.000	15931285.000	1.4E-01	1.6E-01	1.4E-01	1.4E-01	1.1E-01
720	1788924.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
721	1791564.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
722	1794204.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
723	1796844.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
724	1799484.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
725	1802124.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
726	1804764.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
727	1807404.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
728	1810044.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
729	1812684.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
730	1815324.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
731	1817964.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
732	1820604.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
733	1823244.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
734	1825884.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
735	1828524.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
736	1831164.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
737	1833804.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
738	1836444.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
739	1839084.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
740	1841724.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
741	1844364.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
742	1847004.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
743	1849644.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
744	1852282.000	15931285.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
745	1691242.000	15928645.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
746	1693884.000	15928645.000	4.4E+00	3.0E-01	7.7E+01	3.0E+01	2.7E-04
747	1696524.000	15928645.000	4.4E+00	3.0E-01	9.6E+01	2.7E+02	2.7E-04
748	1699164.000	15928645.000	4.4E+00	3.0E-01	2.7E+02	5.2E+02	2.7E-04
749	1701804.000	15928645.000	4.4E+00	3.0E-01	2.0E+02	5.4E+02	2.7E-04
750	1704444.000	15928645.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
751	1707084.000	15928645.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
752	1709724.000	15928645.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
753	1712364.000	15928645.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
754	1715004.000	15928645.000	4.4E+00	3.0E-01	1.9E+02	4.6E+02	2.7E-04
755	1717644.000	15928645.000	4.4E+00	3.0E-01	8.3E+01	2.5E+02	2.7E-04
756	1720284.000	15928645.000	4.4E+00	3.0E-01	8.2E+01	3.2E+01	2.7E-04
757	1722924.000	15928645.000	4.4E+00	3.0E-01	3.7E+01	3.4E+01	2.7E-04
758	1725564.000	15928645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
759	1728204.000	15928645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
760	1730844.000	15928645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
761	1733484.000	15928645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
762	1736124.000	15928645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
763	1738764.000	15928645.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
764	1741404.000	15928645.000	4.4E+00	3.0E-01	4.8E+01	2.1E+01	2.7E-04
765	1744044.000	15928645.000	4.4E+00	3.0E-01	9.0E+01	6.5E+01	2.7E-04
766	1746684.000	15928645.000	4.4E+00	3.0E-01	1.2E+02	4.2E+02	2.7E-04
767	1749324.000	15928645.000	4.4E+00	3.0E-01	4.4E+02	7.5E+02	2.7E-04
768	1751964.000	15928645.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.2E-04
769	1754604.000	15928645.000	4.4E+00	3.0E-01	7.4E+02	1.4E+03	2.0E-04
770	1757244.000	15928645.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.8E-04
771	1759884.000	15928645.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	2.4E-03
772	1762524.000	15928645.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	3.5E-03
773	1765164.000	15928645.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	1.7E+01
774	1767804.000	15928645.000	4.4E+00	3.0E-01	7.1E+02	1.4E+03	4.4E+02
775	1770444.000	15928645.000	4.4E+00	3.0E-01	5.2E+02	9.3E+02	4.4E+02
776	1773084.000	15928645.000	4.4E+00	3.0E-01	5.7E+02	6.2E+02	4.1E+02
777	1775724.000	15928645.000	4.4E+00	3.1E-01	1.1E+02	3.9E+02	1.8E+01
778	1778364.000	15928645.000	4.6E+00	3.2E-01	8.7E+01	7.5E+01	5.7E-03
779	1781004.000	15928645.000	4.4E+00	2.6E-01	3.4E+01	3.0E+01	3.2E-04
780	1783644.000	15928645.000	3.5E-02	2.7E+00	1.7E-01	1.6E+00	1.3E-03
781	1786284.000	15928645.000	1.9E-01	2.5E-01	1.5E-01	1.9E-01	7.6E-02
782	1788924.000	15928645.000	1.3E-01	1.4E-01	1.3E-01	1.4E-01	1.3E-01
783	1791564.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
784	1794204.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
785	1796844.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
786	1799484.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
787	1802124.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
788	1804764.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
789	1807404.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
790	1810044.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
791	1812684.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
792	1815324.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
793	1817964.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
794	1820604.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
795	1823244.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
796	1825884.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
797	1828524.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
798	1831164.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
799	1833804.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
800	1836444.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
801	1839084.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
802	1841724.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
803	1844364.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
804	1847004.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
805	1849644.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
806	1852282.000	15928645.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
807	1691242.000	15926005.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
808	1693884.000	15926005.000	4.4E+00	3.0E-01	7.6E+01	3.0E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
809	1696524.000	15926005.000	4.4E+00	3.0E-01	9.2E+01	2.7E+02	2.7E-04
810	1699164.000	15926005.000	4.4E+00	3.0E-01	2.1E+02	5.2E+02	2.7E-04
811	1701804.000	15926005.000	4.4E+00	3.0E-01	2.0E+02	5.4E+02	2.7E-04
812	1704444.000	15926005.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
813	1707084.000	15926005.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
814	1709724.000	15926005.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
815	1712364.000	15926005.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
816	1715004.000	15926005.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
817	1717644.000	15926005.000	4.4E+00	3.0E-01	1.9E+02	4.6E+02	2.7E-04
818	1720284.000	15926005.000	4.4E+00	3.0E-01	7.6E+01	8.1E+01	2.7E-04
819	1722924.000	15926005.000	4.4E+00	3.0E-01	5.9E+01	2.5E+01	2.7E-04
820	1725564.000	15926005.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
821	1728204.000	15926005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
822	1730844.000	15926005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
823	1733484.000	15926005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
824	1736124.000	15926005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
825	1738764.000	15926005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
826	1741404.000	15926005.000	4.4E+00	3.0E-01	3.8E+01	3.2E+01	2.7E-04
827	1744044.000	15926005.000	4.4E+00	3.0E-01	7.1E+01	2.4E+01	2.7E-04
828	1746684.000	15926005.000	4.4E+00	3.0E-01	7.1E+01	6.9E+01	2.7E-04
829	1749324.000	15926005.000	4.4E+00	3.0E-01	7.7E+01	3.2E+02	2.7E-04
830	1751964.000	15926005.000	4.4E+00	3.0E-01	4.8E+02	6.0E+02	2.7E-04
831	1754604.000	15926005.000	4.4E+00	3.0E-01	5.6E+02	9.5E+02	2.7E-04
832	1757244.000	15926005.000	4.4E+00	3.0E-01	7.1E+02	1.3E+03	2.7E-04
833	1759884.000	15926005.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.3E-04
834	1762524.000	15926005.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.8E-04
835	1765164.000	15926005.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.4E-03
836	1767804.000	15926005.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.1E+01
837	1770444.000	15926005.000	4.4E+00	3.0E-01	7.5E+02	1.4E+03	5.2E+01
838	1773084.000	15926005.000	4.4E+00	3.0E-01	7.1E+02	1.4E+03	4.3E+02
839	1775724.000	15926005.000	4.4E+00	3.0E-01	4.9E+02	8.8E+02	4.0E+02
840	1778364.000	15926005.000	4.4E+00	3.1E-01	1.1E+02	4.2E+02	2.1E+01
841	1781004.000	15926005.000	4.8E+00	3.3E-01	9.0E+01	7.7E+01	4.8E-03
842	1783644.000	15926005.000	7.0E-02	1.9E-01	5.0E+00	2.0E+01	5.3E-04
843	1786284.000	15926005.000	3.6E-01	5.6E-01	1.2E-01	4.3E-01	2.8E-02
844	1788924.000	15926005.000	1.4E-01	1.7E-01	1.1E-01	1.6E-01	1.2E-01
845	1791564.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
846	1794204.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
847	1796844.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
848	1799484.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
849	1802124.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
850	1804764.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
851	1807404.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
852	1810044.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
853	1812684.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
854	1815324.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
855	1817964.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
856	1820604.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
857	1823244.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
858	1825884.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
859	1828524.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
860	1831164.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
861	1833804.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
862	1836444.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
863	1839084.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
864	1841724.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
865	1844364.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
866	1847004.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
867	1849644.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
868	1852282.000	15926005.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
869	1691242.000	15923365.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
870	1693884.000	15923365.000	4.4E+00	3.0E-01	7.5E+01	3.0E+01	2.7E-04
871	1696524.000	15923365.000	4.4E+00	3.0E-01	9.2E+01	2.6E+02	2.7E-04
872	1699164.000	15923365.000	4.4E+00	3.0E-01	2.1E+02	5.1E+02	2.7E-04
873	1701804.000	15923365.000	4.4E+00	3.0E-01	2.0E+02	5.4E+02	2.7E-04
874	1704444.000	15923365.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
875	1707084.000	15923365.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
876	1709724.000	15923365.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04

			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
877	1712364.000	15923365.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
878	1715004.000	15923365.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
879	1717644.000	15923365.000	4.4E+00	3.0E-01	2.1E+02	5.2E+02	2.7E-04
880	1720284.000	15923365.000	4.4E+00	3.0E-01	1.2E+02	3.3E+02	2.7E-04
881	1722924.000	15923365.000	4.4E+00	3.0E-01	2.9E+01	3.6E+01	2.7E-04
882	1725564.000	15923365.000	4.4E+00	3.0E-01	3.6E+01	3.4E+01	2.7E-04
883	1728204.000	15923365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
884	1730844.000	15923365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
885	1733484.000	15923365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
886	1736124.000	15923365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
887	1738764.000	15923365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
888	1741404.000	15923365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
889	1744044.000	15923365.000	4.4E+00	3.0E-01	3.6E+01	3.1E+01	2.7E-04
890	1746684.000	15923365.000	4.4E+00	3.0E-01	5.0E+01	2.0E+01	2.7E-04
891	1749324.000	15923365.000	4.4E+00	3.0E-01	6.6E+01	3.0E+01	2.7E-04
892	1751964.000	15923365.000	4.4E+00	3.0E-01	9.6E+01	2.7E+02	2.7E-04
893	1754604.000	15923365.000	4.4E+00	3.0E-01	7.9E+01	3.4E+02	2.7E-04
894	1757244.000	15923365.000	4.4E+00	3.0E-01	5.1E+02	6.3E+02	2.7E-04
895	1759884.000	16923365.000	4.4E+00	3.0E-01	5.7E+02	1.0E+03	2.7E-04
896	1762524.000	15923365.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	2.7E-04
897	1765164.000	15923365.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	3.0E-04
898	1767804.000	15923365.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	1.7E-03
899	1770444.000	15923365.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	4.6E-03
900	1773084.000	15923365.000	4.4E+00	3.0E-01	7.4E+02	1.5E+03	3.0E+01
901	1775724.000	15923365.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.2E+02
902	1778364.000	15923365.000	4.4E+00	3.0E-01	5.0E+02	9.2E+02	3.9E+02
903	1781004.000	15923365.000	4.5E+00	3.2E-01	1.0E+02	4.2E+02	2.3E+01
904	1783644.000	15923365.000	9.2E-02	2.9E-01	9.3E+01	5.8E+01	5.4E-03
905	1786284.000	15923365.000	4.0E-02	1.0E-01	1.6E+00	2.8E+00	1.2E-03
906	1788924.000	15923365.000	3.2E-01	4.6E-01	8.4E-02	3.4E-01	3.3E-02
907	1791564.000	15923365.000	1.4E-01	1.7E-01	1.1E-01	1.5E-01	1.2E-01
908	1794204.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
909	1796844.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
910	1799484.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
911	1802124.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
912	1804764.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
913	1807404.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
914	1810044.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
915	1812684.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
916	1815324.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
917	1817964.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
918	1820604.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
919	1823244.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
920	1825884.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
921	1828524.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
922	1831164.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
923	1833804.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
924	1836444.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
925	1839084.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
926	1841724.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
927	1844364.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
928	1847004.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
929	1849644.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
930	1852282.000	15923365.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
931	1691242.000	15920725.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
932	1693884.000	15920725.000	4.4E+00	3.0E-01	6.7E+01	2.6E+01	2.7E-04
933	1696524.000	15920725.000	4.4E+00	3.0E-01	7.2E+01	7.8E+01	2.7E-04
934	1699164.000	15920725.000	4.4E+00	3.0E-01	1.9E+02	4.5E+02	2.7E-04
935	1701804.000	15920725.000	4.4E+00	3.0E-01	2.0E+02	5.2E+02	2.7E-04
936	1704444.000	15920725.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
937	1707084.000	15920725.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
938	1709724.000	15920725.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
939	1712364.000	15920725.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
940	1715004.000	15920725.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
941	1717644.000	15920725.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
942	1720284.000	15920725.000	4.4E+00	3.0E-01	1.9E+02	4.7E+02	2.7E-04
943	1722924.000	15920725.000	4.4E+00	3.0E-01	7.9E+01	2.3E+02	2.7E-04
944	1725564.000	15920725.000	4.4E+00	3.0E-01	5.8E+01	2.5E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_z K_y (ft/d)
945	1728204.000	15920725.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
946	1730844.000	15920725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
947	1733484.000	15920725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
948	1736124.000	15920725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
949	1738764.000	15920725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
950	1741404.000	15920725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
951	1744044.000	15920725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
952	1746684.000	15920725.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
953	1749324.000	15920725.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
954	1751964.000	15920725.000	4.4E+00	3.0E-01	4.7E+01	1.9E+01	2.7E-04
955	1754604.000	15920725.000	4.4E+00	3.0E-01	6.0E+01	2.8E+01	2.7E-04
956	1757244.000	15920725.000	4.4E+00	3.0E-01	1.1E+02	2.6E+02	2.7E-04
957	1759884.000	15920725.000	4.4E+00	3.0E-01	7.3E+01	3.4E+02	2.7E-04
958	1762524.000	15920725.000	4.4E+00	3.0E-01	5.6E+02	7.0E+02	2.7E-04
959	1765164.000	15920725.000	4.4E+00	3.0E-01	7.4E+02	1.3E+03	2.7E-04
960	1767804.000	15920725.000	4.4E+00	3.0E-01	7.4E+02	1.4E+03	2.3E-04
961	1770444.000	15920725.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.7E-04
962	1773084.000	15920725.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	2.7E-03
963	1775724.000	15920725.000	4.4E+00	3.0E-01	7.4E+02	1.4E+03	3.5E+01
964	1778364.000	15920725.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.1E+02
965	1781004.000	15920725.000	4.4E+00	3.0E-01	5.1E+02	9.4E+02	3.8E+02
966	1783644.000	15920725.000	4.6E+00	3.2E-01	9.7E+01	4.1E+02	2.4E+01
967	1786284.000	15920725.000	9.6E-02	2.9E-01	6.5E+01	6.2E+01	4.6E-03
968	1788924.000	15920725.000	4.1E-02	1.0E-01	1.6E+00	2.8E+00	1.2E-03
969	1791564.000	15920725.000	3.2E-01	4.5E-01	8.2E-02	3.3E-01	3.4E-02
970	1794204.000	15920725.000	1.4E-01	1.6E-01	1.1E-01	1.6E-01	1.2E-01
971	1796844.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
972	1799484.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
973	1802124.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
974	1804764.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
975	1807404.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
976	1810044.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
977	1812684.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
978	1815324.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
979	1817964.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
980	1820604.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
981	1823244.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
982	1825884.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
983	1828524.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
984	1831164.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
985	1833804.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
986	1836444.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
987	1839084.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
988	1841724.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
989	1844364.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
990	1847004.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
991	1849644.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
992	1852282.000	15920725.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
993	1691242.000	15918085.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
994	1693884.000	15918085.000	4.4E+00	3.0E-01	3.7E+01	3.4E+01	2.7E-04
995	1696524.000	15918085.000	4.4E+00	3.0E-01	8.8E+01	3.3E+01	2.7E-04
996	1699164.000	15918085.000	4.4E+00	3.0E-01	8.3E+01	2.5E+02	2.7E-04
997	1701804.000	15918085.000	4.4E+00	3.0E-01	1.8E+02	4.5E+02	2.7E-04
998	1704444.000	15918085.000	4.4E+00	3.0E-01	2.0E+02	5.1E+02	2.7E-04
999	1707084.000	15918085.000	4.4E+00	3.0E-01	2.0E+02	5.2E+02	2.7E-04
1000	1709724.000	15918085.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1001	1712364.000	15918085.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1002	1715004.000	15918085.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1003	1717644.000	15918085.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1004	1720284.000	15918085.000	4.4E+00	3.0E-01	2.1E+02	5.2E+02	2.7E-04
1005	1722924.000	15918085.000	4.4E+00	3.0E-01	1.2E+02	3.3E+02	2.7E-04
1006	1725564.000	15918085.000	4.4E+00	3.0E-01	8.6E+01	3.5E+01	2.7E-04
1007	1728204.000	15918085.000	4.4E+00	3.0E-01	3.6E+01	3.4E+01	2.7E-04
1008	1730844.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1009	1733484.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1010	1736124.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1011	1738764.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1012	1741404.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
1013	1744044.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1014	1746684.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1015	1749324.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1016	1751964.000	15918085.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
1017	1754604.000	15918085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1018	1757244.000	15918085.000	4.4E+00	3.0E-01	4.6E+01	1.8E+01	2.7E-04
1019	1759884.000	15918085.000	4.4E+00	3.0E-01	5.4E+01	2.6E+01	2.7E-04
1020	1762524.000	15918085.000	4.4E+00	3.0E-01	1.4E+02	2.7E+02	2.7E-04
1021	1765164.000	15918085.000	4.4E+00	3.0E-01	4.6E+02	5.4E+02	2.7E-04
1022	1767804.000	15918085.000	4.4E+00	3.0E-01	4.8E+02	7.4E+02	2.7E-04
1023	1770444.000	15918085.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.7E-04
1024	1773084.000	15918085.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.7E-04
1025	1775724.000	15918085.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	2.3E-03
1026	1778364.000	15918085.000	4.4E+00	3.0E-01	7.4E+02	1.4E+03	4.1E+01
1027	1781004.000	15918085.000	4.4E+00	3.0E-01	7.0E+02	1.4E+03	4.1E+02
1028	1783644.000	15918085.000	4.4E+00	3.1E-01	6.2E+02	1.1E+03	3.8E+02
1029	1786284.000	15918085.000	4.6E+00	3.3E-01	6.1E+02	5.9E+02	2.6E+01
1030	1788924.000	15918085.000	9.6E-02	2.9E-01	7.8E+01	7.0E+01	4.2E-03
1031	1791564.000	15918085.000	4.2E-02	1.1E-01	1.5E+00	2.8E+00	1.2E-03
1032	1794204.000	15918085.000	3.1E-01	4.5E-01	8.1E-02	3.3E-01	3.5E-02
1033	1796844.000	15918085.000	1.4E-01	1.6E-01	1.1E-01	1.4E-01	1.2E-01
1034	1799484.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1035	1802124.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1036	1804764.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1037	1807404.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1038	1810044.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1039	1812684.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1040	1815324.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1041	1817964.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1042	1820604.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1043	1823244.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1044	1825884.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1045	1828524.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1046	1831164.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1047	1833804.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1048	1836444.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1049	1839084.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1050	1841724.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1051	1844364.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1052	1847004.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1053	1849644.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1054	1852282.000	15918085.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1055	1691242.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
1056	1693884.000	15915445.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
1057	1696524.000	15915445.000	4.4E+00	3.0E-01	3.6E+01	3.4E+01	2.7E-04
1058	1699164.000	15915445.000	4.4E+00	3.0E-01	8.6E+01	3.2E+01	2.7E-04
1059	1701804.000	15915445.000	4.4E+00	3.0E-01	7.6E+01	8.2E+01	2.7E-04
1060	1704444.000	15915445.000	4.4E+00	3.0E-01	1.5E+02	3.8E+02	2.7E-04
1061	1707084.000	15915445.000	4.4E+00	3.0E-01	1.8E+02	4.6E+02	2.7E-04
1062	1709724.000	15915445.000	4.4E+00	3.0E-01	2.0E+02	5.2E+02	2.7E-04
1063	1712364.000	15915445.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1064	1715004.000	15915445.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1065	1717644.000	15915445.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1066	1720284.000	15915445.000	4.4E+00	3.0E-01	1.9E+02	5.3E+02	2.7E-04
1067	1722924.000	15915445.000	4.4E+00	3.0E-01	1.5E+02	4.8E+02	2.7E-04
1068	1725564.000	15915445.000	4.4E+00	3.0E-01	7.6E+01	2.6E+02	2.7E-04
1069	1728204.000	15915445.000	4.4E+00	3.0E-01	7.1E+01	2.9E+01	2.7E-04
1070	1730844.000	15915445.000	4.4E+00	3.0E-01	3.7E+01	3.3E+01	2.7E-04
1071	1733484.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1072	1736124.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1073	1738764.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1074	1741404.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1075	1744044.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1076	1746684.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1077	1749324.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1078	1751964.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1079	1754604.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1080	1757244.000	15915445.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
1081	1759884.000	15915445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1082	1762524.000	15915445.000	4.4E+00	3.0E-01	4.5E+01	3.5E+01	2.7E-04
1083	1765164.000	15915445.000	4.4E+00	3.0E-01	5.2E+01	2.7E+01	2.7E-04
1084	1767804.000	15915445.000	4.4E+00	3.0E-01	6.1E+01	3.9E+01	2.7E-04
1085	1770444.000	15915445.000	4.4E+00	3.0E-01	4.5E+02	6.3E+02	2.7E-04
1086	1773084.000	15915445.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.5E-04
1087	1775724.000	15915445.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.7E-04
1088	1778364.000	15915445.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	2.0E-03
1089	1781004.000	15915445.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	4.7E+01
1090	1783644.000	15915445.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	4.0E+02
1091	1786284.000	15915445.000	4.4E+00	3.1E-01	7.7E+02	1.3E+03	3.8E+02
1092	1788924.000	15915445.000	4.6E+00	3.2E-01	6.3E+02	6.1E+02	2.4E+01
1093	1791564.000	15915445.000	9.6E-02	3.0E-01	8.0E+01	7.0E+01	1.2E-03
1094	1794204.000	15915445.000	4.2E-02	1.1E-01	1.5E+00	2.7E+00	9.5E-04
1095	1796844.000	15915445.000	3.1E-01	4.5E-01	8.0E-02	3.3E-01	3.5E-02
1096	1799484.000	15915445.000	1.4E-01	1.7E-01	1.1E-01	1.6E-01	1.2E-01
1097	1802124.000	15915445.000	1.3E-01	1.4E-01	1.3E-01	1.4E-01	1.3E-01
1098	1804764.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1099	1807404.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1100	1810044.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1101	1812684.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1102	1815324.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1103	1817964.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1104	1820604.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1105	1823244.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1106	1825884.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1107	1828524.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1108	1831164.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1109	1833804.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1110	1836444.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1111	1839084.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1112	1841724.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1113	1844364.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1114	1847004.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1115	1849644.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1116	1852282.000	15915445.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1117	1691242.000	15912805.000	4.4E+00	3.0E-01	4.1E+01	2.6E+01	2.7E-04
1118	1693884.000	15912805.000	4.4E+00	3.0E-01	4.4E+01	1.9E+01	2.7E-04
1119	1696524.000	15912805.000	4.4E+00	3.0E-01	3.7E+01	3.1E+01	2.7E-04
1120	1699164.000	15912805.000	4.4E+00	3.0E-01	3.6E+01	3.2E+01	2.7E-04
1121	1701804.000	15912805.000	4.4E+00	3.0E-01	4.6E+01	2.1E+01	2.7E-04
1122	1704444.000	15912805.000	4.4E+00	3.0E-01	3.0E+01	3.7E+01	2.7E-04
1123	1707084.000	15912805.000	4.4E+00	3.0E-01	8.5E+01	2.6E+02	2.7E-04
1124	1709724.000	15912805.000	4.4E+00	3.0E-01	1.9E+02	4.7E+02	2.7E-04
1125	1712364.000	15912805.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1126	1715004.000	15912805.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1127	1717644.000	15912805.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1128	1720284.000	15912805.000	4.4E+00	3.0E-01	1.2E+02	5.0E+02	2.7E-04
1129	1722924.000	15912805.000	4.4E+00	3.0E-01	5.3E+01	3.6E+02	2.7E-04
1130	1725564.000	15912805.000	4.4E+00	3.0E-01	6.7E+01	2.6E+02	2.7E-04
1131	1728204.000	15912805.000	4.4E+00	3.0E-01	9.0E+01	2.6E+02	2.7E-04
1132	1730844.000	15912805.000	4.4E+00	3.0E-01	8.1E+01	3.8E+01	2.7E-04
1133	1733484.000	15912805.000	4.4E+00	3.0E-01	4.4E+01	2.4E+01	2.7E-04
1134	1736124.000	15912805.000	4.4E+00	3.0E-01	4.5E+01	2.0E+01	2.7E-04
1135	1738764.000	15912805.000	4.4E+00	3.0E-01	3.7E+01	3.2E+01	2.7E-04
1136	1741404.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1137	1744044.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1138	1746684.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1139	1749324.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1140	1751964.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1141	1754604.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1142	1757244.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1143	1759884.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1144	1762524.000	15912805.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
1145	1765164.000	15912805.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
1146	1767804.000	15912805.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1147	1770444.000	15912805.000	4.4E+00	3.0E-01	5.1E+01	2.9E+01	2.7E-04
1148	1773084.000	15912805.000	4.4E+00	3.0E-01	4.9E+02	7.0E+02	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
1149	1775724.000	15912805.000	4.4E+00	3.0E-01	5.4E+02	8.2E+02	2.5E-04
1150	1778364.000	15912805.000	4.4E+00	3.0E-01	5.4E+02	8.4E+02	2.8E-04
1151	1781004.000	15912805.000	4.4E+00	3.0E-01	7.1E+02	1.3E+03	1.8E-03
1152	1783644.000	15912805.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	4.7E+01
1153	1786284.000	15912805.000	4.4E+00	3.0E-01	7.3E+02	1.5E+03	1.4E+02
1154	1788924.000	15912805.000	4.4E+00	3.1E-01	7.7E+02	1.3E+03	3.0E+01
1155	1791564.000	15912805.000	4.6E+00	3.2E-01	6.3E+02	6.2E+02	1.1E-03
1156	1794204.000	15912805.000	9.7E-02	3.0E-01	8.1E+01	7.0E+01	2.7E-04
1157	1796844.000	15912805.000	4.2E-02	1.1E-01	1.6E+00	2.9E+00	9.7E-04
1158	1799484.000	15912805.000	3.3E-01	5.2E-01	1.1E-01	4.2E-01	3.1E-02
1159	1802124.000	15912805.000	1.9E-01	2.4E-01	6.8E-02	2.1E-01	7.6E-02
1160	1804764.000	15912805.000	1.4E-01	1.6E-01	1.4E-01	1.6E-01	1.2E-01
1161	1807404.000	15912805.000	1.3E-01	1.4E-01	1.4E-01	1.4E-01	1.3E-01
1162	1810044.000	15912805.000	1.3E-01	1.4E-01	1.4E-01	1.4E-01	1.3E-01
1163	1812684.000	15912805.000	1.3E-01	1.4E-01	1.4E-01	1.4E-01	1.3E-01
1164	1815324.000	15912805.000	1.3E-01	1.4E-01	1.4E-01	1.4E-01	1.3E-01
1165	1817964.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1166	1820604.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1167	1823244.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1168	1825884.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1169	1828524.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1170	1831164.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1171	1833804.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1172	1836444.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1173	1839084.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1174	1841724.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1175	1844364.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1176	1847004.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1177	1849644.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1178	1852282.000	15912805.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1179	1691242.000	15910165.000	4.4E+00	3.1E-01	8.0E+01	2.4E+02	2.7E-04
1180	1693884.000	15910165.000	4.4E+00	3.0E-01	4.7E+01	5.5E+01	2.7E-04
1181	1696524.000	15910165.000	4.4E+00	3.0E-01	6.7E+01	2.3E+01	2.7E-04
1182	1699164.000	15910165.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.7E-04
1183	1701804.000	15910165.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.7E-04
1184	1704444.000	15910165.000	4.4E+00	3.0E-01	3.4E+01	3.3E+01	2.7E-04
1185	1707084.000	15910165.000	4.4E+00	3.0E-01	8.9E+01	3.5E+01	2.7E-04
1186	1709724.000	15910165.000	4.4E+00	3.0E-01	1.1E+02	3.0E+02	2.7E-04
1187	1712364.000	15910165.000	4.4E+00	3.0E-01	2.1E+02	5.1E+02	2.7E-04
1188	1715004.000	15910165.000	4.4E+00	3.0E-01	2.0E+02	5.3E+02	2.7E-04
1189	1717644.000	15910165.000	4.4E+00	3.0E-01	1.9E+02	5.3E+02	2.7E-04
1190	1720284.000	15910165.000	4.4E+00	3.0E-01	9.6E+01	5.0E+02	2.7E-04
1191	1722924.000	15910165.000	4.4E+00	3.0E-01	6.1E+01	5.5E+02	2.7E-04
1192	1725564.000	15910165.000	4.4E+00	3.0E-01	2.8E+02	4.4E+02	2.7E-04
1193	1728204.000	15910165.000	4.4E+00	3.0E-01	6.7E+02	6.8E+02	2.7E-04
1194	1730844.000	15910165.000	4.4E+00	3.0E-01	3.7E+02	4.2E+02	2.7E-04
1195	1733484.000	15910165.000	4.4E+00	3.0E-01	8.3E+01	3.0E+02	2.7E-04
1196	1736124.000	15910165.000	4.4E+00	3.0E-01	7.4E+01	6.8E+01	2.7E-04
1197	1738764.000	15910165.000	4.4E+00	3.0E-01	6.5E+01	2.3E+01	2.7E-04
1198	1741404.000	15910165.000	4.4E+00	3.0E-01	3.6E+01	3.1E+01	2.7E-04
1199	1744044.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1200	1746684.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1201	1749324.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1202	1751964.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1203	1754604.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1204	1757244.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1205	1759884.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1206	1762524.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1207	1765164.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1208	1767804.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1209	1770444.000	15910165.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1210	1773084.000	15910165.000	4.4E+00	3.0E-01	4.4E+01	2.2E+01	2.7E-04
1211	1775724.000	15910165.000	4.4E+00	3.0E-01	4.4E+01	2.3E+01	2.7E-04
1212	1778364.000	15910165.000	4.4E+00	3.0E-01	5.3E+01	3.2E+01	2.5E-04
1213	1781004.000	15910165.000	4.4E+00	3.0E-01	5.9E+02	9.7E+02	3.0E-04
1214	1783644.000	15910165.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	7.3E-04
1215	1786284.000	15910165.000	4.4E+00	3.0E-01	7.2E+02	1.4E+03	8.8E-04
1216	1788924.000	15910165.000	4.4E+00	3.0E-01	7.3E+02	1.4E+03	6.9E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
1217	1791564.000	15910165.000	4.4E+00	3.1E-01	7.7E+02	1.3E+03	3.0E-04
1218	1794204.000	15910165.000	4.6E+00	3.2E-01	6.2E+02	6.1E+02	2.6E-04
1219	1796844.000	15910165.000	9.3E-02	3.0E-01	1.0E+02	2.5E+02	3.0E-04
1220	1799484.000	15910165.000	7.1E-02	2.0E-01	2.8E+01	2.8E+01	4.4E-04
1221	1802124.000	15910165.000	3.9E-02	9.2E-02	2.2E-01	2.2E+00	1.1E-03
1222	1804764.000	15910165.000	3.5E-01	5.5E-01	1.2E-01	4.5E-01	2.9E-02
1223	1807404.000	15910165.000	1.9E-01	2.8E-01	8.7E-02	2.6E-01	7.1E-02
1224	1810044.000	15910165.000	2.0E-01	2.7E-01	9.7E-02	2.4E-01	6.7E-02
1225	1812684.000	15910165.000	2.0E-01	2.7E-01	9.1E-02	2.3E-01	6.6E-02
1226	1815324.000	15910165.000	1.8E-01	2.2E-01	7.6E-02	1.9E-01	7.7E-02
1227	1817964.000	15910165.000	1.4E-01	1.6E-01	1.3E-01	1.5E-01	1.1E-01
1228	1820604.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1229	1823244.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1230	1825884.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1231	1828524.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1232	1831164.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1233	1833804.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1234	1836444.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1235	1839084.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1236	1841724.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1237	1844364.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1238	1847004.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1239	1849644.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1240	1852282.000	15910165.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1241	1691242.000	15907525.000	4.3E+00	3.4E-01	5.7E+01	4.6E+02	2.7E-04
1242	1693884.000	15907525.000	4.3E+00	3.2E-01	6.6E+01	2.5E+02	2.7E-04
1243	1696524.000	15907525.000	4.4E+00	3.1E-01	5.1E+01	3.2E+01	2.7E-04
1244	1699164.000	15907525.000	4.4E+00	3.0E-01	3.7E+01	3.3E+01	2.7E-04
1245	1701804.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	2.9E+01	2.7E-04
1246	1704444.000	15907525.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
1247	1707084.000	15907525.000	4.4E+00	3.0E-01	6.5E+01	2.6E+01	2.7E-04
1248	1709724.000	15907525.000	4.4E+00	3.0E-01	7.3E+01	7.7E+01	2.7E-04
1249	1712364.000	15907525.000	4.4E+00	3.0E-01	1.6E+02	4.0E+02	2.7E-04
1250	1715004.000	15907525.000	4.4E+00	3.0E-01	1.8E+02	4.8E+02	2.7E-04
1251	1717644.000	15907525.000	4.4E+00	3.0E-01	1.0E+02	5.0E+02	2.7E-04
1252	1720284.000	15907525.000	4.4E+00	3.0E-01	4.9E+01	4.1E+02	2.7E-04
1253	1722924.000	15907525.000	4.4E+00	3.0E-01	6.7E+01	5.2E+02	2.7E-04
1254	1725564.000	15907525.000	4.4E+00	3.0E-01	4.8E+02	7.3E+02	2.7E-04
1255	1728204.000	15907525.000	4.4E+00	3.0E-01	8.0E+02	1.2E+03	2.7E-04
1256	1730844.000	15907525.000	4.4E+00	3.0E-01	7.5E+02	1.2E+03	2.7E-04
1257	1733484.000	15907525.000	4.4E+00	3.0E-01	4.6E+02	6.8E+02	2.7E-04
1258	1736124.000	15907525.000	4.4E+00	3.0E-01	1.1E+02	4.0E+02	2.7E-04
1259	1738764.000	15907525.000	4.4E+00	3.0E-01	9.7E+01	2.3E+02	2.7E-04
1260	1741404.000	15907525.000	4.4E+00	3.0E-01	6.1E+01	2.6E+01	2.7E-04
1261	1744044.000	15907525.000	4.4E+00	3.0E-01	4.1E+01	3.6E+01	2.7E-04
1262	1746684.000	15907525.000	4.4E+00	3.0E-01	3.7E+01	3.2E+01	2.7E-04
1263	1749324.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1264	1751964.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1265	1754604.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1266	1757244.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1267	1759884.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1268	1762524.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1269	1765164.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1270	1767804.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1271	1770444.000	15907525.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1272	1773084.000	15907525.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
1273	1775724.000	15907525.000	4.4E+00	3.0E-01	3.3E+01	2.8E+01	2.7E-04
1274	1778364.000	15907525.000	4.4E+00	3.0E-01	4.1E+01	2.0E+01	2.7E-04
1275	1781004.000	15907525.000	4.4E+00	3.0E-01	4.9E+02	6.9E+02	2.6E-04
1276	1783644.000	15907525.000	4.4E+00	3.0E-01	5.9E+02	9.5E+02	2.4E-04
1277	1786284.000	15907525.000	4.4E+00	3.0E-01	5.8E+02	9.3E+02	2.4E-04
1278	1788924.000	15907525.000	4.4E+00	3.0E-01	5.9E+02	9.9E+02	2.5E-04
1279	1791564.000	15907525.000	4.4E+00	3.0E-01	7.1E+02	1.3E+03	2.7E-04
1280	1794204.000	15907525.000	4.4E+00	3.0E-01	7.5E+02	1.3E+03	2.7E-04
1281	1796844.000	15907525.000	4.5E+00	3.1E-01	7.0E+02	1.0E+03	2.7E-04
1282	1799484.000	15907525.000	4.7E+00	3.3E-01	5.1E+02	5.2E+02	2.4E-04
1283	1802124.000	15907525.000	9.3E-02	3.0E-01	9.7E+01	2.5E+02	3.0E-04
1284	1804764.000	15907525.000	6.9E-02	2.1E-01	3.9E+01	3.3E+01	4.6E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
1285	1807404.000	15907525.000	6.6E-02	1.8E-01	3.5E+00	1.9E+01	5.0E-04
1286	1810044.000	15907525.000	6.5E-02	1.8E-01	2.2E+00	8.3E+00	5.0E-04
1287	1812684.000	15907525.000	6.9E-02	1.7E-01	1.2E+00	2.6E+00	4.7E-04
1288	1815324.000	15907525.000	3.0E-02	2.2E+00	8.9E-02	1.1E+00	1.7E-03
1289	1817964.000	15907525.000	3.0E-01	3.8E-01	7.5E-02	2.7E-01	3.7E-02
1290	1820604.000	15907525.000	1.3E-01	1.5E-01	1.0E-01	1.4E-01	1.4E-01
1291	1823244.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1292	1825884.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1293	1828524.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1294	1831164.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1295	1833804.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1296	1836444.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1297	1839084.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1298	1841724.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1299	1844364.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1300	1847004.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1301	1849644.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1302	1852282.000	15907525.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1303	1691242.000	15904885.000	6.0E+00	4.6E-01	8.0E+01	5.6E+02	2.7E-04
1304	1693884.000	15904885.000	4.6E+00	3.5E-01	3.5E+01	3.9E+02	2.7E-04
1305	1696524.000	15904885.000	4.4E+00	3.1E-01	5.0E+01	6.3E+01	2.7E-04
1306	1699164.000	15904885.000	4.4E+00	3.0E-01	6.8E+01	2.3E+01	2.7E-04
1307	1701804.000	15904885.000	4.4E+00	3.0E-01	3.3E+01	3.0E+01	2.7E-04
1308	1704444.000	15904885.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
1309	1707084.000	15904885.000	4.4E+00	3.0E-01	3.6E+01	3.2E+01	2.7E-04
1310	1709724.000	15904885.000	4.4E+00	3.0E-01	4.3E+01	2.0E+01	2.7E-04
1311	1712364.000	15904885.000	4.4E+00	3.0E-01	3.0E+01	3.6E+01	2.7E-04
1312	1715004.000	15904885.000	4.4E+00	3.0E-01	9.0E+01	2.7E+02	2.7E-04
1313	1717644.000	15904885.000	4.4E+00	3.0E-01	5.5E+01	3.8E+02	2.7E-04
1314	1720284.000	15904885.000	4.4E+00	3.0E-01	9.2E+01	4.9E+02	2.7E-04
1315	1722924.000	15904885.000	4.4E+00	3.0E-01	4.0E+02	6.3E+02	2.7E-04
1316	1725564.000	15904885.000	4.4E+00	3.0E-01	7.3E+02	1.1E+03	2.7E-04
1317	1728204.000	15904885.000	4.4E+00	3.0E-01	7.4E+02	1.1E+03	2.7E-04
1318	1730844.000	15904885.000	4.4E+00	3.0E-01	7.3E+02	1.1E+03	2.7E-04
1319	1733484.000	15904885.000	4.4E+00	3.0E-01	7.3E+02	1.1E+03	2.7E-04
1320	1736124.000	15904885.000	4.4E+00	3.0E-01	6.5E+02	9.7E+02	2.7E-04
1321	1738764.000	15904885.000	4.4E+00	3.0E-01	4.7E+02	6.0E+02	2.7E-04
1322	1741404.000	15904885.000	4.4E+00	3.0E-01	8.8E+01	3.3E+02	2.7E-04
1323	1744044.000	15904885.000	4.4E+00	3.0E-01	9.9E+01	7.8E+01	2.7E-04
1324	1746684.000	15904885.000	4.4E+00	3.0E-01	6.2E+01	2.7E+01	2.7E-04
1325	1749324.000	15904885.000	4.4E+00	3.0E-01	4.3E+01	2.3E+01	2.7E-04
1326	1751964.000	15904885.000	4.4E+00	3.0E-01	4.3E+01	2.3E+01	2.7E-04
1327	1754604.000	15904885.000	4.4E+00	3.0E-01	4.3E+01	2.2E+01	2.7E-04
1328	1757244.000	15904885.000	4.4E+00	3.0E-01	4.2E+01	2.1E+01	2.7E-04
1329	1759884.000	15904885.000	4.4E+00	3.0E-01	4.1E+01	2.1E+01	2.7E-04
1330	1762524.000	15904885.000	4.4E+00	3.0E-01	4.0E+01	2.0E+01	2.7E-04
1331	1765164.000	15904885.000	4.4E+00	3.0E-01	3.9E+01	1.9E+01	2.7E-04
1332	1767804.000	15904885.000	4.4E+00	3.0E-01	3.8E+01	1.8E+01	2.7E-04
1333	1770444.000	15904885.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1334	1773084.000	15904885.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1335	1775724.000	15904885.000	4.4E+00	3.0E-01	3.6E+01	3.2E+01	2.7E-04
1336	1778364.000	15904885.000	4.4E+00	3.0E-01	3.8E+01	3.5E+01	2.8E-04
1337	1781004.000	15904885.000	4.4E+00	3.0E-01	4.2E+01	2.2E+01	2.8E-04
1338	1783644.000	15904885.000	4.4E+00	3.0E-01	4.1E+01	2.1E+01	2.8E-04
1339	1786284.000	15904885.000	4.4E+00	3.0E-01	4.1E+01	2.1E+01	2.7E-04
1340	1788924.000	15904885.000	4.4E+00	3.0E-01	5.7E+01	3.5E+01	2.7E-04
1341	1791564.000	15904885.000	4.4E+00	3.0E-01	4.2E+02	5.8E+02	2.7E-04
1342	1794204.000	15904885.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1343	1796844.000	15904885.000	4.4E+00	3.0E-01	7.5E+02	1.5E+03	2.7E-04
1344	1799484.000	15904885.000	4.4E+00	3.1E-01	7.7E+02	1.3E+03	2.7E-04
1345	1802124.000	15904885.000	4.5E+00	3.1E-01	7.1E+02	8.1E+02	2.7E-04
1346	1804764.000	15904885.000	4.6E+00	3.2E-01	4.2E+02	4.9E+02	2.5E-04
1347	1807404.000	15904885.000	4.7E+00	3.3E-01	8.0E+01	2.3E+02	2.5E-04
1348	1810044.000	15904885.000	4.7E+00	3.4E-01	7.2E+01	6.1E+01	2.5E-04
1349	1812684.000	15904885.000	5.2E+00	3.3E-01	3.7E+01	3.2E+01	2.1E-04
1350	1815324.000	15904885.000	4.7E-02	1.3E-01	2.1E-01	2.4E+00	8.2E-04
1351	1817964.000	15904885.000	3.9E-01	5.9E-01	9.3E-02	4.1E-01	2.5E-02
1352	1820604.000	15904885.000	1.3E-01	1.7E-01	1.1E-01	1.6E-01	1.2E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
1353	1823244.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1354	1825884.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1355	1828524.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1356	1831164.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1357	1833804.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1358	1836444.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1359	1839084.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1360	1841724.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1361	1844364.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1362	1847004.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1363	1849644.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1364	1852282.000	15904885.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1365	1691242.000	15902245.000	2.3E+01	1.2E+00	6.9E+01	6.0E+02	2.7E-04
1366	1693884.000	15902245.000	8.2E+00	6.4E-01	4.0E+01	5.1E+02	2.7E-04
1367	1696524.000	15902245.000	4.5E+00	3.6E-01	7.3E+01	2.7E+02	2.7E-04
1368	1699164.000	15902245.000	4.4E+00	3.1E-01	4.4E+01	3.5E+01	2.7E-04
1369	1701804.000	15902245.000	4.4E+00	3.0E-01	3.4E+01	3.5E+01	2.7E-04
1370	1704444.000	15902245.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1371	1707084.000	15902245.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1372	1709724.000	15902245.000	4.4E+00	3.0E-01	3.2E+01	2.8E+01	2.7E-04
1373	1712364.000	15902245.000	4.4E+00	3.0E-01	6.5E+01	2.2E+01	2.7E-04
1374	1715004.000	15902245.000	4.4E+00	3.0E-01	8.5E+01	5.5E+01	2.7E-04
1375	1717644.000	15902245.000	4.4E+00	3.0E-01	8.8E+01	2.8E+02	2.7E-04
1376	1720284.000	15902245.000	4.4E+00	3.0E-01	3.2E+02	4.0E+02	2.7E-04
1377	1722924.000	15902245.000	4.4E+00	3.0E-01	6.6E+02	8.7E+02	2.7E-04
1378	1725564.000	15902245.000	4.4E+00	3.0E-01	7.1E+02	1.0E+03	2.7E-04
1379	1728204.000	15902245.000	4.4E+00	3.0E-01	7.2E+02	1.1E+03	2.7E-04
1380	1730844.000	15902245.000	4.4E+00	3.0E-01	7.2E+02	1.1E+03	2.7E-04
1381	1733484.000	15902245.000	4.4E+00	3.0E-01	7.3E+02	1.1E+03	2.7E-04
1382	1736124.000	15902245.000	4.4E+00	3.0E-01	7.4E+02	1.1E+03	2.7E-04
1383	1738764.000	15902245.000	4.4E+00	3.0E-01	7.4E+02	1.1E+03	2.7E-04
1384	1741404.000	15902245.000	4.4E+00	3.0E-01	6.7E+02	1.1E+03	2.7E-04
1385	1744044.000	15902245.000	4.4E+00	3.0E-01	6.8E+02	9.9E+02	2.7E-04
1386	1746684.000	15902245.000	4.4E+00	3.0E-01	6.3E+02	9.2E+02	2.7E-04
1387	1749324.000	15902245.000	4.4E+00	3.0E-01	5.9E+02	9.2E+02	2.7E-04
1388	1751964.000	15902245.000	4.4E+00	3.0E-01	6.1E+02	9.6E+02	2.7E-04
1389	1754604.000	15902245.000	4.4E+00	3.0E-01	6.3E+02	9.9E+02	2.7E-04
1390	1757244.000	15902245.000	4.4E+00	3.0E-01	6.4E+02	1.0E+03	2.7E-04
1391	1759884.000	15902245.000	4.4E+00	3.0E-01	6.5E+02	1.1E+03	2.7E-04
1392	1762524.000	15902245.000	4.4E+00	3.0E-01	6.6E+02	1.1E+03	2.7E-04
1393	1765164.000	15902245.000	4.4E+00	3.0E-01	6.8E+02	1.1E+03	2.8E-04
1394	1767804.000	15902245.000	4.4E+00	3.0E-01	6.1E+02	9.4E+02	3.1E-04
1395	1770444.000	15902245.000	4.4E+00	3.0E-01	3.6E+01	3.2E+01	2.9E-04
1396	1773084.000	15902245.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.9E-04
1397	1775724.000	15902245.000	4.4E+00	3.0E-01	7.0E+01	4.9E+01	3.2E-04
1398	1778364.000	15902245.000	4.4E+00	3.0E-01	7.2E+01	5.2E+01	3.5E-04
1399	1781004.000	15902245.000	4.4E+00	3.0E-01	6.5E+01	4.3E+01	3.8E-04
1400	1783644.000	15902245.000	4.4E+00	3.0E-01	4.0E+01	2.0E+01	3.7E-04
1401	1786284.000	15902245.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.8E-04
1402	1788924.000	15902245.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
1403	1791564.000	15902245.000	4.4E+00	3.0E-01	6.1E+01	3.8E+01	2.7E-04
1404	1794204.000	15902245.000	4.4E+00	3.0E-01	4.7E+02	6.8E+02	2.7E-04
1405	1796844.000	15902245.000	4.4E+00	3.0E-01	7.1E+02	1.3E+03	2.7E-04
1406	1799484.000	15902245.000	4.4E+00	3.0E-01	6.6E+02	1.2E+03	2.7E-04
1407	1802124.000	15902245.000	4.4E+00	3.0E-01	6.9E+02	1.1E+03	2.7E-04
1408	1804764.000	15902245.000	4.4E+00	3.0E-01	4.2E+02	6.4E+02	2.7E-04
1409	1807404.000	15902245.000	4.4E+00	3.0E-01	8.6E+01	3.1E+02	2.7E-04
1410	1810044.000	15902245.000	4.4E+00	3.1E-01	8.5E+01	6.2E+01	2.7E-04
1411	1812684.000	15902245.000	4.5E+00	3.2E-01	6.3E+01	2.1E+01	2.6E-04
1412	1815324.000	15902245.000	9.6E-02	2.8E-01	3.5E+00	1.9E+01	2.8E-04
1413	1817964.000	15902245.000	3.5E-02	9.5E-02	1.8E-01	2.1E+00	1.3E-03
1414	1820604.000	15902245.000	4.2E-01	6.0E-01	1.4E-01	5.7E-01	2.2E-02
1415	1823244.000	15902245.000	1.6E-01	2.2E-01	7.4E-02	2.5E-01	9.1E-02
1416	1825884.000	15902245.000	1.4E-01	1.5E-01	1.5E-01	1.6E-01	1.2E-01
1417	1828524.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1418	1831164.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1419	1833804.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1420	1836444.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
1421	1839084.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1422	1841724.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1423	1844364.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1424	1847004.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1425	1849644.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1426	1852282.000	15902245.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1427	1691242.000	15899605.000	4.6E+01	2.6E+00	1.0E+02	5.8E+02	2.7E-04
1428	1693884.000	15899605.000	2.6E+01	1.5E+00	8.8E+01	5.7E+02	2.7E-04
1429	1696524.000	15899605.000	8.2E+00	6.4E-01	3.7E+01	4.8E+02	2.7E-04
1430	1699164.000	15899605.000	4.4E+00	3.6E-01	5.7E+01	2.5E+02	2.7E-04
1431	1701804.000	15899605.000	4.3E+00	3.1E-01	3.8E+01	3.4E+01	2.7E-04
1432	1704444.000	15899605.000	4.4E+00	3.1E-01	3.4E+01	3.5E+01	2.7E-04
1433	1707084.000	15899605.000	4.4E+00	3.0E-01	3.5E+01	2.9E+01	2.7E-04
1434	1709724.000	15899605.000	4.4E+00	3.0E-01	3.5E+01	2.9E+01	2.7E-04
1435	1712364.000	15899605.000	4.4E+00	3.0E-01	3.7E+01	3.1E+01	2.7E-04
1436	1715004.000	15899605.000	4.4E+00	3.0E-01	4.1E+01	1.8E+01	2.7E-04
1437	1717644.000	15899605.000	4.4E+00	3.0E-01	8.0E+01	3.1E+01	2.7E-04
1438	1720284.000	15899605.000	4.4E+00	3.0E-01	7.0E+01	8.0E+01	2.7E-04
1439	1722924.000	15899605.000	4.4E+00	3.0E-01	1.1E+02	3.7E+02	2.7E-04
1440	1725564.000	15899605.000	4.4E+00	3.0E-01	4.3E+02	5.2E+02	2.7E-04
1441	1728204.000	15899605.000	4.4E+00	3.0E-01	6.8E+02	9.3E+02	2.7E-04
1442	1730844.000	15899605.000	4.4E+00	3.0E-01	7.0E+02	1.1E+03	2.7E-04
1443	1733484.000	15899605.000	4.4E+00	3.0E-01	7.4E+02	1.1E+03	2.7E-04
1444	1736124.000	15899605.000	4.4E+00	3.0E-01	7.3E+02	1.1E+03	2.7E-04
1445	1738764.000	15899605.000	4.4E+00	3.0E-01	7.3E+02	1.1E+03	2.7E-04
1446	1741404.000	15899605.000	4.4E+00	3.0E-01	7.2E+02	1.2E+03	2.7E-04
1447	1744044.000	15899605.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1448	1746684.000	15899605.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1449	1749324.000	15899605.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1450	1751964.000	15899605.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1451	1754604.000	15899605.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1452	1757244.000	15899605.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1453	1759884.000	15899605.000	4.4E+00	3.0E-01	7.4E+02	1.3E+03	2.7E-04
1454	1762524.000	15899605.000	4.4E+00	3.0E-01	6.6E+02	1.1E+03	2.7E-04
1455	1765164.000	15899605.000	4.4E+00	3.0E-01	5.5E+02	7.8E+02	4.8E-04
1456	1767804.000	15899605.000	4.4E+00	3.0E-01	4.1E+01	2.1E+01	2.1E+02
1457	1770444.000	15899605.000	4.4E+00	3.0E-01	3.6E+01	3.3E+01	3.3E+02
1458	1773084.000	15899605.000	4.4E+00	3.0E-01	7.0E+01	4.9E+01	3.3E+02
1459	1775724.000	15899605.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	3.1E+02
1460	1778364.000	15899605.000	4.4E+00	3.0E-01	7.5E+01	5.5E+01	2.9E+02
1461	1781004.000	15899605.000	4.4E+00	3.0E-01	7.4E+01	5.4E+01	2.9E+02
1462	1783644.000	15899605.000	4.4E+00	3.0E-01	7.1E+01	4.9E+01	1.2E+02
1463	1786284.000	15899605.000	4.4E+00	3.0E-01	6.2E+01	3.9E+01	1.3E-03
1464	1788924.000	15899605.000	4.4E+00	3.0E-01	4.1E+01	2.1E+01	2.7E-04
1465	1791564.000	15899605.000	4.4E+00	3.0E-01	5.0E+01	2.9E+01	2.7E-04
1466	1794204.000	15899605.000	4.4E+00	3.0E-01	3.9E+02	5.5E+02	2.7E-04
1467	1796844.000	15899605.000	4.4E+00	3.0E-01	5.3E+02	9.2E+02	2.7E-04
1468	1799484.000	15899605.000	4.4E+00	3.0E-01	9.7E+01	4.2E+02	2.7E-04
1469	1802124.000	15899605.000	4.4E+00	3.0E-01	1.0E+02	2.4E+02	2.7E-04
1470	1804764.000	15899605.000	4.4E+00	3.0E-01	6.9E+01	3.0E+01	2.7E-04
1471	1807404.000	15899605.000	4.4E+00	3.0E-01	4.1E+01	2.1E+01	2.7E-04
1472	1810044.000	15899605.000	4.4E+00	3.0E-01	4.1E+01	3.5E+01	2.7E-04
1473	1812684.000	15899605.000	4.4E+00	3.0E-01	3.6E+01	3.0E+01	2.7E-04
1474	1815324.000	15899605.000	4.4E+00	3.0E-01	3.1E+01	3.2E+01	2.7E-04
1475	1817964.000	15899605.000	8.8E-02	2.8E-01	5.6E+00	1.9E+01	3.2E-04
1476	1820604.000	15899605.000	7.8E-02	2.0E-01	4.5E+01	2.5E+01	3.9E-04
1477	1823244.000	15899605.000	2.7E-02	2.1E+00	5.6E+00	2.9E+01	1.9E-03
1478	1825884.000	15899605.000	3.0E-01	3.6E-01	9.7E-02	5.7E-01	3.7E-02
1479	1828524.000	15899605.000	1.2E-01	1.4E-01	9.5E-02	1.2E-01	1.5E-01
1480	1831164.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.2E-01	1.3E-01
1481	1833804.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1482	1836444.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1483	1839084.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1484	1841724.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1485	1844364.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1486	1847004.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1487	1849644.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1488	1852282.000	15899605.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
1489	1691242.000	15896965.000	4.7E+01	3.2E+00	1.2E+02	5.8E+02	2.7E-04
1490	1693884.000	15896965.000	4.5E+01	2.7E+00	1.0E+02	5.8E+02	2.7E-04
1491	1696524.000	15896965.000	2.5E+01	1.5E+00	8.6E+01	5.7E+02	2.7E-04
1492	1699164.000	15896965.000	8.2E+00	6.5E-01	3.7E+01	4.8E+02	2.7E-04
1493	1701804.000	15896965.000	4.4E+00	3.6E-01	5.7E+01	2.5E+02	2.7E-04
1494	1704444.000	15896965.000	4.3E+00	3.1E-01	3.8E+01	3.4E+01	2.7E-04
1495	1707084.000	15896965.000	4.4E+00	3.1E-01	3.4E+01	3.5E+01	2.7E-04
1496	1709724.000	15896965.000	4.4E+00	3.1E-01	3.5E+01	2.9E+01	2.7E-04
1497	1712364.000	15896965.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1498	1715004.000	15896965.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1499	1717644.000	15896965.000	4.4E+00	3.0E-01	3.7E+01	3.2E+01	2.7E-04
1500	1720284.000	15896965.000	4.4E+00	3.0E-01	4.2E+01	1.9E+01	2.7E-04
1501	1722924.000	15896965.000	4.4E+00	3.0E-01	7.8E+01	3.1E+01	2.7E-04
1502	1725564.000	15896965.000	4.4E+00	3.0E-01	7.4E+01	2.3E+02	2.7E-04
1503	1728204.000	15896965.000	4.4E+00	3.0E-01	1.0E+02	3.6E+02	2.7E-04
1504	1730844.000	15896965.000	4.4E+00	3.0E-01	4.4E+02	5.3E+02	2.7E-04
1505	1733484.000	15896965.000	4.4E+00	3.0E-01	7.6E+02	1.0E+03	2.7E-04
1506	1736124.000	15896965.000	4.4E+00	3.0E-01	7.4E+02	1.2E+03	2.7E-04
1507	1738764.000	15896965.000	4.4E+00	3.0E-01	7.2E+02	1.2E+03	2.7E-04
1508	1741404.000	15896965.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1509	1744044.000	15896965.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1510	1746684.000	15896965.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1511	1749324.000	15896965.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1512	1751964.000	15896965.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1513	1754604.000	15896965.000	4.4E+00	3.0E-01	7.3E+02	1.3E+03	2.7E-04
1514	1757244.000	15896965.000	4.4E+00	3.0E-01	7.4E+02	1.3E+03	2.7E-04
1515	1759884.000	15896965.000	4.4E+00	3.0E-01	4.8E+02	6.5E+02	2.7E-04
1516	1762524.000	15896965.000	4.4E+00	3.0E-01	5.0E+01	2.9E+01	2.7E-04
1517	1765164.000	15896965.000	4.4E+00	3.0E-01	4.3E+01	2.3E+01	5.2E-04
1518	1767804.000	15896965.000	4.4E+00	3.0E-01	4.0E+01	2.0E+01	2.8E+02
1519	1770444.000	15896965.000	4.4E+00	3.0E-01	6.7E+01	4.5E+01	4.9E+02
1520	1773084.000	15896965.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.3E+02
1521	1775724.000	15896965.000	4.4E+00	3.0E-01	7.3E+01	5.4E+01	4.3E+02
1522	1778364.000	15896965.000	4.4E+00	3.0E-01	6.8E+01	5.0E+01	4.3E+02
1523	1781004.000	15896965.000	4.4E+00	3.0E-01	6.6E+01	4.9E+01	4.3E+02
1524	1783644.000	15896965.000	4.4E+00	3.0E-01	6.8E+01	5.0E+01	4.4E+02
1525	1786284.000	15896965.000	4.4E+00	3.0E-01	7.4E+01	5.3E+01	6.2E+01
1526	1788924.000	15896965.000	4.4E+00	3.0E-01	6.0E+01	3.7E+01	8.4E-04
1527	1791564.000	15896965.000	4.4E+00	3.0E-01	4.6E+01	2.8E+01	2.4E-04
1528	1794204.000	15896965.000	4.4E+00	3.0E-01	5.2E+01	7.7E+01	2.7E-04
1529	1796844.000	15896965.000	4.4E+00	3.0E-01	7.1E+01	7.2E+01	2.7E-04
1530	1799484.000	15896965.000	4.4E+00	3.0E-01	9.3E+01	6.9E+01	2.7E-04
1531	1802124.000	15896965.000	4.4E+00	3.0E-01	6.2E+01	2.2E+01	2.7E-04
1532	1804764.000	15896965.000	4.4E+00	3.0E-01	3.6E+01	3.1E+01	2.7E-04
1533	1807404.000	15896965.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1534	1810044.000	15896965.000	4.4E+00	3.0E-01	3.4E+01	2.9E+01	2.7E-04
1535	1812684.000	15896965.000	4.4E+00	3.0E-01	3.8E+01	3.2E+01	2.7E-04
1536	1815324.000	15896965.000	4.4E+00	3.0E-01	4.4E+01	2.4E+01	2.7E-04
1537	1817964.000	15896965.000	4.4E+00	3.1E-01	6.7E+01	3.1E+01	2.8E-04
1538	1820604.000	15896965.000	4.7E+00	2.8E-01	3.8E+01	4.3E+01	2.5E-04
1539	1823244.000	15896965.000	4.2E-02	1.2E-01	3.3E+01	1.4E+01	9.7E-04
1540	1825884.000	15896965.000	4.5E-01	6.3E-01	1.4E+00	1.8E-01	2.0E-02
1541	1828524.000	15896965.000	1.3E-01	1.7E-01	1.5E-01	8.9E-02	1.3E-01
1542	1831164.000	15896965.000	1.3E-01	1.3E-01	1.2E-01	1.3E-01	1.3E-01
1543	1833804.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1544	1836444.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1545	1839084.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1546	1841724.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1547	1844364.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1548	1847004.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1549	1849644.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1550	1852282.000	15896965.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1551	1691242.000	15894325.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1552	1693884.000	15894325.000	4.7E+01	3.2E+00	1.2E+02	5.8E+02	2.7E-04
1553	1696524.000	15894325.000	4.5E+01	2.6E+00	1.0E+02	5.8E+02	2.7E-04
1554	1699164.000	15894325.000	2.5E+01	1.5E+00	8.5E+01	5.7E+02	2.7E-04
1555	1701804.000	15894325.000	8.3E+00	6.5E-01	3.7E+01	4.7E+02	2.7E-04
1556	1704444.000	15894325.000	4.4E+00	3.6E-01	5.7E+01	2.5E+02	2.7E-04

			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)
1557	1707084.000	15894325.000	4.2E+00	3.2E-01	3.8E+01	3.5E+01	2.7E-04
1558	1709724.000	15894325.000	4.3E+00	3.2E-01	3.4E+01	3.5E+01	2.7E-04
1559	1712364.000	15894325.000	4.4E+00	3.1E-01	3.4E+01	2.9E+01	2.7E-04
1560	1715004.000	15894325.000	4.4E+00	3.1E-01	3.5E+01	3.0E+01	2.7E-04
1561	1717644.000	15894325.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1562	1720284.000	15894325.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
1563	1722924.000	15894325.000	4.4E+00	3.0E-01	3.7E+01	3.2E+01	2.7E-04
1564	1725564.000	15894325.000	4.4E+00	3.0E-01	4.2E+01	1.9E+01	2.7E-04
1565	1728204.000	15894325.000	4.4E+00	3.0E-01	7.7E+01	3.1E+01	2.7E-04
1566	1730844.000	15894325.000	4.4E+00	3.0E-01	1.5E+02	3.7E+02	2.7E-04
1567	1733484.000	15894325.000	4.4E+00	3.0E-01	5.7E+02	5.2E+02	2.7E-04
1568	1736124.000	15894325.000	4.4E+00	3.0E-01	7.0E+02	1.1E+03	2.7E-04
1569	1738764.000	15894325.000	4.4E+00	3.0E-01	7.4E+02	1.3E+03	2.7E-04
1570	1741404.000	15894325.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1571	1744044.000	15894325.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1572	1746684.000	15894325.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1573	1749324.000	15894325.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1574	1751964.000	15894325.000	4.4E+00	3.0E-01	7.3E+02	1.3E+03	2.7E-04
1575	1754604.000	15894325.000	4.4E+00	3.0E-01	7.2E+02	1.2E+03	2.7E-04
1576	1757244.000	15894325.000	4.4E+00	3.0E-01	4.3E+02	5.6E+02	2.7E-04
1577	1759884.000	15894325.000	4.4E+00	3.0E-01	5.5E+01	3.4E+01	2.7E-04
1578	1762524.000	15894325.000	4.4E+00	3.0E-01	4.2E+01	2.2E+01	2.7E-04
1579	1765164.000	15894325.000	4.4E+00	3.0E-01	6.3E+01	4.0E+01	5.2E-04
1580	1767804.000	15894325.000	4.4E+00	3.0E-01	6.8E+01	4.6E+01	1.1E+02
1581	1770444.000	15894325.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.0E+02
1582	1773084.000	15894325.000	4.4E+00	3.0E-01	7.3E+01	5.4E+01	4.4E+02
1583	1775724.000	15894325.000	4.4E+00	3.0E-01	6.2E+01	4.6E+01	4.6E+02
1584	1778364.000	15894325.000	4.4E+00	3.1E-01	3.0E+01	1.2E+01	4.3E+02
1585	1781004.000	15894325.000	4.4E+00	3.4E-01	5.6E+00	1.1E+01	4.3E+02
1586	1783644.000	15894325.000	4.4E+00	3.5E-01	3.1E+01	1.3E+01	4.7E+02
1587	1786284.000	15894325.000	4.4E+00	3.3E-01	5.7E+01	4.2E+01	1.5E+02
1588	1788924.000	15894325.000	4.4E+00	3.0E-01	7.4E+01	5.2E+01	3.3E-03
1589	1791564.000	15894325.000	4.4E+00	3.0E-01	5.5E+01	3.7E+01	6.4E-04
1590	1794204.000	15894325.000	4.4E+00	3.0E-01	4.4E+01	2.8E+01	2.7E-04
1591	1796844.000	15894325.000	4.4E+00	3.0E-01	4.0E+01	2.1E+01	2.7E-04
1592	1799484.000	15894325.000	4.4E+00	3.0E-01	4.2E+01	3.5E+01	2.7E-04
1593	1802124.000	15894325.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1594	1804764.000	15894325.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
1595	1807404.000	15894325.000	4.4E+00	3.0E-01	3.3E+01	2.9E+01	2.7E-04
1596	1810044.000	15894325.000	4.4E+00	3.0E-01	3.6E+01	3.0E+01	2.7E-04
1597	1812684.000	15894325.000	4.4E+00	3.0E-01	6.9E+01	2.2E+01	2.7E-04
1598	1815324.000	15894325.000	4.4E+00	3.0E-01	7.0E+01	5.0E+01	2.7E-04
1599	1817964.000	15894325.000	4.4E+00	3.3E-01	3.9E+01	4.4E+01	2.7E-04
1600	1820604.000	15894325.000	4.4E+00	3.9E-01	5.3E+01	4.9E+01	2.7E-04
1601	1823244.000	15894325.000	9.6E-02	3.0E-01	6.9E+01	5.0E+01	2.8E-04
1602	1825884.000	15894325.000	2.7E-02	2.4E+00	4.5E+01	2.5E+01	1.9E-03
1603	1828524.000	15894325.000	2.9E-01	3.6E-01	1.0E-01	5.1E-01	3.8E-02
1604	1831164.000	15894325.000	1.1E-01	1.4E-01	8.0E-02	1.2E-01	1.6E-01
1605	1833804.000	15894325.000	1.3E-01	1.2E-01	1.2E-01	1.2E-01	1.3E-01
1606	1836444.000	15894325.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1607	1839084.000	15894325.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1608	1841724.000	15894325.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1609	1844364.000	15894325.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1610	1847004.000	15894325.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1611	1849644.000	15894325.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1612	1852282.000	15894325.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1613	1691242.000	15891685.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1614	1693884.000	15891685.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1615	1696524.000	15891685.000	4.7E+01	3.2E+00	1.2E+02	5.8E+02	2.7E-04
1616	1699164.000	15891685.000	4.5E+01	2.6E+00	1.0E+02	5.8E+02	2.7E-04
1617	1701804.000	15891685.000	2.5E+01	1.5E+00	8.6E+01	5.6E+02	2.7E-04
1618	1704444.000	15891685.000	8.9E+00	7.4E-01	4.2E+01	4.7E+02	2.7E-04
1619	1707084.000	15891685.000	5.4E+00	4.5E-01	7.2E+01	2.5E+02	2.7E-04
1620	1709724.000	15891685.000	4.6E+00	3.5E-01	4.4E+01	3.5E+01	2.7E-04
1621	1712364.000	15891685.000	4.2E+00	3.3E-01	3.4E+01	3.5E+01	2.7E-04
1622	1715004.000	15891685.000	4.3E+00	3.2E-01	3.4E+01	2.9E+01	2.7E-04
1623	1717644.000	15891685.000	4.4E+00	3.1E-01	3.5E+01	3.0E+01	2.7E-04
1624	1720284.000	15891685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04

			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)
1625	1722924.000	15891685.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1626	1725564.000	15891685.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
1627	1728204.000	15891685.000	4.4E+00	3.0E-01	6.0E+01	2.1E+01	2.7E-04
1628	1730844.000	15891685.000	4.4E+00	3.0E-01	7.4E+01	6.0E+01	2.7E-04
1629	1733484.000	15891685.000	4.4E+00	3.0E-01	1.2E+02	3.7E+02	2.7E-04
1630	1736124.000	15891685.000	4.4E+00	3.0E-01	4.5E+02	7.2E+02	2.7E-04
1631	1738764.000	15891685.000	4.4E+00	3.0E-01	7.1E+02	1.3E+03	2.7E-04
1632	1741404.000	15891685.000	4.4E+00	3.0E-01	7.4E+02	1.4E+03	2.7E-04
1633	1744044.000	15891685.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1634	1746684.000	15891685.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1635	1749324.000	15891685.000	4.4E+00	3.0E-01	7.3E+02	1.3E+03	2.7E-04
1636	1751964.000	15891685.000	4.4E+00	3.0E-01	7.2E+02	1.2E+03	2.7E-04
1637	1754604.000	15891685.000	4.4E+00	3.0E-01	4.8E+02	4.9E+02	2.7E-04
1638	1757244.000	15891685.000	4.4E+00	3.0E-01	6.6E+01	4.0E+01	2.7E-04
1639	1759884.000	15891685.000	4.4E+00	3.0E-01	4.3E+01	2.3E+01	2.7E-04
1640	1762524.000	15891685.000	4.4E+00	3.0E-01	6.0E+01	3.8E+01	2.7E-04
1641	1765164.000	15891685.000	4.4E+00	3.0E-01	7.4E+01	5.4E+01	2.9E-04
1642	1767804.000	15891685.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	8.2E-04
1643	1770444.000	15891685.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	1.2E-03
1644	1773084.000	15891685.000	4.4E+00	3.0E-01	6.9E+01	5.1E+01	8.9E+01
1645	1775724.000	15891685.000	4.4E+00	3.1E-01	3.1E+01	1.3E+01	1.6E+02
1646	1778364.000	15891685.000	4.4E+00	2.6E-01	5.0E+00	1.0E+01	4.2E+02
1647	1781004.000	15891685.000	4.4E+00	1.1E-01	5.0E+00	1.0E+01	4.3E+02
1648	1783644.000	15891685.000	4.4E+00	2.9E+00	5.0E+00	1.0E+01	4.3E+02
1649	1786284.000	15891685.000	4.4E+00	1.2E-01	3.3E+01	1.4E+01	3.8E+02
1650	1788924.000	15891685.000	4.4E+00	3.0E-01	5.4E+01	3.9E+01	1.5E+02
1651	1791564.000	15891685.000	4.4E+00	3.1E-01	6.4E+01	5.0E+01	3.6E+01
1652	1794204.000	15891685.000	4.4E+00	3.0E-01	6.8E+01	3.5E+01	3.5E-03
1653	1796844.000	15891685.000	4.4E+00	3.0E-01	4.4E+01	2.7E+01	2.7E-04
1654	1799484.000	15891685.000	4.4E+00	3.0E-01	4.2E+01	2.2E+01	2.7E-04
1655	1802124.000	15891685.000	4.4E+00	3.0E-01	4.2E+01	2.1E+01	2.7E-04
1656	1804764.000	15891685.000	4.4E+00	3.0E-01	4.2E+01	2.1E+01	2.7E-04
1657	1807404.000	15891685.000	4.4E+00	3.0E-01	4.1E+01	2.1E+01	2.7E-04
1658	1810044.000	15891685.000	4.4E+00	3.0E-01	6.6E+01	2.6E+01	2.7E-04
1659	1812684.000	15891685.000	4.4E+00	3.3E-01	8.3E+01	5.2E+01	2.7E-04
1660	1815324.000	15891685.000	4.4E+00	4.1E-01	4.5E+01	4.2E+01	2.7E-04
1661	1817964.000	15891685.000	4.4E+00	2.4E-01	5.5E+01	4.7E+01	2.7E-04
1662	1820604.000	15891685.000	4.4E+00	2.1E+00	7.3E+01	5.6E+01	2.7E-04
1663	1823244.000	15891685.000	4.7E+00	2.5E+00	8.9E+01	5.2E+01	2.5E-04
1664	1825884.000	15891685.000	4.1E-02	1.2E-01	3.8E+01	1.4E+01	1.0E-03
1665	1828524.000	15891685.000	5.8E-01	1.1E+00	2.0E+00	2.7E-01	1.4E-02
1666	1831164.000	15891685.000	1.9E-01	2.9E-01	8.9E-02	1.9E-01	7.2E-02
1667	1833804.000	15891685.000	1.4E-01	1.6E-01	9.1E-02	1.8E-01	1.1E-01
1668	1836444.000	15891685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1669	1839084.000	15891685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1670	1841724.000	15891685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1671	1844364.000	15891685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1672	1847004.000	15891685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1673	1849644.000	15891685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1674	1852282.000	15891685.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1675	1691242.000	15889045.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1676	1693884.000	15889045.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1677	1696524.000	15889045.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1678	1699164.000	15889045.000	4.7E+01	3.1E+00	1.2E+02	5.8E+02	2.7E-04
1679	1701804.000	15889045.000	4.4E+01	2.8E+00	1.1E+02	5.8E+02	2.7E-04
1680	1704444.000	15889045.000	3.8E+01	2.2E+00	8.4E+01	5.6E+02	2.7E-04
1681	1707084.000	15889045.000	2.3E+01	1.3E+00	7.6E+01	4.7E+02	2.7E-04
1682	1709724.000	15889045.000	8.9E+00	7.3E-01	3.7E+01	2.5E+02	2.7E-04
1683	1712364.000	15889045.000	5.5E+00	4.6E-01	5.9E+01	3.5E+01	2.7E-04
1684	1715004.000	15889045.000	4.6E+00	3.5E-01	3.9E+01	3.5E+01	2.7E-04
1685	1717644.000	15889045.000	4.3E+00	3.2E-01	3.3E+01	2.9E+01	2.7E-04
1686	1720284.000	15889045.000	4.4E+00	3.1E-01	3.4E+01	2.9E+01	2.7E-04
1687	1722924.000	15889045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1688	1725564.000	15889045.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1689	1728204.000	15889045.000	4.4E+00	3.0E-01	3.7E+01	3.1E+01	2.7E-04
1690	1730844.000	15889045.000	4.4E+00	3.0E-01	7.1E+01	2.4E+01	2.7E-04
1691	1733484.000	15889045.000	4.4E+00	3.0E-01	7.4E+01	7.3E+01	2.7E-04
1692	1736124.000	15889045.000	4.4E+00	3.0E-01	1.1E+02	4.4E+02	2.7E-04

			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
1693	1738764.000	15889045.000	4.4E+00	3.0E-01	4.5E+02	7.6E+02	2.7E-04
1694	1741404.000	15889045.000	4.4E+00	3.0E-01	6.9E+02	1.3E+03	2.7E-04
1695	1744044.000	15889045.000	4.4E+00	3.0E-01	7.3E+02	1.3E+03	2.7E-04
1696	1746684.000	15889045.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1697	1749324.000	15889045.000	4.4E+00	3.0E-01	7.3E+02	1.3E+03	2.7E-04
1698	1751964.000	15889045.000	4.4E+00	3.0E-01	6.6E+02	7.0E+02	2.7E-04
1699	1754604.000	15889045.000	4.4E+00	3.0E-01	1.8E+02	5.5E+01	2.7E-04
1700	1757244.000	15889045.000	4.4E+00	3.0E-01	5.5E+01	2.5E+01	2.7E-04
1701	1759884.000	15889045.000	4.4E+00	3.0E-01	5.3E+01	3.6E+01	2.7E-04
1702	1762524.000	15889045.000	4.4E+00	3.0E-01	7.5E+01	5.3E+01	2.7E-04
1703	1765164.000	15889045.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1704	1767804.000	15889045.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1705	1770444.000	15889045.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.8E-04
1706	1773084.000	15889045.000	4.4E+00	3.0E-01	6.8E+01	5.0E+01	9.2E-04
1707	1775724.000	15889045.000	4.4E+00	3.4E-01	5.5E+00	1.1E+01	1.7E-03
1708	1778364.000	15889045.000	4.4E+00	1.3E-01	5.0E+00	1.0E+01	6.8E+01
1709	1781004.000	15889045.000	4.4E+00	3.6E-04	5.0E+00	1.0E+01	4.1E+02
1710	1783644.000	15889045.000	4.4E+00	1.6E-04	5.0E+00	1.0E+01	4.3E+02
1711	1786284.000	15889045.000	4.4E+00	4.3E-04	5.0E+00	9.9E+00	4.3E+02
1712	1788924.000	15889045.000	4.4E+00	1.0E+00	3.6E+01	1.5E+01	4.3E+02
1713	1791564.000	15889045.000	4.4E+00	2.6E-01	5.9E+01	4.4E+01	4.1E+02
1714	1794204.000	15889045.000	4.4E+00	3.0E-01	6.5E+01	5.0E+01	3.0E+01
1715	1796844.000	15889045.000	4.4E+00	3.0E-01	6.2E+01	4.2E+01	4.7E-03
1716	1799484.000	15889045.000	4.4E+00	3.0E-01	6.1E+01	3.9E+01	2.8E-04
1717	1802124.000	15889045.000	4.4E+00	3.0E-01	6.1E+01	3.9E+01	2.6E-04
1718	1804764.000	15889045.000	4.4E+00	3.0E-01	6.0E+01	3.9E+01	2.7E-04
1719	1807404.000	15889045.000	4.4E+00	3.0E-01	6.0E+01	3.8E+01	2.7E-04
1720	1810044.000	15889045.000	4.4E+00	3.3E-01	6.4E+01	4.0E+01	2.7E-04
1721	1812684.000	15889045.000	4.4E+00	2.0E-01	7.6E+01	4.5E+01	2.7E-04
1722	1815324.000	15889045.000	4.4E+00	2.5E+00	6.9E+01	4.9E+01	2.7E-04
1723	1817964.000	15889045.000	4.4E+00	1.9E-01	7.1E+01	5.3E+01	2.7E-04
1724	1820604.000	15889045.000	4.4E+00	1.2E-03	7.4E+01	5.5E+01	2.7E-04
1725	1823244.000	15889045.000	4.4E+00	1.2E-03	7.6E+01	5.3E+01	2.7E-04
1726	1825884.000	15889045.000	8.5E-02	1.0E-01	4.9E+01	3.4E+01	3.4E-04
1727	1828524.000	15889045.000	6.8E-02	1.4E+00	4.1E+01	1.8E+01	4.7E-04
1728	1831164.000	15889045.000	2.1E-02	1.2E+00	2.4E+00	1.0E+01	2.7E-03
1729	1833804.000	15889045.000	3.1E-01	3.8E-01	1.5E-01	4.2E-01	3.6E-02
1730	1836444.000	15889045.000	1.2E-01	1.4E-01	1.0E-01	1.3E-01	1.5E-01
1731	1839084.000	15889045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1732	1841724.000	15889045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1733	1844364.000	15889045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1734	1847004.000	15889045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1735	1849644.000	15889045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1736	1852282.000	15889045.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1737	1691242.000	15886405.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1738	1693884.000	15886405.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1739	1696524.000	15886405.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1740	1699164.000	15886405.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1741	1701804.000	15886405.000	4.7E+01	3.2E+00	1.2E+02	5.8E+02	2.7E-04
1742	1704444.000	15886405.000	4.7E+01	3.0E+00	1.2E+02	5.8E+02	2.7E-04
1743	1707084.000	15886405.000	4.3E+01	2.7E+00	1.1E+02	5.6E+02	2.7E-04
1744	1709724.000	15886405.000	3.8E+01	2.1E+00	8.2E+01	4.7E+02	2.7E-04
1745	1712364.000	15886405.000	2.4E+01	1.3E+00	6.7E+01	2.5E+02	2.7E-04
1746	1715004.000	15886405.000	8.2E+00	6.4E-01	2.9E+01	3.6E+01	2.7E-04
1747	1717644.000	15886405.000	4.5E+00	3.7E-01	5.7E+01	2.0E+01	2.7E-04
1748	1720284.000	15886405.000	4.3E+00	3.2E-01	3.9E+01	3.1E+01	2.7E-04
1749	1722924.000	15886405.000	4.4E+00	3.1E-01	3.3E+01	2.9E+01	2.7E-04
1750	1725564.000	15886405.000	4.4E+00	3.0E-01	3.5E+01	2.9E+01	2.7E-04
1751	1728204.000	15886405.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
1752	1730844.000	15886405.000	4.4E+00	3.0E-01	3.7E+01	3.1E+01	2.7E-04
1753	1733484.000	15886405.000	4.4E+00	3.0E-01	7.1E+01	2.5E+01	2.7E-04
1754	1736124.000	15886405.000	4.4E+00	3.0E-01	7.3E+01	7.5E+01	2.7E-04
1755	1738764.000	15886405.000	4.4E+00	3.0E-01	1.2E+02	4.5E+02	2.7E-04
1756	1741404.000	15886405.000	4.4E+00	3.0E-01	5.7E+02	8.8E+02	2.7E-04
1757	1744044.000	15886405.000	4.4E+00	3.0E-01	7.6E+02	1.4E+03	2.7E-04
1758	1746684.000	15886405.000	4.4E+00	3.0E-01	7.2E+02	1.3E+03	2.7E-04
1759	1749324.000	15886405.000	4.4E+00	3.0E-01	7.3E+02	1.3E+03	2.7E-04
1760	1751964.000	15886405.000	4.4E+00	3.0E-01	6.7E+02	6.3E+02	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)
1761	1754604.000	15886405.000	4.4E+00	3.0E-01	1.8E+02	4.3E+01	2.7E-04
1762	1757244.000	15886405.000	4.4E+00	3.0E-01	8.8E+01	3.1E+01	2.7E-04
1763	1759884.000	15886405.000	4.4E+00	3.0E-01	6.5E+01	5.1E+01	2.7E-04
1764	1762524.000	15886405.000	4.4E+00	3.0E-01	7.5E+01	5.5E+01	2.7E-04
1765	1765164.000	15886405.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1766	1767804.000	15886405.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1767	1770444.000	15886405.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1768	1773084.000	15886405.000	4.4E+00	3.0E-01	6.7E+01	4.9E+01	2.6E-04
1769	1775724.000	15886405.000	4.4E+00	3.3E-01	5.5E+00	1.1E+01	2.5E-04
1770	1778364.000	15886405.000	4.4E+00	1.6E-01	5.0E+00	1.0E+01	2.4E-03
1771	1781004.000	15886405.000	4.4E+00	4.2E-04	5.0E+00	1.0E+01	4.4E+01
1772	1783644.000	15886405.000	4.4E+00	5.5E-05	5.0E+00	1.0E+01	3.5E+02
1773	1786284.000	15886405.000	4.4E+00	4.4E-05	4.9E+00	9.7E+00	4.2E+02
1774	1788924.000	15886405.000	4.4E+00	8.3E-04	3.1E+01	1.3E+01	4.3E+02
1775	1791564.000	15886405.000	4.4E+00	9.3E-02	6.1E+01	4.4E+01	4.3E+02
1776	1794204.000	15886405.000	4.4E+00	3.6E-01	7.6E+01	5.6E+01	4.0E+02
1777	1796844.000	15886405.000	4.4E+00	3.1E-01	7.4E+01	5.3E+01	2.2E+01
1778	1799484.000	15886405.000	4.4E+00	3.0E-01	7.4E+01	5.3E+01	2.4E-03
1779	1802124.000	15886405.000	4.4E+00	3.0E-01	7.4E+01	5.3E+01	3.4E-04
1780	1804764.000	15886405.000	4.4E+00	3.0E-01	7.5E+01	5.3E+01	2.7E-04
1781	1807404.000	15886405.000	4.4E+00	3.0E-01	7.6E+01	5.4E+01	2.7E-04
1782	1810044.000	15886405.000	4.4E+00	4.0E-01	7.7E+01	5.5E+01	2.7E-04
1783	1812684.000	15886405.000	4.4E+00	9.5E-01	7.7E+01	5.5E+01	2.7E-04
1784	1815324.000	15886405.000	4.4E+00	1.7E-03	7.7E+01	5.7E+01	2.7E-04
1785	1817964.000	15886405.000	4.4E+00	1.9E-04	7.7E+01	5.7E+01	2.7E-04
1786	1820604.000	15886405.000	4.4E+00	6.9E-05	7.7E+01	5.7E+01	2.7E-04
1787	1823244.000	15886405.000	4.4E+00	7.5E-05	7.6E+01	5.6E+01	2.7E-04
1788	1825884.000	15886405.000	4.4E+00	1.7E-04	7.0E+01	5.4E+01	2.8E-04
1789	1828524.000	15886405.000	4.7E+00	2.9E-03	7.0E+01	4.6E+01	2.5E-04
1790	1831164.000	15886405.000	4.1E-02	2.7E-01	7.7E+01	1.3E+01	1.0E-03
1791	1833804.000	15886405.000	5.4E-01	9.2E-01	1.8E+00	2.5E-01	1.5E-02
1792	1836444.000	15886405.000	1.4E-01	1.9E-01	1.4E-01	1.2E-01	1.2E-01
1793	1839084.000	15886405.000	1.3E-01	1.3E-01	1.2E-01	1.4E-01	1.3E-01
1794	1841724.000	15886405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1795	1844364.000	15886405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1796	1847004.000	15886405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1797	1849644.000	15886405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1798	1852282.000	15886405.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1799	1691242.000	15883765.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1800	1693884.000	15883765.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1801	1696524.000	15883765.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1802	1699164.000	15883765.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1803	1701804.000	15883765.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1804	1704444.000	15883765.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1805	1707084.000	15883765.000	4.7E+01	3.2E+00	1.2E+02	5.8E+02	2.7E-04
1806	1709724.000	15883765.000	4.7E+01	3.1E+00	1.2E+02	5.6E+02	2.7E-04
1807	1712364.000	15883765.000	4.4E+01	2.6E+00	9.7E+01	4.6E+02	2.7E-04
1808	1715004.000	15883765.000	2.5E+01	1.5E+00	8.8E+01	3.0E+02	2.7E-04
1809	1717644.000	15883765.000	8.3E+00	6.7E-01	7.3E+01	6.6E+01	2.7E-04
1810	1720284.000	15883765.000	4.6E+00	3.8E-01	7.4E+01	3.3E+01	2.7E-04
1811	1722924.000	15883765.000	4.3E+00	3.3E-01	3.5E+01	2.6E+01	2.7E-04
1812	1725564.000	15883765.000	4.4E+00	3.1E-01	3.7E+01	2.6E+01	2.7E-04
1813	1728204.000	15883765.000	4.4E+00	3.0E-01	3.7E+01	2.3E+01	2.7E-04
1814	1730844.000	15883765.000	4.4E+00	3.0E-01	3.5E+01	3.5E+01	2.7E-04
1815	1733484.000	15883765.000	4.4E+00	3.0E-01	3.7E+01	3.1E+01	2.7E-04
1816	1736124.000	15883765.000	4.4E+00	3.0E-01	7.1E+01	2.5E+01	2.7E-04
1817	1738764.000	15883765.000	4.4E+00	3.0E-01	9.4E+01	3.1E+02	2.7E-04
1818	1741404.000	15883765.000	4.4E+00	3.0E-01	4.5E+02	7.2E+02	2.7E-04
1819	1744044.000	15883765.000	4.4E+00	3.0E-01	7.1E+02	1.4E+03	2.7E-04
1820	1746684.000	15883765.000	4.4E+00	3.0E-01	7.5E+02	1.3E+03	2.7E-04
1821	1749324.000	15883765.000	4.4E+00	3.0E-01	7.1E+02	1.3E+03	2.7E-04
1822	1751964.000	15883765.000	4.4E+00	3.0E-01	4.9E+02	6.3E+02	2.7E-04
1823	1754604.000	15883765.000	4.4E+00	3.0E-01	1.3E+02	4.6E+01	2.7E-04
1824	1757244.000	15883765.000	4.4E+00	3.0E-01	6.6E+01	3.7E+01	2.7E-04
1825	1759884.000	15883765.000	4.4E+00	3.0E-01	7.3E+01	5.5E+01	2.7E-04
1826	1762524.000	15883765.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1827	1765164.000	15883765.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1828	1767804.000	15883765.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
1829	1770444.000	15883765.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1830	1773084.000	15883765.000	4.4E+00	3.0E-01	6.9E+01	5.1E+01	2.7E-04
1831	1775724.000	15883765.000	4.4E+00	3.1E-01	3.4E+01	1.4E+01	2.7E-04
1832	1778364.000	15883765.000	4.4E+00	3.4E-01	5.0E+00	1.0E+01	2.3E-04
1833	1781004.000	15883765.000	4.4E+00	6.5E-01	4.9E+00	9.8E+00	4.7E-03
1834	1783644.000	15883765.000	4.4E+00	1.2E-04	5.0E+00	1.0E+01	1.3E+02
1835	1786284.000	15883765.000	4.4E+00	4.1E-05	4.9E+00	9.8E+00	4.2E+02
1836	1788924.000	15883765.000	4.4E+00	1.6E-04	3.0E+01	1.2E+01	4.3E+02
1837	1791564.000	15883765.000	4.4E+00	3.4E-01	4.5E+01	3.2E+01	4.3E+02
1838	1794204.000	15883765.000	4.4E+00	2.1E+00	5.9E+01	4.3E+01	4.4E+02
1839	1796844.000	15883765.000	4.4E+00	2.4E-01	7.4E+01	5.5E+01	4.7E+02
1840	1799484.000	15883765.000	4.4E+00	3.0E-01	7.7E+01	5.7E+01	2.7E+00
1841	1802124.000	15883765.000	4.4E+00	3.0E-01	7.8E+01	5.8E+01	2.1E-03
1842	1804764.000	15883765.000	4.4E+00	3.0E-01	7.1E+01	5.3E+01	2.6E-04
1843	1807404.000	15883765.000	4.4E+00	3.0E-01	5.7E+01	4.1E+01	2.7E-04
1844	1810044.000	15883765.000	4.4E+00	4.1E-01	5.4E+01	3.9E+01	2.7E-04
1845	1812684.000	15883765.000	4.4E+00	6.6E-01	5.4E+01	3.9E+01	2.7E-04
1846	1815324.000	15883765.000	4.4E+00	7.2E-04	5.3E+01	3.9E+01	2.7E-04
1847	1817964.000	15883765.000	4.4E+00	4.3E-05	5.3E+01	3.9E+01	2.7E-04
1848	1820604.000	15883765.000	4.4E+00	4.7E-05	5.2E+01	3.8E+01	2.7E-04
1849	1823244.000	15883765.000	4.4E+00	4.8E-05	5.7E+01	4.2E+01	2.7E-04
1850	1825884.000	15883765.000	4.4E+00	3.9E-05	7.0E+01	5.2E+01	2.7E-04
1851	1828524.000	15883765.000	4.4E+00	6.9E-04	7.9E+01	5.4E+01	2.7E-04
1852	1831164.000	15883765.000	9.2E-02	7.9E-02	4.3E+01	4.0E+01	3.0E-04
1853	1833804.000	15883765.000	2.3E-02	1.5E+00	2.1E+00	1.3E+01	2.5E-03
1854	1836444.000	15883765.000	3.0E-01	3.9E-01	7.0E-02	4.0E-01	3.6E-02
1855	1839084.000	15883765.000	1.2E-01	1.4E-01	9.9E-02	1.3E-01	1.5E-01
1856	1841724.000	15883765.000	1.3E-01	1.2E-01	1.3E-01	1.3E-01	1.3E-01
1857	1844364.000	15883765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1858	1847004.000	15883765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1859	1849644.000	15883765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1860	1852282.000	15883765.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1861	1691242.000	15881125.000	4.7E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1862	1693884.000	15881125.000	4.7E+01	3.3E+00	1.3E+02	5.9E+02	2.7E-04
1863	1696524.000	15881125.000	4.7E+01	3.3E+00	1.3E+02	5.9E+02	2.7E-04
1864	1699164.000	15881125.000	4.7E+01	3.3E+00	1.3E+02	5.8E+02	2.7E-04
1865	1701804.000	15881125.000	4.7E+01	3.3E+00	1.3E+02	5.8E+02	2.7E-04
1866	1704444.000	15881125.000	4.7E+01	3.3E+00	1.3E+02	5.8E+02	2.7E-04
1867	1707084.000	15881125.000	4.7E+01	3.3E+00	1.3E+02	5.8E+02	2.7E-04
1868	1709724.000	15881125.000	4.7E+01	3.3E+00	1.3E+02	5.8E+02	2.7E-04
1869	1712364.000	15881125.000	4.7E+01	3.2E+00	1.2E+02	5.6E+02	2.7E-04
1870	1715004.000	15881125.000	4.6E+01	2.6E+00	1.1E+02	5.0E+02	2.7E-04
1871	1717644.000	15881125.000	2.5E+01	1.3E+00	9.3E+01	4.2E+02	2.7E-04
1872	1720284.000	15881125.000	6.7E+00	5.3E-01	3.0E+01	3.5E+02	2.7E-04
1873	1722924.000	15881125.000	4.2E+00	3.4E-01	5.2E+01	3.2E+02	2.7E-04
1874	1725564.000	15881125.000	4.4E+00	3.1E-01	5.1E+01	2.8E+02	2.7E-04
1875	1728204.000	15881125.000	4.4E+00	3.0E-01	4.9E+01	6.9E+01	2.7E-04
1876	1730844.000	15881125.000	4.4E+00	3.0E-01	3.9E+01	3.3E+01	2.7E-04
1877	1733484.000	15881125.000	4.4E+00	3.0E-01	3.5E+01	3.5E+01	2.7E-04
1878	1736124.000	15881125.000	4.4E+00	3.0E-01	3.7E+01	3.3E+01	2.7E-04
1879	1738764.000	15881125.000	4.4E+00	3.0E-01	6.9E+01	4.6E+01	2.7E-04
1880	1741404.000	15881125.000	4.4E+00	3.0E-01	8.2E+01	6.1E+02	2.7E-04
1881	1744044.000	15881125.000	4.4E+00	3.0E-01	4.8E+02	1.4E+03	2.7E-04
1882	1746684.000	15881125.000	4.4E+00	3.0E-01	6.8E+02	1.5E+03	2.7E-04
1883	1749324.000	15881125.000	4.4E+00	3.0E-01	4.8E+02	1.1E+03	2.7E-04
1884	1751964.000	15881125.000	4.4E+00	3.0E-01	8.7E+01	9.1E+02	2.7E-04
1885	1754604.000	15881125.000	4.4E+00	3.0E-01	3.5E+01	3.8E+01	2.7E-04
1886	1757244.000	15881125.000	4.4E+00	3.0E-01	6.8E+01	3.8E+01	2.7E-04
1887	1759884.000	15881125.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1888	1762524.000	15881125.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1889	1765164.000	15881125.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1890	1767804.000	15881125.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1891	1770444.000	15881125.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1892	1773084.000	15881125.000	4.4E+00	3.0E-01	7.5E+01	5.6E+01	2.7E-04
1893	1775724.000	15881125.000	4.4E+00	3.0E-01	5.1E+01	3.7E+01	2.7E-04
1894	1778364.000	15881125.000	4.4E+00	3.4E-01	3.7E+01	1.5E+01	2.2E-04
1895	1781004.000	15881125.000	4.4E+00	1.4E-01	3.2E+01	1.3E+01	9.5E-04
1896	1783644.000	15881125.000	4.4E+00	7.5E-04	5.2E+00	1.0E+01	1.1E+02

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
1897	1786284.000	15881125.000	4.4E+00	6.0E-05	5.0E+00	1.0E+01	4.2E+02
1898	1788924.000	15881125.000	4.4E+00	5.6E-05	5.1E+00	1.0E+01	4.3E+02
1899	1791564.000	15881125.000	4.4E+00	2.2E-04	3.1E+01	1.3E+01	4.3E+02
1900	1794204.000	15881125.000	4.4E+00	1.1E-03	4.0E+01	1.7E+01	4.7E+02
1901	1796844.000	15881125.000	4.4E+00	2.5E+00	4.4E+01	3.1E+01	3.3E+02
1902	1799484.000	15881125.000	4.4E+00	4.0E-01	5.3E+01	3.9E+01	2.0E+00
1903	1802124.000	15881125.000	4.4E+00	4.0E-01	5.4E+01	4.0E+01	2.0E-03
1904	1804764.000	15881125.000	4.4E+00	4.0E-01	4.2E+01	3.0E+01	2.6E-04
1905	1807404.000	15881125.000	4.4E+00	4.0E-01	4.4E+01	1.8E+01	2.7E-04
1906	1810044.000	15881125.000	4.4E+00	5.5E-01	3.4E+01	1.4E+01	2.7E-04
1907	1812684.000	15881125.000	4.4E+00	7.8E-01	3.4E+01	1.4E+01	2.7E-04
1908	1815324.000	15881125.000	4.4E+00	7.4E-04	3.4E+01	1.4E+01	2.7E-04
1909	1817964.000	15881125.000	4.4E+00	4.2E-05	3.4E+01	1.4E+01	2.7E-04
1910	1820604.000	15881125.000	4.4E+00	4.7E-05	3.3E+01	1.4E+01	2.7E-04
1911	1823244.000	15881125.000	4.4E+00	4.7E-05	5.1E+01	2.2E+01	2.7E-04
1912	1825884.000	15881125.000	4.4E+00	4.5E-05	5.0E+01	3.6E+01	2.7E-04
1913	1828524.000	15881125.000	4.4E+00	5.9E-05	7.7E+01	5.6E+01	2.7E-04
1914	1831164.000	15881125.000	4.7E+00	2.4E-03	7.8E+01	7.7E+01	2.5E-04
1915	1833804.000	15881125.000	4.1E-02	2.9E-01	9.0E+01	2.3E+01	1.0E-03
1916	1836444.000	15881125.000	5.6E-01	9.7E-01	2.9E+00	4.5E-01	1.4E-02
1917	1839084.000	15881125.000	1.4E-01	2.0E-01	8.4E-02	8.2E-02	1.2E-01
1918	1841724.000	15881125.000	1.2E-01	1.3E-01	1.3E-01	1.1E-01	1.4E-01
1919	1844364.000	15881125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1920	1847004.000	15881125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1921	1849644.000	15881125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1922	1852282.000	15881125.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1923	1691242.000	15878485.000	4.5E+01	2.8E+00	1.1E+02	5.0E+02	2.7E-04
1924	1693884.000	15878485.000	5.0E+01	3.2E+00	1.2E+02	5.7E+02	2.7E-04
1925	1696524.000	15878485.000	4.9E+01	3.2E+00	1.2E+02	5.7E+02	2.7E-04
1926	1699164.000	15878485.000	4.9E+01	3.2E+00	1.2E+02	5.8E+02	2.7E-04
1927	1701804.000	15878485.000	4.9E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1928	1704444.000	15878485.000	4.9E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1929	1707084.000	15878485.000	4.9E+01	3.2E+00	1.3E+02	5.8E+02	2.7E-04
1930	1709724.000	15878485.000	5.0E+01	3.2E+00	1.2E+02	5.8E+02	2.7E-04
1931	1712364.000	15878485.000	4.5E+01	2.8E+00	1.1E+02	5.8E+02	2.7E-04
1932	1715004.000	15878485.000	3.6E+01	2.0E+00	7.7E+01	5.7E+02	2.7E-04
1933	1717644.000	15878485.000	2.0E+01	1.1E+00	6.1E+01	5.6E+02	2.7E-04
1934	1720284.000	15878485.000	6.6E+00	5.0E-01	8.8E+01	6.4E+02	2.7E-04
1935	1722924.000	15878485.000	4.2E+00	3.4E-01	5.7E+01	7.7E+02	2.7E-04
1936	1725564.000	15878485.000	4.4E+00	3.1E-01	5.4E+01	5.3E+02	2.7E-04
1937	1728204.000	15878485.000	4.4E+00	3.0E-01	5.5E+01	3.7E+02	2.7E-04
1938	1730844.000	15878485.000	4.4E+00	3.0E-01	4.9E+01	7.9E+01	2.7E-04
1939	1733484.000	15878485.000	4.4E+00	3.0E-01	3.9E+01	3.3E+01	2.7E-04
1940	1736124.000	15878485.000	4.4E+00	3.0E-01	3.5E+01	3.6E+01	2.7E-04
1941	1738764.000	15878485.000	4.4E+00	3.0E-01	5.1E+01	2.3E+01	2.7E-04
1942	1741404.000	15878485.000	4.4E+00	3.0E-01	8.9E+01	3.4E+02	2.7E-04
1943	1744044.000	15878485.000	4.4E+00	3.0E-01	8.2E+01	6.6E+02	2.7E-04
1944	1746684.000	15878485.000	4.4E+00	3.0E-01	3.5E+02	1.1E+03	2.7E-04
1945	1749324.000	15878485.000	4.4E+00	3.0E-01	8.3E+01	8.8E+02	2.7E-04
1946	1751964.000	15878485.000	4.4E+00	3.0E-01	8.6E+01	5.9E+01	2.7E-04
1947	1754604.000	15878485.000	4.4E+00	3.0E-01	7.8E+01	3.1E+01	2.7E-04
1948	1757244.000	15878485.000	4.4E+00	3.0E-01	7.6E+01	4.3E+01	2.7E-04
1949	1759884.000	15878485.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1950	1762524.000	15878485.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1951	1765164.000	15878485.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1952	1767804.000	15878485.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1953	1770444.000	15878485.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1954	1773084.000	15878485.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1955	1775724.000	15878485.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
1956	1778364.000	15878485.000	4.4E+00	3.1E-01	5.7E+01	4.1E+01	2.2E-04
1957	1781004.000	15878485.000	4.4E+00	3.3E-01	4.5E+01	3.2E+01	1.1E-03
1958	1783644.000	15878485.000	4.4E+00	4.1E-01	2.8E+01	1.2E+01	1.0E+02
1959	1786284.000	15878485.000	4.4E+00	1.6E-04	5.0E+00	1.0E+01	4.1E+02
1960	1788924.000	15878485.000	4.4E+00	4.8E-05	5.0E+00	1.0E+01	4.3E+02
1961	1791564.000	15878485.000	4.4E+00	3.8E-05	4.9E+00	9.9E+00	4.3E+02
1962	1794204.000	15878485.000	4.4E+00	2.1E-04	5.2E+00	1.0E+01	5.5E+02
1963	1796844.000	15878485.000	4.4E+00	1.9E-01	3.3E+01	1.4E+01	6.4E+01
1964	1799484.000	15878485.000	4.4E+00	9.6E-01	3.4E+01	1.4E+01	5.0E-03

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
1965	1802124.000	15878485.000	4.4E+00	9.2E-01	3.4E+01	1.4E+01	3.8E-04
1966	1804764.000	15878485.000	4.4E+00	9.1E-01	3.3E+01	1.3E+01	2.7E-04
1967	1807404.000	15878485.000	4.4E+00	8.9E-01	5.3E+00	1.1E+01	2.7E-04
1968	1810044.000	15878485.000	4.4E+00	1.1E+00	5.0E+00	1.0E+01	2.7E-04
1969	1812684.000	15878485.000	4.4E+00	9.1E-02	5.0E+00	1.0E+01	2.7E-04
1970	1815324.000	15878485.000	4.4E+00	4.8E-04	5.0E+00	1.0E+01	2.7E-04
1971	1817964.000	15878485.000	4.4E+00	4.3E-05	5.0E+00	1.0E+01	2.7E-04
1972	1820604.000	15878485.000	4.4E+00	4.7E-05	4.8E+00	9.5E+00	2.7E-04
1973	1823244.000	15878485.000	4.4E+00	4.7E-05	3.9E+01	1.6E+01	2.7E-04
1974	1825884.000	15878485.000	4.4E+00	4.7E-05	4.7E+01	3.4E+01	2.7E-04
1975	1828524.000	15878485.000	4.4E+00	3.8E-05	7.6E+01	5.7E+01	2.7E-04
1976	1831164.000	15878485.000	4.5E+00	6.7E-04	7.6E+01	5.8E+01	2.7E-04
1977	1833804.000	15878485.000	8.7E-02	6.0E+00	6.7E+01	5.4E+01	3.2E-04
1978	1836444.000	15878485.000	2.7E-02	2.2E+00	6.8E+01	1.7E+01	1.9E-03
1979	1839084.000	15878485.000	4.9E-01	6.8E-01	2.8E+00	2.8E-01	1.8E-02
1980	1841724.000	15878485.000	1.4E-01	2.0E-01	9.0E-02	7.8E-02	1.2E-01
1981	1844364.000	15878485.000	1.2E-01	1.3E-01	1.3E-01	1.1E-01	1.4E-01
1982	1847004.000	15878485.000	1.3E-01	1.2E-01	1.3E-01	1.2E-01	1.3E-01
1983	1849644.000	15878485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1984	1852282.000	15878485.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
1985	1691242.000	15875845.000	2.8E+01	1.6E+00	8.1E+01	2.7E+02	2.7E-04
1986	1693884.000	15875845.000	3.1E+01	1.7E+00	7.3E+01	3.2E+02	2.7E-04
1987	1696524.000	15875845.000	3.0E+01	1.7E+00	9.1E+01	4.0E+02	2.7E-04
1988	1699164.000	15875845.000	3.0E+01	1.7E+00	7.6E+01	5.0E+02	2.7E-04
1989	1701804.000	15875845.000	3.0E+01	1.7E+00	9.3E+01	5.6E+02	2.7E-04
1990	1704444.000	15875845.000	3.1E+01	1.7E+00	6.7E+01	5.9E+02	2.7E-04
1991	1707084.000	15875845.000	3.1E+01	1.8E+00	6.9E+01	5.8E+02	2.7E-04
1992	1709724.000	15875845.000	3.1E+01	1.7E+00	6.5E+01	5.8E+02	2.7E-04
1993	1712364.000	15875845.000	2.2E+01	1.3E+00	7.2E+01	5.8E+02	2.7E-04
1994	1715004.000	15875845.000	9.1E+00	7.4E-01	4.2E+01	5.8E+02	2.7E-04
1995	1717644.000	15875845.000	5.8E+00	4.7E-01	8.6E+01	5.9E+02	2.7E-04
1996	1720284.000	15875845.000	4.8E+00	3.5E-01	6.4E+01	6.2E+02	2.7E-04
1997	1722924.000	15875845.000	4.4E+00	3.1E-01	5.6E+01	6.4E+02	2.7E-04
1998	1725564.000	15875845.000	4.4E+00	3.0E-01	5.5E+01	5.2E+02	2.7E-04
1999	1728204.000	15875845.000	4.4E+00	3.0E-01	5.5E+01	4.6E+02	2.7E-04
2000	1730844.000	15875845.000	4.4E+00	3.0E-01	5.5E+01	3.8E+02	2.7E-04
2001	1733484.000	15875845.000	4.4E+00	3.0E-01	4.9E+01	7.0E+01	2.7E-04
2002	1736124.000	15875845.000	4.4E+00	3.0E-01	3.7E+01	2.4E+01	2.7E-04
2003	1738764.000	15875845.000	4.4E+00	3.0E-01	3.8E+01	3.2E+01	2.7E-04
2004	1741404.000	15875845.000	4.4E+00	3.0E-01	5.2E+01	2.3E+01	2.7E-04
2005	1744044.000	15875845.000	4.4E+00	3.0E-01	7.0E+01	4.7E+01	2.7E-04
2006	1746684.000	15875845.000	4.4E+00	3.0E-01	6.8E+01	2.4E+02	2.7E-04
2007	1749324.000	15875845.000	4.4E+00	3.0E-01	6.9E+01	4.1E+01	2.7E-04
2008	1751964.000	15875845.000	4.4E+00	3.0E-01	5.9E+01	2.5E+01	2.7E-04
2009	1754604.000	15875845.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2010	1757244.000	15875845.000	4.4E+00	3.0E-01	6.9E+01	5.1E+01	2.7E-04
2011	1759884.000	15875845.000	4.4E+00	3.0E-01	7.5E+01	5.6E+01	2.7E-04
2012	1762524.000	15875845.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2013	1765164.000	15875845.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2014	1767804.000	15875845.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2015	1770444.000	15875845.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2016	1773084.000	15875845.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2017	1775724.000	15875845.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2018	1778364.000	15875845.000	4.4E+00	3.0E-01	7.6E+01	5.7E+01	2.2E-04
2019	1781004.000	15875845.000	4.4E+00	3.8E-01	6.5E+01	4.8E+01	1.1E-03
2020	1783644.000	15875845.000	4.4E+00	2.5E+00	3.9E+01	1.6E+01	9.8E+01
2021	1786284.000	15875845.000	4.4E+00	2.1E-04	5.1E+00	1.0E+01	4.1E+02
2022	1788924.000	15875845.000	4.4E+00	4.9E-05	5.0E+00	1.0E+01	4.3E+02
2023	1791564.000	15875845.000	4.4E+00	4.6E-05	5.0E+00	1.0E+01	4.3E+02
2024	1794204.000	15875845.000	4.4E+00	6.1E-05	5.0E+00	1.0E+01	6.3E+02
2025	1796844.000	15875845.000	4.4E+00	3.6E-04	5.0E+00	9.9E+00	5.4E+01
2026	1799484.000	15875845.000	4.4E+00	5.0E-04	5.0E+00	9.9E+00	2.5E-03
2027	1802124.000	15875845.000	4.4E+00	5.1E-04	5.0E+00	9.9E+00	2.7E-04
2028	1804764.000	15875845.000	4.4E+00	5.1E-04	5.0E+00	9.9E+00	2.7E-04
2029	1807404.000	15875845.000	4.4E+00	5.2E-04	5.0E+00	1.0E+01	2.7E-04
2030	1810044.000	15875845.000	4.4E+00	5.5E-04	5.0E+00	1.0E+01	2.7E-04
2031	1812684.000	15875845.000	4.4E+00	3.4E-04	5.0E+00	1.0E+01	2.7E-04
2032	1815324.000	15875845.000	4.4E+00	7.3E-05	4.9E+00	9.8E+00	2.7E-04

			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
2033	1817964.000	15875845.000	4.4E+00	4.6E-05	4.8E+00	9.6E+00	2.7E-04
2034	1820604.000	15875845.000	4.4E+00	4.7E-05	4.5E+00	9.0E+00	2.7E-04
2035	1823244.000	15875845.000	4.4E+00	4.7E-05	3.8E+01	1.6E+01	2.7E-04
2036	1825884.000	15875845.000	4.4E+00	4.7E-05	4.6E+01	3.3E+01	2.7E-04
2037	1828524.000	15875845.000	4.4E+00	4.5E-05	7.6E+01	5.6E+01	2.7E-04
2038	1831164.000	15875845.000	4.4E+00	6.9E-05	7.4E+01	5.5E+01	2.7E-04
2039	1833804.000	15875845.000	4.4E+00	1.4E-03	7.3E+01	5.5E+01	2.7E-04
2040	1836444.000	15875845.000	8.6E-02	1.1E-01	6.3E+01	4.8E+01	3.3E-04
2041	1839084.000	15875845.000	2.7E-02	1.9E+00	6.5E+01	1.5E+01	1.9E-03
2042	1841724.000	15875845.000	5.0E-01	6.9E-01	2.6E+00	3.7E-01	1.7E-02
2043	1844364.000	15875845.000	1.4E-01	2.1E-01	7.2E-02	1.4E-01	1.2E-01
2044	1847004.000	15875845.000	1.2E-01	1.4E-01	1.0E-01	1.4E-01	1.5E-01
2045	1849644.000	15875845.000	1.3E-01	1.3E-01	1.2E-01	1.3E-01	1.4E-01
2046	1852282.000	15875845.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
2047	1691242.000	15873205.000	7.4E+00	6.1E-01	7.5E+01	3.2E+01	2.7E-04
2048	1693884.000	15873205.000	6.7E+00	5.7E-01	3.6E+01	3.6E+01	2.7E-04
2049	1696524.000	15873205.000	6.7E+00	5.6E-01	8.1E+01	6.7E+01	2.7E-04
2050	1699164.000	15873205.000	6.7E+00	5.5E-01	7.9E+01	3.5E+02	2.7E-04
2051	1701804.000	15873205.000	6.7E+00	5.5E-01	5.0E+01	5.2E+02	2.7E-04
2052	1704444.000	15873205.000	6.7E+00	5.5E-01	3.5E+01	5.9E+02	2.7E-04
2053	1707084.000	15873205.000	6.7E+00	5.6E-01	3.0E+01	5.7E+02	2.7E-04
2054	1709724.000	15873205.000	6.7E+00	5.4E-01	3.0E+01	5.8E+02	2.7E-04
2055	1712364.000	15873205.000	6.1E+00	4.7E-01	8.7E+01	5.8E+02	2.7E-04
2056	1715004.000	15873205.000	4.8E+00	3.8E-01	6.9E+01	5.8E+02	2.7E-04
2057	1717644.000	15873205.000	4.4E+00	3.2E-01	5.9E+01	5.9E+02	2.7E-04
2058	1720284.000	15873205.000	4.4E+00	3.1E-01	5.6E+01	6.0E+02	2.7E-04
2059	1722924.000	15873205.000	4.4E+00	3.0E-01	5.5E+01	5.8E+02	2.7E-04
2060	1725564.000	15873205.000	4.4E+00	3.0E-01	5.5E+01	5.0E+02	2.7E-04
2061	1728204.000	15873205.000	4.4E+00	3.0E-01	5.5E+01	4.8E+02	2.7E-04
2062	1730844.000	15873205.000	4.4E+00	3.0E-01	5.5E+01	4.4E+02	2.7E-04
2063	1733484.000	15873205.000	4.4E+00	3.0E-01	4.9E+01	2.5E+02	2.7E-04
2064	1736124.000	15873205.000	4.4E+00	3.0E-01	3.7E+01	2.8E+01	2.7E-04
2065	1738764.000	15873205.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2066	1741404.000	15873205.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2067	1744044.000	15873205.000	4.4E+00	3.0E-01	3.7E+01	3.3E+01	2.7E-04
2068	1746684.000	15873205.000	4.4E+00	3.0E-01	5.2E+01	1.9E+01	2.7E-04
2069	1749324.000	15873205.000	4.4E+00	3.0E-01	3.7E+01	3.4E+01	2.7E-04
2070	1751964.000	15873205.000	4.4E+00	3.0E-01	4.2E+01	2.2E+01	2.7E-04
2071	1754604.000	15873205.000	4.4E+00	3.0E-01	4.8E+01	3.6E+01	2.7E-04
2072	1757244.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2073	1759884.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2074	1762524.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2075	1765164.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2076	1767804.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2077	1770444.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2078	1773084.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2079	1775724.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2080	1778364.000	15873205.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.2E-04
2081	1781004.000	15873205.000	4.4E+00	3.8E-01	7.4E+01	5.5E+01	1.2E-03
2082	1783644.000	15873205.000	4.4E+00	2.2E+00	4.6E+01	3.3E+01	9.2E+01
2083	1786284.000	15873205.000	4.4E+00	2.2E-04	3.9E+01	1.6E+01	4.1E+02
2084	1788924.000	15873205.000	4.4E+00	4.9E-05	5.1E+00	1.0E+01	4.3E+02
2085	1791564.000	15873205.000	4.4E+00	4.7E-05	4.8E+00	9.5E+00	4.7E+02
2086	1794204.000	15873205.000	4.4E+00	4.7E-05	4.8E+00	9.5E+00	3.2E+02
2087	1796844.000	15873205.000	4.4E+00	4.4E-05	4.8E+00	9.5E+00	1.4E+00
2088	1799484.000	15873205.000	4.4E+00	4.4E-05	4.8E+00	9.5E+00	1.7E-03
2089	1802124.000	15873205.000	4.4E+00	4.5E-05	4.8E+00	9.5E+00	2.7E-04
2090	1804764.000	15873205.000	4.4E+00	4.5E-05	4.8E+00	9.5E+00	2.7E-04
2091	1807404.000	15873205.000	4.4E+00	4.5E-05	4.8E+00	9.5E+00	2.7E-04
2092	1810044.000	15873205.000	4.4E+00	4.5E-05	4.8E+00	9.5E+00	2.7E-04
2093	1812684.000	15873205.000	4.4E+00	4.6E-05	4.7E+00	9.4E+00	2.7E-04
2094	1815324.000	15873205.000	4.4E+00	4.7E-05	5.4E+00	1.1E+01	2.7E-04
2095	1817964.000	15873205.000	4.4E+00	4.7E-05	3.6E+01	1.5E+01	2.7E-04
2096	1820604.000	15873205.000	4.4E+00	4.7E-05	3.7E+01	1.5E+01	2.7E-04
2097	1823244.000	15873205.000	4.4E+00	4.7E-05	5.7E+01	2.4E+01	2.7E-04
2098	1825884.000	15873205.000	4.4E+00	4.7E-05	5.2E+01	3.7E+01	2.7E-04
2099	1828524.000	15873205.000	4.4E+00	4.7E-05	7.7E+01	5.7E+01	2.7E-04
2100	1831164.000	15873205.000	4.4E+00	4.5E-05	7.4E+01	5.6E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x K_y(ft/d)	K_x K_y(ft/d)	K_x K_y(ft/d)	K_x K_y(ft/d)	K_x K_y(ft/d)
2101	1833804.000	15873205.000	4.4E+00	7.2E-05	7.4E+01	5.5E+01	2.7E-04
2102	1836444.000	15873205.000	4.5E+00	1.5E-03	7.3E+01	5.5E+01	2.7E-04
2103	1839084.000	15873205.000	8.5E-02	9.6E-02	6.4E+01	4.4E+01	3.4E-04
2104	1841724.000	15873205.000	2.5E-02	2.1E+00	4.4E+01	2.6E+01	2.1E-03
2105	1844364.000	15873205.000	6.6E-01	1.1E+00	2.2E-01	2.0E+00	1.1E-02
2106	1847004.000	15873205.000	2.5E-01	3.6E-01	1.0E-01	5.0E-01	4.9E-02
2107	1849644.000	15873205.000	1.6E-01	1.8E-01	1.0E-01	2.0E-01	9.5E-02
2108	1852282.000	15873205.000	1.3E-01	1.3E-01	1.3E-01	1.3E-01	1.3E-01
2109	1691242.000	15870565.000	4.5E+00	3.5E-01	4.0E+01	3.4E+01	2.7E-04
2110	1693884.000	15870565.000	4.3E+00	3.4E-01	4.2E+01	3.4E+01	2.7E-04
2111	1696524.000	15870565.000	4.4E+00	3.3E-01	8.5E+01	2.7E+01	2.7E-04
2112	1699164.000	15870565.000	4.4E+00	3.3E-01	7.0E+01	6.2E+01	2.7E-04
2113	1701804.000	15870565.000	4.4E+00	3.3E-01	7.8E+01	3.4E+02	2.7E-04
2114	1704444.000	15870565.000	4.4E+00	3.3E-01	4.5E+01	4.6E+02	2.7E-04
2115	1707084.000	15870565.000	4.4E+00	3.3E-01	3.0E+01	5.5E+02	2.7E-04
2116	1709724.000	15870565.000	4.4E+00	3.2E-01	6.7E+01	5.8E+02	2.7E-04
2117	1712364.000	15870565.000	4.4E+00	3.2E-01	5.6E+01	5.8E+02	2.7E-04
2118	1715004.000	15870565.000	4.4E+00	3.1E-01	5.6E+01	5.8E+02	2.7E-04
2119	1717644.000	15870565.000	4.4E+00	3.0E-01	5.5E+01	5.8E+02	2.7E-04
2120	1720284.000	15870565.000	4.4E+00	3.0E-01	5.5E+01	6.2E+02	2.7E-04
2121	1722924.000	15870565.000	4.4E+00	3.0E-01	5.5E+01	6.5E+02	2.7E-04
2122	1725564.000	15870565.000	4.4E+00	3.0E-01	5.5E+01	5.3E+02	2.7E-04
2123	1728204.000	15870565.000	4.4E+00	3.0E-01	5.5E+01	4.6E+02	2.7E-04
2124	1730844.000	15870565.000	4.4E+00	3.0E-01	5.9E+01	3.8E+02	2.7E-04
2125	1733484.000	15870565.000	4.4E+00	3.0E-01	7.3E+01	6.8E+01	2.7E-04
2126	1736124.000	15870565.000	4.4E+00	3.0E-01	4.4E+01	2.4E+01	2.7E-04
2127	1738764.000	15870565.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2128	1741404.000	15870565.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2129	1744044.000	15870565.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2130	1746684.000	15870565.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2131	1749324.000	15870565.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
2132	1751964.000	15870565.000	4.4E+00	3.0E-01	4.4E+01	2.2E+01	2.7E-04
2133	1754604.000	15870565.000	4.4E+00	3.0E-01	5.9E+01	3.8E+01	2.7E-04
2134	1757244.000	15870565.000	4.4E+00	3.0E-01	7.7E+01	5.5E+01	2.7E-04
2135	1759884.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2136	1762524.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2137	1765164.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2138	1767804.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2139	1770444.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2140	1773084.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2141	1775724.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2142	1778364.000	15870565.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.2E-04
2143	1781004.000	15870565.000	4.4E+00	3.8E-01	7.5E+01	5.6E+01	1.3E-03
2144	1783644.000	15870565.000	4.4E+00	2.1E+00	7.4E+01	5.5E+01	8.8E+01
2145	1786284.000	15870565.000	4.4E+00	2.3E-04	4.4E+01	2.8E+01	4.1E+02
2146	1788924.000	15870565.000	4.4E+00	4.9E-05	4.4E+01	1.8E+01	4.3E+02
2147	1791564.000	15870565.000	4.4E+00	4.7E-05	3.7E+01	1.6E+01	6.1E+02
2148	1794204.000	15870565.000	4.4E+00	4.7E-05	3.7E+01	1.6E+01	8.3E+01
2149	1796844.000	15870565.000	4.4E+00	4.7E-05	3.7E+01	1.6E+01	7.5E-03
2150	1799484.000	15870565.000	4.4E+00	4.7E-05	3.8E+01	1.6E+01	4.2E-04
2151	1802124.000	15870565.000	4.4E+00	4.7E-05	3.8E+01	1.6E+01	2.7E-04
2152	1804764.000	15870565.000	4.4E+00	4.7E-05	3.8E+01	1.6E+01	2.7E-04
2153	1807404.000	15870565.000	4.4E+00	4.7E-05	3.8E+01	1.6E+01	2.7E-04
2154	1810044.000	15870565.000	4.4E+00	4.7E-05	3.9E+01	1.6E+01	2.7E-04
2155	1812684.000	15870565.000	4.4E+00	4.7E-05	3.4E+01	1.6E+01	2.7E-04
2156	1815324.000	15870565.000	4.4E+00	4.7E-05	3.7E+01	2.1E+01	2.7E-04
2157	1817964.000	15870565.000	4.4E+00	4.7E-05	8.5E+01	2.8E+01	2.7E-04
2158	1820604.000	15870565.000	4.4E+00	4.7E-05	3.5E+01	3.7E+01	2.7E-04
2159	1823244.000	15870565.000	4.4E+00	4.7E-05	3.8E+01	4.0E+01	2.7E-04
2160	1825884.000	15870565.000	4.4E+00	4.7E-05	4.8E+01	5.2E+01	2.7E-04
2161	1828524.000	15870565.000	4.4E+00	4.7E-05	5.6E+01	5.7E+01	2.7E-04
2162	1831164.000	15870565.000	4.4E+00	4.7E-05	6.8E+01	5.6E+01	2.7E-04
2163	1833804.000	15870565.000	4.4E+00	4.5E-05	7.5E+01	5.6E+01	2.7E-04
2164	1836444.000	15870565.000	4.4E+00	7.4E-05	7.4E+01	5.5E+01	2.7E-04
2165	1839084.000	15870565.000	4.5E+00	1.8E-03	7.4E+01	5.4E+01	2.7E-04
2166	1841724.000	15870565.000	8.0E-02	3.5E+00	4.0E+01	4.0E+01	3.7E-04
2167	1844364.000	15870565.000	5.4E-02	4.8E-01	3.0E+01	3.6E+01	6.7E-04
2168	1847004.000	15870565.000	1.6E-02	7.0E-01	1.8E+00	8.9E+00	4.4E-03

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
2169	1849644.000	15870565.000	3.0E-01	3.7E-01	1.4E-01	5.7E-01	3.6E-02
2170	1852282.000	15870565.000	1.2E-01	1.5E-01	1.0E-01	1.5E-01	1.5E-01
2171	1691242.000	15867925.000	4.4E+00	3.1E-01	3.5E+01	3.0E+01	2.7E-04
2172	1693884.000	15867925.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2173	1696524.000	15867925.000	4.4E+00	3.0E-01	4.0E+01	3.3E+01	2.7E-04
2174	1699164.000	15867925.000	4.4E+00	3.0E-01	5.6E+01	2.2E+01	2.7E-04
2175	1701804.000	15867925.000	4.4E+00	3.0E-01	2.9E+01	3.6E+01	2.7E-04
2176	1704444.000	15867925.000	4.4E+00	3.0E-01	6.3E+01	7.2E+01	2.7E-04
2177	1707084.000	15867925.000	4.4E+00	3.0E-01	7.1E+01	3.5E+02	2.7E-04
2178	1709724.000	15867925.000	4.4E+00	3.0E-01	3.5E+01	4.3E+02	2.7E-04
2179	1712364.000	15867925.000	4.4E+00	3.0E-01	6.1E+01	5.0E+02	2.7E-04
2180	1715004.000	15867925.000	4.4E+00	3.0E-01	5.3E+01	6.1E+02	2.7E-04
2181	1717644.000	15867925.000	4.4E+00	3.0E-01	5.5E+01	7.3E+02	2.7E-04
2182	1720284.000	15867925.000	4.4E+00	3.0E-01	5.5E+01	8.3E+02	2.7E-04
2183	1722924.000	15867925.000	4.4E+00	3.0E-01	5.5E+01	8.4E+02	2.7E-04
2184	1725564.000	15867925.000	4.4E+00	3.0E-01	5.4E+01	5.5E+02	2.7E-04
2185	1728204.000	15867925.000	4.4E+00	3.0E-01	5.9E+01	3.8E+02	2.7E-04
2186	1730844.000	15867925.000	4.4E+00	3.0E-01	3.4E+01	7.8E+01	2.7E-04
2187	1733484.000	15867925.000	4.4E+00	3.0E-01	5.4E+01	3.3E+01	2.7E-04
2188	1736124.000	15867925.000	4.4E+00	3.0E-01	5.1E+01	3.5E+01	2.7E-04
2189	1738764.000	15867925.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2190	1741404.000	15867925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2191	1744044.000	15867925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2192	1746684.000	15867925.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2193	1749324.000	15867925.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
2194	1751964.000	15867925.000	4.4E+00	3.0E-01	4.4E+01	2.2E+01	2.7E-04
2195	1754604.000	15867925.000	4.4E+00	3.0E-01	5.8E+01	3.7E+01	2.7E-04
2196	1757244.000	15867925.000	4.4E+00	3.0E-01	7.6E+01	5.5E+01	2.7E-04
2197	1759884.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2198	1762524.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2199	1765164.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2200	1767804.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2201	1770444.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2202	1773084.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2203	1775724.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2204	1778364.000	15867925.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.1E-04
2205	1781004.000	15867925.000	4.4E+00	3.8E-01	7.4E+01	5.5E+01	1.3E-03
2206	1783644.000	15867925.000	4.4E+00	2.0E+00	7.5E+01	5.5E+01	8.4E+01
2207	1786284.000	15867925.000	4.4E+00	2.4E-04	7.3E+01	5.1E+01	4.0E+02
2208	1788924.000	15867925.000	4.4E+00	5.0E-05	5.1E+01	3.7E+01	4.7E+02
2209	1791564.000	15867925.000	4.4E+00	4.7E-05	4.9E+01	3.5E+01	3.2E+02
2210	1794204.000	15867925.000	4.4E+00	4.7E-05	4.9E+01	3.5E+01	1.1E+00
2211	1796844.000	15867925.000	4.4E+00	4.7E-05	4.9E+01	3.5E+01	1.5E-03
2212	1799484.000	15867925.000	4.4E+00	4.7E-05	4.9E+01	3.5E+01	2.7E-04
2213	1802124.000	15867925.000	4.4E+00	4.7E-05	4.9E+01	3.5E+01	2.7E-04
2214	1804764.000	15867925.000	4.4E+00	4.7E-05	4.9E+01	3.6E+01	2.7E-04
2215	1807404.000	15867925.000	4.4E+00	4.7E-05	4.5E+01	3.6E+01	2.7E-04
2216	1810044.000	15867925.000	4.4E+00	4.7E-05	4.2E+01	2.7E+01	2.7E-04
2217	1812684.000	15867925.000	4.4E+00	4.7E-05	4.8E+01	2.7E+01	2.7E-04
2218	1815324.000	15867925.000	4.4E+00	4.7E-05	3.3E+01	2.3E+01	2.7E-04
2219	1817964.000	15867925.000	4.4E+00	4.7E-05	3.7E+01	3.0E+01	2.7E-04
2220	1820604.000	15867925.000	4.4E+00	4.7E-05	4.1E+01	3.3E+01	2.7E-04
2221	1823244.000	15867925.000	4.4E+00	4.7E-05	4.1E+01	3.3E+01	2.7E-04
2222	1825884.000	15867925.000	4.4E+00	4.7E-05	4.0E+01	3.2E+01	2.7E-04
2223	1828524.000	15867925.000	4.4E+00	4.7E-05	5.0E+01	3.2E+01	2.7E-04
2224	1831164.000	15867925.000	4.4E+00	4.7E-05	6.9E+01	2.3E+01	2.7E-04
2225	1833804.000	15867925.000	4.4E+00	4.7E-05	6.5E+01	4.1E+01	2.7E-04
2226	1836444.000	15867925.000	4.4E+00	4.4E-05	6.9E+01	5.5E+01	2.7E-04
2227	1839084.000	15867925.000	4.4E+00	9.1E-05	7.5E+01	5.5E+01	2.7E-04
2228	1841724.000	15867925.000	4.4E+00	3.3E-04	6.7E+01	5.3E+01	2.7E-04
2229	1844364.000	15867925.000	4.7E+00	7.6E-03	6.0E+01	4.1E+01	2.4E-04
2230	1847004.000	15867925.000	4.1E-02	2.6E-01	5.3E+01	2.5E+01	1.0E-03
2231	1849644.000	15867925.000	6.5E-01	1.1E+00	1.6E+00	1.5E+00	1.1E-02
2232	1852282.000	15867925.000	1.5E-01	2.6E-01	1.5E-01	3.1E-01	1.0E-01
2233	1691242.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2234	1693884.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2235	1696524.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2236	1699164.000	15865285.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
			K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)	K_x K_y (ft/d)
2237	1701804.000	15865285.000	4.4E+00	3.0E-01	4.0E+01	3.4E+01	2.7E-04
2238	1704444.000	15865285.000	4.4E+00	3.0E-01	5.7E+01	2.3E+01	2.7E-04
2239	1707084.000	15865285.000	4.4E+00	3.0E-01	3.0E+01	3.6E+01	2.7E-04
2240	1709724.000	15865285.000	4.4E+00	3.0E-01	5.0E+01	6.5E+01	2.7E-04
2241	1712364.000	15865285.000	4.4E+00	3.0E-01	3.7E+01	2.9E+02	2.7E-04
2242	1715004.000	15865285.000	4.4E+00	3.0E-01	6.4E+01	4.9E+02	2.7E-04
2243	1717644.000	15865285.000	4.4E+00	3.0E-01	5.5E+01	8.4E+02	2.7E-04
2244	1720284.000	15865285.000	4.4E+00	3.0E-01	5.6E+01	8.7E+02	2.7E-04
2245	1722924.000	15865285.000	4.4E+00	3.0E-01	5.6E+01	6.0E+02	2.7E-04
2246	1725564.000	15865285.000	4.4E+00	3.0E-01	6.3E+01	3.9E+02	2.7E-04
2247	1728204.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	7.7E+01	2.7E-04
2248	1730844.000	15865285.000	4.4E+00	3.0E-01	5.8E+01	3.4E+01	2.7E-04
2249	1733484.000	15865285.000	4.4E+00	3.0E-01	7.9E+01	1.9E+01	2.7E-04
2250	1736124.000	15865285.000	4.4E+00	3.0E-01	3.8E+01	3.0E+01	2.7E-04
2251	1738764.000	15865285.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2252	1741404.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2253	1744044.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2254	1746684.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2255	1749324.000	15865285.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
2256	1751964.000	15865285.000	4.4E+00	3.0E-01	4.4E+01	2.2E+01	2.7E-04
2257	1754604.000	15865285.000	4.4E+00	3.0E-01	5.8E+01	3.7E+01	2.7E-04
2258	1757244.000	15865285.000	4.4E+00	3.0E-01	7.6E+01	5.5E+01	2.7E-04
2259	1759884.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.6E+01	2.7E-04
2260	1762524.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2261	1765164.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2262	1767804.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2263	1770444.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2264	1773084.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2265	1775724.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2266	1778364.000	15865285.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	1.9E-04
2267	1781004.000	15865285.000	4.4E+00	3.9E-01	7.4E+01	5.5E+01	1.1E-03
2268	1783644.000	15865285.000	4.4E+00	1.9E+00	7.4E+01	5.5E+01	7.9E+01
2269	1786284.000	15865285.000	4.4E+00	2.5E-04	7.4E+01	5.5E+01	4.0E+02
2270	1788924.000	15865285.000	4.4E+00	5.0E-05	7.5E+01	5.6E+01	5.5E+02
2271	1791564.000	15865285.000	4.4E+00	4.7E-05	7.5E+01	5.6E+01	7.3E+01
2272	1794204.000	15865285.000	4.4E+00	4.7E-05	7.5E+01	5.6E+01	8.8E-03
2273	1796844.000	15865285.000	4.4E+00	4.7E-05	7.5E+01	5.6E+01	4.4E-04
2274	1799484.000	15865285.000	4.4E+00	4.7E-05	7.5E+01	5.6E+01	2.7E-04
2275	1802124.000	15865285.000	4.4E+00	4.7E-05	7.6E+01	5.6E+01	2.7E-04
2276	1804764.000	15865285.000	4.4E+00	4.7E-05	7.0E+01	5.8E+01	2.7E-04
2277	1807404.000	15865285.000	4.4E+00	4.7E-05	5.3E+01	4.4E+01	2.7E-04
2278	1810044.000	15865285.000	4.4E+00	4.7E-05	5.9E+01	2.3E+01	2.7E-04
2279	1812684.000	15865285.000	4.4E+00	4.7E-05	1.1E+02	1.8E+00	2.7E-04
2280	1815324.000	15865285.000	4.4E+00	4.7E-05	1.2E+02	1.0E+00	2.7E-04
2281	1817964.000	15865285.000	4.4E+00	4.7E-05	1.1E+02	9.7E-01	2.7E-04
2282	1820604.000	15865285.000	4.4E+00	4.7E-05	1.1E+02	9.7E-01	2.7E-04
2283	1823244.000	15865285.000	4.4E+00	4.7E-05	1.1E+02	9.7E-01	2.7E-04
2284	1825884.000	15865285.000	4.4E+00	4.7E-05	1.1E+02	9.7E-01	2.7E-04
2285	1828524.000	15865285.000	4.4E+00	4.7E-05	1.2E+02	9.6E-01	2.7E-04
2286	1831164.000	15865285.000	4.4E+00	4.7E-05	9.8E+01	1.9E+00	2.7E-04
2287	1833804.000	15865285.000	4.4E+00	4.7E-05	6.3E+01	2.2E+01	2.7E-04
2288	1836444.000	15865285.000	4.4E+00	4.7E-05	5.2E+01	4.0E+01	2.7E-04
2289	1839084.000	15865285.000	4.4E+00	4.7E-05	6.9E+01	5.5E+01	2.7E-04
2290	1841724.000	15865285.000	4.4E+00	3.6E-05	7.5E+01	5.6E+01	2.7E-04
2291	1844364.000	15865285.000	4.5E+00	6.8E-04	7.7E+01	5.2E+01	2.7E-04
2292	1847004.000	15865285.000	8.2E-02	3.4E+00	5.9E+01	2.7E+01	3.6E-04
2293	1849644.000	15865285.000	2.4E-02	1.9E+00	4.0E+01	1.3E+01	2.2E-03
2294	1852282.000	15865285.000	6.8E-01	1.1E+00	2.3E+00	1.7E+00	1.1E-02
2295	1691242.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2296	1693884.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2297	1696524.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2298	1699164.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2299	1701804.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2300	1704444.000	15862645.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2301	1707084.000	15862645.000	4.4E+00	3.0E-01	4.0E+01	3.4E+01	2.7E-04
2302	1709724.000	15862645.000	4.4E+00	3.0E-01	8.1E+01	2.3E+01	2.7E-04
2303	1712364.000	15862645.000	4.4E+00	3.0E-01	4.2E+01	3.7E+01	2.7E-04
2304	1715004.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	6.8E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
2305	1717644.000	15862645.000	4.4E+00	3.0E-01	4.8E+01	2.9E+02	2.7E-04
2306	1720284.000	15862645.000	4.4E+00	3.0E-01	5.0E+01	2.9E+02	2.7E-04
2307	1722924.000	15862645.000	4.4E+00	3.0E-01	5.0E+01	2.4E+02	2.7E-04
2308	1725564.000	15862645.000	4.4E+00	3.0E-01	6.9E+01	6.3E+01	2.7E-04
2309	1728204.000	15862645.000	4.4E+00	3.0E-01	4.6E+01	3.4E+01	2.7E-04
2310	1730844.000	15862645.000	4.4E+00	3.0E-01	8.2E+01	1.9E+01	2.7E-04
2311	1733484.000	15862645.000	4.4E+00	3.0E-01	3.8E+01	3.0E+01	2.7E-04
2312	1736124.000	15862645.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2313	1738764.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2314	1741404.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2315	1744044.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2316	1746684.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2317	1749324.000	15862645.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
2318	1751964.000	15862645.000	4.4E+00	3.0E-01	4.4E+01	2.3E+01	2.7E-04
2319	1754604.000	15862645.000	4.4E+00	3.0E-01	5.8E+01	3.7E+01	2.7E-04
2320	1757244.000	15862645.000	4.4E+00	3.0E-01	7.7E+01	5.5E+01	2.7E-04
2321	1759884.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.6E+01	2.7E-04
2322	1762524.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2323	1765164.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2324	1767804.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2325	1770444.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2326	1773084.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2327	1775724.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.5E-04
2328	1778364.000	15862645.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	3.3E-04
2329	1781004.000	15862645.000	4.4E+00	3.9E-01	7.4E+01	5.5E+01	6.8E-03
2330	1783644.000	15862645.000	4.4E+00	1.9E+00	7.4E+01	5.5E+01	1.2E+02
2331	1786284.000	15862645.000	4.4E+00	2.6E-04	7.4E+01	5.5E+01	4.1E+02
2332	1788924.000	15862645.000	4.4E+00	5.0E-05	7.4E+01	5.5E+01	5.8E+02
2333	1791564.000	15862645.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	4.6E+01
2334	1794204.000	15862645.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.1E-03
2335	1796844.000	15862645.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.8E-04
2336	1799484.000	15862645.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2337	1802124.000	15862645.000	4.4E+00	4.7E-05	7.4E+01	5.6E+01	2.7E-04
2338	1804764.000	15862645.000	4.4E+00	4.7E-05	6.6E+01	4.3E+01	2.7E-04
2339	1807404.000	15862645.000	4.4E+00	4.7E-05	5.8E+01	2.3E+01	2.7E-04
2340	1810044.000	15862645.000	4.4E+00	4.7E-05	9.7E+01	1.4E+00	2.7E-04
2341	1812684.000	15862645.000	4.4E+00	4.7E-05	1.8E+02	4.1E-01	2.7E-04
2342	1815324.000	15862645.000	4.4E+00	4.7E-05	2.0E+02	3.1E-01	2.7E-04
2343	1817964.000	15862645.000	4.4E+00	4.7E-05	2.0E+02	3.1E-01	2.7E-04
2344	1820604.000	15862645.000	4.4E+00	4.7E-05	2.0E+02	3.1E-01	2.7E-04
2345	1823244.000	15862645.000	4.4E+00	4.7E-05	2.0E+02	3.1E-01	2.7E-04
2346	1825884.000	15862645.000	4.4E+00	4.7E-05	2.0E+02	3.1E-01	2.7E-04
2347	1828524.000	15862645.000	4.4E+00	4.7E-05	2.0E+02	3.1E-01	2.7E-04
2348	1831164.000	15862645.000	4.4E+00	4.7E-05	1.8E+02	4.1E-01	2.7E-04
2349	1833804.000	15862645.000	4.4E+00	4.7E-05	9.3E+01	1.5E+00	2.7E-04
2350	1836444.000	15862645.000	4.4E+00	4.7E-05	5.9E+01	2.2E+01	2.7E-04
2351	1839084.000	15862645.000	4.4E+00	4.7E-05	5.2E+01	3.9E+01	2.7E-04
2352	1841724.000	15862645.000	4.4E+00	4.4E-05	6.8E+01	5.5E+01	2.7E-04
2353	1844364.000	15862645.000	4.4E+00	8.4E-05	7.4E+01	5.5E+01	2.7E-04
2354	1847004.000	15862645.000	4.5E+00	1.9E-03	7.3E+01	4.7E+01	2.6E-04
2355	1849644.000	15862645.000	8.0E-02	8.4E-02	5.7E+01	2.7E+01	3.7E-04
2356	1852282.000	15862645.000	3.7E-02	2.2E+00	7.8E+01	2.3E+01	1.2E-03
2357	1691242.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2358	1693884.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2359	1696524.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2360	1699164.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2361	1701804.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2362	1704444.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2363	1707084.000	15860005.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2364	1709724.000	15860005.000	4.4E+00	3.0E-01	4.1E+01	3.1E+01	2.7E-04
2365	1712364.000	15860005.000	4.4E+00	3.0E-01	5.3E+01	1.9E+01	2.7E-04
2366	1715004.000	15860005.000	4.4E+00	3.0E-01	4.5E+01	2.5E+01	2.7E-04
2367	1717644.000	15860005.000	4.4E+00	3.0E-01	3.8E+01	2.9E+01	2.7E-04
2368	1720284.000	15860005.000	4.4E+00	3.0E-01	3.8E+01	3.0E+01	2.7E-04
2369	1722924.000	15860005.000	4.4E+00	3.0E-01	3.8E+01	2.9E+01	2.7E-04
2370	1725564.000	15860005.000	4.4E+00	3.0E-01	4.3E+01	2.5E+01	2.7E-04
2371	1728204.000	15860005.000	4.4E+00	3.0E-01	5.5E+01	1.9E+01	2.7E-04
2372	1730844.000	15860005.000	4.4E+00	3.0E-01	4.0E+01	3.1E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
2373	1733484.000	15860005.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2374	1736124.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2375	1738764.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2376	1741404.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2377	1744044.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2378	1746684.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2379	1749324.000	15860005.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
2380	1751964.000	15860005.000	4.4E+00	3.0E-01	4.3E+01	2.2E+01	2.7E-04
2381	1754604.000	15860005.000	4.4E+00	3.0E-01	5.6E+01	3.6E+01	2.7E-04
2382	1757244.000	15860005.000	4.4E+00	3.0E-01	7.7E+01	5.5E+01	2.7E-04
2383	1759884.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.6E+01	2.7E-04
2384	1762524.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2385	1765164.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2386	1767804.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2387	1770444.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2388	1773084.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2389	1775724.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.0E-04
2390	1778364.000	15860005.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	8.1E-04
2391	1781004.000	15860005.000	4.4E+00	3.9E-01	7.4E+01	5.5E+01	1.1E+00
2392	1783644.000	15860005.000	4.4E+00	1.8E+00	7.4E+01	5.5E+01	2.9E+02
2393	1786284.000	15860005.000	4.4E+00	2.6E-04	7.4E+01	5.5E+01	4.2E+02
2394	1788924.000	15860005.000	4.4E+00	5.0E-05	7.4E+01	5.5E+01	6.5E+02
2395	1791564.000	15860005.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	5.9E+01
2396	1794204.000	15860005.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.5E-03
2397	1796844.000	15860005.000	4.4E+00	4.7E-05	7.3E+01	5.4E+01	2.9E-04
2398	1799484.000	15860005.000	4.4E+00	4.7E-05	7.0E+01	5.4E+01	2.7E-04
2399	1802124.000	15860005.000	4.4E+00	4.7E-05	7.0E+01	5.7E+01	2.7E-04
2400	1804764.000	15860005.000	4.4E+00	4.7E-05	8.4E+01	2.4E+01	2.7E-04
2401	1807404.000	15860005.000	4.4E+00	4.7E-05	1.1E+02	1.7E+00	2.7E-04
2402	1810044.000	15860005.000	4.4E+00	4.7E-05	1.8E+02	4.0E-01	2.7E-04
2403	1812684.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	3.0E-01	2.7E-04
2404	1815324.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2405	1817964.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2406	1820604.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2407	1823244.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2408	1825884.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2409	1828524.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2410	1831164.000	15860005.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2411	1833804.000	15860005.000	4.4E+00	4.7E-05	1.8E+02	4.1E-01	2.7E-04
2412	1836444.000	15860005.000	4.4E+00	4.7E-05	9.2E+01	1.5E+00	2.7E-04
2413	1839084.000	15860005.000	4.4E+00	4.7E-05	6.6E+01	2.1E+01	2.7E-04
2414	1841724.000	15860005.000	4.4E+00	4.7E-05	6.4E+01	3.8E+01	2.7E-04
2415	1844364.000	15860005.000	4.4E+00	4.3E-05	7.4E+01	5.4E+01	2.7E-04
2416	1847004.000	15860005.000	4.4E+00	8.3E-05	7.4E+01	5.6E+01	2.7E-04
2417	1849644.000	15860005.000	4.6E+00	2.1E-03	7.8E+01	5.1E+01	2.6E-04
2418	1852282.000	15860005.000	9.2E-02	3.6E+00	7.2E+01	3.7E+01	3.0E-04
2419	1691242.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2420	1693884.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2421	1696524.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2422	1699164.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2423	1701804.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2424	1704444.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2425	1707084.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2426	1709724.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2427	1712364.000	15857365.000	4.4E+00	3.0E-01	3.4E+01	3.1E+01	2.7E-04
2428	1715004.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
2429	1717644.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.3E+01	2.7E-04
2430	1720284.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.3E+01	2.7E-04
2431	1722924.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.3E+01	2.7E-04
2432	1725564.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.2E+01	2.7E-04
2433	1728204.000	15857365.000	4.4E+00	3.0E-01	3.4E+01	3.0E+01	2.7E-04
2434	1730844.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2435	1733484.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2436	1736124.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2437	1738764.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2438	1741404.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2439	1744044.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2440	1746684.000	15857365.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
2441	1749324.000	15857365.000	4.4E+00	3.0E-01	3.9E+01	3.4E+01	2.7E-04
2442	1751964.000	15857365.000	4.4E+00	3.0E-01	7.8E+01	3.0E+01	2.7E-04
2443	1754604.000	15857365.000	4.4E+00	3.0E-01	6.6E+01	4.0E+01	2.7E-04
2444	1757244.000	15857365.000	4.4E+00	3.0E-01	7.5E+01	5.4E+01	2.7E-04
2445	1759884.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.6E+01	2.7E-04
2446	1762524.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2447	1765164.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2448	1767804.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2449	1770444.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2450	1773084.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.3E-04
2451	1775724.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.5E-04
2452	1778364.000	15857365.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	8.4E-03
2453	1781004.000	15857365.000	4.4E+00	4.0E-01	7.4E+01	5.5E+01	1.4E+02
2454	1783644.000	15857365.000	4.4E+00	1.8E+00	7.4E+01	5.5E+01	4.1E+02
2455	1786284.000	15857365.000	4.4E+00	2.7E-04	7.4E+01	5.5E+01	4.7E+02
2456	1788924.000	15857365.000	4.4E+00	5.0E-05	7.4E+01	5.5E+01	3.2E+02
2457	1791564.000	15857365.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	8.0E-01
2458	1794204.000	15857365.000	4.4E+00	4.7E-05	7.2E+01	5.4E+01	1.5E-03
2459	1796844.000	15857365.000	4.4E+00	4.7E-05	7.8E+01	6.1E+01	2.9E-04
2460	1799484.000	15857365.000	4.4E+00	4.7E-05	8.1E+01	2.6E+02	2.7E-04
2461	1802124.000	15857365.000	4.4E+00	4.7E-05	7.7E+01	2.6E+02	2.7E-04
2462	1804764.000	15857365.000	4.4E+00	4.7E-05	7.1E+01	2.1E+01	2.7E-04
2463	1807404.000	15857365.000	4.4E+00	4.7E-05	1.7E+02	8.5E-01	2.7E-04
2464	1810044.000	15857365.000	4.4E+00	4.7E-05	2.1E+02	3.1E-01	2.7E-04
2465	1812684.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2466	1815324.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2467	1817964.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2468	1820604.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2469	1823244.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2470	1825884.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2471	1828524.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2472	1831164.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2473	1833804.000	15857365.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2474	1836444.000	15857365.000	4.4E+00	4.7E-05	1.8E+02	4.1E-01	2.7E-04
2475	1839084.000	15857365.000	4.4E+00	4.7E-05	1.1E+02	2.1E+00	2.7E-04
2476	1841724.000	15857365.000	4.4E+00	4.7E-05	8.8E+01	2.0E+01	2.7E-04
2477	1844364.000	15857365.000	4.4E+00	4.7E-05	7.3E+01	5.3E+01	2.7E-04
2478	1847004.000	15857365.000	4.4E+00	4.3E-05	7.4E+01	5.6E+01	2.7E-04
2479	1849644.000	15857365.000	4.5E+00	9.3E-05	7.5E+01	5.7E+01	2.7E-04
2480	1852282.000	15857365.000	4.4E+00	6.1E-04	7.5E+01	5.4E+01	2.7E-04
2481	1691242.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2482	1693884.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2483	1696524.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2484	1699164.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2485	1701804.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2486	1704444.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2487	1707084.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2488	1709724.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2489	1712364.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2490	1715004.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2491	1717644.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2492	1720284.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2493	1722924.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2494	1725564.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2495	1728204.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2496	1730844.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2497	1733484.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2498	1736124.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2499	1738764.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2500	1741404.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2501	1744044.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2502	1746684.000	15854725.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
2503	1749324.000	15854725.000	4.4E+00	3.0E-01	4.3E+01	1.9E+01	2.7E-04
2504	1751964.000	15854725.000	4.4E+00	3.0E-01	5.4E+01	4.4E+01	2.7E-04
2505	1754604.000	15854725.000	4.4E+00	3.0E-01	7.7E+01	4.6E+01	2.7E-04
2506	1757244.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.4E+01	2.7E-04
2507	1759884.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2508	1762524.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04

			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
2509	1765164.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2510	1767804.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2511	1770444.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2512	1773084.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.6E-04
2513	1775724.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	6.2E-03
2514	1778364.000	15854725.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	1.5E+00
2515	1781004.000	15854725.000	4.4E+00	4.0E-01	7.4E+01	5.5E+01	2.9E+02
2516	1783644.000	15854725.000	4.4E+00	1.7E+00	7.4E+01	5.5E+01	4.2E+02
2517	1786284.000	15854725.000	4.4E+00	2.8E-04	7.4E+01	5.5E+01	5.5E+02
2518	1788924.000	15854725.000	4.4E+00	5.1E-05	7.4E+01	5.5E+01	7.8E+01
2519	1791564.000	15854725.000	4.4E+00	4.7E-05	7.3E+01	5.4E+01	1.2E-02
2520	1794204.000	15854725.000	4.4E+00	4.7E-05	7.8E+01	6.0E+01	4.7E-04
2521	1796844.000	15854725.000	4.4E+00	4.7E-05	1.0E+02	3.2E+02	2.8E-04
2522	1799484.000	15854725.000	4.4E+00	4.7E-05	3.6E+02	8.7E+02	2.7E-04
2523	1802124.000	15854725.000	4.4E+00	4.7E-05	2.9E+02	7.3E+02	2.7E-04
2524	1804764.000	15854725.000	4.4E+00	4.7E-05	8.0E+01	3.5E+01	2.7E-04
2525	1807404.000	15854725.000	4.4E+00	4.7E-05	1.1E+02	2.4E+00	2.7E-04
2526	1810044.000	15854725.000	4.4E+00	4.7E-05	1.2E+02	8.5E-01	2.7E-04
2527	1812684.000	15854725.000	4.4E+00	4.7E-05	1.8E+02	3.9E-01	2.7E-04
2528	1815324.000	15854725.000	4.4E+00	4.7E-05	2.1E+02	3.0E-01	2.7E-04
2529	1817964.000	15854725.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2530	1820604.000	15854725.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2531	1823244.000	15854725.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2532	1825884.000	15854725.000	4.4E+00	4.7E-05	2.0E+02	2.8E-01	2.7E-04
2533	1828524.000	15854725.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2534	1831164.000	15854725.000	4.4E+00	4.7E-05	2.0E+02	2.9E-01	2.7E-04
2535	1833804.000	15854725.000	4.4E+00	4.7E-05	2.1E+02	2.9E-01	2.7E-04
2536	1836444.000	15854725.000	4.4E+00	4.7E-05	1.8E+02	4.2E-01	2.7E-04
2537	1839084.000	15854725.000	4.4E+00	4.7E-05	1.0E+02	2.2E+00	2.7E-04
2538	1841724.000	15854725.000	4.4E+00	4.7E-05	8.7E+01	2.1E+01	2.7E-04
2539	1844364.000	15854725.000	4.4E+00	4.7E-05	7.3E+01	5.3E+01	2.7E-04
2540	1847004.000	15854725.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2541	1849644.000	15854725.000	4.4E+00	4.1E-05	7.4E+01	5.5E+01	2.7E-04
2542	1852282.000	15854725.000	4.4E+00	5.8E-05	7.4E+01	5.5E+01	2.7E-04
2543	1691242.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2544	1693884.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2545	1696524.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2546	1699164.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2547	1701804.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2548	1704444.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2549	1707084.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2550	1709724.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2551	1712364.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2552	1715004.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2553	1717644.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2554	1720284.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2555	1722924.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2556	1725564.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2557	1728204.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2558	1730844.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2559	1733484.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2560	1736124.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2561	1738764.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2562	1741404.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2563	1744044.000	15852085.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2564	1746684.000	15852085.000	4.4E+00	3.0E-01	3.9E+01	3.4E+01	2.7E-04
2565	1749324.000	15852085.000	4.4E+00	3.0E-01	7.6E+01	2.8E+01	2.7E-04
2566	1751964.000	15852085.000	4.4E+00	3.0E-01	4.8E+01	3.9E+01	2.7E-04
2567	1754604.000	15852085.000	4.4E+00	3.0E-01	7.0E+01	4.9E+01	2.7E-04
2568	1757244.000	15852085.000	4.4E+00	3.0E-01	7.5E+01	5.5E+01	2.7E-04
2569	1759884.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2570	1762524.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2571	1765164.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2572	1767804.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2573	1770444.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	3.2E-04
2574	1773084.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	6.4E-03
2575	1775724.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	1.5E+00
2576	1778364.000	15852085.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	3.5E+02

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
2577	1781004.000	15852085.000	4.4E+00	4.0E-01	7.4E+01	5.5E+01	4.3E+02
2578	1783644.000	15852085.000	4.4E+00	1.7E+00	7.4E+01	5.5E+01	4.3E+02
2579	1786284.000	15852085.000	4.4E+00	2.9E-04	7.4E+01	5.5E+01	5.9E+02
2580	1788924.000	15852085.000	4.4E+00	5.1E-05	7.4E+01	5.5E+01	4.6E+01
2581	1791564.000	15852085.000	4.4E+00	4.7E-05	7.1E+01	5.3E+01	2.0E-03
2582	1794204.000	15852085.000	4.4E+00	4.7E-05	6.7E+01	7.7E+01	2.9E-04
2583	1796844.000	15852085.000	4.4E+00	4.7E-05	3.5E+02	8.5E+02	2.7E-04
2584	1799484.000	15852085.000	4.4E+00	4.7E-05	7.1E+02	6.9E+02	2.7E-04
2585	1802124.000	15852085.000	4.4E+00	4.7E-05	5.4E+02	5.3E+02	2.7E-04
2586	1804764.000	15852085.000	4.4E+00	4.7E-05	1.3E+02	3.2E+02	2.7E-04
2587	1807404.000	15852085.000	4.4E+00	4.7E-05	8.7E+01	3.4E+01	2.7E-04
2588	1810044.000	15852085.000	4.4E+00	4.7E-05	7.9E+01	2.0E+01	2.7E-04
2589	1812684.000	15852085.000	4.4E+00	4.7E-05	1.0E+02	2.0E+00	2.7E-04
2590	1815324.000	15852085.000	4.4E+00	4.7E-05	1.3E+02	8.4E-01	2.7E-04
2591	1817964.000	15852085.000	4.4E+00	4.7E-05	1.8E+02	4.0E-01	2.7E-04
2592	1820604.000	15852085.000	4.4E+00	4.7E-05	2.1E+02	3.0E-01	2.7E-04
2593	1823244.000	15852085.000	4.4E+00	4.7E-05	2.1E+02	3.0E-01	2.7E-04
2594	1825884.000	15852085.000	4.4E+00	4.7E-05	2.1E+02	2.9E-01	2.7E-04
2595	1828524.000	15852085.000	4.4E+00	4.7E-05	2.1E+02	3.0E-01	2.7E-04
2596	1831164.000	15852085.000	4.4E+00	4.7E-05	1.7E+02	4.1E-01	2.7E-04
2597	1833804.000	15852085.000	4.4E+00	4.7E-05	1.3E+02	8.0E-01	2.7E-04
2598	1836444.000	15852085.000	4.4E+00	4.7E-05	9.2E+01	2.1E+00	2.7E-04
2599	1839084.000	15852085.000	4.4E+00	4.7E-05	7.3E+01	2.2E+01	2.7E-04
2600	1841724.000	15852085.000	4.4E+00	4.7E-05	6.5E+01	3.8E+01	2.7E-04
2601	1844364.000	15852085.000	4.4E+00	4.7E-05	7.4E+01	5.4E+01	2.7E-04
2602	1847004.000	15852085.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2603	1849644.000	15852085.000	4.4E+00	4.5E-05	7.4E+01	5.5E+01	2.7E-04
2604	1852282.000	15852085.000	4.4E+00	4.5E-05	7.4E+01	5.5E+01	2.7E-04
2605	1691242.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2606	1693884.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2607	1696524.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2608	1699164.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2609	1701804.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2610	1704444.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2611	1707084.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2612	1709724.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2613	1712364.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2614	1715004.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2615	1717644.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2616	1720284.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2617	1722924.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2618	1725564.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2619	1728204.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2620	1730844.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2621	1733484.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2622	1736124.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2623	1738764.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2624	1741404.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2625	1744044.000	15849445.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
2626	1746684.000	15849445.000	4.4E+00	3.0E-01	4.4E+01	1.9E+01	2.7E-04
2627	1749324.000	15849445.000	4.4E+00	3.0E-01	4.9E+01	4.2E+01	2.7E-04
2628	1751964.000	15849445.000	4.4E+00	3.0E-01	5.8E+01	4.2E+01	2.7E-04
2629	1754604.000	15849445.000	4.4E+00	3.0E-01	7.0E+01	5.3E+01	2.7E-04
2630	1757244.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.6E+01	2.7E-04
2631	1759884.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2632	1762524.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2633	1765164.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.8E-04
2634	1767804.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.3E-04
2635	1770444.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	6.8E-03
2636	1773084.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	1.5E+00
2637	1775724.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	3.6E+02
2638	1778364.000	15849445.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.3E+02
2639	1781004.000	15849445.000	4.4E+00	4.0E-01	7.4E+01	5.5E+01	4.3E+02
2640	1783644.000	15849445.000	4.4E+00	1.7E+00	7.4E+01	5.5E+01	4.3E+02
2641	1786284.000	15849445.000	4.4E+00	2.9E-04	7.4E+01	5.5E+01	6.5E+02
2642	1788924.000	15849445.000	4.4E+00	5.1E-05	7.4E+01	5.5E+01	6.1E+01
2643	1791564.000	15849445.000	4.4E+00	4.7E-05	7.0E+01	5.3E+01	2.4E-03
2644	1794204.000	15849445.000	4.4E+00	4.7E-05	7.4E+01	2.4E+02	3.0E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x K_y (ft/d)	Layer 4 K_x K_y (ft/d)	Layer 5 K_x K_y (ft/d)	Layers 6-7 K_x K_y (ft/d)	Layer 8 K_x K_y (ft/d)
2645	1796844.000	15849445.000	4.4E+00	4.7E-05	5.4E+02	5.0E+02	2.7E-04
2646	1799484.000	15849445.000	4.4E+00	4.7E-05	7.3E+02	7.5E+02	2.7E-04
2647	1802124.000	15849445.000	4.4E+00	4.7E-05	6.7E+02	6.9E+02	2.7E-04
2648	1804764.000	15849445.000	4.4E+00	4.7E-05	4.8E+02	4.8E+02	2.7E-04
2649	1807404.000	15849445.000	4.4E+00	4.7E-05	2.7E+02	7.3E+02	2.7E-04
2650	1810044.000	15849445.000	4.4E+00	4.7E-05	8.7E+01	6.5E+01	2.7E-04
2651	1812684.000	15849445.000	4.4E+00	4.7E-05	7.5E+01	2.1E+01	2.7E-04
2652	1815324.000	15849445.000	4.4E+00	4.7E-05	6.8E+01	1.7E+01	2.7E-04
2653	1817964.000	15849445.000	4.4E+00	4.7E-05	8.0E+01	2.0E+00	2.7E-04
2654	1820604.000	15849445.000	4.4E+00	4.7E-05	1.0E+02	1.2E+00	2.7E-04
2655	1823244.000	15849445.000	4.4E+00	4.7E-05	9.9E+01	1.1E+00	2.7E-04
2656	1825884.000	15849445.000	4.4E+00	4.7E-05	9.9E+01	1.1E+00	2.7E-04
2657	1828524.000	15849445.000	4.4E+00	4.7E-05	1.1E+02	1.1E+00	2.7E-04
2658	1831164.000	15849445.000	4.4E+00	4.7E-05	9.3E+01	2.1E+00	2.7E-04
2659	1833804.000	15849445.000	4.4E+00	4.7E-05	7.9E+01	1.6E+01	2.7E-04
2660	1836444.000	15849445.000	4.4E+00	4.7E-05	7.1E+01	2.0E+01	2.7E-04
2661	1839084.000	15849445.000	4.4E+00	4.7E-05	6.6E+01	3.8E+01	2.7E-04
2662	1841724.000	15849445.000	4.4E+00	4.7E-05	6.7E+01	5.3E+01	2.7E-04
2663	1844364.000	15849445.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2664	1847004.000	15849445.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2665	1849644.000	15849445.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2666	1852282.000	15849445.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2667	1691242.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2668	1693884.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2669	1696524.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2670	1699164.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2671	1701804.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2672	1704444.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2673	1707084.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2674	1709724.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2675	1712364.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2676	1715004.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2677	1717644.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2678	1720284.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2679	1722924.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2680	1725564.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2681	1728204.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2682	1730844.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2683	1733484.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2684	1736124.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2685	1738764.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2686	1741404.000	15846805.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2687	1744044.000	15846805.000	4.4E+00	3.0E-01	4.0E+01	3.4E+01	2.7E-04
2688	1746684.000	15846805.000	4.4E+00	3.0E-01	7.7E+01	2.8E+01	2.7E-04
2689	1749324.000	15846805.000	4.4E+00	3.0E-01	4.9E+01	3.9E+01	2.7E-04
2690	1751964.000	15846805.000	4.4E+00	3.0E-01	7.1E+01	5.0E+01	2.7E-04
2691	1754604.000	15846805.000	4.4E+00	3.0E-01	7.5E+01	5.6E+01	2.7E-04
2692	1757244.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2693	1759884.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2694	1762524.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2695	1765164.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.9E-04
2696	1767804.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	9.6E-04
2697	1770444.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	9.5E-01
2698	1773084.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	3.6E+02
2699	1775724.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.3E+02
2700	1778364.000	15846805.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.3E+02
2701	1781004.000	15846805.000	4.4E+00	4.0E-01	7.4E+01	5.5E+01	4.3E+02
2702	1783644.000	15846805.000	4.4E+00	1.6E+00	7.4E+01	5.5E+01	4.7E+02
2703	1786284.000	15846805.000	4.4E+00	2.9E-04	7.4E+01	5.5E+01	3.4E+02
2704	1788924.000	15846805.000	4.4E+00	5.1E-05	7.4E+01	5.5E+01	6.6E-01
2705	1791564.000	15846805.000	4.4E+00	4.7E-05	7.1E+01	5.3E+01	1.4E-03
2706	1794204.000	15846805.000	4.4E+00	4.7E-05	6.6E+01	7.6E+01	2.9E-04
2707	1796844.000	15846805.000	4.4E+00	4.7E-05	3.5E+02	8.4E+02	2.7E-04
2708	1799484.000	15846805.000	4.4E+00	4.7E-05	6.9E+02	6.7E+02	2.7E-04
2709	1802124.000	15846805.000	4.4E+00	4.7E-05	7.8E+02	7.8E+02	2.7E-04
2710	1804764.000	15846805.000	4.4E+00	4.7E-05	7.3E+02	7.0E+02	2.7E-04
2711	1807404.000	15846805.000	4.4E+00	4.7E-05	3.3E+02	8.6E+02	2.7E-04
2712	1810044.000	15846805.000	4.4E+00	4.7E-05	7.2E+01	2.7E+02	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_z, K_y (ft/d)
2713	1812684.000	15846805.000	4.4E+00	4.7E-05	6.8E+01	6.0E+01	2.7E-04
2714	1815324.000	15846805.000	4.4E+00	4.7E-05	5.3E+01	3.9E+01	2.7E-04
2715	1817964.000	15846805.000	4.4E+00	4.7E-05	4.8E+01	1.9E+01	2.7E-04
2716	1820604.000	15846805.000	4.4E+00	4.7E-05	4.7E+01	2.9E+01	2.7E-04
2717	1823244.000	15846805.000	4.4E+00	4.7E-05	4.7E+01	2.8E+01	2.7E-04
2718	1825884.000	15846805.000	4.4E+00	4.7E-05	4.6E+01	2.8E+01	2.7E-04
2719	1828524.000	15846805.000	4.4E+00	4.7E-05	5.7E+01	2.8E+01	2.7E-04
2720	1831164.000	15846805.000	4.4E+00	4.7E-05	7.3E+01	2.0E+01	2.7E-04
2721	1833804.000	15846805.000	4.4E+00	4.7E-05	6.5E+01	3.8E+01	2.7E-04
2722	1836444.000	15846805.000	4.4E+00	4.7E-05	6.7E+01	5.2E+01	2.7E-04
2723	1839084.000	15846805.000	4.4E+00	4.7E-05	7.5E+01	5.4E+01	2.7E-04
2724	1841724.000	15846805.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2725	1844364.000	15846805.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2726	1847004.000	15846805.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2727	1849644.000	15846805.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2728	1852282.000	15846805.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2729	1691242.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2730	1693884.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2731	1696524.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2732	1699164.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2733	1701804.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2734	1704444.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2735	1707084.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2736	1709724.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2737	1712364.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2738	1715004.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2739	1717644.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2740	1720284.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2741	1722924.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2742	1725564.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2743	1728204.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2744	1730844.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2745	1733484.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2746	1736124.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2747	1738764.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2748	1741404.000	15844165.000	4.4E+00	3.0E-01	3.5E+01	3.1E+01	2.7E-04
2749	1744044.000	15844165.000	4.4E+00	3.0E-01	4.6E+01	2.1E+01	2.7E-04
2750	1746684.000	15844165.000	4.4E+00	3.0E-01	4.9E+01	4.2E+01	2.7E-04
2751	1749324.000	15844165.000	4.4E+00	3.0E-01	5.9E+01	4.2E+01	2.7E-04
2752	1751964.000	15844165.000	4.4E+00	3.0E-01	7.0E+01	5.3E+01	2.7E-04
2753	1754604.000	15844165.000	4.4E+00	3.0E-01	7.5E+01	5.6E+01	2.7E-04
2754	1757244.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2755	1759884.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2756	1762524.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2757	1765164.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.4E-04
2758	1767804.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	1.3E-03
2759	1770444.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	1.3E+02
2760	1773084.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	5.2E+02
2761	1775724.000	15844165.000	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.3E+02
2762	1778364.000	15844165.000	4.4E+00	3.2E-01	7.4E+01	5.5E+01	4.3E+02
2763	1781004.000	15844165.000	4.4E+00	4.2E-01	7.4E+01	5.5E+01	4.5E+02
2764	1783644.000	15844165.000	4.4E+00	1.7E+00	7.4E+01	5.5E+01	5.8E+02
2765	1786284.000	15844165.000	4.4E+00	2.8E-04	7.4E+01	5.5E+01	9.2E+01
2766	1788924.000	15844165.000	4.4E+00	4.4E-05	7.4E+01	5.5E+01	1.3E-02
2767	1791564.000	15844165.000	4.4E+00	4.6E-05	7.3E+01	5.4E+01	4.2E-04
2768	1794204.000	15844165.000	4.4E+00	4.7E-05	7.8E+01	6.0E+01	2.7E-04
2769	1796844.000	15844165.000	4.4E+00	4.7E-05	1.0E+02	3.3E+02	2.7E-04
2770	1799484.000	15844165.000	4.4E+00	4.7E-05	3.4E+02	8.2E+02	2.7E-04
2771	1802124.000	15844165.000	4.4E+00	4.7E-05	4.2E+02	4.0E+02	2.7E-04
2772	1804764.000	15844165.000	4.4E+00	4.7E-05	3.3E+02	8.1E+02	2.7E-04
2773	1807404.000	15844165.000	4.4E+00	4.7E-05	1.0E+02	3.5E+02	2.7E-04
2774	1810044.000	15844165.000	4.4E+00	4.7E-05	8.2E+01	7.1E+01	2.7E-04
2775	1812684.000	15844165.000	4.4E+00	4.7E-05	7.5E+01	5.9E+01	2.7E-04
2776	1815324.000	15844165.000	4.4E+00	4.7E-05	6.9E+01	5.5E+01	2.7E-04
2777	1817964.000	15844165.000	4.4E+00	4.7E-05	5.4E+01	5.4E+01	2.7E-04
2778	1820604.000	15844165.000	4.4E+00	4.7E-05	5.0E+01	5.3E+01	2.7E-04
2779	1823244.000	15844165.000	4.4E+00	4.7E-05	5.0E+01	5.2E+01	2.7E-04
2780	1825884.000	15844165.000	4.4E+00	4.7E-05	5.0E+01	5.2E+01	2.7E-04

Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	Layers 1-3 K_x, K_y (ft/d)	Layer 4 K_x, K_y (ft/d)	Layer 5 K_x, K_y (ft/d)	Layers 6-7 K_x, K_y (ft/d)	Layer 8 K_x, K_y (ft/d)
2781	1828524.000	15844165.000	4.4E+00	4.7E-05	5.4E+01	5.2E+01	2.7E-04
2782	1831164.000	15844165.000	4.4E+00	4.7E-05	6.8E+01	5.3E+01	2.7E-04
2783	1833804.000	15844165.000	4.4E+00	4.7E-05	7.5E+01	5.4E+01	2.7E-04
2784	1836444.000	15844165.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2785	1839084.000	15844165.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2786	1841724.000	15844165.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2787	1844364.000	15844165.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2788	1847004.000	15844165.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2789	1849644.000	15844165.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2790	1852282.000	15844165.000	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2791	1691242.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2792	1693884.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2793	1696524.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2794	1699164.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2795	1701804.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2796	1704444.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2797	1707084.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2798	1709724.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2799	1712364.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2800	1715004.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2801	1717644.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2802	1720284.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2803	1722924.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2804	1725564.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2805	1728204.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2806	1730844.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2807	1733484.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2808	1736124.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2809	1738764.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.0E+01	2.7E-04
2810	1741404.000	15841522.500	4.4E+00	3.0E-01	3.5E+01	3.3E+01	2.7E-04
2811	1744044.000	15841522.500	4.4E+00	3.0E-01	4.3E+01	2.2E+01	2.7E-04
2812	1746684.000	15841522.500	4.4E+00	3.0E-01	3.2E+01	3.2E+01	2.7E-04
2813	1749324.000	15841522.500	4.4E+00	3.0E-01	5.9E+01	4.4E+01	2.7E-04
2814	1751964.000	15841522.500	4.4E+00	3.0E-01	7.2E+01	5.4E+01	2.7E-04
2815	1754604.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2816	1757244.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2817	1759884.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2818	1762524.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.7E-04
2819	1765164.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	2.6E-04
2820	1767804.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	3.9E-03
2821	1770444.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.1E+01
2822	1773084.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	5.0E+02
2823	1775724.000	15841522.500	4.4E+00	3.0E-01	7.4E+01	5.5E+01	4.3E+02
2824	1778364.000	15841522.500	4.4E+00	3.2E-01	7.4E+01	5.5E+01	4.3E+02
2825	1781004.000	15841522.500	4.4E+00	2.3E-01	7.4E+01	5.5E+01	4.5E+02
2826	1783644.000	15841522.500	4.4E+00	7.8E-01	7.4E+01	5.5E+01	3.3E+02
2827	1786284.000	15841522.500	4.4E+00	7.0E-04	7.4E+01	5.5E+01	2.3E+01
2828	1788924.000	15841522.500	4.4E+00	5.0E-05	7.4E+01	5.5E+01	4.4E-03
2829	1791564.000	15841522.500	4.4E+00	4.6E-05	7.4E+01	5.5E+01	2.9E-04
2830	1794204.000	15841522.500	4.4E+00	4.7E-05	7.2E+01	5.4E+01	2.7E-04
2831	1796844.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.8E+01	2.7E-04
2832	1799484.000	15841522.500	4.4E+00	4.7E-05	7.1E+01	2.3E+02	2.7E-04
2833	1802124.000	15841522.500	4.4E+00	4.7E-05	7.8E+01	2.6E+02	2.7E-04
2834	1804764.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	2.4E+02	2.7E-04
2835	1807404.000	15841522.500	4.4E+00	4.7E-05	7.9E+01	6.2E+01	2.7E-04
2836	1810044.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.6E+01	2.7E-04
2837	1812684.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2838	1815324.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2839	1817964.000	15841522.500	4.4E+00	4.7E-05	7.5E+01	5.5E+01	2.7E-04
2840	1820604.000	15841522.500	4.4E+00	4.7E-05	7.6E+01	5.6E+01	2.7E-04
2841	1823244.000	15841522.500	4.4E+00	4.7E-05	7.6E+01	5.6E+01	2.7E-04
2842	1825884.000	15841522.500	4.4E+00	4.7E-05	7.6E+01	5.6E+01	2.7E-04
2843	1828524.000	15841522.500	4.4E+00	4.7E-05	7.5E+01	5.6E+01	2.7E-04
2844	1831164.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2845	1833804.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2846	1836444.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2847	1839084.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2848	1841724.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04

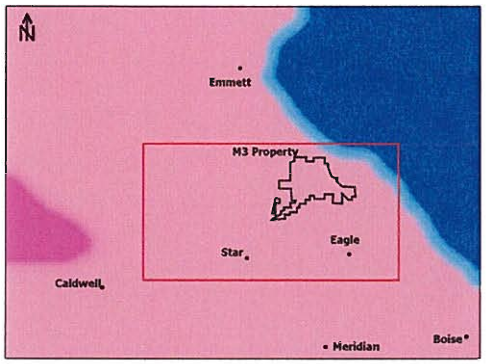
			Layers 1-3	Layer 4	Layer 5	Layers 6-7	Layer 8
Cell Reference Number	Easting (ft) - X	Northing (ft) - Y	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)	K_x, K_y (ft/d)
2849	1844364.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2850	1847004.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2851	1849644.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04
2852	1852282.000	15841522.500	4.4E+00	4.7E-05	7.4E+01	5.5E+01	2.7E-04

APPENDIX E:
QUASI-STEADY-STATE MODELS 1-6 HYDRAULIC CONDUCTIVITY

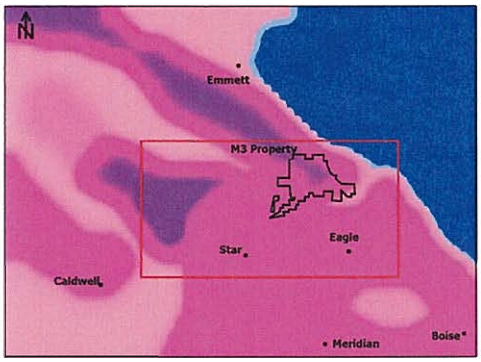
This appendix contains the distribution of K values for each layer of Models 1-6 as well as the distribution of change in K (K residuals) to show how the model values changed from one model to the next during the model calibration process.

Distribution of Hydraulic Conductivity in Quasi-Steady-State Models 1-6

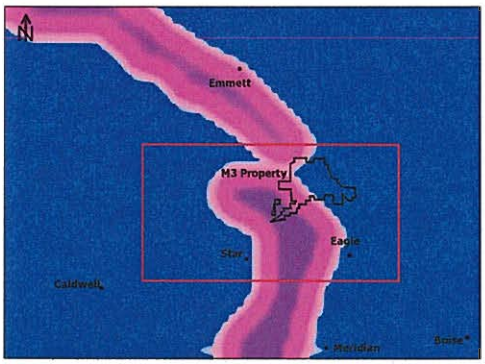
Quasi-Steady-State Model 1 Hydraulic Conductivity (K)



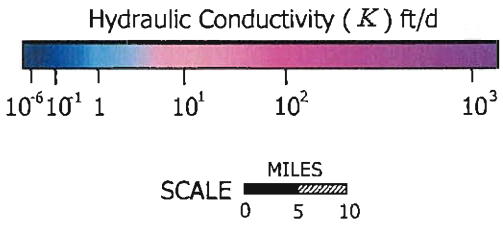
(A) Model 1 Layers 1-3 K (ft/d)



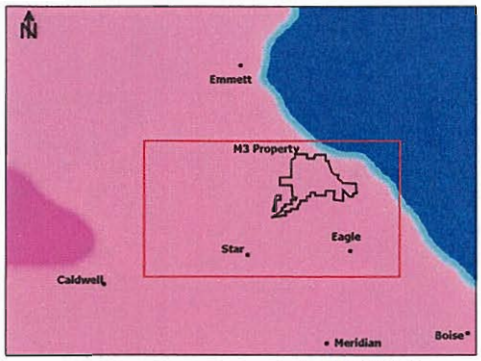
(B) Model 1 Layers 4-6 K (ft/d)



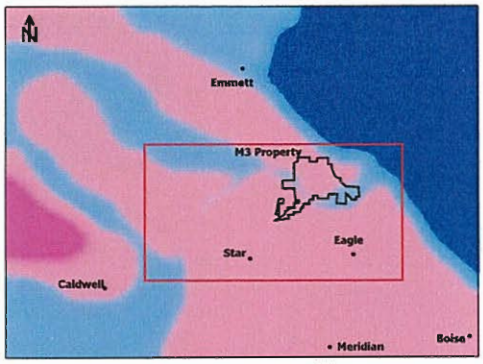
(C) Model 1 Layer 7 K (ft/d)



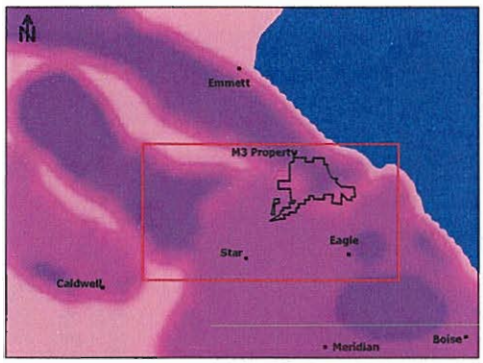
Quasi-Steady-State Model 2 Hydraulic Conductivity (K)



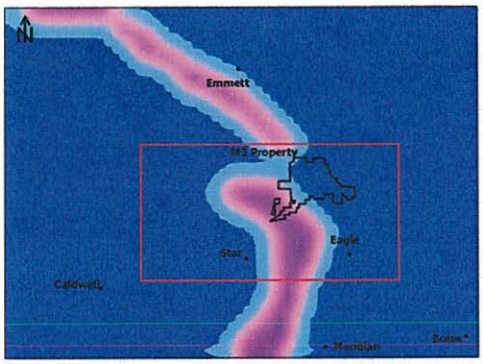
(A) Model 2 Layers 1-3 K (ft/d)



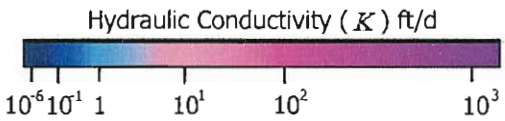
(B) Model 2 Layers 4 K (ft/d)

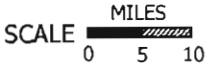


(C) Model 2 Layers 5-6 K (ft/d)

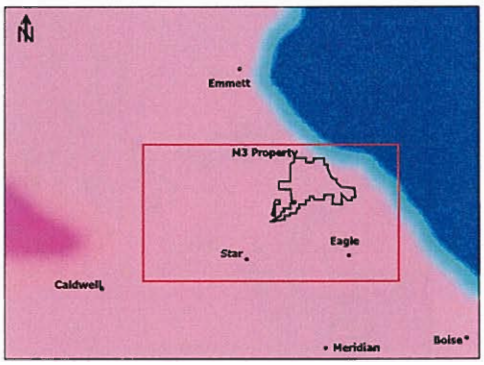


(D) Model 2 Layer 7 K (ft/d)

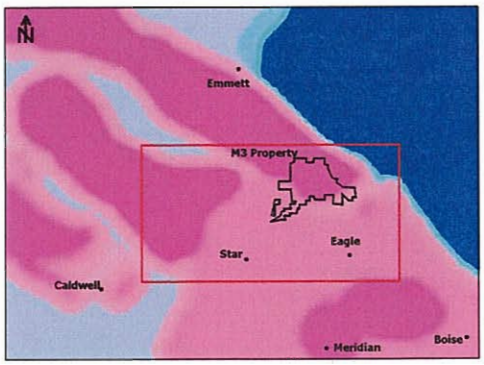




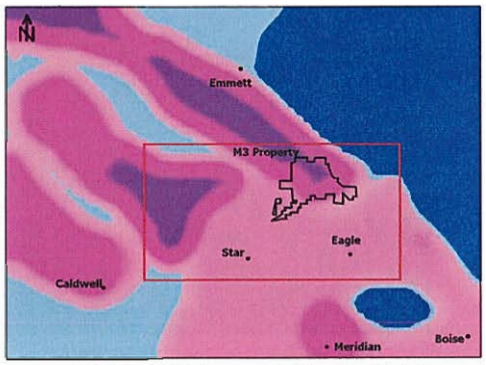
Quasi-Steady-State Model 3 Hydraulic Conductivity (K)



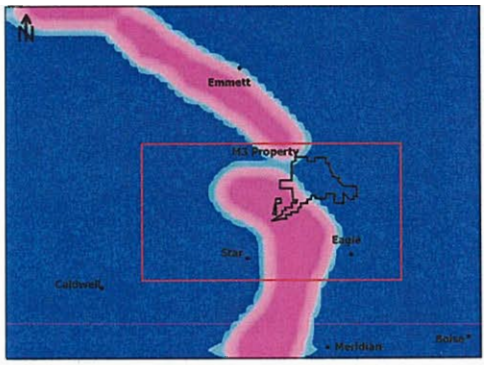
(A) Model 3 Layers 1-3 K (ft/d)



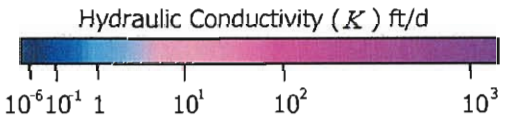
(B) Model 3 Layer 4 K (ft/d)

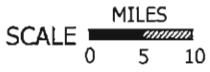


(C) Model 3 Layers 5-6 K (ft/d)

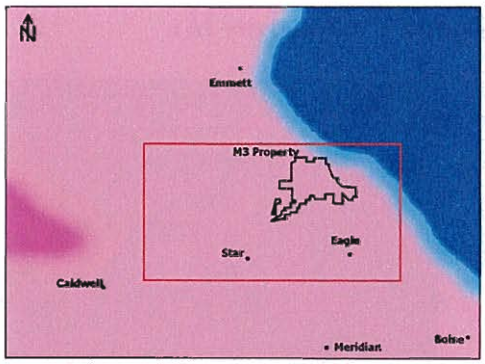


(D) Model 3 Layer 7 K (ft/d)

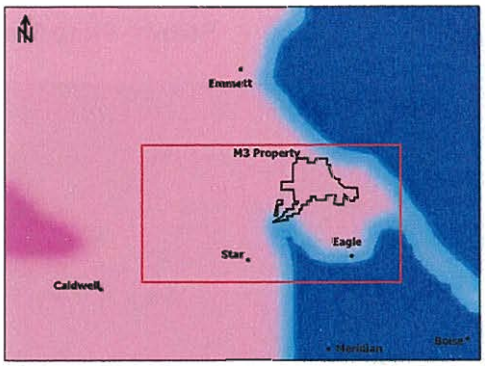




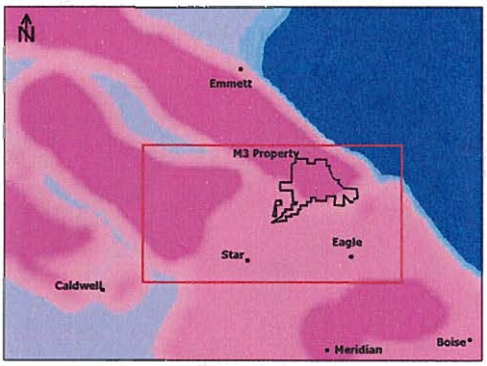
Quasi-Steady-State Model 4 Hydraulic Conductivity (K)



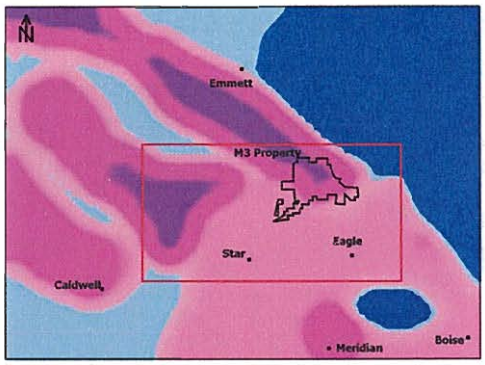
(A) Model 4 Layers 1-3 K (ft/d)



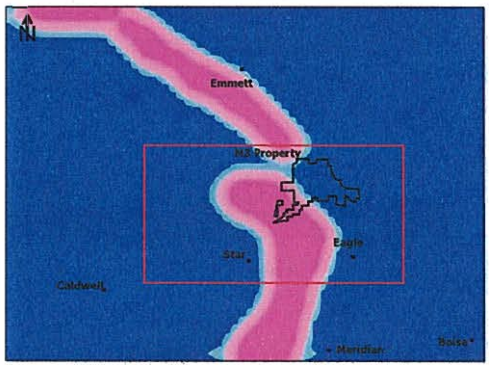
(B) Model 4 Layer 4 K (ft/d)



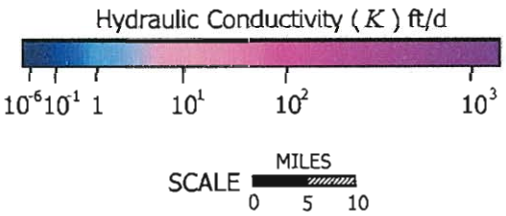
(C) Model 4 Layer 5 K (ft/d)



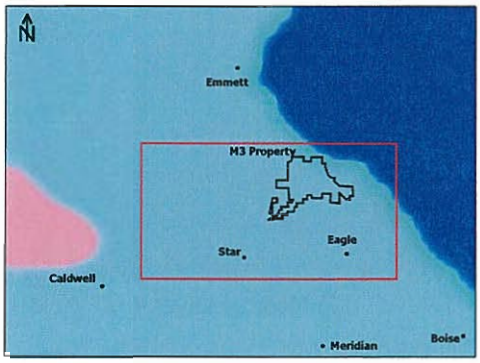
(D) Model 4 Layers 6-7 K (ft/d)



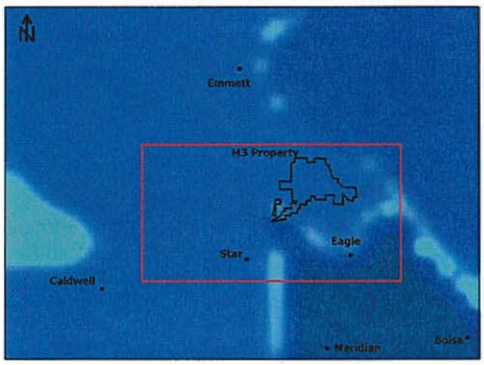
(E) Model 4 Layer 8 K (ft/d)



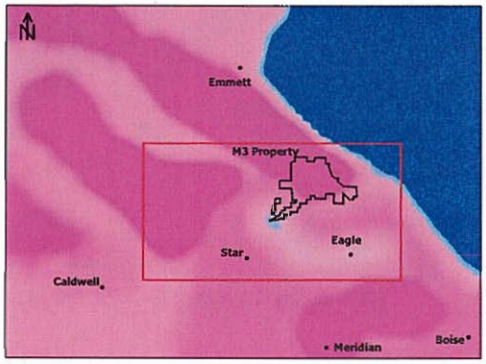
Quasi-Steady-State Models 5a-d and 6 Hydraulic Conductivity (K)
and
Steady-State Model Hydraulic Conductivity (K)



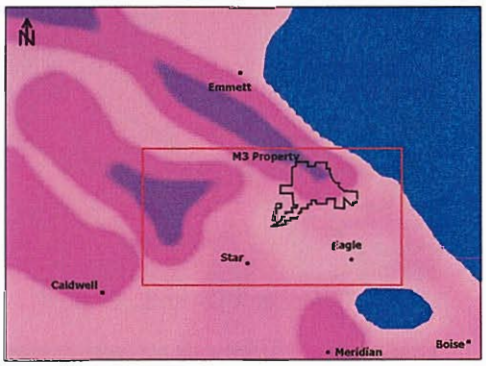
(A) Models 5a-d & 6 Layers 1-3 K (ft/d)



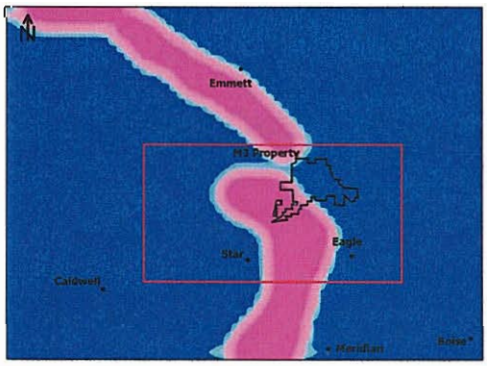
(B) Models 5a-d & 6 Layer 4 K (ft/d)



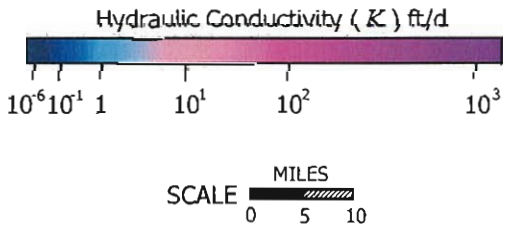
(C) Models 5-a-d & 6 Layer 5 K (ft/d)



(D) Models 5a-d & 6 Layers 6-7 K (ft/d)

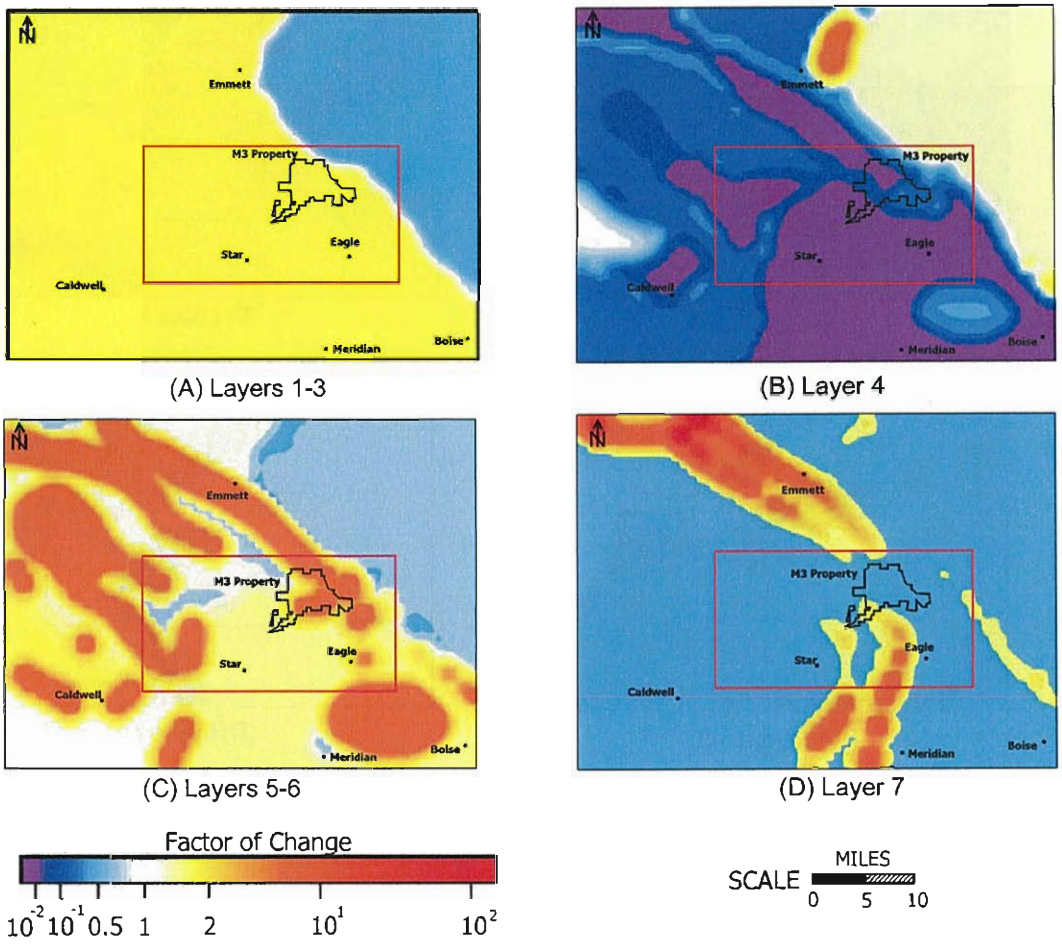


(E) Models 5a-d & 6 Layer 8 K (ft/d)



Comparing Hydraulic Conductivities

Comparing Quasi-Steady-State Model 1 with Model 2

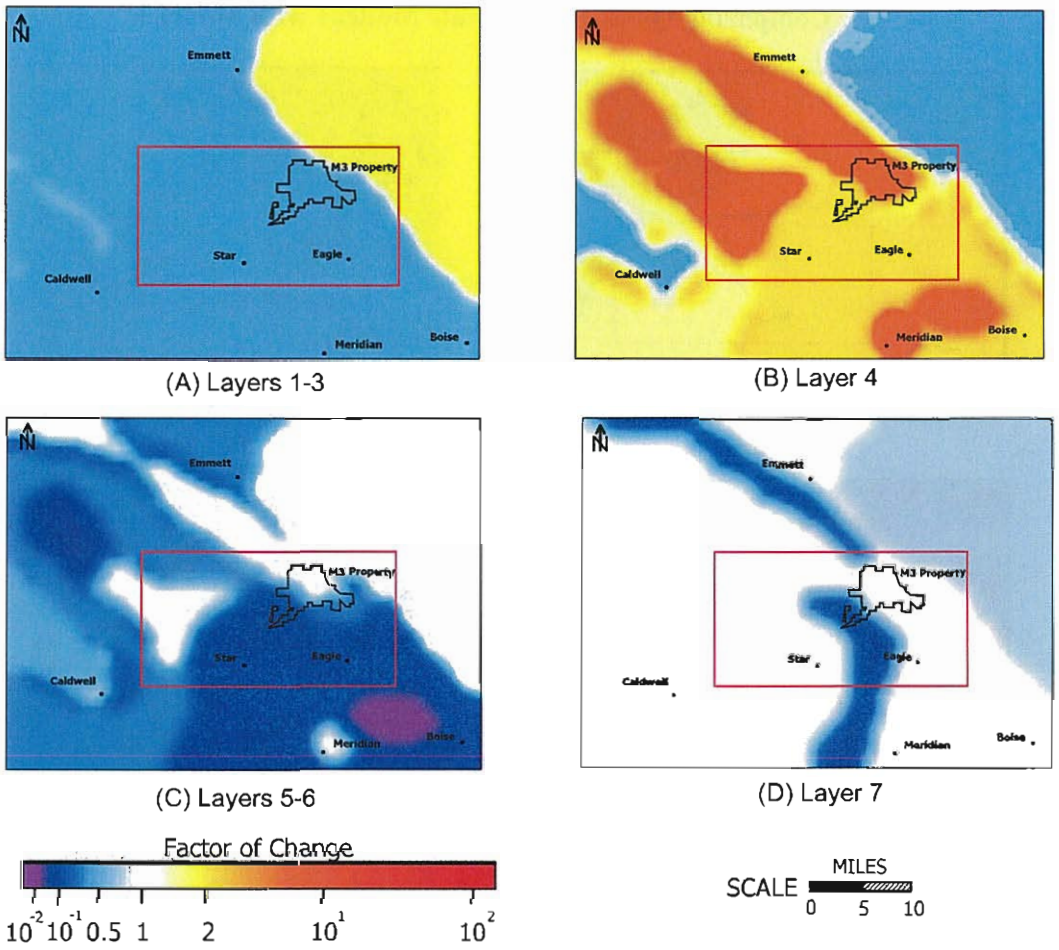


NOTES:

The color scale indicates by a factor how much Model 1 hydraulic conductivity (K) changed relative to Model 2. The warmer colors (red, orange, yellow) indicate that the values increased from Model 1 to Model 2. The cooler colors (purple, blue) indicate that the values decreased from Model 1 to Model 2. The following list of colors explains what each color represents in the figures above:

- RED: value increased by 2 orders of magnitude (100X)
- ORANGE: value increased by 1 order of magnitude (10X)
- YELLOW: value doubled (2X)
- WHITE: value stayed the same
- LIGHT BLUE: value decreased by ½ (X/2)
- DARK BLUE: value decreased by 1 order of magnitude (X/10)
- PURPLE: value decreased by 2 orders of magnitude (X/100)

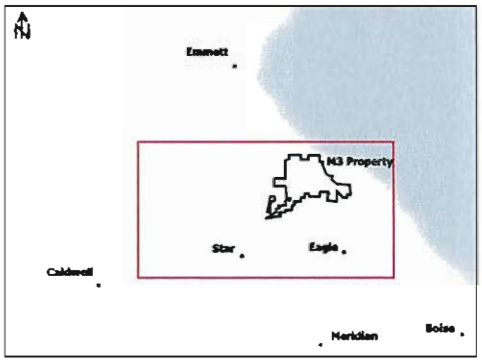
Comparing Quasi-Steady-State Model 2 with 3



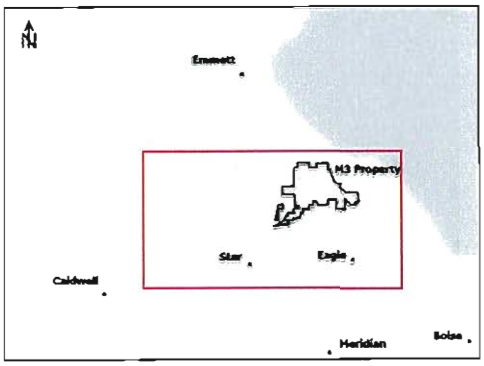
NOTES:
The color scale indicates by a factor how much Model 2 changed relative to Model 3. The warmer colors (red, orange, yellow) indicate that the values increased from Model 2 to Model 3. The cooler colors (purple, blue) indicate that the values decreased from Model 2 to Model 3. The following list of colors explains what each color represents in the figures above:

- RED: value increased by 2 orders of magnitude (100X)
- ORANGE: value increased by 1 order of magnitude (10X)
- YELLOW: value doubled (2X)
- WHITE: value stayed the same
- LIGHT BLUE: value decreased by ½ (X/2)
- DARK BLUE: value decreased by 1 order of magnitude (X/10)
- PURPLE: value decreased by 2 orders of magnitude (X/100)

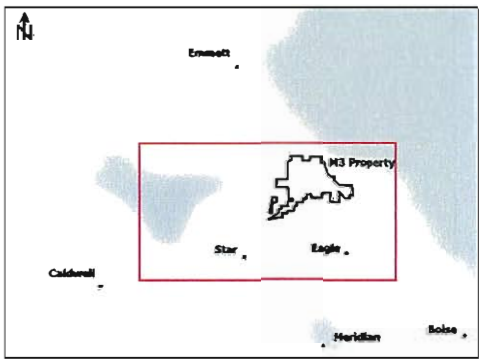
Comparing Quasi-Steady-State Model 3 with Model 4



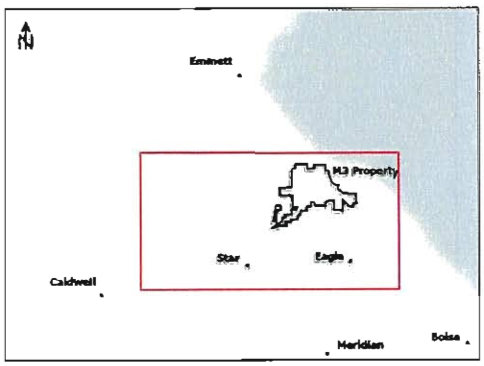
(A) Layers 1-3



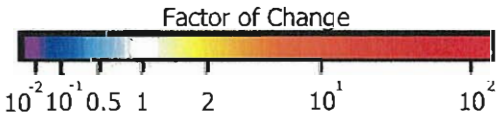
(B) Layers 4 (Model 3) and Layer 5 (Model 4)

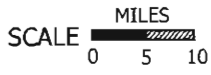


(C) Layers 5-6 (Model 3) and Layers 6-7 (Model 4)



(D) Layer 7 (Model 3) and Layer 8 (Model 4)



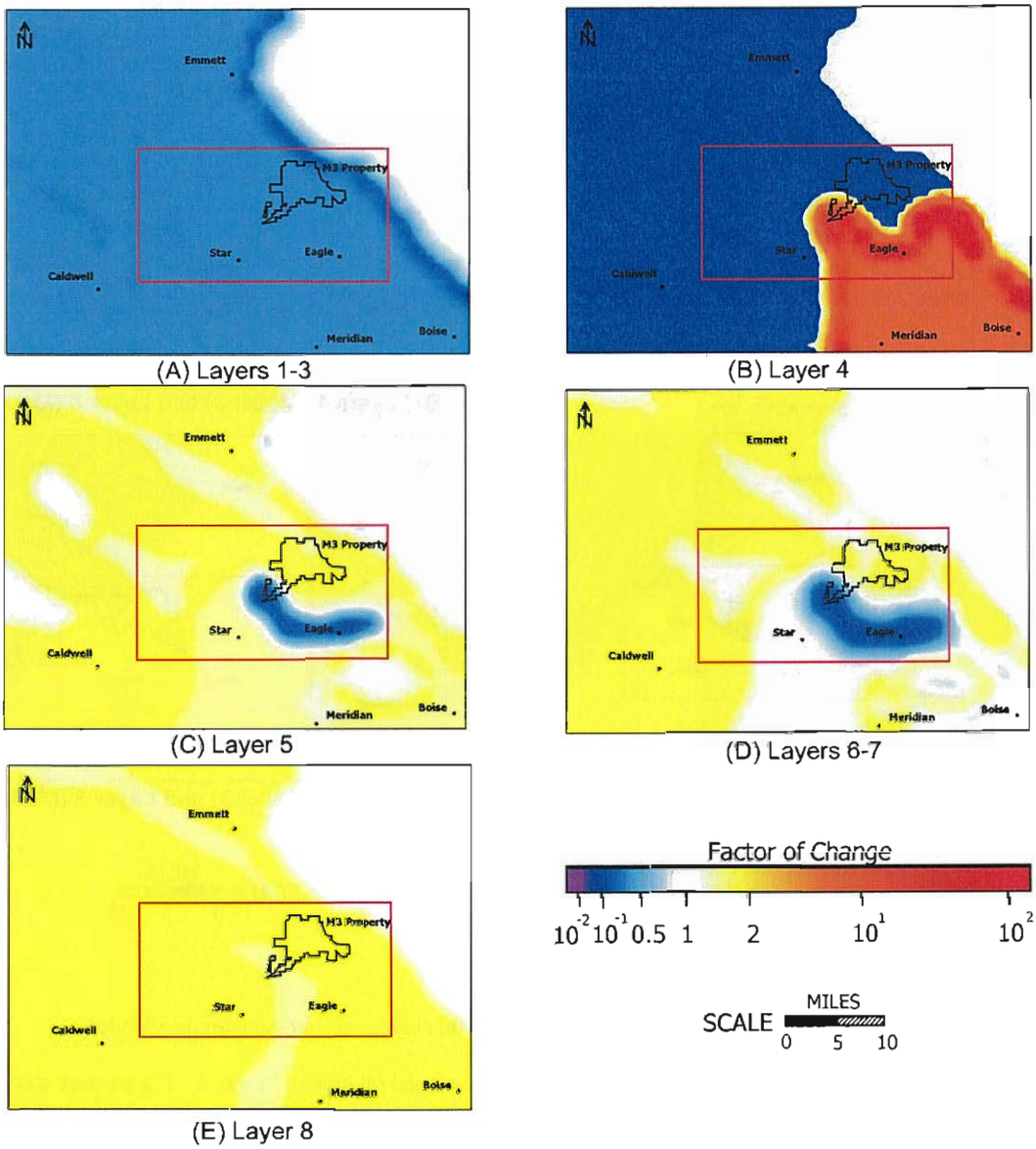


NOTES:
Since an additional layer was added to Model 4 (layer 4), this layer was not compared to Model 3.

The color scale indicates by a factor how much Model 3 changed relative to Model 4. The warmer colors (red, orange, yellow) indicate that the values increased from Model 3 to Model 4. The cooler colors (purple, blue) indicate that the values decreased from Model 3 to Model 4. The following list of colors explains what each color represents in the figures above:

- RED: value increased by 2 orders of magnitude (100X)
- ORANGE: value increased by 1 order of magnitude (10X)
- YELLOW: value doubled (2X)
- WHITE: value stayed the same
- LIGHT BLUE: value decreased by ½ (X/2)
- DARK BLUE: value decreased by 1 order of magnitude (X/10)
- PURPLE: value decreased by 2 orders of magnitude (X/100)

Comparing Quasi-Steady-State Model 4 with Models 5a-d and 6



NOTES:

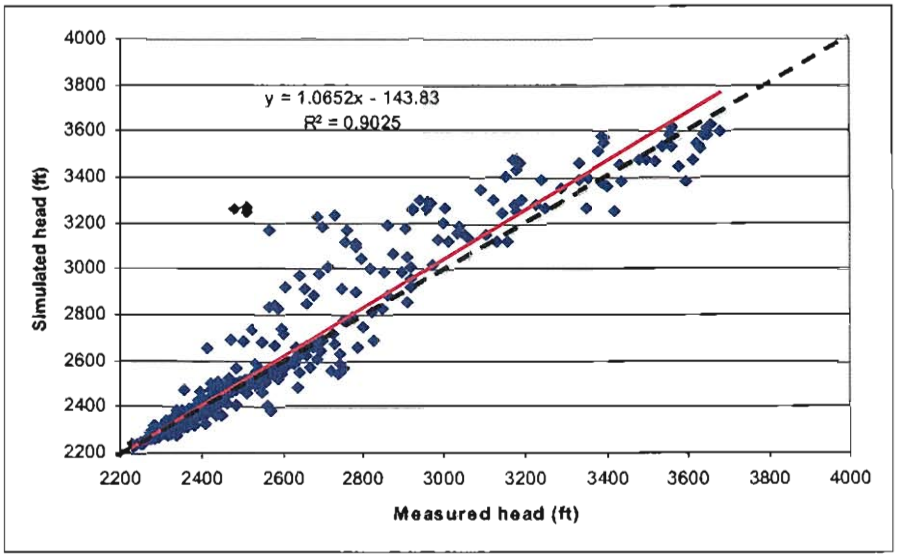
The color scale indicates by a factor how much Model 3 changed relative to Model 4. The warmer colors (red, orange, yellow) indicate that the values increased from Model 3 to Model 4. The cooler colors (purple, blue) indicate that the values decreased from Model 3 to Model 4. The following list of colors explains what each color represents in the figures above:

- RED: value increased by 2 orders of magnitude (100X)
- ORANGE: value increased by 1 order of magnitude (10X)
- YELLOW: value doubled (2X)
- WHITE: value stayed the same
- LIGHT BLUE: value decreased by ½ (X/2)
- DARK BLUE: value decreased by 1 order of magnitude (X/10)
- PURPLE: value decreased by 2 orders of magnitude (X/100)

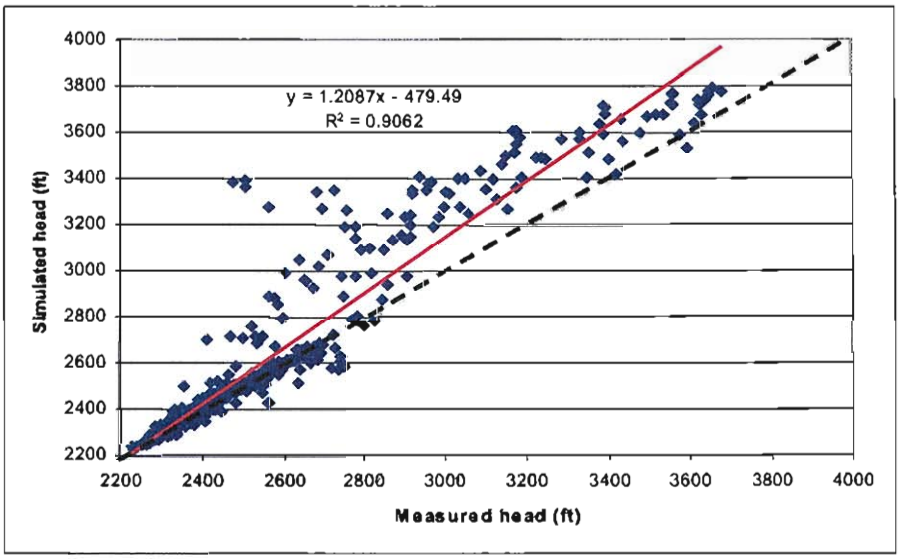
APPENDIX F:
QUASI-STEADY-STATE MODELS 1-6, STEADY-STATE MODEL, AND TRANSIENT MODEL RESULTS

This appendix contains the results of all models discussed in the calibration process. The results will include (1) a plot of simulated head values versus measured head values for wells and pilot points in the model domain (quasi-steady-state models), (2) a potentiometric surface for the Pierce Gulch Sand aquifer system (quasi-steady-state models and steady-state models, and (3) a map of the residuals (calculated head – measured head) in the model domain (quasi-steady-state models). Transient model results include plots of model simulated drawdown curves for observation wells and plots showing the results of actual aquifer test data.

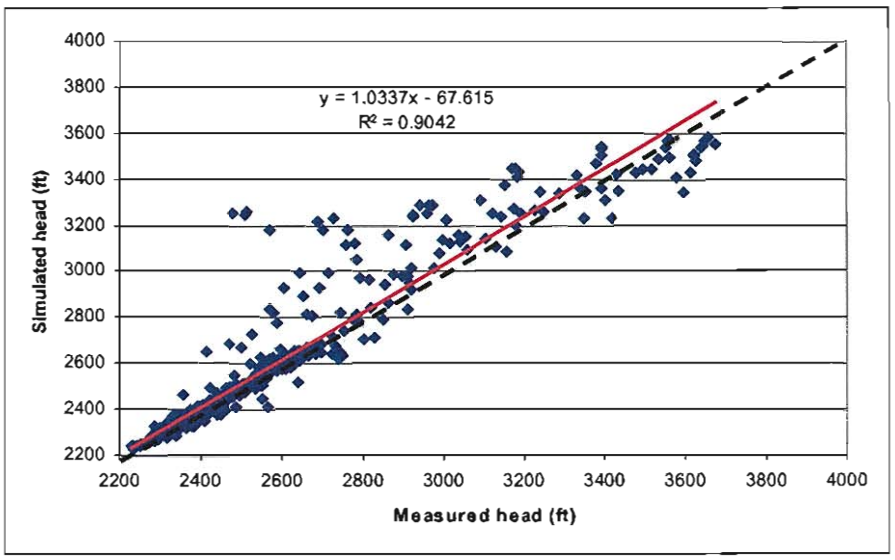
Plots of Simulated Head Versus Measured Head



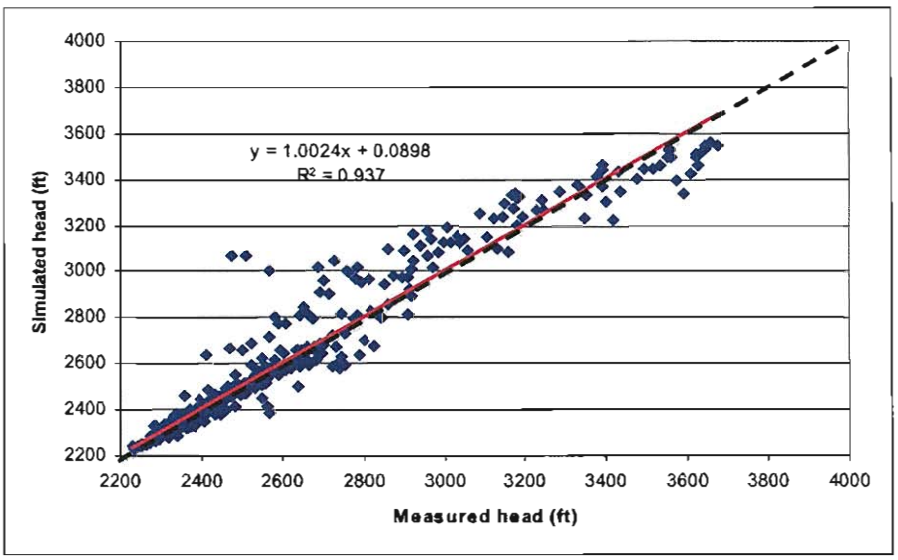
(A) Quasi-Steady-State Model 1



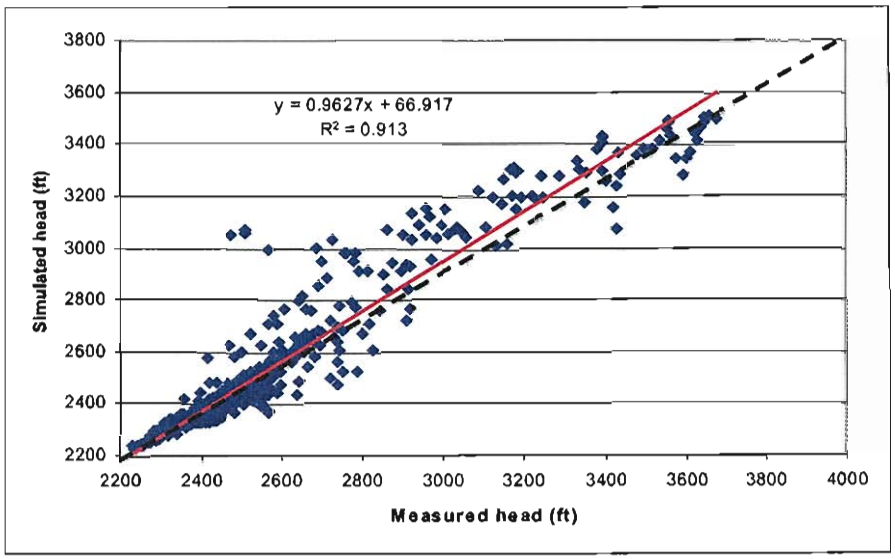
(B) Quasi-Steady-State Model 2



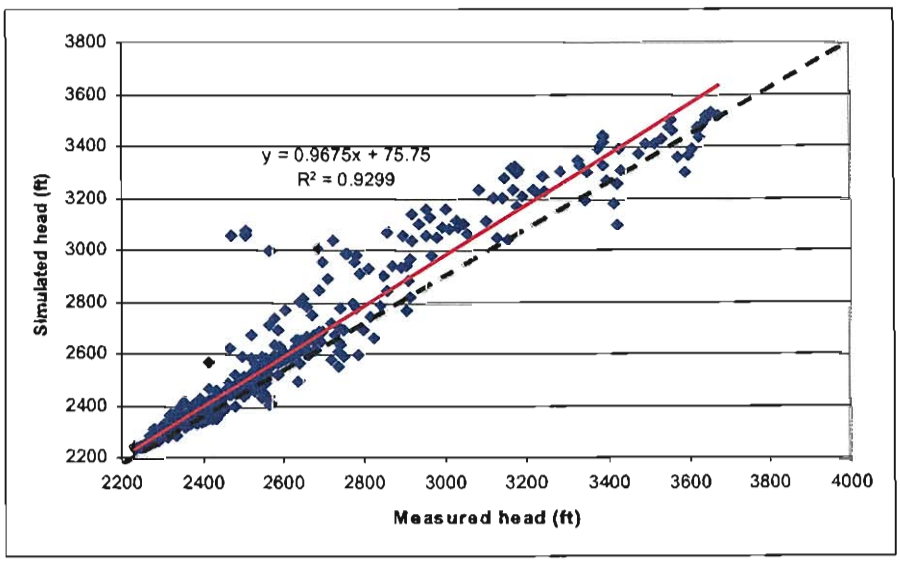
(C) Quasi-Steady-State Model 3



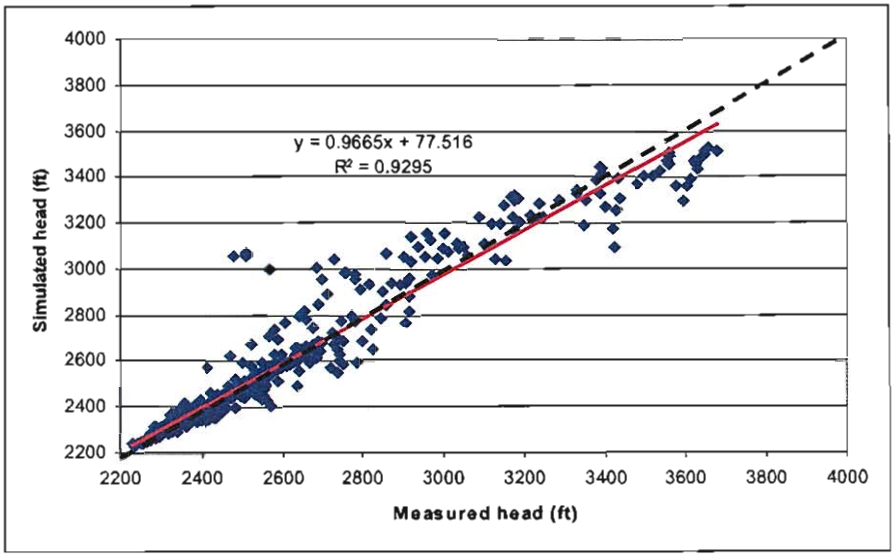
(D) Quasi-Steady-State Model 4



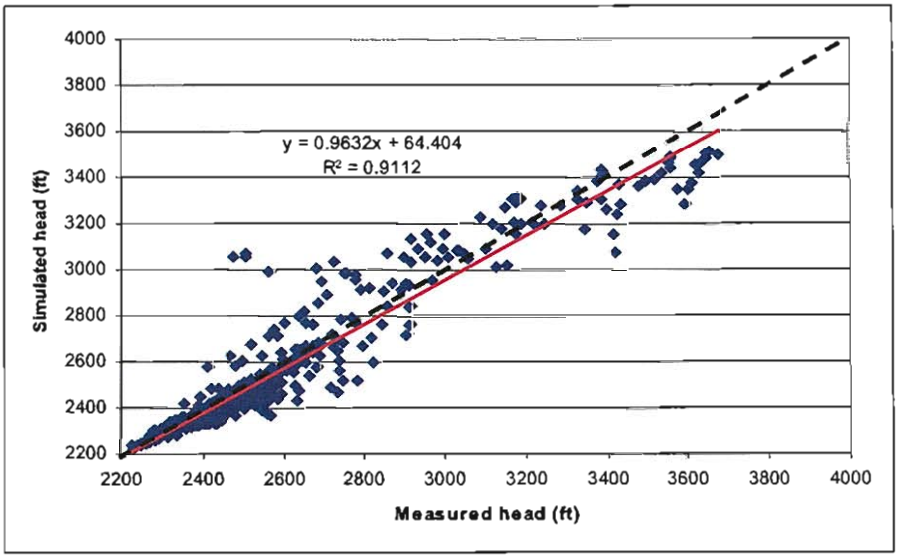
(E) Quasi-Steady-State Model 5a



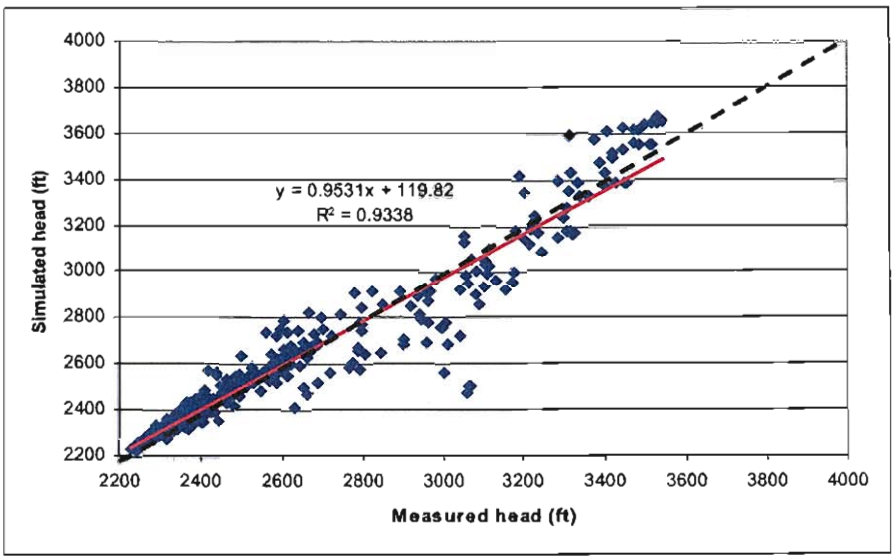
(F) Quasi-Steady-State Model 5b



(G) Quasi-Steady-State Model 5c

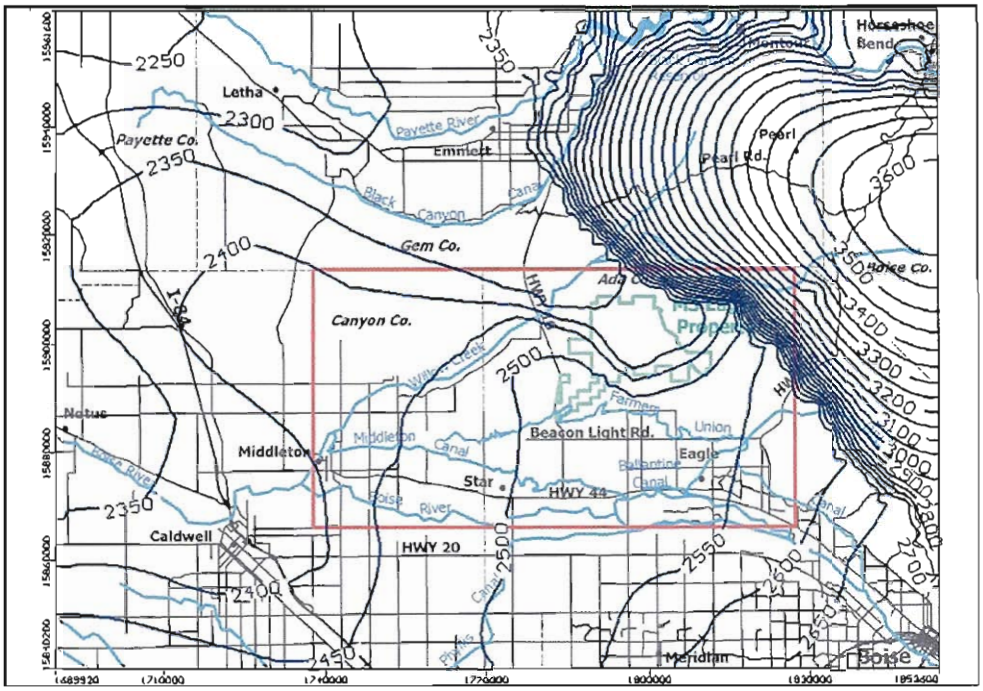


(H) Quasi-Steady-State Model 5d

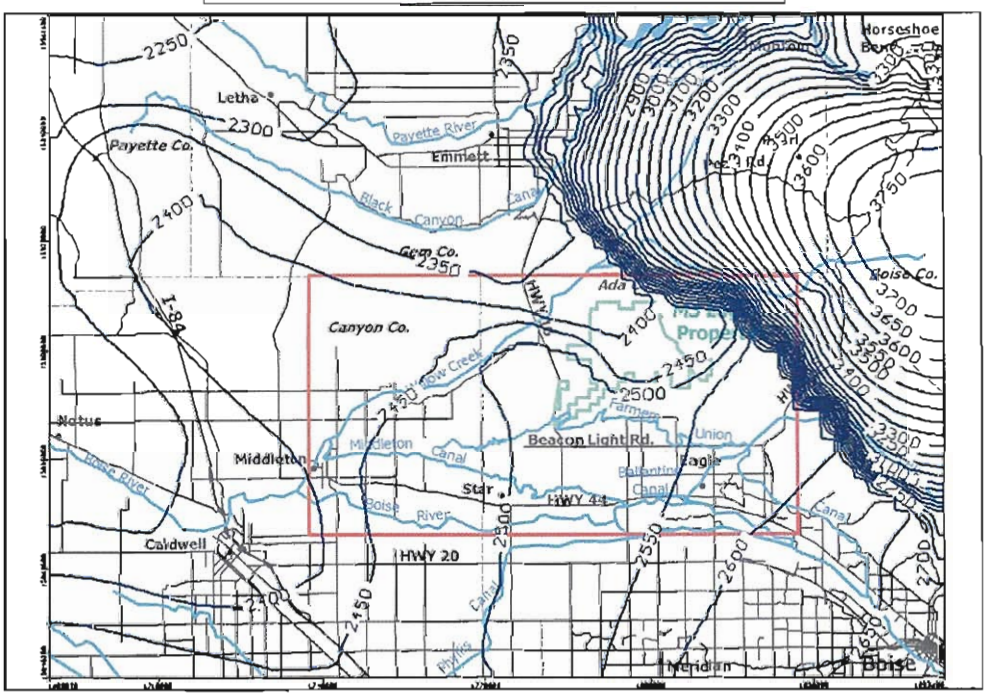


(I) Quasi-Steady-State Model 6

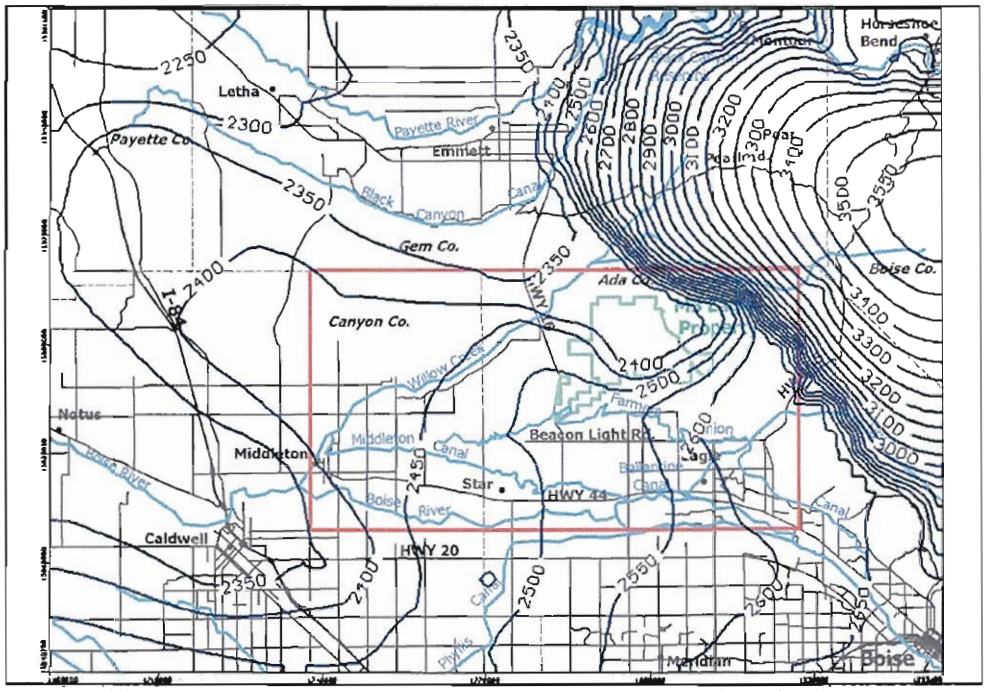
Potentiometric Surface Maps for Quasi-Steady-State Models 1-6



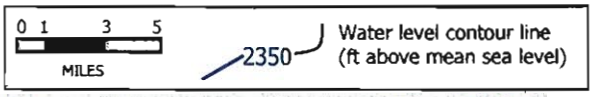
(A) Quasi-Steady-State-Model 1 potentiometric surface for layer 5

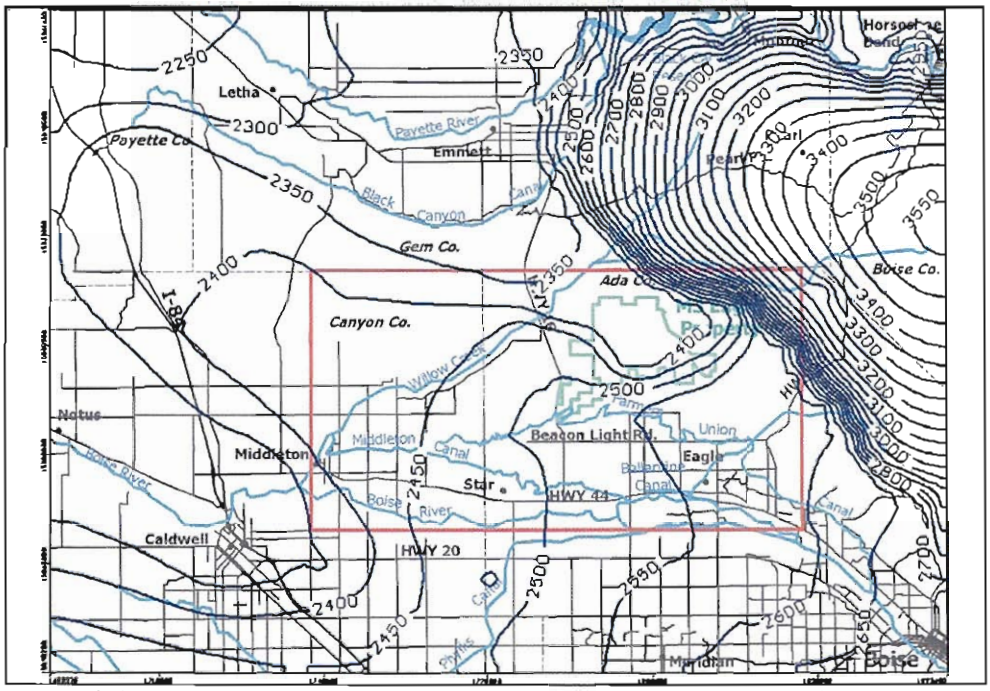


(B) Quasi-Steady-State-Model 2 potentiometric surface for layer 5

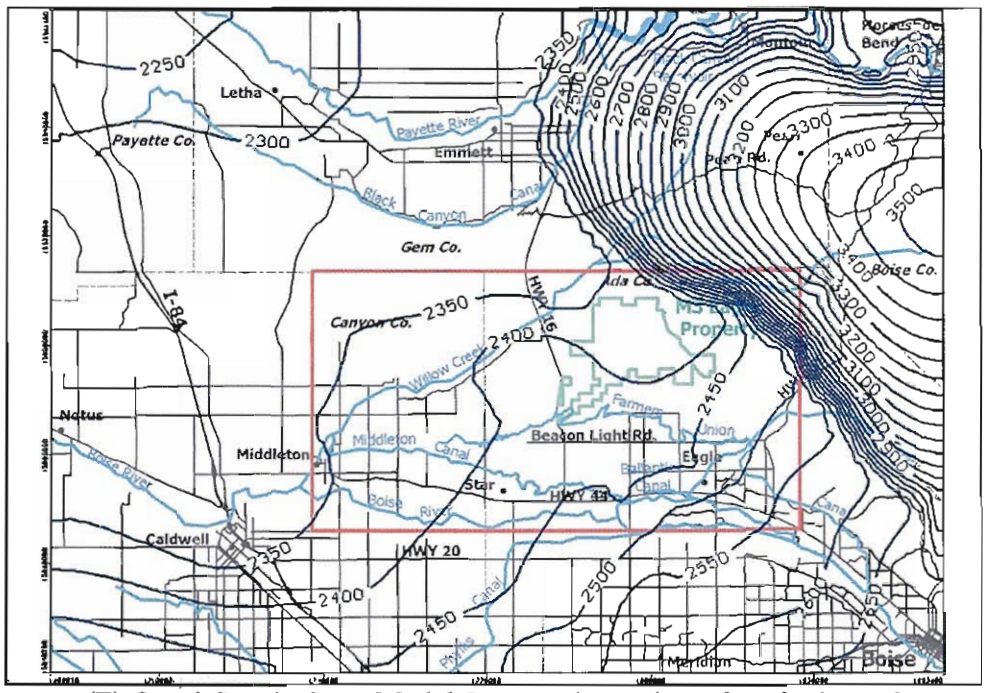


(C) Quasi-Steady-State-Model 3 potentiometric surface for layer 5

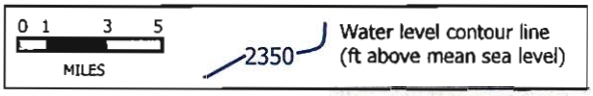


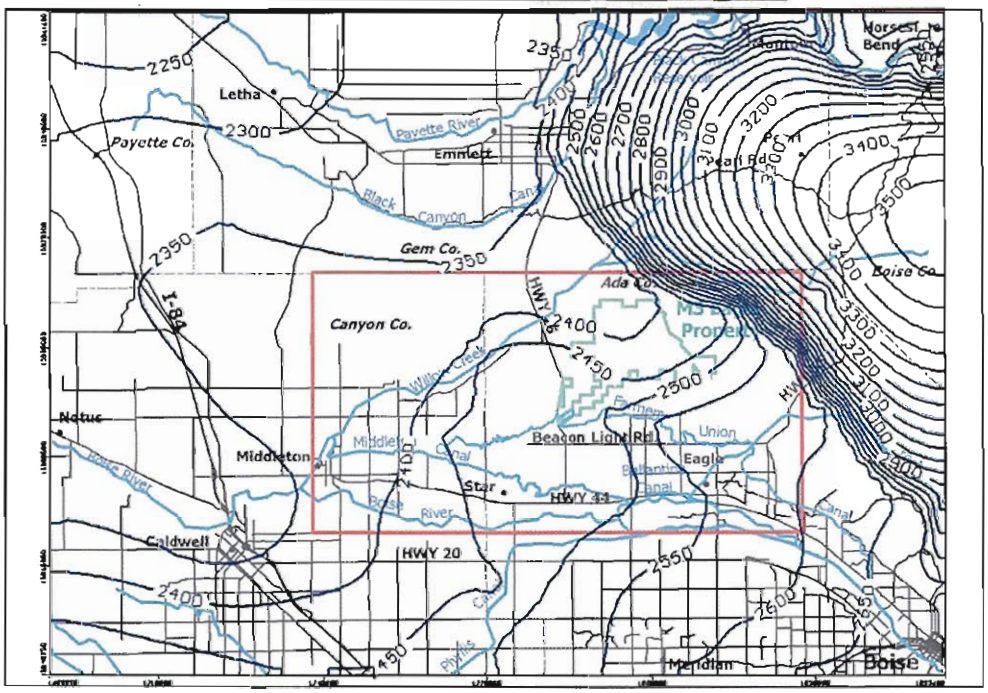


(D) Quasi-Steady-State-Model 4 potentiometric surface for layer 5

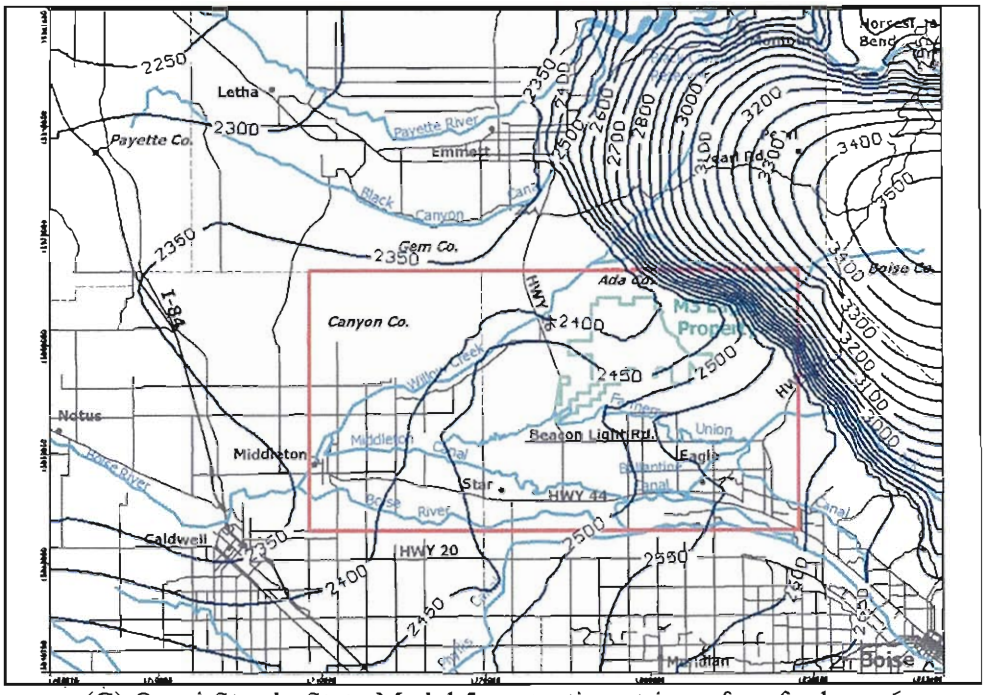


(E) Quasi-Steady-State-Model 5a potentiometric surface for layer 6

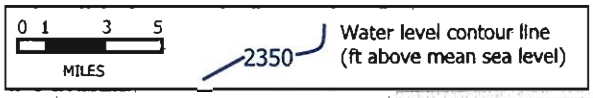


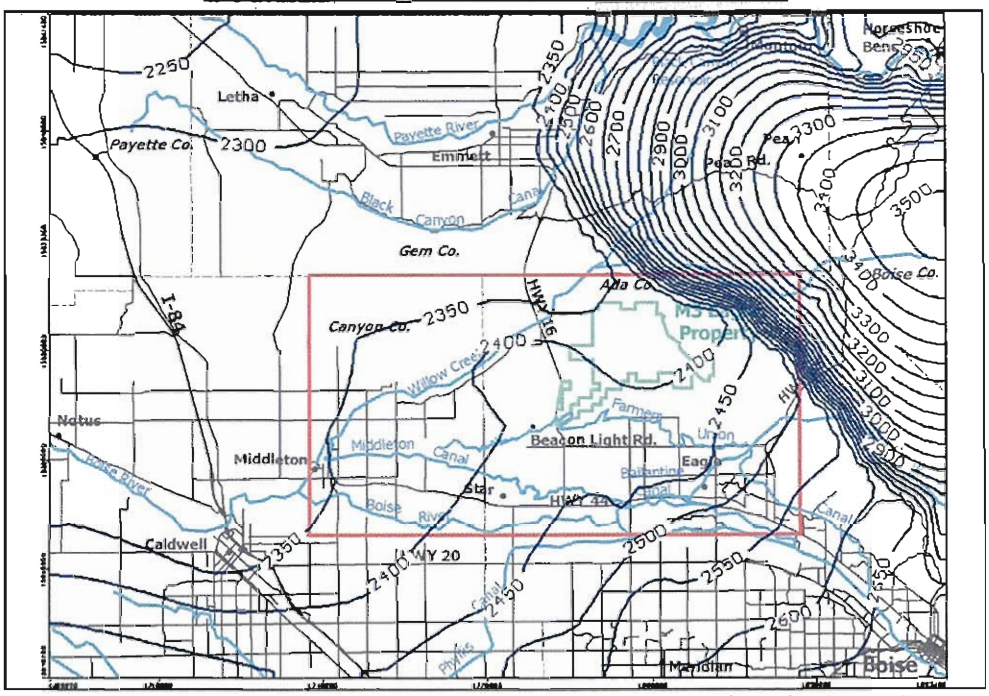


(F) Quasi-Steady-State-Model 5b potentiometric surface for layer 6

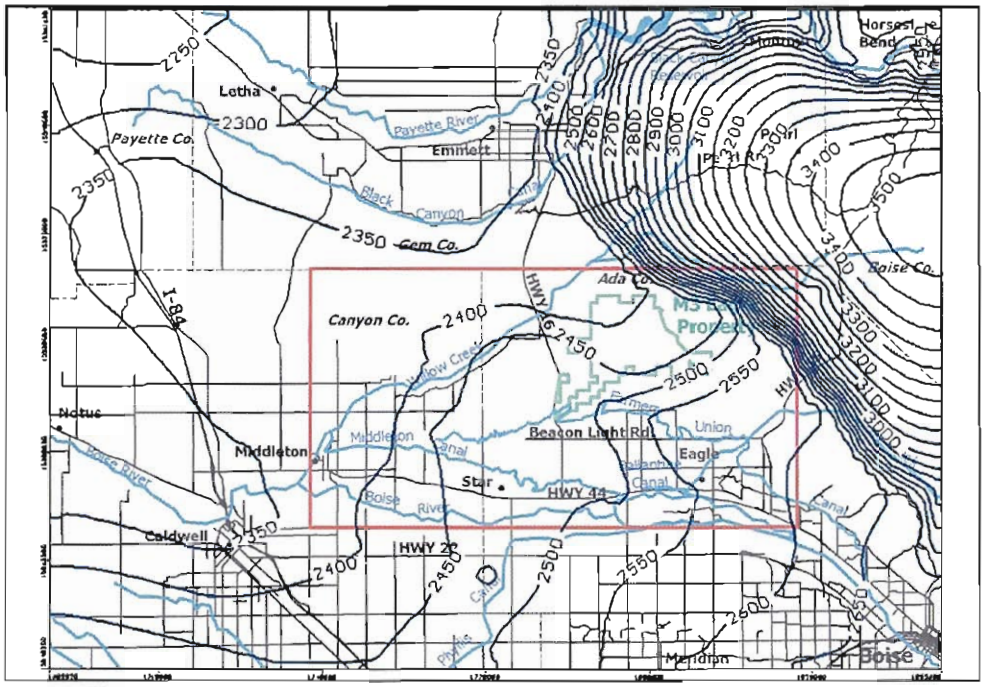


(G) Quasi-Steady-State-Model 5c potentiometric surface for layer 6

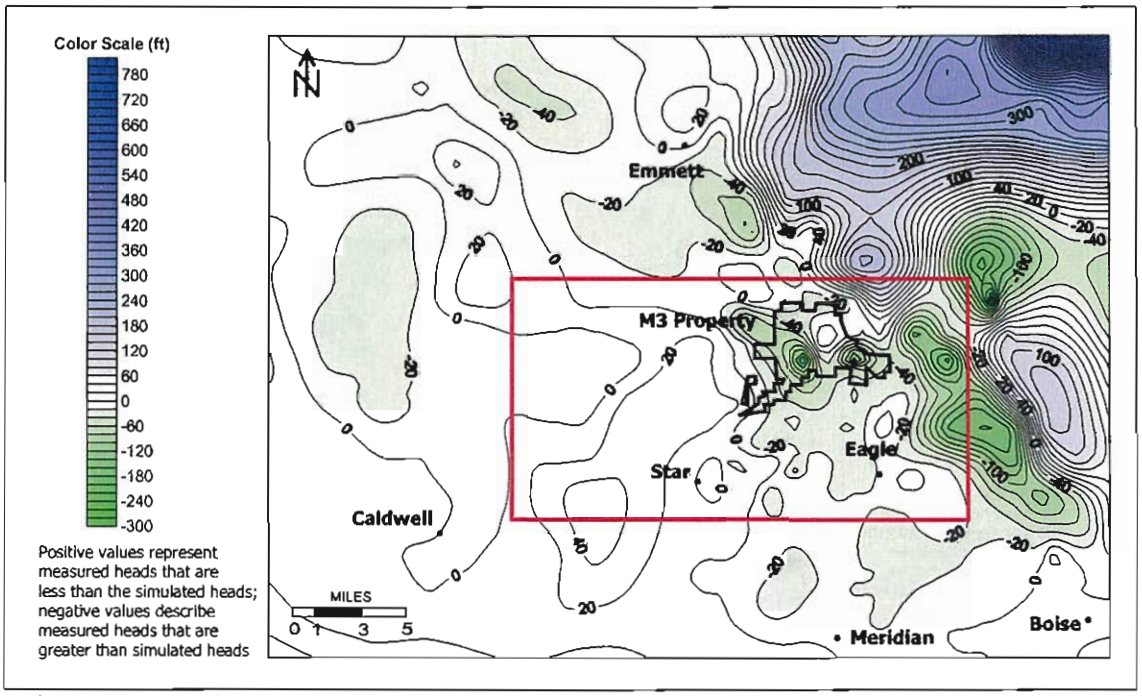




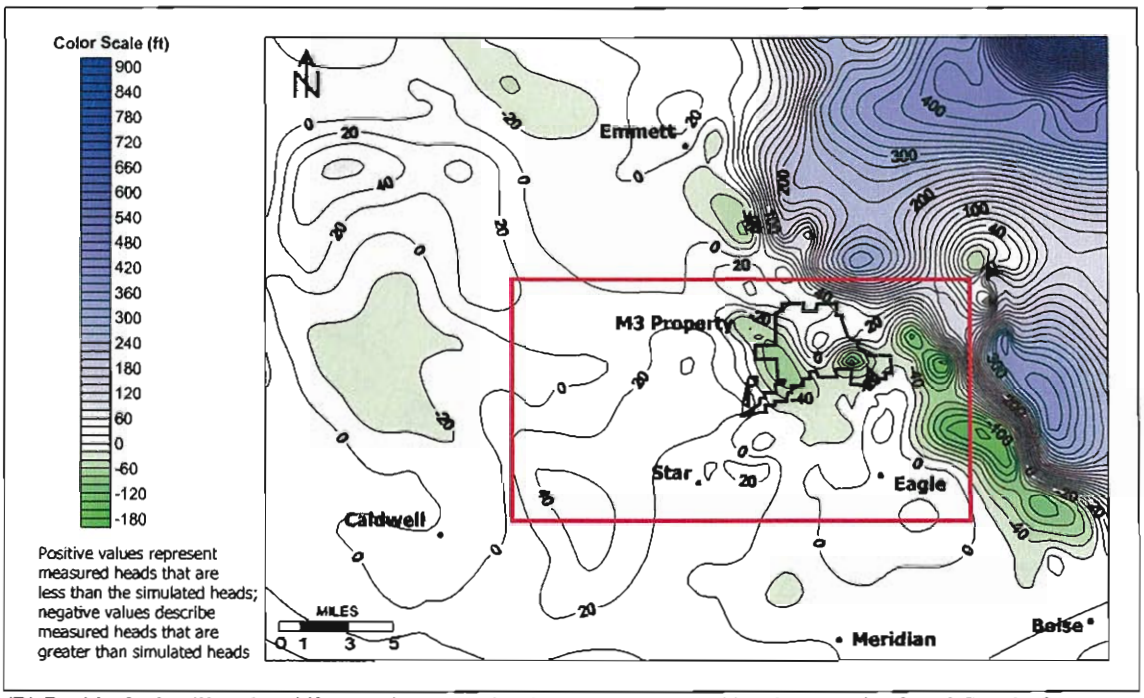
(H) Quasi-Steady-State-Model 5d potentiometric surface for layer 6


Letha
Payette Co.
Emmett
Payette River
Black Canyon
Gem Co.
Canyon Co.
Ada Co.
Boise Co.
Horseshoe Bend
Montour
Pearl
Nampa
Nyssa
Nampa Canyon
Nampa Canyon Rd
Nampa Canyon Rd
Nampa Canyon Rd

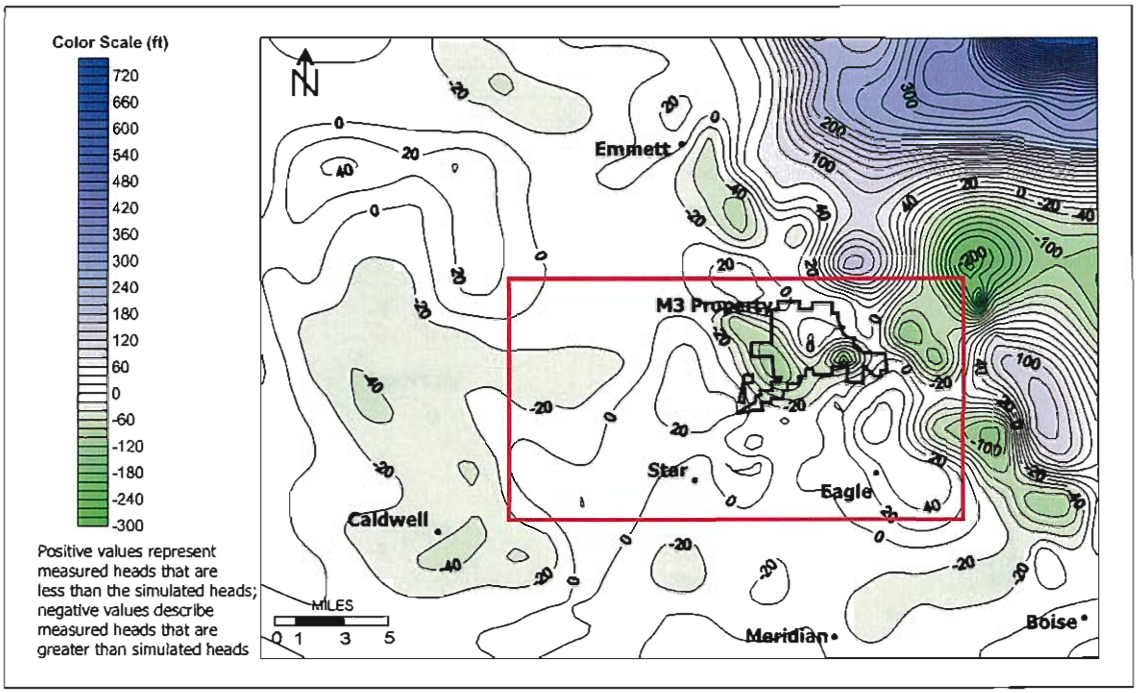
Head Residuals for Quasi-Steady-State Models 1-6



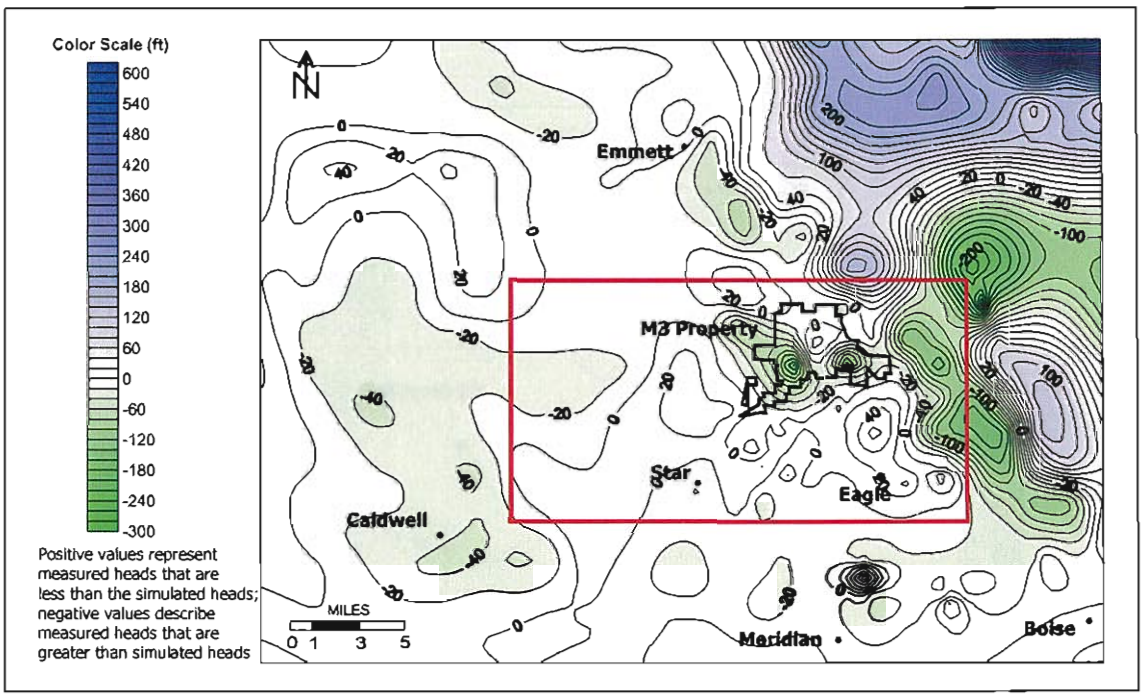
(A) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 1.



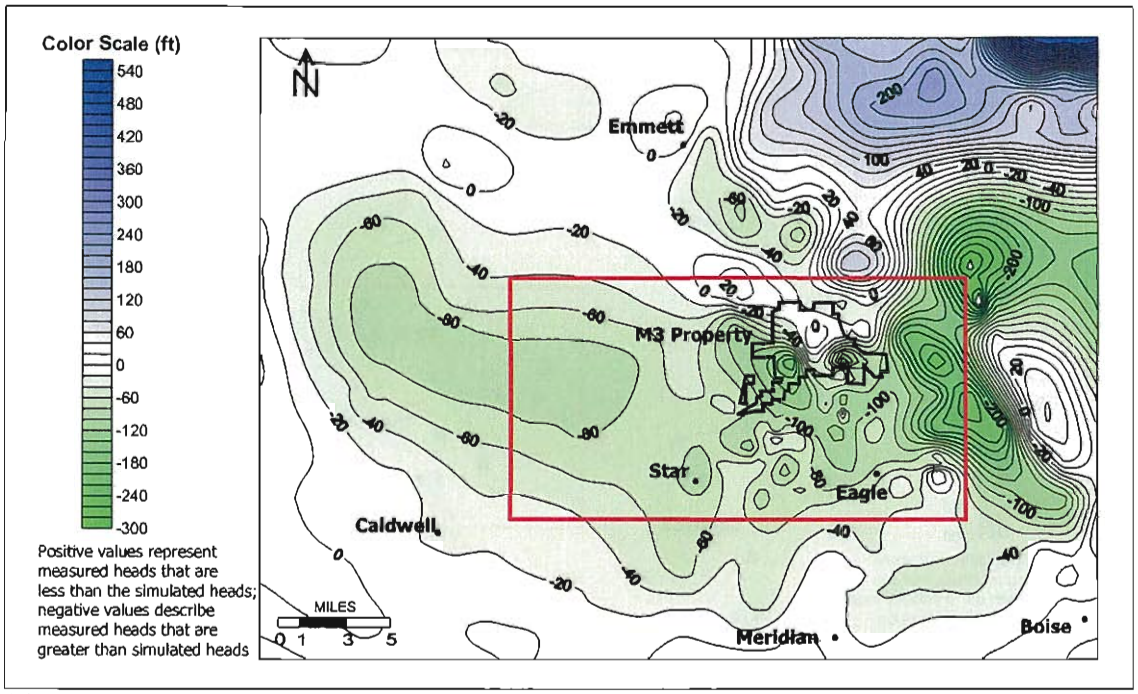
(B) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 2.



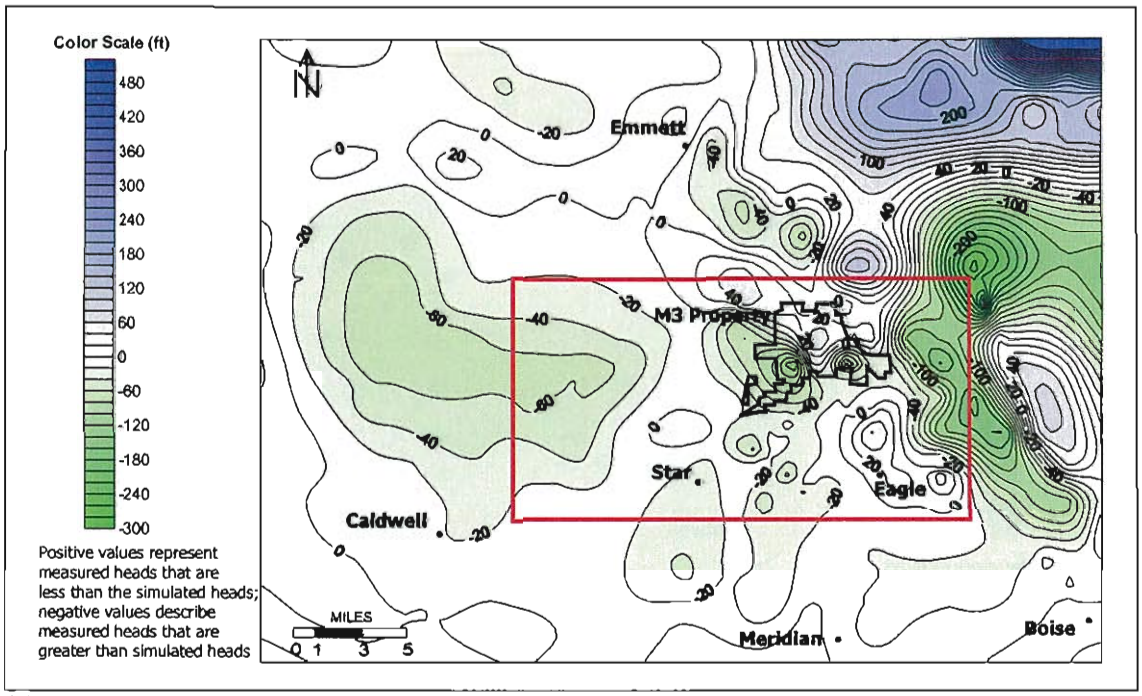
(C) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 3.



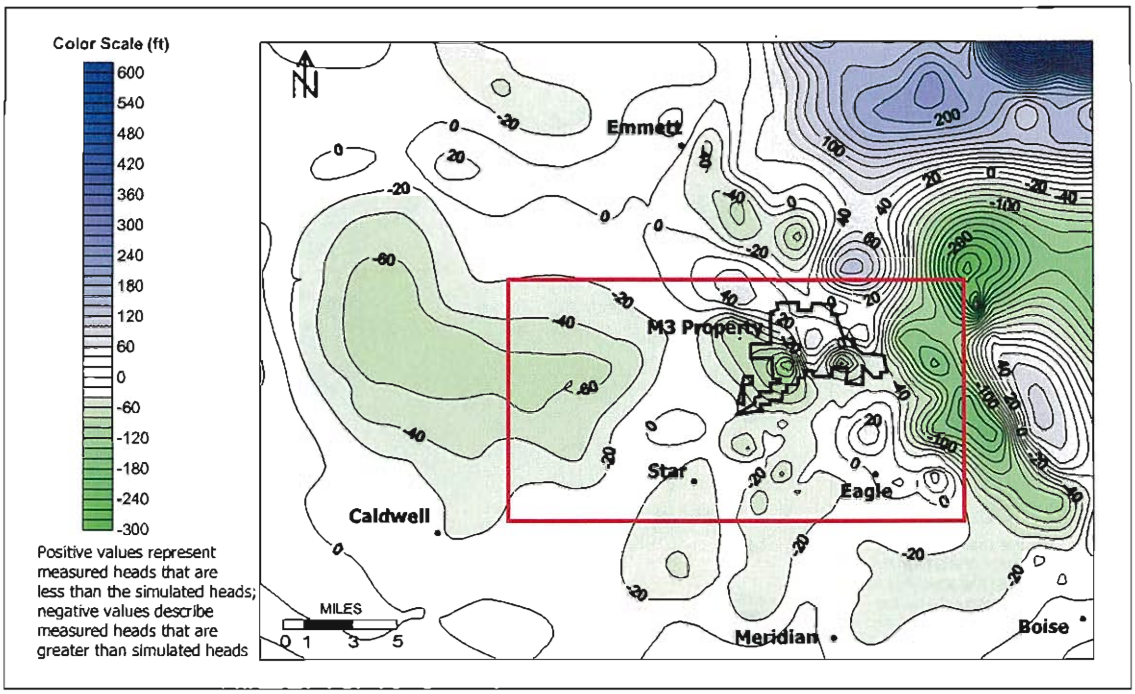
(D) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 4.



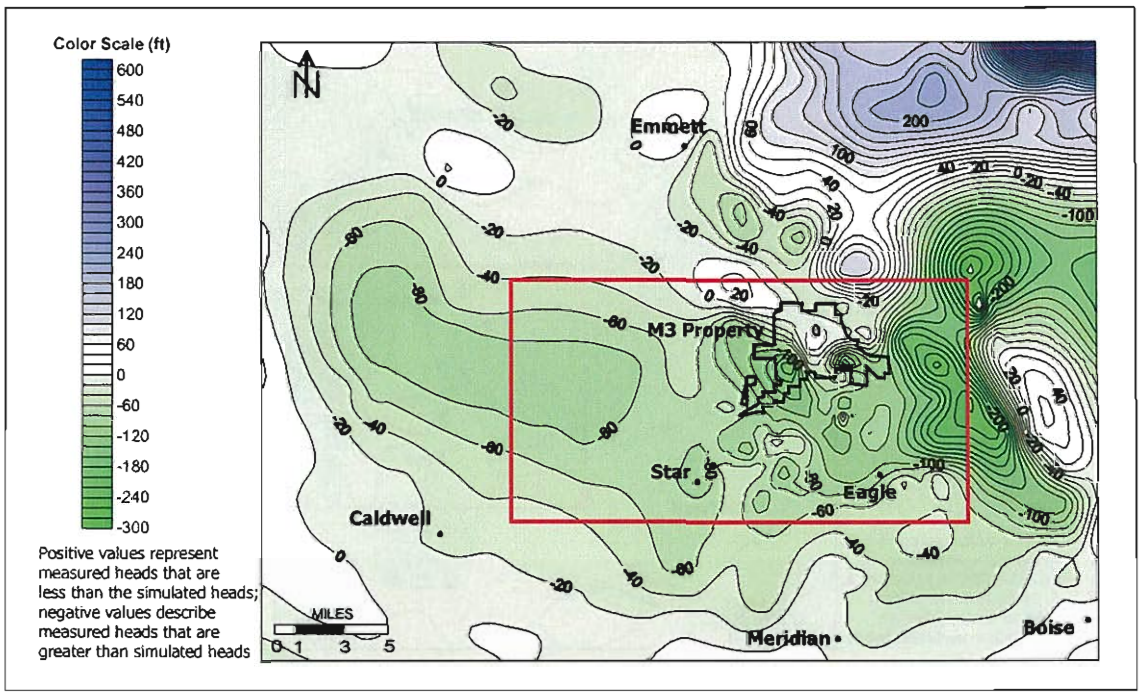
(E) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 5a.



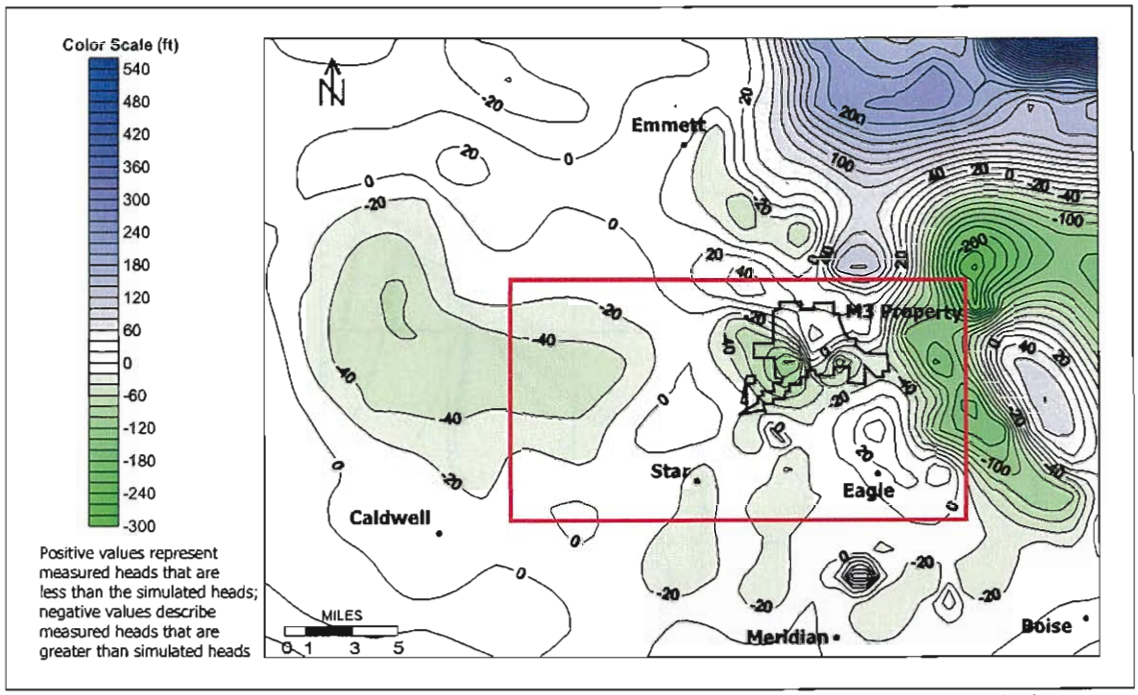
(F) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 5b.



(G) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 5c.



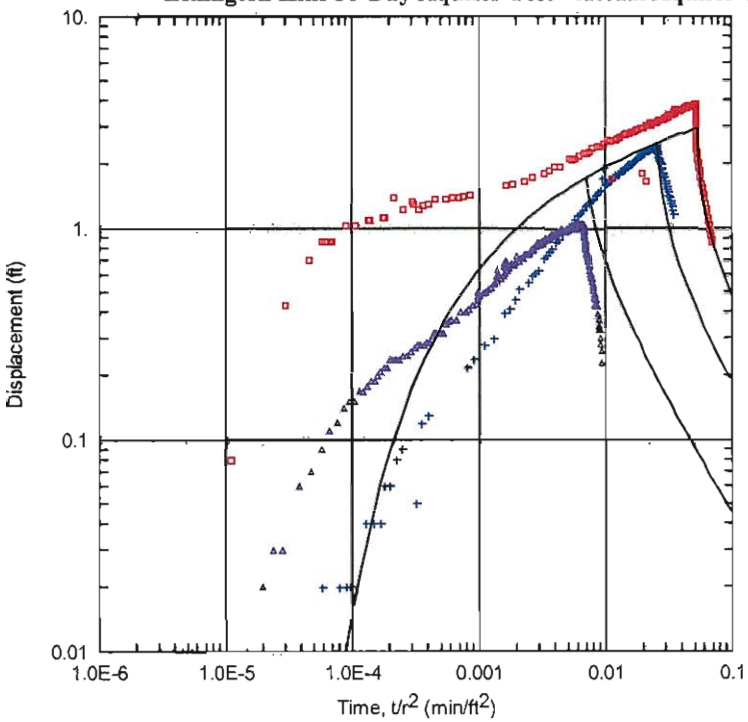
(H) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 5d.



(I) Residuals detailing the difference between simulated and measured head values for Quasi-Steady-State Model 6.

Transient Model Results: Plots of Drawdown (Simulated and Actual Values)

Lexington Hills 30-Day Aquifer Test - Actual Aquifer Test Results:



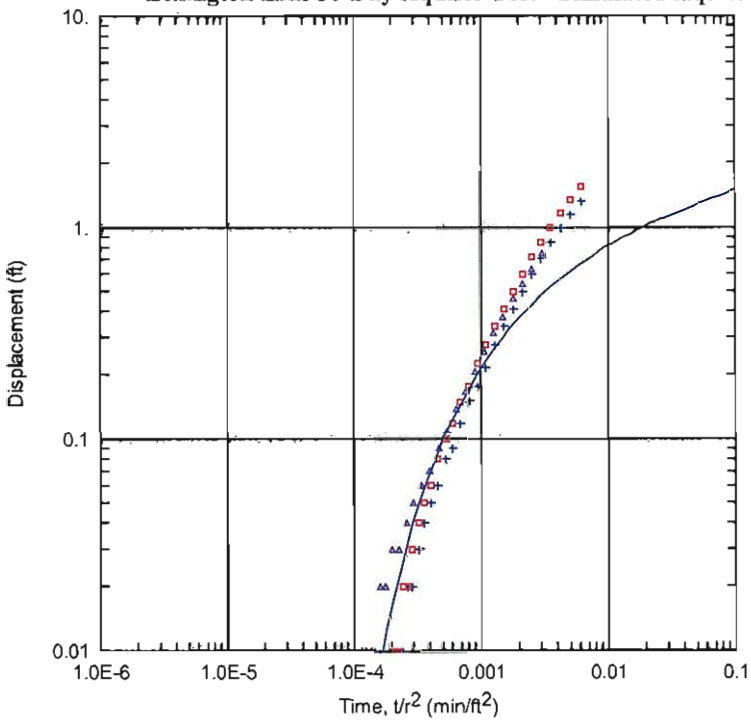
Obs. Wells
+ Carson
□ Holgate
△ EHGC

Aquifer Model
Confined

Solution
Theis

Parameters
T = 1.352E+5 gal/day/ft
S = 0.01287
Kz/Kr = 1.
b = 310. ft

Lexington Hills 30-Day Aquifer Test - Simulated Aquifer Test Results:



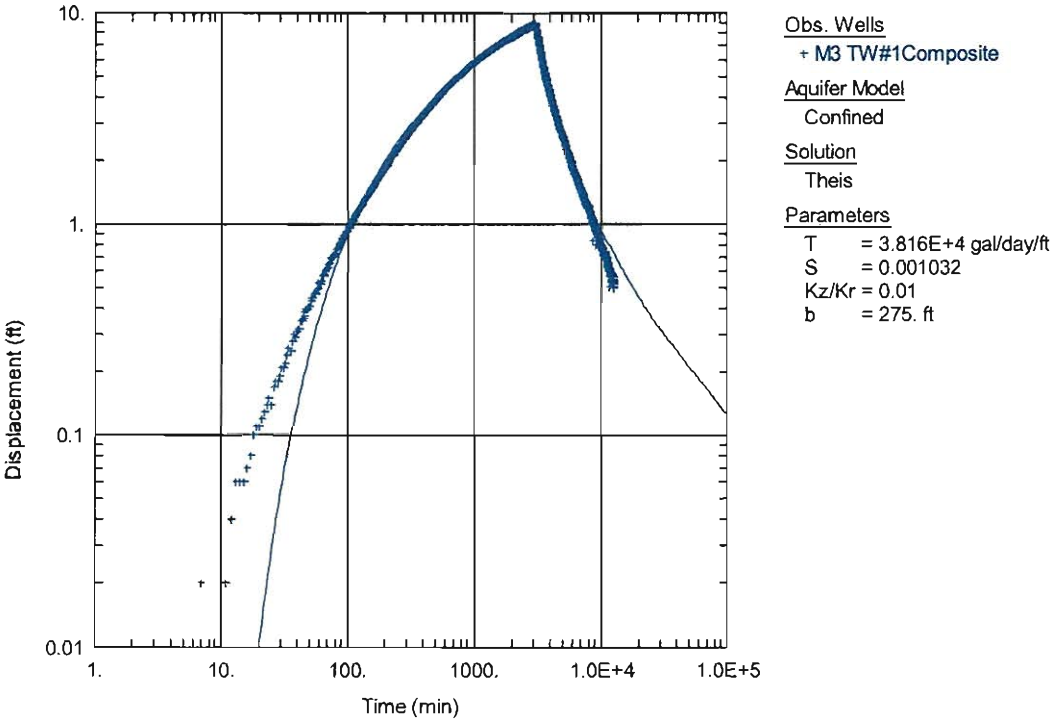
Obs. Wells
+ Carson
□ Holgate
△ EHGC

Aquifer Model
Confined

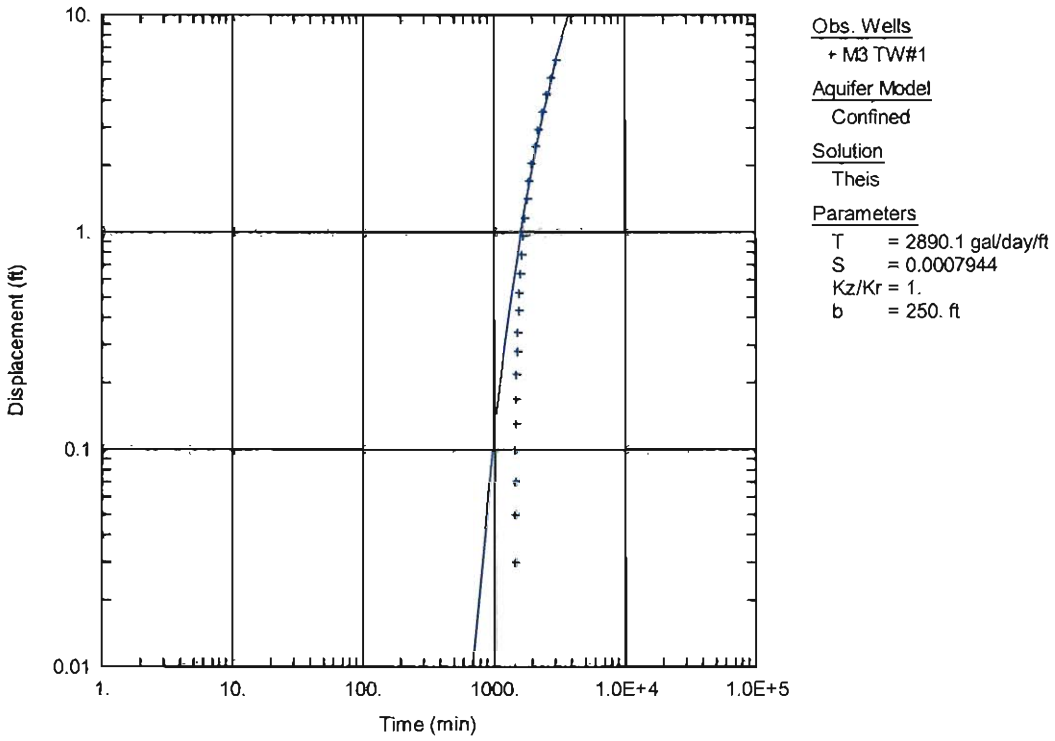
Solution
Theis

Parameters
T = 2.779E+5 gal/day/ft
S = 0.04132
Kz/Kr = 1.
b = 250. ft

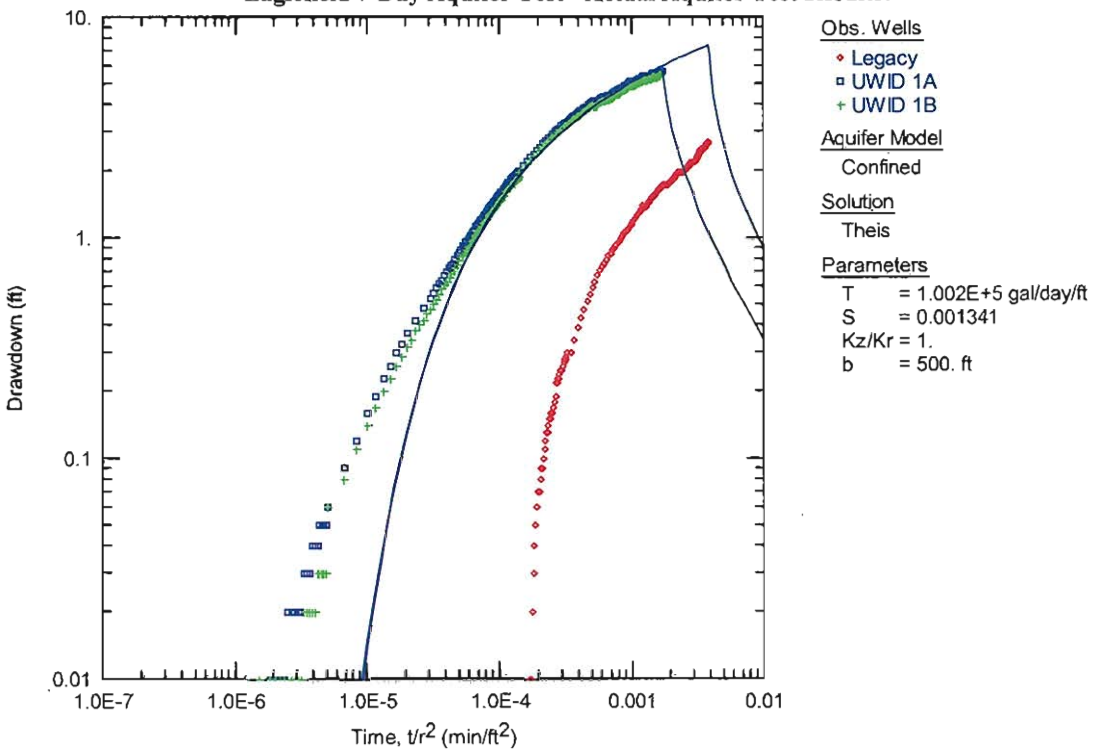
Kling Irrigation Well 50-Hr Aquifer Test - Actual Aquifer Test Results:



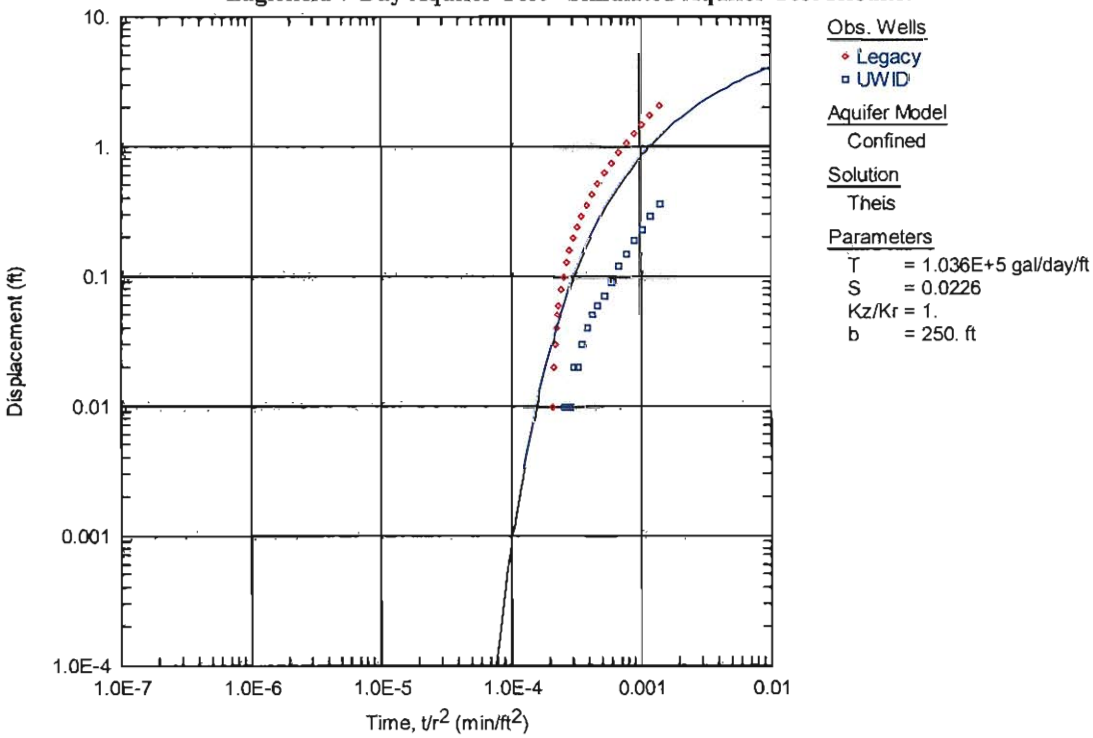
Kling Irrigation Well 50-Hr Aquifer Test - Simulated Aquifer Test Results:



Eaglefield 7-Day Aquifer Test - Actual Aquifer Test Results:



Eaglefield 7-Day Aquifer Test - Simulated Aquifer Test Results:



APPENDIX G:
Quasi-Steady-State Model 6 Surface Elevation Data

This appendix consists of the values of elevation that were interpolated over the model domain in MODFLOW.

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1	1689920.000	15840200.000	2515.63
2	1692603.279	15840200.000	2515.66
3	1695286.557	15840200.000	2514.76
4	1697969.836	15840200.000	2506.48
5	1700653.115	15840200.000	2497.70
6	1703336.393	15840200.000	2493.35
7	1706019.672	15840200.000	2497.51
8	1708702.951	15840200.000	2515.40
9	1711386.230	15840200.000	2532.16
10	1714069.508	15840200.000	2523.19
11	1716752.787	15840200.000	2516.36
12	1719436.066	15840200.000	2521.31
13	1722119.344	15840200.000	2506.21
14	1724802.623	15840200.000	2476.46
15	1727485.902	15840200.000	2444.36
16	1730169.180	15840200.000	2435.04
17	1732852.459	15840200.000	2433.56
18	1735535.738	15840200.000	2430.73
19	1738219.016	15840200.000	2437.24
20	1740902.295	15840200.000	2439.92
21	1743585.574	15840200.000	2440.06
22	1746268.852	15840200.000	2452.23
23	1748952.131	15840200.000	2460.49
24	1751635.410	15840200.000	2466.51
25	1754318.689	15840200.000	2465.15
26	1757001.967	15840200.000	2467.72
27	1759685.246	15840200.000	2472.09
28	1762368.525	15840200.000	2484.73
29	1765051.803	15840200.000	2491.94
30	1767735.082	15840200.000	2496.60
31	1770418.361	15840200.000	2503.07
32	1773101.639	15840200.000	2503.81
33	1775784.918	15840200.000	2518.28
34	1778468.197	15840200.000	2528.16
35	1781151.475	15840200.000	2535.98
36	1783834.754	15840200.000	2548.86
37	1786518.033	15840200.000	2552.72
38	1789201.311	15840200.000	2558.70
39	1791884.590	15840200.000	2570.18
40	1794567.869	15840200.000	2576.48
41	1797251.148	15840200.000	2585.21
42	1799934.426	15840200.000	2598.69

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1334	1773101.639	15900900.000	2637.23
1335	1775784.918	15900900.000	2657.18
1336	1778468.197	15900900.000	2686.99
1337	1781151.475	15900900.000	2729.65
1338	1783834.754	15900900.000	2837.10
1339	1786518.033	15900900.000	2855.02
1340	1789201.311	15900900.000	2921.94
1341	1791884.590	15900900.000	2878.43
1342	1794567.869	15900900.000	2955.16
1343	1797251.148	15900900.000	2853.29
1344	1799934.426	15900900.000	2820.87
1345	1802617.705	15900900.000	2924.38
1346	1805300.984	15900900.000	2944.06
1347	1807984.262	15900900.000	3020.79
1348	1810667.541	15900900.000	3023.04
1349	1813350.820	15900900.000	3162.45
1350	1816034.098	15900900.000	3259.20
1351	1818717.377	15900900.000	3114.19
1352	1821400.656	15900900.000	3242.80
1353	1824083.934	15900900.000	3381.02
1354	1826767.213	15900900.000	3379.84
1355	1829450.492	15900900.000	3542.06
1356	1832133.770	15900900.000	3400.01
1357	1834817.049	15900900.000	3202.96
1358	1837500.328	15900900.000	3406.99
1359	1840183.607	15900900.000	3576.37
1360	1842866.885	15900900.000	3750.74
1361	1845550.164	15900900.000	3923.73
1362	1848233.443	15900900.000	3933.63
1363	1850916.721	15900900.000	4093.77
1364	1853600.000	15900900.000	4499.18
1365	1689920.000	15903790.476	2423.35
1366	1692603.279	15903790.476	2430.94
1367	1695286.557	15903790.476	2416.11
1368	1697969.836	15903790.476	2407.26
1369	1700653.115	15903790.476	2407.44
1370	1703336.393	15903790.476	2401.28
1371	1706019.672	15903790.476	2464.45
1372	1708702.951	15903790.476	2472.05
1373	1711386.230	15903790.476	2485.96
1374	1714069.508	15903790.476	2513.70
1375	1716752.787	15903790.476	2464.01

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
43	1802617.705	15840200.000	2603.60
44	1805300.984	15840200.000	2603.25
45	1807984.262	15840200.000	2609.07
46	1810667.541	15840200.000	2620.77
47	1813350.820	15840200.000	2632.00
48	1816034.098	15840200.000	2642.18
49	1818717.377	15840200.000	2651.37
50	1821400.656	15840200.000	2662.92
51	1824083.934	15840200.000	2674.15
52	1826767.213	15840200.000	2681.35
53	1829450.492	15840200.000	2690.35
54	1832133.770	15840200.000	2698.58
55	1834817.049	15840200.000	2706.27
56	1837500.328	15840200.000	2717.26
57	1840183.607	15840200.000	2723.20
58	1842866.885	15840200.000	2715.71
59	1845550.164	15840200.000	2714.35
60	1848233.443	15840200.000	2685.70
61	1850916.721	15840200.000	2697.66
62	1853600.000	15840200.000	2711.39
63	1689920.000	15843090.476	2515.53
64	1692603.279	15843090.476	2516.38
65	1695286.557	15843090.476	2511.82
66	1697969.836	15843090.476	2507.35
67	1700653.115	15843090.476	2497.27
68	1703336.393	15843090.476	2491.37
69	1706019.672	15843090.476	2497.74
70	1708702.951	15843090.476	2515.93
71	1711386.230	15843090.476	2542.61
72	1714069.508	15843090.476	2518.25
73	1716752.787	15843090.476	2510.27
74	1719436.066	15843090.476	2519.65
75	1722119.344	15843090.476	2513.70
76	1724802.623	15843090.476	2464.67
77	1727485.902	15843090.476	2439.65
78	1730169.180	15843090.476	2434.48
79	1732852.459	15843090.476	2430.19
80	1735535.738	15843090.476	2432.62
81	1738219.016	15843090.476	2436.54
82	1740902.295	15843090.476	2439.87
83	1743585.574	15843090.476	2436.44
84	1746268.852	15843090.476	2455.57
85	1748952.131	15843090.476	2461.48
86	1751635.410	15843090.476	2463.29
87	1754318.689	15843090.476	2470.26
88	1757001.967	15843090.476	2465.26

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1376	1719436.066	15903790.476	2489.64
1377	1722119.344	15903790.476	2503.16
1378	1724802.623	15903790.476	2501.80
1379	1727485.902	15903790.476	2524.03
1380	1730169.180	15903790.476	2507.58
1381	1732852.459	15903790.476	2564.68
1382	1735535.738	15903790.476	2544.70
1383	1738219.016	15903790.476	2565.48
1384	1740902.295	15903790.476	2585.16
1385	1743585.574	15903790.476	2608.22
1386	1746268.852	15903790.476	2648.37
1387	1748952.131	15903790.476	2659.66
1388	1751635.410	15903790.476	2721.43
1389	1754318.689	15903790.476	2736.74
1390	1757001.967	15903790.476	2675.32
1391	1759685.246	15903790.476	2726.21
1392	1762368.525	15903790.476	2781.63
1393	1765051.803	15903790.476	2765.47
1394	1767735.082	15903790.476	2701.04
1395	1770418.361	15903790.476	2804.90
1396	1773101.639	15903790.476	2805.98
1397	1775784.918	15903790.476	2725.29
1398	1778468.197	15903790.476	2678.56
1399	1781151.475	15903790.476	2701.23
1400	1783834.754	15903790.476	2878.21
1401	1786518.033	15903790.476	2928.72
1402	1789201.311	15903790.476	2930.19
1403	1791884.590	15903790.476	2922.98
1404	1794567.869	15903790.476	3002.97
1405	1797251.148	15903790.476	2969.51
1406	1799934.426	15903790.476	2939.90
1407	1802617.705	15903790.476	2963.30
1408	1805300.984	15903790.476	2864.54
1409	1807984.262	15903790.476	3001.68
1410	1810667.541	15903790.476	3086.90
1411	1813350.820	15903790.476	3054.56
1412	1816034.098	15903790.476	3047.94
1413	1818717.377	15903790.476	3299.71
1414	1821400.656	15903790.476	3405.56
1415	1824083.934	15903790.476	3496.08
1416	1826767.213	15903790.476	3502.14
1417	1829450.492	15903790.476	3602.98
1418	1832133.770	15903790.476	3492.86
1419	1834817.049	15903790.476	3252.93
1420	1837500.328	15903790.476	3321.41
1421	1840183.607	15903790.476	3800.82

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
89	1759685.246	15843090.476	2471.59
90	1762368.525	15843090.476	2485.28
91	1765051.803	15843090.476	2492.98
92	1767735.082	15843090.476	2496.25
93	1770418.361	15843090.476	2500.19
94	1773101.639	15843090.476	2505.68
95	1775784.918	15843090.476	2518.19
96	1778468.197	15843090.476	2527.34
97	1781151.475	15843090.476	2536.24
98	1783834.754	15843090.476	2549.30
99	1786518.033	15843090.476	2550.74
100	1789201.311	15843090.476	2557.83
101	1791884.590	15843090.476	2573.60
102	1794567.869	15843090.476	2574.83
103	1797251.148	15843090.476	2584.02
104	1799934.426	15843090.476	2599.05
105	1802617.705	15843090.476	2602.29
106	1805300.984	15843090.476	2606.27
107	1807984.262	15843090.476	2605.61
108	1810667.541	15843090.476	2622.91
109	1813350.820	15843090.476	2632.22
110	1816034.098	15843090.476	2641.87
111	1818717.377	15843090.476	2652.08
112	1821400.656	15843090.476	2662.50
113	1824083.934	15843090.476	2673.57
114	1826767.213	15843090.476	2681.23
115	1829450.492	15843090.476	2688.89
116	1832133.770	15843090.476	2696.71
117	1834817.049	15843090.476	2709.08
118	1837500.328	15843090.476	2715.94
119	1840183.607	15843090.476	2724.01
120	1842866.885	15843090.476	2734.57
121	1845550.164	15843090.476	2696.88
122	1848233.443	15843090.476	2682.44
123	1850916.721	15843090.476	2695.98
124	1853600.000	15843090.476	2714.89
125	1689920.000	15845980.952	2508.62
126	1692603.279	15845980.952	2505.86
127	1695286.557	15845980.952	2508.83
128	1697969.836	15845980.952	2502.04
129	1700653.115	15845980.952	2495.67
130	1703336.393	15845980.952	2491.89
131	1706019.672	15845980.952	2539.46
132	1708702.951	15845980.952	2548.25
133	1711386.230	15845980.952	2520.24
134	1714069.508	15845980.952	2496.67

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1422	1842866.885	15903790.476	3864.50
1423	1845550.164	15903790.476	3996.03
1424	1848233.443	15903790.476	4321.00
1425	1850916.721	15903790.476	4156.49
1426	1853600.000	15903790.476	4440.66
1427	1689920.000	15906680.952	2490.20
1428	1692603.279	15906680.952	2462.88
1429	1695286.557	15906680.952	2506.47
1430	1697969.836	15906680.952	2465.91
1431	1700653.115	15906680.952	2425.89
1432	1703336.393	15906680.952	2398.28
1433	1706019.672	15906680.952	2456.05
1434	1708702.951	15906680.952	2472.87
1435	1711386.230	15906680.952	2475.55
1436	1714069.508	15906680.952	2491.67
1437	1716752.787	15906680.952	2503.09
1438	1719436.066	15906680.952	2529.29
1439	1722119.344	15906680.952	2540.88
1440	1724802.623	15906680.952	2560.24
1441	1727485.902	15906680.952	2565.00
1442	1730169.180	15906680.952	2561.85
1443	1732852.459	15906680.952	2518.26
1444	1735535.738	15906680.952	2614.30
1445	1738219.016	15906680.952	2648.73
1446	1740902.295	15906680.952	2667.84
1447	1743585.574	15906680.952	2664.20
1448	1746268.852	15906680.952	2673.75
1449	1748952.131	15906680.952	2687.35
1450	1751635.410	15906680.952	2704.14
1451	1754318.689	15906680.952	2740.39
1452	1757001.967	15906680.952	2765.08
1453	1759685.246	15906680.952	2744.80
1454	1762368.525	15906680.952	2823.49
1455	1765051.803	15906680.952	2881.30
1456	1767735.082	15906680.952	2756.71
1457	1770418.361	15906680.952	2836.05
1458	1773101.639	15906680.952	2794.72
1459	1775784.918	15906680.952	2767.66
1460	1778468.197	15906680.952	2735.60
1461	1781151.475	15906680.952	2700.39
1462	1783834.754	15906680.952	2844.86
1463	1786518.033	15906680.952	2857.60
1464	1789201.311	15906680.952	2895.79
1465	1791884.590	15906680.952	2920.43
1466	1794567.869	15906680.952	2948.82
1467	1797251.148	15906680.952	3047.24

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
135	1716752.787	15845980.952	2486.18
136	1719436.066	15845980.952	2485.19
137	1722119.344	15845980.952	2462.25
138	1724802.623	15845980.952	2436.98
139	1727485.902	15845980.952	2426.80
140	1730169.180	15845980.952	2429.40
141	1732852.459	15845980.952	2423.32
142	1735535.738	15845980.952	2424.64
143	1738219.016	15845980.952	2434.11
144	1740902.295	15845980.952	2432.45
145	1743585.574	15845980.952	2449.04
146	1746268.852	15845980.952	2448.86
147	1748952.131	15845980.952	2461.16
148	1751635.410	15845980.952	2463.87
149	1754318.689	15845980.952	2467.72
150	1757001.967	15845980.952	2468.94
151	1759685.246	15845980.952	2475.57
152	1762368.525	15845980.952	2484.67
153	1765051.803	15845980.952	2488.41
154	1767735.082	15845980.952	2492.22
155	1770418.361	15845980.952	2505.77
156	1773101.639	15845980.952	2505.76
157	1775784.918	15845980.952	2513.76
158	1778468.197	15845980.952	2524.74
159	1781151.475	15845980.952	2533.68
160	1783834.754	15845980.952	2544.43
161	1786518.033	15845980.952	2554.36
162	1789201.311	15845980.952	2563.62
163	1791884.590	15845980.952	2569.82
164	1794567.869	15845980.952	2573.89
165	1797251.148	15845980.952	2585.81
166	1799934.426	15845980.952	2593.01
167	1802617.705	15845980.952	2592.45
168	1805300.984	15845980.952	2604.12
169	1807984.262	15845980.952	2614.15
170	1810667.541	15845980.952	2623.87
171	1813350.820	15845980.952	2633.49
172	1816034.098	15845980.952	2643.23
173	1818717.377	15845980.952	2651.99
174	1821400.656	15845980.952	2660.08
175	1824083.934	15845980.952	2666.73
176	1826767.213	15845980.952	2677.24
177	1829450.492	15845980.952	2689.48
178	1832133.770	15845980.952	2699.31
179	1834817.049	15845980.952	2704.44
180	1837500.328	15845980.952	2713.29

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1468	1799934.426	15906680.952	3067.26
1469	1802617.705	15906680.952	3050.90
1470	1805300.984	15906680.952	3088.14
1471	1807984.262	15906680.952	3053.89
1472	1810667.541	15906680.952	3010.47
1473	1813350.820	15906680.952	2962.73
1474	1816034.098	15906680.952	3017.19
1475	1818717.377	15906680.952	3195.41
1476	1821400.656	15906680.952	3348.91
1477	1824083.934	15906680.952	3435.44
1478	1826767.213	15906680.952	3566.28
1479	1829450.492	15906680.952	3682.66
1480	1832133.770	15906680.952	3482.43
1481	1834817.049	15906680.952	3308.47
1482	1837500.328	15906680.952	3610.75
1483	1840183.607	15906680.952	3882.68
1484	1842866.885	15906680.952	3991.20
1485	1845550.164	15906680.952	4172.25
1486	1848233.443	15906680.952	4400.57
1487	1850916.721	15906680.952	4313.15
1488	1853600.000	15906680.952	4555.05
1489	1689920.000	15909571.429	2570.81
1490	1692603.279	15909571.429	2528.05
1491	1695286.557	15909571.429	2530.33
1492	1697969.836	15909571.429	2433.43
1493	1700653.115	15909571.429	2537.99
1494	1703336.393	15909571.429	2434.36
1495	1706019.672	15909571.429	2397.65
1496	1708702.951	15909571.429	2445.68
1497	1711386.230	15909571.429	2444.44
1498	1714069.508	15909571.429	2486.71
1499	1716752.787	15909571.429	2502.59
1500	1719436.066	15909571.429	2505.50
1501	1722119.344	15909571.429	2508.23
1502	1724802.623	15909571.429	2544.01
1503	1727485.902	15909571.429	2542.50
1504	1730169.180	15909571.429	2592.01
1505	1732852.459	15909571.429	2563.60
1506	1735535.738	15909571.429	2561.15
1507	1738219.016	15909571.429	2563.80
1508	1740902.295	15909571.429	2579.22
1509	1743585.574	15909571.429	2605.88
1510	1746268.852	15909571.429	2650.35
1511	1748952.131	15909571.429	2678.43
1512	1751635.410	15909571.429	2655.47
1513	1754318.689	15909571.429	2675.75

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
181	1840183.607	15845980.952	2724.87
182	1842866.885	15845980.952	2683.57
183	1845550.164	15845980.952	2673.83
184	1848233.443	15845980.952	2680.78
185	1850916.721	15845980.952	2699.29
186	1853600.000	15845980.952	2720.80
187	1689920.000	15848871.429	2491.64
188	1692603.279	15848871.429	2490.77
189	1695286.557	15848871.429	2489.08
190	1697969.836	15848871.429	2490.00
191	1700653.115	15848871.429	2486.04
192	1703336.393	15848871.429	2494.97
193	1706019.672	15848871.429	2551.97
194	1708702.951	15848871.429	2536.64
195	1711386.230	15848871.429	2513.97
196	1714069.508	15848871.429	2484.77
197	1716752.787	15848871.429	2465.52
198	1719436.066	15848871.429	2453.36
199	1722119.344	15848871.429	2431.57
200	1724802.623	15848871.429	2424.43
201	1727485.902	15848871.429	2417.29
202	1730169.180	15848871.429	2426.40
203	1732852.459	15848871.429	2413.90
204	1735535.738	15848871.429	2423.31
205	1738219.016	15848871.429	2424.72
206	1740902.295	15848871.429	2442.38
207	1743585.574	15848871.429	2441.16
208	1746268.852	15848871.429	2447.21
209	1748952.131	15848871.429	2448.28
210	1751635.410	15848871.429	2461.27
211	1754318.689	15848871.429	2452.42
212	1757001.967	15848871.429	2466.73
213	1759685.246	15848871.429	2474.61
214	1762368.525	15848871.429	2480.87
215	1765051.803	15848871.429	2488.95
216	1767735.082	15848871.429	2493.37
217	1770418.361	15848871.429	2506.01
218	1773101.639	15848871.429	2514.82
219	1775784.918	15848871.429	2524.06
220	1778468.197	15848871.429	2528.28
221	1781151.475	15848871.429	2538.23
222	1783834.754	15848871.429	2544.07
223	1786518.033	15848871.429	2552.65
224	1789201.311	15848871.429	2559.50
225	1791884.590	15848871.429	2561.27
226	1794567.869	15848871.429	2568.96

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1514	1757001.967	15909571.429	2694.63
1515	1759685.246	15909571.429	2739.39
1516	1762368.525	15909571.429	2818.90
1517	1765051.803	15909571.429	2830.35
1518	1767735.082	15909571.429	2823.96
1519	1770418.361	15909571.429	2913.58
1520	1773101.639	15909571.429	2873.45
1521	1775784.918	15909571.429	2783.48
1522	1778468.197	15909571.429	2881.51
1523	1781151.475	15909571.429	2751.65
1524	1783834.754	15909571.429	2715.47
1525	1786518.033	15909571.429	2801.53
1526	1789201.311	15909571.429	2872.50
1527	1791884.590	15909571.429	2878.61
1528	1794567.869	15909571.429	2959.42
1529	1797251.148	15909571.429	2971.72
1530	1799934.426	15909571.429	3066.42
1531	1802617.705	15909571.429	3154.41
1532	1805300.984	15909571.429	3224.51
1533	1807984.262	15909571.429	3196.73
1534	1810667.541	15909571.429	3228.31
1535	1813350.820	15909571.429	3167.39
1536	1816034.098	15909571.429	3327.76
1537	1818717.377	15909571.429	3494.63
1538	1821400.656	15909571.429	3588.94
1539	1824083.934	15909571.429	3537.77
1540	1826767.213	15909571.429	3689.57
1541	1829450.492	15909571.429	3633.25
1542	1832133.770	15909571.429	3619.18
1543	1834817.049	15909571.429	3369.03
1544	1837500.328	15909571.429	3533.07
1545	1840183.607	15909571.429	3787.38
1546	1842866.885	15909571.429	4105.26
1547	1845550.164	15909571.429	4365.22
1548	1848233.443	15909571.429	4472.37
1549	1850916.721	15909571.429	4740.00
1550	1853600.000	15909571.429	4559.84
1551	1689920.000	15912461.905	2597.95
1552	1692603.279	15912461.905	2593.85
1553	1695286.557	15912461.905	2478.10
1554	1697969.836	15912461.905	2495.59
1555	1700653.115	15912461.905	2593.76
1556	1703336.393	15912461.905	2474.30
1557	1706019.672	15912461.905	2430.81
1558	1708702.951	15912461.905	2422.38
1559	1711386.230	15912461.905	2437.27

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
227	1797251.148	15848871.429	2577.02
228	1799934.426	15848871.429	2579.26
229	1802617.705	15848871.429	2596.12
230	1805300.984	15848871.429	2606.25
231	1807984.262	15848871.429	2614.79
232	1810667.541	15848871.429	2622.62
233	1813350.820	15848871.429	2629.88
234	1816034.098	15848871.429	2640.67
235	1818717.377	15848871.429	2651.32
236	1821400.656	15848871.429	2659.15
237	1824083.934	15848871.429	2668.67
238	1826767.213	15848871.429	2678.69
239	1829450.492	15848871.429	2683.67
240	1832133.770	15848871.429	2694.01
241	1834817.049	15848871.429	2701.80
242	1837500.328	15848871.429	2707.73
243	1840183.607	15848871.429	2660.36
244	1842866.885	15848871.429	2664.22
245	1845550.164	15848871.429	2674.51
246	1848233.443	15848871.429	2685.57
247	1850916.721	15848871.429	2703.37
248	1853600.000	15848871.429	2716.90
249	1689920.000	15851761.905	2456.21
250	1692603.279	15851761.905	2456.61
251	1695286.557	15851761.905	2536.82
252	1697969.836	15851761.905	2490.26
253	1700653.115	15851761.905	2490.86
254	1703336.393	15851761.905	2494.49
255	1706019.672	15851761.905	2483.75
256	1708702.951	15851761.905	2463.84
257	1711386.230	15851761.905	2497.30
258	1714069.508	15851761.905	2489.56
259	1716752.787	15851761.905	2436.96
260	1719436.066	15851761.905	2446.10
261	1722119.344	15851761.905	2420.39
262	1724802.623	15851761.905	2408.39
263	1727485.902	15851761.905	2421.43
264	1730169.180	15851761.905	2414.51
265	1732852.459	15851761.905	2405.47
266	1735535.738	15851761.905	2413.62
267	1738219.016	15851761.905	2419.80
268	1740902.295	15851761.905	2438.12
269	1743585.574	15851761.905	2441.01
270	1746268.852	15851761.905	2447.48
271	1748952.131	15851761.905	2448.92
272	1751635.410	15851761.905	2449.83

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1560	1714069.508	15912461.905	2449.17
1561	1716752.787	15912461.905	2467.63
1562	1719436.066	15912461.905	2483.99
1563	1722119.344	15912461.905	2507.91
1564	1724802.623	15912461.905	2522.49
1565	1727485.902	15912461.905	2580.28
1566	1730169.180	15912461.905	2635.42
1567	1732852.459	15912461.905	2591.05
1568	1735535.738	15912461.905	2588.43
1569	1738219.016	15912461.905	2615.04
1570	1740902.295	15912461.905	2602.57
1571	1743585.574	15912461.905	2651.41
1572	1746268.852	15912461.905	2671.69
1573	1748952.131	15912461.905	2713.77
1574	1751635.410	15912461.905	2709.02
1575	1754318.689	15912461.905	2773.26
1576	1757001.967	15912461.905	2732.50
1577	1759685.246	15912461.905	2782.82
1578	1762368.525	15912461.905	2883.48
1579	1765051.803	15912461.905	2852.01
1580	1767735.082	15912461.905	2783.67
1581	1770418.361	15912461.905	3000.96
1582	1773101.639	15912461.905	2909.42
1583	1775784.918	15912461.905	2790.34
1584	1778468.197	15912461.905	2845.83
1585	1781151.475	15912461.905	2979.06
1586	1783834.754	15912461.905	2834.67
1587	1786518.033	15912461.905	2735.69
1588	1789201.311	15912461.905	2791.40
1589	1791884.590	15912461.905	2838.87
1590	1794567.869	15912461.905	2839.81
1591	1797251.148	15912461.905	2915.08
1592	1799934.426	15912461.905	2977.59
1593	1802617.705	15912461.905	3122.40
1594	1805300.984	15912461.905	3138.56
1595	1807984.262	15912461.905	3184.72
1596	1810667.541	15912461.905	3204.57
1597	1813350.820	15912461.905	3153.58
1598	1816034.098	15912461.905	3451.54
1599	1818717.377	15912461.905	3438.65
1600	1821400.656	15912461.905	3647.56
1601	1824083.934	15912461.905	3605.51
1602	1826767.213	15912461.905	3711.55
1603	1829450.492	15912461.905	3643.44
1604	1832133.770	15912461.905	3514.25
1605	1834817.049	15912461.905	3446.78

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
273	1754318.689	15851761.905	2459.21
274	1757001.967	15851761.905	2470.96
275	1759685.246	15851761.905	2477.02
276	1762368.525	15851761.905	2476.57
277	1765051.803	15851761.905	2489.42
278	1767735.082	15851761.905	2500.50
279	1770418.361	15851761.905	2507.11
280	1773101.639	15851761.905	2512.65
281	1775784.918	15851761.905	2517.25
282	1778468.197	15851761.905	2525.51
283	1781151.475	15851761.905	2532.09
284	1783834.754	15851761.905	2542.66
285	1786518.033	15851761.905	2543.31
286	1789201.311	15851761.905	2544.03
287	1791884.590	15851761.905	2556.66
288	1794567.869	15851761.905	2564.16
289	1797251.148	15851761.905	2576.29
290	1799934.426	15851761.905	2585.54
291	1802617.705	15851761.905	2596.59
292	1805300.984	15851761.905	2606.42
293	1807984.262	15851761.905	2614.58
294	1810667.541	15851761.905	2623.34
295	1813350.820	15851761.905	2632.53
296	1816034.098	15851761.905	2637.44
297	1818717.377	15851761.905	2650.18
298	1821400.656	15851761.905	2659.11
299	1824083.934	15851761.905	2667.46
300	1826767.213	15851761.905	2676.28
301	1829450.492	15851761.905	2686.37
302	1832133.770	15851761.905	2689.81
303	1834817.049	15851761.905	2695.08
304	1837500.328	15851761.905	2644.66
305	1840183.607	15851761.905	2654.75
306	1842866.885	15851761.905	2661.92
307	1845550.164	15851761.905	2678.38
308	1848233.443	15851761.905	2695.95
309	1850916.721	15851761.905	2715.21
310	1853600.000	15851761.905	2870.66
311	1689920.000	15854652.381	2459.03
312	1692603.279	15854652.381	2484.46
313	1695286.557	15854652.381	2518.13
314	1697969.836	15854652.381	2513.00
315	1700653.115	15854652.381	2489.54
316	1703336.393	15854652.381	2456.78
317	1706019.672	15854652.381	2415.93
318	1708702.951	15854652.381	2414.57

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1606	1837500.328	15912461.905	3534.78
1607	1840183.607	15912461.905	3870.90
1608	1842866.885	15912461.905	4216.03
1609	1845550.164	15912461.905	4452.98
1610	1848233.443	15912461.905	4705.64
1611	1850916.721	15912461.905	4742.20
1612	1853600.000	15912461.905	4404.49
1613	1689920.000	15915352.381	2589.71
1614	1692603.279	15915352.381	2564.07
1615	1695286.557	15915352.381	2526.56
1616	1697969.836	15915352.381	2540.80
1617	1700653.115	15915352.381	2558.70
1618	1703336.393	15915352.381	2543.91
1619	1706019.672	15915352.381	2456.10
1620	1708702.951	15915352.381	2445.99
1621	1711386.230	15915352.381	2469.01
1622	1714069.508	15915352.381	2535.36
1623	1716752.787	15915352.381	2506.35
1624	1719436.066	15915352.381	2488.31
1625	1722119.344	15915352.381	2510.18
1626	1724802.623	15915352.381	2525.29
1627	1727485.902	15915352.381	2565.61
1628	1730169.180	15915352.381	2610.31
1629	1732852.459	15915352.381	2621.84
1630	1735535.738	15915352.381	2617.49
1631	1738219.016	15915352.381	2674.47
1632	1740902.295	15915352.381	2690.04
1633	1743585.574	15915352.381	2694.00
1634	1746268.852	15915352.381	2646.35
1635	1748952.131	15915352.381	2693.36
1636	1751635.410	15915352.381	2703.42
1637	1754318.689	15915352.381	2758.81
1638	1757001.967	15915352.381	2751.12
1639	1759685.246	15915352.381	2850.45
1640	1762368.525	15915352.381	2810.96
1641	1765051.803	15915352.381	2981.20
1642	1767735.082	15915352.381	2919.99
1643	1770418.361	15915352.381	2923.10
1644	1773101.639	15915352.381	2975.67
1645	1775784.918	15915352.381	2837.59
1646	1778468.197	15915352.381	3061.89
1647	1781151.475	15915352.381	3087.95
1648	1783834.754	15915352.381	3032.21
1649	1786518.033	15915352.381	2936.87
1650	1789201.311	15915352.381	2763.70
1651	1791884.590	15915352.381	2793.02

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
319	1711386.230	15854652.381	2404.55
320	1714069.508	15854652.381	2410.79
321	1716752.787	15854652.381	2406.42
322	1719436.066	15854652.381	2405.93
323	1722119.344	15854652.381	2404.08
324	1724802.623	15854652.381	2408.69
325	1727485.902	15854652.381	2408.82
326	1730169.180	15854652.381	2395.20
327	1732852.459	15854652.381	2400.95
328	1735535.738	15854652.381	2415.25
329	1738219.016	15854652.381	2424.49
330	1740902.295	15854652.381	2431.05
331	1743585.574	15854652.381	2438.77
332	1746268.852	15854652.381	2438.94
333	1748952.131	15854652.381	2441.79
334	1751635.410	15854652.381	2458.06
335	1754318.689	15854652.381	2462.12
336	1757001.967	15854652.381	2465.09
337	1759685.246	15854652.381	2464.00
338	1762368.525	15854652.381	2478.87
339	1765051.803	15854652.381	2488.85
340	1767735.082	15854652.381	2496.45
341	1770418.361	15854652.381	2497.68
342	1773101.639	15854652.381	2503.18
343	1775784.918	15854652.381	2507.32
344	1778468.197	15854652.381	2508.17
345	1781151.475	15854652.381	2523.92
346	1783834.754	15854652.381	2528.84
347	1786518.033	15854652.381	2542.70
348	1789201.311	15854652.381	2549.49
349	1791884.590	15854652.381	2558.78
350	1794567.869	15854652.381	2567.10
351	1797251.148	15854652.381	2576.94
352	1799934.426	15854652.381	2585.54
353	1802617.705	15854652.381	2594.96
354	1805300.984	15854652.381	2603.69
355	1807984.262	15854652.381	2612.93
356	1810667.541	15854652.381	2618.75
357	1813350.820	15854652.381	2628.09
358	1816034.098	15854652.381	2640.31
359	1818717.377	15854652.381	2646.11
360	1821400.656	15854652.381	2657.91
361	1824083.934	15854652.381	2664.92
362	1826767.213	15854652.381	2672.67
363	1829450.492	15854652.381	2676.77
364	1832133.770	15854652.381	2679.53

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1652	1794567.869	15915352.381	2830.11
1653	1797251.148	15915352.381	2883.84
1654	1799934.426	15915352.381	2975.94
1655	1802617.705	15915352.381	3053.07
1656	1805300.984	15915352.381	2966.73
1657	1807984.262	15915352.381	2976.98
1658	1810667.541	15915352.381	3164.14
1659	1813350.820	15915352.381	3560.35
1660	1816034.098	15915352.381	3565.46
1661	1818717.377	15915352.381	3764.91
1662	1821400.656	15915352.381	3750.18
1663	1824083.934	15915352.381	3709.52
1664	1826767.213	15915352.381	3724.04
1665	1829450.492	15915352.381	3612.68
1666	1832133.770	15915352.381	3653.57
1667	1834817.049	15915352.381	3654.78
1668	1837500.328	15915352.381	3847.77
1669	1840183.607	15915352.381	3948.27
1670	1842866.885	15915352.381	4301.67
1671	1845550.164	15915352.381	4596.24
1672	1848233.443	15915352.381	4651.72
1673	1850916.721	15915352.381	5029.43
1674	1853600.000	15915352.381	4700.66
1675	1689920.000	15918242.857	2544.96
1676	1692603.279	15918242.857	2534.09
1677	1695286.557	15918242.857	2574.67
1678	1697969.836	15918242.857	2607.96
1679	1700653.115	15918242.857	2605.24
1680	1703336.393	15918242.857	2519.11
1681	1706019.672	15918242.857	2459.75
1682	1708702.951	15918242.857	2447.00
1683	1711386.230	15918242.857	2489.91
1684	1714069.508	15918242.857	2573.39
1685	1716752.787	15918242.857	2525.05
1686	1719436.066	15918242.857	2549.61
1687	1722119.344	15918242.857	2513.63
1688	1724802.623	15918242.857	2611.71
1689	1727485.902	15918242.857	2536.47
1690	1730169.180	15918242.857	2596.72
1691	1732852.459	15918242.857	2667.56
1692	1735535.738	15918242.857	2585.70
1693	1738219.016	15918242.857	2705.89
1694	1740902.295	15918242.857	2764.26
1695	1743585.574	15918242.857	2781.28
1696	1746268.852	15918242.857	2793.56
1697	1748952.131	15918242.857	2772.25

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
365	1834817.049	15854652.381	2635.59
366	1837500.328	15854652.381	2638.31
367	1840183.607	15854652.381	2645.34
368	1842866.885	15854652.381	2660.00
369	1845550.164	15854652.381	2678.50
370	1848233.443	15854652.381	2708.40
371	1850916.721	15854652.381	2766.99
372	1853600.000	15854652.381	2858.20
373	1689920.000	15857542.857	2452.37
374	1692603.279	15857542.857	2455.66
375	1695286.557	15857542.857	2441.58
376	1697969.836	15857542.857	2429.42
377	1700653.115	15857542.857	2404.56
378	1703336.393	15857542.857	2393.91
379	1706019.672	15857542.857	2379.07
380	1708702.951	15857542.857	2385.38
381	1711386.230	15857542.857	2370.54
382	1714069.508	15857542.857	2382.74
383	1716752.787	15857542.857	2378.23
384	1719436.066	15857542.857	2381.10
385	1722119.344	15857542.857	2386.27
386	1724802.623	15857542.857	2394.71
387	1727485.902	15857542.857	2393.37
388	1730169.180	15857542.857	2394.37
389	1732852.459	15857542.857	2419.53
390	1735535.738	15857542.857	2425.54
391	1738219.016	15857542.857	2425.80
392	1740902.295	15857542.857	2433.28
393	1743585.574	15857542.857	2432.55
394	1746268.852	15857542.857	2434.76
395	1748952.131	15857542.857	2448.44
396	1751635.410	15857542.857	2445.33
397	1754318.689	15857542.857	2454.91
398	1757001.967	15857542.857	2453.67
399	1759685.246	15857542.857	2466.35
400	1762368.525	15857542.857	2474.18
401	1765051.803	15857542.857	2483.35
402	1767735.082	15857542.857	2491.50
403	1770418.361	15857542.857	2498.65
404	1773101.639	15857542.857	2505.28
405	1775784.918	15857542.857	2512.92
406	1778468.197	15857542.857	2522.16
407	1781151.475	15857542.857	2528.38
408	1783834.754	15857542.857	2535.15
409	1786518.033	15857542.857	2542.76
410	1789201.311	15857542.857	2552.65

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1698	1751635.410	15918242.857	2707.46
1699	1754318.689	15918242.857	2844.24
1700	1757001.967	15918242.857	2896.48
1701	1759685.246	15918242.857	2792.34
1702	1762368.525	15918242.857	2930.37
1703	1765051.803	15918242.857	2915.39
1704	1767735.082	15918242.857	2988.62
1705	1770418.361	15918242.857	2902.94
1706	1773101.639	15918242.857	3090.56
1707	1775784.918	15918242.857	2930.31
1708	1778468.197	15918242.857	2876.10
1709	1781151.475	15918242.857	3103.60
1710	1783834.754	15918242.857	3197.95
1711	1786518.033	15918242.857	3022.85
1712	1789201.311	15918242.857	2905.24
1713	1791884.590	15918242.857	2823.69
1714	1794567.869	15918242.857	2950.93
1715	1797251.148	15918242.857	2893.16
1716	1799934.426	15918242.857	2887.80
1717	1802617.705	15918242.857	2885.09
1718	1805300.984	15918242.857	3227.56
1719	1807984.262	15918242.857	3469.79
1720	1810667.541	15918242.857	3649.43
1721	1813350.820	15918242.857	3472.11
1722	1816034.098	15918242.857	3721.52
1723	1818717.377	15918242.857	3856.75
1724	1821400.656	15918242.857	4139.06
1725	1824083.934	15918242.857	4011.59
1726	1826767.213	15918242.857	4004.57
1727	1829450.492	15918242.857	3883.95
1728	1832133.770	15918242.857	3810.45
1729	1834817.049	15918242.857	3865.13
1730	1837500.328	15918242.857	4045.99
1731	1840183.607	15918242.857	4213.13
1732	1842866.885	15918242.857	4259.90
1733	1845550.164	15918242.857	4529.45
1734	1848233.443	15918242.857	4650.87
1735	1850916.721	15918242.857	4833.21
1736	1853600.000	15918242.857	4300.21
1737	1689920.000	15921133.333	2574.78
1738	1692603.279	15921133.333	2607.37
1739	1695286.557	15921133.333	2624.99
1740	1697969.836	15921133.333	2614.81
1741	1700653.115	15921133.333	2572.77
1742	1703336.393	15921133.333	2547.68
1743	1706019.672	15921133.333	2473.67

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
411	1791884.590	15857542.857	2562.03
412	1794567.869	15857542.857	2570.91
413	1797251.148	15857542.857	2576.96
414	1799934.426	15857542.857	2588.85
415	1802617.705	15857542.857	2595.16
416	1805300.984	15857542.857	2603.58
417	1807984.262	15857542.857	2611.33
418	1810667.541	15857542.857	2620.65
419	1813350.820	15857542.857	2626.85
420	1816034.098	15857542.857	2636.13
421	1818717.377	15857542.857	2645.98
422	1821400.656	15857542.857	2654.29
423	1824083.934	15857542.857	2661.66
424	1826767.213	15857542.857	2665.31
425	1829450.492	15857542.857	2631.64
426	1832133.770	15857542.857	2623.04
427	1834817.049	15857542.857	2626.96
428	1837500.328	15857542.857	2635.65
429	1840183.607	15857542.857	2659.60
430	1842866.885	15857542.857	2677.26
431	1845550.164	15857542.857	2713.16
432	1848233.443	15857542.857	2917.20
433	1850916.721	15857542.857	2905.77
434	1853600.000	15857542.857	2895.29
435	1689920.000	15860433.333	2415.17
436	1692603.279	15860433.333	2423.82
437	1695286.557	15860433.333	2381.48
438	1697969.836	15860433.333	2352.93
439	1700653.115	15860433.333	2354.28
440	1703336.393	15860433.333	2351.87
441	1706019.672	15860433.333	2337.50
442	1708702.951	15860433.333	2336.41
443	1711386.230	15860433.333	2341.71
444	1714069.508	15860433.333	2347.22
445	1716752.787	15860433.333	2350.93
446	1719436.066	15860433.333	2355.58
447	1722119.344	15860433.333	2370.15
448	1724802.623	15860433.333	2381.45
449	1727485.902	15860433.333	2382.63
450	1730169.180	15860433.333	2434.99
451	1732852.459	15860433.333	2408.09
452	1735535.738	15860433.333	2424.18
453	1738219.016	15860433.333	2424.28
454	1740902.295	15860433.333	2425.20
455	1743585.574	15860433.333	2425.48
456	1746268.852	15860433.333	2438.52

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1744	1708702.951	15921133.333	2476.90
1745	1711386.230	15921133.333	2484.87
1746	1714069.508	15921133.333	2584.67
1747	1716752.787	15921133.333	2579.02
1748	1719436.066	15921133.333	2561.07
1749	1722119.344	15921133.333	2530.82
1750	1724802.623	15921133.333	2614.19
1751	1727485.902	15921133.333	2614.27
1752	1730169.180	15921133.333	2585.98
1753	1732852.459	15921133.333	2700.09
1754	1735535.738	15921133.333	2721.67
1755	1738219.016	15921133.333	2641.81
1756	1740902.295	15921133.333	2704.37
1757	1743585.574	15921133.333	2713.33
1758	1746268.852	15921133.333	2814.06
1759	1748952.131	15921133.333	2785.52
1760	1751635.410	15921133.333	2735.78
1761	1754318.689	15921133.333	2769.41
1762	1757001.967	15921133.333	2710.57
1763	1759685.246	15921133.333	2619.75
1764	1762368.525	15921133.333	2583.68
1765	1765051.803	15921133.333	2541.07
1766	1767735.082	15921133.333	2599.26
1767	1770418.361	15921133.333	2944.20
1768	1773101.639	15921133.333	3070.12
1769	1775784.918	15921133.333	3000.53
1770	1778468.197	15921133.333	2867.36
1771	1781151.475	15921133.333	2988.97
1772	1783834.754	15921133.333	3112.73
1773	1786518.033	15921133.333	3201.46
1774	1789201.311	15921133.333	3211.10
1775	1791884.590	15921133.333	3070.83
1776	1794567.869	15921133.333	2818.93
1777	1797251.148	15921133.333	2948.99
1778	1799934.426	15921133.333	3000.04
1779	1802617.705	15921133.333	3102.09
1780	1805300.984	15921133.333	3147.10
1781	1807984.262	15921133.333	3411.73
1782	1810667.541	15921133.333	3579.44
1783	1813350.820	15921133.333	3803.67
1784	1816034.098	15921133.333	3954.31
1785	1818717.377	15921133.333	3994.80
1786	1821400.656	15921133.333	4276.26
1787	1824083.934	15921133.333	4147.54
1788	1826767.213	15921133.333	4111.65
1789	1829450.492	15921133.333	4029.62

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
457	1748952.131	15860433.333	2442.91
458	1751635.410	15860433.333	2449.66
459	1754318.689	15860433.333	2440.41
460	1757001.967	15860433.333	2460.34
461	1759685.246	15860433.333	2468.59
462	1762368.525	15860433.333	2477.34
463	1765051.803	15860433.333	2484.65
464	1767735.082	15860433.333	2492.69
465	1770418.361	15860433.333	2501.91
466	1773101.639	15860433.333	2505.15
467	1775784.918	15860433.333	2510.71
468	1778468.197	15860433.333	2519.32
469	1781151.475	15860433.333	2529.55
470	1783834.754	15860433.333	2536.25
471	1786518.033	15860433.333	2544.15
472	1789201.311	15860433.333	2552.75
473	1791884.590	15860433.333	2561.15
474	1794567.869	15860433.333	2570.71
475	1797251.148	15860433.333	2578.36
476	1799934.426	15860433.333	2583.08
477	1802617.705	15860433.333	2591.95
478	1805300.984	15860433.333	2600.82
479	1807984.262	15860433.333	2608.26
480	1810667.541	15860433.333	2616.56
481	1813350.820	15860433.333	2624.45
482	1816034.098	15860433.333	2632.79
483	1818717.377	15860433.333	2642.87
484	1821400.656	15860433.333	2640.07
485	1824083.934	15860433.333	2599.13
486	1826767.213	15860433.333	2607.06
487	1829450.492	15860433.333	2613.73
488	1832133.770	15860433.333	2616.07
489	1834817.049	15860433.333	2625.73
490	1837500.328	15860433.333	2639.51
491	1840183.607	15860433.333	2661.12
492	1842866.885	15860433.333	2817.28
493	1845550.164	15860433.333	2761.16
494	1848233.443	15860433.333	2873.49
495	1850916.721	15860433.333	3068.45
496	1853600.000	15860433.333	3176.04
497	1689920.000	15863323.810	2366.18
498	1692603.279	15863323.810	2341.53
499	1695286.557	15863323.810	2327.45
500	1697969.836	15863323.810	2321.85
501	1700653.115	15863323.810	2325.21
502	1703336.393	15863323.810	2324.59

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1790	1832133.770	15921133.333	4207.88
1791	1834817.049	15921133.333	4066.53
1792	1837500.328	15921133.333	3954.12
1793	1840183.607	15921133.333	4311.78
1794	1842866.885	15921133.333	4488.13
1795	1845550.164	15921133.333	4687.48
1796	1848233.443	15921133.333	4788.14
1797	1850916.721	15921133.333	4651.40
1798	1853600.000	15921133.333	4019.35
1799	1689920.000	15924023.810	2635.48
1800	1692603.279	15924023.810	2622.87
1801	1695286.557	15924023.810	2577.09
1802	1697969.836	15924023.810	2555.84
1803	1700653.115	15924023.810	2528.97
1804	1703336.393	15924023.810	2516.51
1805	1706019.672	15924023.810	2476.32
1806	1708702.951	15924023.810	2495.64
1807	1711386.230	15924023.810	2569.30
1808	1714069.508	15924023.810	2611.32
1809	1716752.787	15924023.810	2606.53
1810	1719436.066	15924023.810	2568.61
1811	1722119.344	15924023.810	2548.42
1812	1724802.623	15924023.810	2617.48
1813	1727485.902	15924023.810	2677.37
1814	1730169.180	15924023.810	2670.10
1815	1732852.459	15924023.810	2667.40
1816	1735535.738	15924023.810	2749.00
1817	1738219.016	15924023.810	2727.29
1818	1740902.295	15924023.810	2675.79
1819	1743585.574	15924023.810	2728.09
1820	1746268.852	15924023.810	2733.64
1821	1748952.131	15924023.810	2807.81
1822	1751635.410	15924023.810	2473.68
1823	1754318.689	15924023.810	2391.93
1824	1757001.967	15924023.810	2349.69
1825	1759685.246	15924023.810	2346.73
1826	1762368.525	15924023.810	2351.43
1827	1765051.803	15924023.810	2356.22
1828	1767735.082	15924023.810	2355.31
1829	1770418.361	15924023.810	2425.64
1830	1773101.639	15924023.810	2544.81
1831	1775784.918	15924023.810	2640.89
1832	1778468.197	15924023.810	2940.74
1833	1781151.475	15924023.810	2942.06
1834	1783834.754	15924023.810	3032.87
1835	1786518.033	15924023.810	3030.03

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
503	1706019.672	15863323.810	2325.85
504	1708702.951	15863323.810	2337.56
505	1711386.230	15863323.810	2342.51
506	1714069.508	15863323.810	2346.31
507	1716752.787	15863323.810	2352.47
508	1719436.066	15863323.810	2359.40
509	1722119.344	15863323.810	2366.67
510	1724802.623	15863323.810	2371.07
511	1727485.902	15863323.810	2439.21
512	1730169.180	15863323.810	2432.22
513	1732852.459	15863323.810	2409.53
514	1735535.738	15863323.810	2417.48
515	1738219.016	15863323.810	2422.10
516	1740902.295	15863323.810	2426.10
517	1743585.574	15863323.810	2433.60
518	1746268.852	15863323.810	2434.37
519	1748952.131	15863323.810	2434.44
520	1751635.410	15863323.810	2437.89
521	1754318.689	15863323.810	2452.99
522	1757001.967	15863323.810	2463.27
523	1759685.246	15863323.810	2471.43
524	1762368.525	15863323.810	2480.42
525	1765051.803	15863323.810	2487.22
526	1767735.082	15863323.810	2482.92
527	1770418.361	15863323.810	2498.89
528	1773101.639	15863323.810	2474.64
529	1775784.918	15863323.810	2495.19
530	1778468.197	15863323.810	2517.01
531	1781151.475	15863323.810	2523.22
532	1783834.754	15863323.810	2532.18
533	1786518.033	15863323.810	2546.62
534	1789201.311	15863323.810	2551.08
535	1791884.590	15863323.810	2555.51
536	1794567.869	15863323.810	2567.47
537	1797251.148	15863323.810	2571.32
538	1799934.426	15863323.810	2585.89
539	1802617.705	15863323.810	2593.61
540	1805300.984	15863323.810	2597.17
541	1807984.262	15863323.810	2603.23
542	1810667.541	15863323.810	2565.72
543	1813350.820	15863323.810	2567.75
544	1816034.098	15863323.810	2577.21
545	1818717.377	15863323.810	2582.96
546	1821400.656	15863323.810	2589.38
547	1824083.934	15863323.810	2593.38
548	1826767.213	15863323.810	2601.03

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1836	1789201.311	15924023.810	3104.91
1837	1791884.590	15924023.810	3236.95
1838	1794567.869	15924023.810	3217.63
1839	1797251.148	15924023.810	2853.70
1840	1799934.426	15924023.810	2942.32
1841	1802617.705	15924023.810	2986.98
1842	1805300.984	15924023.810	3210.13
1843	1807984.262	15924023.810	3347.44
1844	1810667.541	15924023.810	3374.96
1845	1813350.820	15924023.810	3613.16
1846	1816034.098	15924023.810	4041.44
1847	1818717.377	15924023.810	4171.32
1848	1821400.656	15924023.810	4464.10
1849	1824083.934	15924023.810	4392.10
1850	1826767.213	15924023.810	4134.05
1851	1829450.492	15924023.810	4213.81
1852	1832133.770	15924023.810	4179.83
1853	1834817.049	15924023.810	4258.06
1854	1837500.328	15924023.810	4318.07
1855	1840183.607	15924023.810	4244.29
1856	1842866.885	15924023.810	4487.72
1857	1845550.164	15924023.810	4599.48
1858	1848233.443	15924023.810	4273.25
1859	1850916.721	15924023.810	4210.84
1860	1853600.000	15924023.810	3806.09
1861	1689920.000	15926914.286	2601.93
1862	1692603.279	15926914.286	2605.34
1863	1695286.557	15926914.286	2546.74
1864	1697969.836	15926914.286	2508.27
1865	1700653.115	15926914.286	2493.83
1866	1703336.393	15926914.286	2474.77
1867	1706019.672	15926914.286	2462.69
1868	1708702.951	15926914.286	2507.53
1869	1711386.230	15926914.286	2564.16
1870	1714069.508	15926914.286	2573.84
1871	1716752.787	15926914.286	2623.40
1872	1719436.066	15926914.286	2597.43
1873	1722119.344	15926914.286	2547.80
1874	1724802.623	15926914.286	2624.17
1875	1727485.902	15926914.286	2700.35
1876	1730169.180	15926914.286	2663.92
1877	1732852.459	15926914.286	2671.20
1878	1735535.738	15926914.286	2725.78
1879	1738219.016	15926914.286	2758.97
1880	1740902.295	15926914.286	2539.46
1881	1743585.574	15926914.286	2664.65

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
549	1829450.492	15863323.810	2607.26
550	1832133.770	15863323.810	2618.16
551	1834817.049	15863323.810	2624.65
552	1837500.328	15863323.810	2654.11
553	1840183.607	15863323.810	2916.78
554	1842866.885	15863323.810	3188.86
555	1845550.164	15863323.810	3057.63
556	1848233.443	15863323.810	2840.23
557	1850916.721	15863323.810	2959.32
558	1853600.000	15863323.810	3112.69
559	1689920.000	15866214.286	2320.31
560	1692603.279	15866214.286	2313.49
561	1695286.557	15866214.286	2313.80
562	1697969.836	15866214.286	2316.28
563	1700653.115	15866214.286	2318.94
564	1703336.393	15866214.286	2323.55
565	1706019.672	15866214.286	2328.64
566	1708702.951	15866214.286	2333.66
567	1711386.230	15866214.286	2339.36
568	1714069.508	15866214.286	2342.76
569	1716752.787	15866214.286	2345.11
570	1719436.066	15866214.286	2348.57
571	1722119.344	15866214.286	2356.99
572	1724802.623	15866214.286	2361.68
573	1727485.902	15866214.286	2457.21
574	1730169.180	15866214.286	2402.47
575	1732852.459	15866214.286	2395.43
576	1735535.738	15866214.286	2398.25
577	1738219.016	15866214.286	2404.63
578	1740902.295	15866214.286	2401.44
579	1743585.574	15866214.286	2404.30
580	1746268.852	15866214.286	2413.13
581	1748952.131	15866214.286	2416.79
582	1751635.410	15866214.286	2418.32
583	1754318.689	15866214.286	2422.99
584	1757001.967	15866214.286	2428.76
585	1759685.246	15866214.286	2436.10
586	1762368.525	15866214.286	2442.20
587	1765051.803	15866214.286	2450.82
588	1767735.082	15866214.286	2457.80
589	1770418.361	15866214.286	2458.79
590	1773101.639	15866214.286	2463.63
591	1775784.918	15866214.286	2469.28
592	1778468.197	15866214.286	2476.15
593	1781151.475	15866214.286	2483.18
594	1783834.754	15866214.286	2488.68

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1882	1746268.852	15926914.286	2661.34
1883	1748952.131	15926914.286	2345.49
1884	1751635.410	15926914.286	2330.47
1885	1754318.689	15926914.286	2333.30
1886	1757001.967	15926914.286	2338.27
1887	1759685.246	15926914.286	2342.71
1888	1762368.525	15926914.286	2347.55
1889	1765051.803	15926914.286	2352.47
1890	1767735.082	15926914.286	2356.80
1891	1770418.361	15926914.286	2365.02
1892	1773101.639	15926914.286	2385.49
1893	1775784.918	15926914.286	2376.38
1894	1778468.197	15926914.286	2456.31
1895	1781151.475	15926914.286	2845.55
1896	1783834.754	15926914.286	3070.50
1897	1786518.033	15926914.286	3249.37
1898	1789201.311	15926914.286	3244.67
1899	1791884.590	15926914.286	3298.18
1900	1794567.869	15926914.286	3171.84
1901	1797251.148	15926914.286	3200.64
1902	1799934.426	15926914.286	2941.08
1903	1802617.705	15926914.286	3137.95
1904	1805300.984	15926914.286	3196.49
1905	1807984.262	15926914.286	3340.56
1906	1810667.541	15926914.286	3555.24
1907	1813350.820	15926914.286	3748.57
1908	1816034.098	15926914.286	3962.39
1909	1818717.377	15926914.286	4453.80
1910	1821400.656	15926914.286	4707.22
1911	1824083.934	15926914.286	4533.07
1912	1826767.213	15926914.286	4311.25
1913	1829450.492	15926914.286	4295.55
1914	1832133.770	15926914.286	4255.04
1915	1834817.049	15926914.286	4480.09
1916	1837500.328	15926914.286	4408.42
1917	1840183.607	15926914.286	4166.37
1918	1842866.885	15926914.286	4260.95
1919	1845550.164	15926914.286	4059.15
1920	1848233.443	15926914.286	4045.65
1921	1850916.721	15926914.286	4128.24
1922	1853600.000	15926914.286	3887.56
1923	1689920.000	15929804.762	2551.99
1924	1692603.279	15929804.762	2547.45
1925	1695286.557	15929804.762	2594.05
1926	1697969.836	15929804.762	2569.04
1927	1700653.115	15929804.762	2568.95

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
595	1786518.033	15866214.286	2494.62
596	1789201.311	15866214.286	2503.12
597	1791884.590	15866214.286	2509.29
598	1794567.869	15866214.286	2514.30
599	1797251.148	15866214.286	2518.72
600	1799934.426	15866214.286	2525.75
601	1802617.705	15866214.286	2531.61
602	1805300.984	15866214.286	2542.20
603	1807984.262	15866214.286	2547.84
604	1810667.541	15866214.286	2558.01
605	1813350.820	15866214.286	2563.98
606	1816034.098	15866214.286	2571.49
607	1818717.377	15866214.286	2577.89
608	1821400.656	15866214.286	2582.70
609	1824083.934	15866214.286	2591.30
610	1826767.213	15866214.286	2598.77
611	1829450.492	15866214.286	2608.00
612	1832133.770	15866214.286	2615.18
613	1834817.049	15866214.286	2639.79
614	1837500.328	15866214.286	2908.44
615	1840183.607	15866214.286	3183.29
616	1842866.885	15866214.286	3023.09
617	1845550.164	15866214.286	3363.87
618	1848233.443	15866214.286	3114.77
619	1850916.721	15866214.286	3032.04
620	1853600.000	15866214.286	3214.87
621	1689920.000	15869104.762	2306.56
622	1692603.279	15869104.762	2306.19
623	1695286.557	15869104.762	2310.69
624	1697969.836	15869104.762	2313.42
625	1700653.115	15869104.762	2318.46
626	1703336.393	15869104.762	2323.14
627	1706019.672	15869104.762	2327.44
628	1708702.951	15869104.762	2332.62
629	1711386.230	15869104.762	2335.71
630	1714069.508	15869104.762	2339.00
631	1716752.787	15869104.762	2347.99
632	1719436.066	15869104.762	2351.50
633	1722119.344	15869104.762	2364.27
634	1724802.623	15869104.762	2425.57
635	1727485.902	15869104.762	2414.37
636	1730169.180	15869104.762	2373.31
637	1732852.459	15869104.762	2380.57
638	1735535.738	15869104.762	2385.20
639	1738219.016	15869104.762	2389.67
640	1740902.295	15869104.762	2396.02

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1928	1703336.393	15929804.762	2517.18
1929	1706019.672	15929804.762	2470.08
1930	1708702.951	15929804.762	2530.42
1931	1711386.230	15929804.762	2545.48
1932	1714069.508	15929804.762	2579.07
1933	1716752.787	15929804.762	2639.21
1934	1719436.066	15929804.762	2634.86
1935	1722119.344	15929804.762	2567.92
1936	1724802.623	15929804.762	2600.85
1937	1727485.902	15929804.762	2685.22
1938	1730169.180	15929804.762	2753.88
1939	1732852.459	15929804.762	2744.20
1940	1735535.738	15929804.762	2742.48
1941	1738219.016	15929804.762	2488.46
1942	1740902.295	15929804.762	2449.83
1943	1743585.574	15929804.762	2412.22
1944	1746268.852	15929804.762	2339.32
1945	1748952.131	15929804.762	2322.72
1946	1751635.410	15929804.762	2327.32
1947	1754318.689	15929804.762	2332.97
1948	1757001.967	15929804.762	2339.96
1949	1759685.246	15929804.762	2347.69
1950	1762368.525	15929804.762	2351.69
1951	1765051.803	15929804.762	2354.53
1952	1767735.082	15929804.762	2359.82
1953	1770418.361	15929804.762	2366.35
1954	1773101.639	15929804.762	2369.69
1955	1775784.918	15929804.762	2396.66
1956	1778468.197	15929804.762	2404.50
1957	1781151.475	15929804.762	2531.31
1958	1783834.754	15929804.762	2770.79
1959	1786518.033	15929804.762	2945.33
1960	1789201.311	15929804.762	2940.75
1961	1791884.590	15929804.762	3168.51
1962	1794567.869	15929804.762	3386.90
1963	1797251.148	15929804.762	3192.10
1964	1799934.426	15929804.762	3191.52
1965	1802617.705	15929804.762	3080.04
1966	1805300.984	15929804.762	3155.95
1967	1807984.262	15929804.762	3335.59
1968	1810667.541	15929804.762	3640.40
1969	1813350.820	15929804.762	3823.41
1970	1816034.098	15929804.762	4045.23
1971	1818717.377	15929804.762	4338.87
1972	1821400.656	15929804.762	4461.47
1973	1824083.934	15929804.762	4564.90

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
641	1743585.574	15869104.762	2401.90
642	1746268.852	15869104.762	2407.22
643	1748952.131	15869104.762	2411.76
644	1751635.410	15869104.762	2417.37
645	1754318.689	15869104.762	2423.37
646	1757001.967	15869104.762	2427.89
647	1759685.246	15869104.762	2433.50
648	1762368.525	15869104.762	2439.97
649	1765051.803	15869104.762	2447.23
650	1767735.082	15869104.762	2453.27
651	1770418.361	15869104.762	2458.21
652	1773101.639	15869104.762	2463.21
653	1775784.918	15869104.762	2470.93
654	1778468.197	15869104.762	2477.14
655	1781151.475	15869104.762	2480.40
656	1783834.754	15869104.762	2488.64
657	1786518.033	15869104.762	2494.13
658	1789201.311	15869104.762	2500.56
659	1791884.590	15869104.762	2510.26
660	1794567.869	15869104.762	2518.12
661	1797251.148	15869104.762	2522.20
662	1799934.426	15869104.762	2527.80
663	1802617.705	15869104.762	2533.10
664	1805300.984	15869104.762	2540.67
665	1807984.262	15869104.762	2548.29
666	1810667.541	15869104.762	2555.53
667	1813350.820	15869104.762	2561.60
668	1816034.098	15869104.762	2568.66
669	1818717.377	15869104.762	2573.24
670	1821400.656	15869104.762	2583.51
671	1824083.934	15869104.762	2588.99
672	1826767.213	15869104.762	2598.11
673	1829450.492	15869104.762	2603.38
674	1832133.770	15869104.762	2660.52
675	1834817.049	15869104.762	2861.13
676	1837500.328	15869104.762	2883.26
677	1840183.607	15869104.762	3215.18
678	1842866.885	15869104.762	3375.94
679	1845550.164	15869104.762	3477.88
680	1848233.443	15869104.762	3301.78
681	1850916.721	15869104.762	3441.09
682	1853600.000	15869104.762	3317.31
683	1689920.000	15871995.238	2303.22
684	1692603.279	15871995.238	2303.70
685	1695286.557	15871995.238	2306.95
686	1697969.836	15871995.238	2313.17

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1974	1826767.213	15929804.762	4521.57
1975	1829450.492	15929804.762	4426.11
1976	1832133.770	15929804.762	4358.49
1977	1834817.049	15929804.762	4302.10
1978	1837500.328	15929804.762	4498.91
1979	1840183.607	15929804.762	4156.87
1980	1842866.885	15929804.762	3842.57
1981	1845550.164	15929804.762	3873.59
1982	1848233.443	15929804.762	3885.71
1983	1850916.721	15929804.762	4013.70
1984	1853600.000	15929804.762	3894.19
1985	1689920.000	15932695.238	2607.65
1986	1692603.279	15932695.238	2600.03
1987	1695286.557	15932695.238	2587.74
1988	1697969.836	15932695.238	2560.90
1989	1700653.115	15932695.238	2546.39
1990	1703336.393	15932695.238	2505.65
1991	1706019.672	15932695.238	2503.54
1992	1708702.951	15932695.238	2496.93
1993	1711386.230	15932695.238	2568.75
1994	1714069.508	15932695.238	2602.13
1995	1716752.787	15932695.238	2635.42
1996	1719436.066	15932695.238	2693.61
1997	1722119.344	15932695.238	2595.33
1998	1724802.623	15932695.238	2690.88
1999	1727485.902	15932695.238	2691.29
2000	1730169.180	15932695.238	2758.64
2001	1732852.459	15932695.238	2484.24
2002	1735535.738	15932695.238	2364.02
2003	1738219.016	15932695.238	2354.88
2004	1740902.295	15932695.238	2379.76
2005	1743585.574	15932695.238	2365.15
2006	1746268.852	15932695.238	2318.19
2007	1748952.131	15932695.238	2318.34
2008	1751635.410	15932695.238	2324.70
2009	1754318.689	15932695.238	2330.95
2010	1757001.967	15932695.238	2339.55
2011	1759685.246	15932695.238	2347.26
2012	1762368.525	15932695.238	2349.85
2013	1765051.803	15932695.238	2353.89
2014	1767735.082	15932695.238	2359.61
2015	1770418.361	15932695.238	2366.17
2016	1773101.639	15932695.238	2400.23
2017	1775784.918	15932695.238	2391.02
2018	1778468.197	15932695.238	2410.31
2019	1781151.475	15932695.238	2484.03

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
687	1700653.115	15871995.238	2315.94
688	1703336.393	15871995.238	2321.32
689	1706019.672	15871995.238	2324.11
690	1708702.951	15871995.238	2328.20
691	1711386.230	15871995.238	2332.72
692	1714069.508	15871995.238	2335.91
693	1716752.787	15871995.238	2346.50
694	1719436.066	15871995.238	2346.39
695	1722119.344	15871995.238	2440.49
696	1724802.623	15871995.238	2445.38
697	1727485.902	15871995.238	2367.18
698	1730169.180	15871995.238	2374.43
699	1732852.459	15871995.238	2377.20
700	1735535.738	15871995.238	2383.27
701	1738219.016	15871995.238	2388.16
702	1740902.295	15871995.238	2393.66
703	1743585.574	15871995.238	2398.57
704	1746268.852	15871995.238	2403.46
705	1748952.131	15871995.238	2410.57
706	1751635.410	15871995.238	2418.04
707	1754318.689	15871995.238	2423.72
708	1757001.967	15871995.238	2430.10
709	1759685.246	15871995.238	2434.87
710	1762368.525	15871995.238	2441.21
711	1765051.803	15871995.238	2447.65
712	1767735.082	15871995.238	2451.27
713	1770418.361	15871995.238	2462.52
714	1773101.639	15871995.238	2467.99
715	1775784.918	15871995.238	2473.15
716	1778468.197	15871995.238	2478.05
717	1781151.475	15871995.238	2484.42
718	1783834.754	15871995.238	2490.73
719	1786518.033	15871995.238	2497.81
720	1789201.311	15871995.238	2503.73
721	1791884.590	15871995.238	2509.47
722	1794567.869	15871995.238	2517.65
723	1797251.148	15871995.238	2523.10
724	1799934.426	15871995.238	2524.48
725	1802617.705	15871995.238	2534.24
726	1805300.984	15871995.238	2541.47
727	1807984.262	15871995.238	2547.27
728	1810667.541	15871995.238	2553.59
729	1813350.820	15871995.238	2558.81
730	1816034.098	15871995.238	2567.27
731	1818717.377	15871995.238	2576.81
732	1821400.656	15871995.238	2588.62

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2020	1783834.754	15932695.238	2613.00
2021	1786518.033	15932695.238	2724.89
2022	1789201.311	15932695.238	2895.10
2023	1791884.590	15932695.238	3212.43
2024	1794567.869	15932695.238	3279.92
2025	1797251.148	15932695.238	3334.30
2026	1799934.426	15932695.238	3360.95
2027	1802617.705	15932695.238	3394.81
2028	1805300.984	15932695.238	3166.86
2029	1807984.262	15932695.238	3524.59
2030	1810667.541	15932695.238	3676.79
2031	1813350.820	15932695.238	3856.64
2032	1816034.098	15932695.238	3888.54
2033	1818717.377	15932695.238	4138.29
2034	1821400.656	15932695.238	4286.55
2035	1824083.934	15932695.238	4564.56
2036	1826767.213	15932695.238	4763.35
2037	1829450.492	15932695.238	4329.34
2038	1832133.770	15932695.238	4192.58
2039	1834817.049	15932695.238	4299.13
2040	1837500.328	15932695.238	4336.87
2041	1840183.607	15932695.238	4181.66
2042	1842866.885	15932695.238	3823.30
2043	1845550.164	15932695.238	3551.38
2044	1848233.443	15932695.238	3989.14
2045	1850916.721	15932695.238	4303.95
2046	1853600.000	15932695.238	4279.34
2047	1689920.000	15935585.714	2625.24
2048	1692603.279	15935585.714	2613.22
2049	1695286.557	15935585.714	2594.64
2050	1697969.836	15935585.714	2537.64
2051	1700653.115	15935585.714	2508.66
2052	1703336.393	15935585.714	2575.66
2053	1706019.672	15935585.714	2576.81
2054	1708702.951	15935585.714	2500.11
2055	1711386.230	15935585.714	2548.20
2056	1714069.508	15935585.714	2563.42
2057	1716752.787	15935585.714	2633.50
2058	1719436.066	15935585.714	2651.68
2059	1722119.344	15935585.714	2672.39
2060	1724802.623	15935585.714	2609.02
2061	1727485.902	15935585.714	2424.44
2062	1730169.180	15935585.714	2341.71
2063	1732852.459	15935585.714	2316.15
2064	1735535.738	15935585.714	2317.46
2065	1738219.016	15935585.714	2320.07

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
733	1824083.934	15871995.238	2609.96
734	1826767.213	15871995.238	2807.73
735	1829450.492	15871995.238	2747.61
736	1832133.770	15871995.238	2976.00
737	1834817.049	15871995.238	3034.54
738	1837500.328	15871995.238	3210.05
739	1840183.607	15871995.238	3000.63
740	1842866.885	15871995.238	3194.89
741	1845550.164	15871995.238	3290.23
742	1848233.443	15871995.238	3449.74
743	1850916.721	15871995.238	3231.88
744	1853600.000	15871995.238	3460.46
745	1689920.000	15874885.714	2301.39
746	1692603.279	15874885.714	2302.38
747	1695286.557	15874885.714	2304.14
748	1697969.836	15874885.714	2307.93
749	1700653.115	15874885.714	2313.20
750	1703336.393	15874885.714	2317.10
751	1706019.672	15874885.714	2321.22
752	1708702.951	15874885.714	2327.75
753	1711386.230	15874885.714	2342.87
754	1714069.508	15874885.714	2344.47
755	1716752.787	15874885.714	2372.22
756	1719436.066	15874885.714	2383.28
757	1722119.344	15874885.714	2442.16
758	1724802.623	15874885.714	2371.54
759	1727485.902	15874885.714	2371.67
760	1730169.180	15874885.714	2373.58
761	1732852.459	15874885.714	2378.17
762	1735535.738	15874885.714	2388.85
763	1738219.016	15874885.714	2395.30
764	1740902.295	15874885.714	2396.62
765	1743585.574	15874885.714	2396.73
766	1746268.852	15874885.714	2405.96
767	1748952.131	15874885.714	2413.01
768	1751635.410	15874885.714	2417.50
769	1754318.689	15874885.714	2422.87
770	1757001.967	15874885.714	2431.74
771	1759685.246	15874885.714	2437.25
772	1762368.525	15874885.714	2443.73
773	1765051.803	15874885.714	2449.54
774	1767735.082	15874885.714	2455.02
775	1770418.361	15874885.714	2461.28
776	1773101.639	15874885.714	2466.23
777	1775784.918	15874885.714	2471.97
778	1778468.197	15874885.714	2477.82

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2066	1740902.295	15935585.714	2307.65
2067	1743585.574	15935585.714	2311.62
2068	1746268.852	15935585.714	2314.53
2069	1748952.131	15935585.714	2318.37
2070	1751635.410	15935585.714	2324.16
2071	1754318.689	15935585.714	2330.34
2072	1757001.967	15935585.714	2336.59
2073	1759685.246	15935585.714	2343.65
2074	1762368.525	15935585.714	2348.58
2075	1765051.803	15935585.714	2352.86
2076	1767735.082	15935585.714	2359.23
2077	1770418.361	15935585.714	2366.61
2078	1773101.639	15935585.714	2363.05
2079	1775784.918	15935585.714	2366.85
2080	1778468.197	15935585.714	2388.96
2081	1781151.475	15935585.714	2424.54
2082	1783834.754	15935585.714	2454.90
2083	1786518.033	15935585.714	2830.47
2084	1789201.311	15935585.714	2958.91
2085	1791884.590	15935585.714	2937.45
2086	1794567.869	15935585.714	3216.02
2087	1797251.148	15935585.714	3347.73
2088	1799934.426	15935585.714	3429.25
2089	1802617.705	15935585.714	3415.53
2090	1805300.984	15935585.714	3425.23
2091	1807984.262	15935585.714	3542.10
2092	1810667.541	15935585.714	3670.24
2093	1813350.820	15935585.714	3834.39
2094	1816034.098	15935585.714	4174.09
2095	1818717.377	15935585.714	4409.80
2096	1821400.656	15935585.714	4868.62
2097	1824083.934	15935585.714	5014.48
2098	1826767.213	15935585.714	4799.32
2099	1829450.492	15935585.714	4290.60
2100	1832133.770	15935585.714	3988.39
2101	1834817.049	15935585.714	4282.20
2102	1837500.328	15935585.714	4107.19
2103	1840183.607	15935585.714	3925.06
2104	1842866.885	15935585.714	3684.54
2105	1845550.164	15935585.714	3526.20
2106	1848233.443	15935585.714	3546.79
2107	1850916.721	15935585.714	4247.00
2108	1853600.000	15935585.714	4513.26
2109	1689920.000	15938476.190	2574.09
2110	1692603.279	15938476.190	2572.29
2111	1695286.557	15938476.190	2548.12

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
779	1781151.475	15874885.714	2483.97
780	1783834.754	15874885.714	2488.34
781	1786518.033	15874885.714	2495.51
782	1789201.311	15874885.714	2503.41
783	1791884.590	15874885.714	2510.89
784	1794567.869	15874885.714	2517.98
785	1797251.148	15874885.714	2528.33
786	1799934.426	15874885.714	2537.00
787	1802617.705	15874885.714	2548.21
788	1805300.984	15874885.714	2557.22
789	1807984.262	15874885.714	2565.21
790	1810667.541	15874885.714	2580.76
791	1813350.820	15874885.714	2593.85
792	1816034.098	15874885.714	2626.55
793	1818717.377	15874885.714	2629.69
794	1821400.656	15874885.714	2646.98
795	1824083.934	15874885.714	2707.31
796	1826767.213	15874885.714	2811.47
797	1829450.492	15874885.714	2913.38
798	1832133.770	15874885.714	2996.34
799	1834817.049	15874885.714	3026.63
800	1837500.328	15874885.714	3182.33
801	1840183.607	15874885.714	3255.74
802	1842866.885	15874885.714	3281.02
803	1845550.164	15874885.714	3349.91
804	1848233.443	15874885.714	3246.50
805	1850916.721	15874885.714	3296.30
806	1853600.000	15874885.714	3379.61
807	1689920.000	15877776.190	2295.60
808	1692603.279	15877776.190	2296.00
809	1695286.557	15877776.190	2303.04
810	1697969.836	15877776.190	2308.53
811	1700653.115	15877776.190	2308.24
812	1703336.393	15877776.190	2316.27
813	1706019.672	15877776.190	2349.47
814	1708702.951	15877776.190	2345.76
815	1711386.230	15877776.190	2365.77
816	1714069.508	15877776.190	2367.44
817	1716752.787	15877776.190	2382.28
818	1719436.066	15877776.190	2435.84
819	1722119.344	15877776.190	2451.39
820	1724802.623	15877776.190	2399.55
821	1727485.902	15877776.190	2396.08
822	1730169.180	15877776.190	2384.38
823	1732852.459	15877776.190	2387.00
824	1735535.738	15877776.190	2400.75

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2112	1697969.836	15938476.190	2616.48
2113	1700653.115	15938476.190	2548.54
2114	1703336.393	15938476.190	2594.86
2115	1706019.672	15938476.190	2538.43
2116	1708702.951	15938476.190	2558.16
2117	1711386.230	15938476.190	2614.73
2118	1714069.508	15938476.190	2655.19
2119	1716752.787	15938476.190	2633.73
2120	1719436.066	15938476.190	2515.35
2121	1722119.344	15938476.190	2403.97
2122	1724802.623	15938476.190	2350.48
2123	1727485.902	15938476.190	2315.05
2124	1730169.180	15938476.190	2303.55
2125	1732852.459	15938476.190	2303.01
2126	1735535.738	15938476.190	2303.57
2127	1738219.016	15938476.190	2295.48
2128	1740902.295	15938476.190	2302.54
2129	1743585.574	15938476.190	2308.06
2130	1746268.852	15938476.190	2311.91
2131	1748952.131	15938476.190	2316.06
2132	1751635.410	15938476.190	2321.85
2133	1754318.689	15938476.190	2325.59
2134	1757001.967	15938476.190	2330.28
2135	1759685.246	15938476.190	2336.41
2136	1762368.525	15938476.190	2342.39
2137	1765051.803	15938476.190	2345.49
2138	1767735.082	15938476.190	2357.90
2139	1770418.361	15938476.190	2367.19
2140	1773101.639	15938476.190	2363.12
2141	1775784.918	15938476.190	2369.32
2142	1778468.197	15938476.190	2380.18
2143	1781151.475	15938476.190	2382.98
2144	1783834.754	15938476.190	2403.17
2145	1786518.033	15938476.190	2553.54
2146	1789201.311	15938476.190	2921.96
2147	1791884.590	15938476.190	3362.11
2148	1794567.869	15938476.190	3276.74
2149	1797251.148	15938476.190	3141.72
2150	1799934.426	15938476.190	3282.25
2151	1802617.705	15938476.190	3437.55
2152	1805300.984	15938476.190	3552.97
2153	1807984.262	15938476.190	3324.52
2154	1810667.541	15938476.190	3546.25
2155	1813350.820	15938476.190	3707.35
2156	1816034.098	15938476.190	3984.46
2157	1818717.377	15938476.190	4294.48

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
825	1738219.016	15877776.190	2404.05
826	1740902.295	15877776.190	2403.36
827	1743585.574	15877776.190	2402.96
828	1746268.852	15877776.190	2407.61
829	1748952.131	15877776.190	2413.60
830	1751635.410	15877776.190	2419.62
831	1754318.689	15877776.190	2429.89
832	1757001.967	15877776.190	2433.15
833	1759685.246	15877776.190	2436.90
834	1762368.525	15877776.190	2442.59
835	1765051.803	15877776.190	2448.15
836	1767735.082	15877776.190	2452.78
837	1770418.361	15877776.190	2457.99
838	1773101.639	15877776.190	2468.33
839	1775784.918	15877776.190	2475.90
840	1778468.197	15877776.190	2484.52
841	1781151.475	15877776.190	2505.06
842	1783834.754	15877776.190	2506.47
843	1786518.033	15877776.190	2500.12
844	1789201.311	15877776.190	2519.60
845	1791884.590	15877776.190	2521.89
846	1794567.869	15877776.190	2538.46
847	1797251.148	15877776.190	2553.42
848	1799934.426	15877776.190	2557.73
849	1802617.705	15877776.190	2573.06
850	1805300.984	15877776.190	2575.37
851	1807984.262	15877776.190	2602.47
852	1810667.541	15877776.190	2589.51
853	1813350.820	15877776.190	2624.57
854	1816034.098	15877776.190	2642.49
855	1818717.377	15877776.190	2645.04
856	1821400.656	15877776.190	2672.50
857	1824083.934	15877776.190	2823.87
858	1826767.213	15877776.190	2983.52
859	1829450.492	15877776.190	3148.10
860	1832133.770	15877776.190	3168.44
861	1834817.049	15877776.190	3211.65
862	1837500.328	15877776.190	3207.11
863	1840183.607	15877776.190	3064.40
864	1842866.885	15877776.190	3016.11
865	1845550.164	15877776.190	3005.29
866	1848233.443	15877776.190	3208.56
867	1850916.721	15877776.190	3582.00
868	1853600.000	15877776.190	3576.38
869	1689920.000	15880666.667	2295.05
870	1692603.279	15880666.667	2297.16

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2158	1821400.656	15938476.190	4503.73
2159	1824083.934	15938476.190	4529.26
2160	1826767.213	15938476.190	4324.45
2161	1829450.492	15938476.190	4349.83
2162	1832133.770	15938476.190	3727.18
2163	1834817.049	15938476.190	4185.86
2164	1837500.328	15938476.190	4105.94
2165	1840183.607	15938476.190	3759.93
2166	1842866.885	15938476.190	3422.64
2167	1845550.164	15938476.190	3316.95
2168	1848233.443	15938476.190	3245.09
2169	1850916.721	15938476.190	3528.76
2170	1853600.000	15938476.190	3501.27
2171	1689920.000	15941366.667	2510.69
2172	1692603.279	15941366.667	2521.60
2173	1695286.557	15941366.667	2626.88
2174	1697969.836	15941366.667	2634.89
2175	1700653.115	15941366.667	2596.31
2176	1703336.393	15941366.667	2524.84
2177	1706019.672	15941366.667	2485.14
2178	1708702.951	15941366.667	2571.39
2179	1711386.230	15941366.667	2568.07
2180	1714069.508	15941366.667	2612.54
2181	1716752.787	15941366.667	2534.82
2182	1719436.066	15941366.667	2352.39
2183	1722119.344	15941366.667	2305.40
2184	1724802.623	15941366.667	2293.90
2185	1727485.902	15941366.667	2295.18
2186	1730169.180	15941366.667	2294.44
2187	1732852.459	15941366.667	2294.03
2188	1735535.738	15941366.667	2292.85
2189	1738219.016	15941366.667	2292.89
2190	1740902.295	15941366.667	2298.15
2191	1743585.574	15941366.667	2302.99
2192	1746268.852	15941366.667	2305.21
2193	1748952.131	15941366.667	2311.12
2194	1751635.410	15941366.667	2328.72
2195	1754318.689	15941366.667	2393.49
2196	1757001.967	15941366.667	2397.58
2197	1759685.246	15941366.667	2409.41
2198	1762368.525	15941366.667	2410.55
2199	1765051.803	15941366.667	2357.13
2200	1767735.082	15941366.667	2360.35
2201	1770418.361	15941366.667	2362.50
2202	1773101.639	15941366.667	2363.88
2203	1775784.918	15941366.667	2375.60

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
871	1695286.557	15880666.667	2302.08
872	1697969.836	15880666.667	2302.55
873	1700653.115	15880666.667	2306.55
874	1703336.393	15880666.667	2343.95
875	1706019.672	15880666.667	2355.61
876	1708702.951	15880666.667	2360.73
877	1711386.230	15880666.667	2373.53
878	1714069.508	15880666.667	2376.61
879	1716752.787	15880666.667	2394.16
880	1719436.066	15880666.667	2428.62
881	1722119.344	15880666.667	2434.04
882	1724802.623	15880666.667	2425.45
883	1727485.902	15880666.667	2414.66
884	1730169.180	15880666.667	2404.90
885	1732852.459	15880666.667	2439.15
886	1735535.738	15880666.667	2427.21
887	1738219.016	15880666.667	2437.01
888	1740902.295	15880666.667	2449.39
889	1743585.574	15880666.667	2413.57
890	1746268.852	15880666.667	2412.09
891	1748952.131	15880666.667	2416.17
892	1751635.410	15880666.667	2421.16
893	1754318.689	15880666.667	2422.67
894	1757001.967	15880666.667	2428.35
895	1759685.246	15880666.667	2448.91
896	1762368.525	15880666.667	2537.76
897	1765051.803	15880666.667	2537.94
898	1767735.082	15880666.667	2468.15
899	1770418.361	15880666.667	2476.57
900	1773101.639	15880666.667	2492.46
901	1775784.918	15880666.667	2521.73
902	1778468.197	15880666.667	2530.20
903	1781151.475	15880666.667	2529.98
904	1783834.754	15880666.667	2530.13
905	1786518.033	15880666.667	2556.66
906	1789201.311	15880666.667	2560.44
907	1791884.590	15880666.667	2548.66
908	1794567.869	15880666.667	2541.33
909	1797251.148	15880666.667	2557.57
910	1799934.426	15880666.667	2578.78
911	1802617.705	15880666.667	2595.46
912	1805300.984	15880666.667	2604.14
913	1807984.262	15880666.667	2600.92
914	1810667.541	15880666.667	2622.25
915	1813350.820	15880666.667	2613.76
916	1816034.098	15880666.667	2618.85

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2204	1778468.197	15941366.667	2386.26
2205	1781151.475	15941366.667	2392.44
2206	1783834.754	15941366.667	2403.89
2207	1786518.033	15941366.667	2487.24
2208	1789201.311	15941366.667	2691.32
2209	1791884.590	15941366.667	3222.03
2210	1794567.869	15941366.667	3370.46
2211	1797251.148	15941366.667	3400.91
2212	1799934.426	15941366.667	3541.99
2213	1802617.705	15941366.667	3537.39
2214	1805300.984	15941366.667	3483.66
2215	1807984.262	15941366.667	3145.16
2216	1810667.541	15941366.667	3558.26
2217	1813350.820	15941366.667	3950.36
2218	1816034.098	15941366.667	3895.19
2219	1818717.377	15941366.667	3755.86
2220	1821400.656	15941366.667	3875.50
2221	1824083.934	15941366.667	3984.01
2222	1826767.213	15941366.667	3850.05
2223	1829450.492	15941366.667	4043.13
2224	1832133.770	15941366.667	3600.75
2225	1834817.049	15941366.667	4143.70
2226	1837500.328	15941366.667	4281.95
2227	1840183.607	15941366.667	3913.24
2228	1842866.885	15941366.667	3318.25
2229	1845550.164	15941366.667	3028.50
2230	1848233.443	15941366.667	2925.32
2231	1850916.721	15941366.667	2953.89
2232	1853600.000	15941366.667	3015.68
2233	1689920.000	15944257.143	2484.46
2234	1692603.279	15944257.143	2538.49
2235	1695286.557	15944257.143	2654.85
2236	1697969.836	15944257.143	2508.13
2237	1700653.115	15944257.143	2549.60
2238	1703336.393	15944257.143	2567.72
2239	1706019.672	15944257.143	2435.51
2240	1708702.951	15944257.143	2481.29
2241	1711386.230	15944257.143	2573.77
2242	1714069.508	15944257.143	2489.19
2243	1716752.787	15944257.143	2328.52
2244	1719436.066	15944257.143	2285.57
2245	1722119.344	15944257.143	2284.59
2246	1724802.623	15944257.143	2285.92
2247	1727485.902	15944257.143	2286.78
2248	1730169.180	15944257.143	2281.88
2249	1732852.459	15944257.143	2283.52

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
917	1818717.377	15880666.667	2673.48
918	1821400.656	15880666.667	2746.52
919	1824083.934	15880666.667	2811.91
920	1826767.213	15880666.667	2881.10
921	1829450.492	15880666.667	3142.61
922	1832133.770	15880666.667	3134.21
923	1834817.049	15880666.667	3026.69
924	1837500.328	15880666.667	2932.08
925	1840183.607	15880666.667	2924.49
926	1842866.885	15880666.667	2948.20
927	1845550.164	15880666.667	3271.44
928	1848233.443	15880666.667	3588.23
929	1850916.721	15880666.667	3801.87
930	1853600.000	15880666.667	3853.86
931	1689920.000	15883557.143	2312.73
932	1692603.279	15883557.143	2310.67
933	1695286.557	15883557.143	2329.50
934	1697969.836	15883557.143	2347.13
935	1700653.115	15883557.143	2336.62
936	1703336.393	15883557.143	2354.73
937	1706019.672	15883557.143	2360.44
938	1708702.951	15883557.143	2369.07
939	1711386.230	15883557.143	2384.40
940	1714069.508	15883557.143	2393.93
941	1716752.787	15883557.143	2447.21
942	1719436.066	15883557.143	2461.03
943	1722119.344	15883557.143	2442.24
944	1724802.623	15883557.143	2427.73
945	1727485.902	15883557.143	2449.95
946	1730169.180	15883557.143	2459.09
947	1732852.459	15883557.143	2439.84
948	1735535.738	15883557.143	2456.83
949	1738219.016	15883557.143	2454.39
950	1740902.295	15883557.143	2431.38
951	1743585.574	15883557.143	2459.15
952	1746268.852	15883557.143	2487.98
953	1748952.131	15883557.143	2517.46
954	1751635.410	15883557.143	2540.75
955	1754318.689	15883557.143	2555.73
956	1757001.967	15883557.143	2557.75
957	1759685.246	15883557.143	2586.23
958	1762368.525	15883557.143	2545.56
959	1765051.803	15883557.143	2565.89
960	1767735.082	15883557.143	2633.07
961	1770418.361	15883557.143	2643.12
962	1773101.639	15883557.143	2595.57

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2250	1735535.738	15944257.143	2288.76
2251	1738219.016	15944257.143	2293.69
2252	1740902.295	15944257.143	2298.12
2253	1743585.574	15944257.143	2301.01
2254	1746268.852	15944257.143	2377.64
2255	1748952.131	15944257.143	2380.07
2256	1751635.410	15944257.143	2389.75
2257	1754318.689	15944257.143	2394.14
2258	1757001.967	15944257.143	2401.39
2259	1759685.246	15944257.143	2412.78
2260	1762368.525	15944257.143	2414.14
2261	1765051.803	15944257.143	2426.37
2262	1767735.082	15944257.143	2427.77
2263	1770418.361	15944257.143	2438.29
2264	1773101.639	15944257.143	2411.16
2265	1775784.918	15944257.143	2415.71
2266	1778468.197	15944257.143	2387.30
2267	1781151.475	15944257.143	2398.55
2268	1783834.754	15944257.143	2410.36
2269	1786518.033	15944257.143	2426.61
2270	1789201.311	15944257.143	2551.69
2271	1791884.590	15944257.143	2776.15
2272	1794567.869	15944257.143	3267.68
2273	1797251.148	15944257.143	3273.27
2274	1799934.426	15944257.143	3297.83
2275	1802617.705	15944257.143	3229.04
2276	1805300.984	15944257.143	2899.61
2277	1807984.262	15944257.143	3103.84
2278	1810667.541	15944257.143	3217.84
2279	1813350.820	15944257.143	3401.25
2280	1816034.098	15944257.143	3601.84
2281	1818717.377	15944257.143	3666.68
2282	1821400.656	15944257.143	3517.98
2283	1824083.934	15944257.143	3290.39
2284	1826767.213	15944257.143	3266.26
2285	1829450.492	15944257.143	3591.13
2286	1832133.770	15944257.143	3389.14
2287	1834817.049	15944257.143	3801.24
2288	1837500.328	15944257.143	4019.74
2289	1840183.607	15944257.143	4140.57
2290	1842866.885	15944257.143	3544.99
2291	1845550.164	15944257.143	2972.84
2292	1848233.443	15944257.143	2846.43
2293	1850916.721	15944257.143	2800.25
2294	1853600.000	15944257.143	2757.97
2295	1689920.000	15947147.619	2520.57

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
963	1775784.918	15883557.143	2538.87
964	1778468.197	15883557.143	2554.96
965	1781151.475	15883557.143	2554.74
966	1783834.754	15883557.143	2556.75
967	1786518.033	15883557.143	2563.50
968	1789201.311	15883557.143	2585.75
969	1791884.590	15883557.143	2583.13
970	1794567.869	15883557.143	2561.17
971	1797251.148	15883557.143	2567.74
972	1799934.426	15883557.143	2597.54
973	1802617.705	15883557.143	2624.10
974	1805300.984	15883557.143	2628.67
975	1807984.262	15883557.143	2638.38
976	1810667.541	15883557.143	2646.37
977	1813350.820	15883557.143	2650.48
978	1816034.098	15883557.143	2647.05
979	1818717.377	15883557.143	2648.62
980	1821400.656	15883557.143	2723.88
981	1824083.934	15883557.143	2868.12
982	1826767.213	15883557.143	2813.56
983	1829450.492	15883557.143	3005.29
984	1832133.770	15883557.143	2904.76
985	1834817.049	15883557.143	2928.51
986	1837500.328	15883557.143	2880.03
987	1840183.607	15883557.143	2902.35
988	1842866.885	15883557.143	3186.05
989	1845550.164	15883557.143	3358.33
990	1848233.443	15883557.143	3529.08
991	1850916.721	15883557.143	3795.45
992	1853600.000	15883557.143	4339.11
993	1689920.000	15886447.619	2332.94
994	1692603.279	15886447.619	2340.09
995	1695286.557	15886447.619	2332.51
996	1697969.836	15886447.619	2349.30
997	1700653.115	15886447.619	2358.29
998	1703336.393	15886447.619	2360.94
999	1706019.672	15886447.619	2370.58
1000	1708702.951	15886447.619	2383.73
1001	1711386.230	15886447.619	2421.22
1002	1714069.508	15886447.619	2443.97
1003	1716752.787	15886447.619	2444.09
1004	1719436.066	15886447.619	2473.45
1005	1722119.344	15886447.619	2453.76
1006	1724802.623	15886447.619	2431.55
1007	1727485.902	15886447.619	2491.42
1008	1730169.180	15886447.619	2466.35

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2296	1692603.279	15947147.619	2539.95
2297	1695286.557	15947147.619	2528.17
2298	1697969.836	15947147.619	2469.92
2299	1700653.115	15947147.619	2440.24
2300	1703336.393	15947147.619	2439.96
2301	1706019.672	15947147.619	2401.59
2302	1708702.951	15947147.619	2443.50
2303	1711386.230	15947147.619	2446.18
2304	1714069.508	15947147.619	2434.06
2305	1716752.787	15947147.619	2283.82
2306	1719436.066	15947147.619	2277.06
2307	1722119.344	15947147.619	2278.38
2308	1724802.623	15947147.619	2279.27
2309	1727485.902	15947147.619	2276.38
2310	1730169.180	15947147.619	2274.03
2311	1732852.459	15947147.619	2282.91
2312	1735535.738	15947147.619	2286.34
2313	1738219.016	15947147.619	2288.48
2314	1740902.295	15947147.619	2329.81
2315	1743585.574	15947147.619	2376.25
2316	1746268.852	15947147.619	2396.19
2317	1748952.131	15947147.619	2398.61
2318	1751635.410	15947147.619	2394.49
2319	1754318.689	15947147.619	2404.60
2320	1757001.967	15947147.619	2410.83
2321	1759685.246	15947147.619	2417.91
2322	1762368.525	15947147.619	2428.55
2323	1765051.803	15947147.619	2437.14
2324	1767735.082	15947147.619	2444.54
2325	1770418.361	15947147.619	2460.89
2326	1773101.639	15947147.619	2454.99
2327	1775784.918	15947147.619	2450.53
2328	1778468.197	15947147.619	2418.16
2329	1781151.475	15947147.619	2396.22
2330	1783834.754	15947147.619	2404.04
2331	1786518.033	15947147.619	2426.17
2332	1789201.311	15947147.619	2482.06
2333	1791884.590	15947147.619	2716.86
2334	1794567.869	15947147.619	2983.96
2335	1797251.148	15947147.619	2978.59
2336	1799934.426	15947147.619	3335.98
2337	1802617.705	15947147.619	3033.05
2338	1805300.984	15947147.619	2791.73
2339	1807984.262	15947147.619	2993.59
2340	1810667.541	15947147.619	2932.60
2341	1813350.820	15947147.619	3192.54

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1009	1732852.459	15886447.619	2441.60
1010	1735535.738	15886447.619	2462.82
1011	1738219.016	15886447.619	2472.54
1012	1740902.295	15886447.619	2448.35
1013	1743585.574	15886447.619	2452.94
1014	1746268.852	15886447.619	2469.35
1015	1748952.131	15886447.619	2510.70
1016	1751635.410	15886447.619	2544.81
1017	1754318.689	15886447.619	2559.39
1018	1757001.967	15886447.619	2562.36
1019	1759685.246	15886447.619	2597.29
1020	1762368.525	15886447.619	2625.18
1021	1765051.803	15886447.619	2557.48
1022	1767735.082	15886447.619	2625.43
1023	1770418.361	15886447.619	2643.30
1024	1773101.639	15886447.619	2662.27
1025	1775784.918	15886447.619	2694.13
1026	1778468.197	15886447.619	2701.30
1027	1781151.475	15886447.619	2602.61
1028	1783834.754	15886447.619	2675.35
1029	1786518.033	15886447.619	2668.86
1030	1789201.311	15886447.619	2596.73
1031	1791884.590	15886447.619	2597.47
1032	1794567.869	15886447.619	2578.18
1033	1797251.148	15886447.619	2594.89
1034	1799934.426	15886447.619	2607.05
1035	1802617.705	15886447.619	2643.43
1036	1805300.984	15886447.619	2643.95
1037	1807984.262	15886447.619	2675.02
1038	1810667.541	15886447.619	2699.39
1039	1813350.820	15886447.619	2745.25
1040	1816034.098	15886447.619	2800.14
1041	1818717.377	15886447.619	2794.11
1042	1821400.656	15886447.619	2695.88
1043	1824083.934	15886447.619	2706.26
1044	1826767.213	15886447.619	2740.34
1045	1829450.492	15886447.619	2775.51
1046	1832133.770	15886447.619	2826.60
1047	1834817.049	15886447.619	2821.22
1048	1837500.328	15886447.619	2895.48
1049	1840183.607	15886447.619	2977.03
1050	1842866.885	15886447.619	3268.49
1051	1845550.164	15886447.619	3564.75
1052	1848233.443	15886447.619	3683.51
1053	1850916.721	15886447.619	3793.70
1054	1853600.000	15886447.619	3888.95

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2342	1816034.098	15947147.619	3643.15
2343	1818717.377	15947147.619	3359.87
2344	1821400.656	15947147.619	3216.67
2345	1824083.934	15947147.619	2961.41
2346	1826767.213	15947147.619	2960.43
2347	1829450.492	15947147.619	3206.45
2348	1832133.770	15947147.619	3254.07
2349	1834817.049	15947147.619	3138.73
2350	1837500.328	15947147.619	3111.17
2351	1840183.607	15947147.619	3413.19
2352	1842866.885	15947147.619	3345.19
2353	1845550.164	15947147.619	3211.60
2354	1848233.443	15947147.619	2886.30
2355	1850916.721	15947147.619	2648.67
2356	1853600.000	15947147.619	2846.81
2357	1689920.000	15950038.095	2437.04
2358	1692603.279	15950038.095	2425.77
2359	1695286.557	15950038.095	2443.48
2360	1697969.836	15950038.095	2398.63
2361	1700653.115	15950038.095	2403.96
2362	1703336.393	15950038.095	2389.52
2363	1706019.672	15950038.095	2381.37
2364	1708702.951	15950038.095	2369.57
2365	1711386.230	15950038.095	2376.68
2366	1714069.508	15950038.095	2311.94
2367	1716752.787	15950038.095	2267.90
2368	1719436.066	15950038.095	2267.33
2369	1722119.344	15950038.095	2269.31
2370	1724802.623	15950038.095	2271.35
2371	1727485.902	15950038.095	2271.10
2372	1730169.180	15950038.095	2273.80
2373	1732852.459	15950038.095	2277.88
2374	1735535.738	15950038.095	2286.37
2375	1738219.016	15950038.095	2363.69
2376	1740902.295	15950038.095	2368.97
2377	1743585.574	15950038.095	2379.58
2378	1746268.852	15950038.095	2401.25
2379	1748952.131	15950038.095	2413.55
2380	1751635.410	15950038.095	2414.85
2381	1754318.689	15950038.095	2418.39
2382	1757001.967	15950038.095	2436.35
2383	1759685.246	15950038.095	2443.31
2384	1762368.525	15950038.095	2448.30
2385	1765051.803	15950038.095	2454.33
2386	1767735.082	15950038.095	2468.09
2387	1770418.361	15950038.095	2473.50

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1055	1689920.000	15889338.095	2341.34
1056	1692603.279	15889338.095	2342.42
1057	1695286.557	15889338.095	2353.18
1058	1697969.836	15889338.095	2360.35
1059	1700653.115	15889338.095	2358.52
1060	1703336.393	15889338.095	2390.50
1061	1706019.672	15889338.095	2392.61
1062	1708702.951	15889338.095	2404.00
1063	1711386.230	15889338.095	2484.27
1064	1714069.508	15889338.095	2455.09
1065	1716752.787	15889338.095	2473.69
1066	1719436.066	15889338.095	2487.41
1067	1722119.344	15889338.095	2459.53
1068	1724802.623	15889338.095	2435.16
1069	1727485.902	15889338.095	2496.13
1070	1730169.180	15889338.095	2446.83
1071	1732852.459	15889338.095	2440.80
1072	1735535.738	15889338.095	2466.84
1073	1738219.016	15889338.095	2467.68
1074	1740902.295	15889338.095	2483.56
1075	1743585.574	15889338.095	2488.36
1076	1746268.852	15889338.095	2469.50
1077	1748952.131	15889338.095	2479.58
1078	1751635.410	15889338.095	2516.37
1079	1754318.689	15889338.095	2545.95
1080	1757001.967	15889338.095	2575.47
1081	1759685.246	15889338.095	2592.30
1082	1762368.525	15889338.095	2615.57
1083	1765051.803	15889338.095	2644.94
1084	1767735.082	15889338.095	2627.32
1085	1770418.361	15889338.095	2568.71
1086	1773101.639	15889338.095	2628.24
1087	1775784.918	15889338.095	2667.67
1088	1778468.197	15889338.095	2708.35
1089	1781151.475	15889338.095	2668.04
1090	1783834.754	15889338.095	2708.79
1091	1786518.033	15889338.095	2627.52
1092	1789201.311	15889338.095	2719.62
1093	1791884.590	15889338.095	2661.76
1094	1794567.869	15889338.095	2722.48
1095	1797251.148	15889338.095	2742.23
1096	1799934.426	15889338.095	2712.83
1097	1802617.705	15889338.095	2698.41
1098	1805300.984	15889338.095	2726.02
1099	1807984.262	15889338.095	2680.52
1100	1810667.541	15889338.095	2759.49

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2388	1773101.639	15950038.095	2486.34
2389	1775784.918	15950038.095	2472.29
2390	1778468.197	15950038.095	2470.89
2391	1781151.475	15950038.095	2459.88
2392	1783834.754	15950038.095	2398.02
2393	1786518.033	15950038.095	2409.07
2394	1789201.311	15950038.095	2435.00
2395	1791884.590	15950038.095	2767.36
2396	1794567.869	15950038.095	2906.34
2397	1797251.148	15950038.095	2966.62
2398	1799934.426	15950038.095	2924.33
2399	1802617.705	15950038.095	2838.11
2400	1805300.984	15950038.095	2722.86
2401	1807984.262	15950038.095	2928.78
2402	1810667.541	15950038.095	2824.77
2403	1813350.820	15950038.095	3105.17
2404	1816034.098	15950038.095	3244.00
2405	1818717.377	15950038.095	2973.14
2406	1821400.656	15950038.095	2870.54
2407	1824083.934	15950038.095	2725.83
2408	1826767.213	15950038.095	2814.34
2409	1829450.492	15950038.095	3172.77
2410	1832133.770	15950038.095	3251.18
2411	1834817.049	15950038.095	2573.16
2412	1837500.328	15950038.095	2567.40
2413	1840183.607	15950038.095	2573.68
2414	1842866.885	15950038.095	2582.88
2415	1845550.164	15950038.095	3110.89
2416	1848233.443	15950038.095	3047.21
2417	1850916.721	15950038.095	2595.20
2418	1853600.000	15950038.095	2648.36
2419	1689920.000	15952928.571	2412.93
2420	1692603.279	15952928.571	2406.35
2421	1695286.557	15952928.571	2386.93
2422	1697969.836	15952928.571	2372.51
2423	1700653.115	15952928.571	2378.79
2424	1703336.393	15952928.571	2363.46
2425	1706019.672	15952928.571	2388.05
2426	1708702.951	15952928.571	2343.13
2427	1711386.230	15952928.571	2338.05
2428	1714069.508	15952928.571	2255.94
2429	1716752.787	15952928.571	2259.66
2430	1719436.066	15952928.571	2258.70
2431	1722119.344	15952928.571	2262.34
2432	1724802.623	15952928.571	2265.34
2433	1727485.902	15952928.571	2268.38

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1101	1813350.820	15889338.095	2835.39
1102	1816034.098	15889338.095	2926.61
1103	1818717.377	15889338.095	2908.70
1104	1821400.656	15889338.095	2772.49
1105	1824083.934	15889338.095	2799.12
1106	1826767.213	15889338.095	2828.97
1107	1829450.492	15889338.095	2860.92
1108	1832133.770	15889338.095	2806.58
1109	1834817.049	15889338.095	2840.39
1110	1837500.328	15889338.095	3070.75
1111	1840183.607	15889338.095	3296.02
1112	1842866.885	15889338.095	3538.64
1113	1845550.164	15889338.095	3610.94
1114	1848233.443	15889338.095	3765.64
1115	1850916.721	15889338.095	3878.28
1116	1853600.000	15889338.095	4067.29
1117	1689920.000	15892228.571	2358.35
1118	1692603.279	15892228.571	2352.95
1119	1695286.557	15892228.571	2366.78
1120	1697969.836	15892228.571	2383.19
1121	1700653.115	15892228.571	2394.40
1122	1703336.393	15892228.571	2372.61
1123	1706019.672	15892228.571	2406.79
1124	1708702.951	15892228.571	2451.31
1125	1711386.230	15892228.571	2449.31
1126	1714069.508	15892228.571	2453.86
1127	1716752.787	15892228.571	2460.52
1128	1719436.066	15892228.571	2467.53
1129	1722119.344	15892228.571	2459.37
1130	1724802.623	15892228.571	2445.97
1131	1727485.902	15892228.571	2503.02
1132	1730169.180	15892228.571	2465.54
1133	1732852.459	15892228.571	2466.30
1134	1735535.738	15892228.571	2446.98
1135	1738219.016	15892228.571	2472.68
1136	1740902.295	15892228.571	2483.75
1137	1743585.574	15892228.571	2500.59
1138	1746268.852	15892228.571	2519.42
1139	1748952.131	15892228.571	2533.01
1140	1751635.410	15892228.571	2506.26
1141	1754318.689	15892228.571	2510.34
1142	1757001.967	15892228.571	2522.90
1143	1759685.246	15892228.571	2533.48
1144	1762368.525	15892228.571	2550.07
1145	1765051.803	15892228.571	2592.16
1146	1767735.082	15892228.571	2661.91

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2434	1730169.180	15952928.571	2316.33
2435	1732852.459	15952928.571	2356.05
2436	1735535.738	15952928.571	2364.50
2437	1738219.016	15952928.571	2366.97
2438	1740902.295	15952928.571	2380.11
2439	1743585.574	15952928.571	2393.17
2440	1746268.852	15952928.571	2380.60
2441	1748952.131	15952928.571	2423.57
2442	1751635.410	15952928.571	2436.00
2443	1754318.689	15952928.571	2433.22
2444	1757001.967	15952928.571	2457.74
2445	1759685.246	15952928.571	2482.40
2446	1762368.525	15952928.571	2494.69
2447	1765051.803	15952928.571	2480.00
2448	1767735.082	15952928.571	2502.29
2449	1770418.361	15952928.571	2502.42
2450	1773101.639	15952928.571	2503.35
2451	1775784.918	15952928.571	2498.51
2452	1778468.197	15952928.571	2516.01
2453	1781151.475	15952928.571	2495.24
2454	1783834.754	15952928.571	2425.40
2455	1786518.033	15952928.571	2399.69
2456	1789201.311	15952928.571	2459.40
2457	1791884.590	15952928.571	2822.79
2458	1794567.869	15952928.571	2992.24
2459	1797251.148	15952928.571	2800.00
2460	1799934.426	15952928.571	2597.98
2461	1802617.705	15952928.571	2658.88
2462	1805300.984	15952928.571	2751.86
2463	1807984.262	15952928.571	2846.06
2464	1810667.541	15952928.571	2843.69
2465	1813350.820	15952928.571	2752.09
2466	1816034.098	15952928.571	2672.98
2467	1818717.377	15952928.571	2649.43
2468	1821400.656	15952928.571	2612.13
2469	1824083.934	15952928.571	2652.70
2470	1826767.213	15952928.571	2700.38
2471	1829450.492	15952928.571	2802.78
2472	1832133.770	15952928.571	2658.48
2473	1834817.049	15952928.571	3387.94
2474	1837500.328	15952928.571	3246.49
2475	1840183.607	15952928.571	2985.39
2476	1842866.885	15952928.571	2741.36
2477	1845550.164	15952928.571	2707.53
2478	1848233.443	15952928.571	2855.64
2479	1850916.721	15952928.571	2601.54

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1147	1770418.361	15892228.571	2700.41
1148	1773101.639	15892228.571	2666.18
1149	1775784.918	15892228.571	2676.45
1150	1778468.197	15892228.571	2707.90
1151	1781151.475	15892228.571	2774.46
1152	1783834.754	15892228.571	2713.32
1153	1786518.033	15892228.571	2789.75
1154	1789201.311	15892228.571	2683.24
1155	1791884.590	15892228.571	2706.74
1156	1794567.869	15892228.571	2678.34
1157	1797251.148	15892228.571	2683.15
1158	1799934.426	15892228.571	2788.14
1159	1802617.705	15892228.571	2832.42
1160	1805300.984	15892228.571	2840.90
1161	1807984.262	15892228.571	2780.99
1162	1810667.541	15892228.571	2711.75
1163	1813350.820	15892228.571	2866.78
1164	1816034.098	15892228.571	3027.95
1165	1818717.377	15892228.571	3089.61
1166	1821400.656	15892228.571	2998.40
1167	1824083.934	15892228.571	3177.83
1168	1826767.213	15892228.571	2774.89
1169	1829450.492	15892228.571	2992.99
1170	1832133.770	15892228.571	3057.76
1171	1834817.049	15892228.571	3087.34
1172	1837500.328	15892228.571	3171.93
1173	1840183.607	15892228.571	3238.45
1174	1842866.885	15892228.571	3409.46
1175	1845550.164	15892228.571	3651.08
1176	1848233.443	15892228.571	3947.62
1177	1850916.721	15892228.571	4041.95
1178	1853600.000	15892228.571	4260.17
1179	1689920.000	15895119.048	2394.42
1180	1692603.279	15895119.048	2389.53
1181	1695286.557	15895119.048	2391.39
1182	1697969.836	15895119.048	2393.72
1183	1700653.115	15895119.048	2417.82
1184	1703336.393	15895119.048	2437.62
1185	1706019.672	15895119.048	2421.67
1186	1708702.951	15895119.048	2400.68
1187	1711386.230	15895119.048	2423.44
1188	1714069.508	15895119.048	2437.49
1189	1716752.787	15895119.048	2456.26
1190	1719436.066	15895119.048	2480.83
1191	1722119.344	15895119.048	2487.42
1192	1724802.623	15895119.048	2473.39

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2480	1853600.000	15952928.571	2612.59
2481	1689920.000	15955819.048	2405.05
2482	1692603.279	15955819.048	2384.50
2483	1695286.557	15955819.048	2399.40
2484	1697969.836	15955819.048	2338.73
2485	1700653.115	15955819.048	2352.48
2486	1703336.393	15955819.048	2341.29
2487	1706019.672	15955819.048	2336.66
2488	1708702.951	15955819.048	2324.03
2489	1711386.230	15955819.048	2268.90
2490	1714069.508	15955819.048	2252.82
2491	1716752.787	15955819.048	2256.80
2492	1719436.066	15955819.048	2257.20
2493	1722119.344	15955819.048	2257.82
2494	1724802.623	15955819.048	2258.16
2495	1727485.902	15955819.048	2335.15
2496	1730169.180	15955819.048	2347.00
2497	1732852.459	15955819.048	2349.68
2498	1735535.738	15955819.048	2365.35
2499	1738219.016	15955819.048	2378.01
2500	1740902.295	15955819.048	2392.61
2501	1743585.574	15955819.048	2400.72
2502	1746268.852	15955819.048	2417.76
2503	1748952.131	15955819.048	2418.07
2504	1751635.410	15955819.048	2444.80
2505	1754318.689	15955819.048	2516.91
2506	1757001.967	15955819.048	2533.56
2507	1759685.246	15955819.048	2560.72
2508	1762368.525	15955819.048	2663.98
2509	1765051.803	15955819.048	2676.43
2510	1767735.082	15955819.048	2598.42
2511	1770418.361	15955819.048	2682.65
2512	1773101.639	15955819.048	2648.11
2513	1775784.918	15955819.048	2620.86
2514	1778468.197	15955819.048	2617.39
2515	1781151.475	15955819.048	2711.39
2516	1783834.754	15955819.048	2708.05
2517	1786518.033	15955819.048	2406.86
2518	1789201.311	15955819.048	2587.99
2519	1791884.590	15955819.048	2777.94
2520	1794567.869	15955819.048	2493.83
2521	1797251.148	15955819.048	2517.87
2522	1799934.426	15955819.048	2591.51
2523	1802617.705	15955819.048	2520.59
2524	1805300.984	15955819.048	2738.14
2525	1807984.262	15955819.048	2654.44

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1193	1727485.902	15895119.048	2497.63
1194	1730169.180	15895119.048	2482.68
1195	1732852.459	15895119.048	2486.47
1196	1735535.738	15895119.048	2482.74
1197	1738219.016	15895119.048	2474.02
1198	1740902.295	15895119.048	2489.51
1199	1743585.574	15895119.048	2507.01
1200	1746268.852	15895119.048	2538.27
1201	1748952.131	15895119.048	2563.67
1202	1751635.410	15895119.048	2554.23
1203	1754318.689	15895119.048	2589.67
1204	1757001.967	15895119.048	2634.04
1205	1759685.246	15895119.048	2657.39
1206	1762368.525	15895119.048	2579.70
1207	1765051.803	15895119.048	2569.93
1208	1767735.082	15895119.048	2591.80
1209	1770418.361	15895119.048	2626.34
1210	1773101.639	15895119.048	2756.14
1211	1775784.918	15895119.048	2767.98
1212	1778468.197	15895119.048	2806.68
1213	1781151.475	15895119.048	2783.96
1214	1783834.754	15895119.048	2802.87
1215	1786518.033	15895119.048	2859.39
1216	1789201.311	15895119.048	2852.59
1217	1791884.590	15895119.048	2732.54
1218	1794567.869	15895119.048	2822.40
1219	1797251.148	15895119.048	2777.27
1220	1799934.426	15895119.048	2814.92
1221	1802617.705	15895119.048	2759.41
1222	1805300.984	15895119.048	2829.40
1223	1807984.262	15895119.048	2846.65
1224	1810667.541	15895119.048	2820.55
1225	1813350.820	15895119.048	2790.23
1226	1816034.098	15895119.048	2909.95
1227	1818717.377	15895119.048	3076.26
1228	1821400.656	15895119.048	3158.96
1229	1824083.934	15895119.048	3220.66
1230	1826767.213	15895119.048	2993.38
1231	1829450.492	15895119.048	2871.81
1232	1832133.770	15895119.048	3296.82
1233	1834817.049	15895119.048	3277.16
1234	1837500.328	15895119.048	3330.24
1235	1840183.607	15895119.048	3498.18
1236	1842866.885	15895119.048	3626.16
1237	1845550.164	15895119.048	3779.15
1238	1848233.443	15895119.048	4181.80

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2526	1810667.541	15955819.048	2522.23
2527	1813350.820	15955819.048	2552.68
2528	1816034.098	15955819.048	2508.63
2529	1818717.377	15955819.048	2549.03
2530	1821400.656	15955819.048	2585.52
2531	1824083.934	15955819.048	2611.00
2532	1826767.213	15955819.048	2691.02
2533	1829450.492	15955819.048	2590.93
2534	1832133.770	15955819.048	2713.51
2535	1834817.049	15955819.048	3287.75
2536	1837500.328	15955819.048	3585.62
2537	1840183.607	15955819.048	3197.78
2538	1842866.885	15955819.048	3366.44
2539	1845550.164	15955819.048	3009.75
2540	1848233.443	15955819.048	2887.77
2541	1850916.721	15955819.048	2765.82
2542	1853600.000	15955819.048	2675.81
2543	1689920.000	15958709.524	2383.99
2544	1692603.279	15958709.524	2382.25
2545	1695286.557	15958709.524	2386.91
2546	1697969.836	15958709.524	2353.43
2547	1700653.115	15958709.524	2309.29
2548	1703336.393	15958709.524	2314.29
2549	1706019.672	15958709.524	2300.33
2550	1708702.951	15958709.524	2247.41
2551	1711386.230	15958709.524	2248.34
2552	1714069.508	15958709.524	2247.91
2553	1716752.787	15958709.524	2251.74
2554	1719436.066	15958709.524	2252.73
2555	1722119.344	15958709.524	2251.64
2556	1724802.623	15958709.524	2338.54
2557	1727485.902	15958709.524	2331.82
2558	1730169.180	15958709.524	2338.93
2559	1732852.459	15958709.524	2340.04
2560	1735535.738	15958709.524	2354.00
2561	1738219.016	15958709.524	2372.39
2562	1740902.295	15958709.524	2404.41
2563	1743585.574	15958709.524	2440.46
2564	1746268.852	15958709.524	2565.78
2565	1748952.131	15958709.524	2565.13
2566	1751635.410	15958709.524	2640.01
2567	1754318.689	15958709.524	2620.05
2568	1757001.967	15958709.524	2724.34
2569	1759685.246	15958709.524	2593.47
2570	1762368.525	15958709.524	2691.06
2571	1765051.803	15958709.524	2705.80

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1239	1850916.721	15895119.048	4206.28
1240	1853600.000	15895119.048	4475.64
1241	1689920.000	15898009.524	2375.42
1242	1692603.279	15898009.524	2356.49
1243	1695286.557	15898009.524	2434.49
1244	1697969.836	15898009.524	2433.42
1245	1700653.115	15898009.524	2446.94
1246	1703336.393	15898009.524	2504.23
1247	1706019.672	15898009.524	2542.79
1248	1708702.951	15898009.524	2443.07
1249	1711386.230	15898009.524	2450.33
1250	1714069.508	15898009.524	2426.06
1251	1716752.787	15898009.524	2439.78
1252	1719436.066	15898009.524	2463.01
1253	1722119.344	15898009.524	2490.56
1254	1724802.623	15898009.524	2485.60
1255	1727485.902	15898009.524	2475.27
1256	1730169.180	15898009.524	2509.50
1257	1732852.459	15898009.524	2500.26
1258	1735535.738	15898009.524	2504.05
1259	1738219.016	15898009.524	2493.94
1260	1740902.295	15898009.524	2489.99
1261	1743585.574	15898009.524	2504.12
1262	1746268.852	15898009.524	2532.02
1263	1748952.131	15898009.524	2543.43
1264	1751635.410	15898009.524	2601.29
1265	1754318.689	15898009.524	2609.86
1266	1757001.967	15898009.524	2613.70
1267	1759685.246	15898009.524	2628.60
1268	1762368.525	15898009.524	2626.69
1269	1765051.803	15898009.524	2677.07
1270	1767735.082	15898009.524	2672.07
1271	1770418.361	15898009.524	2596.15
1272	1773101.639	15898009.524	2669.67
1273	1775784.918	15898009.524	2734.84
1274	1778468.197	15898009.524	2720.26
1275	1781151.475	15898009.524	2754.61
1276	1783834.754	15898009.524	2788.59
1277	1786518.033	15898009.524	2818.16
1278	1789201.311	15898009.524	2901.25
1279	1791884.590	15898009.524	2818.15
1280	1794567.869	15898009.524	2781.66
1281	1797251.148	15898009.524	2759.78
1282	1799934.426	15898009.524	2845.24
1283	1802617.705	15898009.524	2865.26
1284	1805300.984	15898009.524	2795.92

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2572	1767735.082	15958709.524	2738.78
2573	1770418.361	15958709.524	2697.75
2574	1773101.639	15958709.524	2684.77
2575	1775784.918	15958709.524	2787.99
2576	1778468.197	15958709.524	2673.62
2577	1781151.475	15958709.524	3071.73
2578	1783834.754	15958709.524	2994.97
2579	1786518.033	15958709.524	2427.86
2580	1789201.311	15958709.524	2509.35
2581	1791884.590	15958709.524	2549.05
2582	1794567.869	15958709.524	2639.36
2583	1797251.148	15958709.524	2726.11
2584	1799934.426	15958709.524	2500.86
2585	1802617.705	15958709.524	2513.75
2586	1805300.984	15958709.524	2800.49
2587	1807984.262	15958709.524	2528.39
2588	1810667.541	15958709.524	2596.19
2589	1813350.820	15958709.524	2811.55
2590	1816034.098	15958709.524	2506.16
2591	1818717.377	15958709.524	2516.88
2592	1821400.656	15958709.524	2547.92
2593	1824083.934	15958709.524	2568.23
2594	1826767.213	15958709.524	2617.79
2595	1829450.492	15958709.524	2552.71
2596	1832133.770	15958709.524	2795.70
2597	1834817.049	15958709.524	3383.63
2598	1837500.328	15958709.524	3716.01
2599	1840183.607	15958709.524	3743.42
2600	1842866.885	15958709.524	3925.20
2601	1845550.164	15958709.524	3691.17
2602	1848233.443	15958709.524	3278.55
2603	1850916.721	15958709.524	2950.67
2604	1853600.000	15958709.524	2750.76
2605	1689920.000	15961600.000	2343.19
2606	1692603.279	15961600.000	2346.03
2607	1695286.557	15961600.000	2334.59
2608	1697969.836	15961600.000	2309.01
2609	1700653.115	15961600.000	2283.19
2610	1703336.393	15961600.000	2293.53
2611	1706019.672	15961600.000	2252.61
2612	1708702.951	15961600.000	2242.26
2613	1711386.230	15961600.000	2250.47
2614	1714069.508	15961600.000	2243.23
2615	1716752.787	15961600.000	2246.34
2616	1719436.066	15961600.000	2254.70
2617	1722119.344	15961600.000	2322.85

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1285	1807984.262	15898009.524	2907.73
1286	1810667.541	15898009.524	2960.84
1287	1813350.820	15898009.524	3101.81
1288	1816034.098	15898009.524	3013.55
1289	1818717.377	15898009.524	2881.26
1290	1821400.656	15898009.524	3080.51
1291	1824083.934	15898009.524	3107.25
1292	1826767.213	15898009.524	3276.41
1293	1829450.492	15898009.524	3401.33
1294	1832133.770	15898009.524	3358.23
1295	1834817.049	15898009.524	3263.58
1296	1837500.328	15898009.524	3389.90
1297	1840183.607	15898009.524	3562.50
1298	1842866.885	15898009.524	3788.56
1299	1845550.164	15898009.524	3866.07
1300	1848233.443	15898009.524	3978.12
1301	1850916.721	15898009.524	4126.38
1302	1853600.000	15898009.524	4352.80
1303	1689920.000	15900900.000	2381.01
1304	1692603.279	15900900.000	2378.24
1305	1695286.557	15900900.000	2356.78
1306	1697969.836	15900900.000	2400.32
1307	1700653.115	15900900.000	2419.65
1308	1703336.393	15900900.000	2440.56
1309	1706019.672	15900900.000	2505.97
1310	1708702.951	15900900.000	2511.09
1311	1711386.230	15900900.000	2521.57
1312	1714069.508	15900900.000	2487.81
1313	1716752.787	15900900.000	2454.52
1314	1719436.066	15900900.000	2451.61
1315	1722119.344	15900900.000	2474.99
1316	1724802.623	15900900.000	2511.26
1317	1727485.902	15900900.000	2512.97
1318	1730169.180	15900900.000	2524.73
1319	1732852.459	15900900.000	2517.22
1320	1735535.738	15900900.000	2505.60
1321	1738219.016	15900900.000	2505.78
1322	1740902.295	15900900.000	2536.11
1323	1743585.574	15900900.000	2551.52
1324	1746268.852	15900900.000	2549.56
1325	1748952.131	15900900.000	2572.51
1326	1751635.410	15900900.000	2622.29
1327	1754318.689	15900900.000	2632.62
1328	1757001.967	15900900.000	2656.56
1329	1759685.246	15900900.000	2716.94
1330	1762368.525	15900900.000	2710.37

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2618	1724802.623	15961600.000	2335.94
2619	1727485.902	15961600.000	2358.04
2620	1730169.180	15961600.000	2381.79
2621	1732852.459	15961600.000	2391.80
2622	1735535.738	15961600.000	2418.29
2623	1738219.016	15961600.000	2488.48
2624	1740902.295	15961600.000	2560.44
2625	1743585.574	15961600.000	2568.94
2626	1746268.852	15961600.000	2573.48
2627	1748952.131	15961600.000	2636.51
2628	1751635.410	15961600.000	2754.32
2629	1754318.689	15961600.000	2505.88
2630	1757001.967	15961600.000	2729.63
2631	1759685.246	15961600.000	2787.56
2632	1762368.525	15961600.000	2702.72
2633	1765051.803	15961600.000	2745.40
2634	1767735.082	15961600.000	2807.92
2635	1770418.361	15961600.000	2928.16
2636	1773101.639	15961600.000	2622.37
2637	1775784.918	15961600.000	2768.53
2638	1778468.197	15961600.000	2942.62
2639	1781151.475	15961600.000	3079.01
2640	1783834.754	15961600.000	3034.69
2641	1786518.033	15961600.000	2710.74
2642	1789201.311	15961600.000	2942.86
2643	1791884.590	15961600.000	2675.22
2644	1794567.869	15961600.000	3077.83
2645	1797251.148	15961600.000	3078.98
2646	1799934.426	15961600.000	2729.26
2647	1802617.705	15961600.000	2523.14
2648	1805300.984	15961600.000	2551.54
2649	1807984.262	15961600.000	2602.43
2650	1810667.541	15961600.000	2500.67
2651	1813350.820	15961600.000	2613.20
2652	1816034.098	15961600.000	2598.11
2653	1818717.377	15961600.000	2539.23
2654	1821400.656	15961600.000	2519.96
2655	1824083.934	15961600.000	2546.05
2656	1826767.213	15961600.000	2611.57
2657	1829450.492	15961600.000	2867.09
2658	1832133.770	15961600.000	3160.99
2659	1834817.049	15961600.000	3394.59
2660	1837500.328	15961600.000	3817.56
2661	1840183.607	15961600.000	4117.73
2662	1842866.885	15961600.000	4084.00
2663	1845550.164	15961600.000	4103.42

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
1331	1765051.803	15900900.000	2719.83
1332	1767735.082	15900900.000	2718.88
1333	1770418.361	15900900.000	2694.33

Reference Number	Easting (ft) - X	Northing (ft) - Y	Elevation (ft)
2664	1848233.443	15961600.000	3934.58
2665	1850916.721	15961600.000	3263.84
2666	1853600.000	15961600.000	2644.65

42

Submitted to the
Idaho Department of Water Resources

By:

RECEIVED
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WATER RESOURCES
WESTERN REGION

M3 Eagle, LLC

Second Amended
Application for Water Right Permit

February 1, 2008

M3 Eagle, LLC
110 E. Gurley Street, Suite 200
Prescott, AZ 86301

Prepared by:

Givens Pursley LLP
ATTORNEYS AT LAW

601 West Bannock Street
P.O. Box 2720
Boise, Idaho 83701-2720
208-388-1200
(fax) 208-388-1300
www.givenspursley.com

M3 EAGLE LLC
EXHIBIT
42

RECEIVED
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WATER RESOURCES
WESTERN REGION

FORM 202
12/99

Ident. No. 63-32573

SECOND AMENDED

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

APPLICATION FOR PERMIT

To appropriate the public waters of the State of Idaho

1. Name of Applicant **M3 Eagle, LLC** Phone **208-939-6263**
   533 E. Riverside Drive Suite 110
   Eagle, ID 83616
   Mailing address

2. Source of water supply **Ground water** which is a tributary of **n/a**

Points of Diversion	Tshp/Rng		Sections	in the	See Attachment B for quarter-quarter information
3. Attachment B describes the locations of 12 existing and 15 potential new wells as points of diversion being sought under this application.	T5N R1W		§§ 15, 21-24, 27, 28, and 33 (new); and §§ 13, 23, 24, 28 and 33 (existing)		
	T5N R1E		§ 19 (existing)		

____ ¼, ____ ¼, Govt. Lot ____, B.M., **Ada** County;

Additional points of diversion, all as alternate points of diversion for each other: **Up to fifteen new wells (plus 12 ground water existing points of diversion) to be located within the Planned Community described in section 8(c), below.**

4. Water will be used for the following purposes:
   Amount **23.18 cfs** (cfs or acre-feet per annum) for **municipal** purposes from **1/1** to **12/31** (both dates inclusive)

   2.93 cfs — **Maximum diversion to storage; 1/1 to 12/31; municipal purposes**
   1,660 af — **Maximum diversion from storage; 1/1 to 12/31; municipal purposes**
   1,836 acre-feet — **Total storage volume (approx. 100 surface acres of ponds); municipal purposes**

5. Total quantity to be appropriated is (a) **23.18 cfs** (cubic feet per second) and/or (b) **1,836 acre-feet storage** (acre feet per annum)

6. Proposed diverting works:
   a. Describe type and size of devices used to divert water from the source **Up to 15 new and 12 existing wells diverting from aquifers beneath the project site.**
   b. Height of storage dam **n/a (excavated ponds)** feet; active storage pond capacity **1,828 (pond) + 8.04 (potable)** acre-feet; total reservoir capacity **1,828 (pond) + 8.04 (potable)** acre-feet
   c. Proposed well diameter is **10-18 inches** inches; proposed depth of well is **from 200-800** feet
      See Attachment A for a description of the proposed wells.
   d. Is ground water with a temperature of 85°F being sought? **No**
   e. If well is already drilled, when? **Twelve existing wells as described in Attachment C.** Drilling firm ____
      Well was drilled for (well owner) ____ Drilling Permit No. ____

7. Time required for completion of works and application of water to proposed beneficial use is **3** years (*minimum 1 year*) **0**
   Applicant seeks a planning horizon of thirty years pursuant to I.C. §§ 42-202B(7)-(9), 42-202(2), and 42-223(2).

8. Description of proposed uses (*if irrigation only, go to item 9*):

a. Hydropower; show total feet of head and proposed capacity in kW. n/a

b. Stockwatering; list number and kind of livestock.

c. Municipal; show name of municipality. **The place of use is a proposed municipal service area currently consisting of an approximately 6,000-acre M3 Planned Community (the "Property") proposed by Applicant on Applicant's lands north of Eagle, Idaho. At build-out, the project is planned to contain 7,153 dwelling units, plus parks, open space, commercial and government uses, schools, golf courses, playing fields, community gardens and vineyards, and related uses. See Attachment A for more details. The entire Property is proposed as the service area under the municipal right. The Applicant anticipates that the Property will be annexed by the City of Eagle.**

d. Domestic; show number of households.

e. Other; describe fully.

9. Description of place of use: **See Attachment A.**

a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below. **Irrigation is one of the uses within the overall municipal use, and is described in Attachment A.**

b. If water is used for other purposes, place a symbol of the use (*example: D for Domestic*) in the corresponding place of use Below. See instructions for standard symbols. **The water in this municipal application will be used for several purposes other than irrigation, as described in Attachment A.**

TWP	RGE	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
							See Attachment A												

Total number of acres irrigated

10. Describe any other water rights used for the same purposes described above.

Applicant owns the water rights described in Attachment D.

11. a. Who owns the property at the point of diversion? **Applicant (and future residents of the planned community)**

b. Who owns the land to be irrigated or place of use? **Applicant (and future residents of the planned community)**

c. If the property is owned by a person other than the applicant, please describe the arrangement enabling the applicant to make this filing

The water-bearing zone expected to be developed by the wells described above is the aquifer known as the Pierce Gulch Sand Aquifer at depths ranging from approximately 200 feet to 650 feet bgl. Because this aquifer dips to the west and southwest, well depths can vary significantly across the Property and still be within the same hydrostratographic unit.

12. Remarks: **Attachment A and its exhibits provide additional detail concerning this application.**

13. **MAP OF PROPOSED PROJECT REQUIRED** -- Attach an 8½" x 11" map clearly identifying the proposed point of diversion, place of use, section #, township & range. (A photocopy of a USGS 7.5 minute topographic quadrangle map is preferred.)

Maps are included as exhibits to Attachment A.

BE IT KNOWN that the undersigned hereby makes this application for permit to appropriate the public waters of the State of Idaho as herein set forth.

Manager

Signature of Applicant (and title, if applicable)

William I. Brownlee

Received by _____ Date _____ Time _____ Preliminary check by _____

Fee $ _____ Receipted by _____ # _____ Date

Publication prepared by _____ Date _____ Published in _____

Publication approved _____ Date _____

42A

ATTACHMENT A
to
Second Amended M3 Water Right Application

Overview **April 22, 2008**

By this Amended Application,[1] M3 Eagle LLC ("M3 Eagle" or the "Applicant") seeks a permit for a municipal water right for an annual total of 6,535 acre-feet of diversions from ground water. The requested water right will serve the year-round needs of an approximately 6,000-acre planned community in the foothills of north Ada County, Idaho (the "Planned Community" or the "Project"). In addition to the proposed ground water supply, and to promote maximum use and conservation of water within the Planned Community, M3 Eagle will recapture and reuse for irrigation, tertiary-treated sewage effluent ("Reuse Water") by means of a sequencing batch reactor or membrane bioreactor (or similar) wastewater treatment plant and separate water distribution systems. All Reuse Water generated by the Project will be treated and reused within the Project.

. At full Project build-out, the overall yearly consumptive use of groundwater is projected to be 5,381 acre feet, of which approximately 1,552 acre feet will be Reuse Water and 3,829 acre feet will be consumptively used from direct ground water diversions. The total annual ground water diversion volume will be 6,535 acre-feet. The average daily rate of diversion from ground water is expected to be 11.66 cubic feet per second ("cfs") during the 244-day irrigation season and 4.05 cfs during the 121-day non-irrigation season. Averaged over a 365-day period, the annual average daily diversion rate is calculated at 9.03 cfs. The maximum daily (i.e., the "peak day") rate of diversion from ground water is expected to be approximately 23.18 cfs, or about 10,403 gallons per minute ("gpm"). This peak day diversion rate will accommodate variations in culinary and sanitary uses and, during the warmer months, irrigation of lawns, common areas, parks, community gardens, and golf courses. At full Project build-out, Reuse Water will be used to the extent it is available to supply irrigation for common areas including community gardens, parks, ballfields and playgrounds, and golf courses. Reuse Water also will provide for a portion of aesthetic, wildlife, and recreational use demands. Reuse Water is not projected for use on residential lawns or landscaping.

This ground water right is sought for "municipal" purposes to provide for all water use in the Planned Community including the following major uses:

1. **Housing (i.e., "indoors" domestic/culinary)** water service for approximately 7,153 residential units (a combination of single-family and multi-family units).

2. **Commercial** water service for some 1.2 million square feet of retail, commercial, light industrial, government, and service establishments within approximately 245 acres of commercial development area.

[1] This Second Amended Application amends the application M3 Eagle filed on November 21, 2006, which was then amended on August 27, 2007. Most fundamentally, this amendment reduces the proposed size of the M3 Eagle development and, thus, the amount of ground water sought.

3. **Irrigation** for approximately 1,252 acres, including: residential and commercial lawns, xeriscape and landscaping; public areas including common area turf, xeriscape, and other landscaping; open space, common areas, parks, community gardens; and recreation fields; and two 18-hole golf courses, each having about 120 acres of irrigated turf (including practice facilities) and landscaping. As Project build-out progresses, the entire volume of Reuse Water available will be used to the greatest extent possible to irrigate public common areas, recreation fields, and golf courses. Reuse Water will be used both directly as it is produced and as diversions from storage. In addition to the 1,252 acres described above, 197 acres will be irrigated under Farmers' Union Ditch Company shares.

4. Water supplies for **aesthetic, wildlife, irrigation peaking storage and recreational** uses in approximately 100 surface acres of ponds, streams, and similar water amenities associated with these features. As Project build-out progresses, Reuse Water will also be used to fulfill these water demands.

5. **Municipal diversions to storage and diversions from storage** for the above uses, including approximately half of the ponds and water features noted above, and 2.62 million gallons of enclosed active storage for potable water peak demands and fire protection throughout the Planned Community. All storage involves multiple refills annually to efficiently serve these needs. As Project build-out progresses, Reuse Water will be used to fulfill some of the non-potable storage water demands.

Specifics

Multiple wells as mutual alternate points of diversion. In addition to twelve existing wells on the Property, M3 Eagle proposes to construct up to fifteen additional wells to be operated as alternate points of diversion for the water right in the Planned Community's water supply system. It is expected that fewer wells ultimately will be necessary, but that determination will depend on further hydrogeologic testing as the water supply is developed. Other than the existing twelve Project water wells, the precise locations of the points-of-diversion (i.e., wells) will be identified as the Project develops and as local monitoring and hydraulic testing of each well serves to guide optimum spacing of the well field. The Amended Application form lists the points of diversion for the 27 wells—twelve existing and up to fifteen new. These also are described in Attachment B.

A map of the M3 Eagle Project area with respect to the City of Eagle Area of Impact is attached as Exhibit 1.

A 1:62,500 USGS Topographic Series base map locating the Project with regard to township, range, and section is attached as Exhibit 2.

A map displaying the anticipated Project features is attached as Exhibit 3.

Aquifer characteristics. Under the supervision of hydrogeologist Ed Squires of Hydro Logic, Inc. ("Hydro Logic"), M3 Eagle is evaluating ground water availability and development potential beneath the Project through a number of regional scale hydrogeologic, geophysical, and geological investigations. M3 Eagle's water resources plan includes: 1) aquifer characterization, 2) hydraulic testing, 3) geochemical modeling, 4) numerical modeling, and 5) ground water monitoring. M3 Eagle has enlisted Boise State University's Geosciences Department and the University of Idaho's Department of Geological Sciences to conduct geophysical investigations and numerical simulations, and to provide peer review of all of Hydro Logic's completed reports. In addition, M3 Eagle has sponsored a Masters of Science thesis through the University of Idaho to construct an independent ground water model as an additional means to evaluate the effects of M3 Eagle's ground water development.

Hydro Logic began the ground water studies in March 2006. Attached to this Amended Application as Exhibit 4 is Hydro Logic's May 4, 2007 *M3 Eagle Regional Hydrogeologic Characterization North Ada, Canyon and Gem Counties, Idaho: Year-One Progress Report* ("Year 1 Progress Report"). M3 Eagle already has made copies of this available to interested parties and to the Idaho Department of Water Resources ("IDWR"). Future M3 Eagle-sponsored research by Hydro Logic, including reports on structural geology, geochemical ground water modeling, water budget, and numerical ground water modeling, will be made available to the IDWR as these studies are completed. It is anticipated that some of these reports will be available in time to support IDWR's processing of this application.

Further studies, including aquifer tests, are planned. As a part of this work, Hydro Logic has evaluated the results of other ground water investigations in the area. Hydro Logic is also developing a prospectus for a proposed long-term multiple-well aquifer test using existing wells on the Project property and adjacent domestic wells as observation wells and a proposed new production/test well as a pumping well. This prospectus will be submitted to IDWR. M3 Eagle anticipates that IDWR and nearby well owners/water users will participate in the testing.

Reuse Water. M3 Eagle is collaborating with licensed professional engineers to develop a system to recapture and reuse wastewater accumulated by the Project. M3 Eagle will construct one or more wastewater treatment plants that will treat sewage effluent to Class A standards (i.e., potable), and lined ponds to hold the treated water until it is reused. All of this Reuse Water will be used within the Project for irrigating common areas, golf courses, parks, community gardens and similar areas, aesthetic storage, and/or (subject to future IDWR approval) aquifer recharge or aquifer storage and recovery. As Reuse Water becomes available, it will be provided for these purposes using water lines and facilities that are separate from the Project's potable water supply systems.

M3 Eagle's existing surface and ground water rights. M3 Eagle holds 17.27 shares, and anticipates obtaining 0.66 additional shares, of stock in Farmers' Union Ditch Co., Ltd. (the "Ditch Company"), a mutual irrigation company diverting water from the Boise River. These shares entitle M3 Eagle to delivery, as available, of 3.94 cfs of flows during the irrigation season for irrigation of approximately 197 acres in the southwest corner of the Project lands. These shares also entitle M3 Eagle to receive storage water under the Ditch Company's contracts with the U.S. Bureau of Reclamation. M3 Eagle intends to continue using the irrigation water to

which it is entitled under these shares on 197 acres of Project land to which they are appurtenant. M3 Eagle anticipates that the lands to be served by the Ditch Company water will be primarily equestrian and common areas, as well as parks and ballfields. Descriptions of the Ditch Company water rights are included in Attachment D.

M3 Eagle also holds various ground water rights, the most substantial being no. 63-10669, for 2.22 cfs to irrigate 111 acres in the southwest portion of the Project. This water right appears to be supplemental to the Ditch Company water supply described above.

Integrated water supply system. M3 Eagle plans to include all of its wells, water supply infrastructure, and water rights (with the exception of the Ditch Company and Reuse Water) in an integrated water supply system that it will operate (or establish a separate entity to operate) to supply the municipal uses, including residential irrigation. The Project's overall water system will also include a non-potable component for non-residential irrigation and storage uses of Reuse Water, surface water, and ground water. M3 Eagle intends, at some time in the future, to convey its water rights and water system to the City of Eagle if the City annexes the Project and is willing and able to serve the Planned Community. If the City of Eagle does not annex the Project, or is unwilling or unable to provide service, M3 Eagle will operate the water system itself or will form or contract with another appropriate public water provider, such as a private utility, to operate and/or own it.

Water conservation measures. M3 Eagle will implement water conservation programs and integrate them into the Project's design. These programs may include measures such as mandating xeric landscaping and minimal lawn sizes. Although this Amended Application does not assume that alternate day or similar watering restrictions will be imposed, M3 Eagle believes such techniques should be imposed provided there is community support for them. All water diversions in the Planned Community will be metered. M3 Eagle will encourage or impose water fee structures that increase charges with increasing water use from all water sources.

Elements of M3 Eagle's water conservation programs currently under consideration include the following:

1. Require metering of all water sources and service connections, including all residential use and other irrigation from ground water, and charge users at rates that are comparable to municipal water rates in the Treasure Valley.
2. Provide a separate system of water supply pipes and pumps for Reuse Water and Ditch Company water for irrigation use. To the extent it is available, all Reuse Water generated by the Project will be used to irrigate equestrian and common areas and golf courses; no Reuse Water will leave the Planned Community.
3. Seek to limit turf in residential yards, multi-family projects, commercial projects and common areas to 50% of the landscapable area. The remainder would be non-irrigated or drip-irrigated landscaping.
4. Limit the size of swimming pools.
5. Require mulch in non-turf areas to reduce evaporation.
6. Require drip irrigation for all non-turf areas.

7. Require automatic sprinkler systems and solid state irrigation controllers with multiple start/stop times and zone capabilities for all irrigations systems.
8. Sponsor soil moisture monitoring program to assess irrigation needs.
9. Regulate watering days and times based on time of year.
10. Require "water smart" homes and buildings that use water efficient fixtures and appliances.
11. Implement water budgets for established golf courses.
12. Use native and drought tolerant plant materials that are acclimated to the area.
13. Set water rates that provide incentives to use less.

Availability of surface water supplies. Because only a relatively small amount of M3 Eagle's property has appurtenant surface water under Ditch Company shares, and because additional surface water supplies may not reasonably be made available to the Project lands, M3 Eagle is not subject, except on these limited acres, to certain ordinances or statutes purporting to require developers to install a separate non-potable water supply system for irrigation of lawns and landscaping. As noted above, however, M3 Eagle intends to give the same attention and controls to surface water use as it does ground water use so as to promote conservation and limit overwatering and waste of surface water supplies. M3 Eagle's aim is to promote water conservation from all sources, and for all uses.

Municipal purposes, planning horizon, future needs. This Amended Application seeks to use water for municipal purposes as defined by I.C. § 42-202B(6), which includes "water for residential, commercial, industrial, irrigation of parks and open space, and related purposes . . . ." The system serving the entire Planned Community will be a "public water supply" as defined in I.C. § 39-103(12). Accordingly, M3 Eagle (or any lessee/assignee) will be a "municipal provider," which is:

> [a] corporation or association which supplies water for municipal purposes through a water system regulated by the state of Idaho as a "public water supply" as described in section 39-103(12), Idaho Code.

I.C. § 42-202B(5)(c).[2] Because this is a unified Planned Community project, and all proposed uses are within the definition in section 42-202B(6), all proposed uses of ground water, and the Reuse Water, under this Amended Application will occur under the same municipal water right. In the future, M3 Eagle may seek to transfer its existing ground water rights to municipal uses as well.

The M3 Eagle potable water (i.e., ground water) system is planned to be fully integrated, with production from each well available for delivery to any part of the Project. It is anticipated that all ground water deliveries will be minimally treated (i.e., disinfection only). Approved backflow prevention devices will be installed and a cross-connection control program will be implemented in all sprinkler systems using potable water and in portions of the Project where

[2] If M3 Eagle's water rights and water supply system are ultimately conveyed to the City of Eagle or some other public water provider, the successor would presumably fall within one of I.C. § 42-202B(5)'s other definitions of "municipal provider."

Ditch Company water or Reuse Water will be used for irrigation. To the extent potable water will be needed for public area irrigation, it will be supplied and metered into the irrigation system upstream of the treatment site.

Generally described place of use and service area. This Amended Application proposes an initial place of use and service area generally described as the approximately 6,010 acre private parcel comprising the Planned Community site. See Exhibits 1 and 2. Such a general description is authorized by Idaho law, which states that a municipal provider's

> service area need not be described by legal description nor by description of every intended use in detail, but the area must be described with sufficient information to identify the general location where the water under the water right is to be used and the types and quantities of uses that generally will be made.

I.C. § 42-202(2). In addition, while this application makes every attempt to describe the types and amounts of water uses that will be involved, it does not describe every intended or potential use in detail.

Project planning horizon and reasonably anticipated future needs. The water right sought here is intended to cover the full complement of water that is reasonably anticipated to be needed by the Project at full build-out (in 30 years). The water code provides:

> [a] water right held by a municipal provider to meet reasonably anticipated future needs shall be deemed to constitute a beneficial use, and such rights shall not be lost or forfeited for nonuse unless the planning horizon specified in the license has expired and the quantity of water authorized for use under the license is no longer needed to meet reasonably anticipated future needs.

I.C. § 42-223(2). Full build-out of the Project is anticipated to take twenty years from the date the water permit is granted. However, because the exact date of full build-out can depend on a variety of factors, this Amended Application seeks a planning horizon of thirty years, which is well within a reasonable planning horizon for a municipal water right.

Exhibit 5, attached hereto, describes the water supply system and amount of water needed for all anticipated uses. Exhibit 5.1 contains a flow chart depicting the water supply system. Exhibits 5.2 and 5.3 graphically depict estimated water demand cumulatively for the project and by individual phase. Note that the project water demand is met by a combination of sources including existing surface water rights, the requested diversion from groundwater per this water rights application and reuse of this diverted groundwater. As a result, the demands shown in these exhibits are greater than the diversions applied for in this application which reflects the reduction accomplished with the use of surface water rights and more importantly the use of treated effluent or reuse water for non-potable irrigation in place of additional groundwater diversion The charts in Exhibits 5.4 and 5.5 show annual ground water diversion and consumptive use estimates for the various uses within the Project, and Exhibit 5.6 shows the

estimated maximum daily ground water diversions during the irrigation season (i.e., the peak day). Finally, Exhibit 5.7 contains a spreadsheet showing the calculations used to supply the estimated water supply and use figures used in this Amended Application, including monthly demand estimates and a reasonable estimation of the Reuse Water the Project will generate.

Specific water use descriptions.

Domestic and commercial use (indoor). In this Amended Application, domestic and commercial use refers to all water uses within or immediately associated with single-family homes, condominiums, apartments, townhouses, and other multi-family dwellings, schools, hotels and service facilities (such as fire and police), as well as all water uses in all commercial establishments and Planned Community management facilities. All housing is presumed to demand approximately 274 gallons per day per dwelling unit, a standard figure in the industry that is comparable to known water demand in the area. Uses for various commercial purposes are also based on standard figures in the industry. Daily peak hour usage has been calculated as 292% of the daily average rates and maximum daily use is estimated at 150% of the average daily rates, both in accordance with standard reference data. This Second Amended Application seeks a permit for annual indoor potable water diversions of 2,932 acre-feet with corresponding total annual indoor consumptive use expected to be 848 acre-feet. All of this potable water will be diverted from ground water.

Irrigation of residential and commercial lawns and landscaping (exterior use) (through the potable system). Irrigation of residential and commercial lawns and landscaping, including those associated with multi-family dwellings, will involve approximately 487 acres. This irrigation water demand is estimated at 1,936 acre-feet with total annual consumptive use projected to be 1,627 acre-feet. Neither Ditch Company nor Reuse Water is being considered for residential or commercial irrigation.

Irrigation of public areas including common areas, community gardens, golf courses and ballfields, and storage for irrigation, aesthetics, wildlife, and recreational uses through non-potable delivery systems. The Project will have approximately 765 acres of irrigated common area, including landscaped areas, community gardens, plant nurseries, ballfields, playgrounds, and golf courses. The irrigation water demand for the 765 acres of common area irrigation is approximately 3,079 acre-feet per year, 1,660 acre-feet of which will be supplied from Reuse Water. In addition, the Project will have approximately 100 surface acres of ponds which will store 1,828 acre-feet of water while also providing aesthetic, wildlife, and recreational uses. This storage water demand will be fulfilled using Reuse Water as it becomes available and as ponds are constructed throughout the phasing of the Project, and will include diversions from wells as necessary.

The overall diversion volume for irrigation—whether golf course, residential, common area, or parks—will never exceed and is projected to be substantially less than the annual volume that would be diverted if all uses met the statutory diversion rate of 0.02 cfs/acre. To the extent that existing Ditch Company shares become available for use within the Project, and to the extent that

more Reuse Water than estimated becomes available, the corresponding amounts of municipal ground water needed under this application at full build-out will be reduced.

Water storage in ponds, and diversions from storage for irrigation, aesthetics, wildlife, and recreation. Of the approximately 1,828 acre-feet of water to be stored in ponds, approximately 1,000 acre-feet are aesthetic ponds with the remainder 828 acre-feet expected to be active storage comprised of 225 acre-feet of operational storage and 603 acre-feet of effluent storage available for daily release for irrigation and repeated refill. In addition, the ponds will provide for aesthetic, wildlife, fire protection, and recreational uses. The precise pond phasing and locations have not yet been established, but they are expected to be excavated structures entirely within the Planned Community and will comply with IDWR dam safety requirements if applicable.

Storage and diversions from storage for residential and commercial uses and for fire protection. In addition to the open reservoirs described above, the project will incorporate approximately 3.14 million gallons of enclosed, drinking-water-quality storage into its potable domestic and commercial water supply system. Approximately 2.62 million gallons is expected to be active storage that will supplement supply from wells for peak hour domestic uses and irrigation and provide the storage necessary for fire protection flows. The total potable storage quantity of 3.14 million gallons includes approximately 0.52 million gallons of inactive storage, representing an additional approximate twenty percent of the 2.62 million gallons of active storage. The locations of the storage tanks for these purposes have yet to be established, but will be within the Project area. It is possible that one or more of these tanks will be owned and operated jointly with the City of Eagle (if the City takes over water supply responsibilities for the Planned Community), in which case the locations could be jointly determined with the City.

Ground water monitoring. M3 Eagle will monitor and report aquifer pressures, ground water levels in wells, production well flow rates, and total volume produced in each well it constructs pursuant to this application. The monitoring program will be described in a report to be prepared and updated by Hydro Logic.

Compliance with Water Appropriation Rule 40.05. The Applicant's responses to the Additional Information Requirements of Rule 40.05 (IDAPA 37.03.08.40.05) are as follows:

Rule 40.05(c)(ii) (plat showing springs and wells within 1/2 mile of proposed wells): The plat, which actually shows many more wells than those within 1/2 mile, is attached as Exhibit 6.1. Exhibit 6.2 illustrates well density in the region. M3 Eagle is aware of no springs within the Project or within one-half mile outside the Project boundary.

Rule 40.05(c)(iii) (design, construction, or operation techniques to eliminate or reduce impacts on other water rights): See comments above concerning conservation and monitoring. As shown in Exhibit 6, the Project generally is remote from most other wells in the area. Each well will be constructed with full-depth casing seals to the top of the aquifer to prevent waste and reduce the chance of interference with other wells. All wells will be constructed to meet or exceed IDWR's and the Idaho Department of Environmental Quality's ("IDEQ's") municipal

drinking water well standards. In addition, M3 Eagle's commitment to reuse treated waste water for irrigation and aesthetic purposes is intended to reduce the Project's overall diversion volume from the aquifer, thus further reducing the potential for adverse effects on existing and future water rights.

Rule 40.05(d) (information about sufficiency of water supply): See Exhibit 4 for Hydro Logic's completed hydrogeologic characterization report. Hydro Logic will submit additional information as other in-progress studies are completed.

Rule 40.05(d)(i) (information about water requirements of proposed project): This information is discussed generally in this Attachment A and displayed in full detail in Exhibit 5.

Rule 40.05(d)(ii) (information about aquifer properties): This information is contained in Exhibit 4. Additional information will be provided as part of Hydro Logic's ongoing reports on the hydrogeologic framework beneath the Project and surrounding area.

Rule 40.05(e)(i) (copies of deeds, easements, leases and similar documents): The relevant deeds are attached as Exhibit 7.[3]

Rule 40.05(e)(ii) (copies of applications for other needed approvals): M3 Eagle will be filing as needed, or is seeking approvals and permits as required, through various agencies, including, but not limited to, Ada County Highway District (ACHD), IDEQ, U.S. Environmental Protection Agency (EPA), U.S. Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers', U.S. Bureau of Land Management (BLM), Farmers Union Ditch Company, Idaho Department of Transportation (ITD), City of Eagle and the Eagle Sewer District. These approvals and permits as required will cover the public drinking water supply; wastewater collection and wastewater reuse; non-potable irrigation water use; transportation system approvals; Nationwide Section 404 permit; construction plan approvals; notice of intent to construct, and storm water pollution prevention plans.

M3 Eagle also has received approval of its applications to the City of Eagle for annexation, zoning approvals, and comprehensive plan amendments. The development agreement between the City of Eagle and M3 Eagle was recorded with the Ada County Recorder on December 27, 2007. M3 Eagle's applications and other permit materials are available from M3 Eagle's counsel upon request.

M3 Eagle also anticipates filing a water right application and/or a water right transfer application to serve certain vineyards that the applicant intends to pursue.

Rule 40.05(f)(i) (financial statement or financial commitment letter): M3 Eagle is attaching a financial statement as Exhibit 8.

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[3] As of August 27, 2007, title to one 10 acre parcel of land proposed for inclusion within the Project is in escrow and M3 Eagle therefore does not yet own the parcel. Nevertheless, because this parcel represents less than 0.17% of the Project's land area, and because closing on this parcel is expected to occur prior to approval of the proposed water right permit, IDWR staff has indicated that this Amended Application is considered complete. More information regarding this parcel is available upon request.

Rule 40.05(f)(ii) (plans, specifications, and estimated construction costs): Plans and technical specifications for the wells are included in Hydro Logic's report, Exhibit 4. The Planned Community's overall concept design is shown in Exhibit 3. Detailed building and engineering plans and drawings will be made available upon request, but these will not be completed until after necessary approvals are obtained.

Estimated costs of ground water supply wells are as follows:[4]

7 wells averaging 550 feet deep X $350/ft =	~$ 1.5M
7 pumping tests X 10K =	~$ 0.7M
7 pumping plants X $ 60K =	~$ 0.42M
7 fully equipped pump houses X $200K =	~$1.5M
Geotechnical inspection and services =	~$ 0.2M
Total estimated costs for wells =	~$ 4.3M

As detailed in Exhibit 9, estimated costs for the potable water supply system are $44.5 million, with an additional $12.4 million for the pressurized irrigation system, and $44 million for the wastewater treatment plant and other sewer infrastructure.

Rule 40.05(g) (information relative to the local public interest): This information is being compiled relative to the applications for approvals mentioned above. M3 Eagle will make these comments available when they are received. In the meantime, Exhibit 10 lists the presentations M3 Eagle has made or the entities to whom it has provided information concerning the Project.

Summary

Wells:	Up to 27 water supply wellsplus 3 permanent multi-completion monitoring wells.
Irrigation:	1,252 total acres, including irrigated residential and commercial landscaping, common areas, community gardens, and golf facilities, with 197 acres irrigated under Ditch Company shares; plus, approximately 100 surface acres of ponds and water amenities associated with these.
Housing and commercial:	7,153 housing unit equivalents including incidental residential irrigation; 1.2 million square feet of commercial space, services, and related commercial uses, schools and hotels.

[4] As noted earlier, although M3 Eagle requests 15 new points of diversion (wells) in this Amended Application, given the current level of understanding of the aquifer system beneath the Project, it is hoped that the needed water supply can be provided from a minimum of 7 wells. The 15 points of diversion requested are to provide for the scenario that wells are not as productive as predicted or to remedy cases where wells are needed adjacent to specific uses which cannot now be determined.

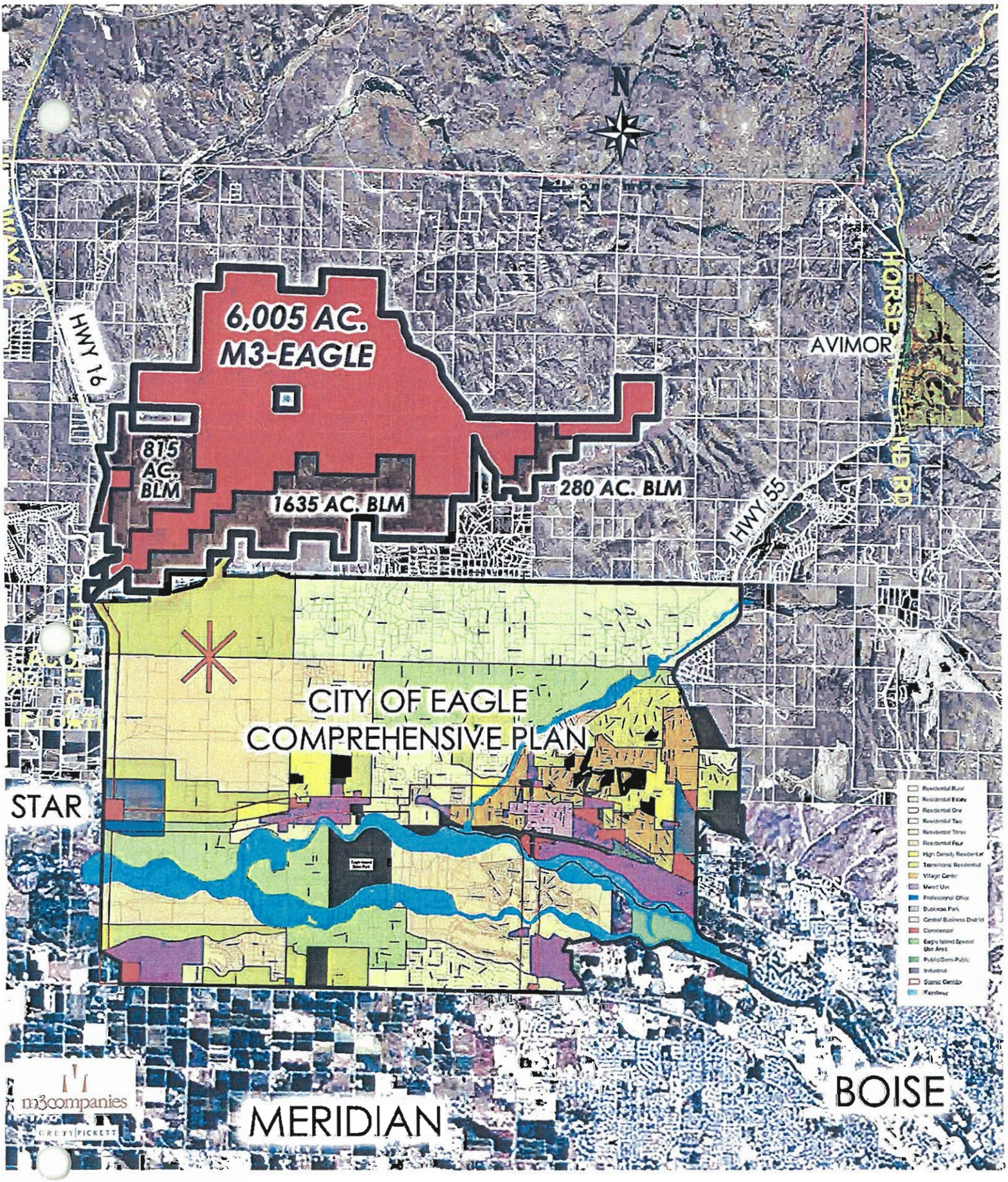
Peak diversion rate:	23.18 cfs from ground water during the peak day of the irrigation season.
Average diversion rate:	9.03 cfs from ground water (averaged over 365 days)
Storage:	Approximately 100 surface acres (1,828 acre-feet total; 828 acre-feet active storage) of ponds on private land to fill, divert from, and refill for irrigation of common areas and parks (including golf courses), irrigation storage, aesthetics, wildlife, and recreation. Approximately 2.62 million gallons of enclosed active storage for domestic uses and fire protection in housing and commercial areas.
Yearly acre-feet diverted from ground water:	6,535 acre-feet.
Yearly ground water consumptive use:	5,381 acre-feet (3,829 acre-feet of direct ground water diversions; 1,552 acre-feet of Reuse Water)
Yearly Reuse Water supply:	1,818 acre-feet of effluent generation, with 1,660 acre-feet of Reuse Water available for non-potable irrigation after 158 acre-feet of evaporation from storage ponds.

Estimated well diversion and consumptive use (C.U.) amounts for M3 Eagle's Planned Community at build-out

Type of Use	Peak Diversion Rate (cfs)	Average Diversion Rate (cfs)	Annual Diversion Vol. (acre-feet)	Annual C.U. (acre-feet)
Indoor Potable	6.08	4.05	2,932	848
Residential and Commercial Potable Irrigation	9.74 (w/ water management measures)	4.00	1,936	1,627
Public Area Non-Potable Irrigation	6.27	2.93	1,419	2,556
Pond Evaporation	1.10	0.68	248	350
Irrigation season total	23.18	11.66	5,563	5,100
Non-irrigation season total	6.08	4.05	972	281
TOTAL	23.18 (peak day)	9.03 (365-day average)	6,535	5,381

1. Well diversions include credit for irrigation of 197 acres using Ditch Company shares.
2. Well diversions take into account the planned use of Reuse Water.
3. Totals in this table and the narrative may not equal sum of components due to round-off. Totals are correct quantities.

42-1



M3 Eagle - Vicinity Map

EXHIBIT 1

42-2

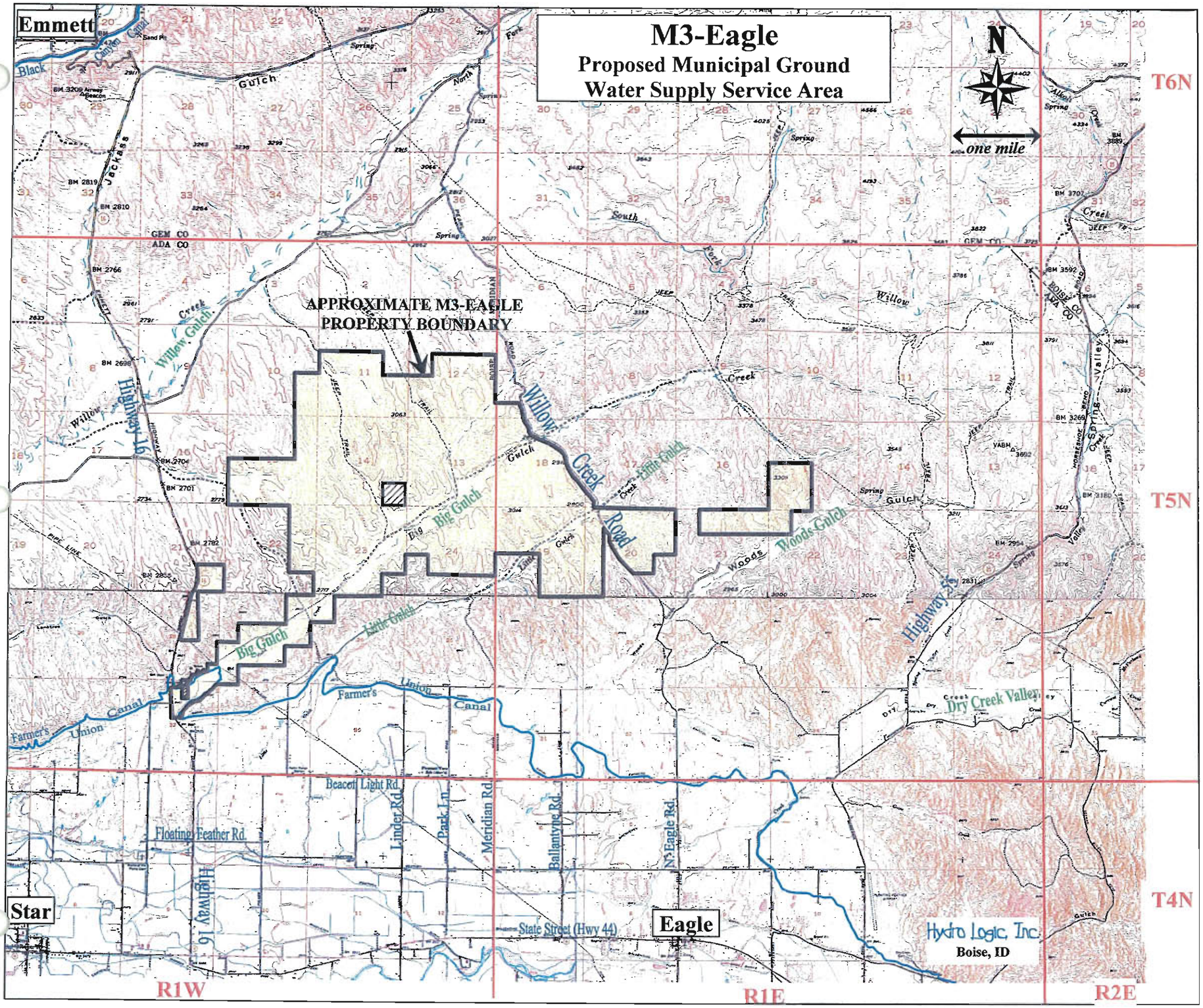


Exhibit 2. Location map showing the approximate boundaries of the proposed M3 Eagle planned community in the north Eagle foothills. The area within the dark grey borders, owned by M3 Companies, Inc., is proposed as the municipal service area for the applied for municipal ground water right under this application. Fifteen (15) Points of Diversion (wells) are proposed to be located within the boundaries. Well locations are proposed to be determined on a case by case basis and upon hydraulic testing of each new well as it is constructed to achieve optimum well field spacing and the minimum number of wells necessary to provide the needed water supply.

Township and range boundaries are denoted in red, and the approximate boundary of the development is gray with yellow shading.

Base map is (1:62,500 scale) USGS 15 minute map.

Exhibit 2.

42-3

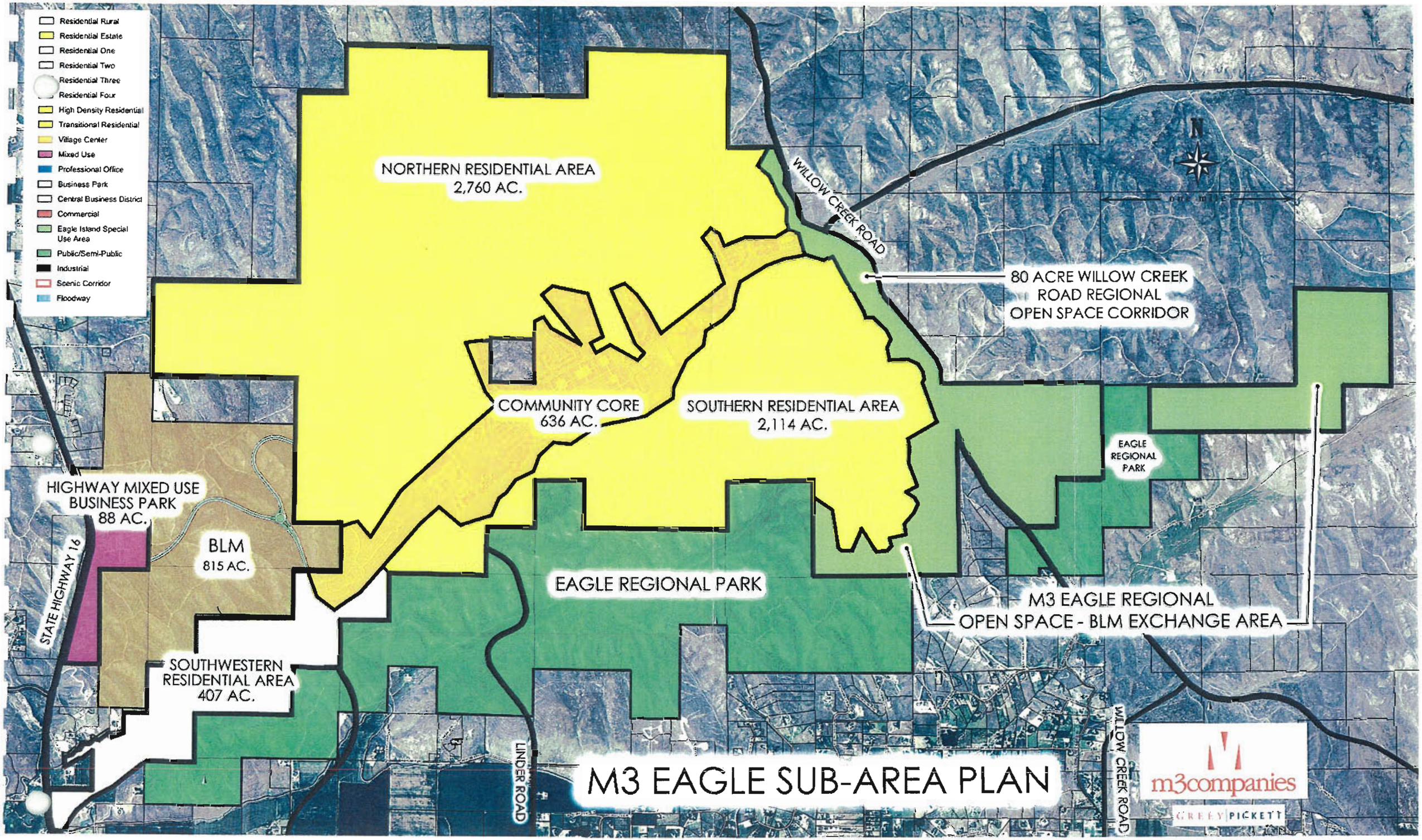
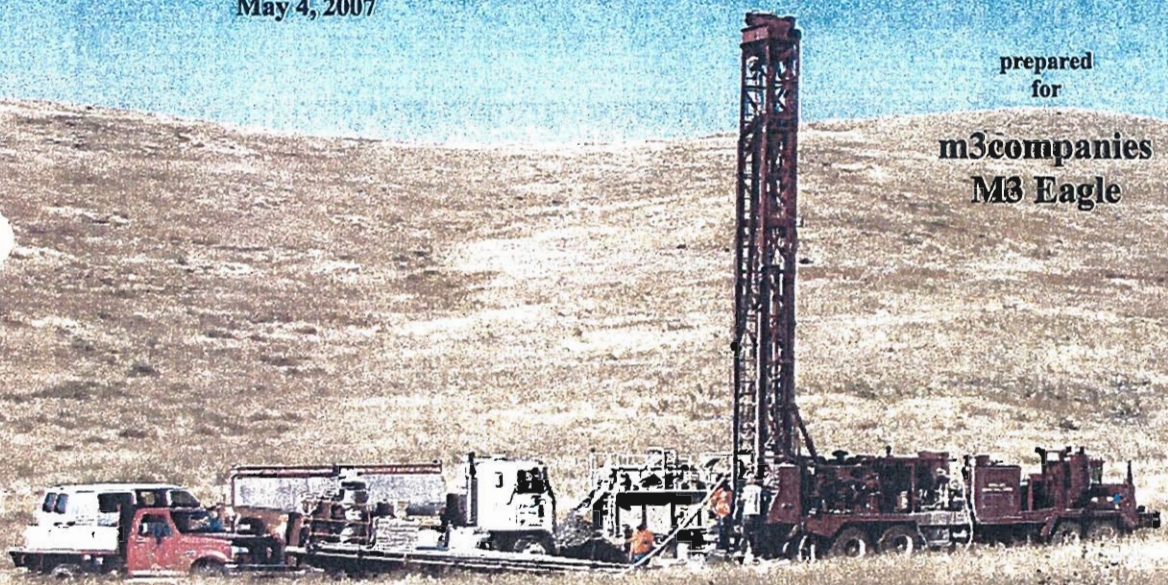

Residential Rural
Residential Estate
Residential One
Residential Two
Residential Three
Residential Four
High Density Residential
Transitional Residential
Village Center
Mixed Use
Professional Office
Business Park
Central Business District
Commercial
Eagle Island Special Use Area
Public/Semi-Public
Industrial
Scenic Corridor
Floodway
NORTHERN RESIDENTIAL AREA
2,760 AC.
WILLOW CREEK ROAD
N
one mile
80 ACRE WILLOW CREEK ROAD REGIONAL OPEN SPACE CORRIDOR
COMMUNITY CORE
636 AC.
SOUTHERN RESIDENTIAL AREA
2,114 AC.
EAGLE REGIONAL PARK
HIGHWAY MIXED USE BUSINESS PARK
88 AC.
BLM
815 AC.
STATE HIGHWAY 16
EAGLE REGIONAL PARK
M3 EAGLE REGIONAL OPEN SPACE - BLM EXCHANGE AREA
SOUTHWESTERN RESIDENTIAL AREA
407 AC.
LINDER ROAD
WILLOW CREEK ROAD
M3 EAGLE SUB-AREA PLAN
m3companies
GREEY|PICKETT

EXHIBIT 3

42-4

M3 EAGLE REGIONAL HYDROGEOLOGIC CHARACTERIZATION
NORTH ADA, CANYON AND GEM COUNTIES, IDAHO
YEAR-ONE PROGRESS REPORT

May 4, 2007



prepared
for

m3companies
M3 Eagle

by

Hydro Logic, Inc.

[1] E. Squires
[2] M. Utting
[1] L. Pearson

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ACKNOWLEDGEMENTS

Financial support and strong encouragement to provide significant and useful hydrogeologic information for the north Ada County area was provided by M3 Eagle, LLC. The M3 Companies understands and appreciates the significance of long term planning for water needs and has encouraged us to continue to expand the hydrological studies and models to provide confirmation of adequate and long term supplies for its project.

The authors would like to recognize the thorough and timely peer reviews of this report by Dr. S.H. Wood of Boise State University, Dr. Jim Osiensky of the University of Idaho, and Jeff Fereday of Givens-Pursley LLP. We appreciate all of their good comments and edits; all of which were taken into consideration and incorporated where applicable.

We are indebted to Spence Wood for a generous commitment to sharing his previous geologic mapping and long-term knowledge of the north Ada County Foothills geology with us on several field trips. The research of Dr. Wood and his colleague, the late Willis Burnham, has been invaluable to us and provides the real basis for all hydrogeologic investigations in this area.

For access to wells and sharing of other hydrogeologic and geophysical data, we are indebted to Greg Wyatt and Roger Dittus of United Water Idaho, Robert DeShazo of Eagle Water Company, the City of Star Idaho, Nancy Merrill of the City of Eagle, Brad Watson of the City of Meridian, Chris Duncan of Holladay Engineering, Co., Lynne Sedlacek of Eagle Sewer District, Bob Taunton of SunCor, Mike Moyle, and Brad Little.

A special recognition goes to the citizens of Eagle, Star, and north Ada County for their wholesale willingness to allow us access to measure domestic wells in the area. Of over 200 wells measured, we were refused access to only a single well. Not only are the residents willing to help and contribute to this study but they have indicated a strong desire to better understand the water resource in the area in the face of rapid growth.

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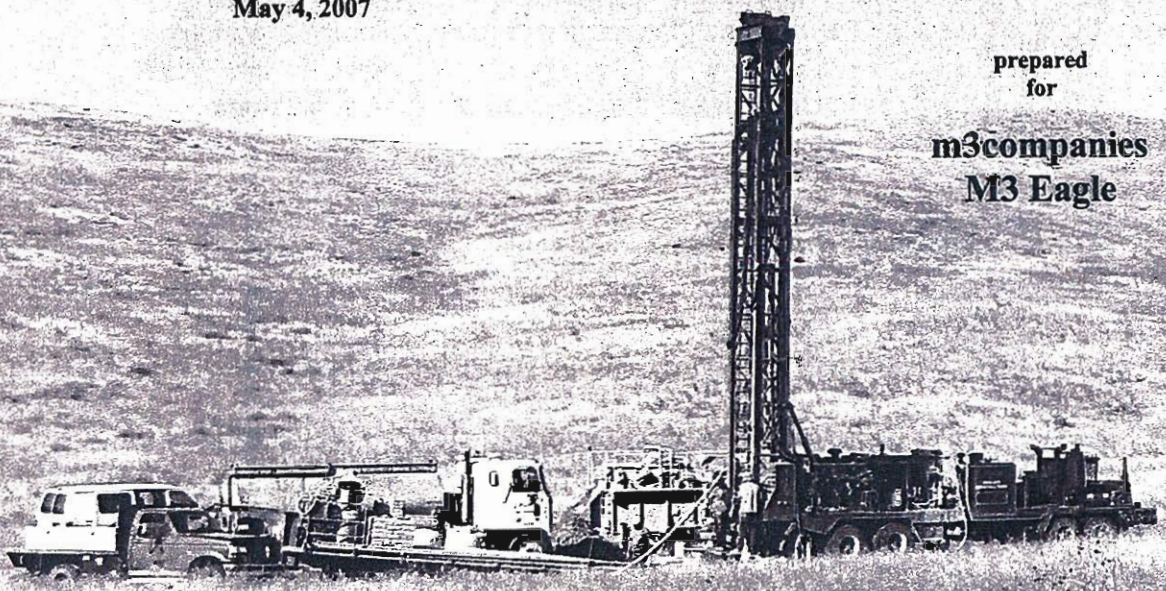
M3 EAGLE REGIONAL HYDROGEOLOGIC CHARACTERIZATION
NORTH ADA, CANYON AND GEM COUNTIES, IDAHO
YEAR-ONE PROGRESS REPORT

May 4, 2007



prepared for

m3companies
M3 Eagle

by

Hydro Logic Inc

[1] E. Squires
[2] M. Utting
[3] L. Pearson

Hydro Logic, Inc.
1002 W. Franklin Street, Boise, ID 83702 (208) 342-8369, (Fax) 342-3100, hydrologic@qwest.net

M3 EAGLE REGIONAL HYDROGEOLOGIC CHARACTERIZATION
NORTH ADA, CANYON AND GEM COUNTIES, IDAHO
YEAR ONE PROGRESS REPORT – MAY 4, 2007

Overview

Hydrogeologic studies commissioned by M3 Eagle in the North Ada County area have delineated a highly productive regional sand aquifer with good water quality that underlies the area near Eagle and Star and the proposed M3 Eagle planned community. This aquifer, herein named the Pierce Gulch Sand Aquifer, underlies the north Ada County Foothills where it extends continuously from the Eagle-Star area to the Payette River Valley. Because the Payette Valley near Letha is almost 300 feet lower than the Boise Valley near Eagle, ground water flows out of the Boise River Basin and into the Payette River Basin through the sands of this aquifer. This conclusion is supported in this report by corresponding water level measurements in wells, by several exploratory test well drilling projects, by borehole geophysical surveys, and by other hydrogeologic analyses. Because the Pierce Gulch Sand Aquifer underlies this area, it appears highly likely that the M3 Eagle planned community will be able to develop its entire water needs from beneath its site without transporting water from the Valley areas of either basin. Extensive water-level monitoring in the area shows water levels in wells to be stable under current levels of use. The ground water proposed to be withdrawn by M3 Eagle for its development will be from subsurface flow that has already departed the Boise Basin, on its way to the Payette Basin, so that impacts to existing area water users in the lowlands near Eagle are predicted to be small. M3 Eagle has already implemented a significant ground water monitoring program to document aquifer conditions prior to development and to be able to assess any future impact to the aquifer from its proposed withdrawals over time. M3 Eagle is committed to continue its monitoring of aquifer pressures throughout the proposed development and beyond build out. Hydro Logic, Inc. has been commissioned by M3 Eagle to provide additional water studies to include future aquifer tests, numerical modeling, and ground water geochemistry modeling.

Introduction

Scope of Work. Hydro Logic, Inc. (HLI) was hired by M3 Eagle in March of 2006 to conduct a regional scale hydrogeologic characterization study to determine the ground water development potential for a proposed 8,160-unit planned community in the foothills area north of Eagle, Idaho. M3 Eagle's regional water study is divided into the following five sections: 1) characterization of the hydrogeologic framework, 2) aquifer testing and characterization, 3) development of a long-term water level monitoring network, 4) geochemical modeling, and 5) numerical modeling. Progress and findings for all five sections of the investigation are discussed below. This interim progress report concludes with a Summary of Preliminary Conclusions developed to date (April 1, 2007).

The ground water study was commenced to evaluate where and how the M3 Eagle project could obtain adequate water supplies for its proposed development. As such, it is a regional scale study intended to provide a broadened understanding of the aquifer system for the entire Eagle community and a larger regional area. All analyses conducted to date by HLI indicate a high likelihood that adequate ground water supplies are present beneath the M3 Eagle site to support the planned community without importing water from outside the area and without causing unreasonable impacts to existing water rights. A final comprehensive report for the study is being developed as supporting documentation for M3 Eagle's municipal water right application to the Idaho Department of Water Resources (IDWR), filed November 21, 2006. The preliminary findings of this study are set forth in this report in keeping with M3 Eagle's intentions to ensure that the public is well informed of its on-going studies and interim conclusions. We particularly want to inform the City of Eagle's Planning and Zoning Commission, the City of Eagle's Mayor and Council, the City of Star, United Water Idaho, Inc., Eagle Water Company, the IDWR, NACFA, and other water users in the Eagle area of Hydro Logic, Inc.'s findings to date. On behalf of M3 Eagle, HLI will be continually updating these findings and providing the results to all interested parties through ongoing presentations and reports such as this one.

Study Goals. An extensive hydrogeologic characterization program has been conducted by a number of entities on behalf of M3 Eagle as part of its plan to develop 6005 acres in the foothills north of Eagle, Idaho (see Figure 1). This program, commenced in March, 2006, has used the services of Hydro Logic, Inc., the University of Idaho, and Boise State University to develop an in-depth understanding of the groundwater flow system over an area extending from south of the Boise River near Eagle to north of the Payette River near Emmett. In addition, HLI has reviewed all available hydrogeologic studies completed to date and all available well information, from the region.

The purposes of M3 Eagle's water studies are to:

1) Develop an understanding of the three-dimensional hydrogeologic framework beneath the area
2) Assess the groundwater development potential for the planned community
3) Describe and quantify the occurrence and flow of groundwater throughout the study area
4) Provide data and scientifically-based conclusions to accompany M3 Eagle's water right request to IDWR for a supply that will average about 7.5 million gallons per day (mgd), equivalent to an average annual diversion rate of about 3,600 gallons per minute (gpm), at the end of the planned 20-to-30-year period of development[1].
5) Assess the impacts to existing wells from the proposed M3 Eagle water development.
6) Assess the total ground water development potential within the study area.

[1] This diversion rate is based on preliminary engineering assessments that are based on preliminary housing densities that are under discussion with the City of Eagle. This rate may be changed for future analyses.

This Report. This first-year Progress Report presents an overview and the major findings to date of the HLI ground water studies. A comprehensive report is anticipated to be completed in time to be presented in support of IDWR's review of M3 Eagle's water right application. HLI's comprehensive report will contain the supporting data files and findings based upon additional well tests, hydrological data collected from additional well studies and completion of a ModFlow numerical model. In the mean time, and as the water study progress, additional reports will be issued to document and present refinements of the findings presented here.

Hydrogeologic Framework

Pierce Gulch Sand Aquifer. This study has determined that a significant regional sand aquifer underlies the M3 Eagle site. All hydrogeologic evidence obtained to date indicate a high likelihood that all of the water needed for the planned development is available from beneath the M3 Eagle properties utilizing 6-to-10 on-site production supply wells. The Pierce Gulch Sand Aquifer consists of a 150-to-275-foot thick sequence of stratified sand layers with inter-bedded thin and locally discontinuous layers of silt and clay. The base of the dipping aquifer is typically 480-to-700 feet deep beneath land surface of the M3 Eagle site. The aquifer sand thickens and descends deeper beneath the land surface to the south and southwest in the Eagle-Star-Meridian area and is believed to do the same to the northwest toward Payette River. The Pierce Gulch Sand Aquifer is a very productive aquifer as evidenced by the many large bore production supply wells which are completed into it including the City of Star's wells, the City of Eagle's wells, and the public water utility wells of United Water Idaho and Eagle Water Company, all located throughout the area (see Figure 5).

Geophysical Log "Signature". Natural gamma-ray, single-point resistance, and electrical resistivity borehole geophysical logs of exploratory test wells and of water wells in the greater Eagle-Star-M3 area show a clear and identifiable "geophysical signature" of the basal sand section of the Pierce Gulch Sand Aquifer and the underlying sediments of the Terteling Springs Formation (Figure 2). This signature is characteristic of the thick sand sequence originally deposited as river and lake sediments in an ancient lake system (referred to as "Lake Idaho," by geologists) that formerly occupied what is now the Boise-Snake-Payette River Basins. This sand sequence is the same 250-ft thick medium-to-coarse grained sand unit that caps the foothills to the east of Eagle, named the Pierce Gulch Sand Member of the Idaho Group of formations (Wood and Clemens, 2002; Wood, 2004). The entire sedimentary sequence has dropped downward several hundred feet by structural faulting and now lies buried beneath the Boise River Valley and much of the western Snake River Plain where it is more difficult to identify and map. The geophysical signature recognized in this study (see Figure 2) provides a new means to map the areal extent of the aquifer over a vast area. We now know that the Pierce Gulch Sand Aquifer is the same aquifer that supplies the Eagle-Star-Meridian area and extends northwest beneath the M3 Eagle site to the Payette River Valley at least as far west as the City of Payette.

Extent of the Aquifer. The Pierce Gulch Sand Aquifer is bounded on its northeast side by the geologic fault system shown in Figure 3, originally named the West Boise-Eagle fault by Wood and Anderson (1981). The base of the aquifer is underlain (and bounded) by the thick clays and

mudstones of the Terteling Springs Formation. The base of the aquifer shown in Figure 3 is inclined about 100 ft per mile downward to the southwest. This structural dip explains why the municipal wells in Star are deeper than they are in Eagle. In the Boise River Valley near Eagle and Star, the Pierce Gulch Sand Aquifer is overlain by clays, some other minor sand aquifers, and a shallow surficial flood-plain-gravel aquifer (the present day floodplain of the Boise River). Beneath most of the M3 Eagle site, the aquifer is overlain by clay layers with no shallow surficial aquifer present. Figure 4 shows a simplified conceptual diagram of the regional aquifer. The figure is a cross-sectional schematic of the aquifer beneath the Boise River Valley extending to the Payette River Basin. The West Boise-Eagle Fault and the projection of the contact between the bottom of the aquifer and the underlying clay are also depicted on this "block" diagram.

Willow Creek Aquifer. A foothills aquifer, informally named the "Willow Creek Aquifer" (SPF, 2004) is a thick sand sequence that overlies granite and volcanic bedrock in the area northeast of the West Boise-Eagle fault system. Hydro Logic, Inc.'s concept of this aquifer is shown in Figure 5. It is an older geologic unit and stratigraphically deeper (older in time) than the Pierce Gulch Sand Aquifer. It is probably correlative to the sand facies of the Terteling Springs Formation described by Wood and Clemens (2002). The Willow Creek Aquifer consists of highly permeable sands and gravels (SPF, 2004) that appear to us to be bounded by (or grade laterally into) the clays underlying the Pierce Gulch Aquifer to the southwest and bedrock lying to the northwest of a major regional fault system, shown in Figure 3. The upper part of the Willow Creek Aquifer is exposed along the upturned section near the West Boise-Eagle fault system and in the foothills northeast of the fault. The approximate areal extent of this aquifer is shown by the shaded-turquoise region of Figure 6.

Hydraulic Interconnection Between Aquifers. In the Big Gulch area, the Willow Creek Aquifer has water levels that are more than 150 feet lower than water levels in nearby wells of the Pierce Gulch Sand Aquifer, as shown by the triangular water level symbols in Figure 5. The measured offset in water levels in the two aquifers is shown to occur over horizontal distances as short as one-quarter mile, suggesting a hydraulic disconnection between the two aquifers. The geochemistry of the ground waters in the two aquifers is also very different (see the section below on Geochemical Modeling). The differences in water levels and water chemistry, in concert with low-permeability clay strata between the two aquifers demonstrate that the Willow Creek Aquifer is distinct and separate from the Pierce Gulch Sand Aquifer. The differences in water chemistry also show that ground water in the Pierce Gulch Sand Aquifer does not flow in significant quantities to the Willow Creek Aquifer. The limited and bounded areal extent of the Willow Creek Aquifer, its high pumping lifts and associated energy costs, and the small amount of available recharge serves to limit its potential as a source for significant groundwater supply. The SPF (2004) report estimated that the total recharge to this aquifer is 3,300 acre feet annually (equivalent to about 3 million gallons per day or 2,000 gallons per minute). SPF estimated that a fourth of this recharge is from direct infiltration of precipitation and the remainder from up-basin runoff or ground water underflow source (a highly speculative conclusion in our opinion). In contrast, the Pierce Gulch Aquifer is areally extensive, benefits from a strong source of recharge from the southeast from surface water irrigation diversions and the upper Boise River and has the additional advantage of reasonably high water levels with relatively low pumping lifts.

Sub-Surface Cross-Section. Figure 5 presents one of thirteen cross-sections of the subsurface geology developed as part of the characterization program using existing well data. (The other cross-sections will be included in a future report). The line of section for this cross-section for this sketch, which shows HLI's interpretation of the regional aquifer beneath the M3 site, is shown on Figure 1. The cross section depicts the Pierce Gulch Sand Aquifer dipping to the southwest and rising to the northeast where it projects to ground surface between Spring Valley Ranch test wells #6 and #7 in Big Gulch. The dashed green line in Figures 3 and 4 represents the approximate position of the base of the Pierce Gulch Sand Aquifer where it crops out at land surface.

Pierce Gulch Sand Aquifer Characterization

Conceptual Model. Using the derived aquifer transmissivity values and the measured water levels in wells to derive a ground water gradient, our analyses indicate that 20 to 30 mgd (million gallons per day (equivalent to approximately 22 thousand to 34 thousand ac ft/yr. (acre feet per year)) of ground water currently flows in a northwesterly direction through the Pierce Gulch Sand Aquifer beneath a five-mile wide strip of the M3 site between State Highway 16 and the inferred edge of the pierce Gulch Sand Aquifer (shown as a dashed green line on Figure 6). This quantity represents three to four times the projected demand at build out. The five mile swath approximates the expected width of the capture zone (cone of depression from pumping) for M3-Eagle's proposed on-site production wells. This ground water flows from south of Eagle and areas south of the Boise River toward the Payette River Valley where it ultimately discharges. Most of this groundwater originates as recharge in the east and south Boise regions augmented by leakage from canals south and east of Meridian and recharge from the Boise River in the Boise area. There is likely some localized shallow aquifer recharge from area canals such as the Farmers Union Ditch and from flood irrigation although these sources are believed to recharge only the uppermost floodplain terrace gravel in the lowland Eagle area and ultimately discharge quickly to the Boise River. This localized recharge is not believed to be significant to ground water flow beneath the M3 Eagle site. Contrary to popular notion, the deeper (Pierce Gulch) aquifer is not recharged by the Boise River in the Eagle-Star area. In fact, the opposite is true. Owing to the upward ground water gradient in the area (increasing potential with depth) the Boise River actually gains water from the aquifers underlying it. It is this upward ground water flow from below that makes the River a "gaining stream" in the Eagle reach and also is the source of Eagle's many flowing artesian wells, as discussed in Petrich and Urban (2004).

Ground Water Flow Direction. Figure 6 indicates the general ground water flow directions and water level contours for the Pierce Gulch Sand Aquifer, the Willow Creek Aquifer and the undifferentiated localized aquifer(s) within granitic and volcanic rocks and local sedimentary aquifers of the foothills to the northeast of the M3 site. These contours were generated from data derived from two sources. The first and primary source is a series of 167 water levels measured by HLI and the University of Idaho in the M3-Eagle-Star vicinity during the summer of 2006. The second source of water level data is from IDWR's on-line data base, for wells located further away from the project area. The IDWR data consists of levels measured by IDWR and levels reported on Well Driller's Reports. Our level of confidence in the interpretation of ground

water flow in the area where HLI collected water level data (the Eagle-Star-M3 area) is much higher than in the regions to the west (the Caldwell-Meridian and northward area). Lower confidence is noted by the dashed contour lines in the regions of less reliable (driller) data.

The combined water level data are contoured to show the potentiometric surface with arrows indicating the inferred ground water directions, based on ground water flow at right angles to the contours (ground water flow from higher pressure levels to lower pressure levels). The water level contour map illustrates that although the Willow Creek Aquifer is adjacent to the Pierce Gulch Aquifer, only small quantities of ground water flow from the Pierce Gulch Sand Aquifer to the Willow Gulch Aquifer. In our conceptual model, low-permeability clay and mudstone strata underlying the Pierce Gulch Sand Aquifer significantly restricts ground water flow to the Willow Creek Aquifer; the steep hydraulic gradient (close to 1.0) between the aquifers in the Big Gulch area notwithstanding. The contours shown for the Willow Creek Aquifer, and the undifferentiated upland zone in the northeast, are only approximate because of the limited number of water level data points available for contouring.

Interbasin Transfer of Ground Water Under Natural Gradients and Recharge. Prior to the HLI study, the prevailing conceptual models indicated that recharge to the ground water system beneath the Eagle area originated primarily in the foothills to the north and east of Eagle (Petrich and Urban, 2004; and SPF, 2004). In HLI's view of ground water flow (conceptualized on Figure 7), the previous conceptual models are incorrect. In other words, regional ground water *does not* flow from the uplands in the northeast to the valley in the southwest. Instead, ground water flows from southeast to northwest beneath the City of Eagle and the M3 Eagle site through the Pierce Gulch Sand Aquifer because the northwest ground water flow gradient is toward the Payette Valley. The gradient is driven by the higher pressures ("head" or water levels in wells) in the aquifer to the south beneath the Boise Valley and the lower aquifer pressures in the aquifer to the northwest beneath the Payette Valley. The water levels in the aquifer beneath the Payette Valley are lower because the land surface of the Payette Valley near Letha is about three hundred feet lower than the Boise Valley near Eagle (see Figures 7). The existence of significant ground water flow from the Boise Basin to the Payette Basin was discounted by Newton (1991) and again by Petrich and Urban (2004) although Urban acknowledges (personal communication, 2007) that he believed such an exchange could happen, "there just was not sufficient data at that time to substantiate it".

Vertical Gradients and Confining Conditions. Although Figure 6 shows the general horizontal components of ground water flow in the region, vertical flow gradients are not yet fully understood and are not illustrated in this report. A significant observation, however, is that there is an upward vertical gradient within all three of the test well piezometer nests drilled beneath the M3 Eagle project site, as part of the HLI characterization study. Even though these vertical gradients are relatively small (typically less than a foot difference over a vertical difference of 100 to 200 feet), the upward gradient indicates that ground water beneath the M3 Eagle site is under similar confining conditions to those in the Eagle-Star Valley areas. These measured vertical gradients that exist in the foothills region also serve to refute the prevailing notion of the foothills as a recharge area for the City of Eagle's water supply. Because the M3 Eagle project site ground surface is at higher elevations than the Valley, water levels in upland wells of the

Pierce Gulch Aquifer do not rise to the surface and flow as they do throughout the lowland areas of the Cities of Eagle, Star and Meridian. Figure 7 shows this relationship with aquifer water levels ("potentiometric surface") above the Boise and Payette Rivers but below ground surface beneath the M3 Eagle site and adjacent uplands.

Aquifer Transmissivity. HLI analyzed the data from fifteen well pumping tests of other workers in the study area (including three on the M3 Eagle site). The locations for the analyzed wells (including selected observation wells) are shown in Figure 8. These analyses indicate that individual well yields from the Pierce Gulch Sand Aquifer are high – in excess of 1,000 gpm and at some locations as high as 2,000 gpm. The calculated transmissivities (a property that helps to quantify how much water can flow through an aquifer) for the entire aquifer thickness are estimated by us to be on the order of 100,000 gallons per day per foot (gpd/ft) and in some areas values of 200,000 gpd/ft and higher were derived. Figure 8 shows eighteen calculated transmissivity values in map view by location for the various tests. Several of the tests included multiple observation wells which allowed evaluations of transmissivity at more than one location per test. The range of calculated transmissivity values compare reasonably well with those of Baker (1991) for the Eagle area. HLI's analyses for the fifteen pumping tests will be released by M3 Eagle as a separate, stand-alone report in the near future.

Large values of aquifer transmissivity indicate that the draw down (cone of depression) of a pumping well will translate into relatively smaller water level/pressure declines around and at distance from the pumping well and that the decline will be spread over a larger area. In other words, large transmissivity generally results in smaller impacts (well interference effects) to other wells in the area. Because of the relatively undeveloped foothills area surrounding the proposed M3 Eagle development, and also because a one mile wide strip of BLM desert land separates the M3 Eagle site from the City of Eagle, interference effects to existing domestic wells are lessened simply due to the distances to nearby wells. The largest potential for interference effects to existing wells is on the west side of the M3 Eagle lands near State Highway 16. Although the actual extent of any future impacts cannot be truly known until actual pumping wells are in place, M3 Eagle has constructed a multi-level monitoring well at this location. This piezometer nest and several other local domestic wells are being measured, and will continue to be measured to determine the extent of any well interference impacts that do occur. It is anticipated that M3 Eagle will drill, construct, and test a large bore supply well within the next sis month period.

Aquifer Storativity. Figure 8 indicates computed short-term and estimated long-term storativity coefficients calculated for the greater project area. Storativity is an aquifer property that indicates how much water is released from the aquifer to a well when it is pumped. The results of the short-term pumping tests (a few days or less) all indicate storativities on the order of 0.001 or less, demonstrating "confined to semi-confined conditions." Confined conditions generally cause the effects of pumping to be spread out relatively rapidly from the pumping well and over a large area, as water is drawn toward the pumping well. Confined conditions can also mean that the effects of pumping would be somewhat-to-completely attenuated in overlying aquifers. A confining layer, typically lower-permeability clay and/or mudstone, allows only minor leakage across the stratigraphic layering such that the effects of pumping take longer to reach the

overlying shallow ground water zones. In other words, a clay layer between two aquifers slows down and reduces the draw down effects in one aquifer when the other aquifer is pumped.

Two longer-term aquifer tests have been conducted in the Eagle area (CH2M-Hill, 1991, Holladay Engineering Company, 2006). HLI's re-analysis of these tests, generated aquifer storativity values of 0.01 and higher, indicating "semi-confined" to "unconfined conditions" under longer-term pumping. The larger storativities with longer-term pumping indicate that the confining clay layers are likely discontinuous over a broad region allowing the draw down pressure gradients from the pumping well to propagate upwards into shallow less confined-to-unconfined aquifers and/or surface water sources with the result that the water level in the pumping well ceases to draw down under continued pumping. In other words, the cone of depression ceases to expand so that interference effects to surrounding wells are arrested.

High-quality long-term pump testing has not yet been conducted beneath the M3 Eagle site. However, hydrogeologic data from two of the M3 Eagle exploratory test wells indicate the northeast edge of the aquifer is defined by an unconfined water table or a water level that is only slightly above the overlying (confining) clay. These conditions suggest that long-term pumping could lead to unconfined conditions near some of the proposed M3 Eagle pumping wells in the Pierce Gulch Sand Aquifer. Pumping under unconfined conditions generally results in smaller interference effects to other wells in the area, especially to those at more distal locations (several miles), compared to pumping under confined conditions.

Predicted Impacts of M3 Eagle's Ground Water Development at Full Build-Out. We have used the results of the pumping tests to estimate the effects of yet-to-be-constructed production wells on the M3 Eagle site. The drawdown effects of each pumping well are additive. The impact at any given site or well location will be the sum of the impacts caused by all pumping wells. Figures 9 and 10 show the collective predicted drawdown (cone of depression) that could be caused by six hypothetical production wells completed in the Pierce Gulch Sand Aquifer on the M3 Eagle site. These proposed supply wells are labeled PS1 through PS6 in the figures. Based on the understanding that the Pierce Gulch Sand Aquifer is bounded along its northeast edge (as shown by the green line in Figures 9 and 10), the proposed well locations lie within the southwest portion of the M3 Eagle site, oriented at right angles to ground water flow. These locations and orientations were chosen to allow for an optimal yield while minimizing impacts to off-site wells. The actual well locations, total quantity of water pumped from individual wells, and the actual number of wells constructed will be determined as the water supply for the project is developed and as additional wells are drilled and tested. M3 Eagle's existing monitoring network will also be utilized to understand the impacts of newly completed wells to the aquifer system. The predicted drawdown interferences were generated using an analytical model that calculated drawdowns at one-mile centers within a 42 square mile area surrounding the M3 Eagle project. The predicted drawdowns within each one square mile area were then contoured to show lines of equal predicted drawdown-inference throughout the region shown in Figures 9 and 10. The model used the method of Theis (1935) and image well theory to replicate the effects of the pumping wells and the northeastern edge of the aquifer that acts as a no-flow boundary. A total of 12 wells were used in the simulation (six pumping wells and six "image"

wells). The image wells (not shown in the figures) were used to simulate the effects of the aquifer boundary.

The analysis used a range of transmissivity and storativity coefficients calculated from the fifteen pumping-test results for the Pierce Gulch Sand Aquifer. The best-case analysis was based on an aquifer transmissivity of 200,000 gpd/ft while the worst case used a transmissivity of 100,000 gpd/ft. This worst-case is based on lower values calculated from short-term pumping tests conducted in the regional aquifer while the best case is based on the upper-end values calculated from the long-term tests. The actual results are likely to lie somewhere between the two end-point predictions.

Two values of storativity were used in the analysis. A best-case value of 0.01 was used to represent semi-confined-to-unconfined conditions that have been observed during long-term testing and are likely to occur over a season of pumping. As a worst case, a value of 0.005 was used in the analysis. This value is slightly larger than those calculated from short-term test data but smaller than those calculated from the longer tests that better represent our best understanding of how the aquifer will behave during extended pumping. Since the Pierce Gulch Sand Aquifer is leaky and likely to become locally unconfined over time, we believe that the actual effective storativity will fall within the range of values reflected in the best- and worst-case analyses.

Figure 9 shows the predicted drawdowns at full M3 Eagle build out for the best (least drawdown) case scenario. This analysis indicates collective drawdowns of 6 to 8 feet are likely one mile from the project boundaries. Figure 10 shows the worst-case predictions with interference drawdowns on the order of 10 to 16 feet one mile from the project. Additional aquifer testing planned for summer of 2007 will help to refine these predictions. The actual real-world inference drawdowns will be measured and reported as the project develops. As new wells are put into service and the water demand increases over time, the in-place monitoring program (discussed below) will allow for actual measurement of interference drawdowns. Any potential impacts to the small number of domestic wells adjacent to the M3 Eagle site would be able to be predicted and identified through this monitoring program because M3 Eagle has commenced a monitoring program that includes wells in all areas of potential impact.

It should be noted that the predictions shown in Figures 9 and 10 are for wells completed into the Pierce Gulch Sand Aquifer and do not directly address impacts to shallow wells (most often domestic wells) that may be completed into overlying aquifer zones that are separated from the main body of the Pierce Gulch Sand Aquifer by low-permeability sediments (clay layers). Interference draw downs in wells completed within an overlying aquifer unit would be expected to be reduced in magnitude and delayed from those predicted in Figures 9 and 10. If the overlying aquifer is separated from the regional aquifer by a clay layer that is low in permeability, the interference effects of deeper pumping wells could remain small, or even be immeasurable over time, in wells completed into the shallower aquifer units. Conversely, if the layers separating the regional and shallow aquifer are leaky and permeable, interference in shallow wells could possibly approach the same levels as those predicted for wells completed in the Pierce Gulch Sand Aquifer after an extended period of pumping. With an eye toward

potential impacts to shallow domestic wells, M3 Eagle has constructed monitoring wells that monitor all saturated aquifer units at a given location to be able to asses the effects of deep well pumping to shallower sub-aquifer units. M3 Eagle's monitoring plan utilizes continuous measurements from digital data loggers with periodic calibration checks (hand measurements) rather than relying on a few "spot" measurements of a well through time. Therefore, on-going monitoring is in place to better assess impacts (if any) to shallow wells; even if such effects are delayed.

Domestic Wells. A records survey of over 1,600 domestic (single family household) wells in the greater project area from Eagle to Emmett shows that the preponderance of domestic wells are located up-gradient (toward Eagle and Star) from the M3 site (see Figure 11). That is to say, ground water flow in the aquifer encounters these wells first before flowing to the M3 site. Water levels would likely be lowered to some degree in some of these wells under long-term pumping, as discussed above. Wells close to the M3 site would be expected to be impacted to a larger extent than wells at a distance from the pumping centers. While it is conceivable that a few nearby wells may require mitigation to honor their pre-existing water rights, we believe that the existing water level monitoring network is adequate to predict such interference effects before anyone would experience an actual water shortage and M3 Eagle's proactive pre-development water level monitoring of local area domestic wells will be instrumental in assessing such interference effects. M3 Eagle is absolutely committed to mitigating unreasonable and damaging interference effects that would be a result of its water development whether this would require lowering of a pump in a nearby well and/or even deepening of the well in an extreme case.

Long Term Aquifer Monitoring

M3 Eagle Aquifer Monitoring. M3 Eagle commenced long-term monitoring of groundwater pressures (water levels in wells) in the Big Gulch and Little Gulch areas in March 2006. To date, three, multi-level, long-term designated monitoring wells have been installed and instrumented by M3 Eagle at a cost of over $100,000 per well. Water levels at various depths of the Pierce Gulch Sand Aquifer are currently being monitored in these wells. Figure 12 shows the details of well construction for one of the M3 Eagle monitoring wells. In addition HLI is monitoring levels in five other Pierce Gulch Sand Aquifer wells in the area. As of February 2007, a total of 17 separate wells are being monitored with electronic data loggers by HLI for M3 Eagle. These data loggers have helped in the assessment of seasonal water level trends, changes in water levels caused by pumping and even changes resulting from changes in weather patterns and daily earth tides. These wells will provide good documentation of predevelopment aquifer water levels. They will also be used in longer-term aquifer testing in conjunction with one or more high-capacity test wells that will be installed at some future date. Local residents and well owners, along with IDWR, will be advised of the tests and invited to participate.

Other Monitoring. The United States Geological Survey (USGS), IDWR, United Water of Idaho (UWID), and others also are monitoring ground water levels in wells of the Eagle area. It is estimated that approximately 70 wells are currently being monitored in the uplands and lowlands

in and around the City of Eagle. In general, water levels in wells appear to be stable with no apparent declines over the last ten years. (Bendixsen, 2007).

This ongoing monitoring, along with additional pumping tests associated with new well installations, studies by faculty and students at the Boise State University, and numerical modeling by the University of Idaho, will allow for refinements in the understanding, and better management of the ground water system in the entire Eagle-Star-M3 area. As this understanding is improved, supplemental reports will be released by M3 Eagle to regulatory agencies and the public.

Ground Water Geochemistry Modeling

Drinking Water Quality. All ground water samples collected and analyzed from the Pierce Gulch Sand Aquifer indicate that water quality is excellent and will meet all state and federal drinking water standards. To date, HLI has collected and had analyzed eleven ground water samples from test wells M3-TW#1 and M3-TW#3 and the Kling Irrigation well. The results all indicate that ground water from the Pierce Gulch Aquifer beneath the M3 site meets the drinking water standards of the United States Environmental Protection Agency (USEPA) Safe Drinking Water Act and will require no treatment to meet the administrative rules of the Idaho Department of Environmental Quality (IDEQ) for Public Drinking Water Systems.

Geochemical Flow Paths. Comparison of ground water chemistry analyses for water samples from both the Pierce Gulch Sand Aquifer and the Willow Creek Aquifer, supports the conclusion that the ground water in the Willow Creek Aquifer cannot have evolved from the ground water in the Regional Aquifer. The ground water in the Willow Creek Aquifer has a much lower concentration of dissolved solids than the ground water from the Pierce Gulch Sand Aquifer. The dissolved solids in ground water tend to increase along a flow path, because of "residence time" that a given ground water is in contact with the aquifer host rocks. This is why the concentration of total dissolved solids is greater in the Pierce Gulch Sand Aquifer compared to the Willow Creek Aquifer. Figure 6 demonstrates that the flow path in the Pierce Gulch Sand Aquifer is much longer than the flow path in the Willow Creek Aquifer (longer residence time = ground water in contact with the aquifer rocks longer = more dissolution of minerals into the ground water). The water level contour map shows ground water flows through the Pierce Gulch Sand Aquifer from south of Eagle (and off the map) to the M3 Eagle site where the samples were collected, a distance of many miles. The highly bounded Willow Creek Aquifer has no such long-distance flow path. Instead, its ground water recharge is believed by us to originate mostly from the infiltration of local precipitation and from upland streams infiltrating the top of the unit; a theory shared in part by previous researchers (SPF, 2004). The flow paths, and thus the residence times, are much shorter for the Willow Creek Aquifer. These geochemical observations support our understanding of the ground water flow paths demonstrated by the water level contour map (Figure 6) and discussed throughout this report. Our preliminary geochemical analyses also support our contention that the Boise River near Eagle does not locally recharge the Pierce Gulch Sand Aquifer.

Natural Separation of Aquifer Waters. In addition to the measured total dissolved solids concentration, nitrate concentrations in the samples from the Pierce Gulch Sand Aquifer are elevated compared to those from the Willow Creek Aquifer. Nitrate is a conservative "tracer" in that it does not react or become significantly adsorbed onto the aquifer matrix along a flow path. The lack of nitrate in the Willow Creek Aquifer also appears to support our contention that groundwater does not flow *from* the Pierce Gulch Sand Aquifer *to* the Willow Creek Aquifer in any significant quantity, even through a steep water level gradient (much lower water levels in the wells completed in the Willow Creek Aquifer compared to the Pierce Gulch Aquifer) exists between the two aquifers. These ground water quality parameters support the conclusion that the two aquifer flow systems are, for all practical considerations, separate and that their source waters (recharge) are different. Ground water in the Pierce Gulch Sand Aquifer enters the M3 Eagle area primarily through underflow of ground water from southeast of Eagle while recharge to the Willow Creek Aquifer is primarily through limited infiltration of precipitation and runoff from the uplands to the northeast via intermittent streams and seasonal snowmelt.

Geochemical Modeling. As soon as the final geochemical analyses are available, the ground waters from selected well locations will be modeled using "the Geochemists Work Bench" software to obtain further insights into the regional ground water flow paths. The results and interpretations from this work will be included in HLI's future comprehensive project report.

Computer Modeling

HLI has been working with the University of Idaho's Department of Geological Sciences (U of I) to provide data for their use in developing a computerized numerical ground water flow model for the M3 Eagle development and surrounding communities. M3 Eagle commissioned the U of I to develop a detailed numerical model independent of HLI's ongoing modeling efforts and has additionally funded a Master's Thesis at U of I's Department of Geological Sciences in response to a request by local-area residents to have an independent unbiased model constructed. All the data collected to date by the HLI team has been shared with the U of I modelers and regular review meetings are conducted. The U of I modelers have reviewed HLI's conceptual understanding of ground water flow presented in this Hydrogeologic Characterization Progress Report and are using it in the development of their computer model. They are basing their model on "Modflow 2000," the current *de facto* standard for regional computer flow models, developed by the United States Geological Survey and used extensively throughout the United States for regional modeling and aquifer management.

It is anticipated that the U of I model will be available for predictive use in 2008, although preliminary testing of hypotheses may be possible sooner. To be able to test our aquifer theories on an ongoing basis, HLI is simultaneously developing simplified models using a variety of software packages that will be able to be compared to the U of I model when it is completed in the future. It is anticipated in the mean time, however, that the HLI model simulations will be adequate and available to support M3 Eagle's water right application pending before IDWR. The predictions made by the models will include estimates of general water level and flow changes that would be caused by the pumping of new wells drawing from the Pierce Gulch Sand

Aquifer. After the U of I model is completed in 2008, additional time-series data will likely be needed to verify model calibration. This verification would increase the certainty of model predictions, which at this time can only be based on the available data from the site and the greater Eagle-Star area. Additional planned aquifer testing and water level collection, followed by adjustment of the Modflow model to better replicate known hydrologic events, will improve confidence that the model can accurately predict long-term response to pumping. HLI and M3 Eagle intend for the model to be a predictive tool to assist in aquifer characterization. It is our conviction that the actual and real results from the aquifer testing and high quality monitoring of water levels in wells will provide the best information on the sustainability of the aquifer.

Preliminary Conclusions

Based on the work conducted to date, we present the following preliminary conclusions:

1) A single, regionally extensive aquifer underlies Eagle, Star and portions of the M3 project site.
    a. The aquifer, designated the "Pierce Gulch Sand Aquifer" (after a significant geologic unit of the same name) underlies the M3 Eagle site. The aquifer has been delineated by a series of exploration test wells, surface geologic mapping, geophysical surveys, analyses of pumping tests, collection of water level data, ground water geochemical analyses, and computer modeling.
    b. The aquifer is comprised of granitic sands, with inter-bedded thin and locally discontinuous clay layers, that range from 150 to 275 feet in total thickness in the project area.
    c. The aquifer dips at low angles to the southwest so that it lies at a deeper level beneath land surface at Star than beneath Eagle.
    d. The aquifer sands are approximately 275 feet thick under the M3 Eagle site but appear to thicken down dip to the southwest. The aquifer as a whole may be effectively "thicker" in terms of aquifer transmissivity in parts of the Eagle and Star area where overlying saturated zones are hydraulically interconnected.

2) Ground water in the Pierce Gulch Sand Aquifer flows beneath the Boise River, beneath the City of Eagle, and beneath the M3 Eagle lands from south of the Boise River, northwestward to the Payette River Basin.
    a. The major source of ground water in the aquifer in the vicinity of Eagle is ground water underflow from areas south and east of the Boise River at Eagle.
    b. This ground water originates as direct infiltration from the Boise River in the east-central Boise area and through leakage from irrigation canals south and east of Eagle.

3) The Boise River near Eagle and Star does not recharge the Pierce Gulch Sand Aquifer.
    a. The Boise River receives discharge *from* the Pierce Gulch Sand Aquifer and a shallow surficial aquifer via the upward vertical ground water gradients that prevail within the Eagle area.

b. The upward ground water gradient (increasing potential with depth) is most easily recognized in the preponderance of flowing artesian wells in the Eagle and Star areas and by the fact that the Boise River is a "gaining stream" in the Eagle reach.
c. Recharge that occurs through infiltrated precipitation, applied surface water irrigation, and from canal leakage in the Eagle area mostly enters the shallow surficial aquifer which lies above the Pierce Gulch Aquifer and is believed to drain to the Boise River without significant effect to the underlying deeper aquifers.

4) Water levels in wells completed within the Pierce Gulch Sand Aquifer appear stable at the current level of ground water withdrawal in the Eagle area.
   a. The monitoring of 70 wells by state and federal agencies, local water utilities, and others, show generally stable or rising water levels in wells (Bendixsen, 2007).
   b. Water level monitoring by UWID, of a designated monitoring well completed into the Pierce Gulch Sand Aquifer at the intersection of State and Linder in Eagle, shows water levels to be constant for the last ten year period (Roger Dittus, personal communication, 2007).Perceived and/or alleged declines in above-ground artesian pressures of some local area wells are likely true in some cases but are considered to be most likely the result of poorly constructed (unsealed) air-rotary-drilled wells and corrosion of thin-wall steel casing used for most wells in the area historically. A "water level change map" of measured water levels in comparison to water levels reported on driller's reports is planned for HLI's comprehensive report.
   c. A water level change map developed by HLI supports these conclusions where the only apparent pressure declines are where a well field of unsealed domestic wells allows artesian pressure to escape through unsealed annular spaces of air-rotary and cable-tool drilled wells.

5) Ground water in the Pierce Gulch Sand Aquifer under the M3 Eagle site is of excellent quality for all purposes.
   a. Tested waters meet all drinking water standards of the USEPA Safe Drinking Water Act.
   b. No treatment will be required to use this water in a Public Drinking Water System under current Idaho Department of Environmental Quality's administrative rules.

6) The Pierce Gulch Sand Aquifer is moderately to highly productive.
   a. Yields from properly designed and constructed wells are projected to be on the order of 1,000 gpm to 2,000 gpm (1.5 to 3 mgd) or more.
   b. Calculated Transmissivity values from 15 pumping tests show a range from 30,000 gpd/ft to over 300,000 gpd/ft.

7) Sufficient quantities of ground water appear to be present beneath M3 to supply its development.

a. At the current level of understanding of the aquifer it appears possible, if not likely, that the full M3Eagle water demand can be obtained from 6-to-10 on-site water supply wells.
b. At "full build-out" of the M3 project (20 to 30 years), a total average daily water demand of about 7½ mgd will be needed to supply the project or about 25 % to 30% of the 20 to 30 mgd daily flow underlying the property.
c. Based on the work completed to date, it is deemed unlikely that water would have to be transported from wells in the lowlands of the Valley near Eagle and Star to supply the proposed development.
d. Calculated northwest groundwater flow beneath a five-mile wide section of the Pierce Gulch Aquifer beneath the M3 area is on the order of 20 to 30 mgd.

8) Impacts to existing water users from the M3 Eagle development are expected to be few and small-to-moderate in magnitude.
   a. The majority of ground water proposed to be withdrawn by M3 Eagle, will be water that would have already departed the Boise Basin and become tributary to the Payette River Valley.
   b. Most existing wells in the area are up-gradient in the flow system from the M3 Eagle site such that ground water flows to the Eagle area wells before it flows to the M3 site. After flowing beneath the M3 site, groundwater continues toward the Payette River Valley.
   c. A best-case analysis using upper-end aquifer parameter values derived from numerous tests conducted in the Pierce Gulch Sand Aquifer indicate that reductions in water levels in wells one mile from the project boundaries caused by a six hypothetical supply wells, each pumping at 1,000 gpm well for 90 days, could be on the order of 6 to 8 feet.
   d. A worst-case analysis using lower-end aquifer parameter values indicates these reductions could be on the order of 8 to10 feet, one mile from the site.
   e. The actual impacts will likely lie between these two analyses. Additional aquifer testing, scheduled for late summer 2007, and on-going monitoring are planned to refine these estimates of impacts to adjacent wells.

9) M3's monitoring program is adequate to document the impacts of its water withdrawals.
   a. M3 Eagle has commenced long-term monitoring of aquifer water levels with the installation of three monitoring well nests and 17 electronic data loggers.
   b. These loggers are currently collecting data from a total of eight wells, each monitoring one to five depth zones in the Pierce Gulch Aquifer, to measure and document the changes to the aquifer caused by M3 Eagle's ground water development.
   c. As each new supply well is added, additional monitoring and testing will be employed to assess the impacts to other groundwater users in the area as well as the ability of the Pierce Gulch Sand Aquifer to supply the needed water from wells completed on the M3 Eagle property.

10) Additional drilling and long-term pumping tests of one or more high-capacity supply wells are planned to better refine the properties of the Pierce Gulch Aquifer beneath the M3 Eagle property.
    a. These studies will better predict long-term yield and impacts to existing wells.
    b. Local well owners and IDWR will be advised of, and invited to participate in these tests.

11) The on-going monitoring, testing, and numerical ground water modeling and calibration will be used to refine the current understanding of groundwater flow and potential yield of the regional flow system that underlies the M3 site and the greater Eagle-Star areas.

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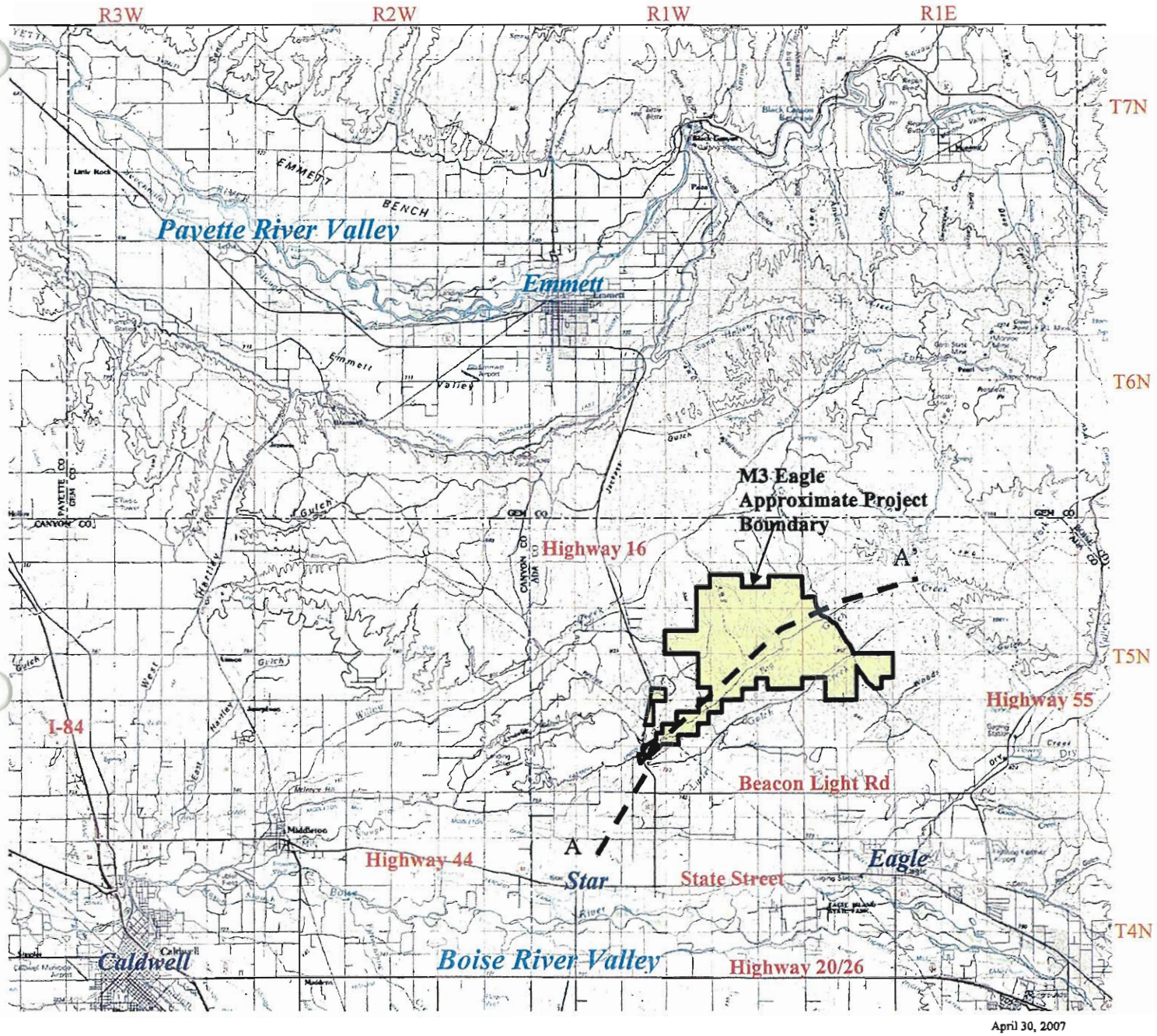
FIGURES



This regional map shows the location of the M3 Project and its relationship to Eagle, Star, the Boise River Valley, Payette River Valley and surrounding area.

N = 1 Mile A A' Geologic Cross-Section Location for Figure 5

Figure 1. M3 Eagle Project-Area Location Map

Figure 1.

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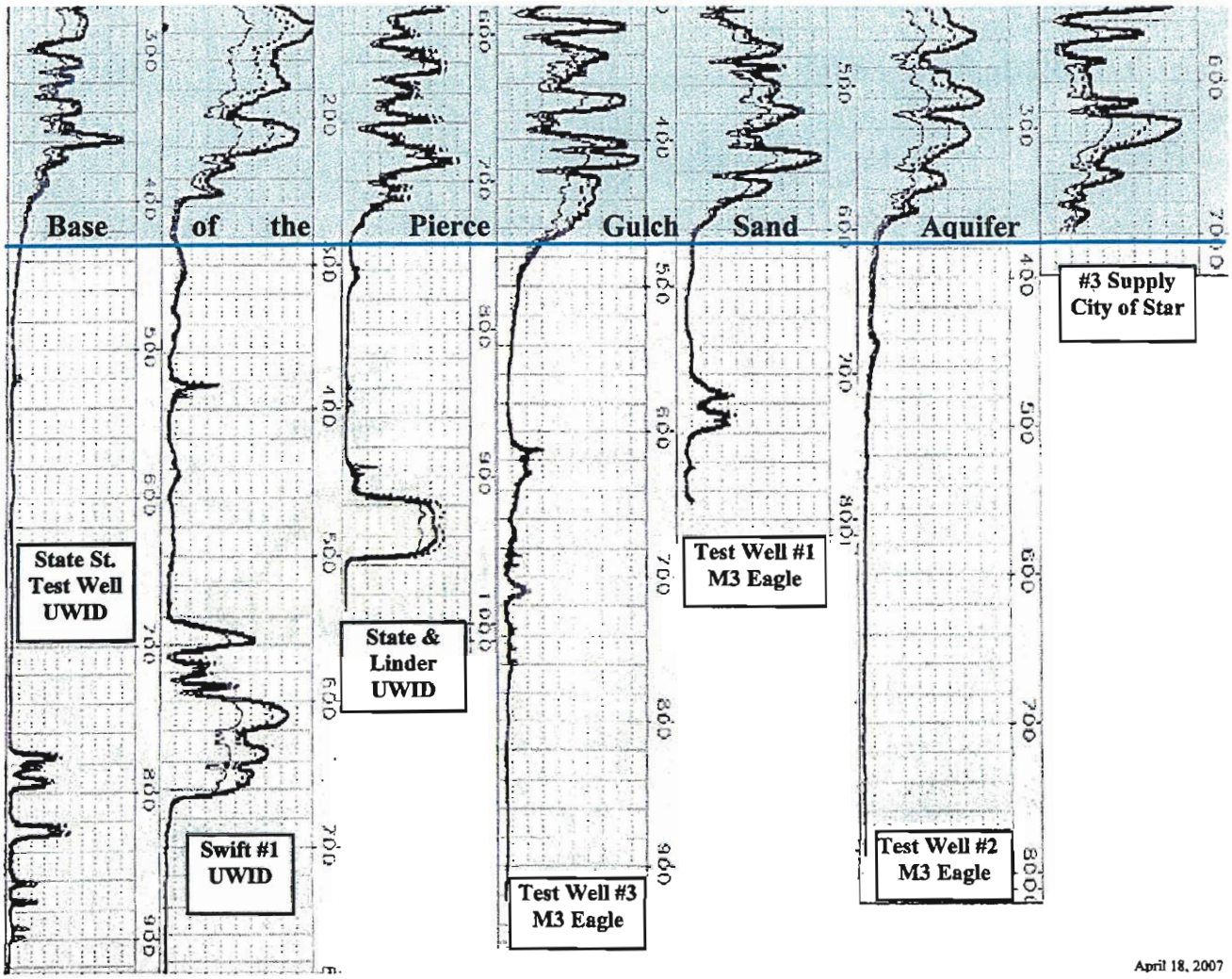
Boise, Idaho

Figure 2. Geophysical Resistivity Logs From Seven Wells in the Eagle Area



Normal resistivity traces at three electrode spacings show a consistent "geophysical signature" at 7 wells completed to different depths over a 50 square miles confirming the presence and base of the Pierce Gulch Sand Aquifer (regional aquifer) over the greater Eagle-Star-Meridian-M3 area. The borehole geophysical logs from these seven wells have been plotted side by side for clarity of correlation. In actual fact, the Pierce Gulch Aquifer is tilted so that it descends deeper below ground to the south and west as shown on Figures 3, 4 and 5. The geophysics also show a less extensive thin sand aquifer at depth beneath the Pierce Gulch Sand Aquifer. Wells completed into the lower sand unit have shown severe hydraulic boundary effects and poor-quality ground water for drinking water purposes.

Figure 2.

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Boise, Idaho

Bottom elevation based on geophysical logging conducted by Hydro Logic, Inc.

GPS locations and ground surface elevations based on TOPO®

Data contoured using Surfer® then hand contoured to remove edge contouring irregularities introduced by gridding algorithms in Surfer®

Contour of Pierce Gulch Aquifer bottom (South of Fault and Geologic Contact) (feet asl)

2000

West Boise-Eagle Fault (inferred location)

Geologic Contact between Pierce Gulch Sand Aquifer and underlying mudstone facies of the Terteling Springs Formation (approximate location)

Pierce Gulch Sand Aquifer Well With Geophysical Log

Well in Willow Creek Aquifer

North

Scale: 1 Mile =

April 30, 2007

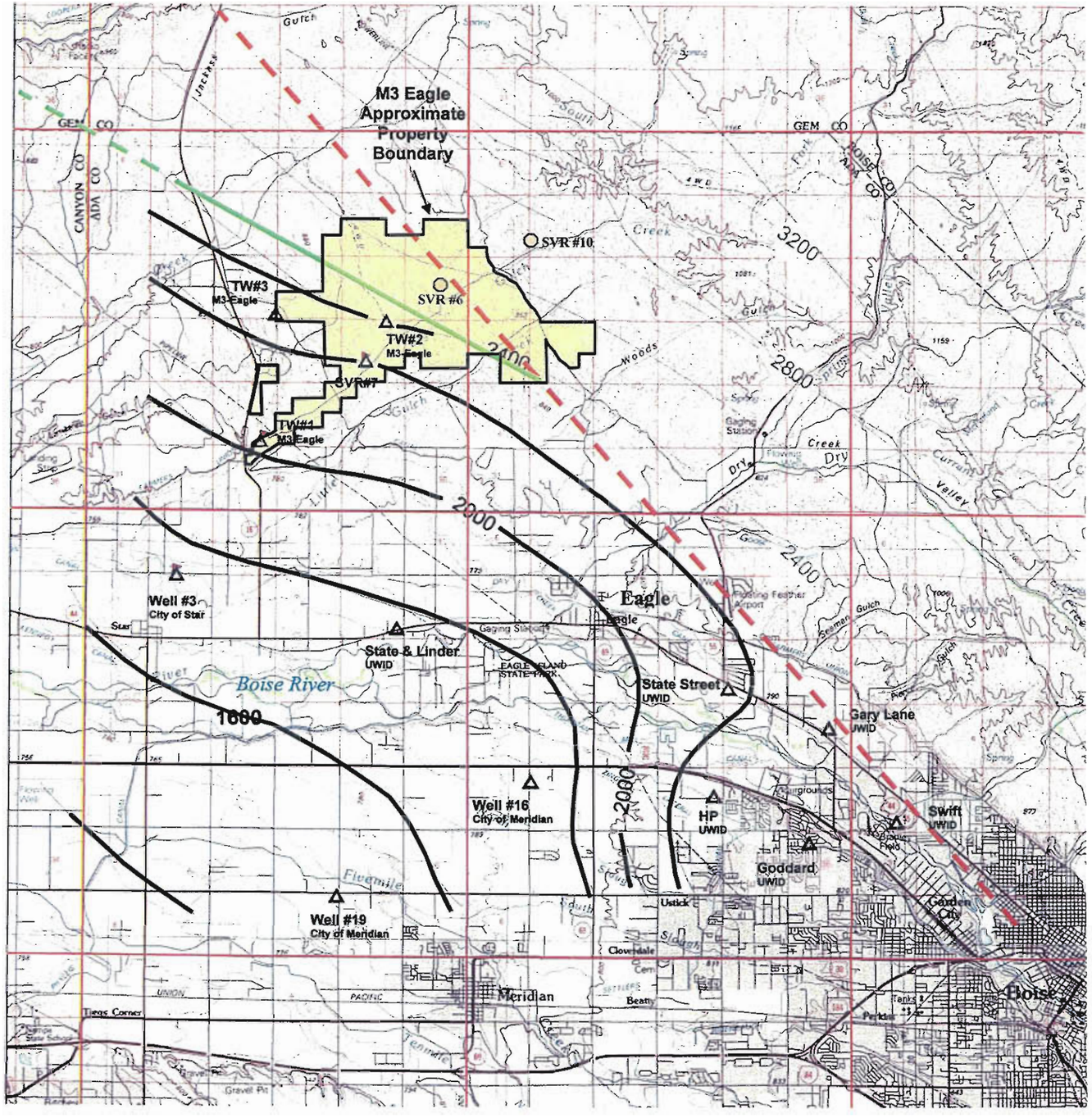


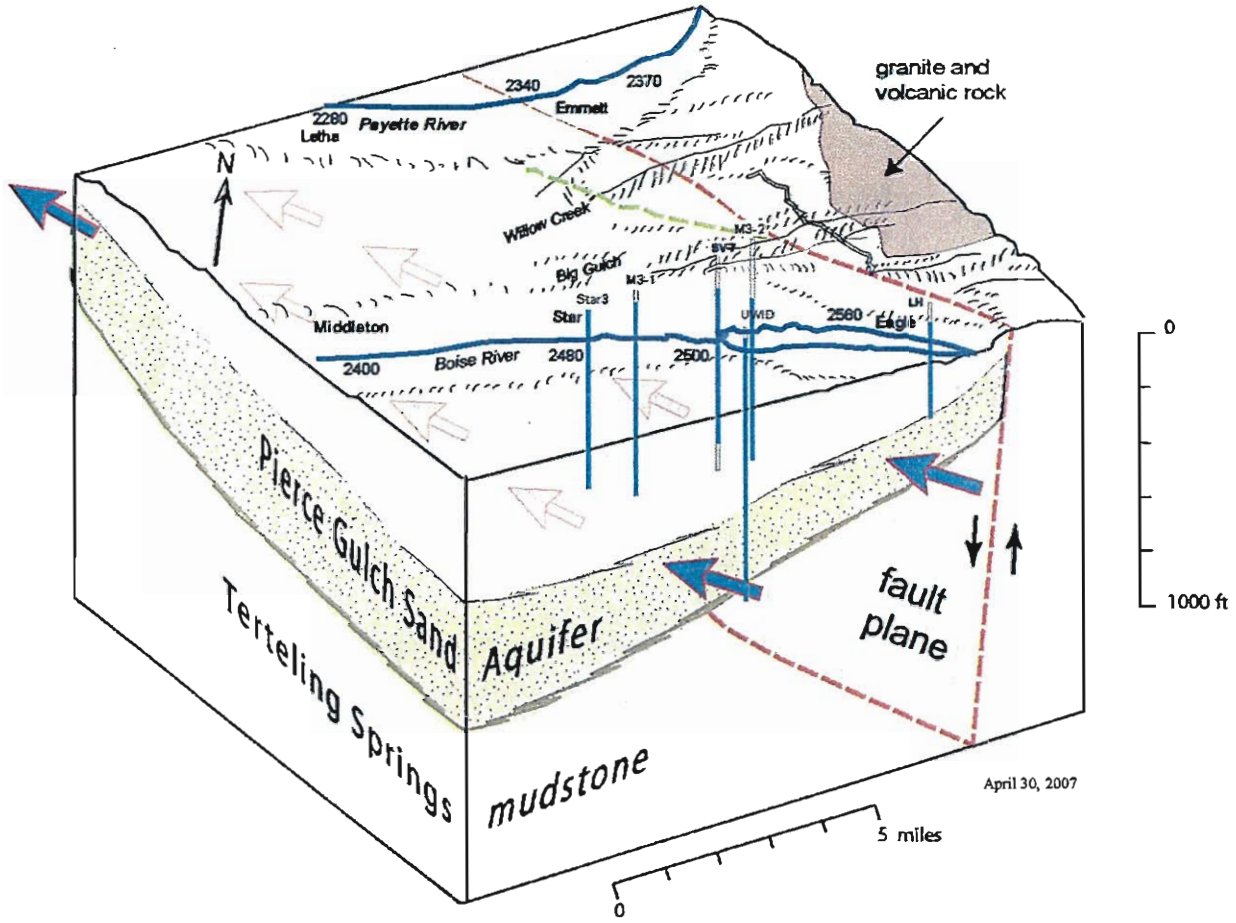
Figure 3. **Contours on the Bottom of the Pierce Gulch Sand Aquifer In the Greater M3 Eagle Project Area**

Structural contours of the base of the Pierce Gulch Sand Aquifer (regional aquifer) beneath the Eagle area north of the Boise River. The contours are based upon the analysis of drill-cuttings and borehole geophysical logs from thirteen test wells (see Figure 2). The contoured surface represents the base of the regional cold water aquifer. In other words, the occurrence of significant quantities of drinking- water-quality ground water is not likely beneath the contoured depths southwest of the red-dashed fault line.

Figure 3.

Hydro Logic, Inc
Boise, Idaho

Figure 4. Conceptual Block Diagram of the Pierce Gulch Sand Aquifer.



Three-dimensional "block diagram" showing sub-surface geologic features between the Boise River Basin (near Eagle) and the Payette River Basin. The cross-sectional "cut-away" views depict the regional aquifer (Pierce Gulch Sand Aquifer) dipping away from the mountain front in a continuous layer between the Boise and Payette basins. The blue arrows indicate the NW direction of ground water flow through the aquifer from Eagle to the lower elevation Payette Valley. These arrows show that the Boise River does not recharge the ground water in the Eagle area owing to an upward ground water gradient (flowing artesian wells). The upward gradient results in the river being a "gaining" stream in this reach. The Pierce Gulch regional aquifer is actually recharged by the Boise River miles upstream from the Eagle area. The green dashed line across the land surface denotes the general locations where the dipping sand aquifer crops out at land surface. The red dashed line (plane) shows the West Boise-Eagle fault system that effectively truncates the sand aquifer on the northeast. Vertical blue lines show drilled depth and approximate location of several deep test wells into the aquifer.

Figure 4.
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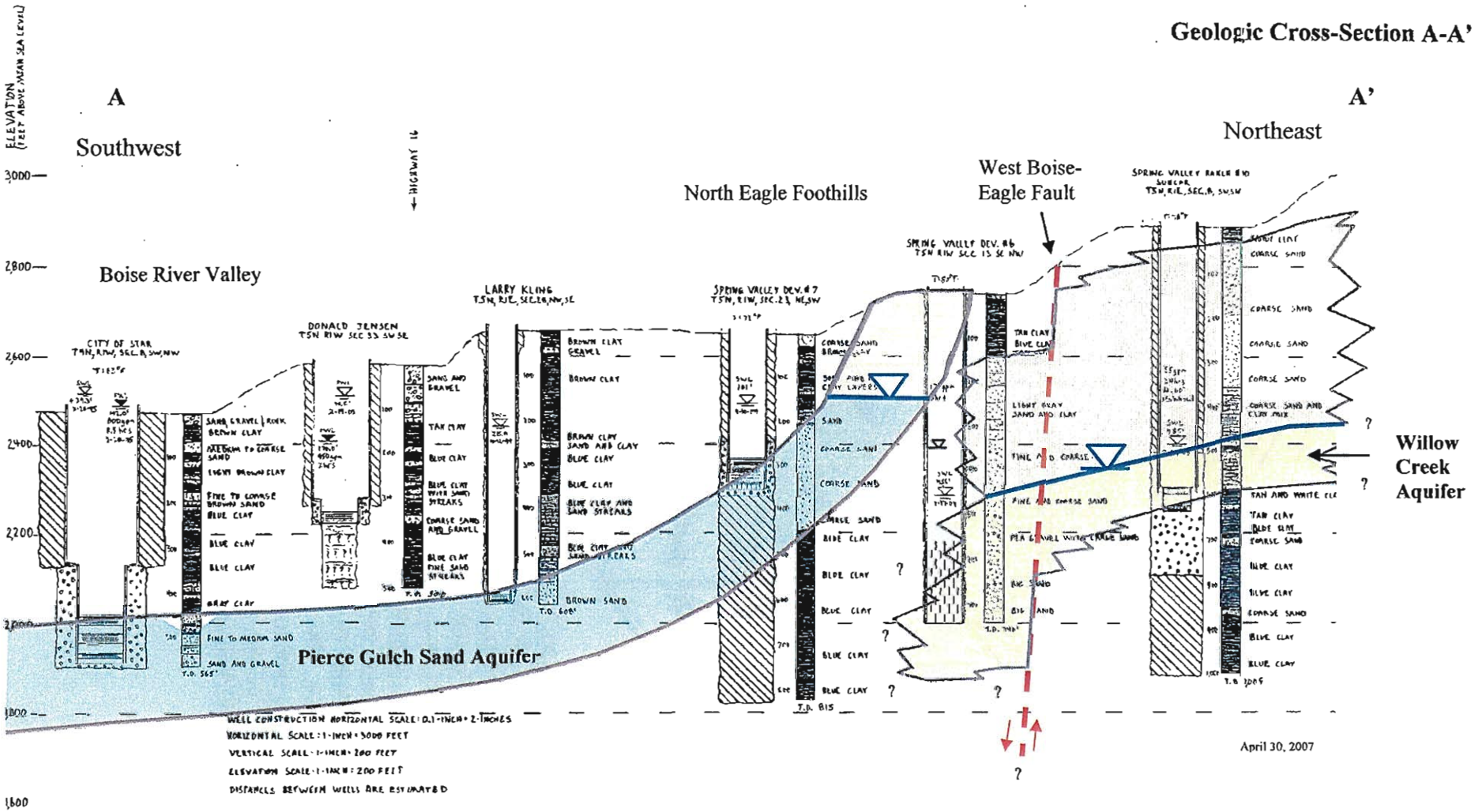
Boise, Idaho

Figure 5. Geologic Cross-Section through the M3 Eagle Site



Southwest to northeast cross-section showing Pierce Gulch Sand Aquifer tapped by Valley and Upland wells. Note: Pierce Gulch Sand Aquifer continues to northwest, west and south off figure. Spring Valley #6 taps Willow Creek Aquifer separated by contact of clay underlying the Pierce Gulch Aquifer. Clay *below* the Pierce Gulch Aquifer in Spring Valley #7 is believed to be equivalent to clay *above* the Willow Creek Aquifer in Spring Valley #6. The coarser-grained upper portion of the Willow Creek Aquifer is unsaturated at Spring Valley Ranch #10 because of relative uplift by West Boise-Eagle fault. The fault dips to the southwest at about 70 degrees but because of 10:1 vertical exaggeration (to allow well logs to be readable) true dip angle is not shown. The tops of the Willow Creek Aquifer and the Pierce Gulch Sand Aquifer in the northwest are defined by the water table. Unsaturated sands lie above the water table at these locations. The exact lateral extent of the Willow Creek Aquifer is not precisely known but is believed to be defined by a facies change to clay to the southwest and by granitic bedrock to the northeast. An accurate delineation of its boundaries was beyond the scope of this study and not considered to be critical to the assessment of the Pierce Gulch Aquifer. See Figure 1 for cross-section location.

H Logic, Inc
B Idah

Figure 6. Preliminary Regional Ground Water Level Contours and Flow Directions

Water Level Data Sources:

M3 Project Area: Measurements Summer of 2006by HLI and U of I

Other Areas:
Wells from IDWR Data Base. Locations / Elevations From Google Earth®, MapQuest® and TOPO®

Data "smoothed" by averaging of water levels in wells within 2,500-feet distances. Dashed contours where sparce or approximate data appear to yield contours that may or may not be representative.

Approximate Well Locations Used to Calculate Ground Water Flow Direction ◇

Approximate Ground Water Flow Directions:

Pierce Gulch Sand Aquifer

"Willow Creek Aquifer"

Water Level Contour Elevation in Feet MSL

2400

(Dashed Where Inferred)

West Boise-Eagle Geologic Fault System

(Dashed Where Inferred)

Contact between bottom of Pierce Gulch Aquifer and underlying mudstone facies of the Terteling Springs Formation (inferred location, dashed where speculative)

Scale: = 1 Mile

North

April 30, 2007

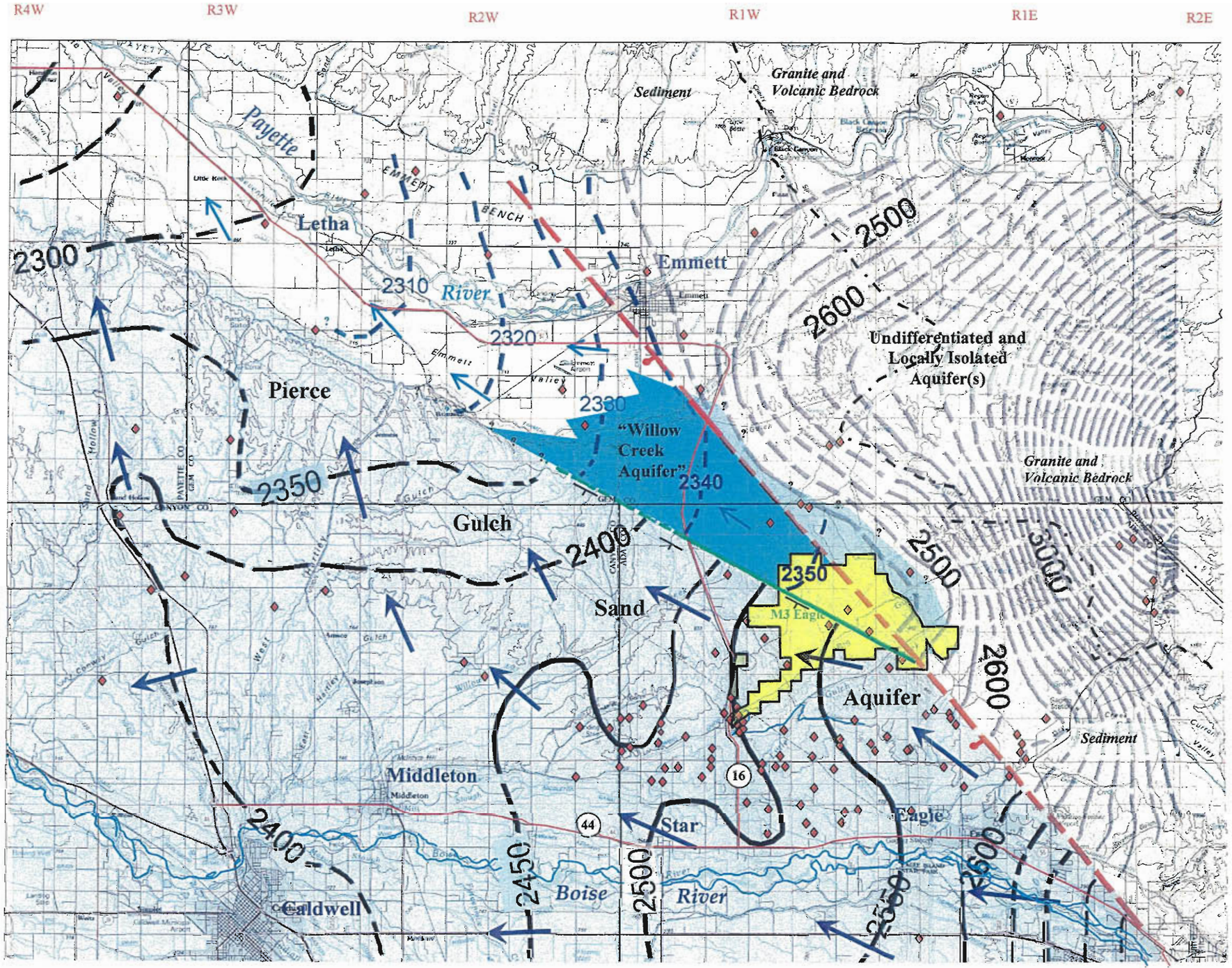


Figure 6.

Dashed grey 50-foot contours to the right side of the map depict the steep gradient and negligible ground water movement through the mudstone facies of the Terteling Springs Formation mudstone and the volcanic tuffs of the Boise Volcanic Assemblage. The black-colored, 50-foot water level contours inside blue shading indicate the northwesterly movement of ground water from the Boise Basin to the Payette Basin north of the Cities of Star, Eagle, and Middleton through the Pierce Gulch Sand Aquifer. The blue-colored and dashed 10-foot water-level contours inside the turquoise area illustrate the relatively flat ground water gradient within the recharge-limited informally named "Willow Creek Aquifer" isolated between low-permeability sediments of the uplands lying to the east of the M3 site and by stratigraphic layering (a day-lighting clay stratum) on the southwest (green solid and dashed line). The boundaries of this aquifer have not been defined as indicated by the "?" symbol.

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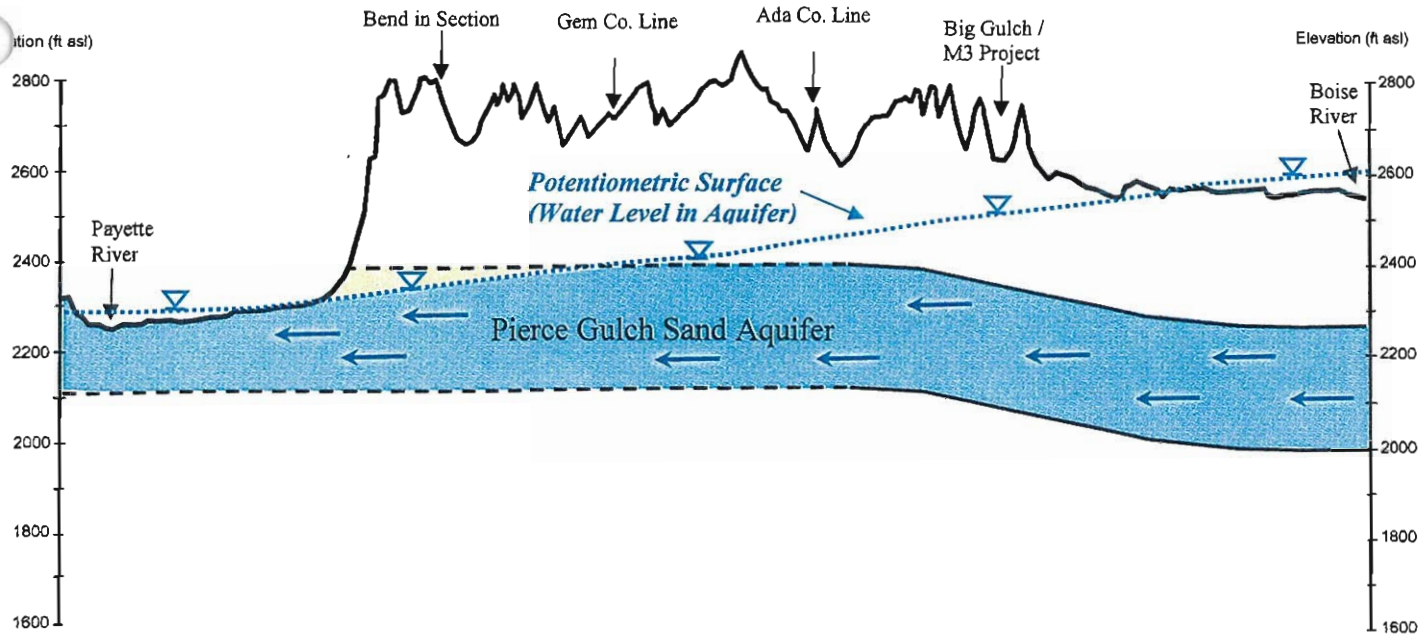
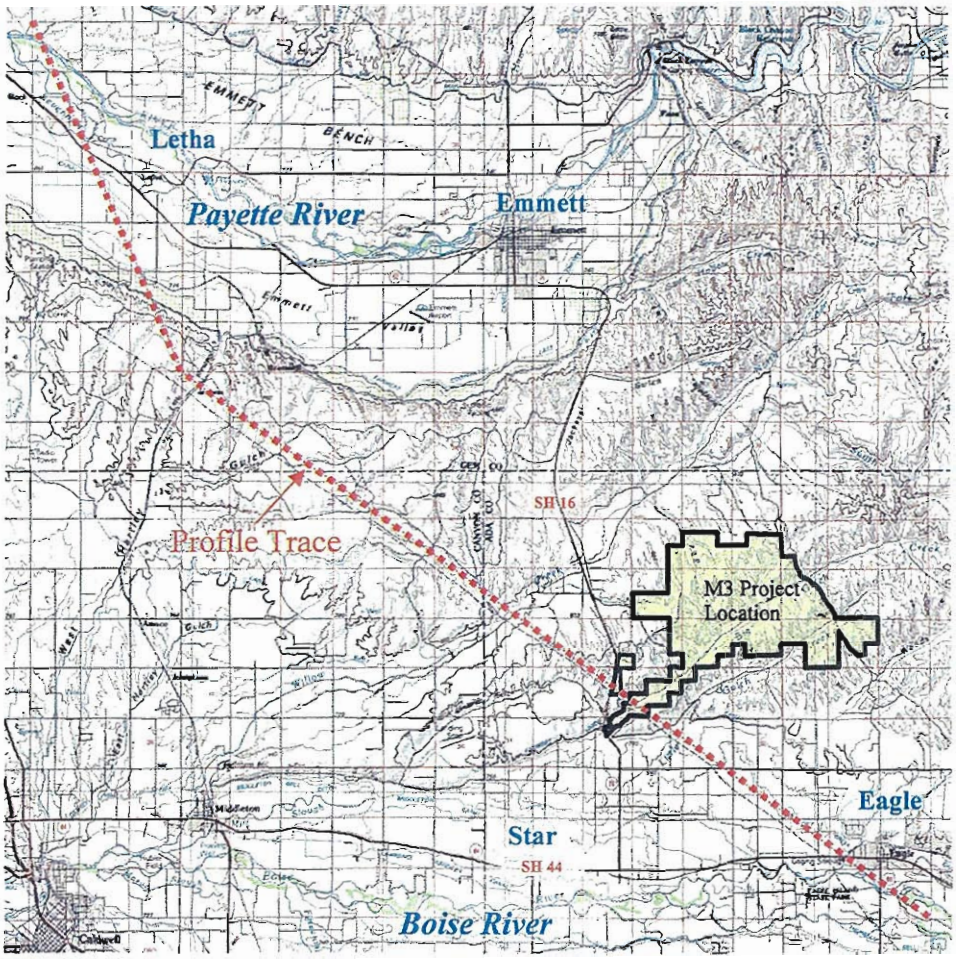
Figure 7. Conceptual Profile of Pierce Gulch Sand Aquifer Between Boise and Payette Rivers





Conceptual profile of the Pierce gulch Sand Aquifer through the M3 Eagle project area from Eagle in the Boise River Valley to north of Letha in the Payette River Valley. This profile (generally along strike of the aquifer) demonstrates that ground water flow is elevation driven with water levels in wells (shown as the "potentiometric surface") near Eagle in the Boise River Valley around 300 feet higher than those in wells completed in the Payette River Valley near Letha. The profile trace bends to better show the current understanding of groundwater flow path as shown in Figure 6.

N

= 5 Miles (Map and Section)

Figure 7.

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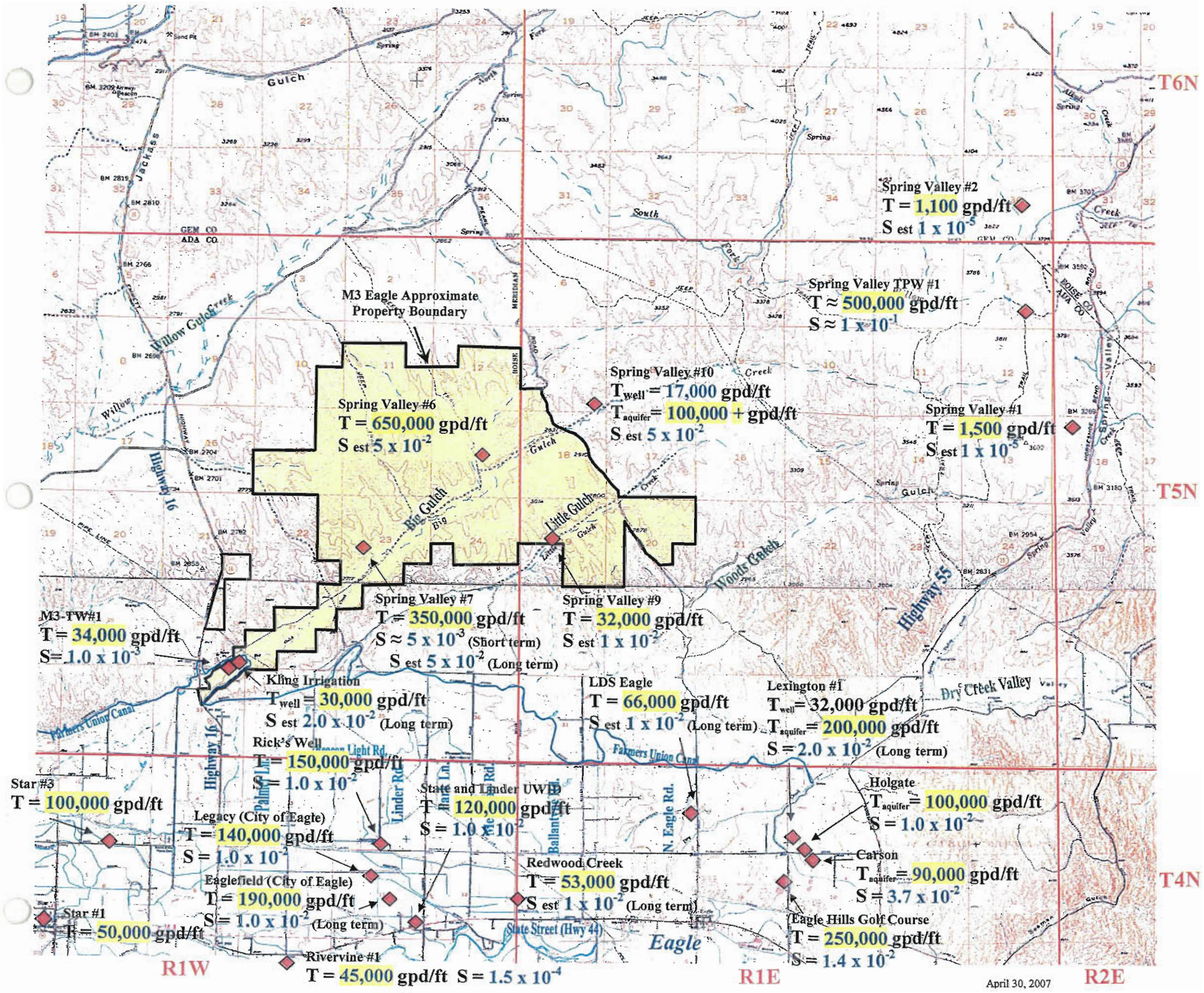

Figure 8. Calculated Values of Transmissivity and Storativity for Selected Wells in the Greater M3 Eagle Project Area

Location map for aquifer transmissivity values calculated from pump tests in the vicinity of the proposed M3 Eagle Development. The tests were conducted by various entities but all tests were reanalyzed by HLI and presented here. Where poor quality tests or poor well construction appeared to give misleading data, "whole-aquifer" values for the entire aquifer thickness were estimated and presented here. These whole aquifer values are presented to support an understanding of total flow of water through the aquifer and would only represent the value that would be indicated by a well that fully screened the entire thickness of the aquifer. See text of report for details.

Wells were surveyed using a GPS system. Base map is (1:62,500 scale) USGS 15 minute map

◆ Wells Analyzed for Aquifer Parameters of Transmissivity and (where possible) Storativity.

one mile

N

Figure 8.

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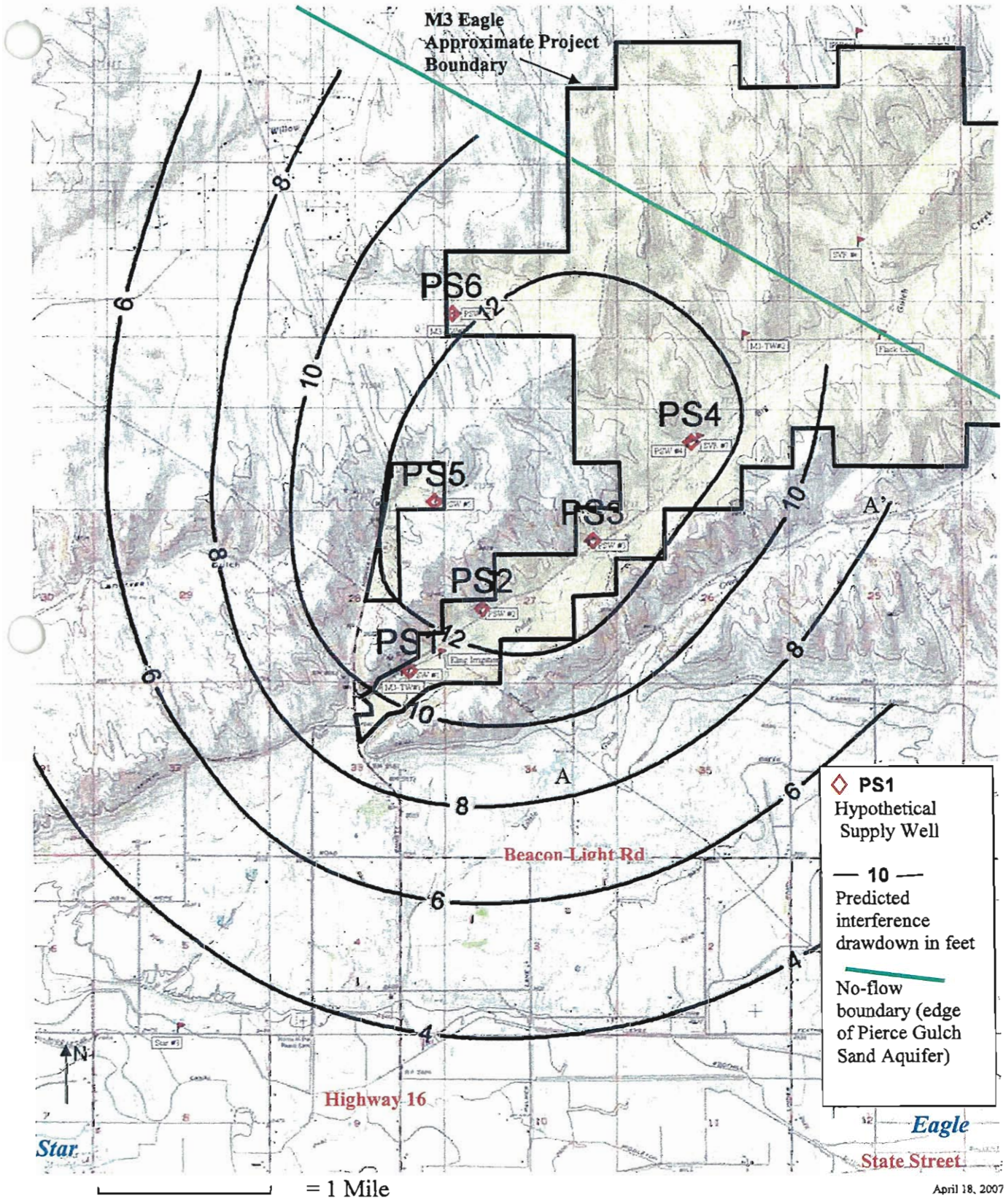
Boise, Idaho

Figure 9. Best-Case Predicted Interference from Six Hypothetical Wells



Map showing predicted interference drawdowns at full project build out from 6 hypothetical supply wells pumping at 1,000 gpm for 90 days within the Pierce Gulch Sand Aquifer with a possible high-end transmissivity of 200,000 gpd/ft, a storativity of 0.01 and a "no-flow" (edge of aquifer) boundary along the northeast. Drawdowns in domestic and other wells in overlying aquifers will likely be less to unmeasurable. See text for details.

Figure 9.

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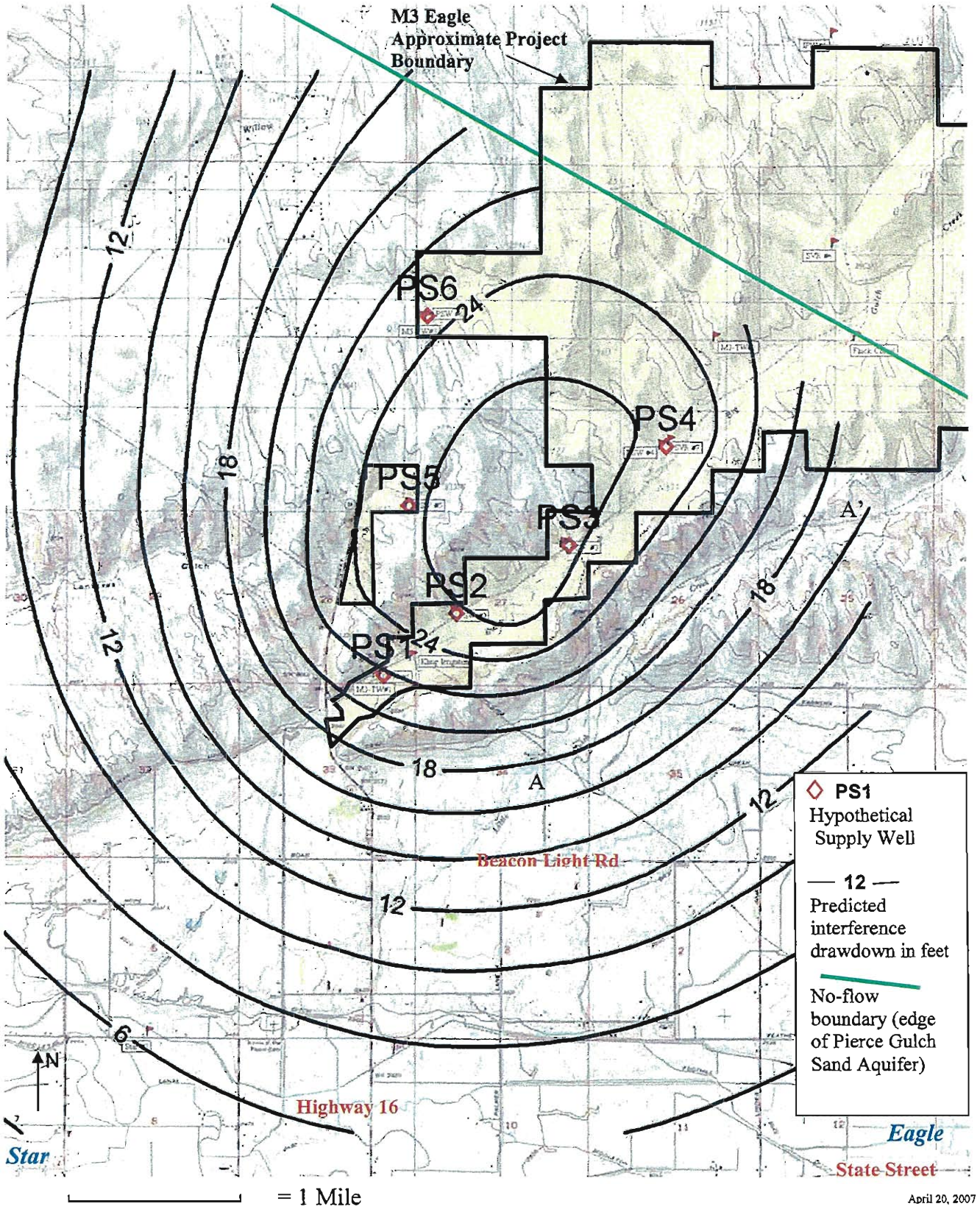
Boise, Idaho

Figure 10. Worst-Case Predicted Interference from Six Hypothetical Wells



Map showing predicted interference drawdowns at full project build out from 6 hypothetical supply wells pumping at 1,000 gpm for 90 days within the Pierce Gulch Sand Aquifer with a possible low-end transmissivity of 100,000 gpd/ft, a storativity of 0.005 and a "no-flow" (edge of aquifer) boundary along the northeast. Drawdowns in domestic and other wells in overlying aquifers will likely be less to unmeasurable. See text for details.

Figure 10.

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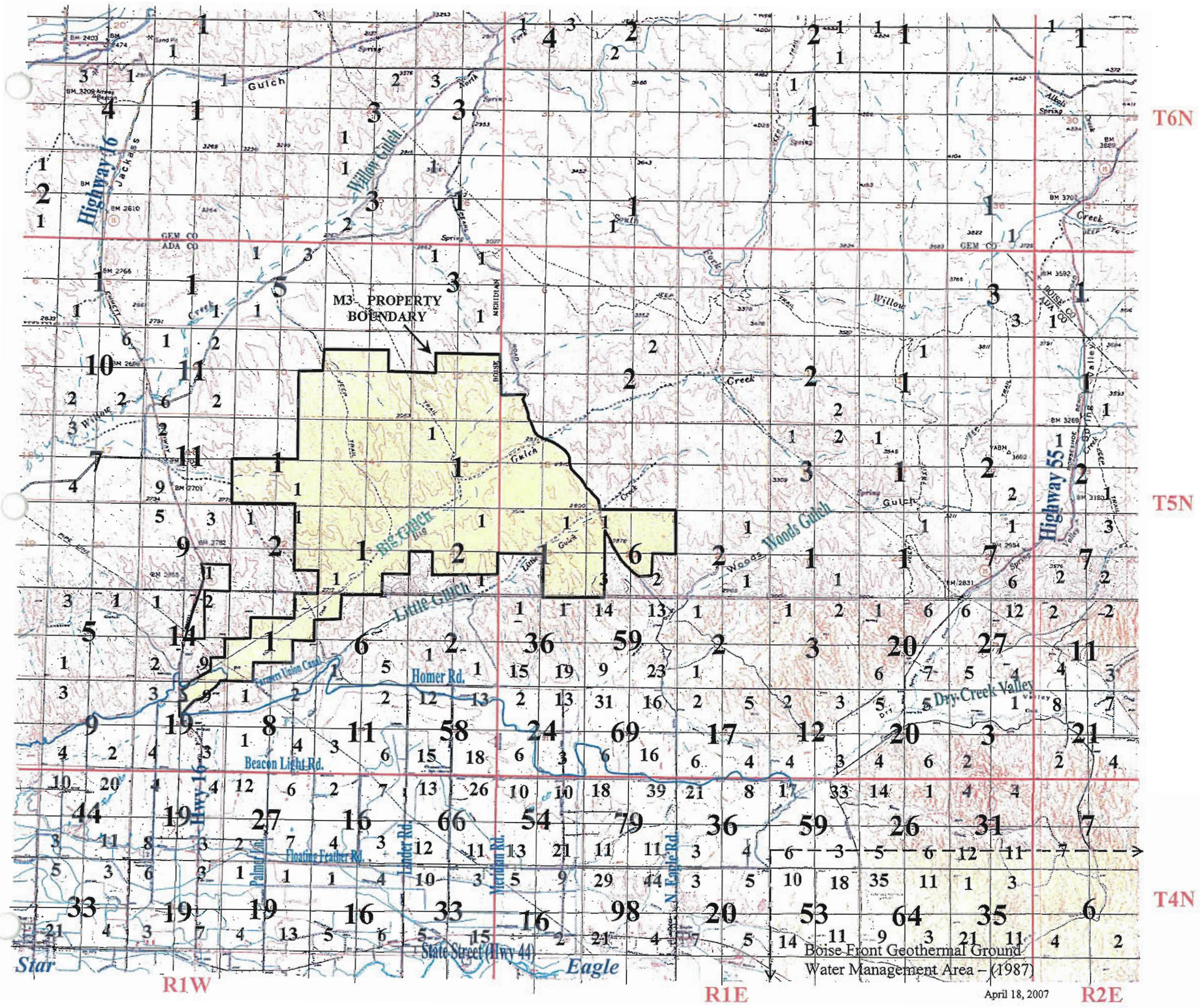

Figure 11. Number of Wells by Section and Quarter Section in the M3 Project Area

The total number of wells in each Section is shown by the larger numerals at the center of each Section. The number of wells within each Quarter-Section is indicated by the smaller numerals on the grid. Data were derived from the Idaho Department of Water Resources Driller's Report file from the Western Regional Office and IDWR on-line database as of July 2006. Some wells may be missing and others may be mislocated.

Township and range boundaries are denoted in red, and the approximate boundary of the proposed development is gray with yellow shading.

USGS 15 -minute (1:62,500 scale) quadrangle base map.

Figure 11.

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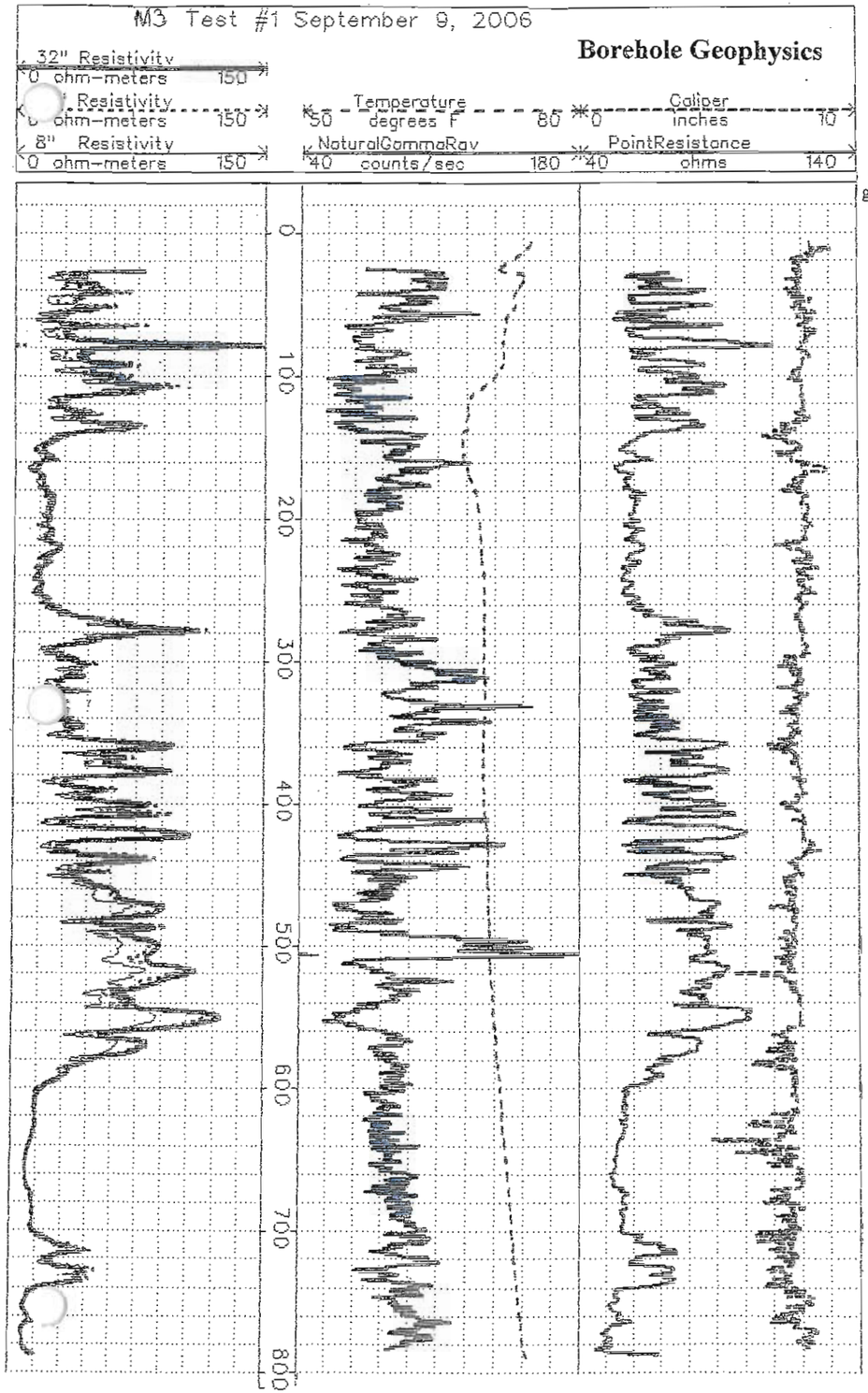
Boise, Idaho

M3 Eagle - Test Well #1

T. 5 N., R. 1 W., Section 28, SE ¼, SE ¼

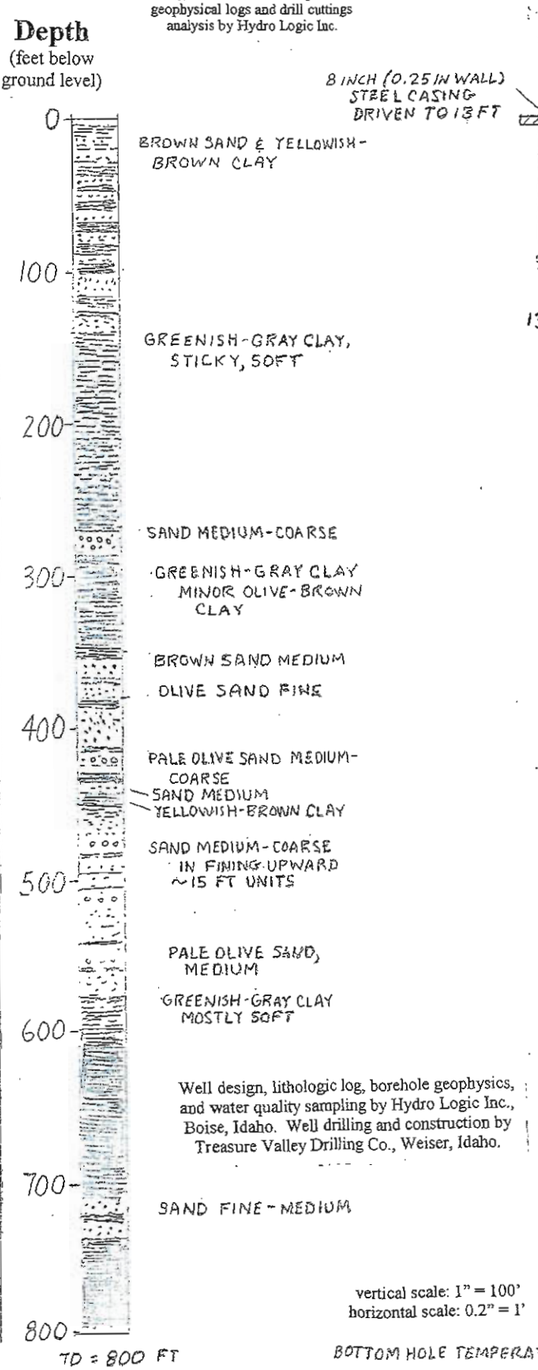
September, 2006

(N43° 44' 12.2", W116° 27' 26.9")



*Lithology

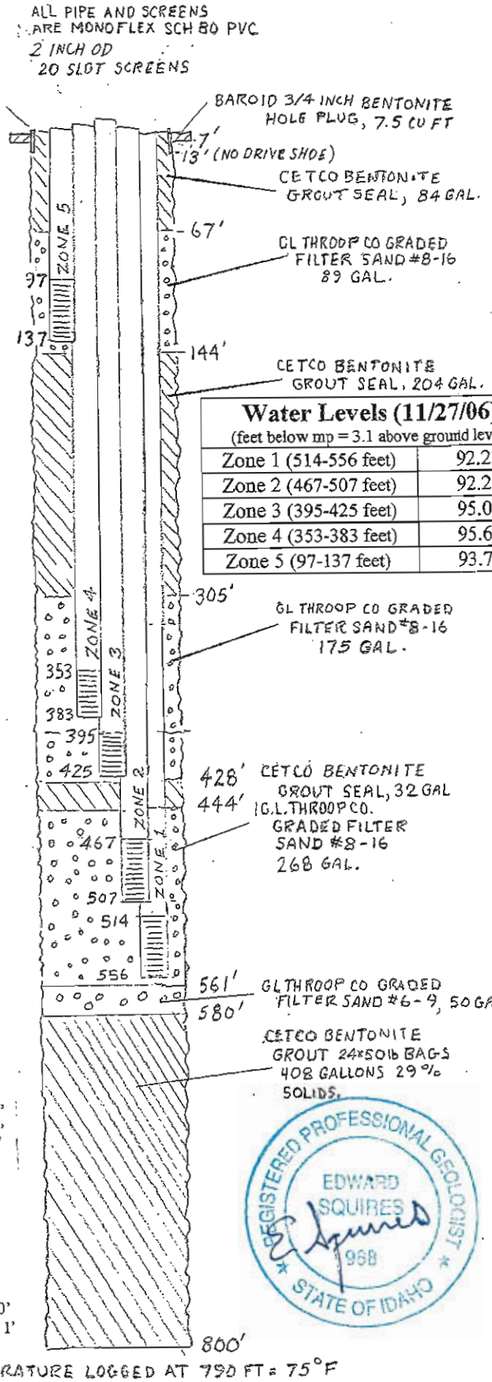
*lithology reconstructed/interpreted from geophysical logs and drill cuttings analysis by Hydro Logic Inc.



Well design, lithologic log, borehole geophysics, and water quality sampling by Hydro Logic Inc., Boise, Idaho. Well drilling and construction by Treasure Valley Drilling Co., Weiser, Idaho.

vertical scale: 1" = 100'
horizontal scale: 0.2" = 1'

As-Built Well Construction



Water Levels (11/27/06)

(feet below mp = 3.1 above ground level)

Zone 1 (514-556 feet)	92.23
Zone 2 (467-507 feet)	92.23
Zone 3 (395-425 feet)	95.05
Zone 4 (353-383 feet)	95.63
Zone 5 (97-137 feet)	93.75

REGISTERED PROFESSIONAL GEOLOGIST
EDWARD SQUIRES
968
STATE OF IDAHO

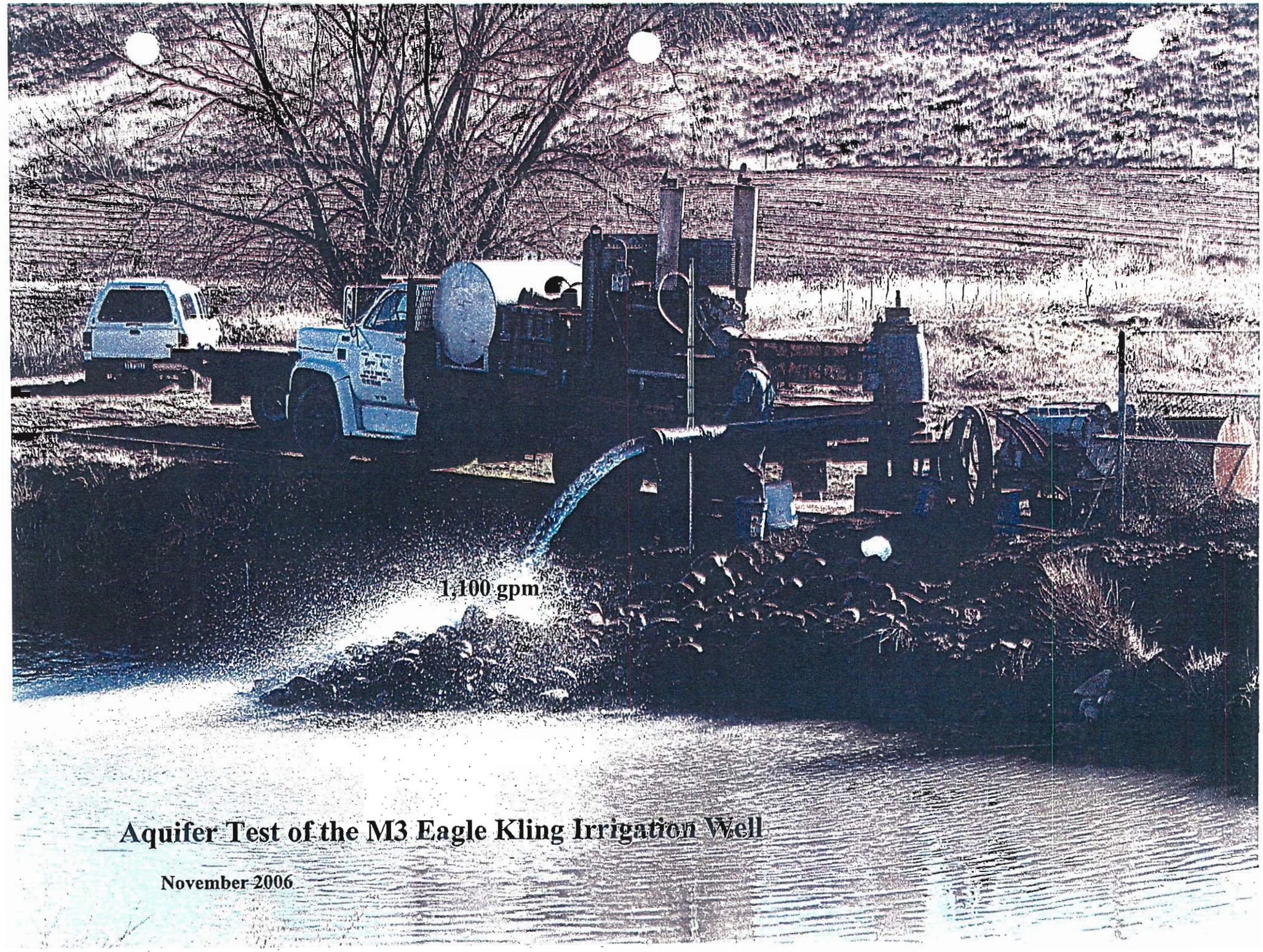
Water Chemistry

Analyte (mg/L unless noted)	Zone 1 516-556 feet	Zone 2 467-507 feet
Alkalinity	133.0	125.0
Ammonia as N	0.37	0.06
Arsenic	<0.003	<0.003
Calcium as CaCO3	84.4	85.5
Chloride	3.42	3.22
Conductivity (uS/cm)	302	297.0
Corrosivity	-0.40	-0.44
Fluoride	0.69	0.60
Hardness	111.0	109.0
Iron (dissolved/filtered)	0.23	<0.01
Magnesium	6.50	5.73
Manganese (dissolved)	0.10	0.02
Nitrate as N	<0.10	<0.10
Nitrite as N	<0.01	<0.01
pH (SU)	7.47	7.48
Potassium	2.26	2.21
Silica	31.8	30.7
Sodium	22.1	21.7
Sulfate	17.2	20.7
Sulfide	<0.05	<0.05
Total Dissolved Solids	173 .0	188.0
Total Kjeldahl Nitrogen	0.39	0.13
Total Organic Carbon	<1.0	<1.0
Field Temperature (°F)	67.1	66.0
Field Conductivity (uS)	305	295
Dissolved Oxygen	+1.7	+2.6
Field pH (S.U.)	7.19	7.19

Analyses by Alchem Laboratories, Boise, Idaho.
Zones 1 to 3 sampled 10/09/06. Zones 4 & 5 sampled 10/9/06.
Field measured parameters by Hydro Logic, Inc.

Analyte (mg/L unless noted)	Zone 3 395-425 feet	Zone 4 352-382 feet	Zone 5 98-138 feet
Alkalinity	119.0	114.0	119.0
Ammonia as N	0.04	<0.01	<0.01
Arsenic	<0.003	0.0049	0.0081
Calcium as CaCO3	77.7	81.3	85.9
Chloride	3.57	3.54	4.36
Conductivity (uS/cm)	282.0	285.0	281.0
Corrosivity	-0.50	-0.61	-1.16
Fluoride	0.60	0.50	0.24
Hardness	102.0	105.0	111.0
Iron (dissolved/filtered)	0.01	<0.01	<0.01
Magnesium	5.83	5.85	6.22
Manganese (dissolved)	<0.01	<0.01	<0.01
Nitrate as N	0.30	0.33	2.30
Nitrite as N	<0.01	<0.01	<0.01
pH (SU)	7.84	7.40	6.91
Potassium	2.07	2.10	2.74
Silica	29.5	28.7	38.0
Sodium	21.1	17.9	13.6
Sulfate	21.4	22.3	12.0
Sulfide	<0.05	<0.05	<0.05
Total Dissolved Solids	185.0	203.0	208.0
Total Kjeldahl N	<0.10	<0.10	<0.10
Total Organic Carbon	<1.0	<1.0	<1.0
Field Temperature (°F)	64.7	63.8	57.4
Field Conductivity (uS)	274	268	265
Dissolved Oxygen	+4.9	+2.63	+ 9.51
Field pH (S.U.)	7.27	7.07	6.72

Figure 12. M3 Eagle Test Well #1



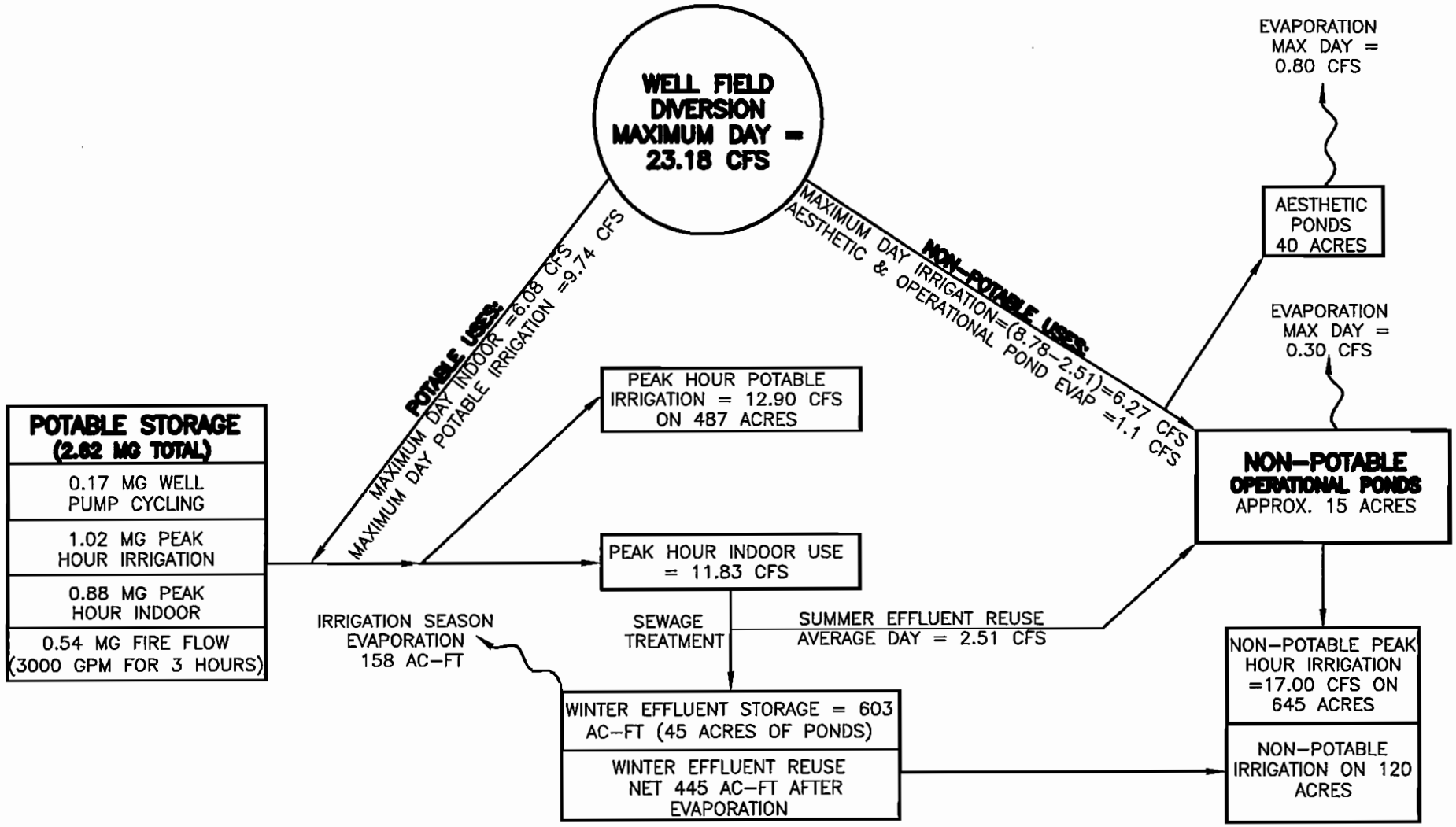
Aquifer Test of the M3 Eagle Kling Irrigation Well

November 2006

42-5

M3 EAGLE DEVELOPMENT

WELL FIELD DIVERSION COMPONENTS



NOTE:

THE CONNECTIONS BETWEEN COMPONENTS DO NOT REPRESENT A SPECIFIC OR PROPOSED CONFIGURATION OF A DIVERSION AND DELIVERY SYSTEM.

ABBREVIATIONS:
CFS = CUBIC FEET PER SECOND
MG = MILLION GALLONS
AC-FT = ACRE-FEET

EXHIBIT 5-1

Exhibit 5.2

M3 Eagle

ESTIMATED CUMULATIVE TOTAL PROJECT WATER DEMAND BY PHASE AND SOURCE

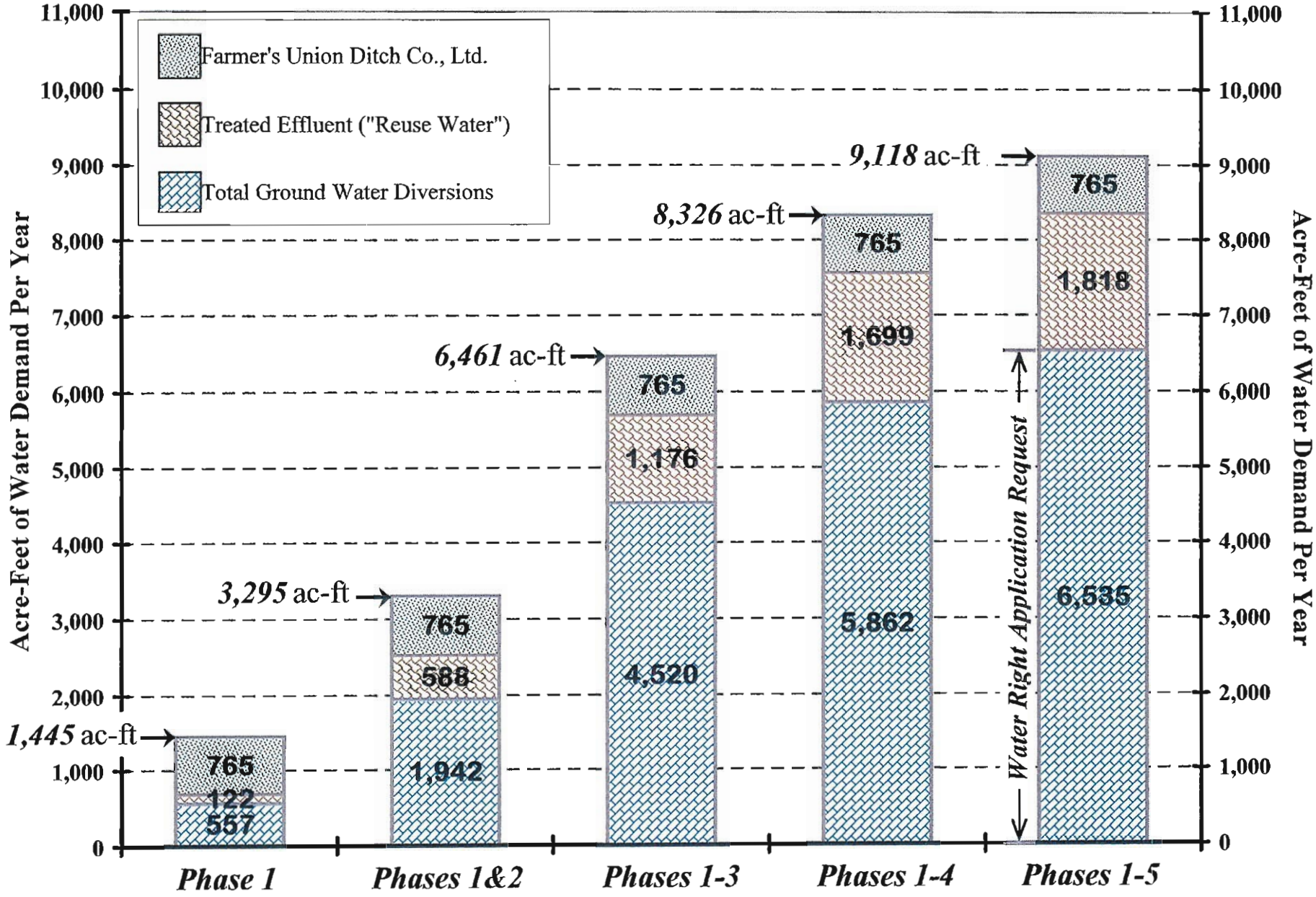


Exhibit 5.3

M3 Eagle

Estimated Total Water Demand by Individual Phase and Source

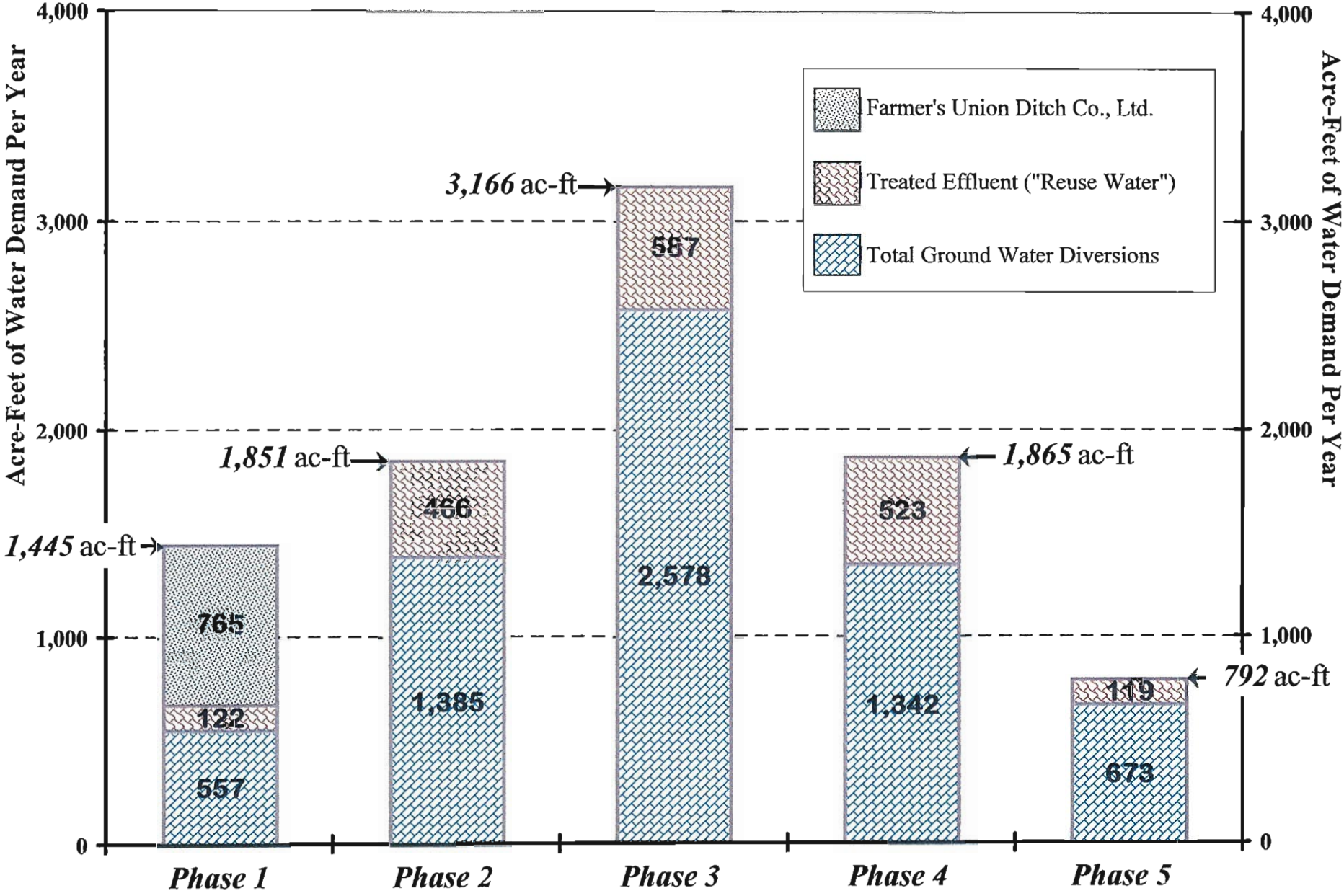
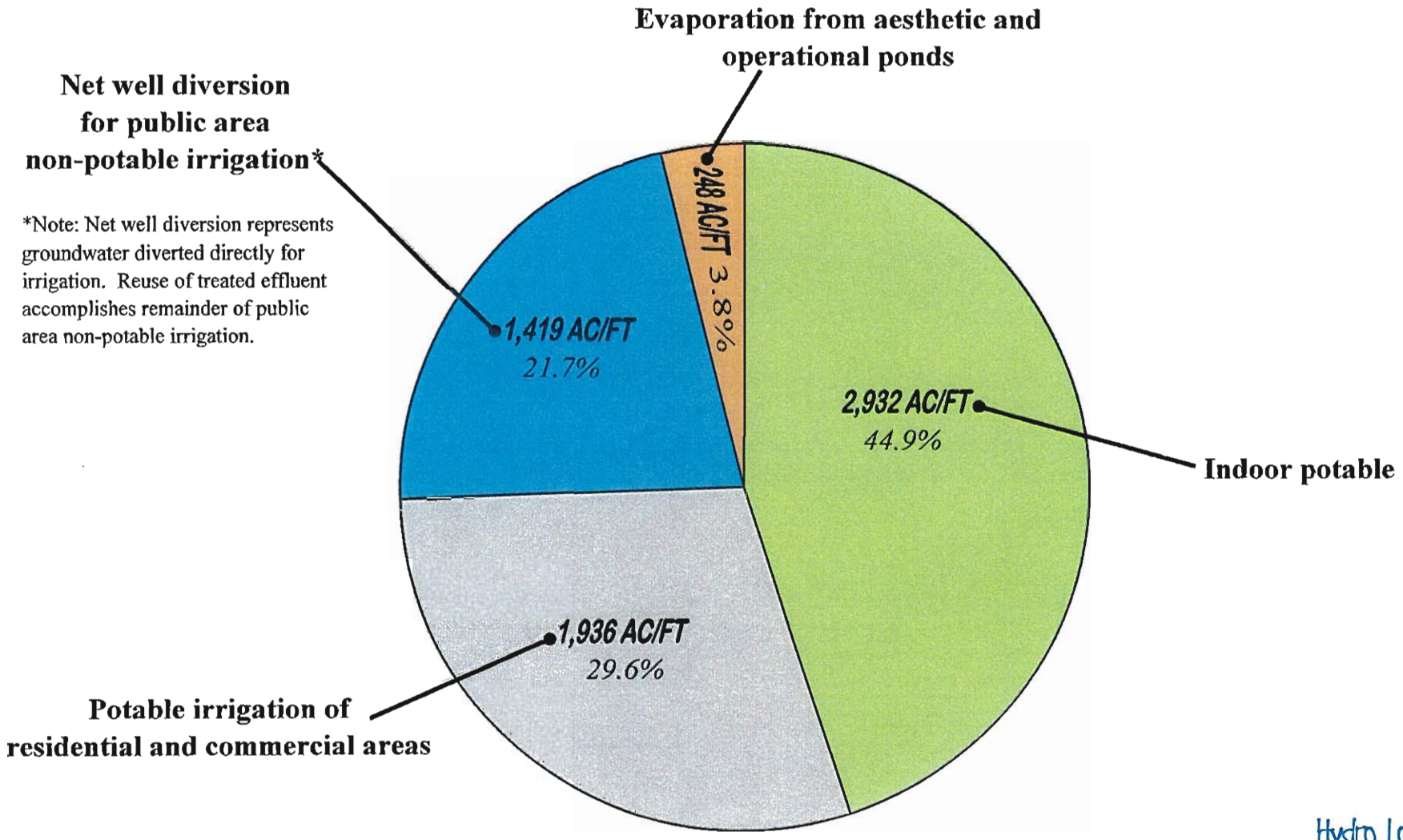


Exhibit 5.4

M3 Eagle

ANNUAL GROUND WATER DIVERSION VOLUME PERCENTAGES AT FULL BUILD-OUT

(Acre-Feet and Percentage of Total)



Hydro Logic Inc.
Boise, Idaho

Total Annual Ground Water Diversion Volume ≈ 6,535 AC/FT

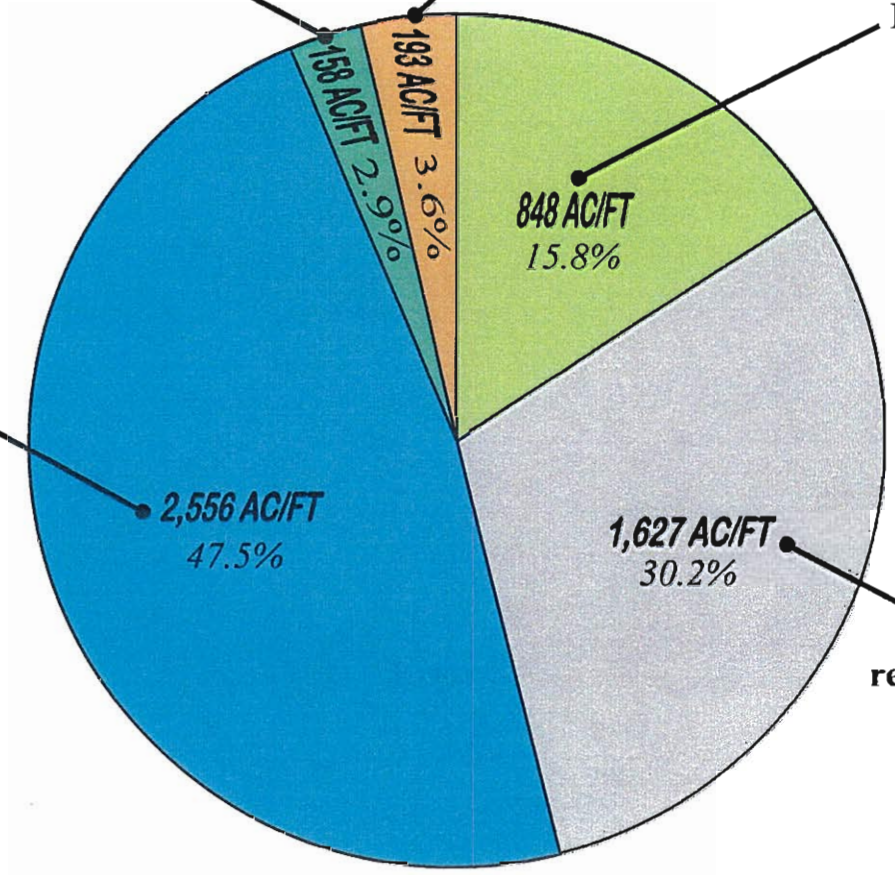
Note: Components of total well diversion shown herein may not add exactly to total annual diversion volume due to round-off error.

Exhibit 5.5

M3 Eagle

ANNUAL GROUND WATER CONSUMPTIVE USE PERCENTAGES AT FULL BUILD-OUT

(Acre-Feet and Percentage of Total)



*Note: Consumptive use for "public area non-potable irrigation" is comprised of 1,161 acre-feet of groundwater used directly for irrigation and 1,395 acre-feet of "Reuse Water."

Total Annual Consumptive Use ≈ 5,381 AC/FT

Hydro Logic Inc.
Boise, Idaho

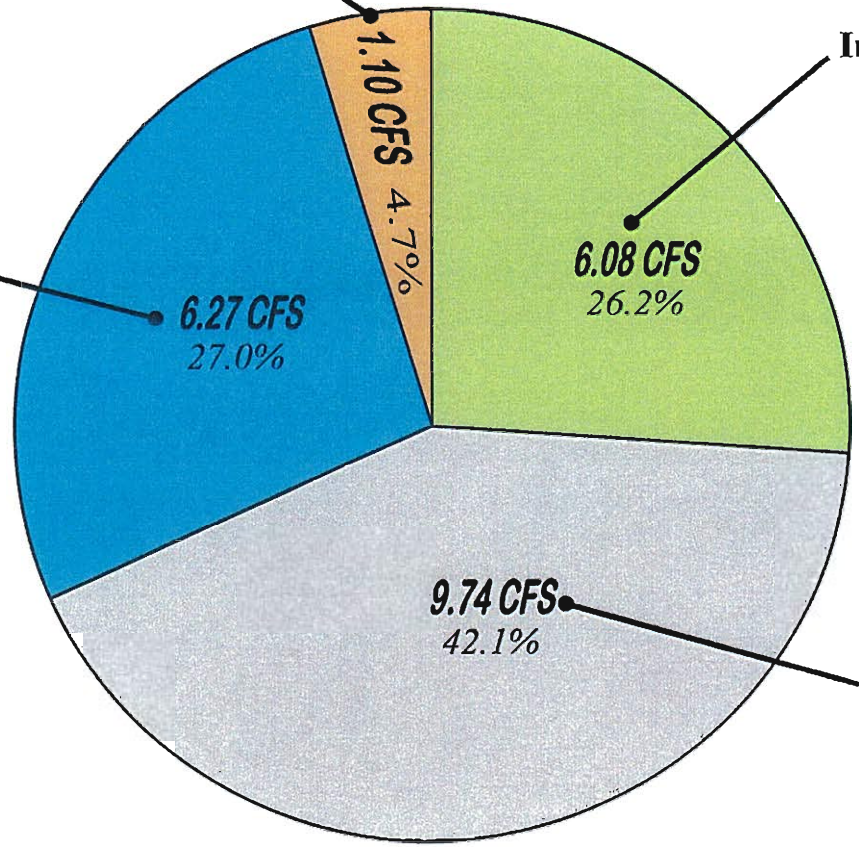
Note: Components of total consumptive use shown herein may not add exactly to total annual consumptive use due to round-off error.

Exhibit 5.6

M3 Eagle

MAXIMUM DAILY WELL DIVERSIONS DURING IRRIGATION SEASON AT FULL BUILD-OUT

(Cubic Feet per Second (CFS) and Percentage of Total)



*Note: Net well diversion represents groundwater diverted directly for irrigation. Reuse of treated effluent accomplishes remainder of public area non-potable irrigation.

Hydro Logic Inc.
Boise, Idaho

Maximum Daily Diversion ≈ 23.18 CFS

Note: Components of daily diversion shown herein may not add exactly to maximum daily diversion due to round-off error.

M3 Eagle Water Demand at Build-Out, Based on Projected Uses

(Prepared by Stanley Consultants, Inc. and Toothman-Orton Engineering)

Spreadsheet Revision Date: January 31, 2008

IRRIGATION

Irrigation Assumptions: Note: Input data cells in this spreadsheet are shaded.

1) 17.93 shares of Farmers Union Ditch Co. water, at 11 inches per share, and a total of 197 miner's inches (3.94 cfs), will be used to irrigate 197 acres in the development. The shares provide a total of 765 acre-feet at 3.88 ac-ft per acre.

2) Tertiary-treated sewage effluent will be used for non-potable irrigation at sewage production rates during the irrigation season. During non-irrigation season, it will be stored and subsequently used for irrigation.

3) Compressed irrigation times: Golf irrigation assumed to occur only during 9 hours at night; ball fields and residences during 12 hours. Common area can be irrigated anytime. Residences are assumed to migrate to 12 hour overnight irrigation.

4) Number of irrigation days per year: 244 (March 15th - November 15th) Number of non-irrigation days per year: 121 (November 16th - March 14th)

5) It is assumed sufficient standby power is provided to offset the need for standby potable water storage.

6) Turf irrigation efficiency: 60%

7) Drip irrigation efficiency: 90%

8) Acres of aesthetic and operational ponds:	Aesthetic ponds	Operational ponds	Ponds w/winter effluent storage	Totals
Average depth:	40	15	45	100
Acre feet storage:	25	15	13	17.8
Primary water source:	1000	225	603	1,828
	well diversions	well / effluent	effluent	

8a) Operational and effluent ponds will be lined or sealed and will fluctuate with evaporation and irrigation demand. Aesthetic ponds also will be lined or sealed and will fluctuate mainly due to evaporation.

9) Non-potable irrigation storage calculated from maximum day well diversion rate.

10) Potable irrigation storage calculated from .02 cfs/acre well diversion rate.

11) "Max day" refers to highest 24-hour demand. For irrigation, this occurs during July, as shown by the Allen & Brockway numbers. "Peak" refers to peak demand during compressed irrigation periods or on an instantaneous basis.

12) Irrigation diversion rates, as they relate to use of potable water for irrigation, are less than 0.02 cfs/acre except during peak periods, where they may increase to this limit.

13) Monthly evapo-transpiration (ET) is based on Allen & Brockway (1983) for alfalfa, for each month in the irrigation season except November (which Allen & Brockway did not evaluate), which was estimated at one third of October. These values are:

	March 15-31	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*Nov 1-15*	Total Annual		Avg. Daily	
mm/day	*0.760*	*3.670*	*5.410*	*6.610*	*6.730*	*5.110*	*3.660*	*1.450*	*0.483*	*1017.9*	mm/yr	4.17	mm/day
inches/day	*0.030*	*0.144*	*0.213*	*0.260*	*0.265*	*0.201*	*0.145*	*0.057*	*0.019*	*40.1*	in/yr	0.164	in/day
feet/day	*0.002*	*0.012*	*0.018*	*0.022*	*0.022*	*0.017*	*0.012*	*0.005*	*0.002*	*3.34*	ft/yr	0.014	ft/day

		square feet	acres	Average day cfs	Max day acre-feet	Max day cfs	Irr'n Hours	Scheduled peak cfs	cfs when div'ns increased to .02 cfs/a	Acre-feet non-potable storage to meet scheduled peak	Million Gallons potable storage to meet scheduled peak
Public area irrigation (using non-potable water)											
Golf Course (turf):		10,454,400	240	2.07	6.62	3.34	9	8.91	4.80	**4.14**	
Parks and Ballfields (turf):	Excluding 98 acres irr'd with ditch shares	8,319,960	191	1.65	5.27	2.66	12	5.32	3.82	**2.64**	
Common area (turf):	Excluding 99 acres irr'd with ditch shares	3,659,040	84	0.72	2.32	1.17	24	1.17	1.68	**0.00**	
Common area (drip):		5,662,800	130	1.00	3.19	1.61	24	1.61	2.60	**0.00**	
Common area drip irrig'd solely with stored effluent:	After effluent evap. from ponds at 3.5 AFA	5,224,612	120								
	Total public area irrigation:	28,096,200	765	5.44	17.40	8.78		17.00	12.90	**6.78**	
Residential irrigation (using potable water only)											
Single Family Detached Units:	5,216										
turf area/unit:		2,000	0.05	Note: Single family detached irrigation area based on average lot size of 7,800 sq. ft. with 3900 sq. ft. minimum building footprint plus incidental impervious area.							
drip area/unit:		1,500	0.03								
Total single family turf:		10,432,000	239.49	2.07	6.61	3.33	12.00	6.67	4.79		**0.61**
Total single family drip:		7,824,000	179.61	1.38	4.41	2.22	12.00	4.44	3.59		**0.28**
	Total single family irrigation (potable):	18,256,000	419.10	3.44	11.02	5.56		11.11	8.38		**0.88**
Single Family and Multi-Family Attached units:	1,937										
turf area/unit:		750	0.02	Note: Attached units consist of approximately 80% single family with an assumed irrigation being approximately 1/3 that of single family detached.							
drip area/unit:		500	0.01								
Total multi-family turf:		1,452,750	33.35	0.29	0.92	0.46	12.00	0.93	0.67		**0.08**
Total multi-family drip:		968,500	22.23	0.17	0.55	0.28	12.00	0.55	0.44		**0.03**
	Total multi-family irrigation (potable):	2,421,250	55.58	0.46	1.47	0.74		1.48	1.11		**0.12**
Commercial irrigation (using potable water)											
Acres of Commercial	245 Total commercial turf (25%):	133,403	3.06	0.03	0.08	0.04	12.00	0.09	0.06		**0.01**
% of Acres Irrigated	5.0% Total commercial drip (75%):	400,208	9.19	0.07	0.23	0.11	12.00	0.23	0.18		**0.01**
	Total commercial irrigation (potable):	533,610	12.25	0.10	0.31	0.16		0.31	0.25		**0.02**
Commercial turf:	25%										
Commercial drip:	75% Total irr'n with potable water:	21,210,860	486.93	4.00	12.79	6.45		12.90	9.74		**1.02**
Total irrigation with both potable and non-potable water:		49,307,060	1251.87	9.44	30.20	15.23		29.90	22.64		

INDOOR WATER DEMANDS

Indoor water demand assumptions:

Commercial water use is based on data published by Larry W. Mays in "Water Distribution Systems Handbook" © 2000, which demonstrates a per commercial acre use of: 1,200 gallons per day per gross acre of commercial development land. (data range is 1100-5100 gpd/acre)

600	gpd/unit is estimated residential peak hour demand in accordance with DEQ minimum system capacity	
2.92	Indoor potable water peaking factor (a calculated ratio of peak hour to average day potable water demand)	
1.5	Indoor potable water peaking factor (applied to average day to predict maximum day).	
10.0%	Distribution system leakage allowance factor	

								Est'd gallons of potable storage			Non-Irrigation Season Diversions	Irrigation Season Diversions	Total Diversions
			avg gpd/unit	max day gpm	max day cfs	peak hr gpm	peak hr cfs	for peak hr demand [1]	avg. day cfs	avg. day gpm	acre feet	acre feet	acre feet
Total Residential Units	7,153		274	2,245.74	5.00	4,371	9.74	727,621	3.34	1,497.06	800.4	1614.0	2414.4
			avg gpd/student [2]										
Schools (Number of Students)	5,480		12	75.35	0.17	147	0.33	24,413	0.11	50.23	26.9	54.2	81.0
			avg gpd/hotel rm [3]										
Commercial (hotel rooms)	500		120	68.75	0.15	134	0.30	22,275	0.10	45.83	24.5	49.4	73.9
		Commercial area acres	gpd/sq. ft.										
Commercial (general office, etc.)		245	0.028	336.88	0.75	656	1.46	109,148	0.50	224.57	120.1	242.1	362.2
Totals				2,726.72	6.08	5,307	11.83	883,457	4.05	1,817.69	971.8	1,959.7	2,931.5

Estimated Potable Water Storage

mg	
1.02	Irrigation peaking
0.88	Indoor potable, max day to peak hour storage
0.54	Fire flow estimated (3,000 gpm for 3 hours)
0.17	Estimated potable well pump cycling
2.62	**Million gallons of potable water storage required**

Notes:
1) Peak hour potable storage calculated as 5.4*max day gals/24 using DEQ design guidelines with well diversions for in-house use at max day rate.
2) Average daily school water demand per student incorporates allowance for approximately 180 school days per year and extra-curricular activities.
3) Average daily hotel room water demand incorporates approximately 60% average seasonal occupancy rate.

WASTEWATER GENERATION AND REUSE

Indoor wastewater production assumptions:

1) Residential wastewater production is assumed to be the following percentage of potable indoor water demand:	69%	This percentage excludes leakage allowance in potable water distribution system.
2) School and hotel wastewater production is assumed to be the following percentage of potable indoor water demand:	75%	"
3) Commercial unit wastewater production assumed at the percentage of potable indoor water demand:	60%	"
4) Infiltration, inflow, treatment losses & leakage in sewer system are collectively assumed to have no net significant effect.		
1.0	Factor indicating that wastewater calculations are based on avg day indoor water demand	
67%	Percent of treated effluent produced (and used) during irrigation season (number of irrigation days/365)	
33%	Percent of treated effluent stored during (and used) later during the next irrigation season (number of non-irrigation days/365)	

Treated Effluent Generation

	# of units	gpd/unit (gpd/student for schools or gpd/sq ft for comm'l)	gpm	cfs	effluent acre-feet/yr	effluent af/irr'n season	effluent af/non-irr'n season	Indoor CU acre-feet/yr	Indoor CU af/irr'n season	Indoor CU af/non-irr'n season
Residences	7,153	189.06	939.13	2.09	1,514.46	1,012.41	502.06	680.6	455.0	225.6
Schools (number of students)	5,480	9.00	34.25	0.08	55.23	36.92	18.31	18.4	12.3	6.1
Commercial (hotel rooms)	500	90.00	31.25	0.07	50.39	33.69	16.71	16.8	11.2	5.6
Commercial (unit area in acres)	245	0.02	122.50	0.27	197.55	132.06	65.49	131.7	88.1	43.7
Total Effluent and Indoor Consumptive Use			1,127.13	2.51	1,817.64	1,215.08	602.56	847.6	566.6	281.0

Effluent Storage and Reuse	Acre-feet/year	
Stored winter effluent	603	
Evaporation from winter effluent storage ponds	158	Evaporation at 3.5 AFA, not 4.5 AFA, as evaporation water originally diverted for indoor use
Net winter effluent for non-potable irrigation	445	
Effluent available for use during irrigation season	1215	
Total annual effluent available for non-potable irrigatic	1660	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
137	**SUMMARY**													
138														
139														
140	**Average daily well diversions**			cfs	gpm	af/day	mgd							
141			Indoor potable average day (constant annual rate)	4.05	1,818	8.0	2.6							
142			Residential and commercial potable irrigation average day (during irrigation season only)	4.00	1,795	7.9	2.6							
143														
144			Public area non-potable irrigation average day demand (during irrigation season only)	5.44	2,442	10.8	3.5							
145			Less water reuse / treated effluent produced (during irrigation season)	-2.51	-1,127	-5.0	-1.6							
146			**Net average day well diversion for public area non-potable irrigation**	**2.93**	**1,315**	**5.8**	**1.9**							
147														
148			Evaporation from aesthetic & operational ponds	0.68	306	1.4	0.4							
149			**Average daily diversion from wells during irrigation season:**	**11.66**	**5,233**	**23.1**	**7.5**							
150														
151			**Average daily diversion from wells during non-irrigation season:**	**4.05**	**1,818**	**8.0**	**2.6**							
152														
153														
154														
155	**Maximum daily well diversions**			cfs	gpm	af/day	mgd							
156			Indoor potable max day	6.08	2,727	12.0	3.9	(Well field produces max day potable in house demand; potable storage with well field produces peak hour demand.)						
157			Residential and commercial potable irrigation max day (during irrigation season only)	9.74	4,371	19.3	6.3	Well field produces max day outdoor potable irrigation demand at 0.02 cfs/acre; potable storage with well field produces scheduled peak demand						
158														
159			Public area non-potable irrigation max day demand during irrigation season	8.78	3,939	17.4	5.7	Well field produces max day non-potable irrigation demand; non-potable pond storage with well field produces scheduled peak demand						
160			Less: water reuse / treated effluent produced during irrigation season	-2.51	-1,127	-5.0	-1.6	Effluent is used for non-potable irrigation at sewage production rate						
161			**Net max day well diversion for public area non-potable irrigation**	**6.27**	**2,812**	**12.4**	**4.0**							
162														
163			Evaporation from aesthetic & operational ponds	1.10	494	2.2	0.7	Evaporation from ponds at 0.02 cfs/acre						
164			**Maximum daily diversion from wells during irrigation season:**	**23.18**	**10,403**	**46.0**	**15.0**							
165														
166			**Maximum daily diversion from wells during non-irrigation season:**	**6.08**	**2,727**	**12.0**	**3.9**	(Evaporation from ponds is assumed to be neglible during non-irrigation season)						
167														
168														
169														
170		**Annual ground water diversion volume**												
171				acre feet	million gallons									
172			Indoor potable	2,932	956	(Annual ground water diversions for potable indoor uses based on average annual demand, including leakage allowance.)								
173			Potable irrigation of residential and commerical areas	1,936	631	(Annual potable irrigation diversions from ground water based on total annual Allen Brockway ET, and factoring in irrigation efficiency.)								
174														
175			Public area non-potable irrigation demand	3,079	1003									
176			Less: water reuse / treated effluent originally diverted from well for indoor demand	-1,660	-541	(Reuse water is the total annual effluent production including stored winter effluent less evaporation from effluent ponds.)								
177			**Net annual well diversion for public area non-potable irrigation**	**1,419**	**462**	(Annual non-potable irrigation diversions from ground water based on total annual Allen Brockway ET, and factoring in irrigation efficiency.)								
178														
179			Evaporation from aesthetic & operational ponds	248	81	(Annual well diversions at 4.5 AFA to overcome evaporation. The non-potable peaking storage is considered part of operational storage for this calculation.)								
180			Irrigation season evaporation from winter effluent storage ponds	158	51									
181			Less: water reuse / treated effluent originally diverted from well for indoor demand	-158	-51									
182			**Net annual well diversion for pond evaporation**	**248**	**81**									
183														
184			**Well Diversion Volume During Non-Irrigation Season**	**972**	**317**									
185			**Well Diversion Volume During Irrigation Season**	**5,563**	**1,813**									
186														
187			**Total annual well diversion volume:**	**6,535**	**2,130**									
188														
189														
190														
191		**Annual consumptive use of ground water**												
192				acre feet	million gallons									
193			Indoor potable	848	276	(Indoor consumptive use is the difference between average annual water demand and sewage production rate and excludes distribution system leakage allowance that returns to groundwater.)								
194														
195			Potable irrigation of residential and commerical areas	1,627	530	(Potable and non-potable irrigation CU is the total annual Allen Brockway ET.)								
196			Public area non-potable irrigation	2,556	833	"								
197														
198			Evaporation from winter effluent storage ponds during irrigation season	158	51	(Annual pond consumptive use--i.e., evaporation--is based on an estimated 3.5 acre feet per acre.)								
199			Evaporation from aesthetic & operational ponds	193	63	(Annual pond consumptive use--i.e., evaporation--is based on an estimated 3.5 acre feet per acre. The non-potable peaking storage is considered part of operational storage for this calculation.)								
200			**Subtotal pond evaporation**	**350**	**114**									
201														
202			**Consumptive Use During Non-Irrigation Season**	**281**	**92**	(Consumptive use due to pond evaporation is accounted for in the irrigation season)								
203			**Consumptive Use During Irrigation Season**	**5,100**	**1,662**									
204														
205			**Annual consumptive use of ground water:**	**5,381**	**1,753**									
206			Annual CU as % of diversions:	82%		(Overall efficiency of use of well diversions)								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
207														
208														
209	**Source numbers for Attachment A, Page 11 of Water Rights Application Narrative**													
210														
211							**Consumptive use expressed as direct well and reuse components**							
212							**Direct Well**	**Reuse Water**						
213	**Type of Use**	**Peak Diversion**		**Annual Diversion**	**Annual C.U.**		**Annual C.U.**	**Annual C.U.**						
214		**Rate**	**Average Diversion Rate**	**Volume**	**Volume**		**Volume**	**Volume**						
215		**(cfs)**	**(cfs)**	**(acre feet)**	**(acre feet)**		**(acre feet)**	**(acre feet)**						
216														
217	Indoor Potable	6.08	4.05	2,932	848		848	0						
218														
219	Residential and Commercial Potable Irrigation	9.74	4.00	1,936	1,627		1627	0						
220														
221	Public Area Non-Potable Irrigation	6.27	2.93	1,419	2,556		1161	1395						
222														
223	Pond Evaporation	1.10	0.68	248	350		193	158						
224														
225	Irrigation Season Total	23.18	11.66	5,563	5,100		3,548	1552						
226														
227	Non-Irrigation Season Total	6.08	4.05	972	281		281	0						
228														
229	Total Annual	23.18	9.03	6,535	5,381		3829	1552						
230		(peak day)	(annual average)											

Irrigation Demands by Month (Note: Maximum Monthly Demand and Maximum Daily Demand Occurs in July)

Non-Potable Irrigation Demand (excluding 197 acres irrigated by Farmer's Union ditch shares):

	January	Feb	March 15-31			April			May			June			July			August			September			October			November 1-15			December	Totals
			avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	af/day	af/mo	cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs		af/yr
Golf	0.00	0.00	0.75	12.72	**0.38**	3.61	108.37	**1.82**	5.32	165.07	**2.69**	6.51	195.18	**3.29**	6.62	205.34	**3.35**	5.03	155.92	**2.54**	3.62	108.66	**1.83**	1.43	44.24	**0.72**	0.48	7.14	**0.24**	0	1,003
Ballfields	0.00	0.00	0.60	10.12	**0.30**	2.87	86.24	**1.45**	4.24	131.37	**2.14**	5.18	155.33	**2.61**	5.27	163.42	**2.66**	4.00	124.08	**2.02**	2.88	86.48	**1.46**	1.14	35.21	**0.57**	0.38	5.68	**0.19**	0	798
Common turf	0.00	0.00	0.26	4.45	**0.13**	1.26	37.93	**0.64**	1.86	57.77	**0.94**	2.28	68.31	**1.15**	2.32	71.87	**1.17**	1.76	54.57	**0.89**	1.27	38.03	**0.64**	0.50	15.48	**0.25**	0.17	2.50	**0.08**	0	351
Common drip	0.00	0.00	0.36	6.12	**0.18**	1.74	52.18	**0.88**	2.56	79.48	**1.29**	3.13	93.97	**1.58**	3.19	98.87	**1.61**	2.42	75.07	**1.22**	1.74	52.32	**0.88**	0.69	21.30	**0.35**	0.23	3.44	**0.12**	0	483
Common drip with stored effluent:	0.00	0.00	0.33	5.65	**0.17**	1.60	48.14	**0.81**	2.37	73.33	**1.19**	2.89	86.70	**1.46**	2.94	91.22	**1.49**	2.23	69.26	**1.13**	1.61	48.27	**0.81**	0.63	19.65	**0.32**	0.21	3.17	**0.11**	0	445
Totals:	0.00	0.00	2.30	39.06	**1.16**	11.10	332.85	**5.60**	16.36	507.02	**8.26**	19.98	599.49	**10.09**	20.35	630.72	**10.28**	15.45	478.90	**7.80**	11.13	333.76	**5.62**	4.38	135.89	**2.21**	1.46	21.92	**0.74**	0.00	**3,080**

Non-potable irrigation demand by application type:

	Non-potable Irr'n demand (acre feet)	Non-potable CU (acre feet)
Turf irr'd w/well and effluent as produced	2,151	1,721
Drip irr'd w/well and effluent as produced	483	434
Drip irr'd w/winter stored effluent (after evap. from effluent ponds)	445	401
Totals:	3,079	2,556

Potable Irrigation Demand

	January	Feb	March 15-31			April			May			June			July			August			September			October			November 1-15			December	Totals
			avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	af/day	af/mo	cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs	avg af/day	af/mo	avg cfs		af/yr
Detached, Turf	0	0	0.75	12.69	**0.38**	3.60	108.13	**1.82**	5.31	164.72	**2.68**	6.49	194.76	**3.28**	6.61	204.90	**3.34**	5.02	155.58	**2.53**	3.61	108.43	**1.83**	1.42	44.15	**0.72**	0.47	7.12	**0.24**	0	1,000
Detached, Drip	0	0	0.50	8.46	**0.25**	2.40	72.09	**1.21**	3.54	109.81	**1.79**	4.33	129.84	**2.19**	4.41	136.60	**2.23**	3.35	103.72	**1.69**	2.41	72.29	**1.22**	0.95	29.43	**0.48**	0.32	4.75	**0.16**	0	667
Attached, Turf	0	0	0.10	1.77	**0.05**	0.50	15.06	**0.25**	0.74	22.94	**0.37**	0.90	27.12	**0.46**	0.92	28.53	**0.46**	0.70	21.67	**0.35**	0.50	15.10	**0.25**	0.20	6.15	**0.10**	0.07	0.99	**0.03**	0	139
Attached, Drip	0	0	0.06	1.05	**0.03**	0.30	8.92	**0.15**	0.44	13.59	**0.22**	0.54	16.07	**0.27**	0.55	16.91	**0.28**	0.41	12.84	**0.21**	0.30	8.95	**0.15**	0.12	3.64	**0.06**	0.04	0.59	**0.02**	0	83
Commercial, Turf	0	0	0.01	0.16	**0.00**	0.05	1.38	**0.02**	0.07	2.11	**0.03**	0.08	2.49	**0.04**	0.08	2.62	**0.04**	0.06	1.99	**0.03**	0.05	1.39	**0.02**	0.02	0.56	**0.01**	0.01	0.09	**0.00**	0	13
Commercial, Drip	0	0	0.03	0.43	**0.01**	0.12	3.69	**0.06**	0.18	5.62	**0.09**	0.22	6.64	**0.11**	0.23	6.99	**0.11**	0.17	5.31	**0.09**	0.12	3.70	**0.06**	0.05	1.51	**0.02**	0.02	0.24	**0.01**	0	34
Total			1.44	24.56	**0.73**	6.98	209.28	**3.52**	10.28	318.78	**5.19**	12.56	376.92	**6.35**	12.79	396.56	**6.46**	9.71	301.10	**4.91**	6.99	209.85	**3.53**	2.76	85.44	**1.39**	0.92	13.78	**0.46**	0	**1,936**

Potable irrigation demand by application type:

	Acre-feet Potable Demand	**Acre-feet Potable CU**
Turf	1,153	922
Drip	784	705
Annual Potable Irrigation Water demand (acre feet)	1,936	1,627

Summary of Irrigation Demands:

Total Irrigated Acreage	1,252	acres
Total CU	4,184	ac-ft/yr
Total Demand	5,016	ac-ft/yr
Total CU/ Total Irrigated Acres	3.34	ac-ft/ac
Total Demand / Total Irrigated Acres	4.01	ac-ft/ac

Note: This summary is for acres irrigated by well diversions or reuse water and excludes the 197 acres irrigated with Farmer's Union ditch shares.

42-6

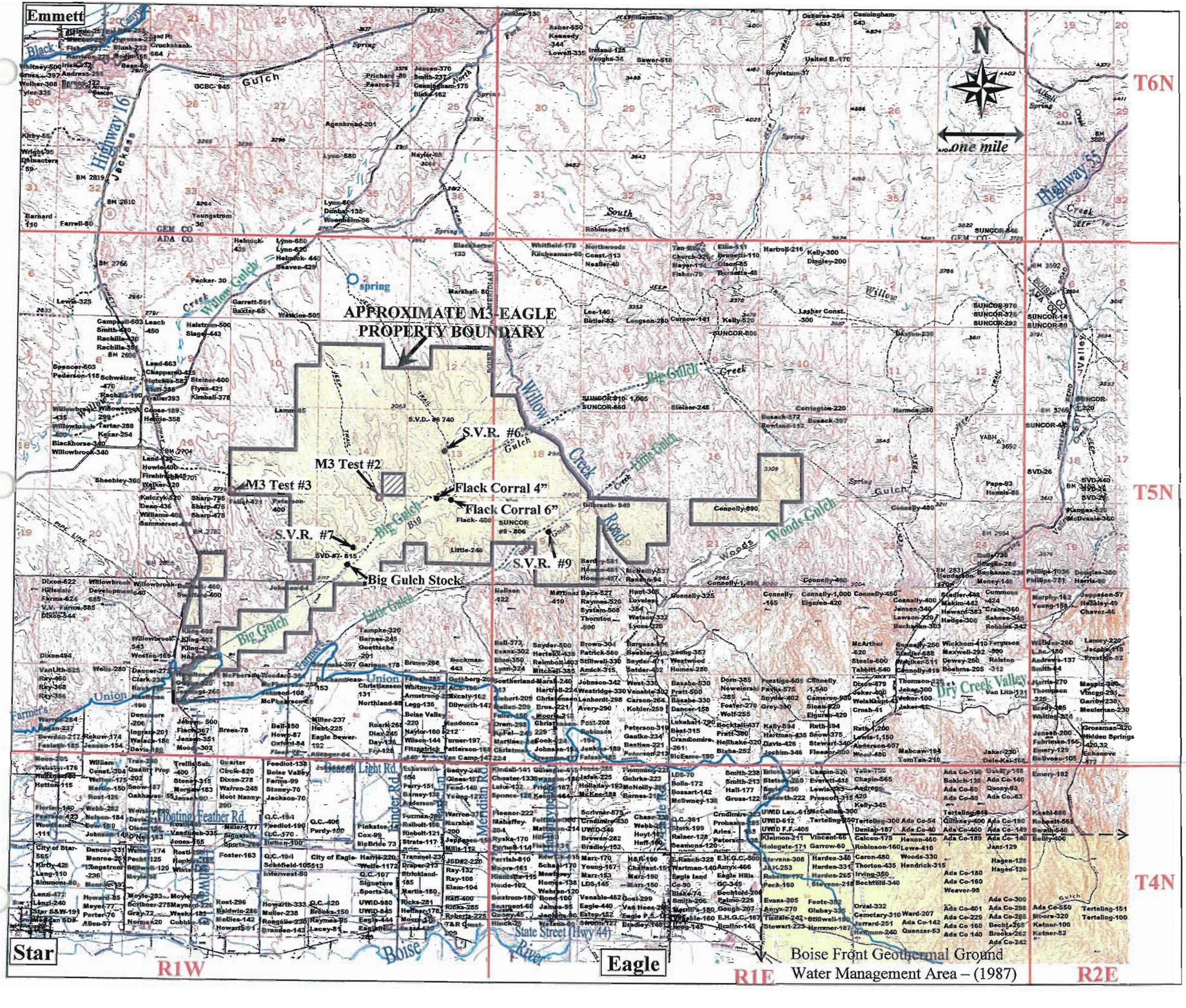


Exhibit 6.1 Regional Well Location and Depth Map showing recorded wells in proximity to the proposed M3-Eagle planned community development boundary. The area within the dark grey borders, owned by M3 Companies, Inc., is proposed as the current extent of the municipal service area for the applied for municipal ground water right under this application.

Owing to space consideration, no more than five wells are shown for any given ¼ ¼ section. If five wells are shown, these are the five deepest wells located within that ¼ ¼. If less than five wells are shown, all wells within the ¼ ¼ are listed. For a listing of the total numbers of recorded wells in the area, refer to Exhibit 6.2.

Although natural **springs** are indicated on the base map, only one known spring exists within 1 mile of the proposed development boundary. That spring is ¾ mile north of the property in Section 2 of Township 5 North, Range 1 West (indicated by blue-colored open circle).

Water well locations were plotted from available driller's logs within the IDWR's electronic web-site data-base, hard copy and microfiche files of the Western Regional Office, and the files of Hydro Logic, Inc. The total number of wells within the study area of this map is 2,386.

Township and range boundaries are denoted in red and the approximate boundary of the development in gray with yellow shading.

Hydro Logic, Inc.
Boise, ID

Exhibit 6.1

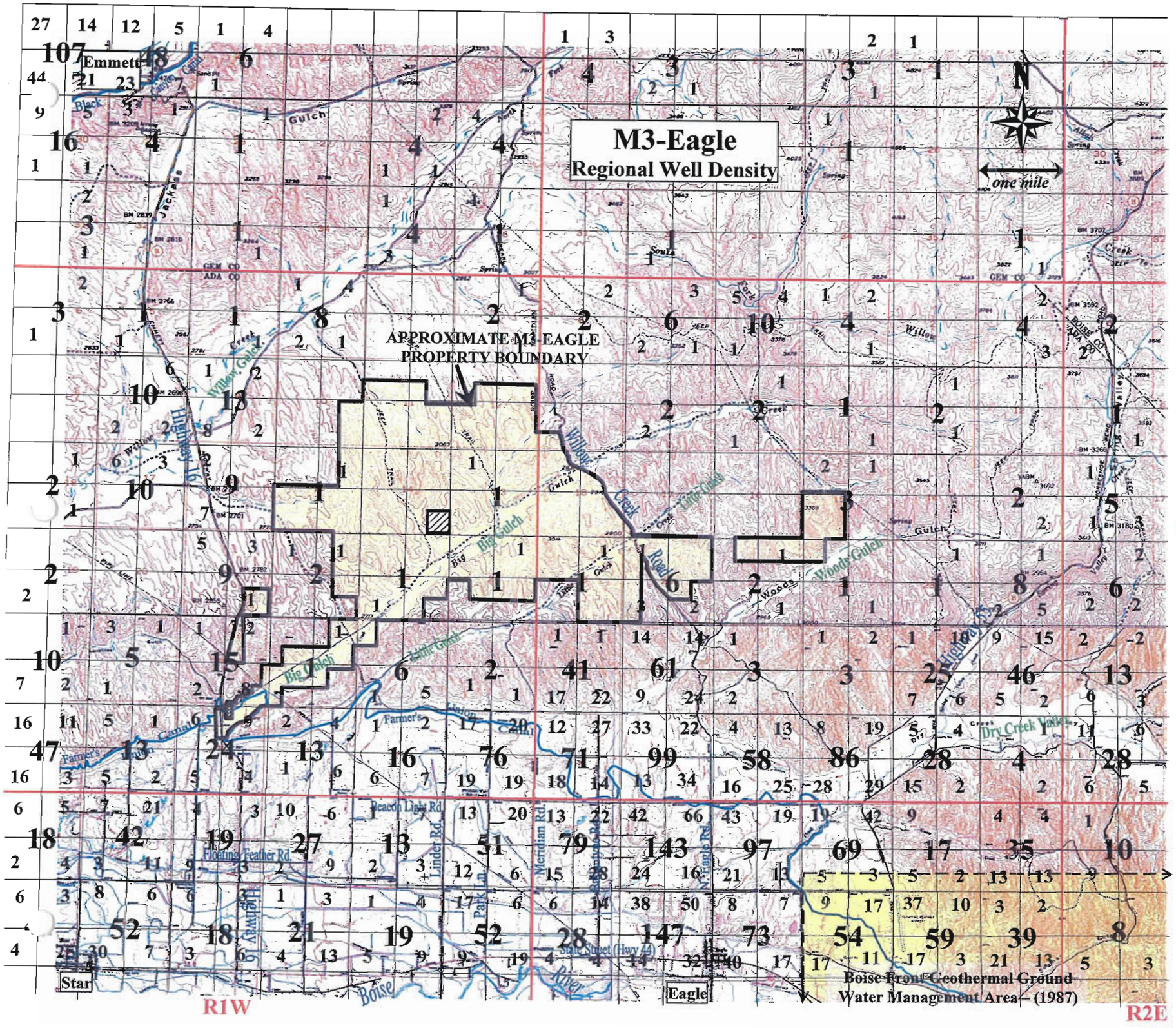


Exhibit 6.2 Density of domestic, irrigation, stock, and monitoring wells in the vicinity of the proposed M3-Eagle Development, Ada and Gem Counties, Idaho. The area within the dark grey borders, owned by M3 Companies, Inc., is proposed as the municipal service area for the applied for municipal ground water right under this Amended Application For Permit. The number of wells within each ¼-¼ Section is indicated by the smaller numerals on the grid. The total number of wells in each Section is shown by the larger numerals at the center of each Section. Database is the Idaho Department of Water Resources Driller's Report files (hard copy and microfiche) from the Western Regional Office and IDWR's on-line database as of August 17th, 2007. Some wells may be missing and others may be mis-located. Overall, 2,386 wells are located within the area shown on the map.

Township and range boundaries are denoted in red, and the approximate boundary of the proposed development is gray with yellow shading.

USGS 15 -minute (1:62,500 scale) quadrangle base map.

one mile

Hydro Logic Inc.
Boise, Idaho

N

Exhibit 6.2

42-7

Unlimited Boundaries, Inc. dba ALS
Land Surveying & Civil Engineering
1103 W. Main St.
Middleton, Idaho 83644
208-585-6858 • 208-585-9001 Fax

REVISED APRIL 20, 2006

M3Companies *5139-03*

ADA COUNTY ASSESSORS PARCEL NUMBERS, RECORDED DEED INSTRUMENT NUMBERS AND GRANTOR LISTINGS

	Assessor Parcel Number	Instrument Number	Grantor
SECTION 33, T.5N., R.1E	S0333120700	106038607	Jay Richard & Kimberly Ann Green
	S0333110061	106038607	Jay Richard & Kimberly Ann Green
SECTION 19, T.5N., R.1E	S0219110000	106036548	Colin McLeod III
	S0219220000	106036548	Colin McLeod III
	S0219400000	106036548	Colin McLeod III
	S0219140000	106036548	Colin McLeod III
SECTION 20, T.5N., R.1E	S0220230000	106036548	Colin McLeod III
SECTION 7, T.5N., R.1E SW 1/4 SW 1/4	S0207330000	106036548	Colin McLeod III
SECTION 17, T.5N., R.1E SW 1/4 SW 1/4	S0217330000	106036548	Colin McLeod III
SECTION 18, T.5N., R.1E	S0218120000	106036548	Colin McLeod III
GOVERNMENT LOT 1	S0218221000	106036548	Colin McLeod III
GOVERNMENT LOT 2	S0218230000	106036548	Colin McLeod III
	S0218131000	106036548	Colin McLeod III
	S0218341000	106036548	Colin McLeod III
	S0218140000	106036548	Colin McLeod III
SECTION 10, T.5N., R.1W E1/2 SE1/4	S0310410000	106036548	Colin McLeod III
SECTION 11, T.5N., R.1W	S0311130000	106036548	Colin McLeod III
SECTION 12, T.5N., R.1W	S0322110000	106036548	Colin McLeod III
SECTION 13, T.5N., R.1W	S0313120000	106036548	Colin McLeod III
	S0313110000	106036548	Colin McLeod III
SECTION 14, T.5N., R.1W	S0314110000	106036548	Colin McLeod III
	S0314130000	106036548	Colin McLeod III
SECTION 15, T.5N., R.1W	S0315110000	106036548	Colin McLeod III
SECTION 22, T.5N., R.1W	S0322141600	106036548	Colin McLeod III

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	Assessor Parcel Number	Instrument Number	Grantor
SECTION 23, T.5N., R.1W	S0323110015	106036548	Colin McLeod III
	S0323336000	106036548	Colin McLeod III
	S0323120600	106036548	Colin McLeod III
SECTION 24, T.5N., R.1W	S0324130000	106036548	Colin McLeod III
SECTION 26, T.5N., R.1W	S0326220000	106036548	Colin McLeod III
NW 1/4 NW 1/4			
SECTION 27, T.5N., R.1W	S0327110000	106036548	Colin McLeod III
NE 1/4 NE 1/4			
SECTION 8, T.5N., R.1E	S0208340000	105166717	Highland Livestock & Land Company Limited
PARCEL 1			
SECTION 17, T.5N., R.1E	S0217330000	105166717	Highland Livestock & Land Company Limited
SECTION 20, T.5N., R.1E	S0220110500	105166717	Highland Livestock & Land Company Limited
PARCEL 5	S0220212400		
	S0217330000		
SECTION 8, T.5N., R.1W	S0314325400	106008264	Little Enterprises Limited Partnership
W1/2 SW1/4	S0315330000		
PARCEL 8			
SECTION 15, T.5N., R.1W	S0315330000	106008264	Little Enterprises Limited Partnership
PARCEL 9			
SECTIONS 21 & 28	S0321430000	106008264	Little Enterprises Limited Partnership
T.5N., R.1W	S0328120000		
PARCEL 10			
SECTION 22, NE1/4 NE1/4	S0322110000	106008264	Little Enterprises Limited Partnership
T.5N., R.1W			
PARCEL 11			
SECTION 23, N 1/2 NW1/4	S0327130000	106008264	Little Enterprises Limited Partnership
T.5N., R.1W			

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REVISED APRIL 20, 2006

M3Companies 5139-03

ADA COUNTY ASSESSORS PARCEL NUMBERS, RECORDED DEED INSTRUMENT NUMBERS AND GRANTOR LISTINGS

	Assessor Parcel Number	Instrument Number	Grantor
PARCEL 12			
SECTION 27, T.5N., R.1W.,	S032713000	106008264	Little Enterprises Limited Partnership
PARCEL 13			
SECTION 21, T.5N., R.1W.,	S0333120710	106008264	Little Enterprises Limited Partnership
PARCEL 1, CELL TOWER			
SITE			
SECTION 21, T.5N., R.1E.,	S0221110000	105108186	Highland Livestock & Land Company Limited
NORTH 1/2			
PARCEL 6			
SECTION 22, T.5N., R.1E.,	S022222000	105108186	Highland Livestock & Land Company Limited
NW 1/4 NW 1/4			
PARCEL 7			
SECTIONS 28 & 33	R3314130300	105106118	Randy L. & Cindy L. Gwynn
T.5N., R.1W.,			
LOT 3, BLOCK 1			
GULCH RANCH ESTATES			
SECTIONS 28 & 33	R3314130400	105106115	John W. & Betty L. Moody
T.5N., R.1W.,			
LOT 4, BLOCK 1			
GULCH RANCH ESTATES			
SECTION 15, T.5N., R.1W.,	S0215300000	105108185	Little Enterprises Limited Partnership
SW 1/4			
PARCEL 3			
SECTION 12, T.5N., R.1W.,	S0312330000	105106197	Keith J. Larson, Sterling Larson, John Rosemurgy,
SW 1/4 SW 1/4		105132319	& David E. Hollingsworth
SECTION 13, T.5N., R.1W.,	S0313210000	105106197	Keith J. Larson, Sterling Larson, John Rosemurgy,
		105132319	& David E. Hollingsworth
SECTION 24, T.5N., R.1W.,	S03124110000	105106197	Keith J. Larson, Sterling Larson, John Rosemurgy,

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REVISED APRIL 20, 2006

M3Companies 5139-03

ADA COUNTY ASSESSORS PARCEL NUMBERS, RECORDED DEED INSTRUMENT NUMBERS AND GRANTOR LISTINGS

	Assessor Parcel Number	Instrument Number	Grantor
NORTH 1/2		105132319	& David E. Hollingsworth
SECTION 18, T.5N., R.1W.,	S0218320000	105106197	Keith J. Larson, Sterling Larson, John Rosemurgy,
GOVERNMENT LOTS 3 & 4		105132319	& David E. Hollingsworth
SECTION 28, T.5N., R.1W.,	S0328449200	105114799	M & H Development LLC.,
PARCEL II			

SECTIONS 28 & 33	R4985520028	106006302	M & H Development LLC.,
T.5N., R.1W.,			
PARCEL III			

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 12.00 4
BOISE IDAHO 03/13/06 02:44 PM
DEPUTY Gail Garrett
RECORDED--REQUEST OF
Pioneer

106038607

A Pioneer Company
PIONEER TITLE COMPANY
OF ADA COUNTY
8151 W. Rifleman Ave. / Boise, Idaho 83704
(208) 377-2700

261675
Sum/HH

WARRANTY DEED

For Value Received Jay Richard Green and Kimberly Ann Green, husband and wife

hereinafter referred to as Grantor, does hereby grant, bargain, sell, warrant and convey unto

AR Boise, LLC, a Texas limited liability company

hereinafter referred to as Grantee, whose current address is 110 East Gurley #200, Prescott, AZ 86301

the following described premises, to-wit:

SEE EXHIBIT A ATTACHED HERETO AND MADE A PART HEREOF.

together with (i) all improvements owned by Grantor and located thereon, (ii) all rights, privileges, easements and appurtenances owned by Grantor appertaining to the premises, (iii) all water rights appurtenant to said premises, including without limitation all rights in and to their 1.33 shares in the Farmers Union Ditch Company and Water Right 63-20181, and (iv) all right, title and interest of Grantor (if any) in, to and under adjoining streets, rights of way and easements.

To HAVE AND TO HOLD the said premises, with their appurtenances unto the said Grantee, his heirs and assigns forever. And the said Grantor does hereby covenant to and with the said Grantee, that Grantor is the owner in fee simple of said premises; that said premises are free from all encumbrances except current years taxes, levies, and assessments, and except U.S. Patent reservations, restrictions, easements of record, and easements visible upon the premises, and that Grantor will warrant and defend the same from all claims whatsoever.

Dated: Mar 10, 2006

Jay Richard Green

Kimberly Ann Green

STATE OF Idaho)
) SS.
County of Ada)

The foregoing instrument was acknowledged before me this 10th day of March, 2006 by Jay Richard Green and Kimberly Ann Green personally known to me or proven to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and acknowledged that he executed it.

Witness my hand and official seal.

My Commission Expires:_____.

Notary Public

SUSAN J. MERRITT NOTARY PUBLIC STATE OF IDAHO

RESIDING AT: CALDWELL, ID
MY COMMISSION EXPIRES 05-05-2011

Order No. 261675

EXHIBIT A

This parcel lies in the NE ¼ of Section 33, Township 5 North, Range 1 West, Boise Meridian, Ada County, Idaho, and is more particularly described as follows:

COMMENCING at the Northwest corner of said NE ¼;
Thence South 00°28'17" East (formerly South 00°09'45" East) along the Westerly boundary of said NE ¼, 901.53 feet;
Thence South 89°01'44" East (formerly South 89°39'47" East), 51.06 feet to a point on the Easterly right-of-way boundary for Idaho State Highway 16 and to the TRUE POINT OF BEGINNING;
Thence continuing South 89°01'44" East, 1441.80 feet (formerly South 89°39'47" East, 1441.98 feet) to a point on the boundary of Equest Subdivision (vacated) as shown on the plat thereof (Book 53, Page 4606, Office of the Recorder for Ada County, Idaho);
Thence traversing said boundary as follows:

South 67°11'38" West (formerly South 66°33'35" West), 254.57 feet;
South 52°16'06" West (formerly South 51°38'03" West), 535.08 feet;
South 38°40'25" West (formerly South 38°02'22" West), 715.30 feet;
South 21°05'40" West (formerly South 20°27'37" West), 84.42 feet;
Thence North 88°57'16" West, 182.70 feet (formerly North 89°35'19" West, 181.78 feet) to a point on the Easterly right-of-way boundary for Idaho State Highway 16;
Thence along said right-of-way, 283.91 feet along the arc of a non-tangent curve to the right, having a radius of 1859.86 feet, a central angle of 08°44'47", and being subtended by a chord, which bears North 13°10'12" West, 283.63 feet;
Thence 355.29 feet along the arc of a spiral to the right, having a radius of 1897.44 feet, a central angle of 05°21'51", and being subtended by a chord, which bears North 05°11'06" West, 355.15 feet;
Thence North 03°23'50" West, 455.37 feet to the TRUE POINT OF BEGINNING.

TOGETHER WITH:

COMMENCING at the Northwest corner of said NE ¼;
Thence South 00°28'17" East (formerly South 00°09'45" East) along the Westerly boundary of said NE ¼, 901.53 feet;
Thence, continuing South 00°28'17" East (formerly South 00°09'45" East) along the Westerly boundary of said NE ¼, 685.21 feet to a point on the Westerly right-of-way boundary for Idaho State Highway 16 and to the TRUE POINT OF BEGINNING;
Thence along said right-of-way, 140.48 feet along the arc of a spiral to the left, having a radius of 1922.44 feet, a theta angle of 00°35'55", and being subtended by a chord, which bears South 07°00'48" East, 140.46 feet;
Thence 49.72 feet along the arc of a curve to the left, having a radius of 1959.86 feet, a central angle of 01°27'13", and being subtended by a chord, which bears South 09°31'34" East, 49.72 feet;

Order No. 261675

Thence 212.24 feet along the arc of a curve to the left, having a radius of 1178.92 feet, a central angle of 10°18'58", and being subtended by a chord, which bears South 08°49'15" East, 211.95 feet;
Thence leaving said right-of-way, North 88°57'16" West 61.16 feet to the Westerly boundary of said NE ¼;
Thence along the Westerly boundary of said NE ¼, North 00°28'17" East, 396.79 feet to the TRUE POINT OF BEGINNING.

EED IS BEING RE-RECORDED FOR
LUSION OF GRANTEE'S MAILING ADDRESS
AMENDMENT TO LEGAL DESCRIPTION.

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 15.00
BOISE IDAHO 09/06/06 11:41 AM
DEPUTY Vicki Allen
RECORDED-REQUEST OF
Pioneer

106036548

Re-record

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 15.00 5
BOISE IDAHO 01/20/06 04:47 PM
DEPUTY Reava Haney
RECORDED-REQUEST OF
Pioneer

[redacted]

106012220

WHEN RECORDED RETURN TO:

William I. Brownlee
c/o The M3 Companies, L.L.C.
110 East Gurley Street
Suite 200
Prescott, AZ 86301

255123A

SPECIAL WARRANTY DEED

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, COLIN MCLEOD, III, as to his vested portion as described on Exhibit "A" attached hereto and incorporated herein by this reference, and FIRST AMERICAN TITLE INSURANCE COMPANY, a California corporation, as Trustee of the Dual Beneficiary Trust created pursuant to the Subdivision Trust Agreement dated October 8, 2003, as amended, as to its vested portion as described on Exhibit "A", (collectively "Grantors"), hereby grant, sell and convey to PIONEER TITLE COMPANY OF ADA COUNTY, an Idaho corporation, as Trustee under Trust No. 255123 ("Grantee"), the real property located in Ada County, Idaho and described on Exhibit "A" (the "Land"), together with (i) all buildings, structures and improvements located on the Land, including, without limitation, all irrigation ditches, gates, valves, pumps, tanks, and wells not previously reserved by or conveyed to others; (ii) all appurtenances, hereditaments, interests, privileges, easements, rights-of-way, reversions, remainders, development rights, well rights, water rights, and air rights (including any grandfathered groundwater or other groundwater or surface water rights) appurtenant to the Land not previously reserved by or conveyed to others, including, without limitation, all irrigation ditches, gates, valves, pumps, tanks, and wells, if any; (iii) all oil, gas, and mineral rights relating to the Land not previously reserved; (iv) any rights of Grantors to any adjoining strips or gores of property and any land lying within the bed of any adjoining street, highway, or waterway; and (v) any other rights or privileges appurtenant to the Land or used in connection therewith together with all improvements, structures and fixtures located on the Land.

Subject to current taxes and other assessments not yet delinquent; reservations in patents and all easements, rights-of-way, encumbrances, liens, covenants, conditions, restrictions, reservations, declarations, obligations, liabilities and other matters as may appear of record, each Grantor warrants title to its respective vested portion of the Land as against the acts of such Grantor and none other, subject to the matters described above.

GRANTORS:

DATED as of the 23rd day of January, 2006.

Colin McLeod III
COLIN MCLEOD, III

Grantee's Mailing Address: Pioneer Title Company of Ada County as Trustee, Trust No. 255123
c/o William I. Brownlee
c.o The M3 Companies, L.L.C.
110 East Gourley Street, Suite 200
Prescott, AZ 86301

FIRST AMERICAN TITLE INSURANCE COMPANY, a California corporation, as Trustee of the Dual Beneficiary Trust created pursuant to the Subdivision Trust Agreement dated October 8, 2003

MayLin Carlsen
By: MayLin Carlsen
Its: Asst. Secretary

STATE OF IDAHO)
) ss.
County of Ada)

The foregoing instrument was acknowledged before me this 19th day of January, 2006 by COLIN MCLEOD, III personally known to me or proven to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and acknowledged that he executed it.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

CHRIS GREEN NOTARY PUBLIC STATE OF IDAHO

Chris Green
NOTARY PUBLIC FOR IDAHO
Residing at Boise, ID
My Commission Expires 3/20/06

STATE OF IDAHO)
) ss.
County of Ada)

The foregoing instrument was acknowledged before me this 20th day of January, 2006 by MayLin Carlsen, the Asst Secretary of FIRST AMERICAN TITLE INSURANCE COMPANY, a California corporation, for and on behalf of the corporation, as Trustee of the Dual Beneficiary Trust created pursuant to the Subdivision Trust Agreement dated October 8, 2003.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

CHRIS GREEN NOTARY PUBLIC STATE OF IDAHO

Chris Green
NOTARY PUBLIC FOR IDAHO
Residing at Boise, ID
My Commission Expires 3/20/06

Original Option Property

The Northeast quarter;
The East half of the Northwest quarter;
Government Lots 1 and 2;
The Southeast quarter;
All in Section 19, Township 5 North, Range 1 East of Boise Meridian, in Ada County, Idaho.

The Southwest quarter of the Northwest quarter;
The West half of the Southwest quarter;
All in Section 20, Township 5 North, Range 1 East of Boise Meridian, in Ada County, Idaho.

Government Lot 4;
That portion of the Southeast quarter of the Southwest quarter (SE¼SW¼) of Section 7, lying Southwesterly of the centerline of Willow Creek Road, more particularly described as follows:
COMMENCING at the Southwest corner of said Section 7; thence N89°26'13"E, 976.19 feet to the Southwest corner of said SE¼SW¼ and the POINT OF BEGINNING;
Thence, along the West line of said SE¼SW¼, N01°37'53"E, 1315.55 feet to the Northwest corner of said SE¼SW¼;
Thence, along the North line of said SE¼SW¼, N89°27'42"E, 322.23 feet to point on said centerline;
Thence, along said centerline, S17°08'49"E, 211.69 feet;
Thence, S21°38'20"E, 468.10 feet to a curve;
Thence, along the arc of said curve to the right, having a radius of 365.00 feet, a central angle of 26°42'14", and being subtended by a chord, which bears S08°17'13"E, 168.58 feet;
Thence, S05°03'53"W, 109.20 feet to a curve;
Thence, along the arc of said curve to the left, having a radius of 310.00 feet, a central angle of 35°10'52", and being subtended by a chord, which bears S12°31'32"E, 187.37 feet;
Thence, S30°06'58"E, 168.08 feet;
Thence, S34°03'01"E, 83.37 feet to the South line of said SE¼SW¼;
Thence, S89°26'13"W, 781.04 feet to the POINT OF BEGINNING;
All in Section 7, Township 5 North, Range 1 East of Boise Meridian, in Ada County, Idaho.

That portion of the Northwest quarter of the Southwest quarter (NW¼SW¼) of Section 17 lying Southwesterly of the centerline of Willow Creek Road, more particularly described as follows:
COMMENCING at the Southwest corner of said Section 17; thence, along the West line of said Section 17, N00°16'27"E, 1314.67 feet to the POINT OF BEGINNING;
Thence, along the South line of said (NW¼SW¼), N89°57'12"E, 204.11 feet to a point on said centerline;
Thence, along said centerline, N37°36'51"W, 332.36 feet to the said West line;
Thence, S00°16'27"W, 263.44 feet to the POINT OF BEGINNING;
All in Section 17, Township 5 North, Range 1 East of Boise Meridian, in Ada County, Idaho.

Government Lots 1 and 2;
The East half of the Southwest quarter;
The Southeast quarter of the Northwest quarter;
The West half of the Southeast quarter;
The Southeast quarter of the Southeast quarter;
That portion of the Northwest quarter of the Northeast quarter (NW¼NE¼) and that portion of the South half of the Northeast quarter (S½NE¼) and that portion of the Northeast quarter of the Northwest quarter (NE¼NW¼) and that portion of the Northeast quarter of the Southeast quarter (NE¼SE¼), all lying Southwesterly of the centerline of Willow Creek Road, more particularly described as follows:
COMMENCING at the Northwest corner of said Section 18; thence, along the North line of said Section 18, N89°26'13"E, 976.19 feet to the Northwest corner of said (NE¼NW¼) and the POINT OF BEGINNING;
Thence, continuing along said North line, N89°26'13"E, 781.04 feet to said centerline of Willow Creek Road;
Thence, along said centerline S34°03'01"E, 215.25 feet;
Thence, S10°42'30"E, 414.87 feet to a curve;
Thence, along the arc of said curve to the left, having a radius of 225.00 feet, a central angle of 56°12'00", and being subtended by a chord, which bears S38°48'30"E, 211.96 feet;
Thence, S66°54'30"E, 1186.00 feet to a curve;
Thence, along the arc of said curve to the right, having a radius of 1000.00 feet, a central angle of 13°57'43", and being subtended by a chord, which bears S59°55'39"E, 243.08 feet;
Thence, S52°56'47"E, 351.88 feet to a curve;
Thence, along the arc of said curve to the right, having a radius of 635.00 feet, a central angle of 19°19'45", and being subtended by a chord, which bears S44°01'28"E, 213.21 feet;
Thence, S34°21'35"E, 166.76 feet to a curve;
Thence, along the arc of said curve to the right, having a radius of 480.00 feet, a central angle of 24°30'13", and being subtended by a chord, which bears S24°11'03"E, 203.72 feet;
Thence, S11°55'56"E, 513.68 feet to a curve;
Thence, along the arc of said curve to the left, having a radius of 395.00 feet, a central angle of 25°40'56", and being subtended by a chord, which bears S24°46'24"E, 175.58 feet;
Thence, S37°36'51"E, 1212.36 feet to the East line of said Section 18;
Thence, along said East line, S00°16'27"W, 263.44 feet to the Southeast corner of said (NE¼SE¼);
Thence, along South line of said (NE¼SE¼), S89°31'40"W, 1320.20 feet to the Southwest corner of said (NE¼SE¼);
Thence, along the West line of said (NE¼SE¼), N00°17'28"E, 1313.97 feet to the Northwest corner of said (NE¼SE¼);
Thence, along the South line of said (S½NE¼), S89°29'51"W, 1319.82 feet to the Southwest corner of said (S½NE¼);
Thence, along the West line of said (S½NE¼), N00°18'28"E, 1313.28 feet to the Northwest corner of said (S½NE¼);
Thence, along the South line of said (NE¼NW¼), S89°28'02"W, 1319.20 feet to the Southwest corner of said (NE¼NW¼);
Thence, along the West line of said (NE¼NW¼), N00°19'41"E, 1312.59 feet to the POINT OF BEGINNING;
All in Section 18, Township 5 North, Range 1 East of Boise Meridian, in Ada County,

That portion of said Original Option Property lying within Sections 7, 17 and 18 being previously described as:

Government Lot 4;
That portion of the Southeast quarter of the Southwest quarter lying Southwesterly of the centerline of Willow Creek Road;
All in Section 7, Township 5 North, Range 1 East of Boise Meridian, in Ada County, Idaho.

That portion of the NW ¼ of the SW ¼ lying Southwesterly of the centerline of Willow Creek Road;
All in Section 17, Township 5 North, Range 1 East of Boise Meridian, in Ada County, Idaho.

That portion of the Northwest quarter of the Northeast quarter lying Southwesterly of the centerline of Willow Creek Road;
That portion of the South half of the Northeast quarter lying Southwesterly of the centerline of Willow Creek Road;
That portion of the East half of the Northwest quarter lying Southwesterly of the centerline of Willow Creek Road;
Government Lots 1 and 2;
The East half of the Southwest quarter;
That portion of the Southeast quarter lying Southwesterly of the centerline of Willow Creek Road;
All in Section 18, Township 5 North, Range 1 East of Boise Meridian, in Ada County, Idaho.

The East half of the Southeast quarter of Section 10, Township 5 North, Range 1 West of Boise Meridian in Ada County, Idaho.

The Southwest quarter of the Northeast quarter;
The South half of the Northwest quarter;
The South half;
All in Section 11, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

The South half of the Northeast quarter;
The Southeast quarter of the Northwest quarter;
The North half of the Southwest quarter;
The Southeast quarter;
All in Section 12, Township 5 North, Range 1 West of the Boise Meridian, in Ada County, Idaho.

The Northeast quarter;
The Southeast quarter of the Northwest quarter;
The South half of the Southwest quarter;
All in Section 13, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

The North one half;
The East one half of the Southwest quarter;
The North one half of the Southeast quarter;
The Southwest quarter of the Southeast quarter;
All in Section 14, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

The Northeast quarter of the Northeast quarter of Section 15, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

The Southeast quarter of the Northeast quarter;
The Northeast quarter of the Southeast quarter;
All in Section 22, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho

The Northeast quarter;
The South half of the Northwest quarter;
The Southwest quarter;
The North half of the Southeast quarter;
The Southwest quarter of the Southeast quarter;
All in Section 23, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

The South half of the Northeast quarter;
The West half of the Northwest quarter;
The Southeast quarter of the Northwest quarter;
The Northeast quarter of the Southwest quarter;
The North half of the Southeast quarter;
All in Section 24, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

The Northwest quarter of the Northwest quarter of Section 26, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

The Northeast quarter of the Northeast quarter of Section 27, Township 5 North, Range 1 West of Boise Meridian, in Ada County, Idaho.

10

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 30.00 10
BOISE IDAHO 11/02/05 03:46 PM
DEPUTY Brenda Sherbine
RECORDED - REQUEST OF
Alliance Title
105166717

After recording, please return to:

The M3 Companies
Attn: William L Brownlee
110 E. Gurley Street, Suite 200
Prescott, AZ 86301

AT-5000527119

SPECIAL WARRANTY DEED

FOR VALUE RECEIVED

HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation, whose address is 210 West Main, Emmett, Idaho 83617, ("Grantor"), who took title as "Highland Livestock and Land Company", does hereby bargain, sell, and convey, unto AR Boise L.L.C., a Texas limited liability company, whose address is 110 East Gurley Street, Suite 200, Prescott, Arizona 86301 ("Grantee") all that parcel of land located in Ada County, Idaho ("Premises") more particularly described in Exhibit A to this Special Warranty Deed.

TO HAVE AND TO HOLD the Premises, with its appurtenances unto Grantee, and Grantee's successors and assigns forever.

Grantor does hereby covenant to and with Grantee, that the Grantor is the owner in fee simple of the Premises; that the Premises are free from all encumbrances created or suffered by Grantor, except those made, suffered or done by Grantee, and except the matters set forth on Exhibit B to this Special Warranty Deed and except general taxes and assessments, including utility assessments for the current year, which are not yet due and payable, and that Grantor will warrant and defend the same forever from all other lawful claims. By accepting this Special Warranty Deed and subject to the covenants and warranties in this Special Warranty Deed, Grantee acknowledges and understands that Grantee is accepting the Premises from Grantor in an "As-Is" condition with all faults, including both latent and patent defects.

IN WITNESS WHEREOF, Grantor has caused its corporate name to be hereunto subscribed this 3rd day of NOVEMBER, 2005.

GRANTOR:

HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation

Bradley Little, President

GRANTEE:

AR Boise, L.L.C., a Texas limited liability company
By: M3 Builders, L.L.C., an Arizona limited liability company, Manager

By: The M3 Companies, L.L.C., an Arizona limited liability company, sole Member of M3 Builders, L.L.C.

By: _____
William I. Brownlee, Member

By: _____
Jeffrey A. Davis, Member

STATE OF IDAHO)
) ss.
County of Ada)

On this 3rd day of November 2005, before me, a Notary Public in and for said State, personally appeared BRADLEY LITTLE, known or identified to me to be the president of HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation, the corporation who executed the foregoing instrument or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

TERRY A. HANCOCK NOTARY PUBLIC STATE OF IDAHO

Terry A. Hancock
Notary Public for Idaho
Residing at: Boise, Idaho
My commission expires: 3-23-2010

STATE OF ARIZONA)
) ss.
County of YAVAPAI)

On this 27 day of OCTOBER, 2005, before me, a Notary Public in and for the State of Arizona, personally appeared William I. Brownlee and Jeffrey A. Davis, known or identified to me to be the members of The M3 Companies, L.L.C., an Arizona limited liability company, which is the sole member of M3 Builders, L.L.C., an Arizona limited liability company acting as Manager of AR BOISE L.L.C., a Texas limited liability company, who executed the foregoing instrument on behalf of said company, and acknowledged to me that such company executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Judith E. Brummett-Bowie
Notary Public for Arizona

My commission expires: 2/22/07

OFFICIAL SEAL
JUDITH E. BRUMMETT-BOWIE
Notary Public - State of Arizona
YAVAPAI COUNTY
My Comm. Expires Feb. 22, 2007

EXHIBIT A

Special Warranty Deed Legal Description

[to be attached]

EXHIBIT A

Parcel 1:
The Southeast Quarter of the Southwest Quarter, the West half of the Southeast Quarter, and the Northeast Quarter of the Southeast Quarter of Section 8, Township 5 North, Range 1 East, Boise Meridian, in Ada County, Idaho.

Parcel 4:
The Northeast Quarter, the Southeast Quarter, and the South half of the Southwest Quarter of Section 17, Township 5 North, Range 1 East, Boise Meridian, in Ada County, Idaho.

Parcel 5:
The Northeast Quarter, the North half of the Northwest Quarter, the Southeast Quarter of the Northwest Quarter, the Northeast Quarter of the Southwest Quarter, and the Northwest Quarter of the Southeast Quarter of Section 20, Township 5 North, Range 1 East, Boise Meridian, in Ada County, Idaho;

EXCEPT that portion thereof lying within that tract of land, more particularly described as follows, conveyed to Michael S. Homan by deed recorded under Instrument No. 103034609:

A parcel of land lying in Section 20, Township 5 North, Range 1 East, Boise Meridian, Ada County, Idaho, said parcel being more particularly described as follows:

Commencing at the Brass Cap marking the corner common to Sections 20, 21, 28, and 29, Township 5 North, Range 1 East, Boise Meridian, Ada County, Idaho; thence
South 89°49'55" West 1321.27 feet to an iron pin marking the East 1/16 corner common to said Sections 20 and 29; thence
South 89°49'50" West 1321.43 feet to the Brass Cap marking the ¼ corner common to said Sections 20 and 29, said point being the POINT OF BEGINNING; thence
South 89°50'08" West 1321.62 feet to the West 1/16 corner common to said Sections 20 and 29; thence
North 00°50'26" West 3941.79 feet along the West 1/16 line to the Northwest 1/16 corner; thence
North 89°42'56" East 9.92 feet along the North line of the Southeast Quarter Northwest Quarter to the West right of way line of Willow Creek Road; thence along said right of way line of Willow Creek Road the following courses and distances;
South 27°38'22" East 62.21 feet to a point of curve; thence along a curve to the right 113.94 feet, said curve having a delta of 16°18'14", a radius of 400.40 feet, tangents of 57.36 feet and a long chord of 113.55 feet which bears
South 19°29'15" East to a point of tangent; thence
South 11°20'08" East 144.76 feet to a point of curve; thence along a curve to the left 476.94 feet, said curve having a delta of 28°09'20", a radius of 970.55 feet, tangents of 243.39 feet and a long chord of 472.15 feet which bears
South 25°24'48" East to a point of tangent; thence
South 39°29'28" East 233.00 feet to a point of curve; thence along a curve to the right 200.60 feet, said curve having a delta of 20°02'27", a radius of 573.50 feet, tangents of 101.33 feet and a long chord of 199.58 feet which bears
South 29°28'14" East to a point of reverse curve; thence along a curve to the left 234.81 feet, said curve having a delta of 12°55'34", a radius of 1040.80 feet, tangents of 117.90 feet and a long chord of 234.31 feet which bears
South 25°54'48" East to a point of tangent; thence

South 32°22'35" East 223.05 feet to a point of curve; thence along a curve to the left 331.68 feet, said curve having a delta of 10°00'18", a radius of 1899.41 feet, tangents of 166.26 feet and a long chord of 331.25 feet which bears
South 37°22'44" East to a point of tangent; thence
South 42°22'53" East 231.38 feet; thence
South 45°03'57" East 411.88 feet to a point of curve; thence along a curve to the left 204.80 feet, said curve having a delta of 09°02'30", a radius of 1297.79 feet, tangents of 102.61 feet and a long chord of 204.59 feet which bears
South 49°35'12" East to a point of reverse curve; thence along a curve to the right 208.60 feet, said curve having a delta of 12°35'19", a radius of 949.44 feet, tangents of 104.72 feet and a long chord of 208.18 feet which bears
South 47°48'47" East to a point of tangent; thence
South 41°31'08" East 186.78 feet to the South 1/16 line; thence
South 89°44'35" West 495.92 feet to the South 1/16 corner; thence
South 00°44'17" East 1314.92 feet to the POINT OF BEGINNING.

EXHIBIT B

SPECIAL WARRANTY DEED PERMITTED EXCEPTIONS

This conveyance is made subject to all liens, claims, easements, restrictions, reservations, irregularities, encroachments, rights of way, clouds on title, encumbrances and other exceptions to title of record or otherwise existing upon or against the Property including, but not limited to, those visible upon a physical inspection of the Property and any liens for taxes and assessments. This conveyance is also made subject to those exceptions to title disclosed by the title commitment, which are attached to and made a part of this Exhibit B.

COMMITMENT FOR TITLE INSURANCE

Order No.: 5000527119AK

SCHEDULE B - SECTION 2

Schedule B of the policy or policies to be issued will contain exceptions to the following matters unless the same are disposed of to the satisfaction of the Company:

A. Defects, liens, encumbrances, adverse claims or other matters, if any, created first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed Insured acquires of record for value the estate or interest or mortgage thereon covered by this commitment.

B. **General Exceptions:**

1. Rights or claims of parties in possession not shown by the public records.
2. Encroachments, overlaps, boundary line disputes, and any other matters which would be disclosed by an accurate survey or inspection of the premises including, but not limited to, insufficient or impaired access or matters contradictory to any survey plat shown by the public records.
3. Easements, or claims of easements, not shown by the public records.
4. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.
6. Taxes or special assessments which are not shown as existing liens by the public records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

C. **Special Exceptions:**

1. General Taxes for the year 2005, a Lien, but not yet due and payable.

2. Liens, levies and assessments of the Ada County.

3. Levies and assessments of the Farmers Union Ditch Irrigation District, and the rights, powers and easements of said district as by law provided.

4. Ditch, road and public utility easements as the same may exist over said premises.

5. Right of the public in and to that portion of the premises lying within the right-of-way of N. Willow Creek Rd.
   Affects: Parcels 4 and 5.

6. "All Gas, Oil and mineral rights and the rights of ingress and egress to the herein described real property for the purpose of Gas, Oil or mineral exploration" as reserved in deed:
Recorded: February 19, 1945.
In Book: 283 of Deeds.
Page: 120, of Official Records.
Affects: Parcel 4.

7. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
Granted to: Robert E. Harmon and Sheila N. Harmon, husband and wife.
Purpose: Road Access.
Recorded: April 13, 1993.
Instrument No.: 9326686, of Official Records.
Affects: Parcel 1 and other property.

8. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
Granted to: Jon J. Busack and Barbara A. Busack, husband and wife.
Purpose: Road Access.
Recorded: November 16, 1998.
Instrument No.: 98110048, of Official Records.
Affects: Parcel 1 and other property.

9. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
Granted to: Boise City, a municipal corporation.
Purpose: Grant of Avigation Easements.
Recorded: August 23, 2000.
Instrument No.: 100067293, of Official Records.
Affects: Parcel 1 and other property.

10. Terms, provisions, covenants, conditions, definitions, options, obligations and restrictions contained in a Special Warranty Deed:
Recorded: March 3, 2003.
Instrument No.: 103034609, of Official Records.
Affects: Parcels 1, 4, 5 and other property.

11. Unrecorded leaseholds, if any, and the rights of vendors and holders of security interests in personal property of tenants to remove said personal property at the expiration of the term.

12. Our inspection of the subject premises on 7/26/2005 disclosed the following:

    a) The property is unimproved range land.

13. Matters disclosed by ALTA/ACSM Survey dated 10/27/2005 by Associated Land Surveyors under Project Number 5139-01, as follows:
    a) The subject premises are criss-crossed by numerous dirt roads.
    b) A fence is within the Westerly-most property lines of Parcels 4 and 5 by approximately 80 to 120 feet.
    c) Unrecorded easement for a pipe of indeterminate purpose under Willow Creek Road in Parcel 5.

END OF SCHEDULE B.

Countersigned at: Boise, ID
Alliance Title & Escrow Corp.

_____
Authorized Officer of Agent

13

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 39.00 13
BOISE IDAHO 01/18/96 10:56 AM
DEPUTY Neava Haley
RECORDED – REQUEST OF
Alliance Title

106008264

Little 3rd Closing

After recording, please return to:

The M3 Companies
Attn: William I. Brownlee
110 E. Gurley Street, Suite 200
Prescott, AZ 86301

AT- 500052645C

SPECIAL WARRANTY DEED

FOR VALUE RECEIVED

LITTLE ENTERPRISES LIMITED PARTNERSHIP, an Idaho limited partnership, whose address is 210 West Main, Emmett, Idaho 83617, who took title as "Little Enterprises Limited Partnership", Grantor as to only the Northwest Quarter of the Southwest Quarter of Section 14 of Parcel 8, and HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation, whose address is 210 West Main, Emmett, Idaho 83617, who took title as "Highland Livestock and Land Company", Grantor as to the remainder of Parcel 8, Parcels 9 through 13 inclusive, and Parcel I, Parcel II, and Parcel III, (referred to individually or collectively as "Grantor" or "Grantors"), do hereby bargain, sell, and convey, unto AR Boise L.L.C., a Texas limited liability company, whose address is 110 East Gurley Street, Suite 200, Prescott, Arizona 86301 ("Grantee") all of that land located in Ada County, Idaho ("Premises") more particularly described in Exhibit "A" to this Special Warranty Deed.

TO HAVE AND TO HOLD the Premises, with its appurtenances unto Grantee, and Grantee's successors and assigns forever.

Grantor does hereby covenant to and with Grantee, that as to the portion of the Premises owned by such Grantor, the Grantor is the owner in fee simple of the Premises; the Premises are free from all encumbrances created or suffered by Grantor, except those made, suffered or done by Grantee, and except the matters set forth on Exhibit "B" and except general taxes and assessments, including utility assessments for the current year, which are not yet due and payable, and that Grantor will warrant and defend the same forever from all other lawful claims. By accepting this Special Warranty Deed, and subject to the covenants and warranties in this Special Warranty Deed, Grantee acknowledges and understands that Grantee is accepting the Premises from Grantor in an "As-Is" condition with all faults, including both latent and patent defects.

IN WITNESS WHEREOF, Grantors have caused its partnership name and corporate name to be hereunto subscribed this 17th day of January, 2006.

GRANTORS:

LITTLE ENTERPRISES LIMITED PARTNERSHIP, an Idaho limited partnership

Bradley Little, General Partner

HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation

Bradley Little, President

GRANTEE:

AR Boise, L.L.C., a Texas limited liability company

By: M3 Builders, L.L.C., an Arizona limited liability company, Manager

By: The M3 Companies, L.L.C., an Arizona limited liability company, sole Member of M3 Builders, L.L.C.

By: _____
Jeffrey A. Davis, Member

State of Idaho)
)
County of Ada)

On this 17th day of January, 2006, before me, a Notary Public in and for said County and State, personally appeared **BRADLEY J. LITTLE**, known or identified to me to be general partner in the partnership of **LITTLE ENTERPRISES LIMITED PARTNERSHIP**, a limited partnership, one of the general partners who subscribed said limited partnership name to the foregoing instrument, and acknowledged to me that he executed the same in said limited partnership name.

IN WITNESS WHEREOF, I have hereunto set my hand and seal, the day and year in this certificate first above written.

AMANDA McCURRY NOTARY PUBLIC STATE OF IDAHO

Notary Public for Idaho
Residing at Star, Idaho
My Commission expires 4/15/11

STATE OF IDAHO)
) ss.
County of Ada)

On this 17th day of January, 2006, before me, a Notary Public in and for said State, personally appeared **BRADLEY LITTLE**, known or identified to me to be the president of **HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED**, an Idaho corporation, the corporation who executed the foregoing instrument or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

AMANDA McCURRY NOTARY PUBLIC STATE OF IDAHO

Notary Public for Idaho
Residing at: Star, Idaho
My commission expires: 4/15/11

STATE OF ARIZONA)
) ss.
County of YAVAPAI)

On this 13 day of January, 2006, before me, a Notary Public in and for the State of Arizona, personally appeared **Jeffrey A. Davis**, known or identified to me to be a member of The M3 Companies, L.L.C., an Arizona limited liability company, which is the sole member of M3 Builders, L.L.C., an Arizona limited liability company acting as Manager of **AR BOISE L.L.C.**, a Texas limited liability company, who executed the foregoing instrument on behalf of said company, and acknowledged to me that such company executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

OFFICIAL SEAL
JUDITH E BRUNNETT-BOWIE
Notary Public - State of Arizona
YAVAPAI COUNTY
My Comm. Expires Feb. 22, 2007

Judith E Brunnett-Bowie
Notary Public for Arizona

My commission expires: 2/22/07

EXHIBIT A

Legal Description

EXHIBIT A

Parcel 8:
The West half of the Southwest Quarter of Section 14, Township 5 North, Range 1 West, Boise Meridian, in Ada County, Idaho.

Parcel 9:
The Southeast Quarter of the Northeast Quarter and the South half of Section 15, Township 5 North, Range 1 West, Boise Meridian, in Ada County, Idaho.

Parcel 10:

The following describes a parcel of real property lying in a portion of the South Half of Southeast Quarter of Section 21 and in a portion of the West Half of the Northeast Quarter of Section 28, all lying easterly of Highway 16, Township 5 North, Range 1 West, Boise Meridian, Ada County, Idaho, being more particularly described as follows:

BEGINNING at the Quarter Corner common to Section 21, 22, 27 and 28; thence,
North 88°39'16" West, 1325.31 feet; thence,
South 00°26'35" West, 2632.13 feet; thence,
North 88°41'42" West, 933.28 feet; thence,
North 12°48'04" East, 1004.84 feet; thence,
North 13°45'48" West, 22.36 feet; thence,
North 12°48'04" East, 1748.40 feet to a spiral to the left; thence, along said spiral a distance of 208.46 feet, having a radius of 3342.70, a theta of 1°47'12", which bears North 12°12'20" East, 208.45 feet; thence,
North 37°30'45" East, 108.57 feet to a curve to the left; thence, along said curve a distance of 946.18 feet, having a radius of 2401.85, a central angle of 22°34'16", having a tangent of 479.31, which bears North 02°14'04" West, 940.08 feet; thence,
South 88°48'04" East, 1619.66 feet; thence,
South 00°49'56" West, 1322.34 feet to the POINT OF BEGINNING;

EXCEPT that portion thereof described as follows:

A 100.00 x 100.00 foot square parcel of land located in the Southeast Quarter of the Southeast Quarter of said Section 21, described as follows:

Commencing at the Southeast corner of Section 21; thence,
North 89°17'40" West, 1325.30 feet to the Southwest corner of said Southeast Quarter of the Southeast Quarter; thence
North 00°18'58" East, 738.92 feet along the West line of said Southeast Quarter of the Southeast Quarter; thence,
North 89°41'02" East, 5.39 feet to the POINT OF BEGINNING; thence,
North 27°13'45" East, 100.00 feet; thence,
South 62°45'15" East, 100.00 feet; thence,
South 27°13'45" West, 100.00 feet; thence
North 62°45'15" West, 100.00 feet to the POINT OF BEGINNING.

Parcel 11:
The Northeast Quarter of the Northeast Quarter of Section 22, Township 5 North, Range 1 West, Boise Meridian, in Ada County, Idaho.

Parcel 12:
The North half of the Northwest Quarter of Section 23, Township 5 North, Range 1 West, Boise Meridian, in Ada County, Idaho.

Parcel 13:
The South half of the Northeast Quarter, the Southeast Quarter of the Northwest Quarter and the Northwest Quarter of the Southeast Quarter of Section 27, Township 5 North, Range 1 West, Boise Meridian, in Ada County, Idaho.

Parcel I

A 100.00 x 100.00 foot square parcel of land located in the Southeast Quarter of the Southeast Quarter of Section 21, Township 5 North, Range 1 West, Boise Meridian, Ada County, Idaho, described as follows:

Commencing at the Southeast corner of Section 21; thence,
North 89°17'40" West, 1325.30 feet to the Southwest corner of said Southeast Quarter of the Southeast Quarter; thence,
North 00°18'58" East, 738.92 feet along the West line of said Southeast Quarter of the Southeast Quarter; thence,
North 89°41'02" East, 5.39 feet to the POINT OF BEGINNING; thence,
North 27°13'45" East, 100.00 feet; thence,
South 62°46'15" East, 100.00; thence,
South 27°13'45" West, 100.00 feet; thence,
North 62°46'15" West, 100.00 feet to the POINT OF BEGINNING.

Parcel II

An easement for power and telephone as established in that certain Memorandum of Lease recorded under Instrument No. 100089710, of Official Records and more particularly described as follows:

A 10.00 foot wide strip of land located in the Northwest Quarter of the Northeast Quarter of Section 28 and the South half of the Southeast Quarter of Section 21, Township 5 North, Range 1 West, Boise Meridian, Ada County, Idaho, said strip lying between parallel lines located 5.00 feet on each side of the following described centerline;

Commencing at the South Quarter corner of said Section 21; thence,
North 89°17'40" West, 1325.30 feet along the South line of said section, to the Southeast corner of the Southwest Quarter of the Southeast Quarter of said section; thence,
North 89°17'40" West, 368.58 feet along said South section line to a point in the Southeasterly right of way line of State Highway No. 16; thence,
South 12°31'27" West, 44.19 feet along said right of way line to a point; thence,
South 77°28'33" East, 5.00 feet to the POINT OF BEGINNING; thence, along a line parallel with and 5.00 feet Southeasterly of said highway right of way line,
North 12°31'27" East, 304.12 feet; thence,
North 36°45'53" East, 581.27 feet to the POINT OF ENDING in the Southerly line of an antenna lease site, from which POINT OF ENDING the Southeast corner of said Southwest Quarter of the Southeast Quarter bears North 62°46'15" West, 35.00 feet, South 89°41'02" West, 5.39 feet, and South 00°18'58" West, 738.92 feet.

Parcel III

An access road easement as established in that certain Memorandum of Lease recorded under Instrument No. 100089710, of Official Records and more particularly described as follows:

A 20.00 foot wide strip of land located in the South half of the Southeast Quarter of Section 21, Township 5 North, Range 1 West, Boise Meridian, Ada County, Idaho, said strip lying between parallel lines located 10.00 feet on each side of the following described centerline:

Commencing at the South Quarter corner of said Section 21; thence,
North 89°17'40" West, 1325.30 feet along the South line of said section, to the Southeast corner of the Southwest Quarter of the Southeast Quarter of said section; thence,
North 89°17'40" West, 368.58 feet along said South section line to a point in the Southeasterly right of way line of State Highway No. 16; thence,
North 12°31'27" East, 43.66 feet along said right of way line to the POINT OF BEGINNING; thence,
South 77°28'33" East, 43.47 feet; thence,
North 07°15'53" East, 65.46 feet; thence,
North 06°40'14" East, 182.17 feet; thence,
North 36°12'15" East, 111.52 feet, along a line parallel with and 20.00 feet Southeast of said Southeasterly right of way line; thence,
North 08°13'12" East, 56.64 feet, continuing parallel with and 20.00 feet Southeast of said right of way line; thence,
North 56°59'34" East, 94.76 feet; thence,
North 34°39'13" East, 128.81 feet; thence,
North 62°40'21" East, 75.00 feet; thence,
North 27°13'45" East, 104.12 feet to the POINT OF ENDING in the Southerly line of an antenna lease site, from which POINT OF ENDING the Southeast corner of said Southwest Quarter of the Southeast Quarter bears North 62°46'15" West, 50.00 feet, South 89°41'02" West, 5.39 feet, and South 00°18'58" West, 738.92 feet.

EXHIBIT B

Permitted Exceptions

Conveyance of the real property described on Exhibit "A" is made subject to all liens, claims, easements, restrictions, reservations, irregularities, encroachments, rights of way, clouds on title, encumbrances and other exceptions to title of record or otherwise existing upon or against the Property including, but not limited to, those visible upon a physical inspection of the Property and any liens for taxes and assessments. This conveyance is also made subject to those exceptions to title disclosed by the title commitment, which are attached to and made a part of this Exhibit "B".

COMMITMENT FOR TITLE INSURANCE

Order No.: 5000526568AK

SCHEDULE B - SECTION 2

Schedule B of the policy or policies to be issued will contain exceptions to the following matters unless the same are disposed of to the satisfaction of the Company:

A. Defects, liens, encumbrances, adverse claims or other matters, if any, created first appearing in the public records or attaching subsequent to the effective date hereof but prior to the date the proposed Insured acquires of record for value the estate or interest or mortgage thereon covered by this commitment.

B. **General Exceptions:**

1. Rights or claims of parties in possession not shown by the public records.
2. Encroachments, overlaps, boundary line disputes, and any other matters which would be disclosed by an accurate survey or inspection of the premises including, but not limited to, insufficient or impaired access or matters contradictory to any survey plat shown by the public records.
3. Easements, or claims of easements, not shown by the public records.
4. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.
6. Taxes or special assessments which are not shown as existing liens by the public records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

C. **Special Exceptions:**

1. General Taxes for the year 2006, a Lien, but not yet due and payable.

2. Liens, levies and assessments of the Ada County.

3. Levies and assessments of the Farmers Union Ditch Irrigation District, and the rights, powers and easements of said district as by law provided.

4. Ditch, road and public utility easements as the same may exist over said premises.

5. Rights of the State of Idaho in and to that portion of said premises, if any, lying in the bed or former bed of the Big Gulch Creek, if it is navigable.
   Affects: Parcel 13.

6. Any prohibition or limitation on the use, occupancy, or improvements of the land resulting from the rights of the public, appropriators, or riparian owners to use any waters, which may now cover the land or to use any portion of the land which is now or may formerly have been covered by water.
   Affects: Parcel 13.

7. "A one-half interest in any or all mineral or oil deposits" as reserved in deed:
Recorded: April 7, 1937.
In Book: 222 of Deeds.
Page: 274, of Official Records.
Affects: Parcels 9, 11 and 12, and the Southwest Quarter of the Southwest Quarter of Section 14 of Parcel 8.

8. An easement for the purpose shown below and rights incidental thereto as set forth in document:
Granted to: American Telephone and Telegraph Company of Wyoming.
Purpose: Public Utilities.
Recorded: December 26, 1941.
Book: 17.
Page: 625, of Official Records.
Affects: Portion of Parcel 9.

9. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
Granted to: Salt Lake Pipe Line Company, a Nevada corporation.
Purpose: Pipeline.
Recorded: October 17, 1949.
Instrument No.: 292527, of Official Records.
Affects: Southerly portion of Parcel 10.

10. Negative easements, conditions, restrictions, and access rights contained in the deed to the State of Idaho.
Recorded: May 9, 1956.
Instrument No.: 394249, of Official Records.
Affects: Parcel 10.

11. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
Granted to: Douglas A. Fuller and Nancy D. Fuller, husband and wife.
Purpose: Access easement and utility easement.
Recorded: November 1, 1999.
Instrument No.: 99106563, of Official Records.
Affects: Portions of Parcel 9.

12. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
Granted to: Boise City, a municipal corporation.
Purpose: Grant of Avigation Easements.
Recorded: August 23, 2000.
Instrument No.: 100067293, of Official Records.
Affects: Parcels 8, 9, 10, 11, 12 and other property.

13. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
Granted to: SBA Towers, Inc.
Purpose: Power and Telephone easement and access easement.
Recorded: November 7, 2000.
Instrument No.: 100089710, of Official Records.
Affects: Parcel 10.

14. An easement for the purpose shown below and rights incidental thereto as set forth in document:
Granted to: Idaho Power Company.
Purpose: Public Utilities.
Recorded: January 3, 2001.
Instrument No.: 101000444, of Official Records.
Affects: Parcel 9.

15. A Memorandum of Land Lease with certain terms, covenants, conditions and provisions set forth therein.
Lessor: Highland Livestock and Land Company, an Idaho corporation.
Lessee: SBA Towers, Inc., a Florida corporation.
Recorded: November 7, 2000.
Instrument No.: 100089710, of Official Records.
Affects: Parcels I, II and III.

Lessee's Interest in said lease is now held of record by:
Assignee: AAT Communications Corp.
Assignments Recorded: December 1, 2000 and August 7, 2003.
Instrument Nos.: 100097180 and 103132005, of Official Records.

Amendment and Restatement of Memorandum of Land Lease.
Lessor: Highland Livestock and Land Company, a corporation.
Lessee: AAT Communications Corp., a New York corporation.
Recorded: December 2, 2005.
Instrument No.: 105183335, of Official Records.

16. Leasehold Deed of Trust, Assignment or Rents and Leases, Security Agreement, Financing Statement and Fixture Filing to secure an indebtedness in the amount shown below and any other obligations secured thereby:
Amount: $175,000,000.00.
Dated: October 3, 2003.
Trustor/Grantor: AAT Communications Corp. (also known as AAT Communications Corporation), a New York corporation.
Trustee: First American Title Insurance Company, a California corporation.
Beneficiary: Toronto Dominion (Texas), Inc., a Delaware corporation.
Recorded: October 16, 2003.
Instrument No.: 103175929, of Official Records.
Affects: Leasehold interest in Parcels I, II and III.

An agreement to modify the terms and provisions of said Deed of Trust as therein provided.
Recorded: September 9, 2005.
Instrument No.: 105130989, of Official Records.

17. Unrecorded leaseholds, if any, and the rights of vendors and holders of security interests in personal property of tenants to remove said personal property at the expiration of the term.

18. Notwithstanding Paragraph 4 of the insuring clauses of the policy or policies to be issued, the policy or policies when issued will not insure against loss arising by reason of any lack of a right of access to and from the land.
Affects: Parcels 8, 9, 11, 12, 13 and other property.

19. Matters disclosed by ALTA Survey by Associated Land Surveyors under File No. 5139-01, dated December 2005 and last revised December 12, 2005, as follows:

a) Existing dirt road (Old Stage/Immigrant Road), 8 feet wide, over Westerly portion of Parcel 9.
b) Existing dirt road over the Easterly portion of Parcel 9.
c) An existing fence off-line on the Northerly and Westerly portions of that portion of Parcel 9 in the Southeast Quarter of the Northeast Quarter.
d) An existing fence off-line through Parcel 11.
e) An existing dirt road, 9 feet wide, across Parcel 8.
f) Existing dirt road(s), 9 feet wide, across the Northerly portion of Parcel 13.
g) Existing fences lie North of the South property line in that portion of Parcel 13 lying in the Southeast Quarter of the Northwest Quarter and the Southeast Quarter of the Northeast Quarter.
h) Existing fence lines lie West of the East line, North of the South line and West of the West line of that portion of Parcel 13 lying in the Northwest Quarter of the Southeast Quarter.
i) Existing dirt roads, of indeterminate width, over Parcel 10.
j) An electrical junction box on the Westerly line of the Southerly portion of Parcel 10.
k) Telephone risers on or inside the Westerly line of the Southerly portion of Parcel 10.

END OF SCHEDULE B

Countersigned at: Boise, ID
Alliance Title & Escrow Corp.

Authorized Officer of Agent

7

After recording, please return to:

The M3 Companies
Attn: William I. Brownlee
110 E. Gurley Street, Suite 200I
Prescott, AZ 86301

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 21.00 7
BOISE IDAHO 08/04/05 11:39 AM
DEPUTY Bonnie Oberbillig
RECORDED – REQUEST OF
Alliance Title

105108186

AT-5000527120

SPECIAL WARRANTY DEED

FOR VALUE RECEIVED

HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation, whose address is 210 West Main, Emmett, Idaho 83617, ("Grantor"), who took title as "Highland Livestock and Land Company", does hereby bargain, sell, and convey, unto AR Boise L.L.C., a Texas limited liability company, whose address is 110 East Gurley Street, Suite 200, Prescott, Arizona 86301 ("Grantee") all that parcel of land located in Ada County, Idaho ("Premises") more particularly described in Exhibit A to this Special Warranty Deed.

TO HAVE AND TO HOLD the Premises, with its appurtenances unto Grantee, and Grantee's successors and assigns forever.

Grantor does hereby covenant to and with Grantee, that the Grantor is the owner in fee simple of the Premises; that the Premises are free from all encumbrances created or suffered by Grantor, except those made, suffered or done by Grantee, and except the matters set forth on Exhibit B to this Special Warranty Deed and except general taxes and assessments, including utility assessments for the current year, which are not yet due and payable, and that Grantor will warrant and defend the same forever from all other lawful claims. By accepting this Special Warranty Deed and subject to the covenants and warranties in this Special Warranty Deed, Grantee acknowledges and understands that Grantee is accepting the Premises from Grantor in an "As-Is" condition with all faults, including both latent and patent defects.

IN WITNESS WHEREOF, Grantor has caused its corporate name to be hereunto subscribed this 1st day of August, 2005.

GRANTOR:

HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation

Bradley Little, President

GRANTEE:

AR Boise, L.L.C., a Texas limited liability company
By: M3 Builders, L.L.C., an Arizona limited liability company, Manager

By: The M3 Companies, L.L.C., an Arizona limited liability company, sole Member of M3 Builders, L.L.C.

By: _____
William I. Brownlee, Member

By: _____
Jeffrey A. Davis, Member

STATE OF IDAHO)
) ss.
County of Ada)

On this 1st day of August, 2005, before me, a Notary Public in and for said State, personally appeared BRADLEY LITTLE, known or identified to me to be the president of HIGHLAND LIVESTOCK AND LAND COMPANY, LIMITED, an Idaho corporation, the corporation who executed the foregoing instrument or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

AMANDA McCURRY NOTARY PUBLIC STATE OF IDAHO

Notary Public for Idaho
Residing at: Star, Idaho
My commission expires: 4/15/11

STATE OF ARIZONA)
) ss.
County of YAVAPAI)

On this 26th day of July, 2005, before me, a Notary Public in and for the State of Arizona, personally appeared William I. Brownlee and Jeffrey A. Davis, known or identified to me to be the members of The M3 Companies, L.L.C., an Arizona limited liability company, which is the sole member of M3 Builders, L.L.C., an Arizona limited liability company acting as Manager of AR BOISE L.L.C., a Texas limited liability company, who executed the foregoing instrument on behalf of said company, and acknowledged to me that such company executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

OFFICIAL SEAL
JUDITH E. BRUMMETT-BOWIE
Notary Public - State of Arizona
YAVAPAI COUNTY
My Comm. Expires Feb. 22, 2007

Notary Public for Arizona
My commission expires: 2/22/07

EXHIBIT "A"

LEGAL DESCRIPTION

Parcel 2:

The Southeast Quarter of the Northeast Quarter of Section 9, Township 5 North, Range 1 East, Boise Meridian, in Ada County, Idaho.

Parcel 6:

The North half of the Northeast Quarter and the Northeast Quarter of the Northwest Quarter of Section 21, Township 5 North, Range 1 East, Boise Meridian, in Ada County, Idaho.

Parcel 7:

The Northwest Quarter of the Northwest Quarter of Section 22, Township 5 North, Range 1 East, Boise Meridian, in Ada County, Idaho.

EXHIBIT B

SPECIAL WARRANTY DEED PERMITTED EXCEPTIONS

This conveyance is made subject to all liens, claims, easements, restrictions, reservations, irregularities, encroachments, rights of way, clouds on title, encumbrances and other exceptions to title of record or otherwise existing upon or against the Property including, but not limited to, those visible upon a physical inspection of the Property and any liens for taxes and assessments. This conveyance is also made subject to those exceptions to title disclosed by the title commitment, which are attached to and made a part of this Exhibit B.

B. **General Exceptions:**

1. Encroachments, overlaps, boundary line disputes, and any other matters which would be disclosed by an accurate survey or inspection of the premises including, but not limited to, insufficient or impaired access or matters contradictory to any survey plat shown by the public records.
2. Water rights, claims or title to water, whether or not the matters are shown by the public records.

C. **Special Exceptions:**

1. General Taxes for the year 2005, a Lien, but not yet due and payable.

2. Liens, levies and assessments of the Ada County.

3. Levies and assessments of the Farmers Union Ditch Irrigation District, and the rights, powers and easements of said district as by law provided.

4. Ditch, road and public utility easements as the same may exist over said premises.

5. Agreement, and the terms and conditions contained therein:
   Between: Farmers Union Ditch Company, Limited, a corporation.
   And: Edward D. Parkinson and Beth A. Parkinson, husband and wife.
   Purpose: Irrigation water and payment for same
   Recorded: May 28, 1951.
   Instrument No.: 318236, of Official Records.
   Affects: Parcel 6

6. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
   Granted to: Robert E. Harmon and Sheila N. Harmon, husband and wife.
   Purpose: Road Access.
   Recorded: April 13, 1993.
   Instrument No.: 9326686, of Official Records.
   Affects: Parcel 2 and other property.

7. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
   Granted to: Jon J. Busack and Barbara A. Busack, husband and wife.
   Purpose: Road Access.
   Recorded: November 16, 1998.
   Instrument No.: 98110048, of Official Records.
   Affects: Parcel 2 and other property.

8. An easement for the purpose shown below and rights incidental thereto as set forth in a document:
   Granted to: Boise City, a municipal corporation.
   Purpose: Grant of Avigation Easements.
   Recorded: August 23, 2000.
   Instrument No.: 100067293, of Official Records.
   Affects: Parcels 2, 6, 7, and other property.

9. Terms, provisions, covenants, conditions, definitions, options, obligations and restrictions contained in a Special Warranty Deed:
Recorded: March 3, 2003.
Instrument No.: 103034609, of Official Records.
Affects: Parcels 2, 6, 7 and other property.

10. Notwithstanding Paragraph 4 of the insuring clauses of the policy or policies to be issued, the policy or policies when issued will not insure against loss arising by reason of any lack of a right of access to and from the land.
Affects: Parcels 2, 3, 6, 7 and other property.

11. Our inspection of the subject premises on 7/26/2005 disclosed the following:

a) The property is unimproved range land.
b) Access to Parcel 2 herein is via a gated, private road known as Aerie Lane, for which we find no recorded easement benefiting the subject premises.
c) Access to Parcels 3, 6 and 7 herein is via a gated, private road known as Woods Gulch Road, for which we find no recorded easement benefiting the subject premises.
d) We were unable to make any other determinations regarding Parcels 3, 6 and 7 as the previously mentioned gate was locked.

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 9.00 3
BOISE IDAHO 08/01/05 02:37 PM
DEPUTY Vicki Allen
RECORDED--REQUEST OF
Pioneer
105106118

251858
Sem/HH

Gwynn

A Pioneer Company
PIONEER TITLE COMPANY
OF ADA COUNTY
8151 W. Rifleman Ave. / Boise, Idaho 83704
(208) 377-2700

WARRANTY DEED

For Value Received Randy L. Gwynn, and unmarried man and Cindy L. Gwynn, an unmarried woman

hereinafter referred to as Grantor, does hereby grant, bargain, sell, warrant and convey unto

AR Boise, LLC, a Texas limited liability company

hereinafter referred to as Grantee, whose current address is 110 East Gurley #200, Prescott, AZ 86301 the following described premises, to-wit:

SEE EXHIBIT A ATTACHED HERETO AND MADE A PART HEREOF.

together with (i) all improvements owned by Grantor and located thereon, (ii) all rights, privileges, easements and appurtenances owned by Grantor appertaining to the premises, (iii) all water rights appurtenant to said premises, including without limitation Grantor's entire 0.67 share in the Farmers Union Ditch Company and all rights under water right number 63-22899 as registered with the Idaho Department of Water Resources, and (iii) all right, title and interest of Grantor (if any) in, to and under adjoining streets, rights of way and easements.

To HAVE AND TO HOLD the said premises, with their appurtenances unto the said Grantee, his heirs and assigns forever. And the said Grantor does hereby covenant to and with the said Grantee, that Grantor is the owner in fee simple of said premises; that said premises are free from all encumbrances except current years taxes, levies, and assessments, and except U.S. Patent reservations, restrictions, easements of record, and easements visible upon the premises, and that Grantor will warrant and defend the same from all claims whatsoever.

Dated: July 26, 2005

Randy L. Gwynn

Cindy L. Gwynn

STATE OF Idaho)
) SS.
County of Ada)

The foregoing instrument was acknowledged before me this 29 day of July, 2005 by Randy L. Gwynn and Cindy L. Gwynn personally known to me or proven to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and acknowledged that he executed it.

Witness my hand and official seal.

My Commission Expires: _____

Susan J. Merritt
Notary Public

RESIDING AT: CALDWELL, ID
MY COMMISSION EXPIRES 05-05-2011

SUSAN J. MERRITT
NOTARY
PUBLIC
STATE OF IDAHO

EXHIBIT "A"

LEGAL DESCRIPTION

Lot 3 in Block 1 of Gulch Ranch Estates according to the plat thereof filed in Book 61 of Plats at pages 6097 and 6098, records of Ada County, Idaho.

252593
8cm/bl

ADA COUNTY RECORDER J. DAVID NAVARRO AMOUNT 9.00 3
BOISE IDAHO 08/01/05 02:37 PM
DEPUTY Vicki Allen
RECORDED-REQUEST OF
Pioneer

105106115

NO

Moody

A Pioneer Company
PIONEER TITLE COMPANY
OF ADA COUNTY
8151 W. Rifleman Ave. / Boise, Idaho 83704
(208) 377-2700

WARRANTY DEED

For Value Received John W. Moody and Betty L. Moody, husband and wife

hereinafter referred to as Grantor, does hereby grant, bargain, sell, warrant and convey unto

AR Boise, LLC, a Texas limited liability company

hereinafter referred to as Grantee, whose current address is 110 East Gurley #200, Prescott, AZ 86301

the following described premises, to-wit:

SEE EXHIBIT A ATTACHED HERETO AND MADE A PART HEREOF.

together with (i) all improvements owned by Grantor and located thereon, (ii) all rights, privileges, easements and appurtenances owned by Grantor appertaining to the premises, (iii) all water rights appurtenant to said premises, including without limitation all rights in and to their 0.67 share in the Farmers Union Ditch Company, and (iv) all right, title and interest of Grantor (if any) in, to and under adjoining streets, rights of way and easements.

To HAVE AND TO HOLD the said premises, with their appurtenances unto the said Grantee, his heirs and assigns forever. And the said Grantor does hereby covenant to and with the said Grantee, that Grantor is the owner in fee simple of said premises; that said premises are free from all encumbrances except current years taxes, levies, and assessments, and except U.S. Patent reservations, restrictions, easements of record, and easements visible upon the premises, and that Grantor will warrant and defend the same from all claims whatsoever.

Dated: July 26, 2005

John W. Moody

Betty L. Moody

STATE OF Idaho)
) SS.
County of Ada)

The foregoing instrument was acknowledged before me this 29 day of July, 2005 by John W. Moody and Betty L. Moody personally known to me or proven to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument, and acknowledged that he executed it.

Witness my hand and official seal.

My Commission Expires:_____

Susan J. Merritt

Notary Public

RESIDING AT: CALDWELL, ID
MY COMMISSION EXPIRES 05-05-2011

SUSAN J. MERRITT NOTARY PUBLIC STATE OF IDAHO

EXHIBIT "A"

LEGAL DESCRIPTION

Lot 4 in Block 1 of Gulch Ranch Estates according to the plat thereof filed in Book 61 of Plats at pages 6097 and 6098, records of Ada County, Idaho.

42-8

m3companies

November 20, 2006

Idaho Department of Water Resources
322 E. Front Street
Boise, Idaho 83720

Dear Sir or Madam:

Pursuant to your request enclosed are the following:

> M3 Eagle, L.L.C. comparative income tax basis financial statements for the ten months ended October 31, 2006 and the period inception (July 21, 2005) through October 31, 2005.

The accompanying statement of assets, liabilities and equity – income tax basis of M3 Eagle, L.L.C. as of October 31, 2006 and 2005 have been prepared by Thomas D. Cervino, CPA. I have prepared such financial statements in my capacity as an employee of M3 Companies, L.L.C., the parent company of M3 Builders, L.L.C. (the manager of M3 Eagle, L.L.C.).

Sincerely,

THE M3 COMPANIES, L.L.C.

Thomas D. Cervino

Thomas D. Cervino, CPA

Enclosure

110 East Gurley Street | Suite 200 | Prescott, Arizona 86301 | Phone 928.771.0411 | Fax 928.771.0024

M3 Eagle, L.L.C.
Statement of Assets, Liabilities and Equity - Income Tax Basis
As of October 31, 2006 and 2005

	October 31, 2006	October 31, 2005
ASSETS		
Current Assets		
Cash and cash equivalents	$ 940,334	$ 1,173,778
Escrow deposits	-	810,000
Total Current Assets	940,334	1,983,778
Land and capitalized entitlement and carrying costs	61,632,334	19,089,209
Organization costs, net of accumulated amortization	47,555	51,023
Total Assets	$ 62,620,223	$ 21,124,010
LIABILITIES AND MEMBERS' EQUITY		
Current Liabilities		
Accounts payable and accrued expenses	$ 187,525	$ 11,865
Accrued Interest	339,708	45,975
Notes payable - land acquisition financing	8,500,000	2,570,000
Total Current Liabilites	9,027,233	2,627,840
Total Liabilities	9,027,233	2,627,840
Equity:		
Members' Capital	53,500,100	18,500,100
Retained Earnings (Loss)	92,890	(3,930)
Total Equity	53,592,990	18,496,170
Total Liabilities & Equity	$ 62,620,223	$ 21,124,010

See Accompanying Selected Information

M3 Eagle, L.L.C.
Selected Information – Substantially All Disclosures Required by Generally Accepted Accounting Principles are Not Included
For the Ten Month Period Ending October 31, 2006 and the period inception (July 21, 2005) through October 31, 2005

Note 1: Summary of Significant Accounting Policies

Nature of Operations: M3 Eagle, L.L.C. (the "Company") owns approximately 17,000 acres of undeveloped land north of Eagle, Idaho. The Company is in the process of entitling 6,005 acres as a master planned community. The remaining 11,000 acres is being held for investment and potential exchange with the Bureau of Land Management.

The financial statements are presented on an income tax basis, the basis of accounting used by the Company for federal income tax reporting. Income tax basis financials differ from generally accepted accounting principles in that certain carrying costs related to the land may be capitalized at the election of the taxpayer (the Company) in accordance with §266 of the Internal Revenue Code.

Use of Estimates: The preparation of financial statements in conformity with the income tax basis of accounting requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Land Entitlement and Carrying Costs: Costs incurred with regard to the entitlement and carrying costs of the land are being capitalized to the land by the Company.

Income Taxes: The Company is a Limited Liability Company taxed as a partnership for income tax purposes. For federal income tax purposes, the income earned by a partnership is flowed through to the partners. Income tax is assessed on the income that flows to the individual partners. Accordingly no provision for income taxes has been included in the financial statements for the Company.

Advertising: The Company expenses advertising costs when incurred.

Note 2: Cash and Cash Equivalents - The Company considers all highly liquid debt instruments purchased with a maturity of three months or less to be cash equivalents.

Balances of cash and cash equivalents at a financial banking institution exceeded the federally insured limit of $100,000 by $853,538 as of October 31, 2006 and by $1,108,749 as of October 31, 2005. These balances fluctuate greatly during the year and can exceed this $100,000 limit.

M3 Eagle, L.L.C.
Selected Information – Substantially All Disclosures Required by Generally Accepted Accounting Principles are Not Included
For the Ten Month Period Ending October 31, 2006 and the period inception (July 21, 2005) through October 31, 2005

Note 3: **Intangible Assets** – Organization costs in the amount of $52,035 have been capitalized and are being amortized over fifteen years. These costs include legal and other costs related to the formation of the Company.

Note 4: **Notes Payable – Land Acquisition Financing**

Notes payable at October 31, 2006 and 2005 consists of the following:

	10/31/06	10/31/05
Note Payable – Carry-back land acquisition financing, secured via a deed of trust with simple interest at a rate of 7%, maturing on 1/31/06	$ 0	$ 2,170,000
Note Payable – Carry-back land acquisition financing, secured via a deed of trust with simple interest at a rate of 8%, maturing on 8/1/06	0	400,000
Note Payable – Carry-back land acquisition financing, secured via a deed of trust with simple interest at a rate of 8%, maturing on 9/13/07	1,000,000	0
Note Payable – Carry-back land acquisition financing, secured via a deed of trust with simple interest at a rate of 7%, maturing on 3/15/07	7,500,000	0
Total	$ 8,500,000	$ 2,570,000

Interest accrued on the outstanding notes has been capitalized as a cost of land in the amount of $452,364 for the ten months ended October 31, 2006 and $44,845 for the period inception (July 21, 2005) through October 31, 2005. Total capitalized interest from inception through October 31, 2006 equals $528,989.

Note 6: **Capitalization from Members:** The approved budget includes additional capitalization from the members on or before February 27, 2007 in the amount of $10,500,000. This capitalization is available for the pay off of land acquisition financing maturing in 2007.

M3 Eagle, L.L.C.
Selected Information – Substantially All Disclosures Required by Generally Accepted Accounting Principles are Not Included
For the Ten Month Period Ending October 31, 2006 and the period inception (July 21, 2005) through October 31, 2005

Note 7: **Related Party Transactions:** The following transactions occurred between the Company and other affiliated companies:

Certain management services of the Company are performed by a company which has common partners. During the ten months ended October 31, 2006 and the period from inception (July 21, 2005) through October 31, 2005, the company was billed $800,000 and $780,000 for these services respectively.

Note 8: **Concentrations:** The Company owned real estate is located north of Eagle, Idaho. The Company is subject to the real estate market and economic conditions related to this specific geographic area.

The Company has one major equity contributor for the funding of land purchases and operations.

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Engineer's Opinion of Probable Cost for M3-Water/Sewer/Pressure Irr.

Located in

EAGLE, ID

Prepared On:
29-Jan-2008

By:

Stanley Consultants INC.

1940 S. Bonito Way, #140
Meridian, Idaho 83642
208-288-0573

Disclaimer:

All cost estimates presented in this report are Stanley Consultants' opinions of probable project, construction, and / or operation and maintenance costs. Cost estimates are made on the basis of our experience and represent our best judgment. We have no control over cost of labor, materials, equipment, contractor's methods, or over competitive bidding or market conditions. Therefore, we do not guarantee that proposals, bids, or actual construction costs will not vary from estimates of project costs, construction, and / or operation and maintenance costs presented. The estimates do not include inflation.

All values shown on the following pages are based upon land use and phasing exhibits in which preliminary layouts, utility and earthwork design have not been completed and are therefore subject to revision upon more complete site design. All quantities have been calculated on a percentage basis as a reflection of previous projects completed by Stanley Consultants. Actual item quantities may vary based on site layout and land use allocation.

Any offsite utility installation includes the cost of the structures and piping only and excludes, but is not limited to, costs such as land acquisition, easements, pavement removal and/or replacement, utility conflicts, etc.

Stanley Consultants provides this information to assist our clients with the figures for the basic costs of development and assumes no responsibility for differences between the numbers provided and those established at the time of bidding. If a more accurate estimate is required, at the clients request, we can provide a revised estimate site layouts and design progress for this purpose.

M3 EAGLE - SUMMARY OF UTILITY COSTS

ITEM or DESCRIPTION	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	GRAND TOTAL
Developable Acres	896	937	2110	1073	989	6005
Total # Sites	498	1996	2526	1852	281	7153
HARD COSTS						
SEWER						
Primary Infrastructure	$7,458,971	$1,282,462	$6,645,665	$6,173,666	$131,014	$21,691,777
Bulk Lots	$1,241,434	$5,379,598	$9,351,885	$4,646,322	$1,774,613	$22,393,853
Section Total	***$8,700,406***	***$6,662,060***	***$15,997,550***	***$10,819,988***	***$1,905,627***	***$44,085,630***
WATER						
Primary Infrastructure	$6,262,849	$4,003,245	$4,060,869	$3,176,513	$2,292,233	$19,795,710
Bulk Lots	$1,429,803	$5,281,128	$10,296,188	$5,205,238	$2,494,735	$24,707,090
Section Total	***$7,692,652***	***$9,284,373***	***$14,357,057***	***$8,381,751***	***$4,786,968***	***$44,502,800***
PRESSURE IRRIGATION						
Primary Infrastructure	$3,611,079	$1,378,593	$1,322,312	$2,162,640	$174,972	$8,649,596
Bulk Lots	$435,577	$778,883	$1,332,828	$692,766	$545,551	$3,785,605
Section Total	***$4,046,656***	***$2,157,476***	***$2,655,140***	***$2,855,405***	***$720,523***	***$12,435,201***
Sub-Total:	***$20,439,714***	***$18,103,908***	***$33,009,747***	***$22,057,145***	***$7,413,118***	***$101,023,630***
Contingency	$2,354,690	$2,954,430	$5,399,085	$3,260,082	$1,222,822	$15,191,108
Amount per Lot	**$45,772**	**$10,550**	**$15,205**	**$13,670**	**$30,733**	**$16,247**

M3 EAGLE - UTILITY COSTS FOR INFRASTRUCTURE IN COLLECTOR AND ARTERIAL ROADWAYS

			Phase 1		Phase 2		Phase 3		Phase 4		Phase 5		
ITEM or DESCRIPTION	UNITS	UNIT COST	QTY	TOTAL AMOUNT	QTY	TOTAL AMOUNT	QTY	TOTAL AMOUNT	QTY	TOTAL AMOUNT	QTY	TOTAL AMOUNT	TOTAL AMOUNT
Developable Acres	acre		898		937		2110		1073		989		6005
Total # Sites			498		1998		2528		1852		281		7153
HARD COSTS													
SEWER													
30" Mainline Sewer	lf	$88.15	7711	$679,725	0	$0	0	$0	0	$0	0	$0	$680,000
27" Mainline Sewer	lf	$76.83	3113	$239,172	0	$0	0	$0	0	$0	0	$0	$239,000
24" Mainline Sewer	lf	$62.10	0	$0	3464	$215,114	0	$0	0	$0	0	$0	$215,000
21" Mainline Sewer	lf	$45.10	0	$0	0	$0	1667	$75,182	1662	$74,956	0	$0	$150,000
18" Mainline Sewer	lf	$51.05	2139	$109,196	9325	$476,041	3868	$197,461	5652	$288,535	0	$0	$1,071,000
15" Mainline Sewer	lf	$41.95	3730	$156,474	8665	$363,497	0	$0	0	$0	0	$0	$520,000
12" Mainline Sewer	lf	$29.84	0	$0	0	$0	0	$0	4366	$130,281	0	$0	$130,000
10" Mainline Sewer	lf	$26.82	3767	$101,031	538	$14,429	5639	$151,245	10150	$272,230	2576	$69,096	$608,000
8" Mainline Sewer	lf	$20.69	829	$17,152	0	$0	5392	$111,560	9758	$201,893	1228	$25,407	$356,000
Standard Manhole	ea	$1,800	85	$153,000	88	$158,400	66	$118,800	126	$226,800	15	$27,000	$684,000
CCTV and Compaction	lf	$2.50	21289	$53,223	21992	$54,980	16566	$41,415	31588	$78,971	3804	$9,511	$238,000
Treatment Facility	1000gpd	$7,000	850	$5,950,000	0	$0	850	$5,950,000	700	$4,900,000	0	$0	$16,800,000
Section Total				*$7,458,971*		*$1,282,462*		*$6,645,665*		*$6,173,666*		*$131,014*	*$21,691,777*
WATER													
12" Mainline Water	lf	$41.00	9980	$409,185	13070	$535,852	3448	$141,369	16014	$656,568	0	$0	$1,743,000
10" Mainline Water	lf	$35.70	26964	$962,611	24975	$891,823	15990	$570,842	18186	$649,245	5225	$186,533	$3,261,000
Fire Hydrants	ea	$3,500	92	$322,000	95	$332,500	49	$171,500	86	$301,000	13	$45,500	$1,173,000
Blow off Valves	ea	$1,850	23	$37,950	27	$44,550	31	$51,150	50	$82,500	4	$6,600	$223,000
Booster Pump Station	ea	$550,000	2	$1,100,000	0	$0	0	$0	0	$0	1	$550,000	$1,650,000
Pressure Reducing Station	ea	$145,000	2	$290,000	2	$290,000	2	$290,000	2	$290,000	1	$145,000	$1,305,000
Water Tank	1000gal	$1,250	1000	$1,250,000	0	$0	1500	$1,875,000	0	$0	500	$625,000	$3,750,000
Misc. Fittings	lf	$16.00	36944	$591,104	38045	$608,720	19438	$311,008	34200	$547,200	5225	$83,600	$2,142,000
Water Well	ls	$650,000	2	$1,300,000	2	$1,300,000	1	$650,000	1	$650,000	1	$650,000	$4,550,000
Section Total				*$5,262,849*		*$4,003,245*		*$4,060,869*		*$3,176,513*		*$2,292,233*	*$19,795,710*
PRESSURE IRRIGATION													
12" PVC	lf	$ 24.00	66956	$ 1,606,947	14770	$ 354,470	14623	$ 350,953	42319	$ 1,015,653	0	$ -	$3,328,000
10" PVC	lf	$ 21.00	26964	$ 566,242	24975	$ 524,484	15990	$ 335,789	18186	$ 381,909	5225	$ 109,725	$1,918,000
6" PVC	lf	$ 16.50	1674	$ 27,619	369	$ 6,092	356	$ 6,032	1058	$ 17,457	0	$ -	$57,000
4" PVC	lf	$ 7.50	674	$ 5,056	624	$ 4,683	400	$ 2,998	455	$ 3,410	131	$ 980	$17,000
Misc. Fittings	lf	$ 12.00	96268	$ 1,155,216	40739	$ 488,864	31378	$ 376,540	62018	$ 744,212	5356	$ 64,268	$2,829,000
Pump Station	100gpm	$ 50,000	5	$ 250,000	0	$ -	5	$ 250,000	0	$ -	0	$ -	$500,000
Section Total				*$3,611,079*		*$1,378,593*		*$1,322,312*		*$2,162,640*		*$174,972*	*$8,649,596*
Sub-Total:				*$17,332,900*		*$6,664,299*		*$12,028,846*		*$11,512,819*		*$2,598,218*	*$50,137,083*
10% Contingency		10%		$1,733,290		$666,430		$1,202,885		$1,151,282		$259,822	$5,013,708

M3 EAGLE - UTILITY COSTS FOR INFRASTRUCTURE TO DEVELOP BULK LOTS

			Phase 1		Phase 2		Phase 3		Phase 4		Phase 5		GRAND TOTAL
ITEM or DESCRIPTION	UNITS	UNIT COST	QTY	AMOUNT	QTY	AMOUNT	QTY	AMOUNT	QTY	AMOUNT	QTY	AMOUNT	
Developable Acres	acre		896		937		2110		1073		989		6005
Total # Sites			498		1996		2526		1852		281		7153
SEWER													
10" Mainline Sewer	lf	$26.82	5825	$156,227	21900	$587,358	46525	$1,247,801	19275	$516,956	11700	$313,794	$2,822,135
8" Mainline Sewer	lf	$20.69	17475	$361,558	65700	$1,359,333	139575	$2,887,807	57825	$1,196,399	35100	$726,219	$6,531,316
Standard Manhole	ea	$1,800	93	$167,400	350	$630,000	744	$1,339,200	308	$554,400	187	$336,600	$3,027,600
Connections	ea	$90	498	$44,820	1996	$179,640	2526	$227,340	1852	$166,680	281	$25,290	$643,770
4" Service Lines	lf	$14	32370	$453,180	129740	$1,816,360	164190	$2,298,660	120380	$1,685,320	18285	$255,710	$8,509,230
CCTV and Compaction	lf	$2.50	23300	$58,250	87600	$219,000	186100	$465,250	77100	$192,750	46800	$117,000	$1,052,250
Lift Station	100gpm	$75,000	0	$0	6	$450,000	10	$750,000	3.0	$225,000	0	$0	$1,425,000
6" Forced Main	lf	$16.50	0	$0	8358	$137,907	8232	$135,828	6595	$108,818	0	$0	$382,553
Section Total				***$1,241,434***		***$5,379,598***		***$9,351,885***		***$4,646,322***		***$1,774,613***	***$22,394,000***
WATER													
10" Mainline Water	lf	$35.70	5825	$207,953	20575	$734,528	44375	$1,584,188	16875	$602,438	10550	$376,835	$3,505,740
8" Mainline Water	lf	$24.00	17475	$419,400	61725	$1,481,400	133125	$3,195,000	50625	$1,215,000	31650	$759,600	$7,070,400
Single Services	ea	$800.00	498	$398,400	1996	$1,596,800	2526	$2,020,800	1852	$1,481,600	281	$224,800	$5,722,400
Commercial Services	ea	$4,000.00	0	$0	9	$36,000	29	$116,000	45	$180,000	27	$108,000	$440,000
Fire Hydrants	ea	$3,500	58	$203,000	206	$721,000	444	$1,554,000	169	$591,500	106	$371,000	$3,440,500
Blow off Valves	ea	$1,650	23	$37,950	82	$135,300	178	$293,700	68	$112,200	42	$69,300	$648,450
Booster Pump Station	ea	$550,000	0	$0	0	$0	0	$0	1	$550,000	0	$0	$550,000
Pressure Reducing Station	ea	$145,000	0	$0	0	$0	2	$290,000	0	$0	2	$290,000	$580,000
Misc. Fittings	lf	$7.00	23300	$163,100	82300	$576,100	177500	$1,242,500	67500	$472,500	42200	$295,400	$2,749,600
Section Total				***$1,429,803***		***$5,281,128***		***$10,296,188***		***$5,205,238***		***$2,494,735***	***$24,707,000***
PRESSURE IRRIGATION													
10" PVC	lf	$ 21.00	2039	$ 42,814	7201	$ 151,226	15531	$ 326,156	5906	$ 124,031	3693	$ 77,543	$721,770
6" PVC	lf	$ 16.50	2621	$ 43,251	9259	$ 152,769	19969	$ 329,484	7594	$ 125,297	4748	$ 78,334	$729,135
4" PVC	lf	$ 7.50	1165	$ 8,738	4115	$ 30,863	8875	$ 66,563	3375	$ 25,313	2110	$ 15,825	$147,300
Misc. Fittings	lf	$ 7.00	5825	$ 40,775	20575	$ 144,025	44375	$ 310,625	16875	$ 118,125	10550	$ 73,850	$687,400
Pump Station	100gpm	$ 50,000	6	$ 300,000	6	$ 300,000	6	$ 300,000	6	$ 300,000	6	$ 300,000	$1,500,000
Section Total				***$435,577***		***$778,883***		***$1,332,828***		***$692,766***		***$545,551***	***$3,786,000***
Sub-Total:				***$3,107,000***		***$11,440,000***		***$20,981,000***		***$10,544,000***		***$4,815,000***	***$50,887,000***
Contingency:		20%		$621,400		$2,288,000		$4,196,200		$2,108,800		$963,000	$10,177,400

- GENERAL ASSUMPTIONS:

All unit costs are based on one or more: recent local contractor prices, "Means CostWorks 2007" estimating software.
All quantity assumptions are made based on preliminary layouts, bubble plan, sewer and water models which have been created to provide a more accurate estimate, however, assumptions made are subject to change as the bubble plan is revised or phase layouts are developedl
This estimate has been completed in two parts. The first intends to include items pertinent to the overall development with the idea that bulk land parcels will be developed individually. The second intends to include items pertinent to develop the bulk land parcels into buildable lots.
Estimate will be based on 5-phases as shown on the phase map and the Master plan.

Hard Costs:

- SEWER
Based on 10 State standards typical sewer service capacity at minimum slopes for partially full pipe
A gravity wastewater line has been estimated as needed in arterial and collector roadways to service bulk land parcels. The quantities of sewer pipe, layout, slopes, sizes and master plan may change as the bubble plan is updated or as individual site layouts and grading are completed.
One (1) Standard Manhole per 250 lf of pipe
Lift stations and forced main are located per the sewer master plan. Lift stations will be built by the developer of individual bulk lots.
Treatment Facility – cost of $7/gpd based on a total demand of 2.4MGD

- WATER
Assumes 12" pipe in Arterials and 10" pipe in Collectors. Loops will be created with 8" throughout the bulk lots.
Fire Hydrants: one (1) per 400 lf of water main
Blow off valves for connection of bulk lots based on the master plan
Fittings/Valves/Etc: per lf cost based on previous developments
Water Well locations based on water report.
Pressure Reducing Station estimated as $145k and assumed to be located where arterial roadways cross proposed pressure zone lines.
Booster Pump Station estimated as $550k and quantity assumed to be located where main lines cross pressure zones between the wells and the water tanks.
Water Tank: A total of 3.0M gal required to be allocated to tanks.

- PRESSURE IRRIGATION
A 12" line will be located in all Arterials
A 10" line will be located in all Collectors
4"-10" line will be utilized to serve open space, golf course, etc.

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Hydro Logic, Inc.
1002 W. Franklin Street, Boise, ID 83702 (208) 342-8369, (Fax) 342-3100, hydrologic@qwest.net

EXHIBIT 10

Presentations, Report Submittals, and Public Education by Hydro Logic, Inc. On the M3 Eagle Hydrogeologic Characterization Studies, Water Use and Water Right Application Relative to the Local Public Interest.

1) United Water Idaho, Inc.
   a. President Greg Wyatt, Roger Dittus, and Scott Rhead.
   b. Two presentations and submittal of 1st Year Report.
   c. Submittal of Application for Permit.

2) City Of Eagle Planning and Zoning Commission.
   a. Chairman Jason Pierce, David Aspitarte, William McCarrel, Jack Zastrow, Rich Felix, Nichoel Spencer Baird, and Susan Buxton.
   b. Several presentations and a workshop during the Commission's consideration of the M3 Eagle Development and submittal of 1st Year Report.

3) City of Eagle Mayor's Citizen's Water Committee.
   a. Mayor Merrill, Phillip Bandy, David Milan, Norm Semanko, Jay Friday, Marcia Schmelzer, Joe King, Christian Petrich, Bruce Smith, David Head, Phillip Fry, Lynne Sedlacek, Lynne McKee, Del Bunce, Theresa Verschuren.
   b. Presentation and submittal of 1st Year Report

4) Senator Brad Little.
   a. District 11 – Majority Caucus Chair.
   b. Two presentations and submittal of water right and 1st Year Report.

5) Representative Mike Moyle.
   a. House Majority Leader.
   b. Presentation and submittal of 1st Year Report.

6) Holladay Engineering, Co. – Eagle City Engineer.
   a. Manager Vern Brewer, Kasey Ketterling, and Chris Duncan.
   b. Two presentations and submittal of 1st Year Report.

7) North Ada County Foothills Alliance.
   a. Presentation to core group and other interested parties.
   b. David Head, John Petrovsky, C.J. Thompson, John Thornton, Mary Taylor, Chuck Meisner, Purdys, and others.
   c. Submittal of 1st Year Report.

Continued on reverse

Continued from reverse

8) Idaho Department of Water Resources.
   a. Director Tuthill – submittal of 1st Year Report.
   b. Phil Rassier, Jeff Peppersack, Steve Lester, Dave Tuthill – Discussion meeting on M3 Eagle Water Right Application.
   c. Sean Vincent, Shane Bendixsen, Dennis Owsley, Helen Harrington, and Rick Raymondi.
   d. Two presentations and submittal of 1st Year Report.
   e. All-day field trip to North Eagle Foothills to view geologic relationships and wells – Vincent and Owsley.
   f. Submittal of water level measurements and other aquifer data tabulations.

9) Boise State University Department of Geosciences.
   a. Dr. S.H. Wood, Emeritus.
   b. Presentation and submittal of 1st Year Report.
   c. All Day field Trip to North Eagle Foothills.
   d. Peer review of 1st Year Report.

10) University of Idaho Department of Geological Sciences.
   a. Dr. James L. Osiensky and Stacey Douglas.
   b. 1st Year Report and on-going presentations.
   c. Data submittals in support of M3 Eagle-sponsored Masters Thesis and development of a numerical ground water model of the Eagle area.
   d. Peer review of 1st Year Report.

11) Dr. Charles Howarth.
   a. Local area land owner.
   b. Submittal of 1st Year Report and several conversations.

12) Phillip Fry.
   a. Third generation Eagle resident and concerned citizen.
   b. Presentations and submittal of 1st Year Report.

13) Farmer's Union Ditch Company, LTD.
   a. Jay Friday, Gene Bailey, Langdon,
   b. Presentation and submittal of 1st Year Report.

14) SunCor
   a. Submittal of 1st Year Report.

15) Citizens of Eagle.
   a. Measurements in nearly 200 private domestic wells.
   b. Submittal of all measured levels and some re-measurements in key wells.

16) The Idaho Statesman.
   a. Interviews with Katy Moeller and cooperation on news stories.

B

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Attachment B

M3 Eagle

Existing Points of Diversion (Wells) Locations Table

TWP	RGE	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5N	1W	10																	
		11																	
		12																	
		13								X									
		14																	
		15																	
		21																	
		22																	
		23									X			X					
		24		X			X												
		26																	
		27																	
		28															X	XX	
		33	X	XX															
5N	1E	7																	
		17																	
		18																	
		19			X														
		20																	

Attachment B

M3 Eagle

Potential Future Points of Diversion Locations Table

TWP	RGE	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
5N	1W	15											M						
		21																M	
		22	M												M				
		23			M		M				M			M	M				
		24									M								
		27	M							M									
		28			M													M	
		33		M															

Attachment B

M3 Eagle

Potential Future Points of Diversion Locations List

TOWNSHIP 5 NORTH RANGE 1 WEST

Section 15	SW SW
Section 21	SE SE
Section 22	NE NE, NE SE
Section 23	SW NE, NE NW, NE SW, SE SW, NE SE
Section 24	NE SW
Section 27	NE NE, SE NW
Section 28	SW NE, SE SE
Section 33	NW NE

42-10C

Attachment C

M3 Eagle

Existing Points of Diversion Locations Table

WELL	DATE DRILLED	CASING DIAMETER	WELL DEPTH	TWN RGE	SEC.	¼-¼	COMMENTS
Spring Valley Development #6	2004	8-inch	738 feet	T5N R1W	13	SE NW	
Spring Valley Development #7	2004	8-inch	350 feet	T5N R1W	23	NE SW	
Spring Valley Development #9	2004	8-inch	263 feet	T5N R1E	19	SW NE	
Kling Domestic	2004	6-inch	285 feet	T5N R1W	28	SE SE	
Kling Irrigation	1989	16-inch	414 feet	T5N R1W	28	SE SE	
Big Gulch Stock	not known	4-inch	~180 feet	T5N R1W	23	SE SW	Tagged by H.L.I.; no log found
Flack Corral	1996	6-inch	400 feet	T5N R1W	24	NW NE	
Flack Corral	not known	4-inch	~250 feet	T5N R1W	24	NE NW	Tagged by H.L.I. on 04-30-07
Gwynn Domestic	1998	6-inch	319 feet	T5N R1W	28	SW SE	Well log shows NE NE sec. 33
Moody Domestic	1996	6-inch	302 feet	T5N R1W	33	NE NE	Well log shows SE SE
Davis Domestic	1999	6-inch	149 feet	T5N R1W	33	NW NE	Well log shows SW SE sec. 28
Green Domestic	1970	6-inch	135 feet	T5N R1W	33	NW NE	

M3 Eagle

Existing Wells To Be

Points of Diversion = ●

August 21, 2007

S.V.R. #6

Flack Corral 4"

Flack Corral 6"

S.V.R. #9

M3 Test #3

M3 Test #2

APPROXIMATE M3-EAGLE PROPERTY BOUNDARY

S.V.R. #7

Big Gulch Stock

APPROXIMATE M3-EAGLE PROPERTY BOUNDARY

Kling Domestic

M3 Test #1

Kling Irrigation

Moody Domestic

Green Domestic

Hydro Logic Inc

Boise, Idaho

U.S. Geological Survey

7.5-min./series quads

scale 1:24000

D

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Water Rights / Ditch Company Shares Owned by M3 Eagle (previously AR Boise) as of August 24, 2007

1) **63-22899**
   a. Gwynn - 8400 W. Equest Lane (10 acres)
   b. Farmers Union Ditch Company, Ltd. = 0.67 share.
   c. Includes associated storage rights.
   d. Water right and shares transferred to AR Boise 9/15/05 under Certificate #2797

2) **63-32170**
   a. Moody – 8285 W. Equest Lane (10 acres).
   b. Farmers Union Ditch Company, Ltd. = 0.67 share transferred to AR Boise on 9/15/05 under Certificate #2797 (combined with Gwynn .67 FUD shares).
   c. Includes associated storage rights.
   d. Notice of Claim to Water Right filed September 14, 2005.
   e. Department of Water Resources re: 63-32170 preliminary recommendation.
   f. No objections were filed as of 4/21/06.
   g. Received Partial Decree from District Court dated 2/16/07.

3) **63-15786**
   a. Idavue – (620 acres).
   b. Transferred to AR Boise 11/4/05.

4) **63-10669**
   a. M&H Parcel II – 5004 W. Hwy 16 (29 acres).
   b. Transferred to AR Boise on 2/24/06.

5) **63-17379**
   a. M&H Parcels I and III (126 acres).
   b. Transferred to M3 Eagle LLC on 7/20/06.
   c. Farmers Union Ditch Company, Ltd. = Certificate #2762 for 7.3 shares.
   d. Transferred to AR Boise Certificate #2812 for 7.3 shares on 2/21/06.
   e. Includes associated storage rights.

6) **63-22879** (SVL)
   a. Received transfer of all 3 to M3 Eagle LLC on 5/25/07.

7) **63-22880** (SVL)
   a. Received transfer of all 3 to M3 Eagle LLC on 5/25/07.

8) **65-13548** (SVL)
   a. Received transfer of all 3 to M3 Eagle LLC on 5/25/07.

9) **63-20181**
   a. Green – 4490 N. Hwy 16 (20 acres).
   b. Transferred to M3 Eagle on 06/15/06.
   c. Farmers Union Ditch Company, Ltd. = Certificate #2819 for 1.33 shares transferred to AR Boise on 5/4/06.
   d. Includes associated storage rights.

10) **Davis**
   a. 8666 Equest Lane, Eagle (10 acres).
   b. Farmers Union Ditch Company, LDT. = 0.66 shares.
   c. Lost Certificate – Affidavit in process.
   d. Includes associated storage rights.

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Hydro Logic, Inc.
1002 W. Franklin Street, Boise, ID 83702 (208) 342-8369, (Fax) 342-3100, hydrologic@qwest.net

TECHNICAL MEMORANDUM

TO: Gerry Robbins / M3 Eagle, LLC / Eagle, Idaho

FROM: Dick Glanzman / Glanzman Geochemical LLC / Denver, Colorado
Ed Squires / Hydro Logic, Inc. / Boise, Idaho

DATE: January 20, 2009

SUBJECT: Ground Water Geochemistry of Wells In the North Ada County Area of Idaho

INTRODUCTION

Historical and newly acquired ground water chemistry was evaluated to determine the aqueous geochemistry of the ground water from wells completed in North Ada County, Idaho. Specifically, the study focused on the area encompassing NE Boise, the Cites of Eagle and Star, and the North Eagle foothills of the Boise Front (Figure 1). A total of 84 chemical analyses of ground water collected between 1991 and 2008 were available for this evaluation. The analytical results evaluated by this report have been compiled from a variety of sources representing a 17-year period (Table 1). In addition to these ground water analyses, chemical analyses for average precipitation in southern Idaho and the average Boise River between 1960 and 1982 were available from Wood and Low (1988). We gratefully acknowledge M3 Eagle, LLC, SunCor, United Water Idaho, Inc. for their gracious permissions to access and use the data presented.

The completion intervals of the sampled wells and well locations were grouped into the Pierce Gulch Aquifer, Willow Creek Aquifer, Terteling Springs Aquifer, Spring Valley Ranch wells and the City of Emmett wells. The physical characteristics of these units have been described most recently in Squires and others (2007) and previously in a number of publications by Wood, Squires, and others (listed in the REFERENCES section of this report).

This geochemical evaluation is primarily based on major ion chemistry but includes selective trace elements, specifically arsenic, to determine the aqueous geochemistry of each designated well group focused on the potential for ground water exchange between aquifers. The following sections present the ground water geochemistry of each of these designated well groups using trilinear (Piper) diagrams to visually indicate the relationships between the major ions and the ground water chemistry types.

GROUND WATER GEOCHEMISTRY

Seven major ions plus silica generally comprise almost all of the total dissolved solids (TDS) in ground water chemistry. These seven major ions include calcium, magnesium, sodium, potassium, bicarbonate, sulfate and chloride. The dissolved concentrations of each of the

Hydro Logic Inc.
Boise, Idaho
M3 EAGLE LLC
EXHIBIT
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major ions reflect the geochemical characteristics of the aquifer mineralogy through which the water has moved. Ground water geochemistry begins with the chemistry of the sources of recharge to the aquifer and "evolves" with the chemical reactions that occur along the ground water flow path to each well and spring sampling location. Ground water geochemistry can also be altered by ground water exchange between aquifers as part of the ground water flow path to each well (sampling) location (Figure 2). The recharge water chemistry is the initial end member for understanding of the ground water geochemistry of each well location.

Recharge

Precipitation (rain and snow) is the independent source of both surface water and infiltration water to the ground water system and its TDS is very low. The calculated average TDS sum of precipitation in southern Idaho of 5.4 milligrams per liter (mg/l) means that its water chemistry is easily changed by chemical reactions in the soils and sediments of the alluvial materials that comprise the geologic section and serve as aquifers (including the rocks the ground water moves through on its way to an aquifer). The Boise River surface water, with an averaged TDS sum of only 52 mg/l, is almost an order of magnitude higher TDS than precipitation. This difference indicates how easily precipitation chemistry can change. The increase in the TDS concentration indicates that the water has dissolved minerals along its flow path to a sampling location while the major ion chemistry indicates what mineralogy has been dissolved and/or potentially mixed with other ground water up gradient of the sampling location. In other words, major ion chemistry can give indication of where the resultant ground water has been.

It is possible to compare individual major ion concentrations from one well location to another and then describe how differences in each of these major ions indicate associations or lack of association between well locations. It is also elucidating to have a single illustration that shows major ion relationships for each well location compared to many other well locations. The trilinear diagram was designed to do this (Hem, 1985). Hydraulically connected ground waters plotted on a trilinear diagram can show major ion relationships between the water chemistry from its source through surface water and ground water flow paths to individual sampling locations.

Trilinear Diagram

Figure 3 is a trilinear diagram that includes the major ion chemistry for each of the sampling locations of this study for which all the major ion concentrations are available. Each plotted point is designated by a symbol defined by the physical source of the water chemistry. The spread of points within the diagram indicates that the aqueous geochemistry of the North Ada County area is not a single aquifer of commingled ground water. Rather, the plot depicts a somewhat complex ground water system of several parts. The major ion chemistry of each of the designated aquifer/area group is looked at individually to better understand their individual geochemistry characteristics but it is important to first understand how the points are plotted on the diagram.

The trilinear diagram has three segments. The lower left triangle includes the percentages of the positively charged major ions; calcium, magnesium, sodium and potassium (cations) for each water analysis that is plotted as a point within the triangle. Sodium and potassium are combined on the graph because they have similar geochemical characteristics. Percentages are developed by calculating their concentrations in milliequivalents per liter (meq/l) to give each ion an equivalent equal weight (meq/l). The cations concentrations in meq/l are summed, their respective percentages calculated and are then plotted within the triangle. Changes within the cation part of the diagram generally indicate chemical reactions occurring within the aquifer along with degree and type of cation exchange along the ground water flow path within each group.

The lower right triangle makes the same calculations for the negatively charged major ions (anions). The percentage of bicarbonate, sulfate and chloride for each water analysis are plotted as a point within the triangle. The anion part of the diagram complements the cation part of the diagram by indicating the changes in anions resulting from chemical reactions along the flow path.

Each cation and anion percentage point is projected into the central diamond part of the diagram to sum the seven major ion relationships into a single point. Because each point now represents a single water analysis, the major ion chemistry of each water analysis can be compared with all the other water analyses thereby permitting an understanding of the geochemical characteristics of the overall ground water chemistry.

Points that group together into a dense cluster in the central diamond part of the trilinear diagram indicate water from a single aquifer with very simple nearly non-reactive mineralogy and with no mixing with water from other sources unless these sources have essentially the same non-reactive mineralogy. Plotted points that form a linear trend on any of the three parts of the trilinear diagram suggest a single chemical reaction or mixing of two water chemistry sources is causing the linear change in major ion chemistry. Ion exchange, for example between calcium and sodium ions, typically show a significant change in the cations lower left triangle of the diagram but basically little to no change in the anion percentages in the lower right triangle. Chemical reactions are indicated by changes in both the cations and anions. All of these geochemical characteristics are shown together on Figure 3 but it is necessary to look at each of the individual groups, as indicated by the symbols, to understand, both, their individual geochemical characteristics and potential hydraulic associations between the groups.

PIERCE GULCH SAND AQUIFER (PGSA)

Figure 4 is a trilinear diagram showing ground water chemistry from water wells completed in the Pierce Gulch Sand Aquifer (PGSA) compared with the average chemistries of precipitation and the Boise River. Figure 5 is the same trilinear plot of PGSA wells with as many of the individual points labeled as possible within the space of the diagram while maintaining clarity. The points plotted on the trilinear further subdivide the ground waters

from PGSA wells completed across total thickness of the PGSA compared to those wells completed in only the upper or lower parts of the PGSA. This separation was done to see if the upper part of the PGSA may be receiving recharge from infiltrating precipitation and if the lower part of the PGSA may be chemically reacting with clays and mudstones similar to, and possibly derived from, those in the underlying Terteling Springs Formation. Recharge from infiltrating precipitation is not indicated by the aqueous geochemistry of the Upper PGSA but it is for the Lower PGSA and a few of the deeper Lower PGSA ground waters do suggest that clays similar to the underlying Terteling Springs Formation affect the ground water chemistry at a few well locations.

Ground water from all wells completed in the PGSA is a calcium-bicarbonate water chemistry type (Figure 4). PGSA ground water has the highest average calcium and magnesium percentage of the designated aquifer/area groups at 52 and 16 percent, respectively (Table 2). Furthermore, except for three Lower PGSA ground waters, the PGSA ground water forms a tight cluster to the right of, and enveloping, the average Boise River in the diamond portion of the trilinear diagram. Two of these three Lower PGSA ground waters contain a higher sulfate percentage than those in the cluster trending slightly toward precipitation. These two ground waters came from Zone 1 in M3 Eagle Test Well #2 and M3 Eagle SVR Test Well #9 (Figure 5) that occur near the eastern edge of the PGSA aquifer approaching the Willow Creek Aquifer (Figures 1 and 6). The trend toward precipitation suggests that the PGSA ground water at these two well locations may be receiving a small percentage of precipitation as recharge. Lower PGSA ground water from the UWID Lexington Hills #1 plots on the other side of the cluster suggesting that clays similar to the Terteling Springs Formation may be incorporated into the Lower PGSA at this well location.

The tight clustering of PGSA ground water shown on Figures 4 and 5, adjacent to and including the average Boise River water chemistry, indicates that the PGSA ground water originated almost exclusively from ancestral Boise River surface water. Furthermore, this tight clustering of almost all of the PGSA ground waters on the trilinear indicates that the PGSA ground water is from a distinct regional aquifer. The calcium-bicarbonate water chemistry type of the ground waters plotting in this cluster has an average TDS of 191 mg/l (Table 2) but ranges from 82 to 404 mg/l. This clustering indicates that almost all of the aquifer mineralogy is very simple because it does not change chemical type. This is unusual for ground waters from wells completed in a regional aquifer with as much as 12 to 13 miles separating the well locations and particularly so when compared with the other designated aquifer/area groups where the geochemistry changes dramatically over short distances (Figure 1). The three Lower PGSA ground water samples cited as exceptions probably reflect localized changes produced by precipitation, poorly sealed well construction, sampling and/or analytical errors and, more likely aquifer sediments that include clays and mudstones similar to those that comprise the underlying Terteling Springs Formation. The higher sodium percentage is probably a result of ion exchange on these clayey materials while the increased sulfate percentage is probably a result of a small amount of iron sulfide oxidizing in clay lenses of the Lower PGSA.

As listed in Table 2, PGSA ground water has a near neutral pH (7.19) and is oxidized with an average Eh of plus 258 millivolts (mV). The average Eh of the Upper PGSA is 334 mV while that of the Lower PGSA is 246 mV indicating a slightly lower Eh in the Lower PGSA. The Lower PGSA has the highest average total iron concentration (1.52 mg/l) of all the groups confirming the probability of trace amounts of iron sulfide in the clays of the Lower PGSA. The trace amount of sulfide is confirmed by the highest sulfate of 44 mg/l in PGSA ground water occurring in the Lower PGSA. Trace iron sulfide is supported by the average dissolved iron in the Lower PGSA that is slightly higher at 0.22 mg/l compared to the dissolved iron in the Upper PGSA at 0.11 mg/l. The dissolved manganese is very similar at 0.24 and 0.19 mg/l, respectively. The average arsenic concentration in PGSA ground water is a low 0.004 mg/l. Other metals are either near or less than their respective detection limits.

The average dissolved concentration of total organic carbon (TOC) in the PGSA ground water is 0.8 mg/l. The average nitrate nitrogen concentration is a similarly low 0.42 mg/l, ammonia nitrogen only 0.08 mg/l and Total Kjeldahl Nitrogen (TKN) of only 0.19 mg/l. Subtracting the ammonia nitrogen from the TKN gives a average organic nitrogen of 0.11 mg/l. Since the amount of organic nitrogen is proportional to microbial activity, microbial activity in the PGSA within this area is present only at very low levels. As would be expected with a calcium-bicarbonate water chemistry type, the average total phosphorus is only 0.14 mg/l and orthophosphate only 0.16 mg/l.

In summary, the aqueous geochemistry analytical results indicate that the PGSA is a distinct regional aquifer containing ground water originating from the geologically ancestral Boise River. It is a calcium-bicarbonate water chemistry type. PGSA ground water has the highest calcium and magnesium percentage of all the designated well groups. Clustering of the major ion chemistry of this ground water from wide-spaced well locations clearly separate this ground water from ground water from other designated aquifer/area groups. The average arsenic is a low 0.004 mg/l. The Lower PGSA most likely contains some minor clay lenses similar in composition to, and/or derived from, the clays and mudstones of the underlying Terteling Springs Formation (Figure 6).

TERTELING SRINGS FORMATION (TSF)

Figure 7 and Figure 8 are trilinear diagrams showing the major ion relationships of ground waters from the Terteling Springs Formation (TSF) that underlies the PGSA. Ground water from wells completed in the TSF form a nearly linear trend of calcium-bicarbonate to dominantly sodium-bicarbonate ground water. The change in water chemistry type is probably caused by cation exchange of dissolved calcium in the water exchanging with sodium ions on the clay/mudstone to produce the sodium bicarbonate ground water. The plots on the trilinear diagrams trend toward the Boise River indicating that, similar to the PGSA, ground water in the TSF originates from the geologically ancestral Boise River. Even though both ground waters share a common recharge source, TSF ground water is clearly hydraulically separated from the PGSA ground water under the current hydrologic conditions.

TSF ground water has an average TDS of 206 mg/l (Table 2) but ranges from 148 to 351 mg/l. The average pH is 7.53 but ranges from 6.70 to 8.07. This ground water has the highest average pH of the designated ground water groups. It also carries the highest temperature of 69.2 degrees Fahrenheit (20.6 degrees Celsius) because wells completed in the TSF also have the deepest screened intervals. The low average fluoride concentration of 0.43 indicates that this ground water is not associated with the geothermal system in other parts of the Boise Valley. This elevated temperature and higher pH is responsible for the highest average silica concentration of the various groupings at 43.8 mg/l.

There are no available DO or ORP data but given the low average sulfate concentration of 5.3 mg/l, non-detect nitrate and an elevated average ammonia nitrogen concentration of 3.34 mg/l, it is likely that this ground water is under low oxidizing and probably reducing conditions. The average dissolved iron of 0.10 mg/l, dissolved manganese of 0.10 and arsenic of 0.004 mg/l document that all are present at low concentrations.

In summary, the TSF forms a second discrete aquifer that is not hydraulically connected to the PGSA.

WILLOW CREEK AQUIFER (WCA)

As described in the previous geologic and hydrologic reports (Squires and others, 2007) and (SPF 2004), the Willow Creek Aquifer (WCA) is the up gradient sand facies of the TSF. However, as shown on Figure 9 and Figure 10, the ground water chemistry has a very different distribution than either the PGSA or the TSF. WCA ground water from both the Spring Valley Ranch Test Well #10 and the W. Lynn well plot within the TSF trend but other WCA ground waters have a significantly higher sulfate percentages than the TSF ground waters. Furthermore the crude trend is toward precipitation rather than the Boise River as a recharge source. Ground water from both of the two wells that follow the TSF trend indicate that either the aquifer mineralogy has essentially the same composition as that of the sands in the TSF or/and they are hydraulically connected to TSF. However, it is clear that the WCA is not hydraulically connected to the PGSA.

The above relationships are supported by the other water chemistry characteristics. WCA ground water is a calcium-bicarbonate to a dominantly sodium-bicarbonate water chemistry type with the lowest TDS of all the designated well groups. WCA ground water has an average dilute TDS of only 119 mg/l but ranges from 70 to 154 mg/l. This relationship indicates that precipitation is the primary source of recharge to the WCA.

In addition to the major ion chemistry, TDS clearly shows that there is no hydraulic connection between ground water in the WCA and ground water in the PGSA. The TDS of ground water in the PGSA on Big Gulch starting at M3 Eagle Test Well 4 through Big Gulch Stock Well to M3 Eagle Test Well 2 there is a slight increase in TDS from the low to the middle 200 mg/l as the boundary with the WCA is approached. The TDS of ground water in the WCA wells SVR Test Well #6 and SVR Test Well #10 both have TDS concentrations of less than 100 mg/l. The significantly higher TDS in the PGSA ground water is also shown

by the 253 mg/l TDS concentration in ground water from Little Gulch Stock Well and 238 mg/l in ground water from SVR Test Well #9. Similar to the conclusion from the major ion chemistry, the TDS clearly indicates that there is no hydraulic connection between the WCA and PGSA.

As listed in Table 2, the average pH of 7.60 is similar to that of the average pH of TSF ground water (7.8) but the average total iron of 0.12 mg/l is lower (0.28 mg/l) and the average total manganese of 0.07 mg/l is slightly lower (0.1 mg/l). Conversely, the average nitrate nitrogen of 1.56 mg/l in WCA ground water is significantly higher than that of the TSF (0.05 mg/l) further supporting the conclusion that infiltration of surface precipitation is a primary source of recharge to the WCA.

It is the arsenic and fluoride concentrations that definitively set WCA ground water apart from the other designated well groups. The average arsenic concentration in the WCA is 0.025 mg/l, two and a half times the current drinking water standard for arsenic of 0.010 mg/l, in this dilute TDS ground water. Ground water from four of the five wells completed in the WCA exceeds the arsenic drinking water standard. Although not exceeding the fluoride drinking water standard, the average fluoride concentration is 1.56 mg/l, almost 3.5 times the average fluoride concentration in the TSF ground water (0.43 mg/l). These relationships coupled with an elevated silica concentration of 38 mg/l suggest that the sands of the WCA may contain a volcanic ash component that may also be present in the Spring Valley Ranch Wells ground water but not apparent in the other designated aquifer/area groups.

In summary, ground water from the WCA has a very dilute TDS and other characteristics that indicate that local precipitation is the dominant source of recharge. Even though this ground water is the most dilute of the designated well groups, it has the highest nitrate, arsenic and fluoride concentrations. The currently available historical data from the five sampled wells suggest that this ground water contains sediments with a similar mineralogy to that of the TSF as well as a volcanic ash component. It is clearly not hydraulically connected to the PGSA but there is a potential for hydraulic connection with the TSF.

SPRING VALLEY RANCH WELLS (SVRW)

Ground water from seven Spring Valley Ranch wells (SVRW) that include one spring are plotted on the trilinear diagrams of Figures 11 and 12. This grouping of wells forms an almost north-south line about five miles northeast of WCA well SVR Test Well #10 (Figures 1 and 6). In sharp contrast to PGSA and TSF major ion chemistry, the major ion chemistry of this relatively closely spaced well field plots over most of the diamond portion of the trilinear diagram. Magnesium and calcium percentages decrease as the sodium percentage increases and bicarbonate decreases as sulfate increases. The major ion trend suggests that recharge is from precipitation while the aquifer mineralogy appears to be similar to that of both the WCA and TSF. The major ion chemistry suggests that the sediments in which the SVRW are completed appear to be Terteling Springs Formation.

It is unusual for such a closely spaced grouping of wells to have such a broad suite of major ion chemistry. Ground water from this small areal distribution of wells includes calcium-bicarbonate, calcium-sodium-bicarbonate, calcium-sulfate, calcium-sodium-sulfate and sodium-bicarbonate water chemistry types. These widely different water chemistry types in a relatively small area suggest laterally and vertically variable aquifer mineralogy with the probability of localized recharge sources and limited hydraulic connection between wells.

Ground water from the SVRW also has the highest average sulfate percentage of 28 percent and average potassium percentage of 5 percent (Table 2). This average sulfate is about two to seven times that of other designated aquifer/area groups while the average potassium is about two to three times the average concentration of the other groups. The significantly higher potassium concentration in this ground water could reflect a higher proportion of potash feldspar from the Idaho Batholith in the aquifer mineralogy of these wells than those farther to the southwest.

Ground water from the SVRW has an average TDS of 274 mg/l and ranges from 116 to 570 mg/l. There is little association of TDS with water chemistry type except that the highest TDS of 570 mg/l is a calcium-sulfate water chemistry type. The average pH of 7.42 approaches that of the TSF but ranges from about 7.39 to 7.49 for the four available pH measurements. There are no available DO or Eh measurements for ground water from these wells. Similarly there are no dissolved iron or manganese analyses available. However, the average total iron concentration is an elevated 0.81 mg/l ranging from non-detect to 4.33 mg/l. The average total manganese concentration of 0.53 mg/l is the highest for all designated well groups. The total manganese concentration ranges from non-detect to 2.29 mg/l.

The average arsenic concentration of 0.0137 mg/l exceeds the current drinking water standard of 0.010 mg/l. Three of the eight sampled locations had arsenic concentrations that exceed the current drinking water standard: SVR Test Well #2 (0.016 mg/l), Spring 1 (0.021 mg/l) and SVR Test Well #3 (0.038 mg/l). There is no apparent relationship between the arsenic concentrations and other parameters. The ground water with the highest arsenic is a calcium-sodium-bicarbonate water chemistry type while the other two samples with exceedances are associated with the calcium-bicarbonate and calcium-sulfate water chemistry types. The higher concentrations of total iron and sulfate in the SVRW ground water suggests that pyrite may be present in the finer-grained sediments and could provide a source of arsenic to this ground water. However, because the higher arsenic concentrations in the SVRW ground water are in widely different water chemistry types, the arsenic may likely be associated with volcanic materials similar to that apparently present in the WCA sediments and potentially responsible for the elevated arsenic in that aquifer.

Ground waters from this northern-most well field in the study area appear to be both spatially and hydraulically isolated. While the major ion chemistry is similar to that of the WCA the TDS would preclude hydraulic connection to the WCA ground water. In other words it is likely that the mineralogy of the sediments is probably similar but with more soluble (finer-grained) minerals than those present in the WCA. Given these relationships with the WCA,

the ground water from the SVRW area cannot be hydraulically connected to the PGSA based on the previous conclusion that the WCA and the PGSA are not hydraulically interconnected.

In summary, ground water chemistry from the SVRW indicates a broad spectra of mineralogies and resembles characteristics of both the WCA and TSF ground water chemistries. Recharge to the SVRW is from precipitation. The water chemistry types suggest limited lateral and vertical hydraulic connections between wells. The SVRW ground water is not hydraulically connected to the ground water in the WCA, PGSA or TSF.

EMMETT WELLS

Major ion chemistry relationships for ground water from two well locations in the Emmett area are shown on Figures 13 and 14. Ground water chemistry from these two wells is included to test the possibility that the ground water from the PGSA was potentially moving into the Emmett area.

The major ion trend for ground water from these two well locations indicates that it is recharged from rainfall, both, in the diamond part of the trilinears and in the anions (lower right triangle). The trend is from precipitation to the area of TSF ground water suggesting that the sediments in which the wells are completed are the TSF. There is no trend toward the PGSA ground water cluster as evident by comparing Figures 4 and 5 with Figures 13 and 14. Therefore, based on this ground water chemistry, wells in this part of the Emmett area are not hydraulically connected to the PGSA.

Ground water from the two Emmett wells range between calcium-bicarbonate-sulfate type and sodium bicarbonate type. TDS ranges between 203 and 340 mg/l and pH ranges from near neutral 7.08 to an alkaline 7.96. There are no DO or Eh measurements. Dissolved iron ranges from non-detect to 0.44 mg/l and dissolved manganese from 0.06 to 0.6 mg/l. Nitrate nitrogen is non-detected but ammonia nitrogen ranges 0.12 to 0.64 mg/l. Fluoride ranges from 0.3 to 2.66 mg/l. Arsenic is less than 0.0025 mg/l.

In summary, the ground water chemistry in the Emmett area, from these two wells, indicates recharge from precipitation (probably Payette River) and no hydraulic connection to the PGSA ground water. The major ion chemistry suggests that the sediments in which the wells are completed resemble those of the TSF which is consistent with the prevailing conceptual model for this basin (SH. Wood, personal communication, 2009).

SUMMARY

Ground water from the PGSA represents a discrete regional aquifer that is not hydraulically connected to any of the other designated aquifer/area groups of this area. The ancestral Boise River is the recharge source for both the PGSA and the TSF. Based on ground water chemistry of the TSF and WCA, TSF may have an as yet undefined hydraulic connection with the WCA. However, the current ground water from the TSF was recharged by the

ancestral Boise River and the WCA from precipitation. Their similarity in major ion chemistry may be related to both having a similar aquifer mineralogy. Ground water from the SVRW is both spatially and hydraulically separated from all the other designated aquifer/area groups. In fact, individual well locations within the cluster of SVRW appear to be hydraulically separated from one another. Ground waters in the WCA, SVRW and Emmett area wells are recharged by precipitation. Ground water from the Emmett area wells has major ion characteristics that suggest an aquifer mineralogy similar to that of the TSF. Ground waters from the two wells in the Emmett area indicate those ground waters are not hydraulically connected to the PGSA ground water.

Arsenic exceeds drinking water standards in ground water from four of the five WCA well locations and three of the eight SVRW sampled ground waters. The very dilute ground water in the WCA suggests that the arsenic may originate in sediments from a volcanic source. Arsenic concentrations in the ground water in the SVRW may also originate in sediments from a volcanic source but this source may also include arsenic originating from oxidizing iron sulfide.

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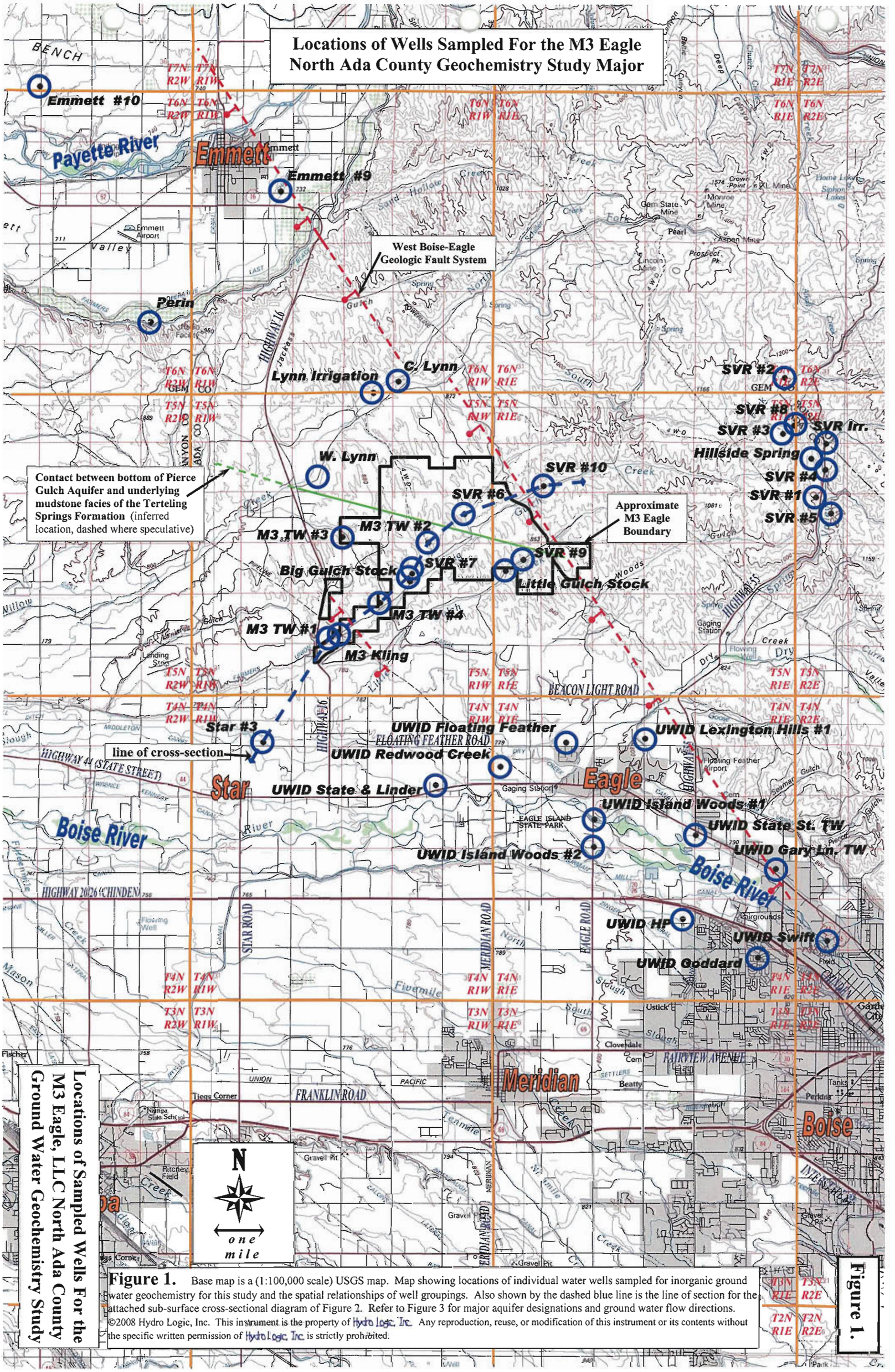

Figure 1. Base map is a (1:100,000 scale) USGS map. Map showing locations of individual water wells sampled for inorganic ground water geochemistry for this study and the spatial relationships of well groupings. Also shown by the dashed blue line is the line of section for the attached sub-surface cross-sectional diagram of Figure 2. Refer to Figure 3 for major aquifer designations and ground water flow directions.

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Figure 2. 2007 Regional Ground Water Level Contours and Ground Water Flow Directions of Major Aquifers

Water Level Data Sources:
M3 Project Area, Eagle, Star and Meridian: Measurements and Survey - Summer of 2007 by HLI

Emmett and Caldwell Areas:
Wells from IDWR Data Base. Locations / Elevations From Google Earth®, MapQuest® and TOPO®

Data contoured by Surfer® with manual contouring near Emmett and Caldwell. Dashed contours where sparce or approximate data appear to yield contours that may or may not be representative.

+ Well: surveyed Well: estimated location

● Wells in the M3 Area , Emmett Area, Eagle Area, Star Area, and Spring Valley Ranch Area (SVRW)

Approximate Ground Water Flow Directions:

Pierce Gulch Sand Aquifer

"Willow Creek Aquifer" and Payette Valley Aquifer

Water Level Contour Elevation in Feet MSL

2400

(Dashed Where Inferred)

West Boise-Eagle Geologic Fault System

(Dashed Where Inferred)

Contact between bottom of Pierce Gulch Aquifer and underlying mudstone facies of the Terteling Springs Formation (inferred location, dashed where speculative)

Scale: = 1 Mile

North

January 20, 2009

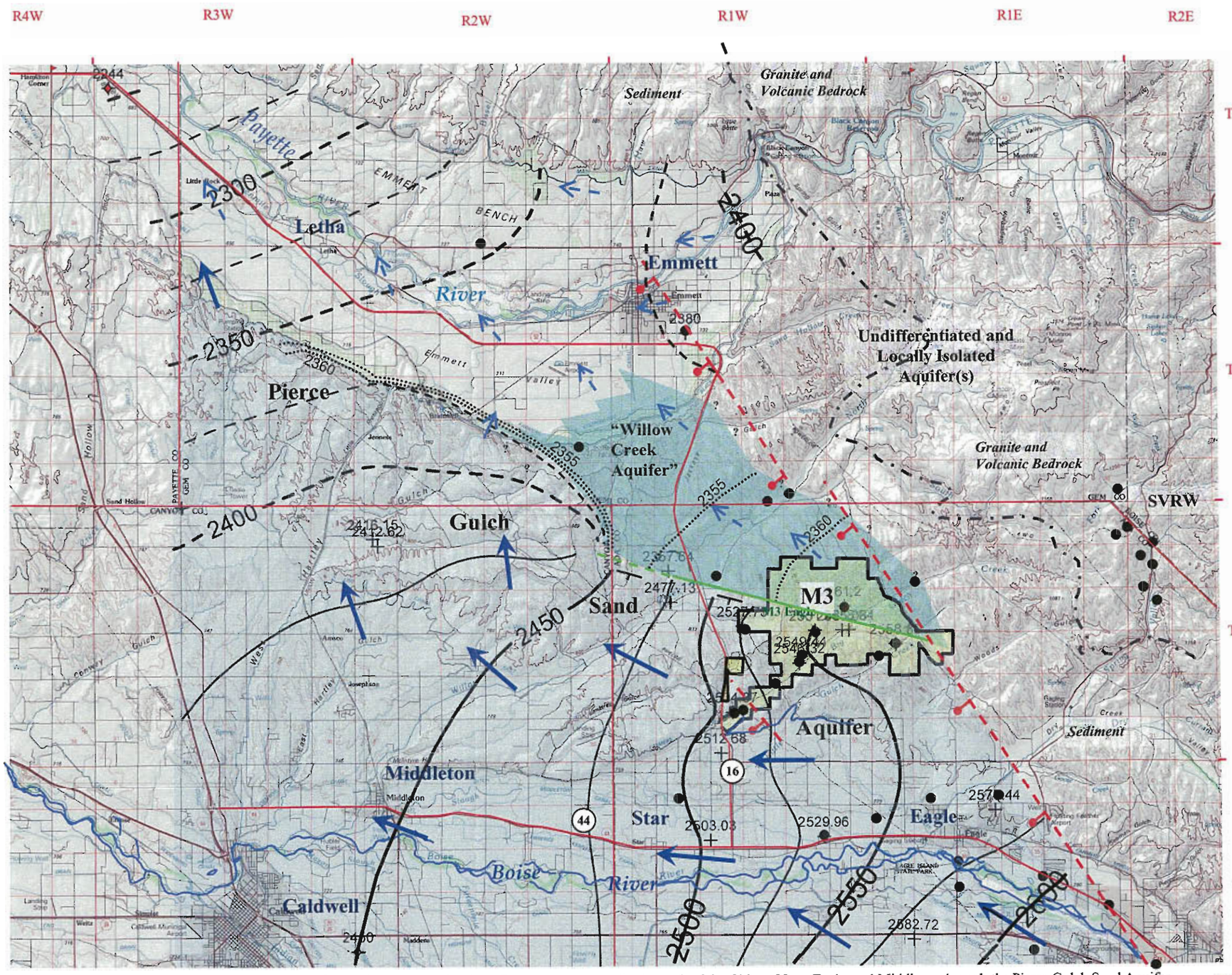

Figure 2.

The black-colored, 50-foot water level contours inside blue shading indicate the northwesterly movement of ground water from the Boise Basin to the Payette Basin north of the Cities of Star, Eagle, and Middleton through the Pierce Gulch Sand Aquifer. The dotted 5-foot water-level contours inside the turquoise area illustrate the relatively flat ground water gradient within the recharge-limited informally named "Willow Creek Aquifer" isolated between low-permeability sediments of the uplands lying to the east of the M3 site and by stratigraphic layering (a day-lighting clay stratum) on the southwest (green solid and dashed line). The boundaries of this aquifer have not been defined as indicated by the "?" symbol.

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Major Ion Chemistry of Groundwater from Wells Completed in the North Ada County Area

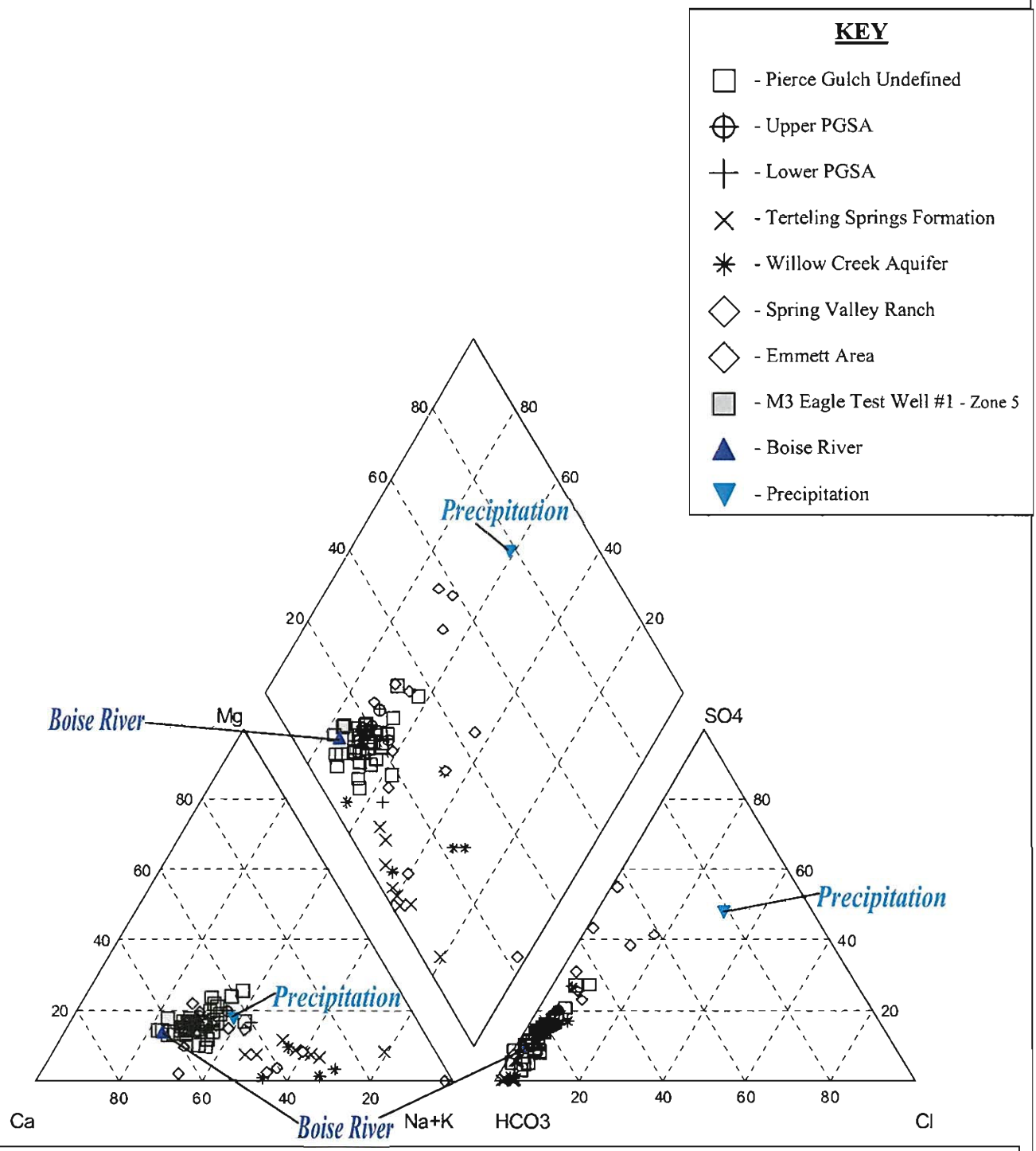

Figure 3. Trilinear diagram showing the major ion relationships of groundwater from all sampled locations in the M3 Area compared to that of precipitation and Boise River water.

Figure 3.

Major Ion Chemistry of Groundwater from Wells Completed in the Pierce Gulch Sand Aquifer (PGSA)

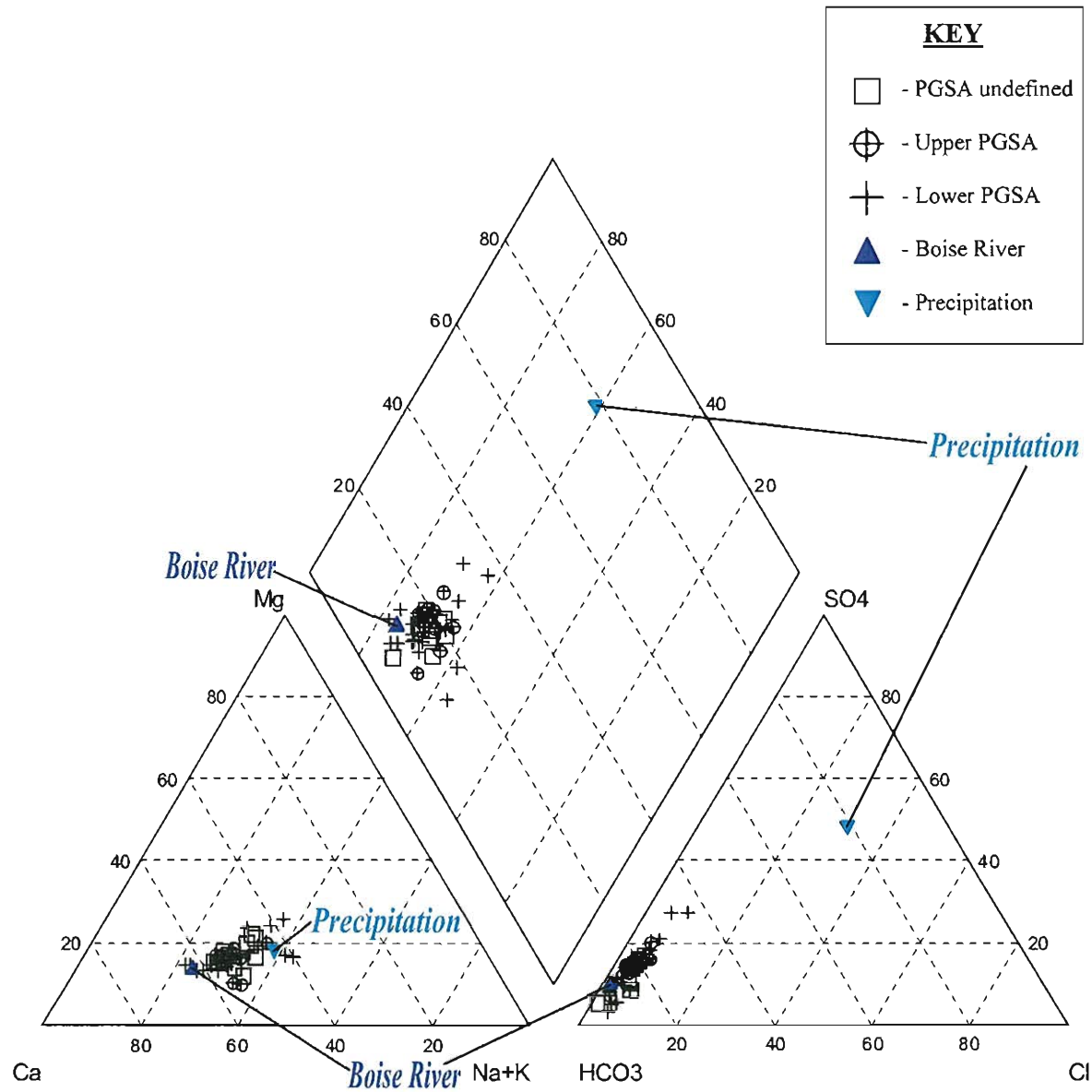

Figure 4. Trilinear diagram showing the major ion relationships of groundwater from the Pierce Gulch Sand Aquifer (PGSA) in the M3 Area compared to that of precipitation and Boise River water.

Figure 4.

Major Ion Chemistry of Groundwater from Wells Completed in the Pierce Gulch Sand Aquifer (PGSA)

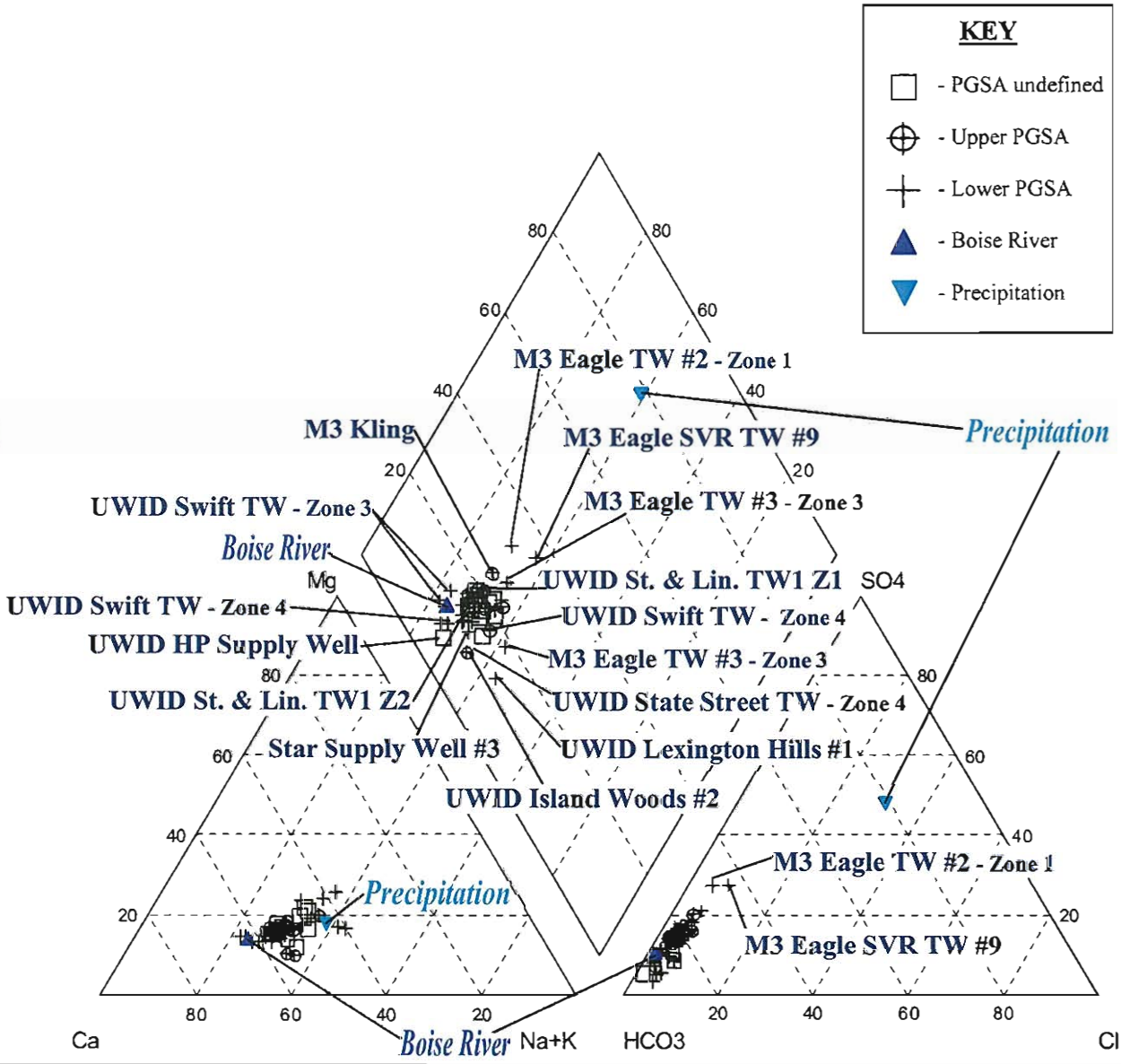

Figure 5. Trilinear diagram showing the major ion relationships of groundwater from the Pierce Gulch Sand Aquifer (PGSA) in the M3 Area compared to that of precipitation and Boise River water with labeling.

Figure 5.

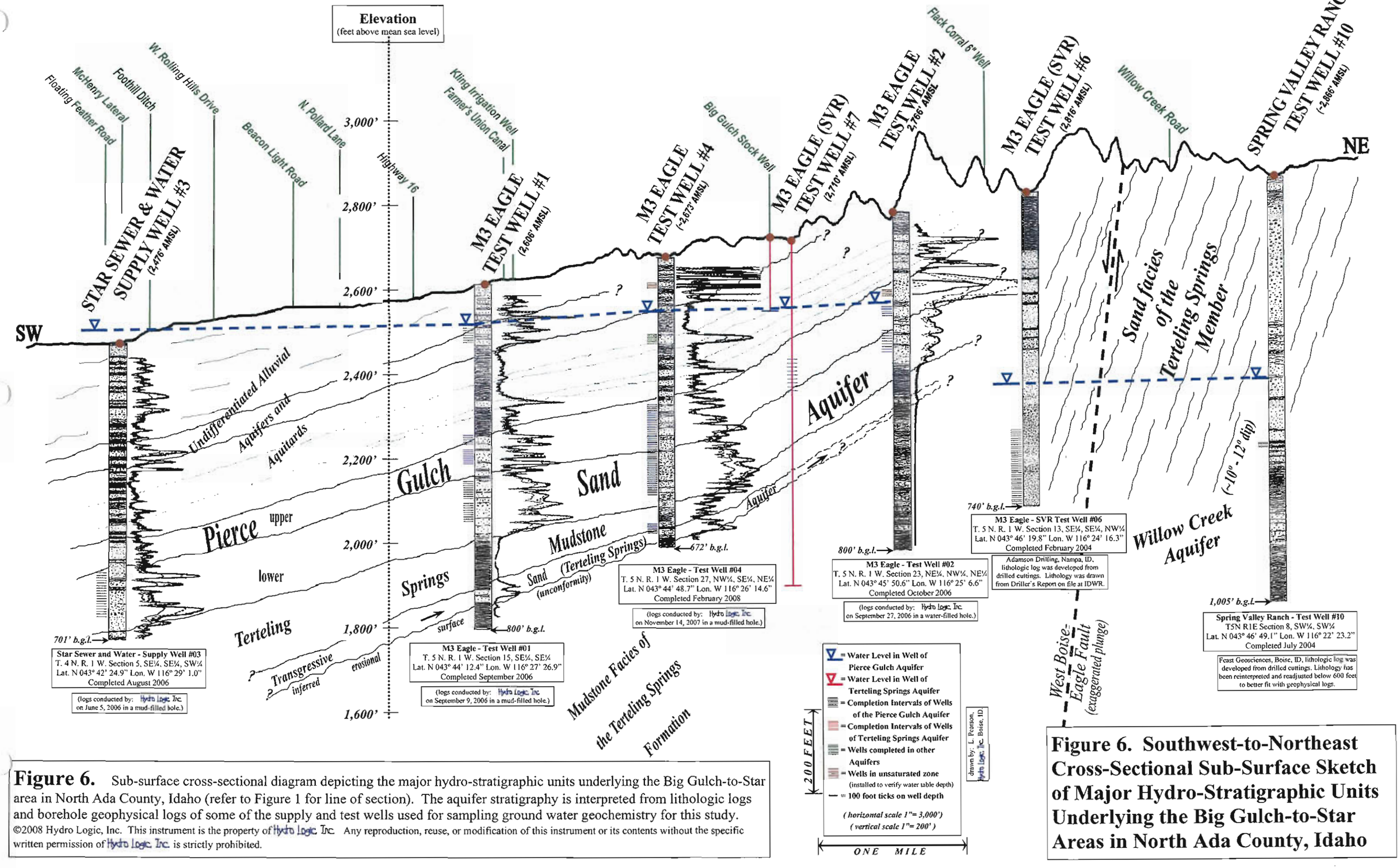

Figure 6. Sub-surface cross-sectional diagram depicting the major hydro-stratigraphic units underlying the Big Gulch-to-Star area in North Ada County, Idaho (refer to Figure 1 for line of section). The aquifer stratigraphy is interpreted from lithologic logs and borehole geophysical logs of some of the supply and test wells used for sampling ground water geochemistry for this study.

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Figure 6. Southwest-to-Northeast Cross-Sectional Sub-Surface Sketch of Major Hydro-Stratigraphic Units Underlying the Big Gulch-to-Star Areas in North Ada County, Idaho

Major Ion Chemistry of Groundwater from Wells Completed in the Terteling Springs Formation

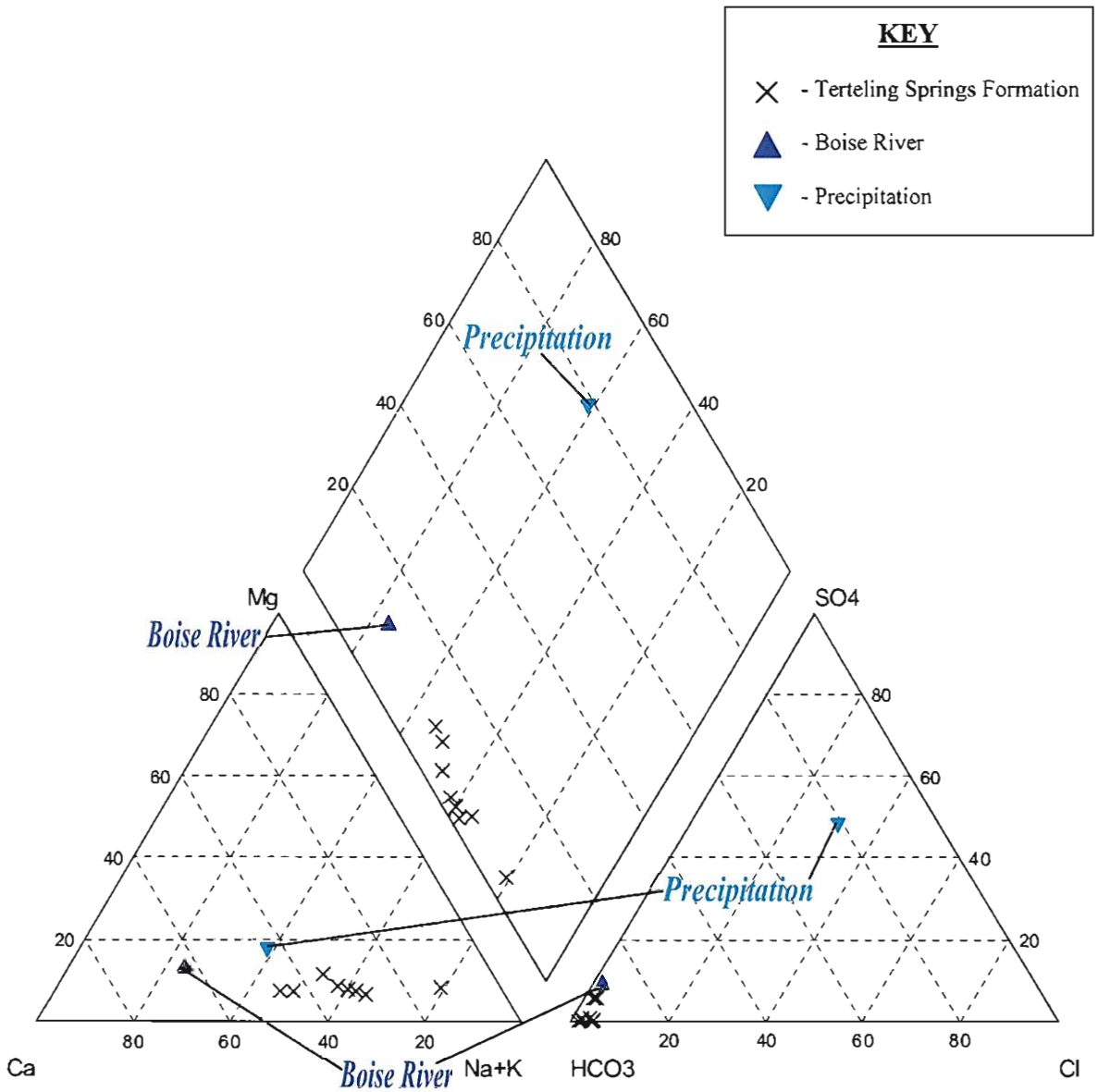

Figure 7. Trilinear diagram showing the major ion relationships of groundwater from the Terteling Springs Formation (TSF) in the M3 Area compared to that of precipitation and Boise River water.

Figure 7.

Major Ion Chemistry of Groundwater from Wells Completed in the Terteling Springs Formation

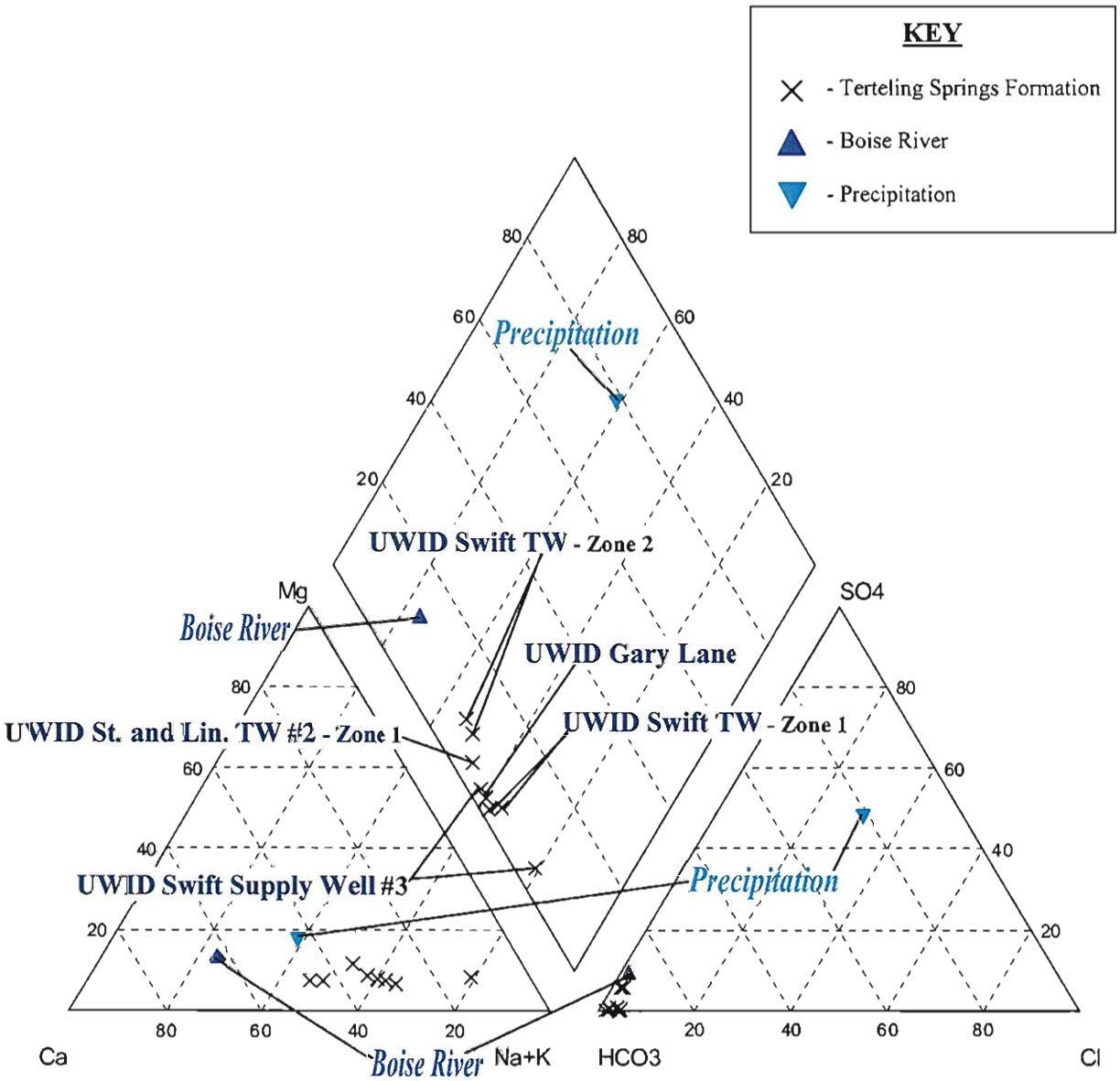

Figure 8. Trilinear diagram showing the major ion relationships of groundwater from the Terteling Springs Formation (TSF) in the M3 Area compared to that of precipitation and Boise River water with labeling.

Figure 8.

Major Ion Chemistry of Groundwater from Wells Completed in the "Willow Creek Aquifer" (WCA)

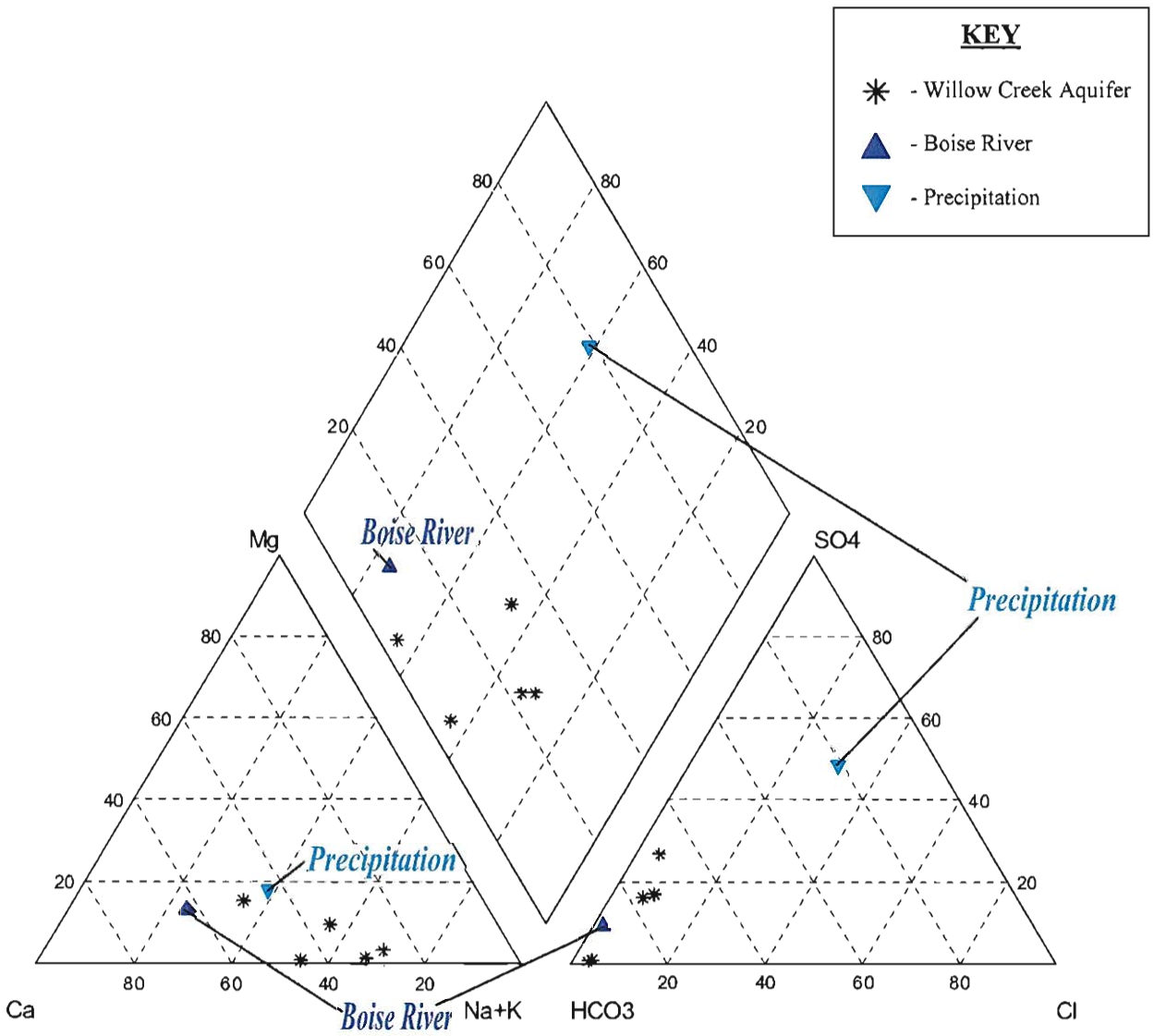

Figure 9. Trilinear diagram showing the major ion relationships of groundwater from the Willow Creek Aquifer (WCA) in the M3 Area compared to that of precipitation and Boise River water.

Figure 9.

Major Ion Chemistry of Groundwater from Wells Completed in the "Willow Creek Aquifer" (WCA)

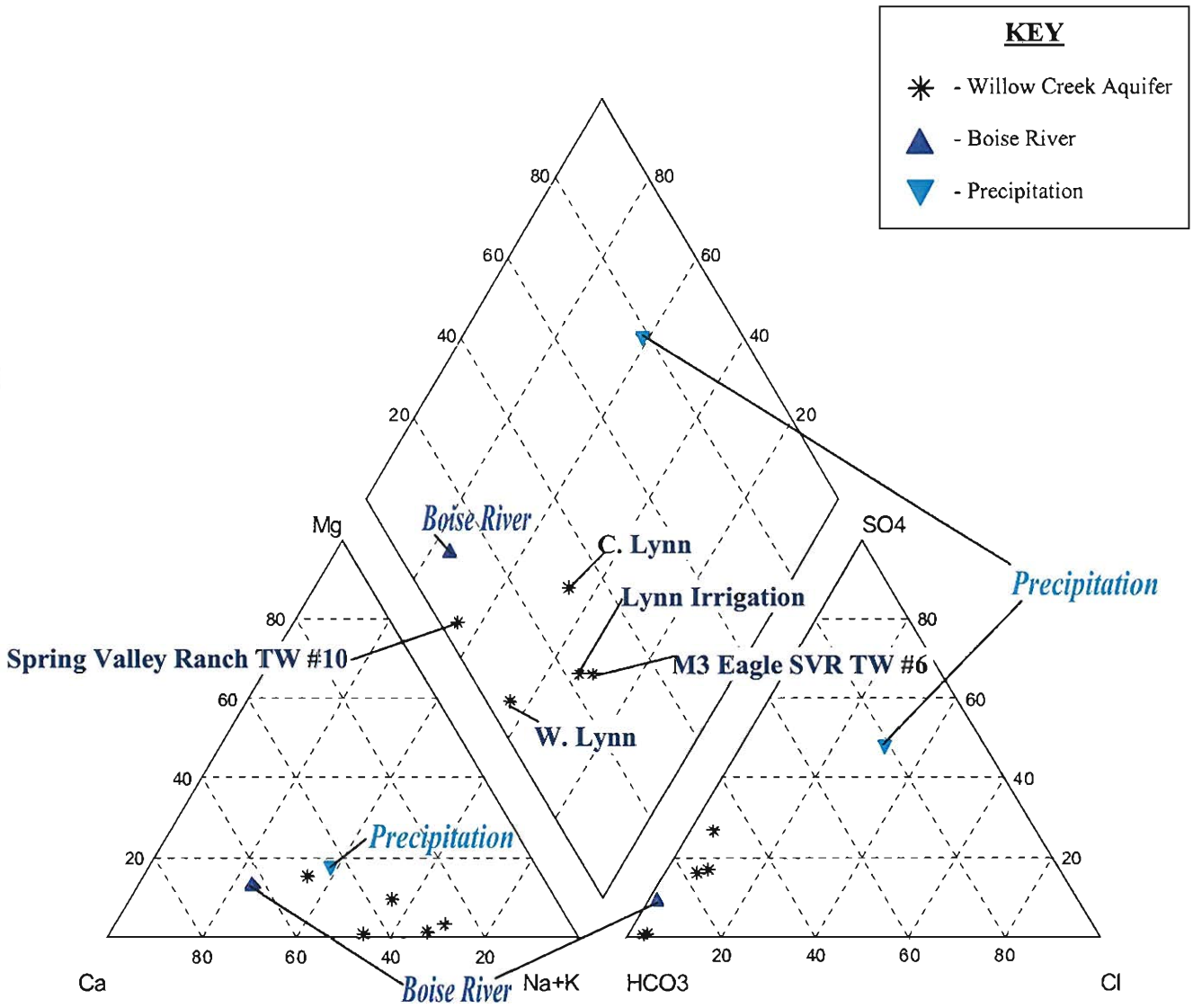

Figure 10. Trilinear diagram showing the major ion relationships of groundwater from the Willow Creek Aquifer (WCA) in the M3 Area compared to that of precipitation and Boise River water with labeling.

Figure 10.

Major Ion Chemistry of Groundwater from Wells Completed on Spring Valley Ranch (SVR)

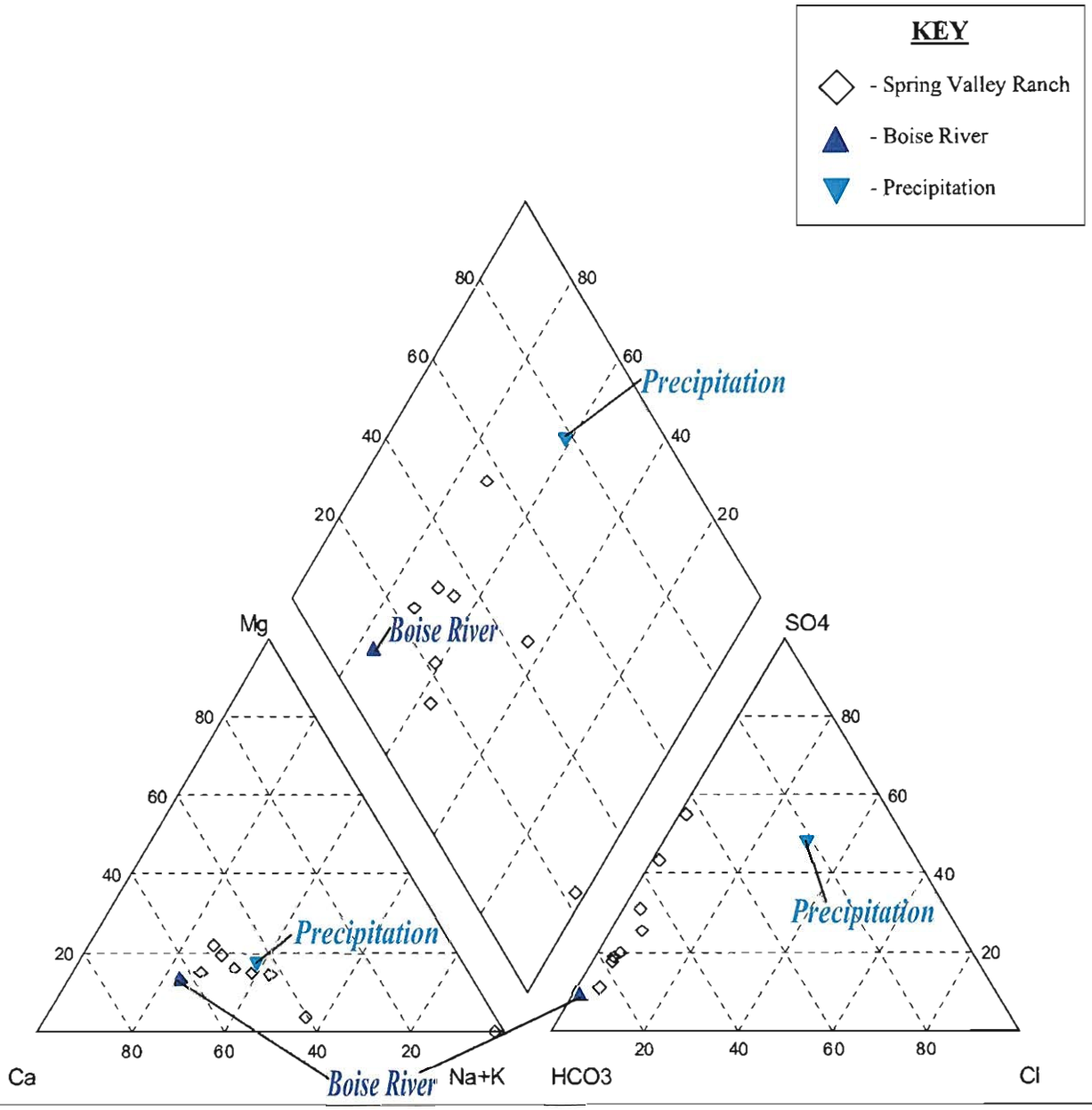

Figure 11. Trilinear diagram showing the major ion relationships of groundwater from the Spring Valley Ranch Wells (SVRW) in the M3 Area compared to that of precipitation and Boise River water.

Figure 11.

Major Ion Chemistry of Groundwater from Wells Completed on Spring Valley Ranch (SVR)

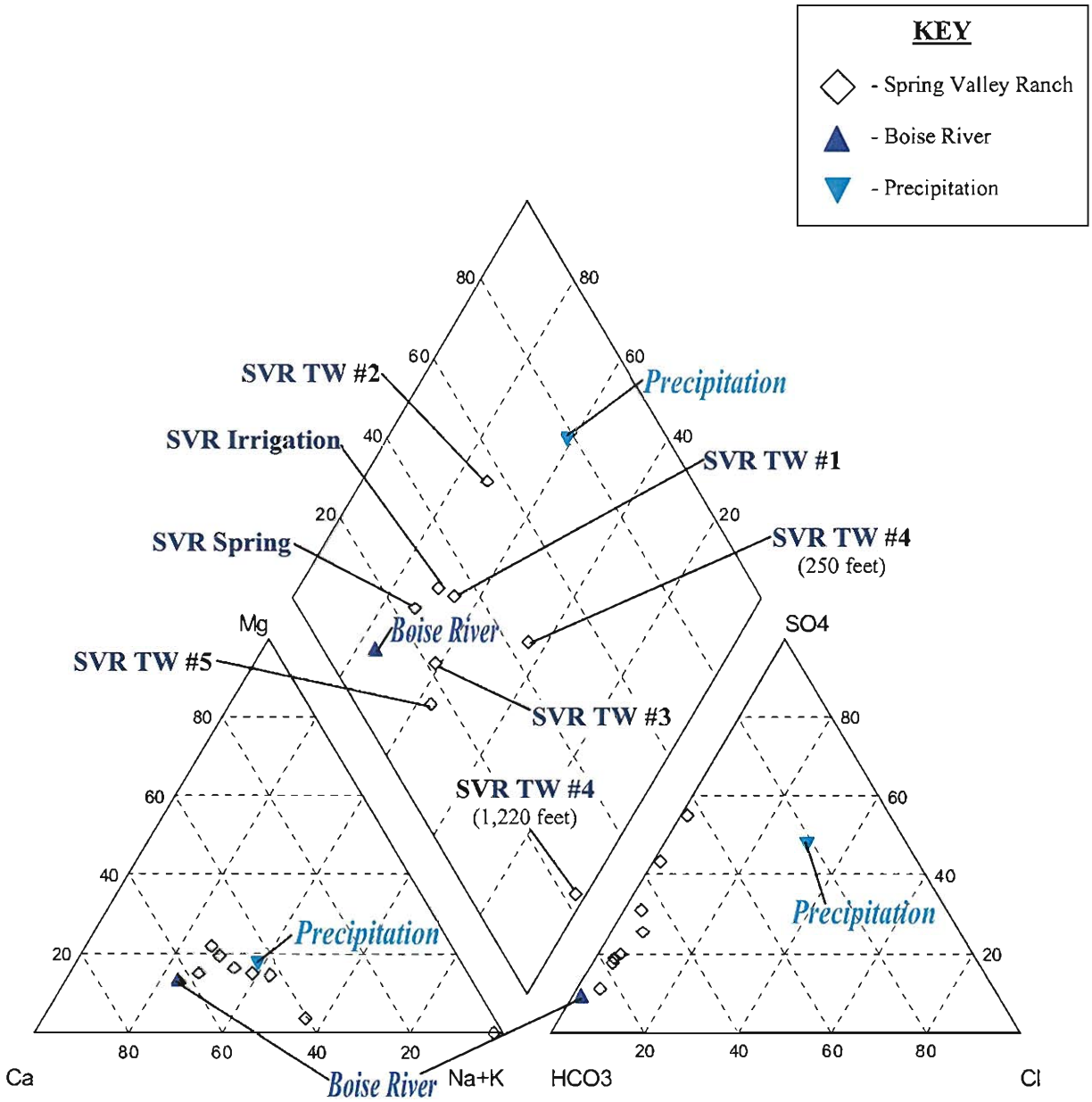

Figure 12. Trilinear diagram showing the major ion relationships of groundwater from the Spring Valley Ranch Wells (SVRW) in the M3 Area compared to that of precipitation and Boise River water with labeling.

Figure 12.

Major Ion Chemistry of Groundwater from Wells Completed in Emmett

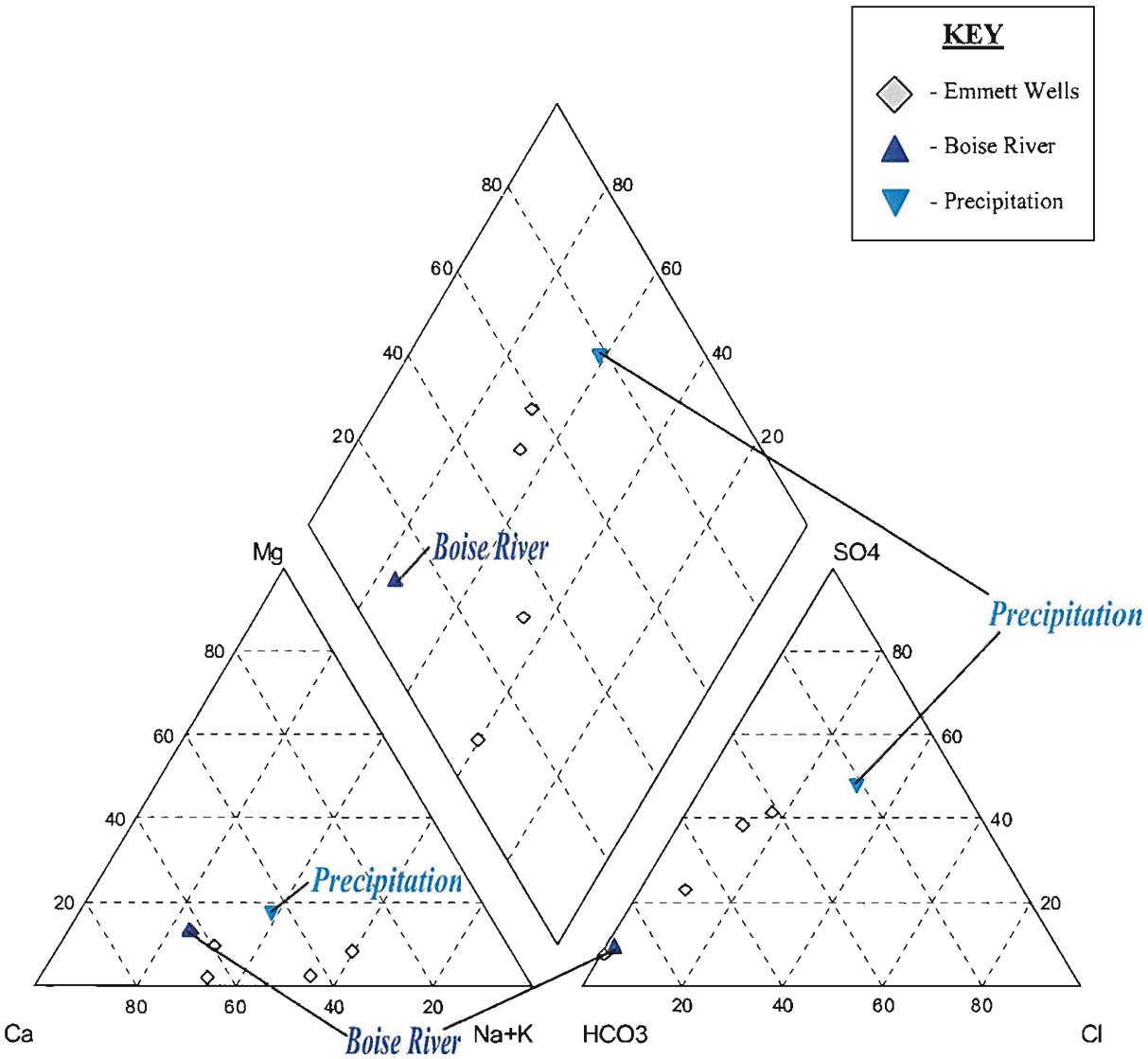

Figure 13. Trilinear diagram showing the major ion relationships of groundwater from the Emmett area wells in the M3 Area compared to that of precipitation and Boise River water.

Figure 13.

Major Ion Chemistry of Groundwater from Wells Completed in Emmett

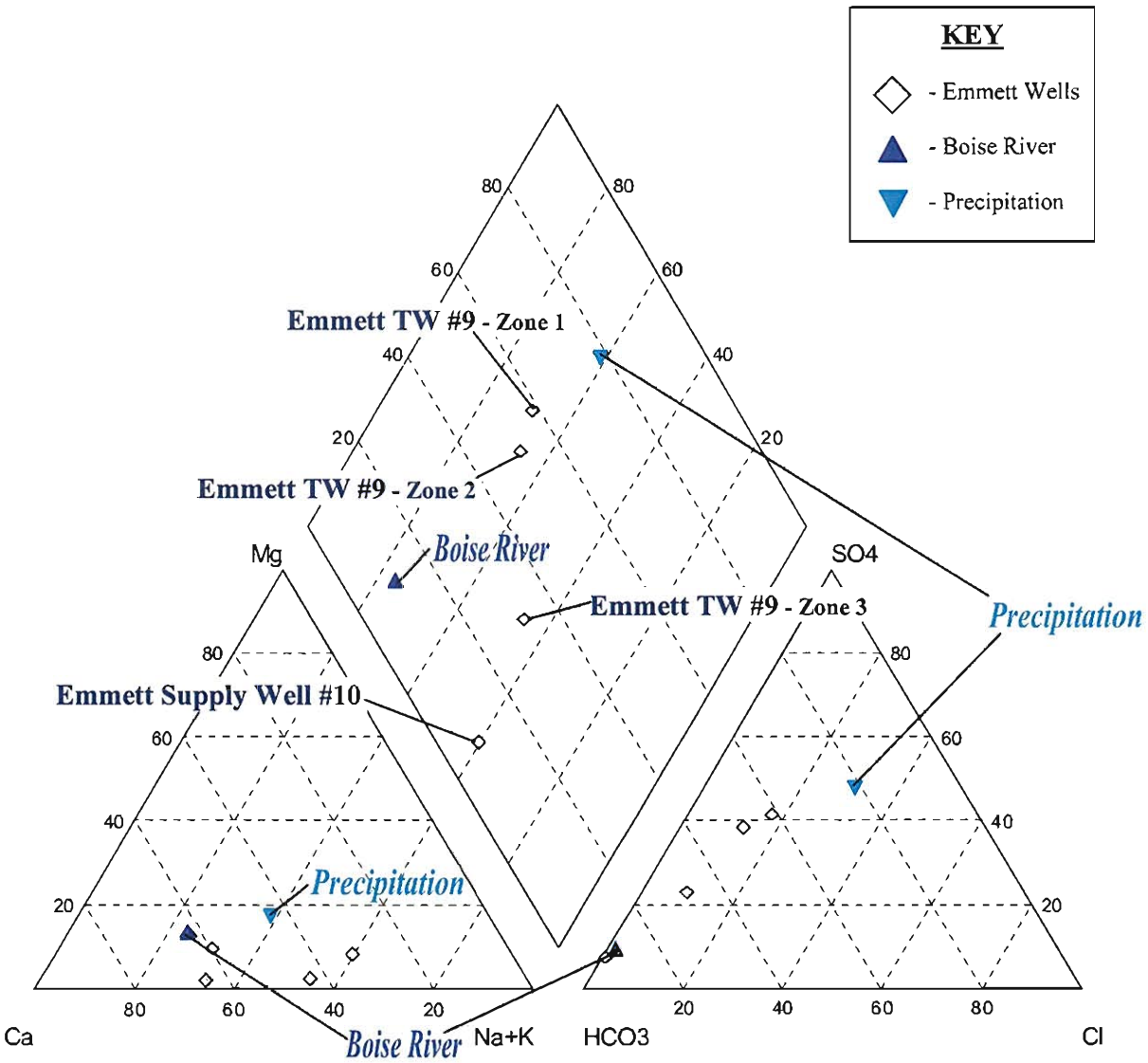

Figure 14. Trilinear diagram showing the major ion relationships of groundwater from the Spring Valley Ranch Wells (SVRW) in the M3 Area compared to that of precipitation and Boise River water with labeling.

Figure 14.

Table 1. Summary of Water Chemistry Data for M3 Eagle and Select Regional Water Supply and Test Wells

Tabulation of Available Data

Well Number	Screened Interval (feet bgl)	Date(s) Sampled	Laboratory	Alkalinity	Aluminum	Aluminum (dissolved)	Ammonia as N	Antimony	Arsenic	Barium	Beryllium	Bicarbonate	Cadmium	Calcium as CaCO3	Chloride	Chromium	Color (apparent)	Conductivity (umhos/cm)	Corrosivity (Langlier)	Fluoride	Hardness	Hydrogen Sulfide	Iron	Iron (dissolved)	Magnesium	Manganese	Manganese (dissolved)	Mercury	Nickel	Nitrate as N (10.0)	Nitrite as N (1.0)	Odor	Orthophosphate	Phosphate P (total)	Phosphorus (total)	Potassium	pH (Lab)	Selenium	Silica	Silicon	Sodium	Sulfate	Sulfide	Thallium	Total Coliform	Total Dissolved Solids	Total Kjeldahl Nitrogen	Total Organic Carbon	Zinc	Field Temperature (degrees F)	Field pH (S.U.)	Field Conductivity (uS)	Field Dissolved Oxygen	Field Oxidation-Reduction Potential (mV)	
City of Star #3	510-643	08-30-06	Alchem	82.0	<0.01		0.06		0.0050					50.2	1.60			184.0	-0.65	0.55	66.7		0.20	0.20	4.03		0.03			<0.10		<1				1.36	7.64		30.60		13.60	9.03	<0.05			123.0	0.15	<1.0		66.5	7.51	212	0.35	-	
Gary Lane UWID	685-837	03-21-96	Alchem	198.0										62.0	3.36			386.0		0.39	74.0		0.23	3.76		0.14			<0.1	<0.01			0.130		5.90	7.45		47.70		50.30					351.0				82.4	7.32				
M3 Test #1 - Zone 1	444-561	10-09-06	Alchem	133.0			0.37		<0.003					84.4	3.42		1	302.0	-0.40	0.69	111.0	ND	0.25	0.23	6.50		0.10			<0.1	<0.01	<1	0.021			2.26	7.47		31.80		22.10	17.20	<0.05		present	173.0	0.39	<1.0		67.1	7.19	305	1.70	-54	
M3 Test #1 - Zone 2	444-561	10-09-06	Alchem	125.0			0.06		<0.003					85.5	3.22		1	297.0	-0.44	0.60	109.0	ND	0.03	<0.01	5.73		0.02			<0.1	<0.01	<1	0.016			2.21	7.48		30.70		21.70	20.70	<0.05		present	188.0	0.13	<1.0		66.0	7.19	295	2.60	53	
M3 Test #1 - Zone 3	305-428	10-09-06	Alchem	119.0			0.04		<0.003					77.7	3.57		1	282.0	-0.50	0.60	102.0	ND	0.01	<0.01	5.83		<0.01			0.30	<0.01	<1	0.028			2.07	7.51		29.50		21.10	21.40	<0.05		present	185.0	<0.1	<1.0		64.7	7.27	274	4.90	84	
M3 Test #1 - Zone 4	305-428	11-27-06	Alchem	114.0			<0.01		0.0049					81.3	3.54		<1	285.0	-0.61	0.50	105.0	*	<0.01	<0.01	5.85		<0.01			0.33	<0.01	<1	0.170			2.10	7.40		28.70		17.90	22.30	<0.05		absent	203.0	<0.1	<1.0		63.8	7.27	268	2.63	143	
M3 Test #1 - Zone 5	67-144	11-27-06	Alchem	119.0			<0.01		0.0081					85.9	4.36		<1	281.0	-1.16	0.24	111.0	*	<0.01	<0.01	6.22		<0.01			2.30	<0.01	<1	0.420			2.74	6.91		38.00		13.60	12.00	<0.05		present	208.0	<0.1	<1.0		57.4	6.72	265	9.51	166	
M3 Test #2 - Zone 1	270-320	07-24-07	Alchem	101.0			0.40		0.0240					63.9	25.40		3	275.0	-0.50	0.36	97.0	*	0.79	0.73	8.05		0.22			<0.10	<0.01	<1	0.182			2.10	7.60		38.30		18.10	66.40	<0.05		absent	180.0	0.04	<1.0		68.6	7.23	322	0.56	94	
M3 Test #2 - Zone 1	259-334	07-24-07	Alchem	101.0			0.40		0.0240					63.9	25.40		3	275.0	-0.50	0.36	97.0	*	0.79	0.73	8.05		0.22			<0.10	<0.01	<1	0.182			2.10	7.60		38.30		18.10	66.40	<0.05		absent	180.0	0.44	<1.0		68.6	7.23	322	0.56	94	
M3 Test #2 - Zone 1	259-334	03-06-08	Alchem	91.4			0.33		0.0184					52.8	4.59		2	246.0	-0.92	0.27	83.5	*	0.65	0.65	7.46		0.18			<0.10	<0.01	<1	0.131			2.08	7.32		28.10		19.20	20.70	<0.05		absent	178.0	0.33	<1.0		67.8	7.26	280	0.07	-130	
M3 Test #3 - Zone 1	391-446	01-30-07	Alchem	136.0			0.28		0.0080					69.8	5.39		<1	316.0	-0.14	0.51	98.4	*	0.37	0.16	6.94		0.07			0.13	<0.01	<1	0.477			2.90	7.90		43.50		30.40	22.70	<0.05		absent	253.0	0.35	1.34		64.2	7.62	310	6.64	106	
M3 Test #3 - Zone 2	391-446	01-30-07	Alchem	123.0			0.14		0.0050					74.8	5.31		<1	305.0	-0.46	0.52	106.0	*	0.24	0.09	7.48		0.09			0.13	<0.01	<1	0.270			2.54	7.59		41.20		24.30	23.90	<0.05		absent	235.0	0.23	<1.0		63.2	7.22	307	4.89	6	
M3 Test #3 - Zone 3	360-381	01-30-07	Alchem	117.0			0.05		0.0090					86.5	7.02		<1	321.0	-0.30	0.52	118.0	*	0.05	0.03	7.47		0.05			0.12	<0.01	<1	0.276			2.53	7.72		35.80		26.20	32.30	<0.05		absent	238.0	0.18	<1.0		62.2	7.46	321	4.87	110	
M3 Test #4 - Zone 1	617-655	04-03-08	Alchem	128.0			0.11		0.0029					83.9	4.13		<1	307.0	-0.45	0.48	118.0	*	0.31	0.27	8.33		0.07			<0.10	<0.01	<1	0.104			2.52	7.45		37.20		24.00	21.20	<0.05		absent	225.0	0.11	<1.0		68.9	7.64	333	0.09	-122	
M3 Test #4 - Zone 2	298-564	04-03-08	Alchem	122.0			<0.01		0.0066					81.0	4.57		<1	300.0	-0.46	0.43	109.0		0.02	0.01	6.81		0.01			0.39	<0.01	<1	0.133			2.28	7.52		32.50		25.80	23.00	<0.05		absent	223.0	<0.10	1.00		64.6	7.70	334	2.26	116	
M3 Test #4 - Zone 3	166-211																																																							
M3-Kling Irrigation	102-415	01-11-07	Alchem	112.0			<0.01		<0.003					83.2	4.90			295.0	-0.86	0.51	110.0	ND	0.04	0.02	6.42		<0.01			0.54	0.01					2.28	7.18		32.20		19.70	29.10	<0.05		absent	225.0	0.14	<1.0							
Spring Valley Ranch #1	open 100-400	11-08-02	Analytical				0.18	<0.005	0.0080	<0.05	<0.0005			27.3	4.00	<0.002				0.44	99.5		0.06		5.47	0.18				<0.0002	<0.02	0.26	<0.01			6.50					17.80	43.00	<0.05	<0.002		210.0				60.3	7.39	282			
Spring Valley Ranch #2	open 300-846	11-27-02	Analytical				0.23	<0.005	0.0160	0.06	<0.0005			85.6	5.00	<0.002				0.34	319.0		0.95		22.20	1.64				<0.0002	<0.02	<0.20	<0.01			12.90					43.70	229.00	<0.05	<0.002		570.0				66.7		815			
Spring Valley Ranch #3	150-240+	12-18-02	Analytical				<0.04	<0.005	0.0380	<0.05	<0.0005	50.4000		12.9	2.00	<0.002				0.27	41.8		0.06		2.54	<0.05				<0.0002	<0.02	0.63	<0.01			4.40					9.72	11.00	<0.05	<0.002		116.0				56.8		142			
Spring Valley Ranch #4 (deep)	1,035-1,220	02-25-03	Analytical				0.04	<0.005	0.0040	<0.05	<0.0005	136.0000		1.6	5.00	<0.002				0.97	5.0		0.24		<0.10	<0.05				<0.0002	<0.02	<0.20	0.01			0.70					83.50	32.00	<0.05	<0.002		214.0				56.0	7.40	590			
Spring Valley Ranch #4 (250)	240-320	03-06-03					0.46	<0.005	<0.003	<0.05	<0.0005	155.0000		45.6	3.00	<0.002				0.17	19.0		0.73		2.58	0.26				<0.0002	<0.02	<0.2	<0.01			6.50					68.70	117.00	<0.05	<0.002		404.0				66.0	7.40	546			
Spring Valley Ranch #5	open 38-(147?)	02-05-04	Analytical				0.12	<0.005	0.0080	0.05	<0.0005	71.3000	<0.0005	15.8	3.00	<0.002				0.42	48.4	<0.05	0.86		3.26	0.31				<0.0002	<0.02	<0.2	<0.01			4.90					15.30	9.00	<0.05	<0.002		176.0				57.9	6.46	184			
Spring Valley Ranch #6	455-740	03-16-04	Anlytical	58.8			0.13	ND	0.0670	ND	ND			9.7	5.00	ND				0.95	ND	ND	0.09		0.69	ND				ND	ND	1.09	0.02			1.50		ND			27.80	13.00				98.0									
Spring Valley Ranch #7	240-380	04-21-04	Analytical				<0.04	<0.005	<0.005	<0.05	<0.0005		<0.0005	29.1	5.00	<0.002				0.44	110.0	<0.05	0.11		8.19	<0.05				<0.0002	<0.02	0.31	<0.01								22.90	24.00				212.0									
Spring Valley Ranch #7	240-380	03-14-08	Alchem	120.0			0.02		0.0037					77.8	4.42		<1	305.0	-0.35	0.43	115.0		0.11	0.11	8.91		0.02			0.34	<0.01	<1				2.60	7.63		38.90		23.20	23.50	<0.05		absent	235.0	<0.10	3.36		67.0	7.40	382	1.37	55	
Spring Valley Ranch #9	215-265	06-23-04	Analytical				0.10	<0.005	<0.005	0.10	<0.0005		<0.0005	24.9	10.00	<0.002				0.45	102.0	<0.05	0.60		10.40	0.12				<0.0002	<0.02	<0.2	<0.01			2.00	2.50	<0.005			26.90	44.00				216.0				75.9	7.64	160			
Spring Valley Ranch #10	600-770	08-19-04	Analytical				<0.04	<0.005	0.0120	<0.05	<0.0005	53.5	<0.0005	17.1	2.00	0.002				0.24	51.8	<0.05	0.36		3.20	<0.05				<0.0002	<0.02	5.20	<0.01			2.40		<0.005			12.30	<1.0	<0.05	<0.002		70.0									
Spring Valley Ranch Spring #1		12-18-02	Analytical				<0.04	<0.005	0.0210	<0.05	<0.0005			22.2	3.00	<0.002				0.33	67.7	<0.05	<0.05		3.53	<0.05				<0.0002	<0.02	1.59	<0.01			4.40					9.52	17.00		<0.002		120.0									
Spring Valley Ranch Spring #1		03-19-02					0.07	<0.005	0.0210	<0.05	<0.0005			24.4	3.00	<0.002				0.38	69.2	<0.05	<0.05		3.63	<0.05				<0.0002	<0.02					4.10					9.67			<0.002											
Spring Valley Ranch Irrigation		03-06-03	Analytical				0.75	<0.005	0.0060	0.22	<0.0005			50.0	12.00	<0.002				0.79	125.0	<0.05	4.33		11.60	2.29				<0.0002	<0.02	<0.2	0.02			10.40					27.50	61.00		<0.002		378.0				55.9	7.49	514			
Big Gulch #1		02-14-03	Analytical				<0.04	<0.005	0.0050	0.05	<0.0005			30.8	5.00	<0.002				0.60	107.0		<0.05		6.65	<0.05				<0.0002	<0.02	0.30	<0.01			2.10					19.20	24.00	<0.05	<0.002		206.0				64.9	7.38	269			
Little Gulch #1		02-14-03	Analytical				<0.04	<0.005	0.0060	<0.05	<0.0005			23.9	6.00	<0.002				0.59	89.7		<0.05		6.55	<0.05				<0.0002	<0.02	0.59	<0.01			1.70					21.20	21.00	<0.05	<0.002		192.0				68.2	7.30	253			
State/Linder Test #1 Zone 1	230-545	10-27-97	Analytical	99.7			<0.04							28.3	4.00			234.0	-1.20	0.52	86.9		<0.05	<0.05	4.97	<0.05	<0.05			0.18						0.070	1.67	6.90		14.70		16.60	17.00				94.0				60.0	6.80	255			
		10-27-97	Alchem	97.5										27.3	2.52			231.0		0.34	89.2		<0.01	<0.01	5.10	<0.01	<0.01			0.12						0.050	1.74	7.00		42.20		15.00	16.60				98.0				60.0	6.80	255			
		08-28-00	Analytical						0.0030														<0.05			<0.05															<0.05											
State/Linder Test #1 Zone 2	230-545	10-27-97	Analytical	93.3			<0.04							25.6	3.00			214.0	-1.20	0.52	78.9		<0.05	<0.05	4.32	<0.05	<0.05			0.12						<0.05	1.56	7.00		14.40		15.00	14.80				82.0				58.5	6.92	224			
		10-27-97	Alchem	89.7										25.2	3.13			213.0		0.38	81.8		<0.01	<0.01	4.60	<0.01	<0.01			<0.10						0.040	1.47	7.05		<2.60		13.60	14.90				128.0									
		08-28-00	Analytical						<0.003														<0.05			<0.05															<0.05											
State/Linder Test #2 Zone 1	880-980	02-16-98	Alchem	100.0										24.7	2.07			231.0	-0.84	0.48	82.2		2.04	0.38	4.99	0.05	0.02			<0.10						0.140	1.10	7.35		33.40		15.50	15.10				148.0				72.4	7.60	345			
		02-16-98	Analytical	105.0	0.54		7.02							24.5	3.00			226.0	-1.50	0.48	83.5		1.86	0.32	5.20	<0.05	<0.05			0.11						0.050	1.67	7.60		30.90		15.80	16.00				144.0				72.4	7.60	345			
		08-28-00	Analytical						0.005														0.23			0.10															<0.05											
State/Linder Test #2 Zone 2	569-730	02-16-98	Alchem	179.0										24.0	5.73			365.0	-0.25	0.29	79.7		0.18	0.17	4.82	0.11	0.11			<0.10						0.130	4.83	7.60		67.80		38.80	<0.50				235.0				62.0	6.70	242			
		02-16-98	Analytical	191.0	0.16		6.05							23.6	6.00			343.0	-0.40	0.31	78.5		0.14	0.14	4.79	0.10	0.10			<0.10						0.140	4.06	8.00		59.50		35.50	<5				204.0				62.0	6.70	242			
		08-28-00	Analytical						0.0040														28.60			0.26															<0.05											

Table 1. Summary of Water Chemistry Data for M3 Eagle and Select Regional Water Supply and Test Wells

Tabulation of Available Data

Well Number	Screened interval (feet bgl)	Date(s) Sampled	Laboratory	Alkalinity	Aluminum	Aluminum (dissolved)	Ammonia as N	Antimony	Arsenic	Barium	Beryllium	Bicarbonate	Cadmium	Calcium as CaCO3	Chloride	Chromium	Color (apparent)	Conductivity (umhos/cm)	Corrosivity (Langlier)	Fluoride	Hardness	Hydrogen Sulfide	Iron	Iron (dissolved)	Magnesium	Manganese	Manganese (dissolved)	Mercury	Nickel	Nitrate as N (10.0)	Nitrite as N (1.0)	Odor	Orthophosphate	Phosphate P (total)	Phosphorus (total)	Potassium	pH (Lab)	Selenium	Silica	Silicon	Sodium	Sulfate	Sulfide	Thallium	Total Coliform	Total Dissolved Solids	Total Kjeldahl Nitrogen	Total Organic Carbon	Zinc	Field Temperature (degrees F)	Field pH (S.U.)	Field Conductivity (uS)	Field Dissolved Oxygen	Field Oxidation-Reduction Potential (mV)
State Street UWID Zone 1	260-357	12-13-96	Alchem	112.0										28.9	2.05			260.0	-0.87	0.34	90.9		0.06	0.02	4.54	0.03	0.03			0.13					0.040	2.00	7.30		32.50		17.30	14.40	<0.05			218.0				7.03			
State Street UWID Zone 1	260-358	12-14-96	Analytical	114.0										29.2	2.00			255.0	-1.10	0.57	99.9		<0.05	<0.05	4.58	<0.05	<0.05			0.16				0.070		1.58	7.60			14.6	15.80	14.00	0.07			182.0				7.03			
State Street UWID Zone 2	260-357	12-14-96	Alchem	101.0										28.1	1.73			224.0	-0.54	0.36	86.4		0.05	0.01	3.94	0.04	0.04			<0.10					0.030	2.07	7.70		33.60		15.20	11.40	<0.05			188.0				7.42			
State Street UWID Zone 2	260-358	12-15-96	Analytical	103.0										25.8	2.00			237.0	-0.80	0.66	93.7		<0.05	<0.05	3.70	<0.05	<0.05			<0.10				0.070		1.63	8.10			15.7	14.20	12.00	0.23			164.0				7.42			
State Street UWID Zone 3	191-249	12-15-96	Alchem	132.0										39.6	2.63			313.0	-0.35	0.37	129.0		0.63	0.57	7.22	0.06	0.05			<0.1					0.040	2.55	7.65		31.50		20.30	22.50	<0.05			173.0				7.18			
State Street UWID Zone 3	191-250	12-16-96	Analytical	138.0										35.1	3.00			305.0	-0.80	0.78	125.0		0.50	0.50	6.55	0.05	0.05			<0.1				0.060		2.06	7.90			15.4	19.40	22.00	0.16			200.0				7.18			
State Street UWID Zone 4	105-177	12-16-96	Alchem	139.0										37.5	3.20			299.0	-0.33	0.33	111.0		0.03	0.01	4.16	0.01	0.01			<0.10					0.050	2.17	7.70		28.70		24.90	10.20	<0.05			248.0				7.36			
State Street UWID Zone 4	105-178	12-17-96	Analytical	143.0										33.3	3.00			294.0	-0.70	0.75	108.0		<0.05	<0.050	3.62	<0.05	<0.05			<0.10				0.080		1.64	8.00			14.3	24.20	24.20				188.0				7.36			
Swift #1 Supply UWID	162-215	08-04-95	Analytical	110.0										32.0	6.00			247.0	-1.36	0.42	97.5		<0.05		4.87	0.91									0.900	3.32			24.20		15.40	10.00				180.0			59.9	6.74			
Swift #1 Supply UWID	162-215	2007 ?		101.0	0.00	0.00			0.0000					22.4	5.00			272.0	-1.50	0.36	70.0		0.00		3.10	0.08				0.50						1.50	6.50				16.10	10.00				142.0			59.9				
Swift #3 Supply UWID	526-686	08-15-97	Alchem	121.0										13.3				243.0	-0.69	0.49	42.2		0.03	0.03	2.19	0.12	0.12			<0.10					0.090		7.60		56.10		36.80	1.23							73.5	7.15	256		
Swift #3 Supply UWID	526-686	05-15-97	Analytical	138.0										17.0	2.00			263.0	-0.46	0.48	56.0		0.06		2.64	0.15	0.14			<0.1					0.080	3.31			46.00		31.70	1.00								7.55			
Swift Test Well Zone 1	485-720	11-19-96	Alchem	142.0										14.8	1.67			241.0	-0.37	0.48	46.1		0.01	<0.01	2.23	0.11	0.11			<0.1					0.120	3.84	7.80		44.70		32.30	<0.50	0.13			168.0			71.2	7.48	177		
Swift Test Well Zone 1	485-720	11-19-96	Analytical	122.0										15.8	4.00			236.0	-0.70		49.6		<0.05	<0.05	2.22	0.10	0.10			<0.1					0.090	2.85	8.10		48.60		39.10	<1				170.0			71.2	7.48	177		
Swift Test Well Zone 2	485-720	11-19-96	Alchem	98.9										18.2	1.55			206.0	-0.28	0.41	53.1		0.01	0.01	1.87	0.09	0.09			<0.10					0.080	2.30	8.02		45.80		22.50	5.88				148.0			68.2	8.00	173		
Swift Test Well Zone 2	485-720	11-19-96	Analytical	98.7										19.3	2.00			204.0	-0.20		54.4		<0.05	<0.05	1.85	0.09	0.09			<0.1					0.700	1.61	8.20		51.10		21.30	6.00				160.0			68.2	8.00	173		
Swift Test Well Zone 3	85-280	11-21-97	Alchem	130.0		0.22								39.2	5.27			291.0	-0.71	0.24	120.0		0.68	0.65	5.40	0.08	0.08									2.11	7.25		35.10		14.30					193.0			59.0		282		
Swift Test Well Zone 3	85-280	11-21-97	Analytical			134.00								41.7	5.00			297.0	-0.90	0.26	116.0		0.59	0.63	5.90	0.07	0.07			<0.10					0.070	2.00	7.00		38.80		16.50	13.00				188.0			59.0		282		
Swift Test Well Zone 4	85-280	11-21-97	Alchem	113.0		0.27								31.1	4.05			239.0	-0.64	0.49	94.5		0.06	0.06	4.07	1.37	1.59									2.12	7.45		24.00		13.20					153.0			59.0		232		
Swift Test Well Zone 4	85-280	11-21-97	Analytical	116.0		<.1								32.6	4.00			251.0	-0.76	0.38	93.2		<0.05	<0.05	4.39	1.24	1.43			<0.1					0.100	2.05	7.30		28.40		15.20	6.00				156.0			59.0		232		
Floating Feather	171-346			124.0			0.00		0.0030										-1.16	0.35	114.0		ND			ND				1.80																17.30	16.00				202.0			59.9	6.86			
Floating Feather	171-346	2007 ?		130.0	0.27				4.0000					36.5	5.00			308.0	-1.02	0.31	102.0		0.00		7.30	0.00				2.40						0.90	7.10				21.20	16.00				222.0			54.3				
Goddard #2 UWID	451-551	2001 ?		192.0			0.00		<3ppb										-0.86	0.25	162.0									1.51																25.40	26.00				262.0							
Goddard #2 UWID	451-551	2007 ?		198.0	0.20		0.17		0.0000					51.8	8.00			450.0	-0.91	0.25	168.0		0.00		10.00	0.00				1.40						2.00	6.80				31.70	25.00				270.0			60.6				
Goddard #1 UWID	760-960	06-24-92	Analytical	126.0										35.5	8.00			327.0		0.21	128.0		<0.05		8.00	<0.05		<0.0005	<0.02	0.14							7.20		65.00		15.20	30.00	0.14						68.0				
HP UWID	575-700	05-17-91	Analytical	54.0										14.0	<1.0		<1.0	97.0	-1.90	0.32	40.0		<0.05		2.30	<0.05		<0.0005	<0.02	0.15	<0.01					0.97	6.70		30.40		7.10	3.00	<0.01					<0.005					
Island Woods #1	225-345	2001 ?		57.0			0.00		<0.003										-2.61	0.35	50.0		ND			ND				0.22																8.60	8.00				122.0			57.6	6.05			
Island Woods #1	225-345	2007 ?		57.0	0.00		0.00		0.0000					15.8	2.00			132.0	-2.61	0.35	50.0		0.06		2.50	0.00				0.30						0.32	6.10				10.70	8.00				88.0			57.6				
Island Woods #2	230-355	2001 ?		54.0			0.00		<0.003										-2.61	0.37	50.0		ND			ND				ND																8.30	5.00				88.0			59.9	6.12			
Island Woods #2	230-355	2007 ?		54.0	0.00		0.00		0.0000					13.1	0.00			116.0	-2.61	0.37	41.0		0.00		2.20	0.00				0.02						1.07	6.10				10.00	5.00				122.0			59.9				
Redwood Creek	265-415			136.0			0.00		<0.003										-1.10	0.41	135.0		0.15			ND				1.30																19.60	16.00				404.0			61.3	6.88			
Redwood Creek	265-415	2007 ?		136.0	0.00		0.00		3ppb					39.4	5.00			313.0	-1.40	0.44	131.0		0.00		6.50	0.00				1.00						1.40	6.50				21.50	24.00				208.0			61.7				
Lexington Hills #1	215-385			243.0			0.00		0.0060										-0.60	0.39	160.0		ND			ND				1.19																49.20	21.00				350.0			63.5	6.96			
Lexington Hills #1	215-385	2007 ?		244.0	0.11		0.00		5ppb					50.2	4.00			547.0	-1.67	0.34	177.0		0.00		12.60	0.00				2.20						2.20	7.00				60.80	28.00				262.0			63.0				
Wade Lynn Well	?	06-07-04	Analytical				0.58		<0.005					17.2	3.00					0.30	55.4		0.08		2.84	0.19				<0.2						2.00	7.30		37.40		30.30	1.00				154.0							
Corbett Lynn well	540-580	06-07-04	Analytical				0.05		0.0270					20.9	4.00					1.71	54.4		0.05		0.24	<0.05				<0.2						1.30	7.60		40.30		27.80	29.00				120.0							
Lynn Old Irrigation well	?	06-07-04	Analytical				<0.04		0.0140					17.1	6.00					4.09	45.6		<0.05		0.45	<0.05				1.30						1.00	7.90		36.40		40.90	19.00				154.0							
Perin	375-385	09-01-00	Alchem	73.1			0.35							19.6	2.74						22.0		0.23	<0.01			0.02			<0.1	<0.01														absent					79.9	8.60	180		
Emmett #9 Test Zone 1	425-467	05-19-99	Alchem	114.0			0.18		<0.005					157.0	33.30			547.0	-0.19	0.74	183.0	<0.05	0.86	0.44	6.22	0.63	0.60			<0.1					0.062	2.00	7.61		31.00		36.30	110.00			absent	385.0			60.5	7.08	574		
Emmett #9 Test Zone 2	360-400	05-19-99	Alchem	100.0			0.20		<0.005					130.0	19.00			416.0	0.09	0.92	134.0	<0.05	<0.01	<0.01	1.08	0.07	0.07			<0.1					0.020	1.67	7.98		22.30		29.90	76.30			absent	283.0			64.0	7.89	459		
Emmett #9 Test Zone 3	195-248	05-19-99	Alchem	102.0			0.12		<0.005					62.7	9.70			309.0	-0.07	2.66	66.4	<0.05	0.02	<0.01	0.88	0.06	0.06			<0.1					0.033	1.42	8.08		22.00		35.10	33.10			absent	203.0			66.0	7.96	335		
Emmett #10 Test	300-374	08-17-99	Alchem	219.0			0.64		<0.005					27.3	1.16			440.0	-0.07	0.30	85.6	*	0.11	0.11	4.25	0.12	0.13			<0.1					0.030	0.77	7.86		20.40		57.60	17.50	<0.05			340.0			56.5	8.07	337		

*=initial pump testing sampling suite © 2009 Hydro Logic, Inc. This instrument is the property of Hydro Logic, Inc. Any reproduction, reuse, or modification of this instrument or its contents without the specific written permission of Hydro Logic, Inc is strictly prohibited.

Table 1. - Comments

Well Number	Screened Interval (feet bgl)	Date(s) Sampled	Comments
City of Star #3	510-643	08-30-06	no comments
Gary Lane UWID	685-837	03-21-96	no comments
M3 Test #1 - Zone 1	444-561	10-09-06	no comments
M3 Test #1 - Zone 2	444-561	10-09-06	no comments
M3 Test #1 - Zone 3	305-428	10-09-06	no comments
M3 Test #1 - Zone 4	305-428	11-27-06	* = no H2S data
M3 Test #1 - Zone 5	87-144	11-27-06	* = no H2S data
M3 Test #2 - Zone 1	270-320	07-24-07	* = no H2S data
M3 Test #2 - Zone 1	259-334	07-24-07	Taste high in iron, moderate H2S smell, no sand, no yellowing, minor degassing after 20 min. (tiny bubbles), Water possibly contaminated with drillers water.
M3 Test #2 - Zone 1	259-334	03-06-08	Clear water, moderate H2S smell,
M3 Test #3 - Zone 1	391-448	01-30-07	* = no H2S data
M3 Test #3 - Zone 2	391-446	01-30-07	* = no H2S data
M3 Test #3 - Zone 3	360-381	01-30-07	* = no H2S data
M3 Test #4 - Zone 1	617-655	04-03-08	Water started clear, mild H2S smell, slight irony taste, rapid degassing at the surface, mildly foamy
M3 Test #4 - Zone 2	298-564	04-03-08	chlorine demand = 0.25 mg/l, water started slightly cloudy and cleared up in 5 minutes, moderate degassing with medium sized bubbles, no odor, smooth clean taste, no sand, no yellowing.
M3 Test #4 - Zone 3	166-211		Water contaminated by cement, will sample after more development
M3-Kling Irrigation	102-415	01-11-07	no comments
Spring Valley Ranch #1	open 100-400	11-08-02	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Spring Valley Ranch #2	open 300-846	11-27-02	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Spring Valley Ranch #3	160-240+	12-18-02	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Spring Valley Ranch #4 (deep)	1,035-1,220	02-25-03	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Spring Valley Ranch #4 (250)	240-320	03-06-03	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Spring Valley Ranch #5	open 38-(147?)	02-05-04	no comments
Spring Valley Ranch #6	455-740	03-18-04	data obtained from "Well Construction and Aquifer Testing in the Big Gulch and Little Gulch Areas of Spring Valley Ranch. 10/13/2004
Spring Valley Ranch #7	240-380	04-21-04	data obtained from "Well Construction and Aquifer Testing in the Big Gulch and Little Gulch Areas of Spring Valley Ranch. 10/13/2004
Spring Valley Ranch #7	240-380	03-14-08	Water is clear, minor H2S smell, small trace of degassing, chlorine demand = 0.33 mg/l
Spring Valley Ranch #9	215-265	06-23-04	data obtained from "Well Construction and Aquifer Testing in the Big Gulch and Little Gulch Areas of Spring Valley Ranch. 10/13/2004
Spring Valley Ranch #10	600-770	08-19-04	data obtained from "Well Construction and Aquifer Testing in the Big Gulch and Little Gulch Areas of Spring Valley Ranch. 10/13/2004
Spring Valley Ranch Spring #1		12-18-02	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Spring Valley Ranch Spring #1		03-19-02	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Spring Valley Ranch Irrigation		03-06-03	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Big Gulch Stock		02-14-03	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
Little Gulch Stock		02-14-03	data obtained from "Groundwater Exploration Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho" Scanlan Eng, April 2003
State/Linder Test #1 Zone 1	230-545	10-27-97	
		10-27-97	same sample, different labs
		08-28-00	sulfide analysis by Alchem
State/Linder Test #1 Zone 2	230-545	10-27-97	
		10-27-97	same sample, different labs
		08-28-00	sulfide analysis by Alchem
State/Linder Test #2 Zone 1	880-980	02-16-98	no comments
		02-16-98	no comments
		08-28-00	sulfide analysis by Alchem
State/Linder Test #2 Zone 2	569-730	02-16-98	no comments
		02-16-98	no comments
		08-28-00	sulfide analysis by Alchem
State Street UWID Zone 1	260-357	12-13-96	no comments
State Street UWID Zone 1	260-358	12-14-96	no comments

Table 1. - Comments

Well Number	Screened Interval (feet bgl)	Date(s) Sampled	Comments
State Street UWID Zone 2	260-357	12-14-99	no comments
State Street UWID Zone 2	260-358	12-15-96	no comments
State Street UWID Zone 3	191-249	12-15-96	no comments
State Street UWID Zone 3	191-250	12-16-96	no comments
State Street UWID Zone 4	105-177	12-16-96	no comments
State Street UWID Zone 4	105-178	12-17-96	no comments
Swift #1 Supply UWID	162-215	08-04-95	no comments
Swift #1 Supply UWID	162-215	2007 ?	data obtained from 2007 UWID WQ Fact Sheet
Swift #3 Supply UWID	526-686	08-15-97	no comments
Swift #3 Supply UWID	526-686	05-15-97	no comments
Swift Test Well Zone 1	485-720	11-19-96	no comments
Swift Test Well Zone 1	485-720	11-19-96	no comments
Swift Test Well Zone 2	485-720	11-19-96	no comments
Swift Test Well Zone 2	485-720	11-19-96	no comments
Swift Test Well Zone 3	85-280	11-21-97	no comments
Swift Test Well Zone 3	85-280	11-21-97	no comments
Swift Test Well Zone 4	85-280	11-21-97	no comments
Swift Test Well Zone 4	85-280	11-21-97	no comments
Floating Feather	171-348		data obtained from 2001 UWID WQ Fact Sheet
Floating Feather	171-346	2007 ?	data obtained from 2007 UWID WQ Fact Sheet
Goddard #2 UWID	451-551	2001 ?	Off of 2001 UWID WQ Fact sheet, unkown field measurements, and unknown sample date
Goddard #2 UWID	451-551	2007 ?	no comments
Goddard #1 UWID	760-960	06-24-92	no comments
HP UWID	575-700	05-17-91	no comments
Island Woods #1	225-345	2001 ?	data obtained from 2001 UWID WQ Fact
Island Woods #1	225-345	2007 ?	data obtained from 2007 UWID WQ Fact Sheet
Island Woods #2	230-355	2001 ?	data obtained from 2001 UWID WQ Fact Sheet
Island Woods #2	230-355	2007 ?	data obtained from 2007 UWID WQ Fact Sheet
Redwood Creek	265-415		data obtained from 2001 UWID WQ Fact Sheet
Redwood Creek	265-415	2007 ?	data obtained from 2007 UWID WQ Fact Sheet
Lexington Hills #1	215-385		data obtained from 2001 UWID WQ Fact Sheet
Lexington Hills #1	215-385	2007 ?	data obtained from 2007 UWID WQ Fact Sheet
Wade Lynn Well	?	06-07-04	data obtained from "Well Construction and Aquifer Testing in the Big Gulch and Little Gulch Areas of Spring Valley Ranch. 10/13/2004
Corbett Lynn well	540-580	06-07-04	data obtained from "Well Construction and Aquifer Testing in the Big Gulch and Little Gulch Areas of Spring Valley Ranch. 10/13/2005
Lynn Old Irrigation well	?	06-07-04	data obtained from "Well Construction and Aquifer Testing in the Big Gulch and Little Gulch Areas of Spring Valley Ranch. 10/13/2006
Perin	375-385	09-01-00	no comments
Emmett #9 Test Zone 1	425-487	05-19-99	no comments
Emmett #9 Test Zone 2	360-400	05-19-99	no comments
Emmett #9 Test Zone 3	195-248	05-19-99	no comments
Emmett #10 Test	300-374	08-17-99	no comments

Table 2. Averages for physical and chemical characteristics of groundwater from wells in the M3 Eagle area used in this report.

Parameter (all values in milligrams per liter unless otherwise specified)	Aquifers											
	All Pierce Gulch Sand Aquifer (PGSA)		Upper Pierce Gulch Sand Aquifer (PGSA)		Lower Pierce Gulch Sand Aquifer (PGSA)		Spring Valley Ranch Wells (SVRW)		Terteling Springs Formation (TSF)		Willow Creek Aquifer (WCA)	
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Mean Screen Depth (feet)	52	341	13	311	23	341	6	284	10	658	3	581
Field Parameters												
Temperature (°F)	35	62.7	6	63.4	17	63.5	6	60.3	8	69.2	0	
Temperature (°C)	35	17	6	17.4	17	17.5	6	15.7	8	20.6	0	
Field pH	30	7.19	8	7.29	15	7.25	4	7.42	9	7.53	0	
Laboratory pH	40	7.18	11	7.39	20	7.2	0		8	7.8	3	7.6
Field Conductivity (µS/cm)	22	286	6	252	13	287	6	482	7	219		
Laboratory Conductivity (µS/cm)	40	276	11	270	20	287	0		9	272	0	
Dissolved Oxygen	13	2.53	2	3.76	8	2.71	0		0		0	
Eh (mv)	12	258	2	334	7	246	0		0		0	
Laboratory Analyses												
Silica	33	34.2	11	32.8	18	35	0		9	43.8	3	38
Total Iron	48	0.74	15	0.09	22	1.52	9	0.81	9	0.28	5	0.12
Dissoved Iron	31	0.17	11	0.11	17	0.22	0		8	0.1	0	
Total Manganese	33	0.14	12	0.025	14	0.31	9	0.53	9	0.1	4	0.07
Dissolved Manganese	31	0.14	11	0.019	17	0.24	0		9	0.1	0	
Calcium	44	30.4	13	31	21	31.3	9	31.7	9	18.6	5	16.4
Magnesium	44	5.9	13	5.5	21	6	9	6.1	9	2.9	5	1.5
Sodium	50	20.6	13	19.1	22	22.9	9	31.7	9	34.1	5	27.8
Potassium	44	2.01	13	1.93	21	2.26	9	6.09	9	2.91	5	1.64
Bicarbonate	50	146	13	141	22	155	8	142	9	168	5	101
Sulfate	50	17.7	13	19.9	22	17.3	8	64.9	9	5.3	5	12.5
Chloride	44	4.1	13	3.7	21	4.4	9	4.4	9	2.4	5	4
Fluoride	50	0.44	13	0.52	22	0.44	9	0.46	9	0.43	5	1.46
Nitrate as Nitrogen	46	0.42	13	0.21	19	0.27	8	0.37	9	0.05	5	1.56
Total Kjeldahl Nitrogen	14	0.19	3	0.08	8	0.28	0		0		0	
Ammonia as Nitrogen	29	0.08	5	0.018	11	0.16	9	0.21	1	0.64	5	0.16
Organic Nitrogen	14	0.06	3	0.06	8	0.06	0		0		0	
Total Organic Carbon	14	0.8	3	0.5	8	0.6	0		0		0	
Total Phosphorus	10	0.14	4	0.04	6	0.21	0		8	0.17	0	
Orthophosphate	11	0.16	2	0.1	7	0.2	0		0		0	
Sulfide	27	0.04	10	0.039	13	0.04	5	0.025	3	0.06	0	
Arsenic	32	0.004	7	0.003	12	0.007	9	0.0137	2	0.0037	5	0.03
Barium	4	0.05	2	0.038	1	0.001	9	0.053	0		1	
Langlier Corrosivity Index	42	-0.97	8	-0.67	20	-0.76	0		7	-0.4	0	
Hardness	50	102	13	102	22	103	9	88.3	9	60	4	52
Total Dissolved Solids	50	192	13	171	22	200	8	274	9	206	0	
Total Dissolved Solids Sum	33	183	11	184	18	184	0		9	194	5	119
Percentages and Mass Balance												
Percent Calcium	44	52	13	54	21	51	9	44	9	35	5	38
Percent Magnesium	44	16	13	16	21	16	9	13	9	8.8	5	6
Percent Sodium	44	30	13	29	21	30	9	37	9	54	5	54
Percent Potassium	44	1.8	13	1.7	21	2	9	5	9	2.8	5	2.1
Percent Bicarbonate	44	83	13	82	21	84	8	68	9	94	5	82
Percent Sulfate	43	13	13	15	21	12	8	28	9	3.9	5	12
Percent Chloride	43	4	13	3.7	21	4.3	8	4	9	2.5	5	5.6
Cation Sum	44	2.95	13	2.88	21	3.01	9	3.62	9	2.72	5	2.19
Anion Sum	43	2.88	13	2.83	21	2.92	8	3.81	9	2.93	5	2.02
Mass Balance Error	43	3.4	13	2.1	21	2.5	8	2.5	9	-6.8	5	7.9

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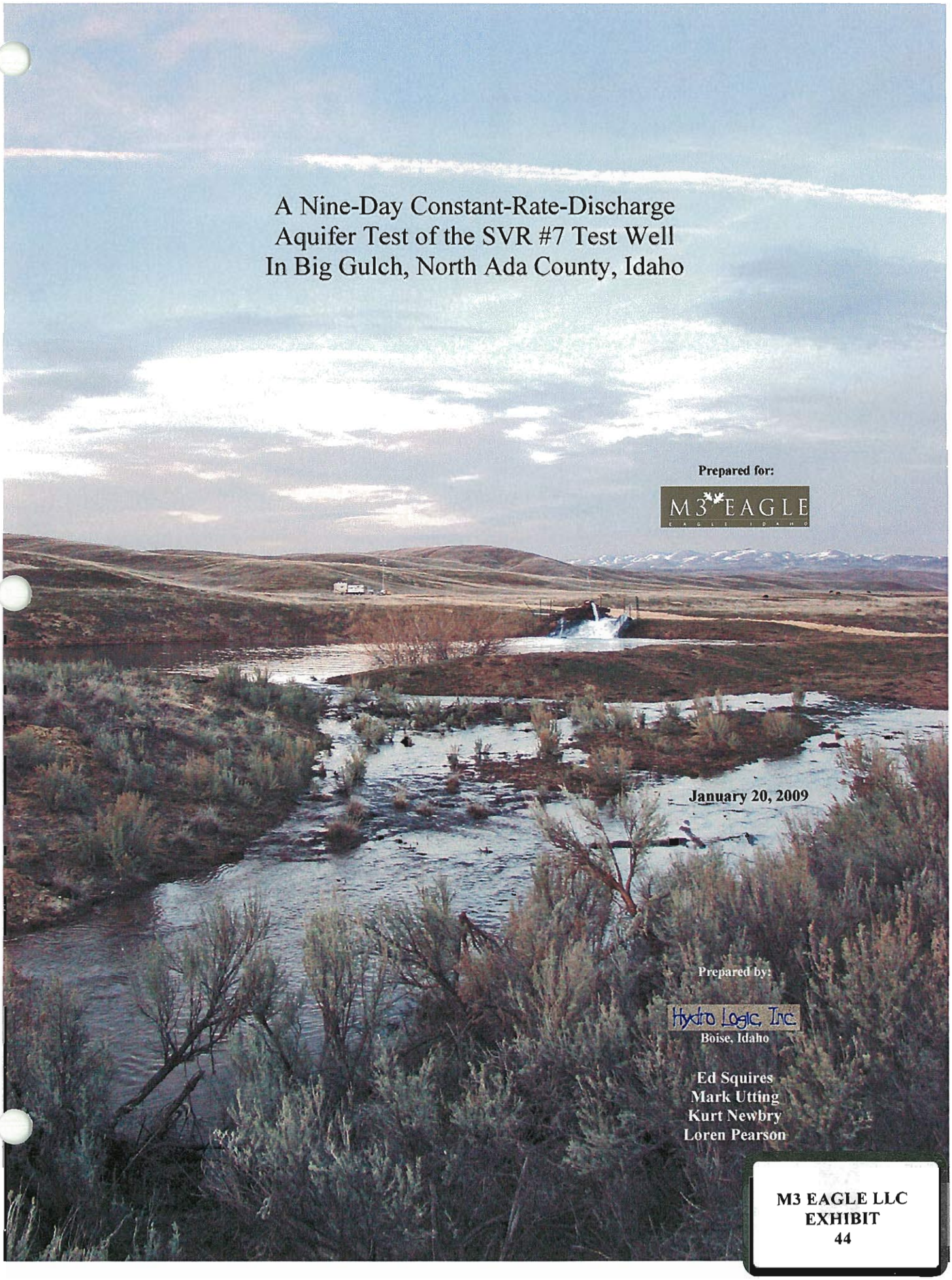
A Nine-Day Constant-Rate-Discharge Aquifer Test of the SVR #7 Test Well In Big Gulch, North Ada County, Idaho



Prepared for:

M3 EAGLE
EAGLE IDAHO

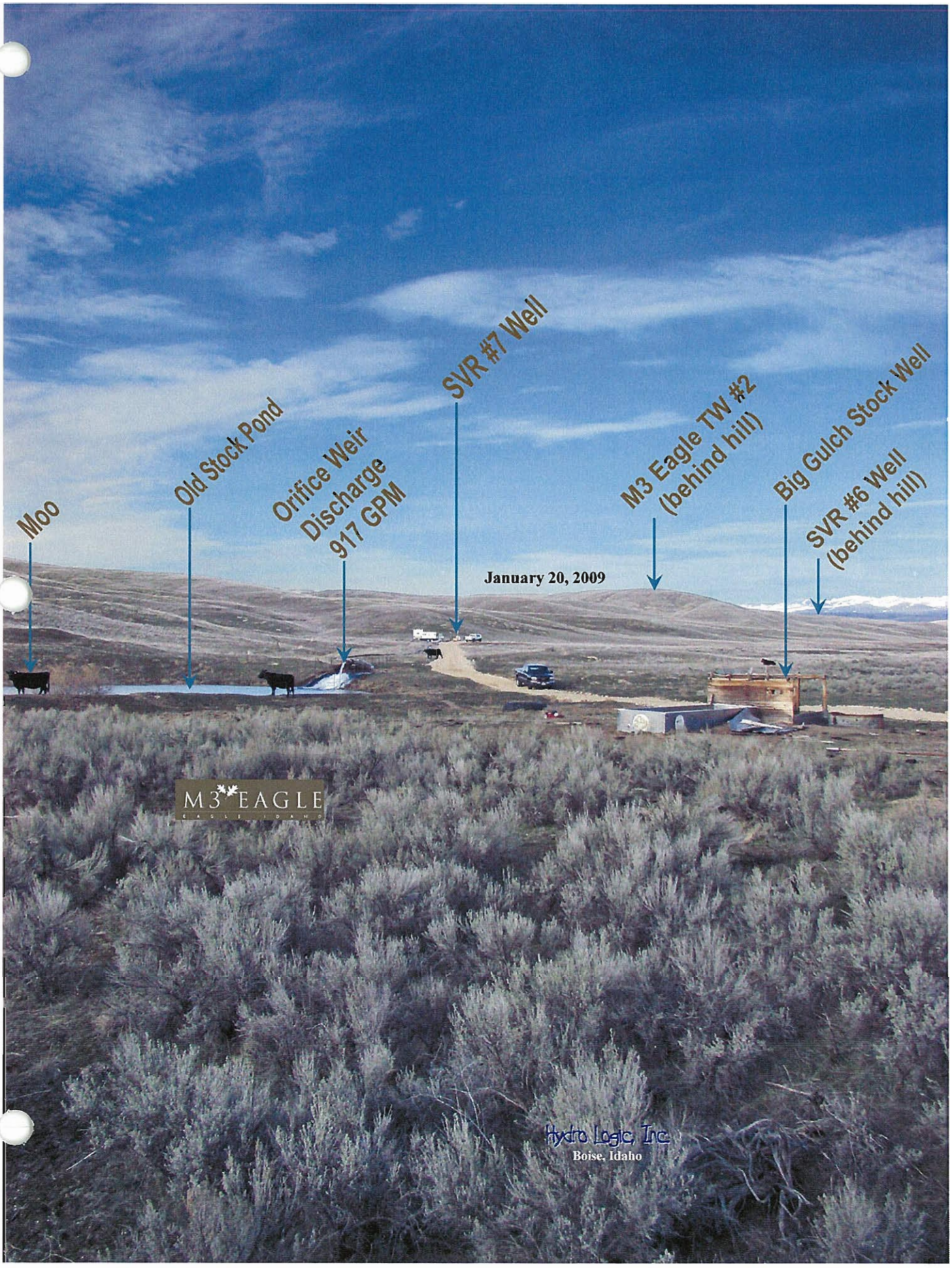
January 20, 2009

Prepared by:

Hydro Logic, Inc.
Boise, Idaho

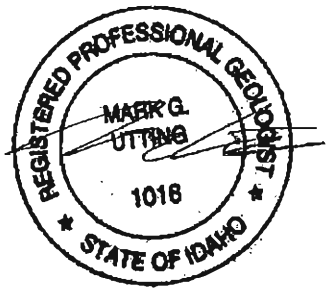
Ed Squires
Mark Utting
Kurt Newbry
Loren Pearson

M3 EAGLE LLC
EXHIBIT
44


Moo
Old Stock Pond
Orifice Weir
Discharge
917 GPM
SVR #7 Well
M3 Eagle TW #2
(behind hill)
Big Gulch Stock Well
SVR #6 Well
(behind hill)
January 20, 2009
M3 EAGLE
EAGLE IDAHO
Hydro Logic, Inc.
Boise, Idaho

A Nine-Day Constant Rate Discharge Aquifer Test of the SVR #7 Test Well in Big Gulch, North Ada County, Idaho

Prepared for:
M3 Eagle, LLC



January 20, 2009

Prepared by:

Hydro Logic, Inc.
Boise, Idaho

Ed Squires
Mark Utting
Kurt Newbry
Loren Pearson

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OVERVIEW

A nine-day, 917 gallons per minute (gpm) constant-rate aquifer test was conducted by Hydro Logic, Inc. for M3 Eagle, LLC in the Big Gulch vicinity of North Ada County during the Spring of 2008. Water levels were measured in 22 on-site and 2 off-site wells for two-to-five days before and two weeks after the nine-day, pumping portion of the test.

HLI designed and orchestrated the nine-day discharge test over the period March 1-31, 2008 after directing a comprehensive well development program of high-pressure water jetting, surge block swabbing, and isolation packer-pumping of the screened interval of the SVR #7 well (the pumping well for the aquifer test). A total of 26 wells were monitored during the test. Most of these wells were inspected with down-hole video cameras, swabbed, bailed, and/or tested to ensure viability as monitoring wells. Those wells equipped with pumping plants had the equipment removed prior to development and designated monitoring tubes installed when the pumps were replaced in the wells; only the pumping well was produced during the month-long test period.

The SVR#7 well was pumped at a constant and continuous pumping rate of 917 gpm (± 0.5 percent) for 12,970 minutes (9-days). The discharge, to a stock pond ~800 feet from the pumping well and, ultimately, spilling over into the dry bed of intermittent Big Gulch Creek, was measured with both, a transducer-equipped circular orifice weir and a propeller-type, totalizing in-line flow-meter. Approximately 12 million gallons of water were pumped during the draw down portion of the test.

Drawdown in the pumped well (SVR #7) at the end of the test was measured at 193.78 feet below the pre-test, non-pumping level of 165.21 ft bgl (below ground level) for an end-of-test drawdown of 28.57 ft, and a calculated nine-day specific-capacity of 32.1 gpm/ft. Most of the drawdown observed in the pumping well was the result of low well-efficiency (calculated at 15 percent) caused by frictional flow through a louvered well screen, torch-cut perforated pipe, and a crushed-gravel "hole-filler" used to envelop the completion interval of the well during its original construction. Water level measurements in the pumping well, as with all of the observation wells for this test, were obtained with steel-tape-calibrated electric sounders and programmed pressure-transducer/data-loggers over the entire month-long test (pre-test, drawdown, recovery).

Water level responses in observation wells during the test were measurable but small, ranging from 1.71 to 0.09 feet in observation wells located 845 feet to more than two miles from the pumping well, respectively. The relatively small drawdown observed in the pumping well, and the shallow regional drawdown "cone of depression" generated in the Pierce Gulch Sand Aquifer during the test, indicate that sustainable pumping yields in excess of 2,000 gpm are possible from properly designed and constructed water supply wells beneath the western and central portions of the M3 property.

The maximum drawdown in the nearest observation well ("Big Gulch Stock Well") located 845 ft from SVR #7, was1.71 ft. The furthest responding observation well (SVR #9, at 11,660 ft from SVR #7, indicated a drawdown of 0.09 ft. Several of the observation wells located from 8,173 to 22,302 feet from SVR #7 indicated no measurable drawdown response during the test.

Analysis of the test data by HLI demonstrates that the Pierce Gulch Sand Aquifer beneath the foothills areas north of the City of Eagle is more transmissive than previously believed with a mean aquifer transmissivity of 410,000 gallons per day per foot (gpd/ft). The data were analyzed using Aqtesolv® after preprocessing with MS Excel spreadsheet software to quantify and remove barometric effects and back ground regional aquifer water level trends. The results of the HLI analyses indicate that the Pierce Gulch Sand Aquifer (pumped by SVR #7 and monitored by most of the 22 observation wells) has a transmissivity ranging from 450,000 to 580,000 gpd/ft and a storativity averaging $2x10^{-3}$ (unitless) beneath the western and central portions of the M3 property. The calculated transmissivity values are lower, and the storativity values higher, beneath the eastern and central portions of the property where the Pierce Gulch Sand Aquifer rises to the surface, has a smaller saturated thickness, and is mostly unconfined. In these areas the transmissivity ranges from 180,000 to 300,000 gpd/ft with storativities (specific yields) on the order of 0.1 to 0.2; still large values for both coefficients. Theis (1935) analyses of drawdown data proved most effective because most observation wells were too far from the pumping well to use the Cooper-Jacob (1946) method. Barometric Efficiency is quite high, ranging from 33% to 99% in wells on the M3 property, supporting HLI's conclusion (HLI, 2007) that the Pierce Gulch Sand Aquifer is somewhat-to-highly cemented.

The results of our aquifer test analyses indicate that the Pierce Gulch Sand Aquifer beneath the M3 site has similar characteristics to the Pierce Gulch Sand Aquifer beneath the greater Eagle-Star vicinity. The Pierce Gulch Sand Aquifer is highly transmissive beneath both upland and valley regions. The analyses reported from this test are comparable to the high-transmissivity results reported in the reanalyses of 16 other North Ada County aquifer tests reported in HLI (2008b).

Our interpretation of borehole geophysical logs, high-quality lithologic logs (from both on-site and from several wells to the south in the greater Eagle and Star vicinity), and previously conducted aquifer tests, has resulted in an improved understanding of the 3-dimensional geometry and hydrogeologic framework of the Pierce Gulch Sand Aquifer, and the overlying shallow alluvial sub-aquifers, present beneath parts of the M3 site and beneath areas to the south. This refined understanding helped to guide the test design and was essential to our analysis of the data from the SVR #7 aquifer test.

The SVR #7 nine-day aquifer test satisfies our previous recommendation (HLI, 2008b) to conduct a major aquifer test in the North Ada County foothills. This prolonged hydraulic testing at 917 gpm, a rate comparable to a many other municipal water supply wells in the area, allowed the pumping well cone of depression to be monitored at distances of over 2 miles. The results of this test help to further refine and support the previous

analyses of the Pierce Gulch Sand Aquifer as *the* major regional water supply aquifer in the greater M3-Eagle-Star vicinity. The aquifer test is meaningful and useful because:

a) The testing period was sufficiently long and the pumping rate sufficiently high to adequately characterize true aquifer response,

b) The three-dimensional hydrogeologic framework of the aquifer system is now better understood because of careful analysis of borehole geophysical logs and careful lithologic analysis,

c) The effects of atmospheric pressure changes and pre-test water level trends were removed as part of the data analysis,

d) Only one well (SVR #7) was pumping during the test,

e) Water level measurements were made at one-minute intervals using electronic data loggers carefully calibrated to hand-measured levels,

f) Rigorous state-of-the-art, computer-based analytical techniques were used to assess whether the chosen methods were applicable over the time-period of analysis and to the specific hydrogeologic setting. None of the previous tests conducted within the greater Eagle-Star-M3 vicinity have met all six of these criteria,

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SECTION I: INTRODUCTION

A nine-day, constant-rate aquifer test with pumping occurring from March 10 through 19, 2008, followed by water level recovery through March 31, 2008, demonstrates that large yields of greater than 2,000 gallons per minute (gpm) are possible from individual wells completed in the highly transmissive Pierce Gulch Sand Aquifer beneath portions of the M3 Eagle property. During the test, well SVR #7 was pumped continuously at 917 gpm (± 0.5 percent) with water levels measured in a total of 23 wells completed at 13 locations. The analysis of data collected from wells completed at distances of 845 feet to 22,300 feet from the pumping well indicates an average aquifer transmissivity of 410,000 gallons per day per foot (gpd/ft) and an average storativity of $5x10^{-3}$ (unitless). Changes in water levels ("drawdowns") caused by the pumping of SVR #7 ranged from 1.71 feet in the nearest observation well to about 0.09 feet in SVR #9, located 11,660 ft from the pumping well. The drawdown in the 8-in diameter pumping well at the end of the test was 28.57 ft feet, resulting in a 9-day specific capacity of 32.1 gpm/ft of drawdown.

The test was designed and conducted after Hydro Logic, Inc (HLI) reanalyzed the data from a 22-hour pumping test of the test well (previously conducted by others) and concluded that the aquifer was highly transmissive and appeared potentially capable of large, municipal well yields. The previous test, however, was inconclusive for accurate quantification of aquifer transmissivity and storativity (HLI, 2008), parameters needed to accurately predict the long-term performance of a supply well and to predict the impacts on wells completed in Pierce Gulch Sand Aquifer within the greater Eagle-Star vicinity. To ensure the best possible test data, HLI designed and supervised a comprehensive well-development program (the well had not been previously developed and produced sand).

The constant-rate-discharge test was conducted under the direction of Hydro Logic, Inc. Denis Owsley from the Idaho Department of Water Resources (IDWR) assisted during the early part of the test. Water levels were measured using both electronic data loggers, and calibrated electrical water level sounders (hand-collected data). The use of hand-collected data allowed for verification and calibration of the data logger data and backup measurements in the event of data logger failure (which did not occur).

The pumping rate of the SVR #7 well was measured using a standard and precisely set-up circular orifice weir and a propeller-type totalizing flow-meter. Discharge from the orifice weir, considered the most accurate means of measurement, was recorded from visual height measurements and with an electronic data logger on the piezometer tube. Water was discharged via an 800-foot long, eight-inch diameter pipeline to a stock watering pond which, in turn, overflowed into the channel of the dry stream bed of Big Gulch Creek. Regular observations of the wetting front of the water in the stream channel indicated that water flowed about 6,800 feet from the pond during the test and did not reach newly planted agricultural fields located just up-stream from the Farmers Union Ditch. As would be predicted from the underlying stratigraphy and deep water table,

there was no indication in the hydraulic test data from the pumping or observation wells that the discharged water returned to the aquifer.

The locations of the pumped well (SVR #7), the observation wells monitored before, during, and after the test, the discharge pond, and Farmers Union Ditch, are shown in Figures 1 and 2 (pages 71 and 72).

This report has ten sections.

- SECTION I: INTRODUCTION AND OVERVIEW,
- SECTION II: HYDROGEOLOGIC OVERVIEW
- SECTION III: PUMPING TEST PROCEDURE AND DATA COLLECTION
- SECTION IV: PREPROCESSING OF THE WATER-LEVEL DATA
- SECTION V: ANALYTICAL METHODS
- SECTION VI: TEST RESULTS
- SECTION VII: WELL EFFICIENCY AND WELL LOSS
- SECTION VIII: INHERENT DIFFICULTIES AND CONSTRAINTS - SHORTCOMINGS OF THE TEST
- SECTION IX: SUMMARY OF MAJOR FINDINGS AND RECOMMENDATIONS
- SECTION X: ACKNOWLEGEMENTS

Each section should be consulted for details relevant to each of these section topics. Four Appendices are also included at the back of the report to support the analyses and discussion presented in the seven sections. The Appendices are:

- Appendix A – Well Driller's Reports for Wells without Additional Information
- Appendix B – Barometric Efficiency Analyses
- Appendix C – Actual and BE-Corrected Water Levels
- Appendix D – Additional Information on the Analytical Methods Used in this Report

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SECTION II: HYDROGEOLOGIC OVERVIEW

The hydrogeology of, both, the greater project area and that specific to the M3 Eagle property are presented in this section. The Pierce Gulch Sand Aquifer is the regional aquifer that currently supplies water to major supply wells in the greater Eagle-Star

vicinity. This aquifer varies in depth beneath the M3-Eagle-Star vicinity at depths of 100 feet to 350 feet (top to bottom) at Lexington Hills Well #1 to 200[1] to 720 feet (top to bottom) at the UWID State and Linder Test Well #1, below the Boise River Valley and from land surface to 350 feet beneath the upland M3 Eagle property. The Pierce Gulch Sand Aquifer conveys ground water beneath the Boise River Valley to the northwest to aquifers beneath the Payette River Valley. An unnamed, alluvial aquifer (or layered series of sub-aquifers, tapped by numerous domestic and irrigation wells in the greater Eagle area) overlies the Pierce Gulch Sand Aquifer. The unnamed alluvial aquifer is present beneath the southwestern and south-central portion of the M3 Eagle property but the sands that comprise the aquifer are dry beneath most of the upland areas. The Willow Creek Aquifer lies to the northeast of the Pierce Gulch Sand Aquifer. These two aquifers are separated by low-permeability mudstone of the Terteling Springs Formation.

The hydrogeology of the greater north Ada County vicinity has been the subject of an extensive characterization program commissioned by M3 Eagle, LLC and conducted by HLI, underway since May 2006. A one-year update of the test-well drilling and construction, water level measurement program, geophysical analyses, and pumping tests, was presented in HLI (2007). This report indicated that the Pierce Gulch Sand Aquifer, which underlies the greater Eagle-Star vicinity, also underlies the M3 property. The Pierce Gulch Sand Aquifer allows groundwater to flow from beneath the Boise River Valley to aquifers beneath the Payette River Valley. The initial conclusions on the characteristics of the Pierce Gulch Sand Aquifer are strengthened by the additional hydrogeologic information supplied in a 2007 water level study (HLI, 2008a) a reanalysis of 16 pumping tests (HLI, 2008b), a numerical modeling report (HLI, 2008c), and an evaluation of inorganic geochemistry (Glanzman and Squires, 2009). In addition, detailed analyses of borehole geophysical records presented in a series of geologic cross sections of the sub-surface (HLI, in preparation) provide even more conclusive documentation of the extent and geometry of the Pierce Gulch Sand Aquifer. The hydrogeologic overview presented below was extracted from that series of reports, which should be consulted for additional details.

The regional ground water flow-system of north Ada County (and beyond) consists of the Pierce Gulch Sand Aquifer which lies beneath Eagle, Star, Meridian, and the southern, western and central portions of the M3 Eagle site. Ground water in the highly transmissive Pierce Gulch Sand Aquifer flows generally from the southeast beneath the Boise River Valley, toward the northwest to the correlative sediments beneath the lower Payette River Valley. The Pierce Gulch Sand Aquifer is bounded on the northeast by low-permeability sediments of the Terteling Springs mudstone that hydraulically separate it from the Willow Creek Aquifer (the saturated sands of the sand-facies of the Terteling Springs Formation), which lies beneath the northeastern portions of the M3 Eagle property (Figures 3 and 4, pages 75 and 76) A shallower, unnamed fluvial sand aquifer (or series of sub-aquifer units) overlies the Pierce Gulch Sand Aquifer beneath a small portion of the southwest portion of the M3 Eagle site and other parts of the Boise Valley

[1] The depth of the top of the Pierce Gulch Sand Aquifer is uncertain at this location. Suspected normal faulting may have caused coupling to other non-Pierce Gulch Sand Aquifer sand units.

(Figures 3 and 4). These undifferentiated sand units are either not present or unsaturated ("dry") beneath other parts of the M3 site.

A total of 19 of the 23 wells monitored during the constant-rate test are completed in the Pierce Gulch Sand Aquifer. Two wells are completed in the shallower, unnamed fluvial aquifer while one observation well is completed in the Willow Creek Aquifer. Details on each of the three aquifers, as well as the Terteling Springs mudstone aquitard are presented below. Figures 1 and 2 show well locations, the approximate boundary between the Pierce Gulch Sand Aquifer and the Willow Creek Aquifer, and the approximate boundary of the M3 Eagle property. Specific details of each of the major and minor hydrostratigraphic units are presented below.

Significant Hydrostratigraphic Units

The Pierce Gulch Sand Aquifer consists of a sheet of lake-margin sediments ranging from about 275-to-360-feet thick (and locally more) that directly, and conformably, overlies the mudstone facies of the Terteling Springs Formation of the Idaho Group of formations (discussed below). These sand sediments are named the Pierce Gulch Sand after the type-locality exposure in the north-western Boise Foothills at Pierce Gulch (Wood, 2004). At the type locality, the Pierce Gulch Sand rests conformably on mudstone facies of the Terteling Springs Formation. At higher elevations, and nearer the contact of sediments with the granitic rocks, the Pierce Gulch Sand rests upon the sand facies of the Terteling Springs Formation, as a paraconformity or disconformity contact (, Figure 5, page 79, reproduced from Wood and Clemens, 2002). Southwest of the Boise Foothills, and under much of the Boise Valley, this contact is gradational-upward from mudstone to sand showing the characteristic pro-delta signature on geophysical logs (Figure 6, page 80, reproduced from Squires and Wood, 2004).

The sequence of sand over mudstone is a regional feature related to the slow draining of Pliocene Lake Idaho. Draining was caused by the slow down-cutting of the outlet in upper Hells Canyon (Wood and Clemens, 2002). As lake levels lowered, the delta sands and lake shoreline prograded into the basin, thereby spreading sand over the former muddy bottom of the deeper lake. The muddy lake bottom probably had a basin-ward slope of 1 to 4 degrees (100 to 350 feet per mile) (Figure 7, page 81, reproduced from Wood, 1994).

This spreading of sediments along the gently sloping lake bottom, left a continuous layer of sand with some interbedded clay and silt dipping to the southwest beneath the project area, at a slope of about 100 feet per mile. The slope (dip) of the deposits becomes slightly steeper beneath the M3 project site where the sand units that lie in the depth interval, 250 to 500 feet beneath the Valley floor in the Eagle-Star area, rise and subcrop just below the surficial soils in the upper northwestern part of the M3 site. This increase in slope is interpreted to be a feature of the basin margin and lakeshore, but may have some small component of tectonic dip also.

The Pierce Gulch Sand is saturated beneath the Boise Valley and much of the foothills area containing the M3 project site. This saturated sand unit is now recognized as the regional Pierce Gulch Sand Aquifer. Borehole-geophysical logs from more than a dozen deep wells in the area exhibit a distinct and recognizable character that is traceable across the region (Figure 6, page 80, reproduced from Wood and Clemens, 2002). The basal sand of the Pierce Gulch Sand Aquifer, as shown by geophysical logging[2] lies beneath the foothills of the greater M3-project area and beneath the Boise Valley in Eagle, Star and Meridian areas. Indeed, the identified characteristic "geophysical signature" of the base of the Pierce Gulch Sand Aquifer (HLI, 2007) appears to be present in deep petroleum exploration bores beneath the cities of Meridian, Caldwell, and Payette, Idaho (S.H. Wood, personal communication, 2009) suggesting that the Pierce Gulch Sand Aquifer is extensive to not only the Payette River Valley but also to the Snake River Valley. *All* the major municipal supply wells and many irrigation wells in the greater Eagle-Star-M3 area are believed to derive their water from the Pierce Gulch Sand Aquifer. M3 Eagle plans to complete an estimated additional three to eleven supply wells in the Pierce Gulch Sand Aquifer beneath its property.

In this report, and in previous analyses of the Pierce Gulch Sand Aquifer, we have treated the entire thickness of the Pierce Gulch Sand as *one* heterogeneous aquifer; an interpretation we believe to be valid, based on the existing data. Thin zones of low permeability within the Pierce Gulch Sand are present as indicated by geophysical logging of 13 boreholes in the greater M3-Eagle-Star vicinity (HLI, 2007). The composite diagrams for seven wells with geophysical logs included in this report (Figures 9 through 16, pages 83 -97) show that the low-permeability intervals are 1) less that a few feet thick, 2) discontinuous between wells, and 3) are neither dominated by clay nor do they extend or connect to greater thicknesses of low-permeability sediments. We believe that it would be unreasonable (at the current level of understanding and data availability) and unrealistic to subdivide the Pierce Gulch Sand Aquifer into a series of poorly-connected aquifers and aquitards for purposes of understanding and /or analysis. Most naturally stratified depositional units are not uniform and homogeneous, and the Pierce Gulch Sand Aquifer is no exception. We consider the aquifer to be hydraulically connected throughout its thickness in the study area. Therefore, our interpretation and analytical treatment of the Pierce Gulch Sand Aquifer is that of a single aquifer, varying in hydraulic properties at various locations, both horizontally and vertically.

From our recent detailed studies of the Pierce Gulch Sand Aquifer, we have been able to confirm our emerging concept of the Pierce Gulch Sand Aquifer as being somewhat-to-highly cemented. Cemented sand is a significant characteristic of the aquifer that is not generally recognized owing to the preponderance of wells drilled by the air- method. Air-rotary drilling (as opposed to mud-rotary and reverse-circulation mud-rotary drilling) all but destroys the true representative nature of cuttings from cemented sands. Only when the driller encounters highly indurated rock will the entry on the lithologic log actually state "sandstone" or "shale".

[2] Logs for all the wells monitored in this report that have been geophysically logged are included in Figures x through x, discussed later in this section of the report.

Our characterizing the Pierce Gulch Sand Aquifer as cemented (with fracture flow as well as porous-media flow) is based on the following considerations:

1) Consolidated sandstone and siltstone cuttings are commonly returned in direct mud-rotary and reverse –circulation drilling projects,

2) High barometric efficiencies are typical of wells completed in the Pierce Gulch Sand Aquifer; even in portions that are unconfined. The high barometric efficiencies (discussed in Section IV of this report, page 12) are attributed to low-permeability sediments overlying a rigid aquifer framework that does not compress significantly under the loading of atmospheric pressure. We attribute the rigidity of the aquifer to cementation of the sand grains comprising the aquifer,

3) Most boreholes stand open during drilling (even with air-rotary drilling),

4) Borehole caliper logs of open holes show smooth bores with limited caved zones,

5) Conscientious and trained drilling contractors recognize the harder (slower drilling), and enter that information on logs or inform supervising hydrogeologists.

6) Down-hole video surveys of open-hole wells show fractures and jointing,

7) Loss of drilling fluid (lost circulation) and loss of grout slurries during well drilling/construction. On more than one occasion, grout placed at the bottom of a borehole, within a portion of the aquifer identified as sand to sandstone, flowed out of the borehole overnight during the well construction process, apparently through fractures within the indurated aquifer/aquitard,

8) The cemented nature of the aquifer along with relatively large transmissivities calculated from numerous aquifer tests (HLI, 2008b) supports the possibility of fracture flow in addition to porous media flow. This type of flow would allow for higher transmissivities in a somewhat cemented sand or sandstone aquifer, than would porous-media flow by itself. We do not postulate that the entire Pierce Gulch Sand Aquifer is cemented because there are many instances of sand production in wells and borehole collapse to suggest otherwise. As a general rule, cementation appears to increase with proximity to the basin margin and in the vicinity of known structural faulting.

The Willow Creek Aquifer is a highly-permeable aquifer of limited lateral extent consisting of a sand facies of the Terteling Springs Formation that lies beneath the northeastern portion of the M3 Eagle site and areas to the north and northeast. This aquifer was informally called the "Willow Creek Aquifer" by SPF Water Engineering (2004). The facies relationship to the mudstone facies is shown in Figure 6 (reproduced from Squires and Wood (2004). The sand and occasional gravels of the Willow Creek Aquifer were deposited as deltas at the margins of Lake Idaho while the finer-grained muds were being deposited further offshore to the southwest in the slacker waters of the

deeper lake. These relationships indicate that the Willow Creek Aquifer is time-correlative to the upper-most mudstone underlying the Pierce Gulch Sand Aquifer. This facies change occurs to the west of M3 TW-#2 well in Big Gulch beneath the M3 Eagle property. Conceptually, the Terteling Springs Formation is a transgressive unit associated with rising water levels of Pliocene Lake Idaho. As a consequence, sand was only deposited along the margins of the lake (Wood and Clemens, 2002). In other words, while the finer-grained sediments (muds) were being deposited offshore in the deeper waters of Lake Idaho, the coarser-grained sediments (sands and gravels) were being deposited in deltas along the near-shore margins of the lake.

A few irrigation and domestic wells tap the Willow Creek Aquifer to the north of the M3 Eagle property. These include the Lynn family wells along Willow Creek, Spring Valley Ranch test wells SVR #6, and SVR #10 (SPF Water Engineering, 2004). The Well Driller's Reports for these wells indicate coarse-grained sand essentially from top to bottom. The contact at the base of this sand, in this area, is yet to be drilled but probably rests unconformably on volcanic rocks of the Boise Volcanic Assemblage and/or granitic rocks of the Idaho Batholith.

Unnamed Alluvial Sand Aquifer: An as-yet-unnamed group of sand units overlie the Pierce Gulch Sand Aquifer. These sand units consist of alluvium deposited by the streams flowing across the flood plain of the valley formerly occupied by Lake Idaho. Where saturated (as it is beneath the southwestern and parts of the central portion of the M3 site and all of the valley lowlands around the City of Eagle), these sands form relatively thin, local, and shallow aquifer units. These sands are present beneath other portions of the M3 site but are unsaturated and, therefore, not designated as an aquifer. Beneath the southern portions of the M3 Eagle property, the shallow aquifer is separated from the underlying Pierce Gulch Sand Aquifer by a sequence of lower-permeability sediments consisting mostly of clay and silt.

Terteling Springs Aquitard: Lithologic logs prepared by hydrogeologists and borehole geophysical logs of four on-site test wells drilled under the direction of HLI, show a thick sequence of clay and claystone (mudstone facies) of the Terteling Springs Formation. At the locations of test wells M3-TW#1 through M3-TW#4 in Big Gulch, the top of the Terteling Springs mudstone lies at depths of 380 to more than 500+ feet below ground surface. A layer (or layers) of this facies is/(are)believed to be present in the subsurface, just below the surficial soils in a band running southeast to northwest through the middle of the M3 site, north of the "green line" in Figures 1 and 2, pages 71 and 73. (The green line represents the estimated position of where the base of the Pierce Gulch Sand Aquifer projects to land surface). Unfortunately, borehole geophysical logs are not available for the few wells that have pierced this unit to show compelling evidence for mud units within or overlying the Terteling Springs Formation sands. Such mud units would evidence rapid transgressions of the lake(s) and should exist as "tongues" extending toward the granitic highlands of the lake margin (as shown in Figure 5, reproduced from Wood and Clemens, 2004). Outcrop evidence for this occurrence is present in Stewart Gulch Creek (S.H. Wood, personal communication, 2009a). In the Boise Valley and beneath the southern, western and central parts of the M3 site, the Terteling Springs

- SVR #6 - Figure 15
- SVR #7 (the pumped well) - Figure 9
- SVR #9 - Figure 14

As part of the characterization of the M3 Eagle project site, HLI reviewed the geologic and geophysical data from each of these three wells. We also interviewed the driller's of these wells to obtain a better understanding of their construction and subsurface conditions. HLI also conducted additional geophysical logging and video surveys inside these cased wells. We then interpreted the subsurface geology based upon that data and our understandings developed from collecting and interpreting the data from the five wells listed above. We then produced composite diagrams (following the format used for HLI designed-and-installed wells) for these three wells.

Five other existing older wells were monitored during the test that were originally designed and constructed for stock or irrigation purposes. These are:

- Big Gulch Stock Well
- Little Gulch Stock Well
- Flack Corral 6-inch well
- Flack Corral 4-inch well
- Kling irrigation well

None of these wells were designed, sampled or logged geophysically or geologically by HLI or HLI personnel (or for that matter, any hydrogeologic professional). The information about subsurface conditions from these wells is more limited and less credible as the main information available is from IDWR Well Driller's Reports (Appendix A), which were not available for all five of these wells. Geologic and subsurface information presented on these reports was interpreted and documented by the well driller who installed the well. In our experience, well driller's interpretation of sub-surface geology is uneven in quality, often poor and generally unreliable for use in aquifer studies. But, because these wells were relatively close to the pumping well, water level data were collected from these wells, for the sake of completeness.

Prior to using these five wells as observation wells, HLI inspected of all of these wells (with the exception of the Flack Corral 4-in stock well) with down hole video surveys), cleaned, and directed some limited well re-development including scraping, brushing, swab-surging of the completion intervals, and bailing of infill to ensure that the wells would produce reasonably reliable results. In some instances, the installed pumping plants had to be removed and replaced for the rehabilitation/evaluation. In the case of the Kling irrigation well, the well was partially reconstructed and pump tested prior to the aquifer test. In the wells equipped with submersible pumping plants, designated monitoring tubes were installed with the pumps to ensure safe use of pressure transducers and water level sounders for the aquifer test.

A summary of the well construction details and aquifer positions for these thirteen wells monitored during the nine-day test is presented in Table 1 (page 40).

mudstones comprise an aquitard that defines the bottom of the potable, cold-ground-water system. Beneath the central parts of the site where they rise up to near the surface, the mudstones act as a hydraulic barrier between the Pierce Gulch Sand Aquifer and the Willow Creek Aquifer (Figure 3). Most compelling for this concept are that the well cuttings and water levels in wells, and the recharge sources and aquifer geochemistries are very different in the two aquifers as is described in Glanzman and Squires (2009). The influence of structural basin-margin faulting, which is known to exist in the general vicinity, is not addressed here.

Hydrogeology and Details of Well-Construction for the Pumping and Observation Wells

Figures 9 through 16 show the details of well construction and the subsurface hydrogeology for eight of the main observation wells and well nests monitored during the SVR #7 aquifer test. These composite diagrams include geologist's lithologic logs, borehole geophysical logs, and well construction details as a cross-section on a side-by-side basis, at the same vertical scale. Figure 17 (page 99) shows a photo of the typical configuration of the wellhead shelter with individual small-diameter wells within a single borehole. Development of the individual small-diameter wells is also shown in Figure 17.

Five of the eight main observation wells are well nests designed, inspected during construction, and sampled by HLI or individuals that are now employed at HLI. These well nests are:

- M3-TW #1 (5 individual small-diameter wells within the one borehole)-Figure 10
- M3-TW #2 (2 individual small-diameter wells within the one borehole)-Figure 11
- M3-TW #3 (4 individual small-diameter wells within the one borehole)-Figure 12
- M3-TW #4 (4 individual small-diameter wells within the one borehole)-Figure 13
- UWID State and Linder TW #1 (2 individual small-diameter wells within the one borehole) - Figure 16

All five well nests were drilled using the direct mud-rotary method and all were logged geophysically by HLI or HLI personnel using the same set of geophysical tools and equipment, allowing for a consistent interpretation of subsurface conditions. HLI or individuals who are now employed by HLI also examined and described the drill cuttings from each of the five boreholes to interpret the subsurface geology and develop correlations between drill cuttings and borehole geophysical traces. All of these boreholes were completed with more than one small-diameter tube well to allow for collection of water level data and geochemical samples from various depth intervals of the saturated geologic section. We believe that these well nests provide the best available interpretation of the subsurface geology of the greater M3 Eagle project area.

Three of the eight observation well locations were overseen by other consultants but are part of the HLI monitoring network. These three wells have significantly lower-quality geologic and geophysical logs available.

These figures and Table 1 (page 63) indicate that wells specifically constructed for long-term monitoring and the careful collection of subsurface geologic information (M3-TW #1 through 4, UWID State and Linder Test Well) have provided a significant amount of information that includes detailed lithologic descriptions of the subsurface geology, borehole geophysical logs, water levels, and geochemistry across the geologic section. Wells constructed with limited hydrogeologic oversight (SVR #6, #7 and #9) have contributed some helpful data, while stock and irrigation wells constructed with no hydrogeologic oversight (Kling, Flack-Corral 4-in and 6-in, Big Gulch and Little Gulch wells) are even less useful.

The interpretations of the subsurface geology, based on the detailed analyses of the geophysical and geological data from seven key wells, were used to produce two hydrogeologic cross-sections indicating the subsurface geology of the project area (Figures 3 and 4). The surface traces of the sub-surface cross-sections are shown on Figure 1. The southwest-northeast cross-section (Figure 3) shows the dip of the Pierce Gulch Sand Aquifer toward the southwest and its rise to the near surface toward the northwest. The figure shows the wide-spread extent of the Pierce Gulch Sand Aquifer. The north-south oriented cross section in Figure 4 also shows the areal extensiveness of the Pierce Gulch Sand Aquifer.

The two figures also show several shallow, unnamed aquifers overlying the Pierce Gulch Sand Aquifer. Wells M3-TW #4 Zone 4 and M3-TW-1 Zone 5 are completed in these relatively thin and shallow aquifer zones. Figure 3 also shows a relatively thin but aerially extensive water bearing sand and sandstone zone *below* the Pierce Gulch Sand Aquifer rising upward toward the northeast more steeply than the Pierce Gulch Sand Aquifer. This zone (in which well M3-TW #4 Zone 1 is completed) is enveloped in the thick mudstone facies of the Terteling Springs Formation appears to merge with the sand facies of the Terteling Springs Formation (Willow Creek Aquifer) beneath upper Big Gulch (Figure 3). We believe this aquifer unit to represent the transgressing sand facies of the migrating shoreline as the level rose in Lake Idaho.

SECTION III: PUMPING TEST PROCEDURES, PERSONNEL, AND DATA COLLECTION

This section of the report describes the procedures, personnel and data collection for the constant-rate-discharge conducted from March 10 16:00 hrs through March 19 16:00 hrs, 2008. The test had three phases: pre-test water level collection, pumping, and recovery. Pre-test water levels were measured for two to five days prior to pumping, during early March to establish barometric efficiency and antecedent water level trends. The pumping phase consisted of measuring water levels in 23 wells while SVR #7 was pumped at a constant and continuous 917 gpm (± 0.5 percent) for nine days (12,970 minutes). The recovery phase consisted of measuring water levels during the 12 days after pumping ceased in SVR #7 to evaluate the aquifer recovery and post-test water level

trends. Water levels were measured with electronic data loggers and hand measurements. Flow measurements were recorded from visual observations of a circular orifice weir and a totalizing propeller-type flow meter. The orifice weir piezometer tube was equipped with a continuously-recording, low-pressure-range, digital pressure-transducer/ data logger. All electronic measurements were obtained and recorded at one-minute intervals. The details of the test are discussed in this section of the report.

Development

HLI's analysis of data collected during a 24-hour test of SVR #7 (conduced in 2004 by others) indicated that the well continued to develop during testing and would therefore require development/rehabilitation prior to long-term testing (HLI, 2008), in order to produce meaningful results. Prior to pump testing, SVR #7 was inspected with an HLI down-hole camera. Based on the video survey, HLI designed a well development program for the well. SVR #7 was then developed through a process of scraping, swabbing, jetting and pumping by McLeran Well Drilling LLC during late May 2007. During the development of the well, significant fine-grained aquifer materials and residual drilling muds were removed from the near-screen portion of the aquifer, allowing increased flow to the well. However, because the well was completed with crushed-rock as a filter pack material (as opposed to a properly graded and rounded, silica-sand filter envelope), and a combination of louvered openings and torch-cut perforations (as opposed to efficient wire-wound screen openings) a thorough and complete development of the well is probably not possible.

Pumping, Flow Measurement and Discharge Routing

For purposes of the aquifer test, the SVR #7 well was equipped with a specially designed, slim-hole pumping plant. The pump, a Goulds Pumps Model # 8-DHLO, was a nominal 8-inch diameter (7.52-inch), 6-stage submersible vertical turbine with a full (5.062") impeller trim driven by a 5.62-inch diameter, 2,200-volt, 133 HP Centrilift (Baker-Hughes) submersible motor suspended on 5-inch diameter Schedule 40 column pipe Figure 18, page 100). The pump was installed by Wood Group, ESP Inc., and powered by a "MQ Power" brand 180 kVA "prime[3]", diesel-fueled electrical power generation unit, which was not shut down during the entire 9-day test. The generator was operated, maintained, and re-fueled by McLeran Well Drilling on site 24-hours a day for the pumping portion of the test.

Water from the wellhead was routed through an 8-inch propeller-type (McCrometer) flow meter indicating instantaneous and total flow, placed 40 ft from the well head to minimize measurement errors associated with turbulence. The discharge from the propeller meter was routed via an 8-in high-pressure HDPE plastic pipe approximately 800 ft long to the discharge pond. Water was discharged through a circular orifice weir consisting of an eight-inch pipe fitted with a six-inch diameter plate opening and two methods for measuring pressure at the orifice weir (Figure 19, page 101). Pressure was

[3] "Prime" indicates a high-quality generator capable of continuous-duty and, during extended periods of operation, not needing maintenance that requires shut down of the unit.

visually observed and recorded regularly from a transparent vertical piezometer tube (method 1) and electronically at one-minute intervals via a low-range data logger (method 2). Pressure measured using method 2 was converted to discharge rates via a logarithmic equation fitted to an empirical orifice weir chart and "look-up table" (Driscoll, 1986). The equation was developed using MS Excel software.

Comparison of the electronic and manual orifice/piezometer data from the constant-rate test shows the two methods generated almost identical results (mean discharge rate of 916 gpm and 918 gpm, respectively, equivalent to a difference of 0.2 percent). Our calculated mean flow during the test was 917 gpm, based on an average of these two methods. Comparison of the orifice with the totalizer meter shows that the propeller meter indicated a total flow that was 95.4 percent of the total indicated by the orifice. We believe the orifice is more accurate than the propeller meter and have used the data from it in our analyses.

Water was discharged into a pre-existing stock watering pond adjacent to the Big Gulch Stock Well (Figure 19). Once the pond was filled, overflowing water discharged to the dry stream channel of intermittent Big Gulch Creek. Flow continued down the channel for the duration of the test with its progress down the normally dry channel monitored from time to time. At the end of the test, the wetting front of the stream was located approximately 2,000 ft downstream from M3-TW #4. The clay layers lying within the upper 200 feet below ground surface (as shown in the geologic logs of SVR #7 and TW #4, Figures 9 and 13) kept the water from reaching the Pierce Gulch Sand Aquifer during the test, a conclusion that was supported by the shallowest well at M3-TW #4 (screened between 61 and 71 ft bgl) remaining dry throughout the test and the complete absence of a positive "recharge" hydraulic boundary showing up in the test data.

Water Level Measurement

Water levels were measured in 23 wells using electronic data loggers calibrated and backed up by a combination of manual measurements with electric well sounders and steel tapes (hand-collected data). The use of hand-collected data allowed for verification and calibration of the data logger data and backup measurements in the event of data logger failure (which did not occur). The electronic data loggers consisted of un-vented, Solinst Leveloggers® (accurate to 0.05%-to-0.1% full scale) and therefore requiring air pressure readings from a Solinst Barologger® to convert the pressure readings to feet of water above the transducer opening. A few of the observation wells were doubly-equipped with vented Global® data loggers which directly record water level above the transducer opening and therefore require no barometric compensation. All data loggers were set to measure and record water level data at one-minute intervals for the entire test period that included two to five days prior to the initiation of pumping and the twelve days after pumping ceased. Water levels were also measured in many of these wells prior to the March 2008 test as part of the ongoing monitoring program. These wells are measured at 30 or 60 minute intervals with some in place since November 2006. The electronic data from all of the wells for the entire test period are included on a compact disk inside the back cover of the report.

Personnel

HLI staff manually measured water levels and discharge rates continuously during the constant-rate test. Initially, HLI employees Kurt Newbry, and Loren Pearson, were on site to commence the test and to record frequent measurements during the early portions of the test (first day). In addition, Dennis Owsley of the Idaho Department of Water Resources assisted during the initial startup period of the test. Ed Squires and Mark Utting of HLI made periodic site visits for measurements throughout the test but Kurt Newbry almost single-handedly maintained the monitoring program in a continuous loop program visiting all monitoring wells several times a day for the final eight days of the drawdown portion of the test and including daily visits during the recovery period. Personnel from McLeran Well Drilling remained on-site, 24-hours per day, to maintain the pump/generator system and re-fueling operation during the entire pumping period. Manual water level measurements during the recovery period were measured by HLI personnel.

SECTION IV: PREPROCESSING OF THE WATER-LEVEL DATA

This section of the report describes how data from the digital data loggers were preprocessed to generate sets of drawdowns for each well, suitable for analysis using Aqtesolv®. Pressure data from the data loggers were initially converted to depth-to-water using hand measured water levels collected frequently during the test. Depths to water were then corrected using barometric efficiency (BE) corrections derived for each well. Water level trends were then used to generate two sets of drawdown data: one based on estimated seasonal water level trends and one set that assumed no trend (i.e., the level in the well just before pumping began represented the non-pumping level in the aquifer throughout the test). In some cases, the seasonal trend appeared to reverse during the test (water levels not associated with pumping rose during the beginning of the test but then started to fall during the later part of the test) At the end of the preprocessing, two sets of drawdown data bracketing the effects of potential aquifer-wide water level trends were generated for each observation well. The bracketed data sets allowed for a range of analyses that represented the uncertainty of our estimate of water level trends.

Overview

HLI analyzed the water level data from 24 separate wells monitored during the nine day pumping tests. Water-level data[4] were also collected during the two-to-five days before the test and the twelve days after pumping at SVR #7 stopped. The pretest data were collected for two purposes: 1) to calculate the barometric efficiency of the well and 2) to help establish aquifer water-level trends that might affect the calculated drawdowns

[4] Many of the wells monitored during the test are part of the on-going M3 monitoring program in which water levels are electronically measured every 30 minutes. For the purposes of this test, data were obtained at one-minute intervals for a more detailed record of well response.

during the test. For some of the wells, the data were inadequate for one or both of these purposes. Where barometric efficiencies could not be calculated from the data collected during the week before the test, barometric efficiency was calculated using data from an earlier period when nearby pumping was insignificant and atmospheric changes were relatively large (as is discussed below). The post-test data were collected to measure water level recovery and to help estimate aquifer-wide water level trends. In some cases, longer-term monitoring data collected at 30 minute intervals (after (March 31, 2007) were used to estimate seasonal water level trends.

The general procedure for the analysis of the data from each well was as follows: Data from electronic data loggers were downloaded after the test and entered into Excel spreadsheets. Non-vented transducer data from the Solinst data loggers were then corrected to water levels above the data logger transducer by subtracting the pressure recorded by a Solinst Barologger. Water levels above the transducer were then converted to depth to water below the measuring point (typically the top of the steel well shelter) by comparison to hand measured water levels using Powers® well sounders calibrated to chalked steel tapes. Calculated barometric efficiencies were then used to remove the effects of atmospheric pressure changes on well water levels. Data plots from the pre-pumping and end-of-recovery periods were then visually assessed to estimate the approximate trends in aquifer water level changes not associated with either atmospheric changes or the pumping test itself. The differences in water levels between the initial, pretest level and the levels caused by pumping (drawdown) were then calculated in two ways. The details of the preprocessing are discussed below.

Raw Depth to Water

The first step in our data preprocessing was to convert the pressures recorded by the non-vented data loggers to *height of water standing above the logger.* To do so, we subtracted the simultaneously-recorded barometric pressure from the logger data. The second step was to convert the *height of water standing above the logger* to a *depth to water below the measuring point* by subtracting the *height of water standing above the logger* from the calculated depth of the logger below the measuring point (typically the top of the well casing). The depth of the logger below the measuring point was calculated by adding the *height of water standing above the logger* to a hand-measured *depth to water level below the measurement point* obtained at the same time. The third step was to convert the *depth to water below the measuring point* to *depth to water below ground level* by subtracting the measured height of the casing above ground surface (casing "stick up") from the *depth to water below the measuring point.* The end result was a set *of depth-to-water below ground level* measurements at one minute intervals.

Barometric Efficiency

The next step was to remove the effects of changing atmospheric pressure on the water level data[5]. The ratio of the change in water level and change in atmospheric pressure is referred to as the "barometric efficiency" (BE). In a well with 100-percent barometric efficiency, an atmospheric pressure change equivalent to the weight of 1.0 foot of water[6] would cause the water level in the well to change by 1.0 foot. In a well with a BE of 50-percent, the change would only be 0.50 feet.

Barometrically induced changes in water level in a well only occur because the well is open to the atmosphere. In a well open to the atmosphere (typical of most wells), the atmosphere directly pushes on the standing water in the well but cannot push with equal force on the ground water in the aquifer; a combination of overlying low-permeability layers and the rigidity of the aquifer framework do not allow the atmosphere to push directly on the water contained within the pore space of the aquifer. The differences between the direct force of atmospheric pressure on the water in the well and the reduced force of atmospheric pressure on the water in the aquifer cause the water level in the well to fluctuate with changes in atmospheric pressure as water moves into and out of the well. The change only occurs because the well is open to the atmosphere. A well sealed from the atmosphere would not show barometric effects nor need BE corrections.

Changes in water level associated with changes in atmospheric pressure do not actually occur in the aquifer. Because the changes in atmospheric pressure load equally over the entire aquifer, water levels (or more correctly, water pressures or "head") are not significantly affected by changes in atmospheric pressure.

We calculated barometric efficiency using water-level data collected when the only significant changes in water level would likely have been from changes in atmospheric pressure, following the method outline in the Ground Water Manual (US Department of the Interior, 1981). The pretest measurement period (2 to 5 days long) was used for our BE calculations for most of the monitored wells. No significant pumping occurred near the wells (except for well development pumping in SVR #7 – see discussion below) and changing atmospheric pressure caused by passing weather systems provided the data for comparison of atmospheric pressure changes with changes in water levels. The BE for each well was calculated by plotting atmospheric pressure on the X-axis (horizontal) against the corresponding water level measured at the same time on the Y-axis (vertical). The points generated a "scatter" plot. A "best-fit" straight line was then calculated (using MS Excel) with the slope of the line indicating the BE and the "R^2" indicating the statistical correlation of the best-fit line.

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[5] Long-term monitoring by HLI of wells in the North Ada County foothills using continuously recorded water level and barometric data loggers has shown that water levels closely mimic the changes in atmospheric pressure as recorded by the barometer.

[6] Atmospheric pressure can be measured in any unit of pressure. Typical units are millibars and inches of mercury but feet of water can also be used. The use of feet of water (which is directly recorded by the Barologger) simplifies data logger corrections and corrections for barometric efficiency (BE).

Pre-test, development pumping at SVR #7 and stock-water pumping at the Little Gulch Stock Well affected the water levels during the pretest period making calculation of BE for these wells impossible using data from early March 2008. Instead, we used long-term monitoring data from January of 2007 (SVR #7) and from January 2008 (Little Gulch) to calculate the BE for these wells.

Barometric-Efficiency-Corrected Water Levels

After the BE was calculated for each well, the water level data were corrected for BE effects. This correction was accomplished by multiplying the change in atmospheric pressure by the BE and subtracting the result from the water level data for each minute of data collection after pumping began. The corrections were applied using the initiation of pumping ("t = 0") as the reference point in order to calculate the difference in pumping and post-pumping water levels (drawdown and residual drawdown, respectively) from the non-pumping level. Subtraction was used to compensate for this inverse relationship because the water level goes down in elevation when the atmospheric pressure goes up and vice versa. The end result was a water level plot where changes in water levels caused by changes in atmospheric pressure, were much reduced. Because the barometric efficiencies of the wells completed on the M3 Eagle property are relatively high and the distances between the pumping well and the observation wells are relatively large, barometric effects during the test were similar in magnitude to the drawdown effects in most of the observation wells. Calculation of drawdowns and aquifer properties would not have been possible without correcting the water level data for barometric efficiency.

The following equation, based on the method outlined in the Ground Water Manual (US Department of the Interior, 1981), was used to correct for barometric efficiency:

$BE_{correction} = (P_0 - P_{(t)}) * BE$ Where:

$BE_{correction}$ = the correction added to the raw calculated drawdown, in ft
P_0 = atmospheric pressure at the start of the test, in ft (of water)
$P_{(t)}$ = atmospheric pressure at the time of each measurement, in ft (of water)
BE = scaling factor for Barometric Efficiency (dimensionless, from 0 to 1.0)

Theses corrections greatly improve the usability of the data but do not completely remove all variations ("noise") from the data for several reasons. The first is that atmospheric pressure effects are not instantaneous as is assumed in the method. Time lag in atmospheric effects on ground water within the pore space of the aquifer can introduce small errors. The second is that variations in well water levels not caused by changes in atmospheric pressure (such as seasonal aquifer water level trends or unrecognized pumping effects) introduce small errors in the analysis. A third reason is that apparent changes in water level caused by analog-to-digital conversion in the data logger (digital "flutter") can introduce an error in the calculation of BE. Lastly, the rhythmic effects of "earth tides" added a small amount of "noise" to the data on the order of a few hundredths of a foot. These four potential sources of error allow residual noise (fluctuations) to remain in the BE corrected data.

In cases where the BE effect could not be completely removed using the BE calculated from the pretest data, we conducted a number of analyses using BE's slightly larger than those calculated. We then selected the BE coefficient that best removed the barometric changes from the data. We attribute the need for a slightly large BE scaling factor to one or more of the potential errors discussed above.

We note, that the remaining fluctuations (after the BE corrections) are indeed small, generally on the order of a few hundredths of a foot. Were the data to be plotted on a vertical scale that was coarser (say, a 20 foot vertical range on the "Y" axis, instead of 2 feet, as plotted), the remaining fluctuations would, for all practical purposes, disappear. We have chosen to analyze the data using a fine scale in order to be more complete.

Water Level Trend Corrections

The effects of water level trends unrelated to either pumping at SVR #7 or changes in atmospheric pressure were then estimated visually. The BE-corrected water levels for each well were plotted and a line was projected through the initial pretest period and the end of the post-pumping recovery period. The equation of the trend line associated with each well was then generated using MS Excel software. The water level trend visually identifiable at TW #2 and TW #4 appeared as a declining level over the course of the entire test (including the week before the test began). The peak (highest elevation) of the 2008 water levels in the aquifer near these wells appeared to occur just prior to March. Beneath the eastern portion of the M3 property, however, the water levels appeared to be rising before the start of the test and declining at the end. Based on linear projections of the pre-test and post-test trends observed in SVR #7, Flack Corral 6-inch stock, Flack Corral 4-in stock and the Little Gulch Stock Wells, the 2008 peak in water levels in this area appeared to occur sometime during the period March 17 to 19. Because of the peak occurring during the test, two separate equations were generated for the estimated water level trend at each well: one for the rising-level period and one for the declining-level period.

Trends could not be estimated for aquifer near the pumping well (SVR #7) and the nearby Big Gulch Stock Well using the pretest data because pre-test pumping caused water levels to fluctuate, obscuring any visually discernable trends. Instead, we used the data collected during the two months following the completion of the test. These data indicated a declining trend (as indicated by all the other analyzed wells for the period beginning about mid-March). The use of the trend calculated using April and May monitoring data helped to calculate water level recovery, after pumping started.

Regional water level trends were not estimated at wells that did not experience significant drawdowns during the aquifer test. These wells *may* have had a drawdown on the order of a few hundredths of a foot, but such small drawdowns could not be reliably separated from the many fluctuations caused by un-removed barometric effects, un-removed trends and un-removed earth-tide effects. The absence of drawdowns that could be justifiably calculated from the corrected data made quantitative analysis for aquifer parameters of

questionable value. Aquifer water-level trends were not calculated for the Kling Irrigation well, TW #1, TW #3, SVR #6, and UWID State and Linder TW #1).

BE-and-Trend-Corrected Drawdowns

Drawdowns were calculated following two methods after a preliminary evaluation of the data indicated that the drawdowns at some of the more-distal observation wells were small, and in many cases, smaller than the non-pumping-related trend in water levels within the aquifer. Two methods were used to bracket the range of, and therefore give a better representation of, our understanding of the aquifer parameter values calculated in our analysis. The two methods differed in how aquifer water level trends were included in the analyses, as explained below.

The first method (Method 1) to calculate drawdown was to subtract the depth to water just before pumping started ("t=0") from the depth to water at the time of observation. These drawdowns are equivalent to the assumption that the water level at the start of the test best represents the non-pumping water level within the aquifer and that there was no pre-test trend in water level changes, an assumption we believe to be incorrect. The method does *not*, however, introduce a change in water level that could potentially be misinterpreted as drawdown. By not using any trend corrections, the resulting drawdowns *are* affected by the water level trend, but by an unknown amount. We refer to the product of this method as the "no-water-level-trend correction data."

The second method (Method 2) to calculate drawdown included the estimated water level trend. These "water-level-trend corrected drawdown data" were calculated by subtracting the projected trend-based water level (at the time of observation) from the depth to water at the time of observation. The advantage of this method is that our best estimate of water level trends are incorporated into our analyses. The disadvantage is that any errors in our trend would potentially result in errors in our analyses for aquifer parameter values.

Using these two methods, we generated two sets of drawdown data for each well and then subsequently used these two data sets to bracket our analytical results. The two data sets allowed us to present what we believe to be a more-realistic understanding of the aquifer parameters of transmissivity and storativity and the uncertainty of the pre-test and post-test water level trends on the analytical results.

SECTION V: Methods of Analysis

This section of the report describes the methods used to analyze the processed drawdown data to calculate aquifer parameters of transmissivity and storativity. Our first step was to examine the drawdown plots for wellbore storage effects using the method outlined in HydroSOLVE, Inc. (2007). Next, we reviewed "straight-line" (semi-log time versus arithmetic drawdown) and "curved-line" (log-time versus log-drawdown) plots of the data along with geologic and well-construction data to select the appropriate method of

analysis. The following analytical methods were used: Theis (1935), Cooper-Jacob (1946), Theis recovery (1935), and Neuman-Witherspoon (1972). These analyses were conducted using drawdowns calculated both without water-level trend corrections ("Method 1" – described above) and with water-level trend corrections ("Method 2" – also described above). Each drawdown analysis also was accompanied by a "derivative analysis" (Bourdet et al, 1989) to assess the applicability of the method to the data used. The various methods used in this report are described below. Additional information on each method is included in Appendix D.

Analytical Methods

Well-Bore Storage (HydroSOLVE, Inc., 2007): A log-log, radial flow plot of the data collected for every well was examined prior to conducting any aquifer-property analysis. A slope of 1:1 on the log-log plot of the drawdown vs. time data during early-time pumping indicates that the effects of well-bore storage dominate the drawdown response, and the appropriate method of aquifer analysis would then be selected. Based on this method, none of the wells exhibited significant well-bore storage effects. However, the pumping well (SVR #7) did indicate small wellbore storage effects (on the order of 1 to 4 feet of reduced drawdown) in the data collected during the first 10 minutes of pumping.

Derivative (Bourdet et al, 1989): A derivative analysis was conducted to verify the validity of the chosen method of drawdown analysis. In a derivative analysis, the slope of the drawdown plot ("derivative") is calculated for each data point and compared with the derivative type curve appropriate to the chosen method of drawdown analysis. A general match of the data-point derivatives to the derivative type curve indicates that the test data are valid for the selected method of analysis. For example: Cooper-Jacob (1946) analyses are only valid where the derivatives fall on a horizontal line (i.e., the drawdowns plot on a line with constant slope), while a Theis (1935) analysis requires derivatives that plot on a curve that rises with a decreasing slope that eventually approaches a constant value. When the derivative plot data does not match the type curve, it indicates that the method of analysis is likely invalid and the results erroneous. In most of our analyses, we used a "differentiation interval" (the range over which the average slope of the drawdown curve was calculated for each point) of 0.3 log cycles to help "smooth" the derivative curves. Occasionally we used a higher value of 0.4 log cycles when the value of 0.3 generated too much scatter in the derivative plot to be useful. Each drawdown analysis includes a derivative plot to help indicate the relative validity of the method.

Theis (1935): In this method a type-curve is matched to the data on a log-log plot for drawdown and recovery and the appropriate aquifer parameter values associated with that type curve are indicated. When unconfined aquifers were analyzed, the correction developed by Jacob (1944) was used to correct the data to make the analysis applicable. In some cases, a semi-log Theis plot was used to better match the data where drawdowns were relatively small and water level trends (caused by other factors beyond the pumping SVR #7) were relatively large. Because Aqtesolv® can generate a type curve for any system of axes, the semi-log plot for some wells allowed for better curve matching and better assessment of the effects of our quantification of non-pumping-related water level

trend. The Theis method requires matching the data generated when the drawdown levels begin to change most rapidly. This rapid rise occurs as the "cone of depression" moves outward from the pumping well, reaches the observation well and continues to move outward. Butler (1990) indicates that this method generally indicates the average properties of the aquifer over an area defined by the distance between the pumped well and observation well being analyzed (in other words, the average properties of the region between the pumping well and the observation well).

Cooper-Jacob (1946): In this method a straight-line is best-fit to the drawdown data on a semi-log graph (linear drawdown versus log of time). This is a variation of the method of Theis that becomes valid after a sufficiently long time into the test such that most of the terms in the Theis equation become insignificant and the data plot on a straight line on a semi-log plot. The straight line plot occurs when the "u" terms in the Theis equation (See Appendix D) become sufficiently small after a critical time (t_c).When "u" is sufficiently small, the non-linear terms of the Theis equation become insignificant resulting in a logarithmic curve that becomes a straight line on a semi-log plot. We have used a "u" equal to or less than 0.05 as our criteria for validity (the so-called "u assumption") as indicated by Driscoll (1986). Many of the observation wells monitored during the SVR #7 test were sufficiently far from the pumping well such that the "u assumption" was not valid, indicating that the results of the Cooper-Jacob analysis were not valid for these wells.

When a Cooper-Jacob analysis is valid, however, it provides an insight into the aquifer that is different from that provided by a valid Theis analysis. Butler (1990) indicates the results of the Cooper-Jacob analysis generally indicate the average properties of the aquifer over an area much larger than that defined by the distance between the observation well and the pumping well. Because the cone of depression caused by the pumping well must move outward for a sufficiently long time for the Cooper-Jacob method to be valid, the leading edge of the cone of depression caused by the pumping well must pass the observation well and expand outward by a relatively large distance before the "u assumption" is met. By the time the "u assumption" is met, the leading edge of the cone of depression is well beyond the observation well. It is the portion of the aquifer within the circle described by the leading edge of the cone of depression that controls the response in the observation well. This response represents an average of the properties of the entire aquifer region within the circle defined by the cone of depression.

Theis–Recovery (1935): In this method, the water-level recovery data plot as a straight-line on a semi-log plot with time plotted as the ratio of time since pumping started divided by time since pumping stopped. This method helps to remove the effects of well loss and small pumping variations that affect the analysis of pumping data. It also indicates whether hydraulic boundaries and /or recharge affected recovery ("S/S' analysis"). A ratio of S/S' greater than 1.0 indicates "late" recovery and the effects of a "no-flow" boundary to the system, while a ratio of S/S' less than 1.0 indicates "early" recovery and recharge or the effects of a "recharge" boundary. When water level trends unrelated to the pumping of the test well are not accounted for or incompletely accounted for, the usefulness of the S/S' analysis is reduced.

Neuman-Witherspoon (1972): In this method, the data are plotted on a log-log graph and then matched to a type-curve generated for a "leaky," confined-aquifer system (aquifer/leaky-aquitard/aquifer). The parameters of the two aquifers and the aquitard are indicated by the selected type curve. The Neuman-Witherspoon method is based on the concept that pumping from one aquifer causes ground water to flow through a leaky aquitard from an adjacent un-pumped aquifer. This type of two-aquifer behavior is often indicated by a test data plot that flattens out after a time and remains "stabilized" (no increase in drawdown with time). The Neuman-Witherspoon method requires an understanding of the geometry of the unpumped aquifer and the separating aquitard in addition to the geometry of the pumped aquifer.

Composite Plot **(Theis)**: In this method, drawdown data from more than one well are plotted on the same graph with the distance of the observation well from the pumping well normalized as time/distance^2. In an ideal aquifer all the data points will plot on the same type curve. Similarly derivative data points for all wells would plot on the ideal derivative curve.

Distance-Drawdown Plot **(Theis)**: In this method, drawdowns occurring at the same time, from more than one well are plotted on the same graph. It the selected time is sufficiently large such that the "u-assumption" is met for all the plotted wells, a Cooper-Jacob-method, straight-line, semi-log, plot can be used to calculate the transmissivity of the aquifer. This was not the case, however, in this aquifer test and the Theis log-log curve-match method was used. In an ideal aquifer all the data points will plot on the same type curve.

Issues Affecting the Pumping Well Analyses

Selecting the appropriate method of analysis for pumping wells is often problematic. Some workers consider the use of the Theis log-log method of analysis invalid for the pumping well because the selection of an effective well radius affects the analytical results. In addition, well loss (drawdown in the well caused by frictional head loss through the well screen and near-screen materials) also affects the calculations for transmissivity. The Theis method, however, is able to accommodate anisotropy of the aquifer (different vertical and horizontal permeabilities) and partial penetration (well screens only a portion of the vertical thickness of the aquifer), through the use of Hantush (1961a and b) corrections. The Cooper-Jacob semi-log method does not need input of effective well radius or well loss as it relies solely on the slope of the straight-line plot to indicate transmissivity of the aquifer. It does, however, not include the effects of anisotropy or partial penetration of the aquifer.

In cases where the pumping well is open to all or most of the aquifer thickness and the aquifer is isotropic (same permeability in all directions of flow), the Cooper-Jacob method is generally more accurate than the Theis method for pumping well analyses. This was not the case with SVR #7, however, which was completed in only about one-fifth of the thickness of the anisotropic Pierce Gulch Sand Aquifer. Therefore the issues

of partial penetration, well loss, and effective well radius were addressed, as discussed below.

Partial Penetration

When the pumping well only is open to only a relatively small portion of the entire aquifer thickness, the effects of "partial penetration" can result in errors (Freeze and Cherry, 1979), especially when the aquifer is anisotropic. Hantush (1961a and b) developed a method for correcting for the effects of partial penetration and anisotropy that applies to the Theis method. The Hantush corrections, however, do not apply to the semi-log Cooper-Jacob method.

The Pierce Gulch Sand Aquifer contains relatively thin, discontinuous layers of clay, silt and silty sands within the overall sand section that defines the aquifer. These discontinuous clay and silt layers result in an aquifer that has a bulk anisotropy that directs the initial effects of pumping primarily in a lateral direction with slower effects directed vertically. The discontinuous layering of clay and variations in permeability with depth within the Pierce Gulch Sand Aquifer system are also problematic for application of the Hantush corrections to the Theis method. The effects of the layering can only be approximated, as the ratio between the relative vertical and horizontal hydraulic conductivity of the aquifer must be estimated as input to the method. This ratio is never measured directly in a pumping test. In lieu of direct measurement we have assumed that the thin discontinuous low-permeability layers result in an overall preference for flow in the horizontal direction, in other words we have estimated that the ratio of the bulk vertical to bulk horizontal permeability of the aquifer is about 0.1, on average.

Effective Radius

To better quantify the potential errors inherent in applying the Theis method to pumping well data, we conducted sensitivity analyses on the effective well radius, which can never be known exactly. When a well is developed, the permeability of the aquifer materials just outside the well screen and filter pack is increased. This increase causes the well to behave as if it had a larger radius than the drilled borehole. The actual size of this effective well radius is typically a few inches larger than the actual radius of the borehole, but is not directly measurable. Our analyses indicated that doubling the effective well radius from the actual bore-hole radius to twice that value, resulted in differences in analytical results of only about five percent. (i.e., using actual well-bore radius resulted in transmissivity calculations that were five percent larger than those using an effective radius twice that of well bore diameter.) The true effective radius is very likely to be much less than twice that of the actual well bore inherent in a well test. We therefore used an effective well radius equal to the well borehole radius and acknowledge a potential error of up to 5 percent.

Well Loss

Well loss is the increased drawdown in the pumped well caused by frictional head loss as water flows through the well screen, filter pack, the under-developed aquifer directly adjacent to the pumped well, and/or near-well, vertical flow caused by partial penetration. Well loss includes both linear terms associated with laminar flow (well loss increases in

direct proportion to pumping rate) and exponential terms associated with turbulent flow (increases exponentially to the pumping rate, often assumed to be the square of the pumping rate). In the case of SVR #7, well loss was estimated thorough a comparison of measured versus back-calculated theoretical-drawdown based on a nearby observation well. Details of this method are presented in Section VII of the report, below.

HLI Approach to Analyses for the Pumping Well

Our approach to dealing with these potential pumping-well issues was to conduct three analyses. The first was a Cooper-Jacob analysis using the raw data. This analysis did not take into account partial penetration or aquifer anisotropy. Well loss and effective radius were not factors affecting the results. The second analysis followed the Theis method (with Hantush corrections) using data corrected by removing estimated well loss. Well loss was estimated as described in Section VII. The Theis analysis with Hantush corrections incorporated the effects of partial penetration, anisotropy and well loss. Effective well radius errors were assumed to be less than five percent. The third analysis was based on the Theis recovery method using raw data. Similarly to the Cooper-Jacob drawdown analysis, partial penetration and aquifer anisotropy were not taken into account, and well loss and effective well radius are not factors affecting the results. All three analyses were then compared and the representative transmissivity calculated.

Issues Affecting the Method of Analysis for Observation Wells

Analysis of observation well data has issues that are different from those affecting pumping well data. The Cooper-Jacob method requires that pumping occurs for a sufficiently long period such that the "u assumption" is met and the data plot as a straight line on a semi-log graph. The length of time ("critical time" or "t_c") required to meet the "u assumption" becomes larger as the distance between the observation well and the pumping well increases. Most of the observation wells monitored during the test were sufficiently far from the pumping well such that the calculated critical time was too large before the "u assumption" was met to allow the Cooper-Jacob method to generate accurate results. In these cases, we used the Theis method to analyze the data. Aqtesolv® incorporates the partial penetration and anisotropy corrections developed by Hantush when using the Theis method; however, all of the monitored observation wells (except for possibly the Big Gulch Stock Well) were too far from the pumping well to be significantly affected by partial penetration.

No-Flow Boundaries

All of the wells analyzed during the test were considered to be potentially affected by the hydraulic (boundary) effects of the edge of aquifer, as represented by the green line on Figures 1 and 2. To address these effects, the analytical methods that used curve matching (Theis and Neuman-Witherspoon) included the use of image well techniques, as described by Ferris et al (1962). Image wells are imaginary wells that pump at the same rate(s) and timing as the well undergoing the analysis. In the case of a no-flow boundary, the well is incorporated into the analysis by assuming it lies on the opposite side of the boundary, at a distance equal to the distance between the pumped well and the

boundary. An image well in this position produces the same hydraulic effects on a well in an infinite aquifer (as is assumed in the Theis and Neuman-Witherspoon methods) comparable to the theoretical effects caused by a no-flow (or "edge-of-aquifer") boundary (Ferris et al, 1962). Through the principal of "superposition," the type curves used in the data matching for the log-log analyses were generated by Aqtesolv® to model the type curve that would result from pumping a well in the bounded system.

Curve Matching

In all cases, we reviewed the computer-generated match and then manually adjusted the curve match to best fit the data, when needed. Computer-generated matches often were less accurate, especially when evaluating later-time data where errors in water-level trend estimation or barometric efficiency were large relative to changes in residual drawdown. The computer match would consider these late-time data to be as significant as early-time data falling on the theoretical curve. Through manual matching, we were able to apply "best professional judgment" in deciding which data were representative and which data were likely to be less representative. Alternatively we could have applied weighting factors to the late-time data causing Aqtesolv® to place less emphasis on the late-time data, but that, too, would have required "best professional judgment' and be no more accurate than the visual-match method.

Non-Pierce Gulch Sand Aquifers

Most of the wells monitored during the SVR #7 test were competed in the Pierce Gulch Sand Aquifer, as shown in Table 1.These wells were analyzed using standard single-aquifer methods.

A few wells, however, appear to be completed in aquifers other than the Pierce Gulch Sand Aquifer. Well SVR #6 is known to be completed in the Willow Creek Aquifer (sand facies of the Terteling Springs Formation) and as such, showed no drawdown response during the test. Two wells completed at the M3-TW #4 site (the Zone 1 and Zone 3 small-diameter wells within the TW #4 borehole) indicated a drawdown response to pumping at SVR #7. The composite diagram for these wells (Figure 13, page 91) suggests they could be completed in zones above and below the Pierce Gulch Sand Aquifer. Well M3-TW #4 Zone 1 appears to be a small water-bearing zone lying below the Pierce Gulch Sand Aquifer that, based on test result discussed below, is in hydraulic connection with the Pierce Gulch Sand Aquifer. Well TW #4 Zone 3 appears to be completed in a shallower, un-named alluvial aquifer overlying the Pierce Gulch Sand Aquifer. As such, we explored the response of these two wells using the Neuman-Witherspoon (1972) analytical method which is designed for analyzing data from aquifer systems comprising pumped and unpumped aquifers separated by a leaky aquitard. We also analyzed the data from these two wells as if they were completed in the zones that are a part of the Pierce Gulch Sand Aquifer. We then compared the results to examine whether the analyses supported a single aquifer system or a system comprising close-by small aquifers separated by a leaky aquitard.

SECTION VI: RESULTS OF THE CONSTANT-RATE-DISCHARGE TEST

This section of the report presents the calculated drawdowns and the results of the Aqtesolv® analyses based on these drawdowns. Drawdown in the pumped well (SVR #7) at the end of the test was measured at 193.78 feet below the pre-test, non-pumping level of 165.21 ft bgl for an end-of-test drawdown of 28.57 ft, and a nine-day specific-capacity of 32.1 gpm/ft. The maximum drawdown in the nearest observation well ("Big Gulch Stock Well") was 1.71 ft while the furthest responding observation well (SVR #9) indicated a drawdown of 0.09 ft. The Pierce Gulch Sand Aquifer beneath the property is more transmissive then previously believed with a mean transmissivity of 410,000 gallons gpd/ft. The transmissivity beneath the western and central portions of the M3 property ranges from 450,000 to 580,000 gpd/ft with a storativity averaging $2x10^{-3}$ (unitless). The transmissivity is smaller beneath the eastern portions of the property ranges from 180,000 to 300,000 gpd/ft with storativities averaging 0.04 ($4x10^{-2}$) and estimated specific yields on the order of 0.1 to 0.2.

Drawdowns and Specific Capacity

Pumping at a rate of 917 gpm for the SVR #7 aquifer test began at 16:00 hrs on March 10, 2008 and concluded at 16:00 hrs on March 19, 2008 for a total pumping time of 12,960 minutes (nine days). Recovery water-level data were collected through March 31, 2008 (a 12-day period) at one-minute intervals and thereafter at the background-monitoring rate of 30-minute intervals. The collected data have been archived and are included on a CD attached to printed copies of this report. Drawdowns in the various wells are summarized in Table 2.

Starting at an initial, non-pumping water level of 165.21 ft bgl, the final water level in SVR #7 after nine days of pumping was 193.78 ft bgl, equivalent to a drawdown of 28.57 ft, indicating a nine-day specific capacity of 32.1 gpm/ft of drawdown. As is shown in Section VII, much of this drawdown is related to well loss. A properly designed and constructed well completed over the full thickness of the aquifer, would have an even higher specific capacity. We estimate that such a well would have a likely yield of 2,000 gpm or more.

Measurable drawdowns in the observation wells at the end of the pumping phase of the test ranged from a maximum of 1.71 ft in the closest observation well (Big Gulch – 842 ft from SVR #7) to a minimum of 0.05 to 0.17 ft in TW #2 Zone 2 (3,636 ft from SVR #7). SVR #9 was the furthest observation well (11,660 ft from SVR #7) to indicate a measureable drawdown (0.09 to 0.15 ft). Many wells located to the west and south of SVR #7 indicated no measureable response. Well SVR #6 completed in the Willow Creek Aquifer also indicated no measureable drawdown during the test.

Barometric Efficiency

The calculated Barometric Efficiencies (BE) for the monitored wells are included in Table 1. These BE values were used to correct the raw depth to water data and were derived from plots on the figures presented in Appendix B. The plots show the atmospheric pressure versus water level plots, the best-fit lines applied to the data, the calculated BE and the degree of correlation (R^2). Most of the wells exhibit very high BE's (greater than 80-percent efficient). Only the lower zones of M3-TW #1 and #4, the Kling Irrigation well and the UWID State and Linder test well had efficiencies of less than 50 percent. The high BE's (as much as 99 percent) strongly suggest that the Pierce Gulch Sand Aquifer is cemented. This high degree of cementation and high barometric efficiencies indicate a rigid aquifer framework and overlying low-permeability materials effectively sealing the aquifer from the effects of atmospheric pressure changes.

Water Levels

Linear plots of the actual water-levels and BE-corrected water-levels reported in all the wells monitored before, during, and after pumping (at WRE #7), along with the atmospheric pressure recorded by two on-site Barologgers are included in Appendix C. The hydrographs for the pumped well SVR #7 (Appendix Figure C-1) and the nearby Big Gulch Stock Well (Appendix Figure C-3) clearly show the "classic" response of a rapidly dropping water level shortly after pumping started with the drawdown curve flattening over time after the initial steep drop. After pumping ceased, a similar but inverted residual-drawdown curve is shown where water levels "recovered." The barometric pressure (plotted at a different scale on the right of the hydrographs) shows numerous rises and falls during the test. Because the drawdown at and near the pumping well are much greater than the changes in water level caused by barometric effects, the barometric fluctuations are effectively "masked" and are too small to be readily observed in the water-level plots for SVR #7 or the Big Gulch well at the presented scale.

The pumping well shows a wide variation in water levels while it was being pumped. These fluctuations are on the order of 3 feet and appear to be the result of surging in the pumping well. The surges may have been caused by a combination of the high rate of pumping (917 gpm) with a pump-and-motor assembly that was only ½ inch in diameter smaller than the well screen and well casing. The rapid flow within the well along with the tight constriction of the pump-and-motor assembly may have caused the surging which was observed in both the electronic and hand-measured water levels. A long discharge line may also have contributed to the surging. The discharge orifice was approximately 10 to 15 feet lower than the well head. The lower discharge point could have induced a partial vacuum in the rigid discharge line, causing the surging observed in the water level data. Figure C-1 shows that a running average (mean) of the data taken over intervals of 10 minutes before and 10 minutes after the time of observation significantly reduces the fluctuations and produces a much smother, less "noisy" data plot.

Smaller, but still distinct, drawdowns and recoveries are observable in the water level plots for the following wells: M3-TW #2, M3-TW #4, Flack Corral 6-in, Flack Corral 4-

in, Little Gulch Stock Well, and SVR #9 (all hydrographs in Appendix C). No easily discernable drawdowns are observable in the water level plots for the following wells: M3-TW #1, M3-TW #3, SVR #6, Kling Irrigation and UWID State and Linder TW #1. Small drawdowns on the order of a few hundredths of a foot may have occurred in these wells but could not be discerned in the corrected water level plots. Small drawdowns may have been obscured by the "noise" in the data, as discussed above.

Data from back-up wells did not need to be used as all the primary observation wells performed as planned. Data from these wells were neither plotted nor analyzed. These back-up wells had both: a) data loggers with high ranges (and therefore less precision and accuracy where small changes in water levels are concerned), and b) were duplicated by wells in adjacent depth intervals that that had low-range data loggers and had shown similar aquifer response between the zones during previous analyses. These unanalyzed back-up wells included: M3-TW #1 Zone 1 (duplicated by Zone 2) and Zone 3 (duplicated by Zone 4) and M3-TW #3 Zone 4 (duplicated by Zone 3) and Zone 2 (duplicated by Zone 1).

The Flack Corral 4-inch well was analyzed but may be of limited value in that several assumptions on well construction and aquifer position had to made because no well construction information beyond well diameter (measurable at the surface) was known; its depth and length of screen (if any) are unknown. (A depth was tagged at 252-feet bgl but we do not know if the tagged depth represents the bottom of the well, infill, and/or an obstruction.) No Driller's Report was available for this well. We also do not know which parts of the Pierce Gulch Sand Aquifer (if any) are tapped by this well. Based on projections of the position of the Pierce Gulch Sand Aquifer from other locations, we estimated the depths to both the top and the bottom of the aquifer. Because we had to make these assumptions, we believe that the calculated aquifer parameter results should be considered with these assumptions in mind.

Analyses for Aquifer Parameter Values

In this sub section of the report, the drawdown data generated using the preprocessing methods discussed above are analyzed using Aqtesolv®. Individual well analyses are discussed first, followed by an analysis of a composite plot. The results are summarized in Table 2 (page 43).

SVR #7 Analyses

The pumping well, SVR #7, had 28.57 ft of drawdown at the end of the test. The Aqtesolv® analyses indicated a mean transmissivity of 470,000 gpd/ft.

Four different analyses of the drawdown data collected from SVR #7 indicate a transmissivity ranging from 400,000 to 520,000 gpd/ft. These results are based upon 1) a Cooper-Jacob analysis using raw data, 2) a Theis analysis using data with 23 ft of well loss removed from the raw data, 3) a Theis-recovery analysis using raw data, and 4) a Theis-recovery analysis using data corrected for estimated seasonal aquifer water level trend. Water level trends were not included (nor are they important) in the drawdown

analyses for the pumping portion of the test. The pre-test pumping precluded the collection of non-pumping water level data to establish a trend for the pumping portion of the test. Since drawdowns in the well (28.57 ft at the end of the nine-day pumping period) were much larger than the aquifer water-level trends observed in other on site wells (about 0.1 ft change over the pumping portion of the test), aquifer water-level trends during the pumping portion of the test were deemed insignificant. The Theis-recovery analysis were considered both without and with water-level trend corrections based on monitoring data collected during April and May of 2007, as is discussed, below.

The Cooper-Jacob analysis shown in Figure 20 (page 102) indicates a transmissivity of 400,000 gpd/ft. The straight line plot through the data plot is only an approximation because surging in the pump column caused water levels to fluctuate throughout the pumping period. The derivative analysis indicates that the method is valid after about 10 minutes of pumping. The data from before this period appear to be slightly affected by wellbore storage effects. After 10 minutes, however, the relatively good match of the derivative plots to the type curve support the method.

The Theis analysis shown in Figure 21 (page 103) indicates a transmissivity of 450,000 gpd/ft. The data plot shown in the lower portion of the figure presents a drawdown corrected by removing 23 feet of well loss from the raw data (calculation described in Section VII, below). In other words the well-loss-corrected drawdowns are 23 feet less than the raw-data drawdowns (plotted in the upper portion of the figure). As with the Cooper-Jacob plot, the type curve fitted through the data points is only an approximation because surging in the pump column caused water levels to fluctuate throughout the pumping period. The derivative analysis indicates that the method is valid after about 10 minutes of pumping. The data from 0 to 10 minutes appear to be slightly affected by wellbore storage effects. After 10 minutes, however, the relatively good match of the derivative plots to the type curve support the method.

The Theis recovery analysis using data uncorrected for seasonal aquifer water-level trend presented in Figure 22 (page 104), indicate a transmissivity of 520,000 gpd/ft. The data from the period t/t' 3 to 300 (equivalent to about 40 minutes through about one and one-half day of recovery) fall on a straight line, as required by the method. Recovery after this period (t/t' less than 3) shows the effects of incomplete barometric corrections and the lack of trend corrections.

Using data corrected for seasonal aquifer water-level trend (based on monitoring over the period April 1 through May 31 as shown in Appendix C Figure C-2) in the Theis recovery analysis presented in Figure 23 (page 105) indicate a transmissivity of 490,000 gpd/ft. The data plot on a straight line from the period t/t' 3 to 300, similarly to the uncorrected analysis.

The S/S' ratio of less than 1 (as indicated by both of these Theis recovery analyses) often indicates that a no-flow aquifer boundary influenced water-level recovery. Because the aquifer is bounded to the north east of the SVR #7 site by unsaturated and low-permeability sediments (green line in Figure 2), the apparent incomplete recovery could

be explained by this aquifer boundary. However, the boundary is under water-table conditions and could, therefore, also act as an apparent recharge source. We believe the apparent incomplete recovery is more likely the result of small errors in estimating the rate of seasonal water-level decline in the Pierce Gulch Sand Aquifer that occurred during the end of the test.

In summary, our analyses of the pumping well data indicate a transmissivity ranging from 400,000 to 550,000 gpd/ft, with a mean of 470,000 gpd/ft. We believe that this mean is a good, representative value for the transmissivity of the Pierce Gulch Sand Aquifer in this area.

As with all pumping well analyses, storativity cannot be accurately calculated.

Big Gulch Stock Well Analyses

The Big Gulch Stock Well located 845 ft from the pumping well had 1.71 ft of drawdown at the end of the test. The Aqtesolv® analyses indicated a mean transmissivity of 470,000 gpd/ft and a mean storativity of $1.5x10^{-3}$.

Drawdown data collected from the Big Gulch Stock Well (located 845 ft from SVR #7) indicate a transmissivity ranging of 450,000 to 500,000 gpd/ft. Four methods of analysis were applied: Cooper-Jacob, Theis, Theis recovery (using raw data) and Theis recovery (using data corrected for water level trends). As with the pumping well, water level trends were calculated using water level data obtained during April and May of 2007, after the test was completed (shown in Appendix C Figure C-4). Pumping (drawdown) analyses did not include trend corrections because pre-test pumping at SVR #7 precluded the collection of non-pumping water level data to quantify a trend. However, because the aquifer-wide trend over the pumping period of nine days is on the order of 0.1 ft, a trend correction error is not highly significant in comparison to the 1.7 ft of drawdown observed by the end of the pumping period.

The Cooper-Jacob analysis shown in Figure 24 (page 106) indicates a transmissivity of 500,000 gpd/ft and a storativity of $1.2x10^{-3}$. The data begin to plot along a straight line after about 80 minutes into the test, with a critical time ("u-assumption" analysis) of 95 minutes. The straight line and critical time are supported by a derivative analysis which indicates that the method is applicable from 100 to 6,000 minutes. After this time, the drawdown and derivative curve both rise. Had the increase in drawdown been caused by an aquifer boundary, the derivative would have leveled off at a value approximately twice that of the earlier period. Because the derivative values continued to rise and did not level off, it is more likely that the increase in drawdown was caused by the seasonal decline in aquifer water levels and not an aquifer no-flow ("negative hydraulic") boundary.

The Theis analysis shown in Figure 25 (page 107) indicates a transmissivity of 450,000 gpd/ft and a storativity of $1.8x10^{-3}$. The derivative analysis suggests that the method is valid from the beginning of the first indication of drawdown (5 minutes after pumping at SVR #7 started) through about 5,000 minutes. As with the Cooper-Jacob analysis,

seasonal aquifer-wide water level trends affected the apparent drawdown during the end of the test.

The Theis recovery analysis presented in Figure 26 (page 108) using data uncorrected for seasonal water-level trend indicates a transmissivity of 450,000 gpd/ft and a S/S' of 0.6. The data from the period t/t' 20 to 200 (equivalent to about 1 through 10 hours of recovery) fall on a straight line, as required by the method. Recovery after this period (t/t' less than 20) show the effects of incomplete barometric corrections and the lack of trend corrections. The S/S' ratio of less than 1.0 is likely the result of the seasonal decline in regional water levels, as discussed above for SVR #7.

The Theis recovery analysis presented in Figure 27 (page 109) using data corrected for seasonal water-level trend indicates a transmissivity of 480,000 gpd/ft and a S/S' of 0.4. The data from the period t/t' 20 to 500 (equivalent to about on-half hour through 10 hours of recovery) fall on a straight line, as required by the method. The analysis using the corrected data still shows the effects of incomplete trend corrections in that the recovery line does not project through residual drawdown = 0 at t/t' = 1.

In summary, the analyses for the Big Gulch Stock Well indicate a transmissivity ranging from 450,000 to 500,000 gpd/ft, with a mean of 470,000 gpd/ft. This mean result is identical to that indicated by the pumping well analyses.

Even though the Big Gulch Stock Well is completed within a shallower portion of the Pierce Gulch Sand Aquifer and is not fully penetrating, the distance between the pumping well and this observation well (~845 feet) is large enough, such that partial penetration effects are not significant. Hantush (1961a and b) indicated that wells located at a distance two or more times the thickness of the aquifer do not need corrections for partial penetration. Since the Pierce Gulch Sand Aquifer is about 340 feet thick at this location, the Big Gulch Stock Well lies at a distance that is more than twice the aquifer thickness.

We calculated a mean storativity of 1.5×10^{-3} from the two analyses of the Big Gulch Stock Well data. This value indicates a confined to semi-confined aquifer and is comparable to other values calculated from other aquifer tests of the Pierce Gulch Sand Aquifer (HLI, 2008).

Potential Issue of Concern for the Big Gulch Stock Well

One potential issue with the interpretation of the analysis of the data from the Big Gulch Stock Well is that it may be completed about 100 feet above the top of the Pierce Gulch Sand Aquifer. Our interpretation of the geophysical logs from SVR #7 indicate that the top of the Pierce Gulch Sand Aquifer lies approximately 240 feet below ground level while the limited information we have available for the Big Gulch Stock Well suggest it is completed (and open to an aquifer) 180 feet below ground level. Although this apparent discrepancy might be considered a complication, we believe it neither invalidates the analysis of the data from this well nor our interpretation of aquifer properties, for the following four reasons.

The first is that the documentation of the details of construction for the SVR #7 well is somewhat limited with respect to the annular seal. Additionally, only one geophysical log is available from the open hole; an uncalibrated single-point resistance log run by the well driller with no training in geophysics and reconstituted from a pen-and-ink strip chart. The geophysical and lithologic logs suggest a sand-dominated sequence of coarse sand, sand, silt and clay throughout the depth corresponding to the bottom of SVR #7 and the depth of the Big Gulch Stock Well indicating a hydraulically connected water bearing zone, as shown in Figure 9. In short, the reported lithology does not make good sense to us in comparison to relatively good data from nearby wells although a sand-dominated section is typical of geologic materials becoming coarser toward the margin of the basin. In addition, the poor understanding of the construction details of the Big Gulch Stock Well may also play a role. We have assumed the bottom depth of this well based on a video camera survey. We do not know if the well extends deeper (as open hole) because we have no Well Driller's Report for this well. The Big Gulch Stock Well may, in fact, extend to the depth of SVR #7, but we do not know. Based on the incomplete understanding of well construction and the lack of direct knowledge of the specific geology at the Big Gulch Stock Well, the differing well depths do not appear to be an issue.

The second reason is the similarity in the calculated transmissivities using the Big Gulch Stock Well, SVR #7 and the TW #4 Zone 2 well. The drawdown data from all three of these wells, as well as the trend-corrected recovery data from the Big Gulch Stock Well and SVR #7, all indicate transmissivities in the range of 400,000 gpd/ft to 550,000 gpd/ft. Were the Big Gulch Stock Well to be completed in a separate aquifer, the calculated transmissivity from the Big Gulch Stock Well data would have been very different. Our interpretation of the properties of the Pierce Gulch Sand Aquifer does not rely upon the analyses of the Big Gulch Stock Well data. Rather, the calculated values are consistent with, and support, the analyses from the other responding wells completed in the confined portions of the Pierce Gulch Sand Aquifer. For these reasons the differing well depths do not appear to be an issue.

The third reason supporting the validity of the data from the Big Gulch Stock Well, is the timing of the initial response to pumping at SVR #7. Water levels in the Big Gulch Stock Well began to drop between 4 and 5 minutes after pumping began at SVR #7. This timing is consistent with responses typical of a well completed 845 feet from a pumping well under semi-confined conditions. It is *not* consistent with responses typical of a well completed in an unpumped aquifer separated from the pumped aquifer by an aquitard 100 feet thick. Neuman and Witherspoon (1969) in his, now, famous research on the layered-aquifer system in Oxnard, California, had an initial response time of almost two days, from an observation well only 72 feet from the pumping well. This observation well was completed in an overlying unpumped aquifer separated by a well-defined leaky aquitard of a thickness comparable to the separation between the bottom of the Big Gulch Stock Well and the top of the intake in SVR #7. The difference in response time (less than 5 minutes versus almost two days), indicates that the Big Gulch Stock Well is not likely to be completed in an unpumped aquifer, separated by a leaky aquitard. Clearly the 100-foot thickness of material between the apparent bottom of the Big Gulch Stock Well and the

top of the intake (louvered well "screen") of SVR #7 does not act as a typical "leaky aquitard." The hydraulic response is transmitted far too quickly for this material to be considered an aquitard. This material behaves more like the coarse sand that is the dominant material indicated on the lithologic log for this well (shown in Figure 9).

The fourth reason why the different depths do not appear to present a problem is the role of fracture flow. The Pierce Gulch Sand Aquifer and adjacent materials beneath the M3 property (and in fact the greater M3-Eagle-Star vicinity), is partially cemented and possibly even fractured to some extent. We believe that ground water flows through these fractures as well as through the open pore-spaces of the sandy geologic materials. Fractures present in the 100-foot thick material between the bottom of the Big Gulch Stock Well and the top of the intake of SVR #7, if present, could allow the exchange of ground water, unlike an unfractured aquitard.

In summary, the 100 feet of geologic materials separating the indicated bottom of the Big Gulch Stock Well and the top of the intake for SVR #7 does not appear to invalidate our analysis of the data from the Big Gulch Stock Well as a well completed in the pumped Pierce Gulch Sand Aquifer. By itself, the 100-foot difference could appear to indicate a separate aquifer. However, the similarity of analyses of the data from different wells, the rapid initial response in the Big Gulch Stock Well, the uncertainty in both well-construction details and specific geologic interpretation, and the presence of fractures throughout the subsurface materials all support our assessment that the data from the Big Gulch Stock Well are representative of the Pierce Gulch Sand Aquifer. Any of these four factors alone would not be enough to draw this conclusion, but the four factors together support our interpretation.

TW #2 Analyses

Test well TW#2 located 3,636 ft from the pumping well had 0.05 to 0.17 ft of drawdown at the end of the test. The Aqtesolv® analyses indicated a mean transmissivity of 300,000 gpd/ft and a mean storativity of 0.085 ($8.5x10^{-2}$).

Four analyses of the drawdown data collected from well TW #2 (the second closest observation well to SVR #7, at 3,636 ft away) indicate a transmissivity ranging from 230,000 to 370,000 gpd/ft. These results are based on Theis analyses from two Zones (1 and 2) within the Pierce Gulch Sand Aquifer using both raw data and data adjusted for estimated water level trend. A Zone 3 small-diameter well completed in the unsaturated, upper portion of the Pierce Gulch Sand at this location is dry indicating the saturated portions of the Pierce Gulch Sand are unconfined at the TW #2 location. The analyses of the data collected from two saturated portions of the Pierce Gulch Sand (Zones 1 and 2) also indicate that the aquifer is unconfined with calculated storativities ranging from 0.027 ($2.7x10^{-2}$) to 0.16 ($1.6x10^{-1}$). The analyses are discussed below.

The Theis analysis for TW #2 Zone 2 (middle of the Pierce Gulch Sand Aquifer) shown in Figure 28 (page 110), based on data *not* corrected for estimated water level trend indicates a transmissivity of 240,000 gpd/ft and a storativity of $9.0x10^{-2}$. The data match

the type curve through about 9,000 minutes with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 3,000 minutes after pumping at SVR #7 started) through about 6,000 minutes. After this time the derivatives do not match the type curve. This falling off of the derivatives is likely related to the relatively large interval of differentiation of 0.4 log cycles that includes no drawdown data after pumping stopped at 12,960 minutes. In short, the derivative analysis supports the method of analysis.

The Theis analysis for TW #2 Zone 2 shown in Figure 29 (page 111), based on data corrected for estimated water level trend indicates a larger transmissivity of 370,000 gpd/ft and a smaller storativity of $2.7x10^{-2}$. The data match the type curve through about 9,000 minutes with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 6,500 minutes after pumping at SVR #7 started) through about 9,000 minutes. After this time the derivatives do not match the type curve. As with the analysis for the uncorrected data, this falling off of the derivatives is likely related to the relatively large interval of differentiation. The derivative analysis supports the method of analysis.

The Theis analysis for TW #2 Zone 1 (bottom of the Pierce Gulch Sand Aquifer) shown in Figure 30 (page 112) , based on data *not* corrected for estimated water level trend indicates a transmissivity of 350,000 gpd/ft and a storativity of $6.2x10^{-2}$. The data match the type curve through the entire test (12,960 minutes) with a derivative analysis that suggests that the method is valid from about 2,000 minutes after pumping at SVR #7 started through about 7,000 minutes. After this time the derivatives do not match the type curve. As with the Zone 2 analyses, this falling off of the derivatives is likely related to the relatively large interval of differentiation. In short, the derivative analysis supports the method of analysis.

The Theis analysis for TW #2 Zone 1 shown in Figure 31 (page 113), based on data corrected for estimated water level trend indicates a transmissivity of 230,000 gpd/ft and a storativity of 0.16 ($1.6x10^{-1}$). The data match the type curve through about 10,000 minutes with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 5,500 minutes after pumping at SVR #7 started) through about 8,000 minutes. After this time the derivatives do not match the type curve. This falling off of the derivatives is likely related to the relatively large interval of differentiation. The derivative analysis supports the method of analysis. The trend correction appears to delay the initial drawdown response and the overall magnitude of drawdown.

In summary, the analyses indicate a transmissivity ranging from 230,000 to 370,000 gpd/ft, with a mean of about 300,000 gpd/ft. These results are somewhat smaller than those indicated by wells further to the west where the aquifer is thicker. The smaller values are likely the result of the thinner saturated thickness of the Pierce Gulch Sand Aquifer toward the eastern parts of the M3 property. In a similar manner the storativities indicated by the four analyses range from 0.027 ($2.7x10^{-2}$)to 0.16 ($1.6x10^{-1}$) with a mean

of 0.085 ($8.5x10^{-2}$). All of these values indicate an unconfined aquifer (at this location) as does the composite diagram of TW #2 (Figure 11, page 87).

The range of the values presented in these analyses is in part the result of analyzing data both with and without a water level trend correction and the averaging effect of a cone of depression spreading outward from SVR #7 (where the aquifer is confined) into both areas with a thinner unconfined aquifer (such as TW #2) and into areas where the saturated thickness is greater and the aquifer is confined (such as TW #4, discussed below). Since a trend is apparent but can only be estimated, and because of the averaging effect of the expanding cone of depression, we believe that most representative values for the aquifer near TW #2 are best indicated by the mean of the four analyses, listed above.

The Cooper-Jacob and Theis recovery methods did not generate reliable analytical results when applied to the data collected from the two TW #2 wells. TW #2 is too far from the pumping well for the Cooper-Jacob method to be applied (as indicated by a critical time analysis using the values generated using the Theis method). The Theis recovery analysis could not be applied because the regional water-level decline (unrelated to pumping at SVR #7) that occurred during the 12 days of recovery was larger (0.10 to 0.20 ft) than the drawdown recovery (0.05 to 0.17 ft), effectively masking it and making it impossible to accurately measure and analyze. This water level trend and recovery are shown in Appendix C.

TW #4 Analyses

Test well TW #4 located 4,489 ft from the pumping well had 0.60 to 0.67 ft of drawdown at the end of the test, in the small-diameter well (Zone 2) fully completed within the Pierce Gulch Sand Aquifer. The Aqtesolv® analyses for this zone indicated a mean transmissivity of 580,000 gpd/ft and a mean storativity of $3.0x10^{-3}$. A deeper aquifer unit (or sub-aquifer) (Zone 1) either separate from the Pierce Gulch Sand Aquifer or a part of the Pierce Gulch Sand Aquifer indicated a drawdown of 0.58 to 0.59 ft at the end of the test. The Aqtesolv® analyses for Zone 1 as an aquifer separate from the Pierce Gulch Sand Aquifer indicated a mean transmissivity of 80,000 gpd/ft and a mean storativity of $3.5x10^{-4}$. A shallow aquifer (Zone 3) overlying the Pierce Gulch Sand Aquifer indicated a drawdown of 0.08 to 0.15 ft at the end of the test but did not generate drawdown data that could be reliably analyzed.

M3 TW #4 Zone 2

Two analyses of the drawdown data collected from well TW #4 Zone 2 (located 4,489 ft from SVR #7 - the third closest observation well) indicate a transmissivity ranging from 570,000 to 580,000 gpd/ft and a storativity of $3.0x10^{-3}$ (indicating a confined to semi-confined aquifer). These results are based on two Theis analyses (raw data and data adjusted for estimated water level trend) from the Zone 2 well which almost fully penetrates the Pierce Gulch Sand Aquifer at this location. The details of these analyses are discussed below.

The Theis analysis for TW #4 Zone 2 (fully penetrating the Pierce Gulch Sand Aquifer) shown in Figure 32 (page 114), based on data *not* corrected for estimated water level trend, indicates a transmissivity of 570,000 gpd/ft and a storativity of $3.0x10^{-3}$. The data generally match the type curve through about 3,000 minutes into the test with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 120 minutes after pumping at SVR #7 started) through about 1,000 minutes. After this time the derivatives do not match the type curve because of deviation in the drawdown levels whereby fluctuations could not be completely removed from the raw data. However, visually, the drawdown data and the Theis drawdown type curve generally match through 3,000 minutes. The cause of the large decrease in drawdown of about 0.10 to 0.20 ft between 3,000 and about 10,000 minutes is unknown. After 10,000 minutes the drawdown data return to levels close to the type curve.

The Theis analysis for TW #4 Zone 2, based on data corrected for estimated water level trend, indicates a transmissivity of 580,000 gpd/ft and a storativity of $3.0x10^{-3}$ (Figure 33, page 115). The data generally match the type curve through about 3,000 minutes into the test with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 120 minutes after pumping at SVR #7 started) through about 1,000 minutes. As with the analysis based on data uncorrected for regional water level trend, the derivatives do not match the type curve after this time because of barometric fluctuations that could not be completely removed from the raw data. The drawdown data and the Theis drawdown type curve generally match through 3,000 minute, however, with the cause of the large decrease in drawdown between 3,000 and about 10,000 minutes, unknown.

M3 TW #4 Zone 1

Data from the deepest aquifer zone (Zone 1) beneath the Pierce Gulch Sand Aquifer were analyzed in four different ways. Two of the analyses were based on the assumption that the thin (40 ft thick) permeable sand unit 30 ft below the bottom of the Pierce Gulch Sand Aquifer is a small (unpumped) aquifer unit within the Terteling Springs Formation separated by a thin "leaky" aquitard. These analyses were based on the method of Neuman and Witherspoon (1972) using data both with and without corrections for regional water level trends. A second set of analyses used the Theis method and assumed that Zone 1 was a part of the Pierce Gulch Sand Aquifer, and therefore, directly pumped by SVR #7.

The Neuman-Witherspoon analyses without water level trend corrections (Figure 34, page 116) and with water level trend corrections (Figure 35, page 117) indicate similar results. Both analyses indicate a transmissivity of 80,000 gpd/ft and a storativity of $1.0x10^{-3}$ for the Zone 1 aquifer. Both analyses were set up with the assumption that pumping occurred only in the Pierce Gulch Sand Aquifer and that this aquifer has properties generally indicated by the fully penetrating Zone 2 analyses with the transmissivity slightly reduced to 500,000 gpd/ft and storativity kept at $3.0x10^{-3}$. The Neuman-Witherspoon analysis was then adjusted through a combination of the manual curve fitting process and manual adjustment of leakage factors (which cannot be

measured directly). The similarity of the results using data uncorrected and data corrected for regional water level trends appears to be the result of low sensitivity of the method because six parameters can be adjusted in the analysis. Unique and reliable results are not readily obtained when six parameters are not known (transmissivity and storativity of the pumped Pierce Gulch Sand Aquifer and the Zone 1 aquifer, and the two leakage factors associated with the aquitard) and many combinations of these can generate the same general curve match. In addition, the derivatives and derivative type curve do not match well, suggesting that the analysis may not be valid.

In spite of the non-uniqueness and the poor match of the derivative curves, the calculated results of these analyses are consistent with the Zone 2 analyses in that the sum of the transmissivities from the Newman-Witherspoon analyses (500,000 gpd/ft for the Pierce Gulch Sand Aquifer and 80,000 gpd/ft for Zone 1) equals the results of the Zone 2 Theis analysis (575,000 for the average results of the two analyses).

The Theis analysis for TW #4 Zone 1 that assumes that the Zone 1 is part of the Pierce Gulch Sand Aquifer and was directly pumped by SVR #7, is not much better than the Newman-Witherspoon analyses that assumes that the Zone 1 is separate from the Pierce Gulch Sand Aquifer and was not directly pumped by SVR #7. In addition, the results of these Theis analyses appear to us to be unrealistic. The drawdown analyses without (Figure 36, page 118) and with (Figure 37, page 119) water level trend corrections indicate transmissivities that appear unrealistically large for a 40 ft thick aquifer (170,000 gpd/ft and 160,000 gpd/ft, respectively). The derivative analyses generate a match for the initial portions of the drawdown curves and then deviate later in the test. The recovery analyses (not shown) generated transmissivities that were even higher: 690,000 and 790,000 gpd/ft, respectively, analyses we consider to be invalid.

Neither the analyses based on the assumption of Zone 1 as a separate aquifer nor the analyses based on the assumption that it was part of the Pierce Gulch Sand Aquifer offer conclusive affirmation of which assumption is more likely to be correct. Zone 1 is observable in the composite diagrams of all the TW series wells (Figures 10-13) and the UWID State and Linder well (Figure 16). Analysis of the presence of Zone 1 shows that it dips at a steeper angle than the overlying Pierce Gulch Sand Aquifer. The steeper dip means that it rises toward the northeast where it likely merges with the Pierce Gulch Sand (a conceptual fit to HLI's model for the basin). Because of a potential hydraulic interconnection, neither of the two models assumed in the two sets of analyses strictly applies. We believe that neither of the methods is likely to yield accurate analytical results, only approximations. The smaller transmissivity indicated by the Newman-Witherspoon method appears to be the more realistic for the 40-ft-thick zone. Perhaps of greater importance, though, is that there is a hydraulic interconnection between the two aquifer units. Based on thorough on-site supervision and measurement during the entire piezometer nest construction and, in particular, emplacement of grout seals during construction of TW #4 leave us with the strong conviction that the observed hydraulic connection is not via the well bore. However, given the thinning aquitard between the two units, and the stated arguments for cemented section (and potential fracture flow), there is more than enough uncertainty concerning leakage and/or fractured flow between

these two closely spaced units. Of course, if the two units do converge shortly up gradient of TW #4, that hydraulic connection could also explain the observed drawdown.

M3 TW #4 Zone 3

A shallow aquifer (Zone 3) overlying the Pierce Gulch Sand Aquifer indicated a drawdown of 0.08 to 0.15 ft at the end of the test but did not generate drawdown data that could be reliably analyzed for the reasons cited previously in this report. The water level plot is included in Appendix C.

Little Gulch Stock Well Analyses

The Little Gulch Stock Well located 9,740 ft from the pumping well had 0.08 to 0.14 ft of drawdown at the end of the test. The Aqtesolv® analyses indicated a mean transmissivity of 230,000 gpd/ft and a mean storativity of 0.012 ($1.23x10^{-2}$). The results should be considered with some skepticism in that the details of well construction are not well known and a description of the aquifer materials pierced by this well are also not available.

Two analyses of the drawdown data collected from the Little Gulch Stock Well (located 9,749 ft from SVR #7) indicate a transmissivity ranging from 180,000 to 270,000 gpd/ft and a storativity of 0.011 ($1.1x10^{-2}$) to 0.013 $1.3x10^{-2}$, indicating an unconfined aquifer. These results are based on two Theis analyses: one using data not adjusted for estimated water level trend and one Theis analysis using water level trend corrections. The Little Gulch Stock Well appears to be completed where the Pierce Gulch Sand Aquifer is relatively thin (only partially saturated), as interpreted from projections of the aquifer from other locations to the Little Gulch well site. (There is not a Well Driller's Report available for this well, therefore, aquifer position could only be estimated.) Comparisons of the projected bottom elevation of the Pierce Gulch Sand Aquifer and the measured depth to water in the Little Gulch Stock Well suggest the upper portions of the Pierce Gulch Sand are dry (unsaturated) at this location. The details of our analyses are discussed below.

The Theis analysis for data without water-level trend corrections (Figure 38, page 120) indicates a transmissivity of 180,000 gpd/ft and a storativity of 0.013 ($1.3x10^{-2}$). The data generally match the type curve through almost all of the test with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 4,200 minutes after pumping at SVR #7 started) through about 8,000 minutes. After 8,000 minutes, the derivative curve flattens off. This flattening of the derivative curve is likely related to the relatively large interval of differentiation of 0.4 log cycles that includes no drawdown data after pumping stopped at 12,960 minutes. In short, the derivative analysis supports the method of analysis.

The Theis analysis for data with water-level trend corrections (Figure 39, page 121) indicates a transmissivity of 270,000 gpd/ft and a storativity of $1.3x10^{-2}$. The data generally match the type curve through about 7,000 minutes with a derivative analysis that suggests that the method is valid through about 5,000 minutes of the test. After this

time the derivatives do not match the type curve for the same reasons discussed above. Generally, the derivative analysis supports the use of the Theis method for these data.

The analyses for the Little Gulch Stock Well indicate a range for transmissivity because of the effects of the declining regional water level trend (0.0125 ft per day). It is only possible to estimate but not accurately quantify this trend. Based on the range of results we estimate a representative transmissivity on the order of 200,000 gpd/ft. The storativity results with and without tend consideration were almost identical. The mean storativity indicated by these two methods is $1.2x10^{-2}$.

Recovery analyses could not be realistically assessed. Because the overall water level trend was so much greater than the amount of drawdown recovery that occurred over the 12-day recovery period, true recovery was effectively masked, rendering meaningful analysis, impossible.

SVR #9 Analyses

Well SVR #9, located 11,660 ft from the pumping well, had 0.09 to 0.18 ft of drawdown at the end of the test. The Aqtesolv® analyses indicated a mean transmissivity of 290,000 gpd/ft and a mean storativity of $7.9x10^{-3}$.

Two analyses of the drawdown data collected from well SVR #9 (located 11,660 ft from SVR #7) indicate a transmissivity ranging from 250,000 to 320,000 gpd/ft and a storativity of ranging from $7.1x10^{-3}$ to $8.7x10^{-3}$(a semi-confined aquifer). These results are based on two separate Theis analyses one using data adjusted for estimated water-level trend and the other using unadjusted data. Well SVR #9 is completed where the aquifer is relatively thin because the upper portions of the Pierce Gulch Sand at this location are dry (unsaturated) and therefore, not considered part of the aquifer, as shown in the composite diagram (Figure 14, page 93). The details of these analyses are discussed below.

The Theis analysis for data without water-level trend corrections (Figure 40, page 122) indicates a transmissivity of 250,000 gpd/ft and a storativity of 0.087 ($8.7x10^{-2}$). The data generally match the type curve through about 8,000 minutes of the test with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 4,100 minutes after pumping at SVR #7 started) through about 6,000 minutes. After this time the derivatives do not match the type curve because the period of differentiation is relatively large (0.4 log cycles) such that the derivative curve includes time periods where recover and drawdown data are used to calculate the derivative. Generally, the derivative analysis supports the use of the Theis method for these data.

The Theis analysis for data with water-level trend corrections (Figure 41, page 123) indicates a transmissivity of 320,000 gpd/ft and a storativity of $7.1x10^{-3}$. The data generally match the type curve through about 8,000 minutes with a derivative analysis that suggests that the method is valid through about 6,000 minutes of the test. After this

time the derivatives do not match the type curve for the same reasons discussed above. Generally, the derivative analysis supports the use of the Theis method for these data.

The analyses for SVR #9 indicate a range for transmissivity because of the effects of the declining regional water level trend can only be estimated at about 0.01 ft per day. The mean of the two calculated transmissivity values is 290,000 gpd/ft. Based on the potential error introduced in the estimates of water level trends, we believe that a transmissivity on the order of 300,000 gpd/ft better indicates the precision of the analysis. The storativity results with and without water-level tend corrections were very close to each other indicating that the effects of the seasonally declining water levels had only minimal effect on the calculation of storativity. The mean storativity indicated by these two methods is about $7.9x10^{-3}$.

Recovery analyses did not yield meaningful results. No meaningful recovery curve could be generated from the recovery data because the overall water level trend (about 0.13 ft) was similar to the amount of drawdown recovery (0.09 to 0.18 ft) that occurred over recovery period. True recovery was effectively masked, rendering meaningful analysis, impossible.

Flack Corral 4-in Well Analyses

The Flack Corral well located 5,974 ft from the pumping well had 0.14 to 0.20 ft of drawdown at the end of the test. The Aqtesolv® analyses indicated a mean transmissivity of 240,000 gpd/ft and a mean storativity of 0.022 ($2.2x10^{-2}$). The results should be considered approximate in that no details are known about this well or the aquifer materials near this well.

Two analyses of the drawdown data collected from the Flack Corral 4-in well (located 5,974 ft from SVR #7) indicate a transmissivity ranging from 200,000 to 270,000 gpd/ft and a storativity of $2.1x10^{-2}$ to $2.3x10^{-2}$, indicating an unconfined aquifer. These results are based on two separate Theis analyses: one using data not adjusted for estimated water level trend and one Theis analysis using data adjusted using a correction for water level trend. The Flack Corral 4-in well appears to be completed where the Pierce Gulch Sand Aquifer is relatively thin, as interpreted from projections of the aquifer from other locations to the Little Gulch well site. (The position of the aquifer had to be estimated because no Well Driller's Reports are available for this well.) Comparisons of the projected bottom elevation of the Pierce Gulch Sand Aquifer and the measured depth to water in this well suggest the upper portions of the Pierce Gulch Sand are dry (unsaturated) at this location, meaning the aquifer is under unconfined conditions. The details of our analyses are discussed below.

The Theis analysis for data without water-level trend corrections (Figure 42, page 124) indicates a transmissivity of 200,000 gpd/ft and a storativity of $2.3x10^{-2}$. The data generally match the type curve through almost all of the test with a derivative analysis that suggests that the method is valid from the beginning of the first indication of drawdown (about 4,000 minutes after pumping at SVR #7 started) through about 7,000 minutes. After 7,000 minutes, the derivative curve falls off with decreasing derivative

values. This falling off of the derivative curve is likely the result of the declining aquifer-wide water level trend that caused the apparent drawdown to decrease from what likely would have occurred were there no aquifer-wide seasonal water level trend. We believe the derivative analysis supports the method of analysis.

The Theis analysis for data with water-level trend corrections (Figure 43, page 125) indicates a transmissivity of 270,000 gpd/ft and a storativity of 0.021 ($2.1x10^{-2}$). The data generally match the type curve through about 7,000 minutes with a derivative analysis that suggests that the method is valid through at least 6,000 minutes of the test. After this time the derivatives do not match the type curve for the same reasons discussed above. Generally, the derivative analysis supports the use of the Theis method for these data.

The analyses for the Flack Corral 4-in well indicate a range for transmissivity because of the effects of the declining regional water level trend (0.01 ft per day). It is only possible to estimate but not accurately quantify this trend. Based on the range of results we estimate a representative transmissivity on the order of 240,000 gpd/ft. The storativity results with and without tend consideration were almost identical. The mean storativity indicated by these two methods is 0.022 ($2.2x10^{-2}$).

Recovery analyses could be realistically assessed. Because the overall water level trend was similar to the amount of drawdown recovery that occurred over the 12-day recovery period, true recovery was effectively masked, rendering meaningful analysis, impossible.

Composite Well Analysis

A composite Theis (1935) analysis using data from the pumping well, the Big Gulch Stock Well, TW #4, TW #2, and SVR #9 (Figure 44, page 126) indicates a transmissivity of 430,000 gpd/ft and a storativity of $2.1x\ 10^{-3}$. This analysis plots the drawdowns from the five wells on the same time scale by "normalizing" time by dividing the time by the square of the distance of each well from the pumping well. The normalization allows all the wells to plot on the same drawdown type curve, *if* (and only if) the aquifer is homogenous and isotropic (in other words it has the same values for transmissivity, storativity, thickness, etc., at all points and directions of flow within the aquifer). If the properties of the aquifer vary at different locations, the drawdown data will not plot on the same general curve.

The composite plot shows that drawdown data from the SRV #7 (with a correction of 23 feet of well loss removed, as explained below), the Big Gulch Stock Well and TW #4 Zone 2 generally plot on the type curve while data from TW #2 Zone 2 and SVR #9 plot away from the type curve. SVR #7, Big Gulch Stock Well and TW #4 plot on the curve because the aquifer beneath the central and western portion of the M3 Eagle property has approximately the same transmissivity and storativity. Further to the east where TW #2 and SVR #9 are located, the Pierce Gulch Sand Aquifer rises toward land surface. The aquifer is thinner and unconfined beneath the eastern portions of the M3 Eagle property. Because the aquifer has less thickness, it has a correspondingly lower transmissivity.

Where it is unconfined, the specific yield (the "unconfined storativity") which is much larger than the confined storativity, dominates aquifer response. With a smaller transmissivity and a larger storativity the aquifer does not behave in a homogeneous manner. The drawdown is somewhat delayed and attenuated.

Distance-Drawdown Analysis

A Theis (1935) distance-drawdown analysis using data from the same five wells, SVR #7, the Big Gulch Stock Well, TW #4, TW #2, and SVR #9, (Figure 45, page 127) indicates a transmissivity of 380,000 gpd/ft and a storativity of 7.0×10^{-3}. This analysis plots the drawdowns from the five wells at 5,000 minutes into the test. The plot shows that the three central and western wells (SVR #7, the Big Gulch Stock Well, TW #4) plot on the same general type curve while the eastern wells (TW #2 and SVR #9) plot off the curve. Similarly to the composite plot, the difference in the plots is the result of the eastern portion of the Pierce Gulch Sand Aquifer thinner and unconfined (water table) while the western portions are generally thicker and confined. In a homogeneous and isotropic aquifer (identical transmissivity, storativity, thickness, and degree of confinement in all parts of the aquifer and for all directions of flow), all five wells would plot on the same Theis type curve.

Invalid Well Analyses

Some of the analyses we conducted appear to be invalid. These include all the recovery analyses except for those of SVR #7 and the Big Gulch Stock Well. These two wells had drawdowns recoveries that were much larger than the seasonal water level trend. These recoveries could be realistically separated from the water level trends (beginning of the springtime regional decline in aquifer-wide water levels) with relatively good precision. Theis recovery analyses were meaningful using the data from these wells, as demonstrated by analytical results fro the recovery data that agreed with the analyses of the drawdown data.

All other wells that indicated measurable drawdowns, showed water level recoveries that were small in comparison to the seasonal water level decline that occurred over the recovery period. None of the recovery data from these wells could be meaningfully analyzed in our opinion. None of the data exhibited meaningful straight-lines when plotted as semi-log t/t' vs. linear residual drawdown, as required by the method. The water-level decline occurring during the recovery period, (even with corrections using our best estimate of water level decline) caused the data plots to diverge from a straight line, making our analyses at best, only a very rough approximation and at worst, wrong. It is probable that our estimate of a linear decline in water levels was not entirely correct. We were not able, however, to calculate a meaningful equation for water level decline beyond the projection of a straight line from time periods were the effects of pumping SVR #9 were insignificant (either before or after the pumping portion of the test). The analytical results from these wells are listed in Table 2 as either "invalid" or are shown within quotation marks and include a question mark. These invalid recovery analyses include: TW #2 – Zones 1 and 2; TW #4 – Zones 1, 2, and 3; both Flack Corral wells; Little Gulch Stock Well, and SVR #9. Fortunately, during the drawdown portion of the

aquifer test, the discharge was kept consistently constant and thus, negating, at least part of the need for a recovery analysis.

In a similar manner, two wells indicated that pumping at SVR #7 caused drawdowns to occur, but generated data that could not be accurately analyzed. Meaningful drawdown data could not be separated from the water level data from these wells that included the effects of both pumping drawdown, and seasonal water level trends. Meaningful drawdown data were apparently masked by the seasonal trend. These included TW #4 Zone 3 (overlying the Pierce Gulch Sand Aquifer) and the Flack Corral 6-in well.

Non-Responding (?) Wells

A number of wells did not appear to have measurable drawdowns during the test. Very small drawdowns may have occurred in the wells that are completed in the Pierce Gulch Sand Aquifer, but at such a small scale they were not detectible. These wells included: TW #1 – Zones 1-4, TW #3 – Zones 1-4, Kling Irrigation well, and State and Linder TW #1 Zone 1. Any drawdown that might have occurred was likely less than 0.05 ft and, therefore, likely obscured and masked by un-removed barometric fluctuations and/or seasonal water level trends.

Variations in subsurface geology may have resulted in drawdowns in these wells that were too small to measure. Geophysical evidence (Wood, 2007) suggests that a structural fault may be present between TW #4 and the monitored wells lying to the west (TW #1, TW #3 and Kling Irrigation well. Such a fault, if present, could have attenuated and/or delayed the response in the portions of the Pierce Gulch Sand Aquifer lying to the west of the fault, caused by pumping the Pierce Gulch Sand Aquifer at a location east of the fault. Variations in aquifer transmissivity may have also played a role. The results of the two-day aquifer test using the Kling Irrigation well (HLI, 2008b), indicate transmissivities only one tenth of the values indicted by the SVR #7 13-day test. The lower transmissivities in this portion of the Pierce Gulch Sand Aquifer may help to explain why drawdowns were not measurable in the western well. In a manner similar to the SVR #7 test, pumping from the Kling Irrigation well (located west of the possible fault) caused no measureable drawdowns in wells lying to the east of the fault, supporting the concept of a structural fault.

Drawdown did not appear to be measurable in the State and Linder Test Well #1 Zone 2. The water level in this well, however, did decline about 0.10 feet from the projected trend-corrected water level, starting at about the same time that SVR #7 started pumping. This decline *may* represent drawdown from pumping SVR #7 but because the apparent drawdown began to decline 5 to 6 days into the test (behavior not explained by hydraulic theory as a response to pumping), we cannot definitively ascribe this drawdown to the pumping of SVR #7. Similarly, Well TW #4 Zone 2 which definitely responded with a measureable drawdown, also showed a somewhat delayed "dip" in the drawdown curve (Figure 32, page 114), supporting the concept that the response at the State and Linder Test Well may have been drawdown from pumping SVR#7. Because the State and Linder test well lies 22,302 feet from SVR #7, the great distance from the pumping well (SVR #7) may be another reason why drawdown could not be measured in this well. In other

words, the drawdown response may have been too minute to measure or the pumping cone of depression did not actually reach this well during the test period.

Shared drawdown and recovery responses observed in long-term monitoring data from Valley and M3 wells, support the concept that the small declines in water levels in the State and Linder Test Well #1 Zone 2 and Well TW #4 Zone 2 during the SVR#7 aquifer test may have been small drawdowns caused by SVR #7 pumping. The long-term monitoring data indicate that the valley and upland portions of the Piece Gulch Sand Aquifer are directly connected hydraulically. In any case, the monitoring data (collected over the past two years) show contemporaneous changes in water levels, that appear to be caused by various well pumping events affecting wells in both areas of the aquifer. It appears that the responses may have been too small in comparison to the other changes in water levels occurring during the test to have been measureable.

Figure 46 (page 128) shows barometric-efficiency-corrected water levels measured over the past two years from the western portions of the M3 property (TW #1, Kling domestic well, and TW #3) the central portions of the M3 property (TW #4 and SVR #7), the eastern portions of the M3 property (TW #3 and SVR #9) and the valley (UWID State and Linder TW #1). The water levels shown in these plots have been shifted vertically to allow the wells to be compared on the same plot. The amount of shift is shown for each well as a constant amount added to each water level measurement (to produce the shift). The actual water level can be calculated by subtracting the listed amount from the values plotted on the figure. The relative vertical scale for the water level plot for each well is identical (about 3-½ ft of water level change per inch on the graph).

At least three hydraulic events (pumping?) are apparent in the water level plots for UWID State and Linder TW #1, TW #1 and the Kling domestic well. These events, marked as dashed-blue vertical lines show similar rises and/or declines in each well. We attribute the rises and declines to pumping in the Pierce Gulch Sand Aquifer and not the result of variations in atmospheric pressure. Because barometric efficiency corrections have been applied to the data, the effects of variations in atmospheric pressure have been mostly removed. The response at SVR #7 is not as clear, however, possibly because of the scale used of the plot (one that allows the larger annual variations in water levels in some wells to fit on the plot).

We have correlated one such shared fluctuation that occurred during first two weeks of June, 2008, to the hydraulic testing of the City of Eagle's Eaglefield and Legacy wells. The Eaglefield well was pumped for 30 hours at 2,450 gpm on June 4-5, 2008 and the Legacy well was pumped for 24 hours at 1600 on June 10, 2008. Before the test began, water levels at the State and Linder test well were rising, beginning from the middle of May (Figure 48, page 129). The pumping tests caused 48.9 feet of drawdown in the Eaglefield well and 61.83 feet of drawdown in the Legacy well. During this period, we observed 8.20 feet of drawdown in the UWID State and Linder Test Well #1 Zone 2.After the test, water levels generally trended downward throughout the summer until early September. As seen in Figure 47 (page 129), a similar rise in water levels followed by a large drop also occurred in TW #1 Zone 2. A similar pattern is not as clearly

defined, but also observable in SVR #7. While drawdowns cannot be quantified using the data from these two M3 wells, a hydraulic connection between these wells and pumping in the vicinity of the Eaglefield and Legacy wells does seem to be apparent.

Figure 47 shows that similar common hydraulic responses appears to occur within wells completed in the Pierce Gulch Sand Aquifer beneath the central and western portions of the M3 property. Since common responses appear between the valley and the southwestern portion of the M3 site and common responses appear to occur within wells completed in the southwestern and central portions of the M3 property, it is likely that water level changes in one part of the system affect water levels in other parts of the system. Figure 47 shows water level plots for TW #1, TW #3 and SVR #7 with two different and much-finer vertical scales. TW #1 and SVR #7 are plotted at about 0.4 ft of water level change per inch of plot while TW #1 is plotted at 4 ft of water level change per inch on the graph. Three hydraulic events appear to be common to all three wells, as shown by the dashed-blue vertical line. Although the response at TW #1 is about ten times greater than the response at SVR #7, the hydrographs are similar suggesting a common hydraulic event and supporting the concept that the small water level changes observed in some of the wells during the test, may have been drawdowns from the pumping at SVR #7.

These conclusions are, of course, only preliminary and additional monitoring (currently on-going) will help to clarify and test our understandings of interconnectivity. Other projects completed by HLI also support the conclusion of a common hydraulic connection between the Pierce Gulch Sand Aquifer beneath the M3 property and the valley. A geochemistry study (Glanzman and Squires, 2009) and a computer modeling study (HLI, 2008c) should be consulted for additional details on the common hydraulic connection.

Drawdowns were not measurable in wells not completed in the Pierce Gulch Sand Aquifer. These included TW #1 Zone 5 (completed in the overlying, unnamed alluvial aquifer) and SVR #6 (completed in the Willow Creek Aquifer). Drawdowns did not (of course) occur in dry wells TW #3 Zone 5 and TW #4 Zone 4. These wells were monitored during the test to verify that the pumped discharge water did not return to the ground-water system during the test. These wells remained dry during the entire month-long test.

Summary of Results and Comparison with the Previous SVR #7 and Other Regional Aquifer Tests

The results of the pumping test analyses indicate that the Pierce Gulch Sand Aquifer in the vicinity of SVR #7 has a transmissivity on the order of 420,000 gpd/ft and a storativity on the order of $3x10^{-3}$. Portions of the Pierce Gulch Sand Aquifer beneath the western portions of the M3 Eagle property have larger transmissivities than the portions toward the east where the aquifer thins and becomes unconfined. Beneath the eastern portions of the property the transmissivity of the aquifer is estimated to be on the order of

200,000 to 300,000 gpd/ft, depending on the proximity of the saturated edge of the aquifer (approximated by the dashed green line in Figure 2). Transmissivities further to the west, near TW #4, are on the order of 400,000 to 500,000 gpd/ft. The smaller transmissivities beneath the eastern portions of the property appear to be the result of the decreasing aquifer thickness. Because transmissivity is equal to the product of hydraulic conductivity times aquifer thickness, transmissivities are approximately half the value where the aquifer thickness is reduced by half; a point that would suggest that the hydraulic conductivity of the Pierce Gulch Sand Aquifer does not vary significantly between the eastern wells and as far west as TW #4.

Beneath the eastern portions of the M3 Eagle property where the Pierce Gulch Sand Aquifer is unconfined, the effective storativity (specific yield) has not been directly calculated but is likely to be on the order of 0.1 to 0.2 or more (values typical of unconfined sand aquifers). The specific yield cannot be directly calculated because the storativity values indicated by the wells in the eastern part of the property represent an average of the properties between the pumping well and the observation well. As such, the average values include both confined storage coefficient values (storativity) where the aquifer is confined (SVR #7, TW #4) and unconfined storage coefficient values (specific yield) where the shallower aquifer is unconfined (TW #2, Flack Corral wells, Little Gulch Stock Well and SVR #9). Neither can be directly calculated using the data from the observation wells completed in the Pierce Gulch Sand Aquifer beneath the eastern portions of the M3 Eagle property.

A previous test of SVR #7 was conducted by SPF Water Engineering (2004). HLI's reanalysis of this test (HLI, 2008b) indicated transmissivity values that ranged from 180,000 to 300,000 and a storativity of 0.01 ($1x10^{-2}$). The previous 22-hour test of SVR #7 was deemed not useful for deriving aquifer coefficients of T and S. The pumped well appeared to develop during the test and the observation well water levels were not measured until after the test was underway making the drawdown data from both wells questionable for meaningful analysis. The transmissivity of the Pierce Gulch Sand Aquifer was estimated solely from the recovery responses in SVR #7 and the Big Gulch Stock Well while the calculated storativity could not be accurately calculated such that a representative value from other parts of the aquifer was deemed more likely to represent the aquifer beneath the M3 Eagle property. In summary, the previous short-term test was of limited usefulness because development of the well during the test resulted in water levels that actually rose throughout the later parts of the test in the pumping well (making curve matching impossible) and because water levels were not measured in Big Gulch Stock Well (the only observation well used during the test) until after pumping began, making true drawdowns, and the time of initial response, impossible to accurately quantify. Thus, the results of the 2008 nine-day M3 test are considered far more accurate and representative of actual aquifer conditions than the 2004 22-hour test.

The results of the 2008 nine-day SVR #7 test are consistent with recalculated results from tests conducted in other parts of the Pierce Gulch Sand Aquifer in the greater M3-Eagle-Star vicinity. Several tests analyzed and reported in HLI (2008b) indicate transmissivities ranging from about 200,000 gpd/ft to 500,000 gpd/ft, values similar to those discussed

above for the 2008 nine-day SVR #7 test. Similar values for storativity are also indicated in HLI (2008b), especially in areas affected by the portions of the aquifer that are approaching unconfined conditions, resulting in semi-confined storativity values. The mean value of $2x10^{-3}$ calculated for the 2008 SVR #7 test is comparable to the values reported in HLI (2008b) for the two long-term tests (Lexington Hills 30-day test - $3x10^{-3}$ and Eaglefield seven-day test - $2x10^{-3}$) of the Pierce Gulch Sand Aquifer.

The SVR #7 nine-day aquifer test results are, however, quite different from the results of the 2006 two-day test of the Kling Irrigation well (HLI, 2008b) which indicated much lower transmissivity (39,000 gpd/ft) and no response in any observation wells except for the closest (TW #1 Zones 1 thorough 4). We concluded that the Kling Irrigation well aquifer test was not representative of the large expanse of the Pierce Gulch Sand Aquifer because of: a) improper well construction and/or b) local (and unrecognized) faulting of the aquifer and/or c) the well being completed within an anomalous zone of the aquifer. The 2008 SVR #7 test indicates that the properties of the Pierce Gulch Sand Aquifer beneath the M3 Eagle property are similar to those beneath the Boise River Valley. The results of the Kling Irrigation well aquifer test do not represent the major portion of Pierce Gulch Sand Aquifer beneath the M3 Eagle property. Testing with a properly designed and completed production well near TW #1 would be needed to better assess the Pierce Gulch Sand Aquifer in this area.

SECTION VII: WELL EFFICIENCY AND WELL LOSS

The pumping of an eight-inch-diameter well, SVR #7, at the rate of 917 gpm resulted in well losses that were relatively large and well efficiencies that were relatively low, as would be expected from a well completed with a combination of louvered well "screen," torch-cut slots and angular-crushed rock "filter pack." Calculations based on comparisons of actual (measured) drawdown in the SVR #7 with theoretical drawdowns generated using the aquifer parameters calculated from the test data indicate a well loss drawdown on the order of 23 feet and a well efficiency on the order of 15 percent. An efficient supply well at this location would easily produce 2,000 gpm or more, based on the high yield possible from SVR #7, in spite of its low efficiency and large well loss.

Well Loss

Well loss and well efficiency for SVR #7 were calculated based on the differences between the actual drawdowns measured in SVR #7 during the first four hours of pumping and the theoretical drawdown calculated using the transmissivity and storativity derived from the analysis of data from the closest observation well (Big Gulch Stock Well). The theoretical drawdown was calculated with the test-derived transmissivity and storativity calculated using the Big Gulch Stock Well data (mean transmissivity of 470,000 gpd/ft and mean storativity of $1.5x10^{-3}$), using the method of Theis (1935). The theoretical and actual drawdowns are included in Table 3.

A well loss drawdown in SVR #7 of 23 ft was calculated by subtracting the theoretical drawdowns from the drawdowns actually measured in SVR #7 for eight time intervals during the first four hours of the pumping test. These differences ("well loss") represent the drawdown caused by frictional head loss in the well screen, filter pack and geologic materials near the well screen. This well loss occurred in addition to the drawdown caused within the aquifer ("formation loss"). Based on the data collected during the first 4 hours of the test, the mean drawdown due to well loss was 22.92 feet (Table 3). This compares favorably with the almost immediate measured drawdown in the pumping well at the onset of pumping (22.62 ft) as an indication of well loss. Considering that the actual pumping water levels in the pumping well fluctuated by about 3 feet during the test, we report the well loss to 2 significant figures, or 23 feet.

The calculated well loss of 23 feet was used in the various Theis analyses for the pumping well, presented in Section VI of the report. The well loss of 23 feet was subtracted from each measured drawdown to obtain a drawdown representative of that which would have likely occurred in a 100-percent efficient well, as required by the Theis method which assumes no well loss. The analysis of pumping well total drawdown (well loss plus formation loss) causes a Theis analysis to yield incorrect values for transmissivity because well loss causes each data point to be shifted, requiring a match to a type curve that does not represent actual aquifer conditions. Subtracting the theoretical well loss from the raw data leads to a more accurate Theis analysis and helps to attenuate the objection that some workers have with using the Theis method with pumping well data.

Well Efficiency

The efficiency of SVR #7 pumping at 917 gpm was estimated to be about 15 percent. This efficiency was calculated as the ratio of theoretical drawdown (formation loss only with no well loss included) divided by the actual measured drawdown (formation loss plus well loss). Over the first four hours this ratio varied from 13 to 15 percent. Because water levels fluctuated so much in SVR #7 while pumping, we have rounded this range of efficiencies to 15 percent.

The efficiency of SVR #7 actually increases with increased pumping time because the formation loss (drawdown in the aquifer) increases with increased time of pumping while well loss remains constant with time of pumping and is only a function of pumping rate. Therefore, well efficiency (the ratio of formation loss divided by formation loss *plus* well loss) grows closer to 100-percent as drawdown in the pumping well increases and formation loss represents a larger percentage of the total drawdown in the well.

Supply Well Yield

A properly designed and constructed supply well with minimized well losses and relatively high well efficiency, completed near SVR #7 (and many other locations of the M3 Eagle property) would be capable of yields of 2,000 gpm and probably more. Because 85 percent of the drawdown in SVR #7 was caused by well loss (23 ft), only 15 percent of the drawdown (about 5.6 ft, at the end of the test) was inducing the 917 gpm to flow into the well. A supply well with efficiency that was three or four times greater would be capable of yields that would be three or four times greater under the same drawdown. A properly-

designed and efficiently-developed supply well that fully penetrated the aquifer, and was completed with a wire-wrap well screen and a properly graded sand filter envelope (unlike SVR #7 which has none of these characteristics) would be highly likely to have efficiencies of 60 percent or greater such that yields of 2,000 gpm or more are considered likely.

Sustainable Yield

The well yields discussed above appear to be sustainable over the foreseeable future. This sustainability is supported by a number of factors. The **first** is the projection of the recovery data from SVR #7 toward full recovery using the recovery data corrected for aquifer water-level trend (Figure 23, page 105). Although the various methods of analysis employed by Aqtesolv® are all based on the concept of an aquifer with no recharge, the projection toward full recovery supports long term sustainability. **Secondly**, ground water geochemistry studies recently completed (Glanzman and Squires, 2009) indicate that the water sampled from the Pierce Gulch Sand Aquifer at all locations is very similar, supporting the concept of regional, and relatively swift, flow through the Pierce Gulch Sand Aquifer at relatively high rates and large volumes. The similarity of the composition of the ground water at the sampled locations, separated by as much as 13 miles, is likely a result of a chemically stable aquifer matrix and a high transmissivity which, in turn, allows relatively rapid flow and low residence time for a large ground water flux. **Additionally**, a modeling study presented in HLI (2008c) also supports the sustainability of long-term yields. The study which included quantification of recharge sources (and even an assessment of the impacts that might occur were recharge to be diminished), showed that long term pumping of 4,500 gpm on a continuous basis was sustainable over the 50 years of simulation. Both of these studies should be consulted for additional details that support the long-term sustainability of ground-water-pumping from beneath the M3 site.

Water level data collected over the past 10 years, and longer, also support the sustainability of the Pierce Gulch Sand Aquifer ground-water flow system. Data collected from UWID TW #1 and TW #2 at State and Linder show that water levels within the Pierce Gulch Sand Aquifer have not declined since monitoring began in 1998. Figure 48 shows water levels collected by a variety of entities for this well using both hand measured methods and electronic methods (backed by hand measurements). The plot for Zone 2 in TW #1 (the same zone monitored and analyzed in this report) shows that artesian water levels over the course of a year generally range between 10 and 15 feet above ground level. Water levels in the other three zones (not measured as frequently as TW #1 Zone 2) also show no net decline in water level. This stability has occurred, even though the population of the greater Eagle-Star vicinity has grown during the same time period as has the demand for ground water. The State and Linder test well is considered a reliable well for the collection of long term data because it is well sealed, protected for long-term use, it already has a length of monitoring record, and was constructed solely for monitoring purposes. Other properly constructed well and well nests in the area show a similar sustained water level. The monitoring program at M3 includes four such well nests.

SECTION VIII: INHERENT DIFFICULTIES AND CONSTRAINTS - SHORTCOMINGS OF THE TEST

No aquifer test is perfect under the best of circumstances and the SVR#7 nine-day test is no exception. Although we took every possible precaution to avert difficulties, some problems still surfaced. We believe that through the best efforts of the all those involved with the test and M3 Eagle's commitment to funding the project so that it could be completed successfully without "cutting corners," we were able to largely overcome the difficulties that surfaced during the test.

The first problem that presented itself was the time of year. We wanted the test to be conducted before irrigation and regional well pumping began in earnest. Experience has shown that significant pumping centers (wells) pumping from the Pierce Gulch Sand Aquifer, even if done from the lowland areas near Eagle and Star, had the potential to affect the data collected during the test, thereby complicating the test results and reducing its ability to be interpreted correctly. Time constraints were such that any small delay would have pushed the test to the following year. Set up of the test including well development, pump placement, data logger set ups and more, had to be completed during winter even though the site was basically impassible during winter, except during periods of prolonged freezing temperatures.

Pre-test work during winter required the building of an all-weather road to allow access when wet conditions make the existing dirt roads slick and impassible. Approximately two miles of gravel road was laid down to allow access for heavy for drill rigs, support trucks, pump and generator delivery trucks, fuel deliveries, and pump installation rigs. During the test, the road and culvert allowing drainage of the discharge pond required emergency repairs when the water level in the pond rose to the point where a washout appeared to be imminent. Quick response on the part of the road-building contractor avoided a washout of the main road to SVR #7. Had a washout occurred, the test would likely have been curtailed as access to the well to re-supply the generator with fuel without the road would have been prevented.

Security and general access were also difficulties that had to be addressed. The M3 Eagle property, in spite of locked gates, is treated by some as a public outdoor recreation area with activities that include firearm target practice. All wells had to be competed with bullet-proof protection. Judging by the numerous .45 caliber and magnum casings found near several of the wells, and numerous lead smears on the well-head security-enclosures themselves, this security measure was warranted.

A third difficulty was the relatively small diameter of the pumping well and the lack of nearby electrical power. It was important to pump the well at a rate that would adequately stress the aquifer. An eight-inch diameter test well typically limits the size of the pump to about 500 to 550 gpm when non-pumping depth-to-water levels are 165 ft. We overcame this difficultly by using a special-design slim-hole pump motor using much higher than normal voltages and a small diameter (5.62-inch) 133 HP motor that allowed the 917 gpm

rate non-stop throughout the nine-day test. A diesel-powered 250 KVA "Prime" generator was brought in to supply the electrical power for the test.

A fourth complication was the rapidly fluctuating water level (on the order of 3 feet) in the pumping well. It is not clear whether this surging in water levels was caused by turbulent flow where water was constricted by the pump bowls being set beneath the upper well screens or whether the surging was cause by a partial vacuum that formed in the discharge line between the well head and the downhill discharge orifice. We partially corrected for this problem by using a running ±10-minute average to smooth the water level data from SVR #7. We also relied on observation well data which had no such surging.

Lubrication oil used in the test pump motor caused some difficulties in obtaining accurate hand water level measurements with the electric well sounders. When the test pump was installed, the pump motor was apparently topped off, if not overfilled, with mineral oil. After the motor was installed in the well casing, it warmed up causing the oil to expand and flow out of the motor assembly to accumulate on top of the water column in the well. Even though we had installed a designated flush-joint monitoring tube for measurements, this tube could not be extended past the pump bowls (owing to the tight clearances) and the leaking motor oil moved upwards into the open bottom of the measuring tube thus interfering with the electrical sounding tapes. We overcame this difficulty by making multiple measurements, inside and outside the monitoring tube, until we were had a reasonably high degree of confidence in the measurements.

The routing of almost 12 million gallons of discharge water was a potential issue of concern at the outset of the test.. Our geologic characterization of the site near SVR #7 indicated the possibility of discharge water returning to the Pierce Gulch Sand Aquifer and affecting drawdown results by acting as a recharge (positive) aquifer boundary (or at least entering a degree of uncertainty to any data that might indicating a positive hydraulic boundary was encountered; a situation we envisioned as possible given the relatively close proximity of the unconfined edge of the Pierce Gulch Aquifer. To overcome this potential problem, water was pumped via an 800-ft long sealed line where it discharged to a clay-lined pond that subsequently allowed for overflow to the dry streambed of Big Gulch Creek. Our geologic characterization indicated that the area near the pond was generally underlain mostly by clay, which would inhibit surface water from moving downward. Lower reaches of the stream, however, are believed to be underlain by sub-cropping sand strata. HLI pre-designed two shallow monitoring wells to be completed in dry sand units near the site, and downstream of the aquifer test discharge area, as a means to verify whether the discharge water could return to the Pierce Gulch Sand Aquifer and "short-circuit" the test. The data collected during the test indicate that the discharged water ultimately caused no problems to the test or landscape.

A fifth difficulty presented itself unexpectedly, a day prior to the commencement of the drawdown portion of the test, when the Spring Valley Ranch turned 60 range cows onto the M3 Eagle property in Little Gulch. Because the cows tend to use the well head casings and capping security shelters as "rubbing posts", and because we intended to leave well sounding tapes extending down into the monitoring wells during the test, it became

immediately necessary to fence around each monitoring well, the orifice weir discharge to the stock pond, and the pumping well site. As soon as the pump discharge began filling the pond, cows that would typically be spread out over the entire property migrated to the discharge pond and the nearby Big Gulch Stock Well used for monitoring. The temporary barbed-wire barricades did serve to prevent cows from damaging the monitoring equipment.

The propeller-type mechanical flow meter installed in the SVR #7 discharge piping malfunctioned during the test, giving inaccurate readings; most likely attributable to the down hill discharge "sucking a vacuum" in the discharge even though adequate pressure was maintained to create back-pressure behind the orifice plate at the weir. Fortunately, the circular orifice weir, with continuous measurements recorded with a data logger and backed up with hand measurements of water levels in the orifice manometer, gave reliable results. We believe that discharge rates are accurately known for the entire test.

Cable stretch in the new Powers Electric™ well sounders was a problem that at first caused confusion in the hand measurements of water levels. Many new water-level sounders were used owing to the shear number of monitoring stations and our desire to not remove and re-insert a tape in each well measured; a time consuming task. Fortunately we used sounders that were individually numbered, with each one dedicated to a specific well. We were able to back calculate cable stretch errors to our calibration measurements using chalked-steel tapes to compare (and correct) these errors. Also, because the digital pressure-transducers/data-loggers worked so well, the steel-tape calibrations of the digital instruments provided a second check that confirmed accurate measurements were obtained.

Barometric effects were a potential problem that was anticipated and dealt with accordingly. As described above in Section V of this report, we used water level data and on-site contemporaneously-recorded atmospheric pressure from periods of little-to-no nearby well pumping to calculate barometric efficiency of each well. We used these calculated barometric efficiencies to correct for the changes in water level caused by variations in atmospheric pressure. Unfortunately, the corrections were not perfect as the effects of time lag and other factors made our corrections good, but not perfect. As a result, some atmospheric interference effects remain in our processed data; but not enough to prevent good analysis of the test data as a whole.

Water level trends were also a potential problem that was anticipated. By calculating the change in water levels unassociated with pumping or atmospheric effects, before the test began, we had hoped to be able to apply a correction that would remove the effects of pre-existing rising or falling regional/seasonal trends. We did not anticipate, however, a reversing trend that occurred in some wells but not others. Unfortunately, the seasonal change (trend reversal) occurred at slightly different times at different locations of the Pierce Gulch Sand Aquifer. The seasonal change to declining water levels occurred in some wells just before the test began (a declining trend throughout both the pumping and recovery period) while the seasonal change occurred at other parts of the aquifer *during* the pumping portion of the test (rising water levels during the first part of the test and

declining water levels over the second part of the test). To overcome this problem were estimated water level trends by projecting water levels (with barometric effects removed) from the pre-pumping portion of the test and the end-of-recovery portion of the test. As discussed in Section V, the corrections were good, but not perfect. Because the calculated seasonal changes were all on the order of 0.01 ft per day and the recoveries during the end of the recovery period were similar to and in some cases, smaller than 0.01 ft per day, even a small error on the order of a one or two thousandths of a foot per day in our estimated water-level trend, caused a small error in our residual recovery data. For this reason, drawdown data were more reliable than the recovery data.

The final difficulty we encountered in the SVR #7 nine-day test was the great depth to water in Willow Creek Aquifer well SVR #6. The depth to water in this well is more than 450 feet below ground level. Just getting an accurate water level reading with an electric well sounder or a steel tape in this well requires patience and skill. An electric sounder rubbing against the condensation along the steel well-casing can trigger false readings. In a similar manner, a chalked-steel tape lowered to this depth can have the chalk removed as it contacts the wetted casing requiring many attempt to get an accurate reading. Fortunately, field staff persisted to obtain reliable readings that were later correlated to, and verified by, the data logger readings that were used in our analysis.

SECTION IX: SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The following summarizes our conclusions from the analysis of the SVR #7 aquifer test:

1. The analysis of the data collected from 24 wells over nine days of continuous pumping of SVR #7 at 917 gpm indicates that the Pierce Gulch Sand Aquifer is highly productive beneath the M3 Eagle property with transmissivities ranging from 450,000 to 550,000 gpd/ft beneath the central and western parts of the property, and 250,000 to 300,000 gpd/ft beneath the eastern parts of the property where the aquifer thins but becomes unconfined.

2. Analysis of test data from wells completed in the Pierce Gulch Sand Aquifer beneath much of the M3 Eagle property indicates a mean storativity of $2x10^{-3}$. This value indicates a semi-confined aquifer overall, with the western and central portions of the M3 Eagle property being confined and the eastern portions unconfined. The unconfined portion of the Pierce Gulch Sand Aquifer occurs where the rise of the aquifer toward the east results in water levels that are below the top of the Pierce Gulch Sand. Further to the west (central and western portion of the M3 Eagle property) water levels are slightly-to-moderately higher than the top of the aquifer. The overlying clay layers cause the aquifer to be confined in

these areas (as it is under most of the valley regions near Eagle and Star where aquifer heads can exceed ground level by 20 feet.)

3. The transmissivity values calculated from the test data are consistent with several analyses of aquifer test data from wells completed in the lowland regions in the greater Eagle-Star vicinity, and reanalyzed in HLI (2008b). The test supports the previous conclusion that the Pierce Gulch Sand Aquifer beneath much of the M3 Eagle property has similar properties to the Pierce Gulch Sand Aquifer beneath the Boise River Valley.

4. The test shows hydraulic connection between most of the wells on the M3 Eagle site. Wells along the far western portion of the site (TW #1, TW #3 and the Kling Irrigation well) did not show measurable drawdown. A small drawdown response may have occurred in these wells, but if present, may have been masked by incompletely removed barometric effects and/or seasonal water-level trend effects. It is also possible that differences in geology such as a structural fault between TW #4 (to the east of the fault) and TW #1 and TW #3 (to the west of the fault) attenuated the drawdown response beneath the western part of the site. Surficial geophysical analyses by Wood (2007) do suggest the presence of such a fault. The lack of measurable drawdown near TW #1 and the Kling irrigation well may also be the result of the apparent lower transmissivity in this region as indicated by testing conducted at the Kling irrigation well in 2006 (HLI, 2008b).

5. High capacity supply wells (with sustainable, long-term yields of 2,000 gpm or more) are possible from the Pierce Gulch Sand Aquifer beneath much of the western and central portions of the M3 Eagle property. Slightly lower yields are likely from much of the eastern portions of the property.

6. SVR #7 pumping at 917 gpm had 23 ft of calculated well loss, resulting in a well efficiency of only 15 percent. In spite of this low efficiency, the well was capable of yields of 917 gpm.

7. Starting at an initial, non-pumping water level measured at 165.21 ft bgl, well SVR #7 was pumped continuously at 917 gpm for nine days with a final pumping water level of 193.78 ft bgl, for a calculated drawdown of 28.57 ft. The nine-day specific capacity was 32.1 gpm/ft of drawdown, a value quite high for a well with such inefficient well construction.

8. Confirmed drawdowns were measurable in observation wells at distances of up to 11,660 ft from the pumping well. Observation well drawdowns ranged from 1.71 ft in the closest observation well (Big Gulch Stock Well – 845 ft from SVR #7) to 0.09 ft at SVR #9 – 11,660 ft away from SVR #7.

9. Barometric efficiencies of the wells completed beneath the M3 Eagle property are high. Calculation of barometric efficiency was necessary to remove the effects of water level changes caused by variations in atmospheric pressure associated with

passing weather systems. Calculated barometric efficiencies range from a low of 20 percent (State and Linder TW #1) to as high as 99 percent (SVR #9). These values are similar to those calculated for wells completed in the Pierce Gulch Sand Aquifer. The high barometric efficiency suggests that the aquifer is partially-to-moderately cemented.

10. Perceptible drawdowns were not measured at State and Linder TW #1 Zone 2, completed in the Pierce Gulch Sand Aquifer, probably because it lies so far (22,302 feet) from the pumping well.

11. Well SVR #6, completed in the Willow Creek Aquifer, did not indicate a measurable or detectible drawdown. The lack of response in this well is likely due to the separation of the Willow Creek Aquifer from the Pierce Gulch Sand Aquifer by low-permeability Terteling Springs mudstone. SVR #6 is located at a considerable distance (8,189 ft) from the pumping well and, so, the hydraulic separation posed above is not conclusive.

12. The SVR #7 nine-day test demonstrates that a successful long-term, multiple-well aquifer-test of the Pierce Gulch Sand Aquifer in the greater M3-Eagle-Star vicinity can be completed with careful coordination and selection of the best time of year to minimize interference effects from the pumping of major supply wells and the pumping and application of irrigation water.

13. The large transmissivities calculated from the SVR #7 test data support the previous conclusions that pumping from the Pierce Gulch Sand Aquifer from beneath the M3 Eagle property will produce "cones of depression" (water level interference drawdowns) that are shallow and areally extensive.

14. Our earlier recommendation for the need to conducting a major, regional scale aquifer test of the Pierce Gulch Sand Aquifer beneath the north Eagle foothills has been met by the SVR #7 test.

15. The data obtained from the SVR #7 nine-day test has been used to calibrate and update the existing M3 Modflow numerical ground-water model.

Recommendations

The following summarizes our recommendations based on the analysis of the SVR #7 aquifer test:

1. M3 Eagle should continue to monitor water levels beneath the M3 site to allow for proper management and administration of the ground water resources of the region. Although the SVR#7 Aquifer Test serves as a good benchmark regional scale pumping test, only long-term (years to decades) high quality water level

monitoring will be able to document the stresses to the Pierce Gulch Sand Aquifer from increased withdrawals from wells. It is important that monitoring well locations be secured and the wells designated only to that purpose be used so that the same wells remain available over time to preserve the length of record and to avoid uncertainty and complexity in correlation of data from a series of changing wells over time.

2. Additional testing to evaluate specific yield of all new future water supply wells is recommended with water levels observed in the pumped well and in nearby observation wells in a continuing effort to improve the conceptual and numerical models for the Aquifer. The time, effort, and cost of a second regional aquifer test in the M3 Eagle area is deemed unnecessary. Rather, efforts should be devoted to coordination of a high-rate regional scale aquifer test in the north Eagle area using an existing, or future, large capacity well during the winter months with the cooperation of all major water users.

SECTION X: ACKNOWLEDGMENTS

The SVR #7 nine-day aquifer test could not have been completed so successfully without the help and support of many people; past and present. Specifically we would like to acknowledge and thank the following.

Bill Brownlee and Gerry Robbins of M3 Eagle, LLC, encouraged us to make this test complete and scientifically sound: they put the financial resources of M3 Eagle toward this goal. They understand that the purpose of the work being conducted by HLI is to understand the ground-water resources of the region such that the M3 Master Planned Community has the water it needs for successful completion 20-to-30 years from now, and successful operation of water supply wells over the decades well beyond. We have appreciated the perspective and approach taken by M3 Eagle, LLC to devote efforts to understanding the resource rather than striving solely for entitlements (water rights). The comprehensive research-based approach commissioned by M3 Eagle is also aimed at supporting the IDWR's North Ada County Comprehensive Aquifer Management Plan objectives in this area.

We gratefully acknowledge IDWR Director David Tuthill for his understanding of the need to carry out this testing and in swiftly exercising his powers under IC 42-1805 (3) to conduct such investigations relating to availability of unappropriated water when time was of the essence. We now know that a delay of a week or two would have introduced complications and data uncertainties from local pumping wells and/or caused postponement of the test for a year; until the following winter (non-pumping) season.

We appreciate the involvement of Sean Vincent and Dennis Owsley of the IDWR Hydrology Section. Sean's insight from testing of similar environments was helpful and Dennis' direct participation in the early drawdown portion of the test is appreciated. The

hours spent on several field trips to the project site, and the professional collaboration that resulted contributed to a successful project.

McLeran Well Drilling, LLC and Treasure Valley Well Drilling and Pump, Inc. assisted in timely well development and piezometer well construction, respectively. We value the contributions of conscientious contractors when it is important to obtain high quality data. Shortcuts by contractors often lead to compromised data, a situation that did not occur. We are indebted to Dave McLeran particularly for his efforts to maintain the pumping plant, generator re-fueling operations, and 24-hour surveillance to ensure that there were no interruptions to the constant-rate test. Gregg Barney Excavation provided a quality all-weather road, well site gravel pads, and water culvert diversions for the test.

We would also like to thank Hydrogeologist Roger Dittus, Engineer Dan Brown, and Vice President and General Manager Greg Wyatt of United Water Idaho, Inc. (UWID) for allowing us access to their test well at State and Linder Streets, in Eagle, and for their generous provision to well data in general. The excellent foresight of UWID, in its previous execution of many hydrogeologic investigations in this area, including aquifer testing, geophysical surveys, hydrogeologic characterization of the drilled geologic section, water level monitoring, and ground water analytical results, serves as the foundation for understanding of the ground water resource going forward. For these commitments and actions, UWID has contributed greatly to the entire community and is recognized, here, as a leader in these endeavors.

We laud the concerted efforts of Dr. S.H. Wood and his graduate students over the years. Dr. Wood's devoted mapping of the geologic and hydrogeologic relationships, including the recognition and mapping of major stratigraphic units and structural features that ultimately control the occurrence and movement of ground water in the subsurface environment, provides the essence of the current understanding of the aquifer system beneath the Treasure Valley. It is important to recognize that the majority of Dr. Wood's earlier work has not only served as the basis for all recent geologic studies, but that the findings of recently published research has not contradicted in any significant way, his earlier research; some of which dates back more than 20 years. Thank you, Spence.

Jerry Thompson, ranch manager for Spring Valley Ranch, was instrumental in allowing access to the property, preventing pumping of on-site stock wells that could have caused interference during the test and other aspects of site management critical to the successful completion of the test.

Last but not least, we recognize the able assistance of Hydro Logic, Inc.'s own Kurt Newbry for his tenacious efforts to, almost single-handedly, execute the data acquisition for the 30-day test period of the aquifer test with the exception of the first day of the draw down portion of the test. Kurt's 24-hour availability and stamina during the 9-day pumping test is impressive and punctuated by the fact that no data was lost, no interruptions to the test occurred, and the recovered data is stellar. Kurt, you are our hero.

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TABLES

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Table 1. Summary of Well and Aquifer Details

Well	WATER LEVELS: Measurable Test Drawdown?	Start-of-Test Level: DTW btc ft	Start-of-Test Level: Elev. ft amsl	WELL INFORMATION: Well Elev. ft amsl	Distance from SVR #7	Screen Top/Bottom Depth feet	Elev	Radius inches/ feet	Length feet	Distance between top of Aquifer and top of Screen	Percent of Aquifer Screened	Borehole Radius inches/ feet	AQUIFER DESCRIPTION: Top/Bottom Depth	Elev	BE* %	Nature of Aquifer	Thickness feet	Aquifer
SVR #7 (Pumping Well)	yes	165.21	2544.63	2709.84	0	280	2430	4	70	100	21%	6.00	180	2530	95%	Confined	340	Pierce Gulch Sand Aquifer
						350	2360	0.33				0.50	520	2190				
Big Gulch Stock Well	yes	152.13	2546.09	2698.22	845	180	2518	2	0	0	<1%	3?	180	2518	96%	Confined	340	Pierce Gulch Sand Aquifer
						180	2518	0.17				0.25?	520	2178				
M3-TW#2 Zone 3	dry	dry	dry	2766.01	3636	180	2586	1	10	120	3%	4.00	60	2706	dry	dry	300	Pierce Gulch Sand (dry)
						190	2576	0.08				0.33	360	2406				
M3-TW#2 Zone 2	yes	218.96	2547.05	2766.01	3636	230	2536	1	20	170	7%	4.00	60	2706	99%	Unconfined?	300	Pierce Gulch Sand Aquifer
						250	2516	0.08				0.33	360	2406				
M3-TW#2 Zone 1	yes	218.62	2547.39	2766.01	3636	270	2496	1	50	210	17%	4.00	60	2706	99%	Unconfined?	300	Pierce Gulch Sand Aquifer
						320	2446	0.08				0.33	360	2406				
M3-TW#4 Zone 4	no	dry	dry	2673	4489	61	2612	1	10	na	na	4.00	180	2493	na	na	20	dry sand
						71	2602	0.08				0.33	200	2473				
M3-TW#4 Zone 3	yes	134.96	2538	2673	4489	181	2492	1	20	1	100%	4.00	180	2493	85%	Confined	20	**unnamed alluvial sand aquifer**
						201	2472	0.08				0.33	200	2473				
M3-TW#4 Zone 2	yes	130.94	2542	2673	4489	325	2348	1	231	25	89%	4.00	300	2373	39%	Confined	260	Pierce Gulch Sand Aquifer
						556	2117	0.08				0.33	560	2113				
M3-TW#4 Zone 1	yes	130.23	2543	2673	4489	625	2048	1	21	325	53%	4.00	300	2373	33%	Confined	40	**may be part of PGSA**
						646	2027	0.08				0.33	560	2113				
Flack Corral 4-in	yes	208.25	2551.98	2760.23	5974	252?	2508	2	0?	38?	<1%?	3?	210	2550	99%	Unconfined?	120	Pierce Gulch Sand Aquifer
						252?	2508	0.17				0.25?	330	2430				
Flack Corral 6-in	yes	215.01	2555.24	2770.25	6749	74	2696	3	312	0	100%	3?	220	2550	95%	Unconfined?	120	Pierce Gulch Sand Aquifer
						386	2384	0.25				0.25?	340.25	2430				
M3-TW#3 Zone 5	no	dry	dry	2786.63	8173	238	2549	1	20	na	na	4.25	265	2522	na	na	235	Pierce Gulch Sand (dry)
						258	2529	0.08				0.35	500	2287				
M3-TW#3 Zone 4	no	264.36	2522.27	2786.63	8173	334	2453	1	20	69	9%	4.25	265	2522	na	Unconfined?	235	Pierce Gulch Sand Aquifer
						354	2433	0.08				0.35	500	2287				
M3-TW#3 Zone 3	no	264.25	2522.38	2786.63	8173	369	2418	1	10	104	4%	4.25	265	2522	82%	Unconfined?	235	Pierce Gulch Sand Aquifer
						379	2408	0.08				0.35	500	2287				
M3-TW#3 Zone 2	no	264.09	2522.54	2786.63	8173	399	2388	1	20	134	9%	4.25	265	2522	na	Unconfined?	235	Pierce Gulch Sand Aquifer
						419	2368	0.08				0.35	500	2287				
M3-TW#3 Zone 1	no	263.98	2522.65	2786.63	8173	432	2355	1	10	167	4%	4.25	265	2522	81%	Unconfined?	235	Pierce Gulch Sand Aquifer
						442	2345	0.08				0.35	500	2287				
SVR #6	no	456.75	2358.88	2815.63	8189	560	2244	4	170	103	<37%	4.00	457	2359	84%	Unconfined?	>283	**Willow Creek Aquifer**
						730	2084	0.33				0.33	>740	<2064				
Little Gulch Stock Well	yes	176.02	2552.77	2728.79	9740	220	2509	2	3	44	3%	3?	176	2553	99%	Unconfined?	112.79	Pierce Gulch Sand Aquifer
						223	2506	0.17				0.25?	288.79	2440				
Kling-Irrigation well	no	96.66	2516.94	2613.60	9908	198	2416	8	210	0	76%	11?	300	2314	45%	Confined	275	Pierce Gulch Sand Aquifer
						408	2206	0.67				0.92?	575	2039				
M3-TW#1 Zone 5	no	92.03	2514.36	2606.39	10916	97	2260	1	40	12	73%	4.00	85	2521	93%	Confined?	55	**unnamed alluvial sand aquifer**
						137	2056	0.08				0.33	140	2466				
M3-TW#1 Zone 4	no	94.54	2511.85	2606.39	10916	353	2260	1	30	0	13%	4.00	353	2253	33%	Confined	237	Pierce Gulch Sand Aquifer
						383	2056	0.08				0.33	590	2016				
M3-TW#1 Zone 3	no	93.97	2512.42	2606.39	10916	395	2260	1	30	42	13%	4.00	353	2253	na	Confined	237	Pierce Gulch Sand Aquifer
						425	2056	0.08				0.33	590	2016				
M3-TW#1 Zone 2	no	91.57	2521.77	2606.39	10916	467	2260	1	40	114	17%	4.00	353	2253	27%	Confined	237	Pierce Gulch Sand Aquifer
						507	2056	0.08				0.33	590	2016				
M3-TW#1 Zone 1	no	91.54	2521.77	2606.39	10916	514	2260	1	42	161	18%	4.00	353	2253	na	Confined	237	Pierce Gulch Sand Aquifer
						556	2056	0.08				0.33	590	2016				
SVR #9	yes	197.22	2555.84	2753.06	11660	235	2518	3	28	38	38%	6.00	197	2556	99%	Unconfined?	73	Pierce Gulch Sand Aquifer
						263	2490	0.25				0.50	270	2483				
UWID State and Linder TW#1 Zone 2 ("UWID State and Linder #1A" in HLI, 2007)	no	-14.67 (above ground)	2533.63	2518.96	22302	280	2239	1	90	70	17%	4.00	210	2309	20%	Confined	525	Pierce Gulch Sand Aquifer
						370	2149	0.08				0.33	735	1784				

NOTES: All wellheads surveyed by Idaho Survey Group during Aug 2007 except M3-TW #4 which has well elevation estimated based on TOPO. " BE" = Barometric Efficiency. "na" = Not Analyzed. Confined nature of aquifer based on comparisons of water levels with geology (interpreted from geophysical and geologic logs).

ver: January 20, 2009

Table 2. Results of SVR #7Aquifer Test Analyses

Well	Distance from SVR #7	Maximum Measured Drawdown		Calculated Transmissivity	Calculated Storativity	Theis	Cooper-Jacob	Recovery (Theis)	Neuman-Witherspoon	No WL Trend Correction	With WL Trend Correction	Well Loss Removed	Valid Analysis Possible?
	ft	No Trend* Adjustment ft	With Trend* Adjustment ft	T (gpd/ft)	S (unitless)								
Composite for SVR #7, Big Gulch stock, TW #2 Zone 2, TW #4 Zone 2 and SVR #9	varies	-	-	430,000	2.1E-03	x				x			
Distance-Drawdown for SVR #7, Big Gulch stock, TW #2 Zone 2, TW #4 Zone 2 and SVR #9	varies	-	-	380,000	7.0E-03	x				x			
SVR #7 (Analysis of drawdown data from pumping period conducted with well loss removed)	0	29.79 (as measured)	7.51 (w/ well loss removed)	450,000	Invalid	x				x		x	
				400,000	Invalid		x			x			
				520,000	Invalid			x		x			
				490,000	Invalid			x			x		
Big Gulch stock	842	1.71	1.79	450,000	1.8E-03	x				x			
				500,000	1.2E-03		x			x			
				450,000	na			x		x			
				480,000	na			x			x		
M3-TW#2 Zone 2	3,636	0.17	0.05	240,000	0.091	x				x			
				370,000	0.027	x					x		
				Invalid	Invalid		x			x	x		No
				Invalid	-			x		x	x		No
M3-TW#2 Zone 1	3,636	0.17	0.08	350,000	0.06	x				x			
				230,000	0.16	x					x		
				Invalid	na			x		x	x		No
M3-TW#4 Zone 3 (as upper part of PGSA)	4,489	0.15	0.08	Invalid	Invalid	x	x	x		x	x		No
M3-TW#4 Zone 3 (as overlying, unnamed aquifer)		0.15	0.08	Invalid	Invalid				x				No
M3-TW#4 Zone 2	4,489	0.67	0.60	570,000	3.0E-03	x				x			
				580,000	3.0E-03	x					x		
				"700,000?"	na			x		x			?
				"840,000?"	na			x			x		?
M3-TW#4 Zone 1 (as lower part of PGSA)	4,489	0.58	0.59	170,000	2.4E-03	x				x			
				160,000	2.2E-03	x					x		
				"690,000?"	na			x		x			?
				"790,000?"	na			x			x		?
M3-TW#4 Zone 1 (as underlying aquifer)				80,000	3.5E-04				x	x			
				80,000	3.5E-04				x		x		
Flack Corral 4-in	5,974	0.14	0.20	200,000	0.023	x				x			
				270,000	0.021	x					x		
				Invalid	Invalid		x	x		x	x		No
Flack Corral 6-in	6,749	0.13	0.34	"50,000"	"0.014"	x				x			?
				Invalid	Invalid	x					x		No
				Invalid	Invalid		x	x		x	x		No
M3-TW#3 Zones 1-4	8,173	none	none	-	-								No
SVR #6 (Willow Creek Aquifer)	8,189	none	none	-	-								No
Little Gulch stock	9,740	0.08	0.14	180,000	0.013	x				x			
				270,000	0.011	x					x		
				Invalid	na			x		x			No
				"670,000?"	na			x			x		?
Kling Irrigation	9,908	none	none	-	-								No
M3-TW#1 Zones 1-5	10,916	none	none	-	-								No
SVR #9	11,660	0.09	0.18	250,000	8.7E-03	x				x			
				320,000	7.1E-03	x					x		
				Invalid	na			x		x			No
				"780,000?"	na			x			x		?
UWID State & Linder TW#1 Zone 2	22,302	none	none	-	-								No

*Note: For pumping well, drawdown correction is for well loss, only. No trend correction because changes in water level caused by aquifer trend is insignificant compared with drawdowns caused by pumping, especially during time period of curve matching.

ver: January 19, 2009

M3 Eagle
SVR #7 Aquifer Test
March 10-19, 2008

N

Contact between bottom of Pierce Gulch Sand Aquifer and underlying mudstone facies of the Terteling Springs Formation. (inferred location)

Inferred location of West Boise-Eagle Geologic Fault System

SVR #6

M3 TW #3

M3 TW #2

Flack Corral 4"

Flack Corral 6"

SVR #7

SVR #9

Big Gulch Stock

Little Gulch Stock

M3 TW #4

M3 TW #1

Kling Irrigation

~8,189'

~8,173'

~3,636'

~5,974'

~6,749'

~11,660'

~9,740'

~4,489'

~9,908'

~10,845'

~22,302'

to UWID State and Linder

one mile

APPROXIMATE M3-EAGLE PROPERTY BOUNDARY

APPROXIMATE M3-EAGLE PROPERTY BOUNDARY

Hydro Logic, Inc.
Boise, Idaho

Highway 16

Big Gulch

Willow Creek

Little Gulch

Farmer's Union Ditch

Linder Rd.

Park Ln.

Ballantyne Rd.

Road

T5N R1W

T5N R1E

10 11 12 7 16 15 14 13 18 17 21 22 23 24 19 20 28 27 26 25 30 33 34 35 36 31 32

Figure 2. Wells Monitored During SVR #7 Aquifer Test – Detailed View

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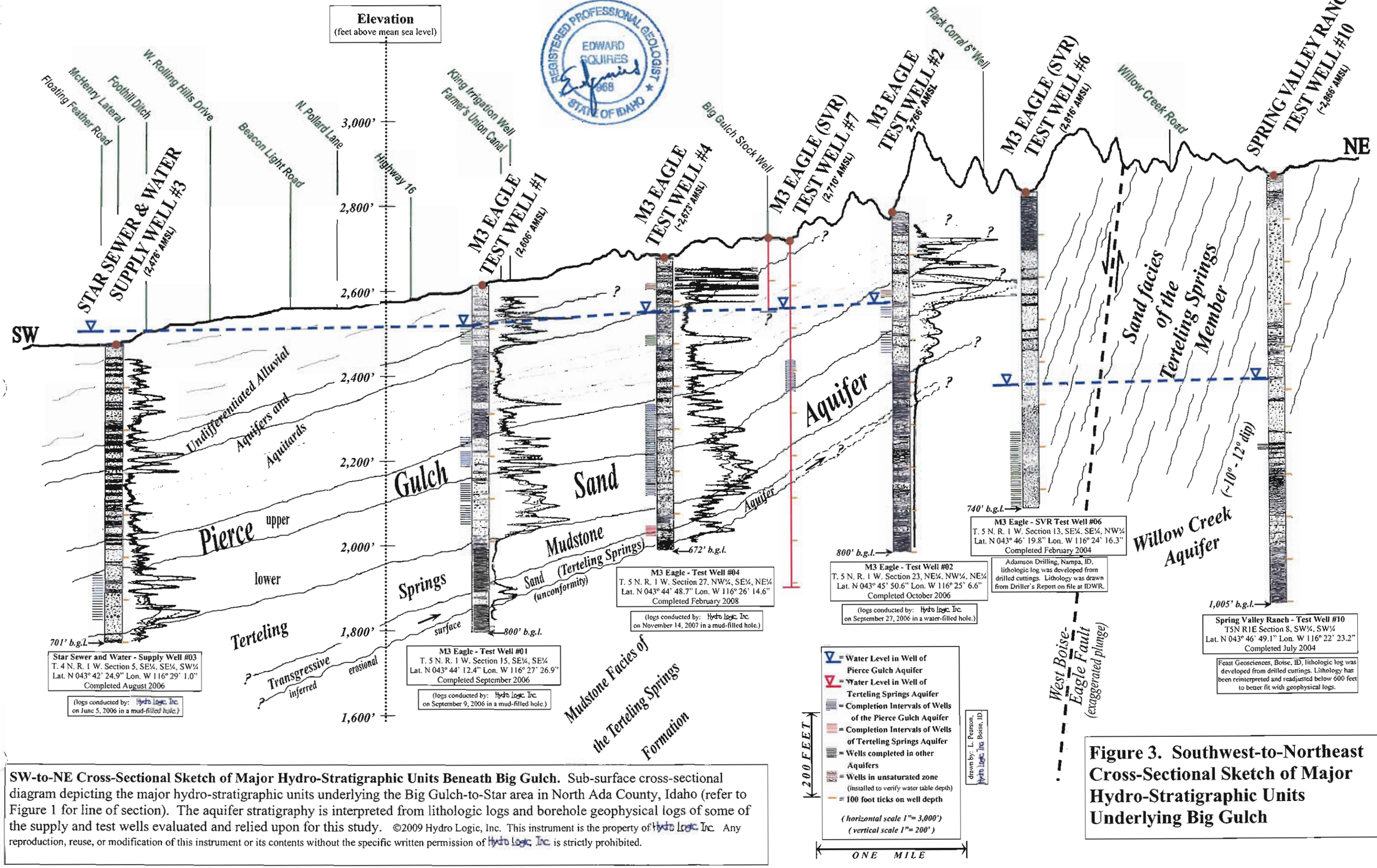

SW-to-NE Cross-Sectional Sketch of Major Hydro-Stratigraphic Units Beneath Big Gulch. Sub-surface cross-sectional diagram depicting the major hydro-stratigraphic units underlying the Big Gulch-to-Star area in North Ada County, Idaho (refer to Figure 1 for line of section). The aquifer stratigraphy is interpreted from lithologic logs and borehole geophysical logs of some of the supply and test wells evaluated and relied upon for this study. ©2009 Hydro Logic, Inc. This instrument is the property of Hydro Logic Inc. Any reproduction, reuse, or modification of this instrument or its contents without the specific written permission of Hydro Logic, Inc. is strictly prohibited.

Figure 3. Southwest-to-Northeast Cross-Sectional Sketch of Major Hydro-Stratigraphic Units Underlying Big Gulch

Table 3. Well Loss and Well Efficiency Comparison

	Theoretical	Actual	Well Loss -Efficiency		Means	
Pumping Time	DD	DD	(difference)	(ratio)	Well Loss	Efficiency
min	ft	ft	ft	%	22.92	14%
12	3.34	25.83	22.49	13%		
18	3.43	26.07	22.64	13%		
28	3.53	26.49	22.96	13%		
43	3.63	26.57	22.94	14%		
66	3.72	27.14	23.42	14%		
101	3.82	27.70	23.88	14%		
156	3.92	26.83	22.91	15%		
240	4.02	26.13	22.11	15%		

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FIGURES

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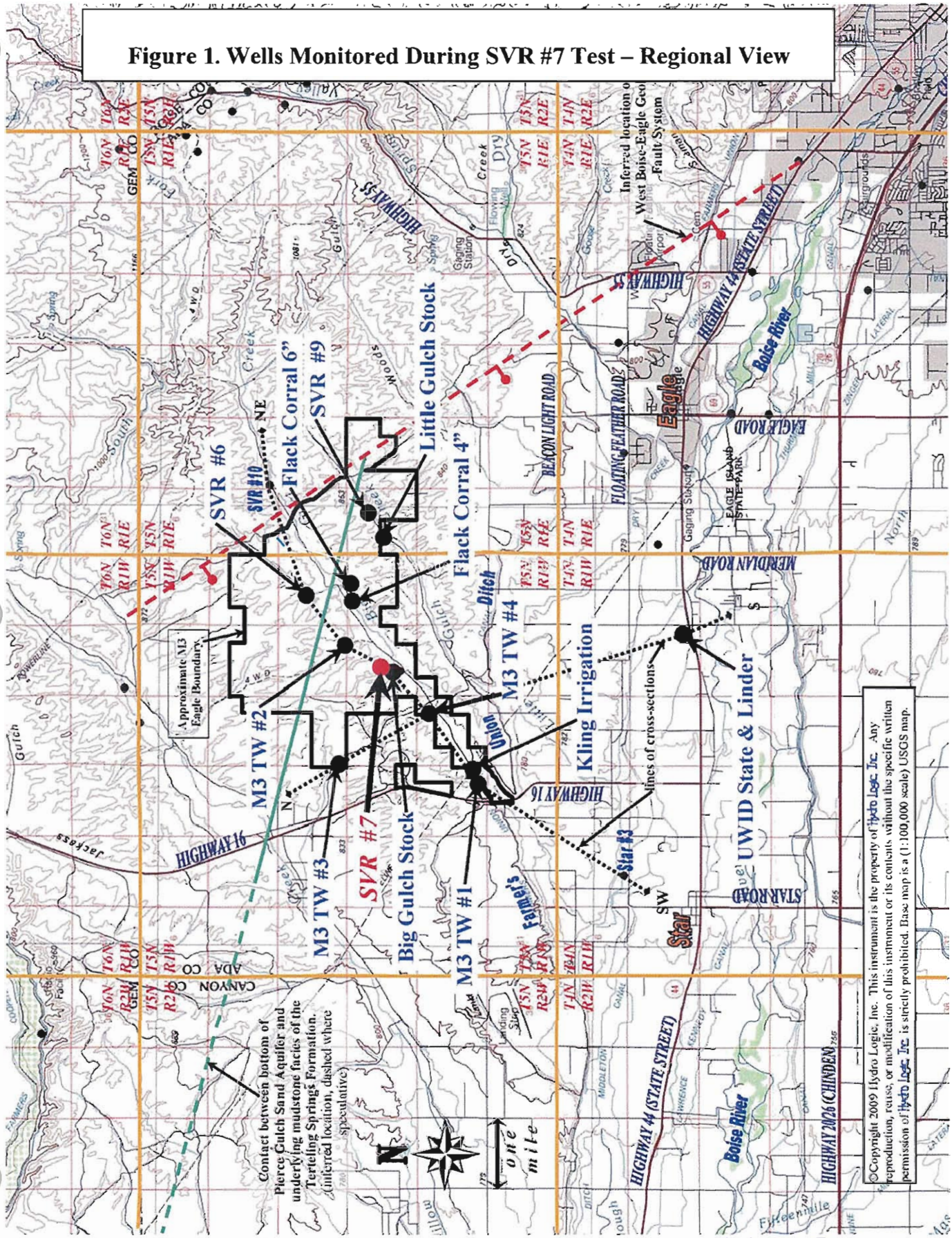
Figure 1. Wells Monitored During SVR #7 Test – Regional View



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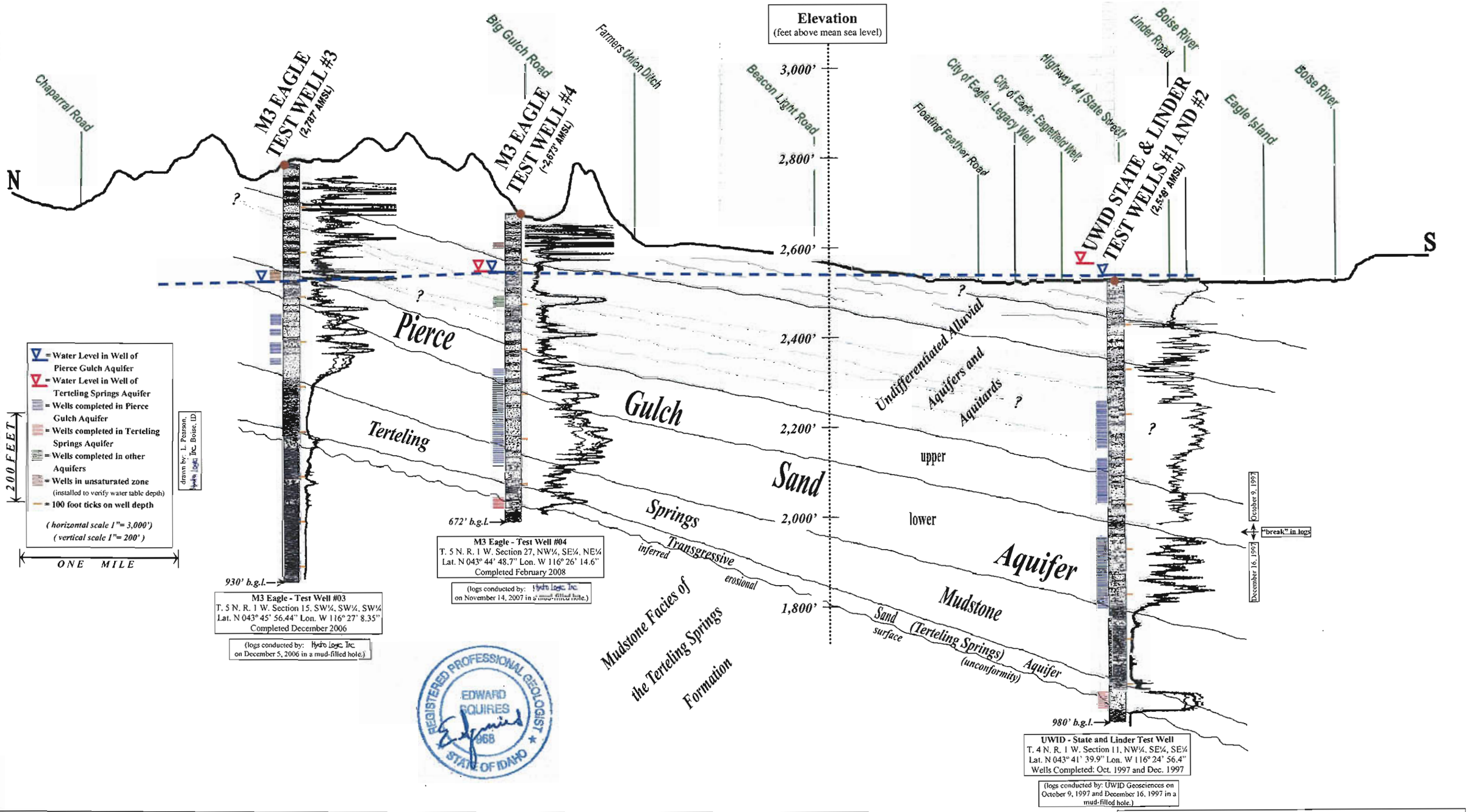


N-to-S Cross-Sectional Sketch of Major Hydro-Stratigraphic Units Beneath SW Portion of Big Gulch. Sub-surface cross-sectional diagram depicting the major hydro-stratigraphic units underlying the southwestern portion of Big Gulch in North Ada County, Idaho (refer to Figure 1 for line of section). The aquifer stratigraphy is interpreted from lithologic logs and borehole geophysical logs of some of the supply and test wells evaluated and relied upon for this study. ©2009 Hydro Logic, Inc. This instrument is the property of Hydro Logic, Inc. Any reproduction, reuse, or modification of this instrument or its contents without the specific written permission of Hydro Logic, Inc. is strictly prohibited.

Figure 4. North-to-South Cross-Sectional Sketch of Major Hydro-Stratigraphic Units Underlying the Southwest portion of Big Gulch

Figure 5. Schematic Cross-Section from Wood and Clemens

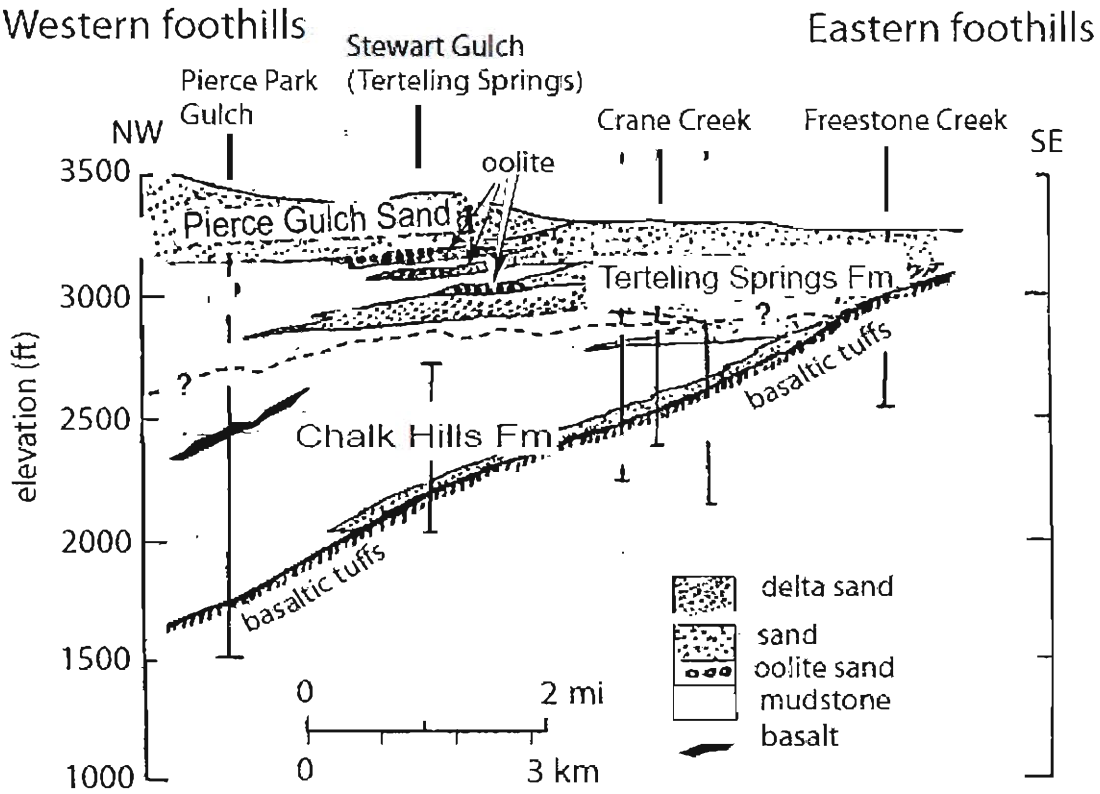


Figure 23. Stratigraphic diagram showing relation of the Chalk Hills Formation with the overlying Terteling Springs Formation and the Pierce Gulch Sand (from Wood and Clemens, 2002).

Figure 6. Stratigraphic Cross-Section from Squires and Wood

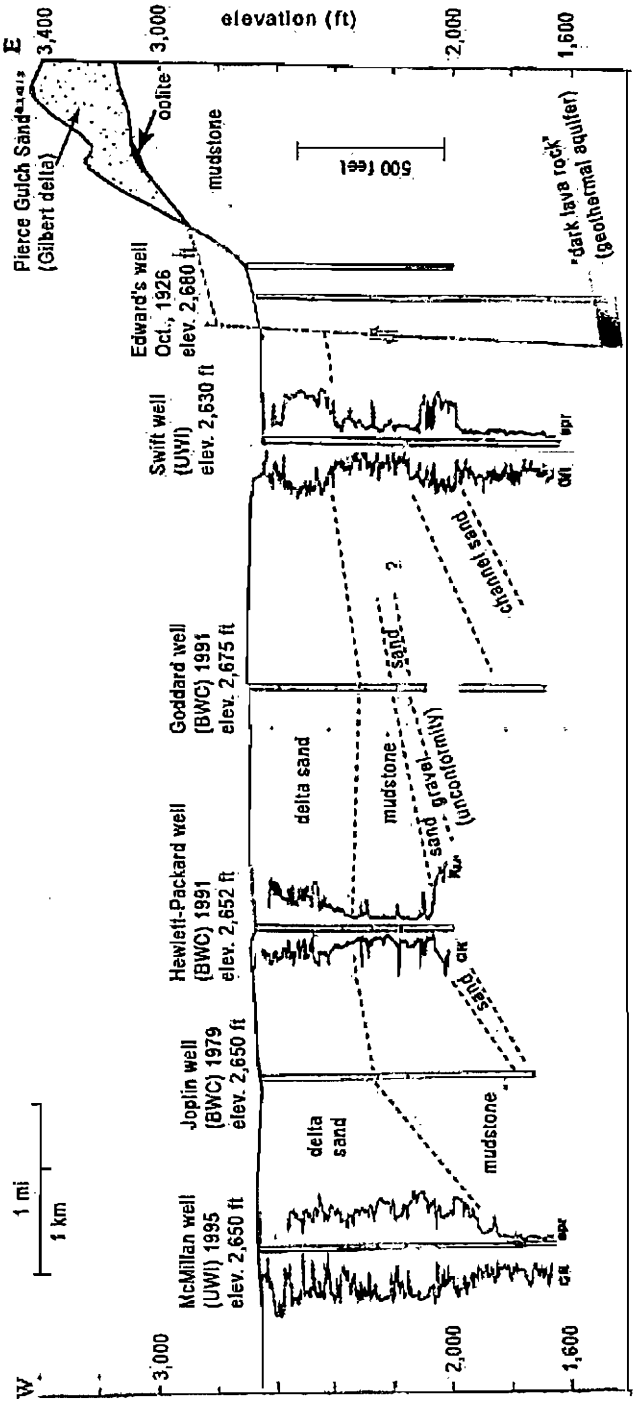


Figure 24. Stratigraphic section and well logs from Polecat Gulch in the foothills to west Boise, showing the Pierce Gulch Sand and equivalent delta facies in the subsurface. Well locations shown in figure 18. GR, natural gamma log; spr, single-point resistance log; and R_{64}, 64-inch normal-resistivity log. Well logs courtesy of United Water Idaho, Inc. (UWI), and its predecessor, Boise Water Company (BWC).

Reproduced from Squires and Wood (2001)

Figure 7. Delta Profiles from Wood

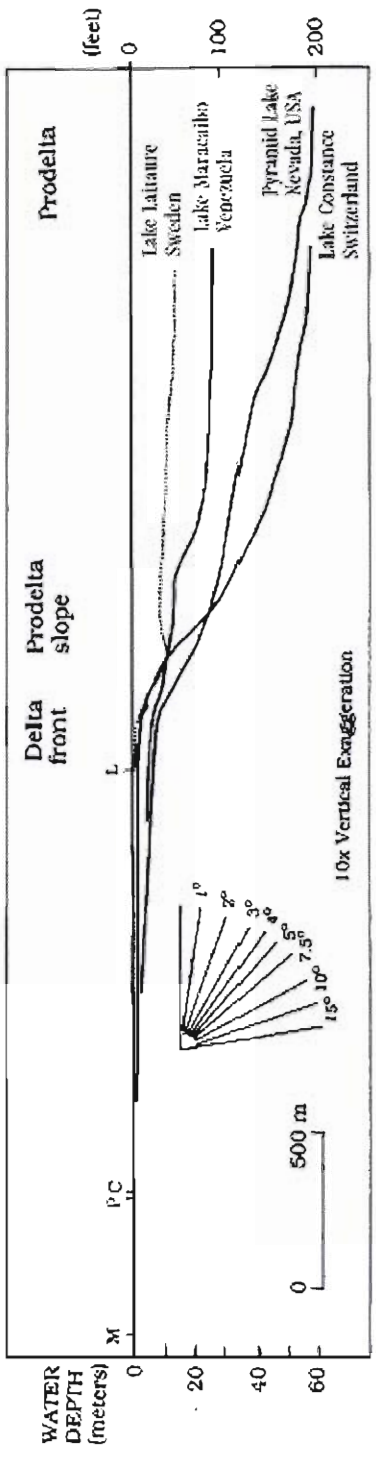


Figure 9—Profiles of modern lacustrine deltas showing the delta front and the prodelta slope. Data sources are Lake Constance (Müller, 1966); Lake Laitaure (Axelsson, 1967); Lake Maracaibo (Hyne et al., 1979); and Pyramid Lake (Born, 1972; Russell, 1885).

Figure reproduced from Wood, 1994

Figure 8. Seismic-Reflection Cross-Section from Wood and Clemens

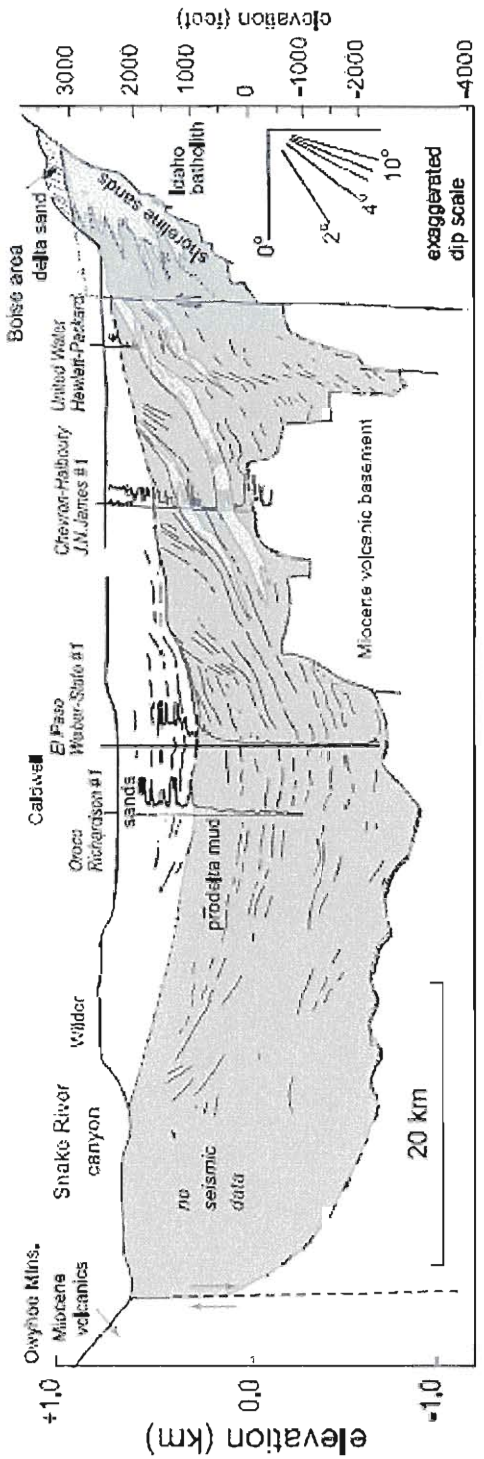


Figure 16. Tracing from seismic reflection section across the western Snake River Plain showing the upper sequence of fluvial-deltaic sediments and character of resistivity logs in wells. Resistivity-log excursions to the right are fresh-water aquifer sands, and the monotonous, near zero, resistivity values are indicative of mudstones. Notice the abrupt change upward from pro-delta muds to the sandy section of the delta systems, delta plain, and fluvial sands in the Caldwell area. Deposition may have been continuous in the center of the plain, but beds appear truncated by erosion to the east, and this surface to the east may be the unconformity at the top of the Chalk Hills Formation. The deltaic deposits in the Richardson well are discussed by Wood (1994). Line of section extends from Terteling Springs in Stewart Gulch shown in Figure 10 westward through the J.N. James well to the Caldwell area shown on Figure 2.

Reproduced from Wood and Clemens, 2002

M3 Eagle - S.V.R Well #7

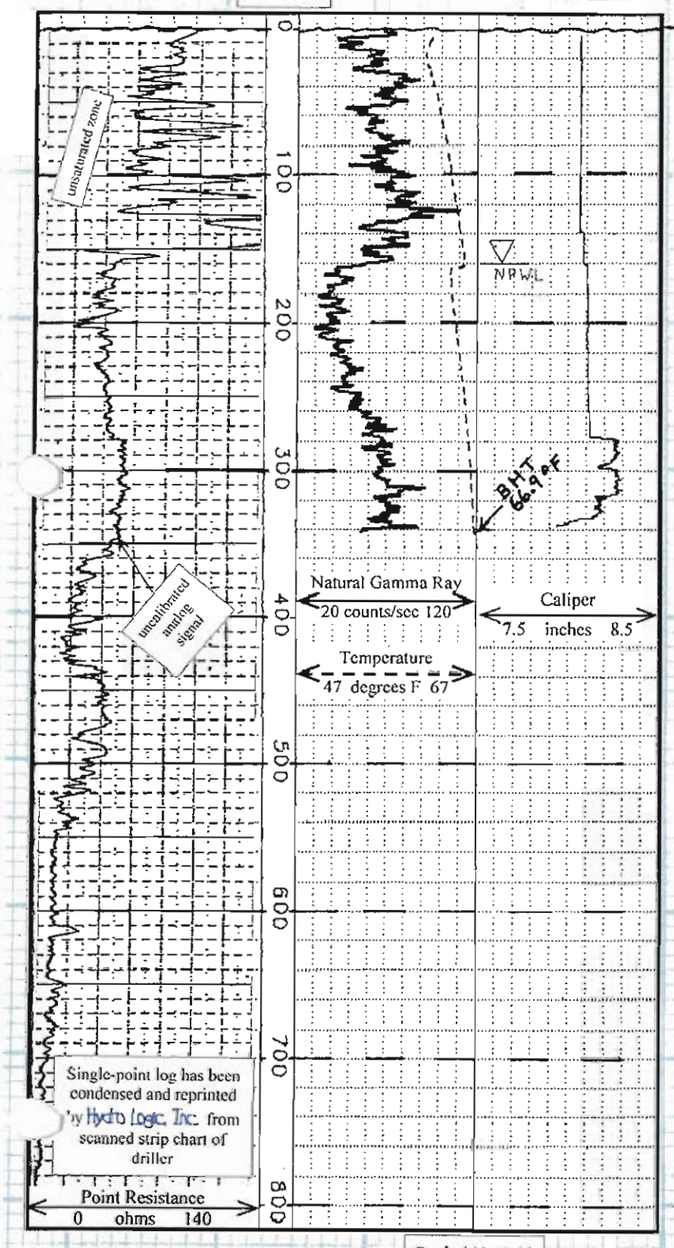
T5N R1W Section 23, NE¼, SW¼
Latitude 43° 45' 18.9" Longitude 116° 25' 29.7"
Completed April 2004

Geophysical Log

(March 2004)
by Stevens and Sons Drilling
in a mud-filled borehole.

Geophysical Logs

(April 27, 2007)
by Hydro Logic, Inc.
in a steel cased well.



Single-point log has been condensed and reprinted by Hydro Logic, Inc. from scanned strip chart of driller

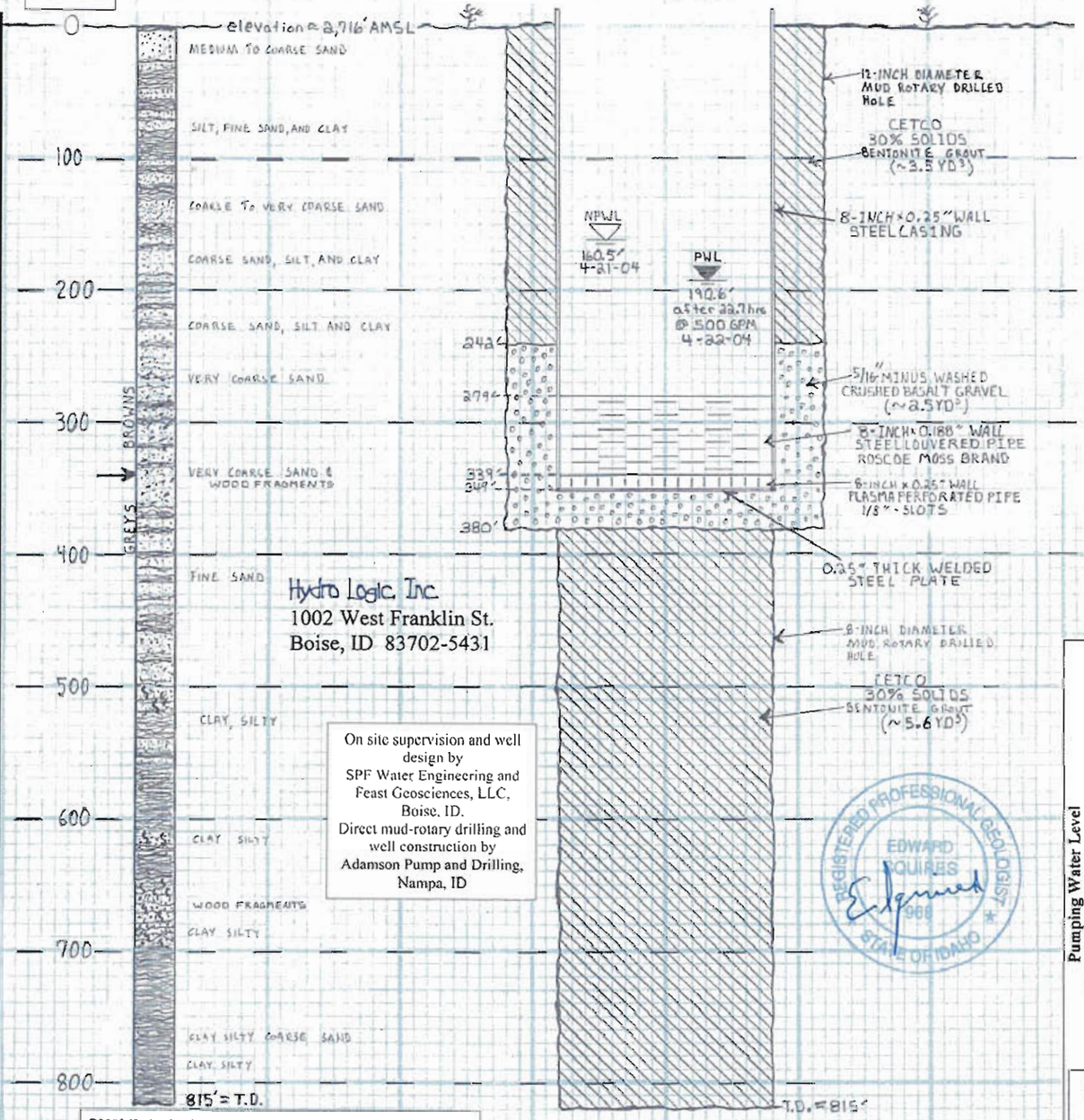
Drafted 02-15-08
by Loren Pearson,
Hydro Logic, Inc.

Lithology

Feast Geosciences lithologic log was developed from drilled cuttings. Lithology has been reinterpreted and readjusted to better fit with geophysical logs by Hydro Logic, Inc.

As-Built Well Construction

(from IDWR Driller's Report and Hydro Logic, Inc. downhole camera survey conducted on August 28, 2007)
(horizontal scale 0.1"=0.5")
(vertical scale 1"=100')



Hydro Logic, Inc.
1002 West Franklin St.
Boise, ID 83702-5431

On site supervision and well design by SPF Water Engineering and Feast Geosciences, LLC, Boise, ID.
Direct mud-rotary drilling and well construction by Adamson Pump and Drilling, Nampa, ID

REGISTERED PROFESSIONAL GEOLOGIST
EDWARD SQUIRES
968
STATE OF IDAHO

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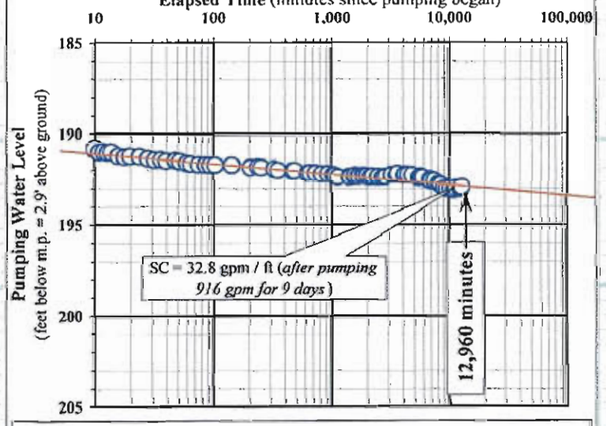
Ground Water Chemistry

Lab Analyses	SPF Water Engineering Results (in mg/L unless noted) SCREENED (279 - 349 feet bgl)	Hydro Logic, Inc. Results (in mg/L unless noted) SCREENED (279 - 349 feet bgl)
Alkalinity		120.0
Ammonia as N	<0.04	0.02
Arsenic	<0.005	0.0037
Calcium as $CaCO_3$	29.1	77.8
Chloride	5	4.42
Conductivity (µS)		305.0
Corrosivity		-0.35
Fluoride	0.44	0.43
Hardness	110	115.0
Iron (dissolved)		0.11
Iron (total)	0.11	0.11
Magnesium	8.19	8.91
Manganese	<0.05	0.02
Nitrate as N	0.31	0.34
Nitrite as N	<0.01	<0.01
Odor		<1
pH		7.63
Potassium	2.0	2.60
Silica		38.9
Sodium	22.9	23.2
Sulfate	24	23.5
Sulfide	<0.05	<0.05
Total Dissolved Solids	212	235.0
Total Kjeldahl Nitrogen		<0.10
Total Organic Carbon		3.36
Field Analyses		
Field Conductivity (µS)	300	382
Field Dissolved Oxygen		+1.37
Field Odor (describe)		minor H_2S
Field O.R.P. (mV)		+55
Field pH (S.U.)	7.00	7.40
Field Temperature (°F)	68.1	67.0
Field Visible Gas (yes or no)		yes

HLI samples collected on March 14, 2008 by Hydro Logic, Inc.
Analyses by Alchem Laboratories, Boise, ID
SPF samples collected on April 21, 2004 by Feast Geosciences.
Analyses by Analytical Laboratories, Boise, ID

Hydraulic Testing - (March 10-19, 2008)



Non-Pumping Water Level = 165.00 feet below m.p. (16:00 hrs on 03/10/2008)
Testing conducted by Hydro Logic, Inc. and McLeran Well Drilling, LLC.
(no barometric or antecedent trend corrections applied to this plot.)

Figure 9.

M3 Eagle - Test Well #1

T. 5 N., R. 1 W., Section 28, SE¼, SE¼
Latitude 43° 44' 12.37" Longitude 116° 27' 26.86"
Well completed September 2006

Figure 10.

Geophysics conducted by: Hydro Logic, Inc. on September 9, 2006 immediately after removal of drill steel

Geophysical Logs

32" Resistivity 0 ohm-meters 150
16" Resistivity 0 ohm-meters 150
8" Resistivity 0 ohm-meters 150
Temperature 50 degrees F 80
Caliper 0 inches 10
NaturalGammaRay 40 counts/sec 180
PointResistance 40 ohms 140

Pierce Gulch Sand Aquifer
Mudstone of the Terteling Springs Formation
Base of Pierce Gulch Sand
B.H.T. 74.9° F AT 790 FT. *HOLE LEFT ON BOTTOM UNTIL TEMPERATURE STABILIZED.

drafted April 23, 2008 by Loren Pearson

Depth
(feet below ground level)

Lithology

Hydro Logic, Inc. lithologic log is interpreted and drawn from geophysical logs and drilled cuttings from the borehole.

GROUND LEVEL
ELEV. = 2,606' AMSL
INTERBEDDED TAN-BROWN MEDIUM-COARSE SANDS AND TACKY CLAYS
GREENISH-GRAY STICKY CLAYS
SAND MEDIUM-COARSE (GRAVEL INFERRED)
GREENISH-BLUISH GRAY TACKY CLAYS
BROWN SAND MEDIUM
OLIVE SAND FINE
INTERBEDDED PALE-OLIVE MEDIUM-COARSE SANDS & TACKY TAN CLAYS
GRAVEL INFERRED BY HLI
GRAVEL INFERRED BY HLI
FINE-MEDIUM GREENISH-GRAY SAND WITH MINOR CLAY LENSES
GREENISH-GRAY TACKY CLAYS
SAND FINE-MEDIUM GRAINED & PARTIALLY CEMENTED
GREENISH-GREY STICKY CLAY
T.D. = 800'

As-Built Well Construction

(horizontal scale 0.1"=1.0")
(vertical scale 1"=100')

STEEL CASING DRIVEN TO 13 FT 8"x0.25" WALL
ALL TEST WELL ZONES DEVELOPED & PUMPED UNTIL CLEAR PRIOR TO SAMPLING.
ALL PIPE AND SCREEN ARE SCH 80 PVC WITH 0.030" SLOTS
ALL GROUTS PUMPED INTO PLACE FROM THE BOTTOM UP THROUGH TREMIE UNDER PRESSURE AND VERIFIED BY TAGGING.

ZONE 5: 97–137
ZONE 4: 353–383
ZONE 3: 395–425
ZONE 2: 467–507
ZONE 1: 514–556

BAROID 3/4 INCH BENTONITE HOLE PLUG (7.5 CU FT)
3.7'
13' (NO DRIVE SHOE)
CAMMEN'S UNION DITCH 75 FT AWAY
CETCO BENTONITE GROUT SEAL (84 GAL)
67'
"BIRDSEED" GRADED FILTER SAND #8-16 (89 GAL)
144'
CETCO BENTONITE GROUT SEAL (204 GAL)
305'
"BIRDSEED" GRADED FILTER SAND #8-16 (175 GAL)
428'
444'
CETCO BENTONITE GROUT SEAL, 32 GAL "BIRDSEED" GRADED FILTER SAND #8-16 (268 GAL)
561'
580'
"BIRDSEED" GRADED FILTER SAND #6-12 (50 GAL)
CETCO BENTONITE GROUT 24-50lb BAGS 408 GALLONS 29% SOLIDS.

Water Levels (11/27/06)
(feet below mp = 3.1 above ground level)

Zone 1 (514-556 feet)	92.23
Zone 2 (467-507 feet)	92.23
Zone 3 (395-425 feet)	95.05
Zone 4 (353-383 feet)	95.63
Zone 5 (97-137 feet)	93.75

REGISTERED PROFESSIONAL GEOLOGIST EDWARD SQUIRES 968 STATE OF IDAHO

On site supervision, well design and water quality sampling by Hydro Logic, Inc., Boise, ID.
Direct mud-rotary drilling and well construction by
Treasure Valley Drilling and Pump, Inc., Weiser, ID
Wells developed by McLeran Well Drilling, LLC, New Plymouth, ID.

Water Chemistry

Analyte (mg/L unless noted)	Zone 1 514-556 feet	Zone 2 467-507 feet
Alkalinity	133.0	125.0
Ammonia as N	0.37	0.06
Arsenic	<0.003	<0.003
Calcium as CaCO3	84.4	85.5
Chloride	3.42	3.22
Conductivity (uS/cm)	302	297.0
Corrosivity	-0.40	-0.44
Fluoride	0.69	0.60
Hardness	111.0	109.0
Iron (dissolved/filtered)	0.23	<0.01
Magnesium	6.50	5.73
Manganese (dissolved)	0.10	0.02
Nitrate as N	<0.10	<0.10
Nitrite as N	<0.01	<0.01
pH (SU)	7.47	7.48
Potassium	2.26	2.21
Silica	31.8	30.7
Sodium	22.1	21.7
Sulfate	17.2	20.7
Sulfide	<0.05	<0.05
Total Dissolved Solids	173 .0	188.0
Total Kjeldahl Nitrogen	0.39	0.13
Total Organic Carbon	<1.0	<1.0
Field Temperature (°F)	67.1	66.0
Field Conductivity (uS)	305	295
Dissolved Oxygen	+1.7	+2.6
Field pH (S.U.)	7.19	7.19

Analyses by Alchem Laboratories, Boise, Idaho.
Zones 1 to 3 sampled 10/09/06. Zones 4 & 5 sampled 10/9/06.
Field measured parameters by Hydro Logic, Inc.

Analyte (mg/L unless noted)	Zone 3 395-425 feet	Zone 4 352-382 feet	Zone 5 98-138 feet
Alkalinity	119.0	114.0	119.0
Ammonia as N	0.04	<0.01	<0.01
Arsenic	<0.003	0.0049	0.0081
Calcium as CaCO3	77.7	81.3	85.9
Chloride	3.57	3.54	4.36
Conductivity (uS/cm)	282.0	285.0	281.0
Corrosivity	-0.50	-0.61	-1.16
Fluoride	0.60	0.50	0.24
Hardness	102.0	105.0	111.0
Iron (dissolved/filtered)	0.01	<0.01	<0.01
Magnesium	5.83	5.85	6.22
Manganese (dissolved)	<0.01	<0.01	<0.01
Nitrate as N	0.30	0.33	2.30
Nitrite as N	<0.01	<0.01	<0.01
pH (SU)	7.84	7.40	6.91
Potassium	2.07	2.10	2.74
Silica	29.5	28.7	38.0
Sodium	21.1	17.9	13.6
Sulfate	21.4	22.3	12.0
Sulfide	<0.05	<0.05	<0.05
Total Dissolved Solids	185.0	203.0	208.0
Total Kjeldahl N	<0.10	<0.10	<0.10
Total Organic Carbon	<1.0	<1.0	<1.0
Field Temperature (°F)	64.7	63.8	57.4
Field Conductivity (uS)	274	268	265
Dissolved Oxygen	+4.9	+2.63	+ 9.51
Field pH (S.U.)	7.27	7.07	6.72

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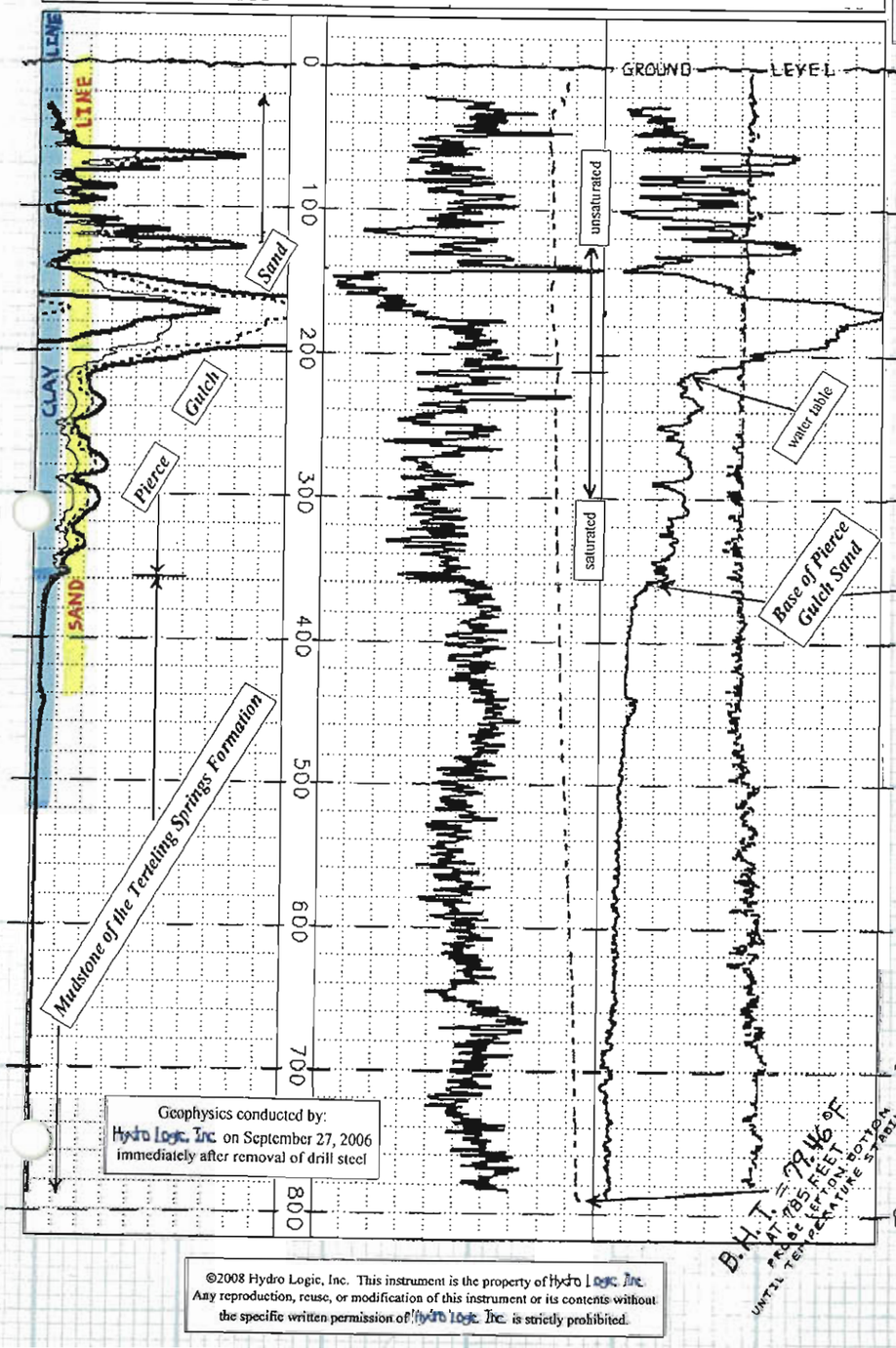
M3 Eagle - Test Well #2

T. 5 N., R. 1 W., Section 23, NE¼, NW¼, NE¼
Latitude 43° 45' 50.63" Longitude 116° 25' 6.58"
Well completed October 2006

Geophysical Logs

8" Resistivity 0 ohm-meters 500
16" Resistivity 0 ohm-meters 500
32" Resistivity 0 ohm-meters 500
NaturalGammaRay 40 counts/sec 140
PointResistance 40 ohms 200
Temperature 30 degreesF 80
Caliper 0 inches 15



Geophysics conducted by: Hydro Logic, Inc. on September 27, 2006 immediately after removal of drill steel

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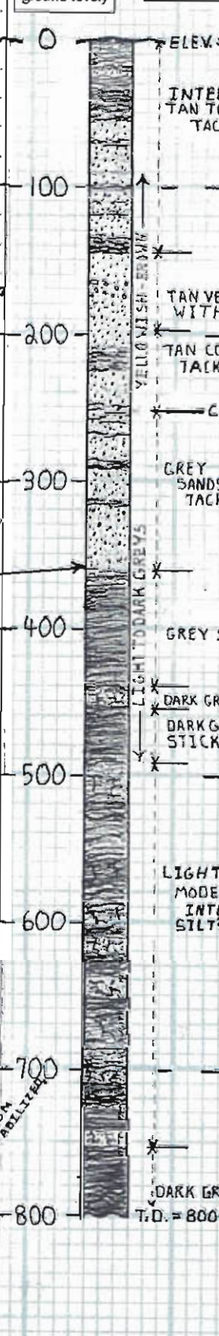
Lithology

Hydro Logic, Inc. lithologic log is interpreted and drawn from geophysical logs and drilled cuttings from the borehole.

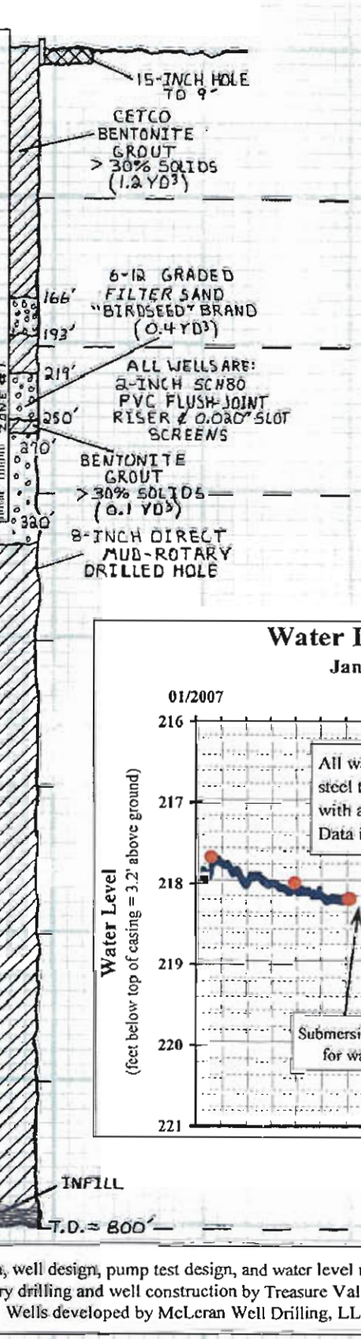
Depth (feet below ground level)



drafted March 2008 by Loren Pearson

As-Built Well Construction

(horizontal scale 0.1"=1.0")
(vertical scale 1"=100')



Water Levels

(feet below measure point = 3.0 feet above ground)

Date / Time (24-hr clock)	ZONE #1 (320 - 270 feet bgl)	ZONE #2 (250 - 230 feet bgl)	ZONE #3 (190 - 180 feet bgl)
10/10/06 13:05	216.87	-	unsaturated zone (installed to confirm water table depth)
11/07/06 12:00	217.23	217.36	
1/18/07 14:27	217.19	217.37	
4/30/07 15:25	216.97	215.76	
6/01/07 12:00	216.17	216.75	
7/24/07 12:30	-	217.11	
7/31/07 13:00	217.58	217.91	
8/30/07 12:20	217.60	217.93	
9/19/07 16:30	215.93	216.26	

Water levels recorded by Hydro Logic, Inc.

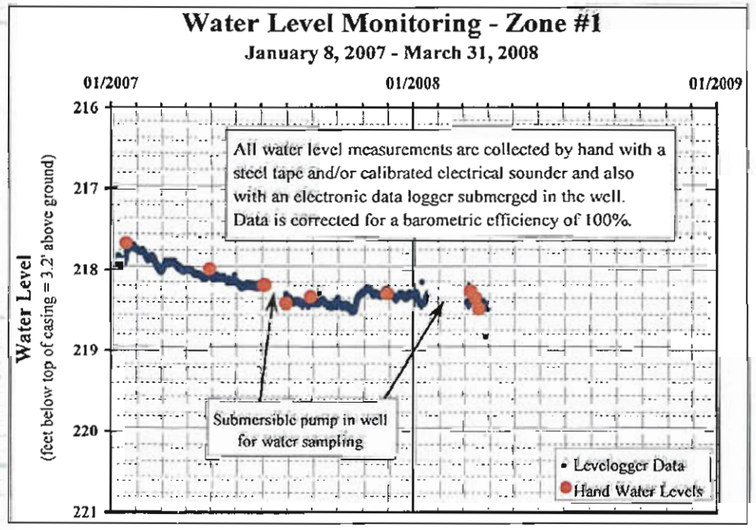


Figure 11.

On site supervision, well design, pump test design, and water level monitoring by Hydro Logic, Inc., Boise, ID.
Direct mud-rotary drilling and well construction by Treasure Valley Drilling and Pump, Inc., Weiser, ID
Wells developed by McLeran Well Drilling, LLC, New Plymouth, ID.

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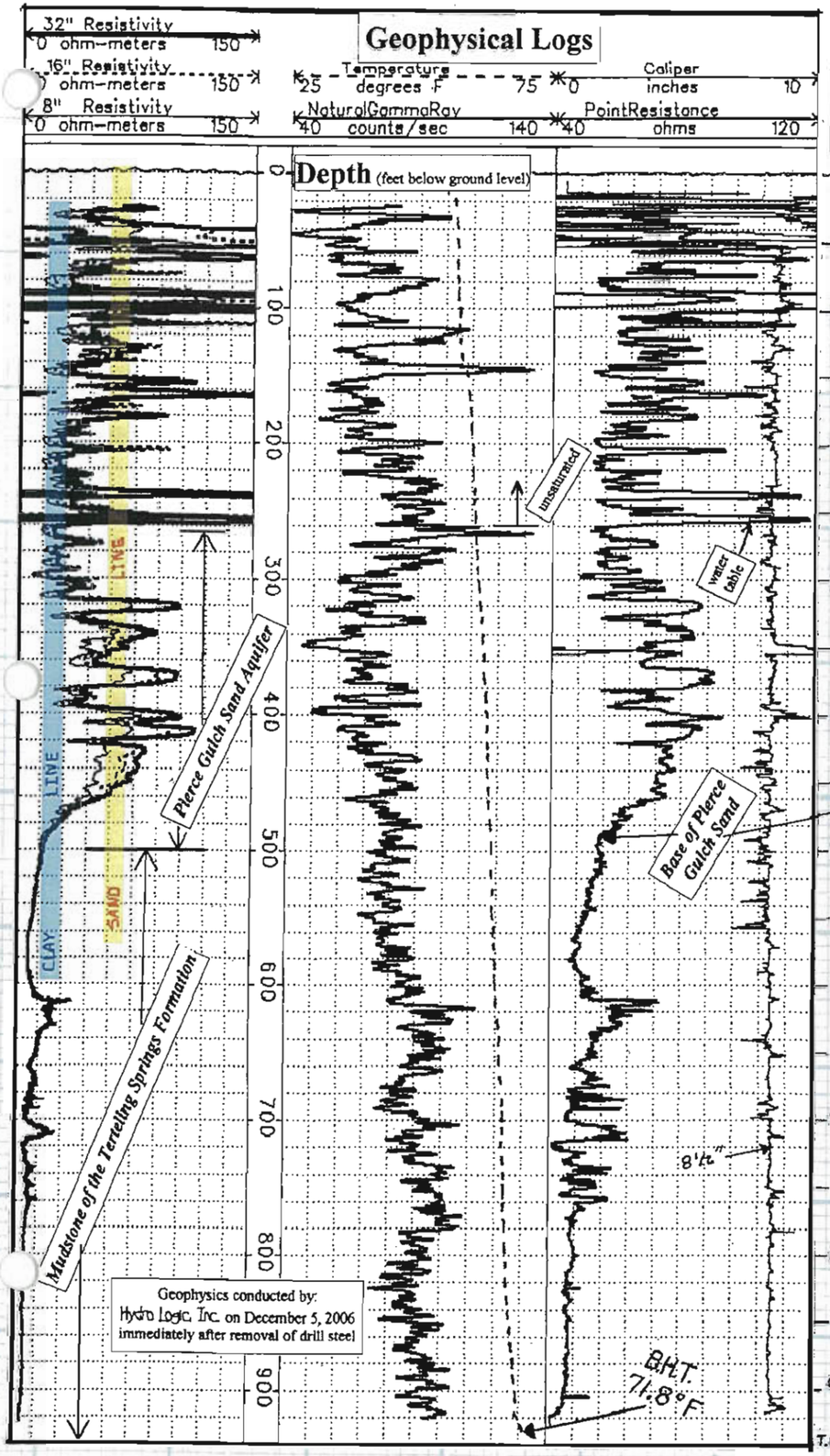
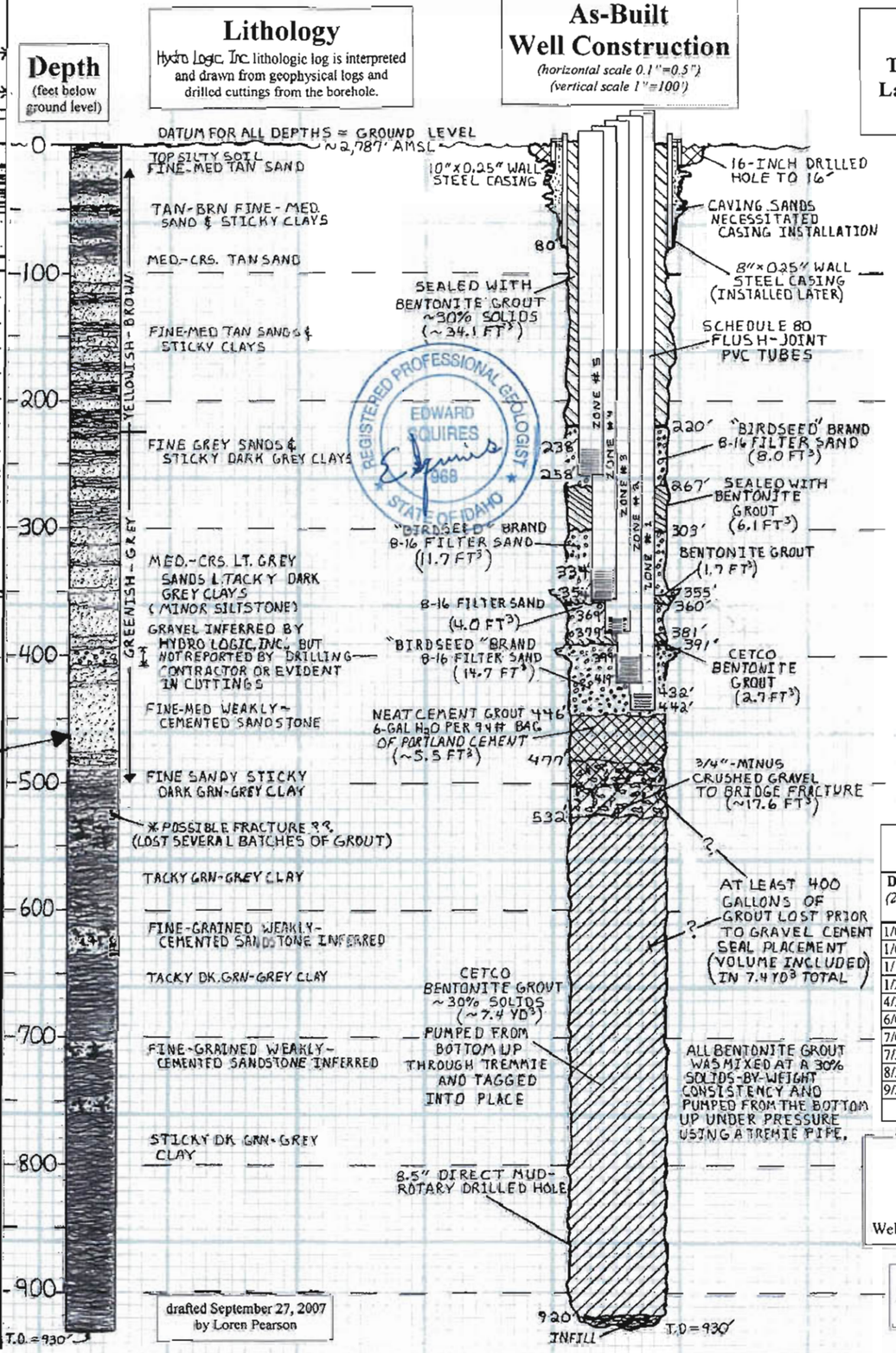
M3 Eagle - Test Well #3

T. 5 N., R. 1 W., Section 15, SW¼, SW¼, SW¼
Latitude 43° 45' 56.44" Longitude 116° 27' 8.35"
Well completed December, 2006

Figure 12.





Ground Water Chemistry

Analysis (in mg/L unless noted)	ZONE #1 (442 - 432 feet bgl)	ZONE #2 (419 - 399 feet bgl)	ZONE #3 (379 - 369 feet bgl)
Alkalinity	136.0	123.0	117.0
Ammonia as N	0.28	0.14	0.05
Arsenic	0.008	0.005	0.009
Calcium as $CaCO_3$	69.8	74.8	86.5
Chloride	5.39	5.31	7.02
Conductivity *(µS)*	316.0	305.0	321.0
Corrosivity	-0.14	-0.46	-0.30
Fluoride	0.51	0.52	0.52
Hardness	98.4	106.0	118.0
Iron *(dissolved)*	0.16	0.09	0.03
Magnesium	6.94	7.48	7.47
Manganese *(dissolved)*	0.07	0.09	0.05
Nitrate as N	0.13	0.13	0.12
Nitrite as N	<0.01	<0.01	<0.01
Orthophosphate	0.477	0.270	0.276
pH - Lab *(S.U.)*	7.90	7.59	7.72
Potassium	2.90	2.54	2.53
Silica	43.5	41.2	35.8
Sodium	30.4	24.3	26.2
Sulfate	22.7	23.9	32.3
Sulfide	< 0.05	< 0.05	< 0.05
Total Dissolved Solids	253	235.0	238.0
Total Kjeldahl Nitrogen	0.35	0.23	0.18
Total Organic Carbon	1.34	< 1.0	< 1.0
Field Conductivity (µS)	*310*	*307*	*321*
Field Dissolved Oxygen	*6.64*	*4.89*	*4.87*
Field O.R.P. (mV)	*+106*	*+6*	*+110*
Field pH (S.U.)	*7.62*	*7.22*	*7.46*
Field Temperature (°F)	*64.2*	*63.2*	*62.2*

Analyses by Alchem Laboratories, Boise, ID
Samples collected on January 30, 2007 by Hydro Logic, Inc.

Water Levels

(feet below measure point = 3.5 feet above ground)

Date / Time (24-hr clock)	ZONE #1 (442 - 432 feet bgl)	ZONE #2 (419 - 399 feet bgl)	ZONE #3 (379 - 369 feet bgl)	ZONE #4 (354 - 334 feet bgl)	ZONE #5 (258 - 238 feet bgl)
1/05/07 13:05	261.42	261.48	261.68	261.79	unsaturated zone (installed to prove water table depth)
1/08/07 17:34	262.28	262.34	262.43	262.62	
1/18/07 10:07	263.30	263.34	263.42	263.60	
1/29/07 09:26	262.22	262.30	262.35	262.54	
4/30/07 11:39	262.62	262.63	262.71	262.90	
6/01/07 09:45	261.85	261.84	261.90	262.09	
7/03/07 09:54	262.34	263.74	263.81	263.99	
7/31/07 10:58	263.85	263.82	263.92	264.07	
8/30/07 10:01	263.93	263.95	263.96	264.18	
9/20/07 16:06	262.15	262.10	262.17	262.35	

Water levels recorded by Hydro Logic, Inc.

On site supervision, well design, pump test design, and water quality sampling by Hydro Logic, Inc., Boise, ID.
Direct mud-rotary drilling and well construction by Treasure Valley Drilling and Pump, Inc., Weiser, ID
Well development by McLeran Well Drilling, LLC, New Plymouth, ID.

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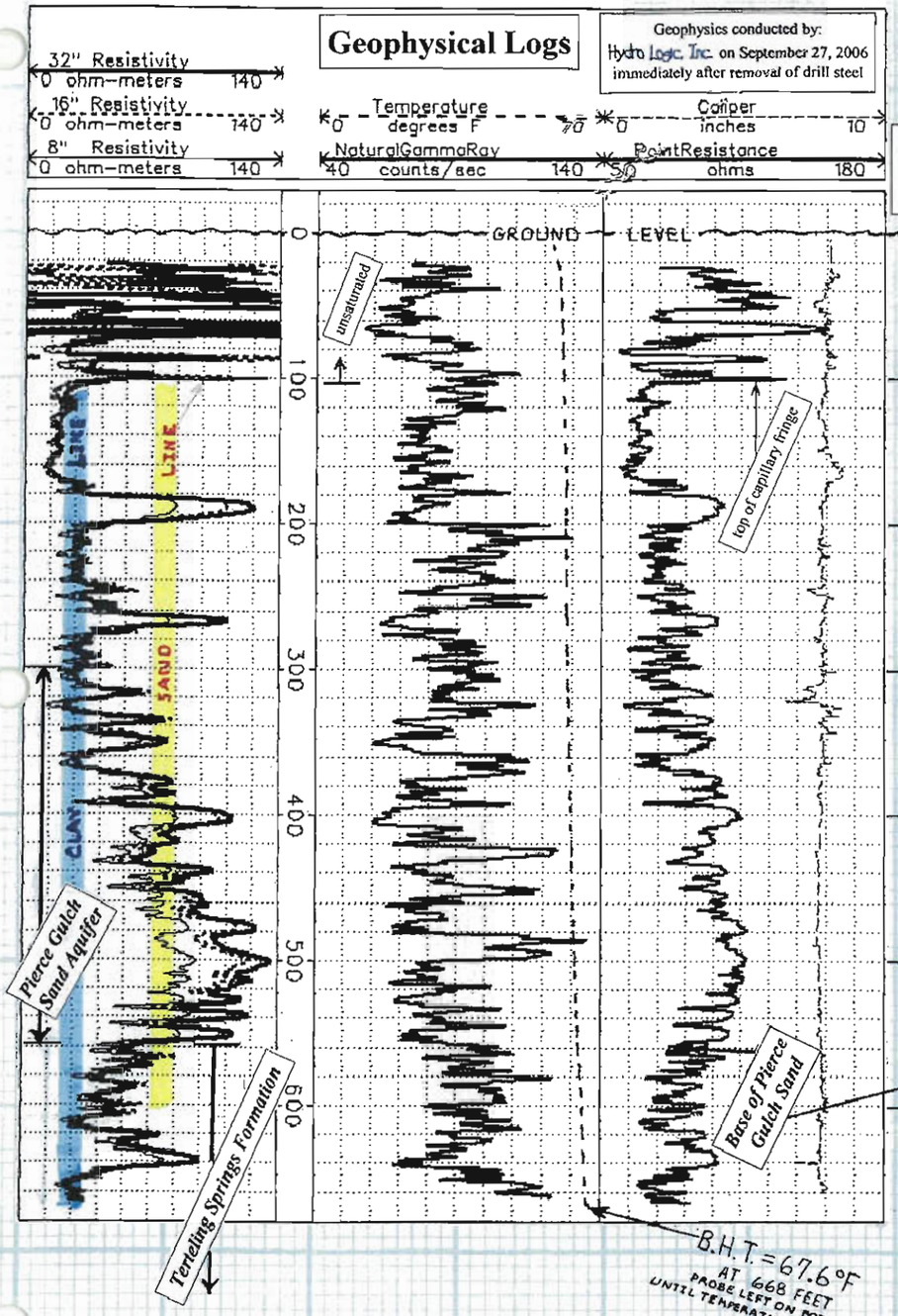
M3 Eagle - Test Well #4

T. 5 N., R. 1 W., Section 27, NW¼, SE¼, NE¼
Latitude 43° 44' 48.7" Longitude 116° 26' 14.6"
Well completed February 2008

Figure 13.

Geophysical Logs

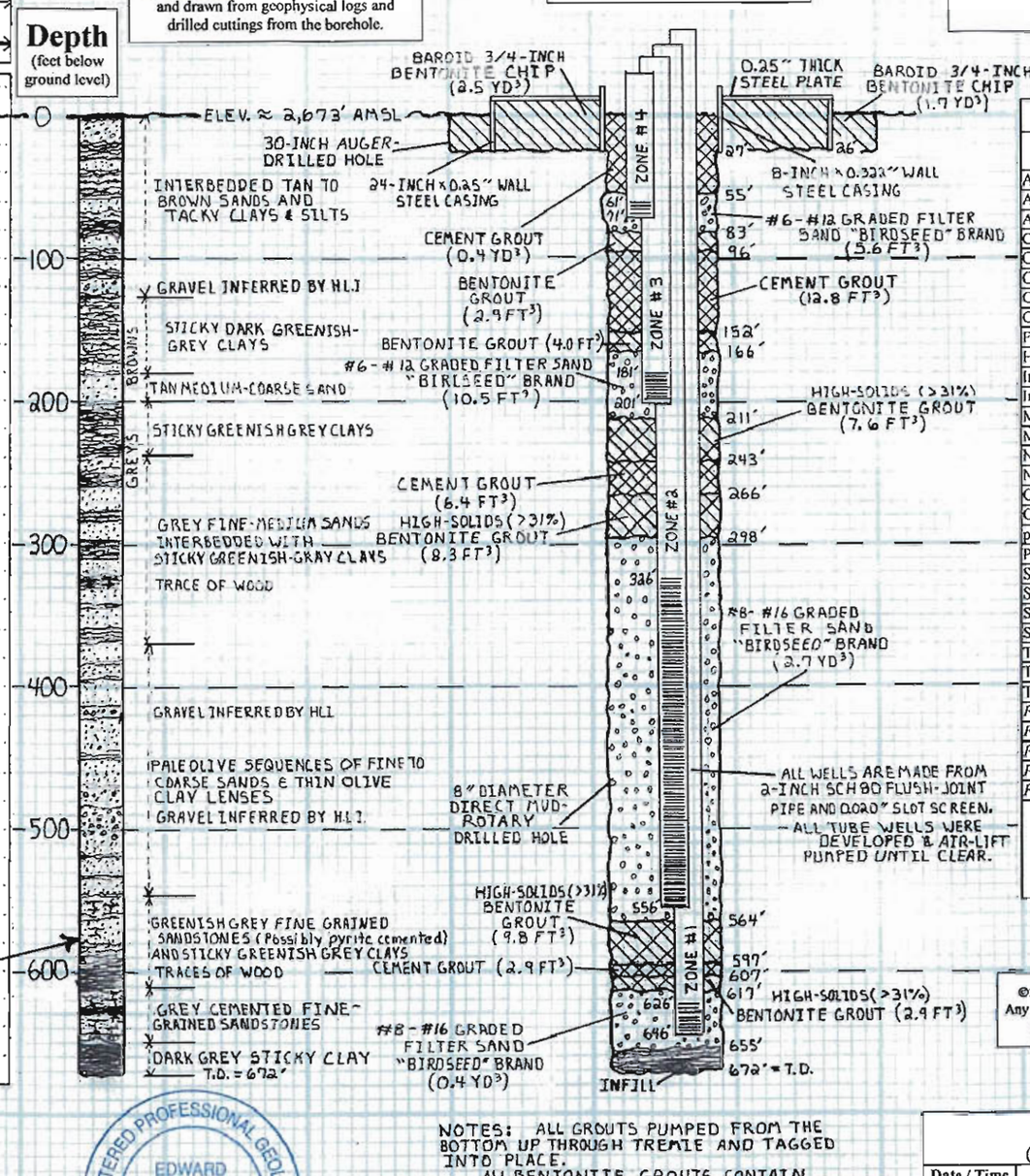
Geophysics conducted by: Hydro Logic, Inc. on September 27, 2006 immediately after removal of drill steel



Lithology

Hydro Logic, Inc. lithologic log is interpreted and drawn from geophysical logs and drilled cuttings from the borehole.

Depth (feet below ground level)



As-Built Well Construction

(horizontal scale 0.1"=1.0")
(vertical scale 1"=100')

Ground Water Chemistry

Analysis *(in mg/L unless noted)*	ZONE #1 *(646 - 626 ft bgl)*	ZONE #2 *(556 - 326 ft bgl)*
Alkalinity	128.0	122.0
Ammonia as N	0.11	<0.01
Arsenic	0.0029	0.0066
Calcium as $CaCO_3$	83.9	81.0
Chloride	4.13	4.57
Color (apparent)	<1	<1
Conductivity *(µS)*	307.0	300.0
Corrosivity	-0.45	-0.46
Fluoride	0.48	0.43
Hardness	118.0	109.0
Iron *(total)*	0.31	0.02
Iron *(dissolved)*	0.27	0.01
Magnesium	8.33	6.81
Manganese *(dissolved)*	0.07	0.01
Nitrate as N	<0.10	0.39
Nitrite as N	<0.01	<0.01
Odor	<1	<1
Orthophosphate	0.104	0.133
pH - Lab *(S.U.)*	7.45	7.52
Potassium	2.52	2.28
Silica	37.2	32.5
Sodium	24.0	25.8
Sulfate	21.2	23.0
Sulfide	<0.05	<0.05
Total Dissolved Solids	225.0	223.0
Total Kjeldahl Nitrogen	0.11	<0.10
Total Organic Carbon	<1.0	1.00
Field Conductivity (µS)	*316 to 333*	*303 to 334*
Field Dissolved Oxygen	*0.09*	*2.26*
Field O.R.P. (mV)	*-122 to -105*	*+99 to +116*
Field pH (S.U.)	*7.48 to 7.64*	*7.53 to 7.70*
Field Temperature (°F)	*68.9*	*64.6*

Water samples and field parameters collected on April 3, 2008 by Hydro Logic, Inc.
Each field parameter (except DO) was acquired with two separate calibrated meters to validate measurements.
Analyses by Alchem Laboratories, Inc., Boise, ID

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On site supervision, well design, pump test design, and water quality sampling by Hydro Logic, Inc., Boise, ID.
Direct mud-rotary drilling and well construction by Treasure Valley Drilling and Pump, Inc., Weiser, ID
Well development by McLeran Well Drilling, LLC, Fruitland, ID

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EDWARD SQUIRES
968
STATE OF IDAHO

NOTES: ALL GROUTS PUMPED FROM THE BOTTOM UP THROUGH TREMIE AND TAGGED INTO PLACE.
ALL BENTONITE GROUTS CONTAIN GREATER THAN 31% SOLIDS BY WEIGHT.
ALL CEMENT GROUTS WERE MADE WITH 6 GALLONS OF WATER MIXED WITH 94 POUNDS OF PORTLAND CEMENT.

drafted March 2008 by Loren Pearson

Water Levels

(feet below measure point = 3.5 feet above ground)

Date / Time *(24-hr clock)*	ZONE #1 *(646 - 626 ft bgl)*	ZONE #2 *(556 - 326 ft bgl)*	ZONE #3 *(201 - 181 ft bgl)*	ZONE #4 *(61 - 71 ft bgl)*
3/07/08 18:31	130.25	130.72	134.76	unsaturated zone (installed to confirm vadose zone)
3/14/08 17:12	130.25	130.73	134.20	
3/20/08 12:27	130.32	130.79	134.49	
3/22/08 18:12	130.43	130.92	134.74	
3/31/08 14:51	130.11	130.60	134.56	

Water levels recorded by Hydro Logic, Inc.

M3 Eagle - S.V.R. Well #9

T.5.N R.1E. Section 19, SW¼, NE¼
Latitude N43° 45' 33.3" Longitude W116° 22' 52.1"
Completed June 2004

Figure 14.

Geophysical Log
(June 2004)
by Stevens and Sons Drilling in a mud-filled borehole.

Single-point log has been condensed and reprinted by Hydro Logic, Inc. from scanned pen and ink strip chart of driller.

0 single-point resistance 100

unsaturated zone

water table

Pierce Gulch Sand Aquifer

CLAY LINE

SAND LINE

uncalibrated, poor quality, analog signal

Tertiling Springs Formation

*BHT = 93°F @ 810 FEET

Lithology
Feast Geosciences lithologic log was developed from drilled cuttings. Lithology has been reinterpreted and readjusted below 120 feet to better fit with HLI's interpretation of the geology and the geophysical log.

Depth (feet b.g.l.)

0 — ELEV. = 2,753' AMSL = GROUND LEVEL

INTERBEDDED COARSE-GRAINED BROWN SANDS & TAN-TO-LIGHT GREY TACKY CLAYS

100 — BROWN FINE-TO-COARSE GRAINED SAND WITH CLAY LENSES

200 — REDDISH-BROWN ARKOSIC MEDIUM-COARSE SAND

BROWNS

LIGHT BROWN FINE-TO-COARSE GRAINED SANDS, CLAY LENSES, & ABUNDANT WOOD FRAGMENTS IN LOWER PORTION

GREYS

300 — LIGHT BROWNISH-GREY FINE-TO-COARSE GRAINED SANDS WITH MINOR CLAY BEDS & ABUNDANT WOOD FRAGMENTS IN UPPER PORTION

400 — MEDIUM-GREY SILTY TACKY CLAY WITH SOME FINE GRAINED SAND

500 — STICKY MEDIUM-GRAY CLAY

600 — HARD STICKY MEDIUM-GRAY CLAY

(HARD SHALE NOTED BY DRILLER ON IDWR DRILLERS REPORT:
• 530 - 531 FEET
• 780 - 781 FEET

700

800 — 810' = T.D.

Data presented was compiled and plotted by Hydro Logic, Inc. from available data of others. HLI was not involved with the drilling project.

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* SPF report of 10-13-2004 states:
"The driller measured the bottom-hole temperature (at 810 feet below ground surface) by running a bit to the bottom of the borehole, then pulling up and measuring the temperature of a chunk of clay attached to the bit. He recorded a temperature of 93°F in the clay. The actual temperature of the clay is probably higher (but cooled as the bit was retracted to ground surface)."

As-Built Well Construction
(horizontal scale 0.1"=1.0")
(vertical scale 1"=100')

Depth (feet b.g.l.)

GROUND LEVEL — 0

BENTONITE CHIP (~14 FT³)
(From undocumented source. Presumed to be from Teague pits in Adrian, Oregon.

8"×0.250" WALL STEEL CASING

BENTONITE GROUT (~1.5 YD³)
(From undocumented source. Presumed to be from Teague pits in Adrian, Oregon.

12-INCH DIRECT MUD-ROTARY DRILLED HOLE

100

3/10/08 NPWL 195.3' 207'

PWL 6/23/04 AT 43GPM FOR 3 HOURS

200

#8-#12 GRADED COLORADO SILICA FILTER SAND (~1.5 YD³)

6-INCH STAINLESS STEEL 0.030" SLOT WIRE-WRAP SCREENS (233 FT-243 FT, 253 FT-263 FT)

6"×0.250" WALL STEEL PIPE (243 FT-253 FT)

300

400

BENTONITE GROUT (~6.2 YD³)
(From undocumented source. Presumed to be from Teague pits in Adrian, Oregon.

500

8-INCH DIRECT MUD-ROTARY DRILLED HOLE

600

Drafted June '08 by Loren Pearson, Hydro Logic, Inc.

700

810' = T.D.

800

On site supervision and well design by:
SPF Water Engineering and Feast Geosciences, LLC, Boise, ID.
Direct mud-rotary drilling and well construction by:
Stevens and Son Drilling Co., Nampa, ID

Ground Water Chemistry

Lab Analyses (note: all samples with 0.45µm filter prior to analysis except sulfide)	SPF Water Engineering Results (in mg/L unless noted) SCREENED (235 - 263 feet bgl)
Ammonia as N	0.10
Antimony	<0.005
Arsenic	<0.005
Barium	0.10
Beryllium	<0.0005
Bicarbonate	107
Cadmium	<0.0005
Calcium as $CaCO_3$	24.9
Chloride	10
Chromium	<0.002
Conductivity (µS)	336
Fluoride	0.45
Hardness	102
Iron (dissolved)	0.60
Magnesium	10.4
Manganese	0.12
Mercury	<0.0002
Nickel	<0.02
Nitrate as N	<0.2
Nitrite as N	<0.01
pH (S.U.)	2.5
Potassium	2.0
Selenium	<0.005
Sodium	26.9
Sulfate	44
Sulfide (*unfiltered*)	<0.05
Thallium	<0.002
Total Dissolved Solids	216
Field Analyses	
Field Temperature (°F)	68

SPF samples collected on June 23, 2004 by Feast Geosciences.
Analyses by Analytical Laboratories, Boise, ID

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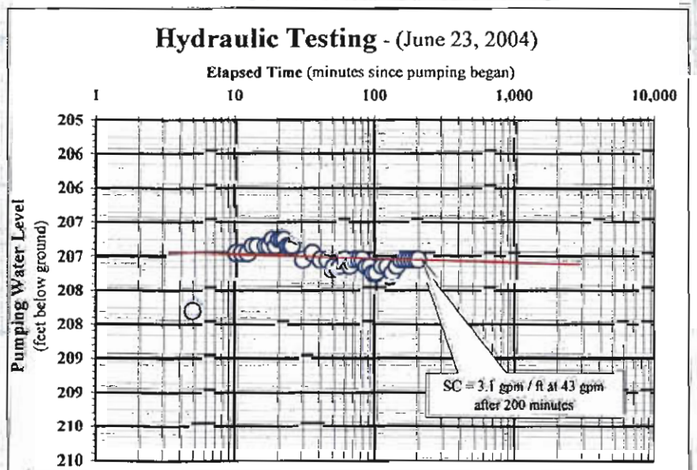
Hydraulic Testing - (June 23, 2004)



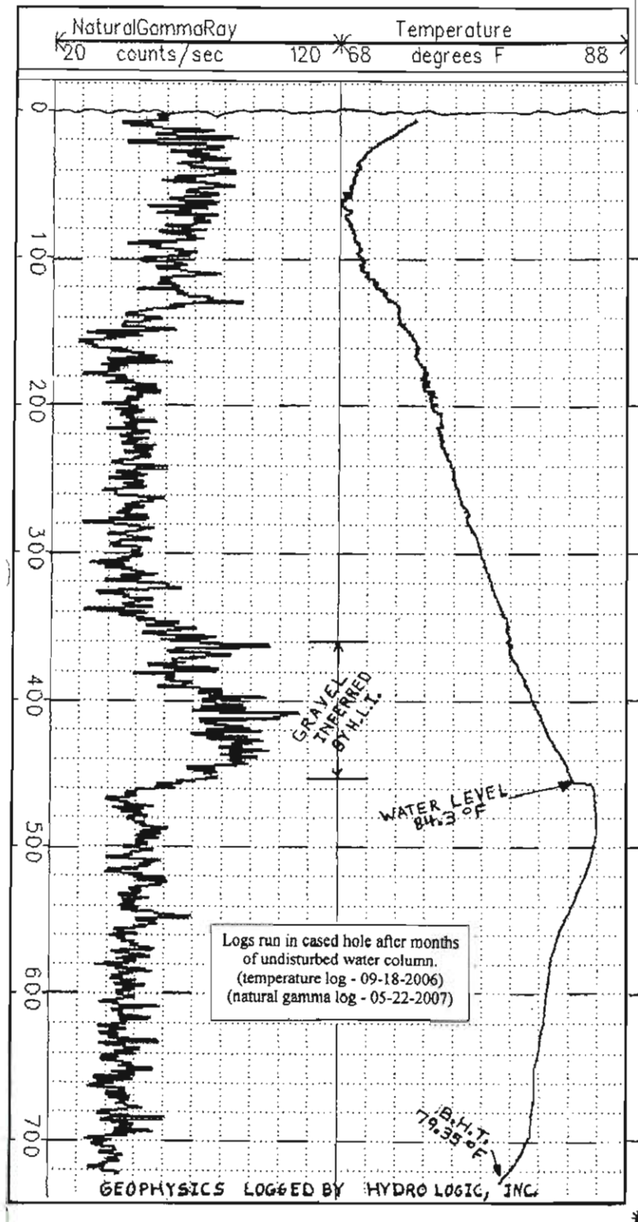
Non-Pumping Water Level = 193.3 feet below ground (09:10 hrs on 06/23/04)
Test conducted by Feast Geosciences and Stevens and Son Drilling Co.
Well was developed by pumping and surging according to SPF report.
Plotted by Hydro Logic, Inc.

M3 Eagle - S.V.R. Well #6

T5N R1W Section 13, SE¼, SE¼, NW¼
Latitude 43° 46' 19.8" Longitude 116° 24' 16.3"
Completed February 2004

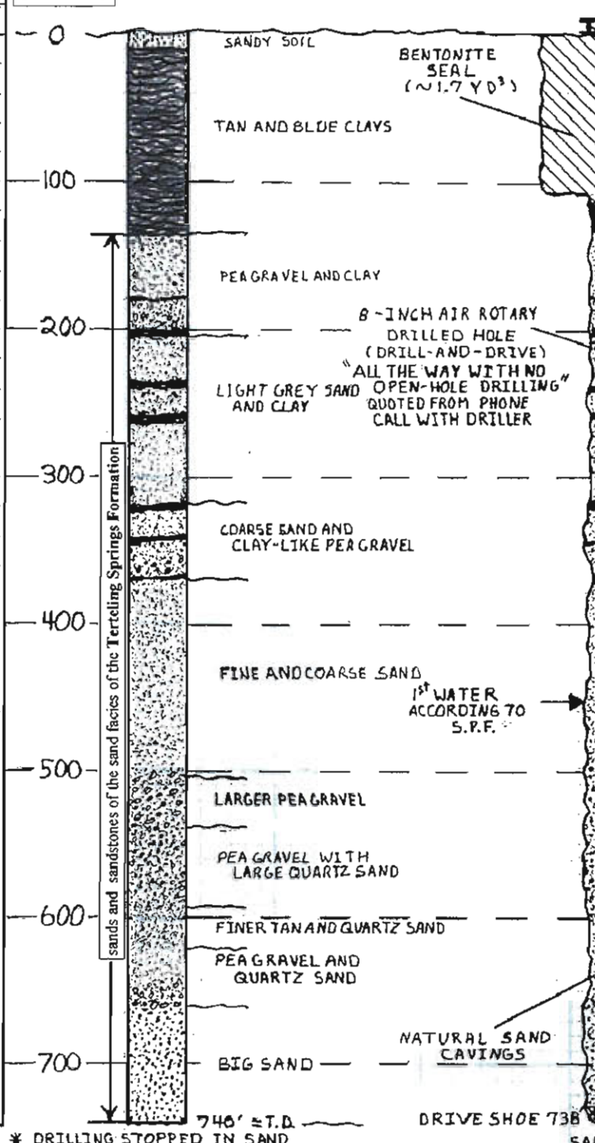
Figure 15.

Geophysical Logs

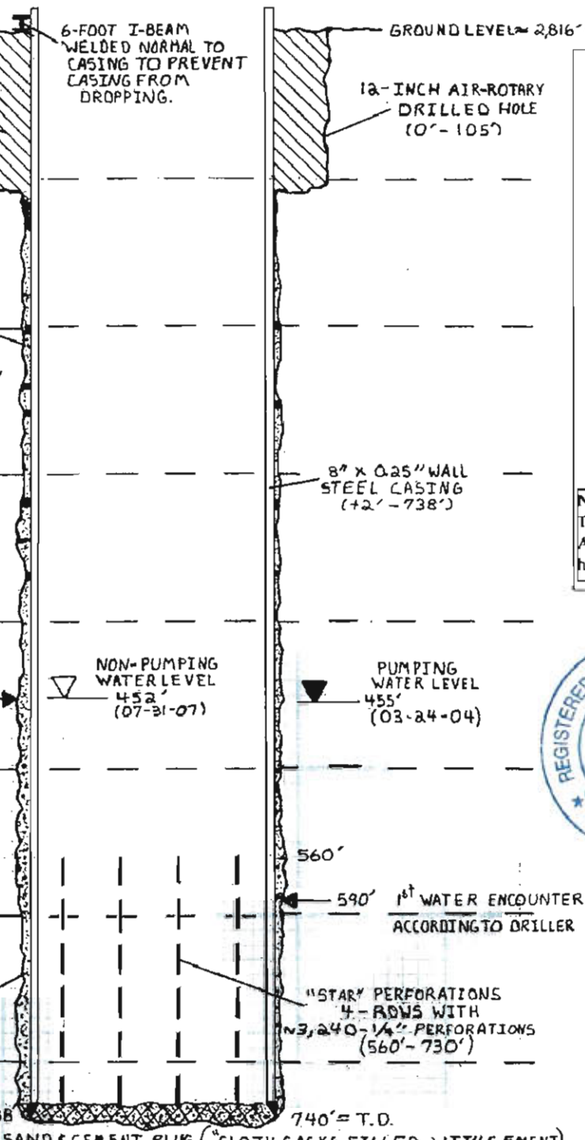


Depth
(feet below ground level)

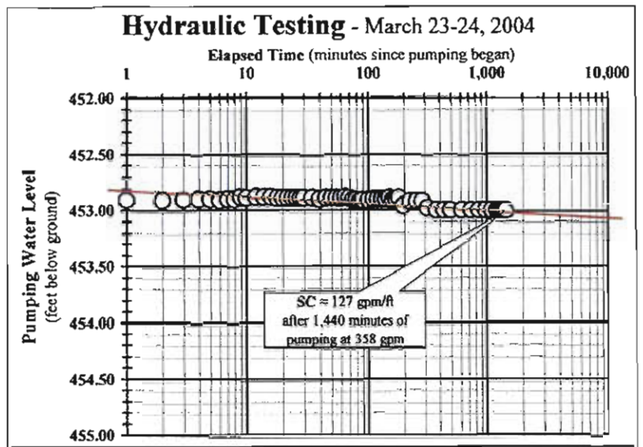
Driller's Lithology
(from IDWR well log)



As-Built Well Construction
(horizontal scale 0.1"=0.5")
(vertical scale 1"=100')



Hydraulic Testing - March 23-24, 2004



Non-Pumping Water Level = 450.18 feet below ground (11:45 hrs on 03/23/04)
Test conducted by SPF Water Engineering, LLC and Adamson Pump & Drilling Co.
According to the driller, the well was not developed prior to pumping and is believed (HLI) to have been developing during the short-term test, imparting some uncertainty into the results.

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Ground Water Chemistry

Lab Analyses	SPF Water Engineering Results (in mg/L unless noted) SCREENED (560 -730 feet bgl)
Alkalinity	58.8
Ammonia as N	0.13
Arsenic	0.067
Calcium as $CaCO_3$	9.71
Chloride	5
Conductivity (uS)	
Corrosivity	
Fluoride	0.95
Hardness	<5.0
Iron (total)	0.09
Magnesium	0.69
Manganese	<0.05
Nitrate as N	1.09
Nitrite as N	0.02
pH	
Potassium	1.5
Sodium	27.8
Sulfate	13
Sulfide	<0.05
Total Dissolved Solids	98
Field Analyses	
Field Conductivity (µS)	189.9
Field pH (S.U.)	7.67
Field Temperature (°F)	81.1

Water samples and field parameters collected on March 16, 2004 by SPF Water Engineering.
Analyses by Analytical Laboratories, Boise, ID.

Well design, pump test design, and water quality sampling by SPF Water Engineering, LLC, Boise, ID
Air-rotary drilling, well construction, and pump testing by Adamson Pump & Drilling Co., Nampa, ID

Data compiled and plotted by Hydro Logic, Inc. from available data of others with the exception of the geophysical logs and a video inspection run in the completed well. HLI was not involved with the drilling project.

drafted August 15, 2007
by Loren Pearson,
Hydro Logic, Inc.

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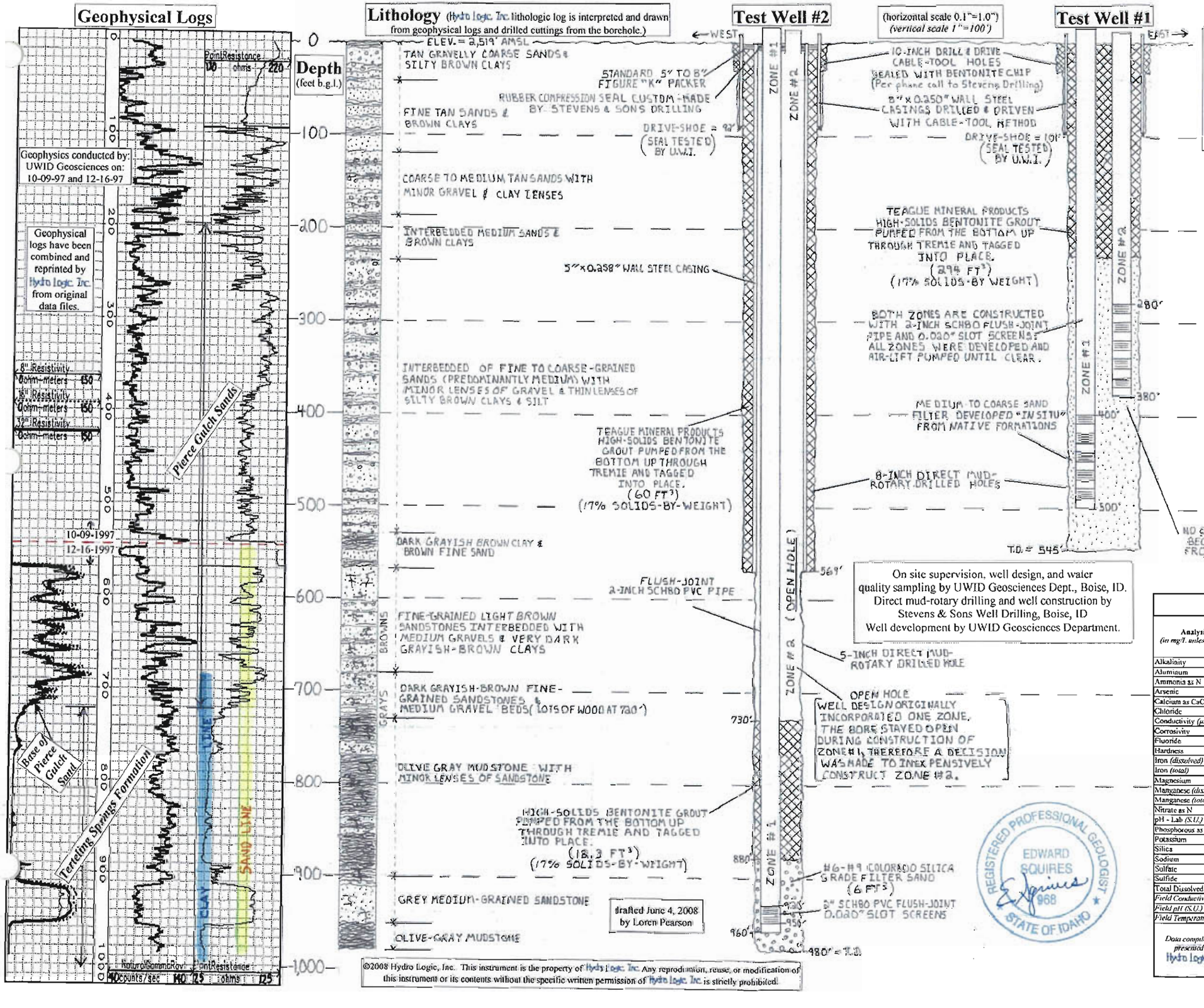
UWID State and Linder Test Wells #1 and #2

T. 5 N., R. 1 W., Section 15, NE¼, SE¼, SE¼
Latitude 43° 41' 39.9" Longitude 116° 24' 56.4"
Wells completed: Oct. 1997 and Dec. 1997

Figure 16.



Water Levels

(feet above ground level)

Date / Time (24-hr clock)	Test Well #1 ZONE #1 (490 - 400 feet bgl)	Test Well #1 ZONE #2 (370 - 280 feet bgl)	Test Well #2 ZONE #1 (950 - 920 feet bgl)	Test Well #2 ZONE #2 (730 - 569 feet bgl)
03/06/2007 14:54	14.07	13.96	39.67	13.84
04/30/2007 10:48	12.69	12.92	38.06	13.26
06/01/2007 08:45	11.53	11.76	36.90	12.22
07/03/2007 08:53	11.55	11.55	36.50	11.55
07/31/2007 09:46	10.40	10.40	36.50	11.55
08/30/2007 09:10	12.94	12.94	37.89	12.94
09/20/2007 17:23	12.00	12.00	37.42	12.00
11/28/2007 11:48	14.32	14.32	40.19	14.32
01/24/2008 11:42	14.09	13.86	39.73	14.78
03/04/2008 17:17	14.78	14.78	39.50	15.02
03/31/2008 11:55	14.32	14.32	38.81	14.32
05/09/2008 10:07	12.01	12.01	36.96	12.47

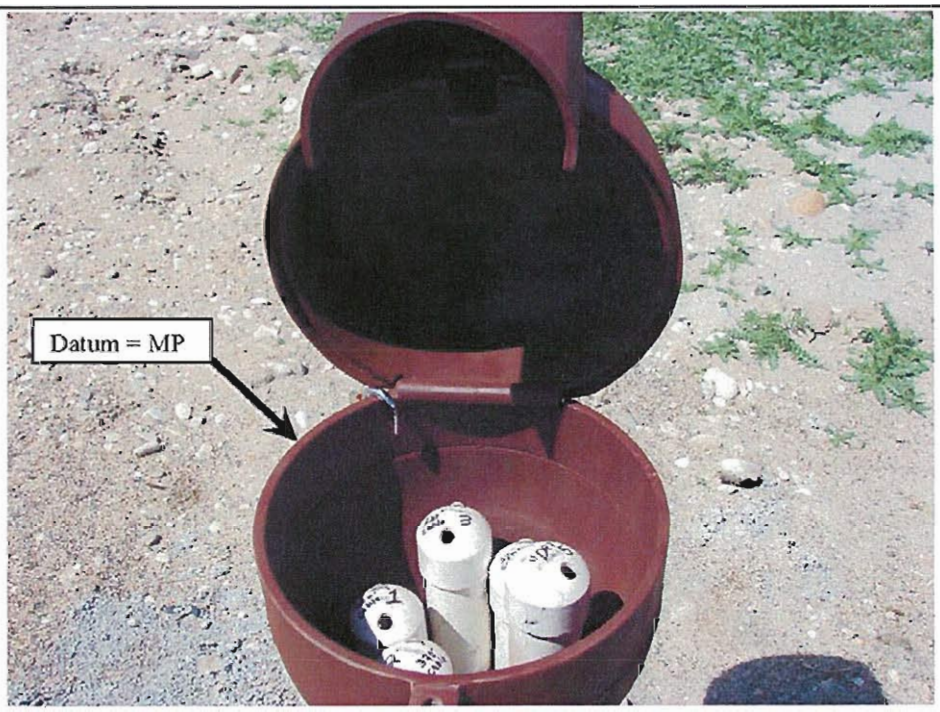
Water levels recorded by: Hydro Logic, Inc.

Ground Water Chemistry

Analysis (in mg/l, unless noticed)	Test Well #1 ZONE #1 (490 - 400 feet bgl)		Test Well #1 ZONE #2 (370 - 280 feet bgl)		Test Well #2 ZONE #1 (950 - 920 feet bgl)		Test Well #2 ZONE #2 (730 - 569 feet bgl)	
	Alchem	Analytical	Alchem	Analytical	Alchem	Analytical	Alchem	Analytical
Alkalinity	97.5	99.7	89.7	93.3	100.0	105	179.0	191.0
Aluminum						0.54		0.18
Ammonia as N		<0.04		<0.04		7.02		6.05
Arsenic		0.003		<0.003		0.005		0.004
Calcium as $CaCO_3$	27.3	28.3	25.2	25.6	24.7	24.5	24.0	23.6
Chloride	2.52	4	3.13	3	2.47	3	5.73	6
Conductivity (µS)	231.0	234	213.0	214	231.0	220	365.0	343
Corrosivity		-1.2		-1.2	-0.84	-1.5	-0.25	-0.4
Fluoride	0.34	0.52	0.38	0.52	0.48	0.48	0.29	0.31
Hardness	89.2	86.9	81.8	78.9	82.2	83.5	79.7	78.5
Iron (dissolved)	<0.01	<0.05	<0.01	<0.05	0.38	0.32	0.17	0.14
Iron (total)	<0.01	<0.05	<0.01	<0.05	2.04	0.86 (0.23)	0.18	0.14 (28.6)
Magnesium	5.10	4.97	4.60	4.32	4.99	5.20	4.82	4.79
Manganese (dissolved)	<0.01	<0.05	<0.01	<0.05	0.02	<0.05	0.11	0.10
Manganese (total)	<0.01	<0.05	<0.01	<0.05	0.05	<0.05 (0.10)	0.11	0.10 (0.26)
Nitrate as N	0.12	0.18	<0.10	0.12	<0.10	0.11	<0.10	<0.10
pH - Lab (S.U.)	7.00	6.9	7.05	7.0	7.35	7.6	7.60	8.0
Phosphorous as P (total)	0.05	0.07	0.04	<0.05	0.14	0.05	0.13	0.14
Potassium	1.74	1.67	1.47	1.56	1.70	1.67	4.83	4.06
Silica	42.2	14.7	42.6	14.4	33.4	30.9	67.8	59.5
Sodium	15.0	16.6	13.6	15.0	15.5	15.8	38.8	35.5
Sulfate	16.6	17	14.9	14	15.1	16	<0.50	<1
Sulfide	<0.05		<0.05		<0.05		<0.05	
Total Dissolved Solids	98.0	94	128.0	82	148.0	144	235.0	204
Field Conductivity (µS)	*255*		*224*		*345*		*242*	
Field pH (S.U.)	*6.80*		*6.92*		*7.60*		*6.7*	
Field Temperature (°F)	*60.0*		*59.5*		*72.4*		*62.0*	
Data compiled and presented by: Hydro Logic, Inc	Water samples and field parameters collected on 10-27-97 and 08-28-00 by UWID Geosciences Department. Analyses by Alchem Laboratories, Boise, ID				Water samples and field parameters collected on 02-16-98 and 08-28-00 by UWID Geosciences Department. Analyses by Alchem Laboratories, Boise, ID *Note: entries that show x.xx (x.xx) are retests of the same analyte in Aug. 2000.*			

Figure 17. Well Development, Wellhead Shelter, and Small-Diameter Wells within a Single Borehole

May, 2007 site photograph of McLeran Well Drilling conducting well development of five 2-inch tube wells of the M3 Eagle Test Well #1 prior to sampling and water level monitoring. Air-lift pumping, in concert with swab-surge development with mud-dispersant is employed until pumped water is clear, sand-free, and field-measured geochemistry parameters are stabilized. All tubes equipped with digital pressure-transducer/data-loggers for aquifer test.



Open lockable well head security shelter and piezometer tubes extending to five separate depths of the aquifer system. M3 Eagle Test Well #1. Drilled holes accommodate well tape.

Figure 18. Pump and Motor Assembly used in the SVR #7 Test

"Shoehorning" a set of 8-inch diameter pump bowls into the 8-inch diameter steel cased SVR#7 Test Well with 133 HP motor, power cable and two 1-inch PVC monitoring tubes on 5-inch drop pipe for SVR#7 aquifer test.

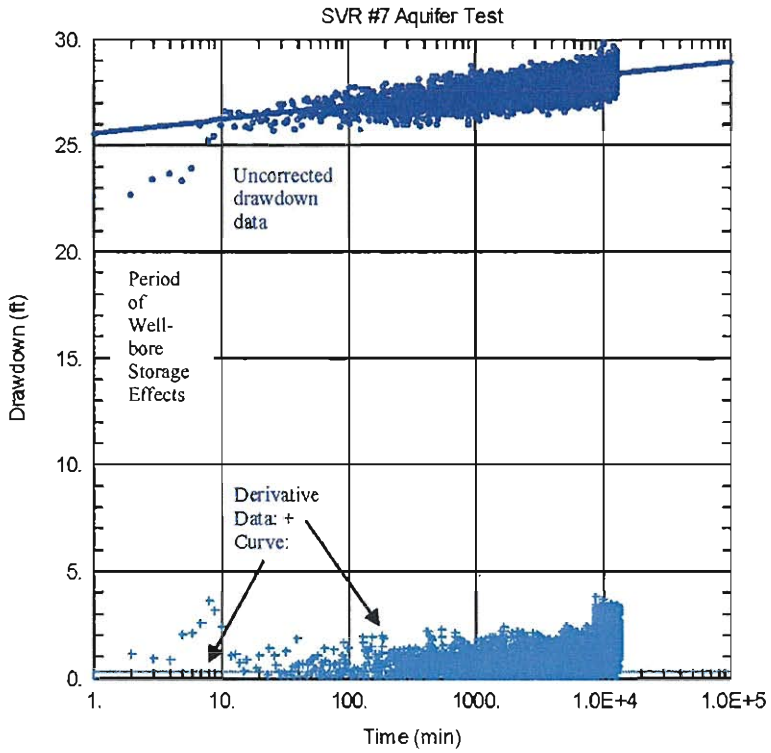
Discharge head of the SVR#7 Test Well in March of 2008 showing well head configuration with two 1-inch PVC monitoring tubes and the submersible power cable protruding from well before start of aquifer

Figure 19. SVR #7 Test - Discharge Pond and Orifice Weir

March 2008 site photograph showing 8-inch diameter discharge piping of the SVR#7 Test Well with propeller-type flow-meter and control valve. Site fencing in progress to deter range cows from well head, generator-set, & measurement equipment during the 9-day aquifer test.

March 2008 site photograph of the circular orifice weir discharge for the SVR#7 nine-day constant-rate aquifer test. 8-inch pipe/6-inch plate weir discharging 917 gpm to stock pond.

Figure 20. Cooper-Jacob Analysis for Well SVR #7



Screen = 279-349 ft bgl
T=400,000 gpd/ft
S = Invalid
Kv/Kh=0.1
b = 340 ft
t_c < 1 min
r = 0.5ft
Q = 917gpm

Derivative analysis indicates method is valid for data after 20 min. Wide scatter of drawdown and derivative points the results of surging water levels well casing.

Partial penetration correction corrections not applied. Analysis likely underestimates transmissivity value without PP correction.

$T = 264Q/\Delta s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

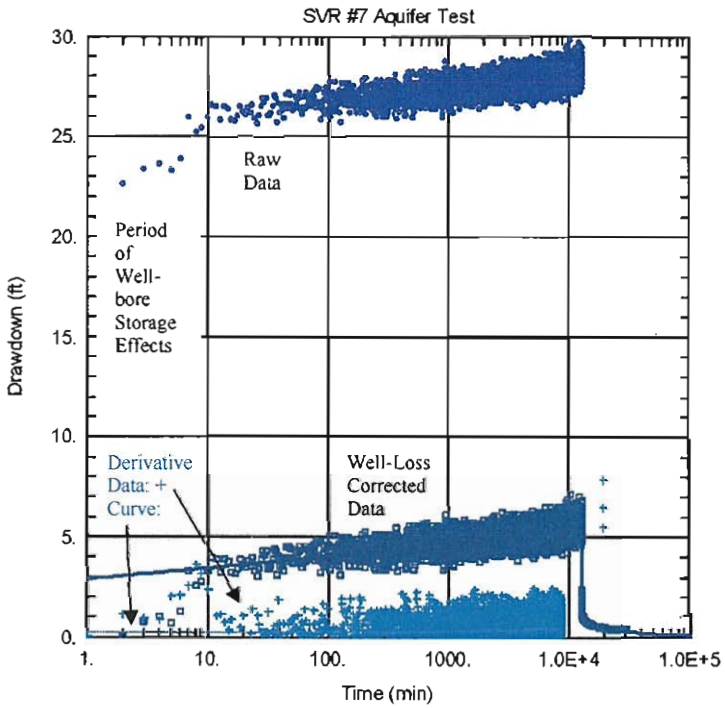
t_c = critical time where "u assumption" is met (where u = 0.05) such that method may be valid, is less than 1 minute.

$u = 1.87r^2S/Tt$
t = time in days
r = effective radius of pumping well (ft)

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Based on the analytical method of Cooper and Jacob (1946).
No partial penetration corrections.

Figure 21. Theis Analysis for Well SVR #7



Screen = 279-349 ft bgl
T=450,000 gpd/ft
S = Invalid
Kv/Kh=0.1
b = 340 ft
r = 0.5ft
Q = 917gpm

Derivative analysis indicates method is valid for data after 20 min. Wide scatter of drawdown and derivative points the results of surging water levels in well casing.

Well-loss correction of 23 feet applied derived from back-calculated theoretical-drawdown based on observation well analysis. See text for details.

Linear vertical scale (drawdown) used to allow better curve fit to data and less-exaggerated derivative data plot.

$T = 114.6\ Q\ W(u)/s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
$W(u)$ = "well function" (defined below)

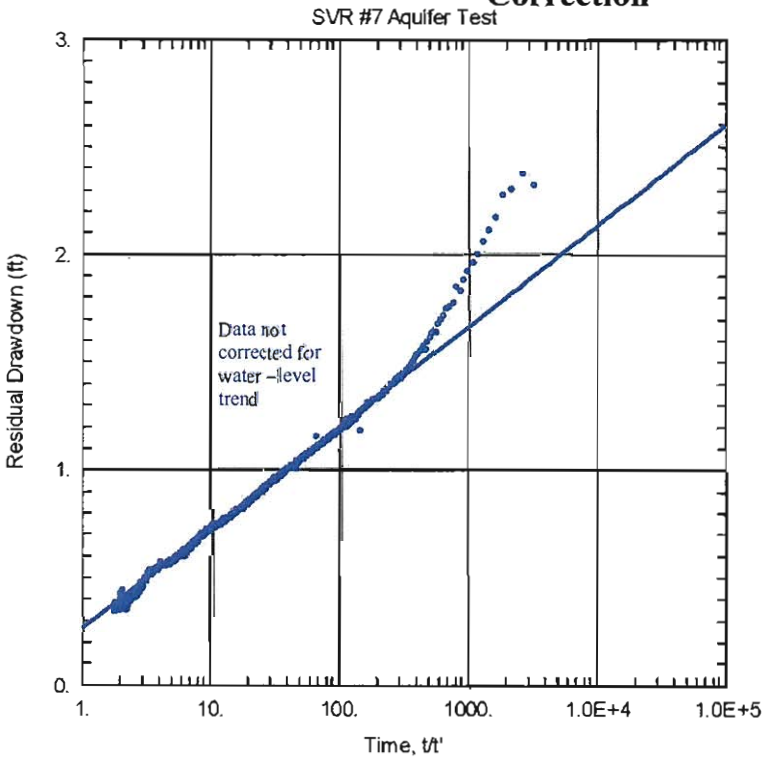
$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = effective radius of pumping well (ft)
t = time in days

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area

Solid Line represents "type curve" where T and S best match observed drawdown. Variations from "smooth," semi-log curve the result of Aqtesolv® generating type curve based on variations in reported pumping rate.

Based on the analytical method of Theis (1935) with partial penetration corrections of Hantush (1961a and b).

Figure 22. Theis Recovery Analysis for Well SVR #7 without Trend Correction



Screen = 279-349 ft bgl
T=520,000 gpd/ft
S/S' =0.3
Kv/Kh=0.1
b = 340 ft
r = 0.5 ft
Q = 917gpm

S/S' less than 1 suggests "late" or "incomplete" recovery, often indicative of an aquifer no-flow boundary, as is present beneath the M3 site (see green line in Figure 1). However, seasonal (declining), regional, water- level trend over 12 days of recovery is the likely cause of the apparent incomplete recovery, as demonstrated in Figure 16.

T = 264Q/Δs Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

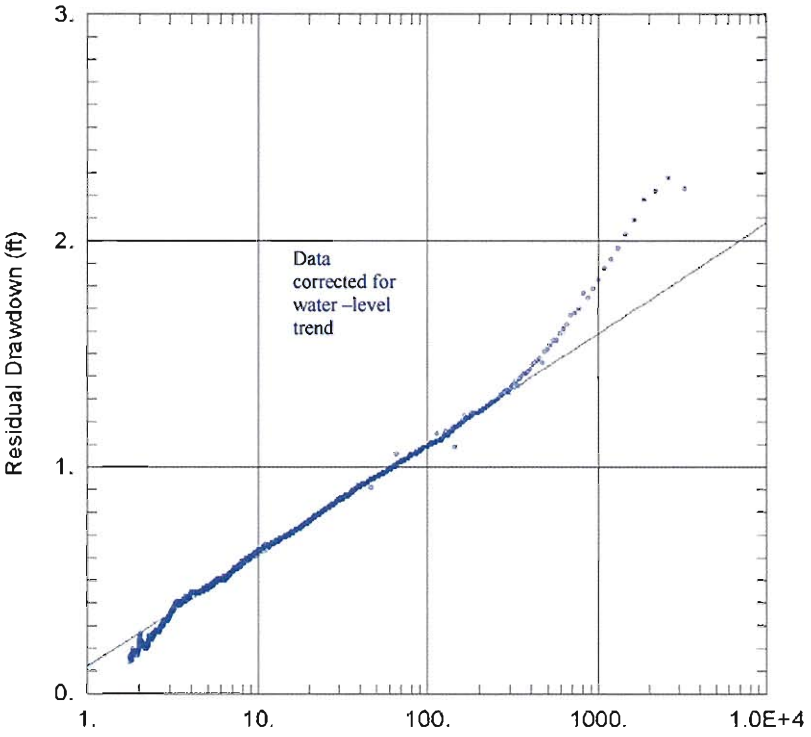
t = time since pumping started (minutes)
t' = time since pumping stopped (minutes)

S/S' = storativity ratio (unitless) where:
S/S' < 1 indicates no-flow boundary ("late" recovery)
S/S' = 1 indicates no recharge or discharge boundaries ("normal" recovery)
S/S' >1 indicates recharge boundary ("early" recovery)

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area
r = effective radius of pumping well (ft)

Based on the analytical method of Theis (1935).

Figure 23. Theis Recovery Analysis for Well SVR #7 with Trend Correction



Screen = 279-349 ft bgl
T=490,000 gpd/ft
S/S' =0.6
Kv/Kh=0.1
b = 340 ft
r = 0.5 ft
Q = 917gpm

S/S' slightly less than 1 suggests "late" or "incomplete" recovery, however, projection of end of recovery data would likely intersect residual recovery = 0 at t/t' = 1, indicative of complete recovery. Data corrected for seasonal, regional, water-level trend of 0.009426 ft/day (declining) trend over period Feb 23-May 25, 2008. This correction allows recovery to project to near 0 at t/t' = 0

T = 264Q/Δs Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

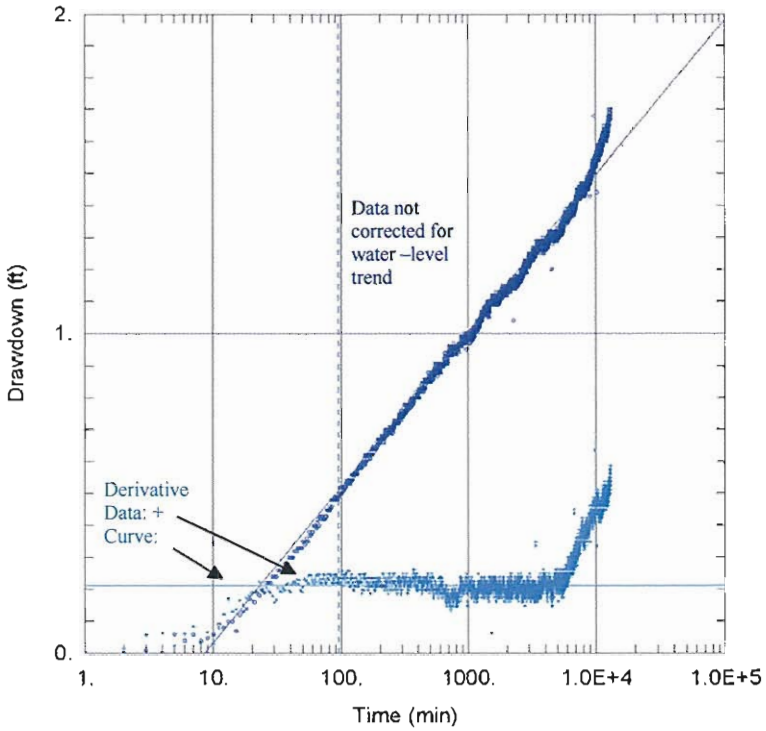
t = time since pumping started (minutes)
t' = time since pumping stopped (minutes)

S/S' = storativity ratio (unitless) where:
S/S' < 1 indicates no-flow boundary ("late" recovery)
S/S' = 1 indicates no recharge or discharge boundaries ("normal" recovery)
S/S' >1 indicates recharge boundary ("early" recovery)

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area
r = effective radius of pumping well (ft)

Based on the analytical method of Theis (1935).

Figure 24. Cooper-Jacob Analysis for the Big Gulch Stock Well



Screen = 180 ft bgl (open hole)
T=500,000 gpd/ft
S = 1.2x 10^{-3}
Kv/Kh=0.1
b = 340 ft
t_c = 95 min
r = 845 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data between 100 and 6,000 min. Rise in apparent drawdown and derivatives after 6,000 minutes caused by declining regional aquifer water level trend. Data are uncorrected for this trend.

$T = 264Q/\Delta s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

t_c = critical time where "u assumption" is met (where u = 0.05) such that method may be valid, is 95 minutes as shown by dashed vertical line.

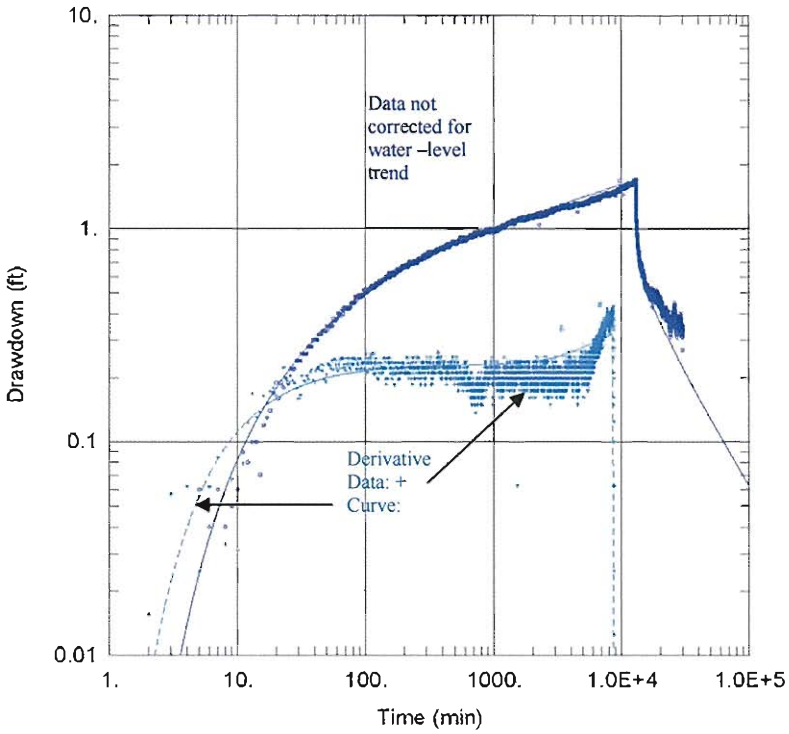
$u = 1.87r^2S/Tt$
t = time in days
r = distance to pumping well (ft)

b = aquifer thickness in feet (ft), estimated from geophysical log of well SVR #7.

Based on the analytical method of Cooper and Jacob (1946).

No partial penetration corrections needed because well is more than 2x aquifer thickness from pumping well.

Figure 25. Theis Analysis for the Big Gulch Stock Well



Screen = 180 ft bgl (open hole)
T=450,000 gpd/ft
S = 1.8x 10^{-3}
Kv/Kh=0.1
b = 340 ft
r = 845 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data between 100 and 5,000 min. Rise in apparent drawdown and derivatives after 6,000 minutes caused by declining regional aquifer water level trend. Data are not corrected for this trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

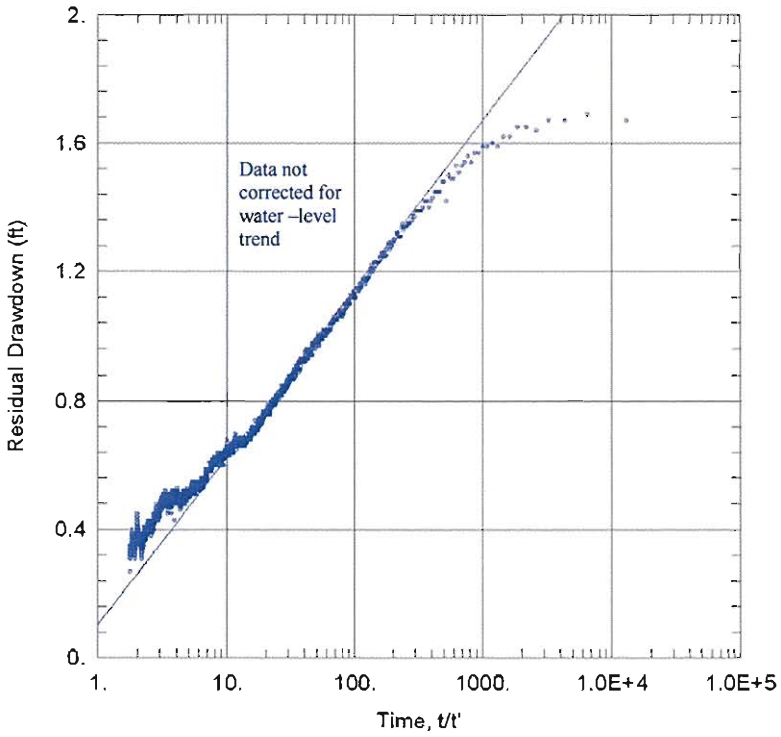
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 26. Theis Recovery Analysis for the Big Gulch Stock Well with no Water-Level Trend Correction



Screen = 180 ft bgl (open hole)
T=450,000 gpd/ft
S/S' =0.6
Kv/Kh=0.1
b = 340 ft
r = 845 ft
Q = 917gpm (at SVR #7)

S/S' less than 1 suggests "late" or "incomplete" recovery. However, seasonal (declining), regional, water- level trend over 12 days of recovery is most probable cause of apparent incomplete recovery.

Partial penetration corrections neither needed nor applied.

T = 264Q/Δs Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

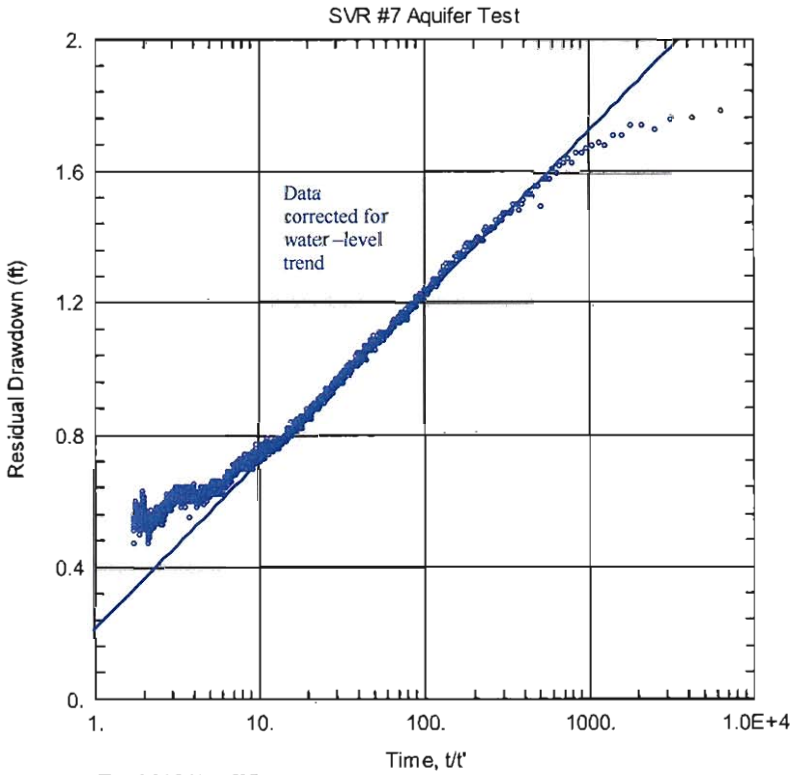
t = time since pumping started (minutes)
t' = time since pumping stopped (minutes)

S/S' = storativity ratio (unitless) where:
S/S' < 1 indicates no-flow boundary ("late" recovery)
S/S' = 1indicates no recharge or discharge boundaries ("normal" recovery)
S/S' >1 indicates recharge boundary ("early" recovery)

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area
r = distance to pumping well (ft)

Based on the analytical method of Theis (1935).

Figure 27. Theis Recovery Analysis for the Big Gulch Stock Well with Water-Level Trend Corrections



Screen = 180 ft bgl (open hole)
T=480,000 gpd/ft
S/S' =0.4
Kv/Kh=0.1
b = 340 ft
r = 845 ft
Q = 917gpm (at SVR #7)

S/S' less than 1 suggests "late" or "incomplete" recovery. However, incomplete correction for seasonal (declining), regional, water- level trend over 12 days of recovery is most probable cause of apparent incomplete recovery.

Partial penetration corrections neither needed nor applied.

T = 264Q/Δs Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

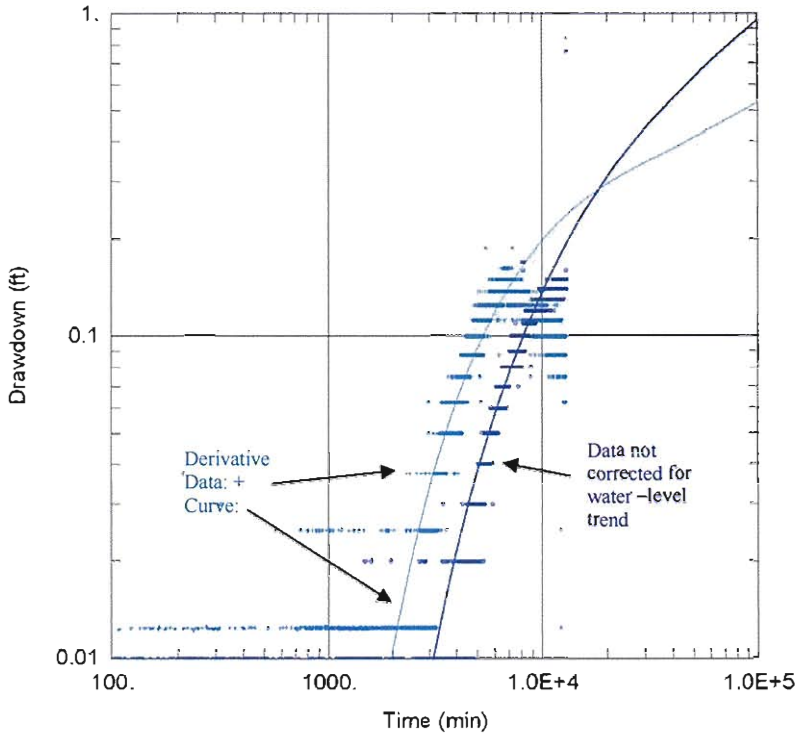
t = time since pumping started (minutes)
t' = time since pumping stopped (minutes)

S/S' = storativity ratio (unitless) where:
S/S' < 1 indicates no-flow boundary ("late" recovery)
S/S' = 1indicates no recharge or discharge boundaries ("normal" recovery)
S/S' >1 indicates recharge boundary ("early" recovery)

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area
r = distance to pumping well (ft)

Based on the analytical method of Theis (1935).

Figure 28. Theis Analysis for the M3-TW #2 Zone 2 – No Trend Correction



Screen = 230-250 ft bgl
T=240,000 gpd/ft
S = 9.0x 10^{-2}
Kv/Kh=0.1
b = 300 ft
r = 3,636 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data between 2,000 and 7,000 min. Fall in apparent drawdown and derivatives after 6,000 minutes caused by end of rising regional aquifer water level trend. Data are uncorrected for this trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

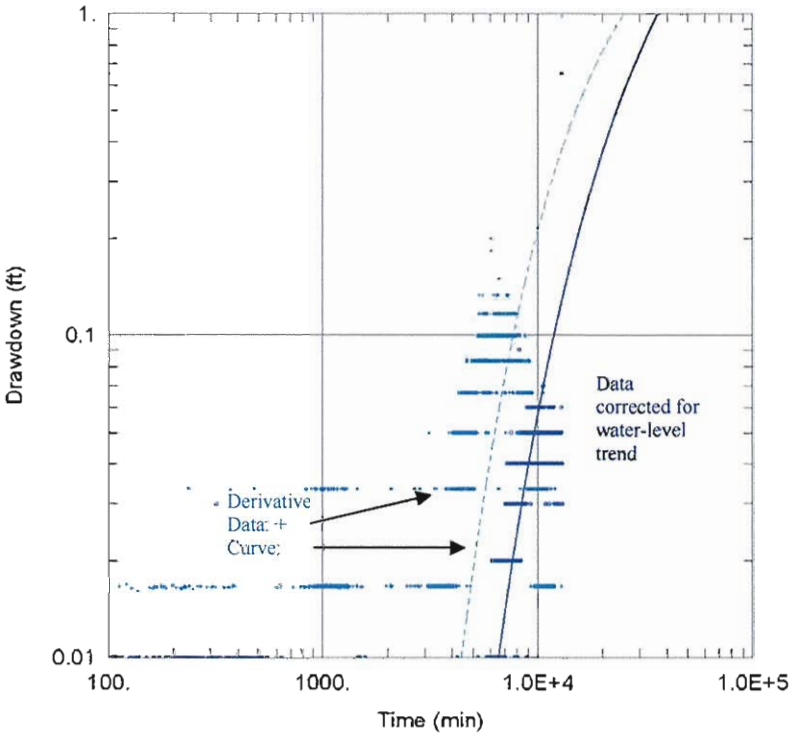
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 29. Theis Analysis for the M3-TW #2 Zone 2 – With Trend Correction



Screen = 230-250 ft bgl
T=370,000 gpd/ft
S = 2.7x 10^{-2}
Kv/Kh=0.1
b = 300 ft
r = 3,636 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data between 2,000 and 5,000 min. Fall in apparent derivatives after 6,000 minutes may be caused in part by relatively large range for calculating derivative (0.4 log cycles) that extends beyond data collection period.

$T = 114.6\ Q\ W(u)/s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
$W(u)$ = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

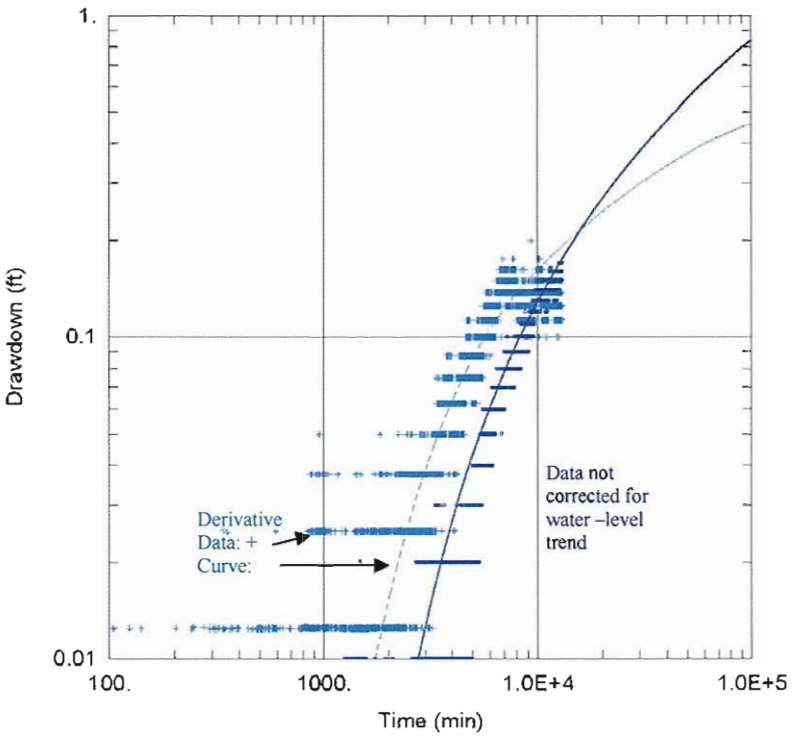
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 30. Theis Analysis for the M3-TW #2 Zone 1 – No Trend Correction



Screen = 270-320 ft bgl
T=350,000 gpd/ft
S = 6.2x 10^{-2}
Kv/Kh=0.1
b = 300 ft
r = 3,636 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data between 2,000 and 7,000 min. Flattening in apparent drawdown and derivatives after 7,000 minutes caused by end of rising regional aquifer water level trend. Data are uncorrected for this trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

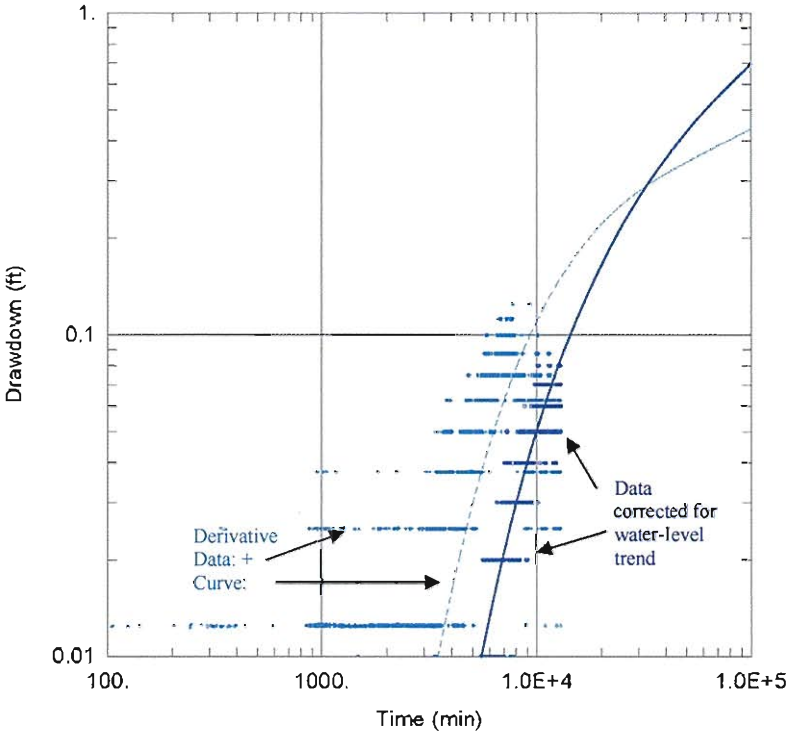
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 31. Theis Analysis for the M3-TW #2 Zone 1 – With Trend Correction



Screen = 270-320 ft bgl
T=230,000 gpd/ft
S = 1.6x 10^{-1}
Kv/Kh=0.1
b = 300 ft
r = 3,636 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data for entire test. Data are corrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

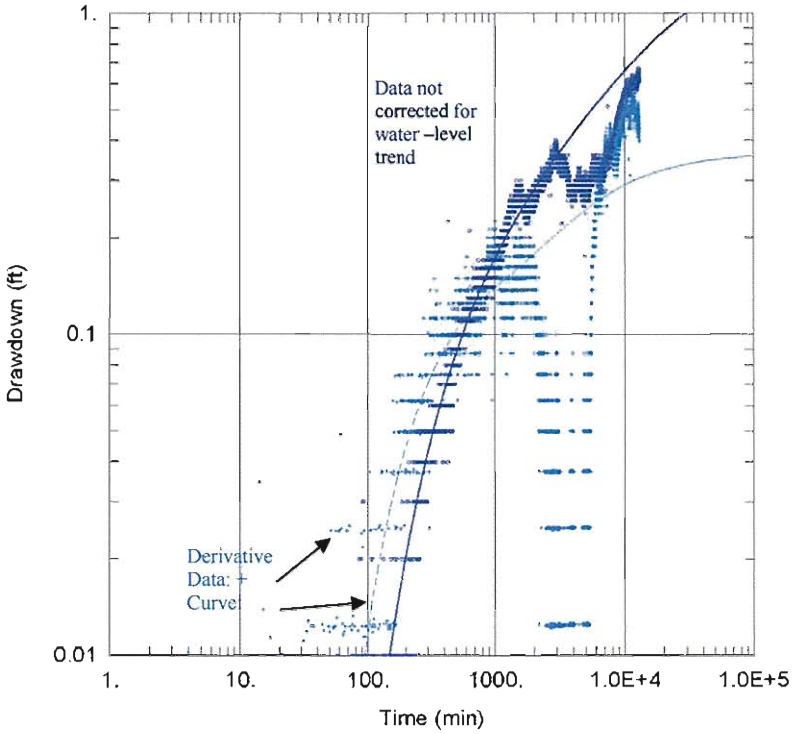
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 32. Theis Analysis for the M3-TW #4 Zone 2 – No Trend Correction



Screen = 325-556 ft bgl
T=570,000 gpd/ft
S = 3.0x 10^{-3}
Kv/Kh=0.1
b = 260 ft
r = 4,489 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data from first 1,000 minutes of test. Afterward, incomplete barometric corrections and lack of water level trend corrections make analysis only approximate. Data are uncorrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

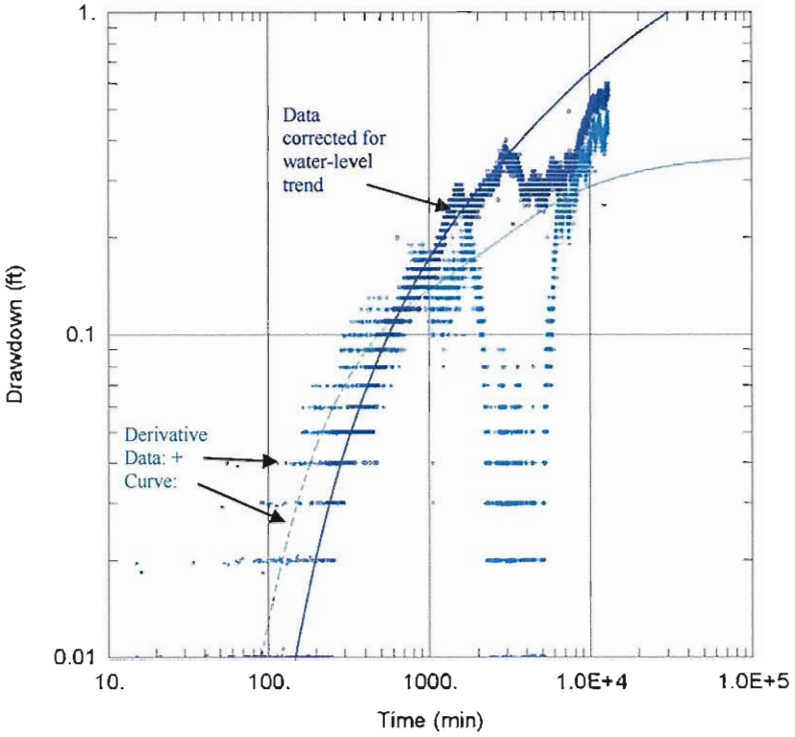
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 33. Theis Analysis for the M3-TW #4 Zone 2 – With Trend Correction



Screen = 325-556 ft bgl
T=580,000 gpd/ft
S = 3.0x 10^{-3}
Kv/Kh=0.1
b = 260 ft
r = 4,489 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data from first 1,000 minutes of test. Afterward, incomplete barometric corrections and incomplete water level trend corrections make analysis only approximate. Data are corrected for seasonal aquifer water-level trend.

$T = 114.6\ Q\ W(u)/s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

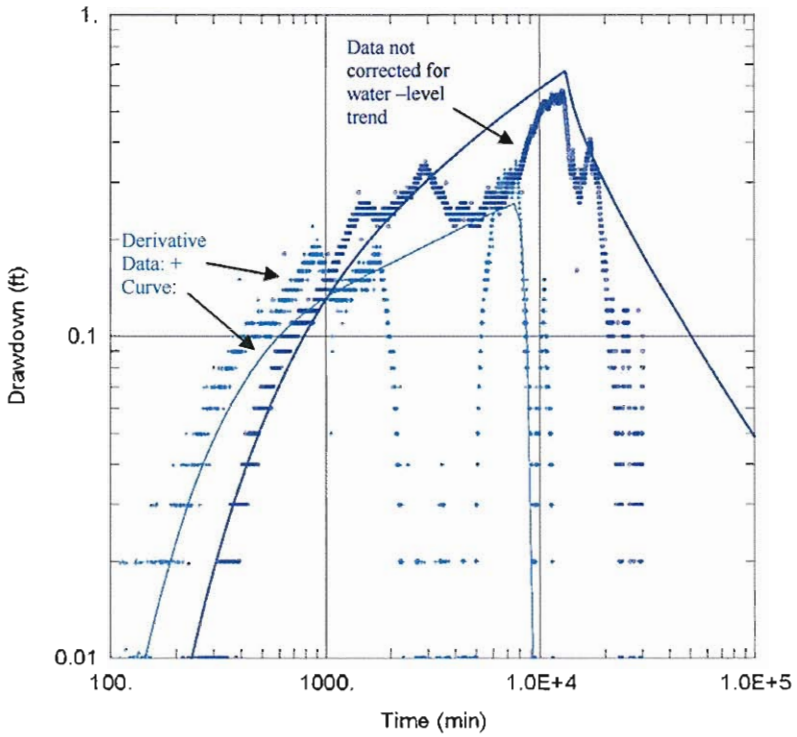
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 34. Neuman-Witherspoon Analysis for the M3-TW #4 Zone 1 – as an Aquifer Separate from the PGSA, No Trend Correction

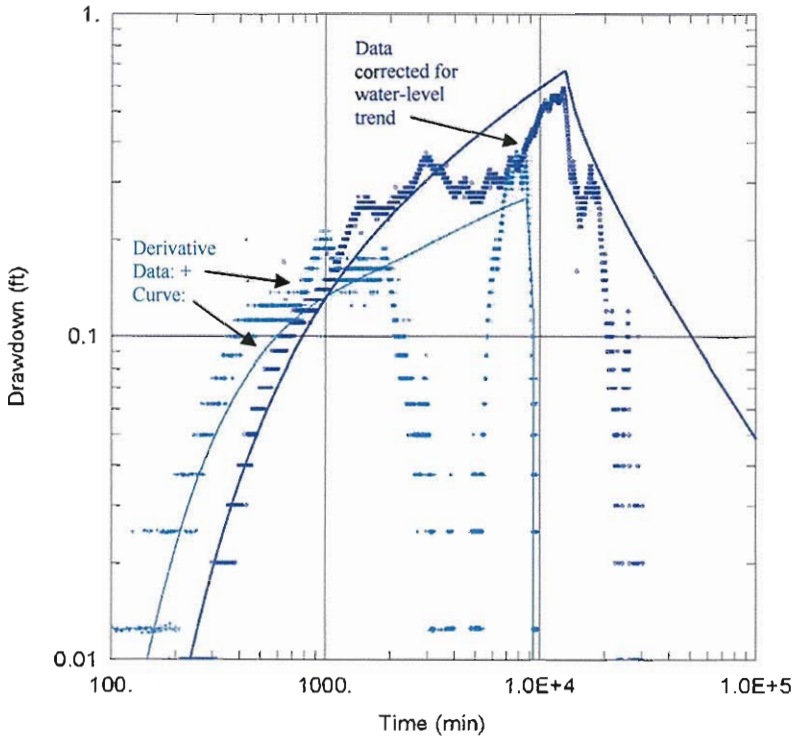


Screen = 625-646 ft bgl
T_{PGSA}= 500,000 gpd/ft
S_{PGSA} = 2.3x 10^{-3}
Kv/Kh=0.1
b_{PGSA} = 260 ft
$T_{zone\ 1}$= 80,000 gpd/ft
$S_{zone\ 1}$ = 1 x 10^{-3}
$b_{zone\ 1}$ = 30 ft
$b_{aquitard}$ = 30 ft
r = 4,489 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates only fair match for method. After 200 minutes, incomplete barometric corrections and incomplete water level trend corrections make analysis only approximate. Data are not corrected for seasonal aquifer water-level trend.

Based on the analytical method of Neuman and Witherspoon (1972) derived from the original method of Theis (1935). Based on assumption of flow to the pumped aquifer, through a leaky aquitard, from a second aquifer. Flow through the aquitard is assumed to be vertical. See Appendix D for equations and illustrations.

Figure 35. Neuman-Witherspoon Analysis for the M3-TW #4 Zone 1 – As Aquifer Separate From PGSA, With Trend Correction

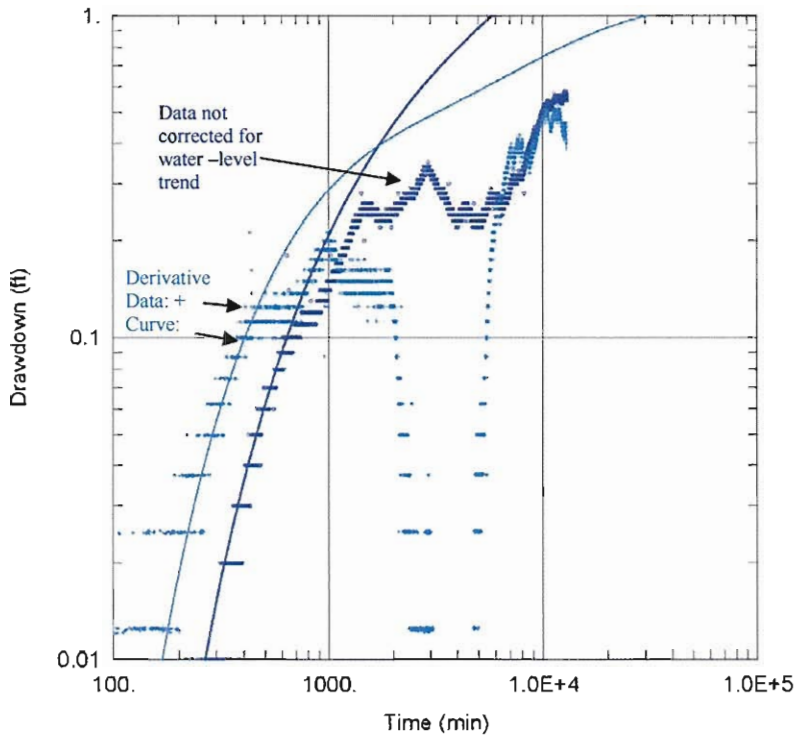


Screen = 625-646 ft bgl
T_{PGSA}= 500,000 gpd/ft
S_{PGSA} = 2.3x 10^{-3}
Kv/Kh=0.1
b_{PGSA} = 260 ft
$T_{zone\ 1}$= 80,000 gpd/ft
$S_{zone\ 1}$ = 1 x 10^{-3}
$b_{zone\ 1}$ = 30 ft
$b_{aquitard}$ = 30 ft
r = 4,489 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates only fair match for method. After 300 minutes, incomplete barometric corrections and incomplete water level trend corrections make analysis only approximate. Data are not corrected for seasonal aquifer water-level trend.

Based on the analytical method of Neuman and Witherspoon (1972) derived from the original method of Theis (1935). Based on assumption of flow to the pumped aquifer, through a leaky aquitard, from a second aquifer. Flow through the aquitard is assumed to be vertical. See Appendix D for equations and illustrations.

Figure 36. Theis Analysis for the M3-TW #4 Zone 1 – As a part of the PGSA, No Trend Correction



Screen = 625-646 ft bgl
T= 170,000 gpd/ft
S = 2.4x 10^{-1}
Kv/Kh=0.1
b = 260 ft
r = 4,489 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data from first 500 minutes of test. Afterward, incomplete barometric corrections and incomplete water level trend corrections make analysis only approximate. Data are not corrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

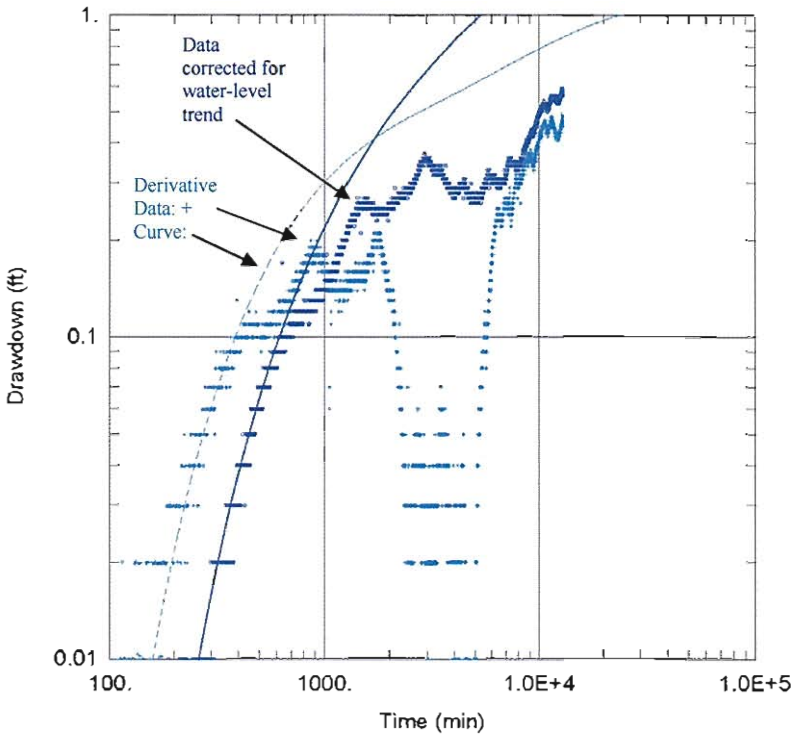
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 37. Theis Analysis for the M3-TW #4 Zone 1 – As a part of the PGSA, With Trend Correction



Screen = 625-646 ft bgl
T= 160,000 gpd/ft
S = 2.4x 10^{-1}
Kv/Kh=0.1
b = 260 ft
r = 4,489 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data from first 500 minutes of test. Afterward, incomplete barometric corrections and incomplete water level trend corrections make analysis only approximate. Data are corrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

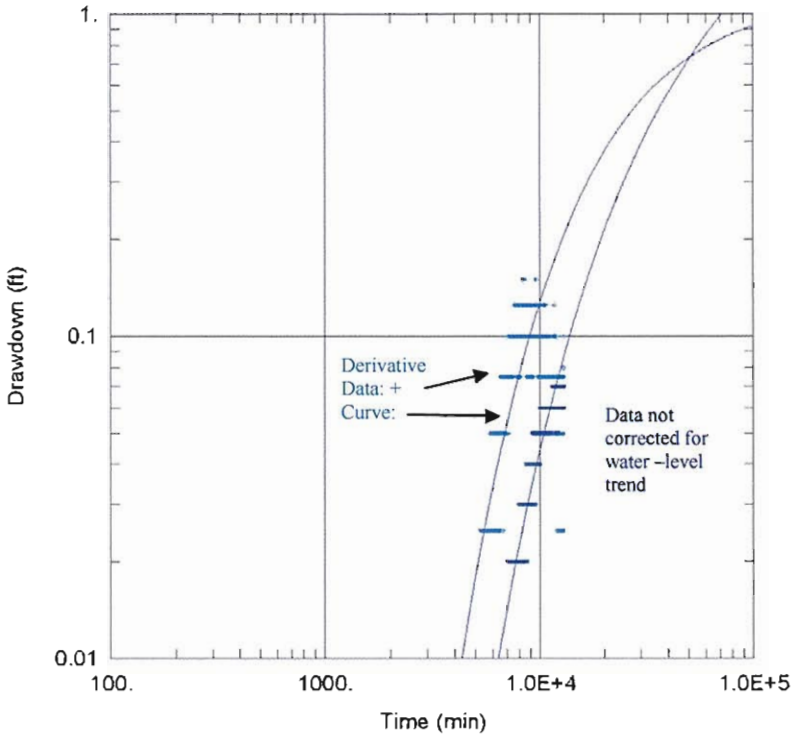
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 38. Theis Analysis for the Little Gulch Stock Well – No Trend Correction



Screen = 220-223 ft bgl
T=180,000 gpd/ft
S = 1.3x 10^{-2}
Kv/Kh=0.1
b = 176 ft
r = 9,740 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is generally valid for data from first 8,000 minutes of test. However, small drawdown response and need to filter barometric effect make analysis only approximate. Data are not corrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

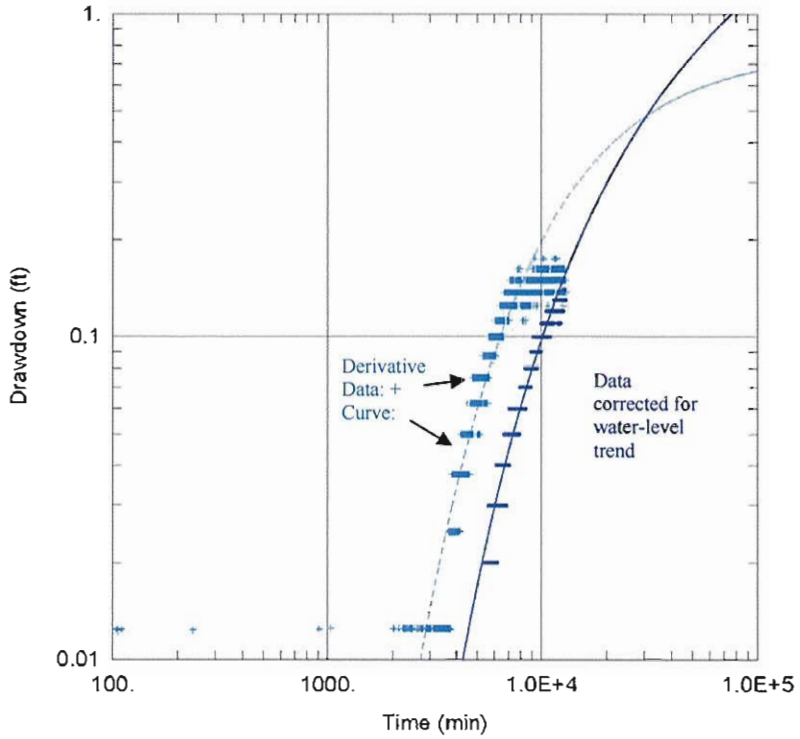
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 39. Theis Analysis for the Little Gulch Stock Well – With Trend Correction



Screen = 220-223 ft bgl
T=270,000 gpd/ft
S = 1.1x 10^{-2}
Kv/Kh=0.1
b = 176 ft
r = 9,740 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is generally valid for data from first 8,000 minutes of test. Fit is better than analysis without trend correction. However, small drawdown response and need to filter barometric effect make analysis only approximate. Data are corrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

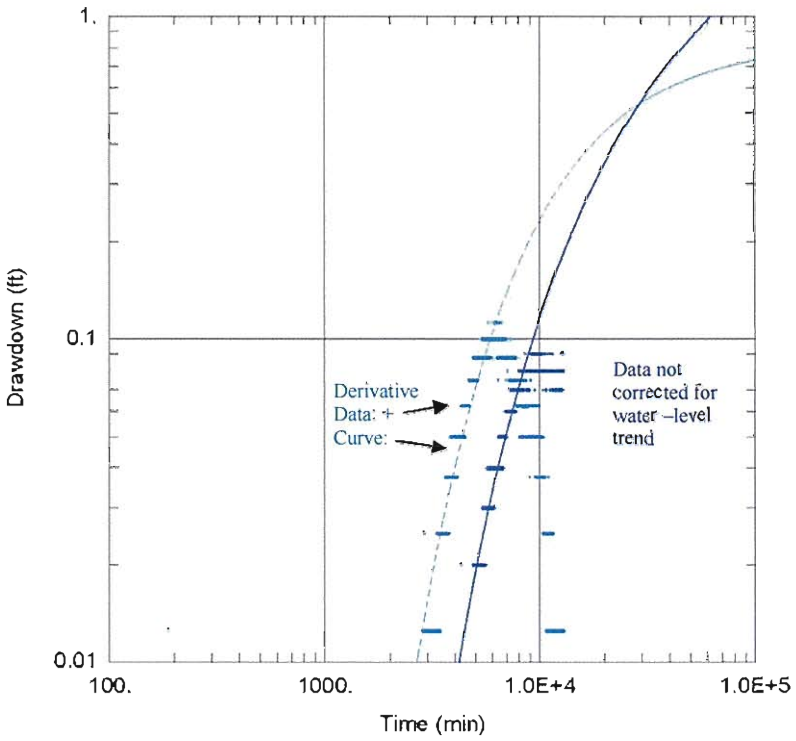
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 40. Theis Analysis for Well SVR #9– No Trend Correction



Screen = 235-263 ft bgl
T = 250,000 gpd/ft
S = 8.7x 10^{-3}
Kv/Kh=0.1
b = 73 ft
r = 11,660 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is generally valid for data from first 6,000 minutes of test. However, small drawdown response and need to filter barometric effect make analysis only approximate. Data are not corrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

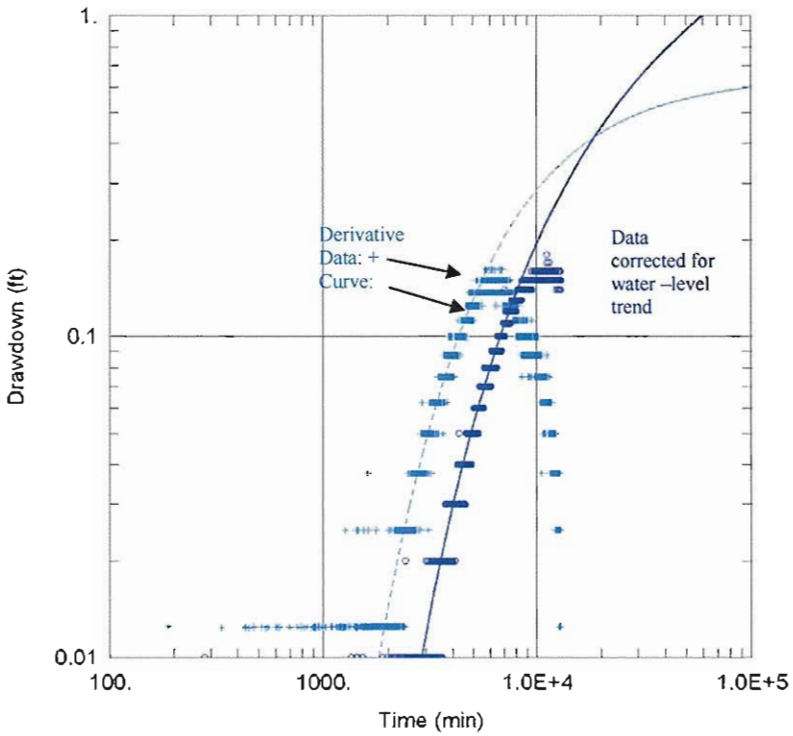
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 41. Theis Analysis for Well SVR #9 – With Trend Correction



Screen = 235-263 ft bgl
T = 320,000 gpd/ft
S = 7.1x 10^{-3}
Kv/Kh=0.1
b = 73 ft
r = 11,660 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is generally valid for data from first 6,000 minutes of test. Fit is better than analysis without trend correction. However, small drawdown response and need to filter barometric effect make analysis only approximate. Data are corrected for seasonal aquifer water-level trend.

T = 114.6 Q W(u)/s Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

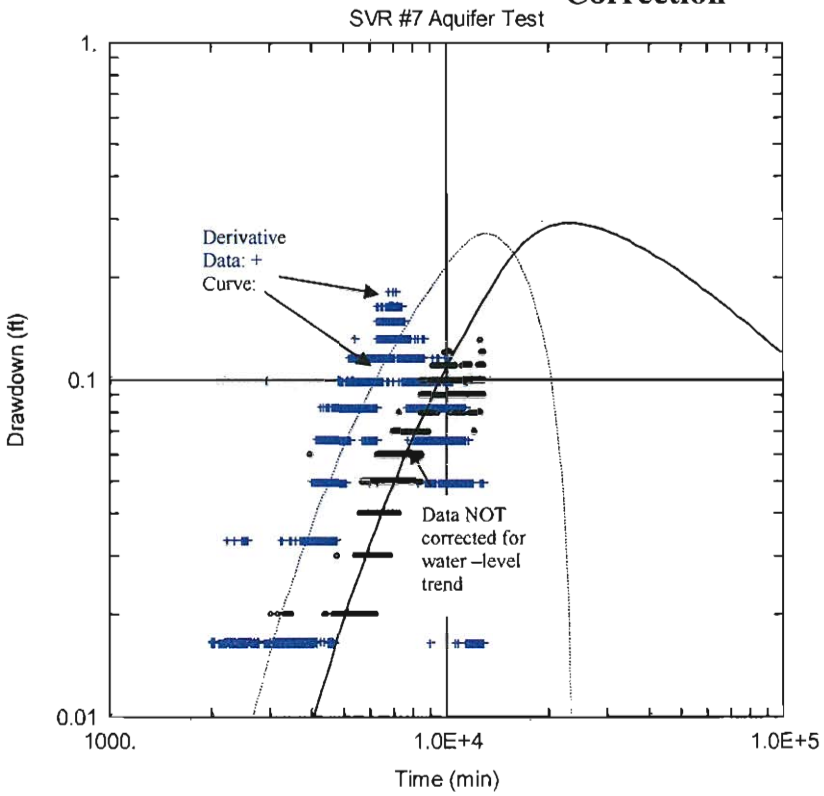
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 42. Theis Analysis for Flack Corral 4-In Well without Trend Correction



Screen = ? ft bgl
T=200,000 gpd/ft
S =0.023
Kv/Kh=0.1
b = 300 ft
r = 5974 ft
Q = 917gpm

Derivative analysis indicates method is generally valid for data from first 6,000 minutes of test. Fit is better than analysis without trend correction. However, small drawdown response and need to filter barometric effect make analysis only approximate. Data are not corrected for seasonal aquifer water-level trend.

$T = 114.6\ Q\ W(u)/s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
$W(u)$ = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

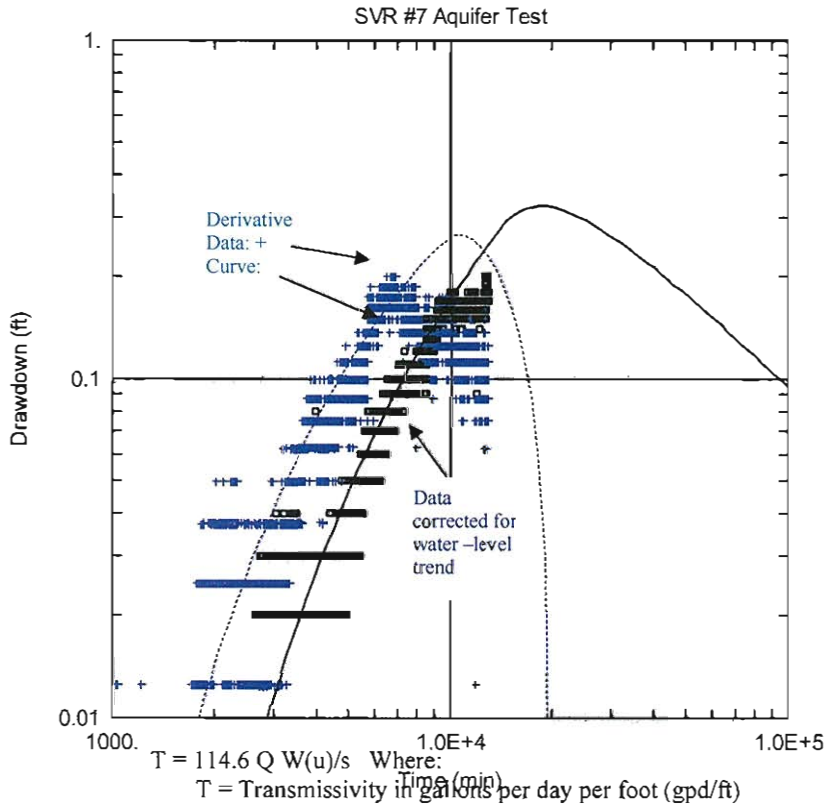
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 43. Theis Analysis for Flack Corral 4-In Well with Trend Correction



Screen = ? ft bgl
T=270,000 gpd/ft
S =0.02
Kv/Kh=0.1
b = 300 ft
r = 5974 ft
Q = 917gpm

Derivative analysis indicates method is generally valid for data from first 6,000 minutes of test. Fit is better than analysis without trend correction. However, small drawdown response and need to filter barometric effect make analysis only approximate. Data are corrected for seasonal aquifer water-level trend.

$T = 114.6\ Q\ W(u)/s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
W(u) = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

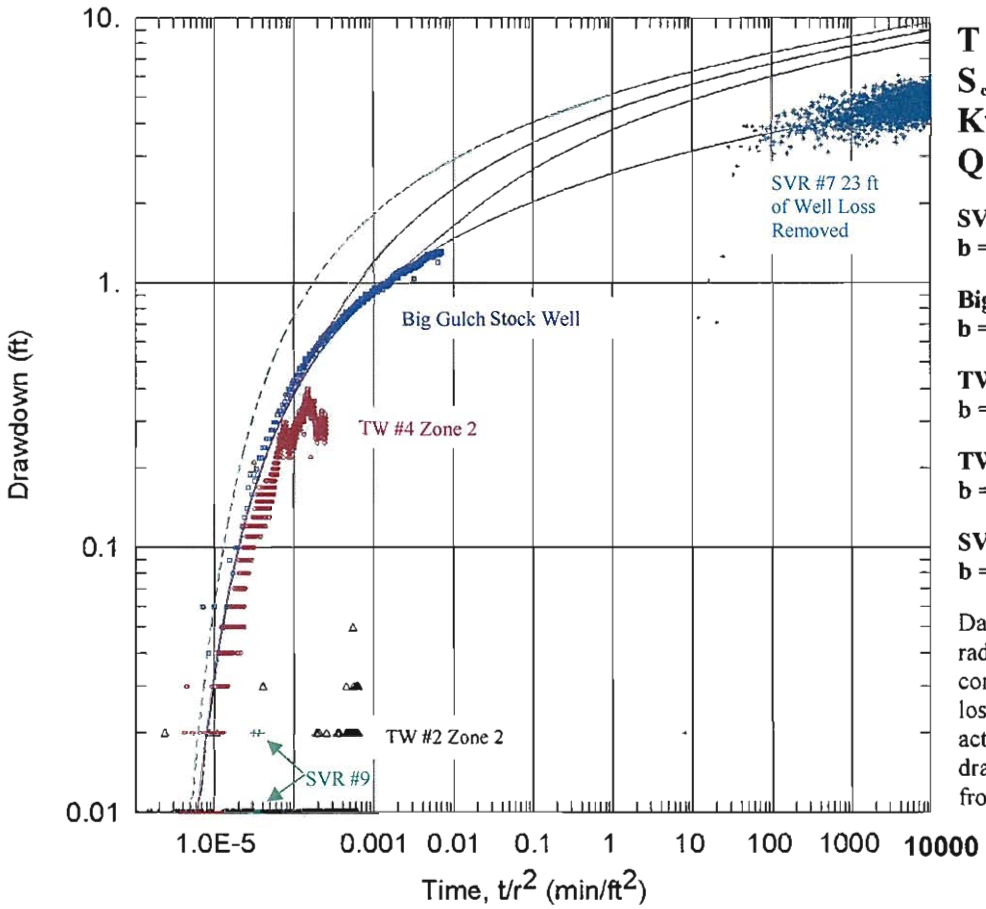
Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details

b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 44. Composite Theis Analysis for Five Observation Wells



$T_{composite}$ = 430,000 gpd/ft
$S_{composite}$ = 2.1x 10^{-3}
Kv/Kh=0.1
Q = 917gpm (at SVR #7)

SVR #7
b = 340 ft, r = 0.5 ft

Big Gulch Stock Well
b = 340 ft, r = 845 ft

TW #2 Zone 2
b = 300 ft, r = 3,636 ft

TW #4 Zone 2
b = 260 to 360 ft, r = 4,489 ft

SVR #9
b = 73 f, r = 11,660 ft

Data normalized by dividing time by radius squared. Pumping well data corrected by subtracting 23 feet of well loss (as calculated based on comparison of actual drawdown and theoretical drawdown calculated using data derived from analysis of Big Gulch well.)

Composite plot for five wells with time normalized by distance such that data would plot on similar curves in a uniform, homogeneous aquifer. The pumping well (SVR #7), nearest observation well ("Big Gulch") and observation well to west (TW #4) plot on curve. Wells to the east of the pumping well (TW #2 and SVR #9) where the Pierce Gulch Sand Aquifer becomes unconfined, show a delayed response caused by thinner aquifer (lower transmissivity) and unconfined conditions (larger storativity).

$T = 114.6\ Q\ W(u)/s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
$W(u)$ = "well function" (defined below)

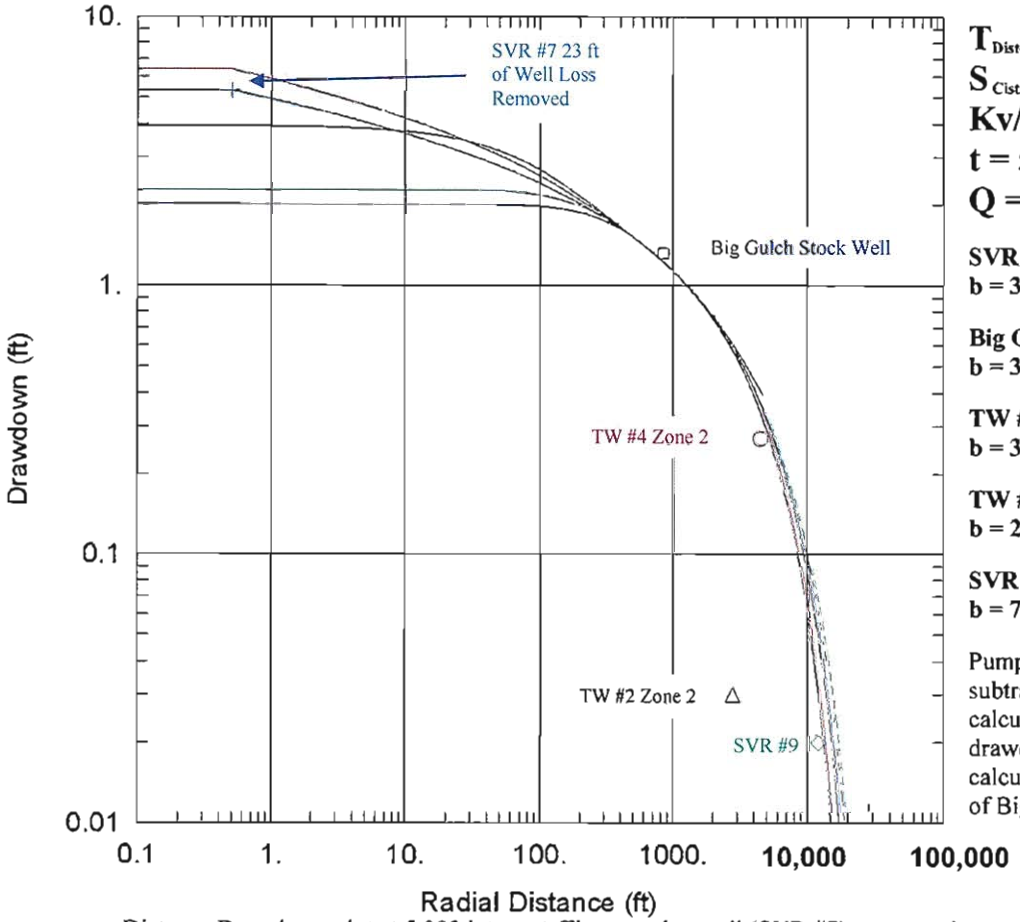
$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 45. Theis Distance Drawdown Analysis



$T_{Dist\text{-}Drawdwon}$ = 380,000 gpd/ft
$S_{Dist\text{-}Drawdwon}$ = 7.0x 10^{-3}
Kv/Kh=0.1
t = 5,000 min
Q = 917gpm (at SVR #7)

SVR #7
b = 340 ft, r = 0.5 ft

Big Gulch Stock Well
b = 340 ft, r = 845 ft

TW #2 Zone 2
b = 300 ft, r = 3,636 ft

TW #4 Zone 2
b = 260 to 360 ft, r = 4,489 ft

SVR #9
b = 73 f, r = 11,660 ft

Pumping well data corrected by subtracting 23 feet of well loss (as calculated based on comparison of actual drawdown and theoretical drawdown calculated using data derived from analysis of Big Gulch well.)

Distance Drawdown plot at 5,000 into test. The pumping well (SVR #7), nearest observation well ("Big Gulch") and observation well to west (TW #4) plot on curve. Wells to the east of the pumping well (TW #2 and SVR #9) where the Pierce Gulch Sand Aquifer becomes unconfined, show a different response caused by thinner aquifer (lower transmissivity) and unconfined conditions (larger storativity).

$T = 114.6\ Q\ W(u)/s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
$W(u)$ = "well function" (defined below)

$W(u) = 1.87r^2S/Tt$ Where:
S = storativity (unitless)
r = distance to pumping well (ft)
t = time in days

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), calculated from geophysical log of well.

Solid Line represents "type curve" where T and S best match observed drawdown.

Based on the analytical method of Theis (1935) with aquifer anisotropy and partial penetration corrections of Hantush (1961a and b).

Figure 46. Comparison of Pierce Gulch Sand Aquifer Water Levels in M3 On-Site and State and Linder Wells

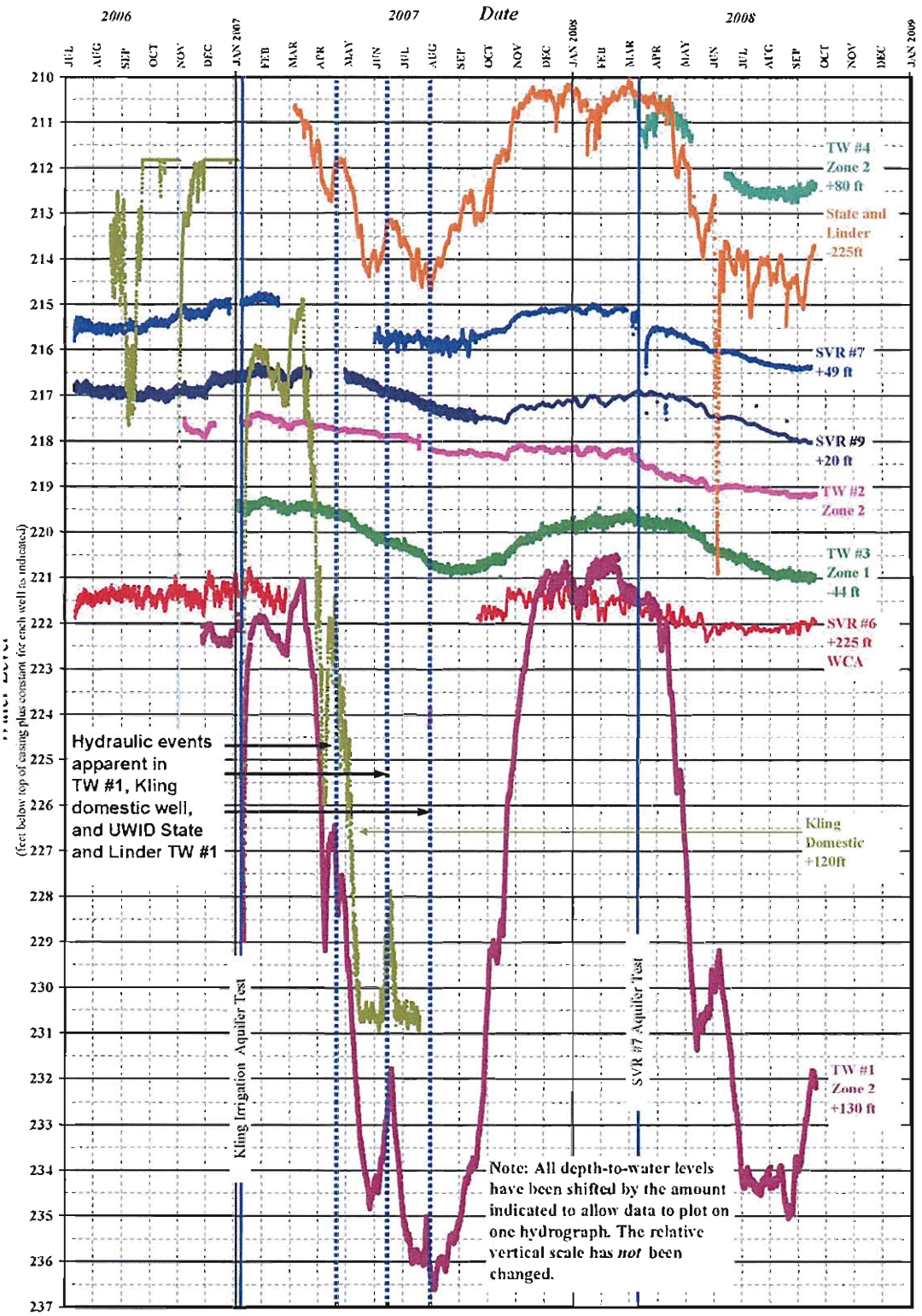


Figure 47. Comparison of Pierce Gulch Sand Aquifer Water Levels in Wells Completed on Western and Central M3 Property

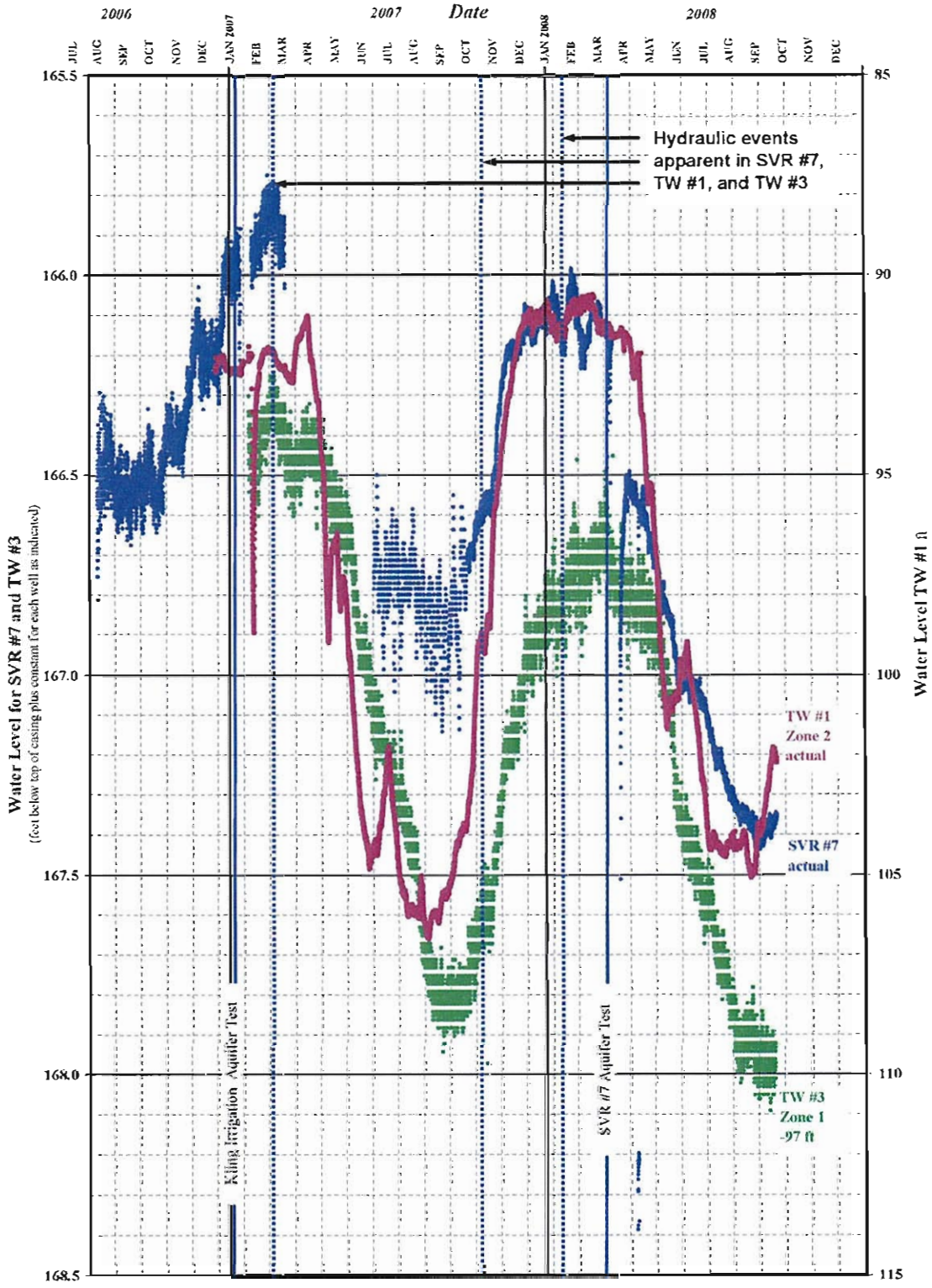
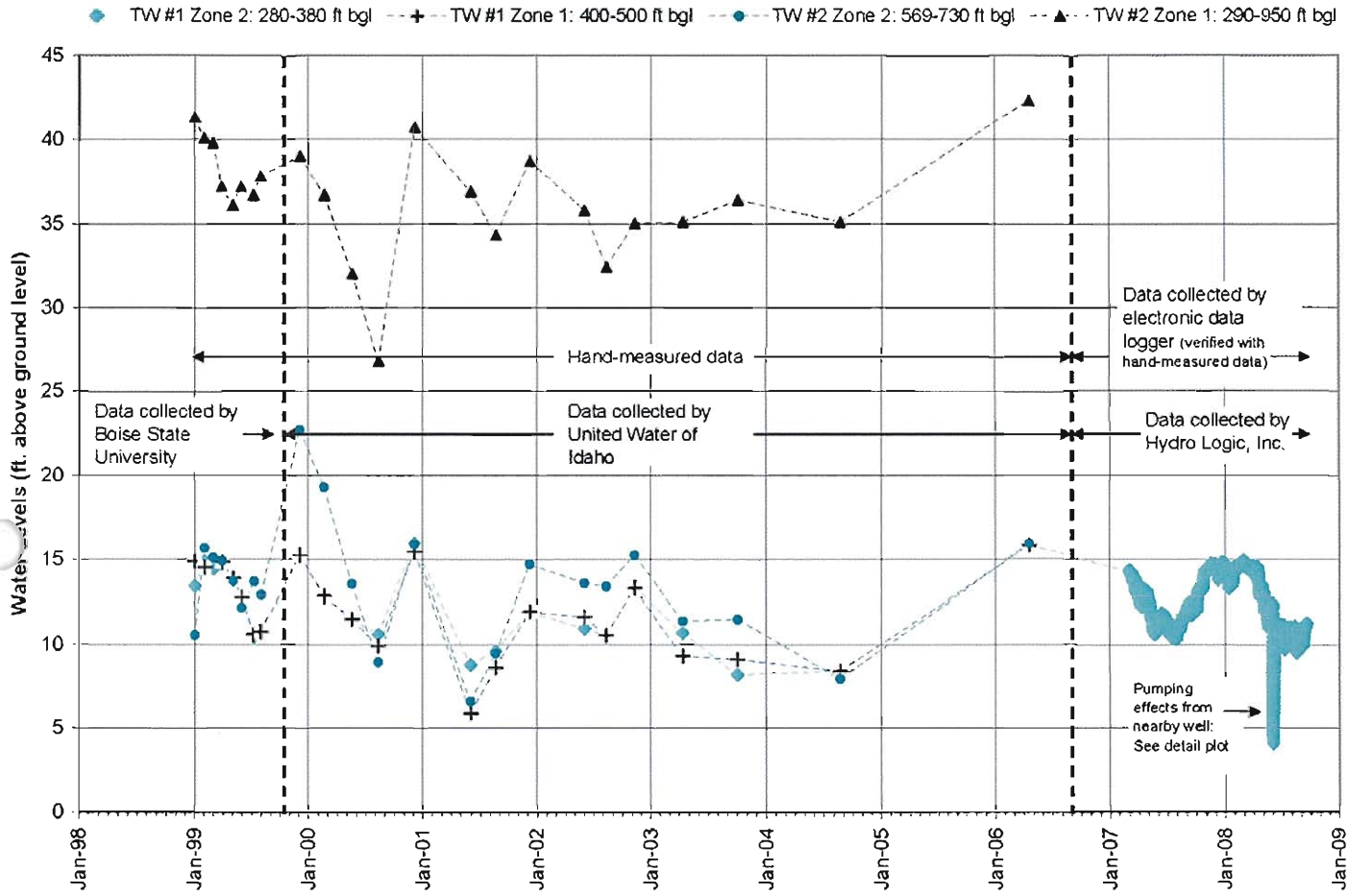


Figure 48. Water Levels in UWID State and Linder TW #1 Showing No Net Decline Over 10-Year Period



Almost ten years of data show that TW #1 Zone 2 shows no net decline with water levels remaining generally between about 10 and 15 feet above ground level, in spite of increase in population of greater Eagle-Star vicinity and subsequent net increase in regional well pumping. Measured data from the other three monitored zones show a similar pattern of no net decline. Sharp drop followed by sharp rise in levels during May of 2008 appears to be the result of pumping from a nearby well.

APPENDICES

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Appendix A - Well Driller's Reports for Wells without Additional Information

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Well Driller's Report for Flack Corral 6-in Stock Well

3/95

C

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

094025

Inspected by _____
Twp ____ Rge ____ Sec ____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 63-96-W.0184-000
Other IDWR No. _____

2. OWNER:
Name Bill Flack
Address 4035 Hartley Rd.
City Eagle State Id. Zip 83616

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 5 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 24, NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Ada
Lat: : : Long: : :
Address of Well Site _____
Eagle Rd. Meridian City Eagle
(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☒ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	20	900	Pour.

Was drive shoe used? ☒Y ☐N Shoe Depth(s) 253
Was drive shoe seal tested? ☐Y ☒N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+1	253	.250	Steel	☐	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS MW
☒ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
240	400	1/8	320	4½	PVC	☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
_____ ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: Welded metal plate.

11. WELL TESTS:
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
20			10

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
_____ Depth first Water Encountered _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
6	0	2	Top Soil		X
	2	12	Sandy Blue clay		X
	12	27	Blue clay		X
	27	110	Brn. Sand		X
	110	165	Reddish Brn. Sand		X
	165	229	Sandy Brn clay		X
	229	239	Blue clay		X
	239	289	Blue Sandy clay w/ Brn. Stks	X	
	289	292	Brown Sand	X	
	292	340	Sandy Blue clay	X	
	340	400	Sandy Blue clay Sand	X	

RECEIVED
JUL 16 1996
Department of Water Resources

RECEIVED
JUN 24 1996
WATER RESOURCES
WESTERN REGION

SEP 11 1996

Completed Depth 400 (Measurable)
Date: Started 4-5-96 Completed 5-4-96

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Dennis Phipps Firm No. 332
Firm Official Dennis Phipps Date 5-6-96
and
Supervisor or Operator Mark Phipps Date 5-6-96
(Sign once if Firm Official is Operator)

FORWARD WHITE COPY TO WATER RESOURCES

There are no Well Driller's Reports on file with IDWR for the:

Flack Corral 4-in well,
Little Gulch stock well, or
Big Gulch stock well.

The construction information we have available for the Big Gulch stock well and the Little Gulch stock well comes from down-hole video survey. The camera survey indicated well depth, diameter, well opening type and length, and general condition of the well. This information is included on Table 1 of the report.

A camera survey was not conducted on the Flack Corral 4-in well. The apparent bottom of this well was measured using a weighted tag line. It is not known whether the indicated bottom was the actual well bottom or the depth of materials standing in the bottom of the well or well bore collapse in an open hole. The casing diameter of the Flack Corral 4-in well was assumed to be equal to the casing diameter at ground surface. Well opening to the aquifer (size, type, materials, etc.) for this well is unknown. The assumed well depth and diameter are included on Table 1 of the report.

Appendix B – Barometric Efficiency Analyses

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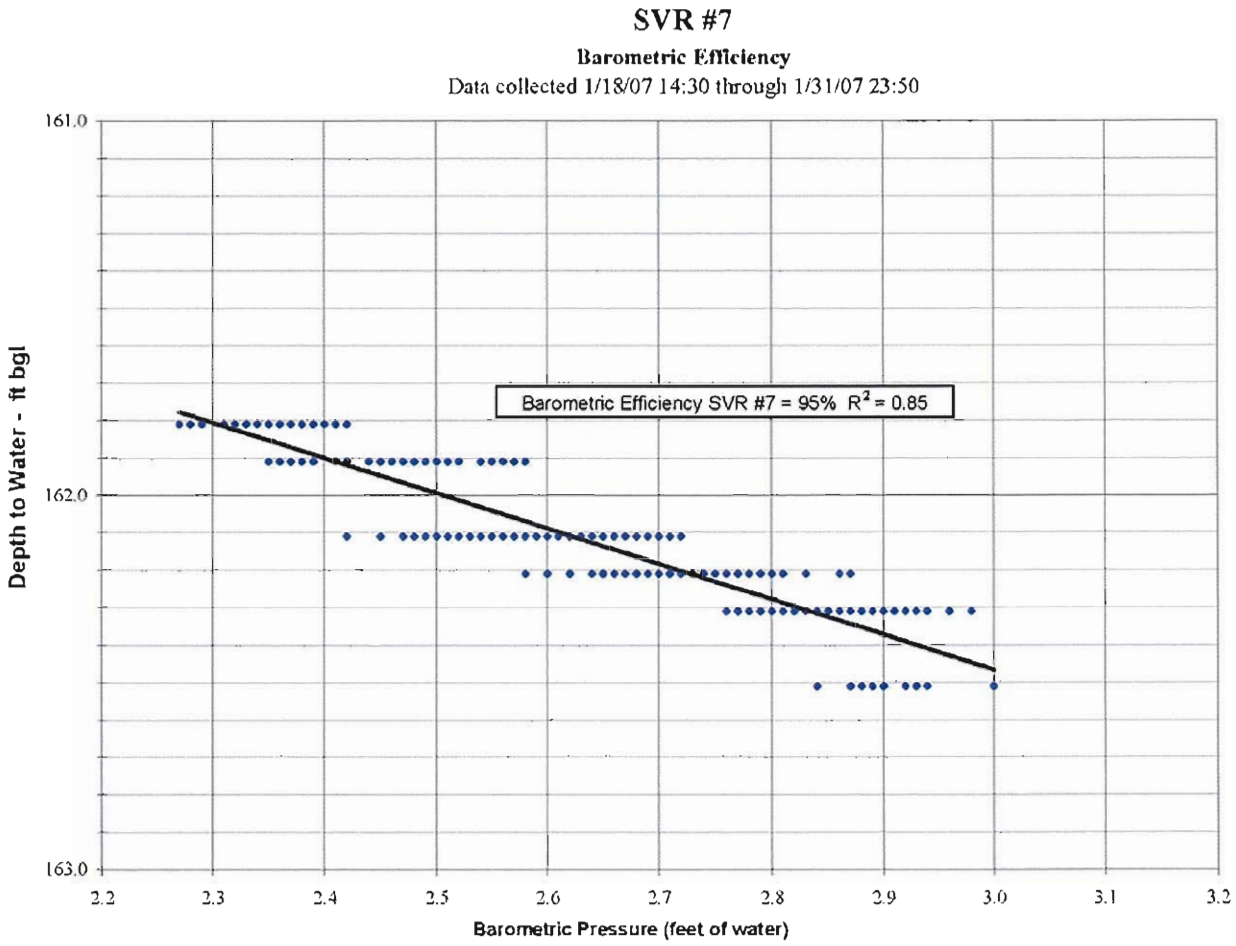
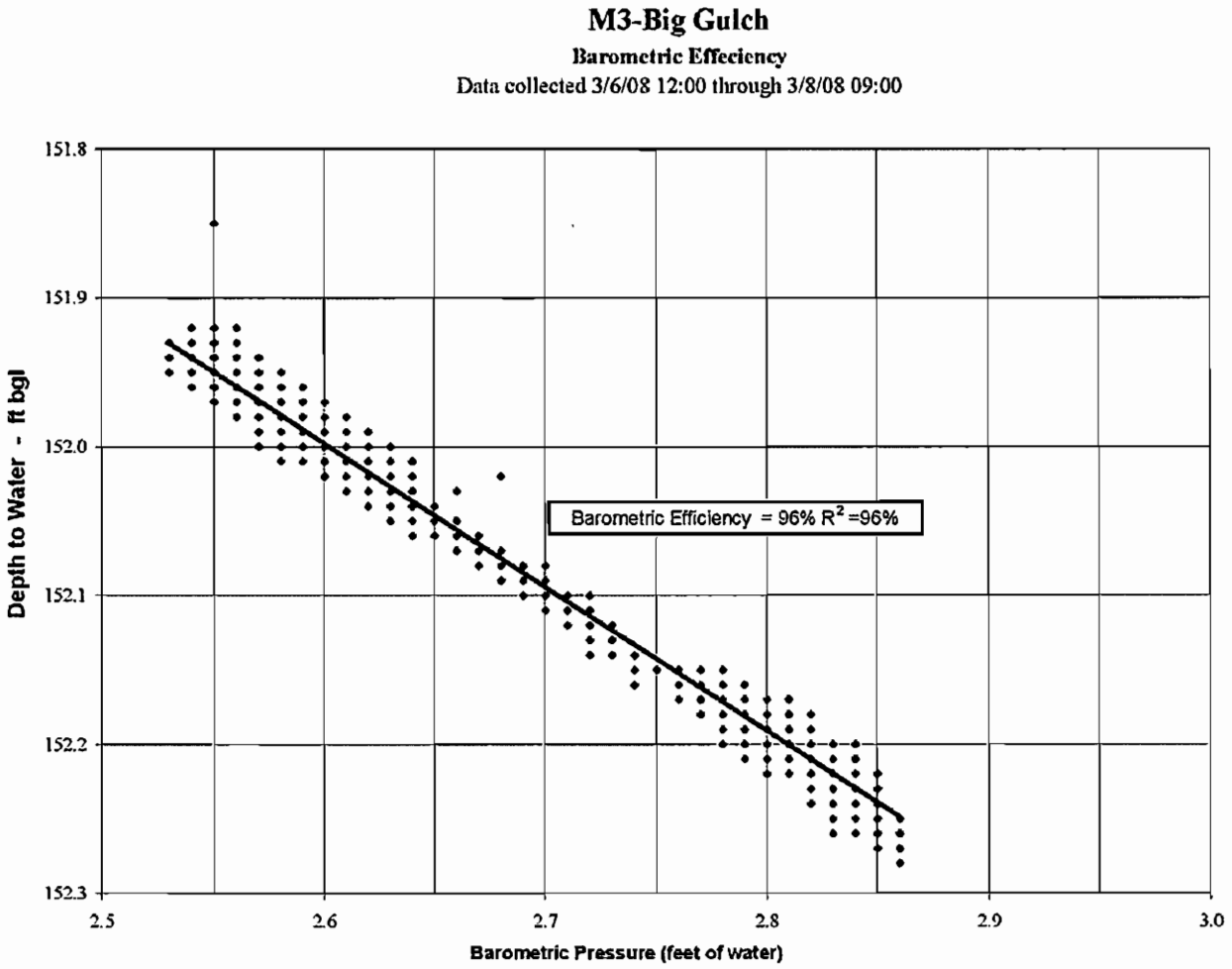
Figure B-1. Barometric Efficiency Plot for SVR #7



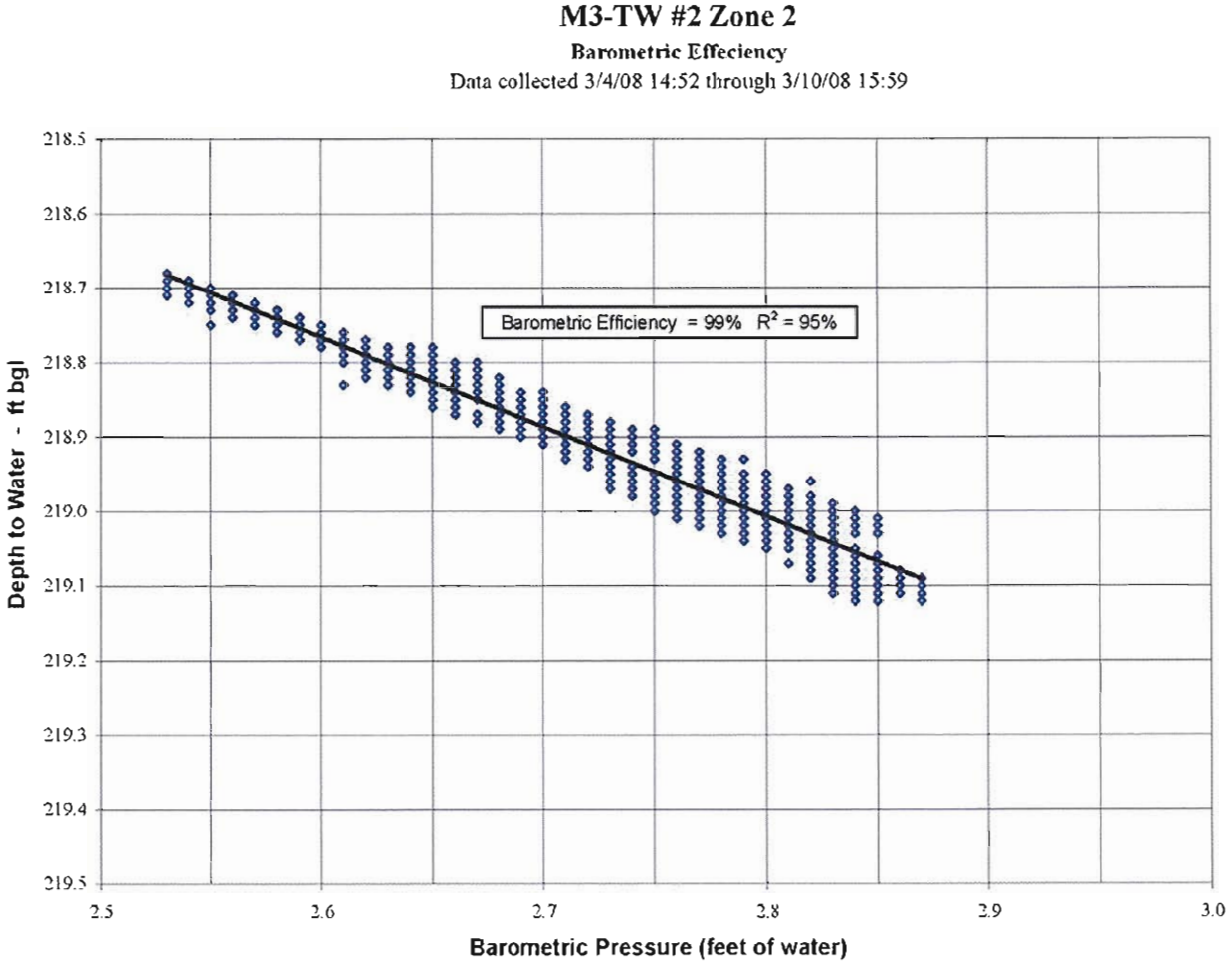
Distance from Pumping Well SVR #7 = 0 ft
Screen Depth = 280 to 350 ft

Figure B-2. Barometric Efficiency Plot for Big Gulch Stock Well



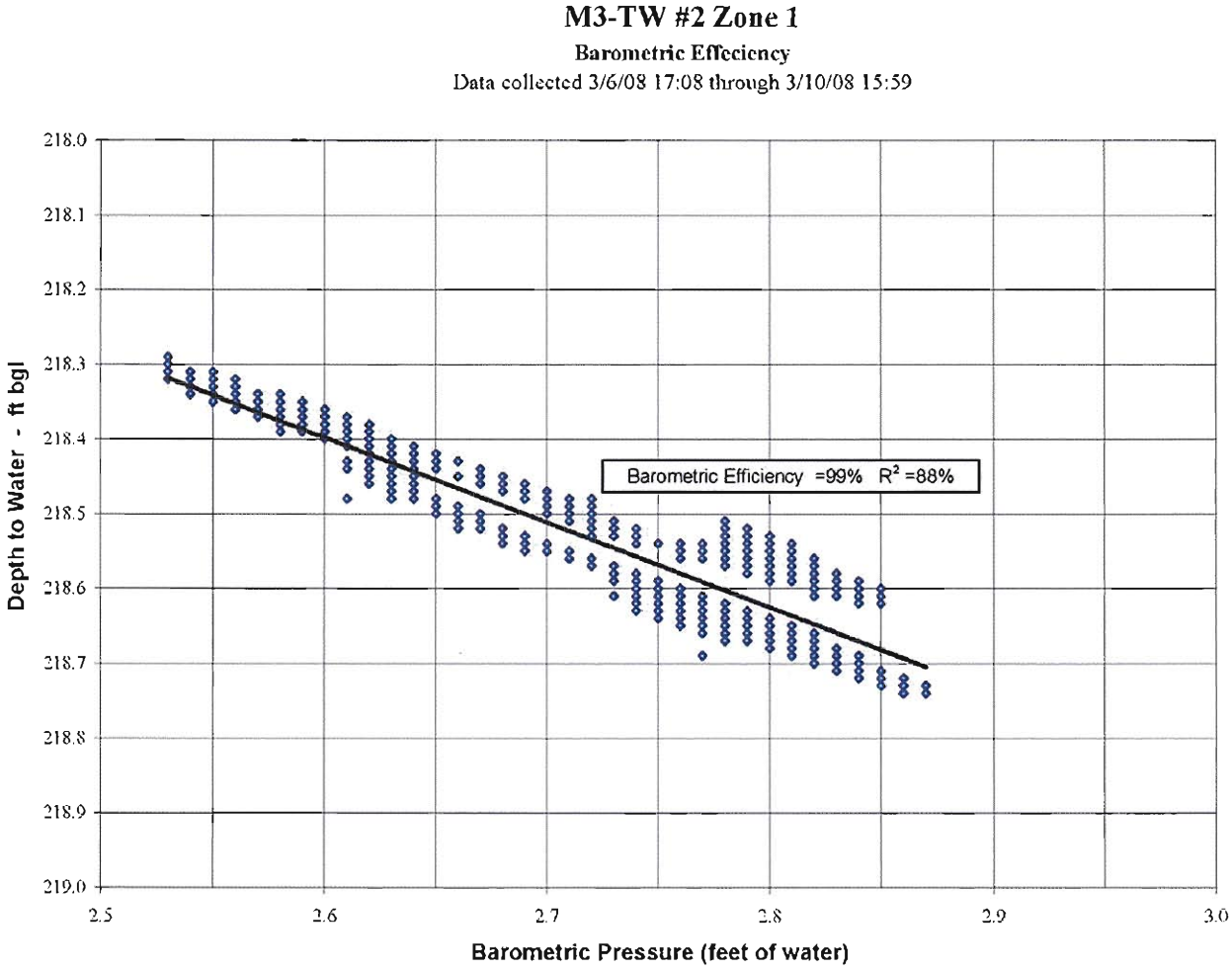
Distance from Pumping Well SVR #7 = 845 ft
Screen Depth = 180 to 180 ft ("open hole," no well screen)

Figure B-3. Barometric Efficiency Plot for TW #2 Zone 2



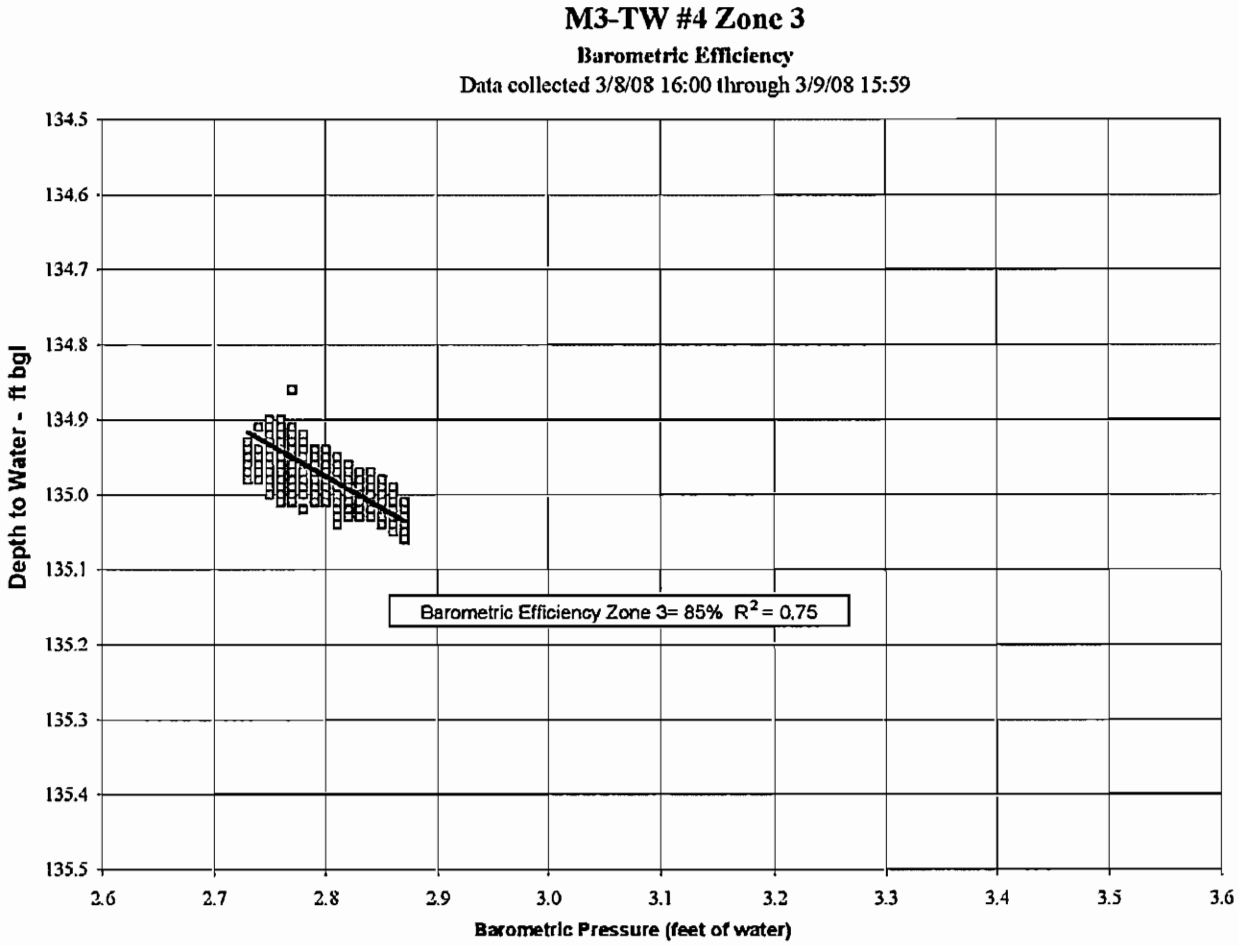
Distance from Pumping Well SVR #7 = 3,636 ft
Screen Depth = 230 to 250 ft

Figure B-4. Barometric Efficiency Plot for TW #2 Zone 1



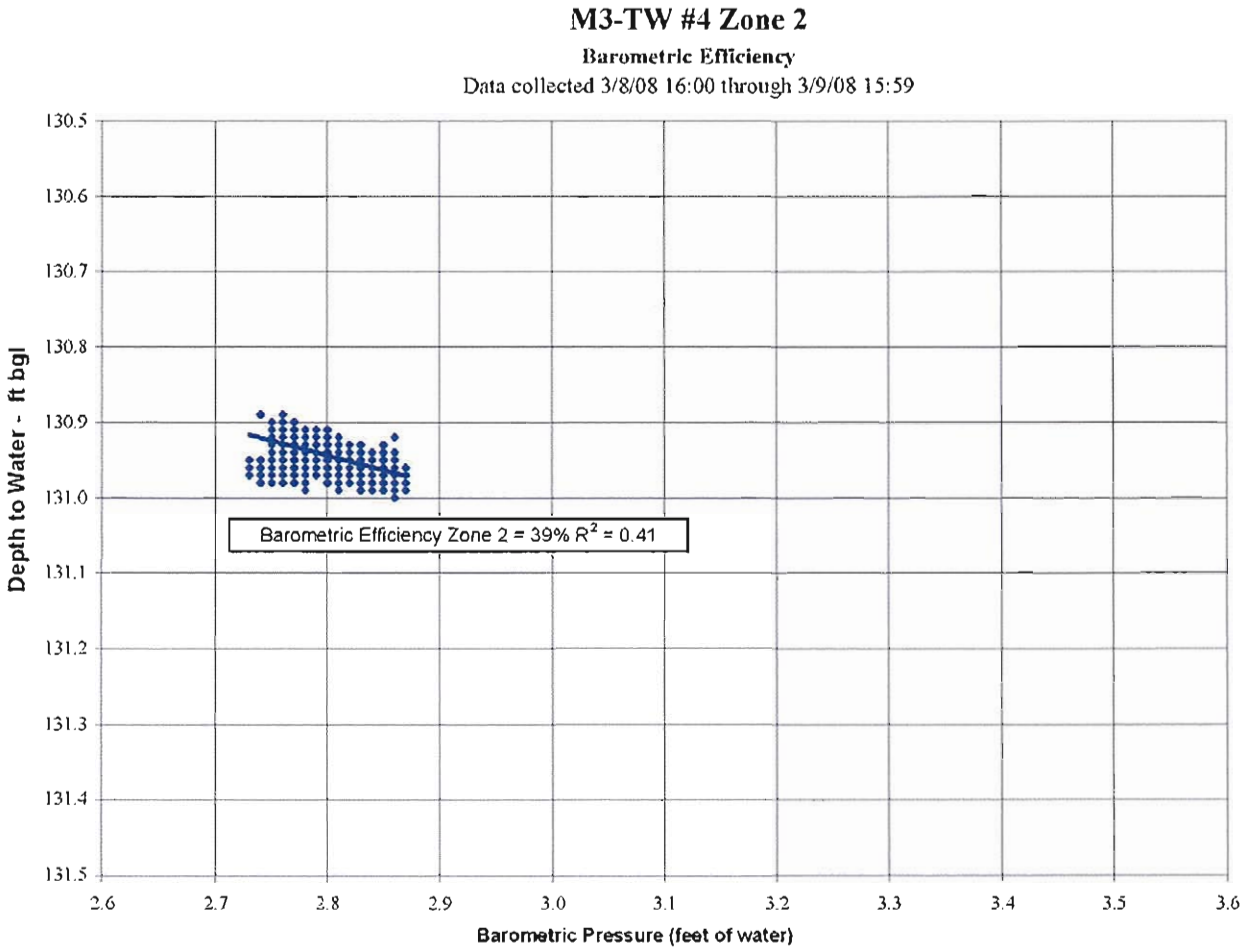
Distance from Pumping Well SVR #7 = 3,636 ft
Screen Depth = 270 to 320 ft

Figure B-5. Barometric Efficiency Plot for TW #4 Zone 3



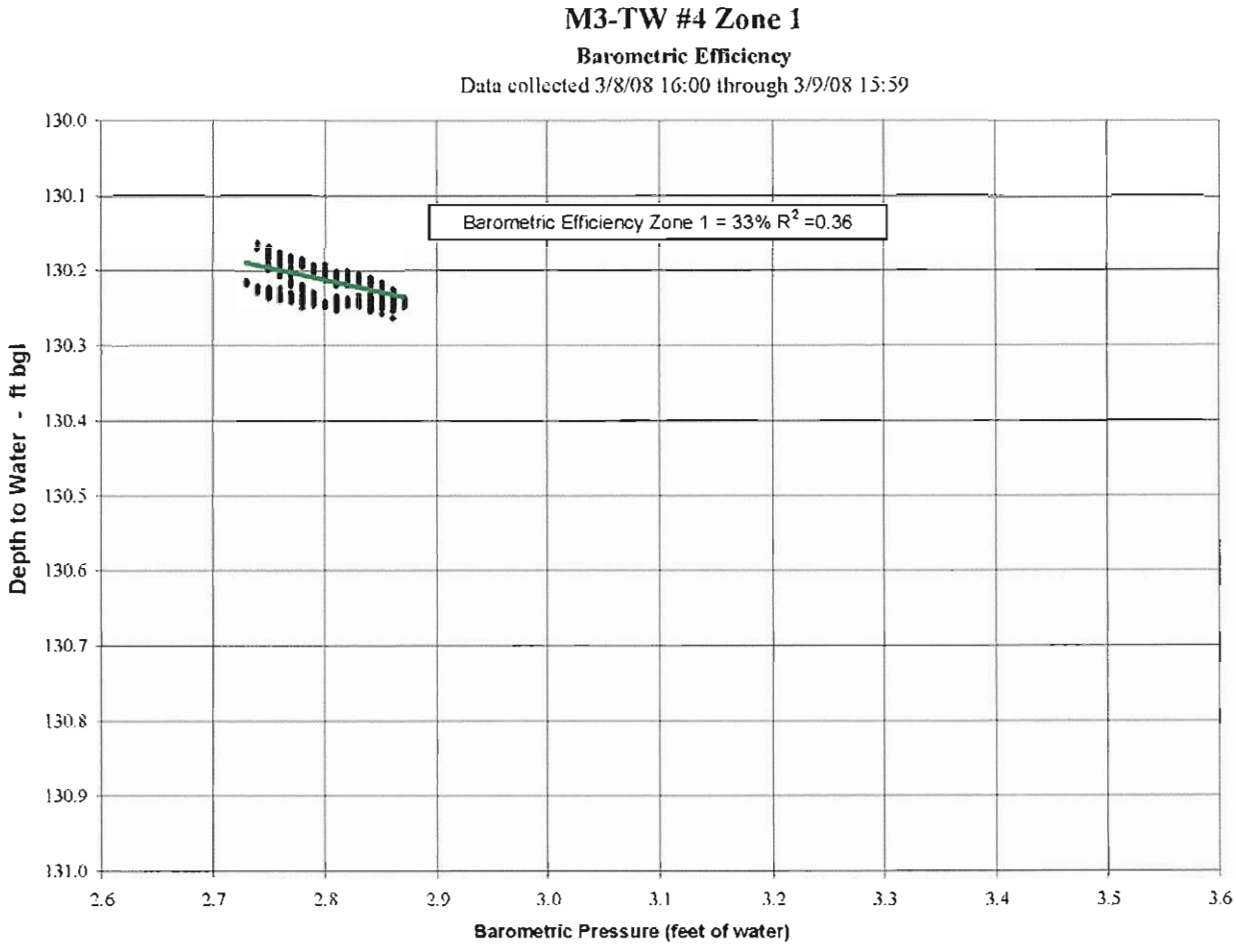
Distance from Pumping Well SVR #7 = 4,489 ft
Screen Depth = 181 to 201 ft

Figure B-6. Barometric Efficiency Plot for TW #4 Zone 2



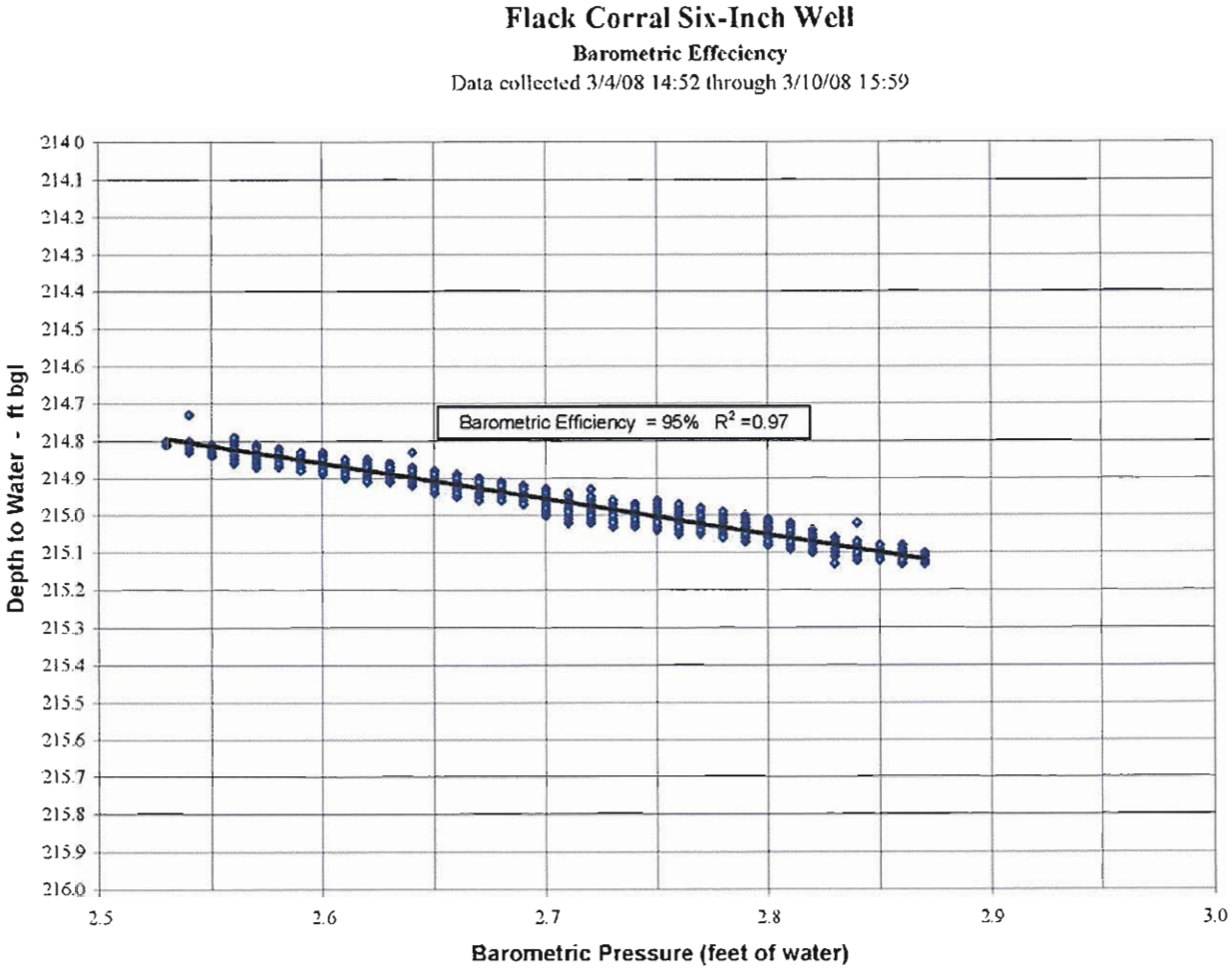
Distance from Pumping Well SVR #7 = 4,489 ft
Screen Depth = 325 to 556 ft

Figure B-7. Barometric Efficiency Plot for TW #4 Zone 1



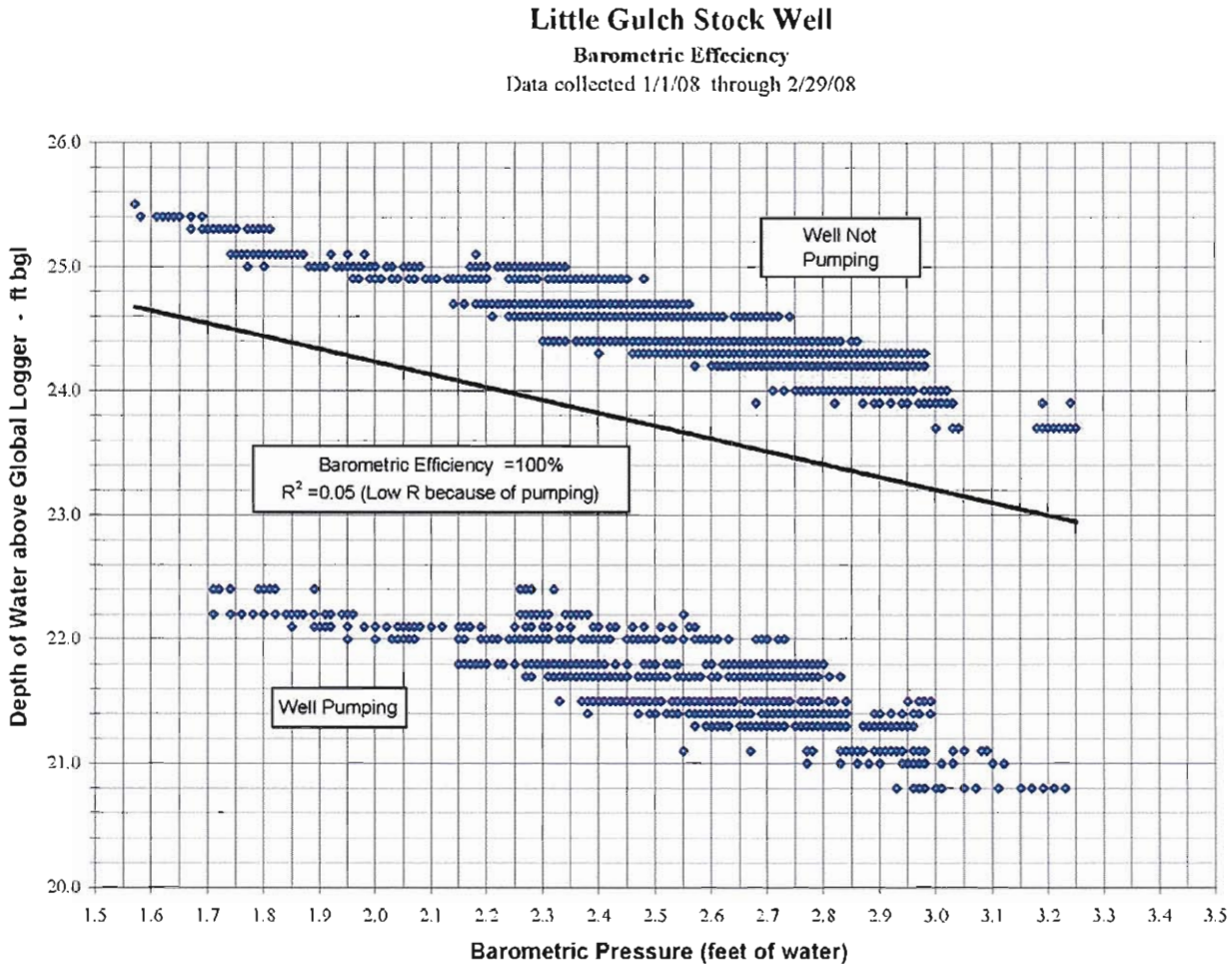
Distance from Pumping Well SVR #7 = 4,489 ft
Screen Depth = 625 to 646 ft

Figure B-8. Barometric Efficiency Plot for Flack Corral 6-Inch Well



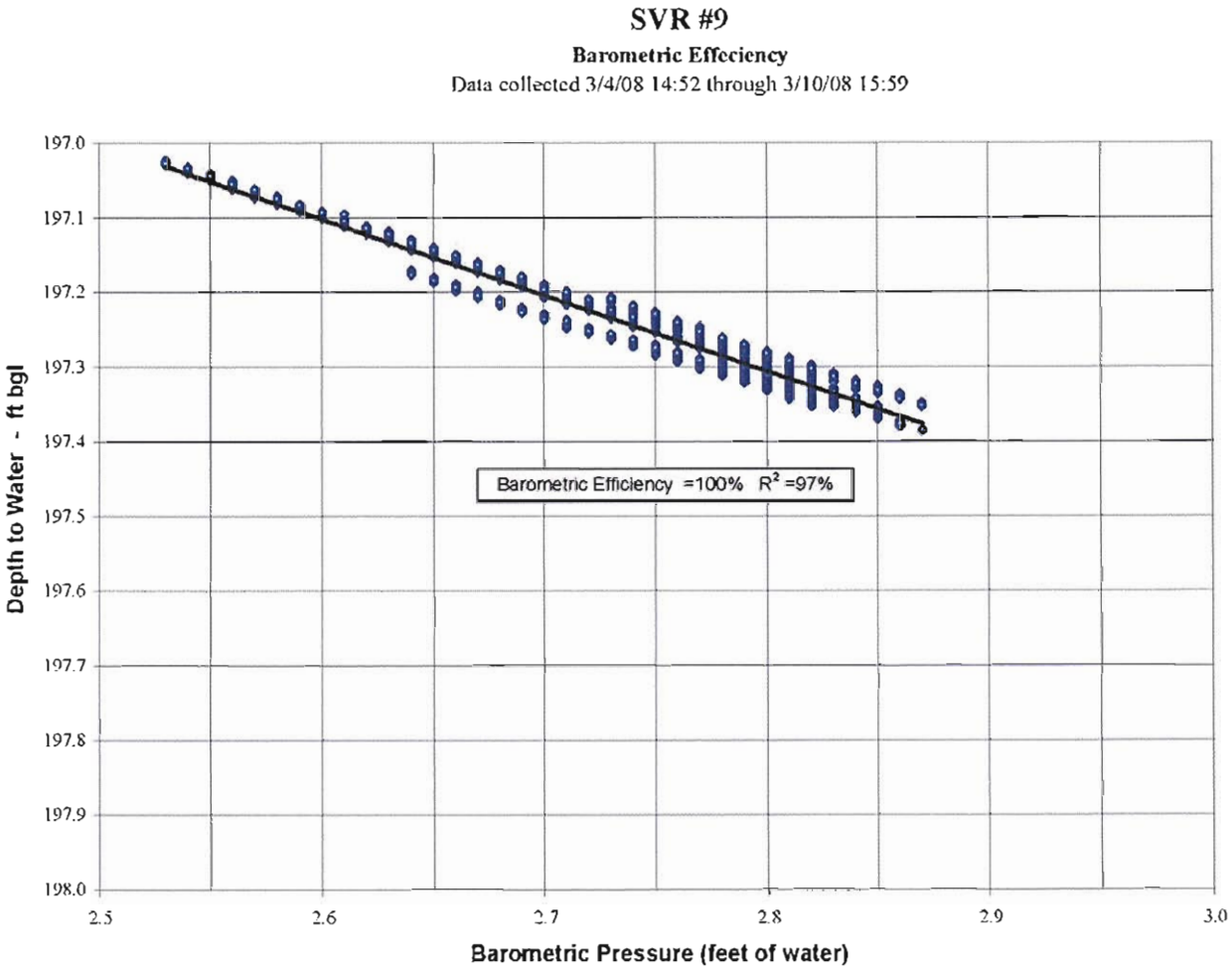
Distance from Pumping Well SVR #7 = 6,749 ft
Screen Depth = 74 to 386 ft

Figure B-9. Barometric Efficiency Plot for Little Gulch Stock Well



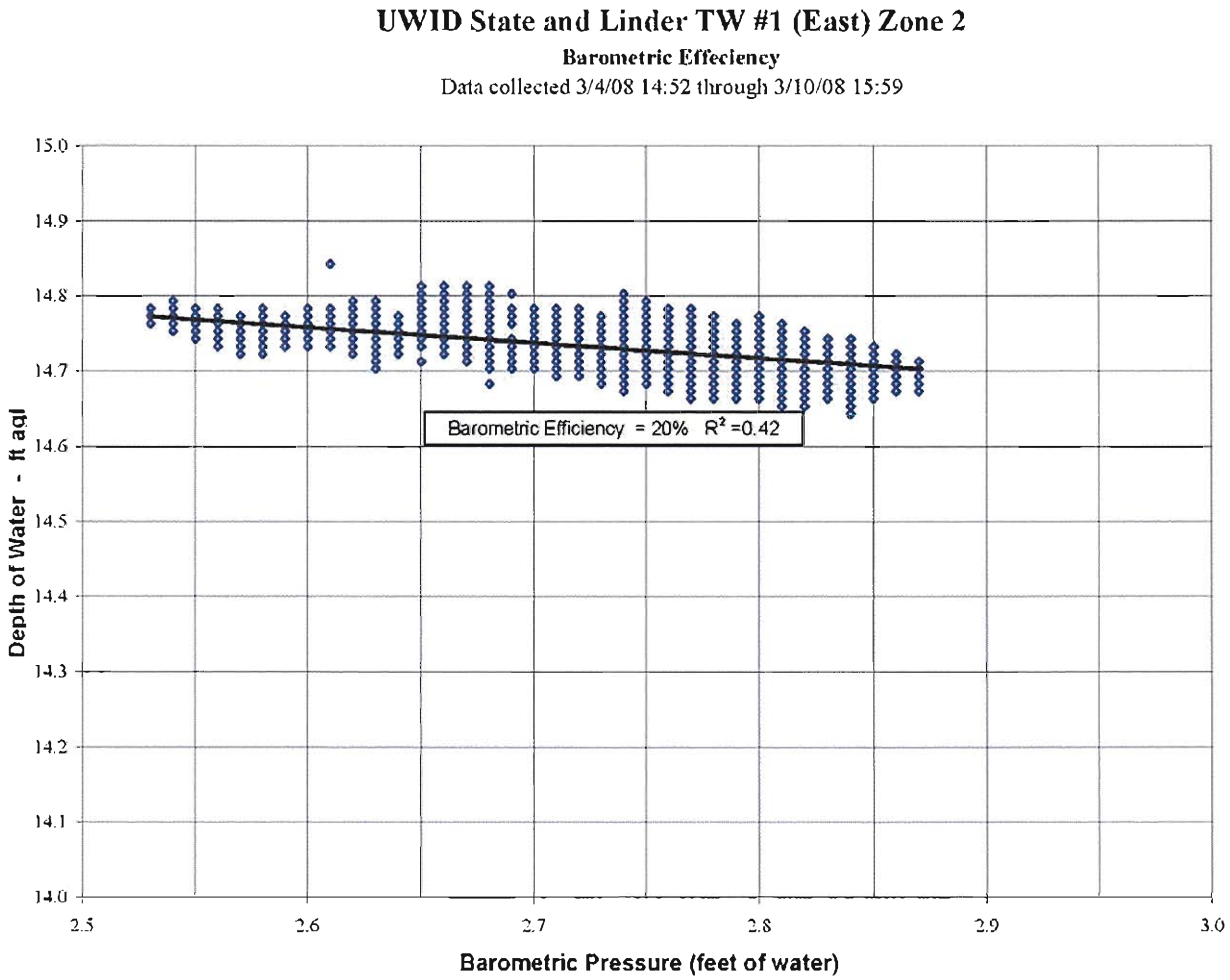
Distance from Pumping Well SVR #7 = 9,740 ft
Screen Depth = 220 to 223 ft

Figure B-10. Barometric Efficiency Plot for SVR #9



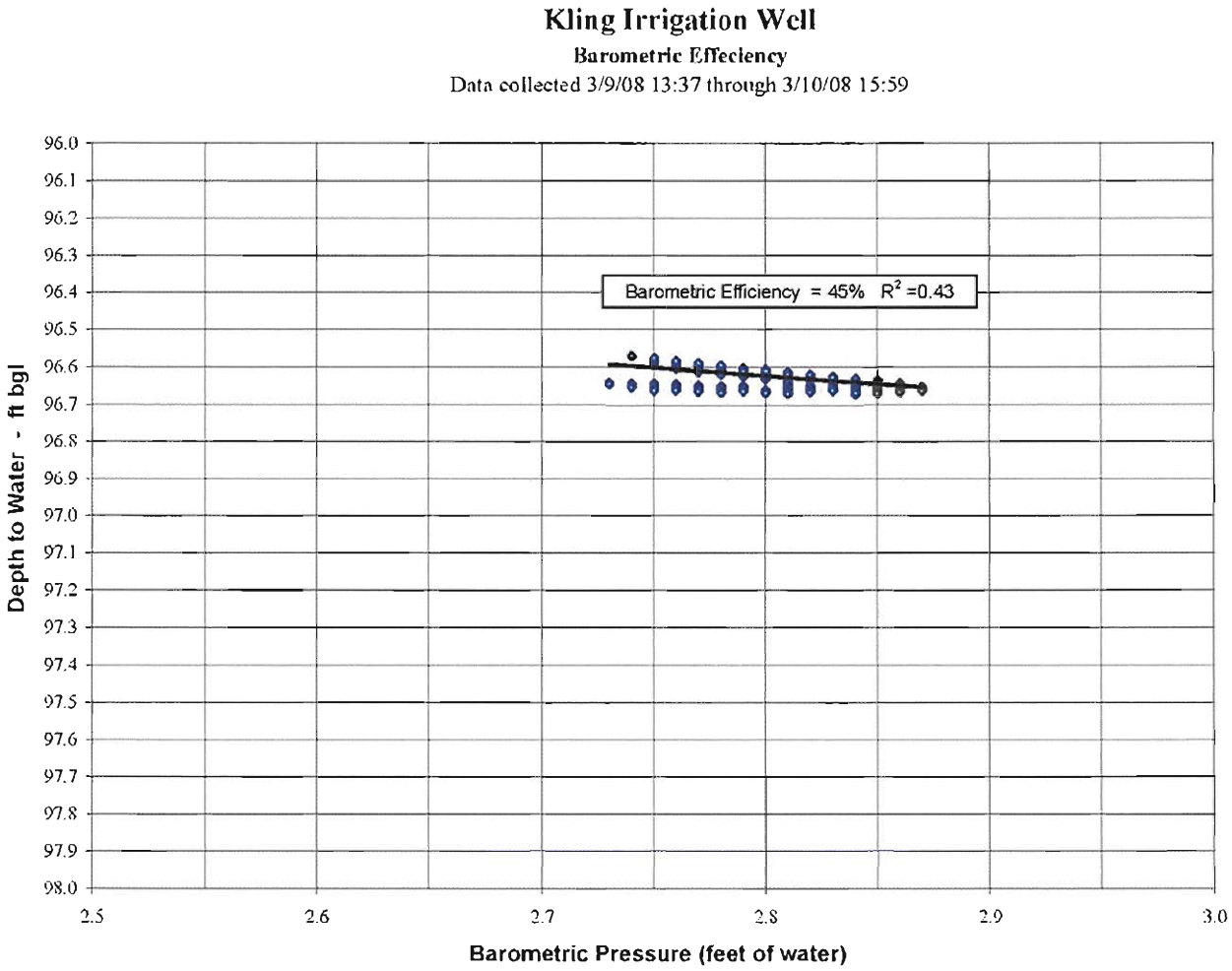
Distance from Pumping Well SVR #7 = 11.660 ft
Screen Depth = 235 to 263 ft

Figure B-11. Barometric Efficiency Plot for State and Linder TW #1 (east) Zone 2



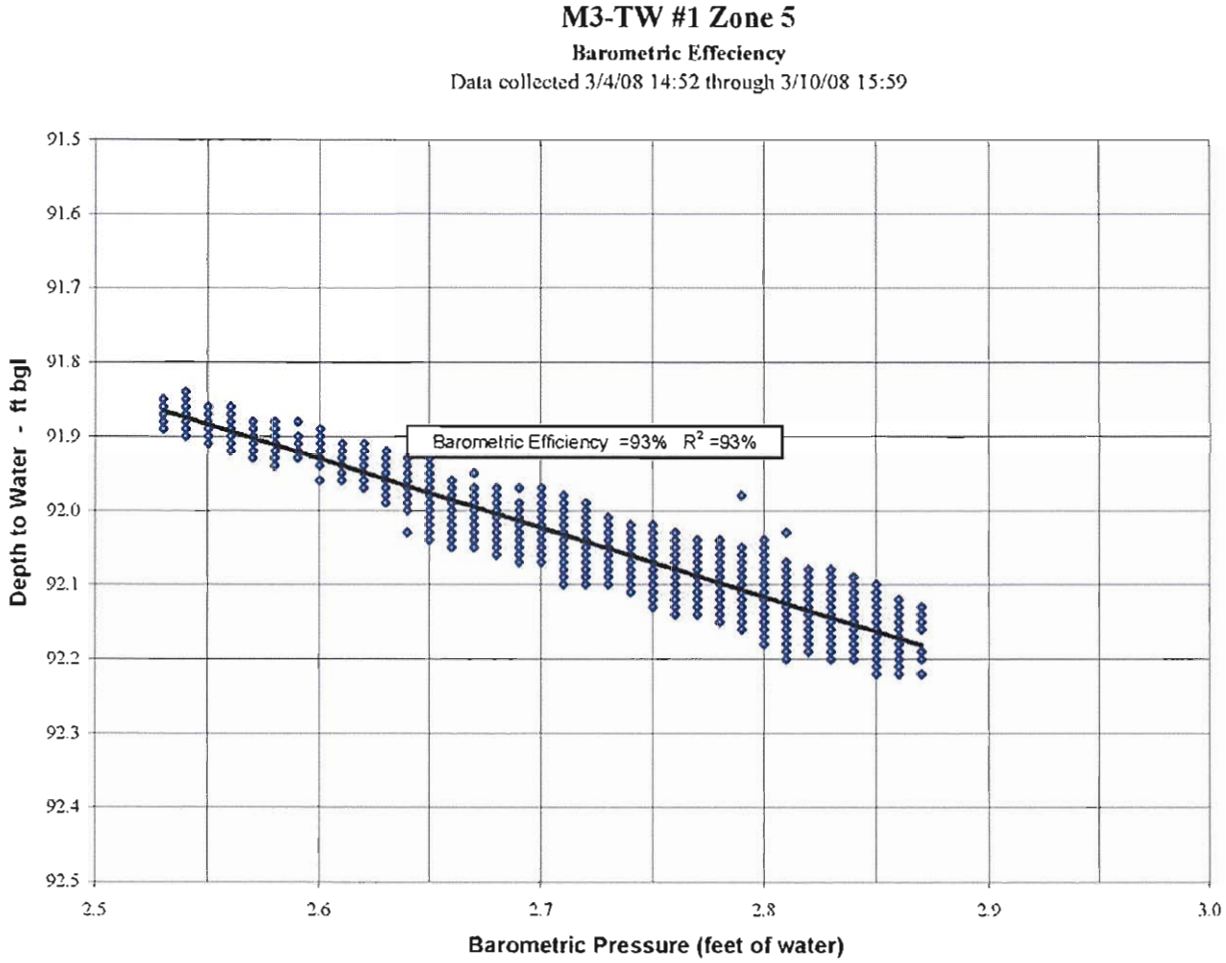
Distance from Pumping Well SVR #7 = 22,302 ft
Screen Depth = 280 to 370 ft

Figure B-12. Barometric Efficiency Plot for the Kling Irrigation Well



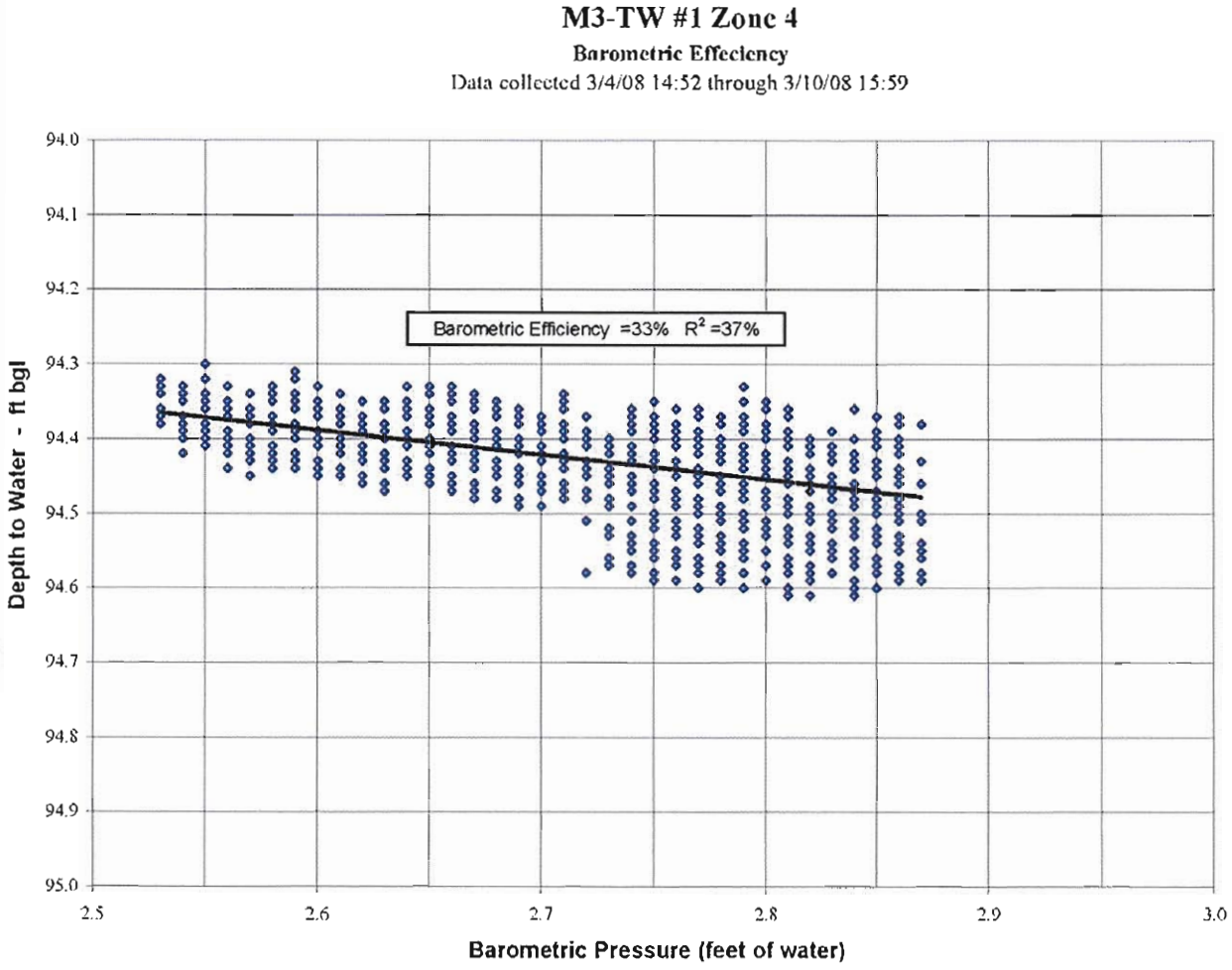
Distance from Pumping Well SVR #7 = 9,908 ft
Screen Depth = 198 to 408 ft

Figure B-13. Barometric Efficiency Plot for TW #1 Zone 5



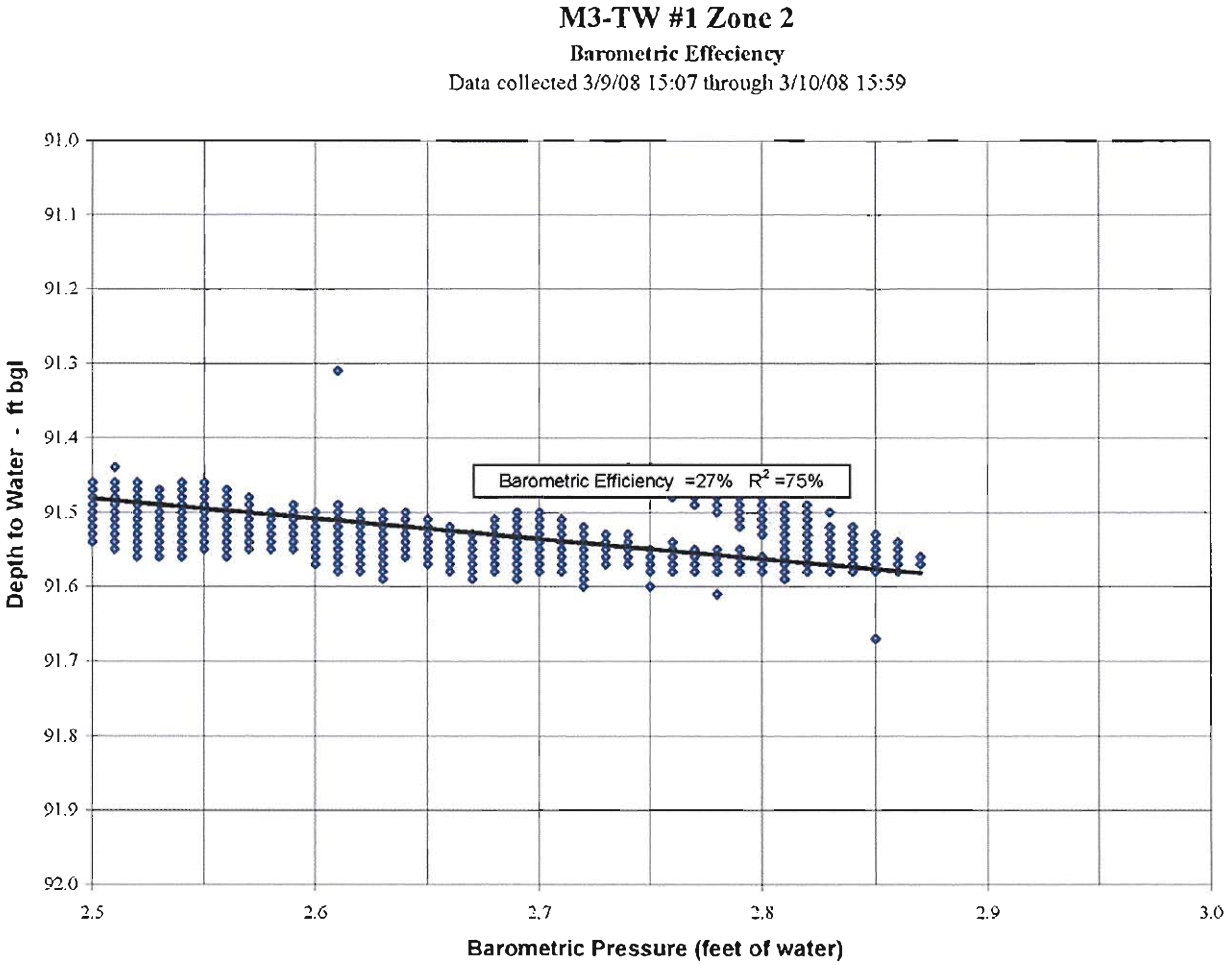
Distance from Pumping Well SVR #7 = 10,916 ft
Screen Depth = 97 to 137 ft

Figure B-14. Barometric Efficiency Plot for TW #1 Zone 4



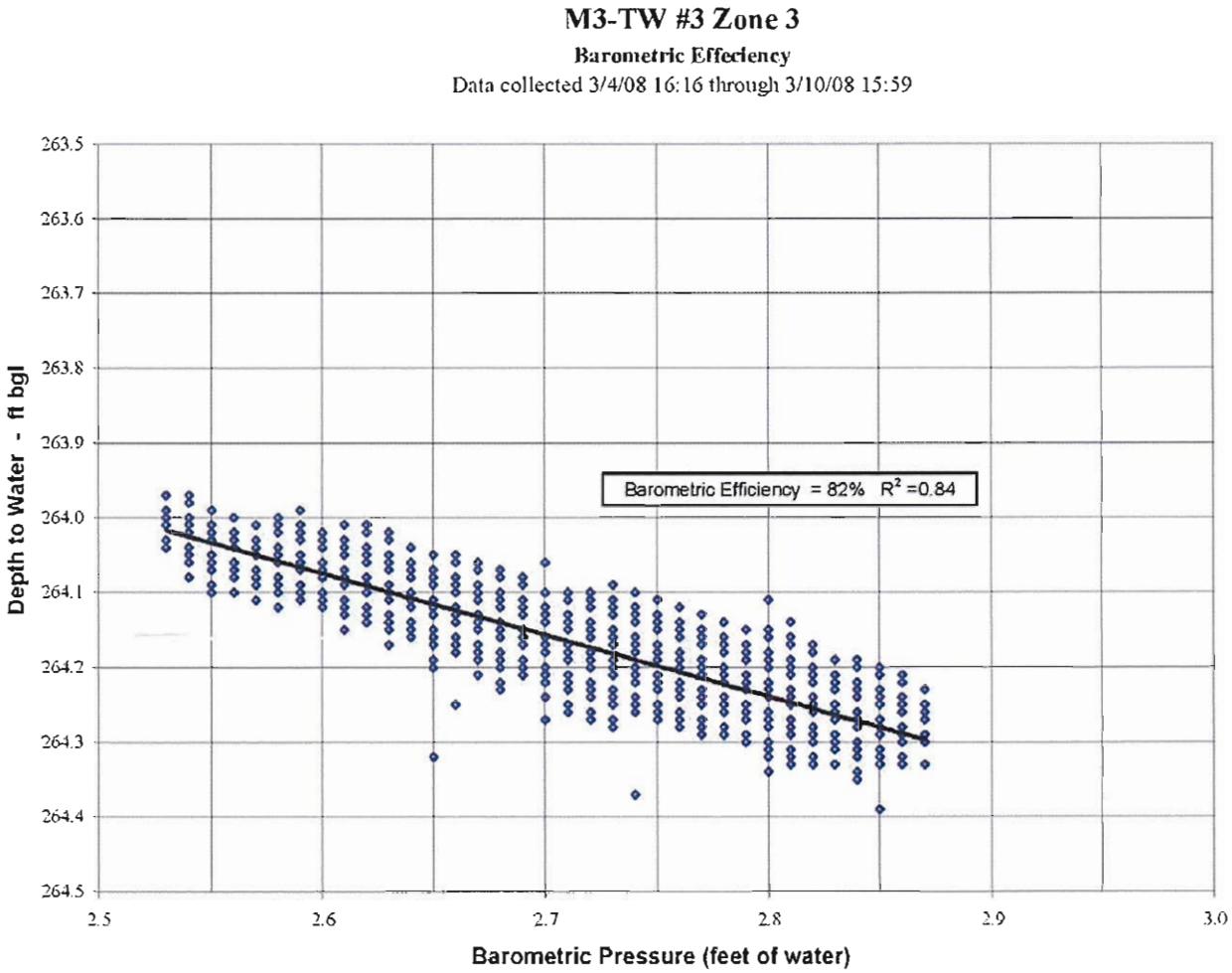
Distance from Pumping Well SVR #7 = 10,916 ft
Screen Depth = 253 to 383 ft

Figure B-15. Barometric Efficiency Plot for TW #1 Zone 2



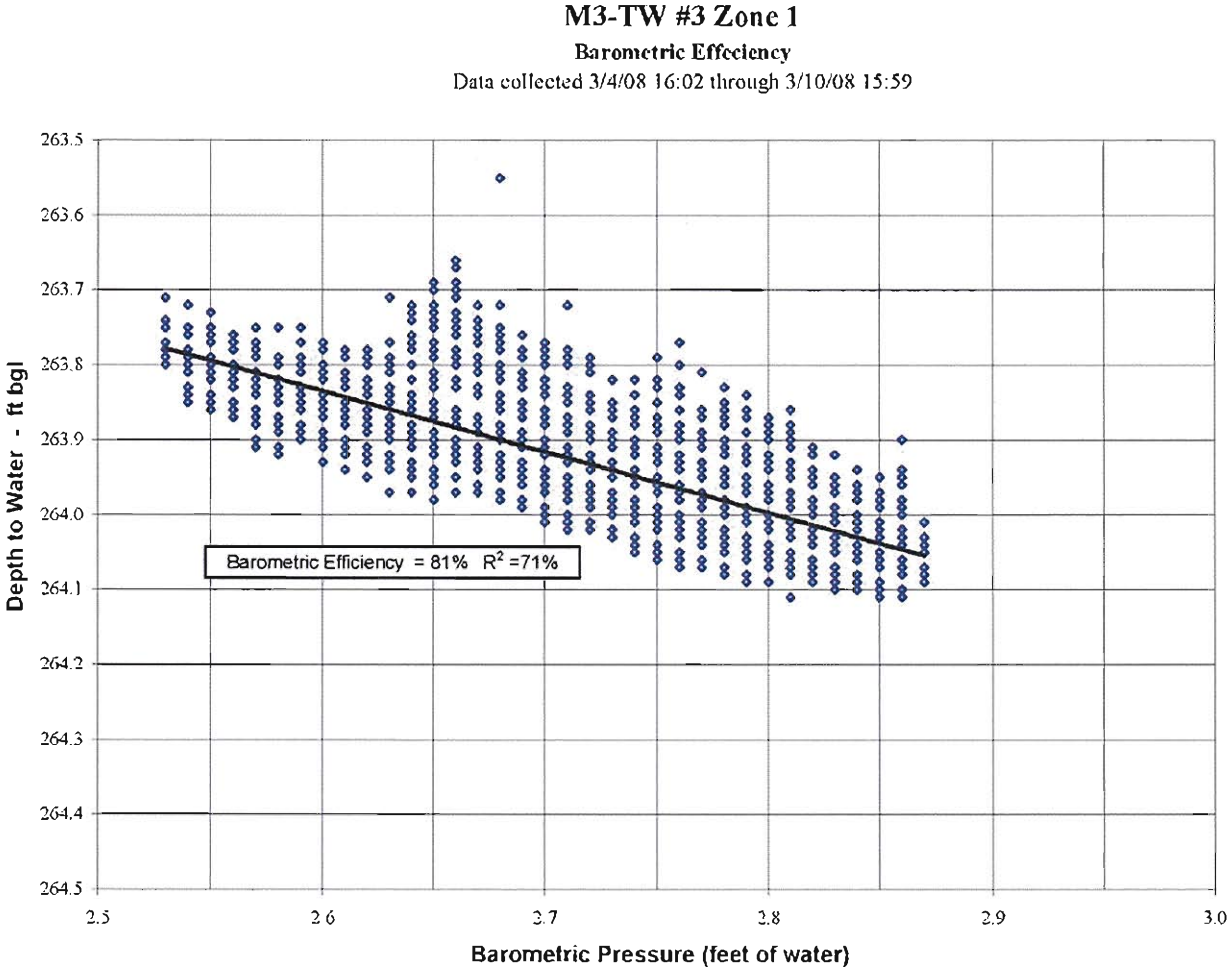
Distance from Pumping Well SVR #7 = 10,916 ft
Screen Depth = 467 to 507 ft

Figure B-16. Barometric Efficiency Plot for TW #3 Zone 3



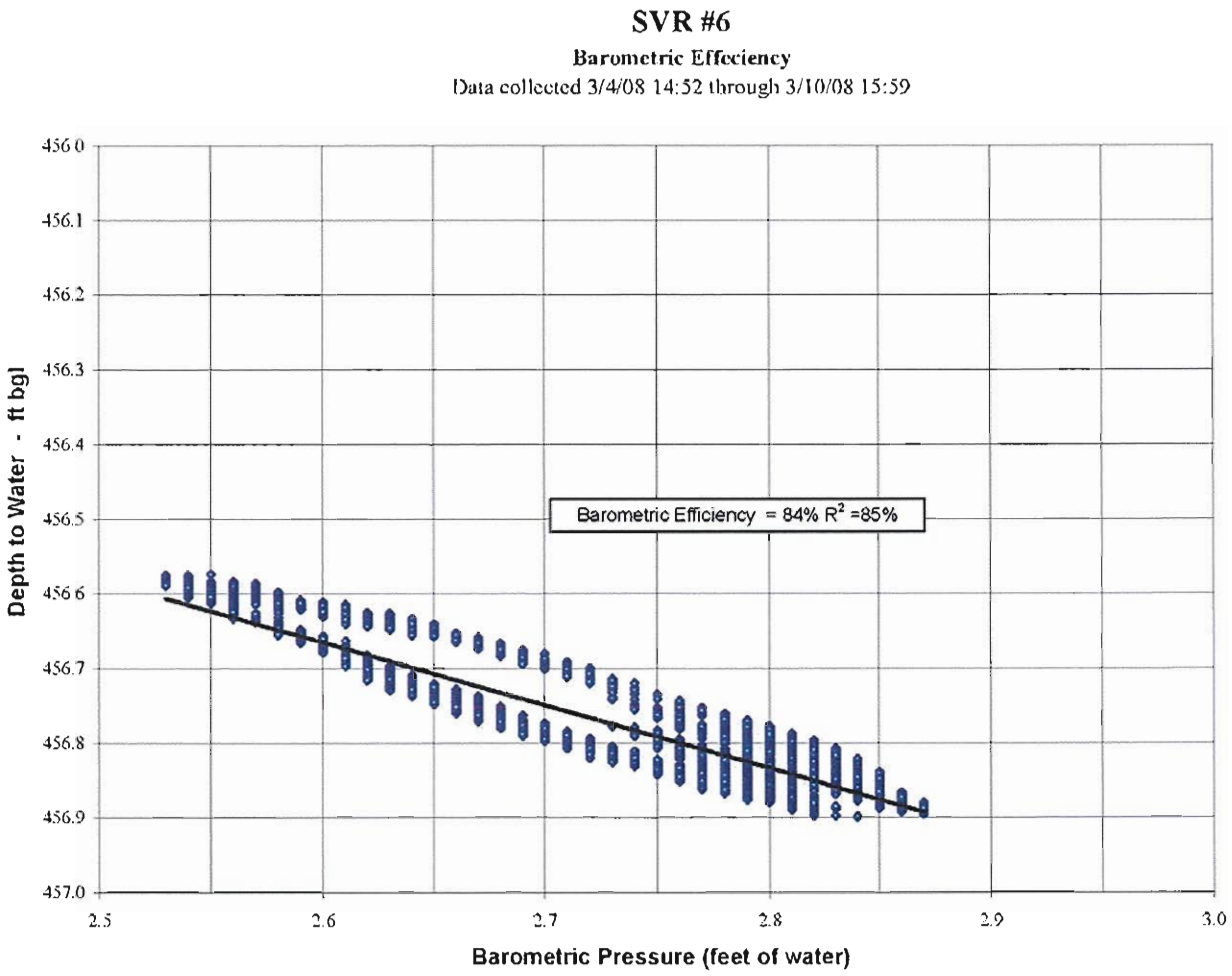
Distance from Pumping Well SVR #7 = 8,173 ft
Screen Depth = 369 to 379 ft

Figure B-17. Barometric Efficiency Plot for TW #3 Zone 1



Distance from Pumping Well SVR #7 = 8,173 ft
Screen Depth = 432 to 442 ft

Figure B-18. Barometric Efficiency Plot for SVR #6



In Willow Creek Aquifer - NOT in Pierce Gulch Sand Aquifer
Distance from Pumping Well SVR #7 = 8,189 ft
Screen Depth = 560 to 730 ft

Appendix C – Actual and BE-Corrected Water Levels

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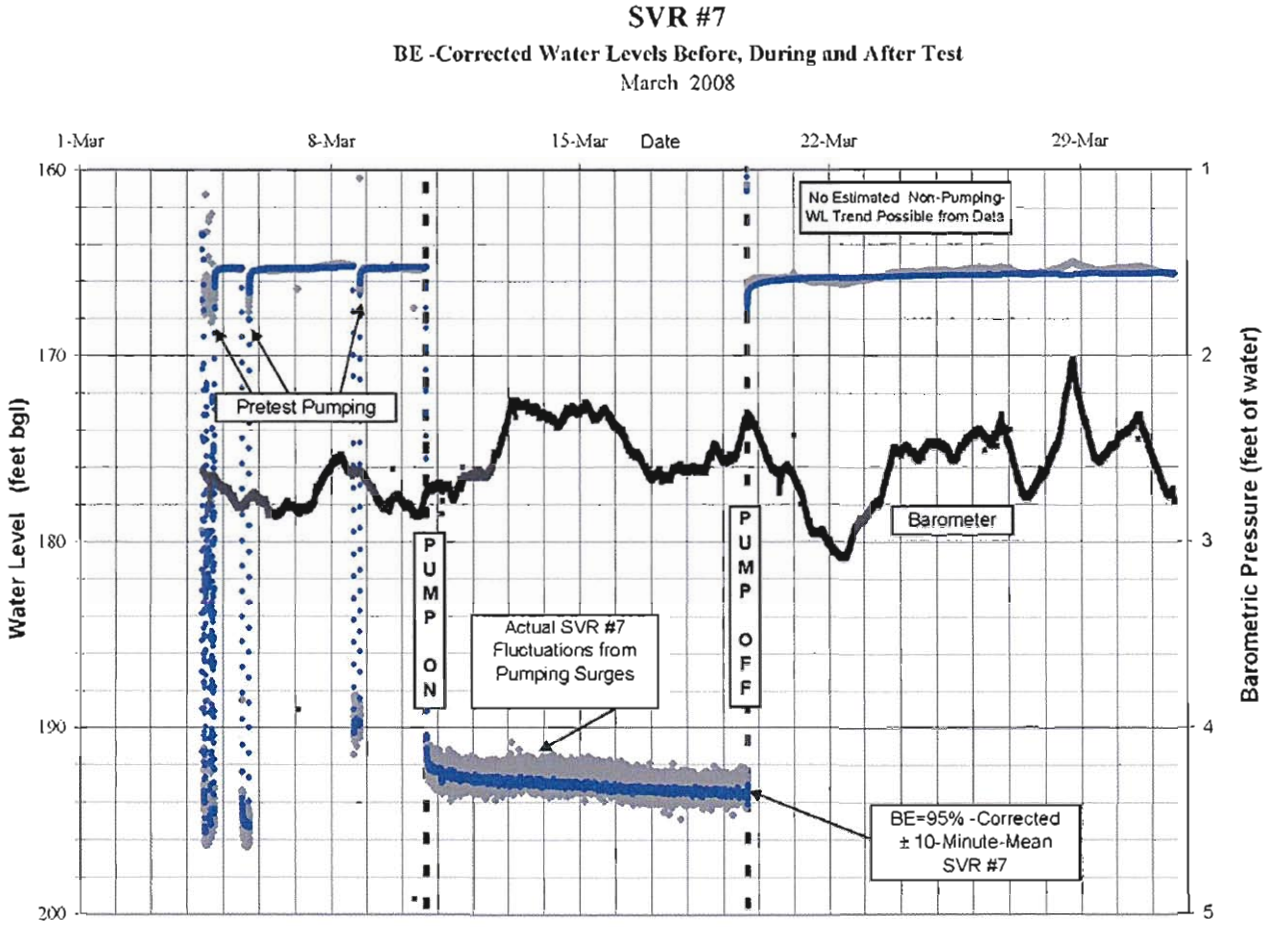
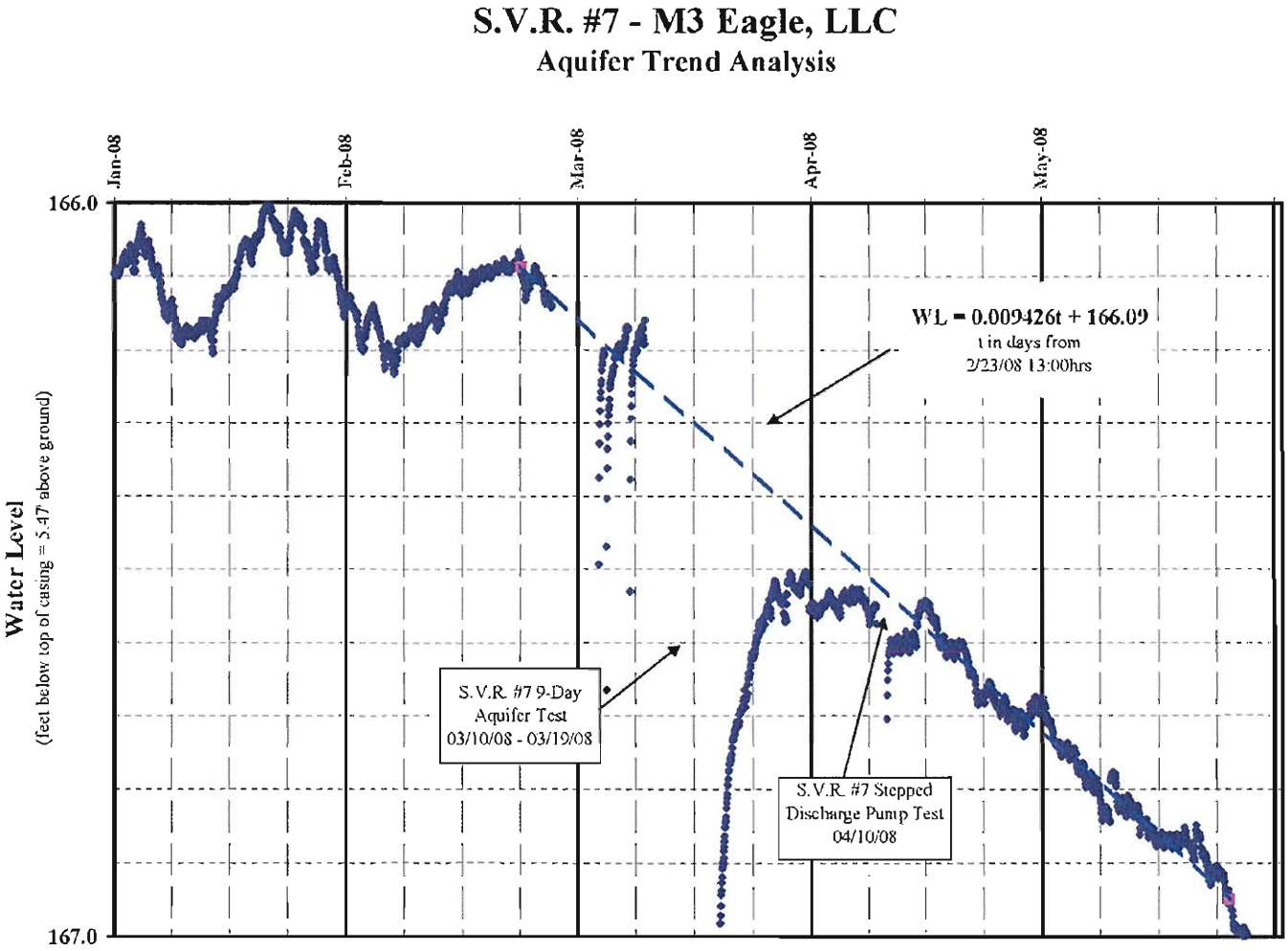
Figure C-1. Actual and BE-Corrected Water Levels for SVR #7



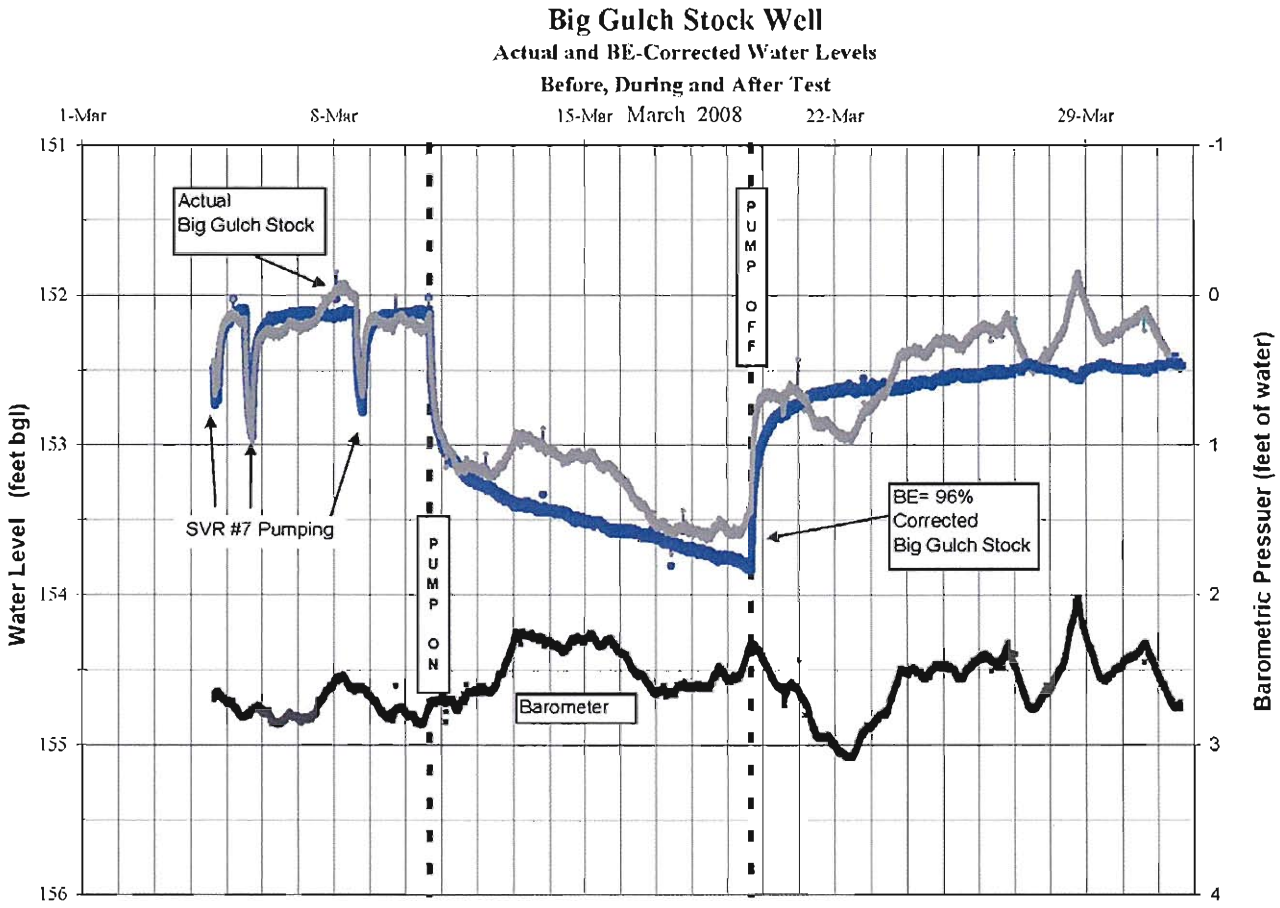
Distance from Pumping Well SVR #7 = 0 ft
Screen Depth = 280 to 350 ft

Figure C-2. Post-Test Water-Level Trend Analysis for SVR #7



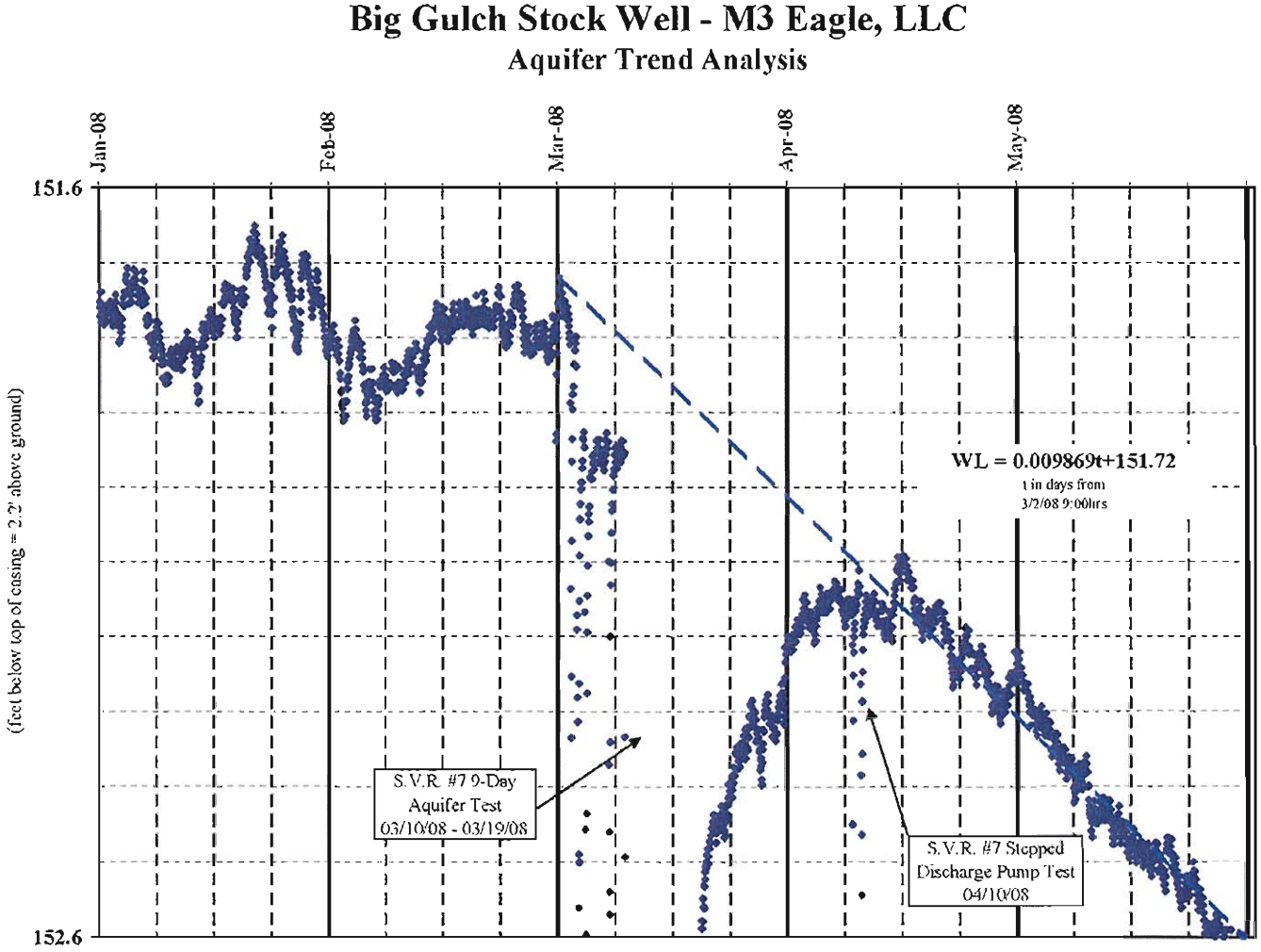
Plotted water levels shown above on hydrograph have been corrected for barometric fluctuations.

Figure C-3. Actual and BE-Corrected Water Levels for Big Gulch Stock Well



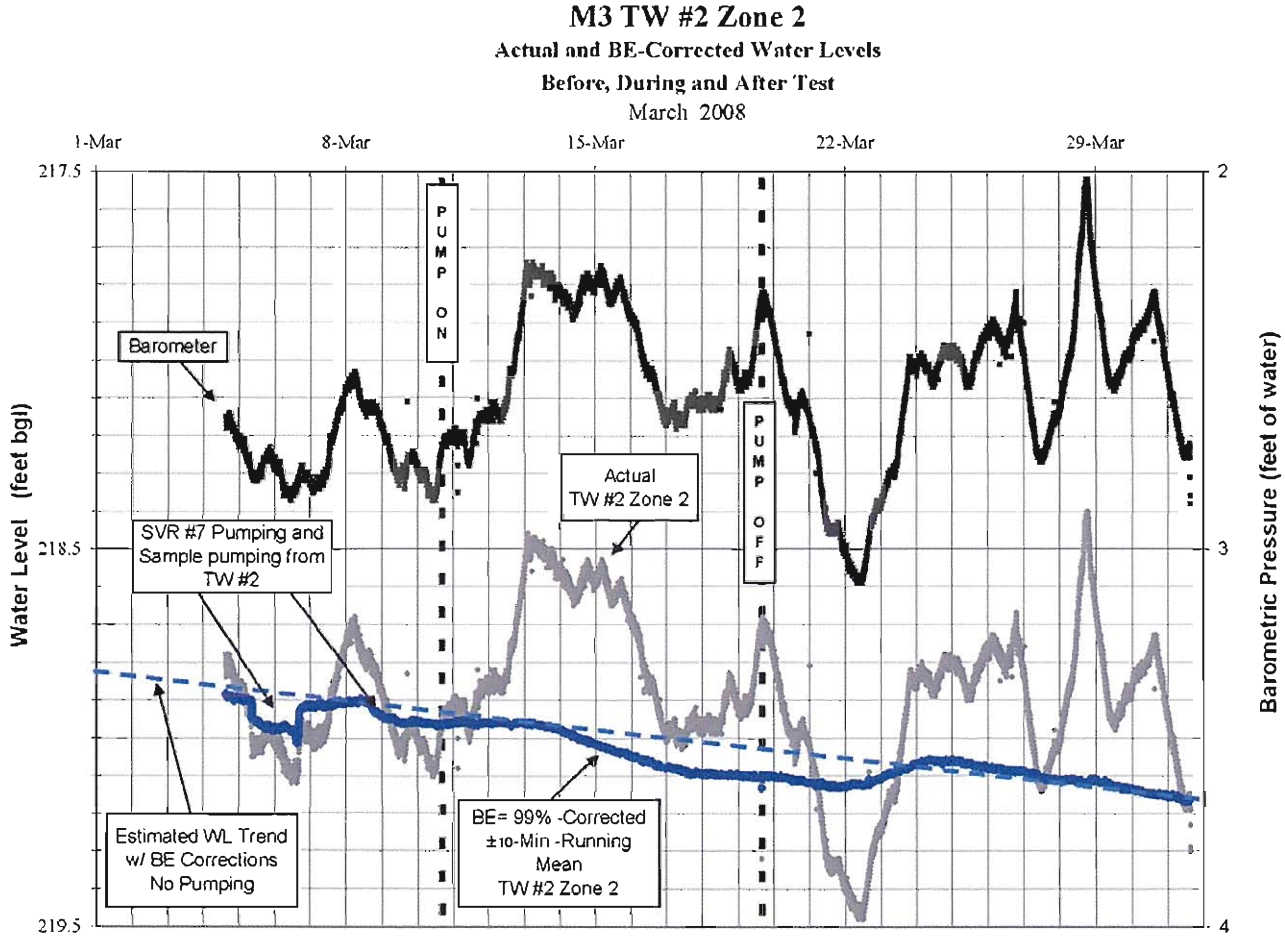
Distance from Pumping Well SVR #7 = 845 ft
Screen Depth = 180 to 180 ft ("open hole," no well screen)

Figure C-4. Post-Test Water-Level Trend Analysis for Big Gulch Stock Well



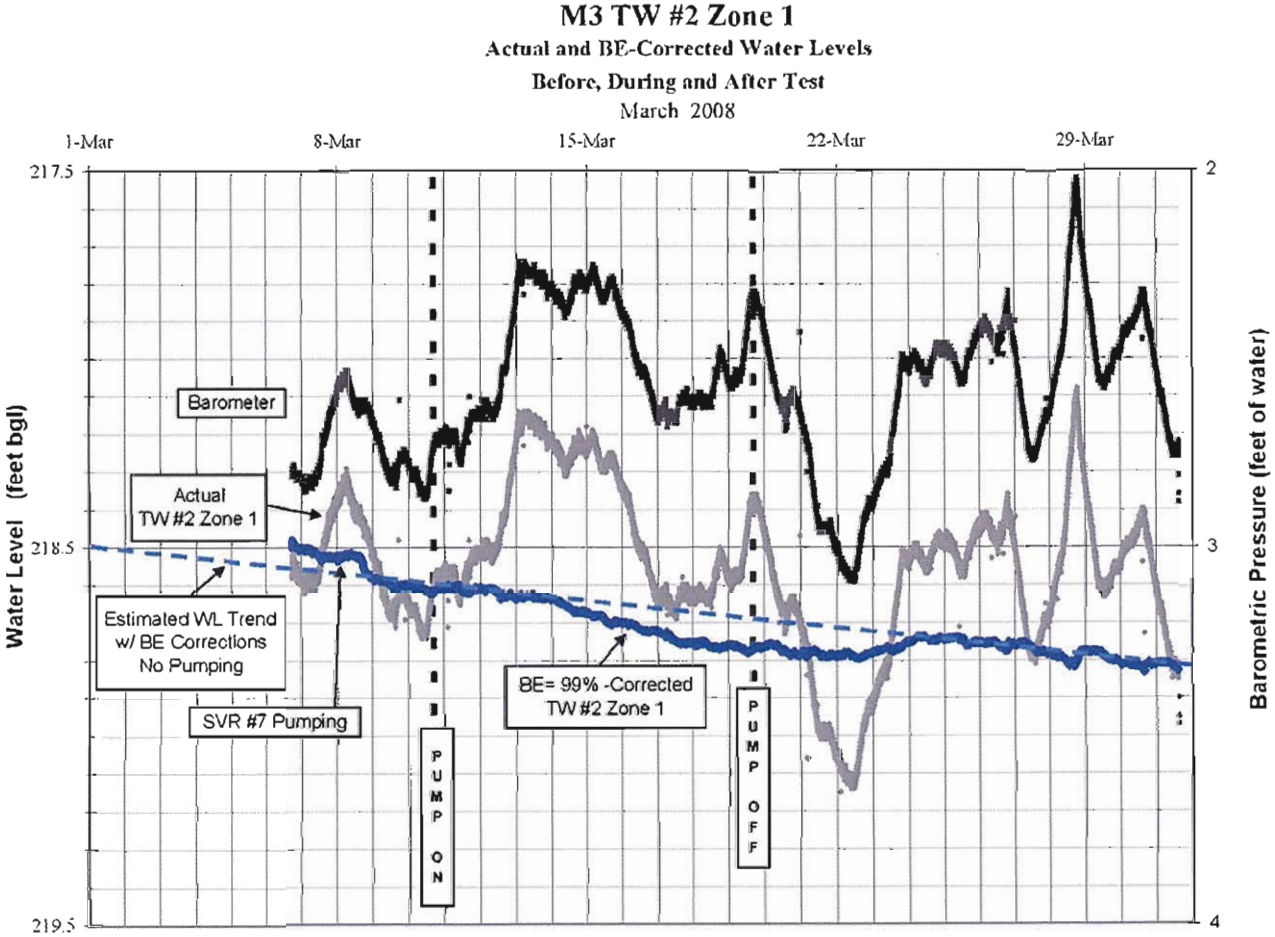
Plotted water levels shown above on hydrograph have been corrected for barometric fluctuations.

Figure C-5. Actual and BE-Corrected Water Levels for TW #2 Zone 2



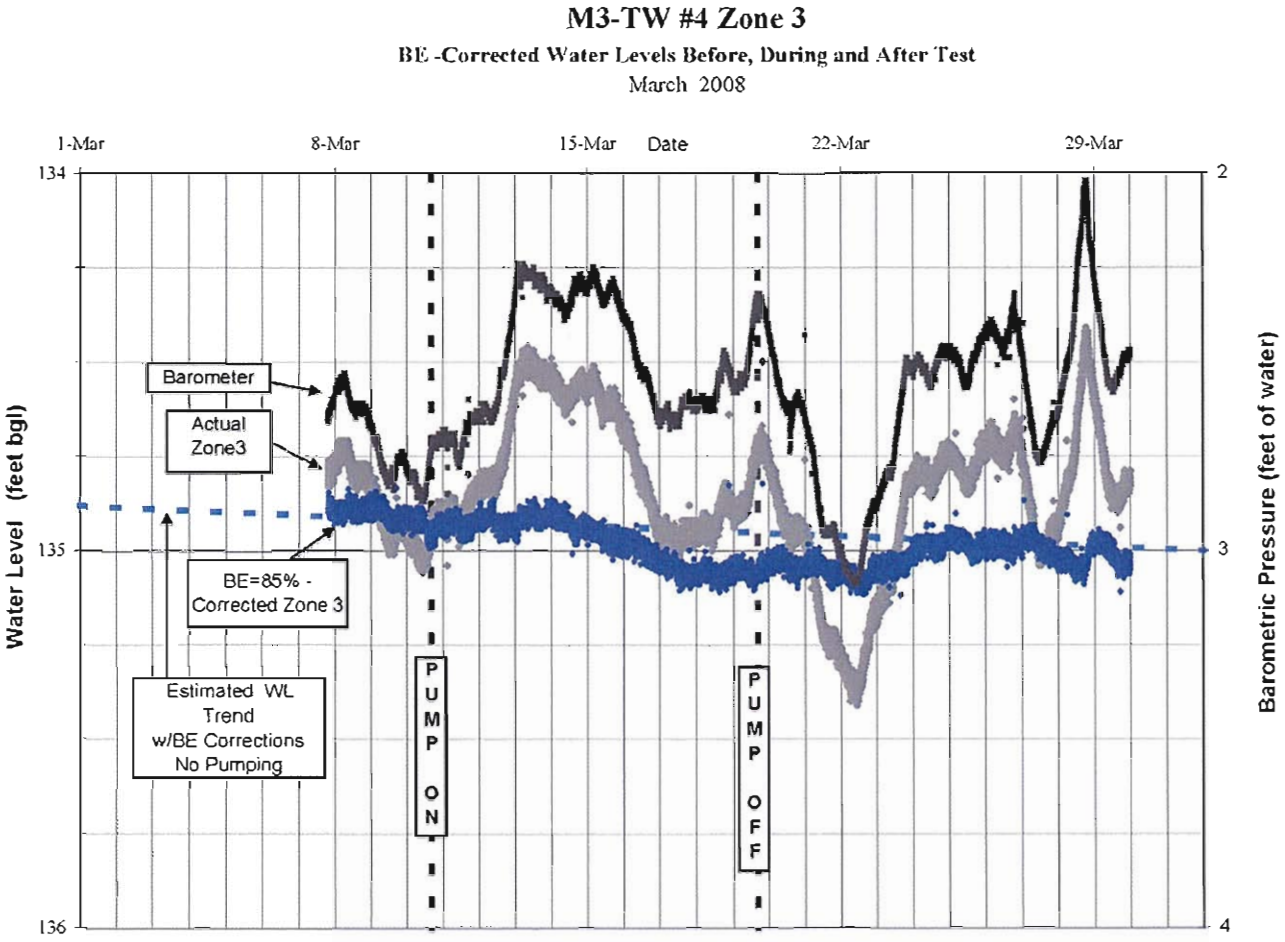
Distance from Pumping Well SVR #7 = 3,636 ft
Screen Depth = 230 to 250 ft

Figure C-6. Actual and BE-Corrected Water Levels for TW #2 Zone 1



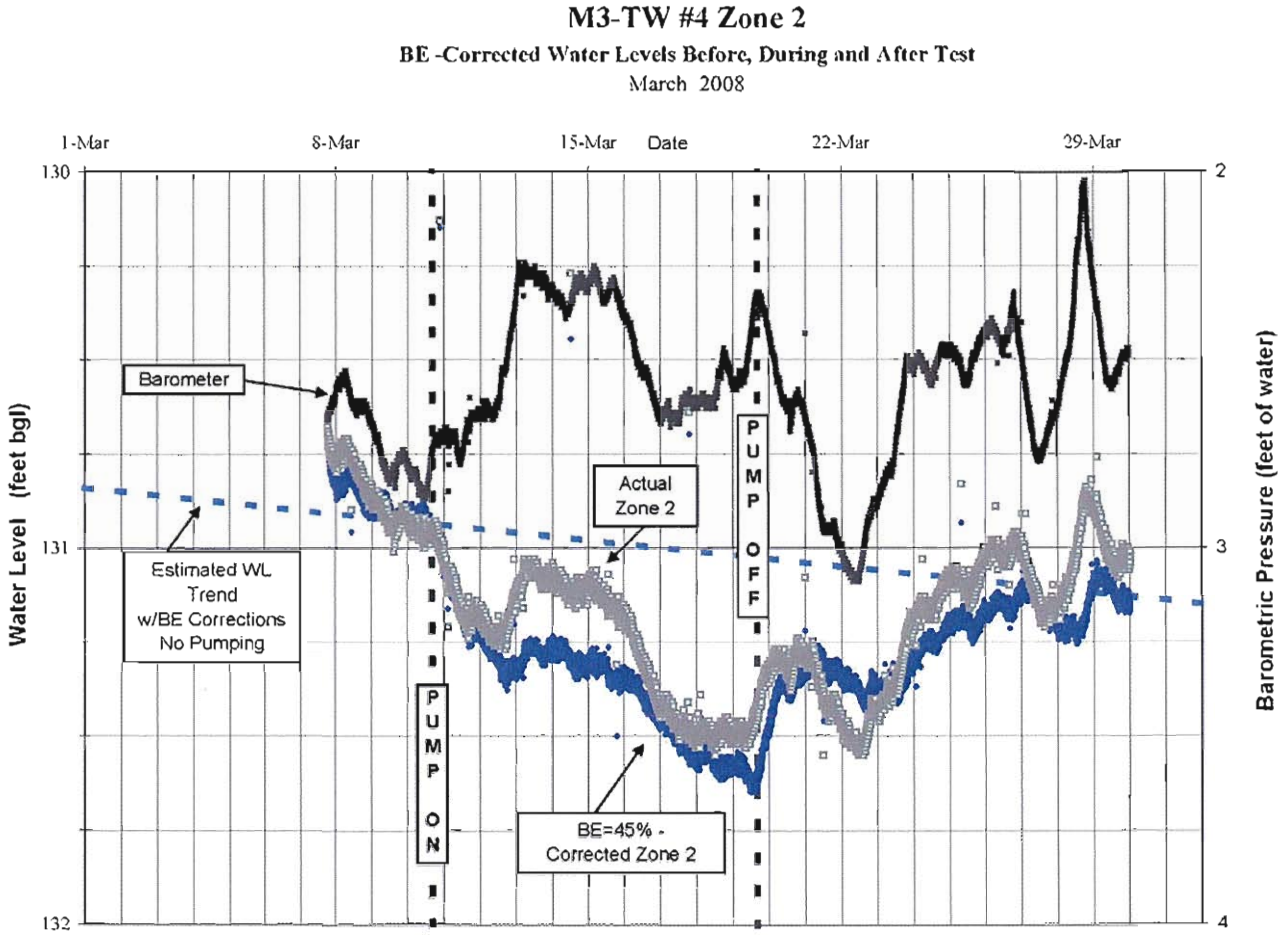
Distance from Pumping Well SVR #7 = 3,636 ft
Screen Depth = 270 to 320 ft

Figure C-7. Actual and BE-Corrected Water Levels for TW #4 Zone 3



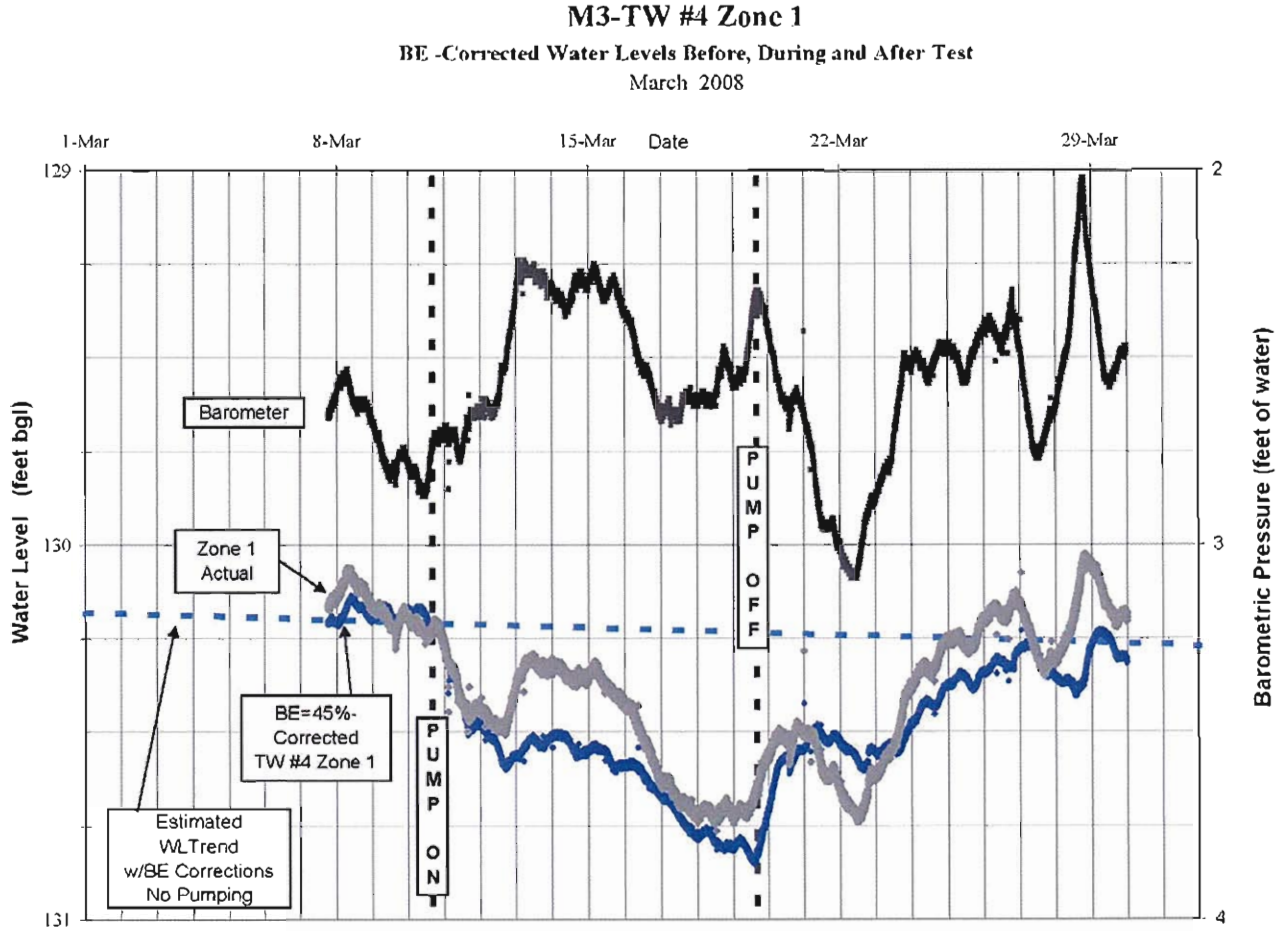
Distance from Pumping Well SVR #7 = 4,489 ft
Screen Depth = 181 to 201 ft

Figure C-8. Actual and BE-Corrected Water Levels for TW #4 Zone 2



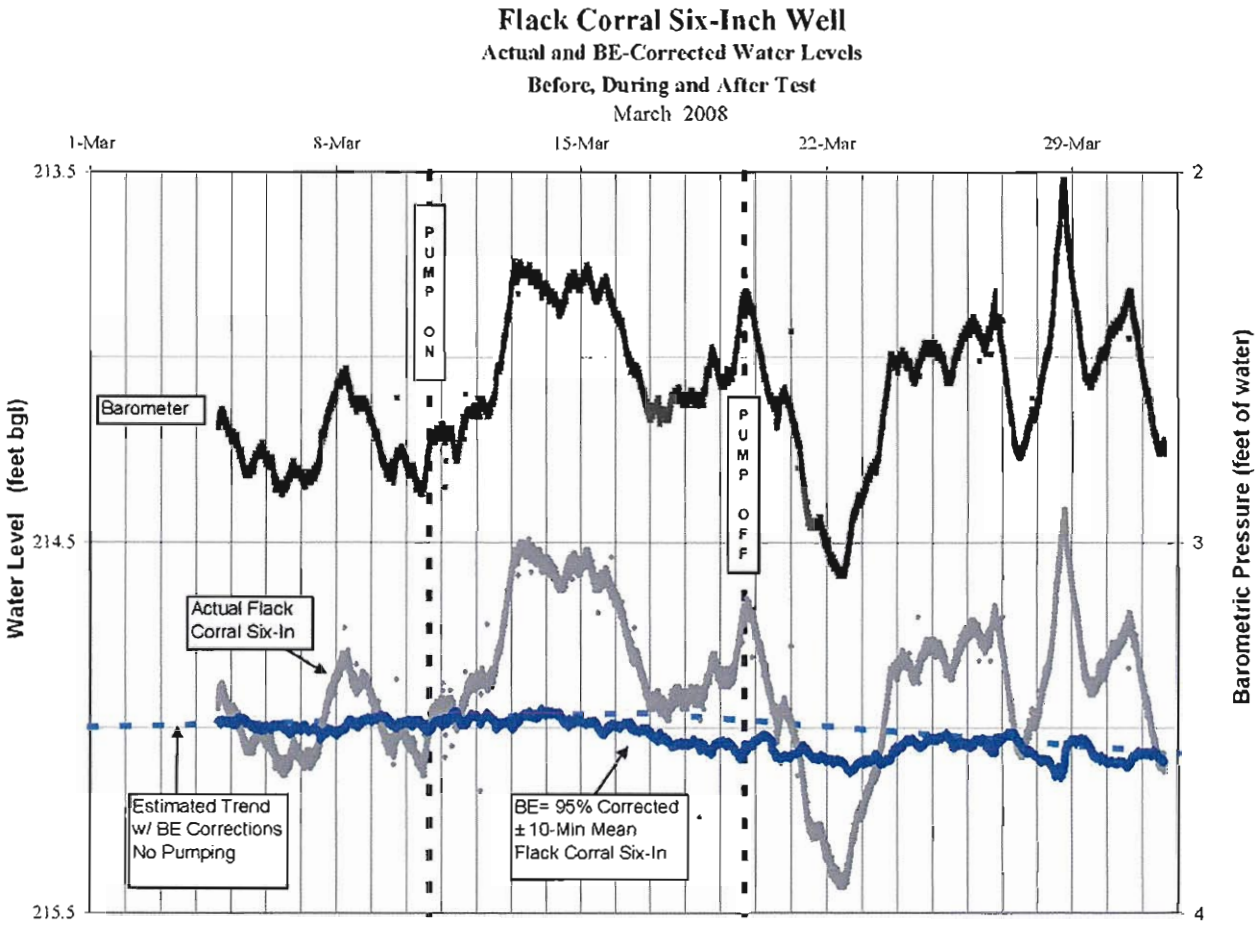
Distance from Pumping Well SVR #7 = 4,489 ft
Screen Depth = 325 to 556 ft

Figure C-9. Actual and BE-Corrected Water Levels for TW #4 Zone 1



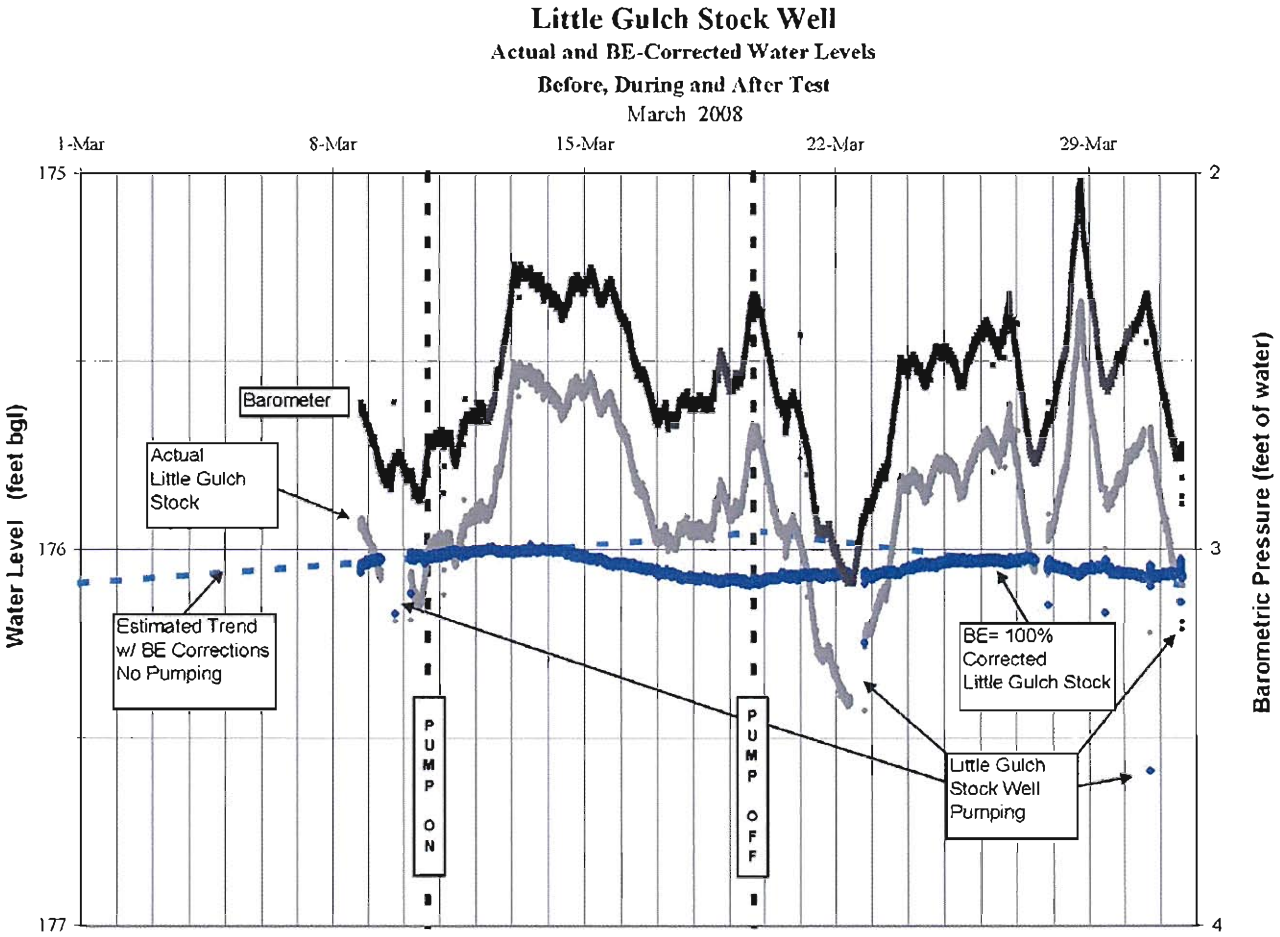
Distance from Pumping Well SVR #7 = 4,489 ft
Screen Depth = 625 to 646 ft

Figure C-10. Actual and BE-Corrected Water Levels for Flack Corral 6-Inch Well



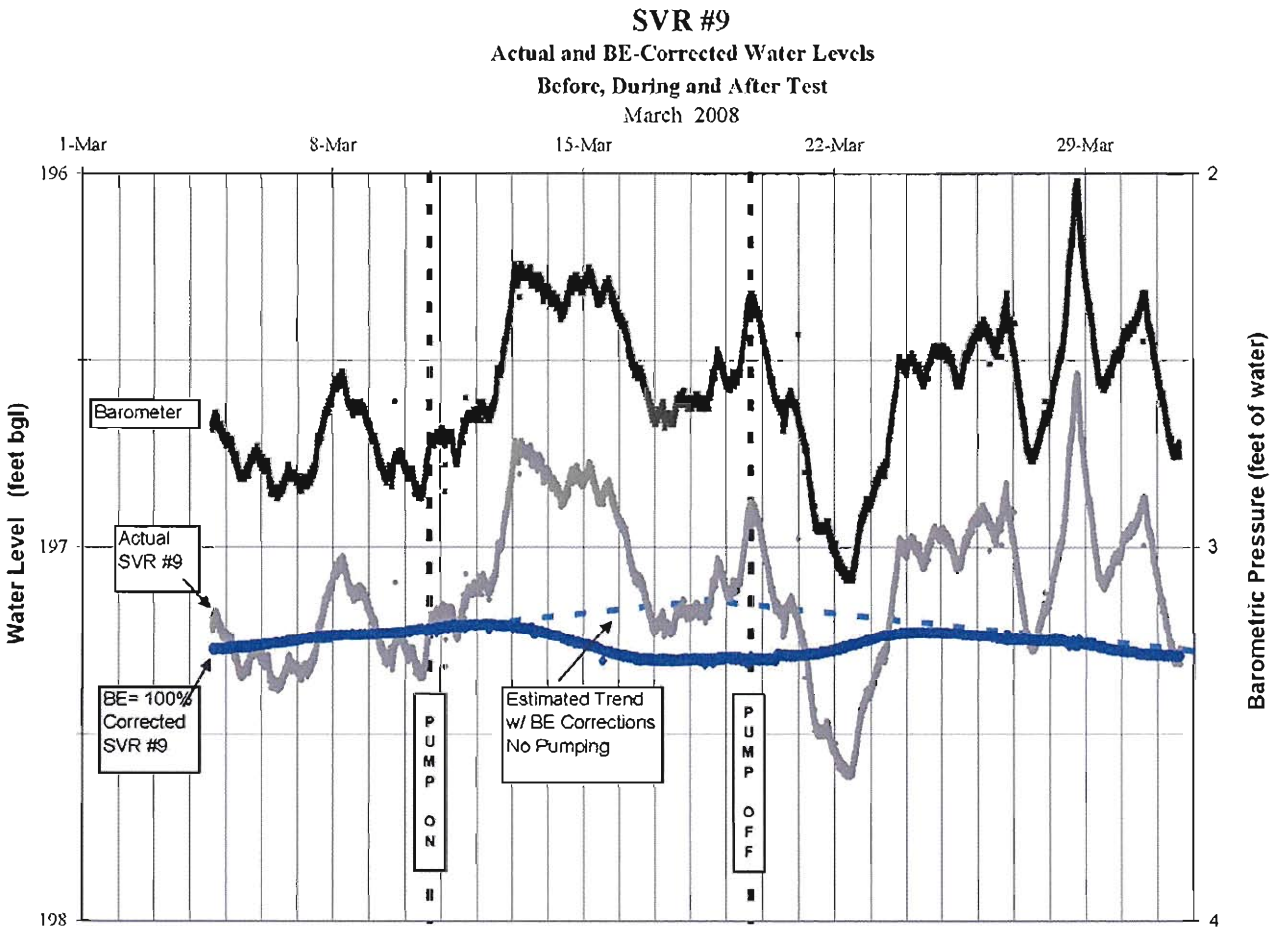
Distance from Pumping Well SVR #7 = 6,749 ft
Screen Depth = 74 to 386 ft

Figure C-11. Actual and BE-Corrected Water Levels for Little Gulch Stock Well



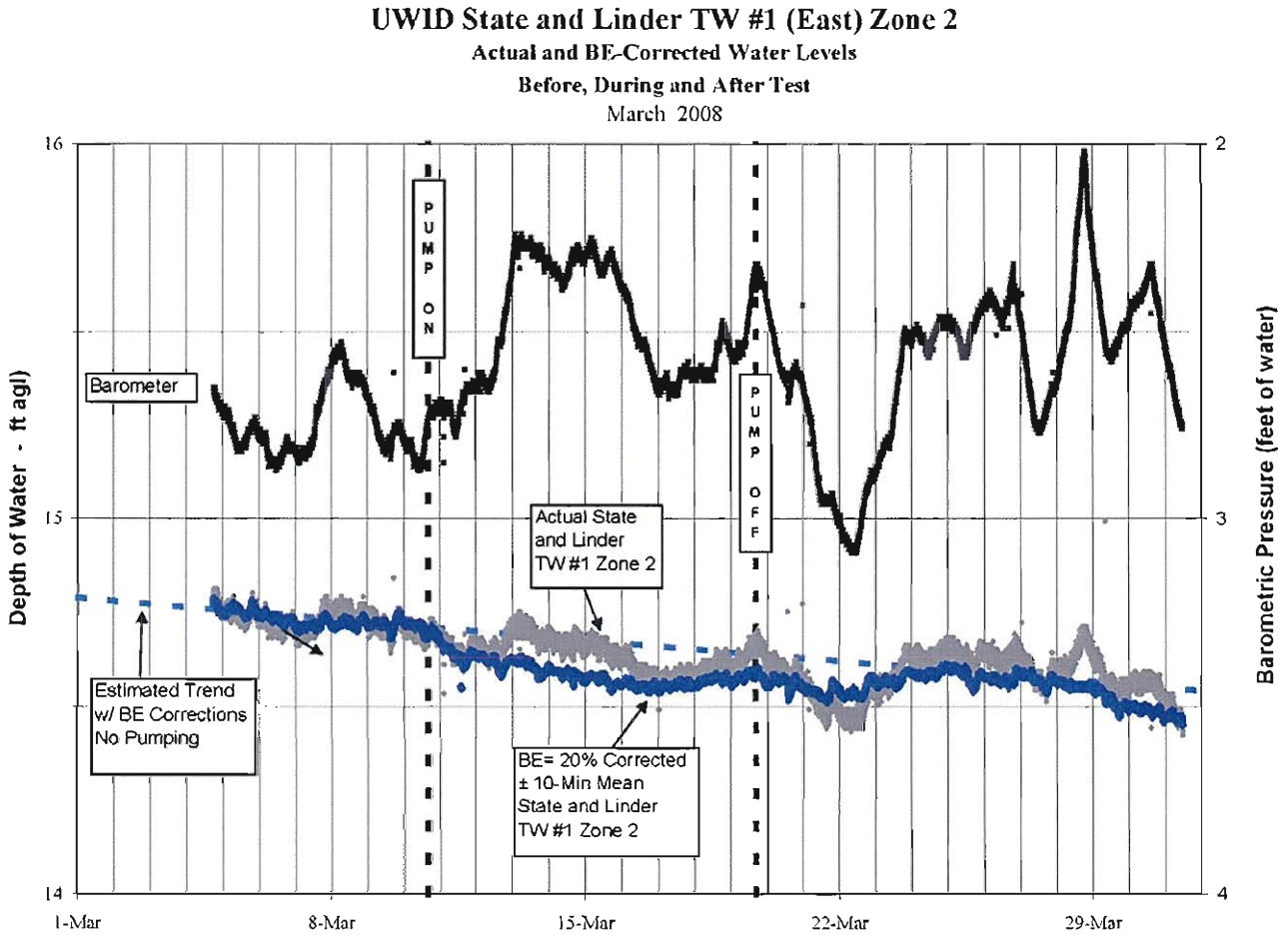
Distance from Pumping Well SVR #7 = 9,740 ft
Screen Depth = 220 to 223 ft

Figure C-12. Actual and BE-Corrected Water Levels for SVR #9



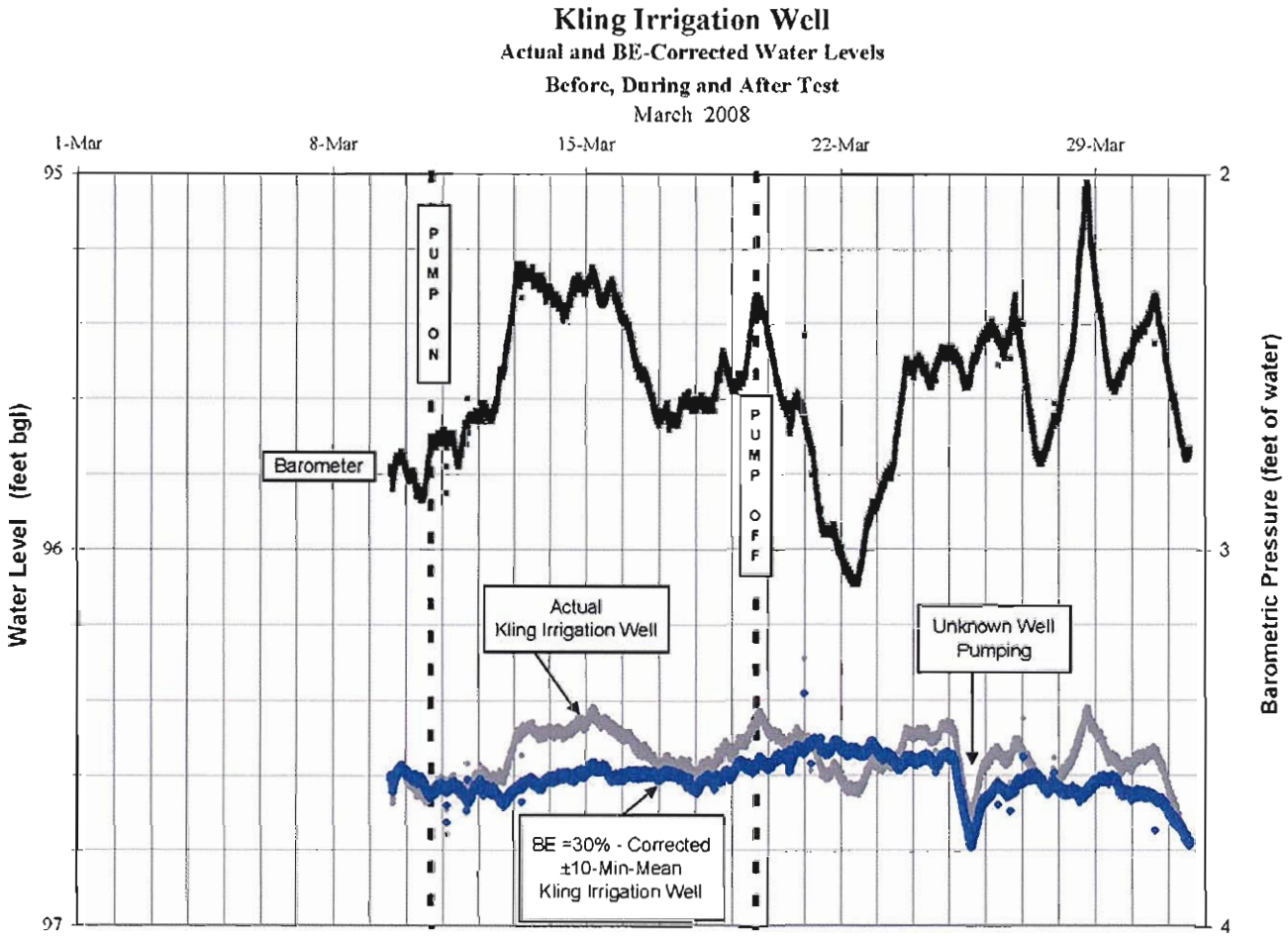
Distance from Pumping Well SVR #7 = 11,660 ft
Screen Depth = 235 to 263 ft

Figure C-13. Actual and BE-Corrected Water Levels for UWID State and Linder TW #1 Zone 2



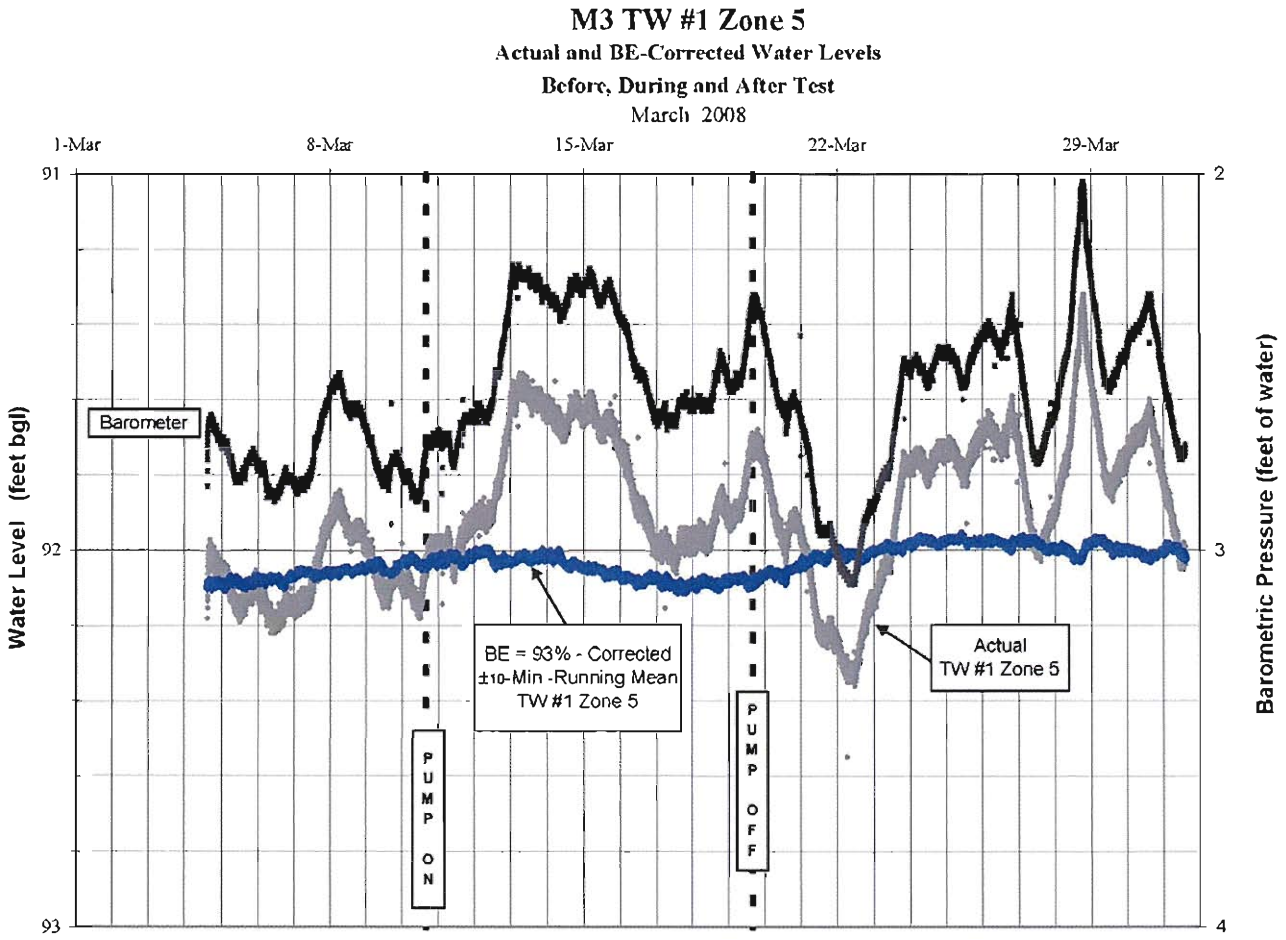
Distance from Pumping Well SVR #7 = 22,302 ft
Screen Depth = 280 to 370 ft

Figure C-14. Actual and BE-Corrected Water Levels for the Kling Irrigation Well



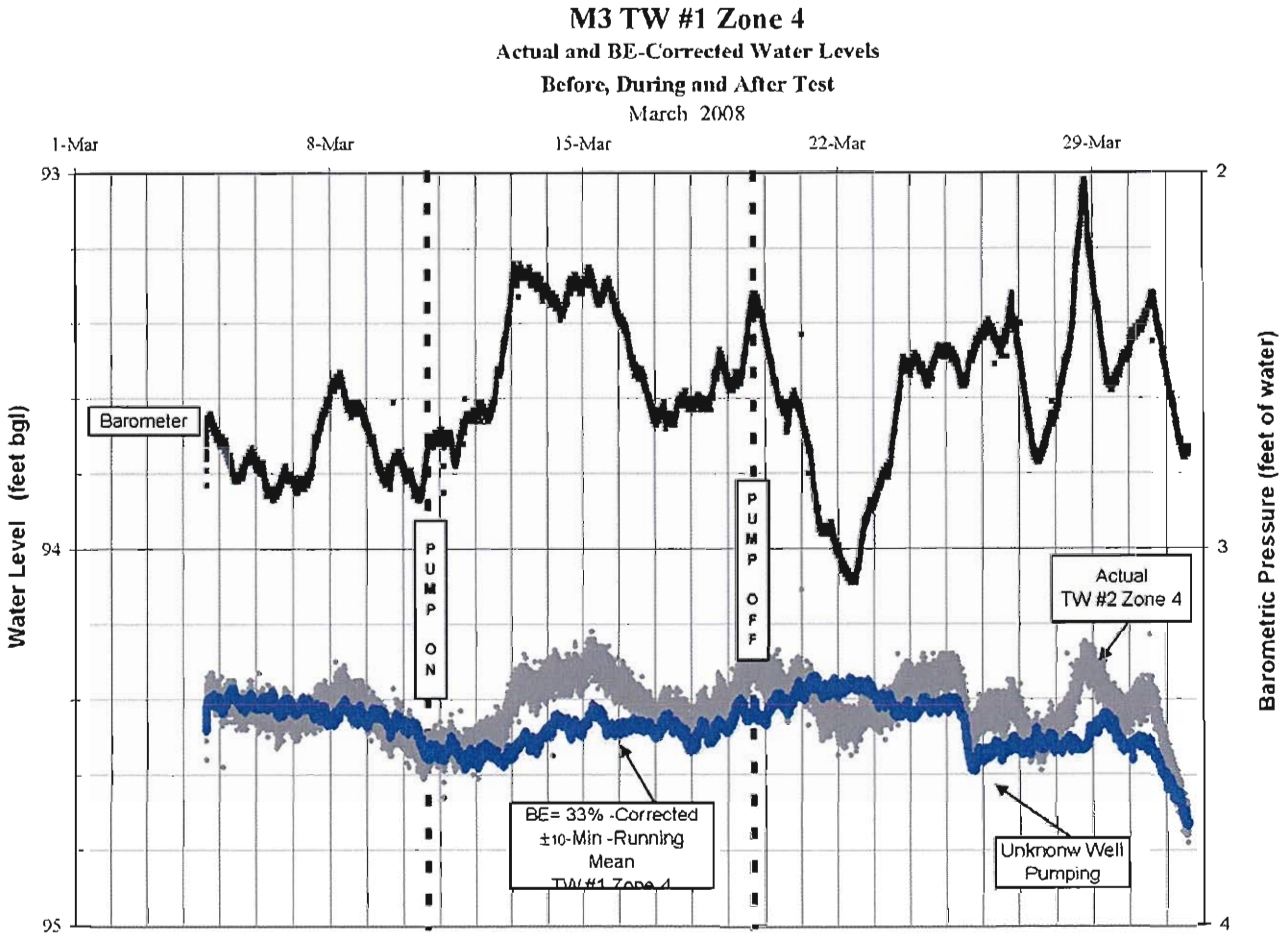
Distance from Pumping Well SVR #7 = 9,908 ft
Screen Depth = 198 to 408 ft

Figure C-15. Actual and BE-Corrected Water Levels for TW #1 Zone 5



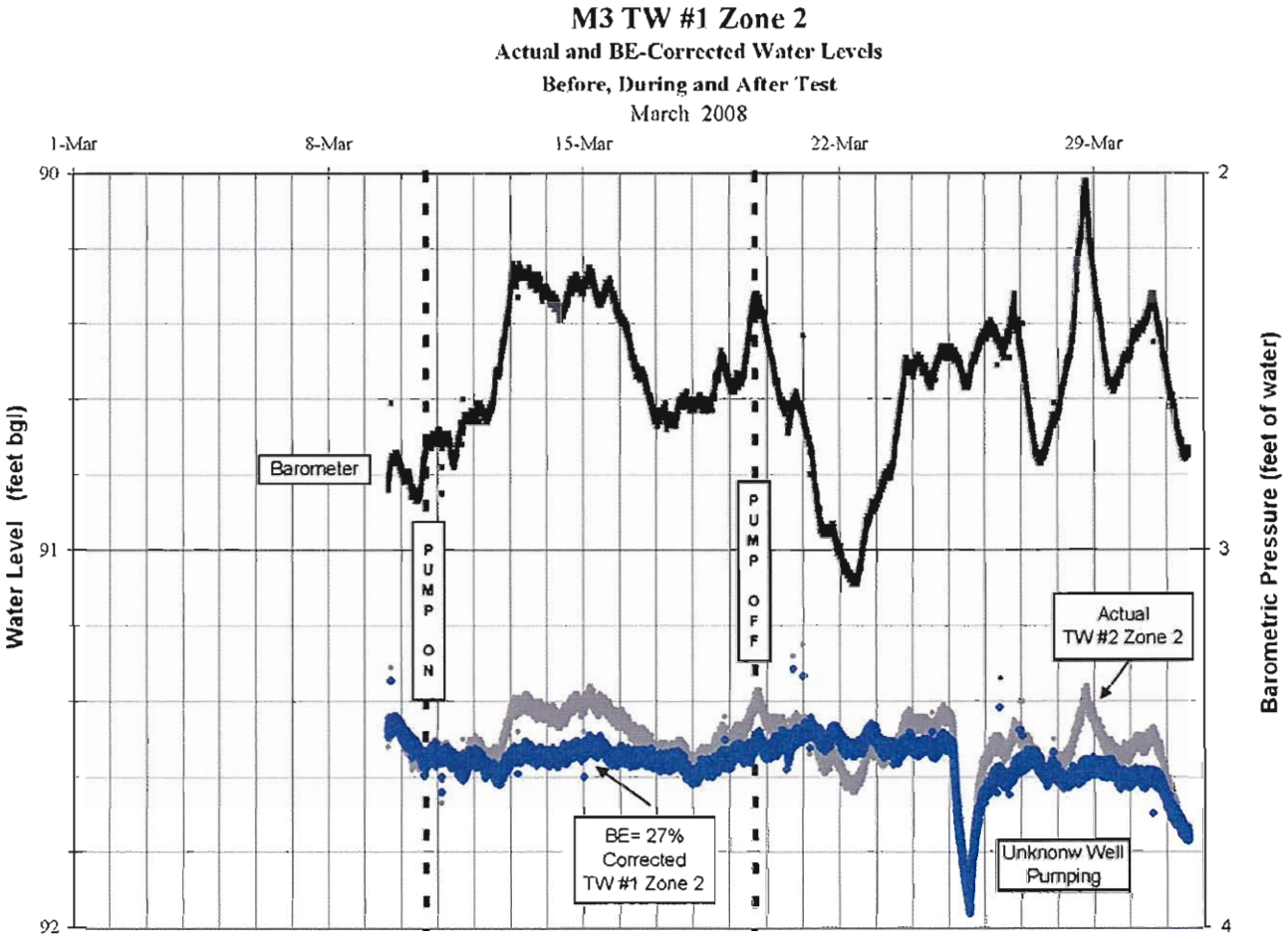
Distance from Pumping Well SVR #7 = 10,916 ft
Screen Depth = 97 to 137 ft

Figure C-16. Actual and BE-Corrected Water Levels for TW #1 Zone 4



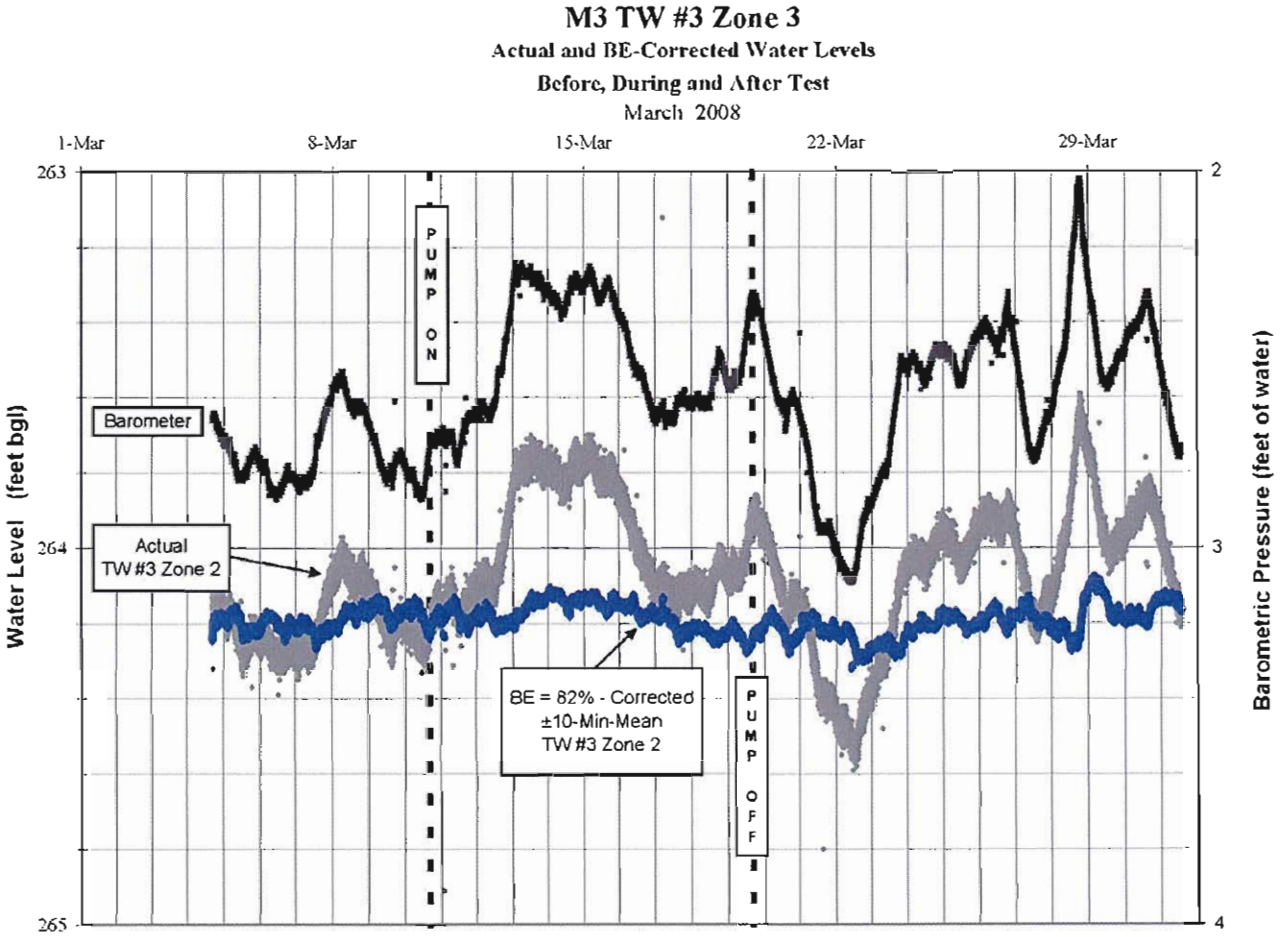
Distance from Pumping Well SVR #7 = 10,916 ft
Screen Depth = 253 to 383 ft

Figure C-17. Actual and BE-Corrected Water Levels for TW #1 Zone 2



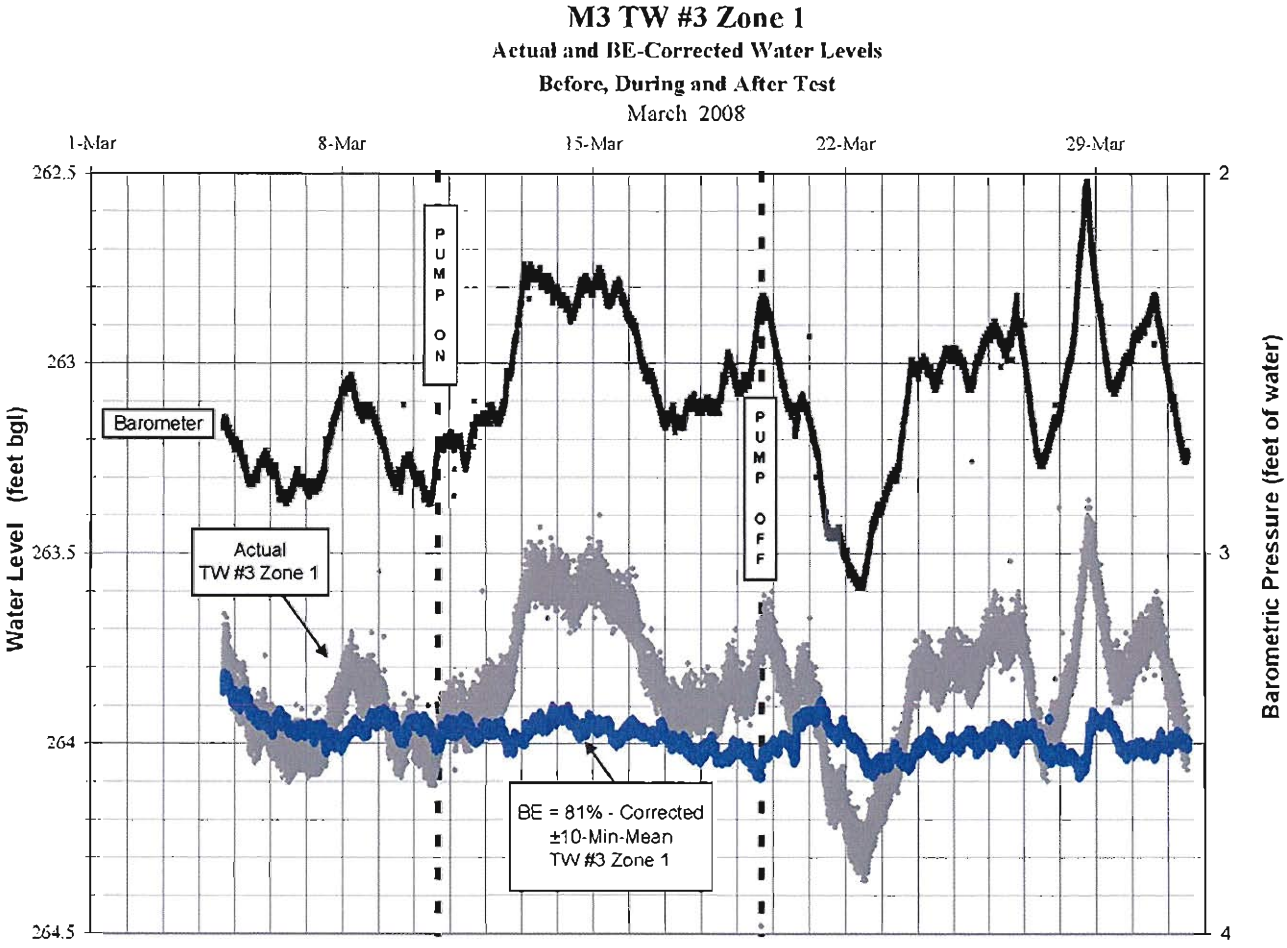
Distance from Pumping Well SVR #7 = 10,916 ft
Screen Depth = 467 to 507 ft

Figure C-18. Actual and BE-Corrected Water Levels for TW #3 Zone 3



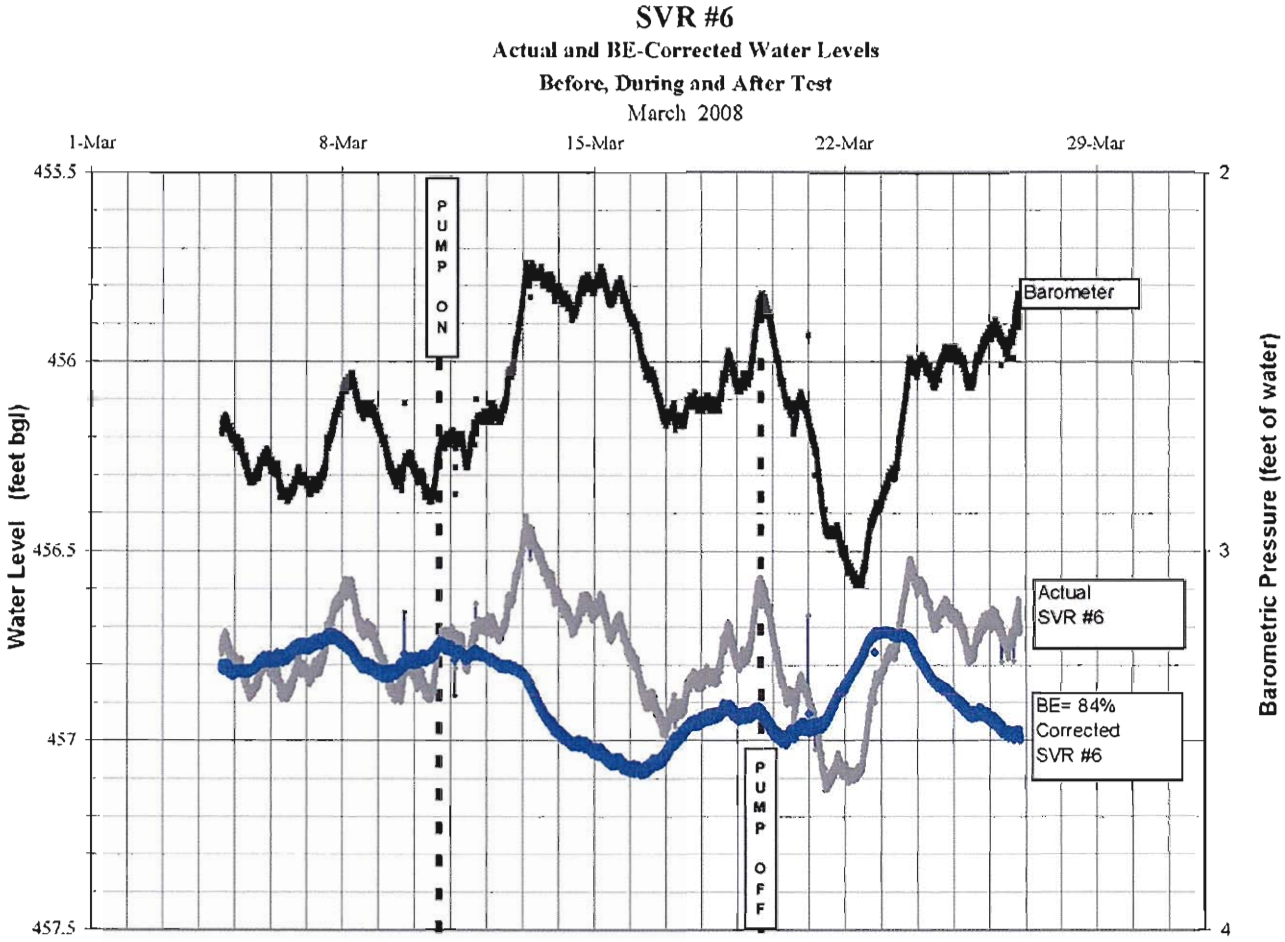
Distance from Pumping Well SVR #7 = 8,173 ft
Screen Depth = 369 to 379 ft

Figure C-19. Actual and BE-Corrected Water Levels for TW #3 Zone 1



Distance from Pumping Well SVR #7 = 8,173 ft
Screen Depth = 432 to 442 ft

Figure C-20. Actual and BE-Corrected Water Levels for SVR #6



In Willow Creek Aquifer - NOT in Pierce Gulch Sand Aquifer
Distance from Pumping Well SVR #7 = 8,189 ft
Screen Depth = 560 to 730 ft

Appendix D – Additional Information on the Analytical Methods Used in this Report

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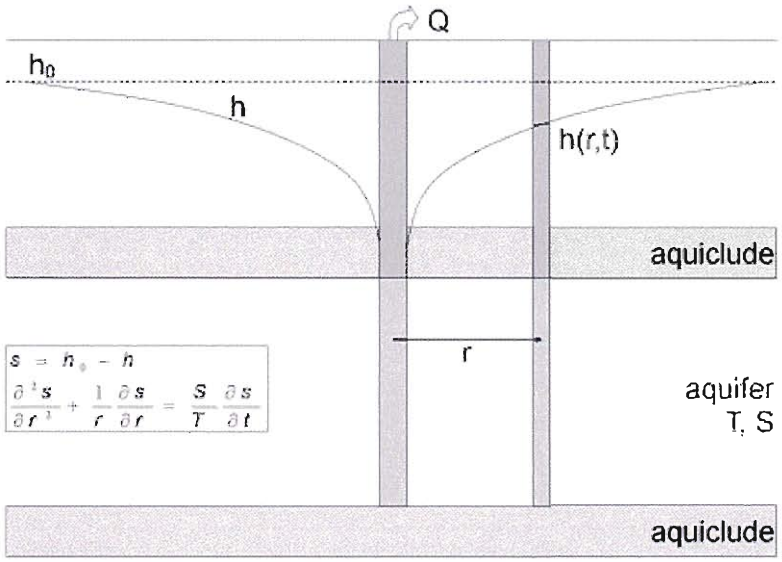
Details on the Method of Cooper, H.H. and C.E. Jacob, 1946. (From Aqtesolv®)
Schematic Diagram:



$$s = h_0 - h$$

$$\frac{\partial^2 s}{\partial r^2} + \frac{1}{r}\frac{\partial s}{\partial r} = \frac{S}{T}\frac{\partial s}{\partial t}$$

Assumptions:

- aquifer has infinite areal extent
- aquifer is homogeneous, isotropic and of uniform thickness
- pumping well is fully penetrating
- flow to pumping well is horizontal
- aquifer is confined
- flow is unsteady
- water is released instantaneously from storage with decline of hydraulic
- diameter of pumping well is very small so that storage in the well can be
- values of u are small (i.e., r is small and t is large)

Equations:

For large values of time, Cooper and Jacob (1946) proposed the following equation for displacement in a confined aquifer in response to pumping:

$$s = \frac{2.303Q}{4\pi T}\log\left(\frac{2.25Tt}{r^2S}\right)$$

$$s_D = \frac{4\pi T}{Q}s$$

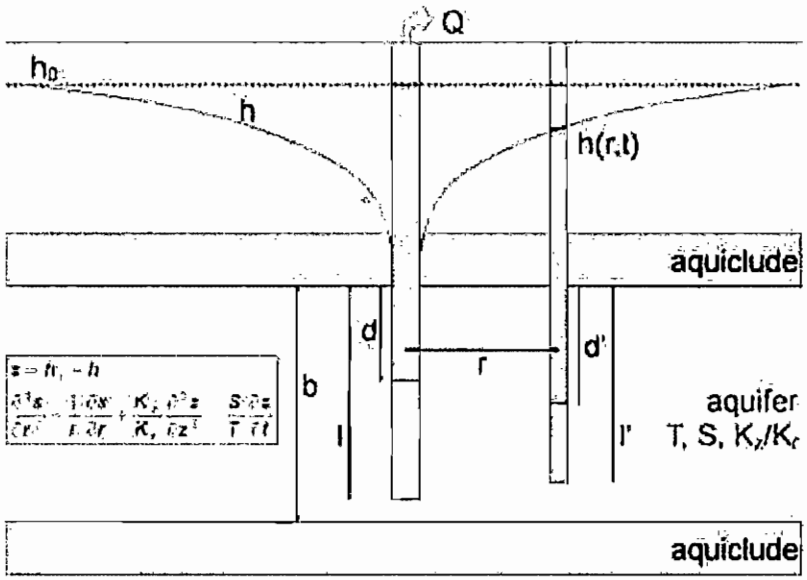
$$t_D = \frac{Tt}{r^2S}$$

where

- Q is pumping rate [L^3/T]
- r is radial distance [L]
- t is time [T]
- s is drawdown [L]
- S is storativity [dimensionless]
- T is transmissivity [L^2/T]

Details on the Method of Hantush, M.S. 1961a and b (From Aqtesolv®)

Schematic Diagram:



Assumptions:

- aquifer has infinite areal extent
- aquifer is homogeneous and of uniform thickness
- pumping well is fully or partially penetrating
- flow to pumping well is horizontal when pumping well is fully penetrating
- aquifer is confined
- flow is unsteady
- water is released instantaneously from storage with decline of hydraulic head
- diameter of pumping well is very small so that storage in the well can be neglected

Equations:

Hantush (1961a, b) derived equations for the effects of partial penetration in a confined aquifer. For a piezometer, the partial penetration correction is as follows:

$$s = \frac{Q}{4\pi T}\left(W(u) + \frac{2b}{\pi(l-d)}\sum_{n=1}^{\infty}\frac{1}{n}\left[\sin\left(\frac{n\pi d}{b}\right) - \sin\left(\frac{n\pi l}{b}\right)\right]\cdot\cos\left(\frac{n\pi z}{b}\right)\cdot W\left(u, \sqrt{\frac{K_z}{K_r}}\frac{n\pi r}{b}\right)\right)$$

For an observation well, the following partial penetration correction applies:

$$s = \frac{Q}{4\pi T}\left(W(u) + \frac{2b^2}{\pi^2(l-d)(l'-d')}\sum_{n=1}^{\infty}\frac{1}{n^2}\left[\sin\left(\frac{n\pi d}{b}\right) - \sin\left(\frac{n\pi l}{b}\right)\right]\cdot\left[\sin\left(\frac{n\pi d'}{b}\right) - \sin\left(\frac{n\pi l'}{b}\right)\right]\cdot W\left(u, \sqrt{\frac{K_z}{K_r}}\frac{n\pi r}{b}\right)\right)$$

where

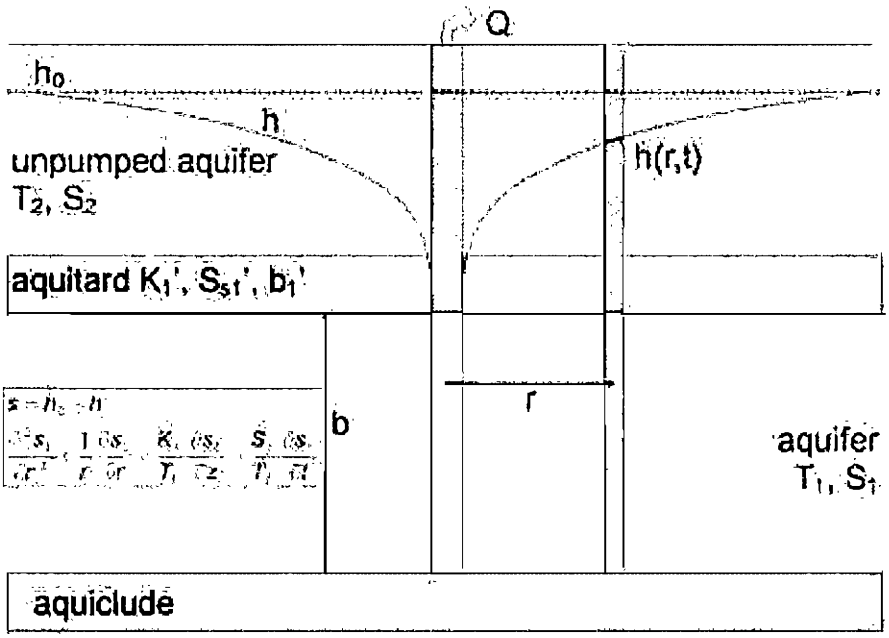
- b is aquifer thickness [L]
- d is depth to top of pumping well screen [L]
- d' is depth to top of observation well screen [L]
- l is depth to bottom of pumping well screen [L]
- l' is depth to bottom of observation well screen [L]
- K_z/K_r is vertical to horizontal hydraulic conductivity anisotropy [dimensionless]
- $W(u,\beta)$ is the Hantush-Jacob well function for leaky confined aquifers
- z is depth to piezometer opening [L]

At large distances, the effect of partial penetration becomes negligible when

$$r > 1.5b\sqrt{K_r/K_z}$$

Details on the Method of Neuman, S.P., and Witherspoon, P. 1972. (From Aqtesolv®)

Schematic Diagram:



Assumptions:

- aquifer has infinite areal extent
- aquifer is homogeneous, isotropic and of uniform thickness
- pumping well is fully penetrating
- flow to pumping well is horizontal
- aquifer is leaky confined
- flow is unsteady
- water is released instantaneously from storage with decline of hydraulic head
- diameter of pumping well is very small so that storage in the well can be neglected
- confining bed(s) has infinite areal extent; uniform vertical hydraulic conductivity, storage coefficient and thickness
- flow is vertical in the aquitard(s)

Equations:

$$s_1 = \frac{Q}{4\pi T}\int_0^\infty (1-e^{-y^2 t_D})([1+G(y)]J_0(\omega_1(y))+[1-G(y)]J_0(\omega_2(y)))\frac{dy}{y}$$

$$s_1' = \frac{Q}{4\pi T}\frac{2}{\pi}\sum_0^\infty \frac{1}{n}\sin\frac{n\pi z}{b_1'}\int_0^\infty [1-e^{-n^2\pi^2 t_D} + \frac{e^{-n^2\pi^2 t_D} - e^{-y^2 t_D}}{1-y^2/(n^2\pi^2)}]([\frac{2(r/B_{21})^2(-1)^n y}{F(y)\sin y} - G(y) - 1]J_0(\omega_1(y))$$

$$-[\frac{2(r/B_{21})^2(-1)}{F(y)\sin y} - G(y) + 1]J_0(\omega_2(y))]\frac{dy}{y}$$

$$s_2 = \frac{Q}{4\pi T}\int_0^\infty (1-e^{-y^2 t_D})\frac{2(r/B_{21})^2}{F(y)}[J_0(\omega_1(y)) - J_0(\omega_2(y))]\frac{dy}{\sin y}$$

$$t_D = \frac{T_1 t}{r^2 S_1}$$

$$\Gamma_D = t_D (r/B_{11})^4 / (4\beta_{11})^2$$

$$r/B_i = r\sqrt{K_i'/T_i b_i'}$$

$$\beta_i = \frac{r}{4b_i}\sqrt{\frac{K_i' S_s'}{K_i S_s}}$$

$$G(y) = M(y)/F(y)$$

$$\omega_1^2(y) = \frac{1}{2}[N(y) + F(y)]$$

$$\omega_2^2(y) = \frac{1}{2}[N(y) - F(y)]$$

$$F^2(y) = M^2(y) + \left[\frac{2(r/B_{11})(r/B_{21})y}{\sin y}\right]^2$$

$$M(y) = \left[\frac{(r/B_{11})^4}{(4\beta_{11})^2} - \frac{(r/B_{21})^4}{(4\beta_{21})^2}\right]y^2 - \left[(r/B_{11})^2 - (r/B_{21})^2\right]y\cot y$$

$$N(y) = \left[\frac{(r/B_{11})^4}{(4\beta_{11})^2} + \frac{(r/B_{21})^4}{(4\beta_{21})^2}\right]y^2 - \left[(r/B_{11})^2 + (r/B_{21})^2\right]y\cot y$$

$$s_D = \frac{4\pi T}{Q}s$$

$$t_D = \frac{Tt}{r^2 S}$$

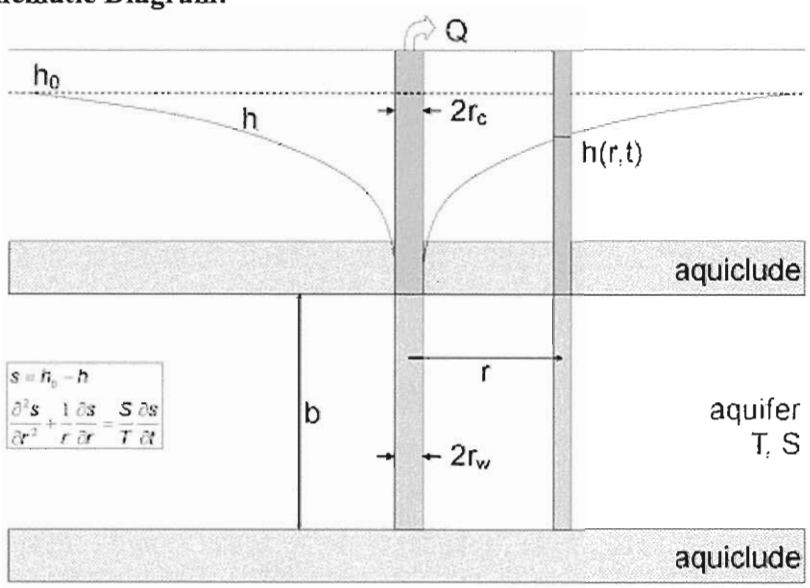
where

- b_i is thickness of aquifer i [L]
- b_j' is thickness of aquitard j [L]
- J_0 is Bessel function of first kind, zero order
- K_i is horizontal hydraulic conductivity in aquifer i [L/T]
- K_j' is vertical hydraulic conductivity in aquitard j [L/T]
- Q is pumping rate [L^3/T]
- r is radial distance [L]
- s_1 is drawdown in the pumped aquifer [L]

- s'_1 is drawdown in the aquitard [L]
- s_2 is drawdown in the unpumped aquifer [L]
- S, S_1 is storativity in the pumped aquifer [dimensionless]
- t is time [T]
- T, T_1 is transmissivity in the pumped aquifer [L^2/T]

Details on the Method of Papadopulos, I.S. and H.H. Cooper, 1967. (From Aqtesolv®)

Schematic Diagram:



Assumptions:

- aquifer has infinite areal extent
- aquifer is homogeneous, isotropic and of uniform thickness
- pumping well is fully penetrating
- flow to pumping well is horizontal
- aquifer is confined
- flow is unsteady
- water is released instantaneously from storage with decline of hydraulic head

Equations:

Papadopulos and Cooper (1967) derived a solution for a finite-diameter pumping well with wellbore storage in a confined aquifer as follows:

$$s = \frac{Q}{4\pi T} F(u, \alpha, r_D)$$

$$F = \frac{8\alpha}{\pi} \int_0^\infty \frac{(1 - e^{-\beta^2 \alpha / u})[J_0(\beta r_D) A(\beta) - Y_0(\beta r_D) B(\beta)]}{([A(\beta)]^2 - [B(\beta)]^2)\beta^2} d\beta$$

$$A(\beta) = \beta Y_0(\beta) - 2\alpha Y_1(\beta)$$

$$B(\beta) = \beta J_0(\beta) - 2\alpha J_1(\beta)$$

$$u = \frac{r^2 S}{4Tt}$$

$$\alpha = \frac{r_w^2 S}{r_c^2}$$

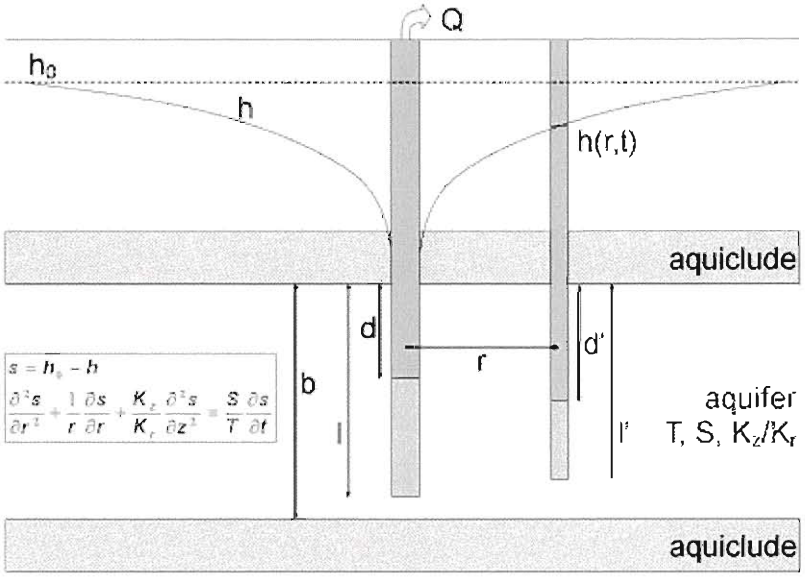
$$r_D = \frac{r}{r_w}$$

where

- J_i is Bessel function of first kind, order i
- Q is pumping rate [L^3/T]
- r is radial distance [L]
- r_c is casing radius [L]
- r_w is well radius [L]
- s is drawdown [L]
- S is storativity [dimensionless]
- t is time [T]
- T is transmissivity [L^2/T]
- Y_i is Bessel function of second kind, order i

Details on the Method of Theis, C.V., 1935. (Pumping) (From Aqtesolv®)

Schematic Diagram:



Assumptions:

- aquifer has infinite areal extent
- aquifer is homogeneous and of uniform thickness
- pumping well is fully or partially penetrating
- flow to pumping well is horizontal when pumping well is fully penetrating
- aquifer is confined
- flow is unsteady
- water is released instantaneously from storage with decline of hydraulic head
- diameter of pumping well is very small so that storage in the well can be neglected

Equations:

$$s = \frac{Q}{4\pi T}\int_{u}^{\infty}\frac{e^{-y}}{y}dy$$

$$u = \frac{r^2 S}{4Tt}$$

where

- Q is pumping rate [L^3/T]
- r is radial distance [L]
- s is drawdown [L]
- S is storativity [dimensionless]
- t is time [T]
- T is transmissivity [L^2/T]

Hydrogeologists commonly refer to the exponential integral in the drawdown equation as the Theis well function, abbreviated as w(u). Therefore, we can write the Theis drawdown equation in compact notation as follows:

$$s = \frac{Q}{4\pi T}w(u)$$

Hantush (1961a, b) derived equations for the effects of partial penetration in a confined aquifer. For a piezometer, the partial penetration correction is as follows:

$$s = \frac{Q}{4\pi T}\left(w(u) + \frac{2b}{\pi(l-d)}\sum_{n=1}^{\infty}\frac{1}{n}\left[\sin\left(\frac{n\pi l}{b}\right) - \sin\left(\frac{n\pi d}{b}\right)\right]\cdot\cos\left(\frac{n\pi z}{b}\right)\cdot w\left(u, \sqrt{\frac{K_z}{K_r}}\frac{n\pi r}{b}\right)\right)$$

For an observation well, the following partial penetration correction applies:

$$s = \frac{Q}{4\pi T}\left(w(u) + \frac{2b^2}{\pi^2(l-d)(l'-d')}\sum_{n=1}^{\infty}\frac{1}{n^2}\left[\sin\left(\frac{n\pi l}{b}\right) - \sin\left(\frac{n\pi d}{b}\right)\right]\cdot\left[\sin\left(\frac{n\pi l'}{b}\right) - \sin\left(\frac{n\pi d'}{b}\right)\right]\cdot w\left(u, \sqrt{\frac{K_z}{K_r}}\frac{n\pi r}{b}\right)\right)$$

where

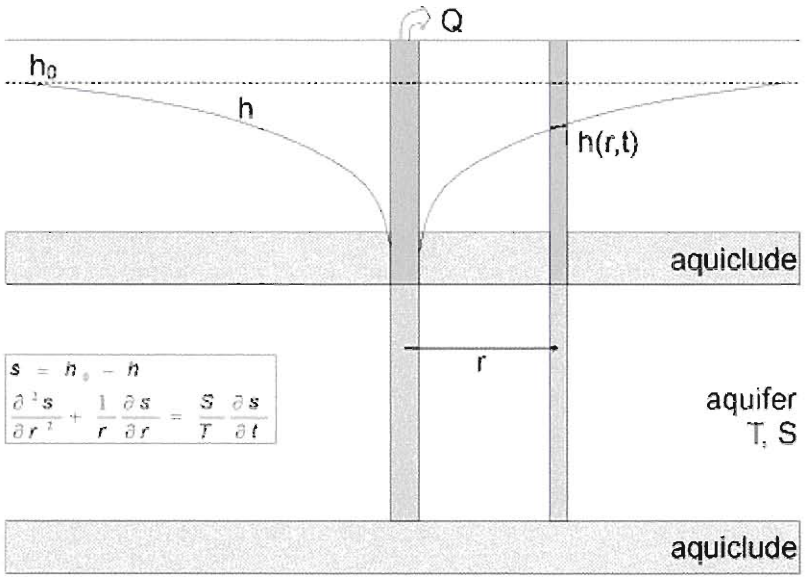
- b is aquifer thickness [L]
- d is depth to top of pumping well screen [L]
- d' is depth to top of observation well screen [L]
- l is depth to bottom of pumping well screen [L]
- l' is depth to bottom of observation well screen [L]
- K_z/K_r is vertical to horizontal hydraulic conductivity anisotropy [dimensionless]
- w(u,β) is the Hantush-Jacob well function for leaky confined aquifers
- z is depth to piezometer opening [L]

At large distances, the effect of partial penetration becomes negligible when

$$r > 1.5b\Big/\sqrt{K_z / K_r}$$

Details on the Method of Theis, C.V., 1935. (Straight-Line Recovery) (From Aqtesolv®)

Schematic Diagram:



$$s = h_0 - h$$

$$\frac{\partial^2 s}{\partial r^2} + \frac{1}{r}\frac{\partial s}{\partial r} = \frac{S}{T}\frac{\partial s}{\partial t}$$

Assumptions:

- aquifer has infinite areal extent
- aquifer is homogeneous, isotropic and of uniform thickness
- pumping well is fully penetrating
- flow to pumping well is horizontal
- aquifer is confined
- flow is unsteady
- water is released instantaneously from storage with decline of hydraulic head
- diameter of pumping well is very small so that storage in the well can be neglected
- values of u are small (i.e., r is small and t is large)

Equations:

$$s' = \frac{Q}{4\pi T}\left[\ln(t/t') - \ln(S/S')\right]$$

where

- Q is pumping rate [L^3/T]
- s' is residual drawdown [L]
- S is storativity during pumping [dimensionless]
- S' is storativity during recovery [dimensionless]
- t is time since pumping began [T]
- t' is time since pumping stopped [T]
- T is transmissivity[L^2/T]

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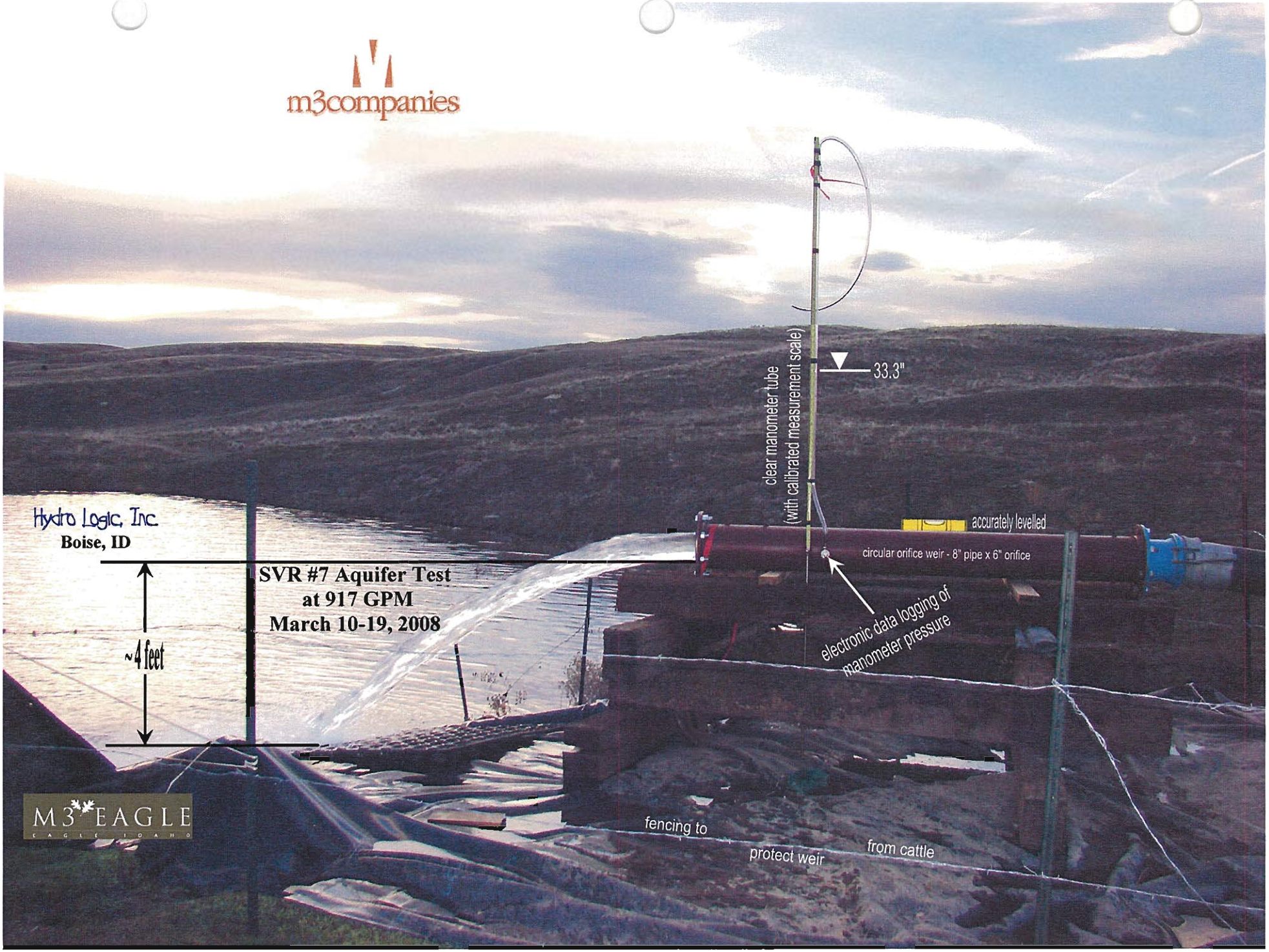

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Hydro Logic, Inc.
1002 W. Franklin Street, Boise, ID 83702 (208) 342-8369, (Fax) 342-3100, hydrologic@qwest.net

TECHNICAL MEMORANDUM

TO: Gary Spackman, Hearing Officer, Idaho Department of Water Resources

CC: Sean Vincent, Dennis Owsley, Mike McVay, Jeff Fereday, Bill Brownlee

FROM: Ed Squires, Mark Utting, and Loren Pearson of Hydro Logic, Inc.

DATE: April 1, 2009

SUBJECT: Response to IDWR's March 2, 2009 Staff Memorandum On M3 Eagle Hydrogeologic Studies

This Technical Memorandum and its attachments are submitted pursuant to the Hearing Officer's February 10, 2009 Order in this matter ("February 10 Order") authorizing parties to submit documents, technical information, or data to respond to other parties' technical reports, including the memorandum submitted by Dennis Owsley and Sean Vincent (the IDWR "Staff") March 2, 2009 ("Staff Memo"). The above staff from Hydro Logic, Inc., ("Hydro Logic" or "HLI"), with input on particular matters from Dr. S.H. Wood, Professor Emeritus, Boise State University; Peter Schwartzman of Pacific Ground Water Group ("PGG"); Richard Glanzman of Glanzman Geochemical; and Dr. James Osiensky of the University of Idaho, have prepared this Technical Memorandum on behalf of Applicant M3 Eagle LLC ("M3 Eagle") in response to the Staff Memo.

HLI appreciates the opportunity to respond to the Staff Memo's comments, questions, and observations about the hydrogeological system in the North Ada County area with respect to our ongoing research in the area and the studies we have completed concerning it. The Staff have provided an important service to the Department and the parties interested in the proposed use of ground water for the M3 Eagle planned community north of Eagle, Idaho ("M3 Eagle" or "M3"). This Technical Memorandum, which is intended as a response to the Staff's questions and uncertainty, we hope will shed additional light on the resource and potential effects of development for all interested parties and future investigations in the area.. We have included one new map (Figure 1) showing the locations of wells referenced in the Staff Memo and the wells we refer to in this Technical Memorandum.

The Staff Memo presents comment under four topics listed in the Hearing Officer's December 8, 2008 *Request for Staff Memorandum*, which asked the Staff to: a) make "a full analysis of the methods of gathering data, the data presented, and results of the . . . tests or modeling . . . submitted by the parties"; b) make "[a] secondary review of any review and analysis of the original documents submitted by the parties"; c) present and analyze "additional data available to Department staff to enhance the hearing officer's understanding of the hydrogeology and aquifers" in the area; and d) make "[c] onclusions about the impacts on other water users and aquifers caused by pumping of ground water as proposed" by M3 Eagle.

M3 EAGLE LLC EXHIBIT 45

Often the Staff discusses a subject (the potential effects of structural geologic faulting, for example) under more than one of these headings. For this reason, this Technical Memorandum is organized according to the substantive hydrogeological matters the Staff Memo addresses, rather than the four tasks listed by the Hearing Officer. These are:

1) The North Ada County area's stratigraphy.
2) Geologic faults and their potential effects on ground water production.
3) Aquifer continuity between the Boise and Payette river basins.
4) M3 Eagle's aquifer testing.
5) Pierce Gulch Sand Aquifer boundaries and recharge sources.
6) Water levels (heads) and trends in the PGSA.
8) M3 Eagle's modeling of the PGSA.
9) Aquifer sustainability and future studies of the PGSA.

With regard to a particular subject, what we understand to be the Staff's primary comments and contentions are set out as indented, bold material. Our response follows in each case.

1. **The North Ada County area's stratigraphy.**

Staff states that "a highly productive sedimentary aquifer exists beneath a portion of the M3 property, that the stratigraphy here "is complex, consisting of a thick sequence of coarse and fine grained sediment layers that pinch out and are faulted," and that "the Pierce Gulch Sand (PGS) Formation" was defined by previous investigators "Othburg [sic] and Stanford." Staff Memo at 1 and 3.

The stratigraphy in this area is not particularly complex, although it may appear so on a cursory look. While we address the issues of faulting in some detail later in this Technical Memorandum, there prevailing evidence is that the deep basin structural faulting does not break the sands of the PGSA. There is also no evidence to indicate faulting and/or thinning of strata affect the productivity and sustainability of the Pierce Gulch Sand as a significant aquifer unit in the M3 area. The research cited above by the Staff did neither define, nor even address, the PGSA.

While Staff presumably is referring to the Pierce Gulch Sand Aquifer ("PGSA")—which is highly productive—other productive aquifers also exist beneath the M3 property, including the Terteling Springs Aquifer, the Willow Creek Aquifer, and as yet undifferentiated and/or unnamed aquifers overlying the PGSA See Figure 6,of Hydro Logic, Inc., 2007). M3 Eagle's intention to develop ground water from the PGSA is the main focus of both the Staff Memo and this Technical Memorandum.

The Staff does not explain what is intended by the term "complex," or what it might mean with regard to the availability of ground water at this site to support the M3 Eagle development. In any event, we do not consider the stratigraphy in this area to be overly complex, although it may appear so on a cursory look. Our evaluation of numerous geophysical logs and well bore cuttings have confirmed the conclusions contained in the geological investigations conducted in this area by Dr. S.H. Wood, Mr. Willis Burnham, and others. The logs and drill cuttings confirm the presence of extensive coarse permeable sands of the PGSA (and the Willow Creek Aquifer)

and the less permeable underlying mudstones. The depositional environment is that of a delta prograding into a lake basin, as originally discussed in Wood (1995); Squires and Wood (2001); Wood and Clemens (2002); and Wood (2004). Geologic processes of erosion, lacustrine deposition, and fluvial action spread sediments in a wide swath across the basin. The geophysical logs confirm an expected sequence of units that fit the long-term conceptual model for the basin that has been developed by several workers over the last 30 years. The alternating layers of sand, silt, gravel, clay and mudstone are systematic layers typical of a lacustrine delta depositional system.

Othberg and Stanford (1992) compiled some of the mapping done earlier by S.H. Wood and W. Burnham, but did not define or investigate the PGS. Othberg and Stanford did not even map the Pierce Gulch Sand in the Eagle USGS quadrangle, although it outcrops there. Rather, their work focused entirely on the terrace gravels, which lie above the PGS and are not involved in M3 Eagle's application.

The PGS has not yet been formally classified with respect to the regional geologic section. We currently consider the unit as a Member of the Glenns Ferry Formation. Based on our understanding of the various formations and stratigraphic marker beds in southern Idaho, and the naming conventions involved, we do not believe it technically correct to refer to the PGS as a Formation at this time.

Staff suggests that these sediments may be "faulted." We take up the issue of faulting in more detail below, but note here that, with perhaps one exception, there is no evidence that the major faulting in the deep volcanic basement rocks, including that detected by the magnetometer survey conducted by M3 Eagle in 2007, offsets, or even breaks, the shallower water bearing units including the PGSA. The available evidence actually shows the opposite, that the deep-seated faults do not propagate to land surface or penetrate the younger sediments above, as shown by seismic reflection studies (see Figure 2 of this report and Figure 16 of Wood and Clemens, 2002).

An exception is the mapped, basin-bounding, West Boise-Eagle ("WBE") fault extending into, and apparently truncating, the sedimentary section. The WBE Fault, the trace of which generally is aligned with the Willow Creek Road at the NE boundary of the M3 Eagle properties, is already accepted as the sedimentary basin margin and a boundary of a portion of the PGSA in the area north of the Boise River where the aquifer meets the mountain front east-southeast of the M3 Eagle property. The WBE fault does not establish an aquifer margin for the PGSA on the M3 Eagle property. Its boundary effect, if any, is accounted for in HLI's hydraulic testing and modeling discussed elsewhere in this Technical Memorandum.

> **At page 6, the Staff Memo states that "the delineation of the hydrostratigraphy based on available geophysical and geologic data is a detailed, difficult, and subjective undertaking. Moreover, it is unclear based on our analysis of the presented data whether the PGS is a distinct, laterally continuous layer, as conceptualized by HLI, or if it possibly merges with overlying undifferentiated sediments basin ward [sic] and/or is hydrologically compartmentalized by faults."**

The delineation of the hydrostratigraphy in this case has involved a considerable amount of data gathering and analysis, some of it detailed, but the undertaking has been neither particularly difficult nor characterized by subjectivity. The geology and stratigraphy in this area have been studied for some 30 years and there is much known about it. This work has been based on objective data and credible scientific conclusions from a number of researchers. In the data submitted to the Staff, we clearly show the Pierce Gulch Sand Aquifer to be a widespread feature that can be correlated over much of the western plain, and in particular to the Payette River Valley (Figures 3 and 4). There is no evidence for "compartmentalization" of the PGSA by faults.

As to the possibility that the PGSA "merges" with overlying sediments, this is not news. We believe, and have noted in reports dating back at least 7 years, that at some locations the PGS does merge with overlying sands and is in hydraulic communication with overlying aquifer units. This is not possible beneath the M3 property, though, because, for the most part, the overlying sands at M3 are unsaturated. Where the PGSA does merge with overlying aquifer units, such a merging would serve to increase both the transmissivity and storativity of the aquifer. This is part of what we have postulated with regard to the PGSA's contact with the sand dominated section in the Payette Basin. Again, the evidence in published reports, together with the recent studies we have compiled, supports the conclusion that the PGSA is laterally extensive and hydraulically interconnected over a regional scale. All new evidence we have uncovered continues to point to this conclusion; we do not subscribe to the Staff's apparent belief that there is a lack of clarity with respect to this issue.

A major feature of the western Snake River Plain sedimentary basin fill is the progradation of sand deltas and river floodplain deposits over the thick lacustrine mudstone deposits, late in the history of Pliocene Lake Idaho. The deltaic sand deposits have long been recognized (Wood, 1994) as forming the important sand aquifer systems of the western plain (Wood and Clemens, 2002). A key feature that allows recognition of a prograding delta system is the upward coarsening sedimentary sequence of the prodelta mudstones, overlain by thick sand layers interbedded with the thinner mudstone layers. This feature is best observed with certainty on resistivity, single-point-resistance or natural-gamma ray geophysical logs.

Hydro Logic has identified this feature on geophysical logs of test wells of the M3-Eagle project, and has correlated the overlying sand aquifer in those wells to the Pierce Gulch Sand, defined in the subsurface by Wood (2004, page 98, Figure 24). This report shows that the Pierce Gulch Sand Aquifer is a widespread feature that can be correlated based on the prograding-delta signature on borehole geophysical logs of deep petroleum wells (Wood, 1994, p. 105, Figure 2) over much of the western plain, and in particular to the Payette River Valley (Figures 3 and 4).

The PGSA is characterized by relatively thick sand layers, with interbedded lower permeability silts and/or mudstone. Sands are shown to be coarse-to-medium-grained in the Star Well #3, M3 wells, and the UWID Swift Well. Farther into the basin the delta sands are finer-grained (see for example Wood (1994, p. 112, Figure 7). While grain size is not specifically stated, one can infer sands are coarse grained in the Payette River Valley, Virgil Johnson #2 well, using geophysical logs and drill-cuttings. The cuttings description published by Newton and Corcoran (1963, p. 40) describes the basal sand unit (410-520- ft depth) as arkosic sandstone. The arkosic nature of sand

would most generally be associated with coarse sand. The interbedded and relatively thin, mudstones are a common feature of deltaic sands, either as mud drapes or mud deposits between sand-delta lobes. On the borehole geophysical logs (Figure4) the main body of the PGSA is 150-to-200 feet thick.

The top of the Pierce Gulch Sand has not been formally defined and therefore currently is referred to as consisting of "undifferentiated" aquifers and aquitards. That is, the top of the PGSA is defined by an irregular unit in which mudstone layers dominate sand layers in abundance and thickness (Figure 4). In some wells the top of the PGSA is an obvious thick mudstone unit (M3-Eagle Test Well #1, Star Sewer and Water District Supply Well #3, and Oroco Oil and Gas-Ted Daws #1 well, (Figure 4). This overlying lower-permeability unit dominated by mudstones is typically 80-to-200-ft thick, and is overlain by many thick sand units that serve as shallower aquifers. In the deeper parts of the basin the top of the PGSA is based upon the predominance of mudstone and clay layers, but interbedded sands do occur, some of which are up to 30 feet thick (see the Webber-State #1 log (Figure 4). This overlying lower-permeability unit has not been formally named, but it clearly causes some degree of hydraulic confinement of the PGSA as shown by the increasing potential with depth in M3-Eagle Test Well #4, the municipal wells for the City of Star, the artesian-flowing UWID State and Linder Test wells #1 & 2, UWID Island Woods Wells #1 & #2, and the UWID Redwood Creek well in the Eagle-Star area.

> **The Staff suggests it "is difficult to distinguish the PGSA from the 'undifferentiated alluvial aquifers and aquitards' in UWID test wells along the Boise River," and that HLI's cross-sections indicate "a lack of fine-grained sediments that define the top of the PGSA under the M3 property. The absence of a thick, laterally continuous confining layer provides a mechanism for hydraulic communication between the PGSA and overlying undifferentiated sediments." Staff Memo at 4.**

HLI has concluded that there is some degree of vertical hydraulic communication across the geologic section overlying the PGSA and that at least 200 feet of saturated aquifer sand is extensive across the north Eagle area and regionally beyond. However, this leakage is more pronounced east of Eagle where the PGSA aquifer sands rise closer to the surface and where the geologic section is more sand-dominated. This is discussed extensively in a number of the M3 Eagle reports previously submitted to the Department. To the west, however, and under portions of the M3 Eagle property, there is evidence of an extensive confining layer overlying the PGSA that, like the aquifer itself, extends to the Snake and Payette basins and across much of the Treasure Valley as well (Figure 4). Where there is no confining layer, the PGSA and overlying permeable deposits may be considered thicker, more transmissive, and more productive.

The base of the PGSA is clearly identified by the upward coarsening mudstone of the underlying pro-delta facies. The top of the Pierce Gulch Sand is identified by mudstone layers and lenses, and in some places, a relatively thick (100 to 200 feet) mudstone-dominated unit. Evidence for semi-confinement is the change in piezometric levels across this unit, and the generally higher pressures in the PGSA than in the overlying unit of "undifferentiated alluvial aquifers and aquitards." The overlying unit has not been studied in detail, although it is well characterized in

geophysical logs in the Eagle area and outcrops in the bluffs on the south side of the Payette River to the west-northwest near Bramwell.

It is appropriate to be as specific as possible about the term "hydraulic communication," especially with respect to time and spatial scales. Based on the data, we conclude that the PGSA is "semi-confined," and that over a very long duration, pressure change and flow may occur in the overlying sediments based on water withdrawals from the PGSA (Squires and Wood, 2001). By "semi-confined," we mean that the PGSA is confined beneath the western edge of the M3 property but where it rises to higher elevations beneath the eastern and northern parts of the property, it is unconfined.

> **"The stratigraphic and geophysical logs for TW#4 do not show a strong correlation with the depiction of the mudstone unit drawn in the cross-section that runs from TW#3 to the UWID State and Linder well." Staff Memo at 4.**

It appears that Staff is searching for a clear definition of the top of the PGSA. We agree that the sediments overlying the PGSA, including some low permeability sediments and some thick, highly permeable sand sequences (depending on the location) are variable across this regionally extensive unit. In some locations, the aquifer has a well-defined low-permeability "top" over tens of square miles. In other areas, such as the State and Linder Test Well, the PGSA's top is less well defined by such low permeability sediments, resulting in a thicker sand section, higher transmissivities and a more productive aquifer.

In any case, the Pierce Gulch Sand Aquifer, its contact with the underlying Terteling Springs Formation mudstone, and a deeper sand aquifer (Terteling Springs Aquifer) are all clearly shown to extend between these wells. The point is that an extensive aquifer approximately 270 feet thick is present across this region and beyond. The fact that the Pierce Gulch sand is even thicker in some locations has been noted in our reports.

> **The Staff asserts that "[t]he stratigraphic profile of SVR#7 (the pumping well for a nine day aquifer test conducted on the M3 property) is not included on the cross-section that bisects Big Gulch. If included, the cross-section would require modification." Staff Memo at 4.**

There is no question that SVR#7 is completed into the PGSA. HLI has submitted five cross-sections that include this well showing this relationship. In any event, we disagree with the suggestion that including the SVR#7 data would change any substantive representation or interpretation of the cross section in question as shown on the cross-sections that do include the SVR#7 well data.

The SVR#7 well was included in five cross-sectional sketches submitted to IDWR, two of which bisect Big Gulch (See Figure 5 of HLI 2007 and cross sections A-A', B-B', E-E', and I-I' submitted to Department on November 26, 2008). SVR#7's geophysical profile also is included in several composite diagrams. We did not include the SVR#7 well on our most recently submitted cross-sections (January, 2008) because adding it would unnecessarily clutter the figure and would not change anything in the interpretation of the stratigraphy. Most importantly, we

had more reliable data than the information we were able to obtain about the SVR#7 well. We had drilled and completed two new high-quality test wells in Big Gulch (M3 TW#4 and TW#2) for which we had precise and reliable geophysics.

M3 Eagle did not construct SVR#7. It was already cased and therefore could not be effectively logged. The existing lithologic and geophysical logs for SVR#7 are of poor quality. They were obtained with an uncalibrated geophysical logging unit operated by a driller having what we consider to be insufficient training and understanding of geophysical principles. This unit is an analog device with hard copy output as a pen-and-ink strip chart only. Our attempt to reproduce the original poor quality log response by shrinking down a printout that was several feet long and a foot wide is not the equivalent to a high quality, digitally-acquired log that can be plotted at any scale.

In summary, the area's stratigraphy is well understood in all respects relevant to determining how the PGSA lies across many tens of square miles in the M3 Eagle area.

2. **Geologic faults and their potential effect on ground water production.**

The potential existence and effect of faulting into the PGSA is a central focus of the Staff Memo. We do not believe the PGSA is truncated by faulting, and in this section respond to the Staff's comments on the subject.

> **The Staff Memo states that the "cross-section that bisects Big Gulch does not show the fault between TW#1 and TW#4 that was identified in surface geophysical work contracted by HLI (Wood, 2007)," and that "[t]he offset from this fault could account for, at least in part, some of the differences in elevation of the tops and bottoms of the various strata that are represented as uninterrupted. The identification of faults is important for the characterization of the hydrogeology because faults often affect hydraulic communication between hydrostratigraphic units." Staff Memo at 4.**

These statements by Staff do not reflect a correct analysis of the area's faulting. The "fault" is separate from the WBE Fault; it was not shown on the cross-sections because there is no evidence that this deep-seated fault offset propagates to land surface. There is no apparent interruption in ground water flow maps and no surface topographical feature that would suggest faulting here. The cross-sectional diagrams, which are based on borehole data, suggest that even if there were offsets, they would have to be minimal and insufficient to juxtapose the thick permeable sand strata against low-permeability clay layers in any appreciable amount in our studies of this area, we have found that faults do not often affect hydraulic interconnection within aquifers.

In our opinion, the inferred fault of HLI's magnetometer study does not break the upper sedimentary section, much less offset it significantly. The magnetic anomaly shows only that this fault exists in the deep basement volcanic rocks (approximately 3,000 feet below ground level (bgl)). Much of the fault relief on the basement volcanic rocks is older than 9.5 Ma (see Wood and Clemens, 2002, Fig. 7 and discussion on p. 81), whereas the PGSA sediments

overlying the volcanics are much younger. In other words, this deep faulting appears to have predated the prograding delta sequence, possibly by millions of years.

While we agree it is appropriate to identify faulting in the subsurface, it is most important to understand the history of the fault and the amount of offset, if any, it produces in overlying aquifer units. Based upon our studies and review of other findings it is not probable that this inferred fault significantly offsets the PGSA.

In any case, we identified the faulting beneath the M3 Eagle property and discussed its potential effects in our report on the Kling well test. We addressed the possibility for some strata offset and noted that lower transmissivity values obtained in this area from this short aquifer test could be attributed, in part, to the faulting. But lower transmissivity values do not necessarily equate to aquifer discontinuity. Most importantly, the Kling well test produced no evidence of a negative hydraulic boundary in the pumping well drawdown plot. In short, there is no support for a suggestion that faulting offsets the PGSA, much less that it serves as a no-flow boundary as Staff perhaps implies in its memorandum.

Extensional faulting does not generally create a "fault gouge" that could form a lower permeability impedance to ground water flow across the fault plane. Faulting in this area has been shown to impede ground water flow only when the offsets are great enough that permeable materials are truncated against low-permeability units. This is the case with the WBE Fault, which some evidence shows offsets the PGSA against the Terteling Springs mudstone in the North Ada County area. More prevalent along the Boise Front are series of small-offset, cross-cutting faults within the older and deeper units that do not interrupt hydraulic interconnection even across those units that are faulted. Such is the case with the magnetometer-inferred deep fault the Staff references here.

As further evidence of the lack of a hydraulic boundary, we have included hydrographs showing continuous water level monitoring from M3 Test Wells TW #1 and TW #4, located on opposite sides of the presumed fault (Figure 5). These hydrographs demonstrate that the same hydraulic events are observable on water level plots for both wells. The changes in water levels in TW #4 are smaller and delayed in comparison to those observed in TW #1, as would be expected: TW #4 is closer to the edge of the aquifer where unconfined conditions result in much larger storativity values. Greater storativity can have the effect of delaying and attenuating hydraulic responses in wells.

Also note that the drawdown response to the pumping test of SVR #7 (discussed further below) can be observed in both TW #1 and TW #4 (Figure 5). These similar responses themselves indicate that the deep seated bedrock fault indicated by Wood (2008) does not act as a no-flow boundary as speculated by IDWR staff. Water level contour maps based on field measured data and surveyed well heads included in documents submitted to IDWR (HLI, 2007, 2008a, 23008c) all show ground water in the PGSA flowing to the west and west-northwest beneath the M3 site. Were the fault to act as a hydraulic barrier, ground water flow would be directed toward the north or to the south and not across the presumed no-flow barrier.

The Staff contends that "[t]he contribution of basin margin faults to hydrogeologic

uncertainty was previously identified in a study that was conducted for the Treasure Valley Hydrologic Project: *In addition to complexity inherent in deposition and erosion, a series of major faults bisect the stratigraphic section along the northern basin margin. The hydrologic impact of these faults is poorly understood, but they are likely to be an important influence on ground water flow in the Boise-area aquifers.* (Hutchings and Petrich, 2002, p. 2)." Staff Memo at 6.

There is no evidence for a fault barrier that impacts ground water flow in the PGSA or that produces a hydrologically compartmentalized PGSA in any location. Major faulting that formed the western Snake River Plain generally does not significantly cut or offset the younger sedimentary units (shallower than 1000 ft) in the basin on the north side of the plain. The well-known basin margin WBE fault and possibly the Middleton fault defined by Wood and Anderson (1981) may offset shallow units, but only a small (less than a few feet) offset is observed in outcrop. Figure 2 shows in detail the nature of faults in the basin, and this seismic-section interpretation likely applies to some of those faults detected in magnetometer surveys by Wood (2007). Fault offset of the deep Miocene basalt gives rise to a magnetic anomaly, but produces no information about faulting of the overlying sediments. The seismic section (Figure 2) shows that a major fault in the Miocene basalt does not extend upward to the Pierce Gulch Sand Aquifer, north of Middleton

Field mapping and magnetometer surveys have confirmed the location of the WBE fault at the northeast end of the M3-Eagle properties, and its likely extension to the road cut exposure at Freezeout Hill (Wood, 2007, Figure 1). This fault offsets the older Terteling Springs Formation. Note that the large case "U and D" symbol shown on that map (Wood, 2007, Figure 1) at Freezeout Hill is a typographical error. The southwest side is clearly downthrown at that locality. Field evidence for other faults southwest of that fault has not been found.

The down-dip cross section showing the base of the PGSA (HLI 2009, Figure 3) shows a maximum SW dip of less than 2½ degrees (200 ft/mile). That dip is typical of depositional dip (Wood, 2004, Figure 9, p. 115) and characteristic of the upper sedimentary section of the western Snake River Plain. Such a dip also is much less than the typical 5 degree dip in the deeper sediments (Squires et al., 1992, p. 25 and Figure 6, p. 83) of the basin. There is no reason to believe that faulting significantly affects the PGSA southwest of and on the M3 Eagle property.

High-resolution sections used by Wood (1994) also show that faulting does not extend into the upper 1000-ft in the Caldwell area There is no evidence that the Pierce Gulch Sand is significantly faulted west of the WBE Fault.

The Staff notes that "HLI commissioned magnetometer and seismic profiling surveys on and around the M3 property. . . . to obtain additional stratigraphic information beneath the area of investigation." The Staff Memo also states that this effort led to Dr. Wood identifying "two NW/SE trending 'major' faults that transect the M3 property...." Staff Memo at 3.

Dr. Wood, who evaluated the magnetometer data for HLI (and who has mapped the known faults in the area), did not describe the fault trace as transecting the M3 property but, rather, that the

survey suggested a possible offset in the deeply buried volcanic bedrock several thousands of feet below the M3 property. HLI did commission seismic reflection and magnetometer surveys, mainly to determine deep structural features. The magnetometer data would not, and could not, show stratigraphic relationships because the technology relies on resident magnetism in the deeply buried, and faulted, volcanic rocks underlying the Idaho Group sediments.

> **"Four geologic cross-sections were developed by HLI based on geophysical and geological data collected from deep wells in the area." Staff Memo at 4.**

M3 Eagle submitted 16 sub-surface cross-sections with its materials on November 26, 2008 and an additional four cross-sections on January 29, 2009. It is unclear whether Staff evaluated the originally submitted 16; the Staff Memo does not discuss them. They all are significant to our analysis, and support our conclusions about the nature of the hydrogeology in this area and the lack of any PGSA-truncating faults here other than the WBE Fault.

3. Aquifer continuity between the Boise and Payette River basins.

Another important theme in the Staff's review has been the question whether the Pierce Gulch Sand Aquifer is continuous to the Payette basin. The answer to this question is not dispositive of the more fundamental question of the aquifer's productivity and ability to sustain an approximately 9 cfs average withdrawal for the M3 Eagle development. However, the question of inter-basin continuity is another indication of its regional extent and its access to large areas of recharge. In this section we address Staff's contentions about this issue.

> **The Staff observed that "[t]he contour map shows that only four wells west of the Ada/Canyon County line were used to determine the northwest regional flow direction," two of which "(Rio Lobo and Shalako) are located within the same section," and "the other two (Zigler and Caldwell Test Well #19) were not surveyed" as to ground surface elevation and location. The Staff concluded that "[t]he scarcity of surveyed control points west of the Ada/Canyon county line creates uncertainty in the determination of the regional flow direction. Staff Memo at 7.**

Slope of a piezometric surface is a conclusive indicator of flow direction. The piezometric level map for the PGSA wells, based on reliable data from available wells completed into the PGSA, shows that the ground water surface slopes west by northwest toward the Payette Valley, which itself is some 200 to 300 feet below the Boise River in the vicinity of Eagle. Based on the data, and the well-documented continuity of the PGSA to the Payette basin, we know of no credible hypothesis to contradict ground water flow toward the Payette Valley in this area.

Any water level taken in the north Caldwell area will be at a higher elevation than any water level in any well downstream of Emmett in the Payette Basin. Therefore, the Staff is incorrect to imply that these data points cannot be relied upon to show a regional head gradient toward the Payette basin.

HLI used these four wells to the west and west-northwest because they were deemed to produce reasonably reliable ground water level data. The fact that these four were not surveyed to the closest 0.01 foot of elevation is immaterial to the overall conclusion that ground water flows to the west-northwest. This is because every ground water level and/or well head elevation of which we are aware in the Payette Basin located toward where HLI has indicated a WNW ground water flow is significantly lower than the measured well heads and water levels in the vicinity of M3 Eagle.

Often, surveying well head elevations is quite important, such as where accurate aquifer levels or fluctuations are being studied (and HLI has done this with regard to certain portions of its ground water studies for M3 Eagle). However, the differences that surveying will reveal in head and elevation would not be material where the surface elevations being considered differ by some 300 hundred feet, which is the case when comparing the Boise and Payette River surface elevations in this area. In other words, all known ground water levels and well heads are at a much lower elevations in the Payette Valley, causing the flow gradient toward aquifers beneath the Payette Valley.

> **The Zigler well is the only control point in the Payette River valley. Well completion data for this well was not included in the HLI submittal (HLI 2008c). It has not been established that the PGSA is present at this location. Staff Memo at 7.**

We know of no evidence, and can discern no geological justification, for a conclusion that any well in the Payette Valley would have heads higher than those in the uplands or in the Boise basin to the south and southeast. Therefore, only a hydraulic interconnection would be needed to allow flow in the WNW direction. Because a permeable sand layer extends between the two basins, as HLI and other researchers have shown, this gradient inevitably results in significant ground water flow from the Boise Basin to the Payette Basin. There is substantial evidence to suggest such a hydraulic connection exists; no evidence whatsoever suggests the opposite.

We used data from the Zigler well because it is the best example of a fully sealed and competently documented well in that area; it is also one of the deeper (176-feet) wells so that the piezometric head of its completion interval (in this area of increasing potential with depth) is considered conservative with respect to its use as a gradient data point. The completion interval and well construction data for the Zigler well is readily available on IDWR's database. Its location near Letha in the Payette Basin also is important. The Zigler well has an above ground head of ~8 feet, which is about 200 feet below the heads of the wells in the M3 Eagle vicinity. As discussed in more detail below, the Zigler well also is not "the only control point in the Payette River Valley." Staff Memo at 7.

Finally, because continuity of the PGSA to the Payette Basin appears to be a central focus in the Staff Memorandum, we provide this additional discussion concerning the deep geophysical logs we submitted previously. The normal resistivity logs from the Ted Daws #1 well (submitted to IDWR in November 2008 and discussed in our January 2009 submittal) clearly show that the sand unit called the Pierce Gulch Sand Aquifer is a widespread deposit that extends to the Payette River Valley north of New Plymouth (Figures 3 and 4). The identical log characteristics that Hydro Logic has shown in Boise area wells occur in the Ted Daws #1 well and the adjacent

Virgil Johnson #1 well, and also in geophysical logs to the west near the town of Payette and south to Lake Lowell. The geological significance of the spreading of sand deposits over the former lake basin is discussed at length in Wood and Clemens (2002, p.93-94).

But again, we emphasize that proving continuity to the Payette basin is not seen as critical to our conclusions about the ability of the PGSA to support the M3 Eagle proposal because direct hydraulic continuity from beneath the M3 site to the Eagle-Star vicinity and further south has been established by our hydrogeologic studies (and also is supported by Dr. Ralston's affidavit).

> **The Staff observes that the water level for the Caldwell Test Well #19 on HLI's "updated contour map is 2,450 feet above mean sea level (ft-msl). The only water level measurement reported for this well is 2,442 ft-msl and this measurement was collected in 2005 rather than in 2007. In addition, the data submitted by HLI indicates that this well is *'above the PGSA'* (HLI, 2008c). These considerations suggest that the data point should not be relied upon for determining ground water flow direction in the PGSA." Staff Memo at 7.**

Staff omitted the question mark following the aquifer designation in Table 1 of HLI (2008c) that indicated that the Caldwell Test Well #19 may or may not be completed above the PGSA. However, Caldwell Test Well #19, even if not completed in the PGSA, is located in an area of increasing potential with depth, and has water levels above ground surface. Therefore, a deeper well, such as one that would be completed in the PGSA (were it deeper than Test Well #19 at this location), would have an even higher water level, thus increasing the ground water gradient toward the west-northwest presented by HLI.

In other words, to be conservative as to the gradient issue, HLI chose the higher range of water levels in the Payette basin and the lower range in the Boise basin. The point is For purposes of graphing gross water level gradient maps, water levels of widely varying dates from well driller reports is common practice. Staff has pointed to no water level data to contradict HLI's conclusion in any event. As to the difference that may exist between 2005 and 2007, it is unlikely that any change over that period would significantly affect the inferred direction of ground water flow, we see no evidence that it has, and the Staff presented no such evidence.

> **The Staff notes that "[a] previous study (Wood, 2007) indicates that the PGS outcrops along the southern bluffs of the Payette River Valley. These PGS outcrops are unsaturated with no visible springs or other evidence of ground water discharge. The HLI conceptual model does not include an explanation of where and how the PGSA discharges into the Payette River Basin Aquifer." Staff Memo at 7-8.**

The deep geophysical logs previously submitted to the Department, and the cross-sectional diagram of Figure 4, show that the lower part of the PGSA to the west-northwest of M3 Eagle lies below the Payette Valley floor. We are aware of no investigation of the shallow ground water system in the Payette Valley. So we withhold judgment on the nature or exact locations of PGSA discharge into the Payette Valley. But again, naming the exact mechanism of PGSA

discharge is not critical to understanding the aquifer's productivity or its ability to support a water right such as that applied for by M3 Eagle.

We have shown that the upper reaches of the PGS are not saturated and the unconfined/unsaturated edge of the PGSA in part comprises the edge of the aquifer. The Zigler well shows confined, above-ground artesian heads in the Payette Valley. The unsaturated edge of the outcropping sequence of sand strata and confining underlying conditions within the PGSA or other aquifers would explain the absence of seeps along the base of the bluffs, although the absence of such seeps also has not been confirmed.

We do not see a major thick mudstone outcrop along the bluffs south of the Payette River. Instead, the section is dominated by coarse sand layers, with minor mud interbeds. If a mudstone layer exists, it may lie under the valley floor. The sediments cropping out in the Payette bluffs are either the as yet "undifferentiated" sediments overlying the PGSA or are part of the unsaturated (upper) portion of the PGS at this location. These outcropping sediments are possibly 600 ft thick and very sandy. It is not required that there be a spring discharge at the base of the bluffs just as it is not incumbent upon M3 Eagle to describe how the PGSA discharges into the Payette Basin other than to say that it happens in the same manner that all hydrogeologic discharge occurs in sedimentary basins of the West.

> **The Staff states that "available water level data clearly indicate a west ground water flow direction in the PGSA beneath the M3 property," but that positing a regional flow direction "northwest toward the Payette River is less convincing" due to a "scarcity of surveyed control points and an incomplete hydrogeologic conceptual model." Staff Memo at 8.**

The regional hydrogeologic setting and all available geophysical data support the conclusion that ground water moves over many miles in the PGSA, and passes under M3 Eagle from ESE to WNW. No data contradicts it.

We agree that the PGSA ground water flow beneath the M3 Eagle property is substantially in a westerly direction, as our gradient maps indicate, more or less parallel to the Boise and Payette Rivers. But to be more precise, the flow follows the regional geomorphologic features of the Boise and Payette River basins in this area, trending west-northwest, as do both rivers and the structural and depositional geologic fabrics. It is true that there are not as many measured wells in the less-populated areas to the west and west-northwest of M3 Eagle's property. But even so, it is not surprising, especially given the substantial amount of data we now have about the hydrogeological setting, that all available evidence leads us to conclude PGSA ground water moves under the M3 Eagle property in a direction parallel to both river valleys—that is, in a west-northwest direction.

The Staff evidently does not dispute that PGSA ground water moves many miles from the east-southeast into the area beneath the M3 Eagle property north of Eagle, and that it comes from at least as far away as Garden City. There is no evidence to suggest that it somehow changes its WNW course at M3 Eagle and all then flows to the west, or southwest back toward the Boise River

As noted above, it also is important to note that it has been previously postulated, and accepted by IDWR in the context of granting water right permits, that the adjacent Willow Creek Aquifer (which underlies a substantial portion of the M3 Eagle property) flows toward the Payette Valley in this same direction. (See discussion below accompanying Attachment A.) The WCA has the same depositional controls and was formed by similar depositional processes as those that formed the PGSA.

We do not contend that all of the PGSA's ground water flows to the Payette Valley. Ground water flow maps, both HLI's and those prepared by others, show what one would expect from the geologic conceptual model involving a regionally-extensive aquifer: water in the PGSA moves many miles from the east-southeast to the west-northwest along and under the Boise front in the same general direction as the Boise and Payette Rivers; it moves under a gradient from areas of greater head to areas of lower head, such as the head difference between the Boise and Payette basins, so long as a hydraulic connection exists. However, in the immediate area of the PGSA under M3 Eagle, all of our investigations indicate a west-northwest flow, some of which we believe flows to the Payette Basin. This is what we and other workers have reported. A significant and growing body of hydrogeologic and hydrologic data, including data from as far back as 1988, supports this concept and no data disputes it. See Figure 1, USGS Hydrologic Investigations Atlas HA-703, 1988, attached to letter from Scanlan Engineering (1994), included here as Attachment A.

Said differently, even if the exact direction of ground water flow and/or the precise locations of discharge far to the west of the M3 site have not been defined definitively, this does not mean there is insufficient ground water in the PGSA for development of 6,535 acre-feet of ground water annually at M3 Eagle. The studies completed to date demonstrate the PGSA to be a highly productive and regionally extensive aquifer with strong sources of recharge and little evidence of significant drawdown despite many decades of development and water usage.

> **The Staff states that "[u]se of water levels that were collected during the irrigation season adds uncertainty to the determination of ground-water flow direction." Staff Memo at 7.**

We disagree that collecting ground water levels in the vicinity of M3 Eagle during the irrigation season "adds uncertainty" to the analysis. If anything, it adds more conservatism. This is because irrigation season water levels in a given well will be lower than non-irrigation season levels, and adjusting for this (which we did not do) would make the average aquifer levels higher and the gradient toward the Payette even greater. Thus, using irrigation season measurements and still calculating a west-northwest gradient only adds support to HLI's conclusion that the ground water gradient slopes to the west-northwest; it should not add uncertainty on this point.

The season during which ground water levels are collected is relevant information, and the researcher always should take it into account. In some cases, irrigation season ground water levels will be higher, in other cases, lower. Here, we expect ground water levels to be lower in the irrigation season due to irrigation pumping, and this indeed is what the available hydrographs demonstrate. Hydrographs in this area clearly show steady, if modest, ground water level declines in the April through August period, followed by

increasing trends through about March. These also seem to respond to drought to some degree.

Moreover, we have been monitoring ground water levels in this area for three years, and have documented the seasonal fluctuation. Area ground water levels change annually with essentially equal magnitude during the non-irrigation season as is clearly evident on every hydrograph produced in the Treasure Valley of which we are aware. These hydrographs, as well as our monitoring well network on the M3 Eagle property, show that the downward change during the irrigation season is equal, or nearly equal (sometimes slightly more, sometimes slightly less) to upward change during the non-irrigation season. In other words, if measuring during the annual irrigation season drawdown is seen as adding uncertainty, the researcher also then would need to carefully account for the annual recovery during the non-irrigation season. Even though the water levels are rebounding annually in amounts equal to the seasonal drawdown, the Staff does not appear to have accounted for this in its analysis.

We consider the best times to measure water levels for aquifer characterization purposes to be all times the aquifer can be measured—that is, continuously, as M3 Eagle has done for the last three years. It is only after knowing the nature of the annual fluctuation that one can make assumptions about when best to measure water levels. For example, in the McVay analysis of water level trends, he chose water levels between March 1 and May 31. However, reviewing the hydrographs submitted by HLI shows that this time period is one of the fastest changing portions of the annual fluctuation. In the absence of continuous data, we believe it is best to measure ground water levels during those periods that will capture the seasonal high and the seasonal low of the annual fluctuation.

> **The Staff references Dr. Ralston's reports stating his belief that "postulated ground-water flow through a laterally continuous sand aquifer from the Boise River valley to the Payette River valley is not supported by field data." Staff Memo at 16.**

Staff summarized two reports and two memoranda submitted by Dr. Dale Ralston of Ralston Hydrologic Services, Inc. on behalf of Protestant North Ada County Groundwater Users Association ("NACGUA"). Staff did not analyze Dr. Ralston's materials or conclusions, but rather merely quoted from them. It is unclear what Staff intends by quoting the Ralston conclusions, such as his belief that "postulated ground-water flow through a laterally continuous sand aquifer from the Boise River valley to the Payette River valley is not supported by field data." Staff Memo at 16.

We believe that an analysis of Dr. Ralston's contentions would have underscored the fact that the PGSA is regionally extensive at least from M3 Eagle's property back toward Garden City, that there is a substantial amount of "field data" (including well logs) to support continuity of the PGSA to the Payette Valley, and that Dr. Ralston provided no evidence to support his main hypothesis—namely, that the PGSA is not continuous to the Payette Valley. Furthermore, nowhere did Dr. Ralston present evidence to suggest that the PGSA, wherever it might extend, contains insufficient water supplies to support the M3 Eagle water right application.

Moreover, Staff failed to mention one of Dr. Ralston's significant filings in this matter: his November 24, 2008 affidavit in which he states:

> ***"The Pierce Gulch Sand Aquifer is the target water supply source for M3 Eagle production wells. This means that operation of the M3 Eagle productions wells will have hydraulic impacts on ground water and connected surface water systems within the Boise Basin. I believe that this hydrogeologic conceptual model is correct."***

Attachment B. This affidavit cites no new data or analysis beyond what has been described by others. However, it does confirm Dr. Ralston's agreement with the evidence that the PGSA extends into the Boise River basin; it is on file with the Department and could have been noted along with Dr. Ralston's reports that Staff cited.

Furthermore, in his deposition (which Ed Squires and Mark Utting of HLI attended), Dr. Ralston made this point even more clearly. The relevant pages of Dr. Ralston's are Attachment C, but this is the central passage on the point of aquifer continuity to the Boise basin:

23 Q. (BY MR. FEREDAY) Dr. Ralston, I've
24 handed you what has been marked as Ralston
25 Exhibit 3, which is an affidavit that you signed
1 and filed on November 24th, and I just wanted to
2 ask you about this. . . .
19 This critical paragraph 3 in the
20 affidavit says: "The Pierce Gulch Sand Aquifer
21 is the target water supply source for M3 Eagle
22 production wells." Do you agree with that?
23 A. Yes, sir.
24 Q. The second sentence says: This means
25 that operation of these wells will have hydraulic
1 impacts on ground water and connected surface
2 water systems within the Boise Basin; is that
3 correct?
4 A. Yes, sir.
5 Q. That includes on the Boise River,
6 correct, or at least by the "Boise Basin" do you
7 mean the whole area stretching at least into
8 Garden City and up perhaps into Boise?
9 A. What it says is "ground water and
10 connected surface water systems within the Boise
11 Basin." Yes, in a broad sense that includes all
12 the way up from Garden City.
13 Q. Then by saying that you believe that
14 this hydrogeologic conceptual model is correct,
15 would it be accurate to say that you are saying
16 that: At least I agree that the Pierce Gulch

17 Sand Aquifer exists and it extends to Garden
18 City, let's just say?
19 A. That was what I thought I signed, and I
20 think that is what these words say. But what I
21 intended to say is the conceptual model from the
22 M3 Eagle to the southeast toward the Boise was
23 well supported, in my opinion, by the technical
24 work and I agreed with that. And that is what my
25 intent on signing that was.

As to continuity of the Pierce Gulch Sand Aquifer between the Boise and Payette River Valleys, M3 Eagle has submitted significant evidence to support this contention (although it is not necessary to calculate the PGSA's productivity). Again, the normal resistivity logs from the Ted Daws #1 well clearly show that the sand aquifer unit called the PGSA is a widespread deposit that extends to the Payette River Valley north of New Plymouth. The identical log characteristics that HLI has shown in Boise area wells occur in the Ted Daws #1 well and the adjacent Virgil Johnson #1 well, and also in geophysical logs to the west near the town of Payette and south to Lake Lowell. The geological significance of the spreading of sand deposits over the former lake basin is discussed at length in Wood and Clemens (2002, pp. 93-94).

In his deposition Dr. Ralston testified that the kind of evidence he would use to determine whether "the groundwater does flow toward the Payette Basin" would be "any existing wells out there [to the west-northwest of M3 Eagle] that are of suitable depth and suitable location that have good geologic information that I can interpret." Attachment C at 101-02. However, Dr. Ralston did not evaluate these geophysical logs from just such wells that are described above, and did not evaluate the Zigler well. *Id.* at 103-04. It appears that the Staff also did not.

4. <u>HLI's aquifer testing.</u>

The Staff noted that the duration of M3 Eagle's SVR#7 aquifer test "exceeded most of the previous aquifer tests in the area," but suggested that "a longer duration test (~30 days) with additional monitoring in the shallow aquifers, would stress a greater portion of the aquifer, facilitate evaluation of hydrologic boundaries, and provide data for better estimating the long term impacts of pumping." Staff Memo at 11.

At the end of nine days of continuous pumping, the cone of depression in observation wells was growing so slowly that we had reached a point where we would not see appreciably different results with longer testing. And as noted, at the nine-day point we had reached a situation where barometric effects, earth tides, and water level trends were far greater in magnitude that the drawdown effects. This is where the aquifer test had reached the point where additional pumping would produce no additional useful data.

Staff concludes its comment on the aquifer test by stating: "Several lines of evidence suggest that the aquifer may be bounded by faults. An aquifer test of longer duration could be used to evaluate the hydrologic significance of the fault." Staff Memo at 11.

As explained above, we are aware of no "lines of evidence" on which to base a conclusion that the PGSA is bounded by faults. Stating that it "may be" so bounded, without actual geological evidence in the aquifer unit itself, adds nothing to our understanding of the PGSA. The actual lines of evidence are that the PGSA is regionally extensive, has scientifically supportable boundaries at its basement and along its NE edge in the vicinity of M3 Eagle's property, and otherwise shows no evidence of boundaries that would prevent M3 Eagle from obtaining ground water right in quantities easily sufficient to support its development.

> **Staff provides these comments about HLI's "16 Aquifer Report" study: "the compilation and reanalysis of data from 16 previous aquifer tests represents a significant undertaking on the part of HLI. The reanalysis yielded an updated hydrogeologic conceptual model and revised estimates of aquifer properties for vicinity aquifers. HLI concludes that other vicinity aquifers have limited long-term sustainability owing to hydraulic isolation and limited on-site recharge. In our opinion, the possibility of limited long-term sustainability for the PGSA also cannot be discounted based upon currently available data." Staff Memo at 12.**

There is no basis to conclude that the PGSA is similarly limited or is in the same category as the other smaller and relatively unimportant aquifers in the area. The available data shows the opposite; that the regional PGSA, including that portion of it that extends under M3, is sustainable over the long-term.

The aquifers HLI refers to as "isolated" and of "limited long-term sustainability" are the Sandy Hill Aquifer and the Willow Creek Aquifer, both of which lie to the north and east and are separate from the regional PGSA. The Sandy Hill Aquifer, by all accounts, is a small and finite "pod" or stranded outlier of Terteling Springs Formation sand that is contained within the mudstone facies of the Terteling Springs Formation with recharge coming only from a small amount of direct precipitation. The limited nature of this sand unit is well known among area hydrogeologists.

The Willow Creek Aquifer was informally named by Scanlan Engineering (now SPF Water Engineering, LLC) and Feast Geosciences during studies for SunCor in 2005. Mr. Scanlan had identified it as being tributary to the Payette Basin in 1994 in connection with the Lynn water right application. Attachment A. Although Scanlan and Feast again correctly confirmed that WCA ground water flows to the Payette Basin (for many of the same reasons that we conclude the PGSA flows to that basin) they did not investigate or describe the geological framework of the WCA, its recharge or its discharge locations. HLI has not questioned the long-term sustainability of the WCA as stated by Staff. We recognize that it is of limited width in the uplands of the M3 Eagle and SunCor properties and it is truncated at its head by the WBE fault; this is what we reported. We do suggest that lowering of WCA water levels would be necessary to reverse the ground water flow gradient and induce recharge from the Payette Basin back to the SE.

> **Staff observes that, "In addition to mass measurements, HLI has installed data loggers to collect water levels on a regular basis. Thirteen wells (four with multiple**

observation ports) currently are equipped with data loggers to monitor different levels within the PGSA. Data submitted to the Department spans back to July of 2006 for some of these wells." Staff Memo at 8.

The multiple tubes in the piezometer nests actually are individual wells, and should be counted as such. Therefore, M3 Eagle is monitoring 22 wells, some of which are completed within the same well bore but carefully sealed from each other unlike most of the local area domestic wells which interconnect the entire drilled geologic section.

The Staff references the data logger measurements M3 Eagle obtained from nine of the PGSA wells during the SVR #7 aquifer test, and questions why "water levels in the Kling domestic well are not discussed in any of the HLI submittals." The Staff says that the Kling domestic well apparently "did not fully recover from the Kling irrigation well aquifer test that was conducted in January 2007." Staff Memo at 8.

We did not use the Kling domestic well data because we had more reliable geophysical and well construction data from a newly constructed test well (TW#1) M3 Eagle installed less than 50 feet away. The Kling domestic well's construction is unknown, but we believe it is unsealed and may not provide an accurate response to the test due to commingling of aquifers, potential caving, improper perforation or screen size, or similar problems. As to lack of full recovery in the Kling domestic well, we do not see this as an indication of declining ground water trends. The Staff has not presented any data to show this and they have apparently not corrected the data for barometric effects and/or pre-test and post-test water level trends necessary to make such inferences.

HLI has explained why the water levels in measured wells did not recover to pre-test levels during the recovery measurement period, including the annual fluctuation in regional water levels shown in all monitored wells in the area. It would be unusual (and a contradiction to standard well recovery analyses using methods based on the Theis equations) for water levels in Boise River Valley wells to fully recover in hydraulic tests within the same amount of time as the drawdown occurred. However, to assure IDWR that the aquifer did indeed recover, the attached Figure 5 shows that water levels in TW #1 (completed in the PGSA about 50 feet from the Kling domestic well (which is also completed in the PGSA) recovered within 2 weeks.

For comparison purposes, the Staff grouped the wells used in the SVR#7 aquifer test as follows: Group 1 is "the State and Linder monitoring well, TW#1, and the Kling domestic well." These are south and west of the area the Staff suggests a PGSA fault may lie. Group 2 apparently includes "Big Gulch Stock Well, TW#4, SVR#7, SVR#9, TW#2, and TW#3." These wells are on the north and east of this postulated fault. The Staff observes that "[t]he seasonal fluctuation seen in Group 1 wells is nearly an order of magnitude greater than the fluctuations seen in Group 2 wells. For example, the seasonal fluctuation was approximately 13 feet in TW#1, but was only 1.5 feet in TW#3. Responses to *"hydraulic events"* (April 2007, June 2007, August 2007, and May 2008) are apparent in the hydrographs for Group 1 wells but are not apparent in the Group 2 hydrographs." Staff Memo at 8.

There is no scientific basis for classifying the M3 Eagle monitoring wells into these groups. This is because the physical hydrogeologic setting, which imparts differences to the drawdown plots, represents a continuum within the aquifer and not a "no-flow" or other boundary or separation. The data HLI has submitted shows this clearly and it is discussed in detail in our aquifer test reports. The geochemistry data also support this connection, as shown in the HLI-Glanzman report.

The wells the Staff cites as having a large fluctuation—Kling Domestic, Kling Irrigation, and M3 #1—are on the western portion of the M3 Eagle property and relatively close to other pumping wells of the Boise Valley. The Staff's second grouping of wells are on the higher, more easterly portions of the M3 Eagle property and are farther from pumping wells; these show fluctuations consistent with the measured hydraulic test results and monitoring hydrographs. The monitoring wells further up Big and Little Gulches are also closer to the up-dip unconfined portions of the PGSA characterized by higher storativities (less confinement) and associated lower swings in water levels. The PGSA as monitored by M3 Eagle's more westerly wells are more confined with lower storativity and thus show a greater water level drawdown and recovery from the collective pumping from the aquifer to the south. Such responses are consistent with basic principles of hydrogeology.

Even so, attached to this Memorandum as Figure 5 is a composite hydrograph correlating water levels and hydraulic events across the area Staff evidently believes may be a fault-induced no-flow boundary. This figure shows that the same hydraulic pumping events affect M3 TW-1 and M3 TW-4. These two wells are on opposite sides of the postulated fault/no-flow boundary, and each is a member of a separate Staff-defined well group. The fact that the water level fluctuation between the two wells is "nearly an order of magnitude greater" does not justify Staff's implication that the two well groups lie in separated geologic units. Such a difference would be expected given the locations of these wells relative to the pumping wells that are causing the seasonal drawdowns and the effects of being closer to the unconfined edge of the aquifer.

The figure also shows that drawdown occurred in both wells during the course of the SVR #7 Aquifer test (discussed below). Although the HLI report on this test indicated that drawdown was too small to be quantitatively analyzed, the attached figure shows that qualitatively, a water level change consistent with the general shape of a drawdown curve can be observed in the TW #1 hydrograph in the figure from pumping of SVR#7. The data show hydraulic communication between these wells—regardless of how they are grouped—not separation and not evidence of a no-flow boundary.

> **Staff asserts that the "NW/SE trending normal fault identified by Wood (2007) separates the two well groups and potentially accounts for the different water level fluctuation patterns." Staff Memo at 8.**

There is no evidence that this normal fault (which, again, is different from the WBE Fault), truncates the PGSA. HLI has proposed several alternative explanations for the greater drawdown in the more westerly, lower elevation wells, including potential effects from a slightly faulted aquifer. The faulted aquifer rationale seems least likely to us because there is no observable scientific basis for it beyond an inconclusive magnetometer survey of volcanic rocks

several thousand feet below land surface. The reasons for observed differences in the magnitude of the annual aquifer pressure fluctuation were explained above.

The wells located at higher elevations in the gulches, penetrate a less confined portion of the PGSA. As such they are closer to the up-dip portion of the aquifer which is more affected by direct precipitation. The geochemistry study of Glanzman and Squires (2008) confirms that ground water in the PGSA in this area has a component of precipitation. As discussed below in our response to the memo by McVay, precipitation in the greater Boise vicinity has been decreasing over the past few years. Any decline in water level observed in the data collected from these wells over the past 2 years is consistent with this precipitation trend. In addition (and a significant point) the McVay trend analyses are deeply flawed and do not show a regional decline in water levels. In fact (as is discussed below) all but one well completed in the PGSA showed a rising water level trend over the past 6 to 12 years.

> **"The hydrograph for the Big Gulch Well was not included in Figure 46 even though this well had the greatest drawdown among the observation wells measured during the SVR#7 aquifer test." Staff Memo at 9.**

The fact that the Big Gulch Stock well had drawdown in the SVR #7 aquifer test (as expected) has no relevance to the presented hydrographs of Figure 46 in the HLI SVR #7 Aquifer Test Report. In any case, the drawdown response in the Big Gulch Stock well is fully documented and shown on several hydrographs of the SVR#7 Aquifer Test Report.

In conducting aquifer tests for M3 Eagle, HLI elected to use monitoring wells having reliable water level records and known construction. The purpose was to ensure presentation of the best data available. The nearby (~800 feet away) SVR#7 well with its sealed construction (and despite its less-than-precise well log) is a better monitoring well than the Big Gulch Stock Well, for which construction details are unknown. In addition, continuous data logger monitoring in SVR #7 began in July of 2006 while similar monitoring in the Big Gulch stock well began in May of 2007. The longer-term data from SVR #7 provide a better understanding of the PGSA than the shorter-term data from the Big Gulch well.

> **"In summary, water levels collected with data loggers on the M3 property over the past three years have provided valuable information regarding water level fluctuations beneath the site. Analysis of these data reveals two distinct patterns of water level fluctuations in the PGSA. The patterns are different on each side of a mapped normal fault. Knowledge of the hydrologic significance of basin margin faults appears to be critical to understanding the hydrogeology in the vicinity of M3." Staff Memo at 9.**

The Staff presents no scientific analysis to support a conclusion that there is any hydraulic disconnect between these well groupings, whether caused by a normal structural geologic fault or other feature. As indicated above, the differences in water level fluctuations may be explained by distance from pumping centers and some differences in confinement and storativity in these portions of the dipping PGSA. A couple of years of water level data that shows a recovery or decline of less than a foot is hardly compelling evidence. Our calculations indicate that,

depending on transmissivity and storativity, it could take up to 10 days for pumping wells onsite to affect M3 Eagle wells closer than those referenced by Staff; it would therefore take even longer for wells further away. Therefore, the small responses in more distant wells are not cause for defining a different pattern. In some cases the small responses were observable but not analyzable because the responses were too small in comparison to barometric effects, seasonal water level trends (even with corrections) and pumping effects from other wells.

> **The Staff noted that "[w]ater level data were collected in the Kling domestic well (see Figure 46 of HLI, 2009), but were not discussed in the write-up for the aquifer test analysis." Staff Memo at 9.**

As noted, we did not rely on the poorly-constructed and unsealed Kling domestic well because we had constructed a specially designed monitoring well (TW-1) less than fifty feet away. We collected and reported water level data from the TW-1 monitoring well. The small amount of data from the Kling domestic well, however, were presented on November 26th and were available for the Staff to evaluate. Inclusion of the Kling domestic well data would not change any of HLI's findings.

> **Staff returns to the idea that there is a fault "between the pumping well and the non-responding observation wells," and states that, "[a]lthough HLI modeled this fault as a no-flow/barrier boundary in their computer-aided analysis of aquifer test data, they seem less certain of its impact in concluding *'A no-flow boundary could, in theory, have affected responses in the lower part of the aquifer'* (HLI, 2008b, p. 206)." Staff Memo at 9-10. Staff concludes that the Kling aquifer test "highlighted the potential importance of a NW/SE trending fault on water level declines caused by pumping in the PGSA." Staff Memo at 10.**

As explained above, this is an inferred fault, not an observed or proven feature. We find no evidence that the fault propagates to land surface, offsets the PGSA, or creates a no-flow boundary or even an impedance to ground water flow. However, because of the evidence of deep faulting, we felt it important to at least mention the possibility that it could present some impedance or slight off-set. But our conclusion, given all of the available geologic, geophysical, and hydraulic data (including work done since HLI 2008a was completed), is that the inferred structural fault is not a factor affecting ground water flow. We believe it is inaccurate to read the Kling aquifer test as "highlighting the potential importance" of a fault in this area as Staff contends. In fact, the evidence, including the results of the Kling Well test, provides no support for the conclusion that there is a truncating fault here, much less that it presents a no-flow boundary.

> **The Staff notes that HLI conducted a second aquifer test in March 2008 in which the SVR#7 well, completed in the PGSA on M3 Eagle property, was pumped at approximately 900 gpm for nine days. Staff states that this test was intended "to collect on-site hydrogeologic data to further characterize the PGSA and to evaluate possible constraints that would impact the execution of a longer duration aquifer test." Staff Memo at 10.**

The SVR#7 aquifer test is a long-term test and is the most thorough and revealing test done to

date in this area. Staff's last comment here is not completely correct. We designed and carried out this test to ensure that it was the long-term aquifer test recommended by HLI for the foothills area, and this is how it turned out. High-quality data were obtained through thorough design and around-the-clock monitoring and supervision. By the end of the nine-day test, aquifer levels and drawdowns had diminished and slowed to the extent that small variations caused by barometric pressure and the annual water level trend in the aquifer were overwhelming the even smaller amounts of change in drawdown in the observation wells. Extending the test would have added no significant information.

Furthermore, data from observation wells were collected for up to five days before the test and for 12 days after, making it effectively a 26-day test. It is a common misconception that "the longer the test, the better." As a practical matter, aquifer tests of constant discharge are extremely difficult to accomplish under the best of circumstances; there are just too many things that can go wrong in a 24/7 operation. The large expense of such tests also cannot be ignored. A better and more beneficial test of a given aquifer is the use of automatic data loggers, verified by period hand measurements, to monitor the collective pumping effects of all wells drawing from it over the course of years. This is the technique HLI has used to produce the monitoring hydrographs presented for the PGSA.

> **With regard to the SVR#7 aquifer test, the Staff notes "an increase in slope on the semi-logarithmic plot of drawdown versus time for the Big Gulch stock well" about four days into the test (HLI, 2009, Figure 24), and states that "[a]n increase in slope is characteristic of the cone of depression encountering a no flow/barrier boundary (Driscoll, 1986; p. 231 and USBR, 1995, p. 251). HLI instead attributes the slope increase to a declining regional aquifer water level trend, which is a plausible concept. Unfortunately, a plot of trend-corrected drawdown is not presented for the Big Gulch stock well. Our calculations indicate that the regional trend (Figure C2) does not fully account for the increase in slope that was observed on the semi-logarithmic plot for the Big Gulch stock well." Staff Memo at 11.**

The water levels in the Big Gulch stock well fully recovered to the annual fluctuation of the regional water level trend. The apparent lack of full recovery in both the pumping well (SVR #7) and the nearby observation well (Big Gulch stock well) is best explained by the seasonal declining water level trend observed in the long-term monitoring data. Figures C-2 and C-4 presented in HLI (2009) and available for staff review show that water levels in this portion of the Pierce Gulch Sand Aquifer were rising during the months of January and February and began to decline just before the start of the test. Linear projection of the water levels measured during late May back toward the time when the water level trend reversed from rising to declining, shows that both well SVR #7 and the Big Gulch stock well recovered to the projected non-pumping water levels during mid-April.

Adjusting the drawdown data from the Big Gulch stock well to correct for this trend (using a linear correction of 0.009869 ft per day, as calculated using a straight-line plot through the mid-April through the end of May water level data and shown in Figure C-4) generated a drawdown plot (Figure 6) with almost all of the apparent end-of-test increase in drawdown removed (as compared with the plot shown in Figure 24 of SVR #7 aquifer test report (HLI 2009) which did

not have this correction). The small remaining residual rise near the end of the test may be an artifact of the noted incomplete removal of the seasonal water level decline or it may be the result of the boundary effects of the nearest known no-flow boundary, the outcropping edge of the PGSA, which lies about one mile to the northeast of the pumping well. Since the no-flow boundary postulated by the Staff is further away, it is highly likely that the closest boundary would affect the data before one further away. In addition, the postulated no-flow boundary effect was not seen in the data plotted for the other observation wells. In fact, many of these wells showed just the reverse; a decline in the rate of drawdown consistent with the effects of the proximity of the unconfined edge of aquifer that acts in effect as a positive boundary.

During the process of reviewing our analysis as part of this response, we realized that the water level trend correction applied to the recovery plot and analysis for the Big Gulch stock well (Figure 27 in the SVR#7 aquifer test report) was misapplied. We inadvertently omitted a minus sign to the correction. Comparison of Figure 27 with the uncorrected data plot in Figure 26 shows that the flawed "correction" caused the residual drawdown in Figure 27 to rise to higher levels than the uncorrected drawdown in Figure 26—the result of the omission. By applying the minus sign to the correction, the revised recovery plot (Figure 7 below) now projects close to the total recovery point of the graph, as is expected through standard well pumping and recovery theory (Theis, 1935). The small difference between the actual plot and a perfect projection may be the result of incomplete correction for trend or it could be the effects of the edge of aquifer boundary discussed above and noted in our reports.

> **The Staff notes that the Big Gulch stock well "had not fully recovered from pumping at the end of the 12-day water level recovery monitoring period," and suggests a reason for this could "that the aquifer may be of limited extent (Driscoll, 1986, p. 259)." HLI attributes incomplete recovery to the declining regional water level trend but the residual drawdown after correcting for the declining trend was still approximately 0.5 feet at the end of the water level recovery monitoring period. Staff Memo at 11.**

We believe that the analyses presented above explain most if not all of the apparent lack of full recovery noted by Staff. In addition, having conducted scores of aquifer tests throughout Idaho, we have never seen a monitored water level fully recover within a "recovery period" defined as the same duration as the drawdown portion of the test. In fact, standard well test analytical methods based on the Theis equation do not allow for full water level recovery during a time period equal to the pumping period. The Theis recovery-method plots residual drawdown vs. time from the initiation of pumping divided by time from the initiation of recovery (t/t'). Only when t/t' is equal to 1.0 does the Theis recovery method predict complete recovery because the Theis equations assume no recharge to the aquifer; the infinite aquifer assumed in the Theis analyses requires an infinite time for full recovery to occur. A recovery period equal in length to the pumping period generates a t/t' value of 2.0 (and not 1.0) and therefore cannot allow complete recovery if the assumption of no recharge is valid.

In fact, a no-recharge assumption is not valid. As discussed in more detail below, recharge does occur in the PGSA, as shown by annual water level fluctuations and stable long-term average water levels. The hydrographs we submit in connection with our discussion below about the McVay Memo show annual aquifer pressure-head (water level) fluctuations related to

pumping wells and varying annual recharge events over the years. Many of these hydrographs show periods of multi-year declines and multi-year increases in water levels, not a continuous decline that would occur were there no recharge to the PGSA.

5. **PGSA boundaries and recharge sources**

The Staff Memo states: "Hydrologic boundaries and recharge mechanisms are not well defined for the target aquifer." Staff Memo at 1.

Some PGSA boundaries are well identified, and in any event this aquifer's boundaries are defined far beyond what, in our experience, is customarily deemed necessary in evaluating a water right application. The boundaries that are specifically defined by HLI in its analyses are the WBE fault, the unsaturated edge of the aquifer running along the north margin of the aquifer, and the base of the aquifer. We also have shown the aquifer to be aerially extensive and to interconnect at least two basins. The Staff did not refer to it, but the Affidavit of Dr. Dale Ralston, and his deposition testimony about it (Attachments B and C), document his concurrence with Hydro Logic's conclusion that the PGSA is laterally contiguous to the south and southeast at least to the area under the Boise River in the vicinity of Garden City. Again, the submitted geophysical logs, geological findings, and geochemical evidence all point to the same conclusion. No evidence suggests otherwise.

There are a number of high-volume production wells in the PGSA over an area up to about 15 miles to the southeast of the M3 Eagle site, and these also have not been negatively affected by sub-surface boundaries. To determine PGSA productivity and pumping effects on ground water levels over the long term, it is not necessary to define a boundary to the southeast given what we know about the aquifer's extension in that direction.

Negative hydraulic boundaries can be confirmed by pumping tests of properly constructed wells in the aquifer under investigation where they are evidenced by an increased rate of drawdown. Significant negative hydraulic boundaries did not show up in the 9-day SVR#7 aquifer test or in the 30-day Lexington Hills test, both of which we consider to be of sufficient duration to have revealed boundaries. Indeed, as our previously-submitted reports show, positive (recharge) boundaries were evident in those tests; these tests' observation wells showed that boundaries were remote from these pumping wells.

Based on HLI's hydrogeologic framework research in the Boise basin over the last 20 years, we are of the opinion that the PGSA is recharged from a number of sources. There likely is recharge at least at these locations: 1) the Boise River in the upper basin (above Capitol Bridge); 2) where the PGSA rises up dip to the present-day Boise River gravels east of the United Water Idaho ("UWID") Swift well (in the vicinity of Farmers Union Ditch Co.'s river diversion); 3) added pressure head from the flood irrigation and irrigation laterals off the NY Canal and other main canals; 4) recharge along the eastern edge of the basin NE of Eagle; and 5) ground water moving into the aquifer under an upward gradient from below.

Furthermore. recharge mechanisms often are not well defined, even for many aquifers that have been productive (and studied) for decades, such as many of the western Snake River Plain aquifers. As discussed in more detail above, we have completed a numerical model

for the project based upon the TVHP which is cited by the staff as a reliable study for recharge in this basin. Although the TVHP recharge mechanisms are described only "conceptually" in Hutchings and Petrich (2002). The fact that the precise boundaries of an aquifer are not yet described does not mean that the aquifer should be off limits to additional development, especially where there has been aquifer testing, modeling, and substantial uncontradicted evidence of high productivity and the lack of significant drawdown in response to steadily increasing withdrawals over many decades of pumping, such as the case with the PGSA.

> **The Staff notes that "[t]he intersection of the geologic contact between the PGSA and the Willow Creek Aquifer and surficial sediments on the M3 property was treated as a no flow/barrier boundary," and its existence "helps explain water level and water chemistry differences between the PGSA and the Willow Creek Aquifer." However, the Staff questions why this flow barrier, which was used for contouring, "abruptly stops approximately three miles to the northwest of the M3 property, allowing PGSA water to flow north and merge with ground water in the Willow Creek Aquifer." The Staff does not see a clear basis "for terminating the no-flow/barrier boundary" in this manner. Staff Memo at 7.**

The no flow barrier represented by the inferred outcropping PGSA (the green line on our maps, which also conceptually depicts the unsaturated edge of the aquifer) was not extended further to the west-northwest because our hydrogeologic studies for M3 Eagle, though extensive, did not extend that far along that line. Moreover, based on our geological interpretation, we believe the barrier fades out to the west-northwest as the aquifer trends in that direction. In fact, as noted above our sub-surface cross-sectional diagrams and our flow-gradient maps suggest that the ground water in the PGSA may merge with that of the Terteling Springs Aquifer and/or another sand dominated geologic section in the Payette Basin in the up-dip area west-northwest of the M3 Eagle site. This is based on observed water levels and an increase in sand percentage in the geologic section in that direction. In other words, the saturated portion of the PGSA descends beneath the saturated sandy sediments of the Payette Basin. We believe it likely that the PGSA's edge-of-aquifer boundary (water table) ceases to exist in this area.

As noted, it is likely the PGSA merges with and discharges into the sand facies of the Terteling Springs Formation and other sand units in the sand-dominated section to the WNW under the Payette Valley. All existing ground water contours suggest this. Moreover, geological studies by Wood and others indicate that the regional-scale PGSA sand was deposited upon the dipping sand facies of the Terteling Springs Formation in the Payette basin, just as it was in the Boise basin. These conclusions are supported by our own work, as observed in the lithologic logs and ground water levels shown in Cross Section E-E', which we submitted to the Department previously (although the Staff Memo does not mention it).

As discussed below, the geophysical logs of deep oil company exploration wells (which were submitted to the Department in November 2008) also show the preponderance of sand in a west-northwest direction from M3 Eagle, and that is what the outcrop geology suggests. Our work to date presents what we believe to be the best understanding of the hydrogeology of this area. In any event, none of these indicators suggests that the ground water resource beneath M3 Eagle is insufficient to support the proposed development.

The Staff states that "historical and newly acquired water quality analyses have been interpreted to indicate that there is a difference between the water chemistry in the PGSA and the water chemistry in surrounding aquifers. The data also have been interpreted to indicate that PGSA water originated almost exclusively from the ancestral Boise River. Department staff believe that an isotopic study of ground water in the PGSA could help to evaluate the determination that modern day recharge sources are not contributing recharge to the PGSA." Staff Memo at 13.

The data indicate that the PGSA water currently being withdrawn from wells originated almost exclusively from the ancestral Boise River based on the major ion chemistry of wells completed in the PGSA on both sides of the current position of the Boise River and their similarity with the chemistry of the current Boise River surface water. These relationships are unique to the PGSA chemistry, a relationship not shared with any of the ground water from the other aquifers or well locations. The term "ancestral" in this case refers to the approximate age of the ground water from the PGSA in ground water from several of the wells completed in the PGSA analyzed for carbon-13 and carbon-14 reported in the regional Treasure Valley report prepared by Hutchings and Petrich (2002). Their age designations should perhaps have been described in this report to define the term "ancestral."

Staff's statement that modern day recharge sources are not contributing to the PGSA is contradicted by the relative stability of long-term water levels in the PGSA. As shown in our response to the McVay Memo (below), many of the wells completed in the PGSA have water level elevations that are at or above the levels reported by the well driller when the well was initially completed. Since water has been pumped from the PGSA over the past 40-plus years and these levels either have not declined or have declined very slightly, it follows that recharge to the PGSA is occurring during modern times; an absence of recharge would require that water levels fall over time as pumping increased, a condition that has not occurred.

In the regional Treasure Valley Hydrologic Project ("TVHP") report, Hutchings and Petrich state that the youngest waters entered the subsurface several thousand years ago along the northeastern boundary of the Boise basin adjacent to the Boise foothills (p. 58, Summary statement 5). They considered ground water ages estimated using the del-carbon-13-mixing model to most accurately represent ground water residence times. From this model, they estimated the PGSA groundwater from the Goddard No. 2 and HP wells to be about 2,960 years old. These sealed production wells are located about one mile south of the Boise River and have been pumped for at least a decade, so the estimated age should be accurate.

Ground water ages derived from the TVHP-sampled deep wells have been measured in thousands of years and there is no obvious reason to believe that the deep M3 wells, within the same ground water flow path with nearly identical inorganic geochemistry, would be different.

Under the heading "Recharge Sources," the Staff states that the "water budget for the Treasure Valley aquifer system (Urban, 2004, Table 8) indicates that over 80% of the annual recharge returns to the Boise River, limiting the amount available to the deeper aquifers." Staff Memo at 17.

Obviously, HLI's finding of ground water flow to the Payette renders the Treasure Valley Hydrologic Project ("TVHP") water budget inaccurate. The Staff Memo itself appears to disagree with the TVHP water budget. The issue of water availability for the proposed project does not, in our view, require M3 Eagle to work out the exact PGSA recharge mechanisms in the Boise Basin. The evidence shows that substantial recharge occurs.

> **Staff concludes that Hydro Logic "has not presented geologic data to support the existence of the PGSA beneath the Boise River or provided an explanation of how the canal and river losses end up recharging the PGSA instead of the shallow alluvial system." Staff Memo at 19.**

HLI's 2007 report clearly shows the PGSA geophysical signature 400 feet beneath the river at the UWID Swift wells which are located on the banks of the Boise River at Lake Harbor. The "base of aquifer" map clearly shows that the PGSA continues up-dip under the Boise River at least well into west Boise and probably beyond.

> **Staff observes that HLI used TVHP reports (Urban and Petrich, 1998; Urban, 2004) to estimate losses from the Boise River above Capitol Bridge, but Staff questions whether the TVHP is correct on this point. Staff says the "river reach between Lucky Peak and Glenwood Bridge may actually be gaining during certain time of the year." Staff also states that water level contour maps by Dion (1972) and Newton (1991) "show groundwater flow toward the Boise River through the reach between Lucky Peak and Glenwood Bridge." Staff Memo at 18.**

In their analysis of seepage loss from the Boise River, Staff for some reason combines reaches long known to be gaining with reaches long known to be losing, apparently to suggest" considerable uncertainty" in seepage analysis. Table 1 in the Staff Memo purports to compare gains and losses along the reach from Lucky Peak Reservoir to Glenwood Bridge. But the table combines two different reaches and is therefore misleading.

The 2009 IDWR listing of a 14 cfs gain is followed by a 1997 USGS gain of 52 cfs, a 1998 IDWR 21 cfs loss and a 2005 [sic] IDWR loss of 110 cfs. However, only the first two listings (both gains) are for the reach above the Glenwood Bridge. The second two are for the reach above the Capitol Bridge, the area in which well water levels indicate downward flow to underlying aquifers and the USGS indicates an average loss of 21 cfs based on 38 years of data collection. According to IDWR in Urban (2004), the data collection period from 1958-1996 was a "period of time reflecting a wide variety of river flow conditions." The long time period used to calculate the average surface water loss demonstrates that the reach above Capitol Bridge has long been known as a losing reach. By inappropriately combining two different reaches to demonstrate "uncertainty," Table 1 and Staff comments are misleading.

> **Staff concludes that "[i]nformation that could be used to estimate the percentage of the [New York] canal leakage that would recharge the PGSA is lacking." Staff Memo at 19.**

In past studies and HLI's more recent, it is shown that the PGSA receives substantial recharge, primarily from the Boise River and its associated canal systems. As explained on pages 27-27 of

he HLI-PGG modeling report (HLI, 2008c), the Boise River and New York Canal seepage values were not directly input to the model. Rather, they were used to check the reasonableness of the inflow through the southeastern model boundaries as calculated by the model using field data, as explained below.

The HLI model's analysis of PGSA recharge sources were based on data developed and presented as part of the TVHP. No new data were collected, nor was there any reanalysis of data previously collected by IDWR, the USGS and others associated with the TVHP. We accepted and incorporated the IDWR data into the M3 model pertaining to the amounts of recharge at ground surface as a function of land use (page 2-14 in Urban, 2004), the amounts of seepage from the Boise River upstream from Capitol Bridge (page 2-6 in Urban, 2004 with reference to Berenbrock, 1999), and the amounts of seepage from the New York Canal (page 19 in Hutching and Petrich, 2002, with reference to Carlson and Petrich, 1999).

The amounts of loss to ground water aquifers beneath these surface water bodies was totaled to represent a maximum using the highest values for each reach and the minimum using the lowest values for each reach. The minimum and maximum of 101 and 260 cfs (on an average annual basis) were then compared with the inflow to the southeast boundary of the model (layers 5, 6 and 7 representing the PGSA) calculated by the model using a general head boundary condition using mean aquifer transmissivities from pumping tests in the area and flow gradient based on difference in water levels in the Boise River at Capitol Bridge and in wells just inside the model boundary.

This calculated inflow to the PGSA of 102 to 115 cfs was then compared with the documented loss to the aquifer of 101 to 260 cfs to assess the reasonableness of the calculated model boundary inflow, as explained on pages 27-28 of HLI, (2008c). This inflow was then converted to a constant flux (flow) boundary such that pumping simulated from beneath the M3 site would not induce additional inflow from the Boise River upgradient from the model boundary—a conservative assumption.

6. **Water levels (heads) and trends in the PGSA.**

   The Staff Memo's comments on ground water levels in the M3 Eagle area rely on Mike McVay's March 2, 2009 memorandum to Dennis Owsley and Sean Vincent ("McVay Memo"), which is Appendix A to the Staff Memo. McVay reviewed selected water level data from the IDWR's water level data base measurements in ten wells in the North Ada County area and then plotted a linear regression line for each well which McVay says show trends in ground water levels at these locations. The Staff Memo states that a "review of available water level data indicates that water levels in the PGSA near M3 are declining and suggests that current aquifer discharge rates exceed current recharge rates." Staff Memo at 19-20.

Based on our review of the data and the McVay Memo, we respectfully disagree with its method of analysis, the wells used in the analysis, the data points selected for the analysis, and the Staff's conclusions with respect to this data. We especially disagree that water levels are declining in the PGSA or that there is evidence to conclude that withdrawal rates exceed recharge rates. In

fact, all but one of the wells analyzed by HLI and McVay show increasing water levels over the past 6-to-12 years.

The McVay Memo states that it evaluated certain water level data collected from ten wells, three of which are completed into the PGSA. The other seven are completed, variously, into overlying undifferentiated aquifers, the Terteling Spring Formation, the shallow gravels, and, in one case, an aquifer unit listed as "unknown." McVay Memo at 2. According to the McVay Memo:

1. These water depth data were collected over varying time spans, but the Memo presents only those for the 1996 through 2008 period. McVay Memo at 1. This time period is further modified by the fact that one well had data only for the years 1996-2004, and four had data only for 1996-2002.

2. McVay "filtered" the data further by choosing the "yearly spring measurements in each well," meaning measurements taken between March 1 and May 31. *Id.* He attempted to select the "most similar date for each year," and gave preference to "the earliest date in the spring range." However, McVay used fall season data for one of the wells, which also was one of the three wells completed into the PGSA.

3. In charting water level trends, McVay used only 8 to 13 data points for each well when hundreds of data points were available for analysis. McVay did not provide the actual dates of measurement or the measured water levels for any of the data he plotted.

4. The "variable length of data records and sporadic data collection intervals did not allow a statistically rigorous data evaluation." McVay Memo at 4.

5. However, McVay plotted "linear trends" and concluded that "[a]ll wells in the area" except one in an "undifferentiated" aquifer, "exhibit negative water level trends that range from 0.11 ft/year to -1.06 ft/year, with an average trend for all wells of -0.29 ft/year." McVay Memo at 4.

The linear regression analyses McVay uses are misleading and incorrect in their representation of the ground water conditions they are used to portray. It is very difficult if not impossible to select a small percentage of data points from a large population in an unbiased manner that accurately represents actual conditions. The discipline of applied statistics was developed to describe the collection of data, account for randomness and uncertainty in the data and draw inferences about the population being studied. As far as we can ascertain, rigorous statistical methods were not used to select statistically valid and unbiased data points for the linear regression described in the McVay Memo.

The selection of a limited number of data points (i.e., 8 to 13 periodic water level measurements per well) evidently based on judgment rather than accepted statistical methods, incorporates unintentional bias and significant errors. We contend it is not appropriate to extend the regression line across the entire data set based on only a small number of points, <u>especially</u> here, as in this case, there is a clear change in slope of the plotted data. To do so is equivalent to

ignoring boundaries in a Cooper Jacob plot and place a single straight line through all of the points.

For example, the McVay Memo shows a decline in a measured well's water level over the 12-year analysis period. However, placing a regression line through all of the data points would show that the data points from the last several years all would plot above the McVay Memo's regression line—in other words, the last several years show no decline, and in fact show a recovery. This is a major change in trend within that aquifer in the most recent period of record. The reported water levels on driller's reports for these same wells also indicate that water level increases occurred in these same wells during this period. The McVay Memo's selection of a few data points results in a misleading, and statistically incorrect, depiction of water level trends in the aquifer.

A case in point is Well 4N1E3DAD1, the data points of which are presented on Figure 8. Plotting all available data shows three distinct water level trends. Over the last seven years the well has exhibited a steadily rising trend in both the maximum drawdown level and maximum recovery level. We believe it is incorrect to use this well, and the data from it, to conclude that "water levels near M3 are declining" or that "current aquifer discharge rates exceed current recharge rates." Staff Memo at 20. The fact is that water levels near M3 are rising, and have been for the last seven years (Figure 8).

There are several additional problems with the approach described in the McVay Memo.

The McVay Memo does not present the actual dates of data collection for any of the ten wells it evaluated (Figures 8-13). A review of IDWR online records, however, indicates that most of these data were not collected within the March 1-May 31 timeframe to which the study supposedly was restricted. HLI's analyses for the same wells analyzed by McVay, and additional wells deemed representative of the PGSA are presented as Figures 14-26. Table 1 lists the summary of well data comparing the wells analyzed by McVay to those analyzed by HLI. The complete water level data set for well 05N01E-32DBD1 (Figure 14), one of three McVay describes as being in the PGSA, contains no data that were obtained during that time period. All 1996-2008 water levels from this well posted on IDWR's web site were measured during late June through late August, times of seasonal decline.

In another example, well 04N01E-03DAD1 (described as being in an undifferentiated aquifer) was measured monthly beginning in 1996 but only 5 or 6 times after 2001. This resulted in this well having only one spring season measurement available for inclusion in the analyses over the period 2001-2008. The last four water levels for this well were obtained later each year, with the last measurement made during late May, which is several weeks into the irrigation pumping season.

HLI conducted linear regression analyses for all ten of the McVay Memo wells, but instead of using the 8-13 water level data points for each that were relied upon there, we used all available data points for the 1996-2008 period. In some cases this involved over 500 data points as compared to 13 or fewer measurements analyzed by McVay.

As noted above, the McVay Memo plotted its regression curves over the 1996 through 2008 time period, but did so by using data from a shorter period for five of the ten wells it analyzed. It is not clear why McVay selected these data points or these varying time periods. In any event, the HLI analyses, which used all available data points, reveal visual trends in each of these wells. None of these trends agree with the Staff's suggestion of declining water levels.

Complete plots of all available data, typically the first step in any water level analysis, should have guided the Staff into assessing water level trends using more than one period of analysis. By using only one period of analysis, the most recent trends were obscured. These trends became apparent in some wells when HLI analyzed precipitation data (228 monthly data points resolved to 19 yearly data points). This indicated an increasing precipitation trend from 1990-1996 and a decreasing trend from 1997 - 2008. These periods should be considered particularly relevant to the shallower, non-PGSA aquifers McVay included in his analysis. We then used these two time periods to group the water level data into two groups to assess water level trends. This process allowed the more recent trends to become apparent.

As noted, only three of the ten McVay Memo wells were completed in the Pierce Gulch Sand Aquifer. The McVay memo concludes that "all wells in the area (except 04N01E11BBB1) exhibit negative [declining] water level trends" a conclusion that is incorrect generally for the wells reviewed, and certainly is incorrect with respect to conditions in the Pierce Gulch Sand Aquifer.

HLI conducted a linear regression analysis on two dedicated, purposefully constructed monitoring wells in the Pierce Gulch Sand Aquifer with long-term data: the United Water Idaho State and Linder TW #1 – Zone 2 well (04N01W 11DDA1) and the United Water Idaho State Street well(04N01E14CCB2), which now is the TVHP#1 well. In all likelihood, these wells represent the most complete and representative recent (past 10 years) water-level data set for the Pierce Gulch Sand Aquifer. For the State and Linder well, over 16,000 data points since 1998 were sent to IDWR as part of the information to support the M3 Eagle water right application. The HLI analysis using this information indicates a rise in water level in this portion of the PGSA since the well was constructed and monitoring began in 1998. It is not clear why McVay did not consider the water level trend in this well.

We also evaluated each of the wells used as monitoring points in the McVay analysis (Table 1. Most, if not all, of these wells are poorly constructed and unsealed, or have unknown details of well construction. We do not believe they should be relied upon for monitoring and administering an aquifer.

For example, one of the McVay Memo wells is one we are quite familiar with and in fact have worked on. This is Well 5N1E35ACA1, a low-temperature geothermal well on the property previously owned by the late Julius Jeker in the Dry Creek Valley. It has an above-ground water level (flowing artesian). HLI was involved in this well's reconstruction when it ceased flowing due to a corroded casing. Mr. Jeker called in Stevens Drilling, who overshot the corroded casing and restored flowing conditions. Stevens' modification record the only record of the well and it addresses only his overshot casing to 100 feet below land surface. In our opinion, this well should not be used as a basis to speculate on the conditions in the PGSA. The well is not even

completed into the PGSA; it is completed in the deeper volcanic rocks, as are other geothermal wells on the Boise Front. Furthermore, the PGSA is not present beneath the Dry Creek Valley, which is on the east side of the WBE fault. In any case, the Jeker well has experienced a rising water level for the last eleven years, contrary to the declining trend depicted by McVay (Figure 21).

The remaining wells evaluated in the McVay Memo produce water level measurements are not particularly representative of the PGSA. The factors contributing to the non-representative data are listed, on an individual well-by-well basis, on Table 2

As an aside, the Staff Memo refers to their water level analysis as involving 16 wells, half of which are in the PGSA (Staff Memo at 19), while the McVay Memo expressly describes only 10 wells, 3 of which are in the PGSA. This discrepancy is yet another concern we have with the Staff's approach in preparing its analysis. As stated in the McVay Memo, there were two separate memoranda and/or analyses. HLI received only one set of analyses (without supporting data) but the Staff referenced two.

> **The Staff notes that in 2006 HLI collected 167 water level measurements and developed "a water elevation contour map for the PGSA" suggesting "that ground water flows to the west underneath the M3 property and northwest toward the Payette River after leaving M3 (HLI, 2007b)." The Staff states, "[a]ccording to HLI well completion data, water levels used to create this contour map were collected from wells within the PGSA, the Willow Creek Aquifer, and in *"undifferentiated alluvial aquifers."***
>
> **The Staff then noted that HLI selected 59 of these wells for a second ground water "mass measurement . . . to refine the assessment of ground water direction in the PGSA," and also included "16 additional wells that were chosen to provide additional control points for determining ground water flow direction in the PGSA." The Staff accurately noted that "[t]wenty-eight of the wells had wellhead elevations surveyed to the nearest 0.01 ft prior to the measurements," and that the resulting technical memorandum (March 19, 2008) again "suggests that the ground water flow direction beneath the M3 property is to the west, and the flow direction is northwest toward the Payette River after leaving M3 (HLI, 2008c)." Staff Memo at 6.**

We selected the 59 wells for our second measurement because these were the only ones we were confident were completed within the PGSA and they were the only ones that remained as candidates after a rigorous analysis weeded out wells of poor and/or unknown construction. As previously referenced, the use of poorly-constructed and unsealed wells to base a conclusion on is not prudent.

7. **HLI's modeling of the PGSA.**

The Staff criticized the HLI/PGG ground water model because: 1) "the use of the general head boundary at the inlet to the model should be used cautiously," 2) its use of two different versions (H-Match and T-Match) "doesn't necessarily bracket uncertainty," 3) it does not discuss model sensitivity to "vertical hydraulic conductivity," and 4) it does not incorporate a fault (presumed no-flow boundary) into the model. Staff Memo at 14.

The four concerns voiced by the Staff are easily addressed:

(1) The use of a general head boundary: Staff apparently did not read the statement on page 5 of the November 14, 2008 memo from Pacific Groundwater Group of Seattle, WA ("PGG"), included in HLI (2008c) stating that the general head boundary ("GHB") used in both models to represent subflow into the PGSA along the southeast corner of the model in layers 5, 6, and 7 was converted to a constant flux boundary based on the steady-state calibrated solutions." Staff's criticism to the use of the GHB is unwarranted and based on an in accurate or incomplete review of the presented material.

(2) The use of two different versions of the model: M3 Eagle contracted with PGG to develop a multi-layered, three-dimensional numerical ground water flow model to predict the impacts of pumping at and beyond the time period for the full build out of the M3 Eagle project. This model was constructed subsequent to an early (2006) simplified, analytical model that was used initially by HLI to predict impacts. HLI felt that its initial analytical model, though useful, could be improved substantially by including data obtained through its subsequent hydrogeologic characterization studies.

Accordingly, the HLI-PGG Modflow model (the "M3 Model" as presented in HLI, 2008c) was developed and constructed based on HLI's conceptual model of the ground water flow system. This model achieved acceptable calibration to conditions in the deeper portions of the flow system (Pierce Gulch Sand Aquifer and Willow Creek Aquifer), which was the objective of the model development. The model was calibrated to both quasi-steady state groundwater elevations and time-drawdown responses to two aquifer tests. As more data became available over time, the model was refined slightly to maintain the calibration and provide reasonable matches to the new data. Sensitivity analyses also were performed to address uncertainties that are common in hydrogeologic characterization and associated modeling. Two versions of the model were generated—the "T-match" model (which is calibrated closer to transmissivity values estimated from aquifer tests) and the "H-match" model (which is calibrated closer to heads observed in the field, with slightly more degrees of freedom for specifying aquifer properties).

In addition, sensitivity analyses were performed to evaluate reduced recharge from the Boise River and the New York Canal (believed to be main sources of recharge for the PGSA) and reduced hydraulic connections to the Payette River. In all cases (applying the H-match and T-match models, and for both sensitivity analyses), predictions of PGSA drawdowns showed minimal variation. This indicates that the model is very robust in its capability to predict M3

drawdowns, and that predictions are relatively insensitive to the uncertainties evaluated with various versions of the model.

We presented the results of both the T-match and the H-match models to ensure transparency in the model development process, to allow reviewers to see the range of data used, and to provide the results of both calibration approaches (emphasizing heads and emphasizing previous aquifer test interpretation), and to demonstrate the relative insensitivity between these two approaches for prediction of M3 drawdown. In his constructive review of the M3 models, IDWR's Allan Wylie stated that the multiple model approach allowed "some evaluation of predictive uncertainty" (January 15, 2009 memo to Dennis Owsley). As noted above, the predictions made by the two model versions differ only slightly—on the order of a few feet or less at any one location, after projecting 50 years of constant pumping.

Both versions of the model also were used to assess the potential role of changes in recharge entering the model from southeast of the model boundary—recharge that we believe originated as, and continues to be provided head from, leakage from the New York Canal and seepage to underlying aquifers from the Boise River upstream from Capital Bridge.

(3) Lack of discussion on sensitivity to vertical hydraulic conductivity: The discussion in the HLI model report and the PGG memoranda on their modeling progress was brief, as noted by Staff who also speculate on the sensitivity of drawdown predictions to these values. To further provide insight and reduce the need to speculate, we offer the following.

PGG used a vertical hydraulic conductivity (Kv) value of 0.02 ft/day (7E-6 cm/sec) for the model aquitards overlying the PGSA. Aquitards were not simulated in the Willow Creek Aquifer because test well drilling indicated an absence of significant aquitards there. Instead, the WCA was assigned bulk properties that included anisotropy, with an effective Kv of 0.18 ft/d over the entire thickness of the unit. Early in the model calibration, PGG performed a sensitivity analysis to model parameters, and concluded that the vertical hydraulic conductivity had a relatively large influence on calibration residuals (an indication of differences between modeled and field-measured water levels).

PGG's analysis indicated that reducing the vertical hydraulic conductivity by a factor of 10 caused poor (non-calibration) results. Increasing the vertical hydraulic conductivity by a factor of 10 allowed the model to calibrate but resulted in predicted impacts to existing well in the PGSA to be smaller. In other words, the values used in the model were conservative for PGSA predictions.

The model used a vertical hydraulic conductivity value of $7x10^{-6}$ cm/sec which is on the low end of the published range for silt (Freeze & Cherry, 1979). Based on samples obtained during test well drilling, the results of geophysical logging and materials reported in well driller's reports for the area, this value appears quite reasonable and is supported by the calibration itself which resulted in selection of this value.

In order to further address Staff's concern, PGG evaluated the model sensitivity to aquitard Kv quantitatively. They found that the model showed high sensitivity to decreasing the Kv below

the calibrated value, but relatively low sensitivity to increasing it. During calibration, one main objective is to minimize the parameter "sum of squared residuals" ("SSR") for the model targets. PGG varied the aquitard Kz by an order of magnitude from the existing calibrated value, and obtained the following SSR results:

Kv Multiplier	Sum of Square Residual
0.1	124,306
1	6,730
10	16,660

This table shows that reasonably good calibration could still be achieved by increasing the aquitard Kv, but calibration would have been poor if Kv had been reduced.

As for the role of aquitard Kv on model prediction of drawdown, if the Kv value were increased by an order of magnitude (e.g. more into the center of the silt range or towards a representative range for silty sand), predicted PGSA drawdown would be reduced, as it would allow more of the M3 Eagle pumping to be satisfied by a change in leakage between the PGSA and overlying aquifers. However, drawdowns in the overlying shallow, unnamed alluvial aquifers (a subject not directly addressed by the model), could be increased. If the Kv value were reduced by an order of magnitude (e.g. closer to the upper end of the clay range defined by Freeze and Cherry), the model would predict more drawdown due to M3 pumping in the PGSA. However, the sensitivity analysis above suggests that decreasing Kv below the calibrated value would not support acceptable model calibration in its current configuration, and is therefore less likely as a reasonable representation of the groundwater flow system.

(4) Lack of incorporation of the presumed hydraulic impacts of the fault: As discussed elsewhere in this Response, the bedrock fault noted by Wood does not appear to cause significant, or even measurable, hydraulic impacts on flow within the PGSA. For this reason, it was not included in any versions of the model. To have included it would not have been justified by the hydraulic, geologic, geophysical or geochemical data collected to date.

> **Using M3 model inputs, Staff made "preliminary calculations of travel time . . . of "water entering the regional aquifer from the southeast corner of the M3 model domain [to the] M3 property." Staff noted that this travel time is an order of magnitude less than the TVHP-estimated age of water in the regional aquifer. This led Staff to conclude that "[a]dditional data collection and analysis are needed in order to resolve the apparent discrepancy between the HLI conceptual and numerical models." Staff Memo at 18-19.**

Because heads are maintained by relatively rapid water pressure changes rather than water molecule movements over large distances, travel time calculations are very difficult to verify. In addition, travel time estimates probably have little meaning except in portions of the aquifer that are unconfined and where uniform steady state gradients exist.

The calculated travel times are relatively fast as would be expected for a high hydraulic conductivity aquifer such as the Pierce Gulch Sand Aquifer; however, they are very short

compared with the estimated age of the ground water as indicated by the TVHP study and the ground water geochemistry presented by Glanzman and Squires, 2009. We conclude that the recharge to this system from the Boise River and canal systems provides the head needed to maintain relatively stable water levels throughout most of the aquifer, but that relatively old ground water may remain in residence in certain portions of the aquifer because of limited mixing and interaction between all portions of the system on decadal time scales.

> **The Staff ran drawdown calculations "using the same general methodology" employed by HLI except that the Staff assumed the PGSA receives no recharge and "extends infinitely to the southwest (down-dip) direction." Staff Memo at 21. Based on this, the Staff calculated "drawdown after one year of pumping at 10 cfs is approximately 8 feet at the intersection of Floating Feather Road and Highway 16," (Staff Memo at 21) and that, "[b]ased on the existence of a delayed hydraulic connection between the PGSA and overlying aquifers, pumping in the PGSA is likely to eventually impact the majority of area well owners." Staff Memo at 24.**

The Staff's drawdown predictions also are inconsistent with actual historical water level measurements, with production well performance in the greater M3-Eagle-Star vicinity, and with Staff's own water level measurements (the Staff's interpretation of which we believe inaccurately portrays the current water level trends in the area, as discussed in our rebuttal to the McVay memo, below). Numerous water supply wells have been pumping in the greater Eagle-Star vicinity at rates between 700 and 3,000 gpm over the past 18 years (and some, like the Eagle Pines irrigation well, for up to 50 years) without significant declines. Analysis of water levels from these wells shows nothing like the large amounts of drawdown predicted by the IDWR model.

For example, we obtained water level data from UWID's large-yield municipal production wells in the Eagle area. These data are attached as Figure 15. The UWID Floating Feather Well, which was drilled in May 1995, is completed into the Pierce Gulch Sand Aquifer in Eagle. UWID hydrogeologist Roger Dittus manually measured the well's water level in the well in April 2003, February 2007, and November 2008 at 44.51 ft below measuring point ("bmp") 42.25 ft bmp, and 40.94 ft bmp respectively. The well's production records for those years show the total annual volume of ground water pumped was 433 MGY, 602 MGY, and 517 MGY, respectively. The ten year average of water production from the UWID Floating Feather well is 460 MGY; the last five year production average is 490 MGY and the last three year average is 558 MGY. This shows the steady increase of ground water withdrawals that in turn tracks the growth in the community.

This yearly pumping from Floating Feather alone is equal to nearly 25 percent of the estimated total annual production of M3 Eagle at full build-out, yet the Floating Feather well has not caused water levels to decline measurably even at observation wells close by (such as State and Linder). In fact, the water levels measured by UWID's hydrogeologist at Floating Feather itself document a measurable (3.6 feet) increase in the wells' non-pumping water level over the last 6 years.

When compared with the water level reported by the well's driller in May 1995 (55 feet bgl), the well's current water level in Floating Feather is over ten feet higher. Taking into account an increase in measurement datum (from the original ground level to the site grading and pump house floor) the current water level as measured in November 2008 is actually at least 15 feet higher than when the well was drilled. In other words, the water level in November 2008 is estimated to be at least 15 feet higher than that reported by the driller at the well's completion in 1995, even after more than a decade of pumping from this and many more surrounding wells. This analysis tells us that the Pierce Gulch Sand Aquifer is not only highly productive, but strongly recharged. Although the number of Floating Feather well measurements are few, because this well rarely is shut off (and in fact typically pumps continually at a high rate), the fact the well recovers to or above its level of 14 years ago tells us that the aquifer pressures are not in decline as suggested by Staff.

Another example of remarkably stable water levels in the PGSA is the Eagle Pines (formerly Charles Fisher) irrigation well. According to Department records, this well has been used for irrigation since it was first drilled in February 1955 (Figure 27). This 54-year old well casing apparently collapsed in 2001. The well driller responsible for the abandonment of the old well measured the water level at 112 feet bgl in May 2001 (2 months into the irrigation season) compared to 105 feet bgl 54 years earlier in February. This small difference indicates that PGSA ground water levels are quite stable, even in the face of substantial ground water development in the area over several decades. Even if one were to assume that the driller's measurements are precise, that the full 7 foot decline over 54 years could be substantiated, that the time of year difference (lower level measured in irrigation season) need not be accounted for, and that such a decline occurred steadily while unaffected by precipitation trends (all unlikely in our opinion), this still would equate to a decline of 0.13 feet per year. In our opinion, a decline of that amount should be seen as small and acceptable rate of decline at a pumping center.

M3 Eagle and HLI decided to improve HLI's simpler 2006 analytical model by developing the HLI-PGG numerical model(s). Staff developed what appears to be an analytical model that is simpler even than the initial HLI approach. The purpose of the Staff's effort presumably was to evaluate or double check predicted drawdowns simulated by the HLI-PGG model. The Staff's analytical model incorporated an average pumping rate of 4,500 gpm (~10 cfs)-an average rate that is slightly higher than the full build-out average pumping rate for the M3 project (4.05 cfs non-irrigation season; 11.66 cfs irrigation season; 9.03 cfs annual average). After an assumed 50 years of continual pumping at the 10 cfs rate, the Staff's model predicted 18 feet of drawdown in the aquifer at the intersection of Highway 16 and Floating Feather Road, and as much as 35 feet of drawdown along parts of the M3 Eagle property.

The Staff's calculations were based on 50 years of pumping while assuming zero recharge to the system and zero hydraulic connection with shallower portions of the ground water flow system. These assumptions are not realistic based on existing data. Recharge in the form of both water and head believed to occur from the Boise River, from New York Canal seepage, and to a limited extent leakage from overlying and underlying aquifers. Hydraulic connections across aquitards, despite their relatively low hydraulic conductivities, are significant on a regional scale and provide some degree of "leaky aquifer" response to aquifer testing We know of no support for the assumptions implicit in Staff's model, nor do we consider them typical assumptions used

to assess the viability of a water right or realistic from a scientific perspective. Based on the aquifer tests conducted in this area (and presented in HLI, 2008b), the known geological setting, and the measured water level changes resulting from substantial ground water development, it is not scientifically plausible to conclude that the Pierce Gulch Sand Aquifer receives no recharge. The preponderance of available data show just the opposite: that the aquifer is strongly recharged and exhibits some degree of hydraulic connection to overlying portions of the ground water flow system.

The difference in accounting for recharge and (limited) hydraulic connection across aquitards is illustrated by comparing the results of Staff's simple analytical model and the numerical models used by HLI and PGG. Whereas the Staff's analytical model predicted 18 feet of drawdown at the intersection of Highway 16 and Floating Feather Road after 50 years of pumping, the M3 Eagle numerical model predicted drawdowns of 4 to 7 feet at this same location after 50 years of pumping with recharge to the system based on rates derived from the TVHP.

The Staff's 50-year drawdown predictions also are inconsistent with the theory of well hydraulics. Wells draw down until the cone of depression extends outward sufficiently to capture recharge (ground water and/or surface water) equal to the amount of water being pumped. In theory, the cone of depression will equilibrate only if captured recharge equals the rate of well discharge. The documented behavior of high-yield production wells, such as the UWID Floating Feather Well, indicates that the cones of depression of pumping wells completed in the PGSA in the North Eagle area are capturing a sufficient amount of recharge to equal the withdrawals from these wells. The data collected to date indicate that withdrawal of ground water from the PGSA ultimately does have a connection to shallow ground water and/or surface water. It is the nature, path, timing, and distance of the various sources of recharge that are currently not completely determined.

The Staff evidently made no attempt to calibrate the model based on their assumptions. It would appear that the Staff's model run would not reasonably calibrate to any known data such as the UWID Floating Feather supply well described above.

Finally, although Staff states that M3 Eagle's pumping "is likely to eventually impact the majority of area well owners," it does not describe which well owners, in which aquifer units, or to what level of impact. HLI believes the impacts to those wells in the PGSA will be in the range predicted in its modeling. It will be less in other aquifers. In either case, these projected effects should be seen as well within acceptable limits and likely non-injurious to any water right of which we are aware.

> **The Staff asserts that "pumping in the PGSA at M3 would cause a reduction in ground water discharge to the river" of indeterminate magnitude and unknown locations. Staff Memo at 21.**

There has been no study of the potential effect on Boise River flows that could occur by pumping some 6,500 acre-feet annually from the PGSA for the M3 Eagle project. However, because PGSA ground water in the M3 Eagle vicinity is tributary in large part to the Payette

River, we do not anticipate measurable impacts to the Boise River in the reaches down gradient from the M3 Eagle site.

Moreover, according to the Department's "200-foot guidance," with regard to conjunctive administration of rights in the Boise River basin, applications for ground water wells completed beneath 200 feet bgl will be processed because they are considered "probably tributary" to the Boise River below Star Bridge. A copy of the Department's February 22, 2008 Memorandum containing the guidance is included as Attachment D. Below Star Bridge there currently are no restrictions on surface water appropriations. The proposed M3 Eagle wells are planned to be completed below the 200 foot level. Accordingly, we have not seen potential impacts to the Boise River as a relevant area of study for the M3 Eagle water right application.

8. **Sustainability and future studies of the PGSA.**

   The Staff contends that "[t]he long-term sustainability of the aquifer beneath the M3 property is difficult to assess; some lines of evidence suggest that it may be limited." Staff Memo at 1.

We have seen no indication in any of our studies, mapping, water level monitoring, hydrogeologic testing, geological analysis, or geochemical evaluations that would indicate that the PGSA is not sustainable, or that it could not sustain over the long term an annual withdrawal of 6,535 acre-feet as proposed by M3 Eagle. All of M3 Eagle's studies suggest aquifer sustainability. No studies have caused us to conclude that the aquifer cannot sustain substantial additional development, including that proposed by M3 Eagle.

Although the Staff refers to "lines of evidence" suggesting the aquifer "may be limited," not even a listing of such evidence appears in the Staff Memo.

The Staff states that "[d]espite remaining uncertainties, the work that was commissioned by M3 has significantly improved our understanding of the hydrogeology in North Ada County," and that the "ongoing North Ada County Hydrogeologic Investigation will help reduce the uncertainty." Staff Memo at 2.

There always will be some degree of uncertainty in hydrogeology; uncertainty is inherent in virtually all natural science. However, we believe that our investigations and findings to date provide a high degree of scientific certainty as to the nature, extent, and productivity of the PGSA. These findings also are consistent with all of the published, peer-reviewed reports of North Ada County geology which have been produced over the past thirty years.

The largest uncertainties in understanding the hydrogeology of the North Ada County area, in our opinion, derive from the data available from poor-quality driller's reports and poorly constructed or dilapidated domestic and irrigation wells that are so prevalent here. The Staff does not address in its report the uncertainty inherent in its use of data from wells that are not sealed, whose construction is both unknown and questionable, and that may be receiving ground water from (or leaking it to) aquifers other than the PGSA, this omission is significant.

M3 Eagle has spent over $2,000,000 over the last 3 years studying the North Ada County hydrology, obtaining independent peer review, and conducting significant testing. M3 Eagle's studies have included modeling based on data rigorously collected from reliable sealed wells of known construction and the new construction of four permanent monitoring wells.

> **Staff concludes that "[s]ignificant questions still remain regarding aquifer recharge and sustainability" or with its suggestion that Hydro Logic's analysis is incomplete because "[i]mpacts to surface water users have not been evaluated." Staff Memo at 25.**

HLI agrees there is more that could be done in the Boise and Payette Basins to better understand the recharge to the regional PGSA; we would welcome the opportunity to bring what we have learned about the aquifer system to an investigation of those mechanisms. However, such an exercise is not the responsibility of the M3 Eagle, particularly not where it seek to obtain a relatively small amount of municipal water. While HLI does not yet know all of the intricacies of the recharge mechanisms of the Boise and Payette River Basins, we have made substantial progress toward that understanding. For the purposes of M3 Eagle, though, the knowledge that the aquifer is strongly recharged and that there are no indications of over-appropriation (or even significant declines) of the ground water resource at this time would seem to be the information that is relevant at this point.

In our experience, it is not customary to require applicants for ground water permits to answer all questions regarding the recharge mechanisms for a basin; this would seem an onerous and unrealistic requirement for a basin which is not approaching an overdraft situation. Indeed, just a few months ago, IDWR concluded in the City of Eagle administrative proceeding that additional ground water was available for appropriation in the Eagle area. The only data and/or information that has changed since that decision is the elucidation that the PGSA is far more extensive than was previously thought and that new data from large production wells in the area show essentially zero impacts to existing water users after decades of large ground water production. Other than the substantial additional ground water monitoring data developed by M3 Eagle, there is no substantive change in the monitoring data available for analysis.

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TABLE

Table 1. Comparison of HLI and March 2, 2009 IDWR Linear Regression Analyses

Well		HLI April 2, 2009 Analyses						IDWR March 2, 2009 Analyses			
IDWR Well Number	Local Well Name	Well Opening Depth ft bgl	Recent[1] Depth to Water Trend feet/year	Trend Period	Data used for entire analysis	Aquifer[2] as designated by HLI	HLI Comment	Water Level Trend feet/year	Trend Period	Data used for entire analysis	Aquifer[3] as designated by IDWR
04N01E 03DAD1	Terteling Well No.2	100-140	-0.04	2001-2008	549	TSF		0.19	1996-2008	12	Undiff
04N01E 05CD??	**UWID Redwood Creek**	**298-401**	**-0.50**	**2002-2008**	**4**	**PGSA**	Limiled data	-	-	-	-
04N01E 07BD??	**UWID Floating Feather**	**183-255**	**-0.63**	**2003-2008**	**3**	**PGSA**	Limiled data	-	-	-	-
04N01E 11BBB1	Moore	120-203	-0.22	1997-2008	109	TSF		-0.13	1996-2008	13	Undiff
04N01E 14CCB2	**TVHP #1**	**270-290**	**-0.19**	**2000-2008**	**52**	**PGSA**		-	-	-	-
04N01W 11DDA1	**UWID State and Linder**	**280-380**	**-0.11**	**1999-2008**	**16,010**	**PGSA**		-	-	-	-
04N02W 07AAC1	Hayes	40-42	0.11	1997-2008	99	river gravel		0.07	1996-2008	12	Shallow
05N01E 32DBD1	Killerman	120-125	-	-	13	alluvial	too shallow to be PGSA	1.06	1996-2008	12	PG
05N01E 34DBB1	Unknown	175?	0.30	1997-2008	109	TSF		0.20	1996-2008	13	Tert
05N01E 35ACA1	Jeker domestic	63?	-0.01	1997-2008	113	TSF		0.01	1996-2008	12	Tert
05N01E 36AAB1	Jerker irrigation	144-214	0.74	2000-2008	93	TSF		0.27	1996-2008	12	UNK
05N01W 36ABB1	**Frasier?**	**204-208**	**0.11**	**2001-2008**	**102**	**PGSA?**	too shallow to be PGSA?	0.40	1996-2008	13	PG
05N02W 22CAD1	**Unknown**	**279-403**	**-0.30**	**1997-2003**	**71**	**PGSA**		-	-	-	-
05N03W 12CCA1	**Unknown**	**60-314**	**-0.07**	**2004-2008**	**38**	**PGSA?**	too shallow to be PGSA?	**0.32**	**1996-2008**	**8**	**PG**
05N03W 15DDC1	Hozen	147-152	0.15	2002-2008	100	alluvial		0.49	1996-2008	13	Undiff
Precipitation	Boise WSFO		0.20 in/yr decrease	1997-2008	19		based on 228 monthly data points	-	-	-	-
			- = rising					- = rising			
			+ = falling					+ = falling			

CONCLUSION: ALL wells known to be completed in the PGSA have shown a RISING water level elevation trend over the past 6 to 12 years. One well that may be too shallow to be completed in the PGSA shows a DECLINING trend over the past 7 years. IDWR analyses using reduced number of data points for a 12-year period obscure identification of these trends.

NOTE 1: "Recent" trend is for past 6 to 12 years for wells still monitored. If monitoring has been discontinued, "recent" trend is for latest 6 to 7 years of monito
NOTE 2: "TSF" = Terteling Springs Formation, "PGSA" = Pierce Gulch Sand Aquifer, "alluvial" = unnamed alluvial aquifer overlying the PGSA, "river gravel" = shallow ri sand and gravel of Boise Rive
NOTE 3: "Tert" = Terteling Springs Formation, "PG" = Pierce Gulch Sand Aquifer, "Undiff" = undifferentiated aquifer, "Shallow" = shallow aquifer, UNK = unknown aqu
NOTE 4: All listings that are believed to be **PGSA** or may be PGSA are highlighted in **bold**

Hydro Logic, Inc.
Boise, Idaho

Table 2. Assessment of Well Suitability for Use in Monitoring Trend in the Pierce Gulch Sand Aquifer

IDWR Designation	Local Name	HLI Aquifer Designation	Driller's Report on line	Seal	Drilling Method	Age Yrs	Casing	Deterioration	Screen	Use	West of EWB Fault	IDWR mon. well	Overall Suitability
04N01E 03DAD1	Terteling Well No.2	TSF	yes	Poor, "40" ft cuttings	Cable tool	37	1/4-in steel	Yes	Perforated	Unused	no	yes	NOT Suitable
04N01E 07BD??	Redwood Creek	PGSA	yes	Full depth bentonite	Rev mud rotary	15	3/8-in steel	Unlikely	SS wire-wound	Muni. Supply	yes	no	Suitable
04N01E 05CD??	Floating Feather	PGSA	yes	Full depth bentonite	Rev mud rotary	14	3/8-in steel	Unlikely	SS wire-wound	Muni. Supply	yes	no	Suitable
04N01E 11BBB1	Moore	TSF	yes	None reported	Cable	77	3/16-in steel	Likely	Perforated	Domestic	no	yes	Not Suitable
04N01E 14CCB2	TVHP #1	PGSA	yes	Full depth bentonite	Mud rotary	13	sch 80 PVC	Unlikely	Factory-slot PVC	Monitoring	yes	yes	Ideal
04N01W 11DDA1	State & Linder	PGSA	yes	Full depth bentonite	Mud rotary	11	sch 80 PVC	Unlikely	Factory-slot PVC	Monitoring	yes	no	Ideal
04N02W 07AAC1	Hayes	river gravel	yes	Poor, 20 ft cuttings	Air rotary	20	1/4-in steel	Possible	None	Domestic	yes	yes	NOT Suitable
05N01E 32DBD1	Killerman	unnamed alluvial	yes	Poor, 18 ft cuttings	Cable tool	17	1/4-in steel	Possible	SS wire-wound	Domestic	yes	yes	NOT Suitable
05N01E 34DBB1	Unknown	TSF	no	Unknown	Unknown	29+_	Unknown	Possible	Unknown	Irrigation	no	yes	NOT Suitable
05N01E 35ACA1	Jeker domestic	TSF	yes	None reported	Air rotary	20+	1/4-in steel	Yes	None	Dom/Geothermal	no	yes	NOT Suitable
05N01E 36AAB1	Jerker irrigation	TSF	yes	Poor, cuttings	Cable tool	41	1/4-in steel	Probable	Iron wire-wound	Irrigation	no	yes	NOT Suitable
05N01W 36ABB1	Frasier?	PGSA?	yes	Poor, "50" ft cuttings	Cable tool	41?/24?	1/4-in steel	Possible	SS wire-wound	Domestic	yes	yes	Poor
05N02W 22CAD1	Unknown	PGSA	yes	None reported	Cable tool	61+	3/8-in steel	Probable	Perforated	Irrigation	yes	yes	Poor
05N03W 12CCA1	Unknown	PGSA?	no	Unknown	Unknown	30	Unknown	Possible	Unknown	Domestic	yes	yes	Poor
05N03W 15DDC1	Hozen	unnamed alluvial	yes	Poor, 20 ft cuttings?	Cable tool	39	1/4-in steel	Probable	None	Domestic	yes	yes	NOT Suitable

Ideal: a properly constructed, dedicated monitoring well completed in the PGSA. **Suitable**: A properly constructed, full-depth sealed well completed in the PGSA but used for supply purposes.**Poor**: A well completed in the PGSA or what may be the PGSA but used for water supply and flawed in construction.**Not suitable**: Completed in the wrong aquifer, flawed in construction, located on the east side of the Eagle-West-Boise fault and/or of unknown construction. Cable tool and Air rotary drilling typically produce wells NOT suitable or Poorly suitable for monitoring.

CONCLUSION: Most of the wells used in the IDWR trend analysis are either not suitable for use as a monitoring well for the PGSA (wrong aqulfer, wrong side of fault, poorly sealed, and/or known or possible deterioration of casing or screen). Wells believed to be completed in the PGSA but having poor construction and uses beyond monitoring were judged to be poorly suited for monitoring.

FIGURES

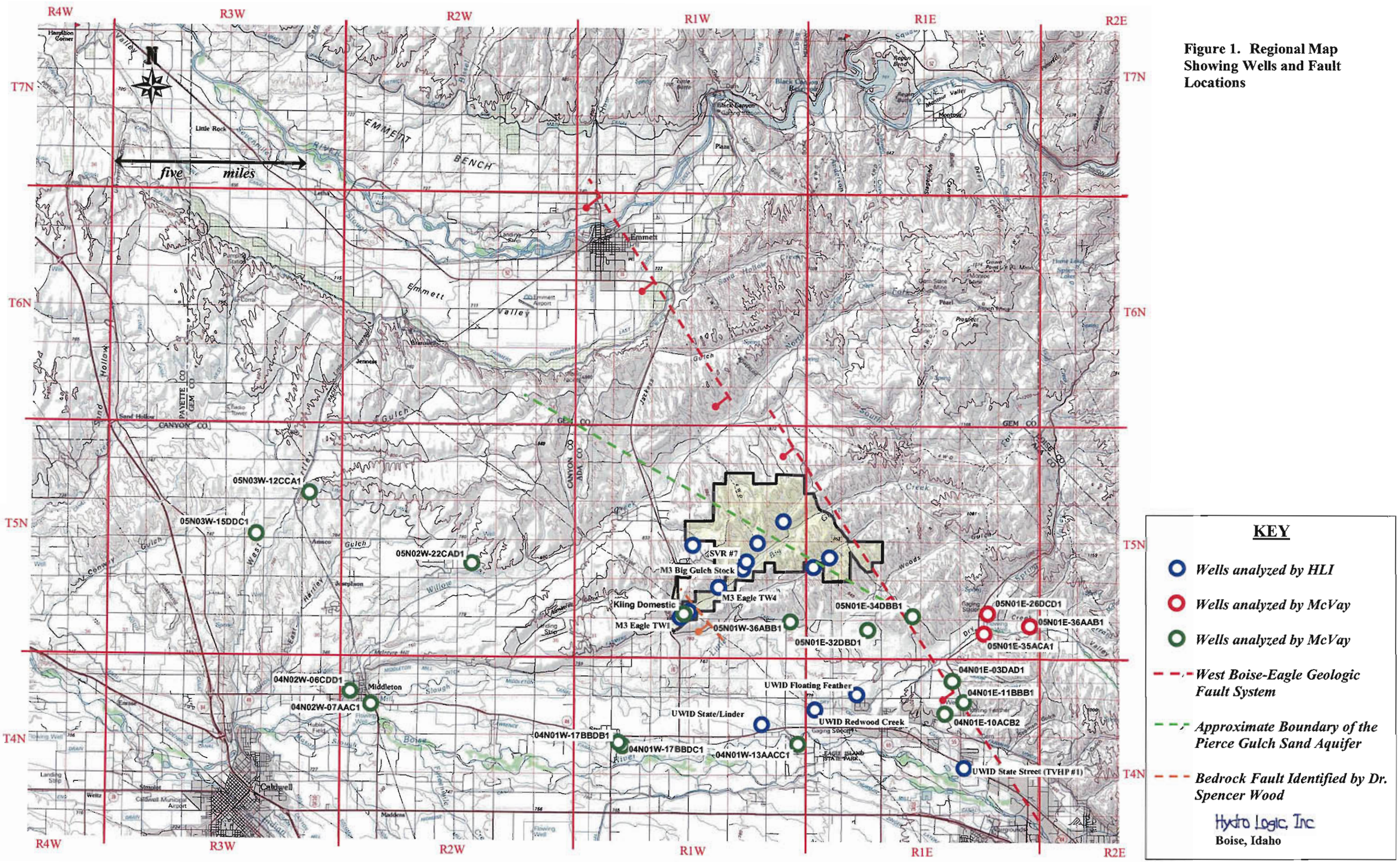


Figure 1. Regional Map Showing Wells and Fault Locations

Figure 2. Subsurface Seismic Reflection Profiles (from Wood)

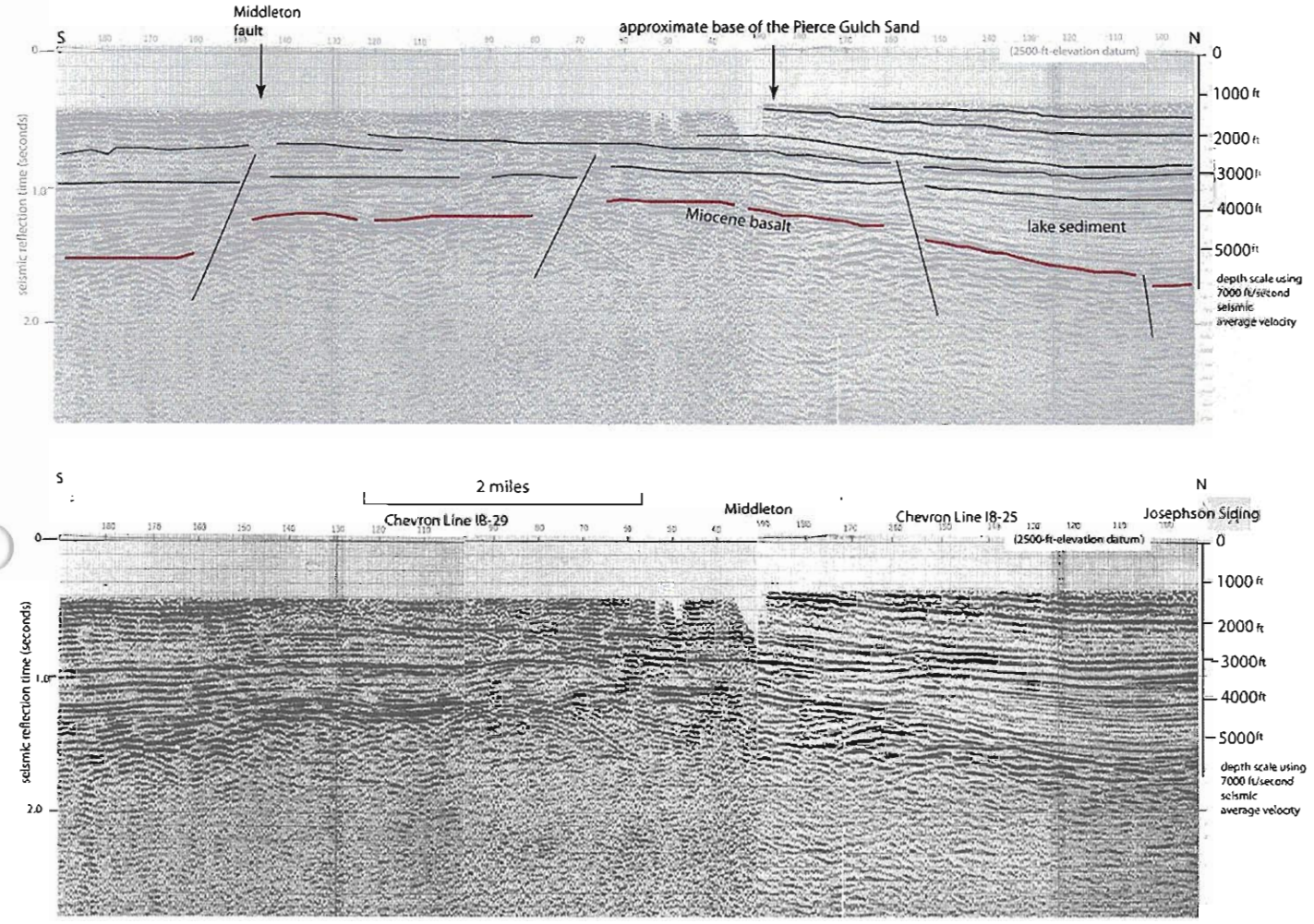


Figure 3. Interpretation of a north-south seismic reflection line through Middleton, Idaho to Josephson siding. Seismic section shows the deep basin north of Middleton that likely extends to the Eagle area. Faulting does not extend to the level of the upper sedimentary section where the Pierce Gulch Sand regional aquifer is situated. Location of seismic line shown on Figure 1 of this report.

Figure 3. Deep Well Locations and Transect Lines for Hydrogeologic Cross-Sections

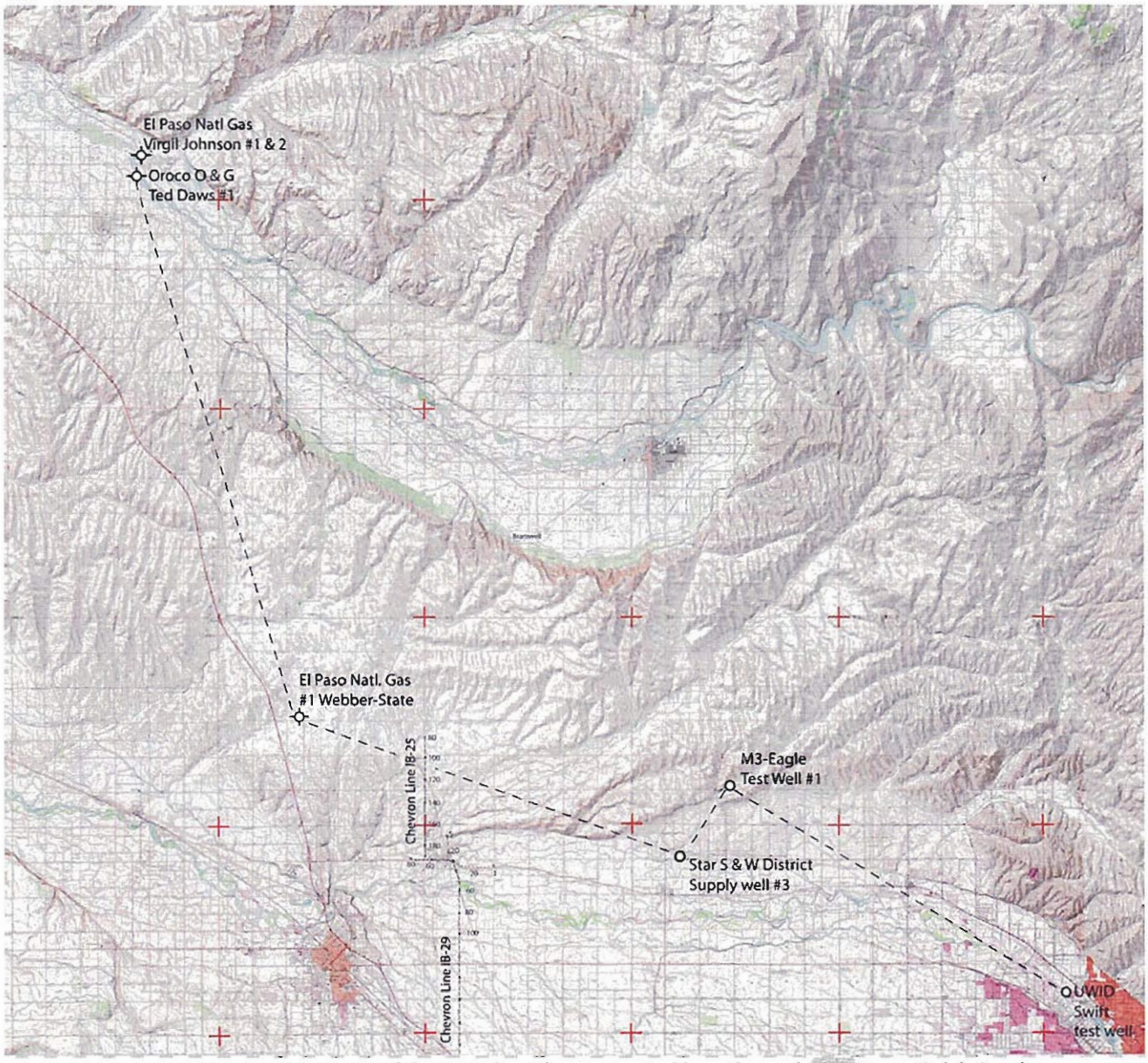


Figure 1. Map showing locations of deep wells with geophysical logs through the Pierce Gulch Sand Aquifer (Figure 2) and location Chevron seismic lines shown in Figure 3.

Figure 4. Hydrogeologic Cross Sections based on Deep Exploration Well Borehole Geophysical Analyses (from Wood)

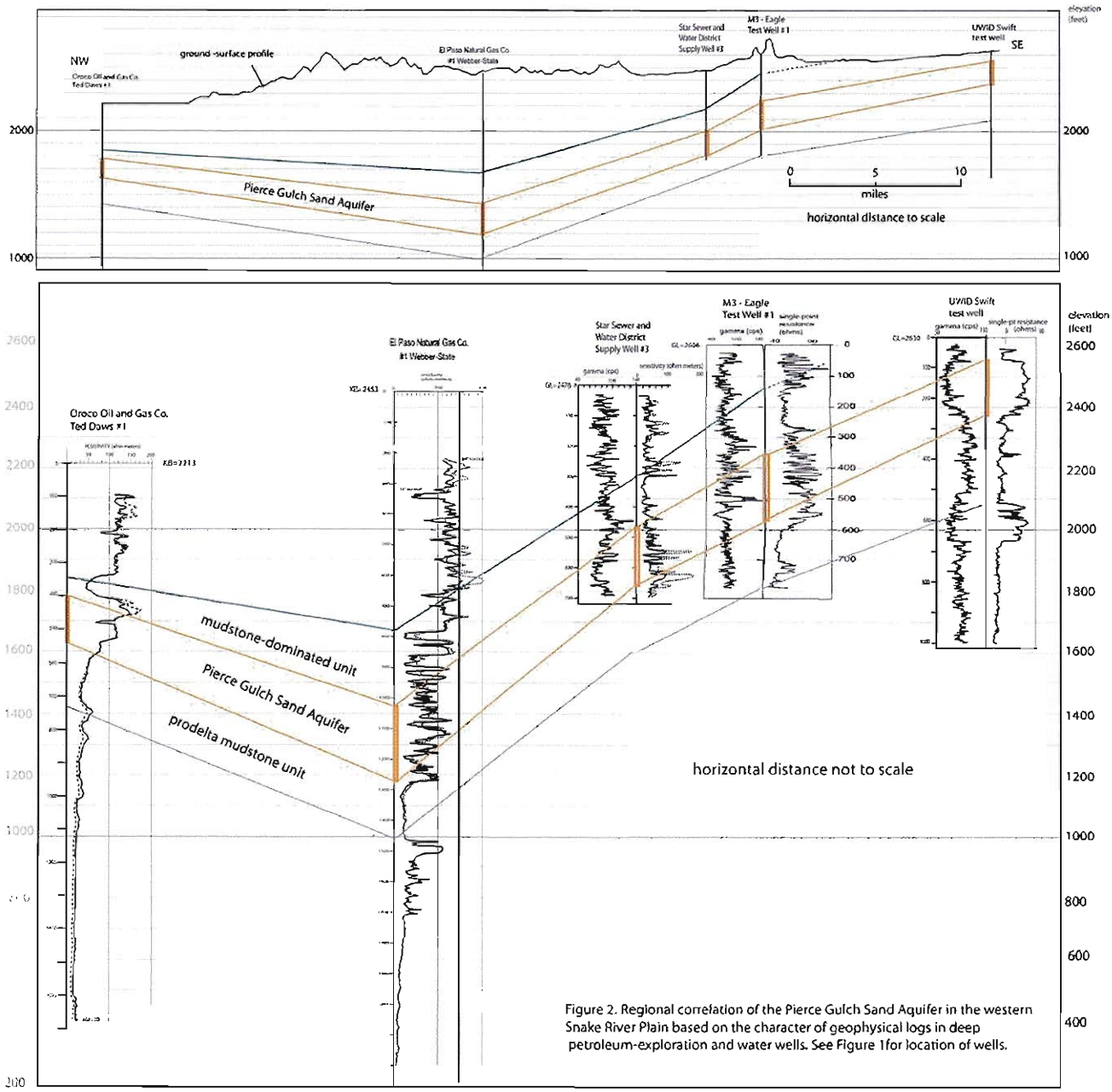
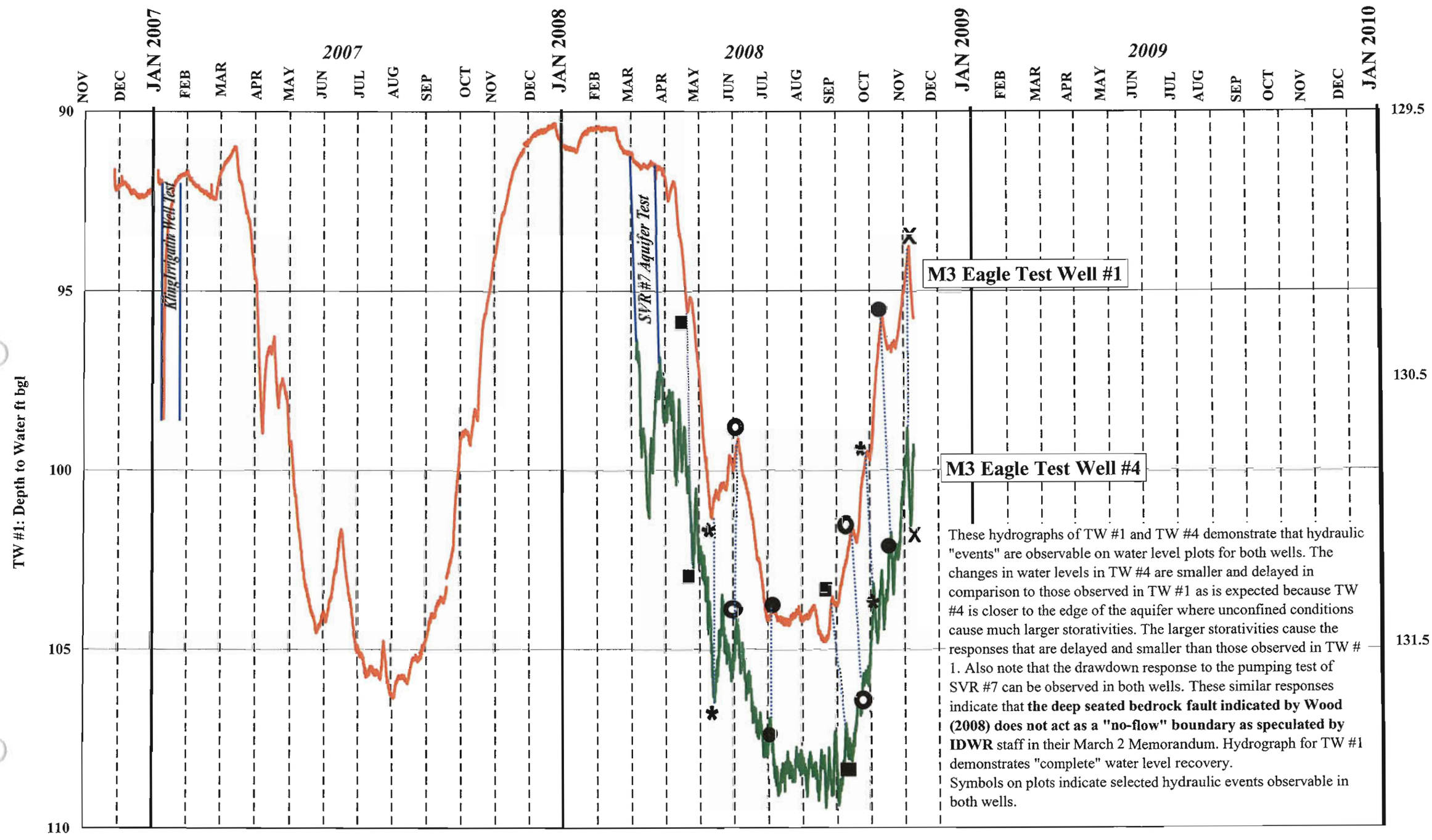


Figure 2. Regional correlation of the Pierce Gulch Sand Aquifer in the western Snake River Plain based on the character of geophysical logs in deep petroleum-exploration and water wells. See Figure 1for location of wells.

Figure 5. Comparison of Water Level Responses in TW #1 and TW #4

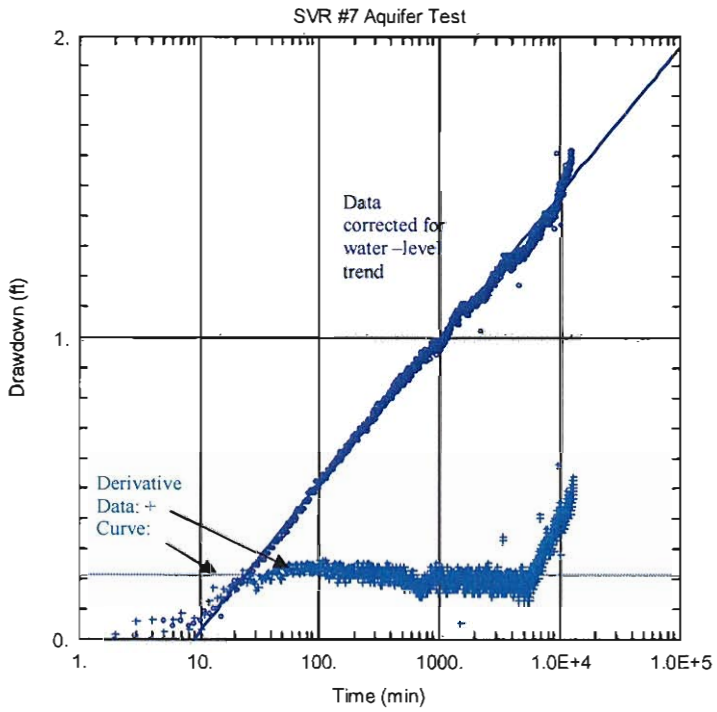
From Continuous Water Level Monitoring

Monitored For M3 Eagle By: Hydro Logic, Inc.



These hydrographs of TW #1 and TW #4 demonstrate that hydraulic "events" are observable on water level plots for both wells. The changes in water levels in TW #4 are smaller and delayed in comparison to those observed in TW #1 as is expected because TW #4 is closer to the edge of the aquifer where unconfined conditions cause much larger storativities. The larger storativities cause the responses that are delayed and smaller than those observed in TW # 1. Also note that the drawdown response to the pumping test of SVR #7 can be observed in both wells. These similar responses indicate that **the deep seated bedrock fault indicated by Wood (2008) does not act as a "no-flow" boundary as speculated by IDWR** staff in their March 2 Memorandum. Hydrograph for TW #1 demonstrates "complete" water level recovery.
Symbols on plots indicate selected hydraulic events observable in both wells.

Figure 6. Cooper-Jacob Analysis for the Big Gulch Stock Well with Water-Level Trend Corrections



Screen = 180 ft bgl (open hole)
T=500,000 gpd/ft
S = 1.3x 10^{-3}
Kv/Kh=0.1
b = 340 ft
t_c = 95 min
r = 845 ft
Q = 917gpm (at SVR #7)

Derivative analysis indicates method is valid for data between 100 and 6,000 min. Rise in apparent drawdown and derivatives after 6,000 minutes may reflect boundary effect of nearest known "no-flow" boundary – the edge of the aquifer shown in the site plan as the "green line." Correction for water-level trend results in an indicated storativity (S) about 8 percent greater than value indicated without this correction. Transmissivity remains unchanged.

$T = 264Q/\Delta s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

t_c = critical time where "u assumption" is met (where u = 0.05) such that method may be valid, is 95 minutes as shown by dashed vertical line.

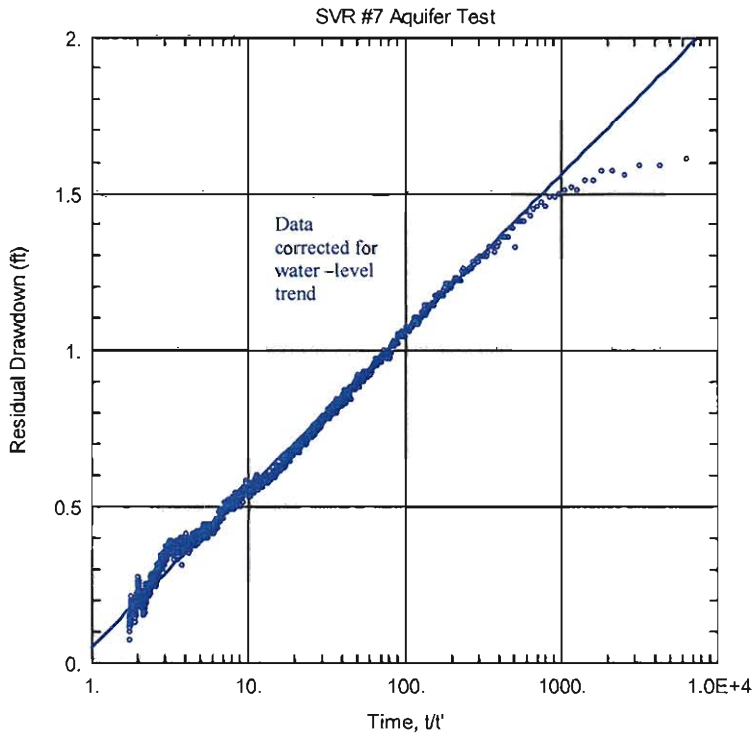
$u = 1.87r^2S/Tt$
t = time in days
r = distance to pumping well (ft)

b = aquifer thickness in feet (ft), estimated from geophysical log of well SVR #7.

Based on the analytical method of Cooper and Jacob (1946).

No partial penetration corrections needed because well is more than 2x aquifer thickness from pumping well.

Figure 7. Theis Recovery Analysis for the Big Gulch Stock Well with Revised Water-Level Trend Correction



Screen = 180 ft bgl (open hole)
T=480,000 gpd/ft
S/S' =0.8
Kv/Kh=0.1
b = 340 ft
r = 845 ft
Q = 917gpm (at SVR #7)

S/S' less than 1 suggests "late" or "incomplete" recovery. Apparent "late" recover caused by either, a) incomplete correction for seasonal (declining), regional, water- level trend or b) hydraulic effects of nearest known no-flow boundary – the edge of the aquifer ("green line" on the site plan.

Partial penetration corrections neither needed nor applied.

$T = 264Q/\Delta s$ Where:
T = Transmissivity in gallons per day per foot (gpd/ft)
Q = Pumping rate in gallons per minute (gpm) and
Δs = Change in drawdown of water level over one log cycle of time, in feet (ft)

t = time since pumping started (minutes)
t' = time since pumping stopped (minutes)

S/S' = storativity ratio (unitless) where:
S/S' < 1 indicates no-flow boundary ("late" recovery)
S/S' = 1 indicates no recharge or discharge boundaries ("normal" recovery)
S/S' >1 indicates recharge boundary ("early" recovery)

Kv/Kh = Bulk vertical to horizontal ratio of hydraulic conductivity (unitless), see text for details
b = aquifer thickness in feet (ft), estimated from geophysical logs, Well Driller's Reports and well logs in the area
r = distance to pumping well (ft)

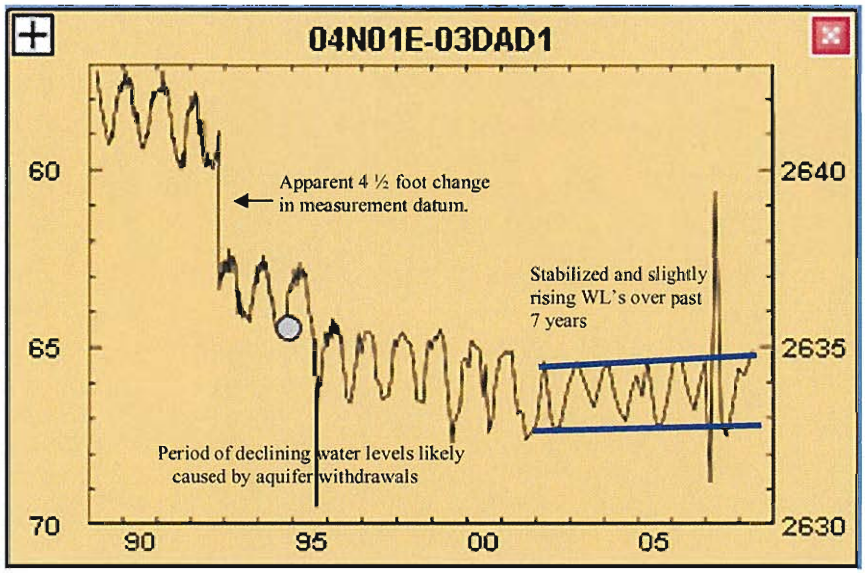
Based on the analytical method of Theis (1935).

Figure 8. Comparison of Water Level Data Plot on IDWR Website with Analysis of Selected Data by McVay for Well 04N01E 03DAD1

Water level hydrograph from IDWR's Website using all 582 measured water levels.

IDWR's plot shows:
a) declining water levels through about 2001,
b) measurement datum shift during 1992, and
c) an **apparent water level rise from 2001 through 2008**

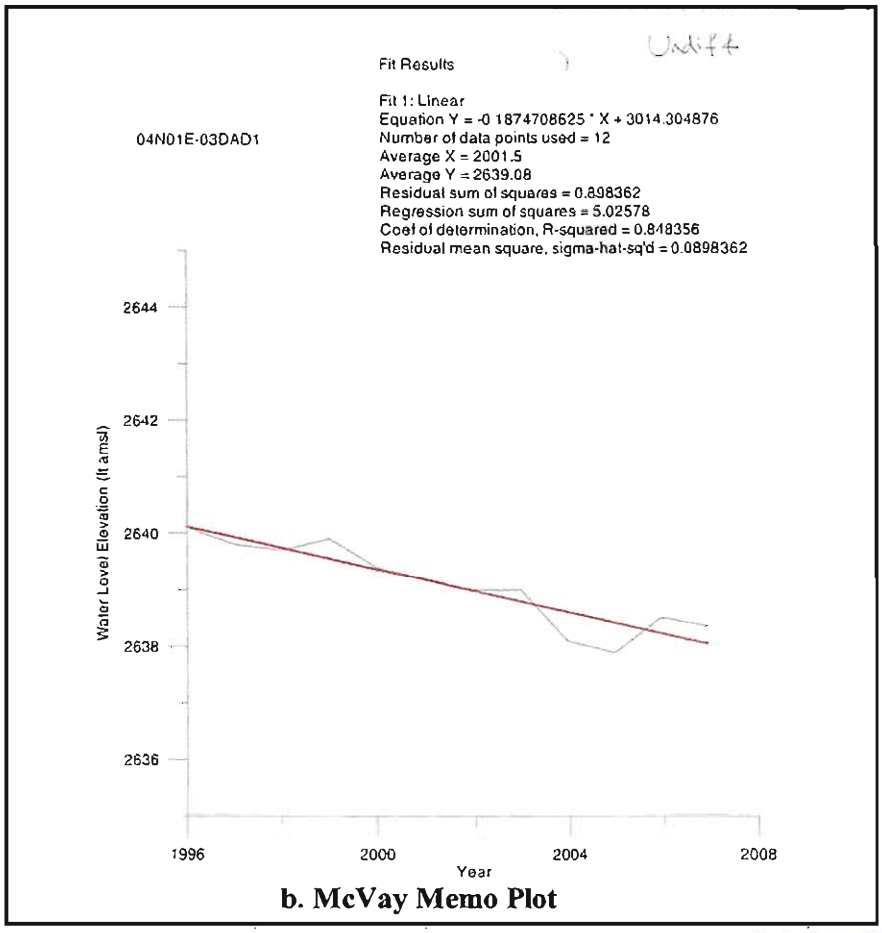
[blue lines and text on figure added by HLI]



a. IDWR Website Plot

Water level hydrograph by McVay using 12 selected water levels.

McVay's plot purports to show a steadily declining "non-irrigation season" water level. By ignoring the visual trend apparent in the complete data plot, McVay's analysis combines data from a period of water level decline with a period of water level rises and gives a **false indication of true conditions in the Terteling Springs Formation mudstone aquifer.**



b. McVay Memo Plot

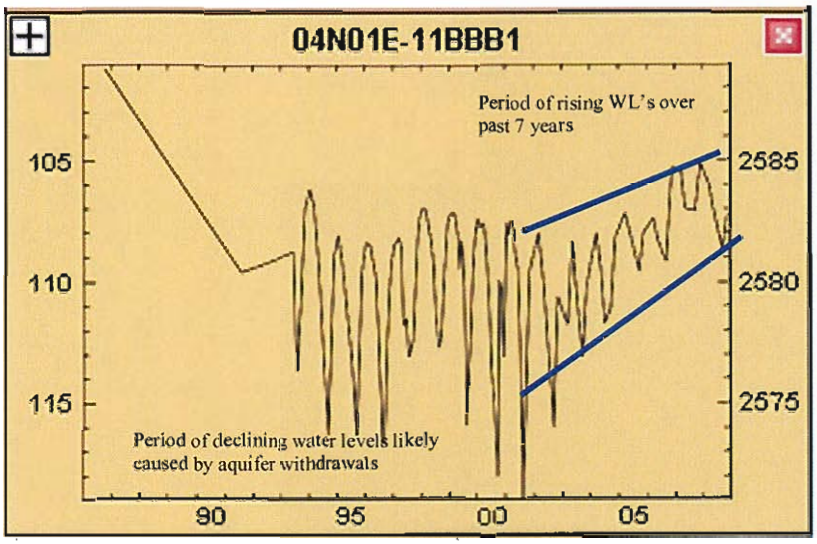
Hydro Logic, Inc.
Boise, Idaho

Figure 9. Comparison of Water Level Data Plot on IDWR Website with Analysis of Selected Data by McVay for Well 04N01E 11BBB1

Water level hydrograph from IDWR's Website using all 111 measured water levels.

IDWR's plot shows:
a) declining water levels through about 2001, and
b), an **apparent water level rise from 2001 through 2008**

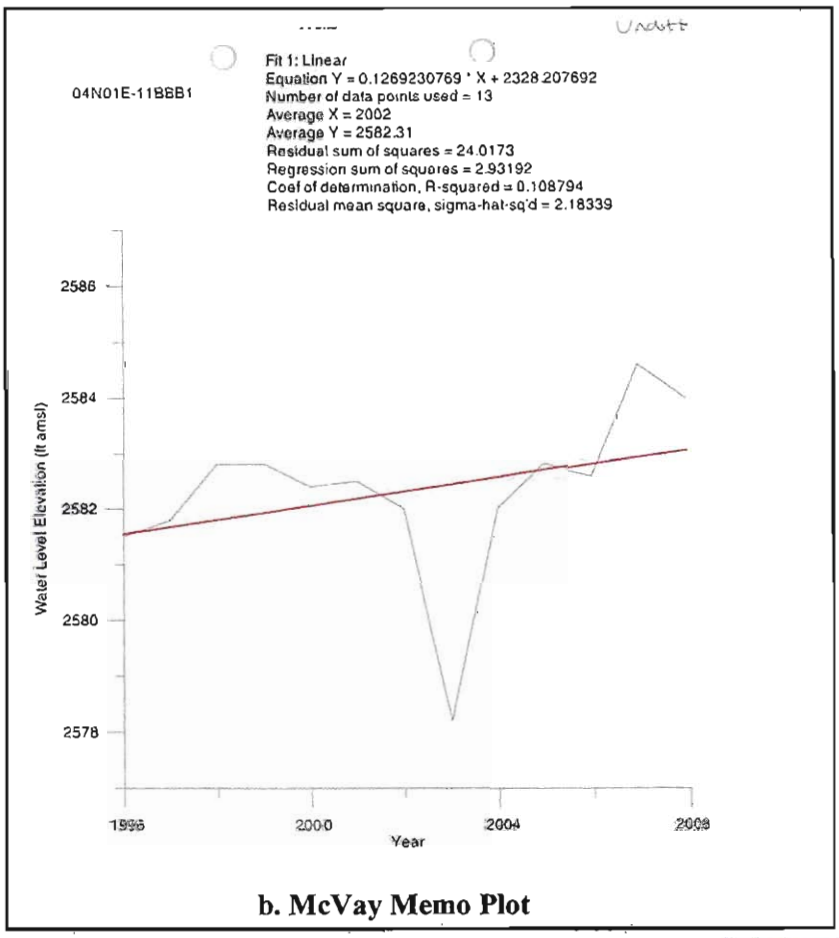
[blue lines and text on figure added by HLI]



a. IDWR Website Plot

Water level hydrograph by McVay using 13 selected water levels.

McVay's plot shows a steadily rising "non-irrigation season" water level. McVay's analysis of 13 data points **agrees with the apparent rise in water levels in this portion of the Terteling Springs Formation mudstone aquifer** as shown in the plot of all 111 data points.



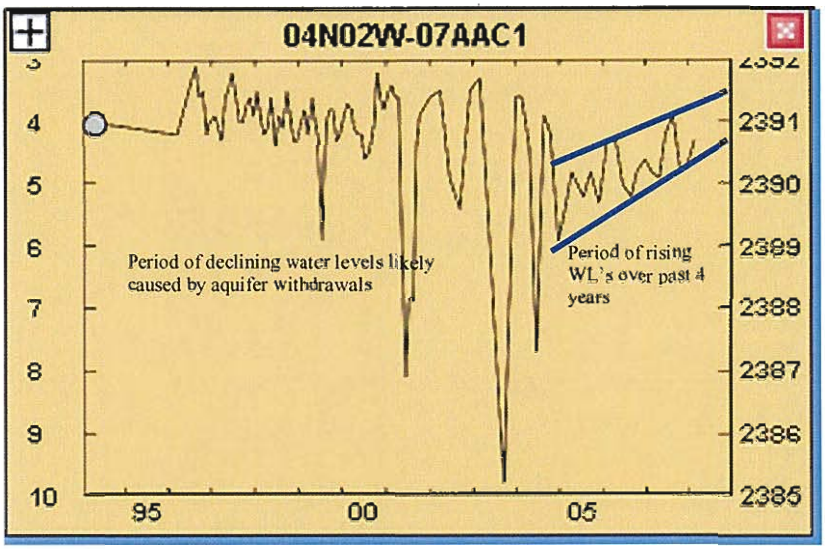
b. McVay Memo Plot

Figure 10. Comparison of Water Level Data Plot on IDWR Website with Analysis of Selected Data by McVay for Well 04N02W 07AAC1

Water level hydrograph from IDWR's Website using all 99 measured water levels.

IDWR's plot shows:
a) declining water levels through about 1999,
b) an ambiguous water level trend from 1999 through 2004, and
c) **an apparent water level rise from 2005 through 2008**

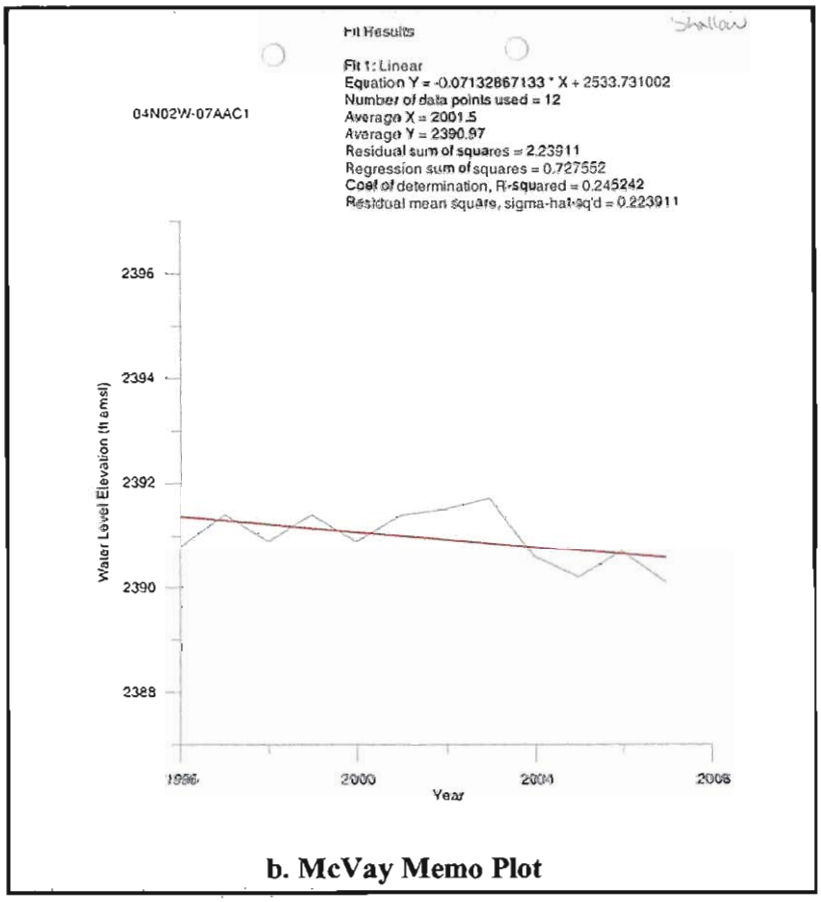
[blue lines and text on figure added by HLI]



a. IDWR Website Plot

Water level hydrograph by McVay using 12 selected water levels.

McVay's plot purports to show a steadily declining "non-irrigation season" water level. By ignoring the visual trend apparent in the complete data plot, McVay's analysis combines data from a period of water level decline with a period of water level rises and gives a **false indication of true conditions in the Boise River gravel aquifer.**



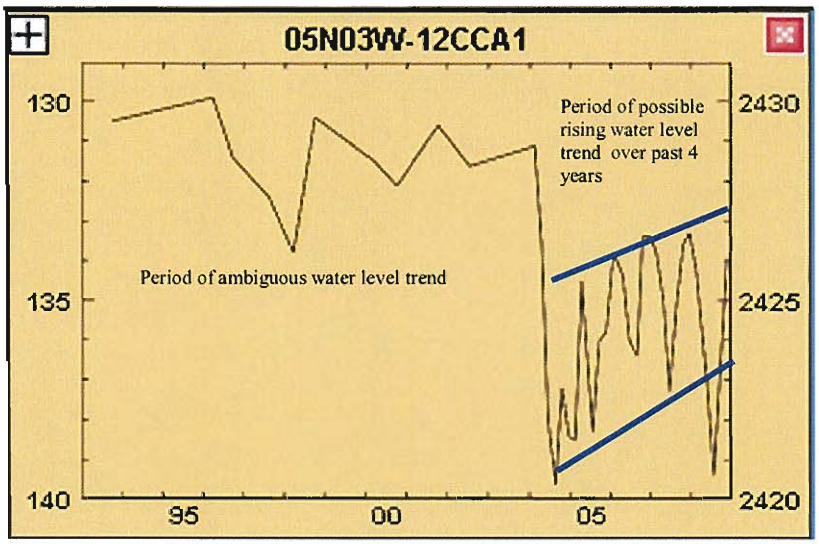
b. McVay Memo Plot

Figure 11. Comparison of Water Level Data Plot on IDWR Website with Analysis of Selected Data by McVay for Well 05N03W 12CCA1

Water level hydrograph from IDWR's Website using all 99 measured water levels.

IDWR's plot shows:
a) an ambiguous water level trend into 2004, and
b) **an apparent water level rise from 2005 through 2008**

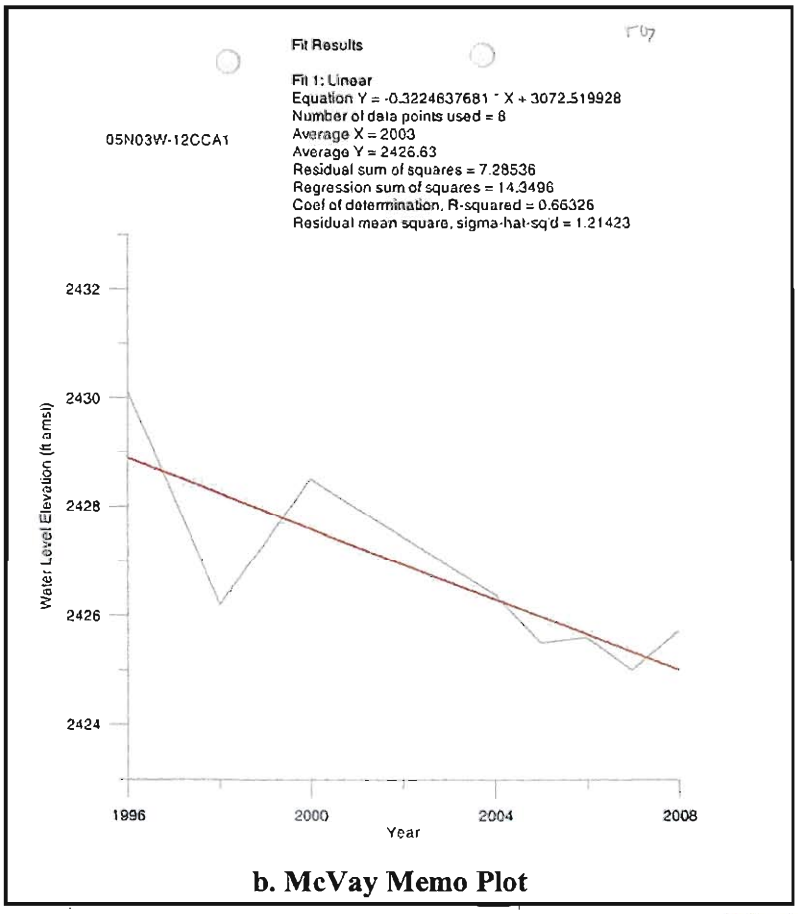
[blue lines and text on figure added by HLI]



a. IDWR Website Plot

Water level hydrograph by McVay using 8 selected water levels.

McVay's plot purports to show a steadily declining "non-irrigation season" water level. By ignoring the visual trend apparent in the complete data plot, McVay's analysis combines data from a period of water level decline with a period of water level rises and gives a **false indication of true conditions in the Pierce Gulch Sand Aquifer.**



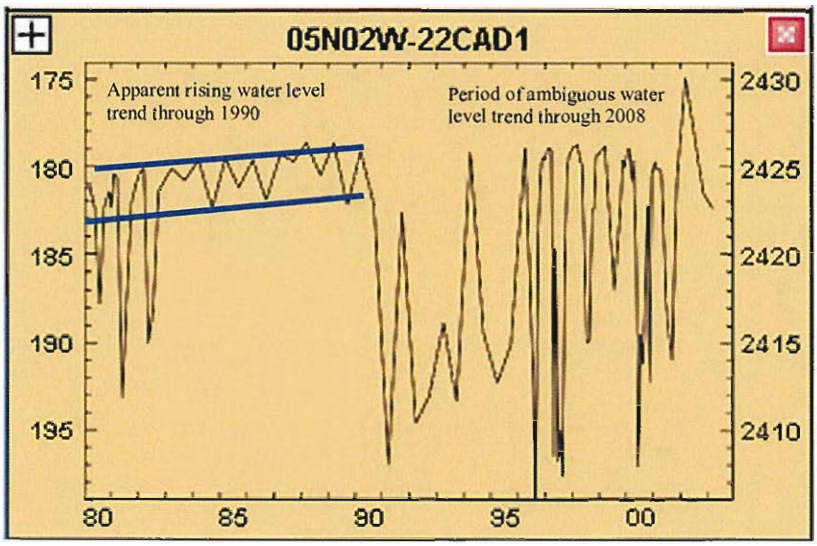
b. McVay Memo Plot

Figure 12. Comparison of Water Level Data Plot on IDWR Website with Analysis of Selected Data by McVay for Well 05N02W 22CAD1

Water level hydrograph from IDWR's Website using all 104 measured water levels.

IDWR's plot shows:
a) an apparent period of little production use from 1984 through 1990,
b) an apparent water level rise throughout this period, and
c) ambiguous but possible rising water levels from 1990 -2008

[blue lines and text on figure added by HLI]



a. IDWR Website Plot

McVay did not analyze the data from this well even though it is one of the deepest monitoring wells in the region to the near-west of the M3 site and is **completed in the Pierce Gulch Sand Aquifer.**

No analysis by McVay in the March 2, 2009 memo

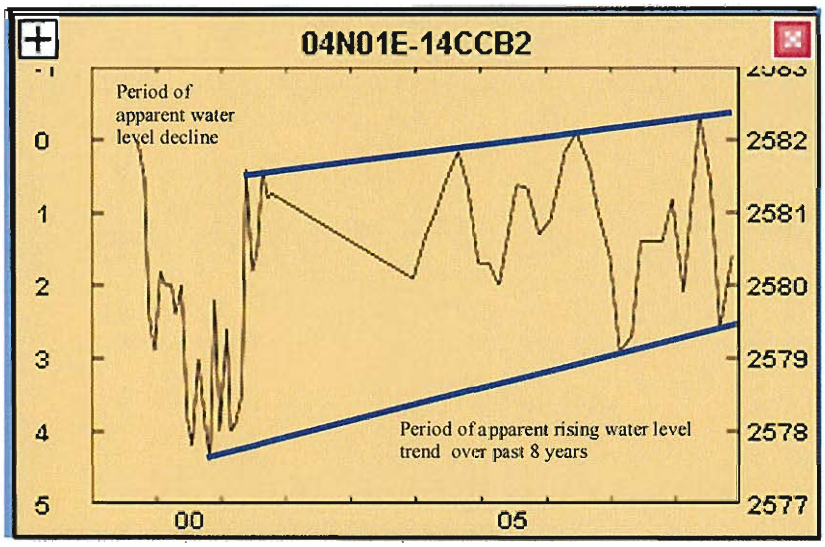
b. McVay Memo Plot

Figure 13. Comparison of Water Level Data Plot on IDWR Website with Analysis of Selected Data by McVay for Well 04N01E 14CCB2

Water level hydrograph from IDWR's Website using all 54 measured water levels.

IDWR's plot shows:
a) an apparent decline in water level during 1999 through 2000, and
b) **an apparent water level rise from 2000 through 2008**

[blue lines and text on figure added by HLI]



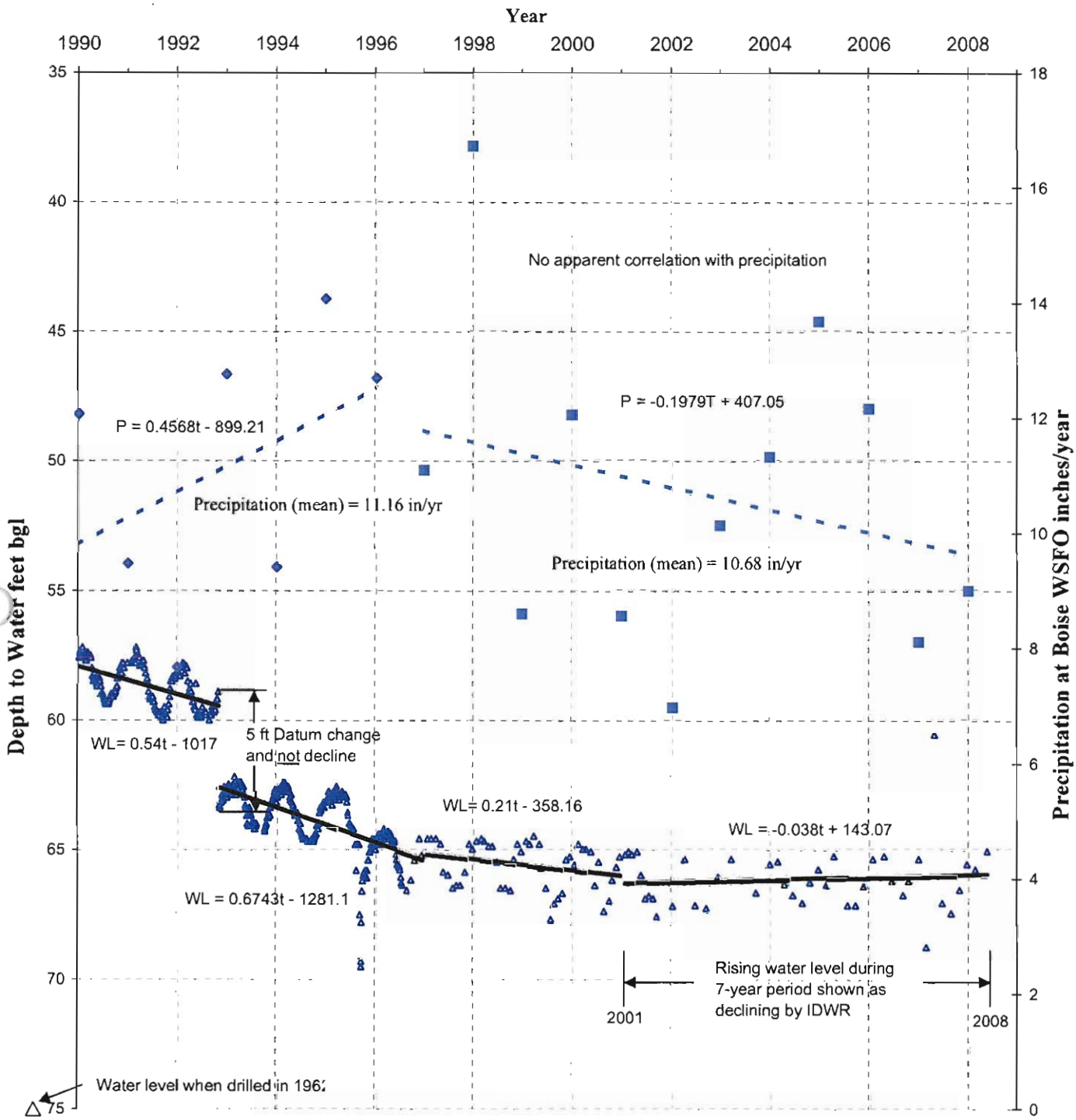
a. IDWR Website Plot

McVay did not analyze the data from this well even though it is one of the **best monitoring wells in the East Eagle area** to indicate the **true conditions in the Pierce Gulch Sand Aquifer.**

No analysis by McVay in the March 2, 2009 memo

b. McVay Memo Plot

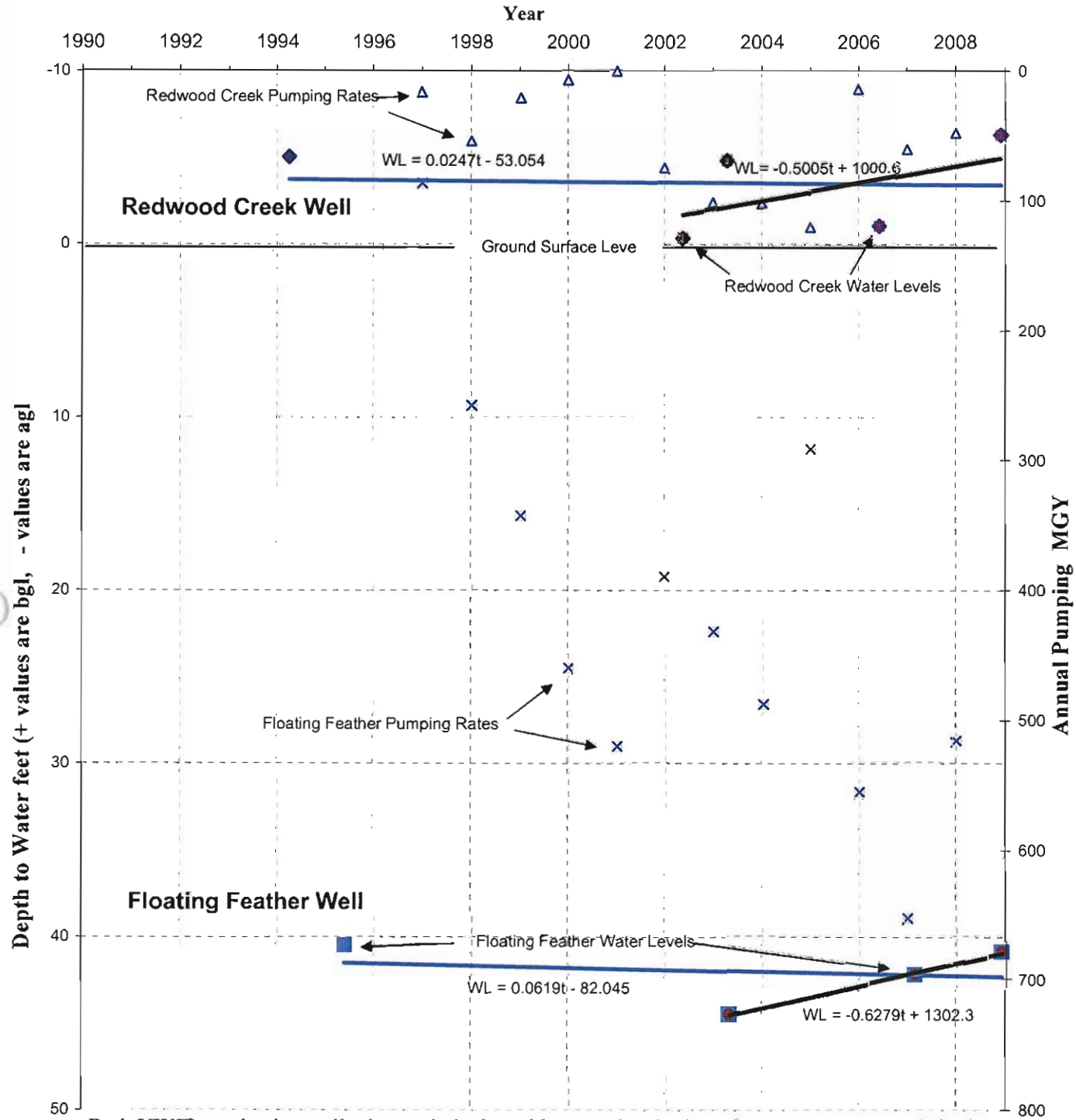
Figure 14. Water Level Trends in Well 04N01E 3DAD1



Linear regression analysis indicates that precipitation was increasing during the period 1990 through 19 and was decreasing during the period 1996-2008. These linear regression analyses using all 549 data points indicates that water levels were declining from 1990 through 2000 but were rising from 2001 through 2008 at an average rate of 0.04 ft/yr. This analysis contradicts the analysis by McVay using 12 selected data points that he used to portray a decline of 0.19 ft/yr. This well is not completed in the PGS. and is NOT suitable for monitoring water levels in the PGSA. See tables for details.

Hydro Logic, Inc.
Boise, Idaho

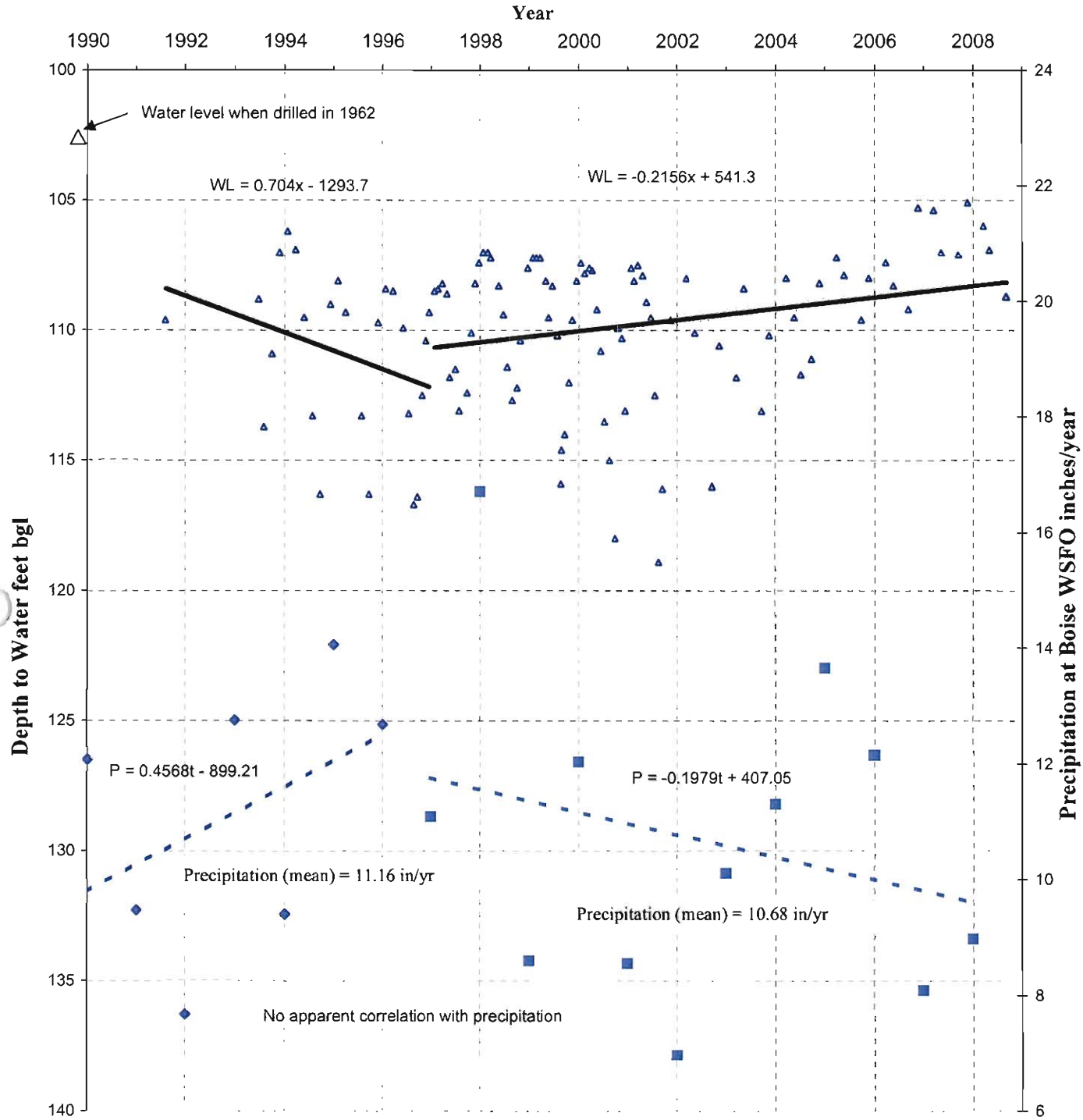
Figure 15. Water Level Trends in the UWID Redwood Creek and Floating Feather Wells 04N01E 7BD and 04N01E 5CD



Both UWID production wells show relatively stable water levels since they were constructed. Both wells show a rise in water levels from 2002-2008 in spite of generally increasing levels of production. Both wells have too few data points for statistically valid trend analysis, but qualitatively - water levels appear to be rising over the past 5 to 6 years. Initial water level for each well measured from ground surface. Subsequent measurements relative to well house floor. The difference in elevations estimated to be 2 feet. Both wells are completed in the PGSA and have well documented construction and testing. This well is suitable for monitoring water levels in the PGSA. See tables for details. Data provided by Roger Dittus of UWID.

Hydro Logic, Inc.
Boise, Idaho

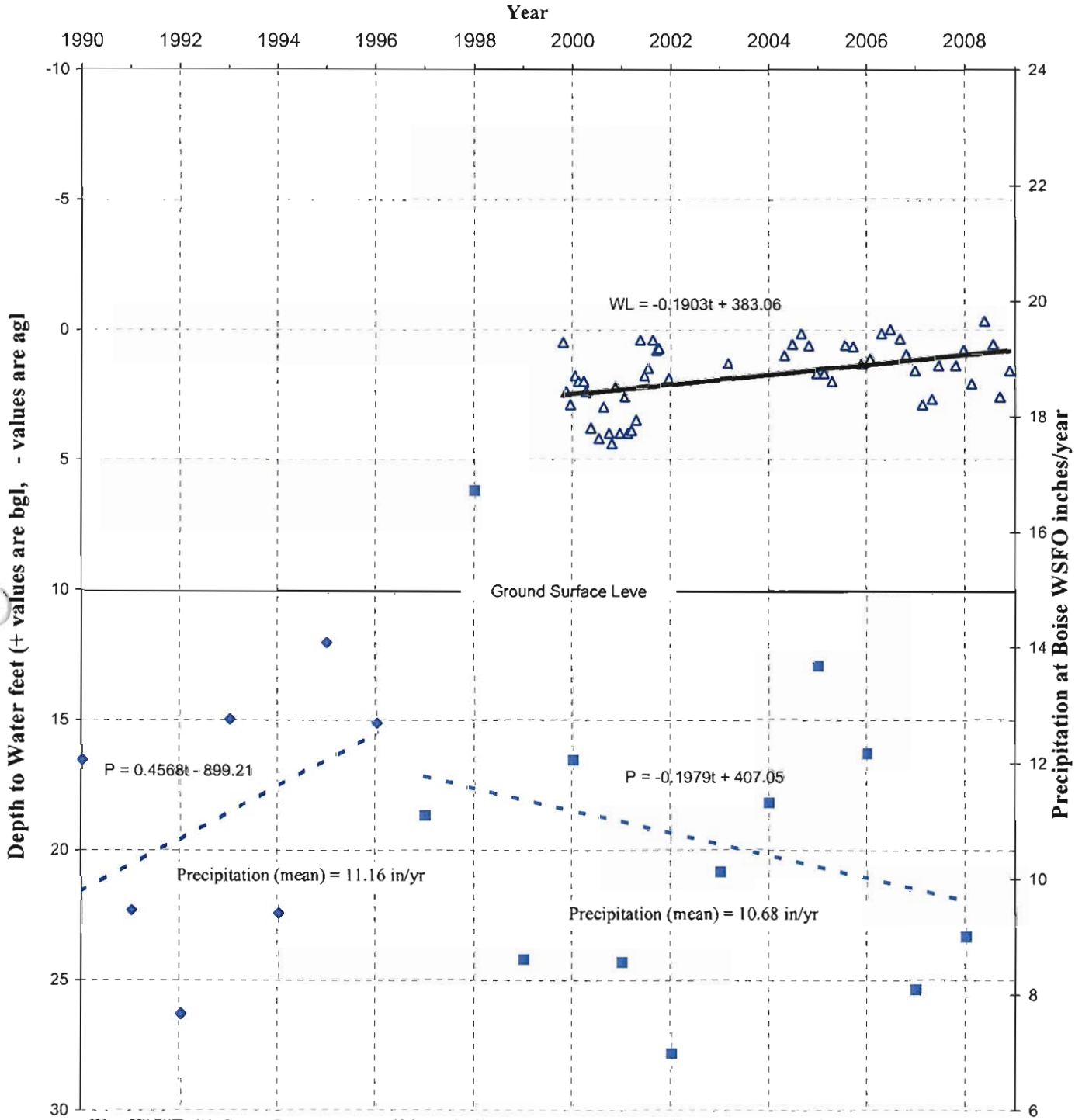
Figure 16. Water Level Trends in Well 04N01E 11BBB1



Linear regression of water levels measured from 1990-1996 (25 data points) indicate a declining water level trend of 0.7 ft/yr while a similar analysis of 84 data points collected from 1997-2008 indicate a rising water level trend of 0.2 ft/yr. Linear regression analysis indicates that precipitation was increasing during the period 1990 through 1996 and was decreasing during the period 1997-2008. This well is NOT completed in the PGSA and is NOT suitable for monitoring water levels ir the PGSA. See tables for details.

Hydro Logic, Inc.
Boise, Idaho

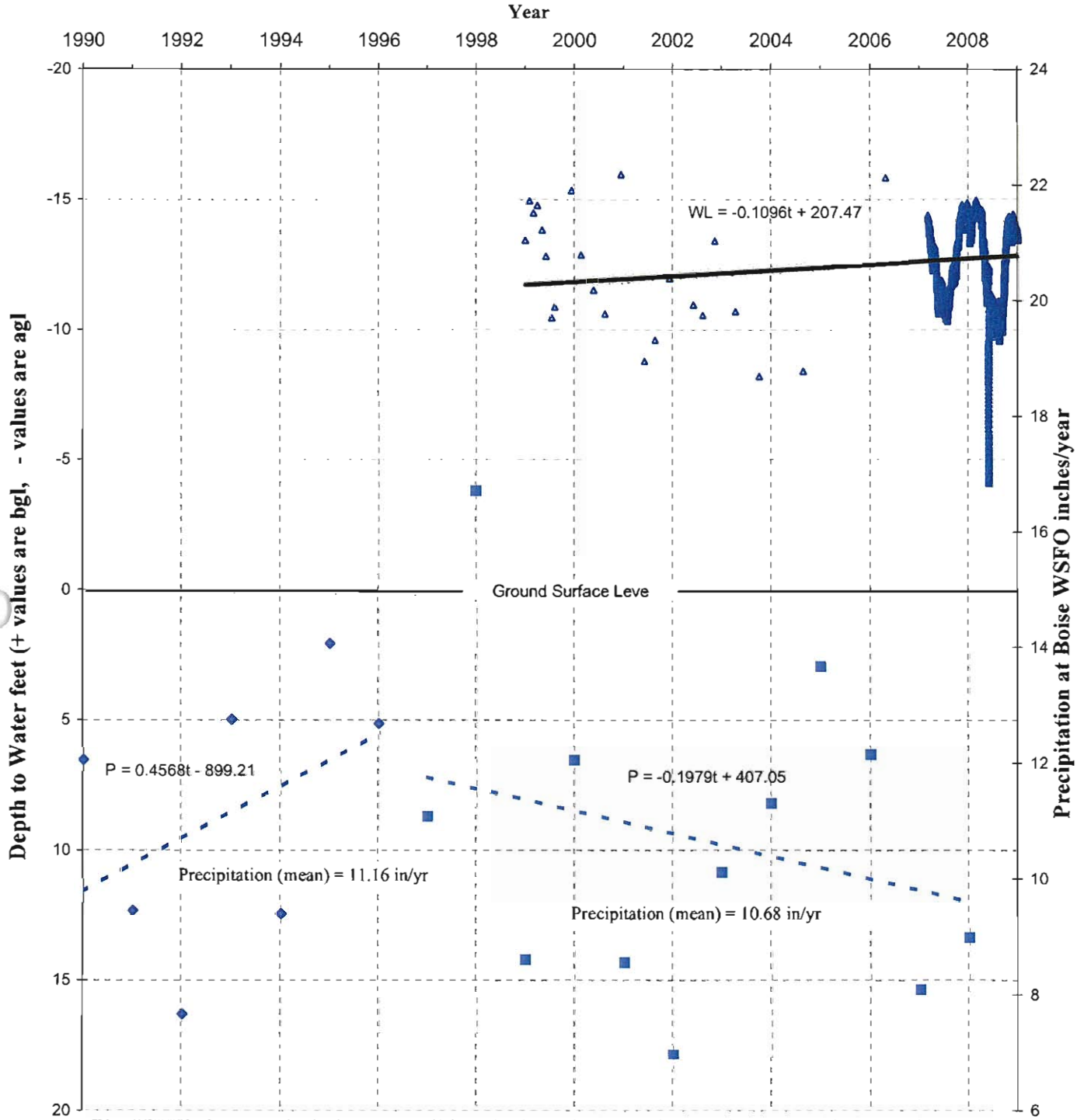
Figure 17. Water Level Trends in TVHP #1
04N01E 14CCB2



The TVHP #1 State Street test well is a dedicated monitoring well completed in the Pierce Gulch Sand Aquifer and sealed from ground surface to the screened interval. As such, this well is ideal for representing conditions in the Pierce Gulch Sand Aquifer in the east-Eagle vicinity. Linear regression of water levels measured by hand (54 data points) indicate a rising water level trend of 0.19 ft/yr over the period of measurement (1999-2008). This rise in water levels does not correlates with the decline in precipitation, suggesting poor correlation between recharge and aquifer response. This analysis contradicts the conclusion presented the McVay memo which states that "all wells in the area (except 04N01E11BBBB1) exhibit negative [declining] water level trends."

Hydro Logic, Inc.
Boise, Idaho

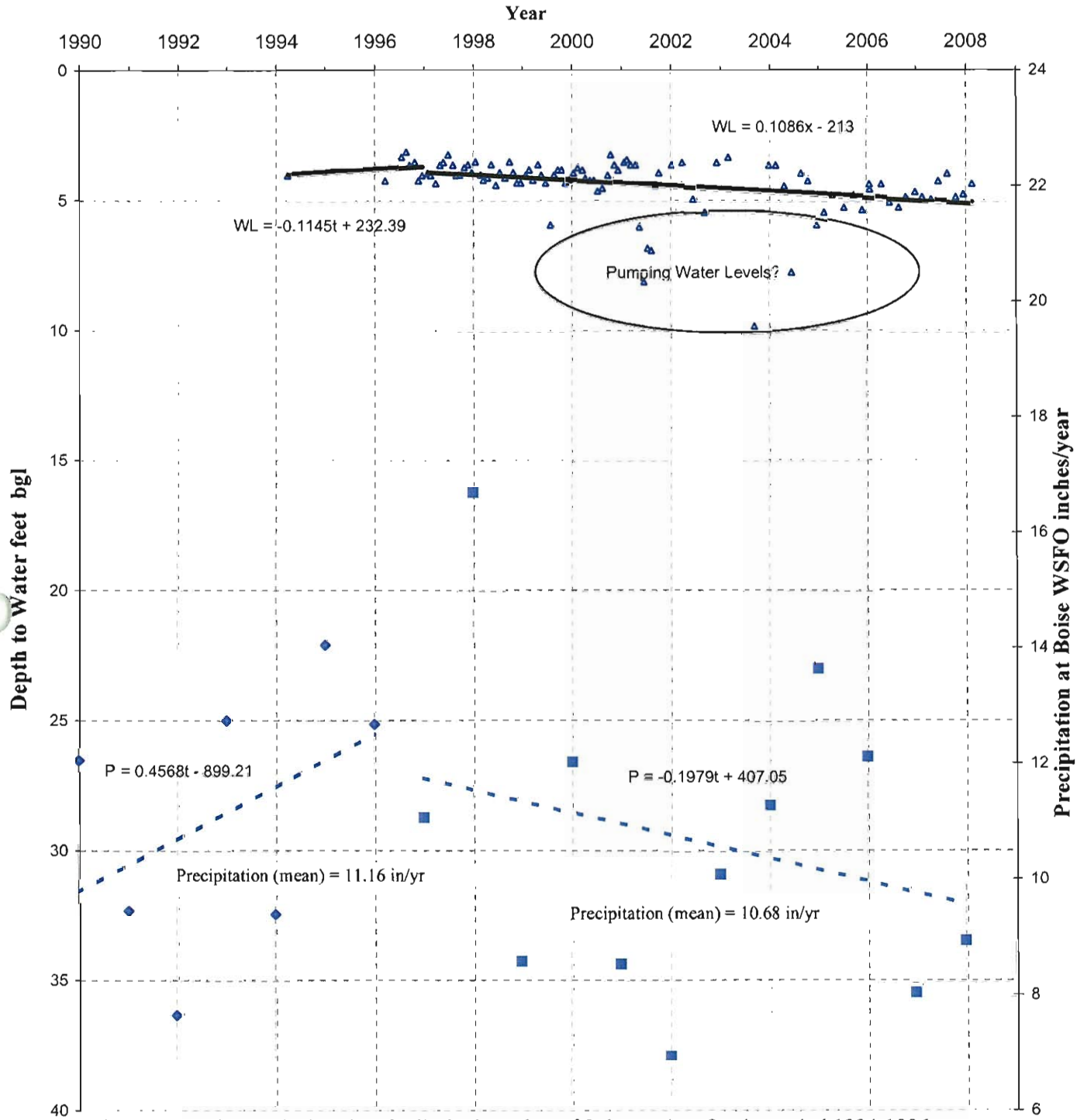
Figure 18. Water Level Trends in UWID State and Linder TW #1 Zone 2
04N01W11DDA1



The UWID State and Linder test well is a dedicated monitoring well completed in the Pierce Gulch Sand Aquifer and sealed from ground surface to the screened interval and is representative of conditions in the PGSA in the west-Eagle vicinity. Linear regression of water levels measured by hand (23 data points) and by data logger (15, 987 data points) indicate a rising water level trend of 0.1 ft/yr from 1999-2008. This analysis contradicts McVay who states "all wells in the area (except 04N01E11BBBB1) exhibit negative [declining] water level trends."

Hydro Logic, Inc.
Boise, Idaho

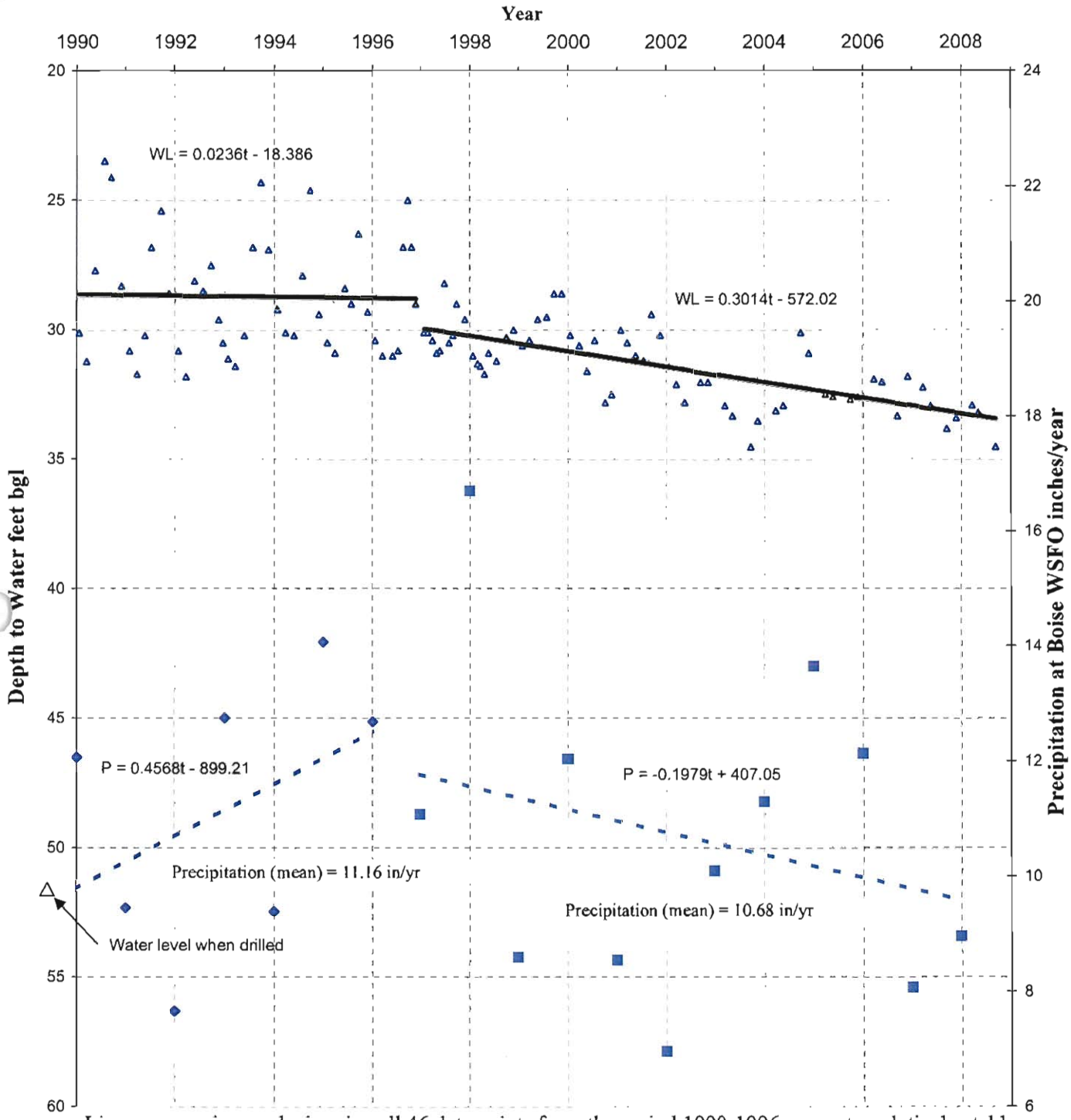
Figure 19. Water Level Trends in 04N02W 7AAC1



Linear regression analysis using the limited number of 8 data points for the period 1994-1996 suggest a rising water level trend of about 0.1 ft year. A linear regression analysis using 91 data points for the period 1997-2008 indicates a declining water level trend of 0.1 ft/yr. These water level trends appear to correlate with the trends in precipitation (increasing precipitation during the period 1990-1996 and decreasing precipitation for the period 1997-2008). The results of the water level trend analysis are similar to the 12-data-point analysis of McVay who indicated a declining water level trend of 0.07 ft/yr. This well is NOT completed in the PGSA and is NOT suitable for monitoring water levels in the PGSA. See tables for details.

Hydro Logic, Inc.
Boise, Idaho

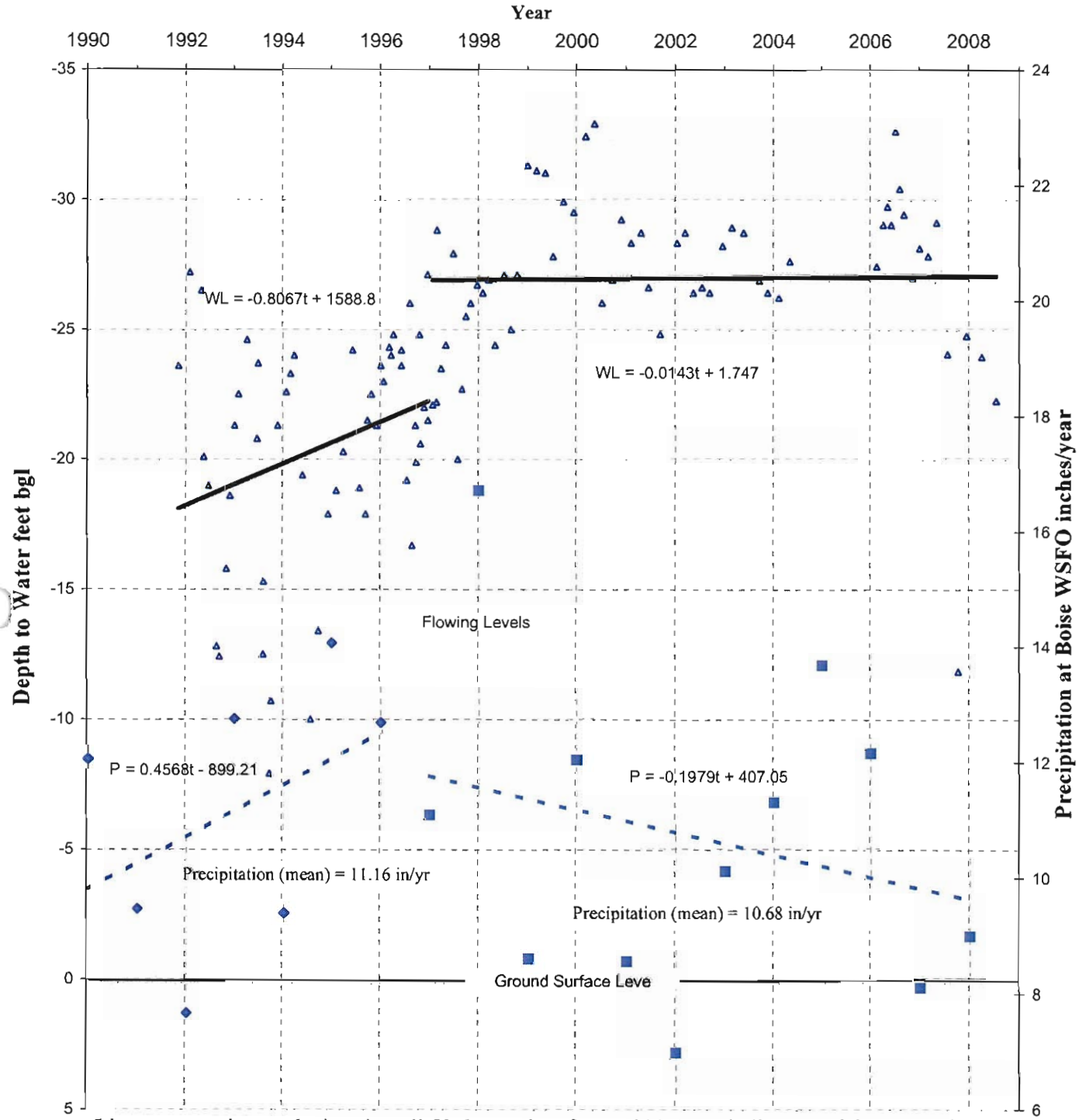
Figure 20. Water Level Trends in 05N1E 34DBB1



Linear regression analysis using all 46 data points from the period 1990-1996 suggest a relatively stable to a slightly declining water level trend of less than 0.03 ft/yr. A similar analysis using all 63 data points for the period 1997-2008 indicates a declining water level trend of 0.3 ft/yr. These water level trends appear to correlate with the trends in precipitation (increasing precipitation 1990 through1996 and decreasing from 1997through 2008. The results of the HLI analysis are similar to the 13-data-point analysis of McVay who indicated a declining water level trend of 0.2 ft/yr. No monitored water levels below driller's data.This well is NOT completed in the PGSA and is NOT suitable for monitoring water levels in the PGSA. See tables for details.

Hydro Logic, Inc.
Boise, Idaho

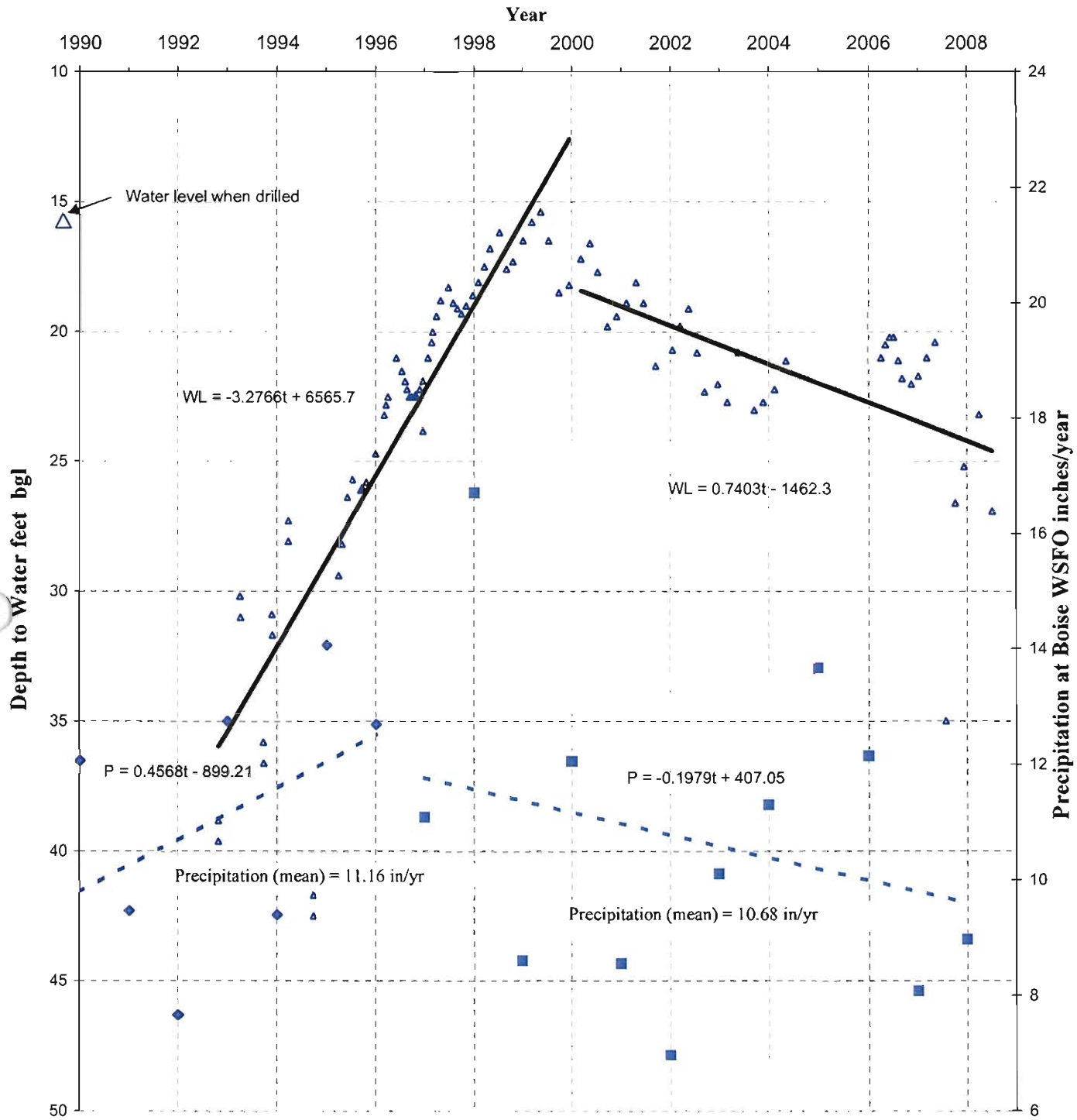
Figure 21. Water Level Trends in 05N1E 35ACA1



Linear regression analysis using all 53 data points from 1990-1996 indicates a rising water level trend of 0.8 ft/yr. A similar analysis using all 60 data points for the period 1997-2008 indicates a slight rise of about 0.01 ft/yr. These water level trends do not correlate with the trends in precipitation (increasing precipitation 1990 through1996 and decreasing from 1997 through 2008). This well is completed in the Terteling Springs Formation, in the Dry Creek vicinity, and is not indicative of conditions in the Pierce Gulch Sand Aquifer. This well is NOT suitable for monitoring water levels in the PGSA. See tables for details.

Hydro Logic, Inc.
Boise, Idaho

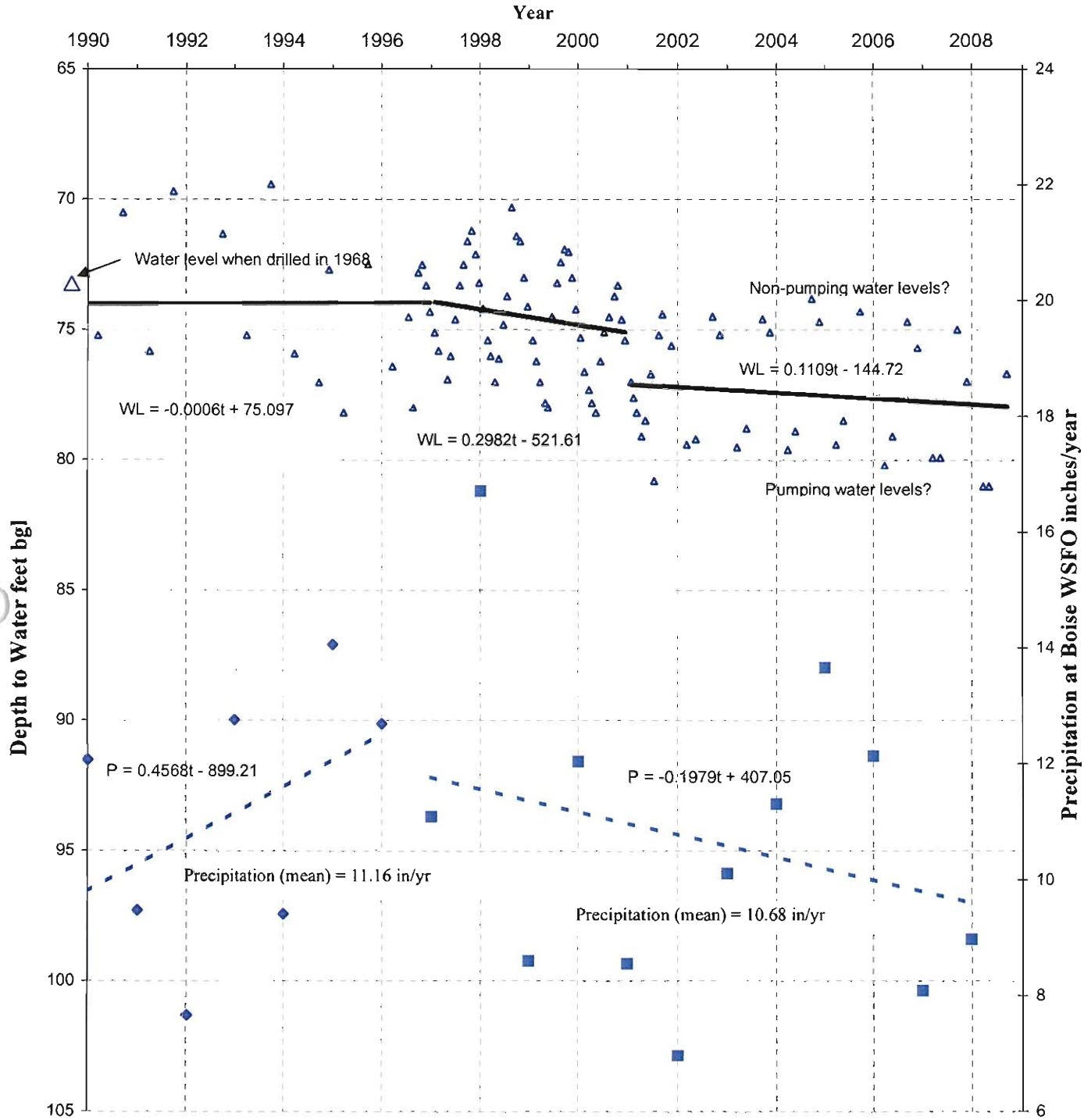
Figure 22. Water Level Trends in 05N01E36AAB1



Linear regression analysis using all 57 data points from 1990-1999 indicates a strong rising water level trend of over 3 ft/yr. A similar analysis using all 36 data points for the period 2000-2008 indicates a declining water level trend of about 0.7 ft/yr. These water level trends lag the trends in precipitation (increasing 1990 through 1996 and decreasing from 1997 through 2008), but with an apparent 2-year lag time between recharge and aquifer response. This relationship to precipitation is what would be expected here. This well is NOT completed in the PGSA and is NOT suitable for monitoring water levels in the PGSA. See tables for details.

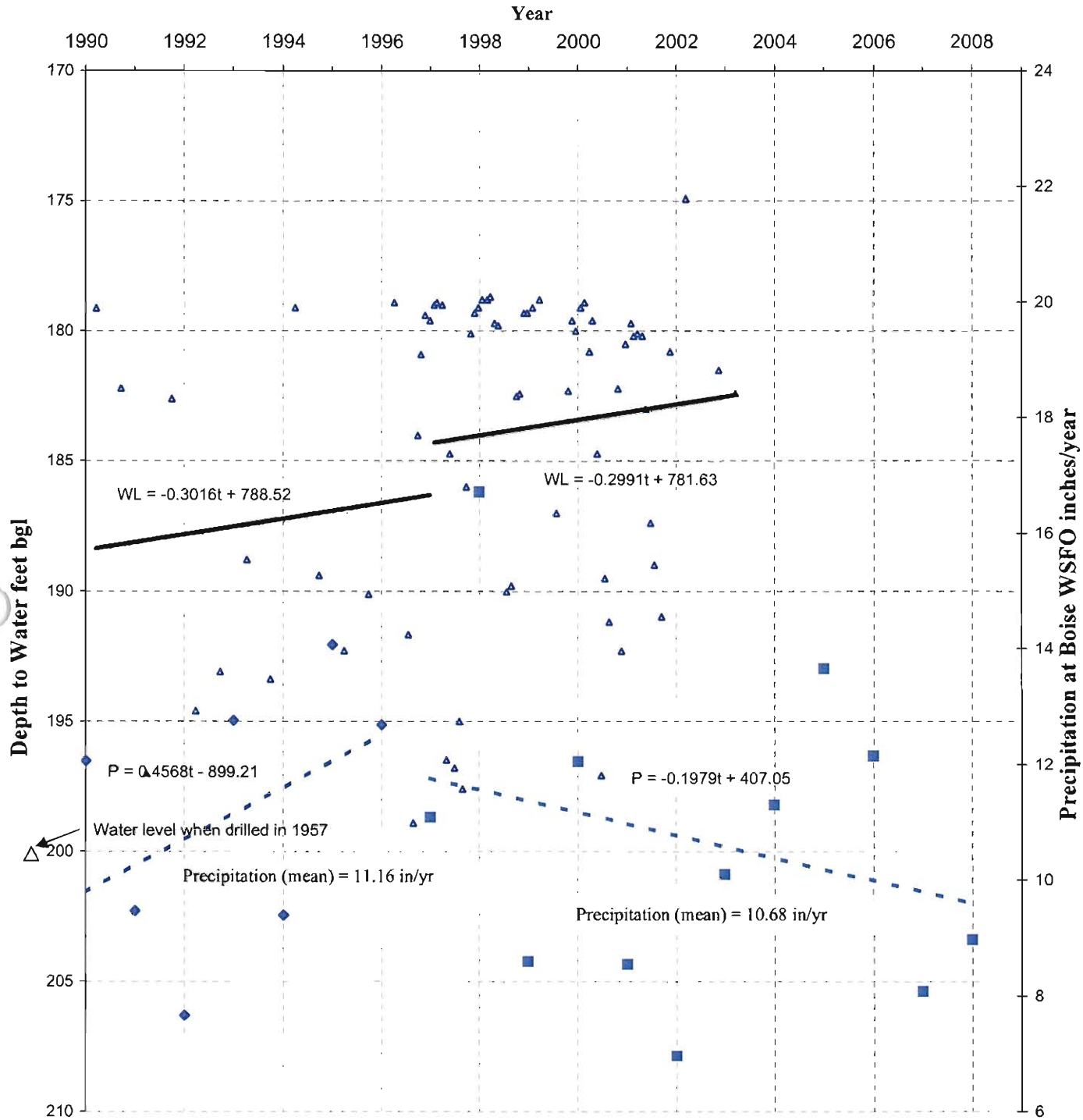
Hydro Logic, Inc.
Boise, Idaho

Figure 23. Water Level Trends in Well 05N01W 36ABB1



Linear regression analysis using all 102 data points indicates that water levels were essentially constant from 1990 through 1996 but were declining slightly from 1997 through 2001 at an average rate of 0.3 ft/yr. Between 2001 through 2008, the rate of decline decreased significantly to 0.1 ft per year. The decline in water levels correlates with the decrease in precipitation. This analysis better represents recent trends than McVay's 13-selected-data-points analysis that indicated a decline of 0.4 ft/yr. Water level about 2 ft lower in 2008 compared with 1968 - 40 years ago. This well is NOT completed in the PGSA and is NOT suitable for monitoring water levels in the PGSA. See tables for

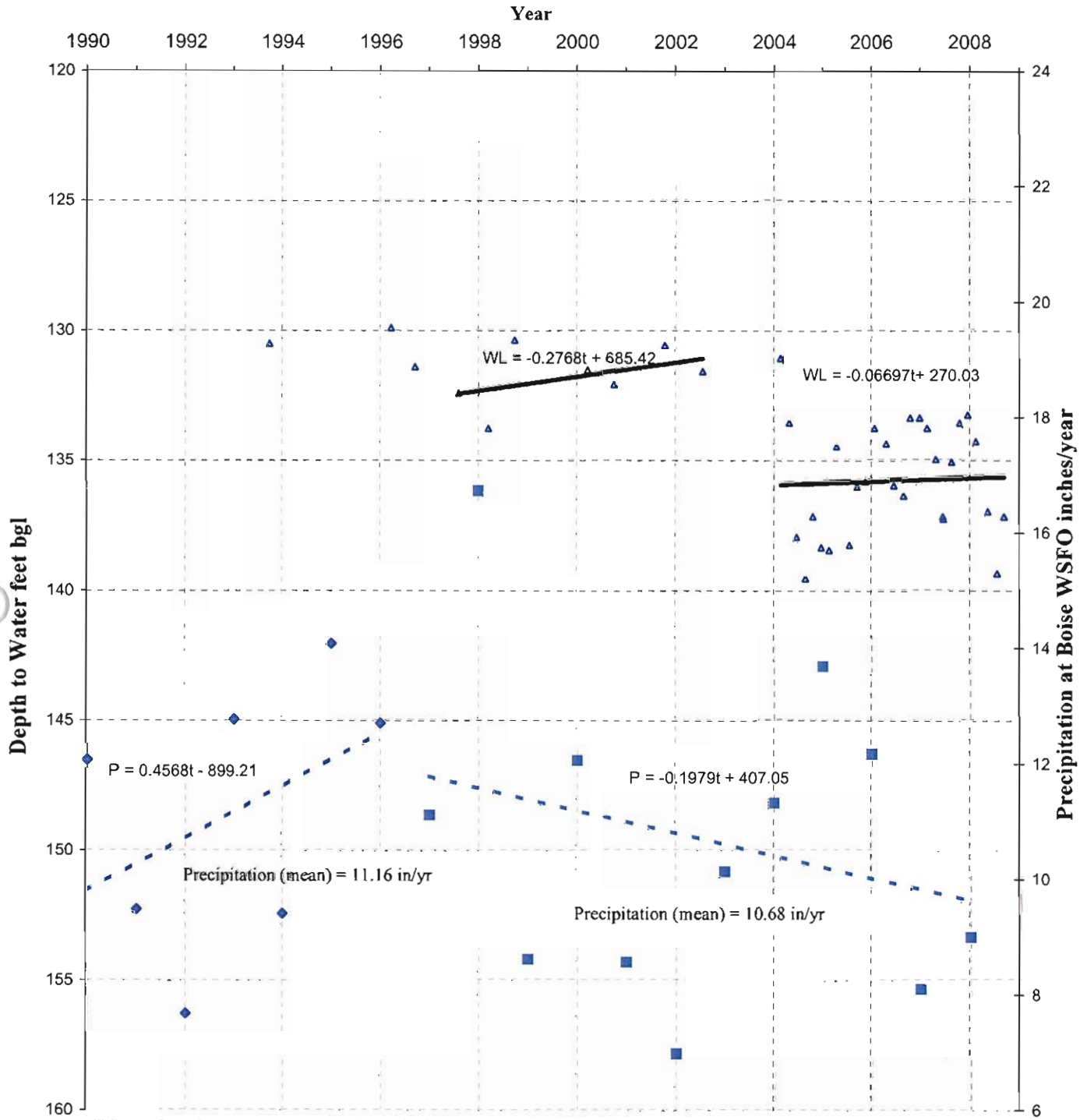
Figure 24. Water Level Trends in Well 05N2W 22CAD1



Linear regression analysis using all 71 data points indicates that water levels were rising from 1990 through 1996 at a rate of 0.3 ft/yr and continued to rise through the period 1997 through 2000 at an average rate of 0.06 ft/yr. Between 2001 and the end of data collection (2003) water levels continued to rise at a rate of 0.5 ft/yr. No monitored water levels below driller's data. The rises in water levels do not correlate with the changes in precipitation. The McVay analysis for this well was not presented in the March 2 memo. This well appears to be completed in the PGSA but is only poorly suitable for monitoring water levels in the PGSA because of poor well construction. See tables for details.

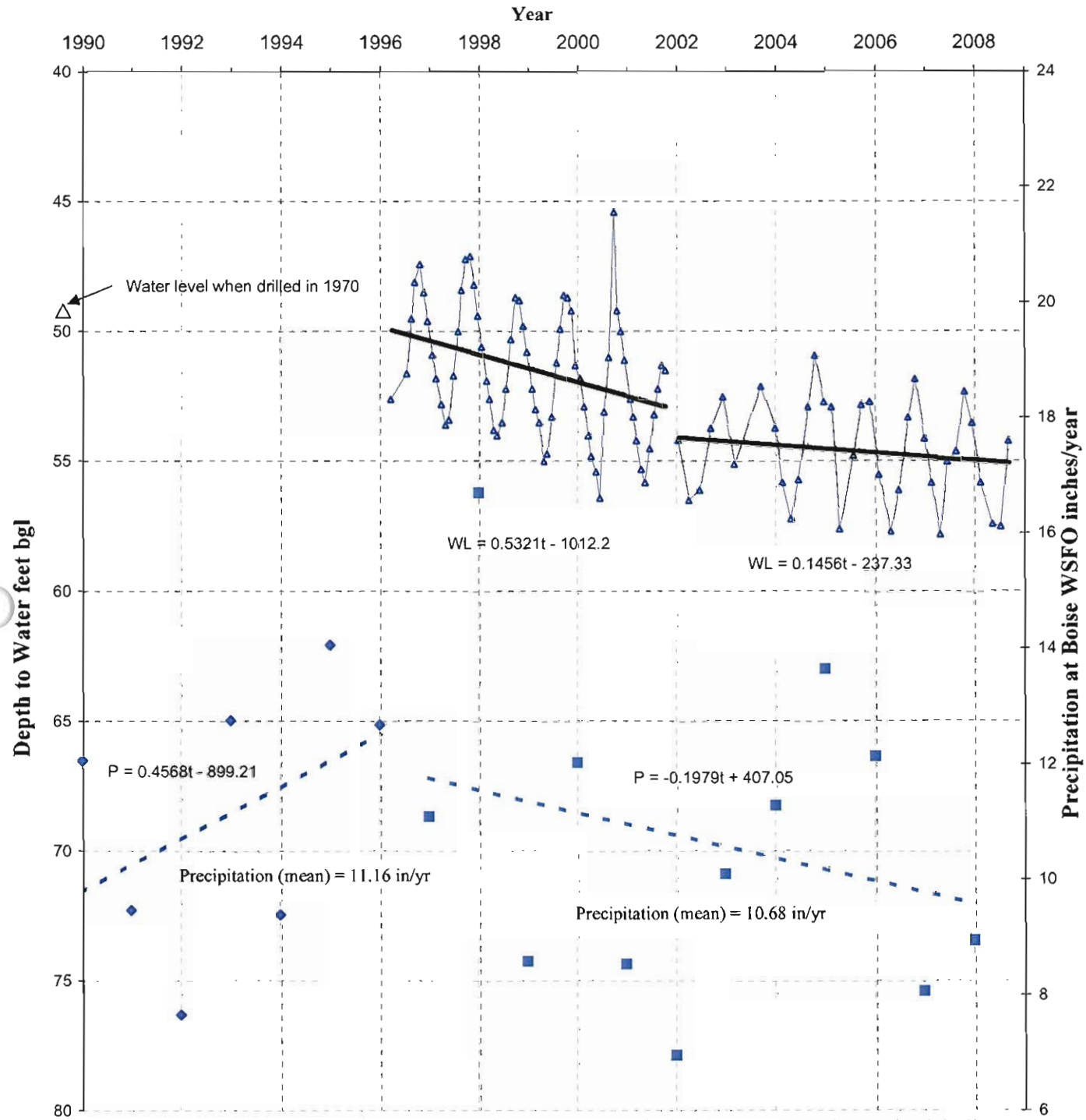
Hydro Logic, Inc.
Boise, Idaho

Figure 25. Water Level Trends in Well 05N03W 12CCA1



Water levels were measured too infrequently (0 to 2 times per year) for credible linear regression analysis using the data collected during the period 1990 through 2003. Between 2004 and the end of 2008 the well was measured more frequenlty. Linear regression using 29 data points from this time period indicates that water levels rose slightly at a rate of 0.07 ft/yr. This rise in water levels does not correlate with the decline in precipitation. This analysis contradicts the McVay analysis using 8 data points from the period 1996-2008 that indicated a rate of decline of 0.3 ft/yr. This well may or may not be completed in the PGSA and is pooly suitable for monitoring water levels in the PGSA. See tables for details.

Figure 26. Water Level Trends in Well 05N03W 15DDC1



Linear regression of water levels measured by over the period 1996-2001 (65 data points) indicate a declining water level trend of about 0.5 ft/yr while a similar analysis of 35 data points collected over the period 2002-2008 indicate a declining rising water level trend of about 0.15 ft/yr. These declining water level trends may correlate with the declining precipitation trend over the period 199 2008. The water level decline indicated by this analysis is significantly less than the decline of almo 0.5 ft/yr indicated by McVay in his 13-data-point analysis for the entire period. This well is completed in a shallow alluvial aquifer. This well is NOT completed in the PGSA and is NOT suitable for monitoring water levels in the PGSA. See tables for details.

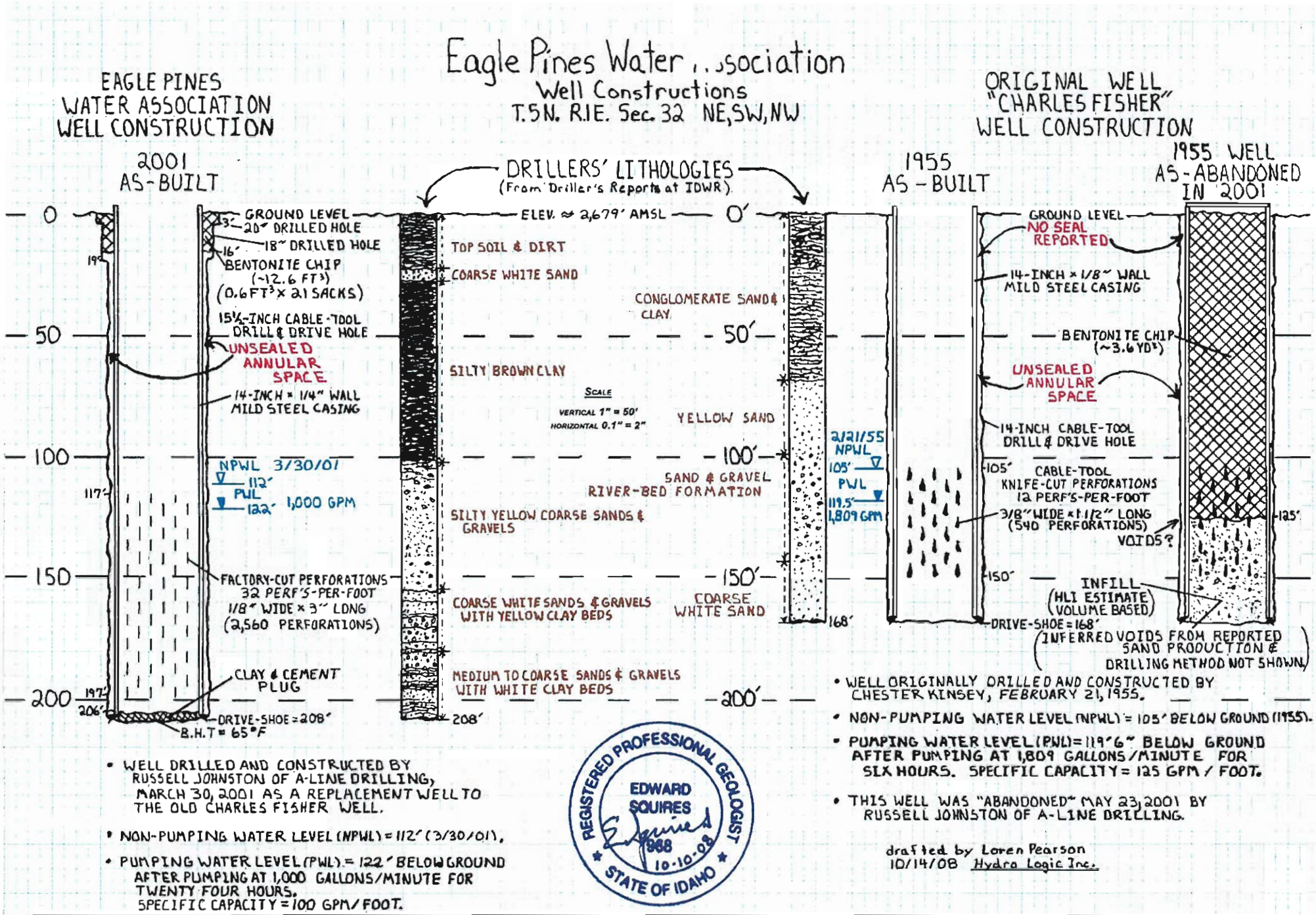


Figure 27. Cross-sectional sketch of the Eagle Pines Water Association's irrigation wells (1955 and 2001) showing 1) the details of as-built construction, 2) conflicting lithologic logs of the drilled geologic section by the two drillers, and 3) the unsealed annular spaces outside of the casing in the cable-tool, drill-and-drive wells. Also evident is the, essentially unchanged, non-pumping water level in the well(s) reported by the drillers, after 46 years of pumping from the well and the collective pumping of other surrounding Eagle-area wells during significant population growth and increased withdrawals from the aquifer. The Eagle Pines Water Association's irrigation well is completed into the Pierce Gulch Sand Aquifer.

APPENDIX A

SCANLAN ENGINEERING
Groundwater and Environmental Engineering

September 2, 1994

Mr. David Tuthill
Idaho Department of Water Resources
2735 Airport Way
Boise, ID 83705

Subject: Request to Reactivate Applications for Permit

Dear Mr. Tuthill:

Mr. D. Mark Lynn currently has two applications for permit on file with the Idaho Department of Water Resources. The applications (63-11995 and 63-11996) seek to appropriate groundwater for irrigation of a total of 378 acres located along Willow Creek in Sections 34 and 35, T6N, R1W and Sections 2, 3 and 4, T5N, R1W.

As you and I discussed at our meeting of August 22, 1994, Mr. Lynn is aware of the current moratorium on processing new applications for permit in the Boise River Basin. However, as provided for under item 9.b. of the amended moratorium order dated April 30, 1993, Mr. Lynn seeks approval of these applications based on (1) USGS data which indicate that the aquifer is tributary to the Payette River rather than to the Boise River, (2) the remote location of the proposed points of diversion (Mr. Lynn's wells) relative to other wells, and (3) no evidence of local long-term water-level declines.

Mr. Lynn requests that Application Nos. 63-11995 and 63-11996 are processed as primary water rights and that his existing Willow Creek rights become supplemental water rights. Typically by June or July each year flows in Willow Creek are insufficient to supply water to Mr. Lynn. When snow levels are low, Willow Creek can become unavailable even by March or April. It would be preferable for the Willow Creek rights to become supplemental.

Details are related to the proposed application are provided in the following sections.

LOCAL HYDROLOGY

Groundwater is found in Mr. Lynn's existing wells at an approximate static depth of 400 feet (elevation 2360). The wells and proposed place of use are located along Willow Creek, an intermittent stream that drains the granitic highlands in the vicinity of Pearl. Willow Creek is a losing stream in the vicinity of the proposed points of diversion and for several miles upstream and downstream. Willow Creek and tributary gulches are thought to be the primary source of local groundwater recharge. Additional recharge is probably derived from direct infiltration of precipitation and from canal leakage in the Boise Valley.

by USGS 12/29/94 Admitted

PROCESSED
MICROFILMED JUN 29 1995
AUG 09 1999

ATTACHMENT A

600 East River Park Lane, Suite 105
Boise, Idaho 83706

Telephone (208) 383-4140
Facsimile (208) 383-4156

This report was copied from file 63-11995 sa 7/2/99

Groundwater beneath the site is found in sedimentary aquifers of the Idaho Group. Review of local well logs suggests that the aquifer beneath the property should have a relatively high transmissivity, based on a predominance of coarse sand in the material descriptions on the driller's logs. The upper portion of the aquifer is probably semiconfined to unconfined, due to the apparent scarcity of significant clay layers. Deeper portions of the aquifer are probably semiconfined.

Given the thick unsaturated zone beneath the site, the proposed appropriation will not be capable of inducing additional losses from Willow Creek. As a result, no impact to Willow Creek surface water flows are anticipated.

Groundwater Flow Direction

The proposed points of diversion and place of use are both located within the Boise River surface water drainage basin. However, groundwater flow direction appears to be toward the Payette River Valley, approximately 3 miles to the northeast. This flow direction is based on the USGS Hydrologic Investigations Atlas HA-703 (Configuration of the Water Table and Depth to Water, Spring 1980, Water-Level Fluctuations, and Water Movement in the Snake River Plain Regional Aquifer System, Idaho and Eastern Oregon), which provides a water table contour map of the western Snake River Plain. As shown on Figure 1, this map clearly indicates that the proposed points of diversion are tributary to the Payette River. As a result, these groundwater applications would not be subject to the Boise River Basin Groundwater Moratorium.

Note that the water surface elevations in three USGS observation wells located to the southeast (Well 5N, 1W, 36ABB1), south (Well 05N, 01W, 16CAB1), and southwest (Well 5N, 2W, 22CAD1) are higher than the groundwater elevation at the proposed points of diversion by approximately 185 feet, 165 feet, and 65 feet, respectively. These elevations also suggest a northwesterly regional flow direction (i.e., toward the Payette River Basin) in the Willow Creek vicinity.

Documented Water-Levels

We are not aware of any significant long-term water-level declines in the general vicinity of Willow Creek. The hydrographs of USGS-monitored observation wells in the area, discussed below, provide no indication of water-level decline.

- Well 5N, 2W, 22CAD1 is located on the north side of Willow Creek, approximately seven miles southwest (downstream) of the proposed points of diversion. The hydrograph of this well (bottom of Figure 2) shows an overall rising water-level trend since the late 1960s, except for a few years in the early 1990s. The spring 1994 water level in the well was within one foot of the historic high for this well. The water surface elevation at this well is approximately 2425 feet.

- Another observation well (Well 5N, 1W, 36ABB1) in the general vicinity of Willow Creek is located along the north edge of the Boise Valley, about 6 miles southeast of the proposed points of diversion. The hydrograph of this well (top of Figure 2) shows no sign of long-term water-level decline. The water-surface elevation at this well is approximately 2545 feet.

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- The currently monitored observation well that is closest to the proposed points of diversion is Well 6N, 1W, 18DAA2. This is a shallow (31 feet) well located about five miles to the northwest of the proposed points of diversion. The hydrograph of this well (Figure 3) does not show a long-term decline. However, this well appears to taps a shallow perched aquifer, probably in direct hydraulic connection with Willow Creek, and is therefore not representative of regional aquifer groundwater levels in the vicinity of the proposed points of diversion.

- Historic data are available for a well (5N, 1W, 16CAB1) which is located three miles southwest of the proposed points of diversion, near the south side of Chaparrel Subdivision (where most of the existing local water rights and domestic wells are located). This well was monitored for several years during the 1970s, and the elevation of the water surface was approximately 2,525 feet (Figure 4).

DESCRIPTION OF LOCAL WATER USE

Visual Well Search in the Vicinity of the Proposed Points Of Diversion

The proposed points of diversion are located more than one mile from any existing wells (not including existing wells owned by Mr. Lynn). A well search by Scanlan Engineering on August 13, 1994 found only six wells within a two-mile radius of the property (not including the existing wells owned by Mr. Lynn). These wells include four domestic wells and what appear to be two stock water wells.

There are numerous wells located between two and three miles from the proposed points of diversion. The majority of these wells are domestic wells in the vicinity of Chaparrel subdivision. There also are two or more wells used for irrigation in the Chaparrel subdivision area. The only other irrigation wells that were located are two wells found along the North Fork of Willow Creek, northeast of the proposed points of diversion.

Existing well locations are shown on Figure 5.

Recorded Groundwater Rights In The Vicinity Of The Proposed Point Of Diversion

Recorded water rights with points of diversion within an approximate radius of 3 to 4 miles are shown on Figure 6 and listed on Table 1. A total of 28 recorded water rights were found in the search area outlined on Figure 6.

Within a one-mile radius of the proposed points of diversion are three recorded water rights. These rights are three licenses in the name of Albert Helmick. Mr. Lynn is current owner of these licenses.

There are two recorded water rights with points of diversion located between one and two miles from the proposed points of diversion. One of these water rights is for domestic use and the other water right is for domestic and stockwater. Thus, there are no recorded irrigation groundwater rights within two miles of the proposed points of diversion.

WATER RIGHTS
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There are approximately 13 recorded water rights that appear to have points of diversion within a radius of between two and three miles of the points of diversion proposed by these applications. The majority of these water rights are for domestic and irrigation uses.

Licensed or permitted diversions for irrigation from groundwater sources within three miles of the proposed points of diversion (not including the existing applications and licenses owned Mr. Lynn) total 4.53 cfs. Mr. Lynn's existing licenses total an additional 0.59 cfs.

Adjudication Claims for Groundwater in The Vicinity Of The Proposed Point Of Diversion

A listing of Snake River Basin Adjudication claims (Table 2) for groundwater within the search area in Figure 6 includes no additional irrigation claims not included in the listing of water rights in Table 1. However, a few additional domestic and stockwater claims within a three-mile radius of the proposed points of diversion are listed in Table 2 but are not listed on Table 1.

SUMMARY

The Department should approve the applications given (1) the aquifer is tributary to the Payette River, (2) the wells are in a remote location, and (3) there are no documented water-level decline problems in the area.

Please call me with any questions concerning these applications.

Sincerely,

Terry M. Scanlan, P.E., P.G.
Engineer/Hydrogeologist

cc: Mark Lynn
Dana Hofstetter

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TABLE 1
LOCAL WATER RIGHTS
(See Figure 6 for search area)

(00-5816)
WR5816NP
SELECTION FILE: TSF

IDAHO DEPARTMENT OF WATER RESOURCES
SOURCE SUMMARY REPORT
BY WATER SOURCE/POINT OF DIVERSION

DATE: 06/30/94
TIME: 08:17:13
PAGE: 1

WATER SOURCE: GROUNDWATER

Map #	WATER RIGHT NUMBER	OWNER NAME	D C	PRIORITY DATE	STG	POINT OF DIVERSION	POD FLAG	TOTAL DIVERSION	TOTAL ACRES	WATER USES
1	63-08044	HELMICK, ALBERT F.	C	10/01/1974	L	05N 01W 3 NWNE		0.050 CFS	1.0	01,04,43
2	63-10775	HELMICK, ALBERT F	C	09/08/1989	L	05N 01W 3 NWNE		0.040 CFS	0.2	01,04
3	63-11996	LYNN, D MARK	C	02/25/1993	A	05N 01W 3 NWNE	2	2.000 CFS	183.0	01
4	63-04093	BOEHM, STELLA	C	02/01/1938	S	05N 01W 4 SWSE		0.020 CFS		43
5	63-11539	WATKINS, ARTHUR DONALD	C	05/31/1991	L	05N 01W 9 NENE		0.040 CFS		04,43
6	63-03574	LEACH, WILLIAM	C	12/30/1966	L	05N 01W 9 NESW		0.150 CFS	28.0	01,43
7	63-07416	KLINGER, WERT M.	C	04/16/1971	L	05N 01W 9 SWSW		0.030 CFS		04,43
8	63-07700	CHAPARREL WATER ASSN.	C	12/18/1972	L	05N 01W 9 SWSW		1.070 CFS	129.0	01,43
9	63-04438	SMITH, CLYDE J.	C	04/15/1929	S	05N 01W 9 SWSW		0.380 CFS	19.0	01
10	63-03576	CHAPARREL WATER ASSN.	C	01/16/1967	L	05N 01W 16 NENW		1.010 CFS	36.0	01,43
11	63-07700	CHAPARREL WATER ASSN.	C	12/18/1972	L	05N 01W 16 NENW		1.070 CFS	129.0	01,43
12	63-09210	LYTLE, BUD	C	01/26/1979	L	05N 01W 16 SENW		0.160 CFS	4.0	01,43
13	63-10860	FIREBIRD RACEWAY INC	C	07/25/1989	L	05N 01W 16 NWSW		0.090 CFS	2.0	01,10,43
14	63-07396	BOISE VALLEY RACING ASSN. INC.	C	02/21/1971	L	05N 01W 16 SWSW		0.200 CFS		07
15	63-07534	KEZAR, BERTHA E.	C	12/21/1971	L	05N 01W 17 NENE		0.020 CFS		43
16	63-10596	STEELE, ROBERT W.	C	03/09/1988	P	05N 01W 17 NENE		0.110 CFS	10.0	01
17	63-03269	WILLOWBROOK PROPERTY OWNERS ASSN.	C	12/07/1961	L	05N 01W 17 NWNE		0.200 CFS		43
18	63-08190	TARTER, C. D.	C	08/15/1975	L	05N 01W 17 SWNE		0.120 CFS	4.0	01,04,43
19	63-08252	WARD, ELMER K.	C	01/12/1976	L	05N 01W 17 SWNE		0.140 CFS	5.0	01,43
20	63-03269	WILLOWBROOK PROPERTY OWNERS ASSN.	C	12/07/1961	L	05N 01W 17 SWNW		0.200 CFS		43
21	63-07623	WILLOWBROOK PROPERTY OWNERS ASSN.	C	09/07/1972	L	05N 01W 17 SENW		1.150 CFS	121.0	01
22	63-08254	SHOCKLEY, BURREL J.	C	01/16/1976	L	05N 01W 17 SENW		0.200 CFS	10.0	01
23	65-00896	HEMBREE, LEON R.	C	03/04/1905	D	06N 01W 21 NWNW		0.040 CFS		43
24	65-01366	HETHERINGTON, HERBERT G.	C	02/06/1955	D	06N 01W 21 NWNW		0.040 CFS		43,10
25	63-07002	SMITH, ELWOOD T.	C	06/05/1967	L	06N 01W 25 NWNW		1.560 CFS	127.0	01,04
26	65-01714	HABE, DALE E.	C	04/01/1967	D	06N 01W 29 NWNW		0.040 CFS		43,04
27	63-11995	LYNN, D MARK	C	02/25/1993	A	06N 01W 34 SESE		2.000 CFS	195.0	01
28	63-03004	HELMICK, ALBERT	C	11/04/1954	L	06N 01W 34 SESE		0.500 CFS	25.0	01,43

TABLE 2
LOCAL ADJUDICATION CLAIMS
(See Figure 6 for search area)

(OD-5816)
AJ5B16WP
SELECTION FILE: TSF

IDAHO DEPARTMENT OF WATER RESOURCES
ADJUDICATION SOURCE SUMMARY REPORT
BY WATER SOURCE/POINT OF DIVERSION

DATE: 06/30/94
TIME: 08:23:17
PAGE: 1

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WATER RIGHT NUMBER	CURRENT OWNER NAME	PRIORITY DATE	SYS	POINT OF DIVERSION	POD FLAG	TOTAL DIVERSION	TOTAL ACRES	WATER USES
WATER SOURCE: GROUNDWATER								
A63-08044	LYNN, D MARK	10/01/1974	L	05N 01W 3 NWNE		0.050 CFS	1.0	01,04,43
A63-18564	HIGHLAND LIVESTOCK & LAND CO.	05/01/1979	J	05N 01W 3 NESENW		0.040 CFS		04
A63-22357	MCFADDEN, LYLE	09/15/1979	J	05N 01W 5 NWNE		0.060 CFS		43,04
R63-22357	MCFADDEN, LYLE	09/15/1979	J	05N 01W 5 NWNE		0.060 CFS		43,04
A63-22204	RACHILLA, DEE	05/20/1967	J	05N 01W 8 NESE		0.010 CFS		43
A63-22203	RACHILLA, DEE	05/20/1970	J	05N 01W 8 SESE		0.040 CFS		43
A63-20917	CLUFF, WALTER S.	07/21/1977	J	05N 01W 9 NESW		0.040 CFS		43
A63-04438	RICHARD, MERT G.	04/15/1929	S	05N 01W 9 SWSW		0.380 CFS	19.0	01,43
A63-07700	CHAPARREL WATER ASSN.	12/18/1972	L	05N 01W 9 SWSW		1.070 CFS	129.0	01,43
A63-15963	ANDERSON, MARTIN	06/14/1972	J	05N 01W 9 SESW		0.080 CFS		43,04
A63-03576	CHAPARREL WATER ASSN.	01/16/1967	L	05N 01W 16 NENW		1.010 CFS	36.0	01,43
A63-07700	CHAPARREL WATER ASSN.	12/18/1972	L	05N 01W 16 NENW		1.070 CFS	129.0	01,43
R63-18391	SWAFFORD, CRAIG A	01/23/1976	J	05N 01W 16 NWSE		0.060 CFS		43,04
A63-18391	SWAFFORD, CRAIG A	01/23/1976	J	05N 01W 16 NWSE		0.060 CFS		43,04
A63-07534	STEELE, ROBERT W.	12/21/1971	L	05N 01W 17 NENE		0.020 CFS		43,04
A63-03269	WILLOWBROOK PROPERTY OWNERS ASSN.	12/07/1961	L	05N 01W 17 NWNE		0.200 CFS		43
A63-08252	WARD, JOHN M.	01/12/1976	L	05N 01W 17 SWNE		0.140 CFS	5.0	01,43
A63-08190	FRANKS, STEVE E.	08/15/1975	L	05N 01W 17 NWSWNE		0.120 CFS	4.0	01,04,43
A63-17891	MOORE, DON G.	08/20/1979	J	05N 01W 17 SWNWNW		0.040 CFS		43
A63-03269	WILLOWBROOK PROPERTY OWNERS ASSN.	12/07/1961	L	05N 01W 17 SWNW		0.200 CFS		43
A63-07623	WILLOWBROOK PROPERTY OWNERS ASSN. I	09/07/1972	L	05N 01W 17 SENW		1.150 CFS	121.0	01
A63-08254	LITTLE LAND & LIVESTOCK CO.	01/16/1976	L	05N 01W 17 SENW		0.200 CFS	10.0	01
A63-16717	GEIER, TRUSTE, LOWELL	08/12/1982	J	06N 01E 19 NENE		0.060 CFS		43,04
A63-18324	JENKINS, HOWARD B.	03/31/1982	J	06N 01E 19 SENW		0.090 CFS		43,04
A65-00896	HEMBREE, LEON R.	03/04/1905	D	06N 01W 21 NWNW		0.040 CFS		43
R65-00896	HEMBREE, LEON R	03/04/1905	J	06N 01W 21 NWNW		0.040 CFS		43
A65-01366	HETHERINGTON, HERBERT G.	02/06/1955	D	06N 01W 21 NWNW		0.040 CFS		43,10
A63-07002	JENSEN, DONALD B.	06/05/1967	L	06N 01W 25 SENWNW		1.560 CFS	127.0	01,04
A65-01714	WERBER, KENT W.	04/01/1967	D	06N 01W 29 NWNW		0.040 CFS		43,04
A63-20810	LITTLE LAND & LIVESTOCK, CO.	01/01/1959	J	06N 01W 32 SESW		0.230 CFS		04
A63-03004	LYNN, D MARK	11/04/1954	L	06N 01W 34 SESE		0.500 CFS	25.0	01,43
A63-20963	HIGHLAND LAND & LIVESTOCK CO., INC.	01/01/1877	J	06N 01W 36 SENW		0.160 CFS		43,04

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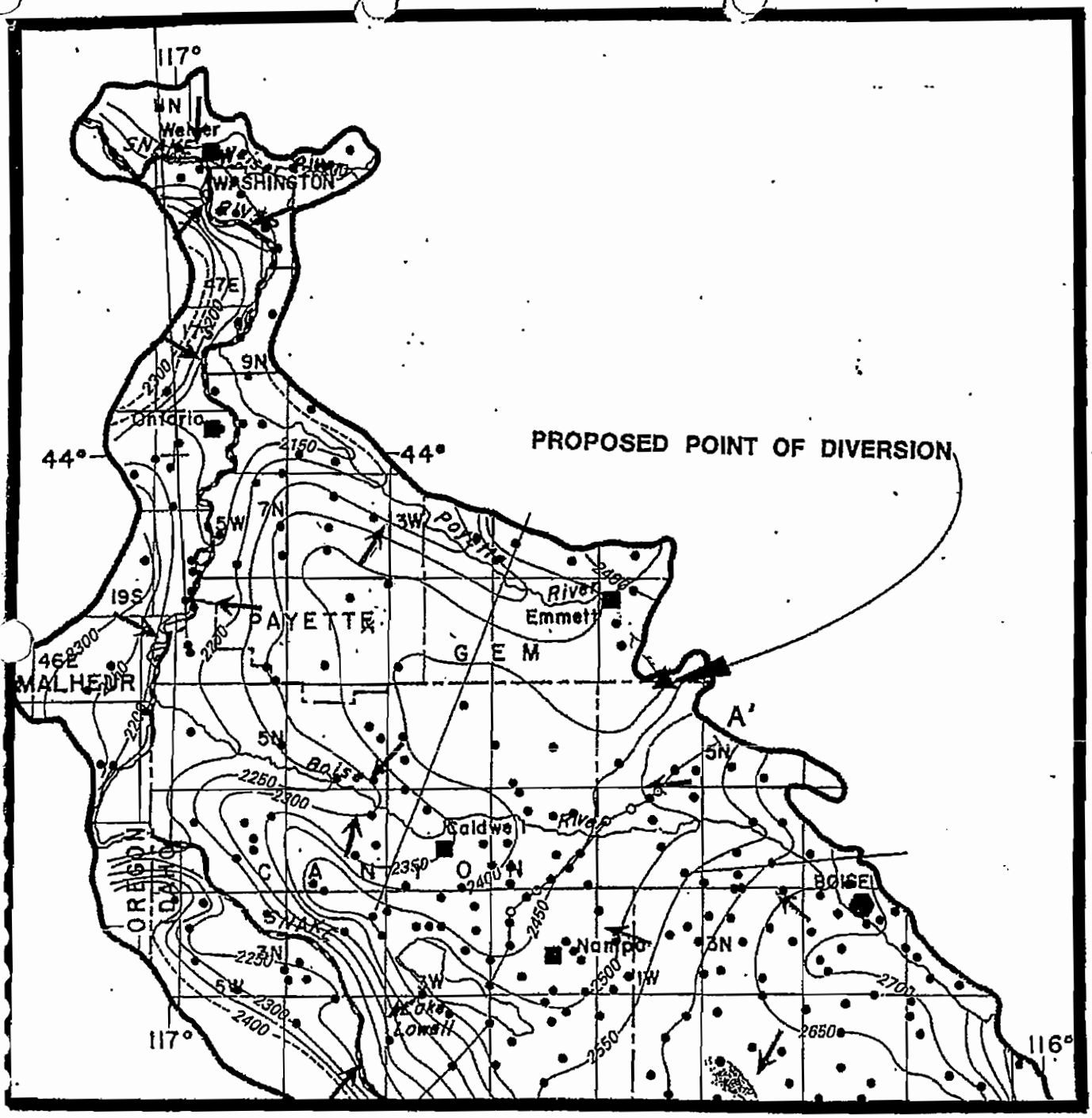

FIGURE 1
WATER-TABLE CONTOUR MAP FOR THE WESTERN SNAKE RIVER PLAIN
(source: USGS Hydrologic Investigations Atlas HA-703, 1988)

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WELL 05N 01W 36ABB1 SITE NUMBER 434406116240801

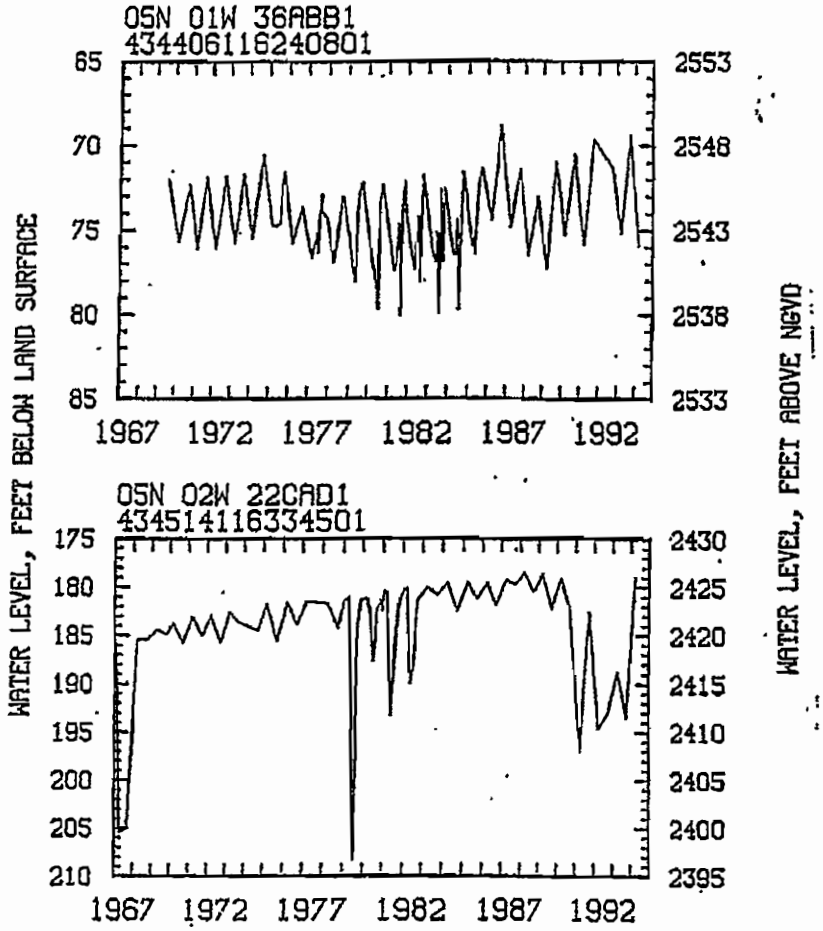
DRILLED DOMESTIC WATER-TABLE WELL IN IDAHO GROUP, DIAM 6 IN, REPORTED DEPTH 105 FT, CASED TO 105 FT. LSD ABOUT 2,618 FT NGVD OF 1929. MP NO. 1 TOP OF PIPE IN WELL SEAL, 0.70 FT BELOW LSD (SINCE AUG. 27, 1969).

RECORDS AVAILABLE 1969 TO CURRENT YEAR.

HIGHEST WATER LEVEL 68.84 FEET BELOW LAND SURFACE DATUM SEP 16, 1986.

LOWEST WATER LEVEL 78.02 FEET BELOW LAND SURFACE DATUM MAY 18, 1979.

	WATER LEVEL			WATER LEVEL	
MAR 22, 1989	75.83	S	SEP 11, 1989	69.59	S



WELL 05N 02W 22CAD1 SITE NUMBER 434514116334501

FORMERLY SITE ID NO. 434601116342601, WELL NO. 05N 02W 22CAA1. DRILLED IRRIGATION WATER-TABLE WELL IN IDAHO GROUP, DIAM 12 TO 8 IN, REPORTED DEPTH 450 FT, 12-IN CASING TO 303 FT, 8-IN CASING 284-403 FT, PERFORATED 279-403 FT. LSD ABOUT 2,610 FT NGVD OF 1929. MP NO. 1 TOP OF 1 1/2-IN VERTICAL ACCESS PIPE ON SOUTH SIDE OF PUMP, 1.50 FT ABOVE LSD (SINCE FEB. 21, 1967).

RECORDS AVAILABLE 1967 TO CURRENT YEAR.

HIGHEST WATER LEVEL 178.55 FEET BELOW LAND SURFACE DATUM MAR 15, 1988.

LOWEST WATER LEVEL 187.83 FEET BELOW LAND SURFACE DATUM JUL 22, 1981.

	WATER LEVEL			WATER LEVEL	
MAR 22, 1989	178.63	SV	SEP 21, 1989	182.23	SV

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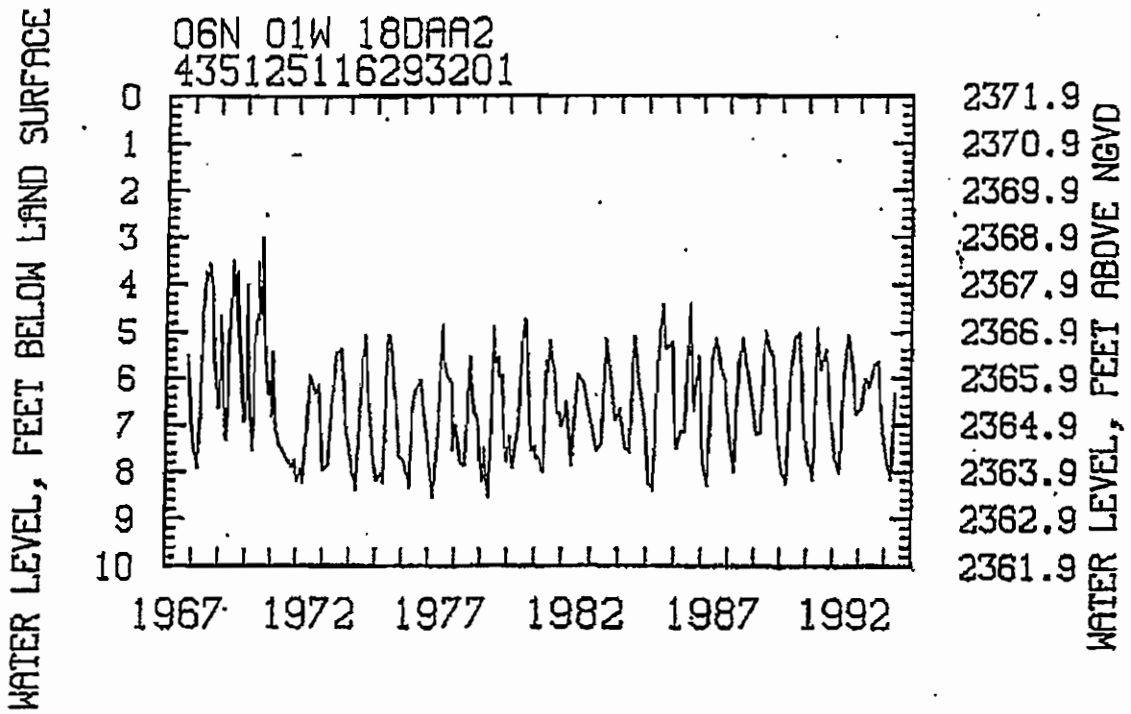
FIGURE 2



WELL 06N 01W 18DAA2 SITE NUMBER 435125116293201

FORMERLY SITE NO. 435125116293501. DRILLED DOMESTIC WATER-TABLE WELL IN SAND AND GRAVEL OF QUATERNARY AGE, DIAM 4 IN, DEPTH 30.9 FT, CASED TO 22 FT. LSD 2,371.90 FT ABOVE SEA LEVEL, SUPPLEMENTARY ADJUSTMENT OF 1961. MEASUREMENTS PRIOR TO NOV. 9, 1971, MADE BY US BUREAU OF RECLAMATION. RECORDER INSTALLED OCT. 17, 1968. RECORDER REMOVED MAY 28, 1971. MP NO. 1 TOP OF 4-IN CASING NORTH SIDE, 0.26 FT ABOVE LSD (SINCE NOV. 9, 1967).

RECORDS AVAILABLE 1967 TO CURRENT YEAR
HIGHEST WATER LEVEL 3.04 FEET BELOW LAND SURFACE DATUM AUG 24, 1970.
LOWEST WATER LEVEL 8.57 FEET BELOW LAND SURFACE DATUM MAR 14, 1977.

	WATER LEVEL		WATER LEVEL		WATER LEVEL
NOV 16, 1992	6.77 S	MAR 29, 1993	6.01 S	JUL 30, 1993	5.74 S
JAN 25, 1993	6.67 S	MAY 24	6.19 S	SEP 21	5.66 S

FIGURE 3

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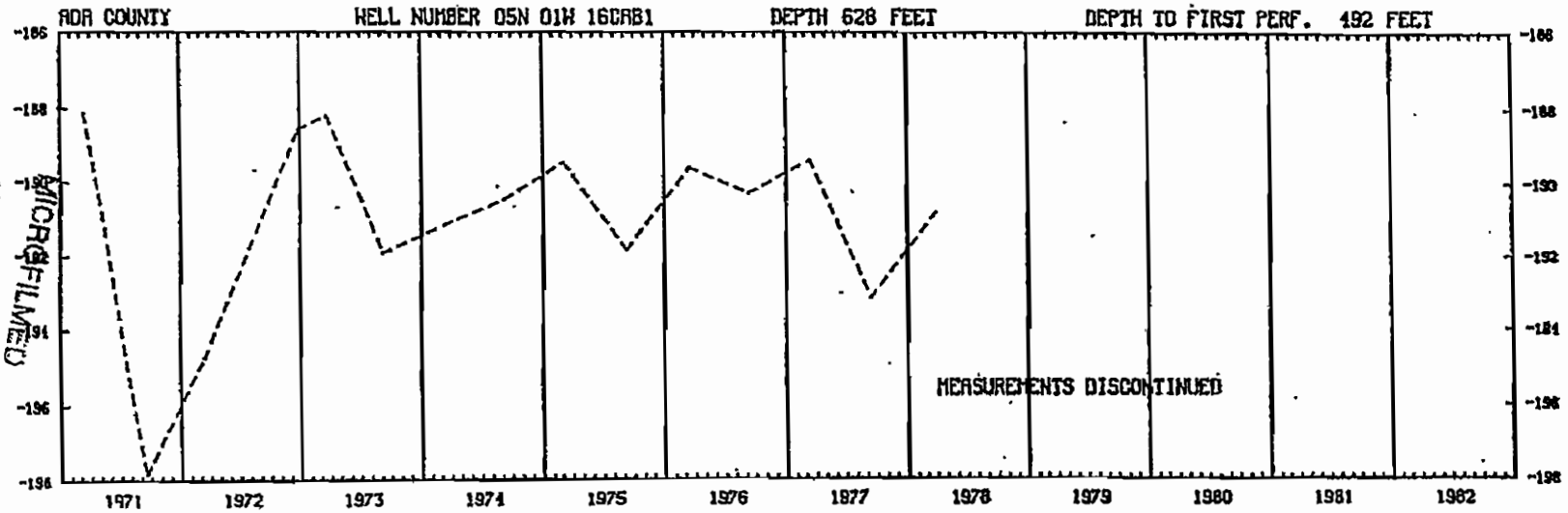

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434615N1162758.1 05N 01W 16CAB1 DARRELL FISHER ADA COUNTY

DRILLED DOMESTIC WATER-TABLE WELL IN IDAHO GROUP, DIAM 8 IN (20 CM), REPORTED DEPTH 628 FT (191 M), CASED TO 492 FT (150 M), OPEN HOLE. LSD ABOUT 2,715 FT (828 M) ABOVE MSL DATUM OF 1929. MP NO. 1 TOP OF 8-IN (20-CM) CASING SOUTHWEST SIDE, 1.50 FT (0.457 M) ABOVE LSD (SINCE MAR. 10, 1967).

HIGHEST WATER LEVEL 168.12 FT (57.339 M) BELOW LSD, MAR. 15, 1971.
LOWEST WATER LEVEL 191.90 FT (58.491 M) BELOW LSD, SEP. 7, 1973.
RECORDS AVAILABLE 1967-74.

WATER LEVELS IN FEET BELOW LSD.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB. 27, 1974	195.07A	SEP. 11, 1974	190.44		

A WELL BEING PUMPED.

JUN 2 9 1995

FIGURE 4

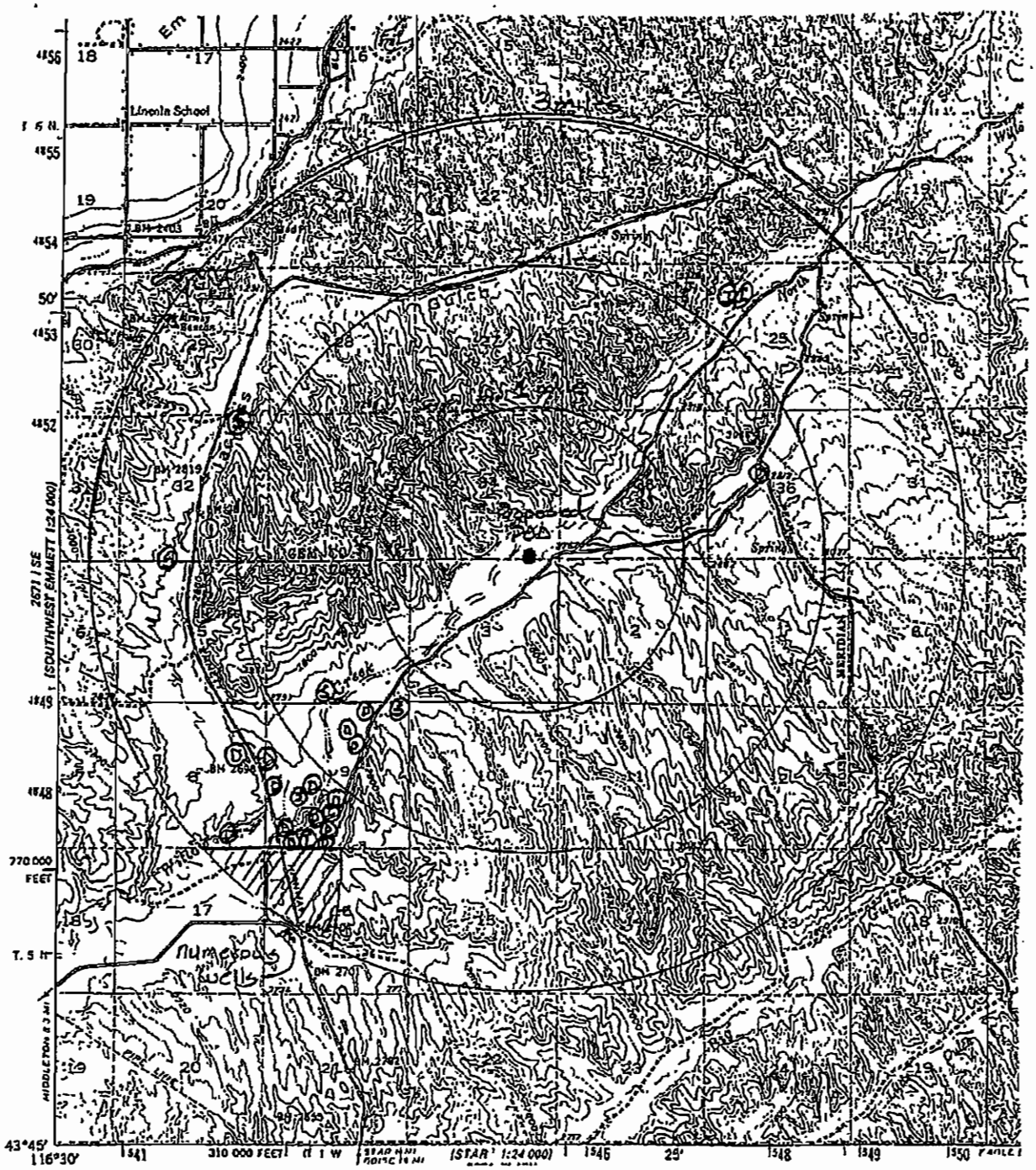

FIGURE 5
WELLS LOCATED WITHIN 3 MILES OF THE
PROPOSED POINT OF DIVERSION
(Wells were located visually on 8/13/94. Applicant's wells are not shown. Uses are assumed (D=domestic, S=stock, I=irrigation))

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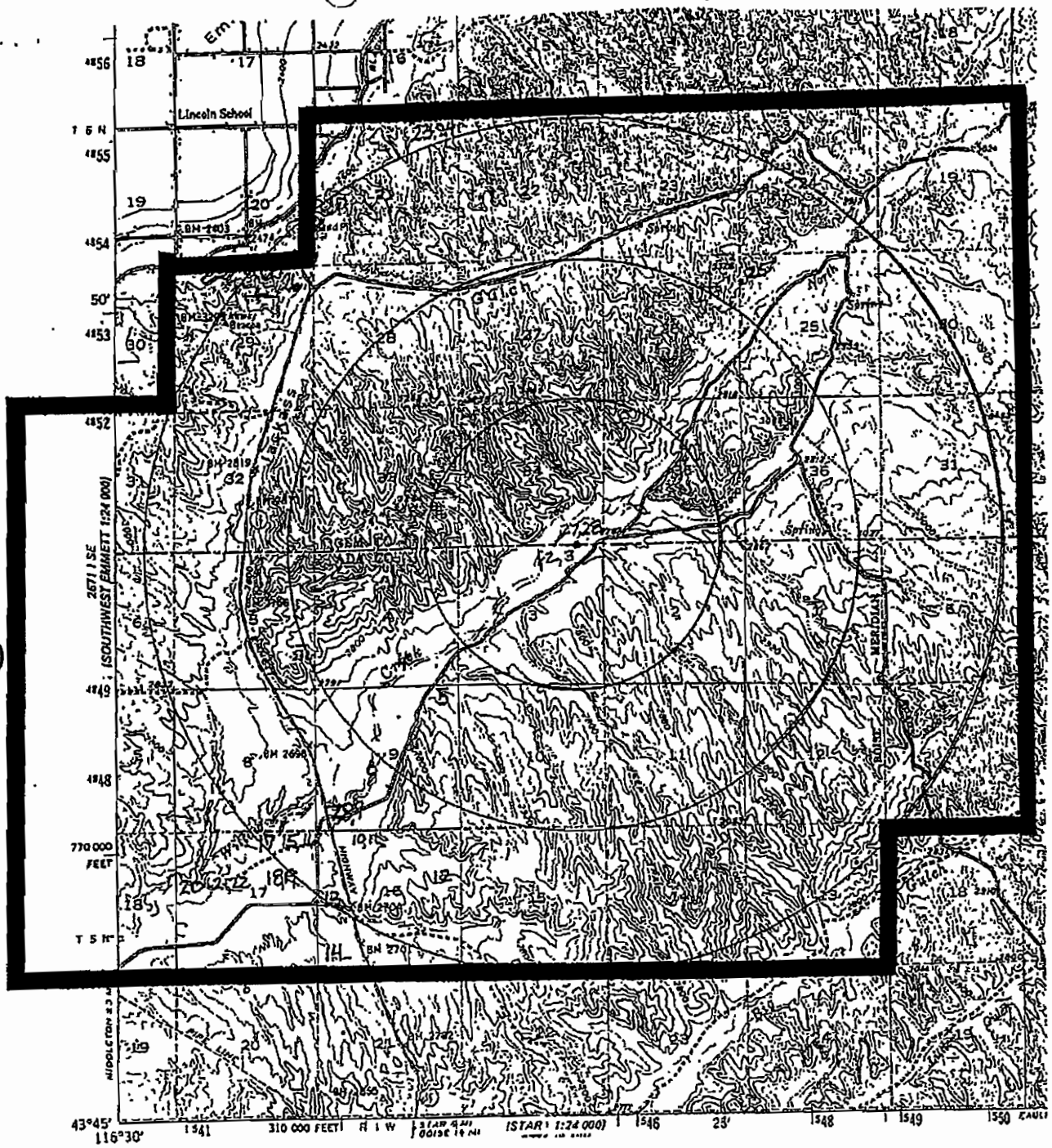

FIGURE 6
RECORDED WATER RIGHTS WITHIN 3 MILES OF THE PROPOSED POINT OF DIVERSION
(Map numbers correspond to numbers listed on Table 1. Search area outlined by black line.)

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APPENDIX B

Josephine P. Beeman #1806
BEEMAN & ASSOCIATES, P.C.
409 West Jefferson Street
Boise, ID 83702
(208) 331-0950
(208) 331-0954 (Facsimile)
office@beemanlaw.com

Attorney for North Ada County Groundwater Users Association

**BEFORE THE DEPARTMENT OF WATER RESOURCES
FOR THE STATE OF IDAHO**

IN THE MATTER OF APPLICATION FOR PERMIT NO. 63-32573, IN THE NAME OF M3 EAGLE, LLC	**AFFIDAVIT OF DALE R. RALSTON IN SUPPORT OF NACGUA'S REPLY TO M3 EAGLE'S RESPONSE TO NACGUA'S MOTION FOR STAY, AND LIMITED DISCOVERY FOR PURPOSES OF SETTLEMENT**

STATE OF IDAHO)
) ss:
COUNTY OF _____)

I, Dale R. Ralston, after first being duly sworn upon oath, depose and state that:

1. I am over 18 and a resident of the State of Idaho. I am a Professor Emeritus of Hydrogeology at the University of Idaho, have a Ph.D. in civil engineering, and have 41 years experience in ground water studies. I have owned and operated Ralston Hydrologic Services, Inc., a ground water consulting and education business, since 2000.

2. I reviewed the 2008 report entitled **"Re-Analysis of 16 Aquifer Tests in the Greater Eagle-Star area of North Ada County, Idaho"** (page i), which states in part:

> A report released by Hydro Logic, Inc. in the spring of 2007 (HCI, 2007), demonstrates that a regional water-supply aquifer, named therein the Pierce Gulch Sand Aquifer, underlies the Boise River Valley in the greater Eagle-Star and Meridian area, and the foothills lying to the north of these cities.

ATTACHMENT B

3. The Pierce Gulch Sand Aquifer is the target water supply source for M3 Eagle production wells. This means that operation of the M3 Eagle production wells will have hydraulic impacts on ground water and connected surface water systems within the Boise Basin. I believe that this hydrogeologic conceptual model is correct.

FURTHER YOUR AFFIANT SAYETH NAUGHT.

DATED this 24 day of November 2008.

Dale R. Ralston

SUBSCRIBED AND SWORN to before me this 24 day of November 2008.

BRYAN W HANSON NOTARY PUBLIC STATE OF IDAHO

Notary Public in and for the State of Idaho
My Commission Expires: 9-26-2013

CERTIFICATE OF SERVICE

I certify that on this 24th day of November 2008, I caused to be served a true and correct copy of the foregoing document on the following by the method indicated.

Original to:

IDWR Hearing Officer
P. O. Box 83720
Boise, ID 83720-0098
(Fax and Email)

John Westra
IDWR Western
2735 Airport Way
Boise ID 83705
(Email)

Norman L. Edwards
884 W. Beacon Light Road
Eagle ID 83616
(U.S. Mail)

Jeffery Fereday
Givens Pursley LLP
P. O. Box 2720
Boise ID 83701
(Email)

Alan Smith
3135 Osprey Road
Eagle ID 83616
(U.S. Mail)

Bill Lawton
3145 N. Osprey Road
Eagle ID 83616
(U.S. Mail)

Josephine P. Beeman

Josephine P. Beeman

APPENDIX C

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF APPLICATION)
FOR PERMIT NO. 63-32573)
IN THE NAME OF M3 EAGLE, LLC)
)

DEPOSITION OF DR. DALE R. RALSTON, PE, PG

FEBRUARY 3, 2009

REPORTED BY:

BEVERLY A. BENJAMIN, CSR No. 710, RPR

Notary Public

ATTACHMENT C

A. I have no opinion on it.
Q. What about the claims of the protestants, who are your clients here, have you made any independent review of their claims of potential injury from pumping the M3 wells?
A. No, sir.
Q. Do you have evidence of water level declines in the Eagle M3 area over the last 10 or 15 years in groundwater wells?
A. No, sir.
Q. Are you familiar with any other pending groundwater rights in the north Eagle or north Ada County area other than this?
A. During discussions with ERO folks, they mentioned in passing the water rights. I don't recall those conversations, but at least that discussion did occur.
Q. Is it your opinion that M3 Eagle has provided insufficient information at this point to support the granting of a groundwater right, just based on your experience with the Department of Water Resources and water rights cases?
A. I believe that M3 Eagle has insufficient information to estimate the impacts of M3 Eagle on the protestants' wells.

Q. That is based on what? I know you may be repeating yourself here, but --
A. It's based on the fact that the hydrogeologic conceptual model that is put forth in the 2007 report and on through indicates and presumes the lateral continuity of the Pierce Gulch Sand Aquifer as identified on to the northwest. And that is what is represented in the computer model as existing under the Payette River Valley. I don't believe there is information to support that.
The second thing is that the water level contours that are shown and that were matched as has been shown in the computer model show flow to the north, and I don't believe the measured water levels support those contours.
So if those two aspects, the conceptual model was used to build the computer model, the water levels were used to calibrate the computer model, then the projections from the computer model, I don't believe, are useful in predicting impacts.
Q. Is there any other model out there that would be useful in predicting impacts?
A. I don't believe there is a model

constructed right now that -- with a caveat that I am totally unaware of what Dennis Ousley is constructing, if he is constructing something for IDWR.
Q. That makes two of us then.
I notice that your reports include a November 6, 2008 memorandum, correct, a January aquifer evaluation that we've been discussing at some length here, and third your evaluation of the Glanzman geochem report; correct?
A. That is correct.
Q. Are these three reports, do these three contain all of your opinions to date that you have in this matter?
A. Yes, sir.
Q. Now, there also is an affidavit that you filed that I would like you to describe to me.
MR. FEREDAY: If we can go off the record for a second so I can find that.
(Off the record.)
(Exhibit 3 marked.)
Q. (BY MR. FEREDAY) Dr. Ralston, I've handed you what has been marked as Ralston Exhibit 3, which is an affidavit that you signed

and filed on November 24th, and I just wanted to ask you about this.
You state on page 2 that you believe this hydrogeologic conceptual model is correct, and I'd like to just get clarification on what you meant by that.
A. Okay. I believe I signed something that I didn't agree with.
The intent of me doing this was to indicate that my memorandum that I filed on November 6th expressed my opinion. And this was shipped up to me and I did not effectively read that last sentence.
But I did sign it. That is my signature and I did have it notarized. I'm not sure I know what that last sentence means.
Q. Well, let's see if we can reconstruct this, just so I'm sure about what your views are.
This critical paragraph 3 in the affidavit says: "The Pierce Gulch Sand Aquifer is the target water supply source for M3 Eagle production wells." Do you agree with that?
A. Yes, sir.
Q. The second sentence says: This means that operation of these wells will have hydraulic

impacts on ground water and connected surface water systems within the Boise Basin; is that correct?
A. Yes, sir.
Q. That includes on the Boise River, correct, or at least by the "Boise Basin" do you mean the whole area stretching at least into Garden City and up perhaps into Boise?
A. What it says is "ground water and connected surface water systems within the Boise Basin." Yes, in a broad sense that includes all the way up from Garden City.
Q. Then by saying that you believe that this hydrogeologic conceptual model is correct, would it be accurate to say that you are saying that: At least I agree that the Pierce Gulch Sand Aquifer exists and it extends to Garden City, let's just say?
A. That was what I thought I signed, and I think that is what these words say. But what I intended to say is the conceptual model from the M3 Eagle to the southeast toward the Boise was well supported, in my opinion, by the technical work and I agreed with that. And that is what my intent on signing that was.

Q. I will just point out to you that at the time that this was signed, I don't believe -- well, I know that the Hydro Logic-PGG model had not yet been released.
A. That is correct.
Q. So when you used the word "model," you weren't referring -- I'm not trying to tie you down that you are conceding that the HLI-PGG model is correct or that any other model is correct, but you are talking about the geology and the hydrogeology back to the southeast is correct?
A. That is correct. That is the conceptual model. I continually differentiate a numerical model from a conceptual model. This is a conceptual model and to the southeast. That is what I thought I signed.
Q. Okay. Great.
With regard to your November 6 memorandum, I think you have it there in your materials. Again, I'm not making exhibits of these, Dr. Ralston, for this deposition because if I made exhibits of all these things we would have a very large amount of paper, and I think we all know what we are referring to here; is that

okay with you?
A. Yes, sir.
Q. In your November 6 memorandum, you make several conclusions. Have any of your opinions or conclusions changed since your November 6th memo?
A. I don't believe so, sir.
Q. The memo states that you anticipate having a more detailed hydrogeologic analysis, and I take it that that is your January analysis that followed on this; is that correct?
A. Yes, sir.
MR. FEREDAY: Let's take a break here and have lunch, be back at 12:35.
(Luncheon recess taken.)
Q. (BY MR. FEREDAY) Dr. Ralston, why are Mr. Young, Mr. Hannula, and Mr. Drury no longer experts in this case; do you know?
A. I have no direct knowledge of why that is.
Q. Do you have a guess?
A. I'm presuming it's financial, but I have no direct knowledge that that is the case.
Q. Did NACGUA or its counsel provide you with copies of our written discovery questions

that we sent to the protestants; do you recall any of that?
A. I don't honestly recall.
Q. Do you recall whether you received any documents that M3 Eagle provided in response to discovery from NACGUA?
A. Everything that I have seen is listed here.
Q. Is listed on Exhibit 1?
A. So if it's on there and it came via that, then I got it.
Q. Have you discussed proposed settlement in this case with NACGUA or its counsel or any of the individual protestants?
A. To the extent to which questions were raised on like water level monitoring, that I have been party to that sort of discussion, which is just the question of: If there was to be monitoring where might it be? And I have not written anything on that, but I've been party to those discussions.
Q. What about water quality monitoring as an item of settlement; is that something that you would see as a reasonable thing that M3 Eagle could provide in some sort of a settlement?

APPENDIX D

MEMORANDUM

DATE: February 22, 2008 Amended Application Processing No. 59

TO: Water Management Division

FROM: Gary Spackman

RE: Processing of Applications to Appropriate Water in the Lower Boise River Basin

---

This memorandum replaces the original Application Processing Memorandum No. 59 issued in 1996.

Until further instructions are given, the following provisions apply to the processing of applications to appropriate water in the Boise River Basin (Administrative Basin 63) downstream from Lucky Peak dam.[1]

1. Surface water in the Boise River or tributary to the Boise River upstream from Star Bridge is fully appropriated during the irrigation season and during much of the rest of the year. As stated in the May 3, 1995, Amended Moratorium Order for the Boise River drainage:

   > Applications which propose use of surface water upstream from Star Bridge will be denied unless the applicant files an acceptable plan to mitigate or avoid any material injury to existing water rights.

2. Surface water in the Boise River or tributary to the Boise River downstream from Star Bridge is generally available for appropriation. Applications to appropriate surface water in this reach shall be evaluated on a case-by-case basis in accordance with applicable Idaho law and the Water Appropriation Rules.

3. The map on page 4 depicts an area in which ground water shallower than 200 feet below ground surface is probably tributary to the Boise River upstream from Star Bridge. New applications for consumptive uses of ground water in this area, including applications for municipal purposes, should be held without further processing unless one or more of the following conditions applies:

   A. The applicant demonstrates that the holders of water rights to divert from the Boise River will not be injured by the proposed appropriation or the applicant files an acceptable plan to mitigate for a water use that would otherwise cause injury to existing water rights from the Boise River.

[1] For guidance regarding applications to appropriate water upstream from Lucky Peak Dam, see Application Processing Memorandum No. 13.

ATTACHMENT D

B. The application seeks the appropriation of ground water for domestic purposes as such term is defined in Idaho Code § 42-111.

C. The application seeks the appropriation of ground water for multiple ownership subdivisions or mobile home parks in which each unit satisfies the definition for the exemption of requirement to file an application for permit as described in Idaho Code § 42-111.

D. The application proposes to appropriate ground water deeper than 200 feet below ground surface. Applications meeting this criterion shall be evaluated on a case-by-case basis in accordance with applicable Idaho law, the Water Appropriation Rules, and the May 3, 1995, Amended Moratorium Order for the Boise River drainage.

4. Applications to appropriate ground water outside the area depicted in the attached map shall be evaluated on a case-by-case basis in accordance with applicable Idaho law, the Water Appropriation Rules, and the May 3, 1995, Amended Moratorium Order for the Boise River drainage.

5. The May 3, 1995, Amended Moratorium Order for the Boise River drainage states that the advertisement for each ground water application shall include the proposed depth interval from which the applicant wants to withdraw water. IDWR will adhere to this advertising directive. However, the depth interval shall be required in the conditions of approval for permits only within the area where ground water shallower than 200 feet below ground surface is tributary to the Boise River, as shown on the attached map, or when otherwise deemed necessary by IDWR on a case-by-case basis. In the area where ground water shallower than 200 feet below ground surface is tributary to the Boise River, the depth interval shall be included in the conditions of approval for each ground water permit, regardless of whether the proposed depth is more or less than 200 feet below ground surface.

6. IDWR has established two ground water management areas, the Boise Front GWMA and the Southeast Boise GWMA, in the Boise River Basin. (See the map on page 4.) These instructions do not change, affect, or override instructions or management plans issued for the administration of water within any Ground Water Management Area or Critical Groundwater Area that is designated or may be designated within the Boise River Basin.

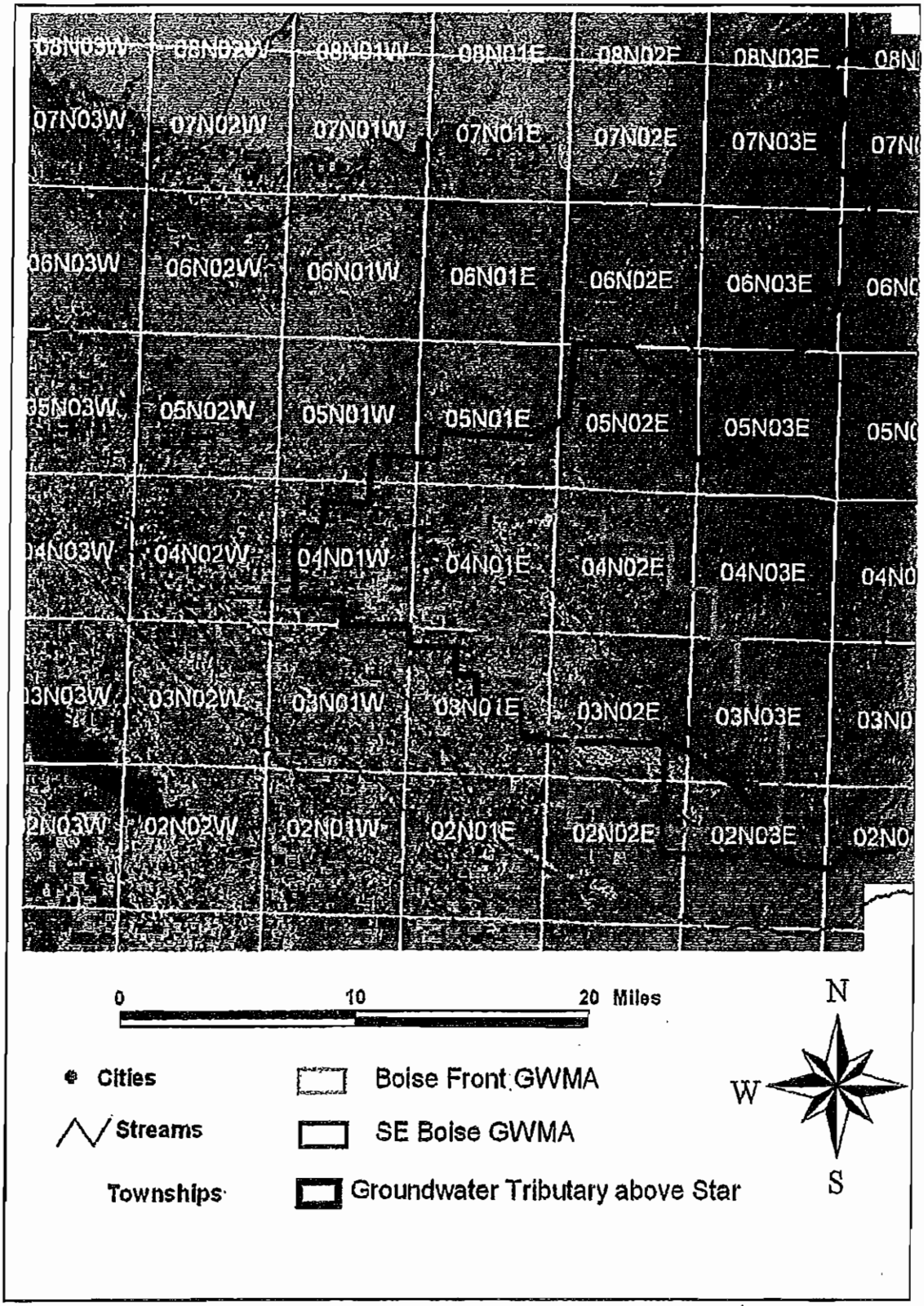
7. These instructions do not prevent the Director from reviewing for approval on a case-by-case basis an application which otherwise would not be processed and/or approved at this time if:

   A. The public interest, as determined by the Director, requires immediate consideration of approval of the application, or

B. The Director determines that the development and use of the water pursuant to an application will have no effect on prior surface and ground water rights because of its location, insignificant consumption of water, or mitigation provided by the applicant to offset injury to other rights.

8. Applications being held pursuant to the previous version of this memorandum shall be processed in accordance with this memorandum as time, resources, and competing priorities allow. The "thirty (30) applications for permit per month" limitation in the May 3, 1995, Amended Moratorium Order can be exceeded.

Map Depicting the Area in which Ground Water Shallower than 200 Feet Below Ground Surface is Tributary to the Boise River Upstream from Star Bridge.



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RHS Ralston Hydrologic Services, Inc.
GROUND WATER CONSULTING AND EDUCATION
1122 East B Street, Moscow, ID USA 83843
Voice and FAX 208-883-0533, E-mail ralston@moscow.com

MEMORANDUM

To: Jo Beeman
From: Dale R. Ralston
Subject: Initial Hydrogeologic Analysis
Date: November 6, 2008

The purpose of this memo is to provide you with my initial hydrogeologic analysis of the M3 Eagle project. I anticipate writing a more detailed hydrogeologic analysis after having more time to review existing reports and receiving and reviewing additional M3 Eagle information that may be made available. This memo is divided into four sections. The first section provides a summary description of the hydrogeologic information provided to date. The second section is my analysis of the hydrogeologic conceptual model as presented. The third section is my analysis of the ground-water flow systems as presented. The fourth section is my analysis of likely impacts from full project development. The references cited are listed at the end of the memo.

SUMMARY OF M3 EAGLE DESCRIPTION OF THE GROUND-WATER SYSTEM

The following quotes are taken from the 2007 report entitled ***"M3 Eagle Regional Hydrogeologic Characterization – North Ada Canyon and Gem Counties, Idaho – Year One Progress Report"*** (Hydro Logic Inc. 2007).

> "Hydrogeologic studies commissioned by M3 Eagle in the North Ada County area have delineated a highly productive regional sand aquifer with good quality water that underlies the area near Eagle and Star and the proposed M3 Eagle planned community. This aquifer, herein named the Pierce Gulch Sand Aquifer, underlies the north Ada County Foothills where it extends continuously from the Eagle-Star area to the Payette River Valley. Because the Payette Valley near Letha is almost 300 feet lower than the Boise Valley near Eagle, ground water flows out of the Boise River Basin and into the Payette River Basin through the sands of this aquifer.... The ground water proposed to be withdrawn by M3 Eagle for its development will be from subsurface flow that has already departed the Boise Basin, on its way to the Payette Basin, so that impacts to existing area water users in the lowlands near Eagle are predicted to be small" (page 1).
>
> "The Pierce Gulch Sand Aquifer consists of a 150-to-275-foot thick sequence of stratified sand layers with inter-bedded thin and locally discontinuous layers of silt and clay. The base of the dipping aquifer is typically 480-to-700 feet deep beneath land surface of the M3 Eagle site. The aquifer sand thickens and

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descends deeper beneath of land surface to the south and southwest in the Eagle-Star-Meridian area and is believed to do the same to the northwest toward Payette River" (page 3).

"The Pierce Gulch Sand Aquifer is bounded on its northeast side by the geologic fault system ... originally named the West Boise-Eagle fault by Wood and Anderson (1981). The base of the aquifer is underlain (and bounded) by the thick clays and mudstones of the Terteling Springs Formation. This structural dip explains why the municipals wells in Star are deeper than they are in Eagle. In the Boise River Valley near Eagle and Star, the Pierce Gulch Sand Aquifer is overlain by clays, some other minor sand aquifers, and a shallow surficial flood-plain-gravel aquifer (the present day floodplain of the Boise River). Beneath most of the M3 Eagle site, the aquifer is overlain by clay layers with no shallow surficial aquifer present" (pages 3 and 4).

"Using the derived aquifer transmissivity values and the measured water levels in wells to derive a ground water gradient, our analyses indicate that 20 to 30 mgd (million gallons per day (equivalent to approximately 22 thousand to 34 thousand ac ft/yr (acre feet per year)) of ground water currently flows in a northwesterly direction through the Pierce Gulch Sand Aquifer beneath a five-mile wide strip of the M3 site between State Highway 16 and the inferred edge of the pierce Gulch sand aquifer ..." (page 5).

ANALYSIS OF THE HYDROGEOLOGIC CONCEPTUAL MODEL

The question of primary importance relative to the hydrogeologic conceptual model presented in the Hydro Logic Inc. 2007 report is stated below.

- **Is there sufficient evidence to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?**

Supporting evidence for the lateral extent and continuity of a geologic unit comes from knowledge of the depositional environment, surface geologic maps and geologic information from wells. These topics are addressed below.

- The Hydro Logic Inc. (2007) report provides only limited information on the depositional environment for the target aquifer. However, considerable discussion of the depositional environment during emplacement of the geologic units is available in supporting documents. Most of the scientific articles describe conditions southwest of the M3 Eagle development. I was not able to find any discussion of the depositional environment that would result in the sand unit extending and being laterally continuous to the vicinity of the Payette River valley.
- I was not able to find a published geologic map that provides information on outcrops patterns of Pierce Gulch Sand in the immediate vicinity or northwest of the M3 Eagle development.

- The Hydro Logic Inc. (2007) report provides subsurface geologic information in the vicinity of the M3 Eagle development in the form of a cross section. Support documents present geologic cross sections in areas southeast of the M3 Eagle property. I was not able to find any geologic cross sections for the area between the M3 Eagle property and the Payette River.

I conclude that there is not sufficient evidence to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the M3 Eagle site to the Payette River. Also, additional work is needed to assemble and present the available information to support of presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the M3 Eagle site to the presumed recharge area in the Boise River drainage.

ANALYSIS OF THE GROUND-WATER FLOW SYSTEM

The question of primary importance relative to the ground-water flow system that is described in the Hydro Logic Inc. 2007 report is stated below.

- **Assuming that the hydrogeologic conceptual model question is answered in the affirmative, is there sufficient evidence to support the presumption that ground water flows in the manner and quantity described within what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?**

Supporting evidence for the description of the ground-water flow system comes from the hydrogeologic conceptual model, water-level data from wells and estimates of transmissivity calculated using data collected during aquifer tests. These topics are addressed below.

- The heterogeneity of what has been called the Pierce Gulch Sand Aquifer is very important relative to the description of the ground-water flow system and particularly in the estimation of the quantity of water moving in the system. The following is a description of the Pierce Park sand by Squires and Wood (2001, pp. 13-14)
    - "Because this is the uppermost delta in the lacustrine sequence, we correlate it to the Pierce Park sand that crops out in the upper part of the foothills section west of Crane Creek. In the foothills, this unit is mostly foreset beds of coarse sand typical of the 'Gilbert-type' of delta. Some foreset bed sets are 60 feet thick, and the sand unit as a whole is up to 250 feet thick in the foothills... This delta is then correlated by Wood and Clemens (in press) to the history of Lake Idaho. Since it is the uppermost major delta in the section its deposition over mudstone, is explained as a prograding sand delta in response to the slow lowering of lake levels after Lake Idaho spilled over into Hells Canyon.... We feel fairly certain that there is a 'long-term' hydraulic connection in the sands of the upper delta sequence ....; however, local lenses of mudstone in that section may prevent short-term detection of well-drawdown responses. It may take

- The above quote from Squires and Wood (2001) indicates that ground-water flow patterns in what has been called the Pierce Gulch Sand Aquifer likely are more complex than is described in the Hydro Logic Inc. (2007) report. This likely is true for the portion of the postulated flow system that has been investigated (southeast of the M3 Eagle site) as well as the area northwest of the M3 Eagle site where little information is available.
- Figure 6 of the Hydro Logic Inc. (2007) report shows a complex pattern of water-level elevation contours in what appears to be several different ground-water flow systems. In my opinion, the figure raises many questions relative to characterization of ground-water flow systems. My questions include the following. 1) Are all of the wells in the purple colored area completed only in what has been called the Pierce Gulch Sand Aquifer? 2) Is there a vertical gradient within the Pierce Gulch Sand Aquifer and, if so, how are water levels from different wells interpreted? 3) What aquifer in penetrated by the wells located on within the Payette River floodplain? 4) Is the aquifer on the Payette River floodplain hydraulically connected to what is called the Pierce Gulch Sand Aquifer and, if so, how? 5) Do the flow lines represent ground-water discharge from the Pierce Gulch Sand Aquifer into whatever aquifer underlies the Payette River Valley?
- Figure 8 of the Hydro Logic Inc. (2007) report shows calculated values of transmissivity and storativity for selected wells in the general M3 Eagle area. The range of transmissivity values shown is consistent with the expected high level of heterogeneity and anisotropy believed to characterize the sand deposit. The transmissivity value(s) used in calculating an estimated flow though a portion of the target aquifer is not identified in the Hydro Logic Inc. report (2007, page 5).

I conclude that there is not sufficient evidence to support the presumption that ground water flows in the manner and quantity described within what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?

ANALYSIS OF LIKELY IMPACTS FROM FULL PROJECT DEVELOPMENT

The question of primary importance relative to the subsurface water balance and likely impacts from full project development is stated below.

- **Has the characterization of the target aquifer system, including a pre-development water balance, been complete enough to support an analysis of impacts from full project development?**

Analysis of impacts from project development is dependent on gaining a suitable level of understanding of aquifer boundaries plus knowledge of the locations and controls for ground-water recharge and the locations and controls for ground-water discharge. These topics are addressed below.

- The Hydro Logic Inc. (2007) report identifies the northeast boundary of what has been called the Pierce Gulch Sand Aquifer but none of the other boundaries. Characterization of all of the aquifer boundaries is a necessary step for analysis of impacts from full project development.
- The Hydro Logic Inc. (2007) report indicates that recharge occurs to the aquifer within the Boise River basing with discharge within the Payette River basin. The report indicates that the "major source of ground water in the aquifer in the vicinity of Eagle is ground water underflow from areas south and east of the Boise River at Eagle. This ground water originates as direct infiltration from the Boise River in the east-central Boise area and through leakage from irrigation canals south and east of Eagle" (page 13). The report does not provide specifics relative to locations and characteristics of recharge in the Boise River basin or any information relative to locations and characteristics of ground-water discharge within the Payette River basin.
- A general description of the temporal sequence of impacts from development and operation of the project wells is presented below.
    - The initiation of consumptive withdrawal of water via wells from the aquifer would result in local water-level decline in the aquifer.
    - Continued operation of the wells would result in an ever increasing cone of depression (area of water-level decline) until pumping effects reach the recharge and/or discharge areas.
    - Water-level decline would cause an increase in recharge if recharge to the aquifer is head dependent (saturated hydraulic connection with a surface water system). Water-level decline would cause a decrease in the rate of ground-water discharge (all ground-water discharge rates are head dependent).
    - The basin water levels would stabilize if the rate of consumptive pumping was balanced by increased ground-water recharge and/or decreased ground-water discharge. The time required for the ground-water system to come into a new equilibrium is dependent on the size of the aquifer and hydraulic properties of the ground-water flow system.
    - Long-term water-level decline would occur if the consumptive withdrawal of ground water is greater than the annual rate of recharge.

I conclude that the characterization of the target aquifer system, including a pre-development water balance, has not been complete enough to support an analysis of impacts from full project development.

Please contact me if you have any questions relative to the information presented in this memorandum. Thank you.

REFERENCES CITED

Hydro Logic Inc., 2007, M3 Eagle Regional Hydrogeologic Characterization – North Ada, Canyon and Gem Counties, Idaho – Year One Progress Report: Consulting Report Prepared for M3 Companies; 19 pages plus figures.

Squires, E. and S.H. Wood, 2001, Stratigraphic Studies of the Boise (Idaho) Aquifer System Using Borehole Geophysical Logs with Emphasis on Facies Identification of Sand Aquifers: Report to the Treasure Valley Study, Idaho Department of Water Resources; Hydro Logic Inc. and Boise State University; 15 pages.

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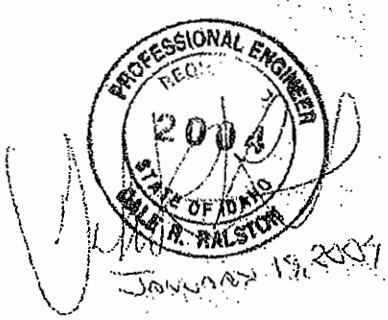
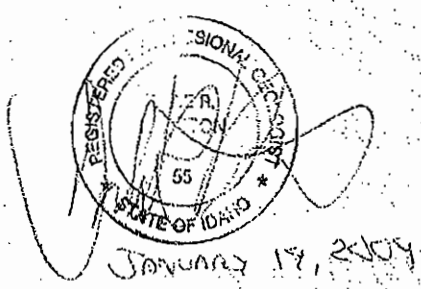
RHS **Ralston Hydrologic Services, Inc.**

GROUND WATER CONSULTING AND EDUCATION
1122 East B Street, Moscow, ID USA 83843
Voice and FAX 208-883-0533, E-mail ralston@moscow.com

HYDROGEOLOGIC ANALYSIS OF THE M3 EAGLE SITE





Expert Report Prepared for the
North Ada County
Groundwater Users Association

January 2009

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RHS Ralston Hydrologic Services, Inc.
GROUND WATER CONSULTING AND EDUCATION
1122 East B Street, Moscow, ID USA 83843
Voice and FAX 208-883-0533, E-mail ralston@moscow.com

HYDROGEOLOGIC ANALYSIS OF THE M3 EAGLE SITE

Expert Report Prepared for the
North Ada County
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January 2009

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INTRODUCTION

The purpose of this report is to provide a hydrogeologic analysis of the M3 Eagle project with particular emphasis on potential impacts to owners of nearby private wells. The report has been prepared for the North Ada County Groundwater Users Association. This analysis is based on the review of M3 Eagle documents and supporting information on the area. My initial hydrogeologic analysis of the M3 Eagle site is presented in a memo to Jo Beeman dated November 6, 2008 (Ralston, 2008).

Three published M3 Eagle documents provide the bulk of the hydrogeologic information that has been collected in the immediate area. An additional memo prepared by Ed Squires plus unpublished tables and figures were provided in December 2008 and are cited as such.

- Hydro Logic, Inc., 2007, M3 Eagle Regional Hydrogeologic Characterization, North Ada, Canyon and Gem Counties, Idaho, Year-One Progress Report; Consulting report prepared for M3 Eagle, LLC; May 4.
- Hydro Logic, Inc., 2008a, Re-Analysis of 16 Aquifer tests in the Greater Eagle-Star Area of North Ada County, Idaho; Consulting report prepared for M3 Eagle, LLC; July 4.
- Hydro Logic, Inc., 2008b, Modeling of Ground-Water Flow in the Pierce Gulch Sand Aquifer: Five Models: History, Updates, and Predictions of Impacts Caused by Pumping at the M3 Eagle Planned Residential Community, Ada County, Idaho; Consulting report prepared for M3 Eagle, LLC; November 26.
- Squires, Ed, 2008, Surveyed Water level Measurements of Wells in the Northern Ada County/Eagle Area, for the M3 Eagle Hydrogeologic Characterization: Hydro Logic Inc. Technical Memorandum sent to Dennis Owsley of the Idaho Department of Water Resources on March 17.

This expert report is divided into six sections entitled as follows: 1) Summary of M3 Eagle Hydrogeologic Information, 2) Analysis of the Hydrogeologic Conceptual Model, 3) Analysis of the Ground-Water Flow System, 4) Analysis of the Numerical Model, 5) Discussion and 6) Conclusions and Recommendations.

SUMMARY OF M3 EAGLE HYDROGEOLOGIC INFORMATION

Hydrogeologic Conceptual Model

The ground-water system underlying the M3 Eagle site is described as follows in the 2007 Hydro Logic Inc. report.

> "Hydrogeologic studies commissioned by M3 Eagle in the North Ada County area have delineated a highly productive regional sand aquifer with good quality water that underlies the area near Eagle and Star and the proposed M3 Eagle planned community. This aquifer, herein named the Pierce Gulch Sand Aquifer, underlies the north Ada County Foothills where it extends continuously from the Eagle-Star area to the Payette River Valley. Because the Payette Valley near Letha is almost 300 feet lower than the Boise Valley near Eagle, ground water flows out of the Boise River Basin and into the Payette River Basin through the

sands of this aquifer.... The ground water proposed to be withdrawn by M3 Eagle for its development will be from subsurface flow that has already departed the Boise Basin, on its way to the Payette Basin, so that impacts to existing area water users in the lowlands near Eagle are predicted to be small" (page 1).

"The Pierce Gulch Sand Aquifer consists of a 150-to-275-foot thick sequence of stratified sand layers with inter-bedded thin and locally discontinuous layers of silt and clay. The base of the dipping aquifer is typically 480-to-700 feet deep beneath land surface of the M3 Eagle site. The aquifer sand thickens and descends deeper beneath of land surface to the south and southwest in the Eagle-Star-Meridian area and is believed to do the same to the northwest toward Payette River" (page 3).

"The Pierce Gulch Sand Aquifer is bounded on its northeast side by the geologic fault system ... originally named the West Boise-Eagle fault by Wood and Anderson (1981). The base of the aquifer is underlain (and bounded) by the thick clays and mudstones of the Terteling Springs Formation. This structural dip explains why the municipals wells in Star are deeper than they are in Eagle. In the Boise River Valley near Eagle and Star, the Pierce Gulch Sand Aquifer is overlain by clays, some other minor sand aquifers, and a shallow surficial flood-plain-gravel aquifer (the present day floodplain of the Boise River). Beneath most of the M3 Eagle site, the aquifer is overlain by clay layers with no shallow surficial aquifer present" (pages 3 and 4).

Two figures from the 2007 Hydro Logic Inc. report illustrate the lateral extent of what is termed the Pierce Gulch Sand Aquifer. The attached Figure 1 (Figure 3 of the 2007 report) is a plan view map of the M3 Eagle area and shows the following features: 1) locations of selected wells, 2) the inferred location of the West Boise – Eagle Fault (dashed red line), 3) elevation contours of the bottom of the aquifer (solid black lines) and 4) the unsaturated aquifer boundary where the water-level elevation is equal to the elevation of the bottom of the aquifer (noted on Figure 1 as the geologic contact between the aquifer and the underlying mudstone facies of the Terteling Springs Formation and shown as a solid and dashed green line). The attached Figure 2 (Figure 5 of the 2007 report) is a hydrogeologic cross section oriented southwest to northeast through the M3 Eagle site. The following features are shown on Figure 2: 1) geologic logs and construction details for selected wells, 2) depiction of the Pierce Gulch Sand Aquifer showing the dip to the southwest and the unsaturated aquifer boundary to the northeast, 3) depiction of the Willow Creek Aquifer and 4) the location and approximate dip of the West Boise – Eagle Fault.

The following description of the aquifer is presented in the July 2008 report (Hydro Logic Inc., 2008a, page iv).

"In the HCL analyses we considered whether the Pierce Gulch Sand Aquifer behaves as one aquifer or as a system of discrete aquifers separated by continuous, leaky aquitards. Although it is certain that the Pierce Gulch Sand Aquifer *is* overlain by shallower, district aquifers at some locations in the study area, we believe the continuous "sand sheet" we have identified as the Pierce Gulch Sand Aquifer behaves as, and is best conceptualized as, one continuous

heterogeneous aquifer. Certainly, and as with all natural depositional processes, the Pierce Gulch Sand Aquifer exhibits lateral and vertical variations in hydraulic conductivity and thickness. However, the observations and lines of evidence supporting a single aquifer concept are compelling".

The July 2008 report describes other hydrogeologic units in the M3 Eagle area. Summary descriptions of these units are given below (Hydro Logic Inc., 2008a, pages 4-6).

- The Terteling Springs aquitard is a mudstone facies that underlies the Pierce Gulch Sand Aquifer.
- The unnamed fluvial sand aquifer overlies and is separated in most locations from the Pierce Gulch Sand Aquifer by a sequence consisting mostly of clay and silt.
- The Boise river gravels are located on the lowland area and are hydraulically connected to the Boise River.
- The eastern upland mixed sediment/bedrock aquifers are located at higher elevation areas to the northeast of Eagle.
- The eastern upland bounded sand and gravel aquifers overlie the bedrock east of the M3 Eagle site. These units have been informally called the Sandy Hill Aquifer and the Willow Creek Aquifer.

Maps are presented that show the pattern of water-level elevations in the various hydrogeologic units in the general M3 Eagle area. The attached Figure 3 (Figure 6 of the 2007 report) shows contours of water-level elevations in 2006 in the following units: 1) the Pierce Gulch Sand Aquifer, 2) the Willow Creek Aquifer, 3) undifferentiated and local aquifers within volcanic bedrock and sediment and 4) the aquifer underlying the valley floor of the Payette River. The following characteristics are shown on Figure 3.

- Ground-water elevations shown on Figure 3 are lower in the Pierce Gulch Sand Aquifer than in the eastern upland sediment/bedrock aquifers located on the east side of the West Boise – Eagle Fault (shown as a red dashed line). This indicates that there is a hydraulic gradient from the upland sediment/bedrock aquifers to the Pierce Gulch Sand Aquifer.
- The ground-water elevations shown on Figure 3 in the Pierce Gulch Sand Aquifer are higher than in the Willow Creek Aquifer across the unsaturated aquifer boundary (shown as a solid or dashed green line). This indicates that there is a hydraulic gradient from the Pierce Gulch Sand Aquifer to the Willow Creek Aquifer.
- The ground-water elevations shown on Figure 3 in the Willow Creek Aquifer are higher than in the aquifer underlying the valley floor of the Payette River. This indicates that there is a hydraulic gradient from the Willow Creek Aquifer to the aquifer underlying the valley floor of the Payette River.
- The ground-water elevations shown on Figure 3 in the Pierce Gulch Sand Aquifer are higher than in the aquifer underlying the valley floor of the Payette River.

This indicates that there is a hydraulic gradient from the Pierce Gulch Sand Aquifer to the aquifer underlying the valley floor of the Payette River.

- The approximate locations of wells used in the creation of the water-level contour map are shown for each of the hydrogeologic units. The density of control wells is greater in the area south of the M3 Eagle area than in other portions of the mapped area.

Squires (2008) presents a water-level contour map based on 2007 field measurements. The attached Figures 4 and 5 show the 2007 water-level contour map and the locations of wells where measurements were used to create the map. Water-level contours are given for the Pierce Gulch Sand Aquifer, the Willow Creek Aquifer and the aquifer underlying the valley floor of the Payette River. Fewer control wells were used for the 2007 map and the water-level contours are more generalized than for the 2006 map. Also, the water-level elevation contours for the Pierce Gulch Sand Aquifer are controlled in part by what appears to be the termination of the unsaturated flow boundary (green line) about three miles west-northwest of the M3 Eagle property.

Aquifer Parameters

The May 2008 report includes analysis of 16 aquifer tests that have been conducted in the general M3 Eagle area (Hydro Logic Inc., 2008a). Summary statements regarding the results of this analysis are presented below.

> "The analyses of the pumping tests conducted in the Pierce Gulch Sand Aquifer indicate a highly-productive and extensive, regional-scale aquifer capable of supplying large ground-water withdrawals from beneath both the lowlands of the Boise River Valley and beneath the western portion of the north Ada County foothills..." (page iii).
>
> "Our analyses indicate that the Pierce Gulch Sand Aquifer is highly transmissive, with transmissivities typically ranging from around 40,000 gpd/ft... to over 500,000 gpd/ft. Some localized portions of the Pierce Gulch Sand Aquifer appear to have transmissivities on the order of 800,000 gpd/ft. The overall average (mean) of the valid transmissivities calculated in this study for the Pierce Gulch Sand Aquifer, to two significant figures, is 210,000 gpd/ft. This relatively large value confirms the role of the Pierce Gulch Sand Aquifer in transmitting large volumes of water as the major, regional ground water supply aquifer in the study area" (page iii).
>
> "Many of the recalculated transmissivity values are significantly higher than those reported by previous workers. The mean of the values calculated by these workers... is 140,000 gpd/ft, or about one-third lower than the recalculated mean. We attribute the lower, previously-reported values to the fact that the earlier workers did not recognize the full thickness of the Pierce Gulch Sand Aquifer and in some situations, used analytical methods that derivative analyses indicate are invalid" (pages iii and iv).
>
> "Calculated storativities in the Pierce Gulch Sand Aquifer ranged from 0.02 to $2x10^{-4}$ (unitless).... When pumped sufficiently long, ... The aquifer demonstrates 'delayed yield effects'... (page iv).

An additional aquifer test was conducted in 2008 using SVR #7 as the pumping well. A report describing the operation and results of the 2008 aquifer test is in preparation by Hydro Logic Inc. but has not been released. Draft forms of figures and tables from the 2008 aquifer test report are available as part of M3 Eagle's Technical Reports and Supporting Documentation (as of Nov. 26, 2008) and were reviewed as part of preparation of this expert report. The overview portion of the draft text for the SVR #7 aquifer test was made available for review on January 12, 2009. The following is a summary statement from the overview portion of the draft text.

> "Analysis of the test data by HLI demonstrates that the Pierce Gulch Sand Aquifer beneath the foothills areas north of the City of Eagle is more transmissivity than previously believed with a mean aquifer transmissivity of 420,000 gallons per day per foot" (Hydro Logic Inc., 2009, page 2).

Numerical Ground Water Model

The November 2008 report presents a description of the construction, calibration and operation of a seven-layer, finite difference ground-water model of a region of southwestern Idaho that includes the M3 Eagle site (Hydro Logic, Inc., 2008b). The model grid and cell assignments including boundaries are shown on Figure 6 for layer 1 and Figure 7 for layers 5-7. These figures are reproductions of Figure 4-1 of the 2008 modeling report (Hydro Logic Inc., 2008b). Layers 5-7 are used to represent the Pierce Gulch Sand Aquifer. Similar figures showing cell assignments and boundaries for layers 2, 3 and 4 are not included in the 2008 modeling report.

A summary description of the model and the model results is presented below (Hydro Logic Inc., 2008b).

> "The new M3 model:
>
> - Covers 520 square miles,
> - Contains almost 82,000 active cells,
> - Comprises seven active layers,
> - Has cell sizes as small as 330 feet on a side,
> - Was constructed with boundary conditions far from the M3-Eagle-Star vicinity that are unaffected by simulated pumping from the M3 site, and
> - Was calibrated to three long-term (one week to one month) aquifer tests" (pages i and ii).
>
> "The M3 model was initially developed and calibrated to the Eaglefield and Lexington Hills aquifer tests, conducted near Eagle, Idaho. During the calibration process, it became apparent to the modeling team that water levels simulated by the model in the vicinity of the M3 Eagle property, were lower than those measured in the field during 2006 and 2007. As a result, two parallel models were developed: one that generally 'honored' the aquifer transmissivities calculated from 17 pumping tests in the region (the 'Tmatch' model) and one that allowed water levels to better match the field measured values (the 'Hmatch' model). Both models met calibration criteria. Both models also generated predictions of drawdowns that would be caused by pumping from the M2 Eagle property that were generally similar (generally with a few feet of each other). By

using the two parallel models for predictions, the results are presented as a range (e.g., 'Predicted drawdowns one-half mile from the M3 property boundary range from 10 to 20 ft after 50 years of pumping.')" (page ii).

"The model shows that impacts to wells completed in the shallower un-named aquifer(s) overlying the Pierce Gulch Sand Aquifer will be smaller than those predicted for wells completed in the Pierce Gulch Sand Aquifer. The initial model predicted drawdowns in the shallower aquifer that are on the order of 2/3 of those predicted for the Pierce Gulch Sand Aquifer (Pacific Groundwater Group, 2008). Because the model was not directly calibrated to the shallow aquifer, these drawdown predictions can only be considered an approximation. It is highly probable, however, that after 50 years of pumping from the Pierce Gulch Sand Aquifer, the drawdowns in the shallower aquifer will be less than those in the underlying, deeper Pierce Gulch Sand Aquifer" (page 32).

ANALYSIS OF THE HYDROGEOLOGIC CONCEPTUAL MODEL

The hydrogeologic conceptual model presented by M3 Eagle is based on two major hydrogeologic assumptions. The first assumption is that the Pierce Gulch Sand Aquifer is laterally continuous from the Boise River Valley to the Payette River Valley. The second assumption is ground water flows through this laterally continuous aquifer from recharge areas in the Boise River Valley to discharge areas in the Payette River Valley.

In most hydrogeologic studies, the lateral extent and boundaries of aquifers are delineated based on a combination of geologic information on the depositional/structural environment, often depicted on geologic maps, and on hydrogeologic data from wells. Questions relative to the information base for the delineation of the lateral continuity and boundaries of the Pierce Gulch Sand Aquifer to the north and northwest are addressed in this section of the report.

The Hydro Logic Inc. reports (2007, 2008a and 2008b) provide only limited information on the depositional environment for the Pierce Gulch Sand Aquifer. However, discussion of the environment during emplacement of the geologic units is available in supporting documents (i.e. Wood, 1994; Squires and Wood, 2001; and Wood and Clemens, 2002; Haller and Wood, 2004). The following description of the subsurface geology is taken from Squires and Wood (2001).

"Overlying the oolite-bearing section in the Western Boise foothill outcrops, is the 'Pierce Park Sand', a 150 to 250-foot thick layer of coarse sand. This thick sand represents a large 'Gilbert-type' delta system. Where the oolite section is absent, the Pierce Park Sand conformably overlies mudstone. The reason the coarse sand directly overlies mudstone is because the delta prograded basinward over muds of the deep-lake deposits" (pages 7 and 9).

"Because this is the uppermost delta in the lacustrine sequence, we correlate it to the Pierce Park sand that crops out in the upper part of the foothills section west of Crane Creek. In the foothills, this unit is mostly foreset beds of coarse sand typical of the "Gilbert-type" of delta. Some foreset bed sets are 60 feet thick, and the sand unit as a whole is up to 250 feet thick in the foothills.....We feel fairly

certain that there is a "long term" hydraulic connection in the sands of the upper delta sequence ....; however, local lenses of mudstone in that section may prevent short-term detection of well-drawdown responses. It may take months to decades for large drawdowns to propagate through this seemingly continuous section of interbedded sand and thin muds" (pages 13 14).

The focus of the scientific articles has been on the area south and southeast of the M3 Eagle development. I have not been able to find any discussion of a depositional environment that would result in the Pierce Gulch Sand unit extending and being laterally continuous from the M3 Eagle property to the Payette River Valley. Similarly, I could not find any published geologic maps that show the lateral extent of the Pierce Gulch Sand in the general vicinity of the M3 Eagle property.

Various Hydro Logic Inc. documents present depictions of the lateral extent and subsurface characteristics of the Pierce Gulch Sand Aquifer based on their hydrogeologic conceptual model and geologic data from wells. The northeast boundary of the aquifer as shown on Figures 3 and 4 includes the West Boise – Eagle Fault and the edge of saturation line of the Pierce Gulch Sand Aquifer (unsaturated aquifer boundary). There appears to be little doubt that that fault has sufficient off set to form the boundary as shown on Figures 3 and 4. There is more uncertainty regarding the orientation and continuity of the unsaturated aquifer boundary. The south and west boundaries of the aquifer are not identified on Figures 3 and 4 but are generally represented in the numerical model.

The unsaturated aquifer boundary occurs where the water-level elevation is the same as the elevation of the bottom of the aquifer. Figure 2 is a hydrogeologic cross section oriented northeast to southwest. This figure shows that the boundary is located in the vicinity of well SVR #6. Figure 8 is a draft hydrogeologic cross section oriented north-northwest to south-southeast. This figure shows that the unsaturated aquifer boundary occurs in the vicinity of M3 TW #3. The location of the unsaturated aquifer boundary based on these two cross sections fits well with the east-southeast to west-northwest boundary location shown as a solid green line on Figures 1, 3 and 4.

The location and nature of the unsaturated aquifer boundary northwest of the M3 Eagle property is poorly understood. The boundary is extended in a linear fashion to the northwest on Figures 1 and 3 taken from the 2007 Hydro Logic Inc. report. Figure 4 from Squires (2008) shows that the linear, northwest trending unsaturated aquifer boundary terminates slightly west of the range line separating range 1 west from range 2 west (R1W/R2W). The boundary of the Pierce Gulch Sand Aquifer extends on Figure 4 from the R1W/R2W line in a northwesterly direction and becomes approximately parallel with the southwest edge of the valley floor of Payette River. The hydrogeologic nature portion of the northern boundary west of the R2W/R1W line, as shown on Figure 4, is not explained in any of the Hydro Logic Inc. reports prepared to date. The boundary shown may or may not represent unsaturated aquifer conditions as are present in the M3 Eagle area.

The following is my analysis of the information base for establishment of the northern boundary of the Pierce Gulch Sand Aquifer.

- Sufficient hydrogeologic data exist to support the presence of the unsaturated aquifer boundary generally trending east-southeast to west-northwest within the M3 Eagle property (as shown by the solid green line on Figures 1, 3 and 4). This means that the shoreline of the ancestral lake in which the delta deposits were placed approximately followed the green line shown on the figures.

- Extrapolation of the unsaturated aquifer boundary in a linear fashion in a west-northwest direction from the M3 Eagle site appears to be based on water level and geologic information from the Bond well located north of the mapped boundary and the Willowbrook Irrigation well located south of the mapped boundary (Figure 5). Squires (2008, Table 1) indicates that the Bond well had an August 2007 water-level elevation of about 2,358 feet, a depth of 503 feet and is completed in the Willow Creek Aquifer. According to Squires (2008), the Willowbrook Irrigation well had an August 2007 water-level elevation of 2,477 feet with the well completed in the Pierce Gulch Sand Aquifer. A well depth is not given for the Willowbrook Irrigation well in Table 1 of Squires (2008). A well driller's report was obtained from the IDWR on-line data base for an irrigation well constructed for the Willowbrook Water Corporation. This well is 400 feet deep, has screen sections in the depth interval of 250 to 340 feet and has a reported yield of 500 gpm with a drawdown of about 190 feet. It is not known if the well driller's report is for the well measured in 2007 by Hydro Logic Inc. The difference in water-level elevation between the Willowbrook Irrigation well and the Bond well plus the proximity to the M3 Eagle property appear sufficient to justify extrapolation of the unsaturated aquifer boundary from the M3 Eagle site to the vicinity of the Willowbrook Irrigation well.

- The JDH well, located about three miles west-northwest of the Willowbrook Irrigation well, is the only well identified by Squires (2008, Table 1) as completed in the Pierce Gulch Sand Aquifer in this general area (Figure 5). The JDH well has a listed depth of 421 feet. A well driller's report for the JDH well (with the same depth) was obtained from the IDWR web site. The log shows that the well obtains water from a sand zone in the depth interval of 411 to 421 feet and had test yield of 100 gpm with 250 feet of drawdown. The basis for designating that the JDH well is completed in the Pierce Gulch Sand Aquifer is not presented in any of the Hydro Logic Inc. documents. The T Johnson well, located near the JDH well, has a designation (PGSA?) which I assume means that this 272-foot well may or may not be completed in the Pierce Gulch Sand Aquifer. The water-level elevation in the T Johnson well is similar to that reported for the JDH well.

- Essentially no hydrogeologic data are presented to support the boundary of the Pierce Gulch Sand Aquifer more than about one mile northwest of the M3 Eagle site, as shown on Figure 4. No data are available to document the continuation of the unsaturated flow boundary northwestward from the vicinity of the Willowbrook Irrigation well. The apparent termination of the unsaturated flow boundary near the R1W/R2W line as shown on Figure 4 is not supported by well data. No data are provided to support the depiction of northern boundary of the aquifer northwestward from the range line. No data have been presented that

show the continuation of the Pierce Gulch Sand Aquifer to and/or under the Payette River valley.

- I conclude that there is insufficient evidence to support the assumption that the Pierce Gulch Sand Aquifer is laterally continuous from the Boise River Valley to the Payette River Valley.

ANALYSIS OF THE GROUND-WATER FLOW SYSTEM

One of the primary investigative efforts of any ground water study is the collection of water-level elevation data from wells. This effort involves locating each well and determining the elevation of the reference point used for depth-to-water measurements (typically the top of the well casing). Interpretation of the water-level elevation data is dependent on identification of both vertical and horizontal hydraulic gradients. Each well must be examined with respect to well construction and completion, stratigraphic unit penetrated and other factors that might impact the measured water level. Water-level elevation data are typically displayed in either plan-view or cross sectional figures that show contours of equal water-level elevation. Plan-view water-level maps require utilization of data taken from wells of similar depth and/or similar hydrostratigraphic completion. Cross-sectional water-level maps must be constructed along flow lined as viewed in a plan map. The construction of a water-level contour map requires interpolation between locations of measured wells. Ground-water flow typically is shown at right angle to contour lines of equal ground-water elevation. This depiction of the flow lines is dependent on assuming that the aquifer is isotropic on the scale of the study.

Water-level contour maps are presented for the M3 Eagle area in Figure 3 for 2006 data and Figure 4 for 2007 data. The locations of wells used for the construction of the maps are shown on Figure 3 for the 2006 and Figure 5 for the 2007 data. Squires (2008, pages 2-3) states the following with respect to the two maps.

> "The 2007 contours .. are more accurate than the contours developed in 2006 and presented in our Year-One Progress report ... using a 'shotgun' approach with more wells and less-accurate hand-held instruments for survey positions and elevations. The new contours continue to indicate and support the general flow patterns in the greater Eagle-Star-M3 project area that we presented in 2006. Some of the perturbations shown on the 2006 contour map were apparently the result of the inherent errors associated with using all of the water level data, even from wells that completed in overlying aquifer, were pumping (or recovery from pumping0 at the time of measurement, and/or may have been inaccurately located. The 2007 contour map ... shows that ground water flows from the Boise Valley toward the Payette Valley, with a generally northwest component beneath the Eagle-Star-M3 vicinity."

Based on this statement, my analysis of the ground-water flow system is the vicinity of the M3 Eagle site is based on the water-level measurements collected in 2007. Water-elevation data obtained in 2007 (rounded to the nearest foot) are shown for wells completed in the Pierce Gulch Sand Aquifer for the M3 Eagle area in Figure 9. Note that the water-level elevations given for wells SVR#7 and SVR#9 are reversed on Figure 9

from that given in Squires (2008, Table 1). Not all wells are shown for the M3 Eagle development area because of space limitations; however, the water-level elevations of those wells excluded from Figure 9 are about the same as those shown. The black contours in Figure 9 are the same as shown in Figure 4 and were constructed by Squires (2008). The red dashed contours are based on my interpolation of the westernmost three data points (2,412, 2,450 and 2,477 feet) as described below.

The following is my analysis of the water-level elevation data shown on Figure 9.

- The 2,475-foot and higher elevation water-level contours prepared by Squires (2008) are reasonably controlled by field data and show ground-water flow generally to the west-northwest.
- The JDH well (with a water-level elevation of 2,412 feet) and the Caldwell TW#19 (with a water-level elevation of 2,450 feet) are the only data points to provide control for the 2,425 and 2,450-foot contours. There are no control wells for the 2,400 foot and lower water-level contours.
- The water-level contours prepared by Squires (2008) west of the R1W/R2W range line that indicate ground-water flow to the north-northwest appear to be based on a combination of two data points (JDH well and Caldwell TW#19) and the two assumptions that underlie the M3 Eagle Analysis: 1) the Pierce Gulch Sand Aquifer is laterally continuous from the M3 Eagle area to the Payette River Valley and 2) water flows within the aquifer from the Boise River Valley to the Payette River Valley. The 2,400-foot and lower contours that show flow to the north-northwest have no control points and appear to be based on the assumptions. The 2,425 and 2,450-foot contours drawn by Squires (2008) are not direct interpretation of the field water-level data.
- The red dashed lines on Figure 9 show the 2,425 and 2,450-foot contours that I created based in a linear interpretation of the hydraulic gradient between wells with water-level data (JDH well at 2,412 feet; Caldwell TW#19 at 2,450 feet and Willowbrook Irrigation well at 2,477 feet). The red, dashed contours on Figure 9 indicate ground-water flow would be in a west-northwest direction, approximately parallel to the Payette River.
- The JDH Builders well, with a water-level elevation of 2,412 feet, is critical to the postulation that ground-water flows to the north or the north-northwest in this area. The contour map of water-level elevations would look considerably different if this well does not penetrate the Pierce Gulch Sand Aquifer.
- I conclude that the 2007 water-level data provide insufficient evidence that ground-water flow occurs from the Boise River Valley to the Payette River Valley.

ANALYSIS OF THE NUMERICAL MODEL

Conceptual Model and Flow System Issues

The numerical ground-water flow model was constructed based on the hydrogeologic conceptual model discussed in the second portion of this report and calibrated to the water-level elevation map discussed in the third section of the report.

Thus, questions posed in this report relative to the lateral continuity of the Pierce Gulch Sand Aquifer between the Boise River and the Payette River valleys are pertinent to the numerical model. The numerical model cannot provide a valid prediction of M3 Eagle pumping impacts on local well owners if the hydrogeologic conceptual is not accurately represented. In the same way, questions posed in this report relative to the validity of the postulated ground-water flow from the Boise River Valley to the Payette River Valley also are pertinent to the numerical model. The numerical model cannot provide a valid prediction of M3 Eagle pumping impacts if the steady-state calibration was conducted to match a water-level elevation contour map that does not accurately represent field data from wells completed in the Pierce Gulch Sand Aquifer.

The relative importance of the ground-water flow system from the Boise River valley into the Payette River valley in the numerical model is shown by the mass balance presented in Table 1. The Payette River seepage is 27.1% of the total inflow and is about 3.5 times larger than the Boise River seepage. The numerical model would be quite different if ground-water flow is not represented as occurring through the Pierce Gulch Sand Aquifer from the Boise River Valley to the Payette River Valley. A numerical model without ground-water flow between the river valleys would be similar to that constructed as part of the Treasure Valley Hydrologic Project (Petrich, 2004).

Table 1 Numerical Model Mass Balance (Hydro Logic Inc., 2008b, page 27)

Revised Model Results – November 14 Memo

Inflow	cfs	% of total inflow
Surficial recharge	542	52.1%
Underflow via SE Model Corner	115	11.0%
Dry Creek	4	0.4%
Lake Lowell	17	1.6%
Boise River seepage	81	7.6%
Payette River seepage	282	27.1%
TOTAL	1041	100.0%

General Modeling Issues

Two additional questions relative to the construction, calibration and operation of the M3 Eagle numerical ground-water flow model are addressed in this portion of the report. The first question pertains to the validity of constructing two versions of the model (Tmatch and Hmatch) because a single representation of the two major data sets was not attained. The second question addresses the validity of utilizing the numerical model for long-term (50 year) water-level predictions when the transient calibration was based on data from short term (30-day and 7-day) aquifer tests.

The primary question relative to any numerical ground-water flow model is to what degree it represents a "unique" solution given the array of hydrogeologic information on the area. Construction and calibration of the model must honor direct measurements of the resource (such as depth to water in wells and measured discharge from the aquifer) and also utilize indirect aquifer information (such as calculated aquifer parameters, geologic framework data and calculated water inputs and outputs). The calibration task involves using the model to test alternative representations of various model boundaries, aquifer parameter distributions and aquifer inputs/outputs. The end

result typically is the creation of a single numerical model with an associated sensitivity analysis and representation of error bounds. In my opinion, the inability to have the M3 Eagle model reproduce aquifer water levels using the calculated transmissivity values indicates that problems exist in the model formulation (such as boundaries) and/or with the input data sets. I do not believe that development of two parallel numerical models is a reasonable solution to the problem. Also, I do not believe that general agreement between the "Hmatch" and "Tmatch" indicates that the numerical model is a reasonable representation of the hydrogeologic system.

Questions come to mind whenever a numerical ground-water model is used to predict impacts on a time scale that greatly exceed the data set used for transient calibration. This is defiantly the case with the M3 Eagle numerical model. The data sets used for transient calibration were short (30 and 7 days) and the stress potentially did not cause water-level changes at all aquifer boundaries. Prediction of long-term pumping effects (such as for 50 years) involves stressing a much larger portion of the model and likely a number of boundaries. This creates major uncertainty relative to reliability of the drawdown values predicted using the model.

DISCUSSION

Three questions were raised and addressed in my initial hydrogeologic analysis of the M3 Eagle site (Ralston, 2008). The purpose of this portion of the report is to revisit the questions and provide updated responses.

1. **Is there sufficient evidence to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?**

    a. I have not been able to find either geologic depositional information or geologic information from wells to support the presumption that the Pierce Gulch Sand Aquifer extends to the northwest of the M3 Eagle site beyond the Willowbrook Irrigation well. The 2007 water-level contour map shows an extension of the unsaturated aquifer boundary (green line on Figure 4) to the northwest from the M3 Eagle site. The dashed line ends near the R1W/R2W range line. I have not found any geologic information to support either the extension of the boundary west of the Willowbrook Irrigation well or the termination of the line near the range line. The location of the unsaturated aquifer boundary northwest of the M3 Eagle property depends mostly on the shoreline configuration at the time of deposition of the deltaic sand unit. No hydrogeologic data are presented to support the hypothesis that the aquifer continues from the M3 Eagle area to the Payette River valley.

2. **Assuming that the hydrogeologic conceptual model question is answered in the affirmative, is there sufficient evidence to support the presumption that ground water flows in the manner and quantity described within what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?**

a. The primary evidence presented by M3 Eagle to support ground-water flow from the Boise River drainage to the Payette River drainage is the map showing 2007 ground-water elevations contours based on data from wells that are completed in the aquifer (see Figure 9). The east-west orientation of contours of equal ground-water elevation (elevation of 2,400 feet and lower) which support the concept of flow north-northwestward to the Payette River drainage are not supported by field data. The 2,413-foot reading in the JDH Builders well is the only data point that supports any significant component of flow to the northwest. I do not believe that the water-level data provided by M3 Eagle are sufficient to support the presumption of a ground-water flow system from the Boise River drainage to the Payette River drainage.

3. **Has the characterization of the target aquifer system, including a pre-development water balance, been complete enough to support an analysis of impacts from full project development?**

    a. The numerical ground-water flow model used to predict project impacts was constructed based on the presumption of lateral extent and continuity of the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage. In addition, steady-state calibration of the numerical ground-water flow model is based on matching the contours of equal ground-water elevation shown on Figures 4 and 9. As noted above, I do not believe that field data are sufficient to support the presumed hydrogeologic model. Also, I do not believe that the ground-water contours, particularly those below an elevation of 2,450 feet, have sufficient validity to form the basis for calibration of the model. As a result of these problems and additional issues relative to model calibration and operation, I do not believe that the current numerical model can provide a reliable prediction of water-level impacts from full project development.

CONCLUSIONS AND RECOMMENDATIONS

The hydrogeologic investigation of the M3 Eagle site has resulted in an improved knowledge of the ground-water conditions under the site. However, my concerns about development impacts from the project are focused on large scale issues rather than on-site impacts. Specifically, I believe that postulated ground-water flow through a laterally continuous sand aquifer from the Boise River valley to the Payette River valley is not supported by field data. Thus, I believe that the drawdown values predicted either by analytical methods or the numerical model have a high degree of uncertainty.

I recommend that three alternative pathways be explored to allow the M3 Eagle project to go forward. The alternatives are described below.

1. The first alternative is to formulate an administrative/legal solution. This might involve development of the project under a water right that is phased associated with incremental assessment of impacts.

2. The second alternative is to conduct the additional studies to provide the information base to support the postulated ground-water flow through a laterally continuous sand aquifer from the Boise River valley to the Payette River valley. This effort would require additional field work, perhaps including well construction, off the M3 Eagle site. The field information likely would require some modification of the existing numerical ground-water model.
3. The third alternative is to conduct an analysis of impacts from project pumping using the model boundaries and perhaps the hydraulic parameters developed as part of the Treasure Valley Hydrologic Project. Housing the M3 Eagle analysis within the results of the Treasure Valley Hydrologic Project would add considerable validity to the results. This effort possibly could be done by altering the existing numerical model.

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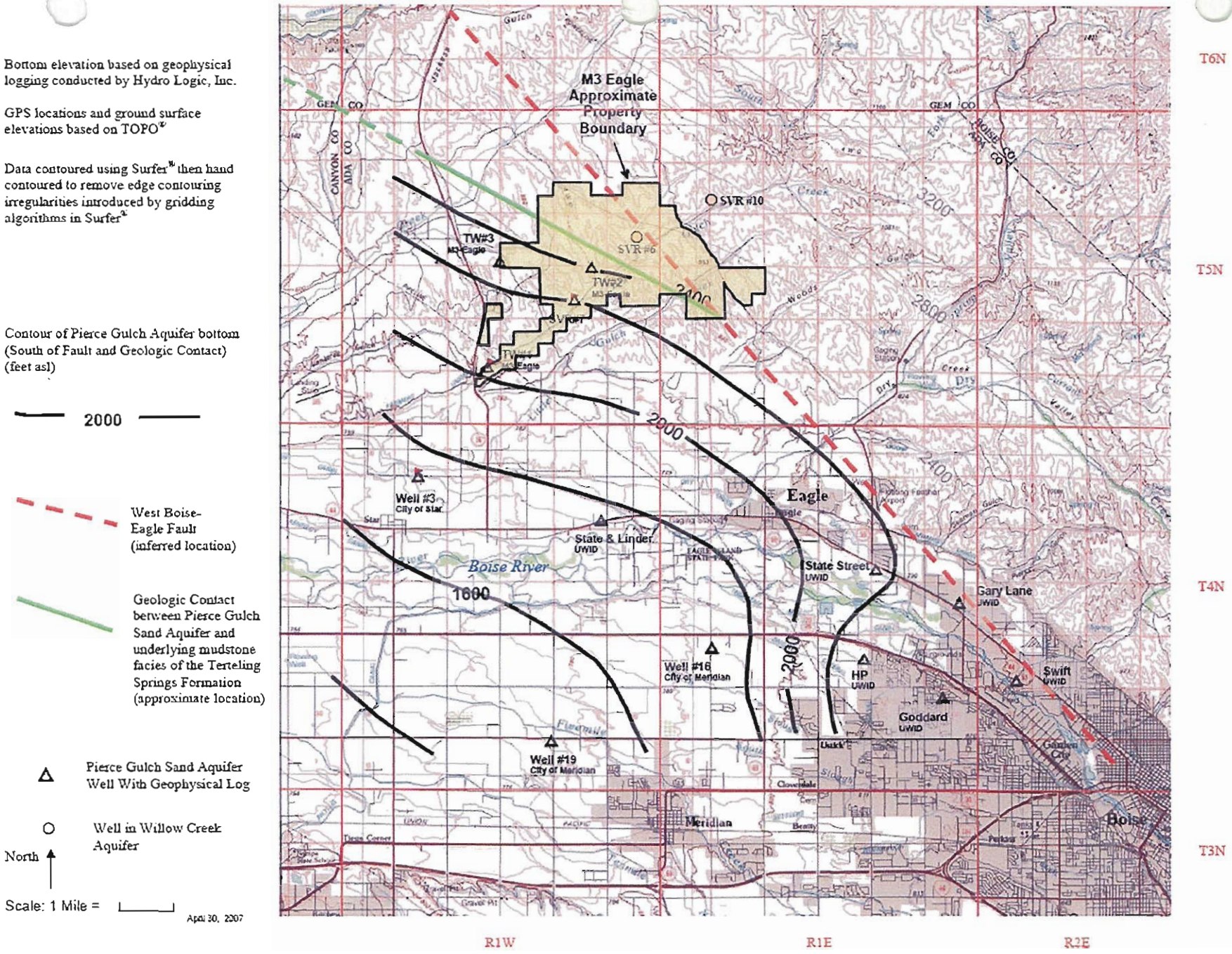

Figure 1 Plan View Map (Figure 3 of Hydro Logic Inc, 2007)

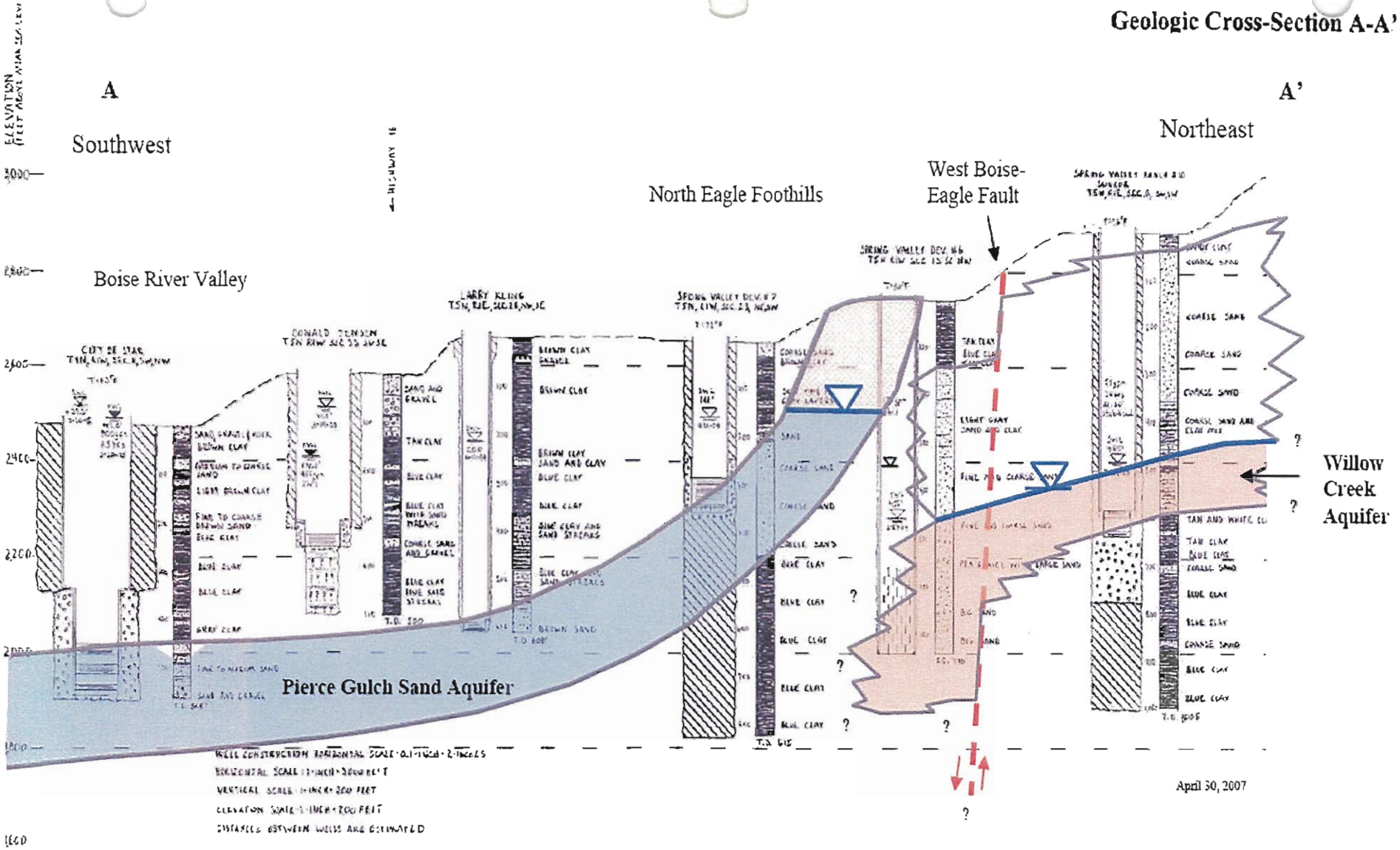

Figure 2 Northeast to Southwest Hydrogeologic Cross Section
(Figure 5 of Hydro Logic Inc, 2007)

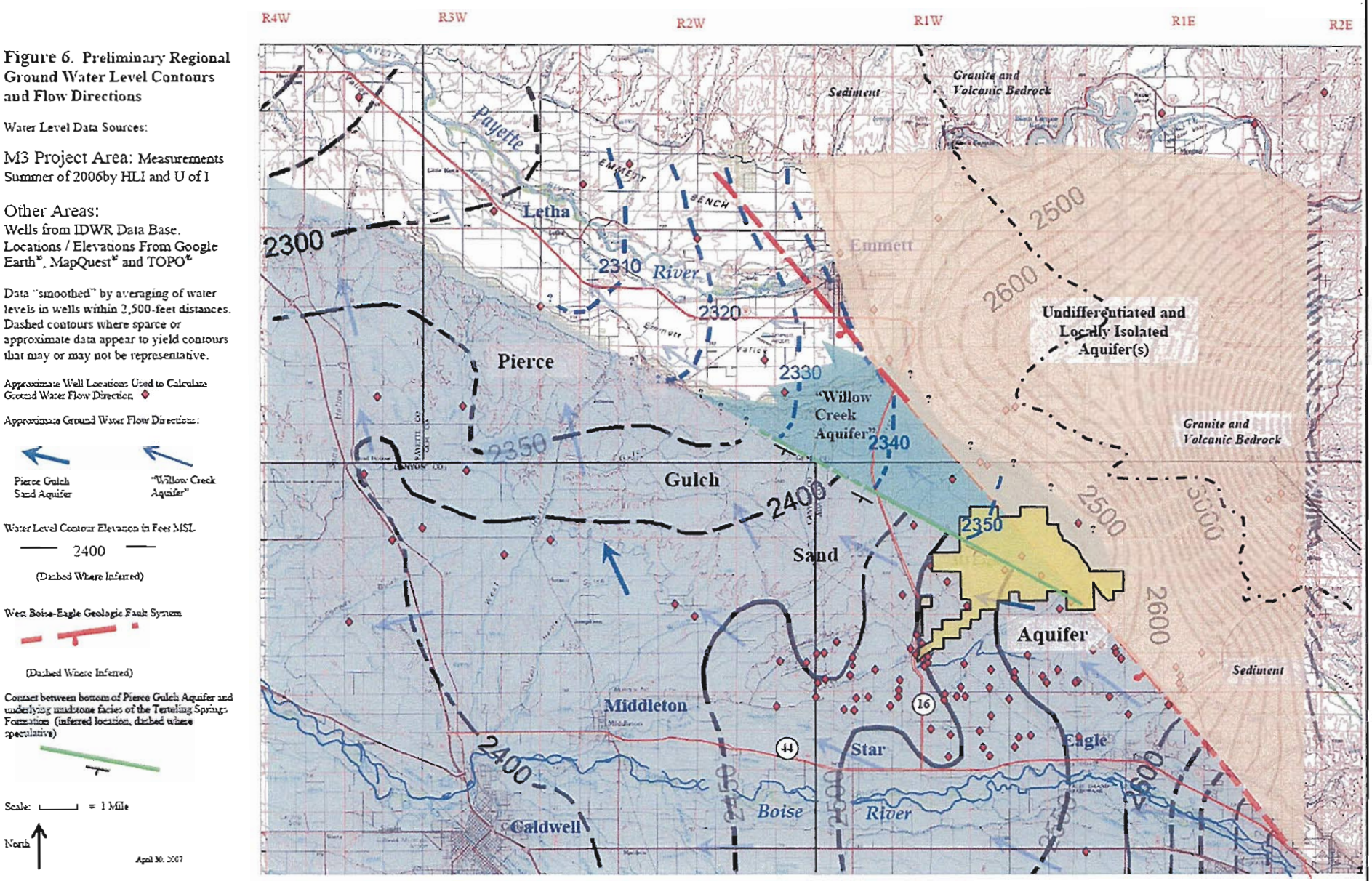

Figure 3 2006 Water-Level Contour Map (Figure 6 of Hydro Logic Inc., 2007)

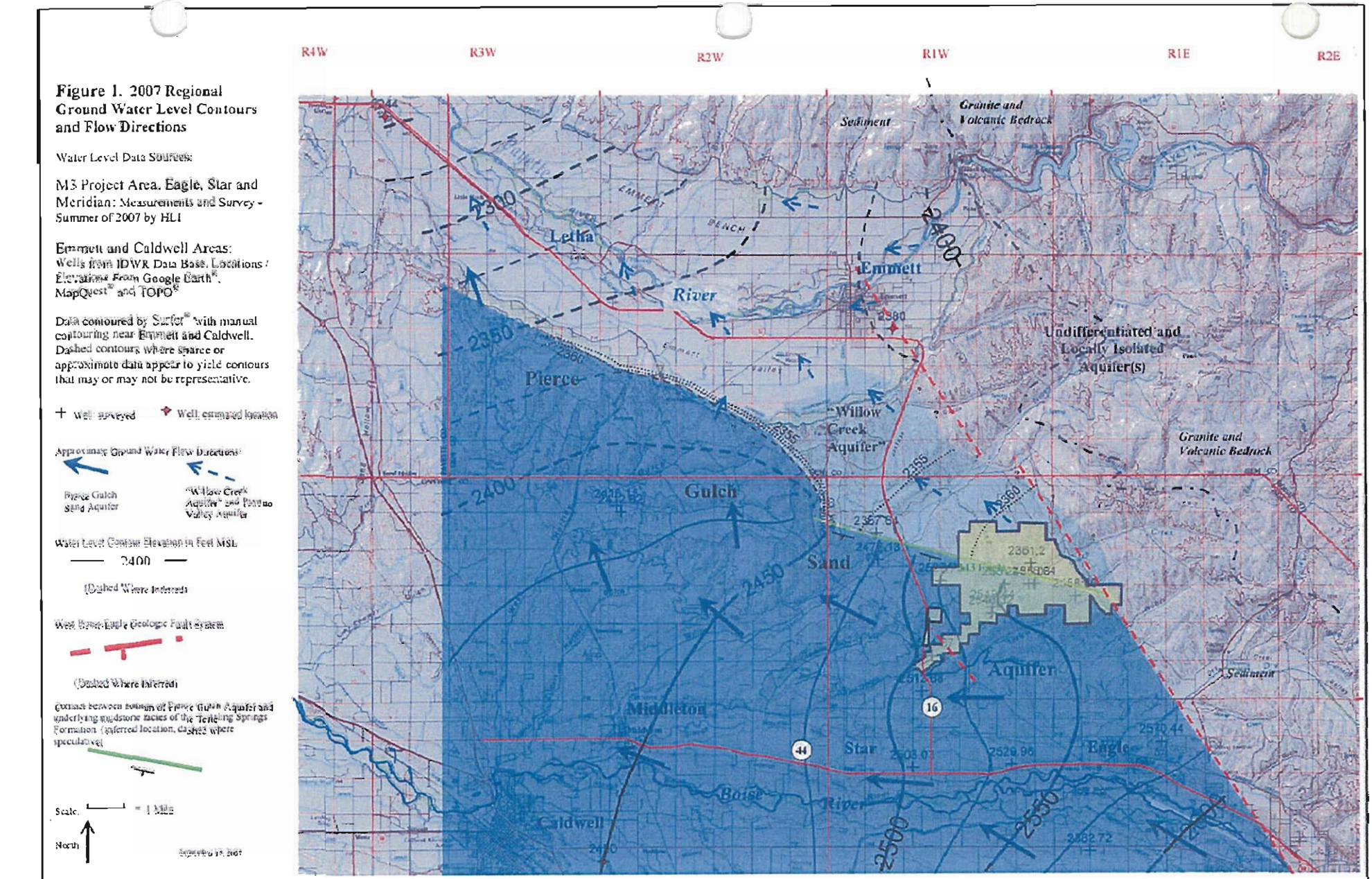

Figure 4 2007 Water-Level Contour Map (Figure 1 of Squires, 2008)

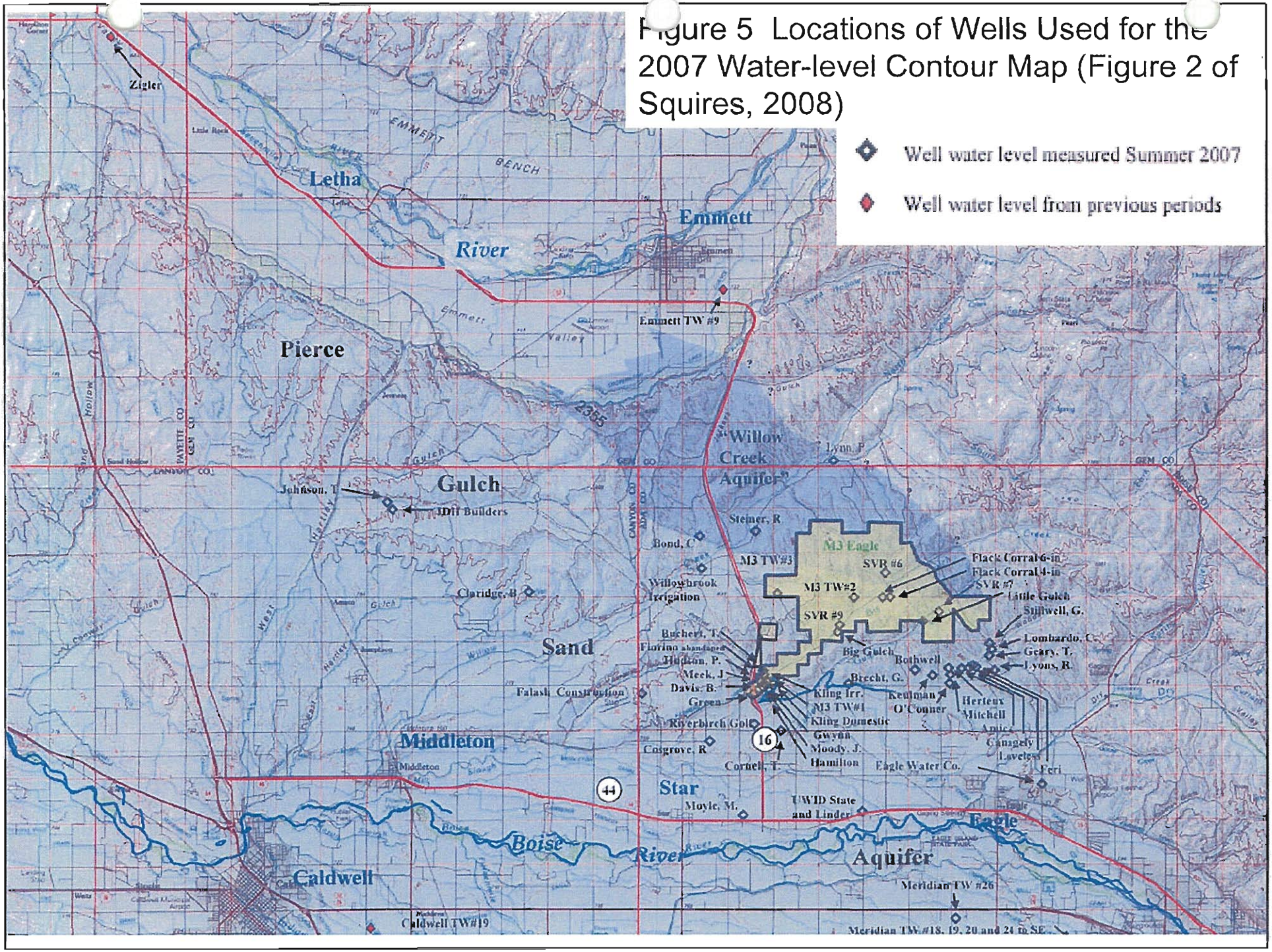
Figure 5 Locations of Wells Used for the 2007 Water-level Contour Map (Figure 2 of Squires, 2008)
Well water level measured Summer 2007
Well water level from previous periods
Zigler
Letha
Emmett
River
Emmett TW #9
Pierce
Willow Creek Aquifer
Lynn, P
Gulch
Johnson, T
Dirt Builders
Steiner, R
Bond, C
M3 Eagle
M3 TW#3
SVR #6
Flack Corral 6-in
Flack Corral 4-in
SVR #7
M3 TW#2
Little Gulch
Stillwell, G.
SVR #9
Willowbrook Irrigation
Claridge, B
Sand
Buchert, T.
Florino abandoned
Hiddon, P.
Meek, J.
Davis, B.
Green
Falash Construction
Big Gulch
Bothwell
Brecht, G.
Lombardo, C.
Geary, T.
Lyons, R.
Kling Irr.
M3 TW#1
Kling Domestic
Keulman
O'Conner
Herieux
Mitchell
Apiex
Ganagely
Laveless
Feri
Riverbirch Golf
Gwynn
Moody, J.
Hamilton
Cornell, T.
Eagle Water Co.
Middleton
Cosgrove, R
Star
Moyle, M.
UWID State and Linder
Boise River
Eagle Aquifer
Caldwell
Meridian TW #26
Caldwell TW#19
Meridian TW #18, 19, 20 and 24 to SE

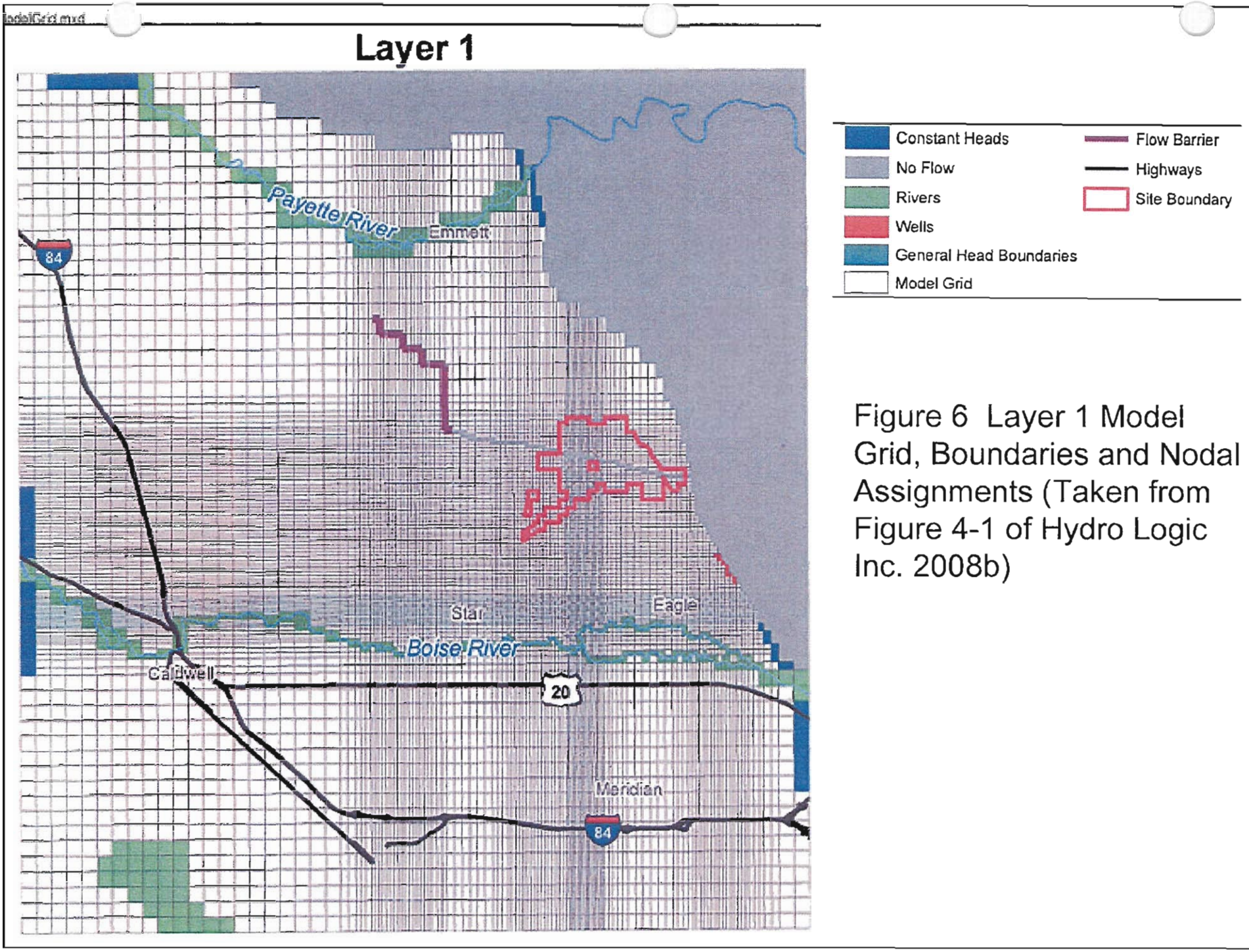

Figure 6 Layer 1 Model Grid, Boundaries and Nodal Assignments (Taken from Figure 4-1 of Hydro Logic Inc. 2008b)

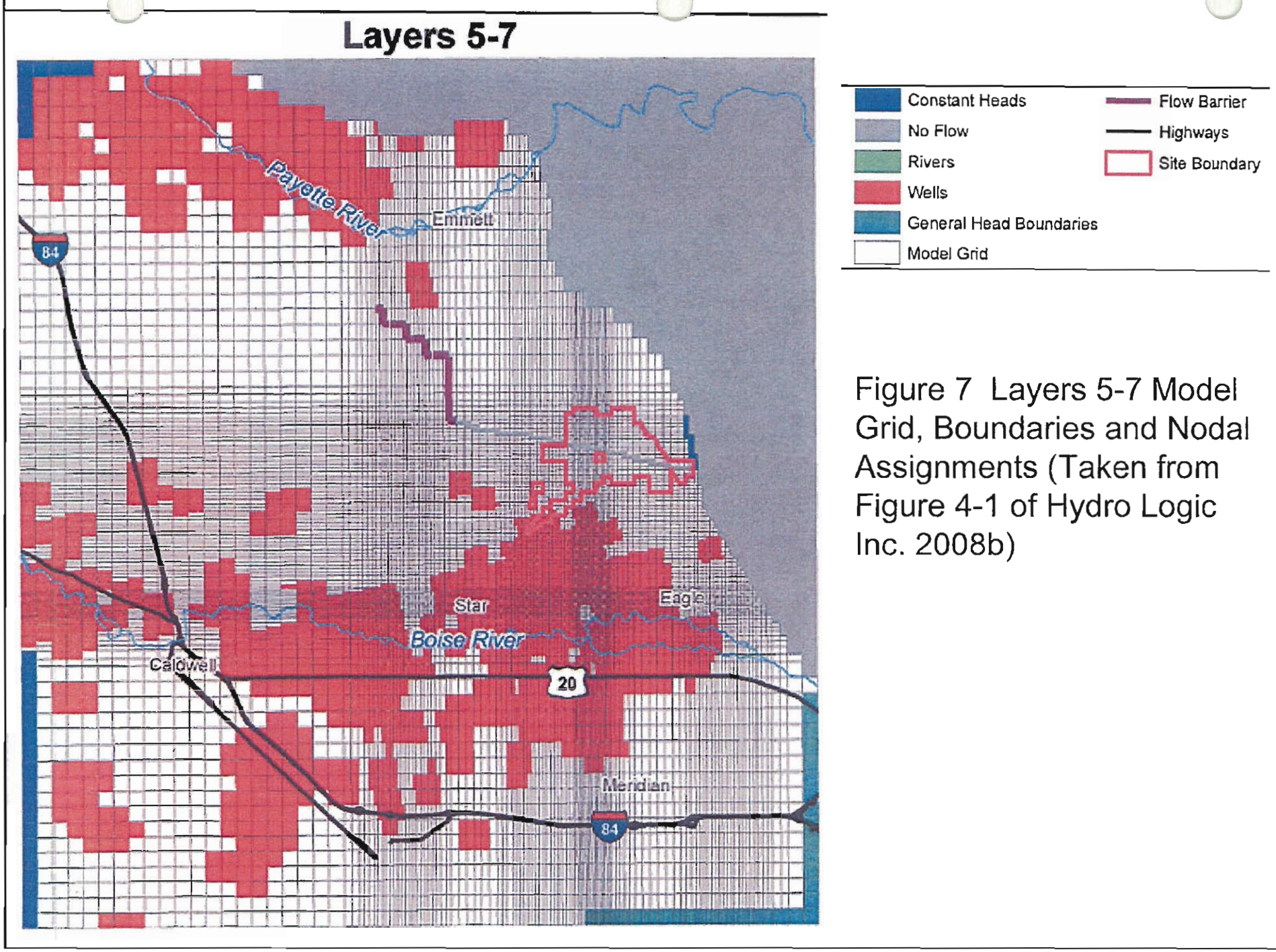

Figure 7 Layers 5-7 Model Grid, Boundaries and Nodal Assignments (Taken from Figure 4-1 of Hydro Logic Inc. 2008b)

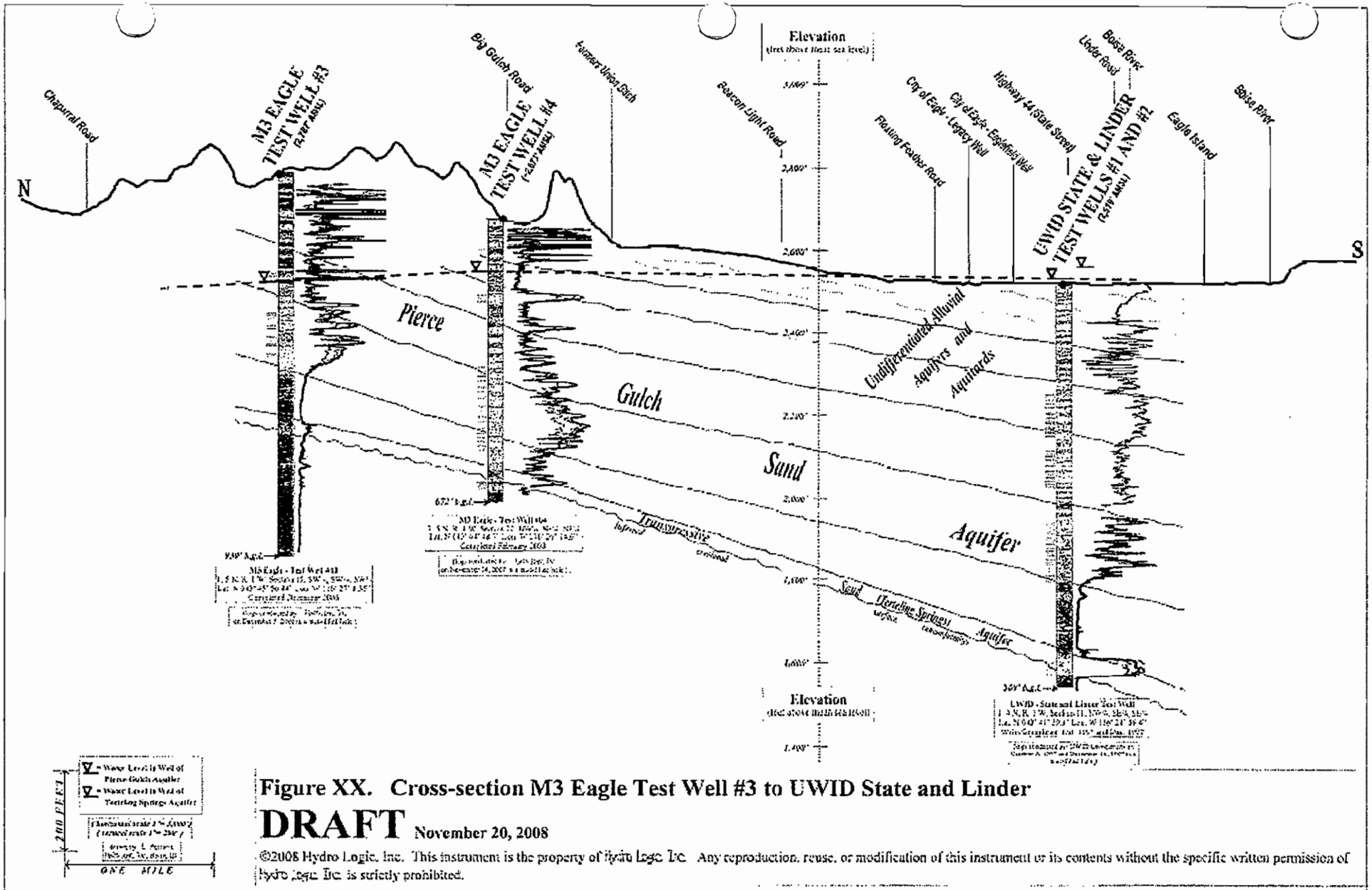

Figure XX. Cross-section M3 Eagle Test Well #3 to UWID State and Linder

DRAFT November 20, 2008

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Figure 8 North-Northwest to South-Southeast Hydrogeologic Cross Section (Taken from file #26, M3 Eagle's Technical Reports and Supporting Documentation as of November 26, 2008; reproduced from IDWR FTP site)

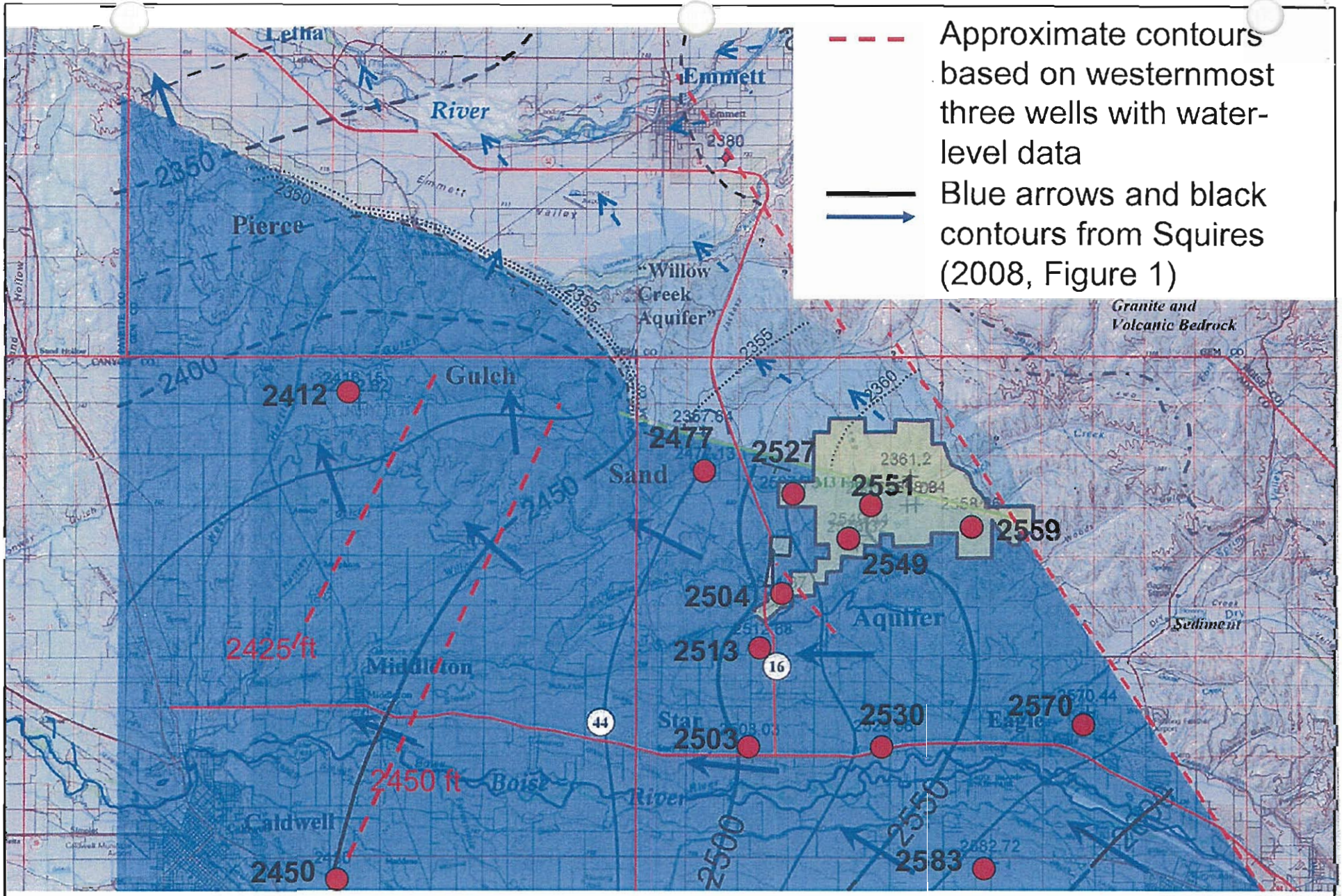

Figure 9 2007 Measurements of Water-Level Elevation Placed on the Contour Map from Squires (2008, Figure 1)

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RHS Ralston Hydrologic Services, Inc.
GROUND WATER CONSULTING AND EDUCATION
1122 East B Street, Moscow, ID USA 83843
Voice and FAX 208-883-0533, E-mail ralston@moscow.com

HYDROGEOLOGIC ANALYSIS OF THE M3 EAGLE SITE:

SUPPLEMENT #1
COMMENTS FROM REVIEW OF GEOCHEMISTRY REPORT

Expert Report Prepared for the
North Ada County
Groundwater Users Association

January 2009

M3 EAGLE LLC
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INTRODUCTION

This report serves as supplement #1 to the expert report entitled **"Hydrogeologic Analysis of the M3 Eagle Site"** that was prepared in January 2009 for the North Ada County Groundwater Users Association (Ralston Hydrologic Services, Inc., 2009). The purpose of this supplement is to provide review comments relative to the technical memorandum entitled **"Ground Water Geochemistry of Wells in the North Ada County Area of Idaho"**, prepared by Glanzman and Squires and dated January 20, 2009. The focus of my review is to determine if the information provided in the Glanzman and Squires (2009) memorandum necessitates altering the conclusions reached in the above noted expert report.

SUMMARY OF GEOCHEMISTRY INFORMATION

The following quotes provide the essence of the information provided in the Glanzman and Squires (2009) memorandum.

> "Historical and newly acquired ground water chemistry was evaluated to determine the aqueous geochemistry of the ground water from wells completed in North Ada County, Idaho. Specifically, the study focused on the area encompassing NE Boise, the Cities of Eagle and Star, and the North Eagle foothills of the Boise Front...The completion intervals of the sampled wells and well locations were grouped into the Pierce Gulch Aquifer, Willow Creek Aquifer, Terteling Springs Aquifer, Spring Valley Ranch wells and the City of Emmett wells.....This geochemical evaluation is primarily based on major ion chemistry but includes selective trace elements, specifically arsenic, to determine the aqueous geochemistry of each designated well group focused on the potential for ground water exchange between aquifers" (page 1).
>
> "It is possible to compare individual major ion concentrations from one well location to another and then describe how differences in each of these major ions indicate associations or lack of association between well locations... Hydraulically connected ground waters plotted on a trilinear diagram can show major ion relationships between the water chemistry from its source though surface water and ground water flow paths to individual sampling locations" (page 2).
>
> "The tight clustering of PGSA (Pierce Gulch Sand Aquifer) ground water shown on Figures 4 and 5 (of Glanzman and Squires 2009), adjacent to and including the average Boise River water chemistry, indicates that the PGSA ground water originated almost exclusively from ancestral Boise River surface water" (page 4).
>
> "In summary, the aqueous geochemistry analytical results indicate that the PGSA is a distinct regional aquifer containing ground water originating from the geologically ancestral Boise River" (page 5).
>
> "In summary, the TSF (Terteling Springs Formation) forms a second discrete aquifer that is not hydraulically connected to the PGSA" (page 6).
>
> "In summary, ground water from WCA (Willow Creek Aquifer) has a very dilute TDS and other characteristics that indicate that local precipitation is the dominant

source of recharge.... It is clearly not hydraulically connected to the PGSA but there is a potential for hydraulic connection with the TSF" (page 7).

"In summary, ground water chemistry from the SVRW (Spring Valley Ranch Wells) indicates a broad spectra of mineralogies and resembles characteristics of both the WCA and TSF ground water chemistries. Recharge to the SVRW is from precipitation. The water chemistry types suggest limited lateral and vertical hydraulic connections between wells. The SVRW ground water is not hydraulically connected to the ground water in the WCA, PGSA or TSF" (page 9).

"In summary, the ground water chemistry in the Emmett area, from these two wells, indicates recharge from precipitation (probably Payette River) and no hydraulic connection to the PGSA ground water. The major ion chemistry suggests that the sediments in which the wells are completed resemble those of the TSF which is consistent with the prevailing conceptual model for this basin ..." (page 9).

DISCUSSION

Three questions are raised and addressed in my hydrogeologic analysis of the M3 Eagle site (Ralston Hydrologic Services Inc., 2009). The purpose of this portion of the report is to revisit the questions and provide updated responses based on information from the geochemistry report prepared by Glanzman and Squires (2009).

1. **Is there sufficient evidence to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?**

    a. Glanzman and Squires (2009) provide good geochemical evidence that ground water within the Pierce Gulch Sand Aquifer originates from the Boise River. They do not differentiate between water recharged directly from the Boise River and water recharged from irrigation using water from the Boise River.

    b. Glanzman and Squires (2009) include six wells located northwest of the M3 Eagle site in their analysis (Figure 1). Four of the wells (C Lynn, Lynn Irrigation, W Lynn and Perin) appear to be located within the Willow Creek Aquifer. The remaining two wells (Emmett #9 and Emmett #10) are located on the floor of the Payette River valley. Glanzman and Squires specifically indicate that, based on water chemistry, the two Emmett wells have no hydraulic connection to the PGSA.

    c. I conclude that the geochemical analysis adds no additional information relative to the hypothesis that the PGSA aquifer continues from the M3 Eagle area to the Payette River valley.

2. **Assuming that the hydrogeologic conceptual model question is answered in the affirmative, is there sufficient evidence to support the presumption that ground water flows in the manner and quantity described within what has**

been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage?

a. I conclude that the geochemical analysis adds no additional information to support the presumption of a ground-water flow system from the Boise River drainage to the Payette River drainage.

3. **Has the characterization of the target aquifer system, including a pre-development water balance, been complete enough to support an analysis of impacts from full project development?**

a. I conclude that the geochemical analysis adds no additional information to support an analysis of impacts from full project development.

CONCLUSIONS

The geochemical investigation of the general M3 Eagle site has resulted in an improved knowledge of the ground-water conditions in the area. However, the Glanzman and Squires (2009) report does not include information that addresses the major hydrogeologic questions raised in my expert report (Ralston Hydrologic Services Inc., 2009).

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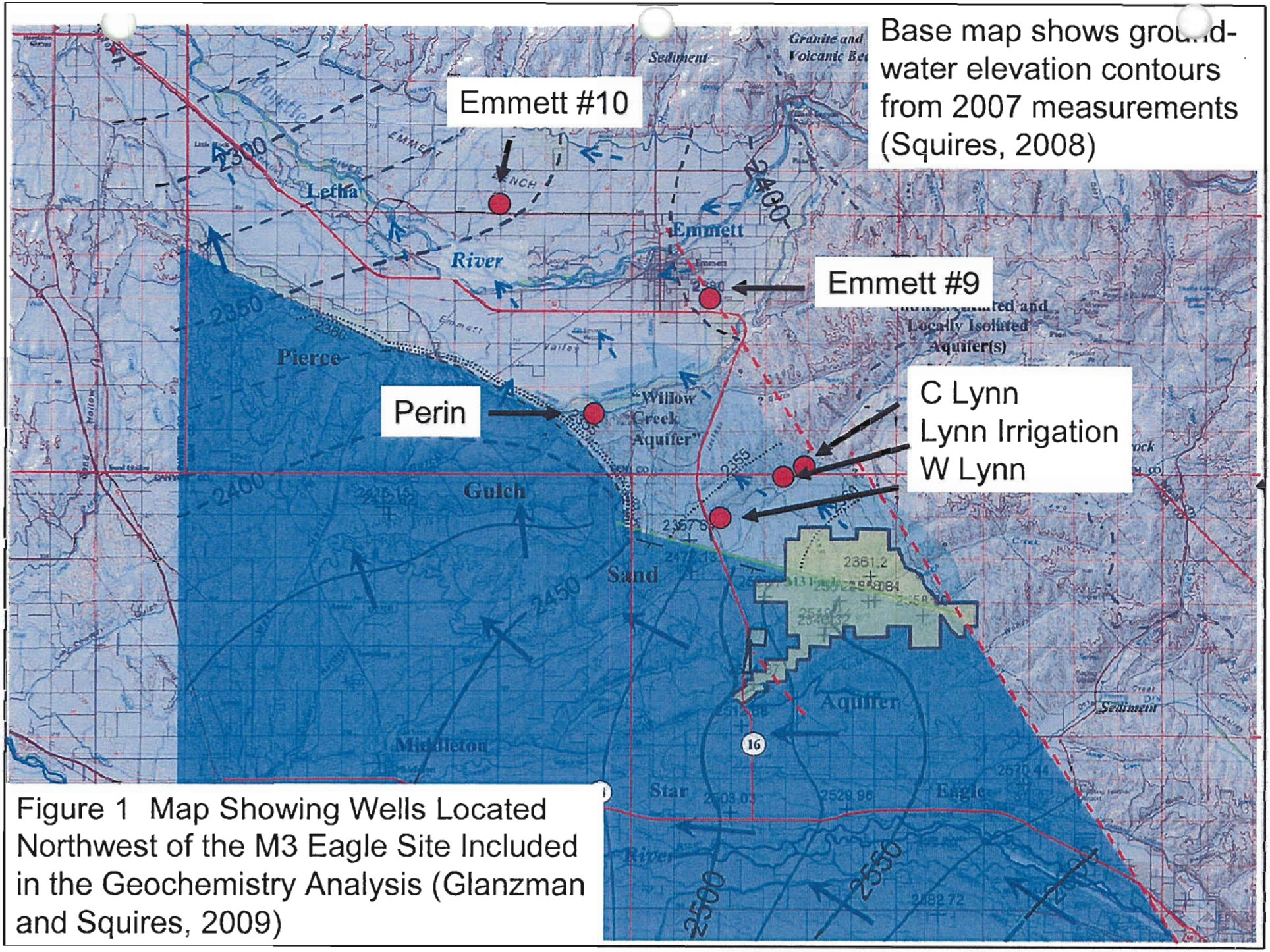

Figure 1 Map Showing Wells Located Northwest of the M3 Eagle Site Included in the Geochemistry Analysis (Glanzman and Squires, 2009)

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RHS **Ralston Hydrologic Services, Inc.**

GROUND WATER CONSULTING AND EDUCATION
1122 East B Street, Moscow, ID USA 83843
Voice and FAX 208-883-0533, E-mail ralston@moscow.com

March 31, 2009

NACFA
C/O David Head
855 Stillwell Drive
Eagle, ID 83616

Dear David:

The purpose of this letter is to provide you with my review comments relative to IDWR memo prepared on March 2, 2009 by Dennis Owsley and Sean Vincent. The subject of the memo is **Application for Water Right 63-32573.**

The following is a summary of key points from the Owsley and Vincent memo.

- Owsley and Vincent make two important conclusions in their overview section on page 1. First, they conclude that the hydrologic boundaries and recharge mechanisms are not well defined for the target aquifer. Second, they conclude that the long-term sustainability of the aquifer beneath the M3 property is difficult to assess; some lines of evidence suggest that it may be limited.
- On pages 4 and 6, Owsley and Vincent raise questions relative to the simplified interpretation of the hydrogeology as depicted by HLI. They note on page 6 that *"... it is unclear ... whether the PGS is a distinct, laterally continuous layer ... or if it possibly merges with overlying undifferentiated sediments basinward and/or is a hydrologically compartmentalized by faults."*
- Owsley and Vincent on page 8 state the following relative to the interpretation of water-level data. *"In summary, available water level data clearly indicate a west ground water flow direction in the PGSA beneath of M3 property. The determination that the regional flow direction in northwest toward the Payette River is less convincing, however, because of the scarcity of surveyed control points and an incomplete hydrogeologic conceptual model."*
- Owsley and Vincent on pages 8 and 9 provide an analysis of water-level data that allows separation of wells in the area into two different groups. They suggest that the different water-level patterns may reflect the influence of a normal fault that acts to compartmentalize the aquifer.
- Owsley and Vincent, in their analysis of the data collected by HLI during several aquifer tests (pages 9-12), raise questions whether hydraulic boundaries formed by faults may be identified by the test data. They conclude this section with the following statement. *"HLI concludes that other vicinity aquifers have limited long-term sustainability owning to hydraulic isolation and limited on-site*

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recharge. In our opinion, the possibility of limited long-term sustainability for the PGSA also cannot be discounted based on currently available data."

- Relative to the ground-water flow model, Owsley and Vincent on page 14 state the following. *"In conclusion, a ground-water flow model based on HLI's hydrogeologic conceptual model has been developed for prediction of hydrogeologic impacts. As described elsewhere, the basis for several important elements of the HLI conceptual model has not been provided. A potentially significant hydrogeologic feature (i.e. a fault) has not been incorporated into the model."*

- Owsley and Vincent did an independent analysis of recharge sources. They note that there are problems with the recharge amounts used in the model from both the Boise River and the New York Canal. They note the following on page 19. *"HCI has not presented geologic data to support the existence of the PGSA beneath the Boise River or provided an explanation of how the canal and river losses end up recharging the PGSA instead of the shallow alluvial aquifer."*

- Owsley and Vincent concluded the following from an independent analysis of historic water level data (page 20). *"In summary, our review of available water level data indicates that water levels in the PGSA near M3 are declining and suggest that current aquifer discharge rates exceed current recharge rates."*

- The final section of the Owsley and Vincent memo deals with potential impacts to other water users and aquifers from the pumping of ground water. The authors present the results of alternative analyses but do not reach a conclusion relative to the amount of decline that will occur at various locations. They present the following conclusions relative to impacts on well owners and the Boise River from the project pumping (page 24). *"Based on the existence of a delayed hydraulic connection between the PGSA and overlying aquifers, pumping in the PGSA is likely to eventually impact the majority of area well owners... Based on the above finding, pumping in the PGSA at M3 would cause a reduction in ground water discharge to the (Boise) river. The magnitude and location of these impacts has not been determined."*

In my opinion, the conclusions within the IDWR memo are closely aligned with my comments. The summary statement in my November 6, 2008 memo is as follows (page 5). *"I conclude that the characterization of the target aquifer system, including a pre-development water balance, has not been complete enough to support an analysis of impacts from full project development."* The IDWR memo provides additional detail relative to the hydrogeologic conceptual model, the prediction of ground-water flow, development and operation of the numerical and prediction of water-level responses. In each case, Owsley and Vincent raised questions relative to the completeness and accuracy of the M3 Eagle information provided in various HLI reports.

Please contact me if you have any questions. Thank you.

MEMO

State of Idaho
Department of Water Resources
322 E Front Street, P.O. Box 83720, Boise, Idaho 83720-0098
Phone: (208) 287-4800 Fax: (208) 287-6700

Date: March 2, 2009

To: Gary Spackman, Hearing Officer

From: Dennis Owsley DEO and Sean Vincent SV, Hydrology Section, State Office

cc: Rick Raymondi

Subject: Application for Water Right 63-32573

Overview

M3 Eagle, LLC (M3) is planning to construct a 7,153 unit planned community development on property the company owns in North Ada County. M3 has contracted with HydroLogic, Inc. (HLI), a Boise-based hydrogeologic consulting firm, to conduct an investigation of the area in order to determine the potential for developing a ground-water supply to support the planned community. According to HLI, all of the major municipal supply wells and many irrigation wells within the greater Eagle-Star-M3 area derive their water from the target, regional aquifer. M3 proposes to further develop the aquifer by installing up to fifteen water supply wells within the southwest portion of the property. M3 is seeking a water right with a maximum diversion rate of 23.18 ft^3/sec (cfs).

The primary conclusions based on our review of the data and reports submitted in response to the September 12, 2008 *Order Authorizing Discovery and Schedule Order,* are as follows:

- A highly productive sedimentary aquifer exists beneath a portion of the M3 property.
- The stratigraphy beneath the M3 site is complex, consisting of a thick sequence of coarse and fine grained sediment layers that pinch out and are faulted.
- Hydrologic boundaries and recharge mechanisms are not well defined for the target aquifer.
- The long-term sustainability of the aquifer beneath the M3 property is difficult to assess; some lines of evidence suggest that it may be limited.

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- Despite remaining uncertainties, the work that was commissioned by M3 has significantly improved our understanding of the hydrogeology in North Ada County.

- The ongoing North Ada County Hydrogeologic Investigation will help reduce the uncertainty.

Introduction

This memorandum has been prepared in response to the request for staff memorandum dated December 8, 2008 in the matter of applications to appropriate water No. 63-32573 in the name of M3 Eagle, LLC (M3). The following information was requested:

1. A full analysis of the methods of gathering data, the data presented, and results of the aquifer tests or other tests or modeling contained in the information submitted by the parties.
2. A secondary review of any review and analysis of the original documents submitted by the parties.
3. Presentation and analysis of additional data available to Department staff to enhance the hearing officer's understanding of the hydrogeology and aquifers in the vicinity of the proposed appropriations of water.
4. Conclusions about the impacts on other water users and aquifers caused by pumping of ground water as proposed by the application to appropriate water no. 63-32573.
5. Any analysis of M3 Eagle LLC's demographic and economic modeling and forecasting.

1) **Request #1** – ***A full analysis of the methods of gathering data, the data presented, and results of the aquifer tests or other tests or modeling contained in the information submitted by the parties.***

HLI has collected, analyzed, and reviewed a significant amount of data in an attempt to characterize the aquifer beneath the M3 property on behalf of the applicant. The following sections summarize our review of HLI's aquifer characterization work.

a) Subsurface Exploration: Well Drilling and Geophysical Logging
HLI drilled four exploratory test wells (TW#1, TW#2, TW#3, and TW#4) on M3 property, with depths ranging from 672 to 900 feet below ground surface (Figure 1). All four test wells were completed with multiple monitoring ports to facilitate water level measurements and water quality sampling at various depths within the aquifer. Geophysical data (resistivity and natural gamma) were collected in each of the test wells. Composite diagrams that summarize well construction, geophysical, geologic, water chemistry, and water level data were developed for the M3 test wells and six other nearby wells.

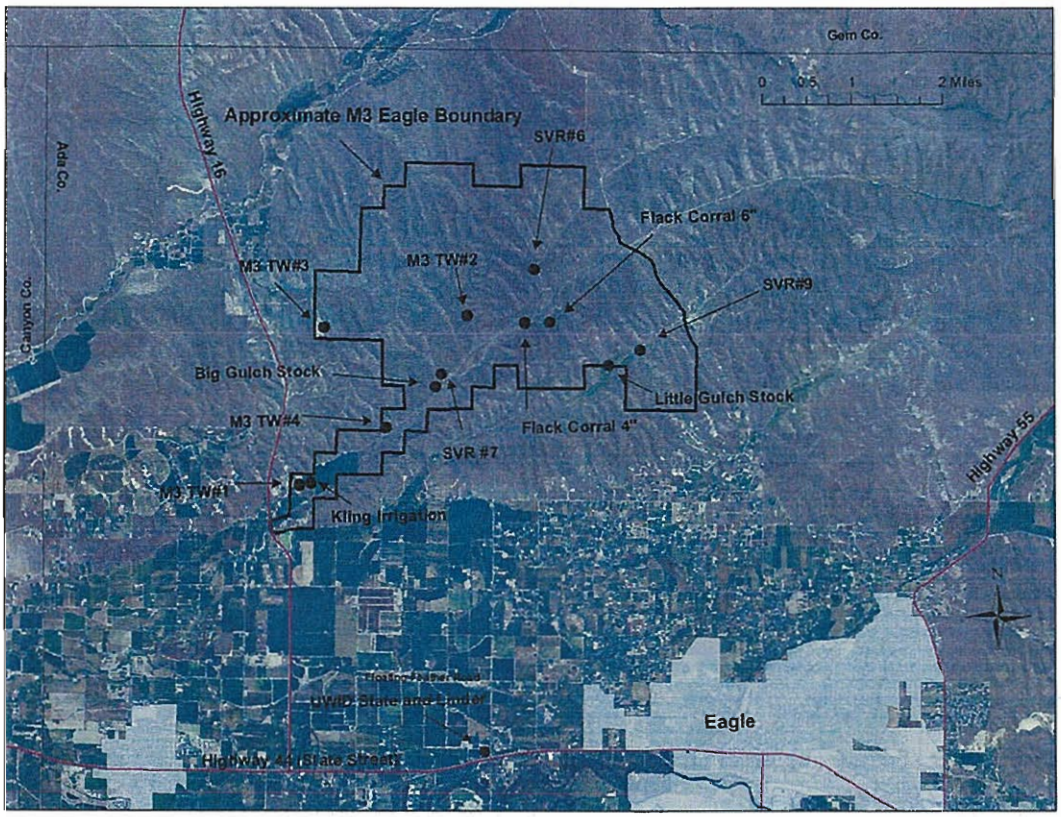

Figure 1. Approximate locations of wells on the M3 property.

A review of the composite diagrams indicates that the stratigraphy of the area is complex, consisting of alternating layers of sand, silt, gravel, and clay. The Pierce Gulch Sand (PGS) Formation has been identified by HLI beneath the southern half of the M3 property. Previous investigators have defined the PGS as a thick sequence of arkosic sand with interbedded units of silt, clay, and gravel (Othburg and Stanford, 1992). Where saturated, the PGS forms an aquifer that is referred to by HLI as the Pierce Gulch Sand Aquifer (PGSA). The PGSA is the aquifer targeted for development in this water right application.

b) Surface Geophysical Investigations

HLI commissioned magnetometer and seismic profiling surveys on and around the M3 property. The purpose of these investigations was to obtain additional stratigraphic information beneath the area of investigation.

The magnetometer survey was conducted by BSU in 2006, with the results interpreted by Dr. Spence Wood. Wood identified two NW/SE trending "major" faults that transect the M3 property (Figure 2) and determined that sediments beneath M3 extend to a depth of more than 3,000 ft (Wood, 2007). Wood also identified several other off-site faults with the same NW/SE orientation.

beneath M3 extend to a depth of more than 3,000 ft (Wood, 2007). Wood also identified several other off-site faults with the same NW/SE orientation.

The seismic survey was also conducted by BSU during the summer of 2006. The objectives of the survey were to define the shallow (<1,000 ft deep) sedimentary section and to delineate aquifers, the deeper volcanic bedrock, and structural faulting. After acquisition and attempted analysis of data from several locations, it was decided to terminate the investigation based on poor data quality (Bradford, 2006). Therefore, no significant information was obtained from the seismic survey.

c) Geologic Cross-Sections

Four geologic cross-sections were developed by HLI based on geophysical and geological data collected from deep wells in the area. The cross-sections extend from the M3 property to the Boise River and from the City of Star to Garden City. In general, the four cross-sections represent the PGSA as a laterally extensive, approximately 300-foot thick section of sand that dips to the southwest. Observations concerning the stratigraphy depicted on the cross-sections are as follows:

- The cross-section that bisects Big Gulch does not show the fault between TW#1 and TW#4 that was identified in surface geophysical work contracted by HLI (Wood, 2007). The offset from this fault could account for, at least in part, some of the differences in elevation of the tops and bottoms of the various strata that are represented as uninterrupted. The identification of faults is important for the characterization of the hydrogeology because faults often affect hydraulic communication between hydrostratigaphic units.

- It is difficult to distinguish the PGSA from the "undifferentiated alluvial aquifers and aquitards" in UWID test wells along the Boise River. Based upon geologic and geophysical data shown on the cross-sections, there is a lack of fine-grained sediments that define the top of the PGSA under the M3 property. The absence of a thick, laterally continuous confining layer provides a mechanism for hydraulic communication between the PGSA and overlying undifferentiated sediments.

- The stratigraphic profile of SVR#7 (the pumping well for a nine day aquifer test conducted on the M3 property) is not included on the cross-section that bisects Big Gulch. If included, the cross-section would require modification.

- The stratigraphic and geophysical logs for TW#4 do not show a strong correlation with the depiction of the mudstone unit drawn in the cross-section that runs from TW#3 to the UWID State and Linder well.

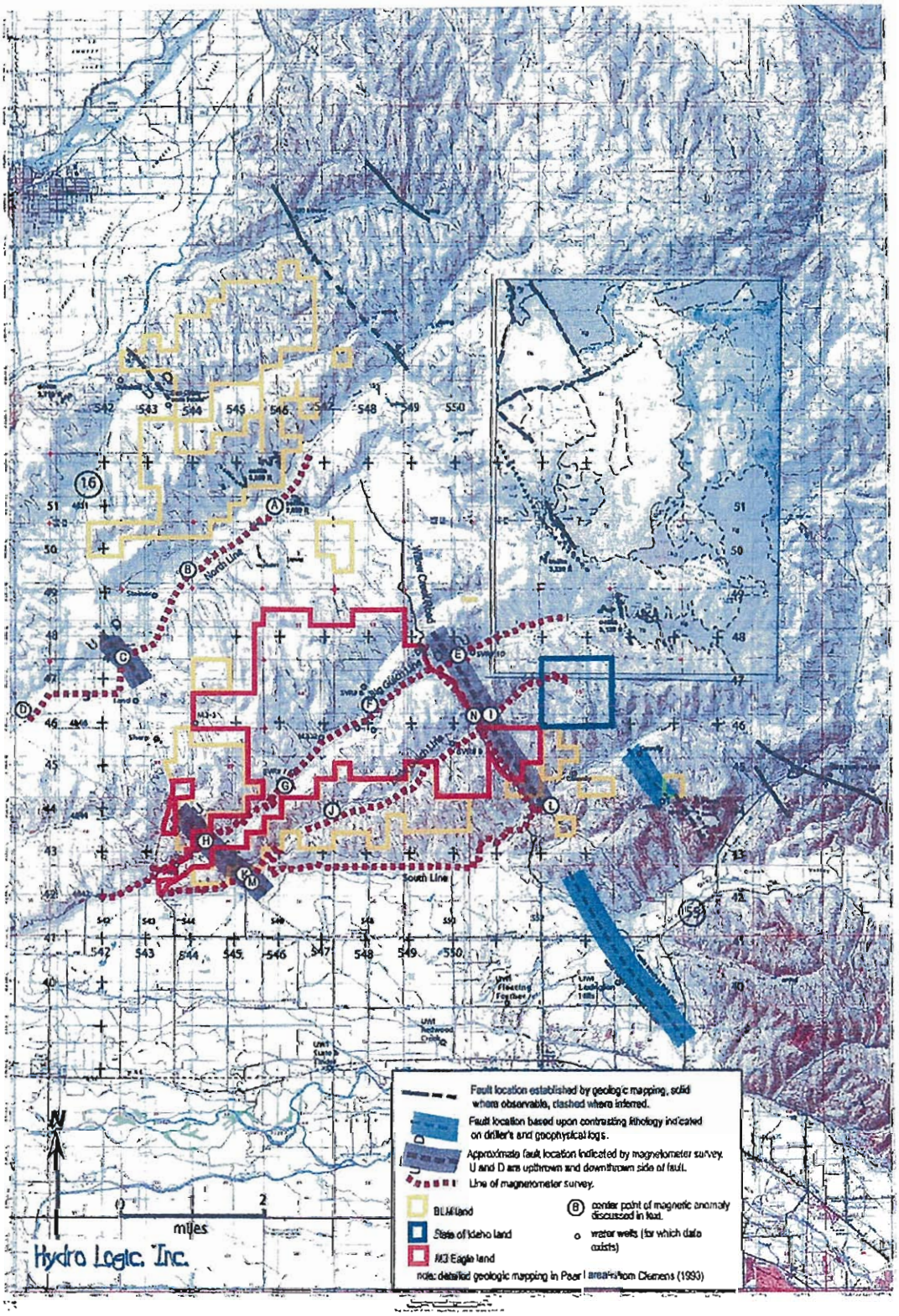

Figure 2. Mapped faults on and near the M3 property (Reproduced from Wood, 2007).

- The base of the PGSA is drawn at different elevations on the two cross-sections in which TW#4 stratigraphy is shown. Also, the top of the PGS in the UWID State and Linder well is at a different elevation in the two cross-sections that transect this well.

In summary, the above observations demonstrate that the delineation of the hydrostratigraphy based on available geophysical and geologic data is a detailed, difficult, and subjective undertaking. Moreover, it is unclear based on our analysis of the presented data whether the PGS is a distinct, laterally continuous layer, as conceptualized by HLI, or if it possibly merges with overlying undifferentiated sediments basinward and/or is hydrologically compartmentalized by faults. The contribution of basin margin faults to hydrogeologic uncertainty was previously identified in a study that was conducted for the Treasure Valley Hydrologic Project:

"In addition to complexity inherent in deposition and erosion, a series of major faults bisect the stratigraphic section along the northern basin margin. The hydrologic impact of these faults is poorly understood, but they are likely to be an important influence on ground water flow in the Boise-area aquifers." (Hutchings and Petrich, 2002, p. 2)

d) Water Level Data

During the past three years, HLI has conducted two synoptic mass measurements in North Ada County and has instrumented wells to collect routine water levels in a network of wells on and near the M3 property. The following sections summarize the water level data collection and analysis performed by HLI.

i) Mass Measurements

During the summer of 2006, HLI collected 167 water level measurements in the greater M3 area. Location and elevation data were also collected at each well with a GPS unit and used to develop a water elevation contour map for the PGSA. The data and contour map were presented in a technical memorandum submitted to the Department that suggests that ground water flows to the west underneath the M3 property and northwest toward the Payette River after leaving M3 (HLI, 2007b). According to HLI well completion data, water levels used to create this contour map were collected from wells within the PGSA, the Willow Creek Aquifer, and in "*undifferentiated alluvial aquifers*".

A second mass measurement was completed during June and July of 2007 to refine the assessment of ground water direction in the PGSA. The 59 wells selected for this mass measurement were a subset of the PGSA wells that were measured in the 2006 mass measurement, along with 16 additional wells that were chosen to provide additional control points for determining ground water flow direction in the PGSA. Twenty-eight of the wells had wellhead elevations surveyed to the nearest 0.01 ft prior to the measurements. The mass measurement

data were submitted to the Department as a technical memorandum which included an updated water level contour map. The updated map suggests that the ground water flow direction beneath the M3 property is to the west, and the flow direction is northwest toward the Payette River after leaving M3 (HLI, 2008c).

Observations concerning the mass measurement data and updated water level contour maps are as follows:

- The contour map shows that only four wells west of the Ada/Canyon County line were used to determine the northwest regional flow direction. Of these four wells, two (Rio Lobo and Shalako) are located within the same section and the elevations and locations of the other two (Zigler and Caldwell Test Well #19) were not surveyed. The scarcity of surveyed control points west of the Ada/Canyon county line creates uncertainty in the determination of the regional flow direction.

- The Zigler well is the only control point in the Payette River valley. Well completion data for this well was not included in the HLI submittal (HLI, 2008c). It has not been established that the PGSA is present at this location.

- The water level for the Caldwell Test Well #19 that is posted on the updated contour map is 2,450 feet above mean sea level (ft-msl). The only water level measurement reported for this well is 2,442 ft-msl and this measurement was collected in 2005 rather than in 2007. In addition, the data submitted by HLI indicates that this well is "*above the PGSA*" (HLI, 2008c). These considerations suggest that the data point should not be relied upon for determining ground water flow direction in the PGSA.

- Use of water levels that were collected during the irrigation season adds uncertainty to the determination of ground-water flow direction.

- The intersection of the geologic contact between the PGSA and the Willow Creek Aquifer and surficial sediments on the M3 property was treated as a no-flow/barrier boundary in the initial development of ground water contours with a commercially available contouring program (Surfer®). The existence of this flow barrier helps explain water level and water chemistry differences between the PGSA and the Willow Creek Aquifer. However, the flow barrier that was used for contouring abruptly stops approximately three miles to the northwest of the M3 property, allowing PGSA water to flow north and merge with ground water in the Willow Creek Aquifer. The basis for terminating the no-flow/barrier boundary is unclear based upon the information that was submitted to the Department.

- A previous study (Wood, 2007) indicates that the PGS outcrops along the southern bluffs of the Payette River Valley. These PGS outcrops are unsaturated with no visible springs or other evidence of ground water

discharge. The HLI conceptual model does not include an explanation of where and how the PGSA discharges into the Payette River Basin Aquifer.

In summary, available water level data clearly indicate a west ground water flow direction in the PGSA beneath the M3 property. The determination that the regional flow direction is northwest toward the Payette River is less convincing, however, because of the scarcity of surveyed control points and an incomplete hydrogeologic conceptual model.

ii) Routine Measurements

In addition to mass measurements, HLI has installed data loggers to collect water levels on a regular basis. Thirteen wells (four with multiple observation ports) currently are equipped with data loggers to monitor different levels within the PGSA. Data submitted to the Department spans back to July of 2006 for some of these wells.

A figure summarizing data logger measurements from nine of the PGSA wells was submitted to the Department as part of the SVR#7 aquifer test report (HLI, 2009, Figure 46). Observations related to this figure are as follows:

- Although presented on the figure, water levels in the Kling domestic well are not discussed in any of the HLI submittals. It appears from inspection of the figure that the Kling domestic well did not fully recover from the Kling irrigation well aquifer test that was conducted in January 2007.

- Comparison of the water level fluctuation patterns allows the wells to be grouped. Wells in the first group include the State and Linder monitoring well, TW#1, and the Kling domestic well (Group 1). The second group includes TW#4, SVR#7, SVR#9, TW#2, and TW#3 (Group 2). Distinguishing characteristics of the two different water level trend patterns are as follows:

    - The seasonal fluctuation seen in Group 1 wells is nearly an order of magnitude greater than the fluctuations seen in Group 2 wells. For example, the seasonal fluctuation was approximately 13 feet in TW#1, but was only 1.5 feet in TW#3 is approximately 1.5 feet.

    - Responses to "*hydraulic events*" (April 2007, June 2007, August 2007, and May 2008) are apparent in the hydrographs for Group 1 wells but are not apparent in the Group 2 hydrographs.

- The NW/SE trending normal fault identified by Wood (2007) separates the two well groups and potentially accounts for the different water level fluctuation patterns.

- Over the past three years, the water levels in the Group 2 wells have a distinct downward trend. This trend is similar to the results obtained from a water level trend analysis that was conducted by the Department (Appendix A). Downward trends are not apparent in Group 1 wells, possibly because of greater water level fluctuations and incomplete data records.

- The hydrograph for the Big Gulch Well was not included in Figure 46 even though this well had the greatest drawdown among the observation wells measured during the SVR#7 aquifer test.

In summary, water levels collected with data loggers on the M3 property over the past three years have provided valuable information regarding water level fluctuations beneath the site. Analysis of these data reveals two distinct patterns of water level fluctuations in the PGSA. The patterns are different on each side of a mapped normal fault. Knowledge of the hydrologic significance of basin margin faults appears to be critical to understanding the hydrogeology in the vicinity of M3.

e) Aquifer Testing

i) Kling irrigation Test

HLI conducted two constant rate aquifer tests on the M3 property. The first test was conducted in the summer of 2007 using the Kling irrigation well, a 408-foot deep well which, according to HLI, is completed in the upper 109 feet of the PGSA. The Kling irrigation well was first rehabilitated and then pumped at 900 gallons per minute (gpm) for 50 hours while monitoring the water levels in the pumping well and six nearby observation wells. Noteworthy items related to the Kling irrigation well aquifer test are as follows:

- Drawdown was only observed in the pumping well and the closest observation well, TW#1, a multi-level monitoring well with four PGSA monitoring zones. Although the response to pumping from the upper PGSA was first measured in the deeper PGSA zones, the upper zone at TW#1 had the greatest drawdown at the end of the test (HLI, 2008b).

- Based on the analysis of the pumping well test data, HLI's estimate of aquifer transmissivity in the region of the pumping well is 39,000 gallons per day per foot (gpd/ft). Because of well construction issues, HLI feels that the transmissivity estimate may be unrealistically low (HLI, 2008b, p. 215).

- Water level data were collected in the Kling domestic well (see Figure 46 of HLI, 2009), but were not discussed in the write-up for the aquifer test analysis.

- A fault lies between the pumping well and the non-responding observation wells. Although HLI modeled this fault as a no-flow/barrier boundary in their computer-aided analysis of aquifer test data, they seem less certain of its

impact in concluding "*A no-flow boundary could, in theory, have affected responses in the lower part of the aquifer*" (HLI, 2008b, p. 206).

- HLI recommended that an aquifer test lasting at least a week be conducted using a properly designed and constructed high capacity well (1,000 to 2,000 gpm) to better characterize the nature of the aquifer beneath M3 (HLI, 2008b, p. 215).

In summary, although of limited duration and despite well construction issues, the Kling irrigation well aquifer test provided valuable information regarding aquifer properties under this portion of the property and highlighted the potential importance of a NW/SE trending fault on water level declines caused by pumping in the PGSA.

ii) SVR#7 Aquifer Test

The second HLI constant rate aquifer test was conducted in March of 2008. SVR#7, a Spring Valley Ranch well completed in the PGSA on M3 property, was pumped at approximately 900 gpm for nine days. The purpose of this test was to collect on-site hydrogeologic data to further characterize the PGSA and to evaluate possible constraints that would impact the execution of a longer duration aquifer test. The following observations are based upon our review of the SVR#7 aquifer test report (HLI, 2009):

- Measurable drawdown was reported in eight of the 13 wells monitored during the test. Drawdown at the end of test ranged from 1.71 feet in a well approximately 845 feet from the pumping well to 0.09 feet in a well approximately 11,660 feet (2.2 miles) from the pumping well.

- Two well completions in the shallow "unnamed fluvial sand aquifers" were monitored during the test. Drawdown was measured in the closest shallow well completion (TW#4, Zone 3), which is approximately 4,500 feet from the pumping well, but not detected in the more distant shallow well completion (TW#1, Zone 5), which is approximately 11,000 feet from the pumping well.

- Small but "measurable" drawdown was noted in the Little Gulch stock well and SVR#9, at distances of 9,740 and 11,660 feet from the pumping well, respectively (HLI, 2009, Table1). Drawdown was not "measurable" in either the Kling irrigation well, which is 9,908 feet away from the pumping well, or in any of the monitoring zones at TW#1, which is 10,916 feet from the pumping well. In relation to the pumping well, the Kling irrigation well and TW#1 are on the opposite side of the "major" normal fault which is located between TW#1 and TW#4.

- Drawdown plots were analyzed to estimate aquifer properties (transmissivity and storage coefficient) beneath the site. Transmissivity estimates range from

180,000 to 580,000 gpd/ft, with an average value of 420,000 gpd/ft. The average storage coefficient estimate is 3×10^{-3}.

- There is an increase in slope on the semi-logarithmic plot of drawdown versus time for the Big Gulch stock well approximately 6,000 minutes (~4 days) into the test (HLI, 2009, Figure 24). An increase in slope is characteristic of the cone of depression encountering a no flow/barrier boundary (Driscoll, 1986; p. 231 and USBR, 1995, p. 251). HLI instead attributes the slope increase to a declining regional aquifer water level trend, which is a plausible concept. Unfortunately, a plot of trend-corrected drawdown is not presented for the Big Gulch stock well. Our calculations indicate that the regional trend (Figure C-2) does not fully account for the increase in slope that was observed on the semi-logarithmic plot for the Big Gulch stock well.

- The Big Gulch stock well had not fully recovered from pumping at the end of the 12-day water level recovery monitoring period. Although there are other possible explanations, the fact that water levels did not recover to the pre-pumping levels suggests that the aquifer may be of limited extent (Driscoll, 1986, p. 259). HLI attributes incomplete recovery to the declining regional water level trend but the residual drawdown after correcting for the declining trend was still approximately 0.5 feet at the end of the water level recovery monitoring period.

- Although the duration of this test exceeded most of the previous aquifer tests in the area, a longer duration test (~30 days) with additional monitoring in the shallow aquifers, would stress a greater portion of the aquifer, facilitate evaluation of hydrologic boundaries, and provide data for better estimating the long term impacts of pumping.

In summary, the aquifer testing conducted by HLI demonstrates that the PGSA beneath the M3 property is highly productive. The results from the nine-day test are reliable because of careful planning and data collection. Several lines of evidence suggest that the aquifer may be bounded by faults. An aquifer test of longer duration could be used to evaluate the hydrologic significance of the fault.

f) Aquifer Test Analysis

HLI submitted a report to the Department in August of 2008 titled "*Re-Analysis of 16 Aquifer tests in the Greater Eagle-Star Area of North Ada County, Idaho.*" The report summarizes the original testing and reanalysis of 16 aquifer tests previously conducted in the greater Eagle area by various entities. Of the 16 reanalyzed tests, HLI suggests that 10 were conducted in the PGSA, one was conducted in an overlying shallow alluvial aquifer, and the remaining five were conducted in various other vicinity aquifers.

Based on reanalysis of the data, HLI concludes that the PGSA in the vicinity of M3 is a single, continuous, heterogeneous, highly productive aquifer with

transmissivity estimates ranging from 40,000 gpd/ft to 800,000 gpd/ft. The average transmissivity (210,000 gpd/ft) is higher than the high end of the range of previous estimates (100,000 to 200,000 gpd/ft). The differences between the original estimates and the revised estimates are attributable to HLI's determination that the PGSA is much thicker than estimated by previous investigators. HLI estimates that the PGSA thickness is typically on the order of 275 feet, and over 500 feet is some areas (HLI, 2007b, p. i).

Other noteworthy conclusions made by HLI are as follows:

- The PGSA in the vicinity of M3 is the same regional aquifer that is relied upon as the primary water supply for the cities of Eagle, Star, and Meridian (p. ii).

- The Willow Creek Aquifer that underlies the northeast portion of the M3 property is described as "*A highly permeable, but isolated and bounded, sand unit with limited recharge*" (p. 239).

- "*Potential well yields from the Willow Creek Aquifer are high but we expect that long term production could be severely constrained by small amounts of recharge and a bounded system that would significantly increase water-level drawdowns and pumping lifts*" (p. 240).

- The Sandy Hill Aquifer northeast of Eagle is described as "*Another highly permeable, isolated and bounded sand unit with limited recharge*" that has high short-term well yields but long-term production that "*would be severely limited by small amounts of natural recharge*" (p. 240).

In summary, the compilation and reanalysis of data from 16 previous aquifer tests represents a significant undertaking on the part of HLI. The reanalysis yielded an updated hydrogeologic conceptual model and revised estimates of aquifer properties for vicinity aquifers. HLI concludes that other vicinity aquifers have limited long-term sustainability owing to hydraulic isolation and limited on-site recharge. In our opinion, the possibility of limited long-term sustainability for the PGSA also cannot be discounted based upon currently available data.

g) Geochemical Investigations

In 2007, HLI concluded that the chemistry of PGSA ground water is distinguishable from the chemistry of ground water from wells completed in the Willow Creek Aquifer (HLI, 2007a). This distinction was based primarily on differences in total dissolved solids and nitrate concentrations.

A more in-depth geochemical analysis of historic and recently acquired ground water chemistry data was submitted to the Department on January 20 of this year (Glanzman and Squires, 2009). Samples were collected from approximately 40 wells and springs across the region and analyzed for field parameters, major ions,

and selected trace elements. Major ion chemistry was plotted on Trilinear (Piper) diagrams for each sample location. Findings from the 2009 geochemical analysis include the following:

- "*PGSA groundwater originated almost exclusively from ancestral Boise River surface water*" (p. 4).

- Wells located in the Payette River valley near Emmett are not hydraulically connected to the PGSA (p. 9).

In summary, historical and newly acquired water quality analyses have been interpreted to indicate that there is a difference between the water chemistry in the PGSA and the water chemistry in surrounding aquifers. The data also have been interpreted to indicate that PGSA water originated almost exclusively from the ancestral Boise River. Department staff believe that an isotopic study of ground water in the PGSA could help to evaluate the determination that modern day recharge sources are not contributing recharge to the PGSA.

h) Ground-water Flow Modeling

HLI contracted with Pacific Groundwater Group (PGG) to develop a ground water flow model that could be used to predict impacts caused by pumping in the PGSA at M3. PGG developed a seven layer model that comprises approximately 80,000 active cells and covers 520 square miles in the area surrounding M3. A report summarizing the model and its development, including a review of existing models in the area, was reviewed by Department staff (HLI, 2008a). The following are observations regarding the M3 modeling report:

- HLI conducted a review of existing models in the area and attempted to incorporate the knowledge and experience gained from these efforts into the new M3 model.

- Two versions of the model were developed. One version (Tmatch) was forced to honor the range of available transmissivity estimates and the second version (Hmatch) used transmissivities outside the range of available estimates in order to achieve a better calibration. Both versions were first calibrated to "*quasi-steady state conditions*" (water level measurements collected in 2007) and then to water levels measured during three constant rate aquifer tests (Lexington Hills, Eaglefield, and SVR#7).

- Simulated underflow directly into the PGSA at the southeast corner of the model is conceptualized to be seepage from the Boise River and the New York Canal (HLI, 2008a, p. 33). The idea that seepage from the modern day Boise River and its canal system recharges the PGSA seemingly is at odds with HLI's conclusion that the original source of PGSA water is almost exclusively the ancestral Boise River (Glanzman and Squires, 2009, p. 4).

- The simulated discharge area for the PGSA is the Payette River Valley.

- The model representation does not include a NW/SE trending fault between TW#1 and TW#4 that was identified by Wood (2007) using surface geophysics.

- The model was run to predict long-term impacts from pumping on the M3 property and influences from a reduction in seepage from the New York Canal. Model predictions are discussed in our response to the fourth bulleted item in the *Request for Staff Memorandum*, which starts on page 20 of this memorandum.

- One of IDWR's ground water modelers reviewed the modeling report and identified the following three concerns: (1) the use of the general head boundary at the inlet of the model should be used cautiously; (2) having two different versions of the model doesn't necessarily bracket uncertainty, as asserted by HLI on page 13 of the M3 modeling report (HLI, 2008a); and (3) the M3 modeling report indicates that the model calibration was sensitive to vertical hydraulic conductivity but the sensitivity of the model predictions to this input are not discussed (Appendix B).

In conclusion, a ground-water flow model based upon HLI's hydrogeologic conceptual model has been developed for prediction of hydrogeologic impacts. As described elsewhere, the basis for several important elements of the HLI conceptual model has not been provided. A potentially significant hydrogeologic feature (i.e., a fault) has not been incorporated into the model.

2) **Request #2 – *A secondary review of any review and analysis of the original documents submitted by the parties.***

The North Ada County Groundwater Users Association (NACGUA) hired a hydrogeologic consultant to provide a technical review of the data and reports submitted by HLI. Ralston Hydrologic Services, Inc., conducted the review and reported the findings in two technical memoranda, an expert report, and a supplement to the expert report based upon review of a recently submitted geochemistry report. The following sections summarize the reviews that were submitted on behalf of the protestants.

a) *Initial Hydrogeologic Analysis*, dated November 6, 2008.
This memo is organized into four sections. The first section provides a summary of the hydrogeologic information provided to date on behalf of the applicant. The second section is an analysis of the HLI's hydrogeologic conceptual model. The third section is review of HLI's analysis of the ground water flow system. The fourth section is a review of HLI's analysis of the likely impacts from full project development.

The first section provides quotes from the characterization report submitted by HLI (HLI, 2007a) but does not make any conclusions. The primary conclusions from the other three sections of the memo are as follows:

> *"I conclude that there is not sufficient evidence to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the M3 Eagle site to the Payette River. Also, additional work is needed to assemble and present the available information to support the presumption of lateral extent and continuity of what has been called the Pierce Gulch Sand Aquifer from the M3 Eagle site to the presumed recharge area in the Boise River drainage."* (p. 3)

> *"I conclude that there is not sufficient evidence to support the presumption that ground water flows in the manner and quantity described within what has been called the Pierce Gulch Sand Aquifer from the presumed recharge area in the Boise River drainage to the presumed discharge area in the Payette River drainage."* (p. 4)

> *"I conclude that the characterization of the target aquifer system, including a pre-development water balance, has not been complete enough to support an analysis of impacts from full project development."* (p. 5)

b) *Review of 2008 HydroLogic, Inc. Report*, dated November 26, 2008.
The second memo is a review of the report entitled "*Re-Analysis of 16 Aquifer Tests in the Greater Eagle-Star Area of North Ada County, Idaho*" (HLI, 2008b). The one paragraph memo concludes:

> *"I found no information that would change the conclusions stated in my November 6, 2008 report on the M3 Eagle development. My November 6, 2008 report is an accurate statement of my professional conclusions relative to the project."*

c) *Hydrogeologic Analysis of the M3 Eagle Site, Expert Report Prepared for the North Ada County Ground Water Users Association*, dated January 2009.
This expert report is the most comprehensive review conducted on behalf of the protestants. Four HLI reports are reviewed (HLI, 2007a; HLI, 2008a; HLI, 2008b, and HLI, 2008c). The expert report includes a summary of hydrogeologic information developed by HLI and identifies issues with the conceptual and numerical models.

The 2009 review provides the following conclusions:

> *"I conclude that there is insufficient evidence to support the assumption that the Pierce Gulch Sand Aquifer is laterally continuous from the Boise River Valley to the Payette River Valley."* (p. 9)

"I conclude that the 2007 water-level data provide insufficient evidence that ground-water flow occurs from the Boise River Valley to the Payette River Valley." (p. 10)

"In my opinion, the inability to have the M3 Eagle model reproduce aquifer water levels using the calculated transmissivity values indicates that problems exist in the model formulation (such as boundaries) and/or with the input data sets. I do not believe that development of two parallel numerical models is a reasonable solution to the problem. Also, I do not believe that general agreement between the "Hmatch" and "Tmatch" indicates that the numerical model is a reasonable representation of the hydrogeologic system.

Questions come to mind whenever a numerical ground-water model is used to predict impacts on a time scale that greatly exceed the data set used for transient calibration. This is defiantly (sic) *the case with the M3 Eagle numerical model. The data sets used for transient calibration were short (30 and 7 days) and the stress potentially did not cause water-level changes at all aquifer boundaries. Prediction of long-term pumping effects (such as 50 years) involves stressing a much larger portion of the model and likely a number of boundaries. This creates major uncertainty relative to reliability of the drawdown values predicted using the model."* (p. 12)

"The hydrogeologic investigation of the M3 Eagle site has resulted in an improved knowledge of the ground water condition under the site. However, my concerns about development impacts from the project are focused on large scale issues rather than on-site impacts. Specifically, I believe that postulated ground-water flow through a laterally continuous sand aquifer from the Boise River valley to the Payette River valley is not supported by field data. Thus, I believe that the drawdown values predicted either by analytical methods or the numerical model have a high degree of uncertainty." (p. 13)

Three alternative pathways to allow the M3 Eagle project to move forward were also proposed:

1. Formulate an administrative/legal solution that might involve the development of the project under a phased water right.
2. Conduct additional studies to further define the hydrogeology of the PGSA and update the M3 ground water flow model accordingly.
3. Validate the predicted impacts using model boundaries and aquifer properties that were developed as part of the Treasure Valley Hydrologic Project. It is further suggested that the Treasure Valley ground-water flow model might be altered to achieve this purpose.

d) *Hydrogeologic Analysis of the M3 Eagle Site: Supplement #1 Comments from the Review of the Geochemistry Report*, dated January 2009.
This memo provides a summary of the geochemistry report prepared in support of the M3 water right application (Glanzman and Squires, 2009). This memo

provides a general overview of the geochemical investigation and the following primary conclusion:

> *"The geochemical investigation of the general M3 Eagle site has resulted in an improved knowledge of the ground-water conditions in the area. However, the Glanzman and Squires (2009) report does not include information that addressed the major hydrogeologic questions raised in my expert report (Ralston Hydrologic Services, Inc., 2009)".*

3) **Request #3 -- *Presentation and analysis of additional data available to Department staff to enhance the hearing officer's understanding of the hydrogeology and aquifers in the vicinity of the proposed appropriations of water.***

Understanding and quantifying recharge rates to the targeted aquifer are critical in order to evaluate its long term sustainability because without recharge, groundwater withdrawals at even a modest rate will result in aquifer mining. The following sections summarize our concerns relative to the conceptualization and simulation of PGSA recharge.

a) Recharge Sources

The current water budget for the Treasure Valley aquifer system (Urban, 2004, Table 8) indicates that over 80% of the annual recharge returns to the Boise River, limiting the amount available to the deeper aquifers. These numbers agree with conclusions from a previous investigation:

> *"recharge rates to the deeper regional aquifers are limited"* and *"most recharge occurring in shallow aquifer zones does not reach lower zones."* (Petrich, 2004, pgs. 19 and 21, respectively)

HLI postulates that leakage from the Boise River and New York Canal are significant sources of recharge to the PGSA (HLI, 2008a, p. 28). According to their conceptual and numerical models, the PGSA is recharged from Boise River seepage and from New York Canal losses upstream from Cole Road. A discussion of the potential contribution from each of these sources is presented below.

i) Boise River

HLI's estimate of losses from the Boise River is based on information presented in reports that were prepared for the Treasure Valley Hydrologic Project (Urban and Petrich, 1998; Urban, 2004). As explained in the report documenting the M3 ground-water flow model:

> *"Urban reported a Boise River loss to the underlying ground-water system of 15,500 ac-ft/yr (about 21 cfs) during 1996 and 77,000 ac-ft/yr (about 110 cfs) during 2000. Both sets of measurements were made over the reach upstream from Capital Bridge."* (HLI, 2008a, p. 28).

However, our analysis of available information indicates there is considerable uncertainty in the seepage estimates and suggests that the river reach between Lucky Peak and Glenwood Bridge may actually be gaining during certain times of the year. Our review of USGS gage data during the non-irrigation season between 1999 and 2008 (IDWR, 2009a), for example, indicates that the river between Lucky Peak Reservoir and Glenwood Bridge gained approximately 14 cfs on average (Table 1). Similarly, a seepage survey conducted by the USGS (1997) during November of 1996 indicated an overall gain of 52 cfs for this same reach. In addition, some water level contour maps show groundwater flow toward the Boise River through the reach between Lucky Peak and Glenwood Bridge (e.g., Dion, 1972 and Newton, 1991).

Table 1. Estimates of the Boise River gains and losses for the Lucky Peak to Glenwood Bridge Reach.

	IDWR, 2009	**USGS, 1997**	**Urban and Petrich, 1998**	**Urban, 2005**
Estimated Gain or Loss (cfs)[1]	14	52	-21	-110

[1] Gains are indicated by positive values and losses are indicated by negative values.

As previously discussed, geochemical characterization work supports the concept that the water currently being withdrawn from PGSA wells in the M3 area is from the river but available information suggests that it was recharged a long time ago. As expressed in Glanzman and Squires (2009, p. 4), PGSA ground water "*originated almost exclusively from ancestral Boise River surface water*". The idea that the PGSA water was recharged a long time ago is supported by the conclusions of previous investigators:

> "*contemporary seepage from rivers and/or irrigation diversions is not the primary source of recharge for most deeper regional aquifers.*" (Hutchings and Petrich, 2002, p. 58)
>
> And
>
> "*This finding indicates that ground water in the deeper aquifers entered the flow regime prior to atmospheric testing*" (Hutchings and Petrich, 2002, p. 58)
>
> And
>
> "*Residence time estimates in the regional aquifer system ranged from thousands to tens of thousands of years. The youngest waters entered the subsurface a few thousand years ago and were found along the northeastern boundary of the basin, adjacent to the Boise foothills.*" (Petrich, 2004, p.19).

However, our preliminary calculations of travel time using M3 model inputs suggest that water entering the regional aquifer from the southeast corner of the M3 model domain would reach the M3 property in a relatively short amount of

time, approximately an order of magnitude less than the estimated age of the water in the regional aquifer system adjacent to the Boise foothills (Petrich, 2004). Additional data collection and analysis are needed in order to resolve the apparent discrepancy between the HLI conceptual and numerical models.

ii) New York Canal

Only a portion of the total length of the New York Canal is upgradient from the general head boundary in the M3 ground-water flow model that represents recharge into the PGSA from river and canal seepage. The measured loss from the upgradient reach (between Diversion Dam and Cole Road) was 24 cfs in March of 1997 (Berenbrock, 1999). Information that could be used to estimate the percentage of the canal leakage that would recharge the PGSA is lacking.

While there is uncertainty regarding whether and how much seepage occurs upgradient from the PGSA recharge area identified by HLI, a bigger technical question for Department staff is how the water that seeps out of the Boise River and New York Canal could directly recharge the PGSA, as simulated by the M3 numerical model. According to HLI (pg. 33), "*The model estimates that about 102 to 115 cfs (about 65 to 74 mgd) flows into the Pierce Gulch Sand Aquifer from areas lying to the southeast of the model domain. This water is believed to originate as seepage from the Boise River and the New York Canal.*" HLI has not presented geologic data to support the existence of the PGSA beneath the Boise River or provided an explanation of how the canal and river losses end up recharging the PGSA instead of the shallow alluvial system.

b) Water level trend analysis

The possibility that the PGSA did not fully recover following the SVR #7 constant rate test raised a concern to Department staff regarding the ability of the targeted aquifer to sustain pumping at the rate proposed in the water right application. This concern led us to investigate water level trends in other vicinity wells.

Water level data from the IDWR water level database for the 16 historically monitored wells in North Ada County were analyzed for determination of water level trends (Appendix A). The available data for these wells spanned various time-frames and had a variety of measurement frequencies. To facilitate comparison of trends, the data were filtered so that the measurements generally are from the same time of year (the first measurement between 3/01 and 05/31) and the records span a similar time-frame (generally 1996 – 2003). Although subject to interpretation, the producing formation was determined to be the PGSA for eight wells, undifferentiated sediments for four wells, shallow alluvium for one well, and Terteling Springs mudstone for the remaining three wells.

Significant findings from the trend analysis are as follows:

- All eight of the PGSA wells displayed a negative or declining trend. Rates of decline range from 0.21 ft/year to 0.49 ft/year, with an average of 0.27 ft/year. The rates of decline in the PGSA are consistent with those observed between 2006 and 2008 in PGSA monitoring wells that lie north of the fault identified between TW#1 and TW#4 (HLI, 2009, Figure 46).

- There was a slight increase over the same time-frame in all three wells that are located within the Dry Creek Valley.

- The water levels also trended upward in the shallow alluvial well.

- All four undifferentiated wells exhibited declines within the range that was observed for the PGSA wells. These declines are consistent with the finding of a previous investigator that "*ground water level declines were observed in the areas between northwest Boise and Eagle.*" (Petrich, 2004, p. 14).

- The water level trends observed in the four wells completed in undifferentiated sediments are not distinguishable from those for PGSA wells.

- The results of this water level trend analysis were checked with more recent data for 10 of the wells. This effort generally confirmed the results of the earlier analysis, and indicated that the average water trend for the area (not including Dry Creek) is approximately -0.29 ft/year.

In summary, our review of available water level data indicates that water levels in the PGSA near M3 are declining and suggests that current aquifer discharge rates exceed current recharge rates.

4) **Request #4 -- *Conclusions about the impacts on other water users and aquifers caused by pumping of ground water as proposed by the application to appropriate water no. 63-32573.***

Pumping induces flow to a well by creating a cone-shaped depression in the potentiometric surface. Pumping in high capacity wells for the M3 development will induce drawdown in hydraulically connected aquifers. The questions that need to be addressed are (a) how significant will the impacts be and (b) what water users will be impacted?

a) <u>How significant will the impacts be?</u>

HLI first presented calculations of the predicted impacts on water levels in the *Year-One Progress Report* (HLI, 2007a). An image well analysis (see for example, Freeze and Cherry, 1979, p. 330) was performed to estimate drawdown caused by six supply wells,

each pumping at 1,000 gpm. The drawdown was computed for a 90-day pumping period, using the high aquifer transmissivity and storage coefficients estimates to represent a "best case" scenario, and the low aquifer transmissivity and storage coefficients to represent a "worst case" scenario. It is worth mentioning that the use of a lower transmissivity is indeed more conservative for locations proximate to the pumping center but it is not conservative for distant locations because the cone of depression caused by pumping in a low transmissivity aquifer is steeper but not as extensive.

Approximately two miles south of the M3 property, at the intersection of Floating Feather Road and Highway 16, the image well analysis predicted drawdowns of approximately four feet for the best case and eight feet for the worst case (see Figures 9 and 10 in HLI, 2007a). Using the same general methodology but substituting aquifer properties from HLI's SVR#7 aquifer test (transmissivity = 400,000 gpd/ft, storage = 0.0045), IDWR staff calculated drawdown for a revised pumping rate of 4,500 gpm and a pumping period of 50-years (the same time-frame evaluated with the M3 model). Our calculation is conservative in the sense that it neglects to consider recharge but not-conservative because it assumes that the aquifer extends infinitely in the southwest (down-dip) direction. The predicted drawdown at the intersection of Floating Feather Road and Highway 16 is approximately 18 feet after 50 years of pumping (Figure 3).

It is common practice to predict long-term aquifer performance using time-frames that are less than 50 years when applying analytical methods which are based on the Theis (1935) nonequilibrium solution. The Idaho Department of Environmental Quality, for example, recommends that a one-year time-frame be used to project long-term drawdown for public water supply wells. The use of a shorter time-frame can be appropriate, in part because the Theis (1935) solution is premised on the assumption that there are no sources of recharge. With all other input unchanged, application of the image well analysis using a pumping period of one year instead of 50 years results in a similar water level drawdown pattern but the drawdowns are of lower magnitude. The calculated drawdown after one year of pumping at 10 cfs is approximately 8 feet at the intersection of Floating Feather Road and Highway 16.

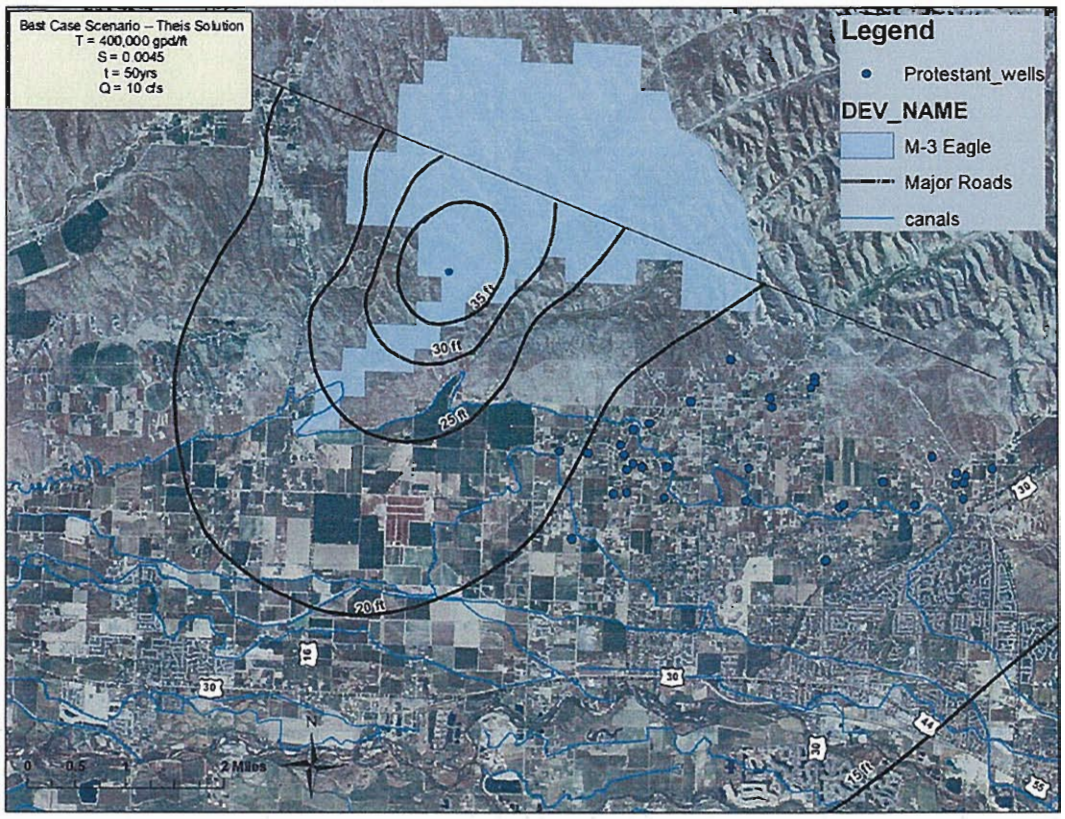

Figure 3. Predicted drawdowns using image well analysis after 50 years of pumping at 10 cfs from the PGSA beneath M3 property.

As previously discussed, HLI contracted the development of a ground water flow model that was used to predict impacts from the pumping of high capacity wells on the M3 property. The "Hmatch" version of the model indicates that 50 years of pumping three wells at a combined total rate of 10 cfs will cause drawdown in the PGSA that ranges from approximatley 30 feet on the property to around five feet at the intersection of Floating Feather Road and Highway 16 near Eagle (Figure 4).

The NW/SE trending fault identified between TW#4 and TW#1 through magnetometer studies was not included in any of the impact assessments performed by HLI or the Department. Based on HLI's aquifer test analysis, this fault potentially represents a no-flow boundary, which could significantly alter the predictions by causing more drawdown on the pumping side of the fault and less drawdown on the non-pumping side.

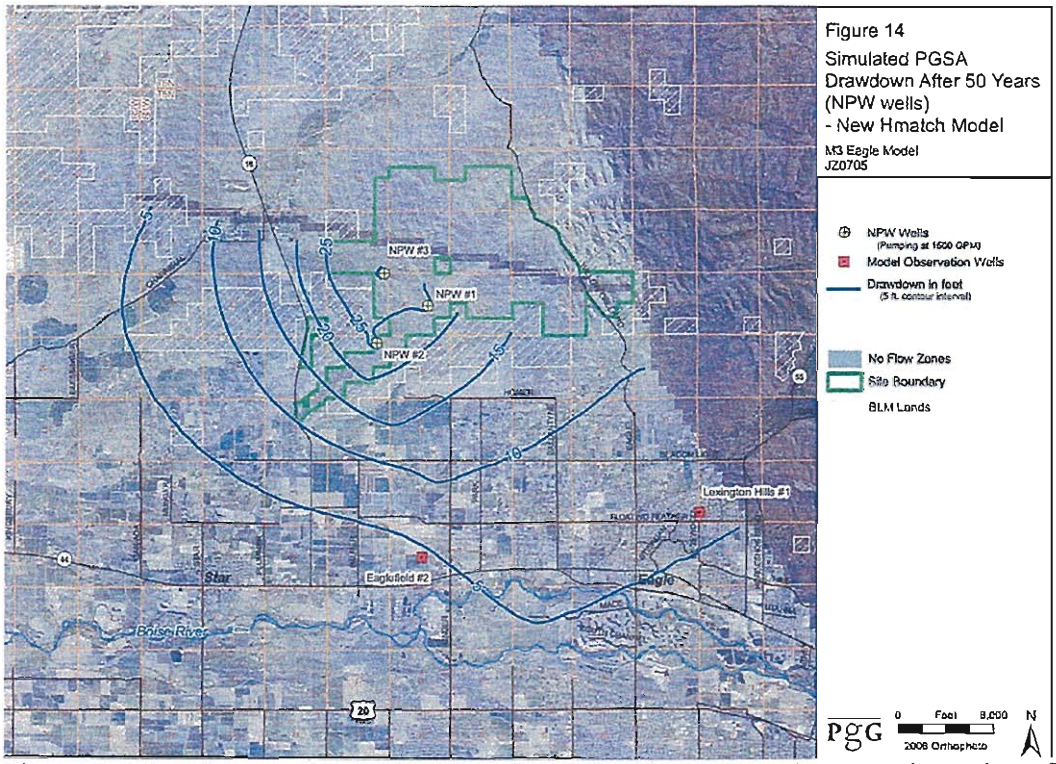

Figure 4. Map showing the results of predicted drawdown from the Hmatch version of the M3 ground water flow model (HLI, 2008a, Appendix B, Figure 14).

b) Impacts to water users

i) Well impacts

Impacts to water levels in wells completed in the PGSA are inevitable. Drawdown could be expected to reduce or eliminate discharge from flowing artesian wells and may require that pumps be installed (HLI, 2008b, p. 241). Non-flowing PGSA wells may have to be deepened or replaced, depending on the current depths of the wells and their proximity to the site.

Shallow aquifers overlying the PGSA appear to have a delayed hydraulic connection with the PGSA based upon the conclusions of investigators:

> "*Clay layers within and above the regional Pierce Gulch Sand Aquifer cause confined-aquifer responses to short-term pumping, but do not eliminate hydraulic connection to the upper water-bearing zones under longer-term pumping.*" (HLI, 2008c, p. 239).
>
> And
>
> "*interference in shallow wells could possibly approach the same levels as those predicted for wells completed in the Pierce Gulch Sand Aquifer after an extended period of pumping.*" (HLI, 2007a, p. 9).

And

> *"We feel fairly certain that there is a "long term" hydraulic connection in the sands of the upper delta sequence (Figure 10); however, local lenses of mudstone in that section may prevent short-term detection of well-drawdown responses. It may take months to decades for large drawdowns to propagate through the seemingly continuous section of interbedded sand and thin muds."* (Squires and Wood, 2001, p. 14).

Based on the existence of a delayed hydraulic connection between the PGSA and overlying aquifers, pumping in the PGSA is likely to eventually impact the majority of area well owners. Impacts to wells completed in aquifers below the PGSA have not been investigated.

ii) Boise River impacts

Potential impacts to the Boise River were not quantified as part of the analysis in support of the M3 water right application. According to HLI:

> *"The Boise River receives discharge from the Pierce Gulch Sand Aquifer and a shallow surficial aquifer via the upward vertical ground water gradients that prevail in the Eagle area."* (HLI, 2007a, p. 13)

Based on the above finding, pumping in the PGSA at M3 would cause a reduction in ground water discharge to the river. The magnitude and location of these impacts has not been determined.

5) Request #5 – *Any analysis of M3 Eagle LLC's demographic and economic modeling and forecasting.*

IDWR staff have not analyzed the demographic and economic modeling and forecasting.

Summary and Conclusions

On behalf of the applicant, HLI has collected and analyzed a significant amount of hydrogeologic data over the past three years. The information has been compiled, analyzed, and submitted to the Department in a series of reports and memoranda for distribution to the public via our website. The information and analyses have been extremely beneficial to developing an improved understanding of the hydrogeology in M3 area.

HLI has shown that an aquifer beneath the M3 site is capable of producing substantial quantities of water. HLI also has developed conceptual and numerical models of the hydrogeology and applied the models to predict impacts to area well owners. Development of this water right by M3 is predicted to result in water level declines on the order of five to 15 feet near the City of Eagle assuming the water budget and aquifer boundary conditions of the M3 model. Significant questions still remain regarding aquifer recharge and sustainability. Impacts to surface water users have not been evaluated.

The primary conclusions based on the review of the data and reports submitted in response to the September 12, 2008 *Order Authorizing Discovery and Schedule Order,* are as follows:

- A highly productive sedimentary aquifer exists beneath a portion of the M3 property.
- The stratigraphy beneath the M3 site is complex, consisting of a thick sequence of coarse and fine grained sediment layers that pinch out and are faulted.
- Hydrologic boundaries and recharge mechanisms are not well defined for the target aquifer.
- The long-term sustainability of the aquifer beneath the M3 property is difficult to assess; some lines of evidence suggest that it may be limited.
- Despite remaining uncertainties, the work that was commissioned by M3 has significantly improved our understanding of the hydrogeology in North Ada County.
- The ongoing North Ada County Hydrogeologic Investigation will help reduce uncertainty.

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APPENDIX A
Memo from Mike McVay

MEMO

State of Idaho
Department of Water Resources
322 E Front Street, P.O. Box 83720, Boise, Idaho 83720-0098
Phone: (208) 287-4800 Fax: (208) 287-6700

Date: March 2, 2009

To: Dennis Owsley

From: Mike McVay

cc: Sean Vincent and Rick Raymondi

Subject: Evaluation North Ada County historical water level trends

Introduction

Per you request, I have reviewed the water level data for 10 wells located in the North Ada County investigation area. This review is intended as a supplemental to the analysis entitled "Evaluation North Ada County historical water level trends, January 28, 2009." The data were reviewed to assess water level trends for the years 1996 – 2008.

IDWR Review

The water level data available were collected over different time-frames and varying collection schedules. Therefore, it was necessary to filter the data and select a common evaluation time-span. The following steps were taken to prepare the data for analyses.

1. Depth-to-water measurements were converted to water level elevations using the land surface datum values listed in the "well-log" database. Elevation accuracy is reported to be +/- 11 feet in well-log. Wells used in this review are presented in Table 1.
2. The data was filtered for yearly spring measurements in each well. Spring measurements were defined as those taken between 03/01 and 05/31 of each year. All attempts were made to choose the most similar date for each year; with preference given to the earliest date in the spring range.
3. **For the January 28, 2009 analysis**, the data period 1996 – 2003 was chosen for comparison. Due to data constraints, wells 04N01E10ACB2, 04N01E03DAD1, 04N02W06CDD1, and 05N01E26DCD1 were evaluated for the period 1996 – 2002; and well 05N03W12CCA1 was evaluated for the period 1996 – 2004. This general period allowed the comparative analyses of 16 wells.

4. **For this analysis,** the data period 1996 – 2008 was chosen for evaluation. This period was chosen to determine water level trends up to the most current data. Data constraints allowed for the comparative analysis of 10 wells.
5. Water level data from all wells were plotted on the same X-Y scale for visual comparison.
6. Linear trends of the spring water level data were developed using the linear function option in Grapher©, and were plotted with the data.
7. Well logs were reviewed to determine if each well was located in the upper undifferentiated sediments (Undifferentiated), the Pierce Gulch sands (Pierce Gulch), Terteling Springs mudstones (Terteling Springs), or shallow water table system (Shallow). These classifications were based on well location and production zone depth, geologic material inventoried in the driller's logs, and comparison with nearby wells that were identified by HLI.
8. Well locations were plotted in ArcMap to give spatial reference (Figure 1).

Table 1. Wells included in water level data review.

Well	Trend Slope	Average Spring WL	Geology ID	Area ID
04N01E-03DAD1	-0.187	2639.1	Undiff	NAda
04N01E-11BBB1	-0.127	2582.3	Undiff	NAda
05N01W-36ABB1	-0.398	2539.5	PG	NAda
05N03W-12CCA1	-0.322	2426.6	PG	NAda
05N03W-15DDC1	-0.489	2439.6	Undiff	NAda
05N01E-34DBB1	-0.198	2648.3	Tert	NAda
04N02W-07AAC1	-0.071	2391	Shallow	NAda
[1]05N01E-35ACA1	-0.01	2747.9	Tert	Dry Creek
[1]05N01E-36AAB1	-0.272	2760.2	UNK	Dry Creek
[2,3]05N01E-32DBD1	-1.06	2575.7	PG	NAda

[1] Water level data suggest that wells in the Dry Creek area are completed in a different aquifer system than other North Ada wells. These wells were not included in the average trend estimation.

[2] No spring water level data is available for well 05N01E32DBD1.

[3] Fall water level data for years 1996 - 2004 were used for well 05N01E32DBD1.

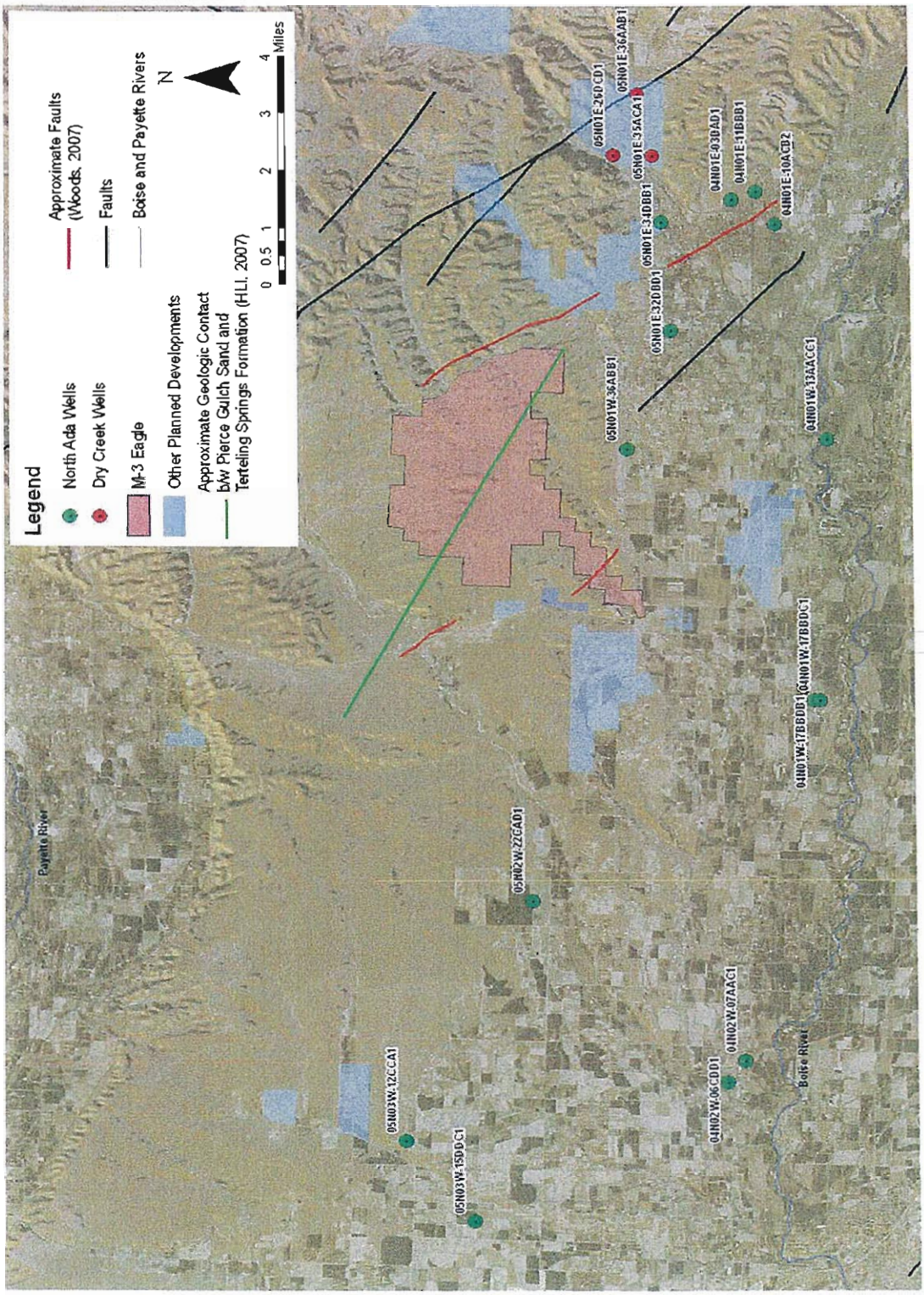


Figure 1. Location of wells used for historical water-level review.

Conclusions

The variable length of data records and sporadic data collection intervals did not allow a statistically rigorous data evaluation. However, linear trend estimations provided the following conclusions:

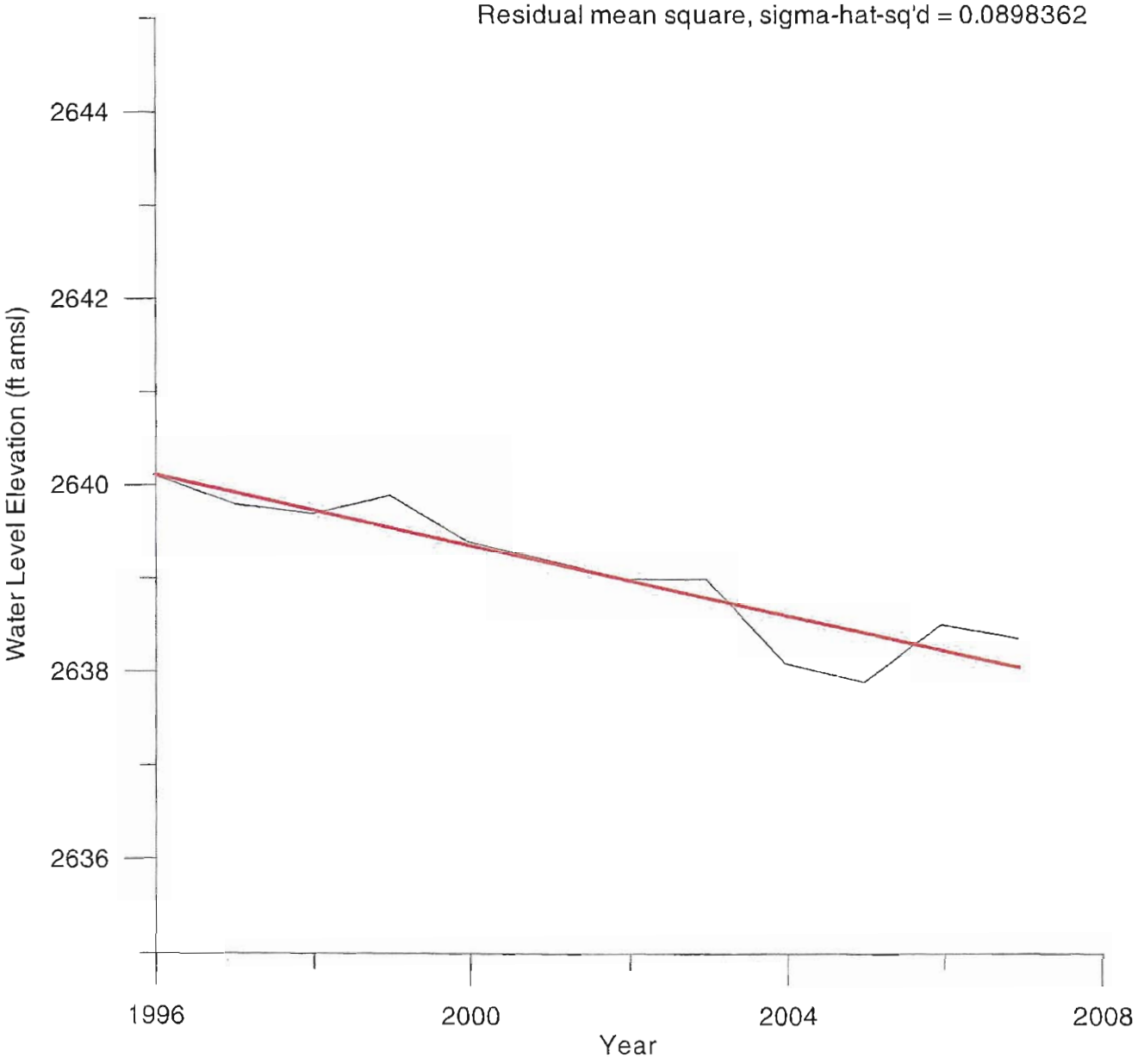
1. Grouping wells based on visual inspection of gross water level behavior leads to three conclusions;
    a. Wells in the Dry Creek area show similar behavior that is different than the other wells in the area.
    b. There is no serial water level behavior present that allows the identification of Pierce Gulch completions.
2. All wells in the area (except 04N01E11BBB1) exhibit negative water level trends that range from -0.11 ft/year to -1.06 ft/year, with an average trend for all wells of -0.29 ft/year.

Undiff

Fit Results

04N01E-03DAD1

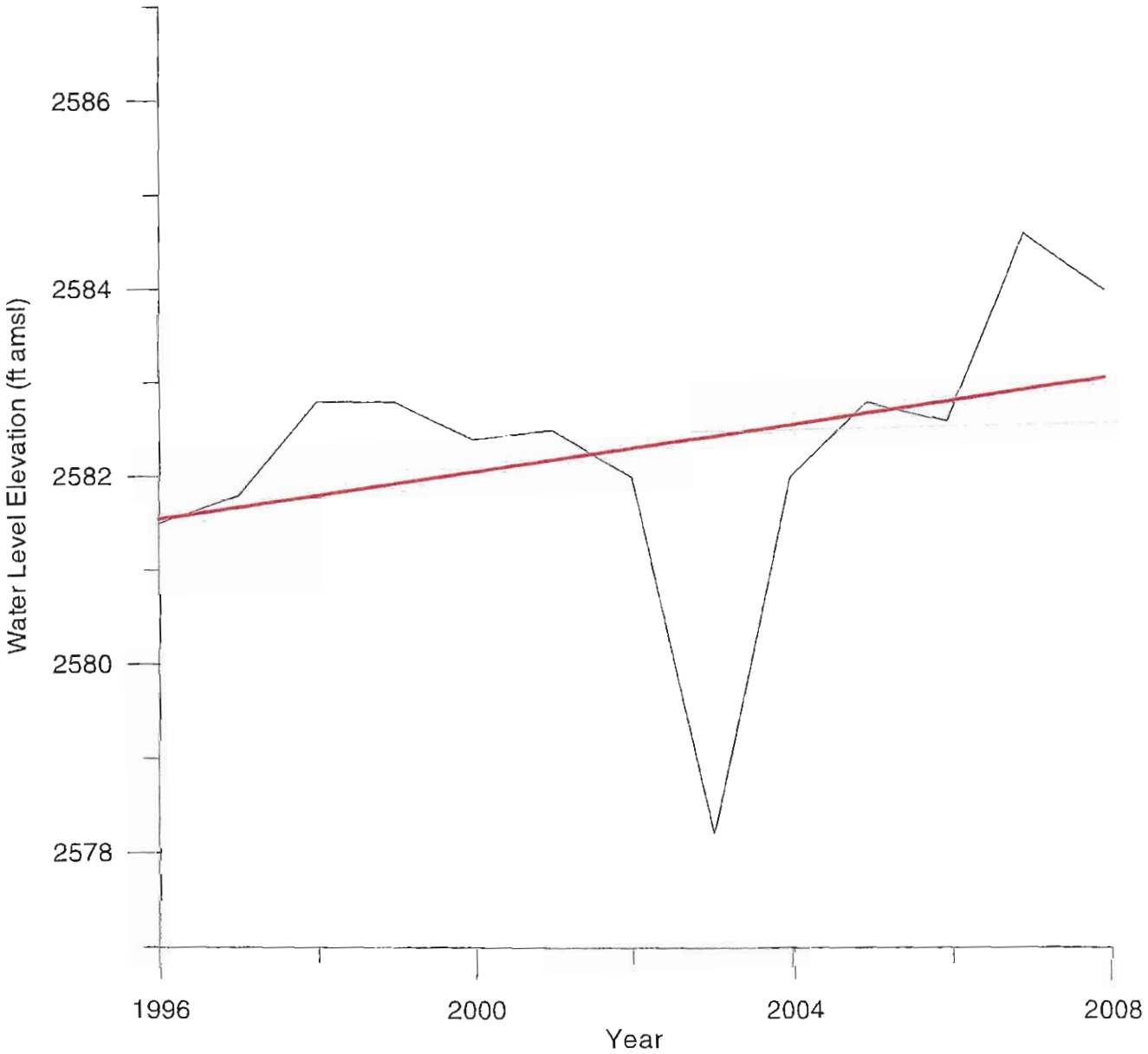
Fit 1: Linear
Equation Y = -0.1874708625 * X + 3014.304876
Number of data points used = 12
Average X = 2001.5
Average Y = 2639.08
Residual sum of squares = 0.898362
Regression sum of squares = 5.02578
Coef of determination, R-squared = 0.848356
Residual mean square, sigma-hat-sq'd = 0.0898362



Unditt

04N01E-11BBB1

Fit 1: Linear
Equation Y = 0.1269230769 * X + 2328.207692
Number of data points used = 13
Average X = 2002
Average Y = 2582.31
Residual sum of squares = 24.0173
Regression sum of squares = 2.93192
Coef of determination, R-squared = 0.108794
Residual mean square, sigma-hat-sq'd = 2.18339

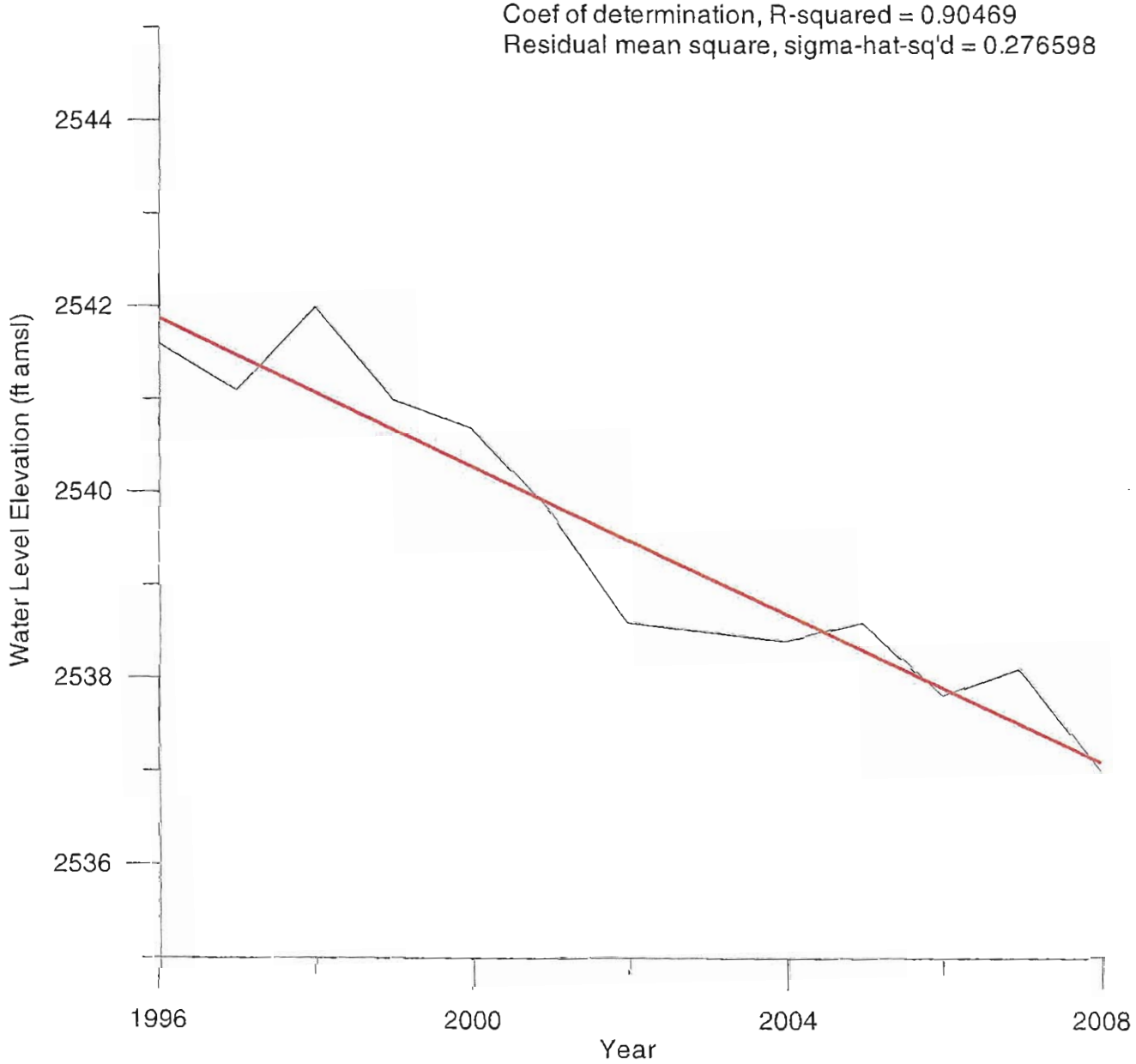


F67

Fit Results

05N01W-36ABB1

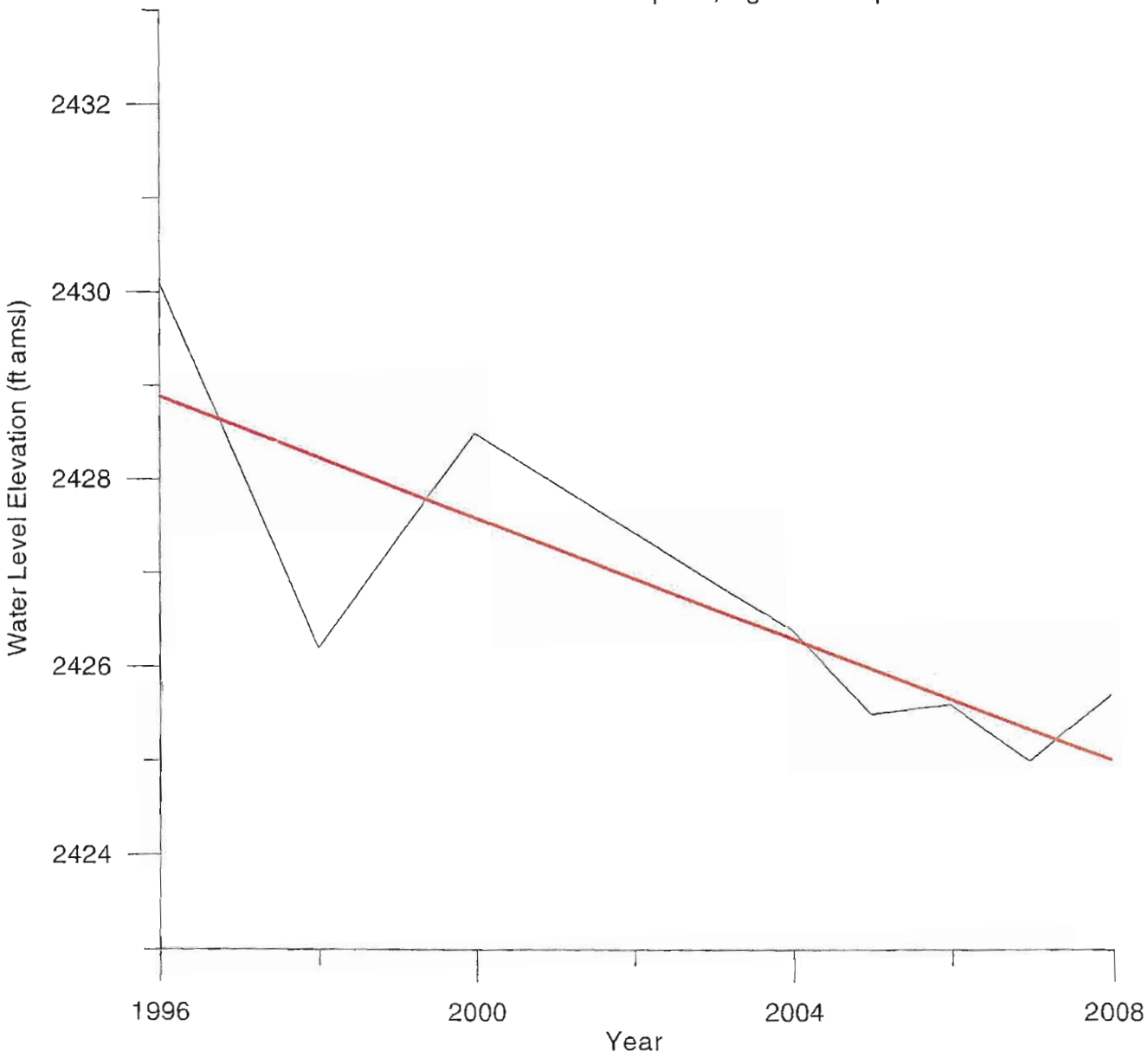
Fit 1: Linear
Equation Y = -0.3983516484 * X + 3336.976923
Number of data points used = 13
Average X = 2002
Average Y = 2539.48
Residual sum of squares = 3.04258
Regression sum of squares = 28.8805
Coef of determination, R-squared = 0.90469
Residual mean square, sigma-hat-sq'd = 0.276598



Fit Results

Fit 1: Linear
Equation Y = -0.3224637681 * X + 3072.519928
Number of data points used = 8
Average X = 2003
Average Y = 2426.63
Residual sum of squares = 7.28536
Regression sum of squares = 14.3496
Coef of determination, R-squared = 0.66326
Residual mean square, sigma-hat-sq'd = 1.21423

05N03W-12CCA1

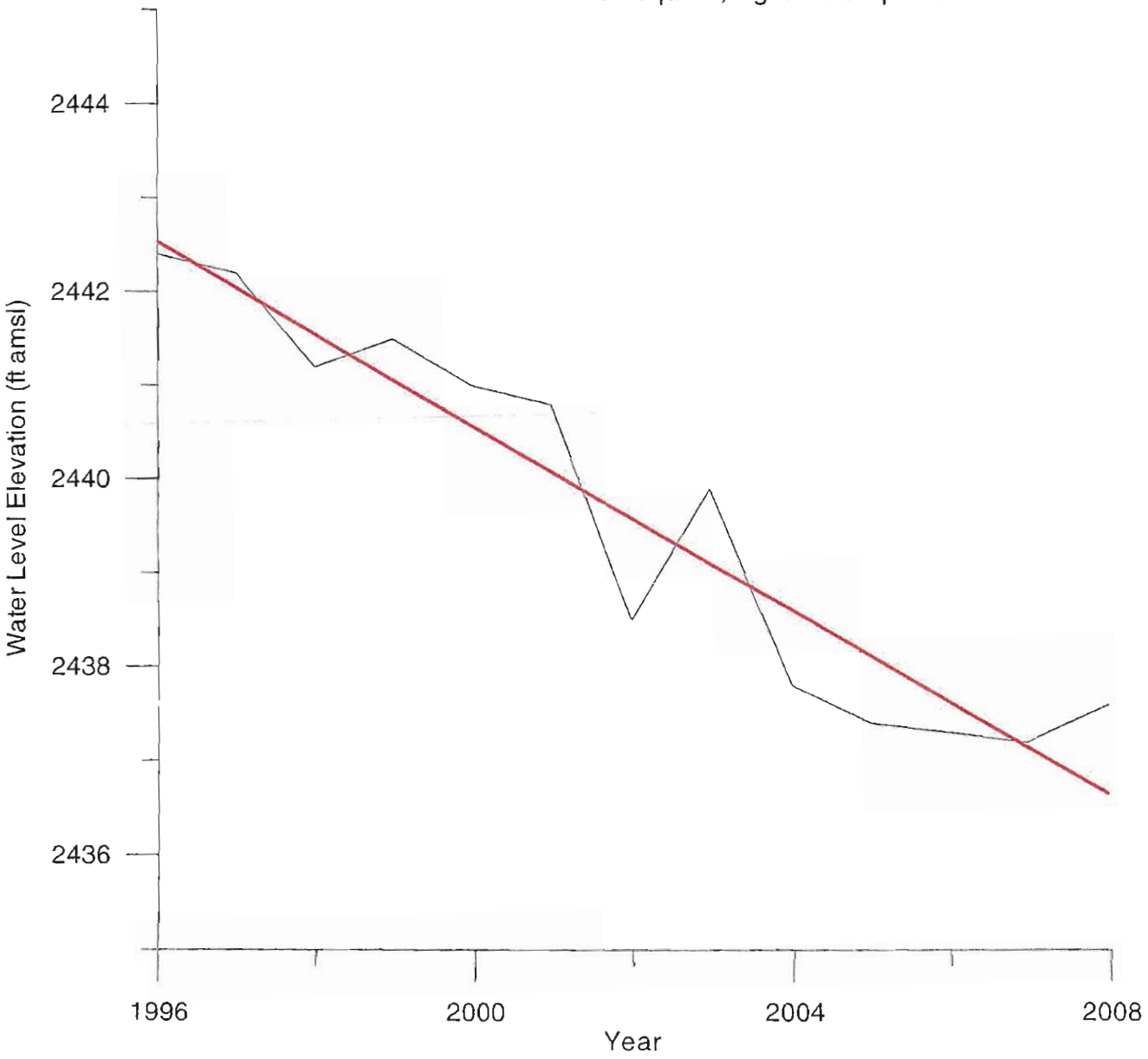


Uplift

Fit Results

Fit 1: Linear
Equation Y = -0.489010989 * X + 3418.6
Number of data points used = 13
Average X = 2002
Average Y = 2439.6
Residual sum of squares = 5.07802
Regression sum of squares = 43.522
Coef of determination, R-squared = 0.895514
Residual mean square, sigma-hat-sq'd = 0.461638

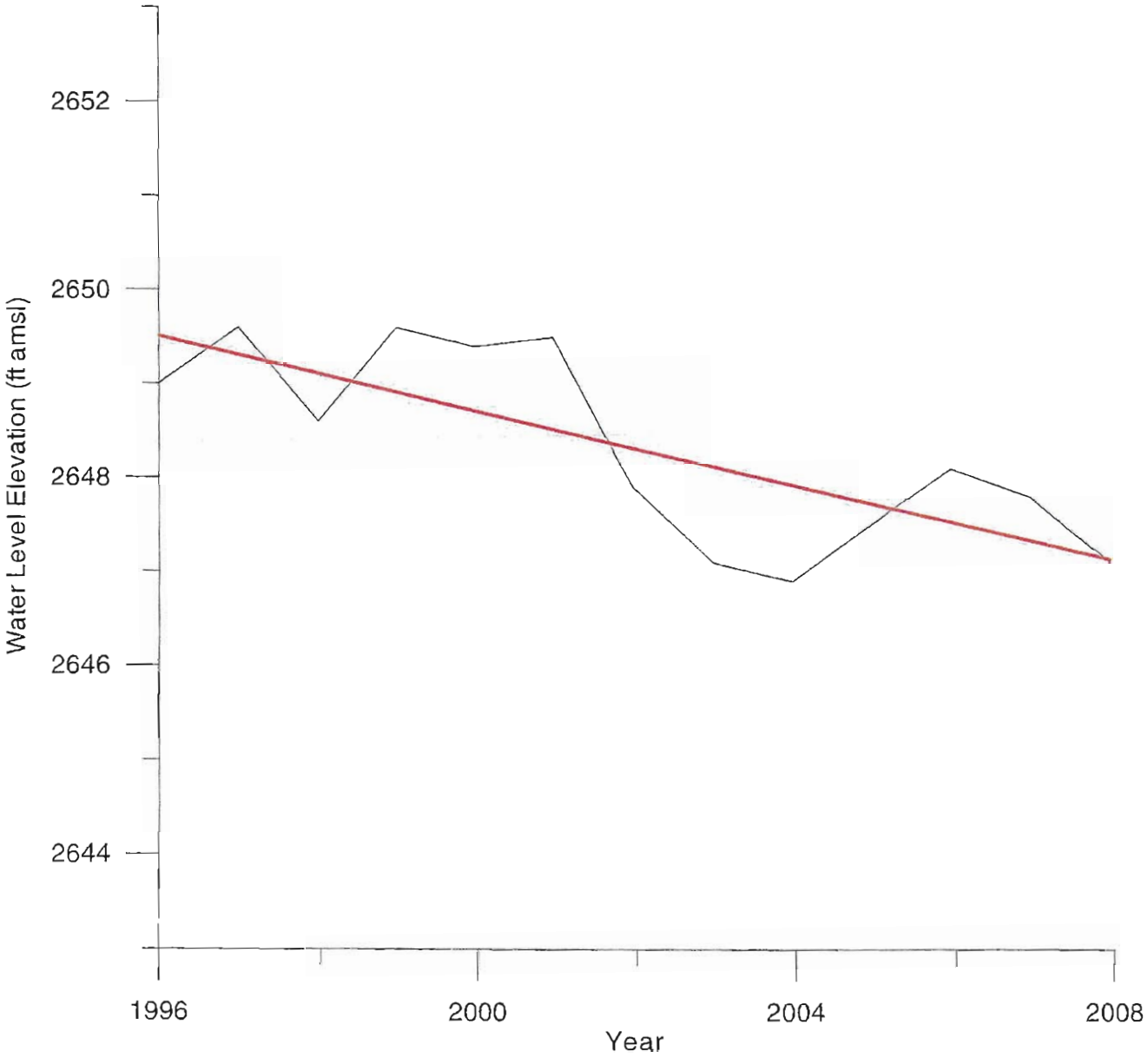
05N03W-15DDC1



Fit Results

05N01E-34DBB1

Fit 1: Linear
Equation Y = -0.1983516484 * X + 3045.415385
Number of data points used = 13
Average X = 2002
Average Y = 2648.32
Residual sum of squares = 5.37643
Regression sum of squares = 7.16049
Coef of determination, R-squared = 0.571152
Residual mean square, sigma-hat-sq'd = 0.488766

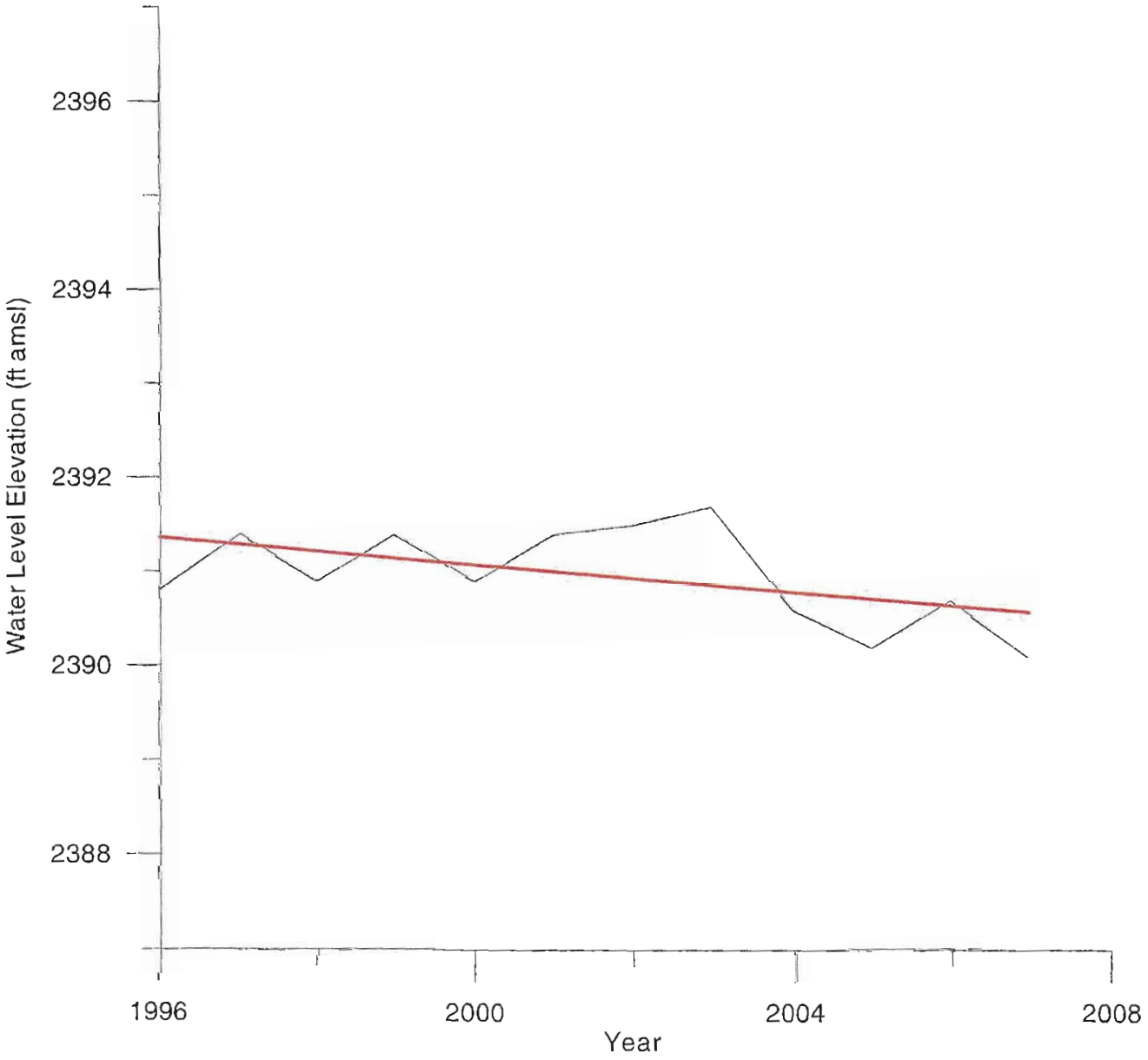


Shallow

Fit Results

Fit 1: Linear
Equation Y = -0.07132867133 * X + 2533.731002
Number of data points used = 12
Average X = 2001.5
Average Y = 2390.97
Residual sum of squares = 2.23911
Regression sum of squares = 0.727552
Coef of determination, R-squared = 0.245242
Residual mean square, sigma-hat-sq'd = 0.223911

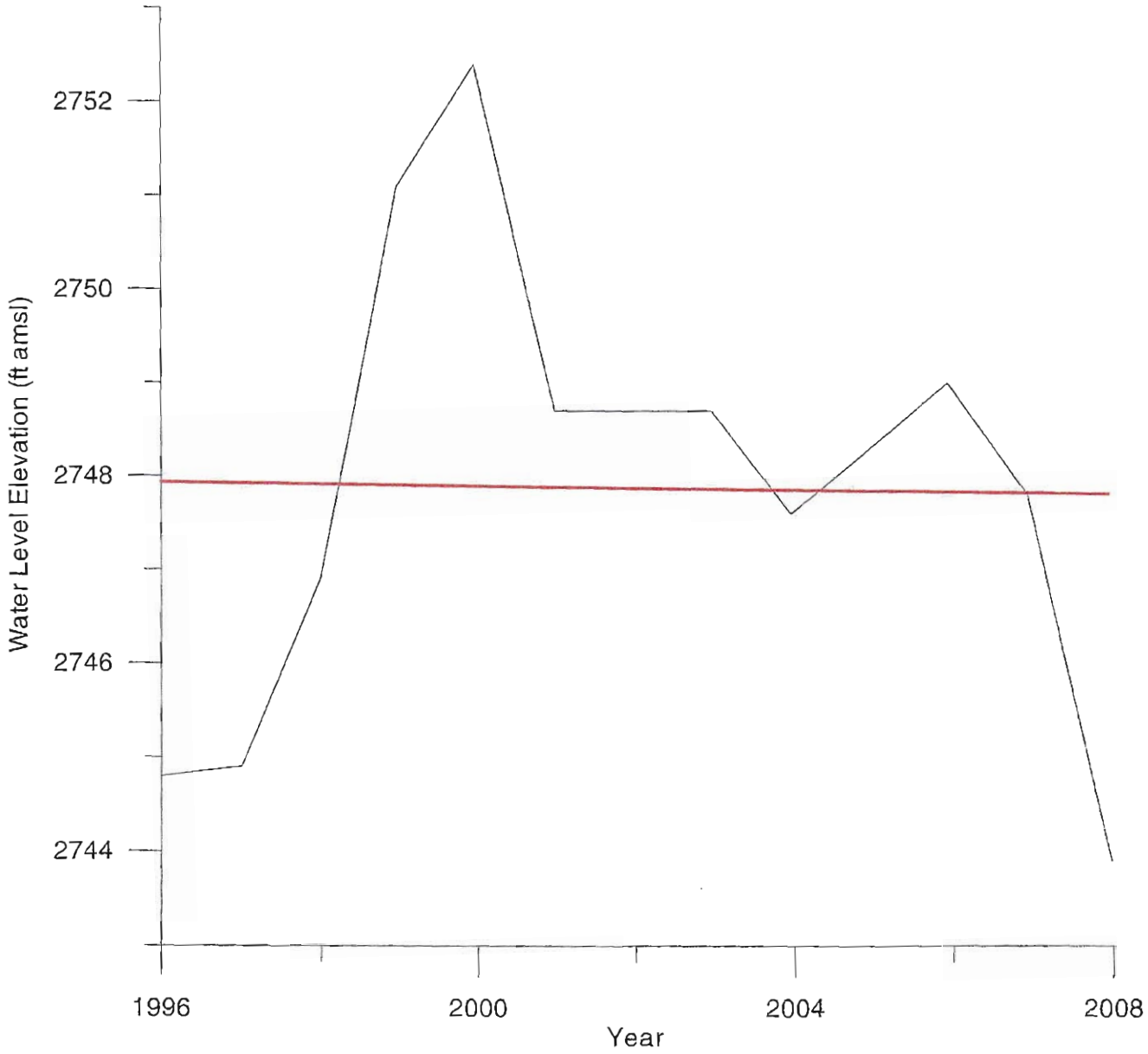
04N02W-07AAC1



Fit Results

05N01E-35ACA1

Fit 1: Linear
Equation Y = -0.01030478955 * X + 2768.502612
Number of data points used = 12
Average X = 2001.75
Average Y = 2747.88
Residual sum of squares = 69.3042
Regression sum of squares = 0.018291
Coef of determination, R-squared = 0.000263854
Residual mean square, sigma-hat-sq'd = 6.93042

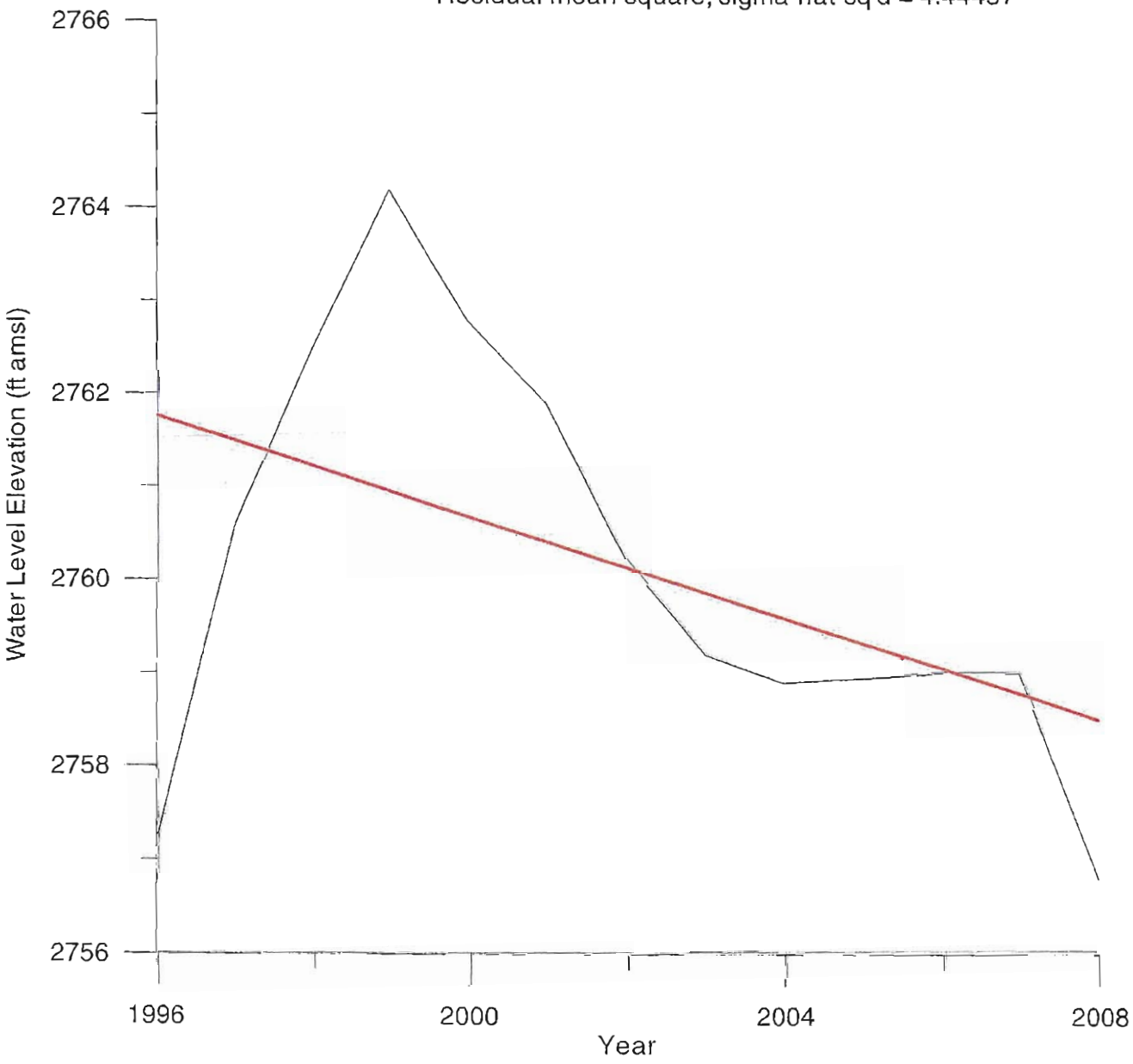


UNK

Fit Results

05N01E-36AAB1

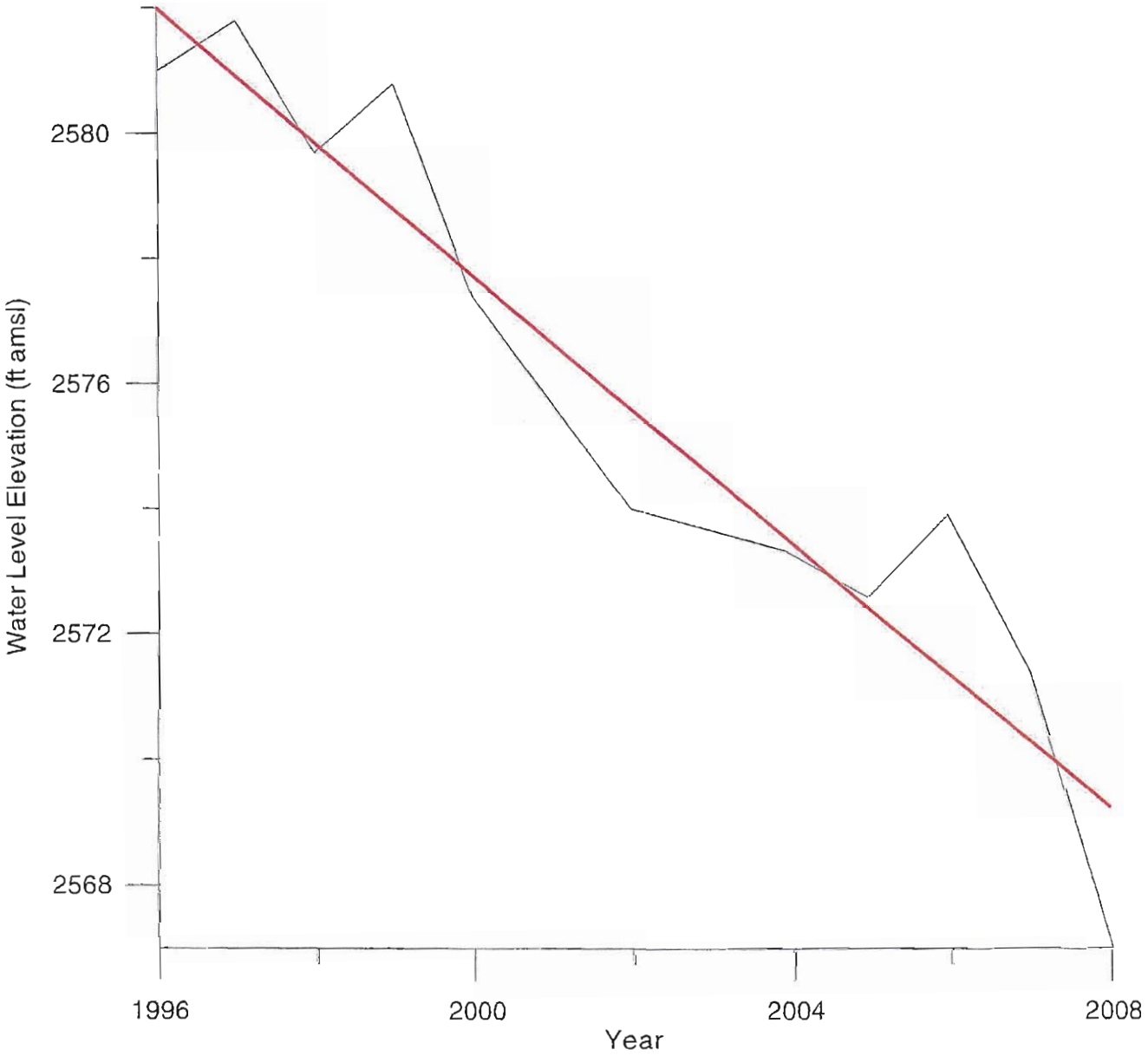
Fit 1: Linear
Equation Y = -0.2724238026 * X + 3305.516014
Number of data points used = 12
Average X = 2001.75
Average Y = 2760.19
Residual sum of squares = 44.4457
Regression sum of squares = 12.7835
Coef of determination, R-squared = 0.223374
Residual mean square, sigma-hat-sq'd = 4.44457



Fit Results

05N01E-32DBD1

Fit 1: Linear
Equation Y = -1.061169968 * X + 4700.090511
Number of data points used = 12
Average X = 2001.92
Average Y = 2575.72
Residual sum of squares = 22.1497
Regression sum of squares = 203.727
Coef of determination, R-squared = 0.901939
Residual mean square, sigma-hat-sq'd = 2.21497



APPENDIX B
Memo from Allan Wylie

MEMO

State of Idaho
Department of Water Resources
322 E Front Street, P.O. Box 83720, Boise, Idaho 83720-0098
Phone: (208) 287-4800 Fax: (208) 287-6700

Date: January 15, 2009

To: Dennis Owsley

From: Allan Wylie

cc: Sean Vincent, Rick Raymondi

Subject: Analysis of M3 Modeling

Dennis

I have reviewed the document titled 'Modeling of Ground-Water Flow in the Pierce Gulch Sand Aquifer: Five Models: History, Updates, and Predictions of Impacts Caused by Pumping at the M3 Eagle Planned Residential Community Ada County, Idaho' prepared by Hydro Logic, Inc and PGG. I did not check the hydrogeologic conceptual model or evaluate the water balance.

There are several things I like about the M3 model: 1) they developed multiple models and this allows them some evaluation of predictive uncertainty; 2) the modeling process involved a genuine team effort; and 3) they incorporated knowledge and experience gained from previous efforts.

I found examples of things I would have done differently if I had been developing the M3 model. However, I think most of these things are matters of preference, and I don't think they would substantially alter the final result.

I found three issues that I will discuss that I think might matter.

1) I don't like constant head and general head boundaries in water supply models. These boundaries allow essentially unlimited volumes of water to enter or exit the model. The M3 model incorporates both general head and constant head boundaries. Some along the northeast edge and some on the southwest edge. PGG conducted some of their predictive model runs after replacing the general head boundary with a fixed flux boundary at the inlet of the model, this is good. I

don't see that the change was made permanent, so watch how this model is used in the future.

2) I don't think two models bracket uncertainty as claimed on page 13. Two observations do give you a better idea of the underlying variability than one, but two observations probably do not represent the possible extremes.

3) The M3 model is multilayer, so the model needs to simulate the vertical hydraulic conductivity between layers. The discussion regarding where the values used in the model come from is brief suggesting that the values are unknown and therefore are calibration parameters. Although PGG noted that vertical conductance was a sensitive calibration parameter (pg 14 Appendix A), they do not discuss its sensitivity to the prediction. Perhaps the drawdowns observed both in the shallow and deep aquifer are sensitive to reasonable adjustments in vertical conductivity.

Allan Wylie

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 5th day of March, 2009, a true and correct copy of the document described below was served on the following by placing a copy of the same in the United States mail, postage prepaid and properly addressed to the following:

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JEFFREY C FEREDAY
GIVENS PURSLEY LLP
601 W BANNOCK ST
PO BOX 2720
BOISE ID 83701

M3 EAGLE LLC
533 E RIVERSIDE DR STE 110
EAGLE ID 83616

NORMAN L EDWARDS
884 W BEACON LIGHT RD
EAGLE ID 83616

ALAN SMITH
3135 OSPREY RD
EAGLE ID 83616

BILL LAWTON
3145 N OSPREY RD
EAGLE ID 83616

JOHN THORNTON
NORTH ADA COUNTY GROUNDWATER USERS ASSO.
5264 NORTH SKY HIGH LN
EAGLE ID 83616

WESTERN REGION
ATTN JOHN WESTRA
2735 AIRPORT WAY
BOISE ID 83705-5082

Deborah J. Gibson
Administrative Assistant
Water Management Division