

WELL CONSTRUCTION AND AQUIFER TESTING OF SPRING VALLEY RANCH EXPLORATION WELL No. 5

Prepared for

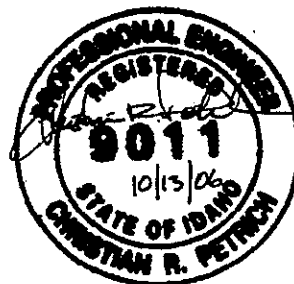
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June 17, 2004



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Department of Water Resources
APPLICANT'S
Exhibit 28
Date Admitted 10-31-06
DAN

Table of Contents

1. Introduction.....	1
1.1. Background.....	1
1.2. Purpose and Objectives	1
1.3. Scope of Work	4
2. Well Construction.....	4
2.1. Construction.....	4
2.2. Well Test.....	6
2.3. Water Chemistry	6
3. Discussion	6
4. Related Investigations.....	7
5. Conclusions and Recommendations.....	8

Appendix A: Supplementary Data – Spring Valley Ranch Exploration Well SVR 5

1. INTRODUCTION

1.1. Background

SunCor Development Company is evaluating development potential for the Spring Valley Ranch property located northwest of Boise, Idaho. The property consists of more than 30,000 acres located in Ada, Gem, and Boise Counties. The ultimate population within the primary development areas could be as high as 30,000 residents, based on 11,300 dwelling units with an assumed 2.7 occupants per dwelling unit (approximate Idaho average). The initial phase of the project will likely consist of less than 1,000 homes in a core area located along Highway 55 in Spring Valley.

Scanlan Engineering's participation with water development began in June 2002 (Table 1) with an initial assessment of water development potential. This led to the construction of four exploration wells in Spring Valley and South Fork Willow Creek Valley. Conclusions from the construction and testing of these wells were presented in April 2003. Since that time SunCor Development has authorized an additional six exploration and test production wells (Table 1). This report, prepared by SPF Water Engineering, LLC (formerly Scanlan Engineering), presents data, results, and conclusions from the drilling, construction, and testing of Exploration Well No. 5. Concurrent construction and testing of Exploration Wells Nos. 6, 7, 8, 9, and 10, Test Production Well No. 10, analysis of the Sandy Hill aquifer testing, and analysis of hydrologic conditions in the western portion of Spring Valley Ranch are being presented under separate cover.

1.2. Purpose and Objectives

The purpose of the hydrologic analyses described in this report was to identify and evaluate potential water supplies for the Spring Valley Ranch area. The specific objective of this investigation was to drill and test one additional well in the initial Village Area (Figure 1) to evaluate water supply potential in this area (SVR 1 and SVR 4 were previously drilled in the Village Area).

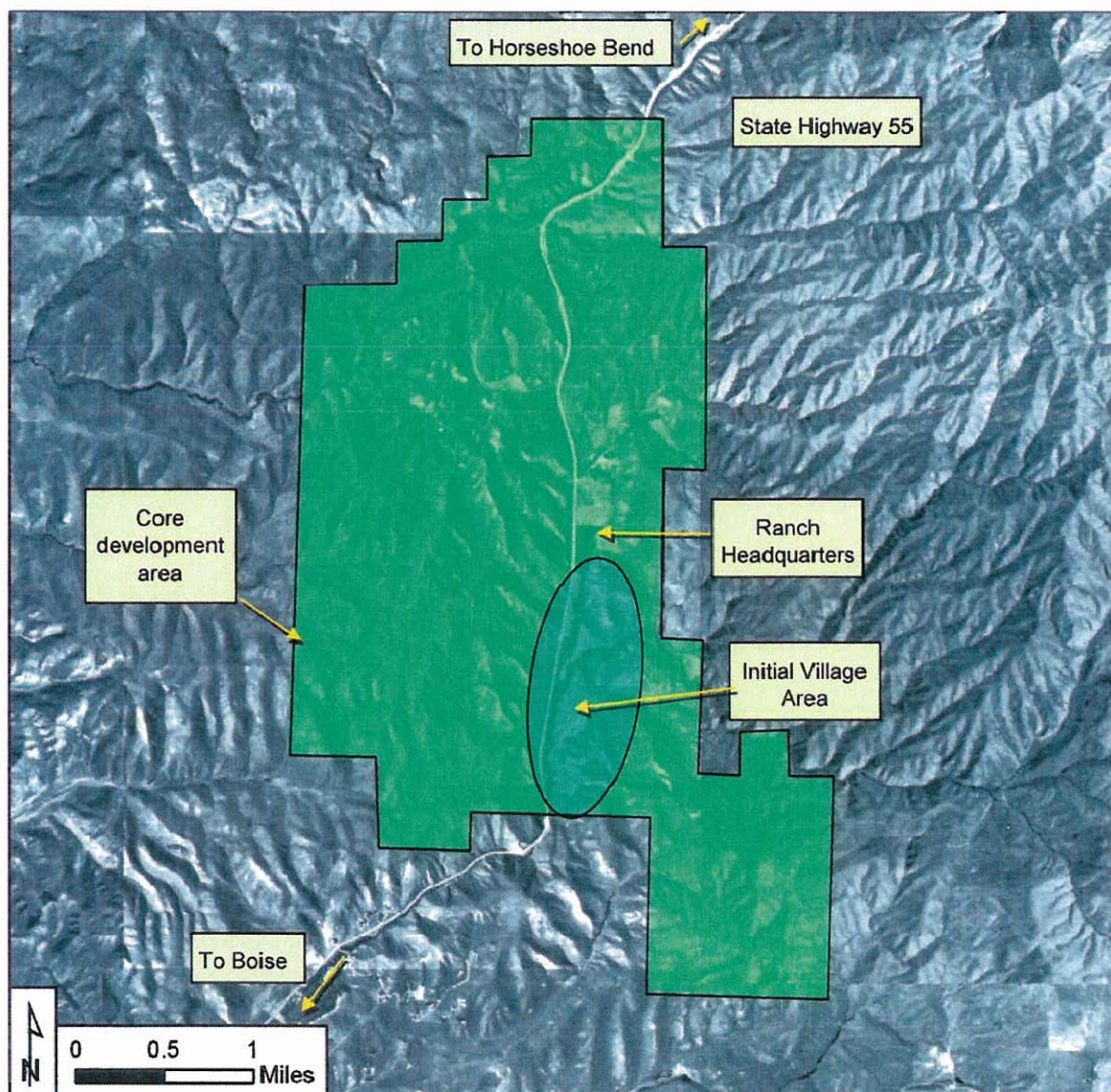


Figure 1: Spring Valley Ranch core development area.

Date	Item
July 2002	Scanlan Engineering submits letter report suggesting Initial Phase water supply target of approximately 2 million gallons per day (1,400 gpm), which would be adequate for peak-day domestic and landscape irrigation for approximately 1,000 homes. Exploration drilling was recommended to explore for ground water supplies located in the close proximity to initial development areas and in the western portion of the property in Big Gulch.
November 2002	Exploration Well SVR 1 (8-inch x 445 feet total depth, 50 gpm, 100 feet drawdown) completed and tested in Spring Valley; Exploration Well SVR 2 (8-inch x 840 feet total depth, 50 gpm, 160 feet drawdown) completed and tested in South Fork Willow Creek Valley
December 2002	Exploration Well SVR 3 (8-inch x 970 feet total depth) completed west of Spring Valley at Sandy Hill. Aquifer zone above 290 feet tested (165 gpm, 3 feet drawdown).
February - March 2003	Exploration Well SVR 4 (8-inch x 1,220 feet total depth) completed in Spring Valley. Aquifer zone from 240 to 290 feet test pumped for 24 hours (80 gpm, 200 feet drawdown).
April 2003	Scanlan Engineering report on the construction and testing of exploration wells SVR 1 through SVR 4 concluded that 1. A productive coarse-grained sand aquifer (i.e., the "Sandy Hill Aquifer") is present in the highlands approximately $\frac{3}{4}$ mile west of the Spring Valley Ranch buildings. The aquifer appeared to extend over an area of less than one square mile. Additional investigation was recommended. Arsenic concentration exceeded future drinking water standards. Otherwise, water quality is excellent. 2. Testing of Exploration Well SVR 1, SVR 4, and the Ranch Irrigation Well indicated that aquifer conditions along the Highway 55 corridor (i.e., "Spring Valley Aquifer") through Spring Valley are not conducive to development of high capacity wells. Sustainable yield from the Spring Valley Aquifer was deemed questionable. Water quality meets primary drinking water standards, but aesthetic quality is poor due to high concentrations of iron, manganese, and hydrogen sulfide. 3. The Hillside Spring in Spring Valley could be considered for water supply purposes (with treatment for arsenic). Alternatively, the discharge from the spring could be captured and pumped back to the vicinity of Exploration Well SVR 3 for Sandy Hill Aquifer recharge purposes. Discharge from the spring (currently 50 gpm) is likely to be impacted by pumping from the Sandy Hill Aquifer. 4. Suspected aquifers in the Big Gulch and Little Gulch areas are anticipated to be productive and sustainable, and should be targeted as part of the ultimate water supply for the project. Water quality from low-capacity stockwater wells in Big Gulch and Little Gulch is excellent. 5. Wells in Big Gulch and Little Gulch areas were suggested as possible sources of recharge for the Sandy Hill Aquifer, allowing the Sandy Hill Aquifer to be recharged during low-demand winter months. Recharged water could be recovered from Sandy Hill Aquifer wells during high demand summer months
January 2004	Exploration Well SVR 5 (8-inch x 440 feet) constructed in Spring Valley and test pumped at 75 gpm for 24 hours with 60 feet of drawdown
February - March 2004	Exploration Well SVR 6 (8-inch x 740 feet) constructed in Big Gulch and test pumped at 350 gpm for 24 hours with 3 feet of drawdown
March 2004	Test Production Well TPW-1 (16-inch x 290 feet) constructed for aquifer testing and future municipal production purposes at Sandy Hill Aquifer; Exploration Well SVR 7 (8-inch x 810 feet) constructed in lower Big Gulch
April 2004	Exploration Well SVR 8 (6-inch x 141 feet) constructed for exploration and water level observation purposes at Sandy Hill Aquifer; 3-day pumping test of TPW 1 at 2,000 gpm and 17 feet drawdown with observation at SVR 3, SVR 8, and Hillside Spring; 22-hour test of SVR 7 at 600 gpm and 30 feet drawdown
June 2004	Drilling of SVR 9 (8-inch x 805 feet; Little Gulch) and SVR 10 (8-inch; upper Big Gulch)

Table 1: Water development history, Spring Valley Ranch.

1.3. Scope of Work

Work conducted as part of this investigation included the following tasks:

6. Develop final well design for Exploration Well No. 5; coordinate well drilling and construction with drilling contractor.
7. Negotiate with the Idaho Department of Water Resources for well drilling permit, abandonment bond, and other permitting items.
8. Provide inspection and supervision of drilling activities, including logging of drill cuttings, inspection and certification of surface seal installation, and other tasks as needed.
9. Provide supervision of test pumping activities by contractor. Measure observation well water levels and spring flow. Collect and submit water samples for water quality analyses.
10. Provide documentation of exploration well drilling and aquifer testing results. Include conclusions and any recommendations for further investigation.

2. WELL CONSTRUCTION

SVR 5 is located in SW ¼, NE ¼, Section 18, T5N, R1E, approximately 1,200 feet east of Highway 55 in the Spring Valley Ranch core development area (Figure 2). The purpose of the well is to provide definition of local stratigraphy and explore for water-bearing zones in the southern portion of the Spring Valley Ranch core development area. The location of this well was selected by SunCor personnel.

2.1. Construction

SVR 5 (IDWR Tag No. 0030891) was drilled by Adamson Pump and Drilling (Nampa, ID) between January 20 and 22, 2004, using the air-rotary method. A 10-inch diameter borehole was drilled to a depth of 38 feet, and a 6-inch steel casing was then set to the same depth. The annular space between the 10-inch borehole and 6-inch casing was sealed with bentonite chips. A 6-inch open borehole was then drilled through the upper casing to a total depth of 440 feet.

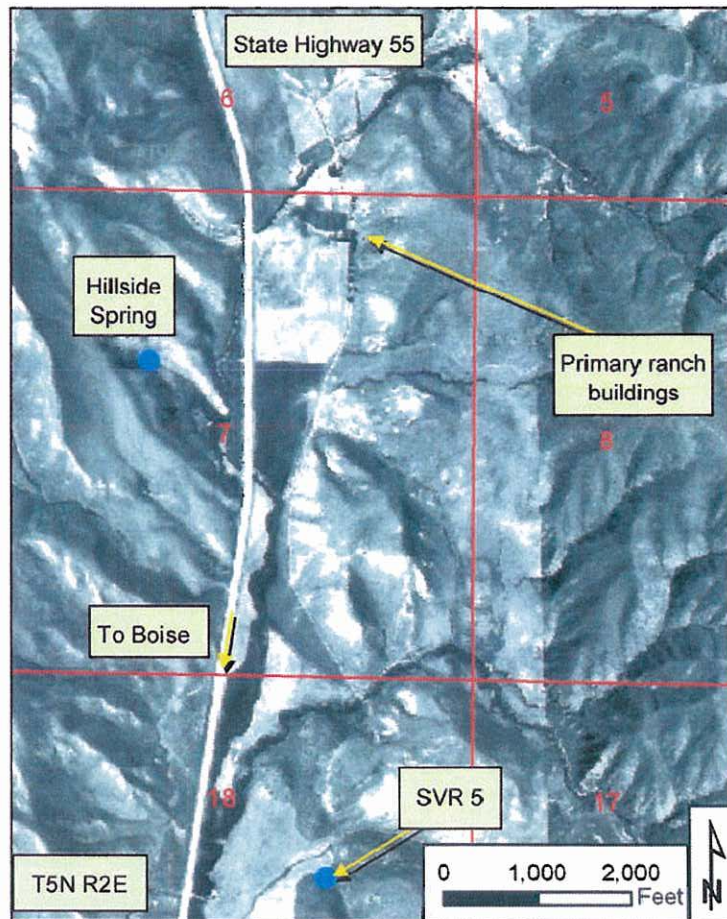


Figure 2: Location of SVR 5.

Well cuttings from the uppermost 160 feet were described as volcanic tuff and tuffaceous sediments (see Appendix A, Geologic Log.). From approximately 160 feet through approximately 430 feet, the borehole encountered a variety of tuffaceous sediments, talc or soapstone, breccia or rubble, and latite fragments, with a small zone (possibly a boulder) of decomposed granitic material from 320 to 330 feet. Decomposed granite was again encountered from 430 to 443 feet.

Water-producing zones were indicated (see driller's report, Appendix A) from 42 to 81 feet, 98 to 102 feet, and 142 to 170 feet. The bottom 20 feet appeared to penetrate decomposed granitic materials, which were not noted as water-producing.

Upon reaching total depth, the contractor air-lift pumped for approximately 15 minutes. The discharge from the borehole carried substantial decomposed granite and drilling foam, suggesting that the bottom of the borehole was unstable, but was not contributing significant flow (due to the continued presence of drilling foam). The driller began pulling the drill string from the hole and noted that the hole was "tight," suggesting that the borehole was collapsing. Air-lift pumping was then resumed from

140 feet depth. The air-lift flow rate was similar to the flow rate produced while airlifting from the bottom of the borehole, but the flow quickly cleared. Air-lift pumping continued for one hour at a pumping rate of approximately 60 to 80 gpm. Upon removal of the drill string from the well, the borehole was sounded and found to have collapsed or bridged at 147 feet. These observations further suggest that most of the encountered flow was from zones in the upper borehole. The static water level in the well was noted at 22.5 feet below ground surface.

2.2. Well Test

Aquifer pumping and recovery tests were conducted following well completion and development. The static water level at the beginning of the pumping test was 23 feet below the top of the well casing. The well was pumped at a rate of approximately 75 gpm for approximately 24 hours with a maximum drawdown of 60 feet. Recovery measurements continued for another 24 hours to a final water level of approximately 29 feet (6 feet short of the initial static water level). The drawdown test yielded a transmissivity value of 2,475 gallons per day per foot (gpd/ft) based on the Jacob straight-line method.

2.3. Water Chemistry

Water samples were collected from SVR 5 for limited water quality analyses. Results are summarized in Table 2; full results are provided in Appendix A. The results indicated elevated iron and manganese concentrations (0.86 and 0.31 ppm, respectively) that, if used for the municipal supply, may require treatment for aesthetic reasons.

3. DISCUSSION

Results of drilling and test pumping of Exploration Well SVR 5 suggest that the potential for municipal production at this site is low. A properly completed production well at this site would likely produce a sustainable yield of less than 50 gpm. Short-term yields from two or more wells completed in the aquifer will exceed 100 gpm, but the long-term sustainability from this area may be less than 100 gpm. The questionable sustainability is reflected in the incomplete water-level recovery following test pumping. The incomplete water-level recovery suggests a limited aquifer area, which is consistent with local geology.

Water quality appears to be acceptable for public water system use, although the water is undesirable from an aesthetic perspective due to high concentrations of iron and manganese. Because of low yield and aesthetic water quality issues, additional ground water development for public water system use at this location is not currently recommended. The well or aquifer may have limited development potential for non-

potable uses such as irrigation, although staining of concrete or structures may be a problem if the water is used for landscape irrigation.

Constituent	Maximum Contaminant Level (MCL)	Secondary Maximum Contaminant Level (SMCL)	Source
			SVR 5 Levels
Date			2/5/2004
Arsenic	0.01*		0.008
Ammonia			0.12
Antimony	0.006		<0.005
Barium	2		0.05
Beryllium	0.004		<0.005
Bicarbonate			71.3
Cadmium	0.005		<0.0005
Calcium			15.8
Chloride		250	3
Chromium	0.1		<0.002
Fluoride	4	2	0.42
Hardness			48.4
Iron		0.3	0.86
Magnesium			3.26
Manganese		0.05	0.31
Mercury	0.002		<0.0002
Nickel			<0.02
Nitrate	10		<0.20
Nitrite	1		<0.01
Potassium			4.9
Sodium			15.3
Sulfate		250	9
Sulfide			<0.05
TDS		500	176
Thallium	0.002		<0.002
Field Parameters			
Temp (°F)			58-60
SC umhos/cm			180-185
pH		6.5-8.5	6.5 -7.2
* Standard goes into effect on January 23, 2006			

Table 2: Selected water quality parameters, SVR 5.

4. RELATED INVESTIGATIONS

Efforts are currently underway to evaluate water supplies in the western portion of Spring Valley Ranch and the Sandy Hill Aquifer. Highly transmissive aquifers are

present in those areas that could be developed for municipal purposes. Results and conclusions from those investigations are being provided under separate cover.

5. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions were drawn from well construction and aquifer testing described above.

1. Aquifers in the Spring Valley area penetrated by SVR 5 would probably provide enough water for small-scale local uses, but do not represent a high-yield municipal water supply.
2. A full scan of water quality parameters required for public water system uses was not done. However, analysis of basic chemistry parameters suggest water that is adequate for municipal use, although some treatment may be required for aesthetic reasons.
3. Additional ground water development in this area is not recommended because of apparent limited supply.

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**APPENDIX A
SUPPLEMENTARY DATA
SPRING VALLEY RANCH EXPLORATION WELL
SVR 5**

- Well Drillers Report
- Lithologic Log and Construction Diagram
- Test Pumping Data
- Water Quality Laboratory Reports
- Drilling Permit



**DRILLING OF SPRING VALLEY EXPLORATION WELL SVR 5
JANUARY 20, 2004
ADAMSON PUMP AND DRILLING
air-rotary method; note gray drilling foam in the foreground**

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only			
Well ID No.	809802		
Inspected by			
Twsp	Rge	Sec	
1/4	1/4	1/4	
Lat:	:	Long:	:

1. WELL TAG NO. D 0030891
DRILLING PERMIT NO. _____
Water Right or Injection Well No. _____2. OWNER:
Name Spring Valley Development LLC
Address 485 E. Riverside Dr
City Eagle State Id Zip 83616

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub, or Directions to well.

Twp. 5 North ☒ or South ☐
Rge. 2 East ☒ or West ☐
Sec. 18 1/4 SW 1/4 SE 1/4
Gov't Lot _____
County Ada Twp. _____Lat: _____ Long: _____
Address of Well Site 1/4 mile east of Hwy 55
City Eagle

LI. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other Test

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 Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	38	1050	over bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 38'Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	12	38	350	Steel	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____

Screen Type & Method of Installation None

From	To	Slot Size	Number	Diameter	Material	Casing
						☐
						☐
						☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

226 ft. below ground Artesian pressure, _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____well cap

12. WELL TESTS:

☐ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
85		140'	1 hour

Water Temp. 58° Bottom hole temp. _____Water Quality test or comments: Iron .5 PH 7.5Depth first Water Encounter 42'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
10	0	10	brown soil & clay		
"	10	22	hard brown clay		
"	22	38	brown clay & gravel pits		
6	38	42	blue clay		
"	42	80	dark blue clay		X
"	80	81	fractured clay		X
"	81	98	blue clay		
"	98	102	fractured clay		X
"	102	110	blue clay		
"	110	114	green hard clay		
"	114	121	dark blue clay		
"	121	142	black rock / Lata		
"	142	145	black & red rock		X
"	145	170	green & multi-color material		X
"	170	175	green & brown clay		
"	175	206	tan clay turning to ash		
"	206	218	dark gray rock		
"	218	260	greenish & multicolored ash		
"	260	280	white ash material		
"	280	290	cemental gravel		
"	290	330	tan, very hard clay rocks		
"	330	400	clayish decomp. granite		
"	400	420	Pin size conglomerate - all colors		
"	420	430	granite pits		
"	430	440	granite pits		
			Bridged off at 147'		

RECEIVED

MAR 01 2004

WATER RESOURCES
WESTERN REGIONDepth 440' (Measurable)
Date: Started 1-20-04 Completed 1-22-04

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Adams Pump & Drilling No. 457Principal Driller Paul Edman Date 1-29-04and Driller or Operator Dee Adams Date 1-29-04

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Exploration Hole SVR 5 Spring Valley Ranch

Drilled by: Adamson Pump and Drilling.
Logged by: C. Feast / T. Scanlan
Geophysical logs by: Not logged
Fluid level when logged: n/a
Casing when logged: n/a

Drilled Dates:
Drilling Method: Air Rotary
Borehole size: 6" (nom.) 0 - 443 ft.

Depth Drilled: 443 ft
Depth Logged: n/a
Static WL: - 20 ft. bgl

Location: Ada County, Idaho
T5N, R2E, SW1/4, SE1/4, Sec 18
GL Elevation: - 3240 ft. msl.

Depth (ft)	Geologic log from rotary cuttings	Symb. Log	Pt. Res (Ohms)	Natural Gamma (CPS)	Well Construction
No geophysical logs					
0	Top soil over clay, soft, sticky with coarse qtz. sand grains, med brown				10" Overbore
10	Tuff, brown with white and black clasts, well cemented, hard.				SWL
20	Tuffaceous sand. Qtz. sand is coarse with dark brown, hard tuff frags.				bentonite chips
30	Tuff, well cemented, hard, dark brown.				6", 250" well steel casing
40					
50					
60					
70	Tuffaceous sediments, mix of hard, dark, medium and greenish brown tuff frags, occ rounded qtz grain.				
80					
90					
100					
110	Tuff, well cemented, hard, light and dark brown.				6" Nom. Open hole
120					
130					
140	Tuff, well cemented, hard, grayish brown, black staining on fracture faces.				
150					
160	Talc or Soapstone, med-soft, greasy, mottled white and gray				Hole collapse
170	Breccia or rubble, variety of aphanitic rock types in various colors from light to dark brown, clayey				
180	As above but more gray, less clay				
190	As above, greenish gray, hard chips				
200	As above, white tuff, with occasional pale green and red frags., hard chips				
210	As above, white and pale green frags.				
220	As above, light and dark brown frags.				
230	As above, brown and light green frags.				
240					
250	Clay, white with multicolor welded tuff frags,				
260					
270	Tuffaceous sediments, mix of gray and dark brown tuff frags, occ white qtz and feldspar grains.				
280					
290	Clay, white with multicolor welded tuff frags,				
300	Tuffaceous sediments, pinkish brown tuff frags, white qtz and feldspar grains.				
310	Tuffaceous sediments as above, gray.				
320	Decomposed granite, boulder? white to gray, qtz, feldspar, biotite				
330	Laite? Gray, aphanitic, med-hard.				
340	Clay, white with pale brown aphanitic frags.				
350	Breccia or rubble, variety of aphanitic rock types in various colors from light to dark brown, changes from brownish to gray				
360					

Exploration Hole SVR 5 Spring Valley Ranch

Drilled by: Adamson Pump and Drilling.
Logged by: C. Feast / T. Scanlan
Geophysical logs by: Not logged
Fluid level when logged: n/a
Casing when logged: n/a

Drilled Dates:
Drilling Method: Air Rotary
Borehole size: 6" (nom.) O - 443 ft.

Depth Drilled: 443 ft
Depth Logged: n/a
Static WL: - 20 ft. bgl

Location: Ada County, Idaho
T5N, R2E, SW1/4, SE1/4, Sec 18
GL Elevation: - 3240 ft. mal.

Depth (ft)	Geologic log from rotary cuttings	Symb. Log	Pt. Res (Ohms)	Natural Gamma (CPS)	Well Construction
No geophysical logs					
370	Clay, yellowish brown, multi-color lith frags.				
380	Sand, med grained, granite mineralogy, buff or weathered latite frags.				
390					
400	Fault gouge? highly weathered latite or tuff, gray, very soft and friable, salt size				
410	Sand, fine grained, angular, gray, granite minerals (qtz, feldspar, biotite) occ green aphanitic-xtaline frag.				
420	Dike? dark brown, med-hard, aphanitic with large, clear-white mica flakes.				
430	Decomposed granite, Grus?, white-gray, sub-angular qtz, feldspar and biotite.				
440	Bottom of hole at 443 ft.				
450					

AQUIFER TEST DATA

Well No.: Spring Valley Ranch, Test Well SVR 5

Q=75 gpm, t = 24 hours

Test conducted by: Scanlan Engineering; Feast Geosciences; Adamson Pump and Drilling Co.

Flow measured by: bucket and stopwatch

Water levels measured by: Well sounder Water level measure point: Top of 1" poly tube

MP Elevation: 4.0 ft aql Static WL (ft bmp): 22.97

Pump on: 02/04/04 10:30 Pump off: 02/05/04 10:37

Date	Time	t (mins)	t/t'	Water Level Data				Comments
				Ref (ft.)	Measure (in.)	WL (ft bmp)	Drawdown (feet)	
02/04/04	10:10	-				23.0		Static water level
02/04/04	10:30	0				23.0	0.0	Start test, Q = 86 gpm
02/04/04	10:31	1				58.50	35.5	
02/04/04	10:34	4				62.29	39.3	Q = 35 ????
02/04/04	10:35	5				62.08	39.1	
02/04/04	10:37	7				63.38	40.4	?????
02/04/04	10:39	9				65.00	42.0	Q=75 gpm by bucket
02/04/04	10:42	12				66.73	43.8	
02/04/04	10:44	14				66.73	43.8	
02/04/04	10:46	16				67.28	44.3	
02/04/04	10:48	18				68.90	45.9	
02/04/04	10:51	21				68.68	45.7	
02/04/04	10:54	24				69.33	46.4	
02/04/04	10:57	27				71.39	48.4	
02/04/04	11:00	30				72.15	49.2	Q=75
02/04/04	11:05	35				72.04	49.1	
02/04/04	11:10	40				69.66	46.7	Q=75
02/04/04	11:15	45				69.66	46.7	
02/04/04	11:23	53				69.77	46.8	
02/04/04	11:30	60				70.42	47.4	
02/04/04	11:35	65				70.85	47.9	T=18
02/04/04	11:45	75				71.39	48.4	
02/04/04	11:55	85				71.93	49.0	Q=75
02/04/04	12:00	90				72.37	49.4	
02/04/04	12:15	105				72.04	49.1	SC 190, T=57F
02/04/04	12:30	120				72.15	49.2	
02/04/04	13:00	150				72.80	49.8	
02/04/04	13:30	180				73.78	50.8	
02/04/04	14:00	210				74.43	51.5	
02/04/04	14:30	240				75.51	52.5	
02/04/04	15:00	270				76.16	53.2	sample @ 1530
02/04/04	15:30	300				76.92	53.9	T 60.2F, ph=7.25, SC=180
02/04/04	16:00	330				77.24	54.3	
02/04/04	16:30	360				77.89	54.9	
02/04/04	17:00	390				78.27	55.3	
02/04/04	17:30	420				78.54	55.6	
02/04/04	18:05	455				78.77	55.8	
02/04/04	18:30	480				79.04	56.1	checked flow
02/04/04	19:00	510				79.17	56.2	water very clear
02/04/04	19:30	540				79.40	56.4	
02/04/04	20:00	570				79.63	56.7	
02/04/04	20:34	604				79.94	57.0	checked flow w bucket, stop watch
02/04/04	21:00	630				79.99	57.0	very little change
02/04/04	21:30	660				80.03	57.1	
02/04/04	22:00	690				80.17	57.2	
02/05/04	22:30	720				80.30	57.3	
02/05/04	23:00	750				80.48	57.5	
02/05/04	23:30	780				80.71	57.7	
02/05/04	0:00	810				80.75	57.8	checked flow, water clear
02/05/04	0:30	840				80.93	58.0	
02/05/04	1:00	870				81.07	58.1	
02/05/04	1:30	900				81.25	58.3	
02/05/04	2:00	930				81.34	58.4	
02/05/04	2:30	960				81.43	58.5	
02/05/04	3:00	990				81.57	58.6	
02/05/04	3:30	1020				81.79	58.8	checked flow
02/05/04	4:00	1050				81.88	58.9	
02/05/04	4:30	1080				82.24	59.3	
02/05/04	5:00	1110				82.33	59.4	
02/05/04	5:30	1140				82.42	59.5	
02/05/04	6:00	1170				82.60	59.6	
02/05/04	6:30	1200				82.42	59.5	
02/05/04	7:00	1230				82.47	59.5	
02/05/04	7:30	1260				82.33	59.4	
02/05/04	8:00	1290				82.29	59.3	
02/05/04	8:30	1320				82.33	59.4	

AQUIFER TEST DATA

Well No.: Spring Valley Ranch, Test Well SVR 5

Q=75 gpm, t = 24 hours

Test conducted by: Scanlon Engineering; Feast Geosciences; Adamson Pump and Drilling Co.

Flow measured by: bucket and stopwatch

Water levels measured by: Well sounder Water level measure point: Top of 1" poly tube

MP Elevation: 4.0 ft agl Static WL (ft bmp): 22.97

Pump on: 02/04/04 10:30 Pump off: 02/05/04 10:37

Date	Time	t (mins)	t/c	Water Level Data				Comments
				Ref (ft.)	Measure (in.)	WL (ft bmp)	Drawdown (feet)	
02/05/04	9:00	1350				82.60	59.6	
02/05/04	9:30	1380				82.69	59.7	
02/05/04	10:00	1410				82.97	60.0	T=14.4C,ph=8.46,EC/SC=184.4/147.9
02/05/04	10:30	1440				83.28	60.3	
02/05/04	10:37	1447				83.28	59.4	Stopped test
Begin Recovery, pump off at:				02/05/04	10:37			
02/05/04	10:38	1448				59.90	59.7	
02/05/04	10:39	1449	725			56.47	60.0	
02/05/04	10:40	1450	483			54.54	31.6	
02/05/04	10:41	1451	363			53.16	30.2	
02/05/04	10:42	1452	290			51.93	29.0	
02/05/04	10:43	1453	242			51.05	28.1	
02/05/04	10:44	1454	208			50.15	27.2	
02/05/04	10:45	1455	182			49.72	26.8	
02/05/04	10:46	1456	162			48.93	26.0	
02/05/04	10:47	1457	146			48.52	25.6	
02/05/04	10:49	1459	122			47.62	24.7	
02/05/04	10:51	1461	104			47.08	24.1	
02/05/04	10:53	1463	91			45.95	23.0	
02/05/04	10:55	1465	81			45.42	22.5	
02/05/04	10:57	1467	73			44.77	21.8	
02/05/04	11:02	1472	59			43.54	20.6	
02/05/04	11:07	1477	49			42.19	19.2	
02/05/04	11:12	1482	42			41.76	18.8	
02/05/04	11:17	1487	37			41.03	18.1	
02/05/04	11:22	1492	33			40.33	17.4	
02/05/04	11:27	1497	30			39.90	16.9	
02/05/04	11:32	1502	27			39.90	16.9	
02/05/04	11:37	1507	25			39.45	16.5	
02/05/04	11:47	1517	22			39.10	16.1	
02/05/04	11:57	1527	19			38.07	15.1	
02/05/04	12:07	1537	17			37.92	14.9	
02/05/04	12:22	1552	15			37.35	14.4	
02/05/04	12:37	1567	13			36.79	13.8	
02/05/04	12:52	1582	12			36.26	13.3	
02/05/04	13:07	1597	11			35.77	12.8	
02/05/04	13:22	1612	10			35.51	12.5	
02/05/04	13:37	1627	9			35.08	12.1	
02/06/04	10:00	2850	2			28.92	6.0	

Notes and Comments:

Pump at 131 ft.; 25-hp submersible

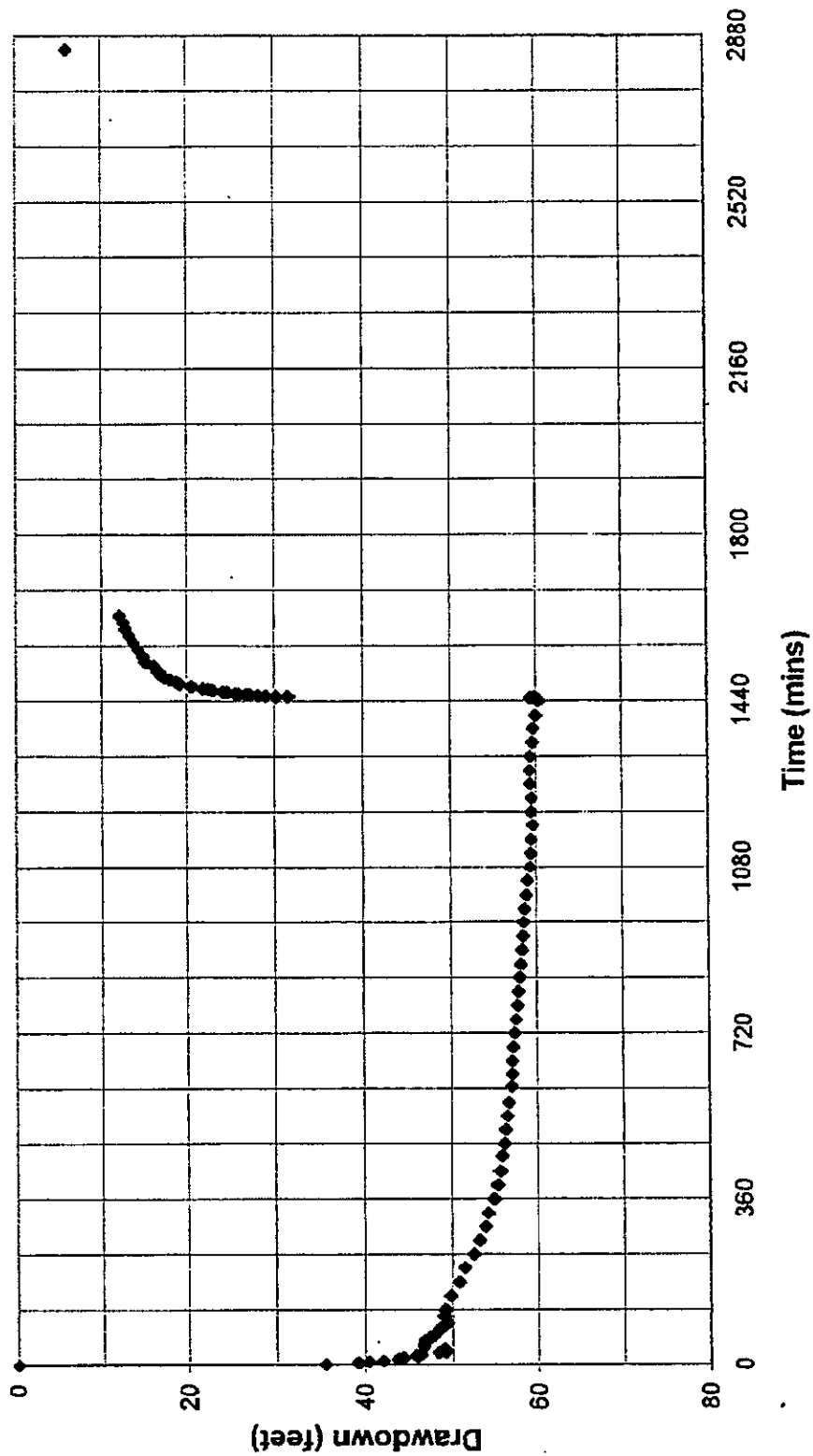
SWL ~ +2 ft gl.

Drawdown and Recovery

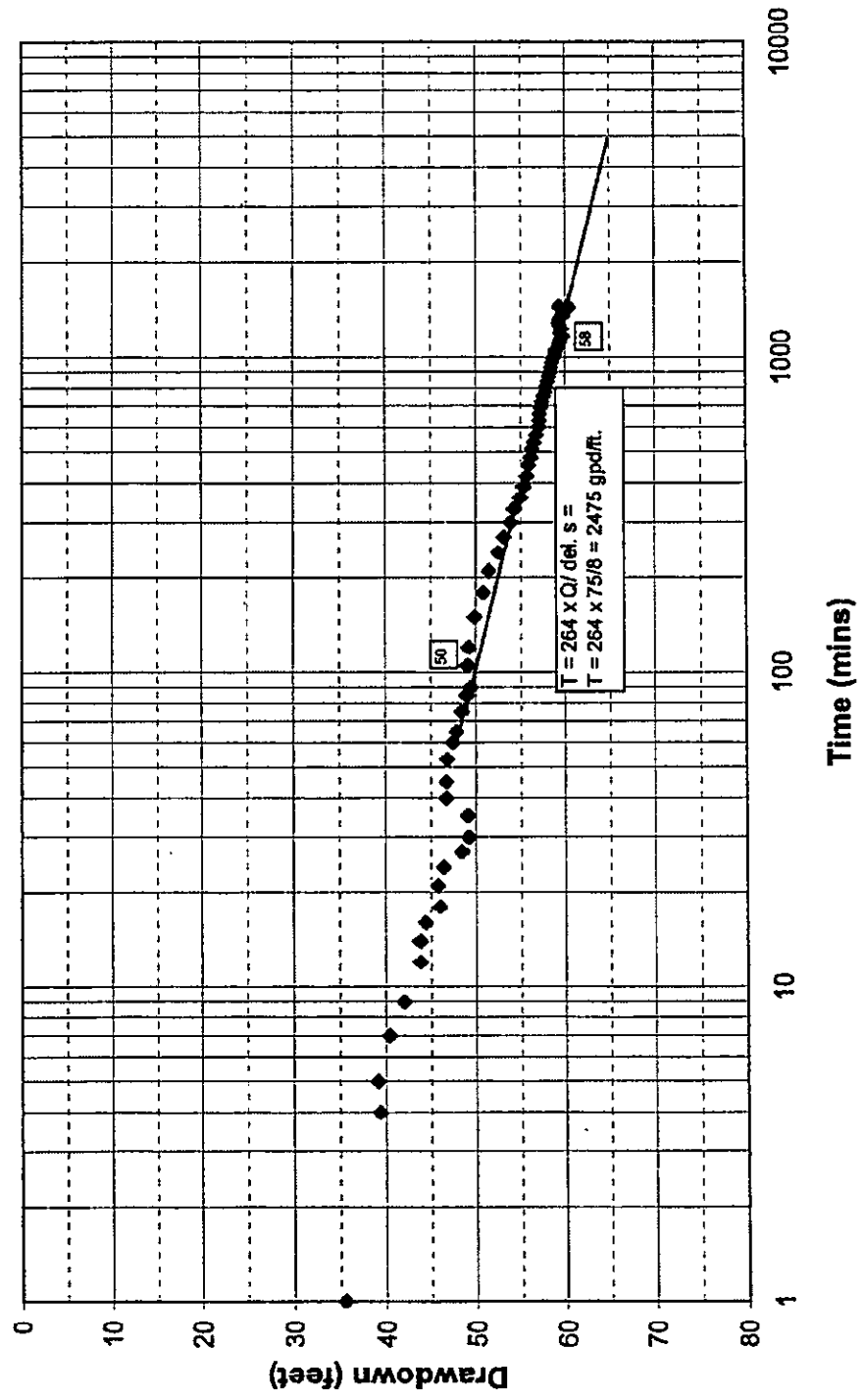
Spring Valley Ranch

Test Well SVR 5, Q = 75 gpm)

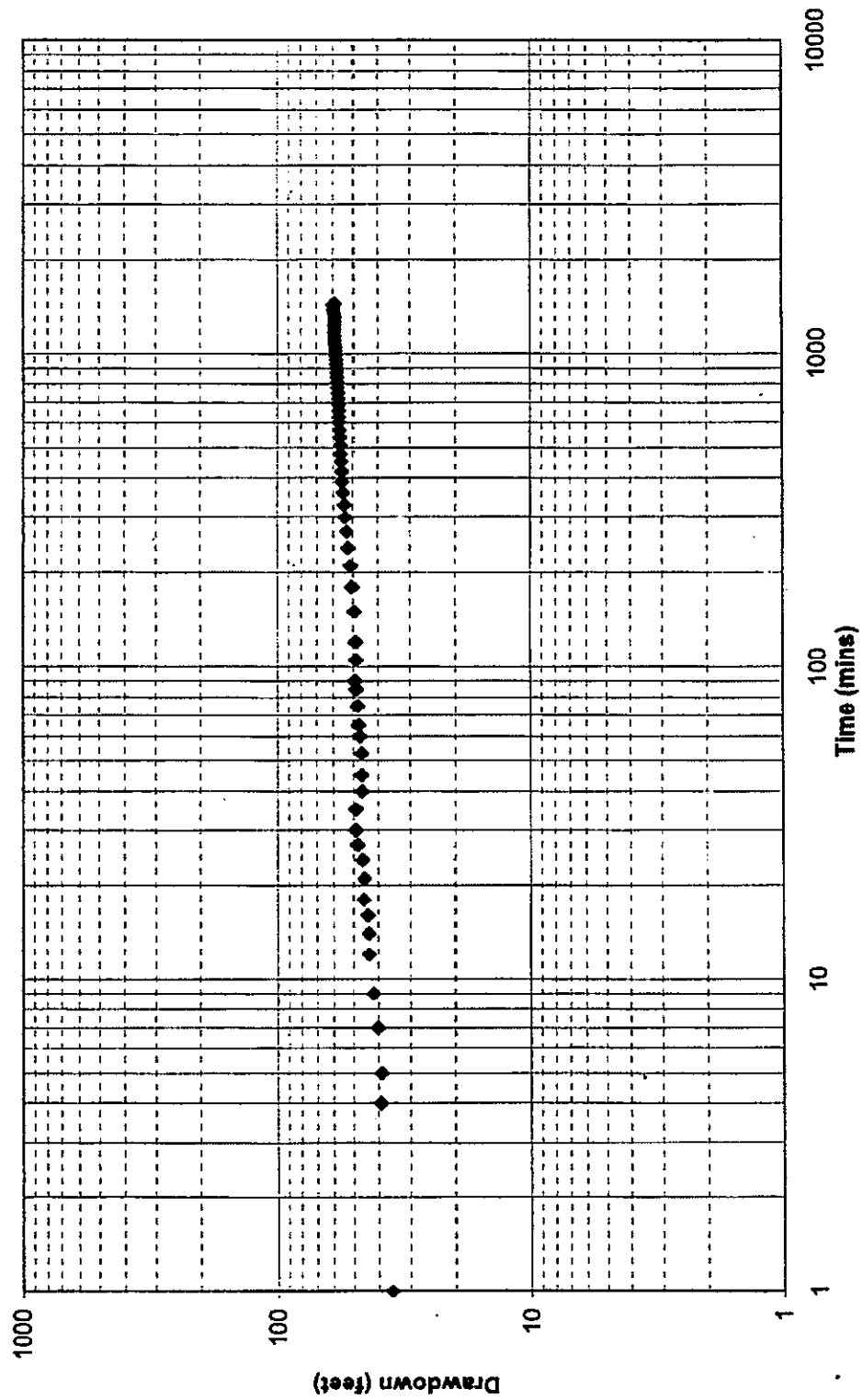
Test date: 2/4-2/8/04



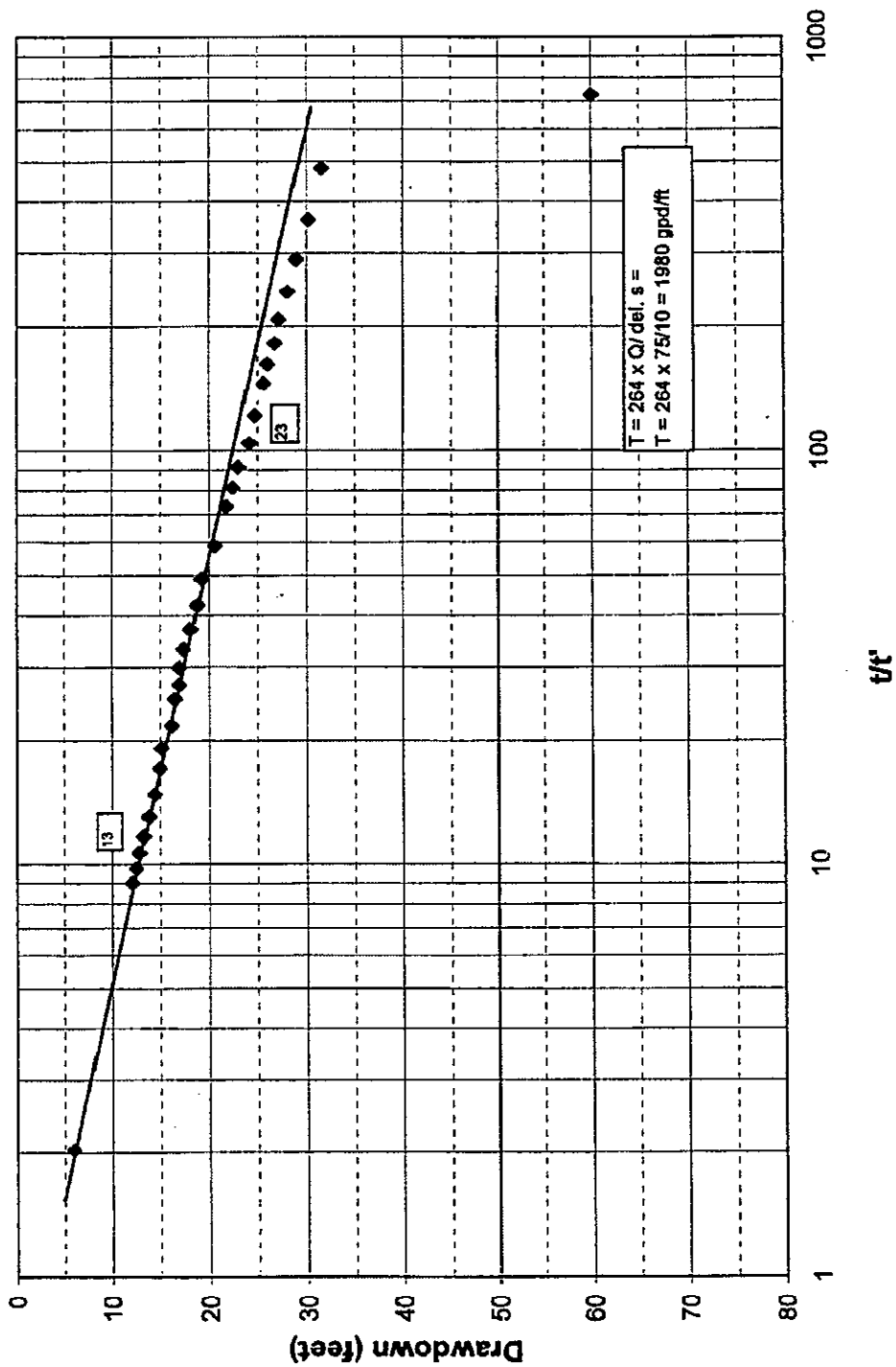
Time - Drawdown
Spring Valley Ranch
Test Well SVR 5, Q = 75 gpm
Test date: 2/4-2/5/2004



Time - Drawdown
Spring Valley Ranch
Test Well SVR 5, Q = 75 gpm
Test date: 2/4-2/6/04



Time - Recovery
Spring Valley Ranch
Test Well SVR 5, Q = 75 gpm
Test date: 2/4-2/6/04





Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: TERRY SCANLAN
SCANLAN ENGINEERING
600 E RIVER PARK LA STE 105
BOISE, ID 83706

Collected By: C FEAST
Submitted By: C FEAST

Source of Sample:

PROJECT: SPRING VALLEY RANCH SVRS GROUNDWATER

Time of Collection: 15:25
Date of Collection: 2/5/2004
Date Received: 2/5/2004
Report Date: 3/2/2004

PWS:

Laboratory Analysis Report

Sample Number: 0403745

SAMPLES FILTERED IN FIELD W/ 0.45 U FILTER.

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Antimony Furnace	0.006	<0.005	mg/L	0.005	SM 3113 B	2/19/2004	DMB
Arsenic Furnace	0.05	0.008	mg/L	0.003	SM 3113 B	2/18/2004	DMB
Barium, Ba	2	0.05	mg/L	0.05	EPA 200.7	2/13/2004	JH
Beryllium Furnace	0.004	<0.0005	mg/L	0.0005	SM 3113 B	2/19/2004	DMB
Calcium, Ca	UR	15.8	mg/L	0.10	EPA 200.7	2/18/2004	JH
Chromium Furnace	0.1	<0.002	mg/L	0.002	SM 3113 B	2/13/2004	DMB
Iron, Fe	UR	0.86	mg/L	0.05	EPA 200.7	2/9/2004	JH
Magnesium, Mg	UR	3.26	mg/L	0.10	EPA 200.7	2/18/2004	JH
Manganese, Mn	UR	0.31	mg/L	0.05	EPA 200.7	2/9/2004	JH
Mercury, Hg	0.002	<0.0002	mg/L	0.0002	EPA 245.1	2/19/2004	SS
Nickel, Ni	UR	<0.02	mg/L	0.02	EPA 200.7	2/12/2004	JH
Potassium, K	UR	4.9	mg/L	0.5	EPA 200.7	2/18/2004	JH
Sodium, Na	UR	15.3	mg/L	0.10	EPA 200.7	2/18/2004	JH
Thallium Furnace	0.002	<0.002	mg/L	0.002	SM 3113 B	2/20/2004	DMB
Cadmium Furnace	0.005	<0.0005	mg/L	0.0005	SM 3113 B	2/27/2004	DMB
Ammonia Direct (as N)	UR	0.12	mg/L	0.04	EPA 350.1	2/12/2004	WW
Nitrate (as N)	10	<0.20	mg/L	0.20	EPA 300.0	2/9/2004	WW
Nitrite (as N)	1.00	<0.01	mg/L	0.01	EPA 353.2	2/6/2004	WW
Bicarbonate		71.3	mg/L		SM 2320	2/9/2004	WW

MCL = Maximum Contamination Level
MDL = Method/Minimum Detection Limit
UR = Unregulated

Laboratory Analysis Report

Sample Number: 0403745

SAMPLES FILTERED IN FIELD W/ 0.45 U FILTER

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Chloride, Cl	UR	3	mg/L	1	EPA 300.0	2/12/2004	WW
Fluoride, F	4.0	0.42	mg/L	0.10	EPA 300.0	2/9/2004	WW
Sulfate, SO ₄	UR	9	mg/L	1	EPA 300.0	2/12/2004	WW
Hardness	UR	48.4	mg/L	5.0	SM 2340	2/10/2004	ARR
Sulfide, Dissolved (as H ₂ S)		<0.05	mg/L	0.05	SM 4500-S ₂ D	2/6/2004	RG
Total Dissolved Solids	UR	176	mg/L	15	EPA 160.1	2/7/2004	RG

Thank you for choosing Analytical Laboratories for your testing needs.

If you have any questions concerning this report,
please contact: Michael Moore

Michael Moore

IMCL = Maximum Contamination Level
IMDL = Method/Minimum Detection Limit
UR = Unregulated

Well # SE 1043

Printed 12/30/2003
Drilling Permit No. 809802
Well Tag No. D0030891
Well ID # 380534
Water Right No.
Receipt # W031188
Approved Date 12/22/2003

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
DRILLING PERMIT

Relationship: Applicant
Name: SPRING VALLEY DEVELOPMENT LLC
Address: 485 EAST RIVERSIDE DR
EAGLE ID 83816

Phone: (208)939-0343

Proposed Well Location: Township 05N, Range 02E, Section 18, SW, *SE NE*
COUNTY *Ada* Sub Name SPRING VALLEY

Street Address of Well Site: 1/4 MILE EAST OF HWY 55
Eagle EMMETT ID

Proposed Use of Well: Test

Well Construction Information:

- A. New Well
- B. Proposed Surface Diameter: 6 inches. Proposed Depth 500 Feet.
- C. Anticipated Bottom Hole Temperature: 85F and less

Construction Start Date: Dec 22 2003

Anticipated Well Drilling Company: ADAMSON PUMP & DRILLING (No. 457)

Applicant's Signature: See original Apl. Date 12/14/03Title: *AW*

2 of 3

Well ID # 380534

Well Tag No. D0030881

ACTION OF THE DEPARTMENT OF WATER RESOURCES

This permit is Approved on Monday, December 22, 2003.

1. This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.
2. This permit does not constitute an approval of the local Health District or the Idaho Department of Environmental Quality which may be required prior to construction of this well. The local Health District should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100 ft. from any drainfield and 50 ft. from any septic tank. Public Water Supply wells must not be drilled closer than 100 ft. from any drainfield or septic tank.
3. The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.
4. Approval of this drilling permit does not authorize trespass on the land of another party.
5. This permit does not constitute other local, county, state or federal approvals that may be required for construction of a well.
6. This drilling permit does not represent a right to divert and use the water of the State of Idaho. If the well being drilled is associated with approved water rights(s) use of the well must comply with conditions of said water right(s).
7. If a bottom hole temperature of 85 Degrees F (29.44 °C) or greater is encountered, well construction shall cease and the well driller and the well owner shall contact the Department of Water Resources immediately.
8. Idaho Code, § 55-2201 - 55-2210 requires the applicant and/or its contractors to contact "Dig-line" (Dig-Line is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig-Line" Number for this location is 1-800-342-1585.
9. The well tag for the drilling permit/start card shall be securely and permanently attached to the well casing through welding or by the use of four closed end domed stainless steel pop rivets. The tag attachment will be done at the time of completion of the well, and prior to removing the drill rig from the drill site.
10. This drilling permit has been approved for construction or drilling of an exploratory well intended to be used for collecting geologic, hydrologic or water quality data.
11. No water shall be produced from this well or any fluid injected into this well without specific written authorization from the Department.
12. Any surface casing installed in this well shall not exceed 8 inches nominal diameter.
13. All casing strings installed in this well shall be sealed their entire length with approved seal material and by positive means of placement unless otherwise authorized by this drilling permit.
14. A drilling prospectus including a schematic diagram and construction narrative describing all pertinent features of the well including drilling methods, seal material and placement methods, casing schedules and specifications shall be submitted for review by the department and attached to this drilling permit prior to the start of construction.
15. No casing installed in this well shall be drilled and driven through multiple aquifers, unless it is completely removed and the borehole is properly sealed or the casing is perforated at appropriate intervals and pressure grouted with approved grout. Drilling and driving casing may be allowed above the water table or where multiple aquifers are

Well ID # 3805-1

3063

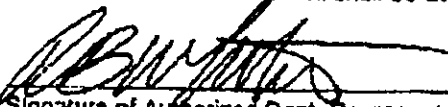
not encountered provided that the casing is sealed as required by administrative rules.

16. This well shall be properly plugged in accordance with a plan approved by the department at least 30 days prior to the expiration of the bond.

17. The bond secured for abandonment of this well shall be valid for the entire time the well remains open. The Department will give the well owner 60 days notice prior to the expiration of the bond that the well must be properly plugged. If the well owner has not properly plugged the well at least 30 days prior to the expiration of the bond, the Director may commence action to attach the bond and hire a licensed driller to properly plug the well.

18. Drilling of this well shall not commence until the Department has received a document from the surety company or bank stating that the bond is in full force and effect and the Department has determined the amount of the bond is sufficient.

19. This drilling permit is not valid unless the well owner has secured a bond in favor of the Director in an amount sufficient for proper plugging and abandonment of this well. The bond shall remain in effect and accessible by the Director until this well is plugged. The bond amount for this well shall be at least \$3600.


Signature of Authorized Dept. Representative

Sr WR Agent
Title

WELL CONSTRUCTION AND AQUIFER TESTING IN THE SANDY HILL AREA OF SPRING VALLEY RANCH

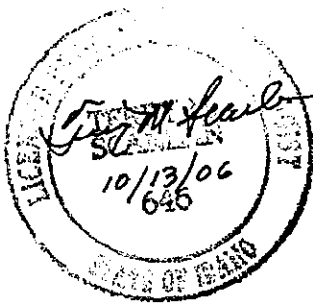
Prepared for

SunCor Development Company
SunCor Idaho, LLC
485 East Riverside Drive, Suite 300
Eagle, ID 83616

Prepared by

SPF Water Engineering, LLC
600 East River Park Lane
Boise, ID 83706

June 18, 2004



SPF Water Engineering, LLC
water resource consultants

Department of Water Resources	
APPLICANT'S	
Exhibit	29
Date Admitted	10-31-04
DAN	

Executive Summary

SunCor Development Company is evaluating development potential for the Spring Valley Ranch property located northwest of Boise, Idaho. The analysis described in this report focused on evaluating potential ground water production from the Sandy Hill Aquifer. The Sandy Hill Aquifer is an aquifer of limited areal extent near the proposed Core Development Area.

The aquifer had been initially identified by an exploration well constructed in November, 2002. Two additional wells were constructed in the aquifer as part of this project, and were used to conduct two multi-day aquifer tests.

Based on the results of these tests, we conclude that the Sandy Hill Aquifer represents a highly productive but volume-limited resource. Use of the water from this aquifer for public water supply purposes would require treatment for arsenic. With treatment, the Sandy Hill Aquifer appears to represent an initial source of water for the first phase of project development. Aquifer Storage and Recovery (ASR) represents a way in which to enhance and sustain production from this aquifer.

Table of Contents

1. Introduction	1
1.1. Background	1
1.2. Purpose and Objectives	1
1.3. Scope of Work	4
2. Well Construction	4
2.1. Test Production Well TPW 1	6
2.1.1. Construction	6
2.1.2. Chemistry	6
2.2. Exploration Well SVR 8	7
2.2.1. Construction	8
2.2.2. Chemistry	8
Sandy Hill Aquifer Test	8
3.1. Introduction	8
3.2. Methods	8
3.3. Results	9
3.3.1. Drawdown and Recovery	9
3.3.2. Barometric Efficiency	10
3.3.3. Water Quality	12
4. Discussion	13
4.1. Production Levels	13
4.2. Aquifer Area	13
4.3. Potential Water Supply	14
4.4. Effect of Natural Recharge	14
4.5. Potential Application of Aquifer Storage and Recovery	15
4.6. Water Quality for Municipal Purposes	16
4.7. Related Investigations	16
5. Conclusions and Recommendations	16
6. References	18

Appendices

Appendix A: Supplementary Data – Spring Valley Ranch Test Production Well TPW 1

Appendix B: Supplementary Data – Spring Valley Ranch Exploration Well SVR 8

Appendix C: Supplementary Data – Sandy Hill Aquifer Test

List of Figures

Figure 1: Spring Valley Ranch core development area.....	2
Figure 2: Locations of Exploration Wells SVR. 5 and SVR 8, and Test Production Well TPW 1.....	5
Figure 3: Sediments similar to those in Sandy Hill Aquifer.....	5
Figure 4: Pump, generator, and discharge line at TPW 1; discharge line into South Fork of Willow Creek.	11
Figure 5: Measuring equipment at TPW 1 and SVR 3.....	11
Figure 6: Hillside Spring discharge.....	12

List of Tables

Table 1: Water development history, Spring Valley Ranch.....	3
Table 2: Selected water quality parameters, SVR 5 and TPW 1.....	7
Table 3: Estimated ground water elevations at Hillside Spring, TPW 1, SVR 3, and SVR 8.....	15

1. INTRODUCTION

1.1. Background

SunCor Development Company is evaluating development potential for the Spring Valley Ranch property located northwest of Boise, Idaho. The property consists of more than 30,000 acres located in Ada, Gem, and Boise Counties. The ultimate population within the primary development areas could be as high as 30,000 residents, based on 11,300 dwelling units with an assumed 2.7 occupants per dwelling unit (approximate Idaho average). The initial phase of the project will likely consist of less than 1,000 homes in a core area located along Highway 55 in Spring Valley.

Scanlan Engineering's participation with water development began in June 2002 (Table 1) with an initial assessment of water development potential. This led to the construction of four exploration wells (SVR 1, SVR 2, SVR 3, and SVR 4) in Spring Valley. Conclusions from the construction and testing of these wells were presented in April 2003. Since that time SunCor Development has authorized an additional six exploration and test production wells (Table 1). This report, prepared by SPF Water Engineering, LLC (formerly Scanlan Engineering), presents data, results, and conclusions from the drilling, construction, and testing of Exploration Well SVR 8 and Test Production Well TPW 1. Concurrent construction and testing of Exploration Wells SVR 5, SVR 6, SVR 7, SVR 9, and SVR 10, and analysis of hydrologic conditions in the western portion of Spring Valley Ranch are being presented under separate cover.

1.2. Purpose and Objectives

The purpose of the hydrologic analyses described in this report was to identify and evaluate potential water supplies for the Spring Valley Ranch area. The general objective was to evaluate potential production from the Sandy Hill Aquifer. Specific objectives of this investigation included the following:

1. Drill and construct a test production well in the Sandy Hill Aquifer.
2. Drill an additional exploration and monitoring well in the Sandy Hill Aquifer area.
3. Conduct a multi-well, multi-day aquifer test to evaluate aquifer characteristics in the Sandy Hill Aquifer.
4. Present results from well construction and aquifer testing.

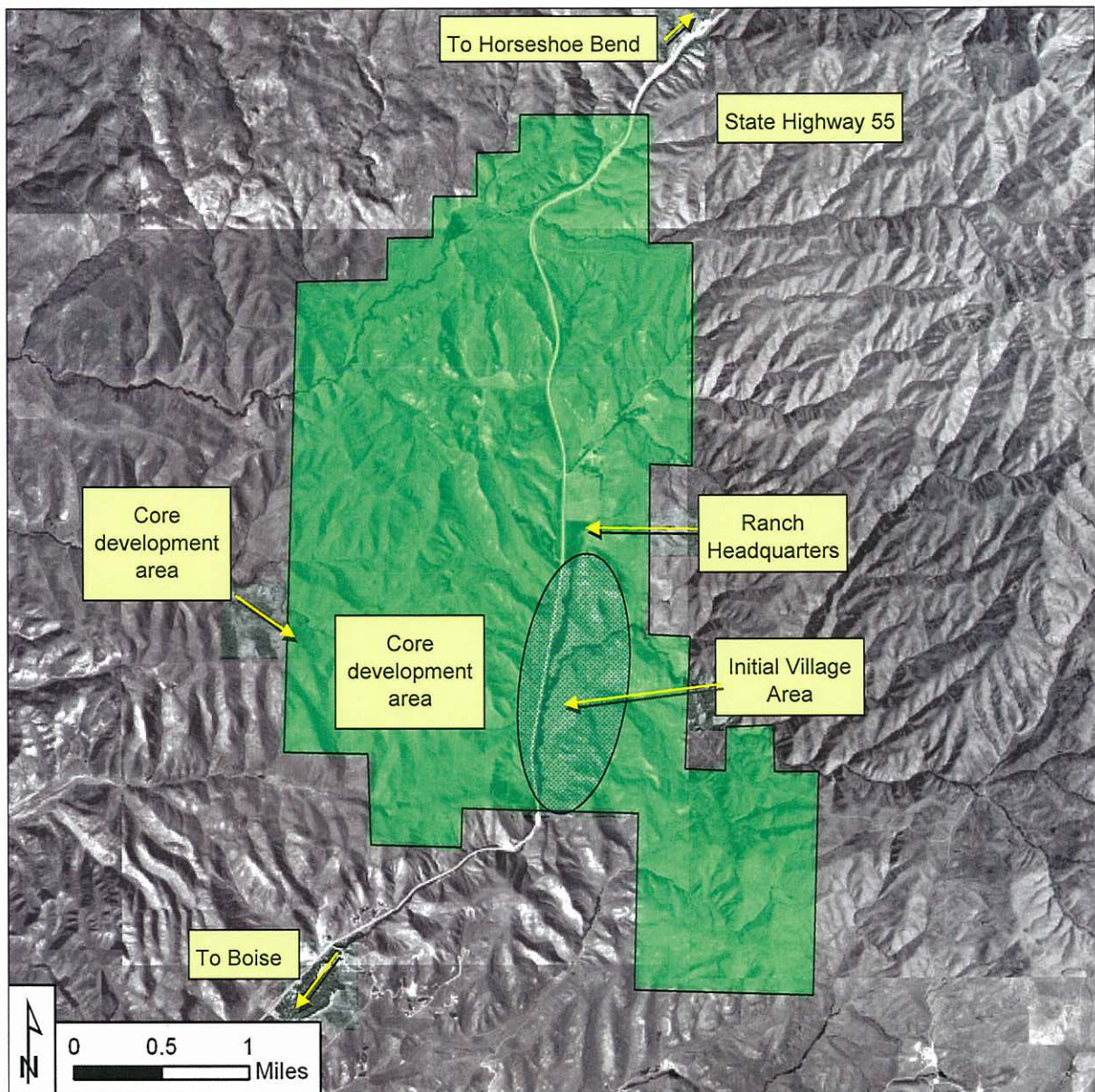


Figure 1: Spring Valley Ranch core development area.

Date	Item
July 2002	Scanlan Engineering submits letter report suggesting Initial Phase water supply target of approximately 2 million gallons per day (1,400 gpm), which would be adequate for peak-day domestic and landscape irrigation for approximately 1,000 homes. Exploration drilling was recommended to explore for ground water supplies located in the close proximity to initial development areas and in the western portion of the property in Big Gulch.
November 2002	Exploration Well SVR 1 (8-inch x 445 feet total depth, 50 gpm, 100 feet drawdown) completed and tested in Spring Valley; Exploration Well SVR 2 (8-inch x 840 feet total depth, 50 gpm, 160 feet drawdown) completed and tested in South Fork Willow Creek Valley
December 2002	Exploration Well SVR 3 (8-inch x 970 feet total depth) completed west of Spring Valley at Sandy Hill. Aquifer zone above 290 feet tested (165 gpm, 3 feet drawdown).
February - March 2003	Exploration Well SVR 4 (8-inch x 1,220 feet total depth) completed in Spring Valley. Aquifer zone from 240 to 290 feet test pumped for 24 hours (80 gpm, 200 feet drawdown).
April 2003	Scanlan Engineering report on the construction and testing of exploration wells SVR 1 through SVR 4 concluded that 1. A productive coarse-grained sand aquifer (i.e., the "Sandy Hill Aquifer") is present in the highlands approximately $\frac{3}{4}$ mile west of the Spring Valley Ranch buildings. The aquifer appeared to extend over an area of less than one square mile. Additional investigation was recommended. Arsenic concentration exceeded future drinking water standards. Otherwise, water quality is excellent. 2. Testing of Exploration Well SVR 1, SVR 4, and the Ranch Irrigation Well indicated that aquifer conditions along the Highway 55 corridor (i.e., "Spring Valley Aquifer") through Spring Valley are not conducive to development of high capacity wells. Sustainable yield from the Spring Valley Aquifer was deemed questionable. Water quality meets primary drinking water standards, but aesthetic quality is poor due to high concentrations of iron, manganese, and hydrogen sulfide. 3. The Hillside Spring in Spring Valley could be considered for water supply purposes (with treatment for arsenic). Alternatively, the discharge from the spring could be captured and pumped back to the vicinity of Exploration Well SVR 3 for Sandy Hill Aquifer recharge purposes. Discharge from the spring (currently 50 gpm) is likely to be impacted by pumping from the Sandy Hill Aquifer. 4. Suspected aquifers in the Big Gulch and Little Gulch areas are anticipated to be productive and more sustainable, and should be targeted as part of the ultimate water supply for the project. Water quality from low-capacity stockwater wells in Big Gulch and Little Gulch is excellent. 5. Wells in Big Gulch and Little Gulch areas were suggested as possible sources of recharge for the Sandy Hill Aquifer, allowing the Sandy Hill Aquifer to be recharged during low-demand winter months. Recharged water could be recovered from Sandy Hill Aquifer wells during high demand summer months
January 2004	Exploration Well SVR 5 (6-inch x 440 feet) constructed in Spring Valley and test pumped at 75 gpm for 24 hours with 60 feet of drawdown
February - March 2004	Exploration Well SVR 6 (8-inch x 740 feet) constructed in Big Gulch and test pumped at 350 gpm for 24 hours with 3 feet of drawdown
March 2004	Test Production Well TPW-1 (16-inch x 290 feet) constructed for aquifer testing and future municipal production purposes at Sandy Hill Aquifer; Exploration Well SVR 7 (8-inch x 810 feet) constructed in lower Big Gulch
April 2004	Exploration Well SVR 8 (6-inch x 141 feet) constructed for exploration and water level observation purposes at Sandy Hill Aquifer; 3-day pumping test of TPW 1 at 2,000 gpm and 17 feet drawdown with observation at SVR 3, SVR 8, and Hillside Spring; 22-hour test of SVR 7 at 500 gpm and 30 feet drawdown
June 2004	Drilling of SVR 9 (8-inch x 805 feet; Little Gulch) and SVR 10 (8-inch; upper Big Gulch)

Table 1: Water development history, Spring Valley Ranch.

1.3. Scope of Work

Work conducted as part of this investigation included the following tasks:

1. Develop well designs for Exploration Well No. 8 (SVR 8) and Test Production Well No. 1 (TPW 1); coordinate well drilling and construction with drilling contractors.
2. Negotiate with the Idaho Department of Water Resources for well drilling permits, abandonment bonds, and other permitting items.
3. Provide inspection and supervision of drilling activities, including logging of drill cuttings, inspection and certification of surface seal installation, and other tasks as needed.
4. Conduct a multi-day pumping test of the Sandy Hill Aquifer. Provide supervision of test pumping activities by contractor. Measure observation well water levels and spring flow. Collect and submit water samples for water quality analyses.
5. Provide documentation of exploration well drilling and aquifer testing results. The report will include data, conclusions, and any recommendations for further investigation.

2. WELL CONSTRUCTION

This section describes the drilling and construction of wells TPW 1 and SVR 8. These wells are located in the Sandy Hill area, approximately one mile east of the primary ranch buildings (Figure 2).

The purpose of TPW 1 was to serve as a pumping well for a multi-day aquifer test to better characterize the Sandy Hill Aquifer. The completed well may also be utilized as a source of water supply for a future public water system to serve the Spring Valley Ranch Project. The well targeted the same coarse-grained sand sediments (Figure 3) that were encountered by SVR 3 (Scanlan Engineering, April, 2003). TPW 1 is located in the SE $\frac{1}{4}$, SE $\frac{1}{4}$ of Section 1 in T5N R1W, approximately $\frac{2}{3}$ mile west of Highway 55, and approximately 150 feet east of Exploration Well SVR 3 (Figure 2).

Exploration Well SVR 8 was constructed approximately $\frac{1}{2}$ mile west of Highway 55. It is located in the SW $\frac{1}{4}$, SW $\frac{1}{4}$ of Section 6 in T5N R1E, approximately 1,000 feet east of Test Production Well TPW 1. The ground surface elevation at the well site is approximately 110 feet lower than at SVR 3 and TPW 1. The purpose of this well was to help determine the lateral extent of the Sandy Hill Aquifer, provide an additional observation point during the Sandy Hill Aquifer test (see Section 3), and to serve as a long-term observation point during the development of the Sandy Hill Aquifer.

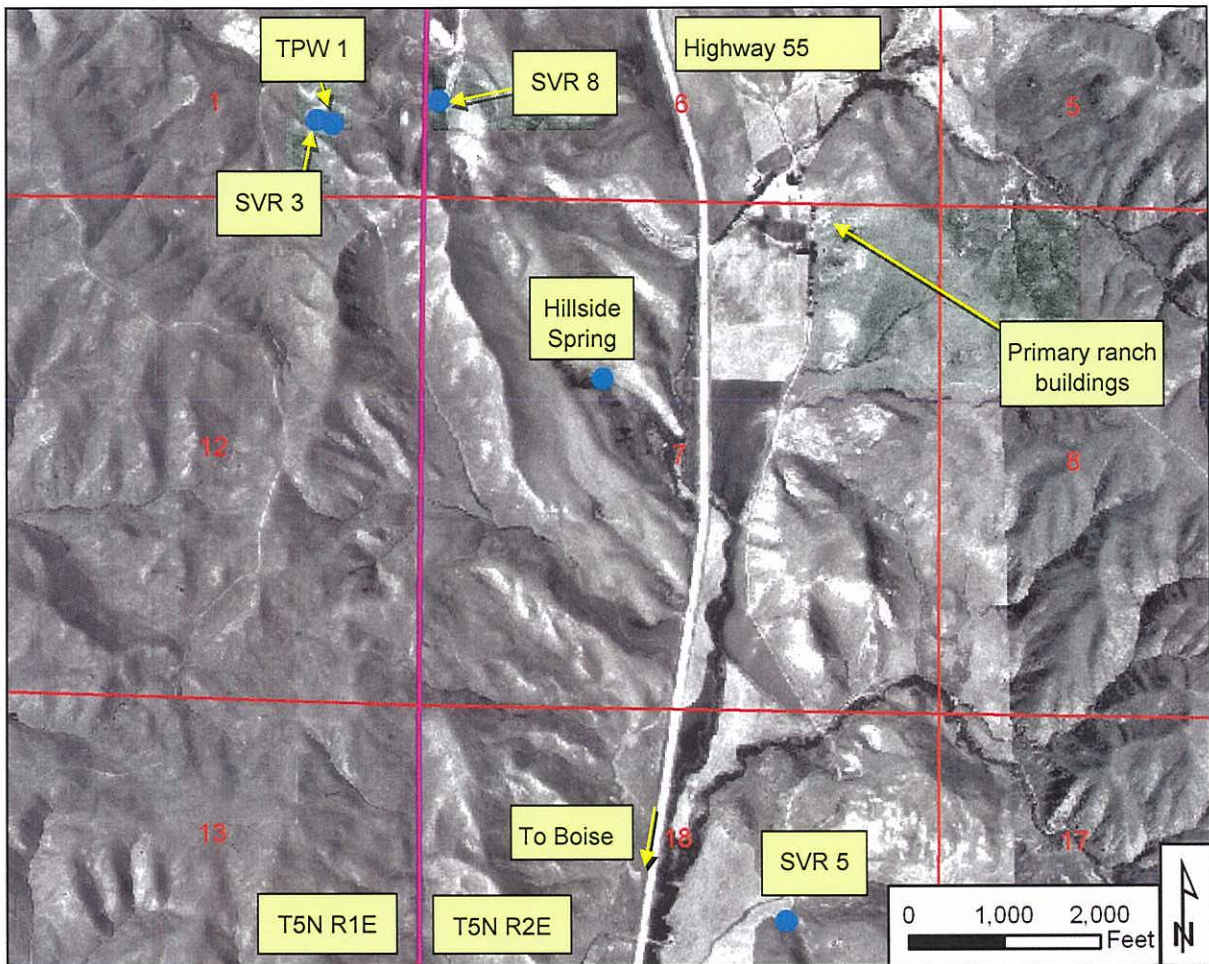


Figure 2: Locations of Exploration Wells SVR 5 and SVR 8 and Test Production Well TPW 1.

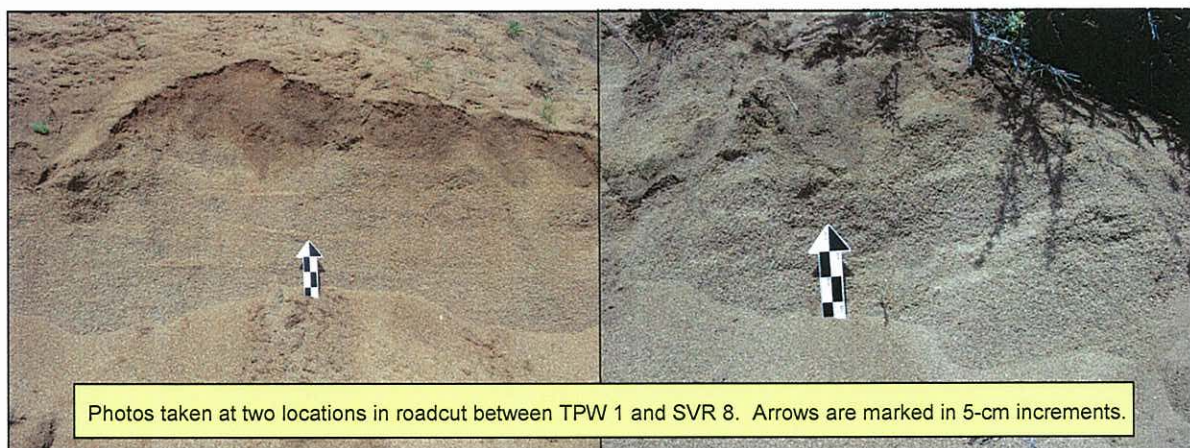


Figure 3: Sediments similar to those in Sandy Hill Aquifer.

2.1. Test Production Well TPW 1

2.1.1. Construction

Test Production Well TPW 1 was drilled and constructed between March 25 and March 30, 2004, by Riverside, Inc. (Parma, Idaho). TPW 1 (IDWR Tag No. 0030890) was drilled with a 24-inch diameter borehole to a depth of 292 feet using the reverse circulation rotary method (Appendix A). The borehole penetrated fine, medium, and coarse sands to a depth of 290 feet. The bottom 2 feet (290 to 292 feet) penetrated by the borehole were observed as dark-gray tuffaceous clay. A more detailed lithologic description of this area is provided as part of the Exploration Well SVR 3 well log (Scanlan Engineering, April, 2003).

The well was completed to public water system standards¹, with 16-inch (0.375-inch wall) welded steel casing to a depth of 238 feet, and with 16-inch diameter 40-slot (0.040-inch slot spacing) stainless-steel well screen from 238 to 292 feet. Pea gravel (3/8-inch) was placed as filter pack in the borehole annulus outside of the well screen (from the bottom of the borehole up to a depth 230 feet). The remaining annular space between ground surface and filter pack (from ground surface to a depth of 230 feet) was sealed with 37,500 lbs of bulk bentonite chips contained in 2,500-lb bags (15 bags). Placement of the entire well seal was observed and documented by Mike Martin, EIT (SPF Water Engineering, LLC); a portion of the well seal installation was also observed by Rob Whitney (IDWR). Each bag was poured through standing water at carefully controlled rates. Upon emptying of each bag, a sinker bar and tag line was used to tag the top of the seal. No bridging was detected during installation of the seal.

A 1.5-inch access port was installed in the above ground portion of the well casing to facilitate water level measurements. The static water level following well completion and development was 177 feet below the top of the access port.

2.1.2. Chemistry

Water quality parameters (e.g., specific conductance, temperature) were measured during the test pumping of TPW 1 (see Section 3). Samples were collected and analyzed for potential drinking water contaminants, including primary and secondary inorganic constituents, volatile organic compounds (VOCs), synthetic organic compounds (SOCs), radiological parameters, and coliform bacteria. Results are summarized in Table 2 and Appendix A and discussed in Section 3.3.4.

¹ <http://www2.state.id.us/adm/adminrules/rules/idapa58/0108.pdf>

Constituent	Maximum Contaminant Level (MCL) (µg/l)	Secondary Maximum Contaminant Level (SMCL) (µg/l)	Analysis Results (*Results from SVR 3 and Hillside Spring are provided for comparison - see Scanlan Engineering, April, 2003)		
			TPW 1 (µg/l)	SVR 3* (µg/l)	Hillside* Spring (µg/l)
Date			4/16/2004	12/18/2002	12/18/2002
Arsenic	0.01**		0.023	0.038	0.021
Ammonia			<0.04	<0.04	<0.04
Antimony	0.006		<0.005	<0.005	<0.005
Barium	2		<0.05	<0.05	<0.05
Beryllium	0.004		<0.0005	<0.0005	<0.0005
Bicarbonate				50.4	66.2
Cadmium	0.005		<0.0005		
Calcium			40.6	12.9	22.2
Chloride		250	<1	2	3
Chromium	0.1		<0.002	<0.002	<0.002
Fluoride	4	2	0.36	0.27	0.33
Hardness			110	41.8	67.7
Iron		0.3	0.06	0.06	<0.05
Magnesium			4.37	2.54	3.53
Manganese		0.05	0.10	<0.05	<0.05
Mercury	0.002		<0.0002	<0.0002	<0.0002
Nickel			<0.02	<0.02	<0.02
Nitrate	10		<0.01	0.63	1.59
Nitrite	1		<0.20	<0.01	<0.01
Potassium			5.2	4.4	4.4
Sodium			10.2	9.72	9.52
Sulfate		250	26	11	17
Sulfide			<0.05	<0.05	<0.05
TDS		500	218	116	120
Thallium	0.002		<0.002	<0.002	<0.002
coliform bacteria			absent		
Field Parameters					
Temp. (°C)			14.8	13.4	13.8
Temp (°F)			58.6	56.1	56.8
SC umhos/cm			251	138	188
EC umhos/cm			202	108	145
PH		6.5-8.5	7.1 (lab value)	7.46	7.56
**Current standard is 0.050 µg/l; standard will change to 0.010 µg/l on January 26, 2006.					

Table 2: Selected water quality parameters, TPW 1.

2.2. Exploration Well SVR 8

2.2.1. Construction

SVR 8 (IDWR Tag No. 0031220) was drilled by Adamson Pump and Drilling on April 12, 2004, using the air-rotary method. The uppermost 20 feet was drilled to a 10-inch diameter with a 10-inch temporary surface casing. A 6-inch steel casing was then drilled and driven to a depth of 141 feet. A 5-inch diameter screen with 0.040-inch openings was installed from 136 to 141 feet, with an 11-foot headpipe and packer extending upward into the well casing, and the 6-inch casing was then pulled back to 133 feet to expose the well screen. A bentonite surface seal was installed as the upper temporary casing was removed. The well was then developed by air-lift pumping at an estimated production rate of 100 gpm. A driller's report and other information for this well are included in Appendix B. Static water level following completion was approximately 65 feet below ground surface.

2.2.2. Chemistry

Water quality parameters were not analyzed in this well because the well was not test pumped.

3. SANDY HILL AQUIFER TEST

3.1. Introduction

Aquifer testing was conducted in the Sandy Hill Aquifer following completion of the Test Production Well TPW 1 and SVR 8. These tests consisted of an initial step-rate pumping test, a constant-rate pumping test, and a recovery test. TPW 1 was utilized as the pumping well.

This section outlines methods and results of these tests and provides discussion based on the analysis of test results.

3.2. Test Methods and Equipment

The first test consisted of development pumping and a nominal 1.5-hour step-rate test conducted on April 12, 2004.

The second test was a 3-day constant-rate pumping test with a design production rate of approximately 2,000 gpm, followed by a 4-day recovery test. The constant-rate pumping test began April 14, 2004, at 10:47 A.M. and ended on April 17, 2004, at 10:05 A.M. The actual pump-discharge rate for the first ten minutes of pumping was

approximately 600 gpm and was approximately 2,050 gpm for the remainder of the test.

The recovery test began when the pump was turned off (April 17, 2004 at 10:05 A.M.). Measurements were taken in TPW 1, SVR 3, and SVR 8 through April 21, 2004.

The pumping tests were conducted with a line-shaft turbine pump installed in TPW 1, powered by a direct-drive diesel engine. Personnel and equipment for the pumping test were provided by Riverside, Inc. Discharge was routed across a small divide through a 12-inch pipeline to the South Fork of Willow Creek to avoid seepage loss through the coarse-grained surface sands found in the vicinity of the pumping well (Figure 4). Discharge was estimated based on measured backpressure in a 10-inch discharge pipe upstream of an 8-inch circular orifice.

Water levels were monitored in the pumping well (TPW 1) and observation wells SVR 3 and SVR 8. Water levels were measured in TPW 1 with an electric-probe sounder through dedicated 1/2-inch tubing (Figure 5) that extended into the well to within a few feet of the pump. The purpose of the dedicated line was to reduce measurement fluctuations caused by turbulence within the well and by pump lubricants. Water levels in monitoring wells SVR 3 and SVR 8 were monitored by electric-probe sounders and Stevens Type F chart recorders (Figure 5).

The primary Spring Valley spring ("Hillside Spring") and several nearby seeps are thought to represent discharge points to the Sandy Hill Aquifer. A portion of the spring discharge (about 5 to 15 gpm) is piped to the ranch for stockwater and domestic uses. The remainder of the spring flow (approximately 50 gpm) discharges through a pipe at a cattle trough. Discharge rates from the pipe at the cattle trough were monitored during the pumping and recovery tests using a bucket and stopwatch (Figure 6).

Several storms passed through the area during the aquifer testing period. Changes in barometric pressure can influence water levels in confined aquifers (Fetter, 1994; Freeze and Cherry, 1979; U.S. Department of the Interior - Bureau of Reclamation, 1985). Barometric fluctuations were apparent during the aquifer tests, despite the lack of apparent confining zones in the lithologic profile observed during well construction. Barometric corrections were made to water-level measurements using barometric data from Gowen Field (airport) in Boise.

3.3. Results

3.3.1. Step-Rate Pumping Test

Pumping rates during the step-rate tests were approximately 850 gpm, 2,000 gpm, and 2,340 gpm. Each step was maintained for approximately 30 minutes. Maximum drawdown was 16.6 feet.

Specific capacities at the end of the three steps ranged from 120 gpm/ft to 150 gpm/ft. The range in specific capacities suggests that there may have been some inaccuracy in flow measurement. The lowest specific capacity was at the 850 gpm rate. Therefore, the data do not suggest a significant decrease in well efficiency at higher discharge rates.

3.3.2. Constant-Rate Pumping Test and Recovery

The pumping well (TPW 1) produced approximately 2,050 gpm for a period of approximately 71 hours. The total pumping drawdown in TPW 1 was approximately 17 feet. Upon cessation of pumping, the water level in the well recovered to within 8 feet of static water level in two minutes, and to within 1.16 feet of the pre-test static water level approximately 40 hours after the pump was turned off.

The close observation well (SVR3, 150 feet to the west) had 1.0 foot of drawdown during the test. Water levels in the well recovered to within 0.7 foot of the static level one day after the pump was turned off. Water levels did not recover further during the subsequent days of recovery measurements.

The distant observation well (SVR 8, located 1,000 feet to the east of TPW 1) experienced 0.6 foot of drawdown during the test. Water levels in this well were 0.8 foot below that static level at the end of the recovery test. The apparent continued decline can be explained by changes in barometric pressure (see Section 3.3.3).

Water levels in all three wells were approximately 0.5 feet below pre-test static water levels 8 weeks after the test.

There was no noticeable change in observed discharge from the Hillside Spring in Spring Valley during the pumping or recovery tests.

3.3.3. Barometric Efficiency

Changes in atmospheric pressure can cause changes in ground water levels in confined or semi-confined aquifers. A decrease in atmospheric pressure can lead to an increase in water levels, and vice versa. No apparent confining zone was observed in the lithologic profile of these wells. Nonetheless, barometric effects were clearly observed in the observation well water level data (see drawdown plots in Appendix C). Barometric effects were not analyzed in the pumping well because drawdown caused by pumping would overwhelm any changes in water levels caused by barometric variations.

Barometric efficiency is defined by the ratio of water level change in a well to a change in barometric pressure. The barometric efficiency of the SVR 3 and SVR 8 wells was estimated to be approximately 58%. This indicates that a change of 1 inch (of water) in barometric pressure results in a 0.58-inch change in water level in the well. Thus, changes in barometric pressure explained some of the fluctuations in water levels observed during the course of the aquifer tests.

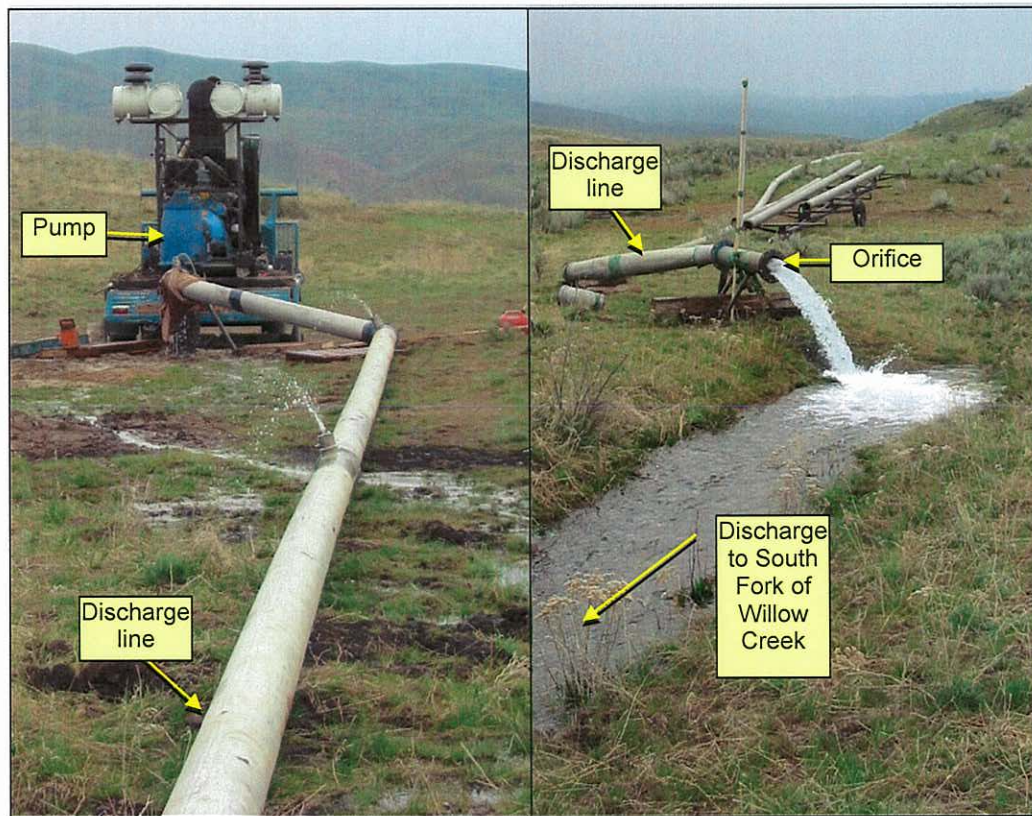


Figure 4: Pump, diesel motor, and discharge line at TPW 1

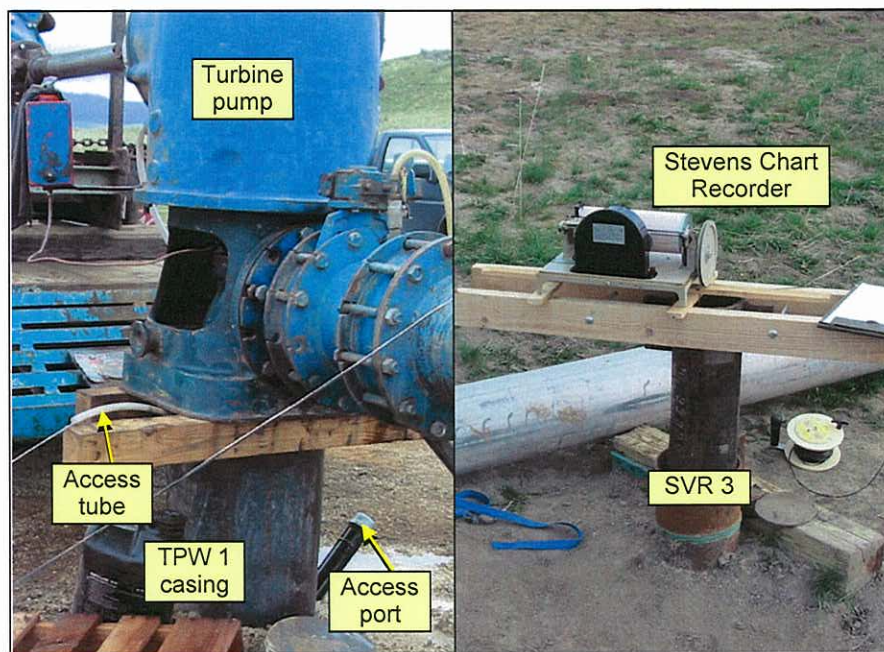


Figure 5: Measuring equipment at TPW 1 and SVR 3.



Figure 6: Hillside Spring discharge.

3.3.4. Water Quality

Results of water quality testing are provided in Table 2 and Appendix A. At the time of report preparation, laboratory (Analytical Laboratories, Inc.) results for radiological constituents were not available. When received, these analyses will be forwarded to SunCor.

The quality of water produced from TPW 1 is good in all respects except for arsenic and manganese. The manganese concentration in water from TPW 1 (0.10 ppm) exceeded the secondary standard (primarily aesthetic) of 0.05 ppm. Samples from TPW 1, SVR 3, and Hillside Spring contained levels of arsenic (0.023 ppm, 0.038 ppm, and 0.021 ppm, respectively) that do not meet the future standard of 0.01 ppm (this standard will be effective on January 23, 2006). Arsenic speciation (Appendix A) suggests that approximately one-half of the arsenic is in the oxidized form.

Several observations can be made from the water quality data in Table 2. First, concentrations in TPW 1, SVR 3, and SVR 8 are generally similar, reflecting similar aquifer conditions. However, the sample from TPW 1 had somewhat higher concentrations of total dissolved solids (TDS), calcium, and manganese, and a lesser concentration of nitrate, than samples from SVR 3 and Hillside Spring. The presence of manganese and the absence of nitrate in the water from TPW 1 suggest that the groundwater produced from the well is slightly anaerobic (i.e., reduced). In contrast, the sample from nearby SVR 3 (and the Hillside Spring) had no detectable manganese, but a contained detectable nitrate, suggesting aerobic (i.e., oxidized) conditions. These differences might be explained based on the well construction. TPW 1 has screens that tap the aquifer below a depth of 240 feet. SVR 3 taps the aquifer above 240 feet. The water in the lower portion of the aquifer tapped by TPW 1 may be influenced by a very slow circulation rate, or by recharge from underlying or adjacent fine-grained sediments. In contrast, the upper portion of the aquifer tapped

by SVR 3 may show influence of recharge from precipitation or surface sources. Furthermore, the similarities in chemistry between SVR 3 and the Hillside Spring (4,000 feet apart), may suggest a horizontal flow regime through the upper portion of the aquifer. The differences in chemistry between SVR 3 and TPW 1 (150 feet apart) suggest that there is not an active vertical flow path through the aquifer in the vicinity of TPW 1.

4. DISCUSSION

The Sandy Hill Aquifer has been identified as a possible water supply source for the proposed Spring Valley Ranch development. The purpose of this effort was to evaluate potential production capacity from the Sandy Hill Aquifer.

4.1. Production Levels

Aquifer testing of the Sandy Hill Aquifer indicates high production capacity but limited areal extent. The total extraction volume over the 3-day pumping test was approximately 27 acre-feet (9 million gallons). Aquifer water levels did not fully recover following the aquifer test.

The drawdown trend in all three wells a few hours after start or end of pumping is generally linear (except for minor fluctuations that appear to be related to barometric pressure changes). The linear trend is an indication that the Sandy Hill Aquifer responds as a bounded reservoir, which is consistent with our conceptual model of this aquifer having limited areal extent.

Assuming that this amount of pumping (approximately 27 acre-feet) resulted in an average, uniform depletion of 0.75 foot, the aquifer has a capacity of approximately 35 acre-feet (11.5 million gallons) per foot of decline. However, the estimated capacity per foot of decline could be substantially less if the aquifer dimensions decrease as water levels decline, which is likely. In other words, the "sides" of the reservoir are probably not vertical and, as a result, the horizontal cross-sectional area of the aquifer probably decreases with depth.

4.2. Aquifer Area

A gross estimate of total aquifer area can be made based on an assumed specific aquifer yield (i.e., the ratio of the volume of water released from aquifer storage per unit surface area of aquifer per unit decline in the water table) and the estimated production per foot of aquifer decline. If one assumes 35-acre-foot extraction per 1-

foot aquifer depletion, and a specific yield value for the Sandy Hill Aquifer of 0.20, then it might be inferred that the aquifer covers approximately 175 acres.

4.3. Potential Water Supply

The aquifer has a saturated thickness of approximately 110 feet at the pumping well site. If we assume that the entire aquifer area has a saturated thickness of at least 50 feet, and that each additional foot of aquifer decline (up to 50 feet) would produce an additional 35 acre-feet of water, then the recoverable storage in the uppermost 50 feet of aquifer storage might be approximately 1,750 acre-feet (575 million gallons). Furthermore, if one assumes an annual use rate of 0.5 acre-feet per customer, the exploitable storage volume in the uppermost 50 feet of the Sandy Hill Aquifer might provide 3,500 "customer years" of supply. In other words, given these assumptions, the water currently stored in the upper 50 feet of the aquifer might support 350 homes for ten years, or 700 homes for five years. After the storage volume is depleted, another source of supply would need to be developed to serve the project. This analysis is highly speculative, as aquifer dimensions and aquifer yields per foot of decline in the uppermost 50 feet of the aquifer are unknown.

Although the long-term sustainability of the resource is limited under high rate pumping conditions, the potential short-term yields from wells tapping the aquifer are very high. Concurrent operation of several wells, each producing at rates in excess of 2,000 gpm, is feasible.

4.4. Effect of Natural Recharge

The average recharge to the aquifer appears to be in excess of 95 acre feet (31 million gallons annually), based on an average annual discharge rate from the Hillside Spring in Spring Valley of approximately 60 gpm (95 acre feet annually). Depletion of aquifer storage by pumping will either have (1) little effect on spring flow if the spring flow occurs as leakage from the base of the aquifer or (2) substantial effect on spring flow if the flow occurs as discharge from the top of the aquifer.

Estimated ground surface elevations (based on USGS 7.5 minute quad map elevations) for the three Sandy Hill Aquifer wells are shown in Table 3. Differences in water levels among TPW 1, SVR 3, and SVR 8 probably reflect errors in estimating ground surface elevations. However, the difference between the averages of the water levels in these three wells (3,420 feet) is about 40 feet above the estimated spring elevation. This suggests that the flow to the spring would continue despite aquifer extractions (although probably at a diminished rate) until water levels are drawn down to near the spring elevation. Annual natural recharge could partially offset depletions to the aquifer caused by pumping (depending on withdrawals rates), effectively increasing the exploitable supply from the aquifer.

Assuming that the recharge that discharges from the Hillside Spring can be captured by lowering the water level in the aquifer, the sustainable yield from the aquifer would be in excess of 95 acre feet per year. For purposes of discussion, a 100 acre foot per year annual yield could probably be obtained without further water level decline after flow from the spring is essentially stopped. This amount of water is adequate to support approximately 200 homes (0.5 acre feet annually per home) without significant water conservation. With water conservation, the aquifer might reliably supply 300 homes into the future.

Location	Estimated Ground Surface Elevation (ft)*	Measured Static Depth to Water (ft)	Estimated Ground Water Elevation (ft)
Hillside Spring	3,380	--	3,380
TPW 1	3,600	179	3,421
SVR 3	3,600	175	3,425
SVR 8	3,480	67	3,413
* Based on interpolated USGS elevation data.			

Table 3: Estimated ground water elevations at Hillside Spring, TPW 1, SVR 3, and SVR 8.

4.5. Potential Application of Aquifer Storage and Recovery (ASR)

With aquifer recharge, the Sandy Hill Aquifer could serve as a reservoir capable of meeting large seasonal demand peaks. For instance, if the aquifer was recharged for 7 months from fall to spring at an average rate of 2,000 gpm from another water source, the water could be withdrawn for 5 months from spring to fall at an average rate of 2,800 gpm to meet seasonal demand peaks. Furthermore, the peak rates at which the water could be withdrawn could easily exceed 5,000 gpm. If utilized as an ASR facility, the Sandy Hill Aquifer could potentially serve several thousand customers. An ASR project will require a reliable source of water for annual recharge purposes.

Potential sources of water for managed recharge include ground water from the western portion of Spring Valley Ranch (see Section 4.7), surface water from Spring Valley Creek, South Fork Willow Creek, or the Payette River, or municipal supplies from the Hidden Springs and/or northeast Eagle area.

4.6. Water Quality for Municipal Purposes

Results of water quality testing from TPW 1, SVR 3, and the Hillside Spring (Table 2 and Appendix A) suggest that at a minimum, water from the Sandy Hill Aquifer will require treatment for arsenic to meet future public drinking water standards. The 0.10 mg/L manganese concentration in TPW 1 may require treatment for aesthetic reasons (i.e., to minimize staining). It is possible that an active Aquifer Storage and Recovery strategy would result in decreased arsenic and/or manganese concentrations over time.

4.7. Related Investigations

An effort is currently underway to evaluate water supplies in the western portion of Spring Valley Ranch. A large, highly transmissive aquifer appears to be present in an area between Big Gulch and Willow Creek. Another transmissive aquifer has been identified in lower Big Gulch. Water from these sources may be available for development in the western portion of the Spring Valley Ranch, direct use in the core development area, or for recharge of the Sandy Hill Aquifer. However, elevated arsenic concentrations in ground water from this area may require treatment of this water prior to municipal use. Results and conclusions from the investigation of water resources in the western portion of Spring Valley Ranch are being provided under separate cover.

5. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions were drawn from well construction and aquifer testing described above.

1. The Sandy Hill Aquifer represents a highly productive but volume-limited resource.
2. If not artificially recharged, the sustainable production from the Sandy Hill Aquifer will support 200 to 300 homes.
3. As an interim water supply prior to bringing in a recharge source, the aquifer might supply 500 homes for five to ten years with aquifer water level decline of up to 50 feet.
4. Sandy Hill Aquifer water would require treatment for municipal uses because of elevated arsenic concentrations. With treatment, the Sandy Hill Aquifer appears to represent an initial source of water for the first phase of project development.
5. Extensive extraction of ground water from the Sandy Hill Aquifer will likely result in a decline in Hillside Spring discharge.

6. Managed recharge of the Sandy Hill Aquifer from other sources will increase the amount of water available for extraction from the aquifer. If an adequate source of recharge could be developed, the Sandy Hill aquifer could potentially meet the peak season water demands for several thousand homes.
7. Potential sources of water for managed recharge (or direct use) in the Sandy Hill area include (1) one or more aquifers in the western portion of the Spring Valley Ranch or (2) municipal water provided by United Water Idaho (by pipeline via the Dry Creek valley) or surface water from Spring Valley Creek, South Fork Willow Creek, or the Payette River.

The following recommendations should be considered:

1. Conduct geologic mapping of the Sandy Hill Aquifer area to (1) better define the areal extent of the aquifer, (2) identify geologic controls on natural aquifer discharge, and (3) delineate recharge areas. Establishing the areal extent of the aquifer would help in refining water supply estimates from the Sandy Hill Aquifer. Delineating recharge areas would help quantify aquifer recharge and may influence development planning (so as to protect aquifer water quality).
2. Conduct additional exploration drilling to help determine aquifer characteristics (i.e., aquifer thickness, sediment characteristics, etc). This information would assist in refining estimates of supply, the extent of possible aquifer drawdown under various extraction scenarios, and the capacity for potential aquifer recharge.
3. Begin to evaluate potential treatment options for Sandy Hill aquifer water. Pilot testing of arsenic treatment would provide a basis for designing subsequent larger-scale treatment options.
4. Install a transducer and datalogger into SVR 8 to accurately monitor water levels. The purpose of the automated monitoring would be to observe water level fluctuations (corrected for barometric effects) during the course of a year. This information would be used to evaluate aquifer recharge and discharge characteristics, which could be used to evaluate capacity for withdrawals and capacity for ASR. SVR 8 is recommended for monitoring water levels because it appears to respond similarly to SVR 3 and TPW 1 and because the depth to water is less (requiring vented cable for the transducer).

A constant water level throughout the year might suggest that aquifer levels are effectively controlled by current aquifer discharge points. This would limit the amount of artificial recharge that could be added without simply increasing discharge (rather than increasing aquifer storage). Detailed water level recordings would be used to describe seasonal water level patterns.

5. Install a more accurate means of measuring flow in the Hillside Spring. A flowmeter installed upstream of the point at which water is split between the primary ranch buildings and the Hillside Spring would give (1) instantaneous flow readings and (2) total flow values between readings. This flow information would indicate whether flow is constant

regardless of aquifer level or whether flow fluctuates in response to changes in aquifer levels, which in turn would provide insight into the hydraulic relationship between the spring and the aquifer. Our current method of measurements (bucket and stopwatch) in just a portion of the spring flow (spring stock tank only) is insufficient for recognizing minor flow fluctuations.

6. Monitor spring flow and water levels on a periodic basis. Monthly measurements would be appropriate if no datalogger or flowmeter are installed; bi-monthly or quarterly measurements would be appropriate if datalogger and flowmeter are installed (hand water level measurements would be used to calibrate transducer readings and confirm water level trends between multiple wells).

6. REFERENCES

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Freeze, R.A. and Cherry, J.A., 1979. Groundwater. Prentice-Hall, Englewood Cliffs, NJ, 604 pp.

Scanlan Engineering, April, 2003. Groundwater Exploration and Drilling in the Spring Valley Ranch Vicinity of Gem, Ada, and Boise Counties, Idaho, prepared for SunCor Development Company.

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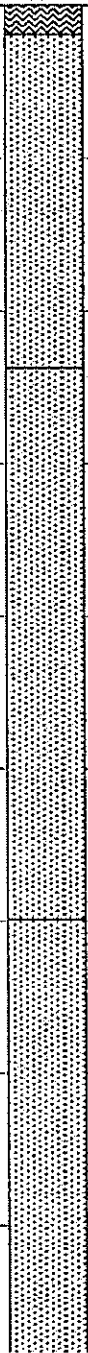
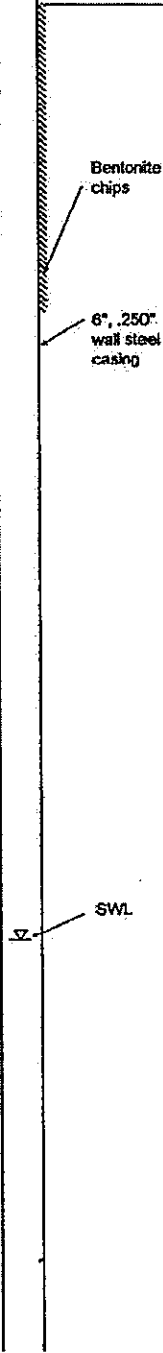
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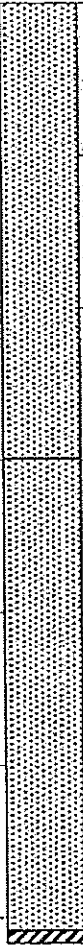
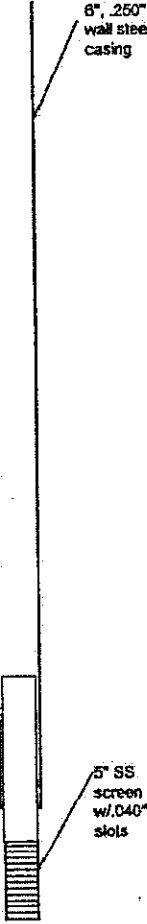
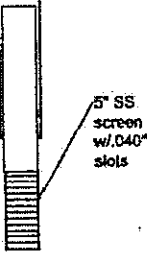
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**APPENDIX A: SUPPLEMENTARY DATA – SPRING VALLEY RANCH
EXPLORATION WELL SVR 8**

Exploration Hole SVR 8 (Observation Well)
Spring Valley Ranch

Drilled by: Adamson Pump and Drilling Logged by: C. Feast/T. Scanlan Geophysical logs by: Fluid level when logged: Casing when logged:		Drilled Dates: 4/12/04 Drilling Method: Air Rotary Borehole size: 6" (nom.)	Depth Drilled: 141 ft Depth Logged: Static WL: ~65 ft. bgl	Location: Ada County, Idaho T5N, R2E, SW 1/4, SW 1/4, Sect 8 GL Elevation: ~ 3480 ft. msl.
Depth (ft)	Geologic log from rotary cuttings	Symb. Log	Well Construction	
0	Topsoil, dark brown, clayey over coarse sand		 Bentonite chips 6", .250" wall steel casing SWL	
10	Sand, Cs-vCs, medium brown, clean, ang-subang, qtz, feldspar & granite, white, clear and yellow grains, minor biotite			
20	Sand as above, clean, coarse, medium brown			
30	Sand, clean, very coarse, primarily angular to subangular quartz, light brown.			
40	Sand as above, light brown.			
50	Sand as above, light brown.			
60	Sand as above, clean, some yellowish brown iron oxide, yellowish brown			
70	Sand as above, clean, some yellowish brown iron oxide, yellowish brown			

Exploration Hole SVR 8 (Observation Well)
Spring Valley Ranch

Drilled by: Adamson Pump and Drilling Logged by: C. Feast/T. Scanlan Geophysical logs by: Fluid level when logged: Casing when logged:		Drilled Dates: 4/12/04 Drilling Method: Air Rotary Borehole size: 8" (nom.)	Depth Drilled: 141 ft Depth Logged: Static WL: -65 ft. bgl	Location: Ada County, Idaho T5N, R2E, SW 1/4, SW 1/4, Sect 6 GL Elevation: - 3480 ft. msl.
Depth (ft)	Geologic log from rotary cuttings	Symb. Log	Well Construction	
80	Sand as above, clean, some yellowish brown iron oxide, yellowish brown			
90	Sand as above, clean, some yellowish brown iron oxide, yellowish brown			
100	Sand as above, clean, yellowish brown iron oxide, yellowish brown			
110	Sand as above, clean, less iron than above, pale yellow-brown.			
120	Sand as above, clean, less iron than above, pale yellow-brown.			
130	Sand as above, clean, less iron than above, pale yellow-brown.			
140	Sand as above to 141, dark gray tuff @ 141			
150				

Printed 04/12/2004
Drilling Permit No. 812970
Well Tag No. D0031220
Well ID # 383877
Water Right No.
Receipt # W031511
Approved Date 04/12/2004
Well #8E

**STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
DRILLING PERMIT**

Relationship: Applicant
Name: SUNCOR IDAHO LLC
Address: 485 EAST RIVERSIDE DR SUITE 300
EAGLE ID 83616

Phone: (208)939-0343

Proposed Well Location: Township 05N, Range 02E, Section 6, SW, SW
COUNTY ADA Sub Name SPRING VALLEY RANCH WELL #8E

Street Address of Well Site: 1/2 MILE WEST OF HWY 55
EAGLE ID

Proposed Use of Well: Test

Well Construction Information:

- A. New Well
- B. Proposed Surface Diameter: 6 inches. Proposed Depth 200 Feet.
- C. Anticipated Bottom Hole Temperature: 85F and less

Construction Start Date: Apr 12 2004

Anticipated Well Drilling Company: ADAMSON PUMP & DRILLING (No. 467)

Applicant's Signature: See original application Date 4/10/01

Well ID # 383577

Well Tag No. D0031220

Well 8E

Page 2

ACTION OF THE DEPARTMENT OF WATER RESOURCES

This permit is Approved on Monday, April 12, 2004.

1. This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.
2. This permit does not constitute an approval of the local Health District or the Idaho Department of Environmental Quality which may be required prior to construction of this well. The local Health District should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100 ft. from any drainfield and 50 ft. from any septic tank. Public Water Supply wells must not be drilled closer than 100 ft. from any drainfield or septic tank.
3. The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.
4. Approval of this drilling permit does not authorize trespass on the land of another party.
5. This permit does not constitute other local, county, state or federal approvals that may be required for construction of a well.
6. This drilling permit does not represent a right to divert and use the water of the State of Idaho. If the well being drilled is associated with approved water rights(a) use of the well must comply with conditions of said water right(s).
7. If a bottom hole temperature of 85 Degrees F (29.44 cC) or greater is encountered, well construction shall cease and the well driller and the well owner shall contact the Department of Water Resources immediately.
8. Idaho Code, S 55-2201 - 55-2210 requires the applicant and/or its contractors to contact "Dig-line" (Dig-Line is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig-Line" Number for this location is 1-800-342-1585
9. Please be advised that this drilling permit should be considered and treated as a preliminary permit. If you are in disagreement with this preliminary permit you have fourteen (14) days of the service date of this permit to petition the Idaho Department of Water Resources for reconsideration, pursuant to Section 67-5243, Idaho Code.
10. The well tag for the drilling permit/start card shall be securely and permanently attached to the well casing through welding or by the use of four closed end domed stainless steel pop rivets. The tag attachment will be done at the time of completion of the well, and prior to removing the drill rig from the drill site.
11. This drilling permit has been approved for construction or drilling of an exploratory well intended to be used for collecting geologic, hydrologic or water quality data.
12. No water shall be produced from this well or any fluid injected into this well without specific written authorization from the Department.
13. Any surface casing installed in this well shall not exceed 8 inches nominal diameter.
14. All casing strings installed in this well shall be sealed their entire length with approved seal material and by positive means of placement unless otherwise authorized by this drilling permit.
15. A drilling prospectus including a schematic diagram and construction narrative describing all pertinent features of the well including drilling methods, seal material and placement methods, casing schedules and specifications shall be submitted for review by the Department and attached to this drilling permit prior to the start of construction.
16. No casing installed in this well shall be drilled and driven through multiple aquifers, unless it is completely removed and the borehole is properly sealed or the casing is perforated at appropriate intervals and pressure grouted with approved grout. Drilling

Well ID 383677

Well Tag ID D0031220

Page 3

and driving casing may be allowed above the water table or where multiple aquifers are not encountered provided that the casing is sealed as required by administrative rules.

17. This well shall be properly plugged in accordance with a plan approved by the department at least 30 days prior to the expiration of the bond.

18. The bond secured for abandonment of this well shall be valid for the entire time the well remains open. The Department will give the well owner 60 days notice prior to the expiration of the bond that the well must be properly plugged. If the well owner has not properly plugged the well at least 30 days prior to the expiration of the bond, the Director may commence action to attach the bond and hire a licensed driller to properly plug the well.

19. Drilling of this well shall not commence until the Department has received a document from the surety company or bank stating that the bond is in full force and effect and the Department has determined the amount of the bond is sufficient.

20. This drilling permit is not valid unless the well owner has secured a bond in favor of the Director in an amount sufficient for proper plugging and abandonment of the well. The bond shall remain in effect and accessible by the Director until this well is plugged. The bond amount for this well shall be at least \$1,500.

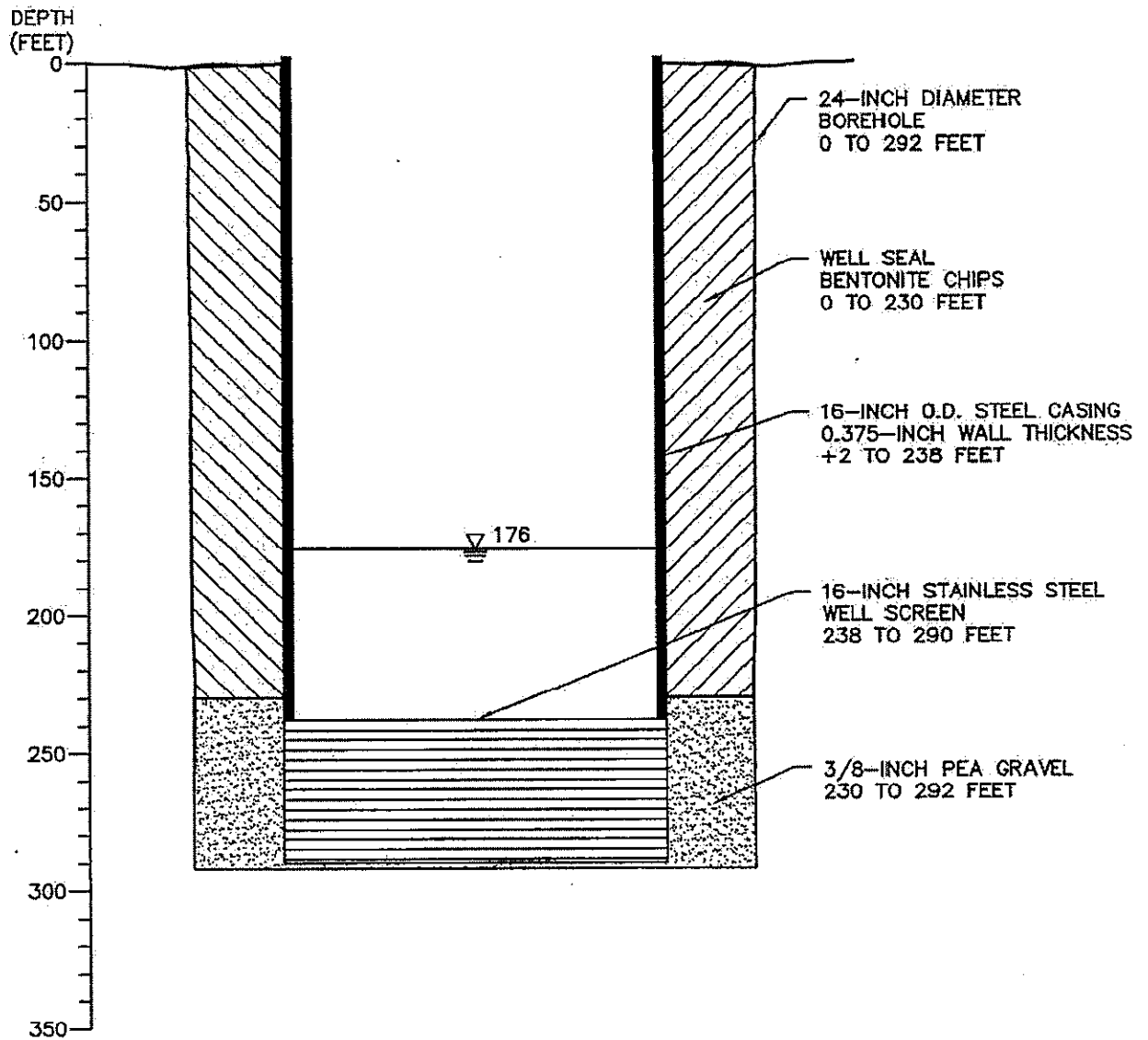


Signature of Authorized Dept Representative

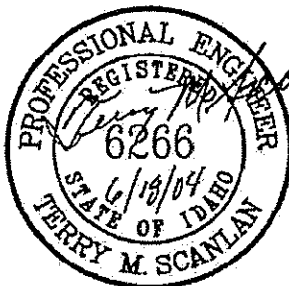
SrWR Agent

Title

**APPENDIX B: SUPPLEMENTARY DATA – SPRING VALLEY RANCH
TEST PRODUCTION WELL TPW 1**



"As-Built"



SPF Water Engineering, LLC
water resource consultants

600 East River Park Lane, Suite 105, Boise, Idaho 83706

Tel (208) 383-4140 Fax (208) 383-4156

TEST PRODUCTION WELL #1
SANDY HILL AQUIFER
SPRING VALLEY RANCH

SCALE: NTS

DRAWN BY: SDC

FIGURE 1

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 809807
Inspected by _____
Two _____ Rge _____ Sec _____
1/4 _____ 1/4 _____ 1/4 _____
Lat: _____ Long: _____

1. WELL TAG NO. D 0030890
DRILLING PERMIT NO. _____
Water Right or Injection Well No. _____

2. OWNER:
Name Suncor Idaho LLC
Address 485 E. Riverside Drive Suite 300
City Eagle State Id Zip 83616

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 1 East ☒ or West ☐
Sec. 1 1/4 SW 1/4 SE 1/4
Gov't Lot _____ County Ada
Lat: _____ Long: _____
Address of Well Site 1/2 mile West of Spring Valley Ranch City Eagle
(Give as best you can - Distance to Road or Landmark)
L. _____ Blk. _____ Sub. Name _____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other test

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD:
☐ Air Rotary ☐ Cable ☐ Mud Rotary ☒ Other reverse

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
<u>Sh. Bentonite</u>	<u>0</u>	<u>220</u>	<u>18.75 gal</u>	<u>dry pour</u>

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>110" +2</u>	<u>238</u>	<u>335</u>	<u>35</u>	<u>steel</u>	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method _____
Screen Type & Method of Installation Johnson screen wrap

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>238</u>	<u>290</u>	<u>010</u>		<u>10"</u>	<u>3ST</u>	☒	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
<u>3/8 pea gravel</u>	<u>220</u>	<u>290</u>	<u>10.5 gal</u>	<u>dry pour</u>

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
118' ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control device:
1 1/2" access port

12. WELL TESTS:
☒ Pump ☐ Bailor ☐ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
<u>2000 gpm</u>	<u>18'</u>	<u>196'</u>	<u>72 Hrs</u>

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment) _____

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>21"</u>	<u>0</u>	<u>2</u>	<u>top soil</u>		
	<u>2</u>	<u>38</u>	<u>fine sand</u>		
	<u>38</u>	<u>52</u>	<u>med. sand</u>		
	<u>52</u>	<u>82</u>	<u>coarse sand w/ some clay</u>		
	<u>82</u>	<u>134</u>	<u>fine to med. sand & ben clay</u>		
	<u>134</u>	<u>227</u>	<u>coarse sand</u>		
	<u>227</u>	<u>282</u>	<u>gray clay w/ coarse sand @ 227'-282'</u>		

RECEIVED

MAY 21 2004

WATER RESOURCES
WESTERN REGION

Completed Depth 292' (Measurable)
Date Started 3-25-04 Completed 3-30-04

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name 1st Riverside & Inc Firm No. 333

Principal Driller _____ Date _____

and Driller or Operator [Signature] Date 4-20-04

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES



Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

Attn: TERRY SCANLAN, P.E., P.G.
S P F WATER ENGINEERING, LLC
600 E RIVER PARK LN STE 105
BOISE, ID 83706

Collected By: M MARTIN

Submitted By: M MARTIN

Source of Sample:

TPW1

Time of Collection: 10:15
Date of Collection: 4/16/2004
Date Received: 4/16/2004
Report Date: 5/13/2004

PWS:

Laboratory Analysis Report

Sample Number: 0411667

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Molybdenum, Mo		<0.05	mg/L	0.05	EPA 200.7	4/27/2004	JH
Vanadium, V		<0.05	mg/L	0.05	EPA 200.7	4/30/2004	JH
Barium, Ba	2	<0.05	mg/L	0.05	EPA 200.7	4/19/2004	JH
Cadmium Furnace	0.005	<0.0005	mg/L	0.0005	SM 3113 B	5/9/2004	DMB
Chromium Furnace	0.1	<0.002	mg/L	0.002	SM 3113 B	4/27/2004	JH
Selenium Furnace	0.05	<0.005	mg/L	0.005	SM 3113 B	4/26/2004	JH
Nickel, Ni	UR	<0.02	mg/L	0.02	EPA 200.7	4/19/2004	JH
Antimony Furnace	0.006	<0.005	mg/L	0.005	SM 3113 B	4/1/2004	DMB
Beryllium Furnace	0.004	<0.0005	mg/L	0.0005	SM 3113 B	5/10/2004	DMB
Thallium Furnace	0.002	<0.002	mg/L	0.002	SM 3113 B	5/10/2004	DMB
Arsenic Furnace	0.05	0.023	mg/L	0.005	SM 3113 B	4/23/2004	JH
Sodium, Na	UR	10.2	mg/L	0.10	EPA 200.7	4/21/2004	JH
Mercury, Hg	0.002	<0.0002	mg/L	0.0002	EPA 245.1	4/22/2004	SS
Aluminum, Al	UR	<0.10	mg/L	0.10	EPA 200.7	4/27/2004	JH
Calcium, Ca	UR	40.6	mg/L	0.10	EPA 200.7	4/21/2004	JH
Copper, Cu	UR	<0.01	mg/L	0.01	EPA 200.7	4/19/2004	JH

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MDL = Method/Minimum Detection Limit
UR = Unregulated

Laboratory Analysis Report

Sample Number: 0411667

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Iron, Fe	UR	0.06	mg/L	0.05	EPA 200.7	4/19/2004	JH
Magnesium, Mg	UR	4.37	mg/L	0.10	EPA 200.7	4/21/2004	JH
Manganese, Mn	UR	0.10	mg/L	0.05	EPA 200.7	4/19/2004	JH
Potassium, K	UR	5.2	mg/L	0.5	EPA 200.7	4/21/2004	JH
Silica	UR	62.1	mg/L	0.25	EPA 200.7	4/27/2004	JH
Silver, Ag	UR	<0.005	mg/L	0.005	EPA 272.1	4/28/2004	JH
Zinc, Zn	UR	<0.005	mg/L	0.005	EPA 200.7	4/19/2004	JH
Lead Furnace		0.009	mg/L	0.005	SM 3113 B	4/26/2004	JH
Arsenic Speciation A		0.020	mg/L	0.005	SM 3113B	5/5/2004	DMB
These data indicate that approximately half of the arsenic is in the oxidized form.							
Arsenic Speciation B		0.023	mg/L	0.005	SM 3113B	5/5/2004	DMB
These data indicate that approximately half of the arsenic is in the oxidized form.							
Arsenic Speciation C		0.011	mg/L	0.005	SM 3113B	5/5/2004	DMB
These data indicate that approximately half of the arsenic is in the oxidized form.							
Corrosivity	UR	-0.77			Langelier	5/13/2004	WW
Calculation was based on room temperature since no temperature was provided at the time of sampling.							
Nitrite (as N)	1.00	<0.01	mg/L	0.01	EPA 353.2	4/16/2004	ARR
Nitrate (as N)	10	<0.20	mg/L	0.20	EPA 300.0	4/16/2004	WW
Total Phosphate (as P)		0.07	mg/L	0.05	EPA 365.4	4/28/2004	KDH
Ammonia Direct (as N)	UR	<0.04	mg/L	0.04	EPA 350.1	4/19/2004	WW
Ethylene Dibromide	0.05	<0.02	ug/L	0.02	EPA 504	4/27/2004	KWH
1,2-Dibromo-3-chloropropane	0.20	<0.02	ug/L	0.02	EPA 504	4/27/2004	KWH
Bis(2-ethylhexyl)adipate	400	<0.50	ug/L	0.5	EPA 506	4/28/2004	KWH
Bis(2-ethylhexyl)phthalate	6.00	0.93	ug/L	0.91	EPA 506	4/28/2004	KWH
Alachlor	2.00	<0.50	ug/L	0.5	EPA 508.1	4/27/2004	KWH
Aldrin	UR	<0.02	ug/L	0.02	EPA 508.1	4/27/2004	KWH
Atrazine	3.00	<0.14	ug/L	0.14	EPA 508.1	4/27/2004	KWH
Butachlor	UR	<0.40	ug/L	0.4	EPA 508.1	4/27/2004	KWH
gamma-BHC (Lindane)	0.20	<0.02	ug/L	0.02	EPA 508.1	4/27/2004	KWH
Dieldrin	UR	<0.02	ug/L	0.02	EPA 508.1	4/27/2004	KWH
Endrin	0.20	<0.01	ug/L	0.01	EPA 508.1	4/27/2004	KWH

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Laboratory Analysis Report

Sample Number: 0411667

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Heptachlor	0.40	<0.04	ug/L	0.04	EPA 508.1	4/27/2004	KWH
Heptachlor epoxide	0.20	<0.02	ug/L	0.02	EPA 508.1	4/27/2004	KWH
Hexachlorobenzene	1.00	<0.10	ug/L	0.1	EPA 508.1	4/27/2004	KWH
Hexachlorocyclopentadione	50.0	<0.10	ug/L	0.1	EPA 508.1	4/27/2004	KWH
Metribuzin	UR	<0.40	ug/L	0.4	EPA 508.1	4/27/2004	KWH
Methoxychlor	40.0	<0.10	ug/L	0.1	EPA 508.1	4/27/2004	KWH
Metolachlor	UR	<0.40	ug/L	0.4	EPA 508.1	4/27/2004	KWH
Propachlor	UR	<0.05	ug/L	0.05	EPA 508.1	4/27/2004	KWH
Simazine	4.00	<0.07	ug/L	0.07	EPA 508.1	4/27/2004	KWH
Chlordane(Total)	2.00	<0.02	ug/L	0.02	EPA 508.1	4/27/2004	KWH
Toxaphene	3.00	<1.00	ug/L	1	EPA 508.1	4/27/2004	KWH
Total PCB	0.50	<0.10	ug/L	0.1	EPA 508.1	4/27/2004	KWH
Benzene	5	<0.5	ug/L	0.03	EPA 524.2	4/22/2004	CBO
Dalapon	200	<0.11	ug/L	0.11	EPA 515.1	4/21/2004	KWH
Carbon tetrachloride	5	<0.5	ug/L	0.01	EPA 524.2	4/22/2004	CBO
Dicamba	UR	<0.20	ug/L	0.2	EPA 515.1	4/21/2004	KWH
Chlorobenzene	100	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
2,4-Dichlorophenoxyacetic acid (2,4-D)	70.0	<0.14	ug/L	0.14	EPA 515.1	4/21/2004	KWH
1,2-Dichlorobenzene	600	<0.5	ug/L	0.03	EPA 524.2	4/22/2004	CBO
Dinoseb	7.0	<0.20	ug/L	0.2	EPA 515.1	4/21/2004	KWH
1,4-Dichlorobenzene	75	<0.5	ug/L	0.03	EPA 524.2	4/22/2004	CBO
Pentachlorophenol	1.00	<0.05	ug/L	0.05	EPA 515.1	4/21/2004	KWH
Picloram	500	<0.17	ug/L	0.17	EPA 515.1	4/21/2004	KWH
1,2-Dichloroethane	5	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
1,1-Dichloroethene	7	<0.5	ug/L	0.07	EPA 524.2	4/22/2004	CBO
Silvex (	50.0	<0.04	ug/L	0.04	EPA 515.1	4/21/2004	KWH
cis-1,2-Dichloroethene	70	<0.5	ug/L	0.01	EPA 524.2	4/22/2004	CBO
trans-1,2-Dichloroethene	100	<0.5	ug/L	0.07	EPA 524.2	4/22/2004	CBO
1,2-Dichloropropane	5	<0.5	ug/L	0.01	EPA 524.2	4/22/2004	CBO
Ethylbenzene	700	<0.5	ug/L	0.05	EPA 524.2	4/22/2004	CBO
Styrene	100	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
Tetrachloroethene	5	<0.5	ug/L	0.03	EPA 524.2	4/22/2004	CBO

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Laboratory Analysis Report

Sample Number: 0411667

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Toluene	1000	<0.5	ug/L	0.05	EPA 524.2	4/22/2004	CBO
1,2,4-Trichlorobenzene	70	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
1,1,1-Trichloroethane	200	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
1,1,2-Trichloroethane	200	<0.5	ug/L	0.04	EPA 524.2	4/22/2004	CBO
Trichloroethene	5	<0.5	ug/L	0.01	EPA 524.2	4/22/2004	CBO
Vinyl chloride	2	<0.5	ug/L	0.03	EPA 524.2	4/22/2004	CBO
Bromodichloromethane	---	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
Bromoform	---	<0.5	ug/L	0.4	EPA 524.2	4/22/2004	CBO
Chloroform	---	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
Dibromochloromethane	---	<0.5	ug/L	0.03	EPA 524.2	4/22/2004	CBO
Xylene, Total	10000	<0.5	ug/L	0.05	EPA 524.2	4/22/2004	CBO
Dichloromethane	5	<0.5	ug/L	0.02	EPA 524.2	4/22/2004	CBO
Methyl-tert-butylether	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
1,1-Dichloroethane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
1,1-Dichloropropene	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
1,2,3-Trichloropropane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
1,1,1,2-Tetrachloroethane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
1,1,2,2-Tetrachloroethane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
1,3-Dichloropropene (cis&trans)	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
1,3-Dichloropropane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
2,2-Dichloropropane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
Bromobenzene	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
Bromomethane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
Chloroethane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
Chloromethane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
Dibromomethane	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
2-Chlorotoluene	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
4-Chlorotoluene	UR	<0.5	ug/L	0.2	EPA 524.2	4/22/2004	CBO
Aldicarb	6.0	<2.0	ug/L	2	EPA 531.1	4/23/2004	KWH
Aldicarb sulfone	6.0	<2.0	ug/L	2	EPA 531.1	4/23/2004	KWH
Aldicarb sulfoxide	6.0	<2.0	ug/L	2	EPA 531.1	4/23/2004	KWH
Carbaryl	UR	<2.0	ug/L	2	EPA 531.1	4/23/2004	KWH

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Laboratory Analysis Report

Sample Number: 0411667

Test Requested	MCL	Analysis Result	Units	MDL	Method	Date Completed	Analyst
Carbofuran	40.0	<0.2	ug/L	0.2	EPA 531.1	4/23/2004	KWH
3-Hydroxycarbofuran	UR	<1.5	ug/L	1.5	EPA 531.1	4/23/2004	KWH
Methomyl	UR	<2.0	ug/L	2	EPA 531.1	4/23/2004	KWH
Oxamyl	200	<0.4	ug/L	0.4	EPA 531.1	4/23/2004	KWH
Glyphosate	700	<9.2	ug/L	9.2	EPA 547	4/19/2004	KWH
Endothall	100	<7.6	ug/L	7.6	EPA 548.1	4/28/2004	KWH
Diquat	20.0	<0.6	ug/L	0.6	EPA 549.2	4/26/2004	KWH
Benzo(a)pyrene	0.20	<0.03	ug/L	0.03	EPA 550.1	4/28/2004	KWH
Turbidity		<0.5	NTU	0.5	EPA 180.1	4/16/2004	ARR
Hardness	UR	110	mg/L	5.0	SM 2340	4/23/2004	ARR
Chloride, Cl	UR	<1	mg/L	1	EPA 300.0	4/21/2004	WW
Sulfate, SO4	UR	26	mg/L	1	EPA 300.0	4/21/2004	WW
Fluoride, F	4.0	0.36	mg/L	0.10	EPA 300.0	4/22/2004	WW
Alkalinity	UR	113	mg/L Ca		EPA 310.1	4/23/2004	ARR
Cyanide, Total	0.20	<0.005	mg/L	0.005	SM 4500-CN E	4/23/2004	ARR
pH	UR	7.1	S.U.		EPA 150.1	4/16/2004	ARR
Sulfide, Dissolved (as H2S)		<0.05	mg/L	0.05	SM 4500-S2 D	4/19/2004	RG
Total Dissolved Solids	UR	218	mg/L	25	EPA 160.1	4/20/2004	RG
Total Suspended Solids		<3	mg/L	3	EPA 160.2	4/20/2004	RG

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MDL = Method/Minimum Detection Limit
UR = Unregulated

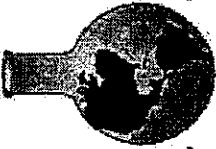


Thank you for choosing Analytical Laboratories for your testing needs.
If you have any questions concerning this report,
please contact: Michael Moore

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

<http://www.analyticallaboratories.com>



LAB FEDERAL ID#: ID00020		LAB SAMPLE #: 0411667	
DATE LAB REC'D SAMPLE: 4/16/2004		DATE REPORTED BY LAB: 5/13/2004	
COMPLIANCE SAMPLE ☐ YES ☐ NO		REPLACEMENT SAMPLE ☐	
COLLECTION DATE: 4/16/2004		COLLECTION TIME: 10:15 (24 hour clock)	
SAMPLE TYPE: ☐ CO-confirmation ☐ RP-repeat			
☐ RT-routine ☐ DU-duplicate ☐ SP-special ☐ Other			
PWS#: _____		PWS NAME: S P F WATER ENGINEERING, LLC	
SAMPLING POINT/LOCATION: _____		TAG #/FACILITY ID: _____	
TPW1			
COLLECTOR'S NAME: M MARTIN		CONTACT PHONE # (208) 383-4140	

PUBLIC DRINKING WATER SYSTEM INORGANIC CHEMICAL (IOC) ANALYSIS REPORT:

Phase I				Phase V			
FRDS	Contaminant Name	Result*	Method	MCL*	MCL*	Method	Analyst
1010	Barium	ND	EPA 200.7	2	0.05	4/19/2004	JH
1015	Cadmium	ND	SM 3113 B	0.005	0.005	5/10/2004	DMB
1020	Chromium	ND	SM 3113 B	0.1	0.002	4/27/2004	JH
1035	Mercury	ND	EPA 245.1	0.002	0.002	4/27/2004	SS
1038	TU(N02/N03)	ND		10			
1040	Nitrate	ND	EPA 330.0	10	0.2	4/16/2004	WW
1041	Nitrite	ND	EPA 353.2	1.0	0.01	4/16/2004	ARR
1045	Selenium	ND	SM 3113 B	0.05	0.005	4/26/2004	JH
1024	Cyanide	ND	SM 4500-C	0.2	0.005	4/23/2004	ARR
Secondary Ions (Optional)							
1050	Silver	ND	EPA 272.1	0.1	0.005	4/26/2004	JH
1049	Silica, As SiO2	ND					
1042	Potassium	5.2	EPA 200.7		0.5	4/21/2004	JH
1032	Manganese	0.10	EPA 200.7	0.05	0.05	4/19/2004	JH
1031	Magnesium	4.37	EPA 200.7		0.1	4/21/2004	JH
1028	Iron	0.06	EPA 200.7	0.3	0.05	4/19/2004	JH
1027	Hydrogen Sulfide	ND	SM 4500-S		0.05	4/19/2004	RG
1022	Copper	ND	EPA 200.7	1.0	0.01	4/19/2004	JH
1017	Chloride	ND	EPA 300.0	250	1	4/21/2004	WW
1016	Calcium	40.6	EPA 200.7		0.1	4/21/2004	JH
1003	Ammonia as N	ND	EPA 350.1		0.04	4/19/2004	WW
1002	Aluminum	ND	EPA 200.7	0.05-0.1		4/27/2004	JH
Other Ions							
1085	Thallium	ND	SM 3113 B	0.002	0.002	5/10/2004	DMB
1075	Beryllium	ND	SM 3113 B	0.004	0.0005	5/10/2004	DMB
1074	Antimony	ND	SM 3113 B	0.006	0.005	4/12/2004	DMB
1036	Nickel	ND	EPA 200.7	na	0.02	4/19/2004	JH
1052	Sodium	10.2	EPA 200.7	na	0.1	4/21/2004	JH
1025	Fluoride	0.36	EPA 300.0	4.0	0.1	4/22/2004	WW
1005	Arsenic	0.023	SM 3113 B	0.05	0.005	4/23/2004	JH
2005	Surfactants	ND					
1997	Langlier Index	ND					
1930	Dissolved Solids	218	EPA 160.1	500	25	4/20/2004	RG
1927	Alkalinity as CaCO3	113	EPA 310.1			4/23/2004	ARR
1926	Conductivity uS/cm	ND					
1925	pH	7.1	EPA 150.1	6.5-8.5		4/16/2004	ARR
1920	Odor (Threshold #)	ND		3			
1915	Hardness as CaCO3	110	SM 2340		5	4/23/2004	ARR
1905	Color	ND		15 cu			
1095	Zinc	ND	EPA 200.7	5	0.005	4/19/2004	JH
1055	Sulfate	26	EPA 300.0	250	1	4/21/2004	WW

*Reported in mg/L unless otherwise noted

ND = Not detected within sensitivity of instrument

--- = No analysis performed

MDL = Method detection limit

TERRY SCANLAN, P.E., P.G.
S P F WATER ENGINEERING, LLC
600 E RIVER PARK LN STE 105
BOISE, ID, 83706

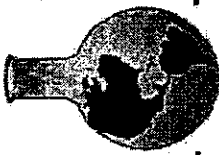
Signature of Laboratory Supervisor

Date

Signature 05/18/04

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515
<http://www.analyticallaboratories.com>



LAB FEDERAL ID: ID00020	LAB SAMPLE #: 0411667
DATE LAB REC'D SAMPLE: 4/16/2004	DATE REPORTED BY LAB: 5/13/2004
COMPLIANCE SAMPLE: YES ☐ NO ☐	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 4/16/2004	COLLECTION TIME: 10:15
SAMPLE TYPE: CO-confirmation ☐ RT-routine ☐ DU-duplicates ☐	RP-repeat ☐ SP-special ☐ Other ☐
PWS#: _____	PWS NAME: S P F WATER ENGINEERING, LLC
SAMPLING POINT/LOCATION: _____	TAG #FACILITY ID: _____
TPW1	
COLLECTOR'S NAME: M MARTIN	CONTACT PHONE #: (208) 383-4140

PUBLIC DRINKING WATER SYSTEM SYNTHETIC ORGANIC CHEMICAL (SOC) ANALYSIS REPORT:

FRDS	Contaminant Name	Result*	Method	MCL*	MDL	Analysis Date	Analyst
2046	Carbofuran	ND	EPA 531.1	40	0.2	4/23/2004	KWH
2042	Hexachlorocyclopentadiene	ND	EPA 508.1	50	0.1	4/27/2004	KWH
2041	Dinoseb	ND	EPA 515.1	7	0.2	4/21/2004	KWH
2040	Picloram	ND	EPA 515.1	500	0.17	4/21/2004	KWH
2037	Sinazine	ND	EPA 508.1	4.0	0.07	4/27/2004	KWH
2036	Oxamyl	ND	EPA 531.1	200	0.4	4/23/2004	KWH
2035	Di(2-ethylhexyl)adipate	ND	EPA 506	400	0.5	4/28/2004	KWH
2034	Glyphosate	ND	EPA 547	700	9.2	4/19/2004	KWH
2033	Endosulf	ND	EPA 548.1	100	7.6	4/28/2004	KWH
2032	Diquat	ND	EPA 549.2	20	0.6	4/28/2004	KWH
2031	Dalapon	ND	EPA 515.1	200	0.11	4/21/2004	KWH
2020	Toxaphene	ND	EPA 508.1	3.0	1	4/27/2004	KWH
2015	Methoxychlor	ND	EPA 508.1	40.0	0.1	4/27/2004	KWH
2010	Lindane	ND	EPA 508.1	0.2	0.02	4/27/2004	KWH
2005	Endrin	ND	EPA 508.1	2.0	0.01	4/27/2004	KWH
	Chlordane	ND	EPA 508.1	2.0	0.02	4/27/2004	KWH
	EDB	ND	EPA 504	0.05	0.02	4/27/2004	KWH
	DBCP	ND	EPA 504	0.2	0.02	4/27/2004	KWH
	PCBs	ND	EPA 508.1	0.5	0.1	4/27/2004	KWH
	Pentachlorophenol	ND	EPA 515.1	1	0.05	4/21/2004	KWH
	Benzofluorene	ND	EPA 550.1	0.2	0.03	4/28/2004	KWH
	Di(2-ethylhexyl)phthalate	0.93	EPA 506	6.0	0.91	4/28/2004	KWH
	Hexachlorobenzene	ND	EPA 508.1	1.0	0.1	4/27/2004	KWH
	2,4,5-TP	ND	EPA 515.1	50	0.04	4/21/2004	KWH
	2,4-D	ND	EPA 515.1	70	0.14	4/21/2004	KWH
	Heptachlor epoxide	ND	EPA 508.1	0.2	0.02	4/27/2004	KWH
	Heptachlor	ND	EPA 508.1	0.4	0.04	4/27/2004	KWH
	Atrazine	ND	EPA 508.1	2.0	0.5	4/27/2004	KWH
	Atrazine	ND	EPA 508.1	3.0	0.14	4/27/2004	KWH

*Reported in ug/L unless otherwise noted
ND = Not detected within sensitivity of instrument

--- = No analysis performed
MDL = Method detection limit

TERRY SCANLAN, P.E., P.G.
S P F WATER ENGINEERING, LLC
600 E RIVER PARK LN STE 105
BOISE, ID, 83706

[Signature]
Signature of Laboratory Supervisor

Date

5-15-04

Analytical Laboratories, Inc.

1804 N. 33rd Street
Boise, Idaho 83703
Phone (208) 342-5515

<http://www.analyticallaboratories.com>



LAB FEDERAL ID#: ID00020	LAB SAMPLE #: 0411667
DATE LAB REC'D SAMPLE: 4/16/2004	DATE REPORTED BY LAB: 5/13/2004
COMPLIANCE SAMPLE ☐ YES ☐ NO	REPLACEMENT SAMPLE ☐
COLLECTION DATE: 4/16/2004	COLLECTION TIME: 10:15 (24 hour clock)
SAMPLE TYPE: RT-routine ☐ CO-conformation ☐ DU-duplicate ☐	RP-repeat ☐ SP-special ☐ Other ☐
PWS#: _____	PWS NAME: S P F WATER ENGINEERING, LLC
SAMPLING POINT/LOCATION: _____	TAG #/FACILITY ID: _____
COLLECTOR'S NAME: M MARTIN	CONTACT PHONE # (208) 383-4140

PUBLIC DRINKING WATER SYSTEM VOLATILE ORGANIC CHEMICAL (VOC) ANALYSIS REPORT:

METHOD: EPA 524.2		ANALYSIS DATE: 4/22/2004		ANALYST: CBO	
FRDS	Contaminant Name	Result*	MCL*	MDL*	
2378	1,2,4-Trichlorobenzene	ND	70.0	0.02	
2380	cis-1,2-Dichloroethylene	ND	70.0	0.01	
2950	Trihalomethanes - Total	--	100.0		
2941	Chloroform	ND		0.02	
2942	Bromoform	ND		0.4	
2943	Bromodichloromethane	ND		0.02	
2944	Dibromochloromethane	ND		0.03	
2955	Xylenes - Total	ND	10000	0.05	
2984	Dichloromethane	ND	5.0	0.02	
2969	p-Dichlorobenzene	ND	75.0	0.03	
2968	o-Dichlorobenzene	ND	600.0	0.03	
2976	Vinyl chloride	ND	2.0	0.03	
2977	1,1-Dichloroethylene	ND	7.0	0.07	

FRDS	Contaminant Name	Result*	MCL*	MDL*
2979	trans-1,2-Dichloroethylene	ND	100.0	0.07
2980	1,2-Dichloroethane	ND	5.0	0.02
2981	1,1,1-Trichloroethane	ND	200.0	0.02
2982	Carbon Tetrachloride	ND	5.0	0.01
2983	1,2-Dichloropropane	ND	5.0	0.01
2984	Trichloroethylene	ND	5.0	0.01
2985	1,1,2-Trichloroethane	ND	200.0	0.04
2987	Tetrachloroethylene	ND	5.0	0.03
2989	Monochlorobenzene	ND	100.0	0.02
2990	Benzene	ND	5.0	0.03
2991	Toluene	ND	1000.0	0.05
2992	Ethylbenzene	ND	700.0	0.05
2996	Styrene	ND	100.0	0.02

*Reported in ug/L unless otherwise noted
ND = Not detected at or above 0.5 ug/L
--- = No analysis performed
MDL = Method detection limit

TERRY SCANLAN, P.E., P.G.
S P F WATER ENGINEERING, LLC
600 E RIVER PARK LN STE 105
BOISE, ID, 83706

[Signature]
Signature of Laboratory Supervisor
Date **5-15-03**

SAMPLE TYPE CODE S - Routine Sample P - Repeat sample (at original tap) E - Enforcement (chain of custody) U - Upstream repeat D - Downstream repeat O - Other Repeat W - Untreated V - Invalidated by Lab C - Construction / Special		ANALYTICAL LABORATORIES, INC. ID00020 1804 N. 33rd Street Boise, Idaho 83703 1-800-574-5773 1-208-342-5515 www.analyticallaboratories.com	
X Public Water Supply		Private Water Supply	
Other			

NAME OF WATER SYSTEM	COUNTY	PWS
----------------------	--------	-----

REPORT RESULTS TO:	DATE RECEIVED
TERRY SCANLAN	4/16/2004
SCANLAN ENGINEERING	TIME RECEIVED
600 E RIVER PARK LN STE 105	10:15
BOISE, ID 83706	DATE ANALYZED
	4/16/2004
	TIME ANALYZED
	17:00

SEND ADDITIONAL COPIES TO:	IF RETEST, ORIGINAL SAMPLE DATE

Phone (208) 383-4140	Ext	Fax (208) 383-4156	email	CHILLED 10 C	☒ YES ☐ NO
COLLECTED BY: M MARTIN			TRANSPORTED BY: M MARTIN		

SAMPLE TYPE	COLLECTION DATE/TIME	Sampling Location	CI res	TOTAL COLIFORMS	FECAL COLIFORMS	E. COLI	HPC
				SM 9223	SM 9221	SM 9223	SM 9215

S	4/16/2004	LAB# 0411666		ABSENCE		ABSENCE	
	10:15	TPW1					

REMARKS:	ANALYST: LM
ANALYTICAL METHODS <u>Total Coliforms</u> SM 9222 Membrane Filter Technique, Parts 909 and 909A, Standard Methods....16th ed.,1985 SM 9221 Multiple Tube Fermentation, Parts 908 and 908A, and 908B, Standard Methods....16th ed.,1985 SM 9223 MNO-MUG Test Per 40 CFR141.21(f)(3)(IV) Plate, Part 907, Standard Methods.... 16th ed., 1	ANALYTICAL METHODS <u>Fecal Coliforms</u> Membrane Filter Technique, Parts 908C, Standard Methods....16th ed.,1985 Membrane Filter Technique, Parts 909 and 909A, Standard Methods....16th ed.,1985 <u>E. coli</u> MUG Test Per 141.214(x)(7) and 40 CFR 141.21(f)(6)(III)
Analytical Laboratories, Inc.  Laboratory Supervisor	

Printed 01/23/2004
Drilling Permit No. 809801
Well Tag No. D0030890
Well ID # 380533
Water Right No.
Receipt # W031188
Approved Date 01/26/2004

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
DRILLING PERMIT

Relationship: Applicant
Name: SPRING VALLEY DEVELOPMENT LLC
Address: 485 EAST RIVERSIDE DR.
EAGLE ID 83616

Phone: (208)939-0343

Proposed Well Location: Township 05N, Range 01E, Section 1, SW, SE
COUNTY ADA

Street Address of Well Site: 1/2 MILE WEST OF SPRING VALLEY RANCH
EAGLE ID

Proposed Use of Well: Test

Well Construction Information:

- A. New Well
- B. Proposed Surface Diameter: 16 Inches. Proposed Depth 300 Feet.
- C. Anticipated Bottom Hole Temperature: 85F and less

Construction Start Date: Jan 31 2004

Anticipated Well Drilling Company: RIVERSIDE INC (No. 333)

Applicant's Signature: Robert G. Talbott Date 1/23/04
Title: General Manager

Well ID # 380533

Well Tag No. D0030890

ACTION OF THE DEPARTMENT OF WATER RESOURCES

This permit is Approved on Monday, January 26, 2004.

1. This drilling permit is valid for two (2) months from the approval date for the start of construction and is valid for one (1) year from the approval date for completion of the well unless an extension has been granted.
2. This permit does not constitute an approval of the local Health District or the Idaho Department of Environmental Quality which may be required prior to construction of this well. The local Health District should be contacted for septic tank/drainfield locations. Domestic wells must not be drilled closer than 100 ft. from any drainfield and 50 ft. from any septic tank. Public Water Supply wells must not be drilled closer than 100 ft. from any drainfield or septic tank.
3. The well shall be constructed by a driller currently licensed in the state of Idaho who must maintain a copy of the drilling permit at the drilling site.
4. Approval of this drilling permit does not authorize trespass on the land of another party.
5. This permit does not constitute other local, county, state or federal approvals that may be required for construction of a well.
6. If a bottom hole temperature of 85 Degrees F or greater is encountered, well construction shall cease and the well driller shall contact the Department of Water Resources immediately.
7. Idaho Code, S 55-2201 - 55-2210 requires the applicant and/or it's contractors to contact "Dig-line" (Dig-Line is a one-call center for utility notification) not less than 2 working days prior to the start of any excavation for this project. The "Dig-Line " Number for this location is 1-800-342-1585.
8. The well tag for the drilling permit/start card shall be securely and permanently attached to the well casing through welding or by the use of four closed end domed stainless steel pop rivets. The tag attachment will be done at the time of completion of the well, and prior to removing the drill rig from the drill site.
9. This drilling permit is approved for the construction of a Production Test Well intended to be used for determining sufficiency of water supply and evaluating the effect of pumping on a regional or local aquifer system.
10. Prior to diverting any water from this well, the well owner shall execute and sign a Memorandum of Understanding (MOU) with the Department. A pump test plan shall be submitted for review and approval by the Department. Pump testing of this well is limited to a quantity and duration specifically authorized by the Department.
11. Diversion and use of water from this well for purposes other than an approved pump test is not authorized unless the well owner has obtained a valid water right listing the well as a point of diversion.
12. Approval of this drilling permit does not suggest any intent by the Department to approve or process a water right application that would authorize use from this well.

Page 3 of 3
Well ID # 380533

13. A drilling prospectus including a schematic diagram and construction narrative describing all pertinent features of the well including drilling methods, seal materials, placement methods, casing schedules and specifications shall be submitted for review by the Department.

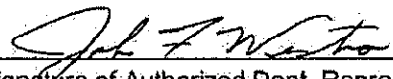
14. Casing installed in this well shall not be driven through multiple aquifers unless it is properly sealed or the casing is perforated at appropriate intervals and pressure grouted with approved grout. "Drill and Drive" methods of installing casing may be allowed above the water table or where multiple aquifers are not encountered provided that the casing is sealed as required by administrative rules.

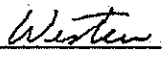
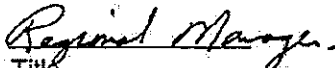
15. This drilling permit is not valid unless the well owner has secured a bond in favor of the Director in an amount sufficient for proper plugging and abandonment of this well. The bond shall remain in effect and accessible by the Director until this well is plugged or until the well owner has obtained a valid water right authorizing use from the well.

16. The bond secured for abandonment of this well shall be valid for the entire time the well remains open. The Department will give the well owner 60 days notice prior to the expiration of the bond that the well must be properly plugged. If the well owner has not properly plugged the well at least 30 days prior to the expiration of the bond, the Director may commence action to attach the bond and hire a licensed driller to properly plug the well.

17. The well owner hereby assumes all risks associated with constructing this well prior to obtaining a water right authorizing use from the well. If this well is not ultimately approved for use, the Department may order proper abandonment of the well.

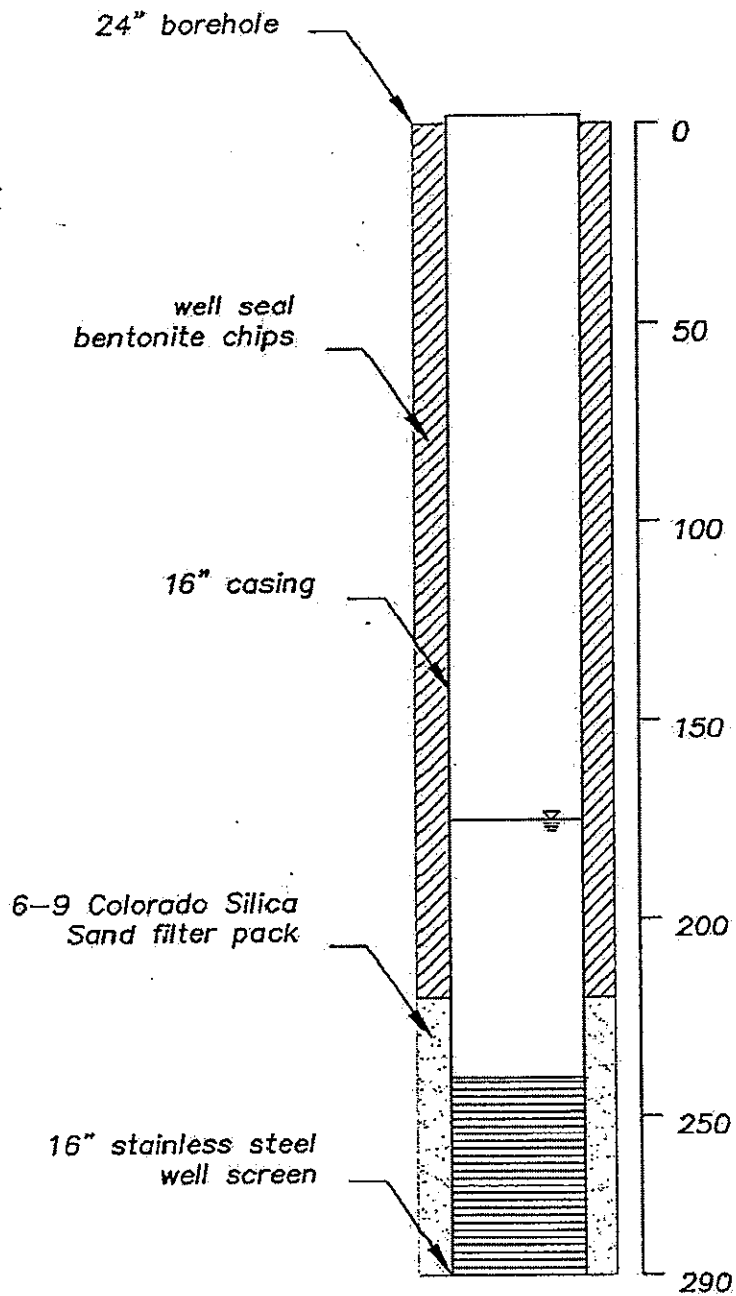
18. The bond amount for this well shall be \$ 6,960.00


Signature of Authorized Dept. Representative

 
Title

SCANNED
JAN 26 2004

RECEIVED
JAN 15 2004
WATER RESOURCES
WESTERN REGION



DESIGNED BY	
CHECKED BY	
DATE	
APPROVED BY	
DATE	

DRILLER	
DATE	
TIME	
LOCATION	
DEPTH	

Test Production Well #1
Sandy Hill Aquifer
Spring Valley Ranch

SCANLAN ENGINEERING
INCORPORATED
400 EAST 1000 SOUTH, SUITE 100
SALT LAKE CITY, UTAH 84143
PHONE: (801) 486-1000 FAX: (801) 486-1001

APPENDIX C: SUPPLEMENTARY DATA – SANDY HILL AQUIFER TEST

PUMPING WELL TPW 1

SANDY HILL AQUIFER TEST - PUMPING WELL (TPW 1) DATA

Well No: TPW1, Spring Valley Ranch Qave = 2050 gpm								
Test conducted by: SPF Water Engineering, LLC and Riverside, Inc diesel-drive turbine pump, 10-inch column, 14-inch bowis								
Flow measured by: Orifice (8x10) and manometer								
Water level measured by: well sounder Water level measure point: top of tube								
MP Elev: 1.43' atoc Static DTW: 179.27' mp								
Pump on: 4/14/04 10:47:26 Pump off: 4/17/04 10:05								
Date	Time	t [min]	t' [min]	Δt'	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
04/14/04	10:15:00				179.25			pre test static measurements
04/14/04	10:32:35				179.29			pre test static measurements
04/14/04	10:34:06				179.25			pre test static measurements
04/14/04	10:35:24				179.25			pre test static measurements
04/14/04	10:45:20				179.30			pre test static measurements
04/14/04	10:46:50				179.30			pre test static measurements
04/14/04	10:47:26	0.0				0.00	0.00	pump on at 600 gpm +/-
04/14/04	10:48:05	0.65			182.40	3.13	3.13	
04/14/04	10:48:40	1.23			181.45	2.18	2.18	sounder reading fluctuating; oil in tube? Pulled and
04/14/04	10:49:40	2.23			182.50	3.23	3.23	re-inserted
04/14/04	10:55:40	8.23			184.00	4.73	4.73	increased rpm; rate up to 2,000 gpm
04/14/04	10:57:30	10.07			188.00	8.73	8.73	
04/14/04	10:57:55	10.48			189.00	9.73	9.73	
04/14/04	10:58:30	11.07			189.40	10.13	10.13	
04/14/04	10:59:00	11.57			190.00	10.73	10.73	
04/14/04	10:59:42	12.27			190.10	10.83	10.83	
04/14/04	11:00:01	12.58			190.40	11.13	11.13	
04/14/04	11:00:45	13.32			190.70	11.43	11.43	
04/14/04	11:01:15	13.62			190.50	11.23	11.23	
04/14/04	11:01:45	14.32			190.60	11.33	11.33	
04/14/04	11:02:45	15.32			190.90	11.63	11.63	
04/14/04	11:03:45	16.32			190.55	11.28	11.28	
04/14/04	11:05:00	17.57			190.70	11.43	11.43	
04/14/04	11:06:25	18.98			191.00	11.73	11.73	rpm = ~1050
04/14/04	11:07:40	20.23			191.05	11.78	11.78	
04/14/04	11:09:45	22.32			191.37	12.10	12.10	orifice tube fluctuating 43 - 48" ~2000gpm
04/14/04	11:12:30	25.07			191.89	12.62	12.62	
04/14/04	11:14:45	27.32			192.00	12.73	12.73	sounder has baseline reading of 15 milliamps, pgs
04/14/04	11:16:16	28.83			192.01	12.74	12.74	to 20 w/ contact in water
04/14/04	11:18:20	30.90			192.15	12.88	12.88	Riverside began taking measurements, some SPF
04/14/04	11:21:30	34.07			192.25	12.98	12.98	measurements throughout duration of test
04/14/04	11:22:40	35.23			192.30	13.03	13.03	
04/14/04	11:25:30	38.07			192.54	13.27	13.27	
04/14/04	11:30:00	43			192.40	13.13	13.14	
04/14/04	11:32:30	45			192.41	13.14	13.15	
04/14/04	11:35:00	48			192.50	13.23	13.24	
04/14/04	11:45:00	58			192.58	13.31	13.32	
04/14/04	11:50:00	63			192.65	13.38	13.39	
04/14/04	11:56:00	69			192.70	13.43	13.44	
04/14/04	12:13:00	86			192.90	13.63	13.64	
04/14/04	12:31:00	104			192.87	13.60	13.61	
04/14/04	12:53:00	126			193.02	13.75	13.76	
04/14/04	13:15:00	148			193.08	13.81	13.82	
04/14/04	13:30:00	163			193.12	13.85	13.87	orifice tube ~45"
04/14/04	13:47:00	180			193.19	13.92	13.94	
04/14/04	14:00:00	193			193.24	13.97	13.99	
04/14/04	14:15:00	208			193.26	13.99	14.01	
04/14/04	14:30:00	223			193.30	14.03	14.07	
04/14/04	14:45:00	238			193.32	14.05	14.09	orifice tube ~45"
04/14/04	15:00:00	253			193.33	14.06	14.10	
04/14/04	15:15:00	268			193.39	14.12	14.16	
04/14/04	15:30:00	283			193.41	14.14	14.19	
04/14/04	15:45:00	298			193.42	14.15	14.20	
04/14/04	16:15:00	328			193.43	14.16	14.21	
04/14/04	17:02:00	375			193.55	14.28	14.34	T=14.8C, SC/EC=259.0/207.6
04/14/04	17:13:00	386			193.61	14.34	14.40	T=14.4C, SC/EC=254.0/202.3
04/14/04	17:38:00	411			193.53	14.26	14.33	T=14.6C, SC/EC=251.0/201.0

Date	Time	t [min]	t' [min]	t/t'	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
04/14/04	18:30:00	463			194.00	14.73	14.81	T=14.7C, SC/EC=250.9/201.5
04/14/04	19:00:00	493			193.87	14.60	14.68	
04/14/04	19:30:00	523			193.85	14.58	14.67	
04/14/04	20:00:00	553			193.92	14.65	14.74	
04/14/04	20:30:00	583			193.70	14.43	14.52	
04/14/04	21:00:00	613			194.00	14.73	14.82	
04/14/04	21:30:00	643			194.15	14.88	14.98	
04/14/04	22:00:00	673			194.23	14.96	15.06	
04/14/04	22:30:00	703			194.25	14.98	15.10	
04/14/04	23:00:00	733			194.27	15.00	15.12	
04/14/04	23:30:00	763			194.33	15.06	15.18	
04/15/04	0:00:00	793			194.30	15.03	15.15	
04/15/04	0:30:00	823			194.30	15.03	15.14	
04/15/04	1:00:00	853			194.40	15.13	15.24	
04/15/04	1:30:00	883			194.40	15.13	15.23	
04/15/04	2:00:00	913			194.45	15.18	15.28	
04/15/04	2:30:00	943			194.55	15.28	15.38	
04/15/04	3:00:00	973			194.40	15.13	15.23	
04/15/04	3:30:00	1003			194.40	15.13	15.23	
04/15/04	4:00:00	1033			194.55	15.28	15.38	
04/15/04	4:30:00	1063			194.55	15.28	15.37	
04/15/04	5:00:00	1093			194.60	15.33	15.42	
04/15/04	5:30:00	1123			194.60	15.33	15.37	
04/15/04	6:00:00	1153			194.65	15.38	15.42	
04/15/04	6:30:00	1183			194.55	15.28	15.30	
04/15/04	7:00:00	1213			194.80	15.53	15.55	
04/15/04	7:30:00	1243			194.65	15.38	15.39	
04/15/04	8:00:00	1273			194.83	15.56	15.57	
04/15/04	8:30:00	1303			195.00	15.73	15.73	
04/15/04	9:00:00	1333			195.01	15.74	15.74	
04/15/04	9:30:00	1363			195.00	15.73	15.72	
04/15/04	10:00:00	1393			195.02	15.75	15.74	
04/15/04	10:30:00	1423			195.01	15.74	15.73	
04/15/04	11:00:00	1453			195.00	15.73	15.72	
04/15/04	11:30:00	1483			195.00	15.73	15.73	
04/15/04	12:00:00	1513			195.00	15.73	15.73	
04/15/04	12:30:00	1543			195.00	15.73	15.73	
04/15/04	13:00:00	1573			195.00	15.73	15.73	
04/15/04	13:30:00	1603			194.85	15.58	15.59	
04/15/04	14:00:00	1633			195.00	15.73	15.74	
04/15/04	14:30:00	1663			195.00	15.73	15.75	
04/15/04	15:00:00	1693			195.00	15.73	15.75	
04/15/04	15:30:00	1723			195.00	15.73	15.75	
04/15/04	16:00:00	1753			195.00	15.73	15.75	
04/15/04	16:30:00	1783			195.00	15.73	15.76	
04/15/04	17:00:00	1813			195.00	15.73	15.76	
04/15/04	17:30:00	1843			195.00	15.73	15.76	
04/15/04	18:00:00	1873			195.00	15.73	15.76	
04/15/04	18:30:00	1903			195.00	15.73	15.76	
04/15/04	19:00:00	1933			195.00	15.73	15.76	
04/15/04	19:30:00	1963			195.00	15.73	15.76	
04/15/04	20:00:00	1993			195.25	15.98	16.01	
04/15/04	20:30:00	2023			195.25	15.98	16.00	
04/15/04	21:00:00	2053			195.25	15.98	16.00	
04/15/04	21:30:00	2083			195.30	16.03	16.05	
04/15/04	22:00:00	2113			195.25	15.98	16.00	
04/15/04	22:30:00	2143			195.30	16.03	16.04	
04/15/04	23:00:00	2173			195.35	16.08	16.09	
04/15/04	23:30:00	2203			195.40	16.13	16.13	
04/16/04	0:00:00	2233			195.45	16.18	16.18	
04/16/04	1:00:00	2293			195.30	16.03	16.03	
04/16/04	1:30:00	2323			195.30	16.03	16.03	
04/16/04	2:00:00	2353			195.35	16.08	16.08	
04/16/04	2:30:00	2383			195.50	16.23	16.23	
04/16/04	3:00:00	2413			195.35	16.08	16.08	

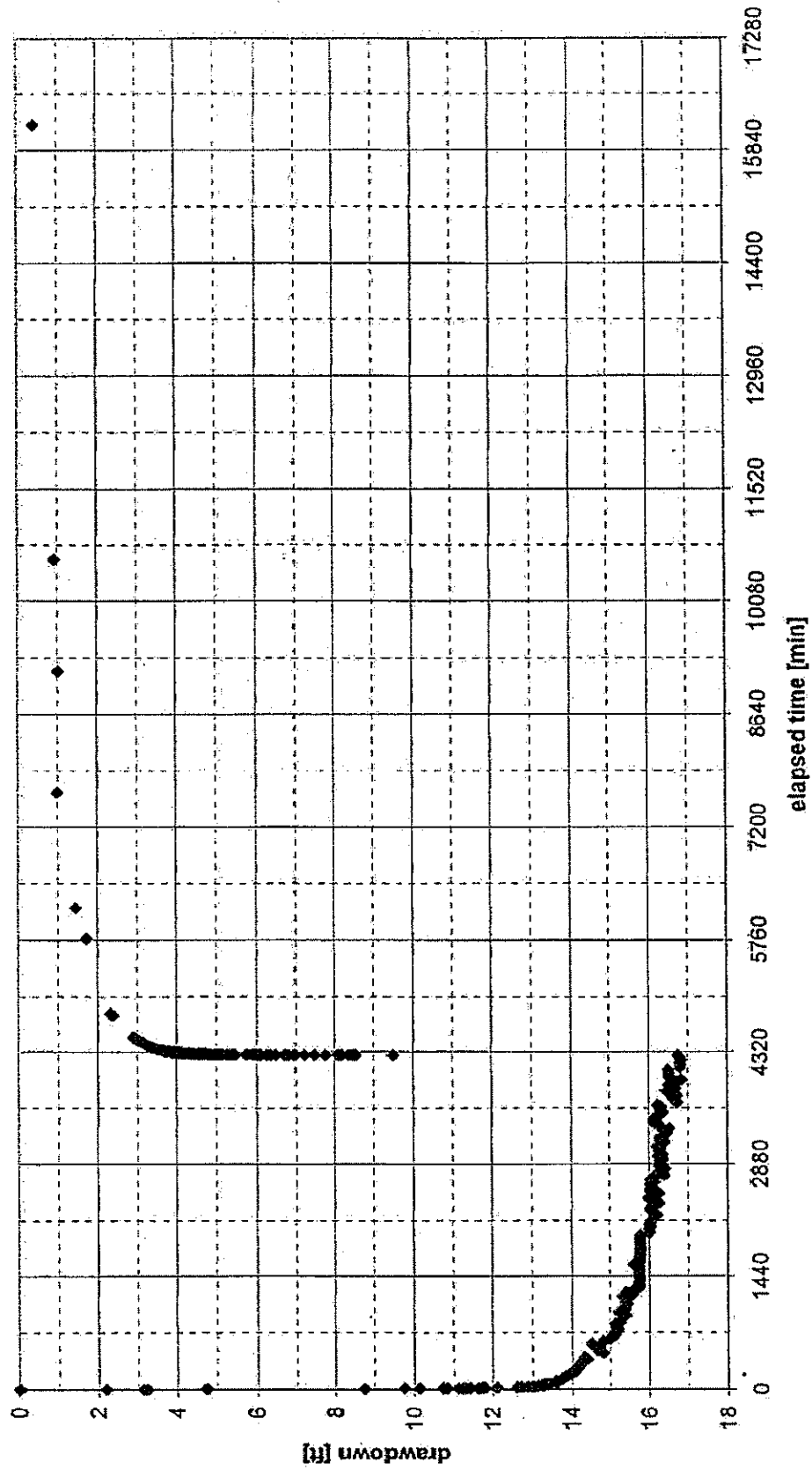
Date	Time	t [min]	t' [min]	W'	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
04/16/04	3:30:00	2443			195.25	15.98	15.98	
04/16/04	4:00:00	2473			195.30	16.03	16.03	
04/16/04	4:30:00	2503			195.50	16.23	16.23	
04/16/04	5:00:00	2533			195.30	16.03	16.03	
04/16/04	5:30:00	2563			195.30	16.03	16.03	
04/16/04	6:00:00	2593			195.35	16.08	16.08	
04/16/04	6:30:00	2623			195.30	16.03	16.03	
04/16/04	7:00:00	2653			195.40	16.13	16.13	
04/16/04	7:30:00	2683			195.30	16.03	16.03	
04/16/04	8:00:00	2713			195.40	16.13	16.12	
04/16/04	8:30:00	2743			195.65	16.38	16.37	
04/16/04	9:00:00	2773			195.55	16.28	16.26	
04/16/04	9:30:00	2803			195.57	16.30	16.28	
04/16/04	10:00:00	2833			195.67	16.40	16.39	
04/16/04	10:30:00	2863			195.55	16.28	16.27	
04/16/04	11:00:00	2893			195.55	16.28	16.28	
04/16/04	11:30:00	2923			195.55	16.28	16.28	
04/16/04	12:00:00	2953			195.60	16.33	16.34	
04/16/04	12:30:00	2983			195.50	16.23	16.24	
04/16/04	13:00:00	3013			195.56	16.29	16.31	
04/16/04	13:30:00	3043			195.51	16.24	16.26	
04/16/04	14:00:00	3073			195.50	16.23	16.27	
04/16/04	14:30:00	3103			195.45	16.18	16.22	
04/16/04	15:00:00	3133			195.50	16.23	16.29	
04/16/04	15:30:00	3163			195.60	16.33	16.39	
04/16/04	16:00:00	3193			195.50	16.23	16.29	
04/16/04	16:30:00	3223			195.50	16.23	16.29	
04/16/04	17:00:00	3253			195.60	16.33	16.39	
04/16/04	17:30:00	3283			195.65	16.38	16.44	
04/16/04	18:00:00	3313			195.60	16.33	16.41	
04/16/04	18:30:00	3343			195.70	16.43	16.51	
04/16/04	19:00:00	3373			195.45	16.18	16.26	
04/16/04	19:30:00	3403			195.40	16.13	16.21	
04/16/04	20:00:00	3433			195.30	16.03	16.11	
04/16/04	20:30:00	3463			195.32	16.05	16.13	
04/16/04	21:00:00	3493			195.40	16.13	16.20	
04/16/04	21:30:00	3523			195.45	16.18	16.25	
04/16/04	22:00:00	3553			195.54	16.27	16.33	
04/16/04	22:30:00	3583			195.50	16.23	16.29	
04/16/04	23:00:00	3613			195.50	16.23	16.30	
04/16/04	23:30:00	3643			195.42	16.15	16.22	
04/17/04	0:00:00	3673			195.92	16.65	16.72	
04/17/04	0:30:00	3703			195.85	16.58	16.65	
04/17/04	1:00:00	3733			195.78	16.51	16.58	
04/17/04	1:30:00	3763			195.90	16.63	16.70	
04/17/04	2:00:00	3793			195.75	16.48	16.55	
04/17/04	2:30:00	3823			195.63	16.36	16.43	
04/17/04	3:00:00	3853			195.87	16.60	16.68	
04/17/04	3:30:00	3883			195.75	16.48	16.56	
04/17/04	4:00:00	3913			195.68	16.41	16.49	
04/17/04	4:30:00	3943			195.88	16.61	16.69	
04/17/04	5:00:00	3973			196.01	16.74	16.81	
04/17/04	5:30:00	4003			195.70	16.43	16.50	
04/17/04	6:00:00	4033			195.70	16.43	16.50	
04/17/04	6:30:00	4063			195.70	16.43	16.50	
04/17/04	7:00:00	4093			195.70	16.43	16.48	
04/17/04	7:30:00	4123			196.01	16.74	16.79	
04/17/04	8:00:00	4153			196.03	16.76	16.80	
04/17/04	8:30:00	4183			196.01	16.74	16.78	
04/17/04	9:00:00	4213			196.04	16.77	16.81	
04/17/04	9:30:00	4243			196.02	16.75	16.79	
04/17/04	10:00:00	4273			195.97	16.70	16.74	SPF measurements
04/17/04	10:04:00	4277			195.97	16.70	16.74	
04/17/04	10:05:00	4278	0		195.97	16.70	16.74	pump off; begin recovery test
04/17/04	10:05:30	4278	0.50	8556	188.70	9.43	9.47	

Date	Time	t [min]	t' [min]	W'	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
04/16/04	3:30:00	2443			195.25	15.98	15.98	
04/16/04	4:00:00	2473			195.30	16.03	16.03	
04/16/04	4:30:00	2503			195.50	16.23	16.23	
04/16/04	5:00:00	2533			195.30	16.03	16.03	
04/16/04	5:30:00	2563			195.30	16.03	16.03	
04/16/04	6:00:00	2593			195.35	16.08	16.08	
04/16/04	6:30:00	2623			195.30	16.03	16.03	
04/16/04	7:00:00	2653			195.40	16.13	16.13	
04/16/04	7:30:00	2683			195.30	16.03	16.03	
04/16/04	8:00:00	2713			195.40	16.13	16.12	
04/16/04	8:30:00	2743			195.65	16.38	16.37	
04/16/04	9:00:00	2773			195.55	16.28	16.26	
04/16/04	9:30:00	2803			195.57	16.30	16.28	
04/16/04	10:00:00	2833			195.67	16.40	16.39	
04/16/04	10:30:00	2863			195.55	16.28	16.27	
04/16/04	11:00:00	2893			195.55	16.28	16.28	
04/16/04	11:30:00	2923			195.55	16.28	16.28	
04/16/04	12:00:00	2953			195.60	16.33	16.34	
04/16/04	12:30:00	2983			195.50	16.23	16.24	
04/16/04	13:00:00	3013			195.56	16.29	16.31	
04/16/04	13:30:00	3043			195.51	16.24	16.26	
04/16/04	14:00:00	3073			195.50	16.23	16.27	
04/16/04	14:30:00	3103			195.45	16.18	16.22	
04/16/04	15:00:00	3133			195.50	16.23	16.29	
04/16/04	15:30:00	3163			195.60	16.33	16.39	
04/16/04	16:00:00	3193			195.50	16.23	16.29	
04/16/04	16:30:00	3223			195.50	16.23	16.29	
04/16/04	17:00:00	3253			195.60	16.33	16.39	
04/16/04	17:30:00	3283			195.65	16.38	16.44	
04/16/04	18:00:00	3313			195.60	16.33	16.41	
04/16/04	18:30:00	3343			195.70	16.43	16.51	
04/16/04	19:00:00	3373			195.45	16.18	16.26	
04/16/04	19:30:00	3403			195.40	16.13	16.21	
04/16/04	20:00:00	3433			195.30	16.03	16.11	
04/16/04	20:30:00	3463			195.32	16.05	16.13	
04/16/04	21:00:00	3493			195.40	16.13	16.20	
04/16/04	21:30:00	3523			195.45	16.18	16.25	
04/16/04	22:00:00	3553			195.54	16.27	16.33	
04/16/04	22:30:00	3583			195.50	16.23	16.29	
04/16/04	23:00:00	3613			195.50	16.23	16.30	
04/16/04	23:30:00	3643			195.42	16.15	16.22	
04/17/04	0:00:00	3673			195.92	16.65	16.72	
04/17/04	0:30:00	3703			195.85	16.58	16.65	
04/17/04	1:00:00	3733			195.78	16.51	16.58	
04/17/04	1:30:00	3763			195.90	16.63	16.70	
04/17/04	2:00:00	3793			195.75	16.48	16.55	
04/17/04	2:30:00	3823			195.63	16.36	16.43	
04/17/04	3:00:00	3853			195.87	16.60	16.68	
04/17/04	3:30:00	3883			195.75	16.48	16.56	
04/17/04	4:00:00	3913			195.68	16.41	16.49	
04/17/04	4:30:00	3943			195.88	16.61	16.69	
04/17/04	5:00:00	3973			196.01	16.74	16.81	
04/17/04	5:30:00	4003			195.70	16.43	16.50	
04/17/04	6:00:00	4033			195.70	16.43	16.50	
04/17/04	6:30:00	4063			195.70	16.43	16.50	
04/17/04	7:00:00	4093			195.70	16.43	16.48	
04/17/04	7:30:00	4123			196.01	16.74	16.79	
04/17/04	8:00:00	4153			196.03	16.76	16.80	
04/17/04	8:30:00	4183			196.01	16.74	16.78	
04/17/04	9:00:00	4213			196.04	16.77	16.81	
04/17/04	9:30:00	4243			196.02	16.75	16.79	
04/17/04	10:00:00	4273			195.97	16.70	16.74	SPF measurements
04/17/04	10:04:00	4277			195.97	16.70	16.74	
04/17/04	10:05:00	4278	0		195.97	16.70	16.74	pump off; begin recovery test
04/17/04	10:05:30	4278	0.50	8556	188.70	9.43	9.47	

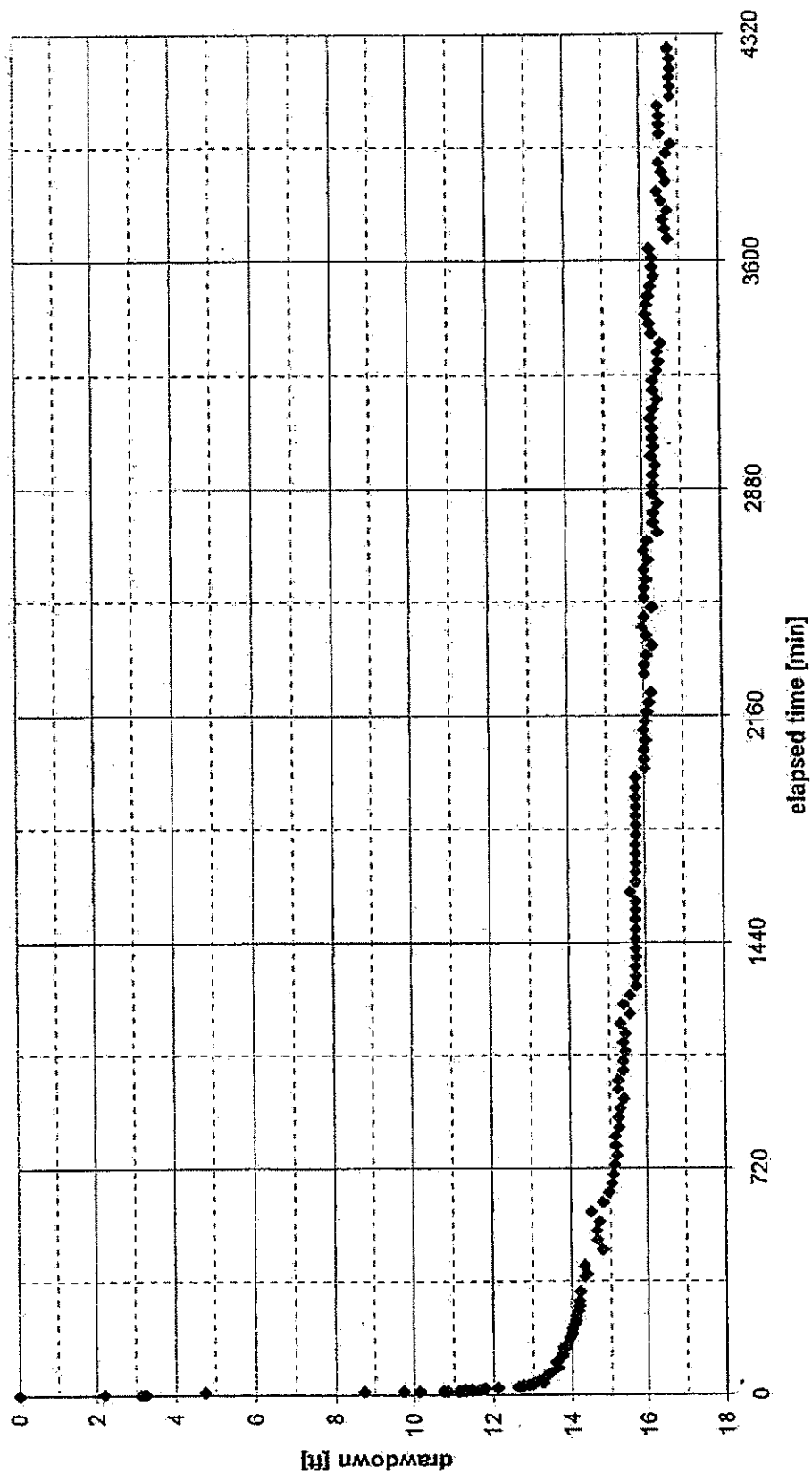
Date	Time	t [min]	P [min]	W [ft]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
04/17/04	10:05:39	4278	0.65	6582	187.40	8.13	8.17	
04/17/04	10:05:52	4278	0.87	4937	187.32	8.05	8.09	
04/17/04	10:06:09	4279	1.15	3721	187.75	8.48	8.52	
04/17/04	10:06:26	4279	1.43	2985	187.65	8.38	8.42	
04/17/04	10:06:43	4279	1.72	2493	187.70	8.43	8.47	
04/17/04	10:06:58	4280	1.97	2176	187.57	8.30	8.34	
04/17/04	10:07:18	4280	2.30	1861	187.32	8.05	8.09	
04/17/04	10:07:45	4280	2.75	1556	187.00	7.73	7.77	
04/17/04	10:08:03	4281	3.05	1403	186.70	7.43	7.47	
04/17/04	10:08:23	4281	3.38	1265	186.70	7.43	7.47	
04/17/04	10:08:43	4281	3.72	1152	186.45	7.18	7.22	
04/17/04	10:08:55	4281	3.92	1093	186.20	6.93	6.97	
04/17/04	10:09:13	4282	4.22	1015	186.06	6.79	6.83	
04/17/04	10:09:33	4282	4.55	941	185.96	6.69	6.73	
04/17/04	10:09:55	4282	4.92	871	185.95	6.68	6.72	
04/17/04	10:10:16	4283	5.27	813	185.71	6.44	6.48	
04/17/04	10:10:36	4283	5.60	765	185.59	6.32	6.36	
04/17/04	10:10:57	4284	5.95	720	185.50	6.23	6.27	
04/17/04	10:11:15	4284	6.25	685	185.33	6.06	6.10	
04/17/04	10:11:32	4284	6.53	656	185.27	6.00	6.04	
04/17/04	10:11:56	4285	6.93	618	185.25	5.98	6.02	
04/17/04	10:12:21	4285	7.35	583	185.12	5.85	5.89	
04/17/04	10:12:37	4285	7.62	563	185.18	5.91	5.95	
04/17/04	10:13:00	4286	8.00	536	185.00	5.73	5.77	
04/17/04	10:13:26	4286	8.43	508	184.67	5.40	5.44	
04/17/04	10:13:59	4287	8.98	477	184.70	5.43	5.47	
04/17/04	10:14:24	4287	9.40	456	184.61	5.34	5.38	
04/17/04	10:14:56	4288	9.93	432	184.52	5.25	5.29	
04/17/04	10:15:14	4288	10.2	419	184.38	5.11	5.15	
04/17/04	10:15:38	4288	10.6	403	184.50	5.23	5.27	
04/17/04	10:16:19	4289	11.3	379	184.35	5.08	5.12	
04/17/04	10:16:37	4289	11.6	369	184.27	5.00	5.04	
04/17/04	10:16:55	4289	11.9	360	184.20	4.93	4.97	
04/17/04	10:17:19	4290	12.3	348	184.23	4.96	5.00	
04/17/04	10:17:40	4290	12.7	339	184.17	4.90	4.94	
04/17/04	10:17:56	4291	12.9	332	184.20	4.93	4.97	
04/17/04	10:18:19	4291	13.3	322	184.08	4.81	4.85	
04/17/04	10:18:40	4291	13.7	314	184.06	4.79	4.83	
04/17/04	10:18:58	4292	14.0	307	184.03	4.76	4.80	
04/17/04	10:19:14	4292	14.2	302	183.97	4.70	4.74	
04/17/04	10:19:48	4292	14.8	290	183.92	4.65	4.69	
04/17/04	10:20:15	4293	15.3	281	183.96	4.69	4.73	
04/17/04	10:21:04	4294	16.1	267	183.87	4.60	4.64	
04/17/04	10:21:52	4294	16.9	255	183.88	4.61	4.65	
04/17/04	10:22:19	4295	17.3	248	183.87	4.60	4.64	
04/17/04	10:22:48	4295	17.8	241	183.81	4.54	4.58	
04/17/04	10:23:28	4296	18.5	233	183.78	4.51	4.55	
04/17/04	10:24:02	4297	19.0	226	183.69	4.42	4.46	
04/17/04	10:24:35	4297	19.6	219	183.65	4.38	4.42	
04/17/04	10:25:04	4298	20.1	214	183.67	4.40	4.44	
04/17/04	10:25:27	4298	20.5	210	183.59	4.32	4.36	
04/17/04	10:26:08	4299	21.1	203	183.62	4.35	4.39	
04/17/04	10:26:49	4299	21.8	197	183.60	4.33	4.37	
04/17/04	10:27:19	4300	22.3	193	183.56	4.29	4.33	
04/17/04	10:27:45	4300	22.8	189	183.53	4.26	4.30	
04/17/04	10:28:10	4301	23.2	186	183.54	4.27	4.31	
04/17/04	10:28:30	4301	23.5	183	183.65	4.38	4.42	
04/17/04	10:28:58	4302	24.0	179	183.53	4.26	4.30	
04/17/04	10:29:30	4302	24.5	176	183.51	4.24	4.28	
04/17/04	10:30:15	4303	25.3	170	183.37	4.10	4.14	
04/17/04	10:31:00	4304	26.0	166	183.43	4.16	4.20	
04/17/04	10:32:00	4305	27.0	159	183.40	4.13	4.17	
04/17/04	10:32:45	4305	27.8	155	183.38	4.11	4.15	
04/17/04	10:33:32	4306	28.5	151	183.35	4.08	4.12	
04/17/04	10:34:45	4307	29.8	145	183.32	4.05	4.09	

Date	Time	t [min]	t' [min]	t/t'	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
04/17/04	10:35:00	4308	30	144	183.34	4.07	4.11	
04/17/04	10:36:00	4309	31	139	183.33	4.06	4.10	
04/17/04	10:37:00	4310	32	135	183.26	3.99	4.03	
04/17/04	10:38:00	4311	33	131	183.28	4.01	4.05	
04/17/04	10:39:00	4312	34	127	183.27	4.00	4.04	
04/17/04	10:40:00	4313	35	123	183.25	3.98	4.02	
04/17/04	10:41:00	4314	36	120	183.19	3.92	3.96	
04/17/04	10:42:00	4315	37	117	183.16	3.89	3.93	
04/17/04	10:43:00	4316	38	114	183.15	3.88	3.92	
04/17/04	10:44:00	4317	39	111	183.10	3.83	3.87	
04/17/04	10:45:00	4318	40	108	183.14	3.87	3.91	
04/17/04	10:46:00	4319	41	105	183.14	3.87	3.91	
04/17/04	10:47:00	4320	42	103	183.16	3.89	3.93	
04/17/04	10:49:00	4322	44	98	183.09	3.82	3.86	
04/17/04	10:50:00	4323	45	96	183.10	3.83	3.87	
04/17/04	10:53:00	4326	48	90	183.06	3.79	3.83	
04/17/04	10:56:00	4329	51	85	183.00	3.73	3.77	
04/17/04	10:59:00	4332	54	80	182.92	3.65	3.69	
04/17/04	11:02:00	4335	57	76	182.93	3.66	3.70	
04/17/04	11:05:00	4338	60	72	182.91	3.64	3.68	
04/17/04	11:10:00	4343	65	67	182.88	3.61	3.65	
04/17/04	11:15:00	4348	70	62	182.84	3.57	3.61	
04/17/04	11:20:00	4353	75	58	182.80	3.53	3.57	
04/17/04	11:25:00	4358	80	54	182.76	3.49	3.53	
04/17/04	11:30:00	4363	85	51	182.73	3.46	3.51	
04/17/04	11:35:00	4368	90	49	182.70	3.43	3.48	
04/17/04	11:40:00	4373	95	46	182.67	3.40	3.45	
04/17/04	11:45:00	4378	100	44	182.64	3.37	3.42	
04/17/04	11:50:00	4383	105	42	182.61	3.34	3.39	
04/17/04	11:55:00	4388	110	40	182.59	3.32	3.37	
04/17/04	12:00:00	4393	115	38	182.57	3.30	3.35	
04/17/04	12:05:00	4398	120	37	182.53	3.26	3.31	
04/17/04	12:15:00	4408	130	34	182.48	3.21	3.26	
04/17/04	12:25:00	4418	140	32	182.44	3.17	3.22	
04/17/04	12:35:00	4428	150	30	182.40	3.13	3.19	
04/17/04	12:45:00	4438	160	28	182.37	3.10	3.16	
04/17/04	12:55:00	4448	170	26	182.36	3.09	3.15	
04/17/04	13:05:00	4458	180	25	182.28	3.01	3.07	
04/17/04	13:15:00	4468	190	24	182.24	2.97	3.03	
04/17/04	13:25:00	4478	200	22	182.21	2.94	3.00	
04/17/04	13:35:00	4488	210	21	182.18	2.91	2.99	
04/17/04	13:45:00	4498	220	20	182.14	2.87	2.95	
04/17/04	13:55:00	4508	230	20	182.11	2.84	2.92	
04/17/04	14:05:00	4518	240	19	182.08	2.81	2.89	
04/17/04	18:45:00	4798	520	9	181.54	2.27	2.37	
04/17/04	18:55:00	4808	530	9	181.51	2.24	2.34	
04/17/04	19:05:00	4818	540	9	181.50	2.23	2.33	
04/18/04	11:05:00	5778	1500	4	180.88	1.61	1.71	
04/18/04	17:42:00	6175	1897	3	180.60	1.33	1.43	
04/19/04	18:14:00	7647	3369	2	180.25	0.98	1.00	
04/20/04	20:06:00	9199	4921	2	180.30	1.03	1.02	
04/21/04	19:40:00	10613	6335	2	180.16	0.89	0.92	
04/25/04	16:22:00	16175	11897	1	179.85	0.58	0.39	questionable measurement, oil/water interference
06/08/04	18:00:00				179.9			177.65' below access port

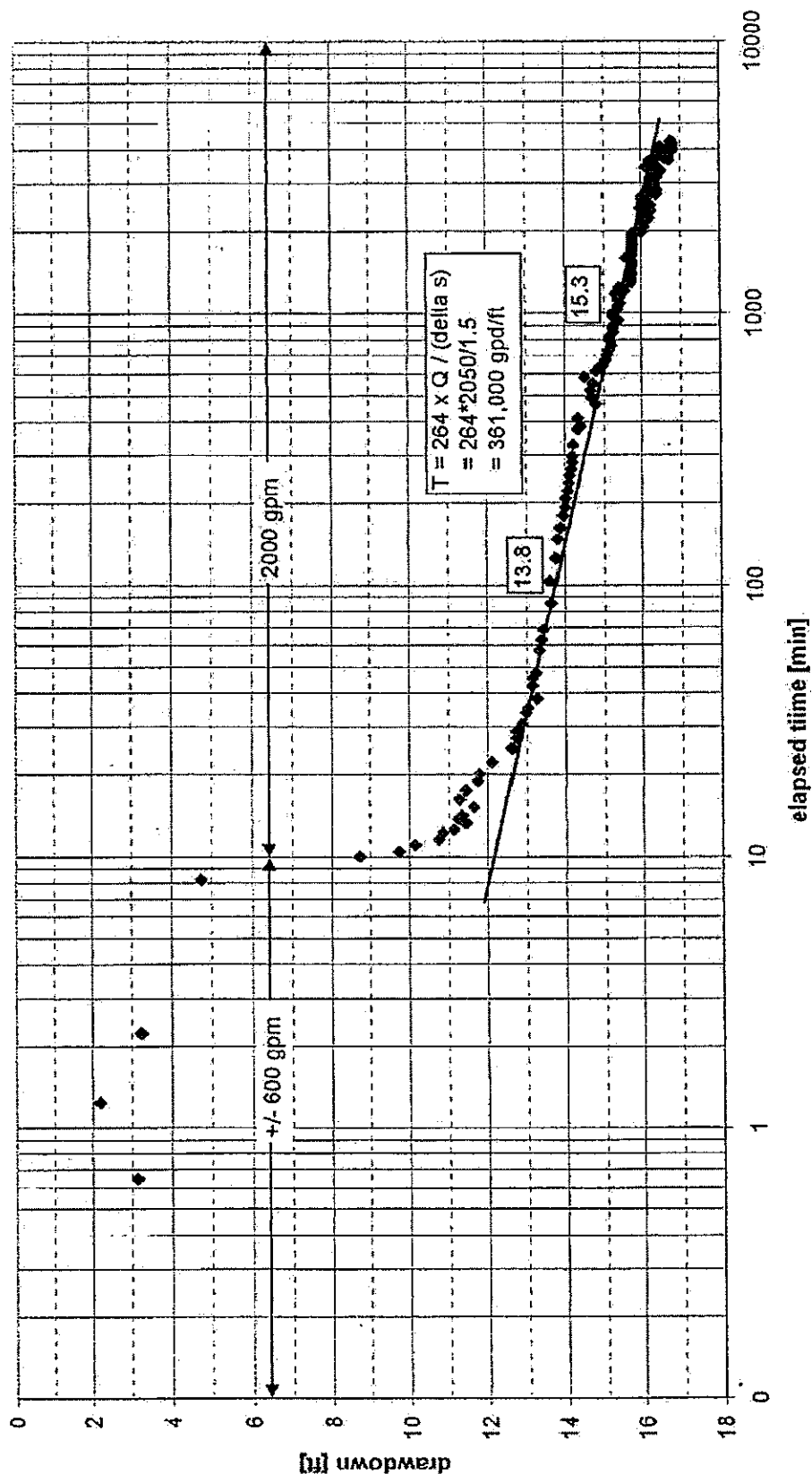
Drawdown and Recovery
Test Production Well 1, Qave = 2050 gpm
Spring Valley Ranch
Test date: April 14-25, 2004



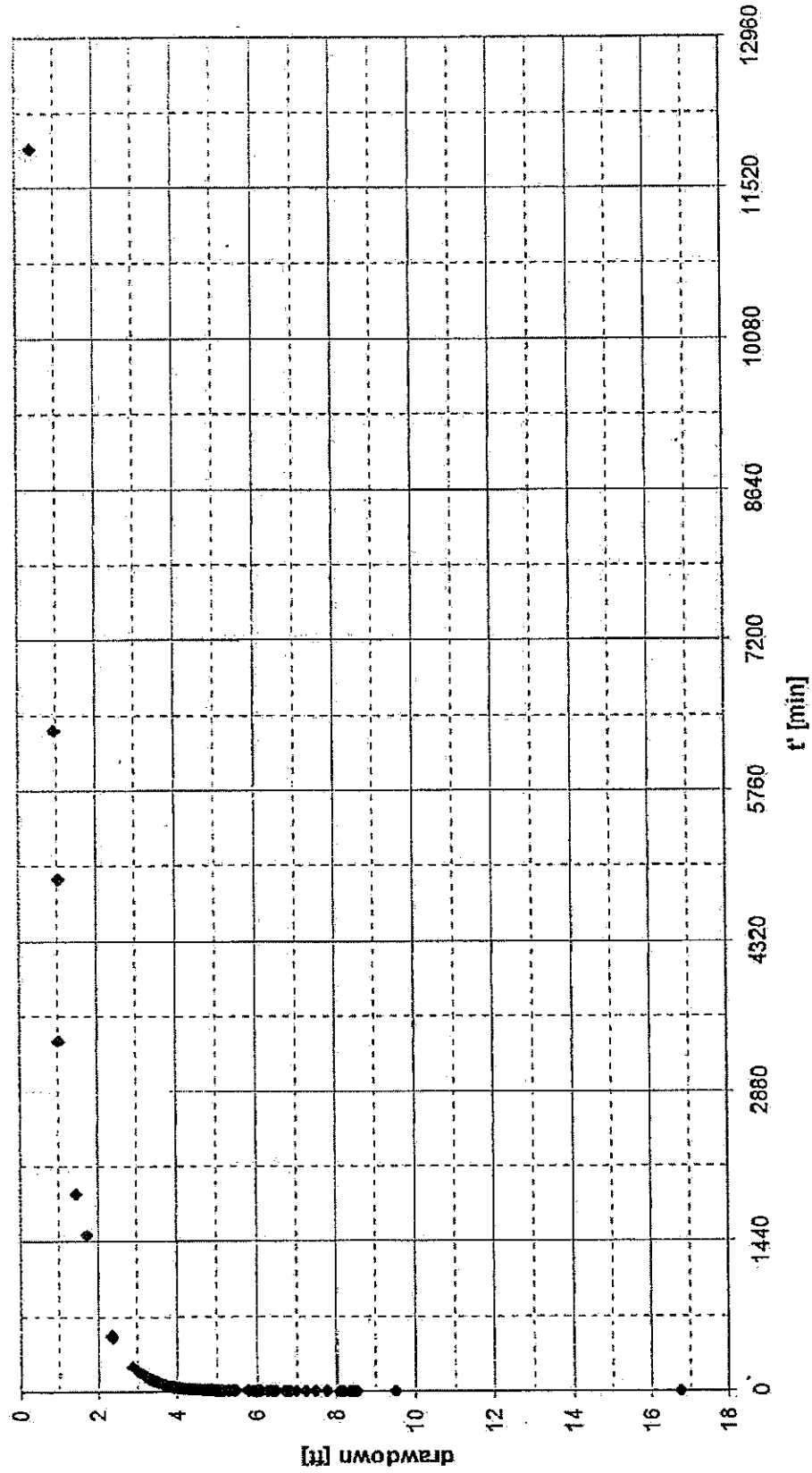
Drawdown
Test Production Well 1, Qave = 2050 gpm
Spring Valley Ranch
Test Date: April 14-25, 2004



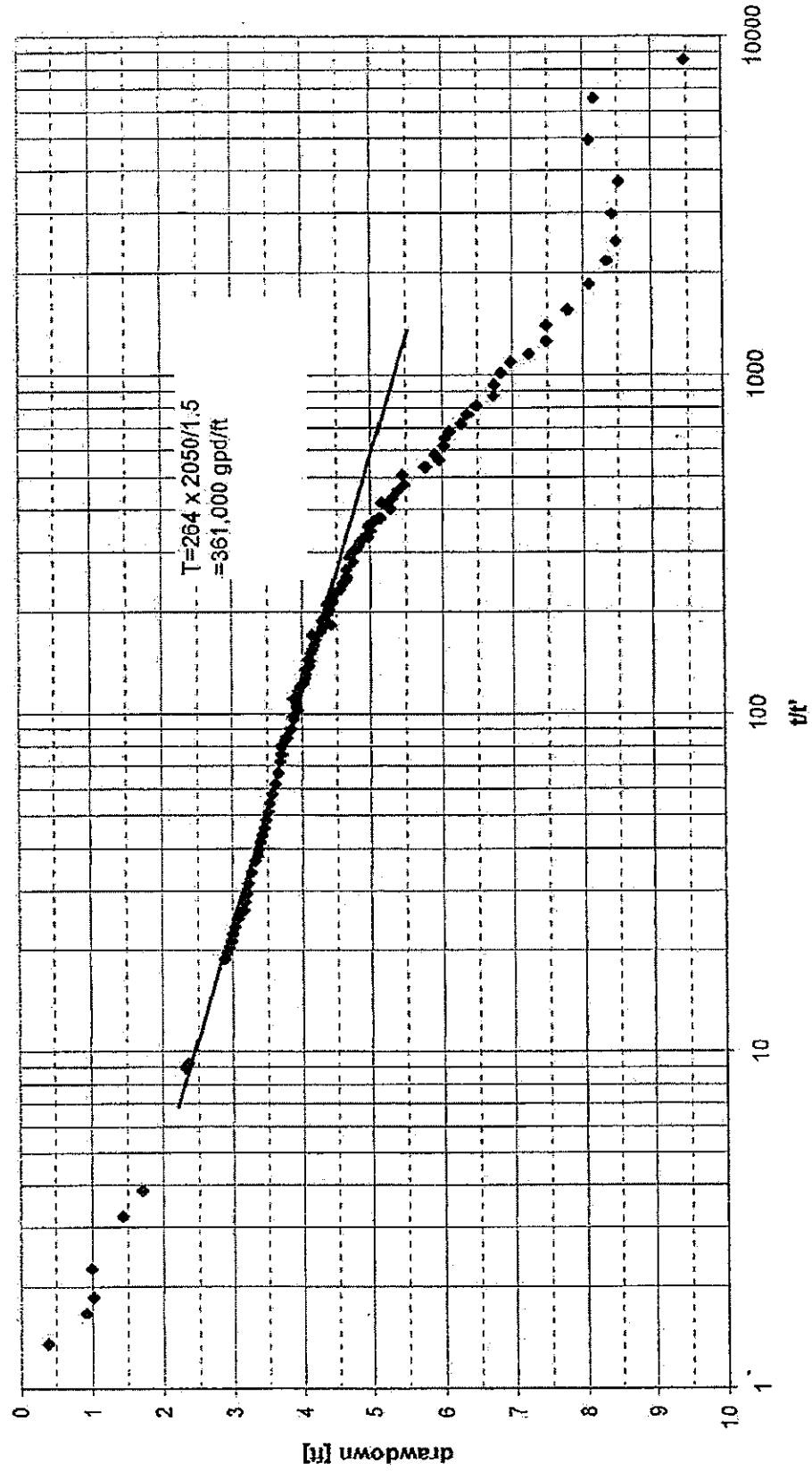
Time - Drawdown
 Test Production Well 1, Qave = 2050 gpm
 Spring Valley Ranch
 Test Date: April 14-25, 2004



Recovery
Test Production Well 1, Qave = 2050 gpm
Spring Valley Ranch
Test Date: April 14-25, 2004



Time - Recovery
Test Production Well 1, Qave = 2050 gpm
Spring Valley Ranch
Test Date: April 14-25, 2004



TPW 1 STEP-RATE PUMPING TEST

Well No: TPW1, Spring Valley Ranch					
Test conducted by: SPF Water Engineering, LLC and Riverside, Inc					
Flow measured by: Orifice (10 x 8) and manometer					
Water level measured by: well sounder Water level measure point: top of tube					
MP Elev: 1.43' atoc Static DTW: 179.10' mp					
Pump on: 4/12/04 14:44 Pump off: 4/12/04 17:00					
Date	Time	t [min]	DTW [ft]	Drawdown [ft]	Comments
04/12/04	14:22:00			-	
04/12/04	14:24:00			-	begin development pumping
04/12/04	14:28:00		189.00	9.90	
04/12/04	14:32:00		189.00	9.90	
04/12/04	14:42:00				clearing no sand
04/12/04	14:46:00				increased Q
04/12/04	14:47:00		194.00	14.90	
04/12/04	14:53:00				1300-1500 gpm
04/12/04	14:56:00		193.11	14.01	19" clear, increase
04/12/04	15:01:00				54", 2200+/-
04/12/04	15:02:00				60", 2340 +/-
04/12/04	15:06:00		200.56	21.46	
04/12/04	15:33:00		206.00	26.90	58"
04/12/04	15:40:00		201.00	21.90	2350 gpm
04/12/04	15:56:00				off, start to surge for 5 mins
04/12/04	16:01:00		195.00	15.90	2380gpm
04/12/04	16:08:00				off
04/12/04	16:15:00	0	182.65	3.55	begin step rate test.
04/12/04	16:19:00	4	185.75	6.65	850 gpm
04/12/04	16:23:00	8	185.90	6.80	850 gpm
04/12/04	16:28:00	13	186.14	7.04	850 gpm
04/12/04	16:30:00	15	186.05	6.95	850 gpm
04/12/04	16:31:00	16			increase rate to 2,000 gpm
04/12/04	16:33:00	18	190.50	11.40	1980 gpm
04/12/04	16:35:00	20	191.28	12.18	2000 gpm
04/12/04	16:37:00	22	191.85	12.75	2000 gpm
04/12/04	16:41:00	26	192.13	13.03	2000 gpm
04/12/04	16:44:00	29	192.29	13.19	2000 gpm
04/12/04	16:45:00	30			increase rate to 2,340 gpm
04/12/04	16:46:00	31	194.52	15.42	2340gpm
04/12/04	16:50:00	35	195.34	16.24	2340 gpm
04/12/04	16:54:00	39	195.62	16.52	2340 gpm
04/12/04	16:58:00	43	195.72	16.62	2340 gpm
04/12/04	17:00:00	45	195.70	16.60	off
04/12/04	17:29:00	74	180.02	0.92	

OBSERVATION WELL SVR8

SANDY HILL AQUIFER TEST - OBSERVATION WELL SVR 8

Well No: SVR 8, observation well for TPW1 aquifer test						
Test conducted by: SPF Water Engineering, LLC and Riverside, Inc						
Flow measured by: NA						
Water level measured by: Stevens chart recorder Water level measure point: top of casing						
MP Elev: Static DTW: 66.70' mp						
Pump on: 4/14/04 10:47:26 Pump off: 4/17/04 10:05						
Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/14/2004	10:00		66.70			static
4/14/2004	11:00	13	66.70	0.00	0.01	
4/14/2004	11:30	43	66.70	0.00	0.01	
4/14/2004	12:00	73	66.70	0.00	0.01	
4/14/2004	12:30	103	66.70	0.00	0.02	
4/14/2004	13:00	133	66.69	-0.01	0.01	
4/14/2004	13:30	163	66.69	-0.01	0.02	
4/14/2004	14:00	193	66.69	-0.01	0.02	
4/14/2004	14:30	223	66.68	-0.02	0.03	
4/14/2004	15:00	253	66.68	-0.02	0.03	
4/14/2004	15:30	283	66.69	-0.01	0.04	
4/14/2004	16:00	313	66.68	-0.02	0.03	
4/14/2004	16:30	343	66.68	-0.02	0.04	
4/14/2004	17:00	373	66.68	-0.02	0.04	
4/14/2004	17:30	403	66.68	-0.02	0.05	
4/14/2004	18:00	433	66.68	-0.02	0.05	
4/14/2004	18:30	463	66.68	-0.02	0.07	
4/14/2004	19:00	493	66.68	-0.02	0.07	
4/14/2004	19:30	523	66.68	-0.02	0.07	
4/14/2004	20:00	553	66.68	-0.02	0.07	
4/14/2004	21:00	613	66.68	-0.02	0.07	
4/14/2004	22:00	673	66.69	-0.01	0.10	
4/14/2004	23:00	733	66.69	-0.01	0.11	
4/15/2004	0:00	793	66.69	-0.01	0.11	
4/15/2004	1:00	853	66.70	0.00	0.11	
4/15/2004	2:00	913	66.72	0.02	0.13	
4/15/2004	3:00	973	66.73	0.03	0.14	
4/15/2004	4:00	1033	66.74	0.04	0.14	
4/15/2004	5:00	1093	66.76	0.06	0.15	
4/15/2004	6:00	1153	66.77	0.07	0.12	
4/15/2004	7:00	1213	66.82	0.12	0.15	
4/15/2004	8:00	1273	66.84	0.14	0.15	
4/15/2004	9:00	1333	66.86	0.16	0.16	
4/15/2004	10:00	1393	66.86	0.16	0.15	
4/15/2004	11:00	1453	66.87	0.17	0.16	
4/15/2004	12:00	1513	66.87	0.17	0.17	
4/15/2004	13:00	1573	66.87	0.17	0.18	
4/15/2004	14:00	1633	66.87	0.17	0.18	
4/15/2004	15:00	1693	66.87	0.17	0.19	
4/15/2004	16:00	1753	66.87	0.17	0.20	
4/15/2004	17:00	1813	66.87	0.17	0.20	
4/15/2004	18:00	1873	66.87	0.17	0.20	

Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/15/2004	19:00	1933	66.89	0.19	0.22	
4/15/2004	20:00	1993	66.90	0.20	0.23	
4/15/2004	21:00	2053	66.91	0.21	0.23	
4/15/2004	22:00	2113	66.92	0.22	0.24	
4/15/2004	23:00	2173	66.93	0.23	0.24	
4/16/2004	0:00	2233	66.94	0.24	0.25	
4/16/2004	1:00	2293	66.95	0.25	0.25	
4/16/2004	2:00	2353	66.96	0.26	0.26	
4/16/2004	3:00	2413	66.97	0.27	0.27	
4/16/2004	4:00	2473	66.97	0.27	0.27	
4/16/2004	5:00	2533	66.98	0.28	0.28	
4/16/2004	6:00	2593	66.99	0.29	0.29	
4/16/2004	7:00	2653	67.00	0.30	0.30	
4/16/2004	8:00	2713	67.01	0.31	0.30	
4/16/2004	9:00	2773	67.02	0.32	0.31	
4/16/2004	11:00	2893	67.05	0.35	0.34	
4/16/2004	12:00	2953	67.06	0.36	0.36	
4/16/2004	13:00	3013	67.06	0.36	0.37	
4/16/2004	14:00	3073	67.06	0.36	0.39	
4/16/2004	15:00	3133	67.06	0.36	0.40	
4/16/2004	16:00	3193	67.06	0.36	0.42	
4/16/2004	17:00	3253	67.07	0.37	0.44	
4/16/2004	18:00	3313	67.08	0.38	0.45	
4/16/2004	19:00	3373	67.08	0.38	0.46	
4/16/2004	20:00	3433	67.09	0.39	0.48	
4/16/2004	21:00	3493	67.10	0.40	0.49	
4/16/2004	22:00	3553	67.13	0.43	0.50	
4/16/2004	23:00	3613	67.14	0.44	0.51	
4/17/2004	0:00	3673	67.15	0.45	0.52	
4/17/2004	1:00	3733	67.15	0.45	0.52	
4/17/2004	2:00	3793	67.17	0.47	0.54	
4/17/2004	3:00	3853	67.18	0.48	0.55	
4/17/2004	4:00	3913	67.19	0.49	0.57	
4/17/2004	5:00	3973	67.20	0.50	0.58	
4/17/2004	6:00	4033	67.21	0.51	0.58	
4/17/2004	7:00	4093	67.23	0.53	0.60	
4/17/2004	8:00	4153	67.25	0.55	0.60	
4/17/2004	9:00	4213	67.27	0.57	0.62	
4/17/2004	10:00	4273	67.27	0.57	0.62	
4/17/2004	11:00	4333	67.28	0.58	0.63	
4/17/2004	12:00	4393	67.29	0.59	0.64	
4/17/2004	13:00	4453	67.29	0.59	0.64	
4/17/2004	14:00	4513	67.29	0.59	0.66	
4/17/2004	15:00	4573	67.29	0.59	0.67	
4/17/2004	16:00	4633	67.29	0.59	0.68	
4/17/2004	17:00	4693	67.29	0.59	0.68	
4/17/2004	18:00	4753	67.29	0.59	0.69	
4/17/2004	19:11	4824	67.29	0.59	0.70	
4/17/2004	20:00	4873	67.28	0.58	0.69	
4/17/2004	21:00	4933	67.29	0.59	0.70	

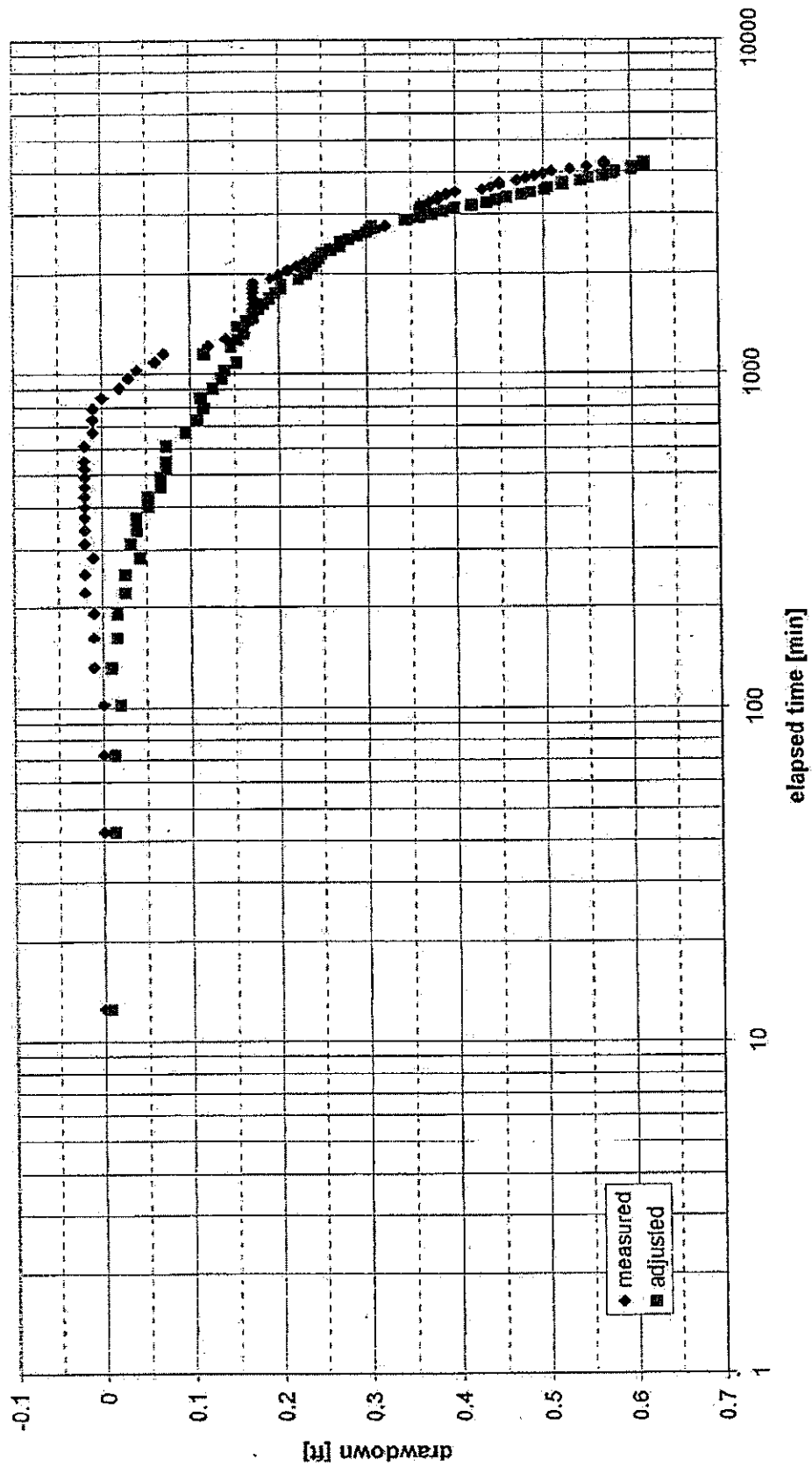
Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/17/2004	22:00	4993	67.30	0.60	0.69	
4/17/2004	23:00	5053	67.32	0.62	0.71	
4/18/2004	0:00	5113	67.32	0.62	0.71	
4/18/2004	1:00	5173	67.32	0.62	0.70	
4/18/2004	2:00	5233	67.33	0.63	0.70	
4/18/2004	3:00	5293	67.33	0.63	0.69	
4/18/2004	4:00	5353	67.35	0.65	0.71	
4/18/2004	5:00	5413	67.36	0.66	0.71	
4/18/2004	6:00	5473	67.37	0.67	0.70	
4/18/2004	7:00	5533	67.39	0.69	0.71	
4/18/2004	8:00	5593	67.40	0.70	0.70	
4/18/2004	9:00	5653	67.41	0.71	0.68	
4/18/2004	10:00	5713	67.42	0.72	0.68	
4/18/2004	10:58	5771	67.42	0.72	0.67	
4/18/2004	12:00	5833	67.42	0.72	0.67	
4/18/2004	13:00	5893	67.41	0.71	0.66	
4/18/2004	14:00	5953	67.41	0.71	0.66	
4/18/2004	15:00	6013	67.41	0.71	0.66	
4/18/2004	16:00	6073	67.40	0.70	0.66	
4/18/2004	17:00	6133	67.40	0.70	0.67	
4/18/2004	17:37	6170	67.40	0.70	0.67	
4/18/2004	18:00	6193	67.39	0.69	0.66	
4/18/2004	19:00	6253	67.39	0.69	0.66	
4/18/2004	20:00	6313	67.39	0.69	0.66	
4/18/2004	21:00	6373	67.42	0.72	0.67	
4/18/2004	22:00	6433	67.42	0.72	0.67	
4/18/2004	23:00	6493	67.42	0.72	0.68	
4/19/2004	0:00	6553	67.42	0.72	0.68	
4/19/2004	1:00	6613	67.42	0.72	0.68	
4/19/2004	2:00	6673	67.42	0.72	0.69	
4/19/2004	3:00	6733	67.42	0.72	0.69	
4/19/2004	4:00	6793	67.39	0.69	0.66	
4/19/2004	5:00	6853	67.39	0.69	0.66	
4/19/2004	6:00	6913	67.39	0.69	0.67	
4/19/2004	7:00	6973	67.39	0.69	0.66	
4/19/2004	8:00	7033	67.39	0.69	0.66	
4/19/2004	9:00	7093	67.40	0.70	0.66	
4/19/2004	10:00	7153	67.41	0.71	0.66	
4/19/2004	11:00	7213	67.41	0.71	0.66	
4/19/2004	12:00	7273	67.42	0.72	0.67	
4/19/2004	13:00	7333	67.41	0.71	0.68	
4/19/2004	14:00	7393	67.41	0.71	0.68	
4/19/2004	15:00	7453	67.41	0.71	0.70	
4/19/2004	16:00	7513	67.39	0.69	0.70	
4/19/2004	17:00	7573	67.38	0.68	0.70	
4/19/2004	18:00	7633	67.39	0.69	0.71	
4/19/2004	19:00	7693	67.39	0.69	0.72	
4/19/2004	20:00	7753	67.40	0.70	0.72	
4/19/2004	21:00	7813	67.40	0.70	0.72	
4/19/2004	22:00	7873	67.41	0.71	0.73	

Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/19/2004	23:00	7933	67.41	0.71	0.73	
4/20/2004	0:00	7993	67.41	0.71	0.73	
4/20/2004	1:00	8053	67.41	0.71	0.73	
4/20/2004	2:00	8113	67.43	0.73	0.75	
4/20/2004	3:00	8173	67.42	0.72	0.75	
4/20/2004	4:00	8233	67.41	0.71	0.75	
4/20/2004	5:00	8293	67.40	0.70	0.75	
4/20/2004	6:00	8353	67.40	0.70	0.75	
4/20/2004	7:00	8413	67.40	0.70	0.73	
4/20/2004	8:00	8473	67.45	0.75	0.74	
4/20/2004	9:00	8533	67.46	0.76	0.75	
4/20/2004	10:00	8593	67.46	0.76	0.74	
4/20/2004	11:00	8653	67.46	0.76	0.73	
4/20/2004	12:00	8713	67.46	0.76	0.74	
4/20/2004	13:00	8773	67.46	0.76	0.76	
4/20/2004	14:00	8833	67.44	0.74	0.75	
4/20/2004	15:00	8893	67.44	0.74	0.76	
4/20/2004	16:00	8953	67.44	0.74	0.73	
4/20/2004	17:00	9013	67.44	0.74	0.75	
4/20/2004	18:00	9073	67.44	0.74	0.75	
4/20/2004	19:30	9163	67.45	0.75	0.75	
4/20/2004	20:00	9193	67.45	0.75	0.74	
4/20/2004	21:00	9253	67.45	0.75	0.75	
4/20/2004	22:00	9313	67.45	0.75	0.76	
4/20/2004	23:00	9373	67.45	0.75	0.76	
4/21/2004	0:00	9433	67.45	0.75	0.76	
4/21/2004	1:00	9493	67.45	0.75	0.76	
4/21/2004	2:00	9553	67.45	0.75	0.76	
4/21/2004	3:00	9613	67.44	0.74	0.76	
4/21/2004	4:00	9673	67.43	0.73	0.75	
4/21/2004	5:00	9733	67.43	0.73	0.76	
4/21/2004	6:00	9793	67.43	0.73	0.76	
4/21/2004	7:00	9853	67.43	0.73	0.76	
4/21/2004	8:00	9913	67.43	0.73	0.76	
4/21/2004	9:00	9973	67.43	0.73	0.76	
4/21/2004	10:00	10033	67.43	0.73	0.78	
4/21/2004	11:00	10093	67.43	0.73	0.78	
4/21/2004	12:00	10153	67.42	0.72	0.79	
4/21/2004	13:00	10213	67.41	0.71	0.79	
4/21/2004	14:00	10273	67.44	0.74	0.79	
4/21/2004	15:00	10333	67.44	0.74	0.79	
4/21/2004	16:00	10393	67.43	0.73	0.80	
4/21/2004	17:00	10453	67.43	0.73	0.78	
4/21/2004	18:00	10513	67.44	0.74	0.79	
4/21/2004	19:00	10573	67.44	0.74	0.79	
4/21/2004	20:00	10633	67.45	0.75	0.78	
4/21/2004	21:00	10693	67.46	0.76	0.78	
4/21/2004	22:00	10753	67.47	0.77	0.78	
4/21/2004	23:00	10813	67.47	0.77	0.78	
4/22/2004	0:00	10873	67.48	0.78	0.78	

Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/22/2004	1:00	10933	67.48	0.78	0.77	
4/22/2004	2:00	10993	67.48	0.78	0.76	
4/22/2004	3:00	11053	67.48	0.78	0.75	
4/22/2004	4:00	11113	67.49	0.79	0.74	
4/22/2004	5:00	11173	67.49	0.79	0.74	
4/22/2004	6:00	11233	67.50	0.80	0.73	
4/22/2004	7:00	11293	67.51	0.81	0.72	
4/22/2004	8:00	11353	67.52	0.82	0.71	
4/22/2004	9:00	11413	67.52	0.82	0.71	
4/22/2004	10:00	11473	67.52	0.82	0.71	
4/22/2004	11:00	11533	67.52	0.82	0.71	
4/22/2004	12:00	11593	67.52	0.82	0.71	
4/22/2004	13:00	11653	67.51	0.81	0.70	
4/22/2004	14:00	11713	67.50	0.80	0.69	
4/22/2004	15:00	11773	67.50	0.80	0.69	
4/22/2004	16:00	11833	67.49	0.79	0.69	
4/22/2004	17:00	11893	67.48	0.78	0.68	
4/22/2004	18:00	11953	67.48	0.78	0.67	
4/22/2004	19:00	12013	67.48	0.78	0.67	
4/22/2004	20:00	12073	67.49	0.79	0.67	
4/22/2004	21:00	12133	67.50	0.80	0.67	
4/22/2004	22:00	12193	67.50	0.80	0.67	
4/22/2004	23:00	12253	67.50	0.80	0.66	
4/23/2004	0:00	12313	67.49	0.79	0.65	
4/23/2004	1:00	12373	67.49	0.79	0.63	
4/23/2004	2:00	12433	67.50	0.80	0.64	
4/23/2004	3:00	12493	67.50	0.80	0.64	
4/23/2004	4:00	12553	67.50	0.80	0.64	
4/23/2004	5:00	12613	67.50	0.80	0.63	
4/23/2004	6:00	12673	67.50	0.80	0.63	
4/23/2004	7:00	12733	67.50	0.80	0.62	
4/23/2004	8:00	12793	67.50	0.80	0.62	
4/23/2004	9:00	12853	67.50	0.80	0.62	
4/23/2004	10:00	12913	67.49	0.79	0.62	
4/23/2004	11:00	12973	67.49	0.79	0.63	
4/23/2004	12:00	13033	67.47	0.77	0.63	
4/23/2004	13:00	13093	67.45	0.75	0.62	
4/23/2004	14:00	13153	67.44	0.74	0.63	
4/23/2004	15:00	13213	67.43	0.73	0.63	
4/23/2004	16:00	13273	67.42	0.72	0.63	
4/23/2004	17:00	13333	67.42	0.72	0.64	
4/23/2004	18:00	13393	67.41	0.71	0.65	
4/23/2004	19:00	13453	67.40	0.70	0.65	
4/23/2004	20:00	13513	67.40	0.70	0.66	
4/23/2004	21:00	13573	67.41	0.71	0.66	
4/23/2004	22:00	13633	67.42	0.72	0.66	
4/23/2004	23:00	13693	67.43	0.73	0.65	
4/24/2004	0:00	13753	67.43	0.73	0.64	
4/24/2004	1:00	13813	67.45	0.75	0.64	
4/24/2004	2:00	13873	67.46	0.76	0.65	

Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/24/2004	3:00	13933	67.46	0.76	0.64	
4/24/2004	4:00	13993	67.46	0.76	0.63	
4/24/2004	5:00	14053	67.47	0.77	0.64	
4/24/2004	6:00	14113	67.47	0.77	0.63	
4/24/2004	7:00	14173	67.48	0.78	0.63	
4/24/2004	8:00	14233	67.49	0.79	0.63	
4/24/2004	9:00	14293	67.49	0.79	0.63	
4/24/2004	10:00	14353	67.49	0.79	0.63	
4/24/2004	11:00	14413	67.49	0.79	0.63	
4/24/2004	12:00	14473	67.49	0.79	0.63	
4/24/2004	13:00	14533	67.48	0.78	0.63	
4/24/2004	14:00	14593	67.47	0.77	0.63	
4/24/2004	15:00	14653	67.46	0.76	0.63	
4/24/2004	16:00	14713	67.45	0.75	0.63	
4/24/2004	17:00	14773	67.45	0.75	0.63	
4/24/2004	18:00	14833	67.45	0.75	0.63	
4/24/2004	19:00	14893	67.45	0.75	0.63	
4/24/2004	20:00	14953	67.45	0.75	0.63	
4/24/2004	21:00	15013	67.45	0.75	0.62	
4/24/2004	22:00	15073	67.46	0.76	0.62	
4/24/2004	23:00	15133	67.46	0.76	0.62	
4/25/2004	0:00	15193	67.46	0.76	0.61	
4/25/2004	1:00	15253	67.47	0.77	0.61	
4/25/2004	2:00	15313	67.47	0.77	0.60	
4/25/2004	3:00	15373	67.47	0.77	0.60	
4/25/2004	4:00	15433	67.48	0.78	0.60	
4/25/2004	5:00	15493	67.48	0.78	0.59	
4/25/2004	6:00	15553	67.48	0.78	0.58	
4/25/2004	7:00	15613	67.48	0.78	0.58	
4/25/2004	8:00	15673	67.49	0.79	0.58	
4/25/2004	9:00	15733	67.49	0.79	0.57	
4/25/2004	10:00	15793	67.49	0.79	0.57	
4/25/2004	11:00	15853	67.50	0.80	0.58	
4/25/2004	12:00	15913	67.50	0.80	0.58	

Drawdown
SVR 8 observation
Spring Valley Ranch
Test Date: April 14-25, 2004

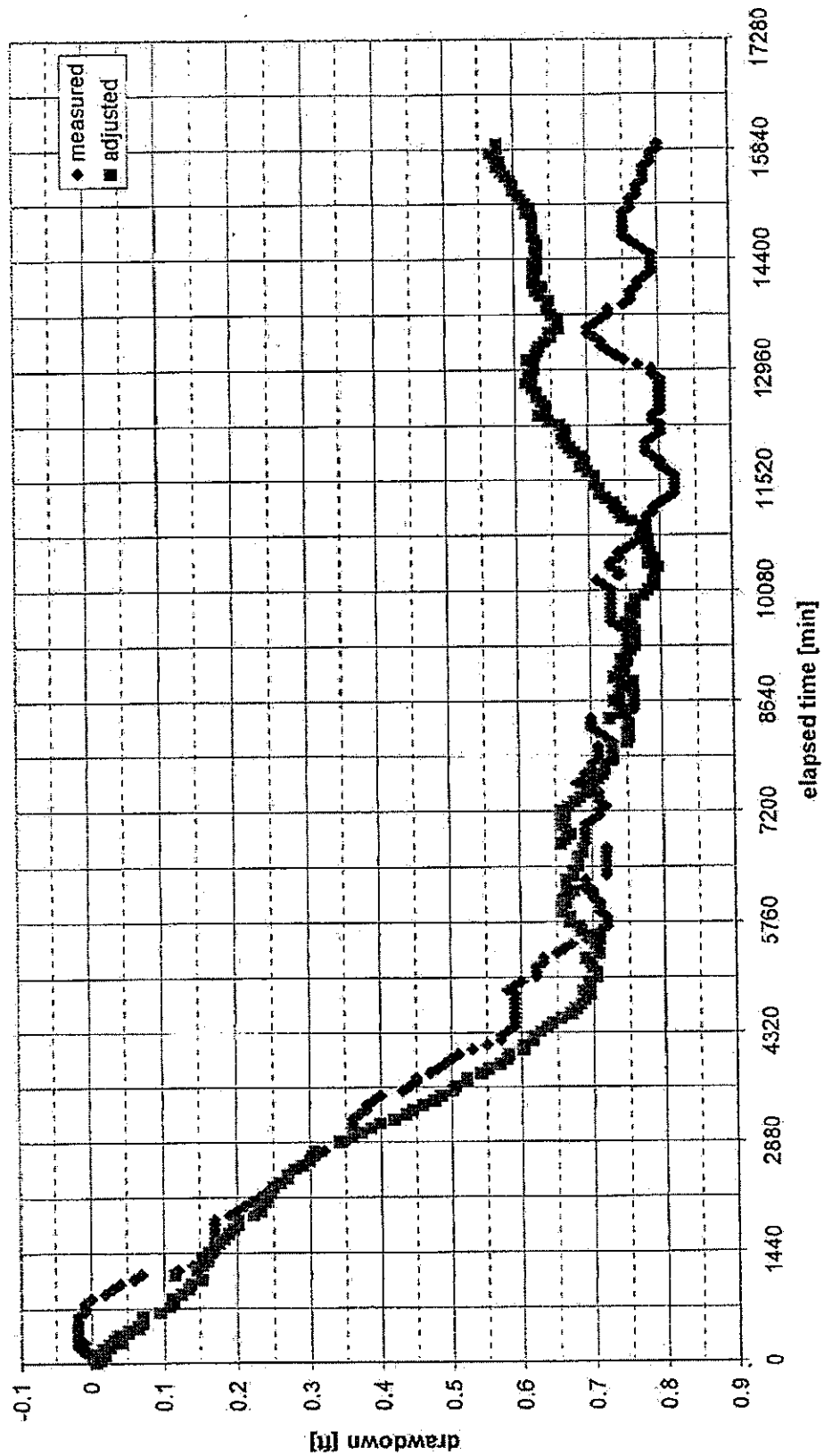


Drawdown and Recovery

SVR 8 Observation

Spring Valley Ranch

Test Date: April 14-25, 2004



OBSERVATION WELL SVR3

SANDY HILL AQUIFER TEST - OBSERVATION WELL SVR3

Well No: SVR 3, observation well for TPW1 aquifer test						
Test conducted by: SPF Water Engineering, LLC and Riverside, Inc						
Flow measured by: NA						
Water level measured by: Stevens chart recorder Water level measure point: top of casing						
MP Elev: Static DTW: 175.38' mp						
Pump on: 4/14/04 10:47:26 Pump off: 4/17/04 10:05						
Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/14/2004	10:48	0	0.00	0.00	0.00	measurements taken from Stevens chart recorder, verified with well sounder
4/14/2004	10:49	1	175.41	0.03	0.05	
4/14/2004	11:40	52	175.65	0.27	0.29	
4/14/2004	11:44	56	175.65	0.27	0.29	
4/14/2004	11:55	67	175.65	0.27	0.29	
4/14/2004	12:00	72	175.65	0.27	0.29	
4/14/2004	12:05	77	175.65	0.27	0.29	
4/14/2004	12:16	88	175.65	0.27	0.29	
4/14/2004	12:25	97	175.65	0.27	0.29	
4/14/2004	12:48	120	175.62	0.24	0.26	
4/14/2004	13:20	152	175.62	0.24	0.26	
4/14/2004	13:49	181	175.62	0.24	0.27	
4/14/2004	14:01	193	175.62	0.24	0.27	
4/14/2004	14:17	209	175.62	0.24	0.27	
4/14/2004	14:32	224	175.62	0.24	0.29	
4/14/2004	14:48	240	175.62	0.24	0.29	
4/14/2004	15:01	253	175.62	0.24	0.29	
4/14/2004	15:17	269	175.62	0.24	0.29	
4/14/2004	15:31	283	175.62	0.24	0.30	
4/14/2004	15:46	298	175.62	0.24	0.30	
4/14/2004	16:17	329	175.62	0.24	0.30	
4/14/2004	16:57	369	175.62	0.24	0.30	
4/14/2004	18:00	432	175.62	0.24	0.32	
4/14/2004	19:00	492	175.63	0.25	0.34	
4/14/2004	20:00	552	175.64	0.26	0.36	
4/14/2004	21:00	612	175.65	0.27	0.37	
4/14/2004	22:00	672	175.66	0.28	0.39	
4/14/2004	23:00	732	175.67	0.29	0.41	
4/15/2004	0:00	792	175.67	0.29	0.42	
4/15/2004	1:00	852	175.68	0.30	0.42	
4/15/2004	2:00	912	175.72	0.34	0.45	
4/15/2004	3:00	972	175.73	0.35	0.46	
4/15/2004	4:00	1032	175.75	0.37	0.47	
4/15/2004	5:00	1092	175.78	0.40	0.50	
4/15/2004	6:00	1152	175.80	0.42	0.47	
4/15/2004	7:00	1212	175.87	0.49	0.52	
4/15/2004	8:00	1272	175.90	0.52	0.54	
4/15/2004	9:00	1332	175.93	0.55	0.55	
4/15/2004	10:00	1392	175.93	0.55	0.55	
4/15/2004	11:00	1452	175.94	0.56	0.56	
4/15/2004	12:00	1512	175.94	0.56	0.56	
4/15/2004	13:00	1572	175.93	0.55	0.56	

Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/15/2004	14:00	1632	175.93	0.55	0.57	
4/15/2004	15:00	1692	175.93	0.55	0.57	
4/15/2004	16:00	1752	175.92	0.54	0.57	
4/15/2004	17:00	1812	175.92	0.54	0.58	
4/15/2004	18:00	1872	175.92	0.54	0.58	
4/15/2004	19:00	1932	175.94	0.56	0.60	
4/15/2004	20:00	1992	175.95	0.57	0.61	
4/15/2004	21:00	2052	175.98	0.60	0.62	
4/15/2004	22:00	2112	176.00	0.62	0.64	
4/15/2004	23:00	2172	176.01	0.63	0.65	
4/16/2004	0:00	2232	176.03	0.65	0.66	
4/16/2004	1:00	2292	176.03	0.65	0.65	
4/16/2004	2:00	2352	176.05	0.67	0.67	
4/16/2004	3:00	2412	176.06	0.68	0.68	
4/16/2004	4:00	2472	176.07	0.69	0.69	
4/16/2004	5:00	2532	176.08	0.70	0.70	
4/16/2004	6:00	2592	176.09	0.71	0.71	
4/16/2004	7:00	2652	176.10	0.72	0.72	
4/16/2004	8:00	2712	176.11	0.73	0.73	
4/16/2004	9:00	2772	176.13	0.75	0.74	
4/16/2004	10:00	2832	176.13	0.75	0.75	
4/16/2004	11:00	2892	176.13	0.75	0.75	
4/16/2004	12:00	2952	176.13	0.75	0.77	
4/16/2004	13:00	3012	176.13	0.75	0.78	
4/16/2004	14:00	3072	176.13	0.75	0.79	
4/16/2004	15:00	3132	176.12	0.74	0.80	
4/16/2004	16:00	3192	176.12	0.74	0.81	
4/16/2004	17:00	3252	176.13	0.75	0.82	
4/16/2004	18:00	3312	176.14	0.76	0.84	
4/16/2004	19:00	3372	176.15	0.77	0.86	
4/16/2004	20:00	3432	176.15	0.77	0.86	
4/16/2004	21:00	3492	176.18	0.80	0.88	
4/16/2004	22:00	3552	176.21	0.83	0.90	
4/16/2004	23:00	3612	176.22	0.84	0.92	
4/17/2004	0:00	3672	176.23	0.85	0.93	
4/17/2004	1:00	3732	176.24	0.86	0.94	
4/17/2004	2:00	3792	176.26	0.88	0.96	
4/17/2004	9:34	4246	176.36	0.98	1.03	
4/17/2004	10:00	4272	176.35	0.97	1.02	
4/17/2004	10:03	4275	176.34	0.96	1.01	
4/17/2004	10:06	4278	176.29	0.91	0.96	
4/17/2004	10:09	4281	176.26	0.88	0.93	
4/17/2004	10:12	4284	176.25	0.87	0.92	
4/17/2004	10:15	4287	176.25	0.87	0.92	
4/17/2004	10:19	4291	176.23	0.85	0.90	
4/17/2004	10:30	4302	176.22	0.84	0.89	
4/17/2004	10:45	4317	176.21	0.83	0.88	
4/17/2004	11:00	4332	176.21	0.83	0.88	
4/17/2004	12:00	4392	176.20	0.82	0.88	
4/17/2004	13:00	4452	176.17	0.79	0.86	

Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/17/2004	14:00	4512	176.16	0.78	0.86	
4/17/2004	15:00	4572	176.15	0.77	0.86	
4/17/2004	16:00	4632	176.14	0.76	0.86	
4/17/2004	17:00	4692	176.13	0.75	0.85	
4/17/2004	18:00	4752	176.12	0.74	0.85	
4/17/2004	18:50	4802	176.12	0.74	0.85	
4/17/2004	20:00	4872	176.12	0.74	0.85	
4/17/2004	21:00	4932	176.12	0.74	0.84	
4/17/2004	22:00	4992	176.14	0.76	0.85	
4/17/2004	23:00	5052	176.16	0.78	0.87	
4/18/2004	0:00	5112	176.15	0.77	0.85	
4/18/2004	1:00	5172	176.15	0.77	0.84	
4/18/2004	2:00	5232	176.16	0.78	0.84	
4/18/2004	3:00	5292	176.16	0.78	0.84	
4/18/2004	4:00	5352	176.16	0.78	0.83	
4/18/2004	5:00	5412	176.18	0.80	0.84	
4/18/2004	6:00	5472	176.19	0.81	0.83	
4/18/2004	7:00	5532	176.20	0.82	0.82	
4/18/2004	8:00	5592	176.22	0.84	0.82	
4/18/2004	9:00	5652	176.24	0.86	0.82	
4/18/2004	10:00	5712	176.24	0.86	0.81	
4/18/2004	11:00	5772	176.24	0.86	0.81	
4/18/2004	12:00	5832	176.24	0.86	0.81	
4/18/2004	13:00	5892	176.22	0.84	0.79	
4/18/2004	14:00	5952	176.20	0.82	0.78	
4/18/2004	15:00	6012	176.19	0.81	0.77	
4/18/2004	16:00	6072	176.17	0.79	0.76	
4/18/2004	17:00	6132	176.16	0.78	0.76	
4/18/2004	17:48	6180	176.16	0.78	0.76	
4/18/2004	18:00	6192	176.16	0.78	0.76	
4/18/2004	19:00	6252	176.16	0.78	0.76	
4/18/2004	20:00	6312	176.16	0.78	0.76	
4/18/2004	21:00	6372	176.16	0.78	0.74	
4/18/2004	22:00	6432	176.18	0.80	0.76	
4/18/2004	23:00	6492	176.17	0.79	0.75	
4/19/2004	0:00	6552	176.16	0.78	0.74	
4/19/2004	1:00	6612	176.16	0.78	0.74	
4/19/2004	2:00	6672	176.15	0.77	0.74	
4/19/2004	3:00	6732	176.15	0.77	0.74	
4/19/2004	4:00	6792	176.14	0.76	0.73	
4/19/2004	5:00	6852	176.14	0.76	0.74	
4/19/2004	6:00	6912	176.14	0.76	0.74	
4/19/2004	7:00	6972	176.14	0.76	0.74	
4/19/2004	8:00	7032	176.14	0.76	0.73	
4/19/2004	9:00	7092	176.14	0.76	0.72	
4/19/2004	10:00	7152	176.15	0.77	0.73	
4/19/2004	11:00	7212	176.16	0.78	0.73	
4/19/2004	12:00	7272	176.17	0.79	0.74	
4/19/2004	13:00	7332	176.15	0.77	0.74	
4/19/2004	14:00	7392	176.13	0.75	0.73	

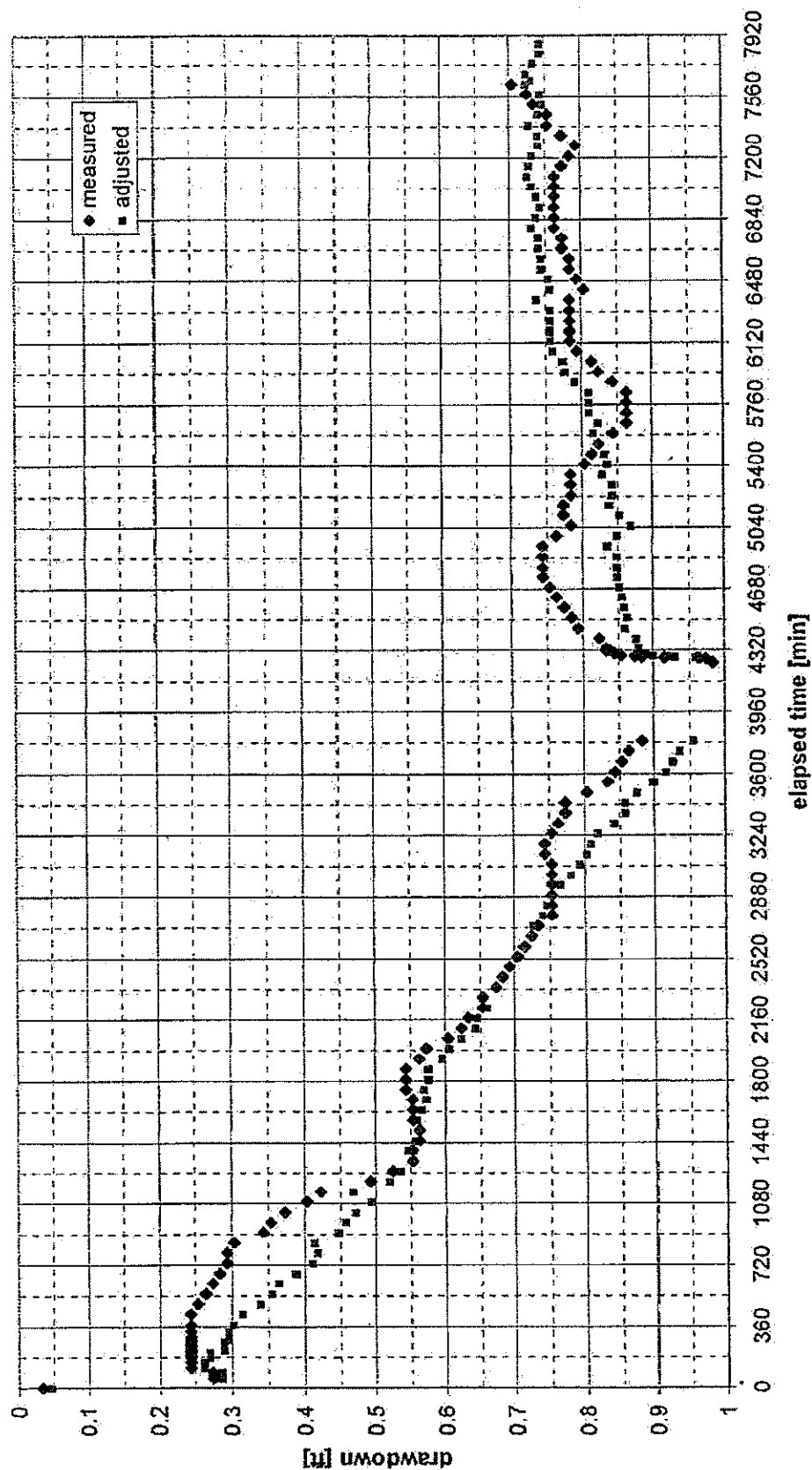
Date	Time	t [min]	DTW [ft]	Drawdown [ft]	BE Drawdown [ft]	Comments
4/19/2004	15:00	7452	176.13	0.75	0.74	
4/19/2004	16:00	7512	176.11	0.73	0.75	
4/19/2004	17:00	7572	176.10	0.72	0.74	
4/19/2004	18:00	7632	176.08	0.70	0.72	
4/19/2004	18:22	7654	176.08	0.70	0.73	
4/19/2004	19:00	7692	176.08	0.70	0.72	
4/19/2004	20:00	7752	176.09	0.71	0.73	
4/19/2004	21:00	7812	176.10	0.72	0.74	
4/19/2004	22:00	7872	176.10	0.72	0.74	
4/19/2004	23:00	7932	176.10	0.72	0.74	
4/20/2004	0:00	7992	176.10	0.72	0.74	
4/20/2004	1:00	8052	176.10	0.72	0.74	
4/20/2004	2:00	8112	176.11	0.73	0.77	
4/20/2004	3:00	8172	176.11	0.73	0.77	
4/20/2004	5:00	8292	176.08	0.70	0.76	
4/20/2004	6:00	8352	176.08	0.70	0.76	
4/20/2004	7:00	8412	176.07	0.69	0.72	
4/20/2004	8:00	8472	176.13	0.75	0.75	
4/20/2004	9:00	8532	176.16	0.78	0.77	
4/20/2004	10:00	8592	176.16	0.78	0.76	
4/20/2004	11:00	8652	176.17	0.79	0.77	
4/20/2004	12:00	8712	176.16	0.78	0.76	
4/20/2004	13:00	8772	176.16	0.78	0.78	
4/20/2004	14:00	8832	176.13	0.75	0.77	
4/20/2004	15:00	8892	176.12	0.74	0.76	
4/20/2004	16:00	8952	176.12	0.74	0.74	
4/20/2004	17:00	9012	176.12	0.74	0.75	
4/20/2004	18:00	9072	176.12	0.74	0.75	
4/20/2004	19:00	9132	176.12	0.74	0.74	
4/20/2004	20:12	9204	176.12	0.74	0.74	
4/20/2004	21:00	9252	176.12	0.74	0.74	
4/20/2004	22:00	9312	176.12	0.74	0.75	
4/20/2004	23:00	9372	176.11	0.73	0.75	
4/21/2004	0:00	9432	176.11	0.73	0.75	
4/21/2004	1:00	9492	176.11	0.73	0.75	
4/21/2004	2:00	9552	176.11	0.73	0.75	
4/21/2004	3:00	9612	176.09	0.71	0.73	
4/21/2004	4:00	9672	176.10	0.72	0.74	
4/21/2004	12:00	10152	176.08	0.70	0.78	
4/21/2004	13:00	10212	176.06	0.68	0.76	
4/21/2004	14:00	10272	176.08	0.70	0.76	
4/21/2004	15:00	10332	176.10	0.72	0.78	
4/21/2004	16:00	10392	176.10	0.72	0.79	
4/21/2004	17:00	10452	176.09	0.71	0.77	
4/21/2004	17:00	10452	176.09	0.71	0.77	
4/21/2004	19:07	10579	176.11	0.73	0.78	
6/18/2004			175.96			

Drawdown and Recovery

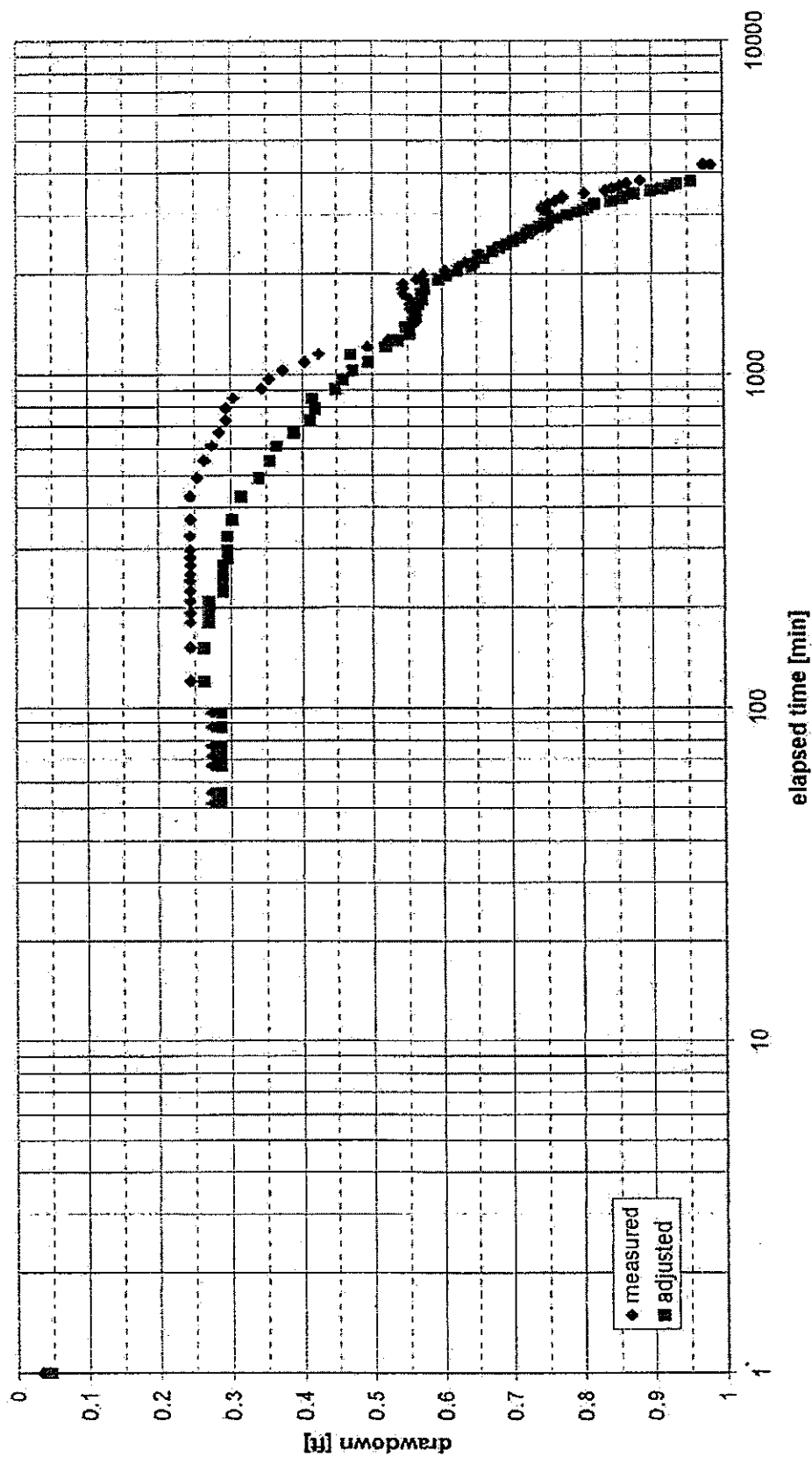
SVR 3 Observation

Spring Valley Ranch

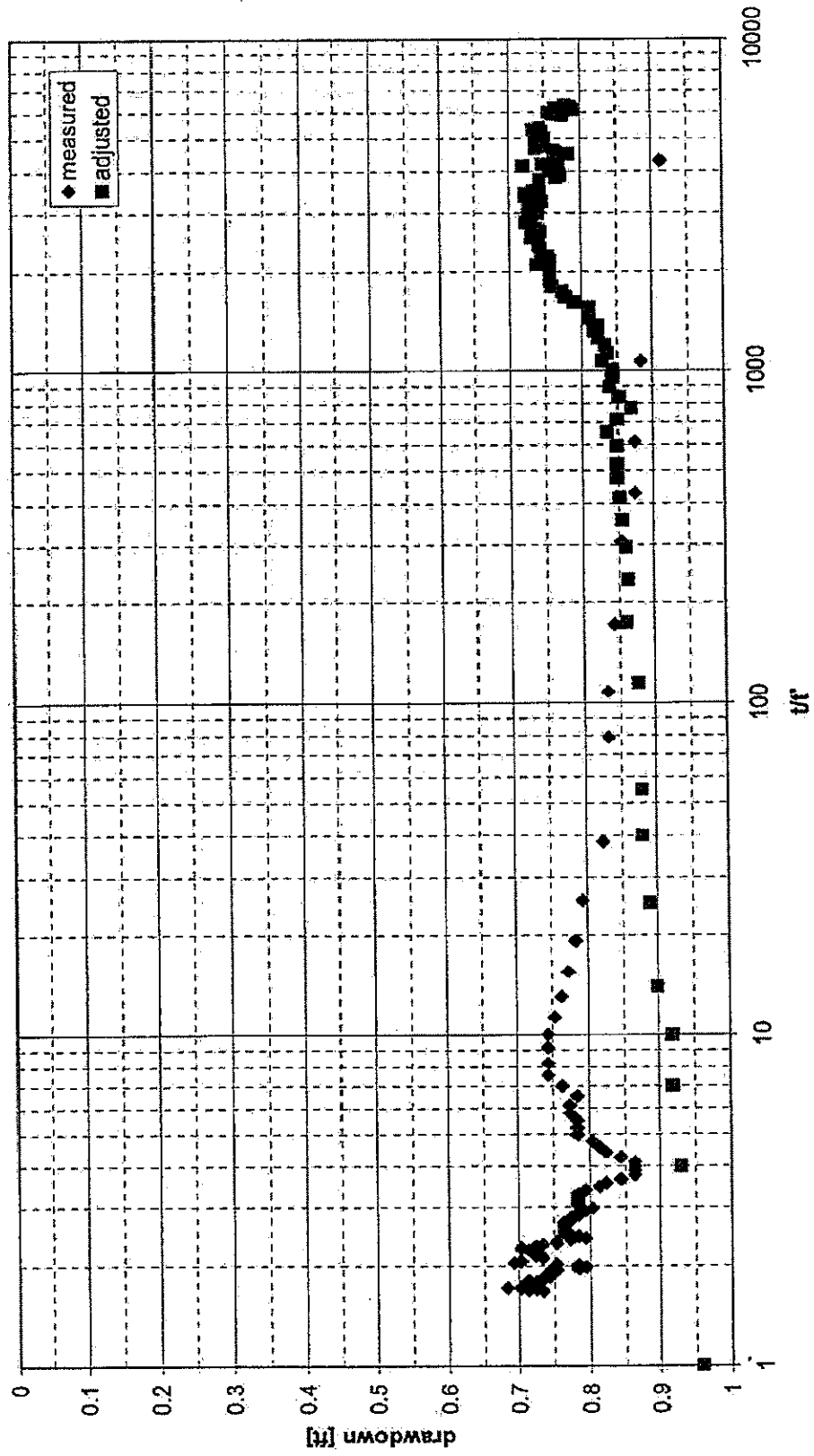
Test Date: April 14-21, 2004



Time - Drawdown
SVR 3 Observation
Spring Valley Ranch
Test Date: April 14-21, 2004



Recovery
SVR 3 Observation
Spring Valley Ranch
Test Date: April 14-21, 2004



TPW1 STEP TEST - OBSERVATION WELL SVR 3

Well No: SVR 3, Spring Valley Ranch						
Test conducted by: SPF Water Engineering, LLC and Riverside, Inc						
Flow measured by: Orifice and manometer						
Water level measured by: well sounder			Water level measure point: top of tube			
MP Elev: Static DTW: 175.29' mp						
Pump on: 4/12/04 14:44		Pump off: 4/12/04 17:00				
Date	Time	t [min]	DTW [ft]	Drawdown [ft]	Comments	
04/12/04	11:18:00		175.3			
04/12/04	14:18:00		175.28			
04/12/04	14:32:00		175.35	0.06		
04/12/04	14:46:00		175.38	0.09		
04/12/04	15:08:00		175.6	0.31		
04/12/04	15:33:00		175.6	0.31		
04/12/04	15:55:00		175.6	0.31		
04/12/04	16:23:00		175.45	0.16		
04/12/04	16:38:00		175.53	0.24		
04/12/04	16:49:00		175.56	0.27		
04/12/04	16:56:00		175.6	0.31		
04/12/04	17:29:00		175.3	0.01		

HILLSIDE SPRING

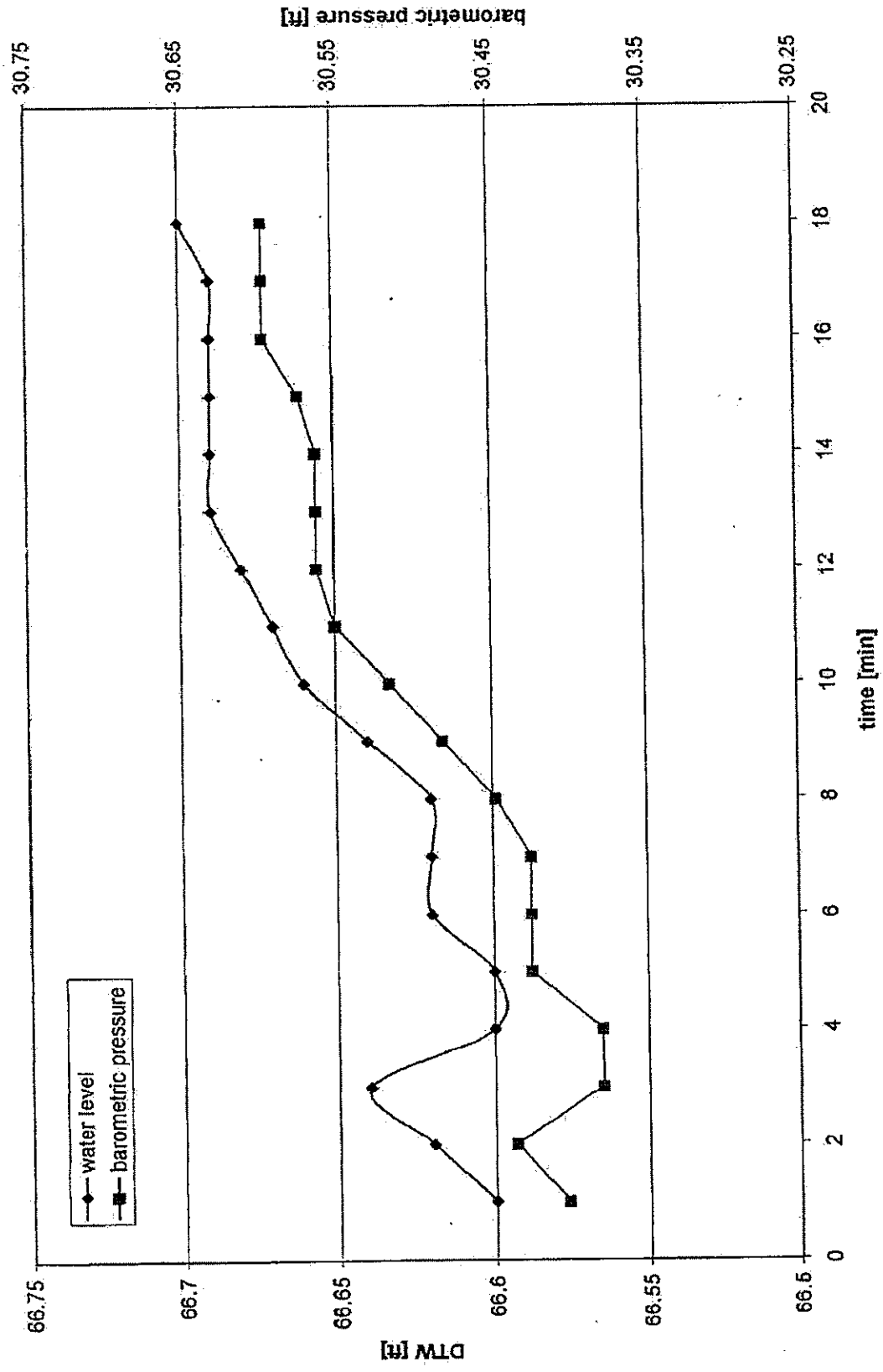
TPW1 AQUIFER TEST - SPRING DISCHARGE MEASUREMENTS

Site: Sandy Hill Spring Qave = 2000 gpm			
Test conducted by: SPF Water Engineering, LLC			
Flow measured by: 6 gallon bucket and stop watch			
Pump on: 4/14/04 10:47:26 Pump off: 4/17/04 10:05			
Date	Time	t [min]	Q [gpm]
04/14/04	9:45	7.1	51
04/14/04	13:30	7.1	51
04/14/04	18:00	6.6	55
04/15/04	20:50	6.8	53
04/16/04	11:30	8.1	44
04/16/04	11:30	8.1	44
04/18/04	18:10	6.6	55
04/21/04	20:25	7.0	51

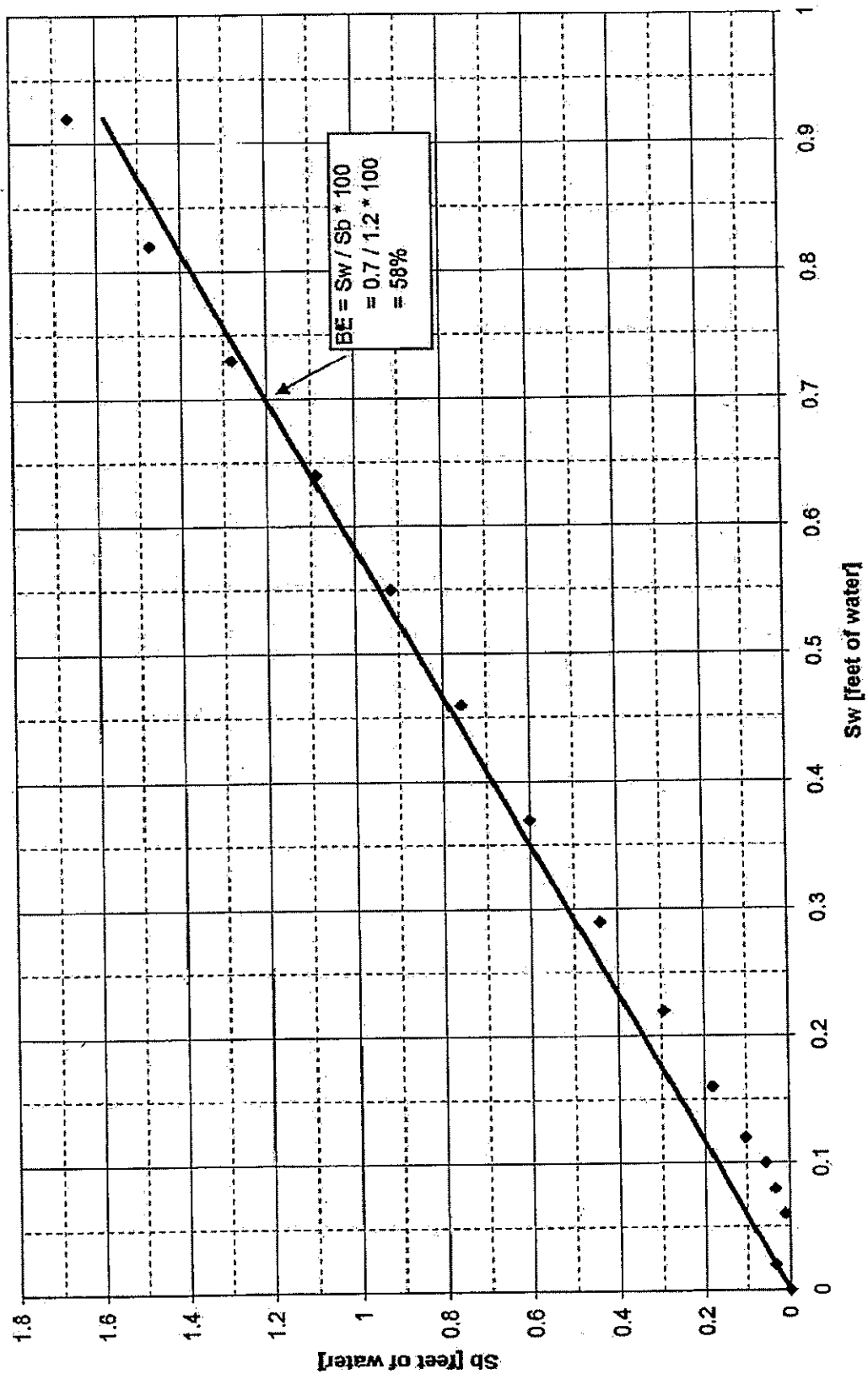
Comments

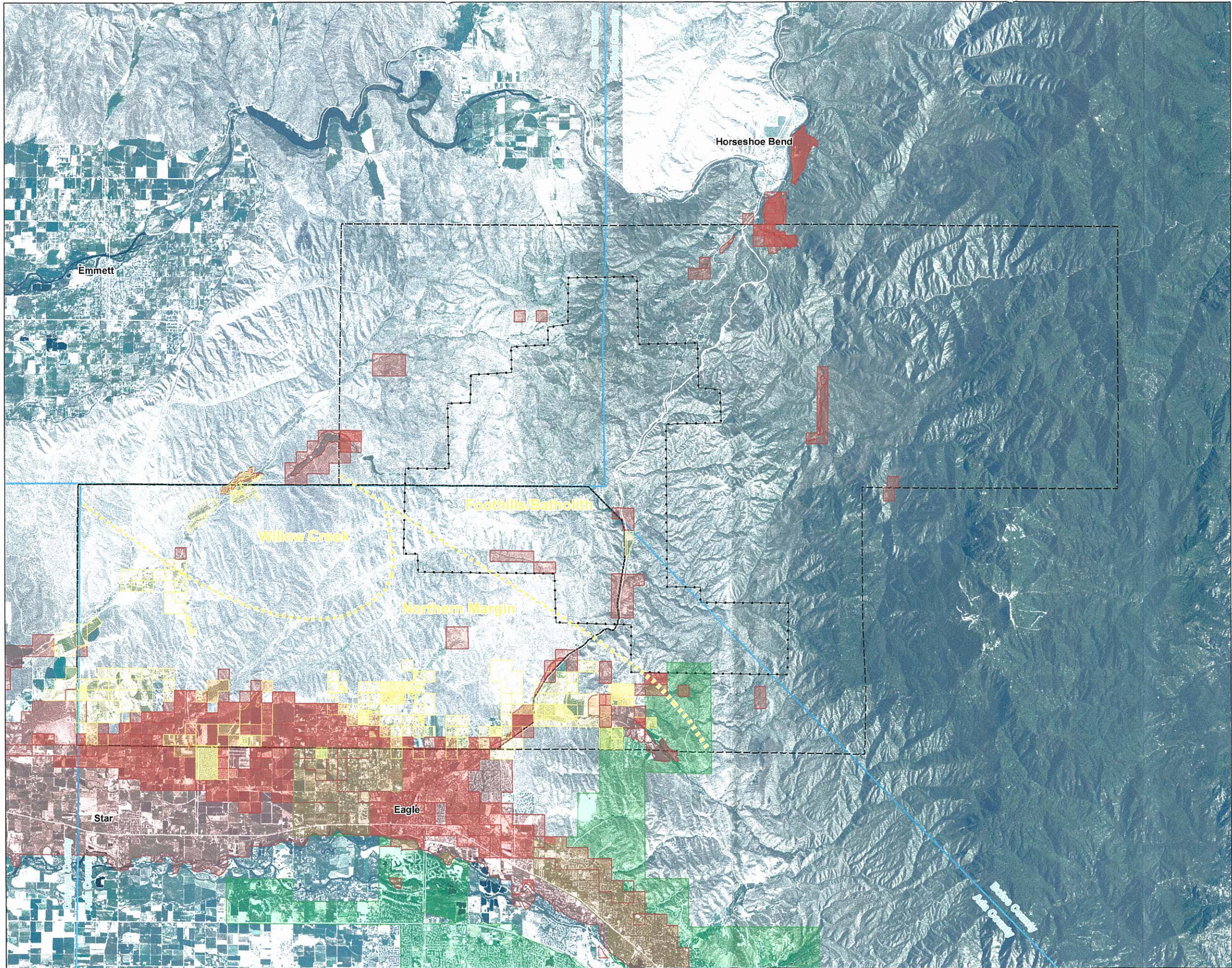
BAROMETRIC DATA

Pre-pump test changes in water level and barometric pressure for SVR8



Relationship Between Barometric Pressure and Water Level





Water Rights Map
for the Avimor and
Spring Valley Ranch
Resource Area

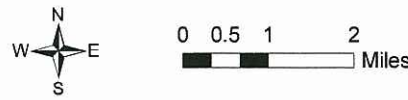
- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)

Water Right Claims, Permits,
or Licenses Place of Use

- Irrigation with surface water
- Irrigation with ground water
- Municipal

Approximate Aquifer Boundaries

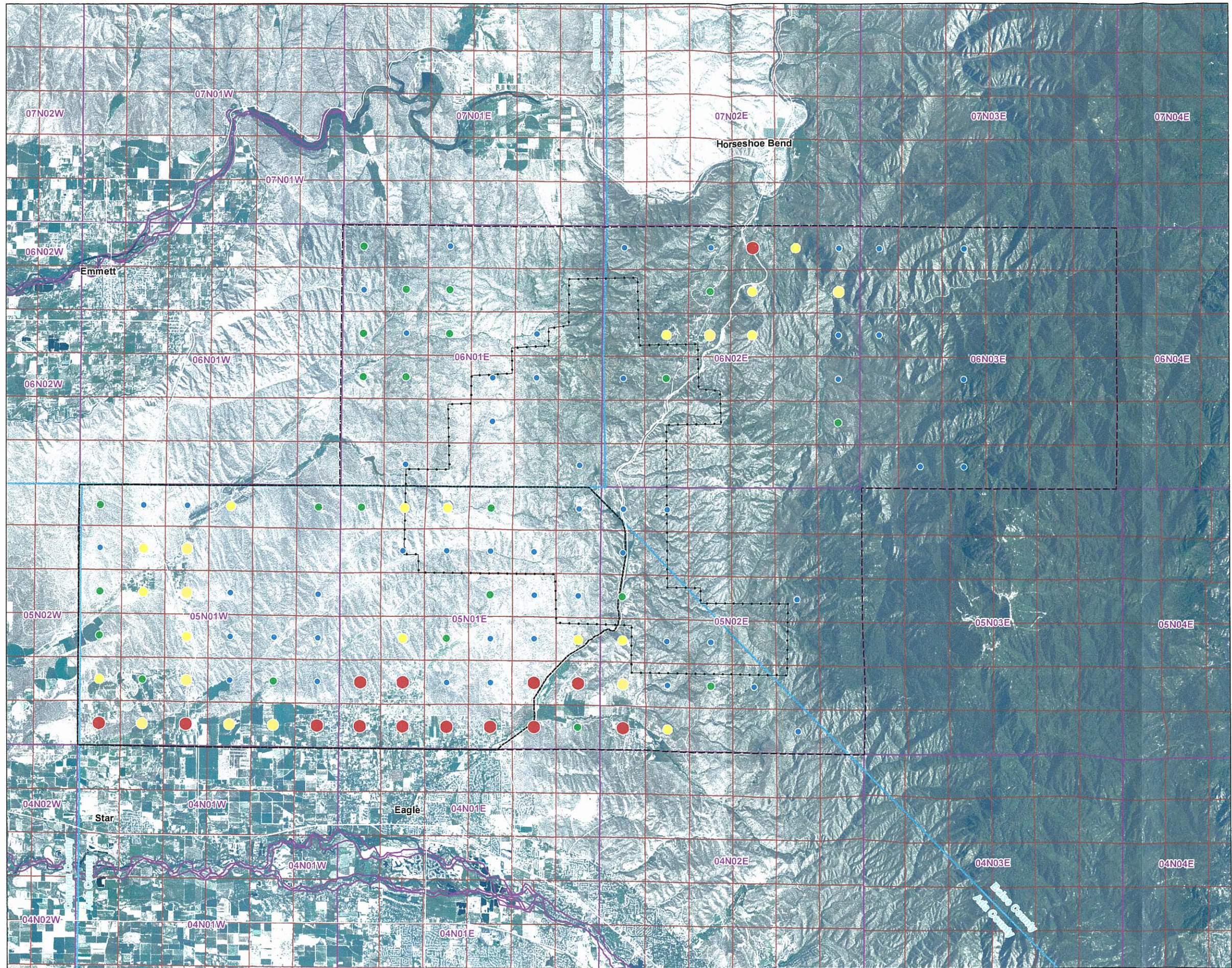
Department of Water Resources
APPLICANT'S
Exhibit 30
Date Admitted 10-31-06
ky



Date: October 19, 2006

Notes:
- Property boundary information is approximate.

Sources:
- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
- Water rights place of use based on the Idaho Department of Water Resources shapefiles.



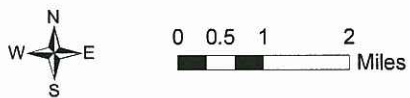
Well Density Map
for the Avimor and
Spring Valley Ranch
Resource Area

- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)
- Sections
- Township Range

Wells per Section

- 1 to 2
- 3 to 5
- 6 to 10
- 11 to 20
- Greater than 20

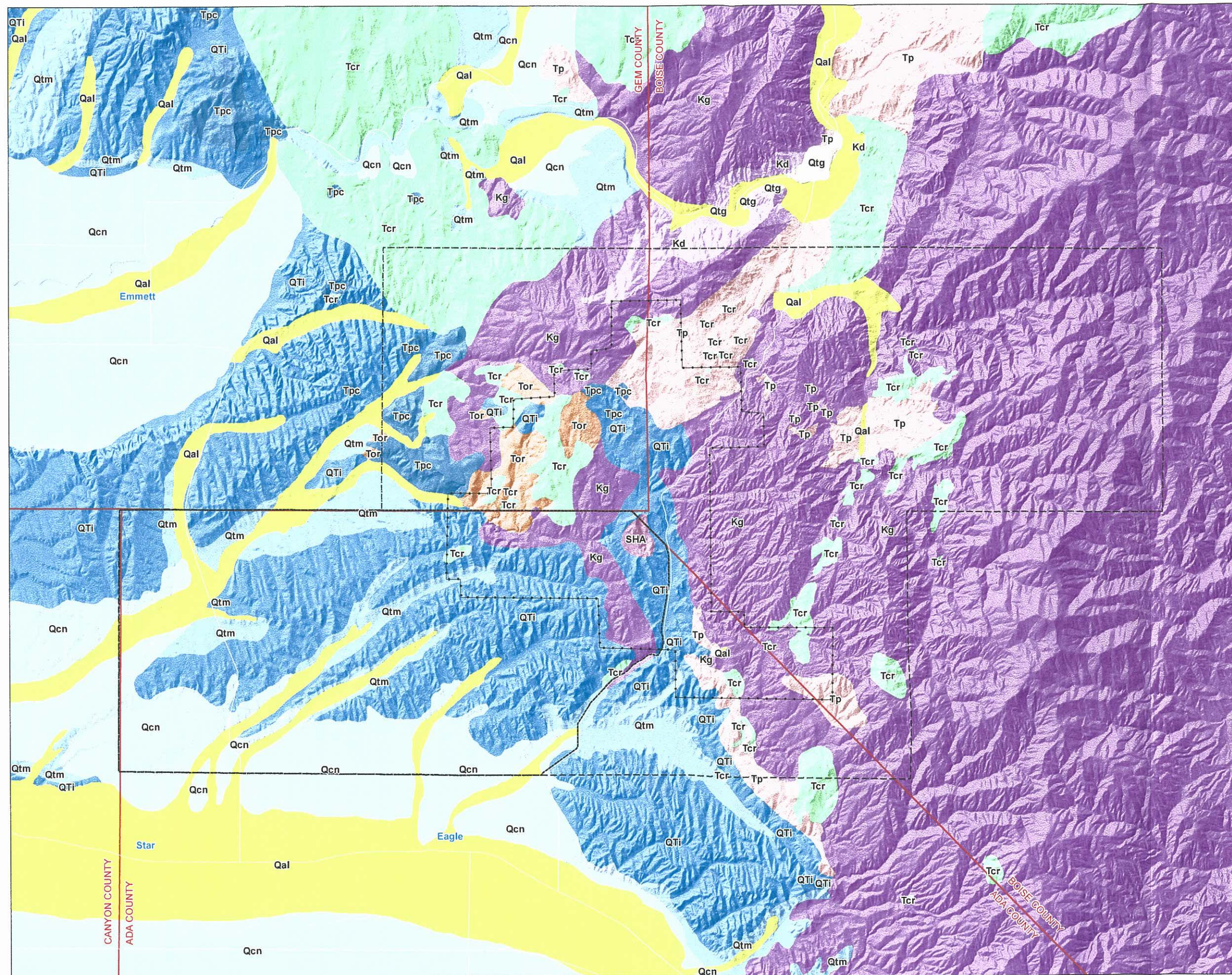
Department of Water Resources
APPLICANT'S
Exhibit 31
Date Admitted 10-31-06
DAN



Date: January 20, 2006

Notes:
- Property boundary information is approximate.

Sources:
- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
- Well information was generated from the Idaho Department of Water Resources online database.



Geologic Map for the Avimor and Spring Valley Ranch Resource Area

- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)

Geologic Units

- Qal - Stream alluvium
- Qls - Landslide deposits
- Qtg - Terrace gravels
- Qsr - Snake River basalts
- Qcn - Caldwell-Nampa sediments
- Qtm - Tenmile Gravel
- QTI - Idaho Formation
- Tpc - Poison Creek Formation
- Tor - Owyhee Rhyolite
- Tcr - Columbia River Basalt
- Tp - Payette Formation
- Kg - Idaho Batholith
- Kd - Diorite
- SHA - Sandy Hill Aquifer



0 0.5 1 2 Miles

Date: January 20, 2006

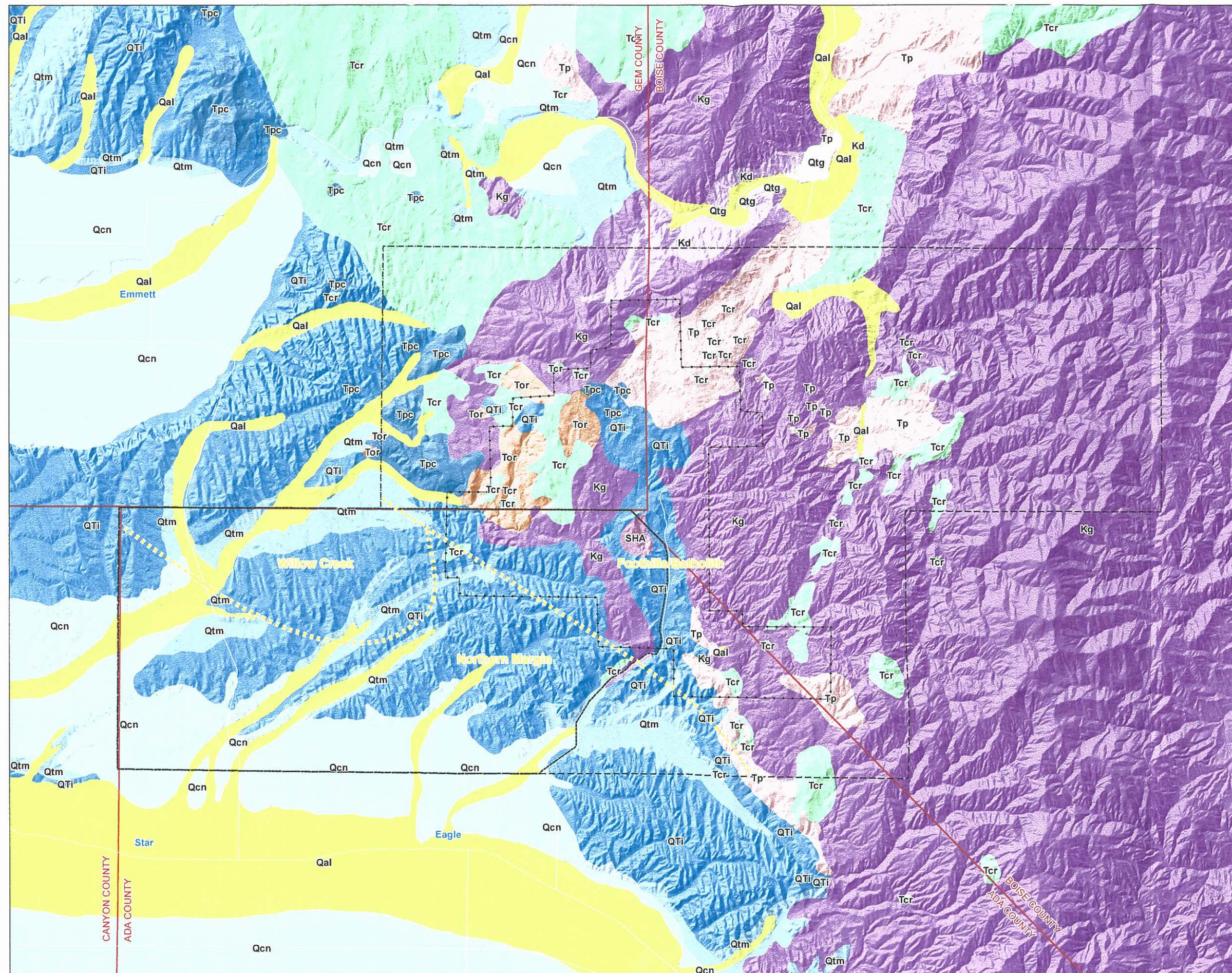
Notes:

- Property boundary information is approximate.

Sources:

- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
- Geology modified from Mitchell and Bennett, 1979.

Department of Water Resources
APPLICANT'S
Exhibit 32
Date Admitted 10-31-06
JAN



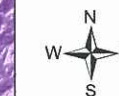
Aquifer Boundaries Map for the Avimor and Spring Valley Ranch Resource Area

- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)

Geologic Units

- Qal - Stream alluvium
- Qls - Landslide deposits
- Qtg - Terrace gravels
- Qsr - Snake River basalts
- Qcn - Caldwell-Nampa sediments
- Qtm - Tenmile Gravel
- QTI - Idaho Formation
- Tpc - Poison Creek Formation
- Tor - Owyhee Rhyolite
- Tcr - Columbia River Basalt
- Tp - Payette Formation
- Kg - Idaho Batholith
- Kd - Diorite
- SHA - Sandy Hill Aquifer

..... Aquifer Boundaries



Date: January 20, 2006

- Notes:
- Property boundary information is approximate.
 - Aquifer boundaries are approximate.

Sources:

- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
- Geology modified from Mitchell and Bennett, 1979.

Department of Water Resources
APPLICANT'S
Exhibit 33
Date Admitted 10-31-06
DAW

Hydrologic Sub-Basin Map for the Avimor and Spring Valley Ranch Resource Area

- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)
- Sub-Basin Boundary Delineating
Payette-Boise Tributaries
- Sub-Basin Boundaries
- Sub-Basin Surface Water Flow Direction

Department of Water Resources

APPLICANT'S

Exhibit 34

Date Admitted 10-31-06

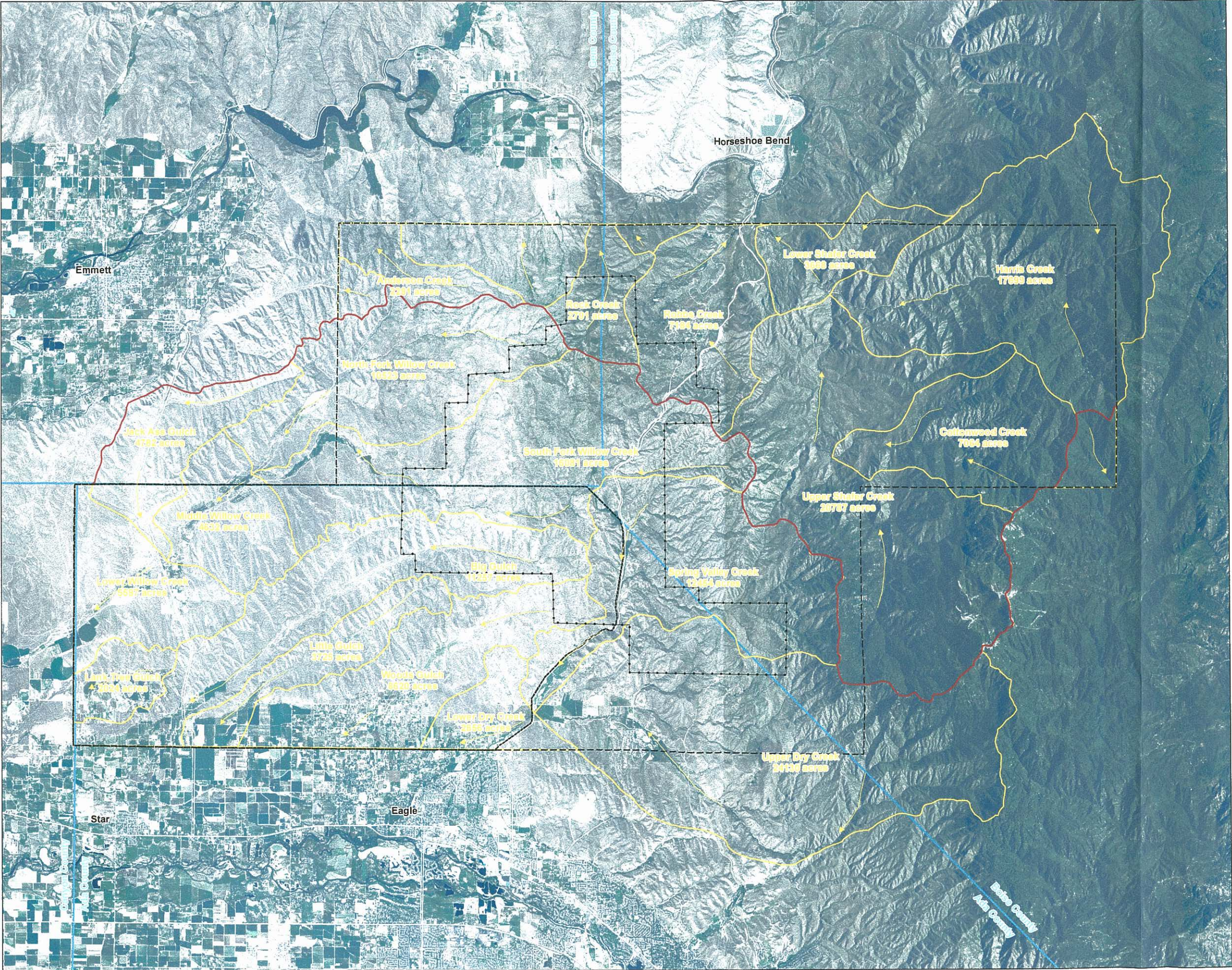
DAN

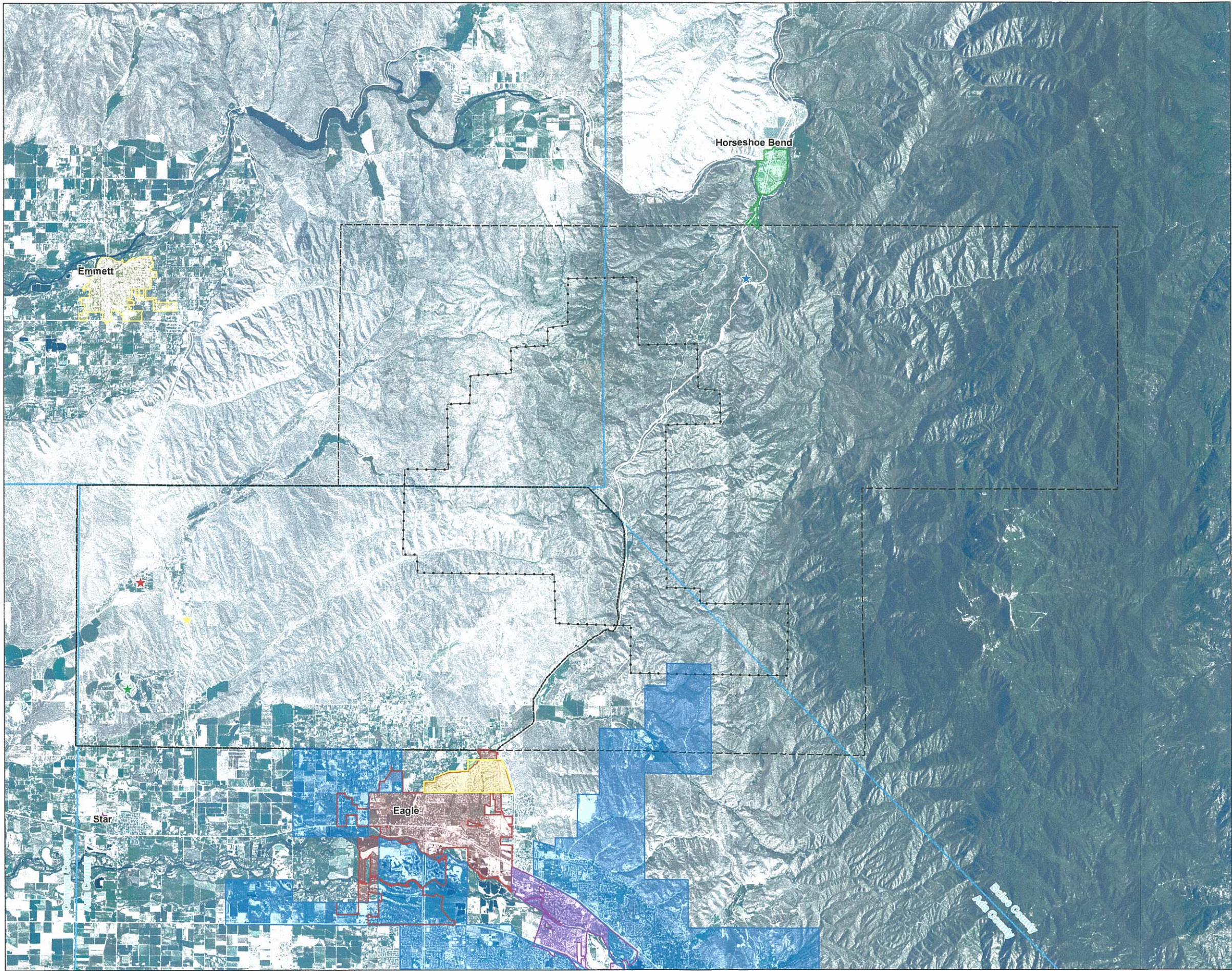


Date: January 20, 2006

- Notes:
- Property boundary information is approximate.
 - Sub-basins are approximate.

- Sources:
- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
 - Sub-basins based on USGS 7.5-minute quadrangle maps.





Public Water Systems Map
for the Avimor and
Spring Valley Ranch
Resource Area

- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)

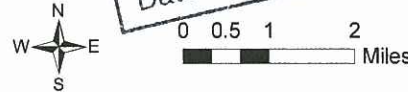
Public Water Systems (service area unknown)

- D L Hanley Tracts
- Highplains Estates
- Hillsdale Estates
- Horseshu Vue
- Star Water & Sewer

Municipal System Service Area

- Eagle Water Company
- Emmett
- Horseshoe Bend
- United Water Idaho
- Garden City
- City of Eagle

Department of Water Resources
APPLICANT'S
Exhibit 35
Date Admitted 10-31-06
My

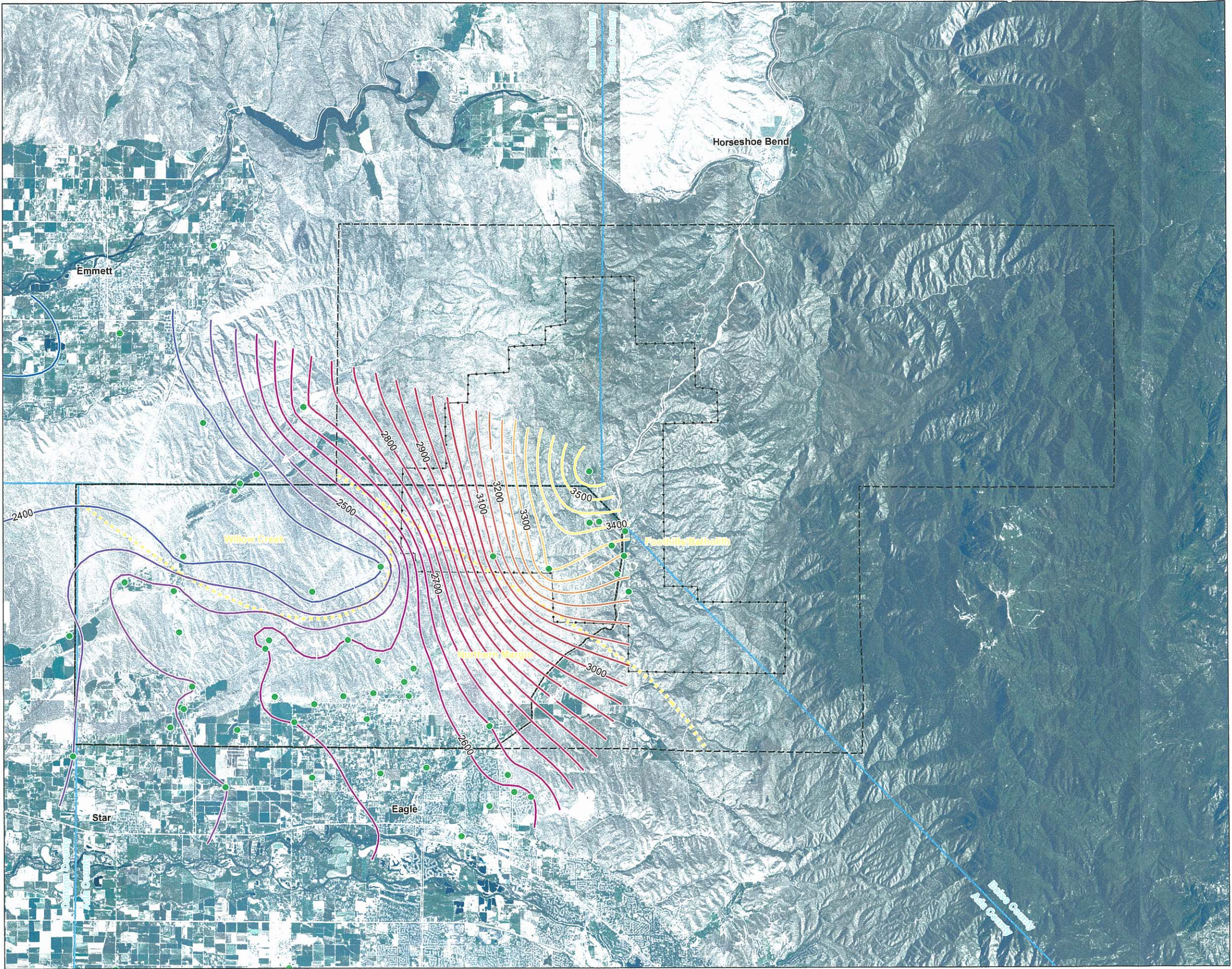


Date: January 20, 2006

- Notes:
- Property boundary information is approximate.
 - Service areas are approximate.

Sources:

- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.



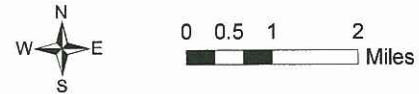
Ground Water Contour Map
for the Avimor and
Spring Valley Ranch
Resource Area

- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)
- Aquifer Boundaries
- Wells for Deriving Ground Water Contours
- Approximate Ground Water Flow Direction (white)

Ground Water Elevation (ft)

2350	3000
2400	3050
2450	3100
2500	3150
2550	3200
2600	3250
2650	3300
2700	3350
2750	3400
2800	
2850	
2900	3550
2950	

Idaho Department of Water Resources
APPLICANT'S
Exhibit 36
Date Admitted 10-31-06
DAN



Date: January 20, 2006

- Notes:
- Property boundary information is approximate.
 - Aquifer boundaries are approximate.

Sources:

- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
- Contours derived from the Idaho Department of Water Resources well database.

Design File Note

Title: Design Flows - Public Water Systems

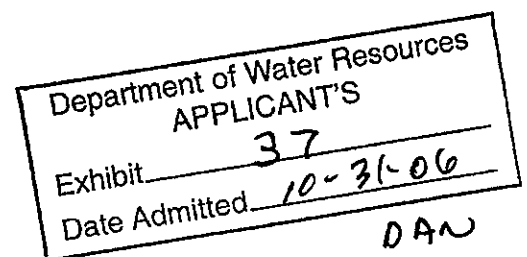
Date: July 2, 1999

By: Monty G. Marchus, P.E., Staff Engineer
Idaho Division of Environmental Quality, Boise Regional Office

Preface: The general requirements for all aspects of public water systems are found in the *Idaho Rules for Public Drinking Water Systems* (IRPDWS) and the *Recommended Standards for Water Works* (RSWW). Please refer directly to the rules and standards on all projects, but recognize that they do not cover all issues and may require interpretation. For proper application, this Design File Note supplements the rules and standards by summarizing Boise Regional Office considerations and responses to common questions. Properly justified site specific decisions can be made. Suggestions to improve this Design File Note are welcome. This Design File Note may be updated occasionally, so please refer to the issue date for the current version.

Design Assistance:

- I. General Comments: All public water systems should be in one of the following categories. If a water system cannot provide peak hour and fireflow (if any) with production facilities, then equalization storage is required (see the Design File Note entitled *Reservoir Sizing - Public Water Systems*). Include an appropriate factor for system losses (typically 10% to 20%). The larger figure is required for restricted irrigation systems.
- II. Expansion of existing systems:
 - A. Whenever possible, design flows for residential water systems should be based on past records or studies of similar water use in the area to be served. Factors to be considered include lot size, climate, extent of use of the drinking water systems for irrigation, fire demands, water rate structures, physical characteristics, and other characteristics of the service area that may influence water usage. An engineering report shall be submitted to the Boise Regional Office which includes the records, studies, and considerations used in arriving at average day, maximum day, and peak hourly flows.
 - B. The pressure and fireflow requirements for expansions are site specific. Please refer to the Design File Note entitled *Pressure Requirements - Public Water Systems*.
- III. Nonresidential public water systems:



$2 \sigma_{mxdy}$ = Variability in the magnitude of factors and the number of dwelling units.

$$\sigma_{mxdy}^2 = \sigma_1^2 + \sigma_2^2$$

$$\sigma_1^2 = 1090 + 166,000 L_s^2$$

$$\sigma_2^2 = \frac{5.48 * 10^6}{a}$$

a = Number of Dwelling units

Equation 2: $Q_{pkhr} = 334 + 2.02 [274 + (0.6)(c)(L_s)(E_{pot})] + 2 \sigma_{pkhr} a$

Q_{pkhr} = Peak use for an expected one hour duration in gallons/day

$$\sigma_{pkhr}^2 = \sigma_3^2 + \sigma_4^2$$

$$\sigma_3^2 = 4.08 (\sigma_1)^2$$

$$\sigma_4^2 = \frac{12.3 * 10^6}{a}$$

Note 1: To simplify these calculations, Table 1 provides the values for Q_{mxdy} and Q_{pkhr} for selected values of the key variables: number of dwelling units (a), and housing density (W).

Note 2: The original Equation 2 had variables for house value and a general increase in use of 2% per year. The Boise Regional Office simplified equation assumes an in-house use of 274 gpd which is derived from the original equation using an average house value of \$40,000 in 1976. The simplified equations ignore the 2% yearly increase. Because irrigation and fireflow are dominant, errors are expected to be small. However, the developer and designer may wish to use more conservative criteria.

Note 3: Per the IRPDWS § 552.01.c.i, the public water system is not required to provide irrigation water for more than one acre per dwelling, although the developer and designer may chose to do so.

Note 4: Because many factors affect water usage, the equations should be applied with the judgment and experience of the designer. Other models, or recommended design flows, may be used if they take into account the characteristics of the service area that may affect water usage.

TABLE 1

Qmxdy and Qpkhr for Selected Values of a and W (metered systems)

a
(# of houses)

W (Houses per acre)

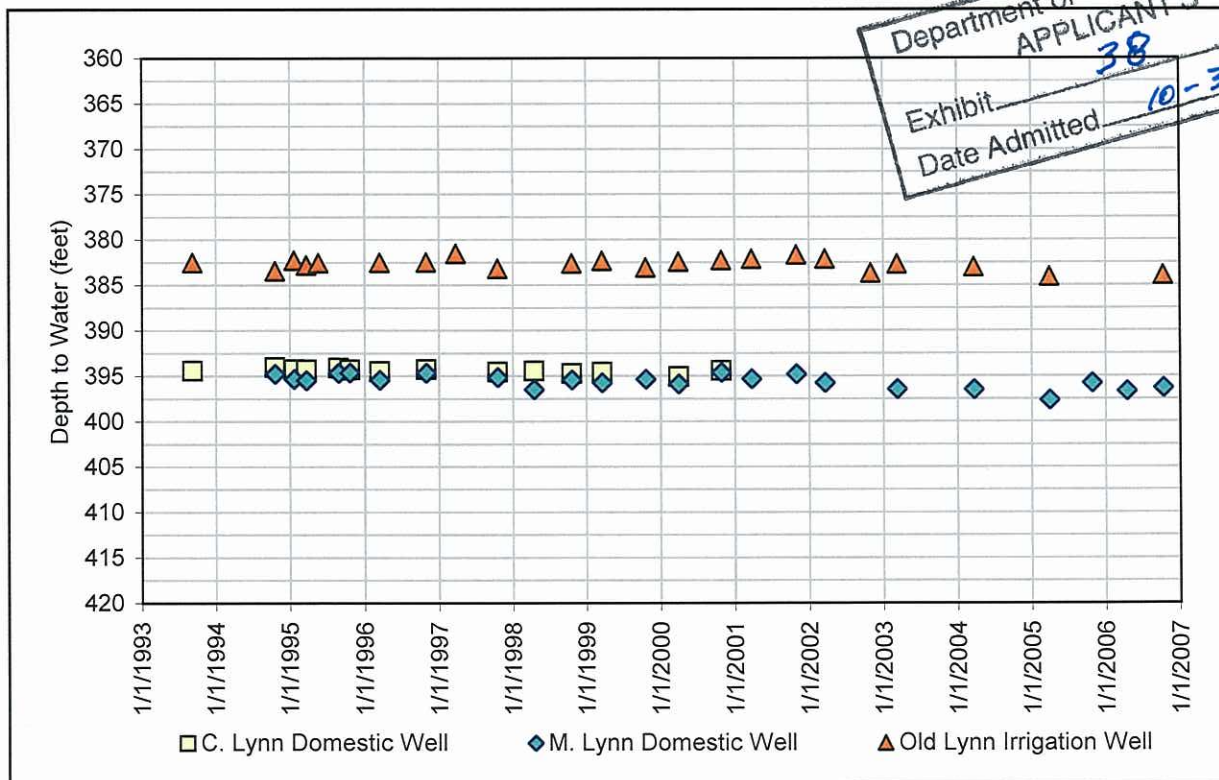
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
20	Qmxdy	72	40	31	27
	Qpkhr	144	78	60	52
30	Qmxdy	105	56	43	37
	Qpkhr	211	112	85	73
40	Qmxdy	137	72	54	46
	Qpkhr	279	145	109	92
50	Qmxdy	169	88	65	55
	Qpkhr	346	178	132	111
60	Qmxdy	202	103	76	64
	Qpkhr	413	210	155	130
70	Qmxdy	234	118	87	72
	Qpkhr	480	243	178	149
80	Qmxdy	266	133	97	81
	Qpkhr	547	275	200	167
90	Qmxdy	298	148	107	89
	Qpkhr	614	307	223	185
100	Qmxdy	330	163	118	97
	Qpkhr	681	339	245	203

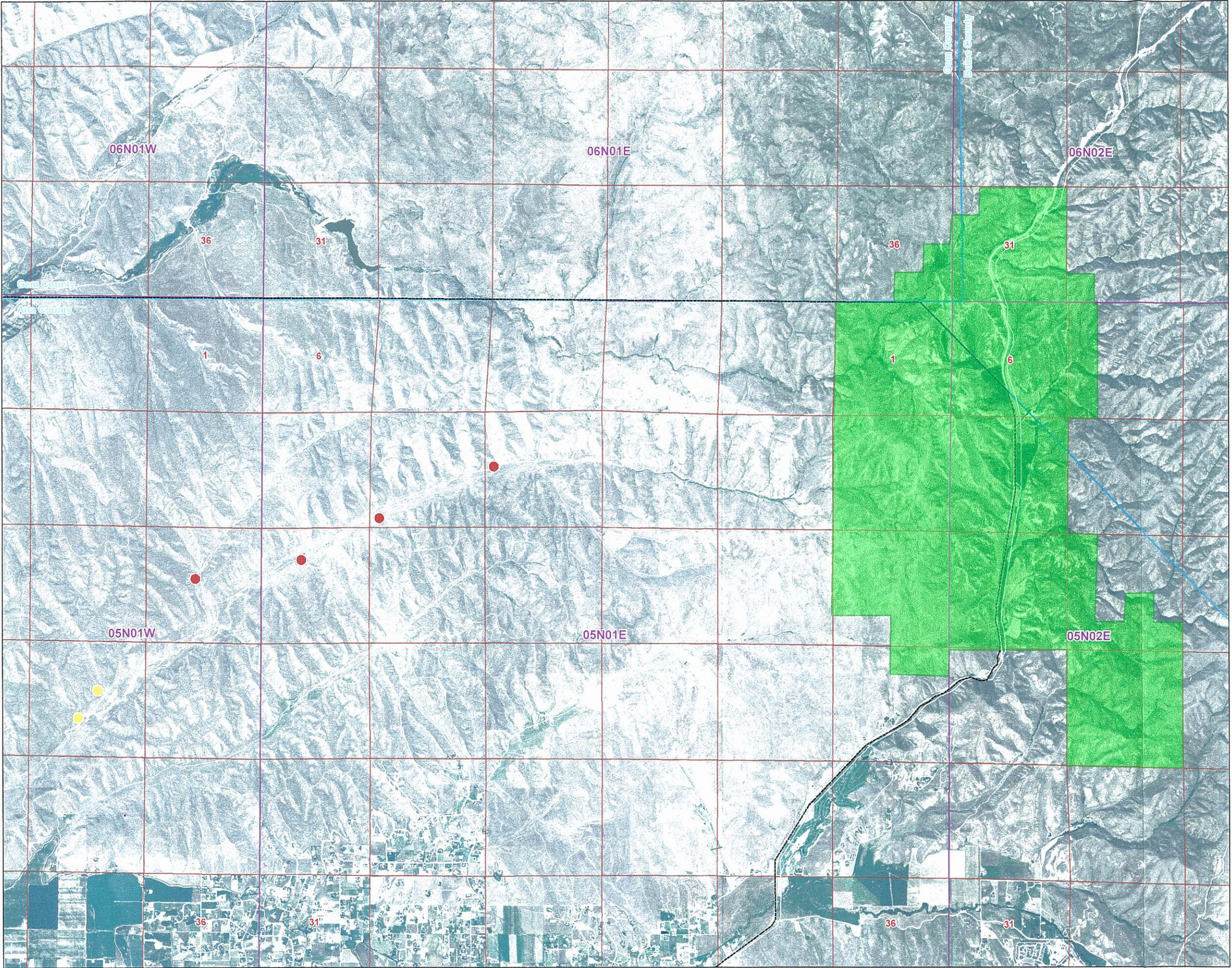
Notes:

1. All values are converted to gallons/minute.
2. If the pump cannot produce Qpkhr, storage will be necessary.
3. Double these flows if the system is unmetered. That is a minimum requirement but the developer and designer may wish to use more conservative criteria.

Lynn Water Level Measurements			
Date	M Lynn Domestic Well	C. Lynn Domestic Well	Old Lynn Irrigation Well
9/9/1993		394.4	382.5
10/21/1994	394.76	394.02	383.40
1/22/1995	395.32	394.25	382.23
3/24/1995	395.48	394.29	382.78
5/21/1995	397.28*	394.66*	382.53
8/27/1995	394.64	394.09	388.45*
10/22/1995	394.61	394.30	383.45*
3/16/1996	395.44	394.49	382.48
10/29/1996	394.66	394.26	382.44
3/26/1997			381.51
10/18/1997	395.15	394.55	383.15
4/16/1998	396.48	394.45	
10/21/1998	395.44	394.74	382.60
3/20/1999	395.76	394.59	382.30
10/21/1999	395.35	395.20*	383.07
3/31/2000	395.90	395.06	382.41
10/26/2000	394.63	394.40	382.24
3/24/2001	395.33	394.92*	382.10
10/30/2001	394.78	**	381.65
3/21/2002	395.73		382.11
10/31/2002	397.44*		383.66
3/10/2003	396.44		382.67
3/24/2004	396.48		382.99
3/31/2005	397.65		384.05
10/27/2005	395.77		395.33***
4/17/2006	396.68		395.24***
10/13/2006	396.32		383.88

* recovering slowly from recent pumping
 **sounding tube removed during well repair
 ***pumping?





Avimor Proposed Place of Use
and Points of Diversion

- North Ada Foothills Area
- Highways (white)
- Proposed Place of Use
- Proposed Points of Diversion
- Points of Diversion No
Longer Part of Application

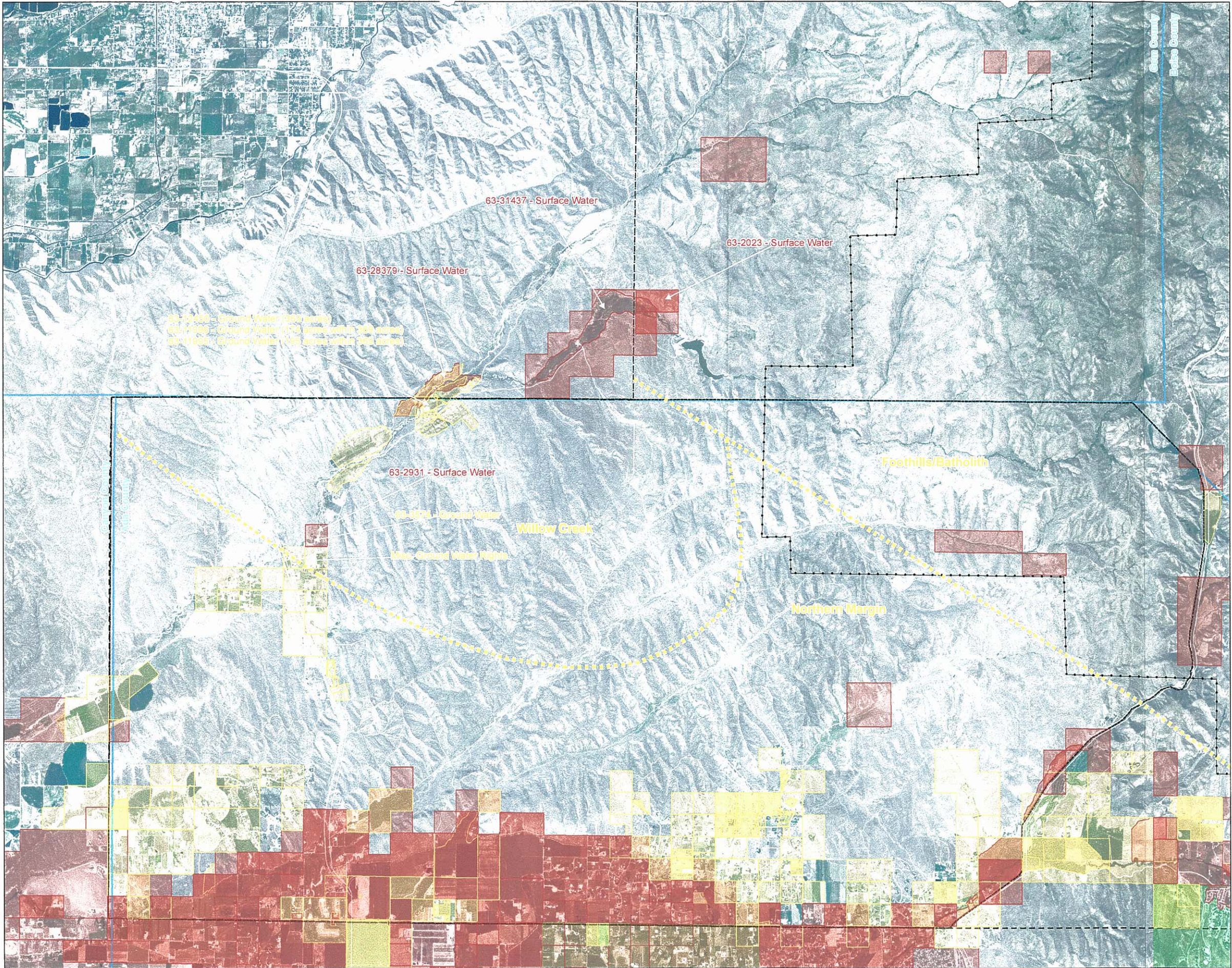
Department of Water Resources
APPLICANT'S
Exhibit 39
Date Admitted 10-31-06
DAN



Date: October 19, 2006

Notes:
- Property boundary information is approximate.

Sources:
- All transportation information was generated by the
U.S. Census Bureau and U.S. Department of
Commerce (TIGER) 2002.



**Willow Creek Area
Water Rights**

- Spring Valley Ranch Area
- North Ada Foothills Area
- Avimor Master Plan Area
- Highways (white)
- Water Right Claims, Permits, or Licenses Place of Use**
- Irrigation with surface water
- Irrigation with ground water
- Municipal
- Approximate Aquifer Boundaries

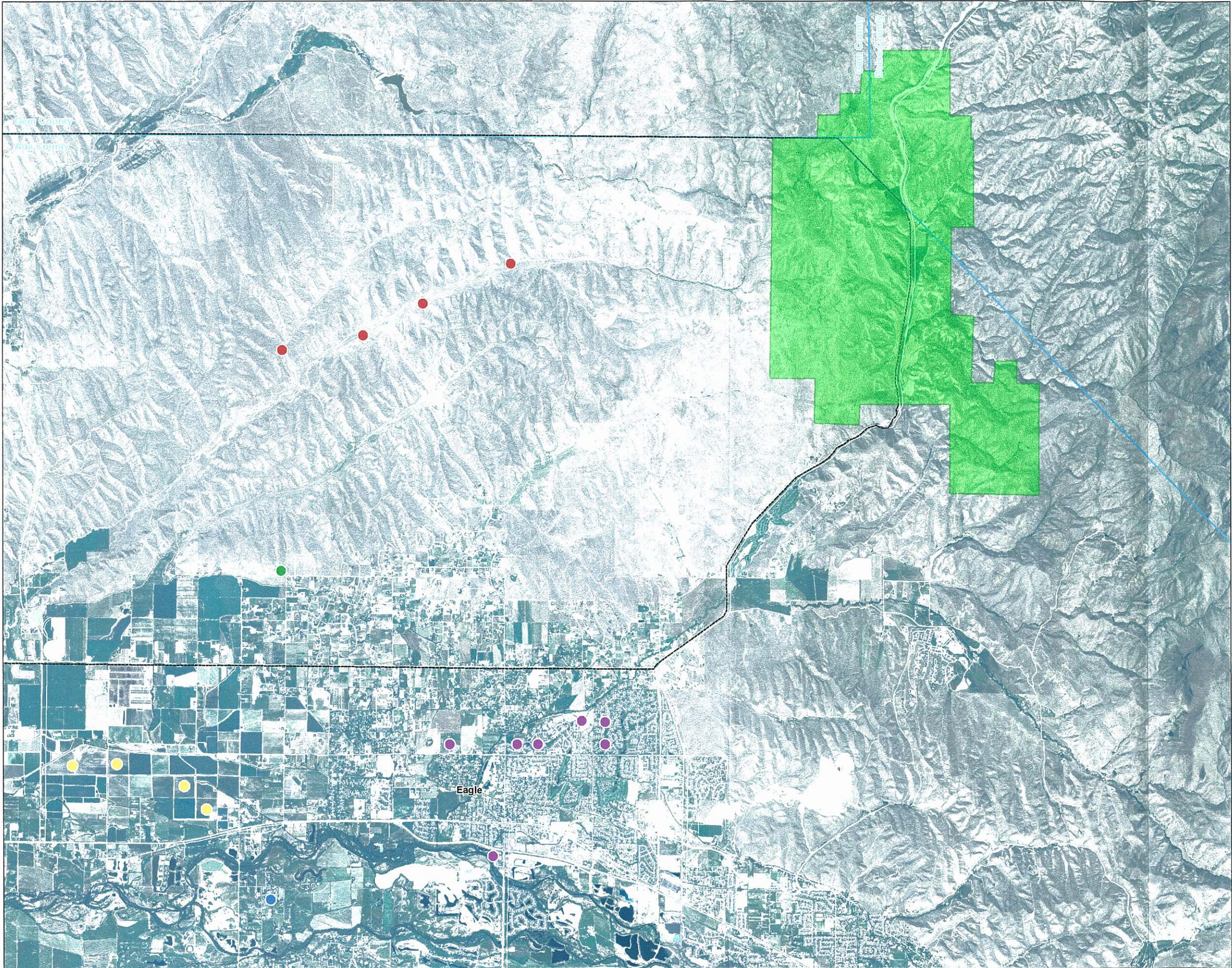
Department of Water Resources
APPLICANT'S
Exhibit 40
Date Admitted 10-31-06
DAN



Date: October 19, 2006

Notes:
- Property boundary information is approximate.

Sources:
- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
- Water rights place of use based on the Idaho Department of Water Resources shapefiles.



Avimor Proposed Place of Use and
Points of Diversion and Protestants'
Points of Diversion

- North Ada Foothills Area
- Highways (white)
- Proposed Place of Use
- Proposed Points of Diversion
- City of Eagle (Applications)
- City of Eagle (Permit or License)
- Garth Baldwin
- Philip and Lida Fry

Department of Water Resources
APPLICANT'S
Exhibit 41
Date Admitted 10-31-06
OAN



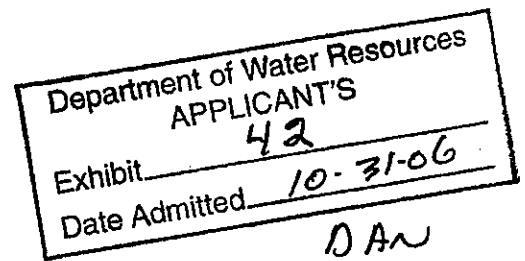
Date: October 19, 2006

Notes:
- Property boundary information is approximate.

Sources:
- All transportation information was generated by the U.S. Census Bureau and U.S. Department of Commerce (TIGER) 2002.
- Protestants' PODs based on IDWR online database and address.

**SPF**

Water Engineering, LLC
water resource consultants



To: Bob Taunton

From: Terry Scanlan 

Subject: SunCor Water-Level Monitoring Program Status

Date: October 16, 2006

Enclosed please find the following documents related to SunCor's water-level monitoring program.

1. The stipulation to withdraw protest by the North Ada County Foothills Association, with attached Water-Level Monitoring Plan and Agreement. I understood that this document was distributed by the Department of Water Resources on January 31, 2006 to the applicant and protestants. However, several attendees at the pre-hearing conference apparently were not familiar with the document.
2. A map (Figure 1) showing the locations of SunCor and North Ada County Foothills Association wells that are monitored by SunCor through the program.
3. A map (Figure 2) showing the locations of wells that are currently being monitored in the area north of Eagle by the Idaho Department of Water Resources, the USGS (IDWR) or SPF.
4. Water-level measurements (Table 1) and associated graphs for the SunCor monitoring wells.
5. Water-level measurements (Table 2) for the NACFA monitoring wells.
6. Well Driller's reports for the SunCor and NACFA monitoring wells.

RECEIVED

DEC 08 2005

DEPARTMENT OF
WATER RESOURCES

Albert P. Barker, ISB #2867
BARKER ROSHOLT & SIMPSON LLP
205 N. 10th St., Suite 520
P.O. Box 2139
Boise, ID 83701-2139
Telephone: (208) 336-0700
Facsimile: (208) 344-6034
E-Mail: apb@idahowaters.com

Attorneys for SunCor Idaho LLC

BEFORE THE DEPARTMENT OF WATER RESOURCES

FOR THE STATE OF IDAHO

IN THE MATTER OF APPLICATION)
FOR PERMIT NO. 63-32061 IN THE)
NAME OF SUNCOR, IDAHO, LLC.)

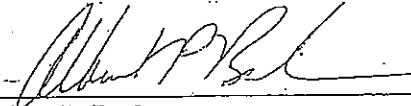
STIPULATION TO
WITHDRAW PROTEST

COME NOW, the Applicant, SunCor Idaho LLC, by and through its attorneys of record, and Protestant, North Ada County Foothills Association, acting *pro se*, and hereby jointly files this Stipulation to Withdraw Protest in this action. The Stipulation to Withdraw Protest is based upon the Water Level Monitoring agreement between SunCor Idaho LLC and North Ada County Foothills Association dated December 7, 2005, attached hereto and incorporated by reference, whereby SunCor Idaho LLC, or their successor in interest will monitor water levels in seven wells in the vicinity of the SunCor application and eight agreed-upon wells owned by North Ada County Foothills Association members. SunCor Idaho LLC will provide copies of an annual report of the results of such monitoring to North Ada County Foothills Association at no cost to the Association.

Accordingly, it is hereby stipulated and agreed that North Ada County Foothills Association shall and does hereby withdraw their protest with prejudice in this proceeding.

DATED this 7 day of December, 2005.

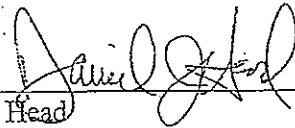
BARKER ROSHOLT & SIMPSON LLP



Albert P. Barker
Attorneys for SunCor Idaho LLC

DATED this 07 day of December, 2005.

NORTH ADA COUNTY FOOTHILLS
ASSOCIATION



David Head
Its Co-Chair, NACFA



December 7, 2005

North Ada County Foothills Association
c/o David Head
855 Stillwell Drive
Eagle, ID 83616

Subject: Water-Level Monitoring Plan and Agreement - Avimor (Spring Valley Ranch) Project

Dear David:

On behalf of SunCor Idaho, LLC (SunCor), this letter outlines the water-level monitoring program that will be conducted to resolve the North Ada County Foothills Association (NACFA) protest of SunCor's application for permit 63-32061.

The water-level monitoring program will consist of periodic water-level measurements at approximately 8 NACFA private wells and approximately 7 SunCor wells. These measurements will supplement water levels in approximately 6 other wells in the area that are currently measured on a quarterly or bi-monthly basis by the Idaho Department of Water Resources (IDWR) and by the U.S. Geological Survey (USGS). The NACFA private wells for measurement by SunCor will be selected by the NACFA, and approved by SunCor. SunCor will require that the wells proposed for measurement have well construction that is documented by a well driller's report. Selected wells will be readily accessible for measurement purposes. If a specific well drops out of the program, NACFA and SunCor shall jointly identify a new alternative well as a replacement.

Measurements during the first year of monitoring will occur on a bi-monthly basis to determine the magnitude of seasonal water-level fluctuations. After the first year of monitoring, water levels would be obtained in the spring (April) and fall (October) so that the annual high and low water levels can be documented. Water level monitoring would occur for a 10-year period. The water-level monitoring program would be terminated if the water right permit is denied or withdrawn by SunCor. The responsibility for the program shall be with the permit holder in the event that the permit is assigned to another entity.

Water levels would be measured with electric-line well probes or steel tapes. The tips of these instruments that would contact the well water will be sanitized before each measurement. Measurement tubes (1-inch diameter PVC pipes) may need to be installed in wells where measuring equipment could potentially become tangled in submersible pump cable.

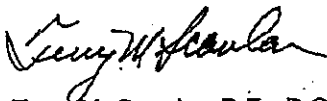
December 7, 2005

A summary of the monitoring data would be prepared annually by SunCor. This summary will include water levels from the SunCor, NACFA, and USGS/IDWR wells, and will be provided to NACFA. The costs of installing the monitoring equipment, collecting, summarizing, and distributing the information collected by the monitoring program will be paid for by SunCor.

A release form for well owners interested in participating in the program is attached. The form authorizes SunCor to measure water levels in a land owner's well until such time as the monitoring program ends, or the well owner decides to withdraw from the program.

Please feel free to call me at 383-4140 if you have any questions.

Sincerely,



Terry M. Scanlan P.E., P.G.
Engineer/Hydrogeologist

cc: Bob Taunton

Water Level Monitoring Agreement

Well Name _____

Well Location _____

The undersigned well owner hereby agrees to allow SunCor Idaho LLC through its designated contractor to enter on to the well owner's property on a regularly scheduled basis to measure well water levels as part of a water-level monitoring program. Monitoring frequency is anticipated to be bi-monthly for the first year and semi-annual (April and October) in subsequent years. The well owner agrees to cooperate with SunCor in these efforts, and will designate a reasonable and safe means of well access for this purpose. The measurements would be conducted using electric-line well probes or steel tapes. The work will involve removing the well cap to access the well. Wells with submersible pumps may require water level measurement tubes to prevent entanglement of well probes in submersible pump wire. The tubes will be installed by SunCor's contractor at SunCor's expense.

The undersigned well owner hereby releases SunCor and SunCor's contractors from any and all liability, other than negligence, associated with the water level monitoring program, including, but not limited to, real or perceived damage to the well, well pump, or well water quality. Water-level monitoring will continue until (1) the monitoring program is terminated or until (2) the well owner notifies SunCor in writing that they desire to withdraw from the monitoring program. If SunCor assigns the permit in the future, the obligations under this agreement shall pass to the new permit holder.

Well Owner Name _____

Mailing Address _____

Daytime Telephone _____

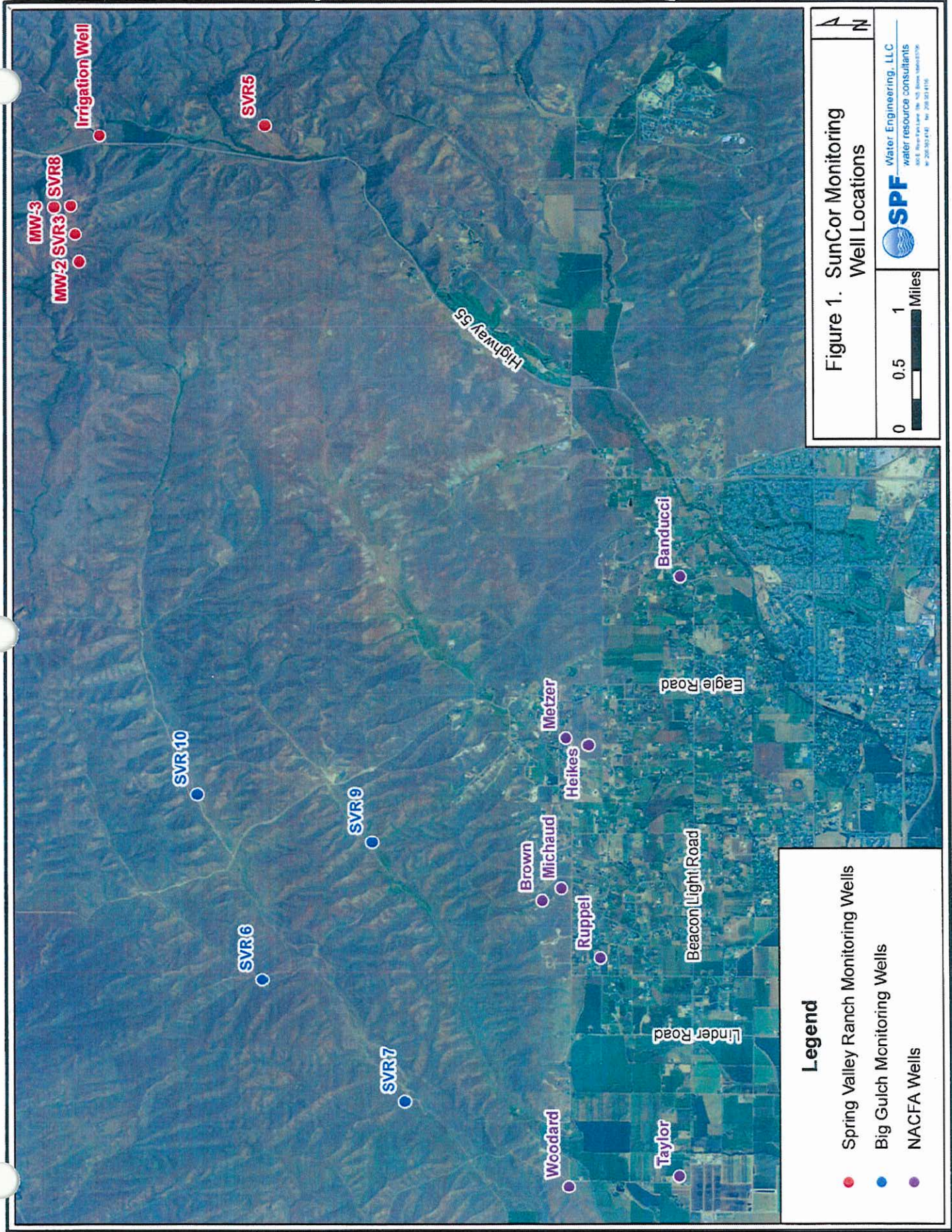
Well Owner Signature _____

Date _____

Witness Signature _____

SunCor Signature _____

Date _____



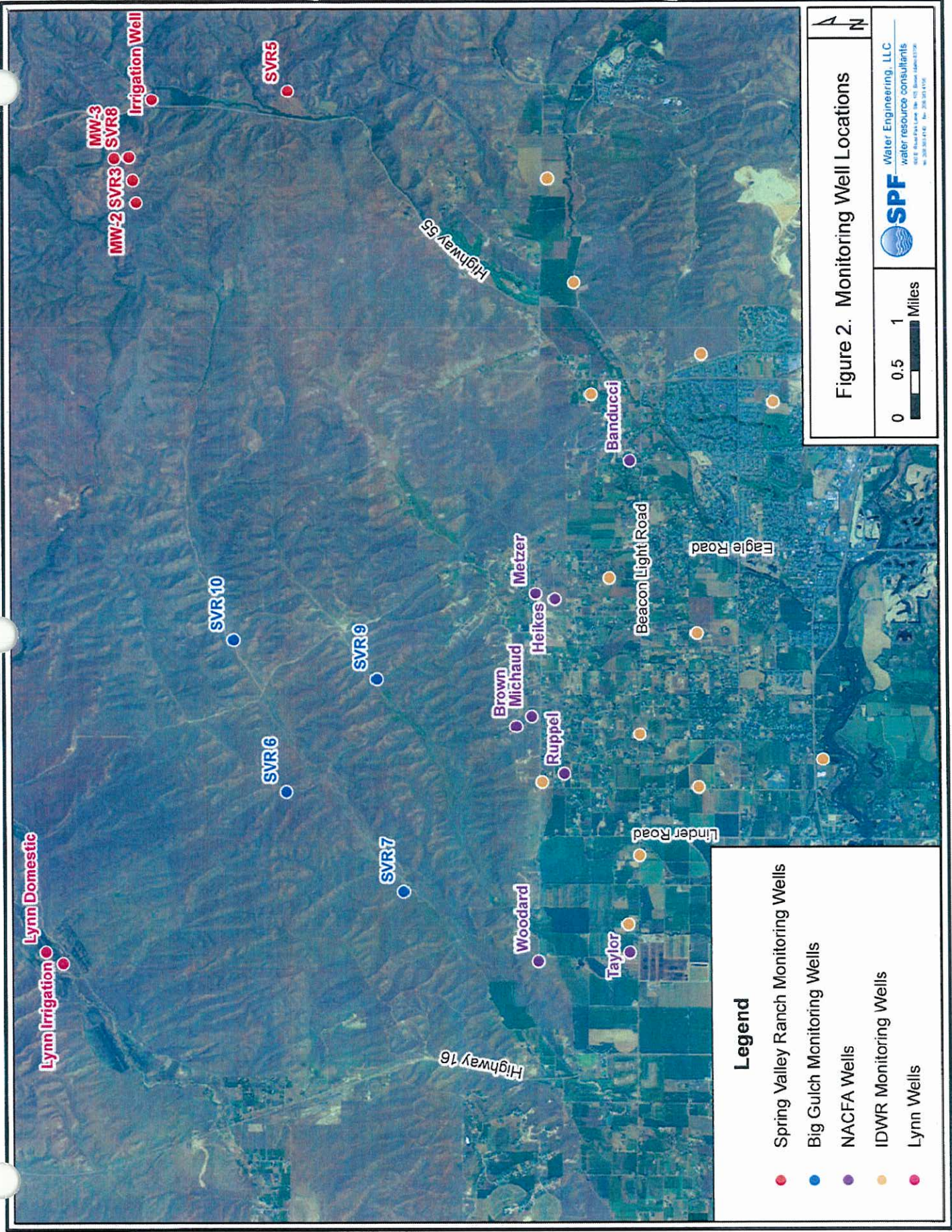
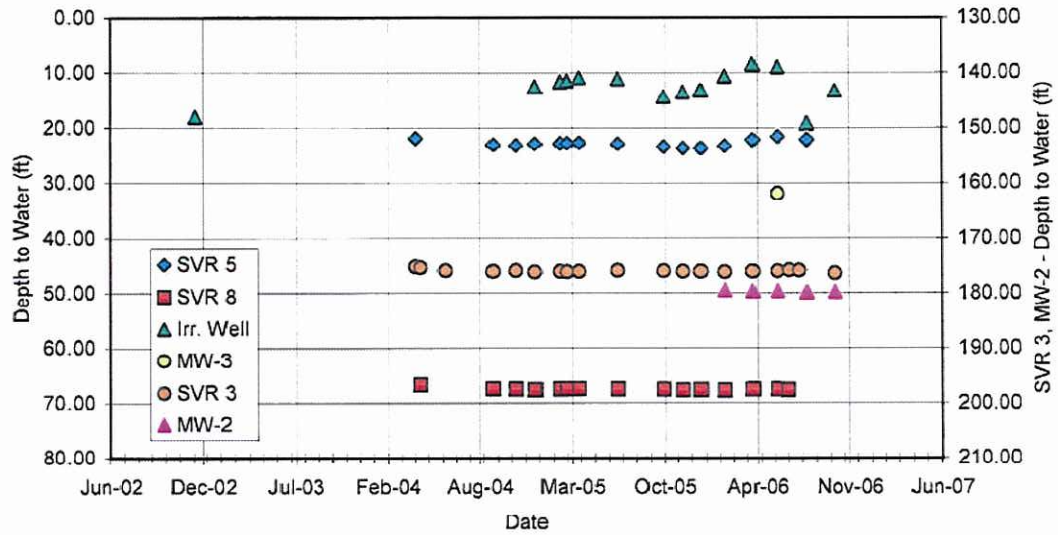


Table 1: Monitoring Results for Spring Valley Ranch and Big Gulch Wells

Date	SVR 3		SVR 5		SVR 8		Irr. Well		SVR 6		SVR 7		SVR 9		SVR 10		MW-2		MW-3	
	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)	DTW TOC	(ft)
12/5/2002							18.00													
3/23/2004									452.18											
4/3/2004	175.27		21.86																	
4/14/2004	175.41				66.70															
4/21/2004											163.71									
6/8/2004	175.96																			
6/23/2004																				
8/19/2004															485.10					
9/21/2004	176.15		23.12		67.40										485.88					
11/10/2004	175.95		23.21		67.43															
12/22/2004	176.27		22.92		67.55		12.57													
2/15/2005	176.14		22.90		67.46		11.67													
3/2/2005	176.18		22.81		67.42		11.47		456.70						485.65					
3/29/2005	176.11		22.77		67.41		10.92		456.67		168.05				485.55					
6/21/2005	175.99		22.91		67.43		11.15		456.39		163.60				485.21					
9/30/2005	176.03		23.45		67.49		14.38		456.27		163.88				485.22					
11/12/2005	176.14		23.72		67.60		13.57		456.26		163.90				485.60					
12/20/2005	176.11		23.69		67.57		13.19		456.28		163.66				485.48					
2/10/2006	176.22		23.30		67.69		10.68		456.54		163.98		197.52		485.77		179.44			
4/13/2006	176.12		22.20		67.52		8.50		456.40		163.68		197.15		485.59		179.61		DRY	
5/5/2006									453.22		162.97		195.95							
6/7/2006	176.07		21.59		67.49		8.98		455.91		163.79		197.03		484.97		179.55		31.93	
7/1/2006					67.56															
7/3/2006	175.9																			
7/20/2006									459.10		163.43		196.58							
7/25/2006	175.95																			
8/11/2006	No Access		22.15		No Access		19.19										179.83		DRY	
8/18/2006															485.25					
8/21/2006									456.23				196.60							
8/22/2006											163.40									
9/15/2006									455.53		163.65		196.20							
10/11/2006	176.49		Abandoned		No Access		13.26								486.63		179.75		DRY	

Spring Valley Ranch Water Levels



Big Gulch Water Levels

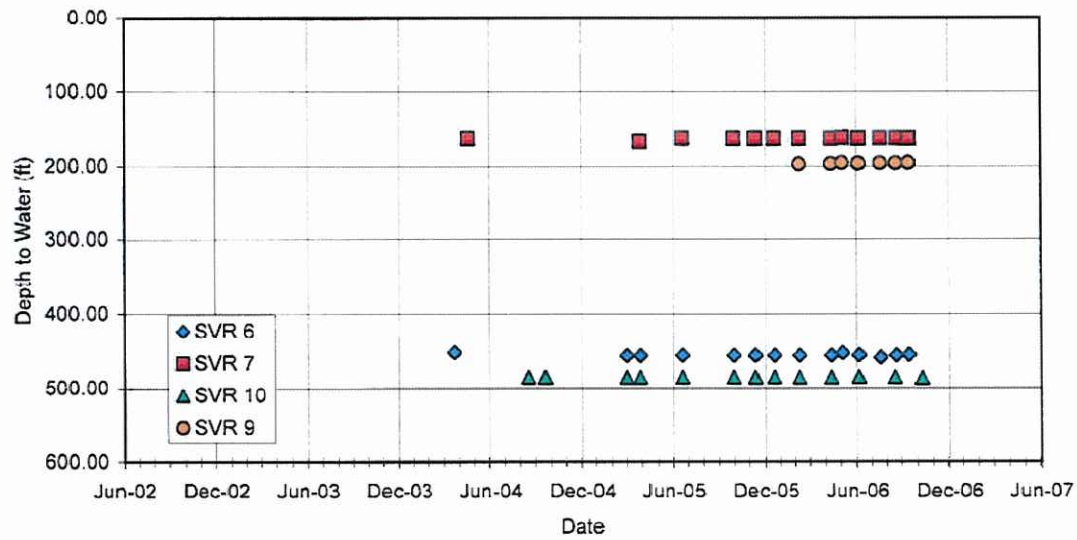


Table 2: Monitoring Results for North Ada County Foothills Association (NACFA) Wells

Date	Heikes 6-inch		Heikes 16-inch		Taylor 10-inch		Ruppel 6-inch		Michaud 6-inch		Woodard 6-inch		Banducci 8-inch		Metzer 6-inch	
	DTW	TOC	DTW	TOC	DTW	TOC	DTW	TOC	DTW	TOC	DTW	TOC	DTW	TOC	DTW	TOC
8/18/2006		(ft)		(ft)		(ft)		(ft)		(ft)		(ft)		(ft)		(ft)
	139.05		138.35		69.10		36.87		143.53		149.67					
8/25/2006																
8/31/2006																
10/11/2006	---		136.99		52.12		35.13		141.63		147.48		58.12		138.78	

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
_____ 1/4 _____ 1/4 _____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0029004 W ELL #3
 DRILLING PERMIT NO. 874852-789296
 Other IDWR No. _____

2. OWNER: Sun Cor Development Co
Name
Address 80 Rio Salado Pkwy #410
City Tempe State AZ Zip 85281

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.


 Twp. 5 North ☒ or South ☐
 Rge. 1 East ☒ or West ☐
 Sec. 1 1/4 S/W 1/4 S/E 1/4
 Gov't Lot _____ 10 acres Ada 40 acres 160 acres
 Lat. : : Long. : :
 Address of Well Site 3/4 mile west of
hiway 55 City _____
 (Give at least name of road or distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____
Spring Valley Ranch area

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			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
Bentonite grout	0	150	12 sk	pumped

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Linear	Welded	Threaded
8	+1	5	250	steel	☒	☐	☒	☐
6	+2	165	250	steel	☐	☒	☒	☐
6	175	195	250	steel	☐	☒	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations Method _____
Screens Screen Type Johnson v-wire

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
165	175	40		6	stnls	☐	xxx
195	215	30		6	stnls	☐	xxx
230	240	35		6	stnls	☐	xxx

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

175¹ ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or
control devices:

11. WELL TESTS:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

[illegible]

RECEIVED

~~JAN 15 2003~~

WATER RESOURCES WESTERN REGION

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stevens & Sons Firm No. 153

Form Official Hon. Stevens 1/6/03

Firm Official _____
and _____

Driller or Operator [Signature] Date 12/1/78

(Sign once as Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

SUR 6

1/2

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

Office Use Only		
Well ID No.	807803	
Inspected by		
Twp	Rge	Sec
1/4	1/4	1/4
Lat:	Long:	

1. WELL TAG NO. D 0030892
 DRILLING PERMIT NO. _____
 Water Right or Injection Well No. _____

2. OWNER:
 Name Spring Valley Development LLC
 Address 485 E. Riverside Dr
 City Eagle State Id Zip 83601

3. LOCATION OF WELL by legal description:
 You must provide address or Lot, Blk, Sub. or Directions to well.
 Twp. 5 North ☒ or South ☐
 Rge. 1 East ☐ or West ☒
 Sec. 13 1/4 SE 1/4 NW 1/4
 Gov't Lot _____ 10 acres County Ada 50 acres
 Lat: _____ Long: _____
 Address of Well Site 1 mile SW of Wilson Creek Rd
Big Gulch City Eagle
 (Use actual name of road - Distance to House or Landmark)
 Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other test

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 Material	From	To	Weight / Volume	Seal Placement Method
<u>Bentonite</u>	<u>0</u>	<u>105</u>	<u>3150#</u>	<u>over bore</u>

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 738'
 Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>8"</u>	<u>+2</u>	<u>738'</u>	<u>250</u>	<u>Steel</u>	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____
 Packer: ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE
 Perforation Method STAR PERE 4 ROWS @ JAWIT 90 PERFS
 Screen Type & Method of Installation None PER ROW

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>560</u>	<u>580</u>	<u>1/4</u>	<u>360</u>	<u>8"</u>	<u>.250 WALL</u>	☒	☐
<u>580</u>	<u>600</u>	<u>1/4</u>	<u>360</u>	<u>8"</u>	<u>CASING</u>	☒	☐
<u>600</u>	<u>620</u>	<u>1/4</u>	<u>360</u>	<u>8"</u>	<u>S</u>	☒	☐
<u>620-640</u>	<u>1/4</u>	<u>360</u>	<u>8"</u>	<u>S</u>	☒	☐	☐

Filter Material	From	To	Weight / Volume	Placement Method
<u>Continued on page 2</u>				

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
4.55 ft. below ground Artesian pressure _____ lb.
 Depth flow encountered _____ ft. Describe access port or control devices: Steel plate

12. WELL TESTS:

☐ Pump	☐ Bailor	☒ Air	☐ Flowing Artesian
Yield gal/min.	Drawdown	Pumping Level	Time
<u>175</u>			<u>6 hours</u>

Water Temp. 80° Bottom hole temp. _____
 Water Quality test or comments: Iron .5 PH 7.5

Grams 2 Depth first Water Encounter 590'

13. LITHOLOGIC LOG: (Describe repairs or abandonment) Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
"	0	10	sandy soil		
"	10	96	tan clay		
"	96	105	blue clay		
"	105	134	blue clay		
"	134	140	tan clay		
"	140	195	pea gravel & clay		
"	195	360	4 gray sand & clay		
"	360	367	coarse sand & clay like		
"			pea gravel		
"	367	505	Fine & coarse sand		
"	505	540	larger pea gravel		
"	540	590	pea gravel w/ large sand quartz		
"	590	595	quartz sand		X
"	595	605	Finer tan sand		
"	605	620	quartz sand		X
"	620	640	Finer sand		X
"	640	645	quartz sand		X
"	645	655	quartz sand & some pea gravel		X
"	655	660	gravel & quartz sand		X
"	660	670	big sand		
"	670	680	big sand		X
"	680	685	big sand		
"	685	690	big sand		X
"	690	730	big sand		X
"	730	740	big sand		X

Due to heaving sand - a mixture of sand & cement was placed from 730' to 740'

RECEIVED

MAR 19 2004

Completed Depth 730' WATER RESOURCES (insurable)
 WESTERN REGION
 Date: Started 01.26.04 Completed 02.27.04

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Adamson Pump & Drilling No. 457
 Principal Driller Dave Adamson Date 3.15.04
 and Driller or Operator II Dave Adamson Date 3.15.04
 Operator I _____ Date _____

Principal Driller and Rig Operator Required.
 Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

SUR 8

Form 238-7
6/02IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only			
Well ID No.	82970		
Inspected by			
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat:	:	Long:	:

1. WELL TAG NO. D 0031220
 DRILLING PERMIT NO. _____
 Water Right or Injection Well No. _____

2. OWNER:
 Name SunCor Idaho LLC
 Address 485 E. Riverside Dr, Suite 300
 City Eagle State ID Zip 83616

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 5 North ☒ or South ☐
 Rge. 2 East ☒ or West ☐
 Sec. 6 1/4 SW 1/4 SW 1/4
 Gov't Lot _____
 County Blaine

Lat: _____ Long: _____
 Address of Well Site 1/2 mile west of Hwy 55
 City Eagle

City Eagle
 Lt. _____ Blk. _____ Sub. Name Spring Valley Ranch

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other Test

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 Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	20	800#	over bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 133

Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	12	133	250	Steel	☒	☐	☒	☐

Length of Headpipe 11' Length of Tailpipe _____
 Packer ☒ Y ☐ N Type R. Packer

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____

Screen Type & Method of Installation _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
136	141	040		5"	SS	☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

62 ft. below ground Artesian pressure _____ lb.
 Depth flow encountered _____ ft. Describe access port or control devices: _____

well cap

12. WELL TESTS:

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
100+			5 hour

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encounter 80'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water	Y	N
10	0	20	sand			
6	20	40	sand & clay pos			
"	40	80	big sand			
"	80	141	big sand		X	

RECEIVED

APR 19 2004

WATER RESOURCES
WESTERN REGION

Completed Depth 141' (Measurable)

Date: Started 4.12.04 Completed 4.12.04

14. DRILLER'S CERTIFICATION

We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Adamson Pump & Drill Firm No. 457

Principal Driller David Adamson Date 4.14.04

Driller or Operator II Andy Payne Date 4.14.04

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
 Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

SUR 9

Form 238-7
6/02IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only			
Well ID No.	815596		
Inspected by			
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat:	:	Long:	:

1. WELL TAG NO. D 0031492
 DRILLING PERMIT NO. 815596
 Water Right or Injection Well No. 386274

2. OWNER:

Name SUNCOR
 Address 485 E Riverside Dr. #300
 City Eagle State ID Zip 83616

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 5 North ☒ or South ☐
 Rge. 1 East ☒ or West ☐
 Sec. 9 1/4 SW 1/4 NE 1/4
 Gov't Lot _____
 Lat: _____ Long: Ada
 Address of Well Site 1/2 mile SW of Willow Creek Rd
 City Eagle

(Give a brief name of road or distance to road or landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other test #9

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 Material	From	To	Weight / Volume	Seal Placement Method
bentonite grout	806	265	1250 gal	pumped
bentonite grout	275	0	300 gal	pumped

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8"	+2	235	250	steel	XX	☐	XX	☐
6"	245	253	250	steel	XX	☐	XX	☐

Length of Headpipe +2 Length of Tailpipe 0Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____

Screen Type & Method of Installation stainless

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
235	245	30		6"	stnls	XX	☐
253	263	30		6"	stnls	XX	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
#8-12 sand			3000#	

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

193' 4 ft. below ground Artesian pressure _____ lb.

Depth flow encountered 198 ft. Describe access port or control devices: _____

12. WELL TESTS:

Yield gal./min.	Drawdown	Pumping Level	Time
43	14'	207	4 1/2 hr

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encounter _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8	0	10	topsoil, sandy clay		X
	10	27	sand, brown clay		X
	27	60	tan gray clay		X
	60	90	sandy brown clay w/ gray streaks	X	
	90	104	gray clay		X
	104	110	sandy brown clay		X
	110	155	coarse sand w/ gray streaks		X
	155	198	coarse to medium sand w/ clay streaks	X	
	198	210	reddish sand	X	
	210	243	fine sand w/ clay streaks	X	
	243	265	sand w/ wood, clay streaks	X	
	265	430	silty gray blue clay		X
	430	530	sticky gray blue clay		X
	530	531	hard shale		X
	531	780	gray blue clay		X
	780	781	hard shale		X
	781	806	gray blue clay		X

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JUN 29 2004

WATER RESOURCES
WESTERN REGION

topped with chips 20 sts

Completed Depth 806 drilled, 263 cased (Measurable)Date: Started 6/1/04 Completed 6/25/04

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stevens & Sons Firm No. 153Principal Driller _____ Date 6/28/04

and _____ Date _____

Driller or Operator _____ Date _____

Operator I _____ Date _____

Principal Driller and Driller Operator signatures
Operator must have signature of Driller or Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

SUR 10

Form 238-7
5/02

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

Office Use Only			
Well ID No.	815597		
Inspected by			
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat:	:	Long:	:

1. WELL TAG NO. D 00031493
 DRILLING PERMIT NO. 815597
 Water Right or Injection Well No. _____

2. OWNER:

Name SWUCOR
 Address 485 EAST RIVERSIDE DR SUITE 300
 City EAGLE ID State ID Zip 83616

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 05 North ☒ or South ☐
 Rge. 01 East ☒ or West ☐
 Sec. 8 SW 1/4 or SE 1/4
 Gov't Lot _____ County ADA Twp. _____

Lat: _____ Long: _____
 Address of Well Site 1/2 MILE NE OF WILLOW CREEK RD 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 TEST WELL

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 Material	From	To	Weight / Volume	Seal Placement Method
30% B. GRANT	1	500	400 LB	PRESSURE GRANTED
30% B. GRANT	1000	1100	1470 LB	PRESSURE GRANTED

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) _____

Was drive shoe seal tested? ☐ Y ☒ N How? _____

GRAVEL 3/4 FROM 770 TO 660

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8"	+2	600	.250	STEEL	☒	☐	☐	☐
6"	630	600	.250	STEEL	☐	☒	☒	☐

Length of Headpipe 25 FT Length of Tailpipe 0

Packer ☒ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____

Screen Type & Method of Installation STAINLESS STEEL

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
640	680	.40	—	6"	STAINLESS	☐	☐
600	580	.30	—	6"	STAINLESS	☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
NONE				

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

485 ft. below ground Artesian pressure _____ lb.

Depth flow encountered _____ ft. Describe access port or control devices: _____

Well cap

12. WELL TESTS:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
AIR 50 GPM	—	—	—

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encounter _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
12	1	15	TOP SOIL & SAND		
	15	35	SANDY CLAY		
	35	360	COARSE SAND		
	360	380	COARSE SAND & CLAY		
	380	480	COARSE SAND & CLAY MIX		
	480	490	COARSE SAND & CLAY MIX		
	490	505	TAN CLAY		
	505	520	SAND & CLAY MIX		
	520	530	SAND		
	530	560	SAND & CLAY		
	560	590	MORE SAND LESS CLAY COARSE		
	590	620	CLAY TAN & WHITE		
	620	632	CLAY W/ SAND STREAKS		
	632	640	SHORT SAND STREAKS IN CLAY		
	640	660	TAN CLAY		
	660	670	TAN CLAY		
	670	680	SOFT WHITISH CLAY		
	680	687	WHITISH CLAY & BLUE CLAY - SAND		
	687	690	HARD CLAY BLuish		
	690	715	BLUE CLAY - COARSE SAND		
	715	740	BLUE CLAY HARD & SOFT		
	740	760	BLUE CLAY		
	760	800	BLUE CLAY		
	800	825	BLUE CLAY SHORT SOFT SANDS		
	825	835	BLUE CLAY		
	835	860	BLUE & WHITE CLAY		
	860	880	BLUE CLAY W/ COARSE SAND		
	880	920	SOFT BLUE CLAY		
	920	940	BLUE CLAY		
	940	980	BLUE CLAY		
	980	1005	BLUE CLAY		

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AUG 16 2004

WATER RESOURCES
WESTERN REGION

Completed Depth 770 (Measurable)

Date: Started 6-7-04 Completed 7-29-04

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name ADAMSON PUMP & DRILLING Firm No. 457

Principal Driller Dave Adamson Date 7-30-04

Driller or Operator II Dave Adamson Date 7-30-04

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

63

MW-2

Form 238-7
6/02IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

836 983

Office Use Only

Well ID No. 407454
Inspected by _____
Twp _____ Rge _____ Sec _____
1/4 _____ 1/4 _____ 1/4 _____
Lat: : : Long: : :
☐ Pump ☐ Bailor ☐ Air ☐ Flowing Artesian1. WELL TAG NO. D 0042180
DRILLING PERMIT NO. 891848-836983
Water Right or Injection Well No. _____

2. OWNER:

Name Suncor Idaho LLC
Address 485 E Riverside Dr #300
City Eagle State ID Zip 83616

3. LOCATION OF WELL by legal description:

You must provide address or Lot, Blk, Sub. or Directions to well.

Twp. 5 North ☒ or South ☐
Rge. 1 East ☒ or West ☐
Sec. 1 1/4 SW 1/4 SE 1/4 XXX
Gov't Lot _____
County _____
Lat: : : Long: ADA :
Address of Well Site 1 mile west of hiway 55
Spring Valley Ranch City Eagle
Lt. _____ Blk. _____ Sub. Name _____
8 miles east of Eagle

4. USE:

☐ Domestic ☐ Municipal ☒ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____ well #2

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 Material	From	To	Weight / Volume	Seal Placement Method
bentonite chips	0	40	14 cu ft	overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+1'6"	288	250	steel	☒	☐	☒	☐

Length of Headpipe 5' Length of Tailpipe 0
Packer ☒ Y ☐ N Type Johnson 304 stnls steel

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____
Screen Type & Method of Installation _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
288	293	30		5	SS	☐	☒

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

185 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

12. WELL TESTS:

Yield gal/min.	Drawdown	Pumping Level	Time
No Test			

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encounter _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
12	0	40	sandy brown soil		X
8	40	138	sandy brown soil with brown clay streaks		X
	138	159	dark brown clay		X
	159	180	coarse white sand		X
6	180	270	coarse white sand	X	
	270	295	brown sand	X	
	295	315	silty brown sand	X	
	315	360	silty brown sand with cemented streaks	X	
	360	375	gray green clay		X

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DEC 15 2005

WATER RESOURCES
WESTERN REGION

Completed Depth _____ (Measurable)

Date: Started 12/2/05 Completed 12/6/05

14. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stevens & Sons Firm No. 153Principal Driller _____ Date 12/10/05

Driller or Operator _____ Date _____

Operator I _____ Date _____

Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 228-7
102

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only

Well ID No. _____

Inspected by _____

Twp _____ Rge _____ Sec _____

_____ 1/4 _____ 1/4 _____ 1/4

Lat. : : : Long: : :

1. WELL TAG NO. D
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER: SunCor Idaho LLC
Name _____
Address 485 E Riverside Dr #300
City Eagle State ID Zip 83616

3. LOCATION OF WELL by legal description:

3. LOCATION OF WELL by legal description.
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 5 North ☒ or South ☐
Rge. 2 East ☒ or West ☐
Sec. 6 1/4 N/W 1/4 S/W 1/4
Gov't Lot _____ Ada
County _____
Long: _____

Lat: _____ Long: _____
Address of Well Site 1/2 mile west of Hwy 55
9 miles northeast of Eagle
(Give at least one point of reference to Road or Location)
L.t. _____ Blk. _____ Sub. Name Spring Valley Ranch

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 Material	From	To	Weight / Volume	Seal Placement Method
5/8" bentonite	chips			
	0	20	4 sk	poured

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Wellbnd	Threaded
6"	+1	5'	250	steel	☒	☐	☐	☐
2"	+1	20'	sch 80	PVC	☐	☒	☐	☐

Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☐ N... Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____
Screen Type & Method of Installation Johnson PVC

From	To	Slot Size	Number	Diameter	Material
29	39	20		2"	PVC

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
coarse sand	20'	30'	80 gal	poured

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE _____ ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices:

12. WELL TESTS:

☐ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian[illegible]

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments:

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

[illegible]

Completed Depth 39' (Measurable)

Date: Started 11/15/05 Completed 11/16/05

14. DRILLER'S CERTIFICATION

14. DRILLER'S CERTIFICATION
We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Stevens & Sons Firm No. 153

Principal Driller Ron Stevens Date 8/18/05

and
Driller or Operator II Steve Matlock

Operator 1 _____ Date _____
Operator 2 _____
Operator 3 _____
Operator 4 _____
Operator 5 _____
Operator 6 _____
Operator 7 _____
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Operator 91 _____
Operator 92 _____
Operator 93 _____
Operator 94 _____
Operator 95 _____
Operator 96 _____
Operator 97 _____
Operator 98 _____
Operator 99 _____
Operator 100 _____

Principal Seller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

[illegible]

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

FORWARD WHITE COPY TO WATER RESOURCES

BANDOLLI

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

091664

Office Use Only			
Inspected by _____			
Twp _____	Rge _____	Sec _____	
_____ 1/4	_____ 1/4	_____ 1/4	
Lat: _____		Long: _____	

1. DRILLING PERMIT NO. 63-96-W-0221-200

Other IDWR No. _____

2. OWNER:

Name Randy + Tracy Hall
 Address 2990 Holl Dr.
 City Eagle State ID Zip 83616

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N		Twp. <u>5</u>		North ☒ or South ☐	
W		Rge. <u>1</u>		East ☒ or West ☐	
E		Sec. <u>33</u>		1/4 <u>SE</u> 1/4 <u>SE</u> 1/4	
S		Gov't Lot _____		County <u>Ada</u> 10 acres 160 acres	
		Lat: _____		Long: _____	
		Address of Well Site <u>2990 Holl Dr.</u>		City <u>Eagle</u>	

(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

☒ New Well ☐ Modify ☐ Abandonment ☒ Other (Replacement etc.)

6. DRILL METHOD

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Seals or Pounds	
Bentonite	4'	18'	300	overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) _____
 Was drive shoe seal tested? ☒ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8"	+2	179	1/4	Steel	☒	☐	☒	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

65 ft. below ground Artesian pressure _____ lb.
 Depth flow encountered _____ ft. Describe access port or control devices: N/A

11. WELL TESTS:

☐ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
100	—	—	1 hr.

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: N/A

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water	Y	N
8"	0	13	TOP SOIL			X
	13	18	Sand + clay			X
	18	19	Sand + clay			X
	19	30	Gravel + clay			X
	30	47	clay			X
	47	80	Gravel			X
	80	90	Brown clay		X	
	90	109	Brown clay		X	
	109	137	Brown clay + muddy Sand		X	
	137	160	muddy Sand			X
	160	240	Blue clay	X		
	240		Fine Sand	X		
RECEIVED						
JUL 16 1996						
Department of Water Resources						
RECEIVED						
JUN 28 1996						
WATER RESOURCES WESTERN REGION						
SEP 11 1996						
Completed Depth <u>215</u> (Measurable) Date: Started <u>4-28-96</u> Completed <u>5-19-96</u>						

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 Phipps Drilling Firm No. 311
 Firm Official Wesley A. Phipps Date 6-10-96
 and
 Supervisor or Operator Chris Payne Date 6-7-96
 (Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

245-0070



State of Idaho

DEPARTMENT OF WATER RESOURCES

322 East Front Street, P.O. Box 83720, Boise, ID 83720-0098

Phone: (208) 287-4800 Fax: (208) 287-6700 Web Site: www.idwr.idaho.gov

March 1, 2006

DIRK KEMPTHORNE
Governor

KARL J. DREHER
Director

Mr. Bob Taunton
SunCor Idaho, LLC
485 E Riverside Dr, STE 300
Eagle, ID 83616

Department of Water Resources

APPLICANT'S

Exhibit

43

Date Admitted

10-31-06

Re: Approved Injection Well Permits # 63W208001, 63W208002, and 63W208003: Spring Valley Ranch/Avimor Subdivision ASR Project

Dear Mr. Taunton:

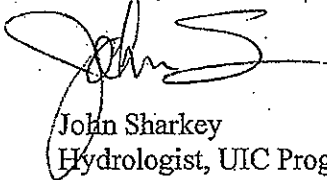
Enclosed is a copy of the approved injection well permits #63W208001, 63W208002, and 63W208003 for the SunCor Idaho, Inc ASR project at the proposed Spring Valley Ranch Avimor Subdivision. Attachment I contains the standard conditions pertaining to the construction and operation of all injection wells in the State of Idaho. Attachment II contains conditions specific to the construction, operation, maintenance and monitoring of #63W208001, 63W208002, and 63W208003, and state the following:

1. The permit(s) is valid for the modification and operational use to the existing monitoring and production wells as outlined in the 11/04/2005 project summary and supplemental materials submitted by Terry Scanlan/SPF Water Engineering, LLC. Approval is contingent upon adherence to the design and operation plan therein. IDWR shall be notified of any modifications to the system design or operation in advance. All modifications will require prior approval. Approval for abandonment of this well(s) shall be obtained in advance.
2. For the duration of this permit period, the addition of iron sulfate to a maximum iron concentration of 5mg/L in the injected fluid is authorized for aquifer conditioning and potential arsenic removal. Additional system additives or changes in concentration will require prior approval.
3. During periods of active ASR, compliance of the injected fluids with Ground Water Quality Standards shall be demonstrated by continued monitoring of the injected fluids (source water) and production water. With the exception of arsenic, a sampling event indicating non-compliance with Ground Water Quality Standards shall be reported to IDWR within 48 hours of discovery. An annual summary report shall be submitted to IDWR indicating the volumes of water recharged and produced, analytical results, general water quality changes, sample locations and measured water levels.
4. For the duration of this permit period and periods of active ASR, the project shall receive continued oversight by SPF Water Engineering, LLC or other qualified firm(s).

5. Should the use of the well lead to degradation of the groundwater, over-pressurization of the aquifer, or harm to nearby wells or other beneficial uses, the permit may be modified or cancelled. The Idaho Department of Water Resources retains the right to modify this permit as conditions dictate. The permittee or landowner may be required to mitigate for harm or degradation resulting from this injection well.
6. Flow into the injection well(s) shall not exceed an average weekly rate of 3000 gpm for #63W208001 (Test Production Well #1), 500 gpm for #63W208002 (SVR Well 3), and 250 gpm for #63W208003 (SVR Well 8).
7. *Approval of this permit does not authorize any additional volume of water to be diverted under existing SunCor Idaho, LLC water rights.*
8. This permit shall expire on March 31, 2016. If use of any of the wells is desired beyond this date, new applications for permit renewal must be submitted.

Should you have any questions, please call me at 208/287-4934.

Sincerely,



John Sharkey
Hydrologist, UIC Program Coordinator

Encl.

42-39-1
10/2004

Permit Approval Date: 3/3/06 Initials B
Permit Expiration Date: 3/31/2016 Initials B

Permit No. 63W208001

APPLICATION FOR PERMIT TO CONSTRUCT, MODIFY OR MAINTAIN AN
INJECTION WELL

IDAHO DEPARTMENT OF WATER RESOURCES
322 East Front St., PO Box 83720, Boise, ID 83720-0098
Under the Provisions of Title 42, Chapter 39 of the Idaho Code

Note To Applicant: Fill in ALL Information Requested. Incomplete Applications will be Returned.

I. GENERAL INFORMATION

A. Application Type: (check appropriate box)

- ☒ New Injection Well Operating Permit (A Drilling Permit is also required prior to construction)
☐ Permit to Modify an Existing Injection Well (see Section H.)
☐ Renew Operating Permit of an Existing Injection Well

B. Name and Address of Legal Contact:

☒ Legal Owner ☐ Operator or Representative ☐ Contractor *(See note)

Contact Name Bob Taunton

Business Name SunCor Idaho LLC

Mailing Address 485 E. Riverside Drive, Suite 300

City Eagle State Idaho Zip Code 83616

Phone No. 1 (208) 939-0343 Phone No. 2 (208) 761-8609

*Contractor Note: Give Future Owner Name & Contact Information (If known)

C. Well Location: (Give location address of well if different from above, otherwise write "same")

Facility Name Test Production Well No. 1

Address One mile west of State Highway 55

City none State Idaho Zip Code _____

County Ada County Facility Phone No. same

D. Well Location Legal Description:

(*For New Injection Well Permits, You must supply this information* Include map)

Township 5N Range 1E Section 1 (¼, ¼, ¼)NW (¼, ¼)SE (¼ Section) SE

Indicate
Location of
Well on Map
by placing
an "X"
through
Appropriate
¼, ¼ Section

(NW ¼)

NW	NE	NW	NE
NW	NW	NE	NE
SW	SE	SW	SE
NW	NW	NE	NE
NW	NE	NW	NE
SW	SW	SE	SE
SW	SE	SW	X SE
SW	SW	SE	SE

(NE ¼)

Refer to
Your
Property
Tax
Statements
for Correct
Legal
Description
Information

(SW ¼)

Section Map (1/4, ¼ Sections)

(SE ¼)

E. Is the Well/Facility Located on Indian Lands?

☐ Yes ☒ No

F. Injection Well Classification: 5R21 (obtain proper code from list on instruction sheet)

II. TECHNICAL DATA

G. Well Construction Information:

☒ As Built (attach well log, if available)
IDWR Drilling Permit No. 809801-380533
☐ Expected Construction

Well Tag No. D0030890

Drill Bore: Diameter 24 (in) Depth 292 (ft)
Surface Casing: Diameter 16 (in) Depth 238 (ft)
Height above Ground Surface +2 (ft)
Perforation: From 238 (ft) To 290 (ft)
Surface Seal: Depth 230 (ft) Seal Type Bentonite chips

Secondary Casing (if applicable):

Diameter _____ (in) Initial Depth _____ (ft) Terminal Depth _____ (ft)
Casing Type _____ Seal Type _____ Packer Depth _____ (ft)

Construction Date (indicate Actual, Approximate or Anticipated): 3/30/04
Driller's Name/Address: Riverside, Inc., Parma, Idaho

H. Describe Intended Modification and Purpose (for Permit to Modify only): N/A

I. Site Description:

Depth to Groundwater 176 (ft) ☐ Estimate ☐ Measured Date Measured 4/14/04
Distance to Nearest Domestic Well 10,000 (ft) Direction S-SW

J. Description of Well Operation:

Frequency of Injection: ☐ Continuous ☐ Seasonal ☒ Intermittent
Maximum Average Weekly Rate 3,000 cfs ☒ gpm (future)
Maximum Injection Capacity 5,000 cfs ☒ gpm (future)
Injection Pressure (for pressurized systems, at well head) N/A, 0 (psi)

Is the injection well part of an approved contamination remediation system? Yes ☒ No ☐ If yes, please attach a copy of the signed regulatory approval for the remediation action, description of the remediation system, and intended use of the injection well.

K. Description of Waste Stream:

Activity Type: ☐ Agricultural/Farming ☐ Agricultural Processing ☐ Mining
☐ Building Heating/Cooling ☐ Industrial/Manufacturing
☐ Automotive Repair ☐ Aquifer Storage/Recharge ☐ Other

Describe ASR for municipal water use

L. Are hazardous wastes as defined in IDAP A 58.01.05 generated or stored on the facility?

☐ Yes ☒ No (Special Note: Injection of hazardous wastes is prohibited.)

- M. List constituents and concentrations in waste stream (list agricultural, automotive or industrial chemicals, tracers, antibacterial, anti-corrosive, anti-freeze, or other treatment agents):

None. Drinking water quality from municipal water system or groundwater source.

- N. If the injection well is used for agricultural fluid disposal, complete the following: N/A

Method of irrigation: ☐ Gravity ☐ Sprinkler

Water Source: ☐ Groundwater ☐ Surface water or canal system

Are pesticides used? ☐ Yes ☐ No Describe _____

Are herbicides used? ☐ Yes ☐ No Describe _____

- O. Description of Land Use: (For all, except Class 5A 7 Closed-Loop Heat Pump Return)

Drainage area discharging to injection well none (Acres)

Describe land uses occurring in drainage area rangeland

- O. Active Waste Disposal Activities within Injection Well Drainage Area: (For all, except Class 5A7 Closed-Loop Heat Pump Return) None

☐ Wastewater Land Application Operations

Description _____

☐ CAFO/Feed Lot Operations

Description _____

☐ Dairy Operations

Description _____

☐ Other(s)

Description _____

- Q. Treatment Methods Prior to Injection: (For all, except Class 5A7 Closed-Loop Heat Pump Return wells)

☐ Retention Pond Length _____ (ft) Width _____ (ft) Depth _____ (ft)

Description _____

☐ Well Screen

Description 50 feet of stainless steel well screen and silica sand filter pack

☐ Filtration

Description _____

☐ Chemical Treatment

Description iron sulfate added for aquifer conditioning

☐ Well Screen

Description _____

☐ Other

Description _____

R. Alternative Methods to Injection Well Use:

Describe alternatives to the use of an injection well for waste disposal N/A

Why were the above alternative methods rejected? _____

For all, except Class SA7 Closed-Loop Heat Pump Return wells, attach a topographic map or aerial photo showing the area within a one-mile radius to show the following:

- Location of the described injection well, domestic supply wells, and any other wells
- Outline of area draining to the injection well
- Property boundaries of injection well owner

III. Applicant Signature

Any request to treat any document or portion thereof as a trade secret as defined under Chapter 8, Title 48, Idaho Code shall be made at the time said document is submitted to the Department. The person making the request shall stamp or otherwise mark each page or items on a page, to which the request applies, with the word "confidential".

Be it known that the undersigned hereby makes Application for Permit to Construct or Maintain an Injection Well. The above information is true and correct to the best of my knowledge.

10/25/05
Date

Robert G. Taunton
Signature

Gen. Mgr.
Title

ROBERT G. TAUNTON
Print Name

For Department Use Only

I have examined Application No. 63W208001 and said application is hereby Approved subject to the attached conditions.

Witnessed by my hand this 3 day of March, 20 06

[Signature]
Official, Idaho Department of Water Resources

Mgr., Ground Water Protection
Title

Received by Michelle M
Fees 100-

Date 1/13/06
Received by Michelle M

Reviewed By JS
Receipt No. C080049

IDAHO DEPARTMENT OF WATER RESOURCES

ATTACHMENT I

STANDARD CONDITIONS AND REQUIREMENTS PERTAINING TO CONSTRUCTING, MODIFYING, OPERATING AND/OR ABANDONING AN INJECTION WELL

A. CONSTRUCTION REQUIREMENTS

1. The injection well shall be constructed by an Idaho licensed driller and shall conform with the current Minimum Well Construction Standards of the State and the Conditions of this Permit, except that a licensed driller is not required for the construction of a mine shaft, a hole without mechanically-powered equipment, or a shallow injection well.
2. The injection well shall be constructed to prevent the entrance of any fluids other than that specified in the permit.
3. The injection well shall be constructed to prevent waste of artesian fluids and/or pressure, or movement of fluids from one aquifer to another.
4. When construction or modification of an injection well has been completed, the owner shall inform the Director of completion on a form provided by the Department.
5. A sampling port shall be provided at the wellhead if the injection well system is enclosed. If the well is located within a pond or similar basin, an elevated walkway to the wellhead for sampling access must be constructed and maintained in safe operating condition by the operator of the injection well.

B. OPERATIONAL CONDITIONS

1. The injection well will not be used until the construction, operation and maintenance requirements of the permit are met and provisions are made for any required inspection, monitoring and record keeping.
2. Injected fluids shall meet Ground Water Quality Standards for physical, chemical and radiological contaminants. Fluids containing biological contaminants shall meet Ground Water Quality Standards at existing points of diversion or any Point of Beneficial Use developed in the future.
3. Best Management Practices shall be maintained to minimize the concentration of coliform bacteria in the injected fluid to protect the quality of groundwater. Well screens shall be maintained in good condition on all injection wells. Settlement ponds, if present, shall be maintained in good condition.

3. Notice of completion of abandonment shall be submitted to the Director within 30 days of completion.
4. All injection wells shall be plugged with cement grout or other impervious material in such a manner as to prevent movement of fluids into or between drinking water sources. Where an injection well is not completed as planned, the Director shall be notified. Abandonment or other action, as prescribed by the Director, may be required.
5. The injection well owner or operator shall maintain the financial responsibility to insure that the injection operation is abandoned as prescribed.
6. Temporary abandonment, including use of a welded steel plate to cover the well opening, or a packer to occlude the well bore does not exempt the owner or operator from the requirement to obtain a permit. A well that is permitted as temporarily abandoned must receive a new permit in order to inject fluids.

D. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

1. Monitoring

- a. All monitoring tests and analyses are to be performed by a state-certified laboratory or other laboratory, as approved by the Director, using recommended methods as defined in Idaho's Injection Well Rules and Regulations.
- b. All required field instruments should be periodically tested and maintained to ensure accuracy of results.
- c. All samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and fluids injected.

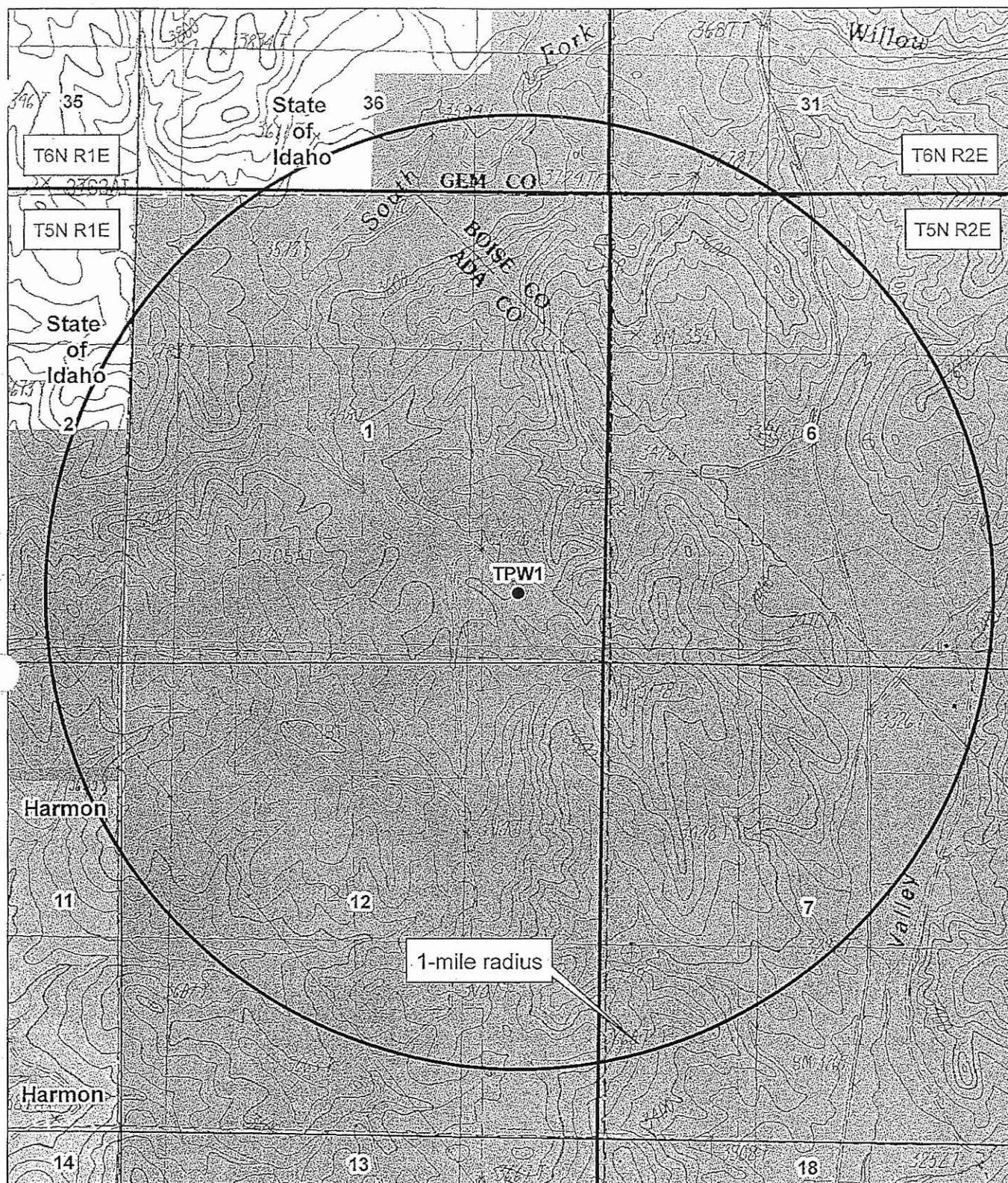
2. Record Keeping

- a. The permittee shall maintain records of all monitoring activities, to include:
 - 1) Date, time and exact place of sampling;
 - 2) Person or firm performing the analysis;
 - 3) Date of analysis, analytical methods used and results of analysis;
 - 4) Calibration and maintenance of all monitoring instruments; and
 - 5) All original tapes, strip charts or other data from continuous or automated monitoring instruments.
- b. The permittee shall retain for a period of five (5) years all records of monitoring, construction and application information.
 - 1) The period of retention for records shall be extended during the course of any litigation regarding the discharge of contaminants by the permittee or when requested by the Director.
 - 2) This requirement shall continue in effect during the five (5) year period following abandonment of the injection well.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
ATTACHMENT II
SPECIAL CONDITIONS AND REQUIREMENTS PERTAINING
TO CONSTRUCTING, MODIFYING, OPERATING AND/OR
ABANDONING AN INJECTION WELL

2/06

1. The permit is valid for the modification and operational use to the existing monitoring and production wells as outlined in the 11/04/2005 project summary and supplemental materials submitted by Terry Scanlan/SPF Water Engineering, LLC. Approval is contingent upon adherence to the design and operation plan therein. IDWR shall be notified of any modifications to the system design or operation in advance. System modifications require prior approval. Approval for abandonment of this well(s) shall be obtained in advance.
2. For the duration of this permit period, the addition of iron sulfate to a maximum iron concentration of 5mg/L in the injected fluid is authorized for aquifer conditioning and potential arsenic removal. Additional system additives or changes in concentration require prior approval.
3. During periods of active ASR, compliance of the injected fluids with Ground Water Quality Standards shall be demonstrated by continued monitoring of the injected fluids (source water) and production water. With the exception of arsenic, a sampling event indicating non-compliance with Ground Water Quality Standards shall be reported to IDWR within 48 hours of discovery. An annual summary report shall be submitted to IDWR indicating the volumes of water recharged and produced, analytical results, general water quality changes, sample locations and measured water levels.
4. For the duration of this permit period and periods of active ASR, the project shall receive continued oversight by SPF Water Engineering, LLC or other qualified firm(s).
5. Should the use of the well lead to degradation of the groundwater, over-pressurization of the aquifer, or harm to nearby wells or other beneficial uses, the permit may be modified or cancelled. The Idaho Department of Water Resources retains the right to modify this permit as conditions dictate. The permittee or landowner may be required to mitigate for harm or degradation resulting from this injection well.
6. Flow into the injection well(s) shall not exceed an average weekly rate of 3000 gpm.
7. *Approval of this permit does not authorize any additional volume of water to be diverted under existing SunCor Idaho, LLC water rights.*
8. This permit shall expire on March 31, 2016. If use of the well is desired beyond this date, a new application for permit renewal must be submitted.



All lands owned by SunCor or associated trust in blue. No drainage to injection well.



0 1,500 3,000 Feet

42-39-1
10/2004

Permit Approval Date: 3/3/2006 Initials JS
Permit Expiration Date: 3/31/2016 Initials JS

Permit No. 63W208002

APPLICATION FOR PERMIT TO CONSTRUCT, MODIFY OR MAINTAIN AN
INJECTION WELL

IDAHO DEPARTMENT OF WATER RESOURCES
322 East Front St., PO Box 83720, Boise, ID 83720-0098
Under the Provisions of Title 42, Chapter 39 of the Idaho Code

Note To Applicant: Fill in ALL Information Requested. Incomplete Applications will be Returned.

I. GENERAL INFORMATION

A. Application Type: (check appropriate box)

- ☒ New Injection Well Operating Permit (A Drilling Permit is also required prior to construction)
☐ Permit to Modify an Existing Injection Well (see Section H.)
☐ Renew Operating Permit of an Existing Injection Well

B. Name and Address of Legal Contact:

☒ Legal Owner ☐ Operator or Representative ☐ Contractor *(See note)

Contact Name Bob Taunton

Business Name SunCor Idaho LLC

Mailing Address 485 E. Riverside Drive, Suite 300

City Eagle State Idaho Zip Code 83616

Phone No. 1 (208) 939-0343 Phone No. 2 (208) 761-8609

*Contractor Note: Give Future Owner Name & Contact Information (If known)

C. Well Location: (Give location address of well if different from above, otherwise write "same")

Facility Name SVR Well 3

Address 1 mile west of State Highway 55

City none State Idaho Zip Code 83616

County Ada County Facility Phone No. same

D. Well Location Legal Description:

(*For New Injection Well Permits, You must supply this information* Include map)

Township 5N Range 1E Section 1 (1/4, 1/4, 1/4)NW (1/4, 1/4)SE (1/4 Section)SE

County Ada

Indicate
Location of
Well on Map
by placing
an "X"
through
Appropriate
1/4, 1/4 Section

(NW 1/4)

NW	NE	NW	NE
NW	NW	NE	NE
SW	SE	SW	SE
NW	NW	NE	NE
NW	NE	NW	NE
SW	SW	SE	SE
SW	SE	SW	X SE
SW	SW	SE	SE

(NE 1/4)

Refer to
Your
Property
Tax
Statements
for Correct
Legal
Description
Information

(SW 1/4)

Section Map (1/4, 1/4 Sections)

(SE 1/4)

E. Is the Well/Facility Located on Indian Lands?

☐ Yes ☒ No

F. Injection Well Classification: 5R21 (obtain proper code from list on instruction sheet)

II. TECHNICAL DATA

G. Well Construction Information:

☒ As Built (attach well log, if available)
IDWR Drilling Permit No. 874852-789296
☐ Expected Construction

Well Tag No. D0029004

Drill Bore: Diameter 8 / 10 (in) Depth 240-970 / 0(240) (ft)
Surface Casing: Diameter 8 (in) Depth 5 (ft)
Height above Ground Surface 1 (ft)
Perforation: From 165 (ft) To 240 (ft)
Surface Seal: Depth 150 (ft) Seal Type Bentonite grout

Secondary Casing (if applicable):

Diameter 6 (in) Initial Depth +2 (ft) Terminal Depth 195 (ft)
Casing Type steel Seal Type bentonite grout Packer Depth none (ft)

Construction Date (indicate Actual, Approximate or Anticipated): 12/20/02

Driller's Name/Address: Stevens and Sons Well Drilling

H. Describe Intended Modification and Purpose (for Permit to Modify only):

I. Site Description:

Depth to Groundwater 175 (ft) ☐ Estimate ☒ Measured Date Measured 4/14/04
Distance to Nearest Domestic Well 10,000 (ft) Direction S-SW

J. Description of Well Operation:

Frequency of Injection: ☐ Continuous ☐ Seasonal ☒ Intermittent
Maximum Average Weekly Rate 500 cfs ☒ gpm
Maximum Injection Capacity 1,000 cfs ☒ gpm
Injection Pressure (for pressurized systems, at well head) N/A, 0 (psi)

Is the injection well part of an approved contamination remediation system? Yes ☒ No ☐ If yes, please attach a copy of the signed regulatory approval for the remediation action, description of the remediation system, and intended use of the injection well.

K. Description of Waste Stream:

Activity Type: ☐ Agricultural/Farming ☐ Agricultural Processing ☐ Mining
☐ Building Heating/Cooling ☐ Industrial/Manufacturing
☐ Automotive Repair ☒ Aquifer Storage/Recharge ☐ Other

Describe ASR for municipal water use

L. Are hazardous wastes as defined in IDAP A 58.01.05 generated or stored on the facility?

☐ Yes ☒ No (Special Note: Injection of hazardous wastes is prohibited.)

- M. List constituents and concentrations in waste stream (list agricultural, automotive or industrial chemicals, tracers, antibacterial, anti-corrosive, anti-freeze, or other treatment agents):

None. Drinking water quality from municipal water system or groundwater source.

- N. If the injection well is used for agricultural fluid disposal, complete the following: N/A

Method of irrigation: ☐ Gravity ☐ Sprinkler

Water Source: ☐ Groundwater ☐ Surface water or canal system

Are pesticides used? ☐ Yes ☐ No Describe _____

Are herbicides used? ☐ Yes ☐ No Describe _____

- O. Description of Land Use: (For all, except Class 5A 7 Closed-Loop Heat Pump Return)

Drainage area discharging to injection well none (Acres)

Describe land uses occurring in drainage area rangeland

- O. Active Waste Disposal Activities within Injection Well Drainage Area: (For all, except Class 5A7 Closed-Loop Heat Pump Return) None

☐ Wastewater Land Application Operations

Description _____

☐ CAFO/Feed Lot Operations

Description _____

☐ Dairy Operations

Description _____

☐ Other(s)

Description _____

- Q. Treatment Methods Prior to Injection: (For all, except Class 5A7 Closed-Loop Heat Pump Return wells)

☐ Retention Pond Length _____ (ft) Width _____ (ft) Depth _____ (ft)

Description _____

☐ Well Screen

Description 40 feet of stainless steel well screen

☐ Filtration

Description _____

☐ Chemical Treatment

Description _____

☐ Well Screen

Description _____

☐ Other

Description _____

R. Alternative Methods to Injection Well Use:

Describe alternatives to the use of an injection well for waste disposal N/A

Why were the above alternative methods rejected? _____

For all, except Class SA7 Closed-Loop Heat Pump Return wells, attach a topographic map or aerial photo showing the area within a one-mile radius to show the following:

- Location of the described injection well, domestic supply wells, and any other wells
- Outline of area draining to the injection well
- Property boundaries of injection well owner

III. Applicant Signature

Any request to treat any document or portion thereof as a trade secret as defined under Chapter 8, Title 48, Idaho Code shall be made at the time said document is submitted to the Department. The person making the request shall stamp or otherwise mark each page or items on a page, to which the request applies, with the word "confidential".

Be it known that the undersigned hereby makes Application for Permit to Construct or Maintain an Injection Well. The above information is true and correct to the best of my knowledge.

10/25/05

Date

Robert G. Taunton

Signature

Gen. Mgr.

Title

ROBERT G. TAUNTON

Print Name

For Department Use Only

I have examined Application No. 63W208002 and said application is hereby Approved subject to the attached conditions.

Witnessed by my hand this 3 day of March, 20 06

Maureen Seft
Official, Idaho Department of Water Resources

Mgr., Ground Water Protection
Title

Received by Michelle M.

Date 1/13/06

Reviewed By JS

Fees 100

Received by Michelle M

Receipt No. C080049

IDAHO DEPARTMENT OF WATER RESOURCES

ATTACHMENT I

STANDARD CONDITIONS AND REQUIREMENTS PERTAINING TO CONSTRUCTING, MODIFYING, OPERATING AND/OR ABANDONING AN INJECTION WELL

A. CONSTRUCTION REQUIREMENTS

1. The injection well shall be constructed by an Idaho licensed driller and shall conform with the current Minimum Well Construction Standards of the State and the Conditions of this Permit, except that a licensed driller is not required for the construction of a mine shaft, a hole without mechanically-powered equipment, or a shallow injection well.
2. The injection well shall be constructed to prevent the entrance of any fluids other than that specified in the permit.
3. The injection well shall be constructed to prevent waste of artesian fluids and/or pressure, or movement of fluids from one aquifer to another.
4. When construction or modification of an injection well has been completed, the owner shall inform the Director of completion on a form provided by the Department.
5. A sampling port shall be provided at the wellhead if the injection well system is enclosed. If the well is located within a pond or similar basin, an elevated walkway to the wellhead for sampling access must be constructed and maintained in safe operating condition by the operator of the injection well.

B. OPERATIONAL CONDITIONS

1. The injection well will not be used until the construction, operation and maintenance requirements of the permit are met and provisions are made for any required inspection, monitoring and record keeping.
2. Injected fluids shall meet Ground Water Quality Standards for physical, chemical and radiological contaminants. Fluids containing biological contaminants shall meet Ground Water Quality Standards at existing points of diversion or any Point of Beneficial Use developed in the future.
3. Best Management Practices shall be maintained to minimize the concentration of coliform bacteria in the injected fluid to protect the quality of groundwater. Well screens shall be maintained in good condition on all injection wells. Settlement ponds, if present, shall be maintained in good condition.

3. Notice of completion of abandonment shall be submitted to the Director within 30 days of completion.
4. All injection wells shall be plugged with cement grout or other impervious material in such a manner as to prevent movement of fluids into or between drinking water sources. Where an injection well is not completed as planned, the Director shall be notified. Abandonment or other action, as prescribed by the Director, may be required.
5. The injection well owner or operator shall maintain the financial responsibility to insure that the injection operation is abandoned as prescribed.
6. Temporary abandonment, including use of a welded steel plate to cover the well opening, or a packer to occlude the well bore does not exempt the owner or operator from the requirement to obtain a permit. A well that is permitted as temporarily abandoned must receive a new permit in order to inject fluids.

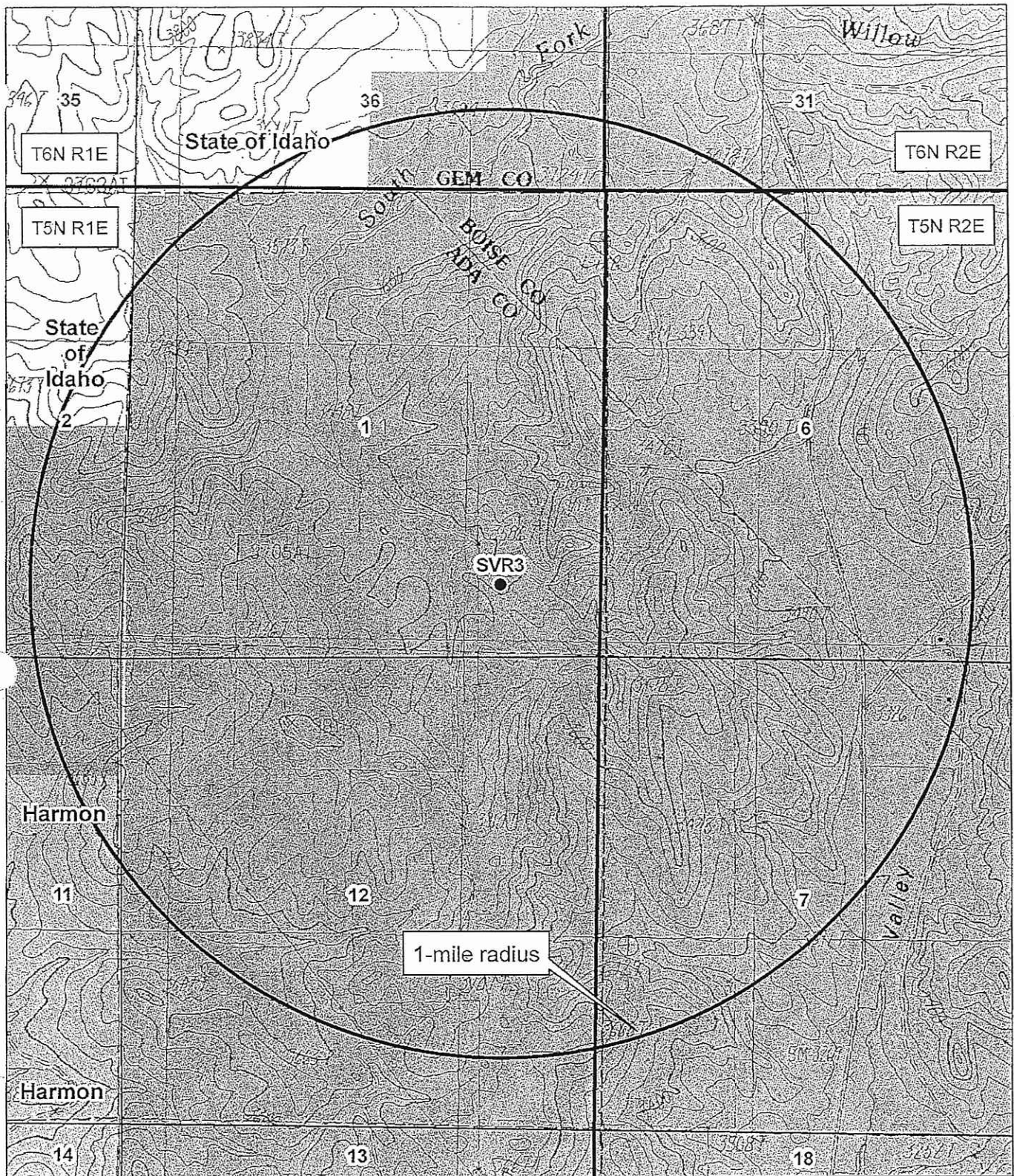
D. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

1. Monitoring
 - a. All monitoring tests and analyses are to be performed by a state-certified laboratory or other laboratory, as approved by the Director, using recommended methods as defined in Idaho's Injection Well Rules and Regulations.
 - b. All required field instruments should be periodically tested and maintained to ensure accuracy of results.
 - c. All samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and fluids injected.
2. Record Keeping
 - a. The permittee shall maintain records of all monitoring activities, to include:
 - 1) Date, time and exact place of sampling;
 - 2) Person or firm performing the analysis;
 - 3) Date of analysis; analytical methods used and results of analysis;
 - 4) Calibration and maintenance of all monitoring instruments; and
 - 5) All original tapes, strip charts or other data from continuous or automated monitoring instruments.
 - b. The permittee shall retain for a period of five (5) years all records of monitoring, construction and application information.
 - 1) The period of retention for records shall be extended during the course of any litigation regarding the discharge of contaminants by the permittee or when requested by the Director.
 - 2) This requirement shall continue in effect during the five (5) year period following abandonment of the injection well.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
ATTACHMENT II
SPECIAL CONDITIONS AND REQUIREMENTS PERTAINING
TO CONSTRUCTING, MODIFYING, OPERATING AND/OR
ABANDONING AN INJECTION WELL

-2/06

1. The permit is valid for the modification and operational use to the existing monitoring and production wells as outlined in the 11/04/2005 project summary and supplemental materials submitted by Terry Scanlan/SPF Water Engineering, LLC. Approval is contingent upon adherence to the design and operation plan therein. IDWR shall be notified of any modifications to the system design or operation in advance. System modifications require prior approval. Approval for abandonment of this well(s) shall be obtained in advance.
2. For the duration of this permit period, the addition of iron sulfate to a maximum iron concentration of 5mg/L in the injected fluid is authorized for aquifer conditioning and potential arsenic removal. Additional system additives or changes in concentration require prior approval.
3. During periods of active ASR, compliance of the injected fluids with Ground Water Quality Standards shall be demonstrated by continued monitoring of the injected fluids (source water) and production water. With the exception of arsenic, a sampling event indicating non-compliance with Ground Water Quality Standards shall be reported to IDWR within 48 hours of discovery. An annual summary report shall be submitted to IDWR indicating the volumes of water recharged and produced, analytical results, general water quality changes, sample locations and measured water levels.
4. For the duration of this permit period and periods of active ASR, the project shall receive continued oversight by SPF Water Engineering, LLC or other qualified firm(s).
5. Should the use of the well lead to degradation of the groundwater, over-pressurization of the aquifer, or harm to nearby wells or other beneficial uses, the permit may be modified or cancelled. The Idaho Department of Water Resources retains the right to modify this permit as conditions dictate. The permittee or landowner may be required to mitigate for harm or degradation resulting from this injection well.
6. Flow into the injection well(s) shall not exceed an average weekly rate of 500 gpm.
7. *Approval of this permit does not authorize any additional volume of water to be diverted under existing SunCor Idaho, LLC water rights.*
8. This permit shall expire on March 31, 2016. If use of the well is desired beyond this date, a new application for permit renewal must be submitted.



All lands owned by SunCor or associated trust in blue. No drainage to injection well.



0 1,500 3,000 Feet

Permit Approval Date: 3/3/06 Initials JS
Permit Expiration Date: 3/31/2016 Initials JS

Permit No. **63W208003**

APPLICATION FOR PERMIT TO CONSTRUCT, MODIFY OR MAINTAIN AN
INJECTION WELL

IDAHO DEPARTMENT OF WATER RESOURCES
322 East Front St., PO Box 83720, Boise, ID 83720-0098
Under the Provisions of Title 42, Chapter 39 of the Idaho Code

Note To Applicant: Fill in ALL Information Requested. Incomplete Applications will be Returned.

I. GENERAL INFORMATION

A. Application Type: (check appropriate box)

- ☒ New Injection Well Operating Permit (A Drilling Permit is also required prior to construction)
☐ Permit to Modify an Existing Injection Well (see Section H.)
☐ Renew Operating Permit of an Existing Injection Well

B. Name and Address of Legal Contact:

☒ Legal Owner ☐ Operator or Representative ☐ Contractor *(See note)

Contact Name Bob Taunton

Business Name SunCor Idaho LLC

Mailing Address 485 E. Riverside Drive, Suite 300

City Eagle State Idaho Zip Code 83616

Phone No. 1 (208) 939-0343 Phone No. 2 (208) 761-8609

*Contractor Note: Give Future Owner Name & Contact Information (if known)

C. Well Location: (Give location address of well if different from above, otherwise write "same")

Facility Name SVR Well 8

Address 1/2 mile west of State Highway 55

City none State Idaho Zip Code 83616

County Ada County Facility Phone No. same

D. Well Location Legal Description:

(*For New Injection Well Permits, You must supply this information* Include map)

Township 5N Range 2E Section 6 (1/4, 1/4, 1/4)NW (1/4, 1/4)SW (1/4 Section)SW

County Ada

Indicate
Location of
Well on Map
by placing
an "X"
through
Appropriate
1/4, 1/4 Section

(NW 1/4)

NW	NE	NW	NE
NW	NW	NE	NE
SW	SE	SW	SE
NW	NW	NE	NE
NW	NE	NW	NE
SW	SW	SE	SE
X SW	SE	SW	SE
SW	SW	SE	SE

(NE 1/4)

Refer to
Your
Property
Tax
Statements
for Correct
Legal
Description
Information

(SW 1/4)

Section Map (1/4, 1/4 Sections)

(SE 1/4)

E. Is the Well/Facility Located on Indian Lands?

☐ Yes ☒ No

F. Injection Well Classification: 5R21 (obtain proper code from list on instruction sheet)

II. TECHNICAL DATA

G. Well Construction Information:

- ☒ As Built (attach well log, if available)
IDWR Drilling Permit No. 874852-789296
☐ Expected Construction

Well Tag No. D0029004

Drill Bore: Diameter 10 / 6 (in) Depth 0-20 / 20-40 (ft)
Surface Casing: Diameter 6 (in) Depth 133 (ft)
Height above Ground Surface +2 (ft)
Perforation: From 136 (ft) To 141 (ft)
Surface Seal: Depth 20 (ft) Seal Type Bentonite chip

Secondary Casing (if applicable):

Diameter 6 (in) Initial Depth _____ (ft) Terminal Depth _____ (ft)
Casing Type _____ Seal Type _____ Packer Depth _____ (ft)

Construction Date (indicate Actual, Approximate or Anticipated): 4/14/04 4/12/04 JS
Driller's Name/Address: Adamson Pump and Drilling

H. Describe Intended Modification and Purpose (for Permit to Modify only):

I. Site Description:

Depth to Groundwater 66.7 (ft) ☐ Estimate ☒ Measured Date Measured 4/14/04
Distance to Nearest Domestic Well 10.000 (ft) Direction S-SW

J. Description of Well Operation:

Frequency of Injection: ☐ Continuous ☐ Seasonal ☒ Intermittent
Maximum Average Weekly Rate 250 cfs ☒ gpm
Maximum Injection Capacity 500 cfs ☒ gpm
Injection Pressure (for pressurized systems, at well head) N/A, 0 (psi)

Is the injection well part of an approved contamination remediation system? Yes ☒ No ☐ If yes, please attach a copy of the signed regulatory approval for the remediation action, description of the remediation system, and intended use of the injection well.

K Description of Waste Stream:

Activity Type: ☐ Agricultural/Farming ☐ Agricultural Processing ☐ Mining
☐ Building Heating/Cooling ☐ Industrial/Manufacturing
☐ Automotive Repair ☒ Aquifer Storage/Recharge ☐ Other

Describe ASR for municipal water use

L. Are hazardous wastes as defined in IDAP A.58.01.05 generated or stored on the facility?

☐ Yes ☒ No (Special Note: Injection of hazardous wastes is prohibited.)

- M. List constituents and concentrations in waste stream (list agricultural, automotive or industrial chemicals, tracers, antibacterial, anti-corrosive, anti-freeze, or other treatment agents):

None. Drinking water quality from municipal water system or groundwater source.

- N. If the injection well is used for agricultural fluid disposal, complete the following: N/A

Method of irrigation: ☐ Gravity ☐ Sprinkler

Water Source: ☐ Groundwater ☐ Surface water or canal system

Are pesticides used? ☐ Yes ☐ No Describe _____

Are herbicides used? ☐ Yes ☐ No Describe _____

- O. Description of Land Use: (For all, except Class 5A 7 Closed-Loop Heat Pump Return)

Drainage area discharging to injection well none (Acres)

Describe land uses occurring in drainage area rangeland

- O. Active Waste Disposal Activities within Injection Well Drainage Area: (For all, except Class 5A7 Closed-Loop Heat Pump Return) None

☐ Wastewater Land Application Operations

Description _____

☐ CAFO/Feed Lot Operations

Description _____

☐ Dairy Operations

Description _____

☐ Other(s)

Description _____

- Q. Treatment Methods Prior to Injection: (For all, except Class 5A7 Closed-Loop Heat Pump Return wells)

☐ Retention Pond Length _____ (ft) Width _____ (ft) Depth _____ (ft)

Description _____

☒ Well Screen

Description 5 feet of stainless steel well screen N/A IS.

☐ Filtration

Description _____

☐ Chemical Treatment

Description _____

☐ Well Screen

Description _____

☐ Other

Description _____

R. Alternative Methods to Injection Well Use:

Describe alternatives to the use of an injection well for waste disposal N/A

Why were the above alternative methods rejected? _____

For all, except Class SA7 Closed-Loop Heat Pump Return wells, attach a topographic map or aerial photo showing the area within a one-mile radius to show the following:

- Location of the described injection well, domestic supply wells, and any other wells
- Outline of area draining to the injection well
- Property boundaries of injection well owner

III. Applicant Signature

Any request to treat any document or portion thereof as a trade secret as defined under Chapter 8, Title 48, Idaho Code shall be made at the time said document is submitted to the Department. The person making the request shall stamp or otherwise mark each page or items on a page, to which the request applies, with the word "confidential".

Be it known that the undersigned hereby makes Application for Permit to Construct or Maintain an Injection Well. The above information is true and correct to the best of my knowledge.

10/25/05 Robert G. Taunton Gen. Mgr.
Date Signature Title

ROBERT G. TAUNTON
Print Name

For Department Use Only

I have examined Application No. 63W208003 and said application is hereby Approved subject to the attached conditions.

Witnessed by my hand this 3 day of March, 20 06

[Signature]
Official, Idaho Department of Water Resources

Mgr., Ground Water Protection
Title

Received by Michelle M
Fees 100

Date 1/13/06

Reviewed By JS

Received by Michelle M.

Receipt No. 0080049

IDAHO DEPARTMENT OF WATER RESOURCES

ATTACHMENT I

STANDARD CONDITIONS AND REQUIREMENTS PERTAINING TO CONSTRUCTING, MODIFYING, OPERATING AND/OR ABANDONING AN INJECTION WELL

A. CONSTRUCTION REQUIREMENTS

1. The injection well shall be constructed by an Idaho licensed driller and shall conform with the current Minimum Well Construction Standards of the State and the Conditions of this Permit, except that a licensed driller is not required for the construction of a mine shaft, a hole without mechanically-powered equipment, or a shallow injection well.
2. The injection well shall be constructed to prevent the entrance of any fluids other than that specified in the permit.
3. The injection well shall be constructed to prevent waste of artesian fluids and/or pressure, or movement of fluids from one aquifer to another.
4. When construction or modification of an injection well has been completed, the owner shall inform the Director of completion on a form provided by the Department.
5. A sampling port shall be provided at the wellhead if the injection well system is enclosed. If the well is located within a pond or similar basin, an elevated walkway to the wellhead for sampling access must be constructed and maintained in safe operating condition by the operator of the injection well.

B. OPERATIONAL CONDITIONS

1. The injection well will not be used until the construction, operation and maintenance requirements of the permit are met and provisions are made for any required inspection, monitoring and record keeping.
2. Injected fluids shall meet Ground Water Quality Standards for physical, chemical and radiological contaminants. Fluids containing biological contaminants shall meet Ground Water Quality Standards at existing points of diversion or any Point of Beneficial Use developed in the future.
3. Best Management Practices shall be maintained to minimize the concentration of coliform bacteria in the injected fluid to protect the quality of groundwater. Well screens shall be maintained in good condition on all injection wells. Settlement ponds, if present, shall be maintained in good condition.

3. Notice of completion of abandonment shall be submitted to the Director within 30 days of completion.
4. All injection wells shall be plugged with cement grout or other impervious material in such a manner as to prevent movement of fluids into or between drinking water sources. Where an injection well is not completed as planned, the Director shall be notified. Abandonment or other action, as prescribed by the Director, may be required.
5. The injection well owner or operator shall maintain the financial responsibility to insure that the injection operation is abandoned as prescribed.
6. Temporary abandonment, including use of a welded steel plate to cover the well opening, or a packer to occlude the well bore does not exempt the owner or operator from the requirement to obtain a permit. A well that is permitted as temporarily abandoned must receive a new permit in order to inject fluids.

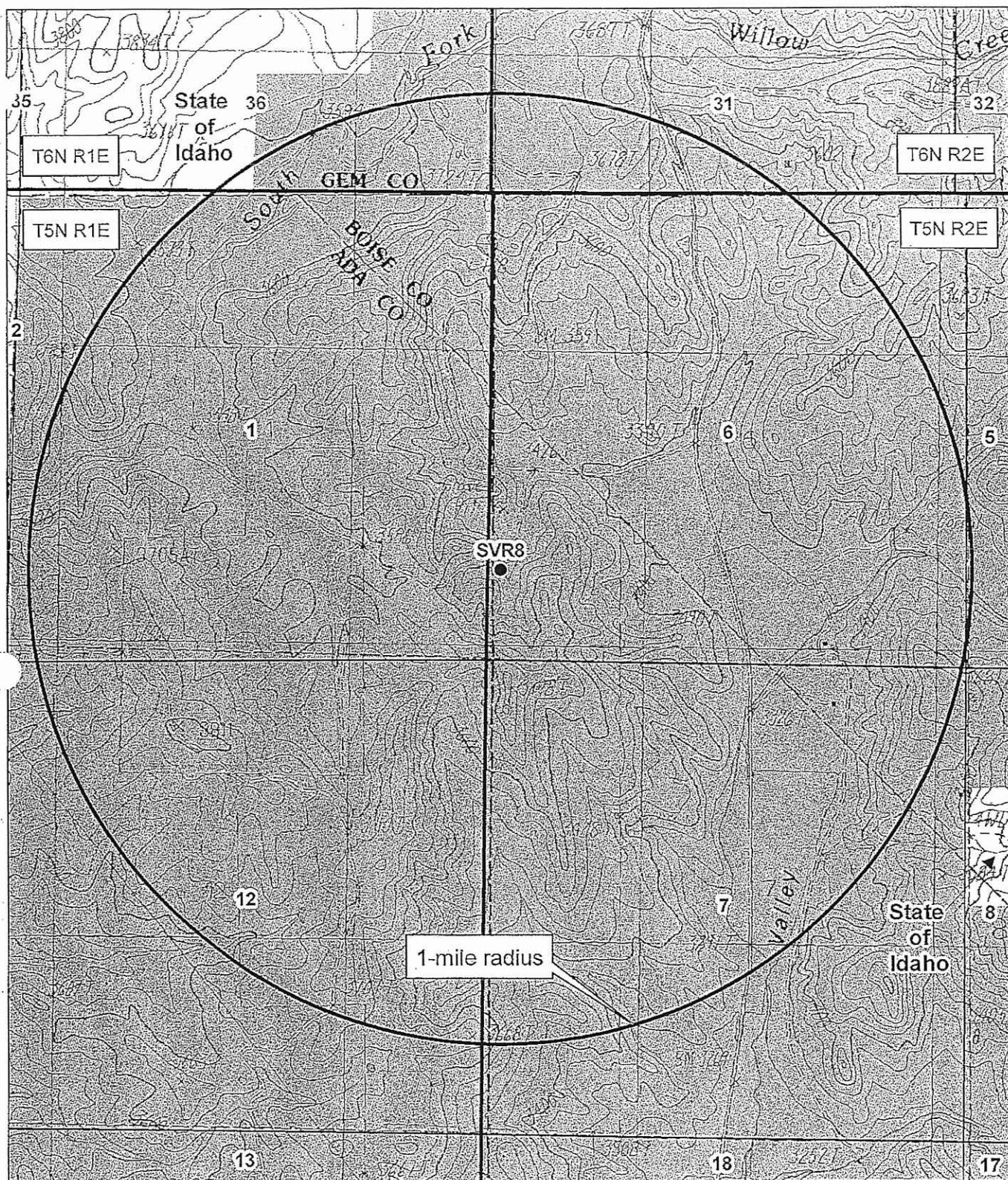
D. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

1. Monitoring
 - a. All monitoring tests and analyses are to be performed by a state-certified laboratory or other laboratory, as approved by the Director, using recommended methods as defined in Idaho's Injection Well Rules and Regulations.
 - b. All required field instruments should be periodically tested and maintained to ensure accuracy of results.
 - c. All samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and fluids injected.
2. Record Keeping
 - a. The permittee shall maintain records of all monitoring activities, to include:
 - 1) Date, time and exact place of sampling;
 - 2) Person or firm performing the analysis;
 - 3) Date of analysis, analytical methods used and results of analysis;
 - 4) Calibration and maintenance of all monitoring instruments; and
 - 5) All original tapes, strip charts or other data from continuous or automated monitoring instruments.
 - b. The permittee shall retain for a period of five (5) years all records of monitoring, construction and application information.
 - 1) The period of retention for records shall be extended during the course of any litigation regarding the discharge of contaminants by the permittee or when requested by the Director.
 - 2) This requirement shall continue in effect during the five (5) year period following abandonment of the injection well.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
ATTACHMENT II
SPECIAL CONDITIONS AND REQUIREMENTS PERTAINING
TO CONSTRUCTING, MODIFYING, OPERATING AND/OR
ABANDONING AN INJECTION WELL

2/06

1. The permit is valid for the modification and operational use to the existing monitoring and production wells as outlined in the 11/04/2005 project summary and supplemental materials submitted by Terry Scanlan/SPF Water Engineering, LLC. Approval is contingent upon adherence to the design and operation plan therein. IDWR shall be notified of any modifications to the system design or operation in advance. System modifications require prior approval. Approval for abandonment of this well(s) shall be obtained in advance.
2. For the duration of this permit period, the addition of iron sulfate to a maximum iron concentration of 5mg/L in the injected fluid is authorized for aquifer conditioning and potential arsenic removal. Additional system additives or changes in concentration require prior approval.
3. During periods of active ASR, compliance of the injected fluids with Ground Water Quality Standards shall be demonstrated by continued monitoring of the injected fluids (source water) and production water. With the exception of arsenic, a sampling event indicating non-compliance with Ground Water Quality Standards shall be reported to IDWR within 48 hours of discovery. An annual summary report shall be submitted to IDWR indicating the volumes of water recharged and produced, analytical results, general water quality changes, sample locations and measured water levels.
4. For the duration of this permit period and periods of active ASR, the project shall receive continued oversight by SPF Water Engineering, LLC or other qualified firm(s).
5. Should the use of the well lead to degradation of the groundwater, over-pressurization of the aquifer, or harm to nearby wells or other beneficial uses, the permit may be modified or cancelled. The Idaho Department of Water Resources retains the right to modify this permit as conditions dictate. The permittee or landowner may be required to mitigate for harm or degradation resulting from this injection well.
6. Flow into the injection well(s) shall not exceed an average weekly rate of 250 gpm.
7. *Approval of this permit does not authorize any additional volume of water to be diverted under existing SunCor Idaho, LLC water rights.*
8. This permit shall expire on March 31, 2016. If use of the well is desired beyond this date, a new application for permit renewal must be submitted.



All lands owned by SunCor or associated trust in blue. No drainage to injection well.

Education

M.S., Geological Engineering
University of Idaho

B.S., Geological Engineering
University of Idaho

Professional Certification

Professional Engineer
Idaho No. 6266, 1990

Professional Geologist
Idaho No. 646, 1989
Oregon No. G1311, 1992

Areas of Expertise

- Design, installation, and testing of high-capacity wells for irrigation, municipal, and industrial water supply
- Groundwater developments studies
- Water rights and permit applications

Experience Summary

Mr. Scanlan has over 20 years of professional experience in water supply consulting as an engineer and hydrogeologist. He has particular expertise in water rights, well and pump system design for public water systems, pressurized irrigation, and other water resource issues.

Mr. Scanlan's work experience has focused on well design and construction, surface water and ground water pump systems, aquifer and well testing, water development studies, and water rights. He also has experience in geothermal resource development, mining-related environmental studies, ground water drainage investigations, soils investigations, geologic mapping, and wastewater land application studies. He recently completed a term as Chairman of the Idaho Board of Registration for Professional Geologists.

SPF Water Engineering, LLC—2004 to present

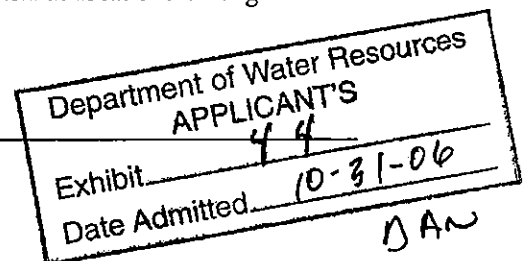
Mr. Scanlan is currently a Principal Engineer with (and co-founder of) SPF Water Engineering, LLC. SPF Water Engineering, LLC, (formerly Scanlan Engineering) was founded in March 2004 to provide hydrologic characterization, water resource development, and water distribution engineering services.

Scanlan Engineering—1994 to 2004

Mr. Scanlan formed Scanlan Engineering in 1994 to provide engineering and hydrogeologic consulting to public and private clients. Since that time, Scanlan Engineering has provided water resource consulting services to more than 200 separate clients, primarily in southwest Idaho. Local clients currently include the city of Boise (Public Works Department, Parks Department), Micron Technology, J.R. Simplot Company, Capitol Water Corporation, United Water Idaho, Inc., Meridian School District, city of Eagle, Sorrento Lactalis, city of Nampa, Boise State University, Ada County Highway District, and the Idaho Water Resources Research Institute. Mr. Scanlan has served as a subconsultant on water supply projects for numerous engineering firms in Idaho, most recently including Montgomery Watson Harza, Toothman-Orton Engineering Company, Entranco, Secesh Engineering, Materials Testing, Inc., and Civil Survey Consultants.

Montgomery Watson—1986 to 1993

Prior to forming Scanlan Engineering in 1994, Mr. Scanlan worked as a supervising hydrogeologist for Montgomery Watson in Boise, Idaho. He managed and conducted investigations related to ground water development and ground water contamination at locations throughout the western United States.



U.S. Geological Survey—1984 to 1986

Mr. Scanlan was employed by the U.S. Geological Survey as a field assistant in the geologic division prior to joining Montgomery Watson in 1986. Responsibilities included geologic mapping, landslide hazard evaluation, and mineral potential studies. Mr. Scanlan worked on the Challis and Hailey 2° Quadrangle CUSMAP programs.

Relevant Water Supply Project Experience

- Ground water development projects at more than 100 sites in Idaho for public and private water utilities, subdivisions, schools, and industries, including production well and pump design, aquifer pumping tests, exploration drilling programs, and ground water development studies.
- Design, construction monitoring, and testing of three 1,000- to 1,200-foot, high-capacity, industrial water supply wells and pump systems for Micron Technology in Boise, Idaho.
- Lead consultant to Micron Technology for the Boise River water supply and aquifer recharge project. Mr. Scanlan provided consulting services involving water rights, a nominal 25,000-gpm pump station, 3 miles of 24-inch and 30-inch pipeline, an ultra-filtration membrane water treatment system, and a nominal 4-MGD injection well for recharge purposes.
- Irrigation well and pump system design, surface water pump system design, construction monitoring, and well testing at municipal parks in Boise, Idaho. These projects included work on approximately 80 well and pump systems, including design and construction of approximately 20 well or surface water pumping systems.
- Design, permitting, and construction inspection of well pump systems and well houses for Capitol Water Corporation in Boise, Idaho. Mr. Scanlan also provided consulting services related to ASR and water rights.
- Design, construction, and testing of salt water production wells for large aquarium projects in Guam and Taiwan.
- Evaluation of ground water potential for snowmaking supplies at Sun Valley and Bogus Basin ski areas and design and testing of the water supply well for the snowmaking system at Sun Valley.
- Evaluation and testing of infiltration galleries and Ranney Collectors at Sequim, Washington (horizontal gallery, Dungeness River), Irrigon, Oregon (four Ranney Collectors, Columbia River), and Boise, Idaho (three Ranney Collectors, Boise River).
- Ground water development studies, well construction, and aquifer testing for fish hatchery projects in the Columbia, Umatilla, Walla Walla, Imnaha, and Grand Ronde river basins of Oregon for the Bonneville Power Administration. These projects included test well drilling and aquifer tests at ten locations, with well construction in alluvial and basalt aquifers.

- Hydrogeologic investigations, ground water exploration drilling, and design, construction, and testing of production wells for municipal ground water supply in Olympia, Washington.
- Design of the domestic supply, mine-pit dewatering, and industrial supply wells for the Beartrack mining project at Leesburg, Idaho.
- Resident geologist during drilling and completion of a 3,015-foot water supply well at Wright, Wyoming.
- Evaluation of the ground water aquifers of northwest North Dakota as part of the NAWS regional water supply system.

Relevant Water Rights Experience

- Preparation of more than 100 water right transfers and water right permit applications for public and private clients in Idaho.
- Evaluation of surface water and ground water interactions, well interference, irrigation development, and consumptive water use related to water right transfers in the Boise Valley, Wood River Valley, Mud Lake, Magic Valley, Big Lost River, and Little Lost River areas of Idaho.
- Evaluation and measurement of flow from springs involved in water right disputes along the Snake River near Twin Falls, Idaho.
- Investigations related to Snake River Basin Adjudication claims, including calculation of irrigation requirements and seepage losses, measurement of irrigation diversion rates, and determination of historically irrigated areas.
- Expert witness testimony regarding water use, well interference, and the interaction of surface water and ground water for clients in southern Idaho.
- Evaluation of irrigation diversions, natural flow, return flow, and storage accounting on the Payette River system for the Payette Water Users Association.
- Evaluation of Federal and Tribal in-stream flow claims in the Snake and Salmon River Basins.
- Preparation of mitigation plans to allow ground water diversions for irrigation and industrial use in moratorium areas or ground water management areas in the Boise and Snake River Basins.

Relevant Geothermal Resource Development Experience

- Construction monitoring for drilling and hydraulic fracturing of a 2,300-foot geothermal injection well for the Veterans Administration Medical Center in Boise, Idaho.
- Project manager for detailed study of the Boise Front Geothermal Aquifer for the city of Boise and Boise Warm Springs Water District. The study included computer modeling of hydraulic and thermal impacts of increased geothermal fluid production and spent fluid injection. Mr. Scanlan served as project manager for design, construction, and testing of a 3,200-foot geothermal injection well for

the city. He is currently working as a consultant to the Idaho Water Resources Research Institute on investigations of the Boise Front Geothermal Aquifer.

- Aquifer testing and high-capacity variable-speed pump system design for deep geothermal space-heating wells at the College of Southern Idaho.
- Geothermal aquifer investigations, well testing, production well and pump design, and water level monitoring for J.R. Simplot Company at aquaculture facilities in Caldwell and Grand View, Idaho.

Professional Affiliations

Idaho Association of Professional Geologists

National Ground Water Association

Idaho Ground Water Association

Principal Engineer
Hydrologist
Mediator

Christian R. Petrich, Ph.D., P.E., P.G.

Experience Summary

Dr. Petrich has over 20 years of progressive academic, professional, and managerial experience in hydrology and water resource engineering. He has particular expertise in characterizing and evaluating ground water flow systems, ground water monitoring, development and calibration of numerical ground water flow models, analysis of geothermal systems, and solving water problems through facilitation and mediation.

SPF Water Engineering, LLC – 2004 to present

Dr. Petrich is currently a Principal Engineer with (and co-founder of) SPF Water Engineering, LLC (SPF). SPF provides hydrologic characterization, water resource development, and water distribution engineering services. Dr. Petrich's recent project experience includes the following:

- Numerous Clients – hydrologic and water supply studies in Ada, Blaine, Boise, Elmore, Gooding, Canyon, Valley, Teton, and Owyhee counties
- United Water Idaho – comprehensive water supply assessment for public water system with 87 high-capacity wells
- McCain Foods USA – water supply assessment for a 4 MGD potato processing facility
- Numerous Clients – various water right permitting, water right transfer, and expert witness services
- Numerous Clients – ground- and surface-water monitoring and data analysis
- Idaho Department of Water Resources - Technical support for the Interim Legislative Committee on Water Resources
- Idaho Office of the Attorney General – Technical support for Lower Snake River water issues

Idaho Water Resources Research Institute–1996 to 2004

- Treasure Valley Hydrologic Project (Idaho Department of Water Resources) – Dr. Petrich served as Principal Investigator for this 8-year regional ground water study, which included (1) extensive ground water level measurements, (2) monitoring well construction, (3) seepage measurements in the New York Canal, (5) collection, analysis, and interpretation of water chemistry data, and (6) construction and calibration of a numerical ground-water flow model to simulate increases in Treasure Valley ground water withdrawals.
- Assessment and simulation of hydrologic conditions in the Boise Front geothermal aquifer (City of Boise and the National Renewable Energy Laboratory)
- Review and interpretation of lower Snake River subyearly water resources

Education

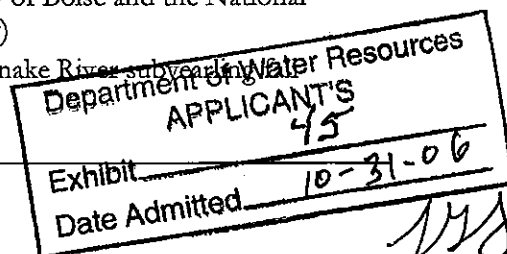
Ph.D., Geology
University of Idaho
M.S., Civil Engineering
Washington State University
B.S., Resource Conservation
University of Montana

Professional Certifications

Professional Engineer
Idaho No. 9011
Professional Geologist
Idaho No. 1088
Certified Professional Mediator
Idaho No. 251
Certified Water Rights Examiner
Idaho No. 7-132

Areas of Expertise

- Aquifer characterization
- Ground water monitoring
- Ground and surface water interaction
- Simulation of ground water flow
- Geothermal analysis and simulation
- Flow augmentation in the lower Snake River
- Solving water problems through mediation
- Teaching and instruction



chinook salmon migration data (Idaho Department of Water Resources)

- Coordinated various Institute outreach events, including the Treasure Valley Water Summit and a periodic water seminar

University of Idaho—1989 through 1996

- Doctoral research in the transport of conservative ion (e.g., bromide) and particle tracers (2-, 5-, and 15- μ polystyrene microspheres and agarose-encapsulated flavobacterium) in a shallow, unconsolidated aquifer
- Taught or co-taught the following graduate-level courses: Computer Geology (1989), Computer Applications in Hydrology (1989, 1991), and Contaminant Hydrogeology (1990, 1992, 1995)

Assorted Consulting Experience, 1986–1995

- Executive Secretary for the Pullman–Moscow Water Resources Committee (1994–1996)
- Independent Consultant (1989 and 1996) – projects included well design, well interference investigations, short course presentations, and numerical modeling
- Terragraphics Environmental Engineering, Moscow, Idaho (1993 and 1995, part-time)
- Engineering-Science, Inc. (Cleveland, Ohio, 1986–1987)

Selected Publications, Presentations, and Short Courses

Petrich, C. and S. Urban. 2004. Characterization of Ground Water Flow in the Lower Boise River Basin. Idaho Water Resources Research Institute and the Idaho Department of Water Resources, Research Report IWRRI-2004-01.

Petrich, C.R. 2004. Simulation of Ground Water Flow in the Lower Boise River Basin. Idaho Water Resources Research Institute, Research Report IWRRI-2004-02.

Petrich, C.R. 2004. Simulation of Increased Ground Water Withdrawals in the Treasure Valley Associated with Unprocessed Well Applications. Idaho Water Resources Research Institute, Research Report IWRRI-2004-03.

Petrich, C.R., 2004. Treasure Valley Hydrologic Project–Executive Summary. Idaho Water Resources Research Institute, Research Report IWRRI-2004-04.

Petrich, C. 2003. Hydrogeologic Conditions in the Boise Front Geothermal Aquifer. Idaho Water Resources Research Institute, Research Report IWRRI-2003-05.

Zyvoloski, G., Keating, E. and Petrich, C., 2003. Simulation of potential increased withdrawal and re-injection from the Boise Front Geothermal Aquifer, Idaho Water Resources Research Institute, Research Report IWRRI-2003-04.

- Petrich, C. 2003. Investigation of Hydrogeologic Conditions and Ground Water Flow in the Boise Front Geothermal Aquifer (Executive Summary). Idaho Water Resources Research Institute, Research Report IWRI-2003-07.
- Petrich, C. and J. Doherty. 2003. Simulation of increased ground water withdrawals associated with unprocessed well applications in the lower Boise River basin, Idaho. In Proceedings of MODFLOW 2003, Colorado School of Mines, Golden, CO.
- Hutchings, J. and C. Petrich. 2002. Ground Water Recharge and Flow in the Regional Treasure Valley Aquifer System—Geochemistry and Isotope Study. Idaho Water Resources Research Institute, Research Report IWRI-2002-08.
- Hutchings, J. and C. Petrich. 2002. Influence of Canal Seepage on Aquifer Recharge near the New York Canal. Idaho Water Resources Research Institute, Research Report IWRI-2002-09.
- Dreher, K., C. Petrich, K. Neely, E. Bowles, and A. Byrne. 2000. Review of survival, flow, temperature, and migration data for hatchery-raised, subyearling fall Chinook Salmon above Lower Granite Dam, 1995–1998. Idaho Department of Water Resources.
- Tuthill, D., C. Petrich, T. Morse, B. Kissinger, and J. Oakleaf. 2000. Migration from tabular to spatial data analysis techniques for water management in Idaho. Journal of Hydroinformatics. Vol. 2, No.3, pp. 183-195.
- Petrich, C. 2002. Treasure Valley Hydrology—an Overview (*presentation*). Treasure Valley Water Summit, Boise, Idaho.
- Petrich, C. 2001. An Introduction to Ground Water Flow Modeling (*presentation*). 18th Annual Water Law & Resources Issues Seminar, Idaho Water Users Association.
- Petrich, C. 2001. Use of PEST for Model Calibration to Ground Water Levels and Residence Times (*presentation*). Connections 2001, Boise, Idaho.
- Petrich, C., S. Urban, and J. Hutchings. 1999. Development and Calibration of a Regional-Scale Ground Water Flow Model in Southwestern Idaho, U.S.A (*presentation*). Geological Society of America Annual Meeting, Denver, Colorado.
- Petrich, C., S. Urban, H. Anderson, and D. Tuthill, Jr. 1999. Development of a Hydrologic Data Platform for Conjunctive Management in Southwest Idaho (*presentation*). NGWA Pacific Northwest Focus Ground Water Conference, Portland, Oregon.
- Petrich, C., K. Stormo, D. Ralston, and R. Crawford. 1998. Encapsulated cell bioremediation: evaluation on the basis of particle tracer tests. Ground Water, Vol. 36, No. 4., pg. 771.
- Gregory, B. and C. Petrich. 1998. Water Rights Mediation Training (*short course*). Idaho Mediation Association.
- Johnson, G., C. Petrich, and D. Cosgrove. 1998 (January and May). An Introduction to Ground Water Modeling (*short course*). Idaho Water Resources Research Institute short course, Boise, Idaho.
- Petrich, C. and D. Ralston. 1998. Evaluation of Encapsulated Cell Movement in a Heterogeneous, Sedimentary Aquifer (*presentation*).

International Conference on Future Ground Water Resources at Risk, Changchun, China.

Carlson, R.A. and C. Petrich. 1998. New York Canal Geologic Cross-Section, Seepage Gain/Loss Data, and Ground Water Hydrographs: Compilation and Findings. Idaho Water Resources Research Institute and Idaho Department of Water Resources.

Urban, S.M. and C. Petrich. 1998. 1996 Water Budget for the Treasure Valley Aquifer System. Idaho Department of Water Resources Research Report.

Petrich, C., K. Stormo, D. Knaebel, D. Ralston, and R. Crawford. 1995. A preliminary assessment of field transport experiments using encapsulated cells. In Proceedings of the Third International In Situ and On-Site Bioreclamation Symposium, R. E. Hinchee et al., eds.

Ada County Planning & Zoning Commission
RE: Avimor Planned Community
October 6, 2005

Chair:	John Tomkinson	FM:	Frank Martin
CO:	Carla Olson	JC:	John Cecil
MW:	Mike Wilson	MP:	Mark Perfect
MP1:	Mark Pecchenino	BR:	Bill Reed
DG:	Dean Gunderson	GW:	Geoff Wardle
BT:	Bob Taunton	ES:	Ed Sloan
PF: ✓	Philip Fry	RD: ✓	Rod Davidson
LJ:	Larry Jones	EC:	Ester Ceja
DB:	Del Bunce	RB:	Ron Baker
BB:	Betty Bermensolo	RW:	Rachel Winer
DH:	David Head	BV:	Bill Vaughan
KL:	Kathleen Marie Lacey	DK:	Dave Kangas
UnkM:	Unknown Male voice	UnkF:	Unknown Female voice
ALL:	All parties involved		

[Tape 1, Side A begins]

Chair: Today is October 6. This is the appointed time and place for the scheduled meeting of the Ada County Planning & Zoning Commission. This commission has been established and given the responsibility of reviewing development applications within the county's jurisdiction. If you have picked up the handouts on the table at the door, you have a copy of tonight's agenda and the conditions of approval for each application we will be hearing this evening. According to the director we have handed out all the staff reports and we will have more available, we are having some more printed and if you talk to the director back there he will take your name and make sure you get a copy of the staff report. We have five commissioners-- six commissioners present this evening one commissioner is out with a death in the family and at this time there is no old business and Mr. Martin

Department of Water Resources	
APPLICANT'S	
Exhibit	46
Date Admitted	10-31-06

WJ

have-- so all those in favor of the application we're taking that testimony now and I have one gentleman here, Ed Sloan. You live on Brookside huh? (Unintelligible).

ES: I'm Ed Sloan, 4243 North Brookside Lane in Boise, Idaho 83714. Brookside is off of Highway 55 just past Beacon Light. Prior to this project and I would say this project is in my backyard. We have lots of about (unintelligible) not in my backyard. In this case, I think that we're fortunate to have a quality developer and we're fortunate to have this kind of development in our backyard. I've been in Eagle for about 21 years and I've seen all of the development grow up. It's a big change. I think this would be a great addition to our community. We look at what happened in Boise, they said not in our backyard and they essentially locked up the Foothills for any development and have sent all of the development to Meridian. We've now paved over all of our good farm ground and we're not utilizing the Foothills for development which I believe is a good source and a good place for people to live and would protect a lot of our farm ground from development, which is one of the goals of this project. And I think as a local neighbor I think this would be a great development in our area and I appreciate the developer coming here and helping us develop our community. Maybe we could ask them to also go out south of town and develop another community out there and improve our community and get development out of the farm ground areas. We're paving over all of our good ground. Thank you.

Chair: Any questions of Mr. Sloan?

ES: Ed Sloan, S-L-O-A-N.

Chair: Thank you Mr. Sloan.

ES: Thank you.

Chair: Is there any one else that would like to speak in favor of the project? Is there anyone that would just like to just make a comment on the project? And I think Mr. Fry you have not indicated anything here.

PF: Hi, I'm Philip Fry, 4122 Homer Road Eagle, Idaho. We live just over the hills from this. And several concerns, but generally I'm in favor of the project because ~~its better than using farm land~~ and I think it's a more controlled, better developed than Eagle plans their little village over there, which is right below me and I think this will come out much better and it would be nice if he could do that. My biggest concern is water. Now they have their own water supply, but as he said, they intend to get water from somewhere else and that somewhere else is Big

Gulch and their going to the Idaho Water Recourses people and we're going through that. There's a whole bunch of concerns there, but the one that concerns you people I think I would love to see it that you require them to put in two water sources that eventually after 10 years or something they do not use potable well water for irrigation. I think they will have to initially, but they should get their other water from somewhere else and that's my big concern. There's lots of issues, but I'll leave it at that.

Chair: Okay, is there any questions of Mr. Fry? Thank you very much. Is there anyone else that would just like to make a comment on the project? There's a Rod Davidson that I have here.

RD: Thank you Chairman and Commissioners.

Chair: Please state your name for the record please.

RD: My name is Rod Davidson. I live at 1541 East Feather Nest Drive in Eagle, Idaho. I thank you for the time to address the commission and I would hope that in the future you and the Ada County Commissioners would work out a better plan to give the public a reasonable amount of time to rebut developmental services and the applicants information. SunCor's long range plans for the development of 14,000 homes on over 30,000 acres on ground north of Boise and Eagle is a water shed moment in the history of Southwest Idaho. The very concept of development of this size and scope staggers the imagination. The developers will argue that they are only interested in developing a portion of the total initial concept. Avimor with less than 800 homes on 830 acres the land on the east side of State Highway 55 and 200 acres on the west side of 55. SunCor's planned community must travel the main north south highway between Boise and the Treasure Valley...

[Tape 2, Side A ends]

[Tape 2, Side B begins]

RD: Whatever conclusions are reached here in Ada County will have repercussions clear across the state. Its not just Ada County's decision, over 30 different state, federal, and local agencies are looking at SunCor's plans. All these different entities will lay in on the development and one of the key reviews will be offered by the agency mandated to protect the safety of the traveling public. The Idaho Transportation Department, ITD's Findings are in the document entitled Department Memorandum signed by Mr. Dan Coons (phonetic) District Three

Traffic Engineer, who as it turns out is now longer employed by ITD. It is my understanding that the memorandum was a collaborative effort of the department. Among the findings in the ITD memorandum are these, the development should not be not be allowed to piece the development together. The total size of the development is a concern to ITD if the only access is to be State Highway 55. The district recommendations for the applicant to re-evaluate the idea of piecing the development together and to pay for the cost of their developmental impacts to the State Highway 55. The current average daily traffic for 55 in the SunCor area is 9,400. The first phase will increase the ATD to 16,655. SunCor proposes to put in a stoplight at (unintelligible) 52.

Chair: We will take your written comment, but your time is up.

RD: Wow. Okay. Who do I give these to?

Chair: Me.

UnkM: Thank you.

Chair: Is there anyone else here that would like to comment on the application? Sir, do you have a card here? Good.

LJ: (Unintelligible)

UnkM: Thank you very much.

Chair: Please state your name for the record.

LJ: My name is Larry Jones. I live in 7773 Basin Way Boise, Idaho. This is in the subdivision just to the north and east of Shadow Valley Golf Course. My concerns are two fold, first is traffic safety the second is the hydrological impact upon our subdivision. At this point, the traffic on Highway 55 at certain times is atrocious and is very dangerous. Our only access is from a stop sign onto the Highway. If you need a visual picture of the potential there the recent ISP car being destroyed over in Eastern Idaho would be approximately what would happen to myself, my wife, my friends, my neighbors, my family. It's bad enough now. Fridays and Sunday's are almost impossible to get out onto that highway. The impact of SunCor's proposal at their point of entry onto the highway has been explained, but they also will put an added traffic flow everything downstream toward town and ours is the first public street toward town from their development. The high speed of people coming down that highway ranges from 55 to 115 miles an hour. There are drunks going up and down that highway and I

Ada County Planning & Zoning Commission
RE: Avimor Planned Community
November 10, 2005

Chair:	John Tompkinson	CO:	Carla Olson
MP:	Mark Pecchenino	BT:	Bob Taunton
FM:	Frank Martin	RW:	Rachel Winer
DB:	Dale Buntz (phonetic)	RD: ✓	Rod Davidson
TT:	Tom Terteling	CG:	Cathy Gealy
JA:	Judy Aitken	PF: ✓	Philip Fry
UnkM:	Unknown Male	UnkF:	Unknown Female
LO:	Linda Ostolasa		

✓ LYLE MULLINE

Chair: Commissioner Martin has previously recused himself from hearing this application, but he will testify tonight and Commissioner Hayen (phonetic) is absent this evening. Okay recommended requirements.

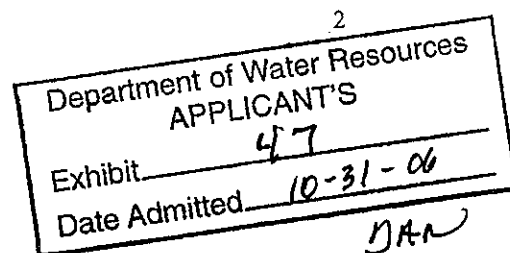
UnkM: Not Conditions of Approval.

Chair: Okay. Also, in full disclosure, I sent an e-mail to staff and copied commissioners about asking some questions and inadvertently put an opinion in the e-mail so, I want that in full disclosure and that's Exhibit number 68. So with that we'll open file number 05-- there's actually five files, but four file numbers, and the open file 05-01-PC Avimor Planned Community, 0105-01 PC-AV the Zoning Map Ordinance, 05-01-PC-AV the Development Agreement and 05-01-PC-VA Zoning Ordinance (unintelligible). And at some point in time we'll be looking for a motion and we'll have to mention all of those file numbers, is that correct?

UnkM: I believe you can just mention the file number once and the names of what you're approving.

Chair: Okay. All right, with that Mark.

MP: Mr. Chairman, Commissioners, staff would like to start off by (unintelligible) the staff report to indicate a recommendation of approval for all five applications and just for the record go ahead read those one more time. (Unintelligible) planned



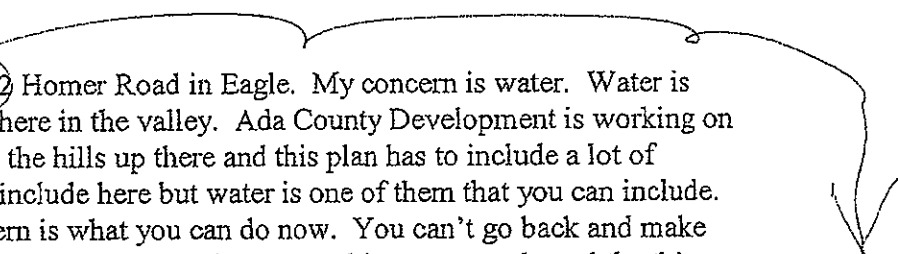
an active member of ULI and Chair of its National Sustainable Development Council, I have had the opportunity to get to know Bob. First and foremost, Bob is a very experienced community developer who I believe has an unwavering commitment to incorporate best practices in the development of Avimor. Sure there are issues and sure there will be many more issues, but Bob represents a very well capitalized company called SunCor, it has been in the business of developing high quality communities. I'm certainly not going to speak to the details of this application, but ask that you support Bob in his efforts to develop Avimor. It will be a long road; it will be a long journey. There will be some hiccups and bumps along the way, but I don't think you'll be disappointed. SunCor and Bob I believe will appropriately address the many issues of developing this proposed community. Thank you.

Chair: Thanks Frank, any questions of Mr. Martin? Thank you. Is there anybody else that would like to speak in favor of the application? Is there anyone that would like to comment on the application? Yes sir. This is a comment? Are you in favor or just making a comment?

PF: Comment.

Chair: Good, thank you.

PF: Hi I'm Philip Fry, 4122 Homer Road in Eagle. My concern is water. Water is the illuminating factor here in the valley. Ada County Development is working on a development plan for the hills up there and this plan has to include a lot of concerns that we can't include here but water is one of them that you can include. I guess my major concern is what you can do now. You can't go back and make them do what you want so the one most important thing you can do and the thing that takes the most water in the valley is irrigation. So the one thing you can do is require that the irrigation in this development and in all future developments in the Foothills be separated from the portable water. That gives you the option later on of separating these things out. Initially this isn't going to happen, but if you look at the amount of water is so much greater for irrigation than for portable water use that we can pump water from the river up there to use for irrigation or we can use as their plan says gray water and things like that, but it needs to be separated now and in all future things.



Chair: Okay, thank you. Is there anyone else that would like to comment on the application? Is there anyone that would like to speak in opposition to the application? I'm going to have Rachel, is it...?

RW: It's Winer.

Chair: Winer, okay.

RW: Mr. Chairman and Members of the Commission, thank you for the opportunity to testify again. I won't repeat, I did testify at the last hearing, so I won't repeat any of my comments from that, but we do ask that you oppose this proposal this evening. There's many concerns. The main thing is it's really an opportunity to protect our quality of life. We feel that it's a threat to our quality of life, our air quality, our water quality, and wildlife in the valley. I have prepared comments that are in your packets Exhibit number 73 however, they were in referring to everything I have received from staff up until yesterday afternoon, I came in at 4:00 and it appears there are some pretty significant changes. I'm guessing I'm not the only member of the public that would really like to be able to comment on whatever the proposal is and I'm fairly (unintelligible) confused about what the proposal is (unintelligible). It's been fairly frustrating. If it's something that can be supported then that would be really nice, but I can't read fast enough during this hearing to see whether or not they meet some of the concerns that we have. And so we think it really should be rejected at this time and if it can be resubmitted with things that can be evaluated so that everyone has a full understanding of what's going on we would really appreciate that. And again, we would just ask that you reject this proposal for now and protect the quality of life in the Treasure Valley. Thank you.

Chair: Is there anyone else that would like to speak in opposition to the application? Please come forward. Thank you very much, please state your name for the record. Thank you very much.

UnkM: ^{LYLE MULLINS} My name is (Unintelligible) and I live at 1574 ^{ELLINGTON WAY} (Unintelligible) in Eagle. I strongly urge the Commissioners to deny SunCor's Avimor Planned Community project. Because SunCor has not fully addressed many of the important economic impact issues as described in the documents you supplied for public review yesterday. As the previous person said, I haven't had time to review the current documents. The City of Eagle has identified real and substantial economic impacts to our schools, police protection, library services, transportation areas that are beyond and normally expected incremental impacts in our direct result of the Avimor project. As an Eagle taxpayer, I should not be expected to pay for the basic services required for the Avimor Planned Community. SunCor should pay for all these incremental costs. If the commissioners approve SunCor's application, you will most assuredly be raising my taxes. These unexpected incremental costs for providing services to the citizens of Avimor should be paid for by this out of state developer not Eagle taxpayers. This would be unfair and an indirect taxation of the citizens of Eagle. We expect our elected and appointed officials to represent

our best interests not those of out of state developers. I base my recommendation on the following: Ada County Code Section 8-2B-7C states the proposal sets forth sufficient and adequate mitigation of the identified economics beyond the normally expected incremental impacts on municipalities and other agencies or districts. I believe that an important aspect of planning communities is that existing taxpayers, not subsidizing. Eagle schools are above capacity now. Avimor's proposed schools will not be online until after the homes are already constructed. Their students will attend Eagle schools. Police protection, Ada County Sheriffs Office will provide police in Avimor. This will probably be handled by the Eagle substation. Eagle's current level of protection should not be reduced due to the additional (unintelligible) of Avimor. Avimor citizens will most likely use the Eagle City Library. Avimor should pay for the cost of providing borrowed materials, children's programs (unintelligible) etc. Thank you for the opportunity to comment on the Avimor Planned Community dockets, please reject it. Thank you.

Chair: Thank you. Is there anyone else who would like to speak in opposition to the application? Yes sir, please come forward. Thank you.

DB: My name is Dale Buntz I live at 1375 Glenn Mansfield Place, Eagle Idaho. This testimony is offered in opposition to the planned community identified as Avimor and proposed by SunCor, Idaho LLC. How many citizens of the Treasure Valley drive State Highway 55 from Eagle to McCall or any (unintelligible) destinations? For those who do so on summer weekends already know the state highway is stretched to the breaking point. If we want to know the impact of the proposed Avimor development, we need look no further than Eagle Road between the City of Eagle and Interstate 84. What used to be a short ten-minute trip has become a 45-minute ordeal because the Ada County Commissioners allowed the type of development to occur that SunCor is now proposing in North Ada County. The state of Idaho is suffering from lack of proper planning and follow through when it comes to new development. Ada County is probably the best example of this. At some point, the citizens of Idaho and Ada County have to hold elected representatives to account and say enough is enough. It's not expecting too much to ask the Ada County Planning and Zoning Commission to make tonight day one of starting to do it right. Development that would not be happening at the great neck pace we currently endure if costs paid development companies were much closer to the developments true costs. I recommend the Ada County Planning and Zoning Commission deny the SunCor Avimor development as it is now proposed, that no additional direct access by stoplight or otherwise be permitted in Ada County on State Highway 55 north of Beacon Light Road, that any future submission for the SunCor Avimor Development be required to provide overpass - underpass egress or access with high speed merge lanes for each access point to

State Highway 55. That future development north of Beacon Light Road adjacent to State Highway 55 require developer impact fees equal to the cost of providing highway improvements to accommodate the additional traffic to be generated by the entire acreage controlled by the parties. That access egress to State Highway 55 and new development north of Beacon Light Road be limited to no more than one access point per mile with such access point to be by high speed merge lane or underpass/overpass construction is required, such costs will be born by the developers. The access from local development to State Highway 55 between high-speed access or egress points be provided by frontage roads platted and approved as part of the development approval process. The total cost for such frontage roads to be born by the developers. Existing taxpayers of Idaho and Ada County should not be expected to pick up what would be substantial costs for this SunCor Avimor Development. It is reasonable for existing residents of Idaho and Ada County to expect SunCor to pay the true costs or impact of the development, not the least of these costs-- I have it in writing if you'd like me to submit it.

Chair: If you would.

DB: Thank you so much.

Chair: Thank you Mister Buntz. Thank you very much. We understand the frustration that of the timeframes involved in the additional information and I know that Mr. Mullins and Mrs. Winer was talking about. I wanted to remind everyone the County Commissioners once we finish with this application it goes to County Commissioners and they're your elected officials so, not to fail this in any better but they-- I don't mean that that way. (Unintelligible) am I in trouble?

UnkM: Not with us.

Chair: Okay. Is there anyone else who'd like to speak in opposition to this application? Yes sir, please come forward. Please state your name for the record.

RD: Chairman and Commissioners, my name is Rod Davidson and I live at 1541 East Feather Nest Drive in Eagle, Idaho. I'm speaking for myself as a concerned citizen and also related abuse of the Idaho Wildlife Federation, the Ada County Fish and Game League and the Deer Hunters of Idaho Southwest Chapter. It is our view that SunCor's planned community called Avimor located in Ada, Boise and Gem counties and eventually encompassing more than 30,000 acres of prime wildlife habitat, will have an irrevocable and unmitigatable impact on the wildlife of that area. And have a ripple effect on the long-term health and population of elk and mule deer all along the Boise front and lead to an overall reduction in animal numbers across hunting area Unit 39, one of Idaho's premier hunting areas

and easily the most popular hunting area in the state based on the number of hunters. The Idaho Department of Fish and Game has said in its earliest correspondence with Ada County Development services that the impacts to wildlife habitat would be unmitigatable. That quote comes from Ada County Development Services original draft report. Our group feels that the Idaho Department of Fish and Game's original sentiments are very accurate, there's no way to mitigate the loss of this large acreage of key winter range in habitat. The Idaho Department of Fish and Game has also stated in a memo dated August 31 of this year that the Idaho Department of Fish and Game recommends that the county reject or acquire modification of the planned community based on the lack of a complete mitigation plan. The Idaho Department of Fish and Game's most current stance is that the department will help SunCor plan and define mitigation plan for Avimor based on the department's expectations. Our groups would like to see what the Idaho Department of Fish and Game's expectations are and how SunCor will implement the mitigation plan with the departments help. It is our groups' intention that not a shovel of dirt should be moved at Avimor before the Idaho Department of Fish and Game and Avimor bring their mitigation plans before the county for approval. Our groups would be happy to participate in any discussions concerning mitigation proposals and we offer our help upon the (unintelligible) volunteers in any phase of the hearing process. Thank you for your time.

Chair: Thank you very much. Is there anyone else who would like to speak in opposition to the application? Here's your last time. Okay thank you. Mr. Taunton, do you want to come forward. Just comments you'd like to make on some of the comments.

BT: Thank you Mr. Chairman. I just really have one comment and I think previously the last time we were here we tried to address that. There is a lot of confusion about the size of the property and the size of the development. We're involved in a large ranch on an agreement basis, but that's not to be confused with a large planned community. Our planned community is 830 acres, which is 3% of the total (unintelligible). So and I probably done a bad job in communicating to some folks that the scale of the development and the property ultimately will be something much smaller than the total acreage of the property. So I think a great many individuals that I see too have become a bit confused assuming that the acreage equates to the development of that same scale. So that's really the only the comment that I had.

Chair: Thank you, is there any questions for the applicant? Mr. Terteling?

TT: Yeah, I'm concerned about water. You know I'm looking through Mr. Terry

TRANSCRIPT: Ada County Planning & Zoning Commission Meeting

RE: Avimor Planned Community

November 10, 2005

Page 11 of 19

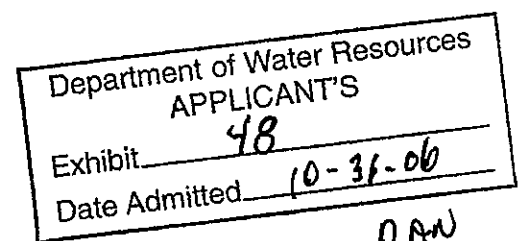
Ada County Board of Commissioners Meeting
RE: Avimor Planned Community
December 14, 2005

RY:	Rick Yzaguirre	FT:	Fred Tilman
JP:	Judy Peavey-Derr	MP:	Mark Peccehenino
DG:	Dean Gunderson (phonetic)	BT:	Bob Taunton
JR:	John Ringert (phonetic)	MW:	Mike Wardle
DB:	Dell Bunse (phonetic)	EK:	Ed Keener (phonetic)
LM: ✓	Lyle Mullins (phonetic)	RD: ✓	Rod Davidson (phonetic)
MA:	Mark Anderson (phonetic)	RW:	Rachel Weiner (phonetic)
BV:	Bob Van Arnon (phonetic)	TJ:	Tony Jones
CG:	Charles Gilford (phonetic)	SC:	Stu Churchwell (phonetic)
ES:	Esther Stahot (phonetic)	CC:	Christopher Cook
RE:	Rob Elliott (phonetic)	NS:	Nicole Baird Spencer
JB:	John Barrett (phonetic)	CL:	Cathleen Lacey (phonetic)
PW:	Paul Woods (phonetic)	TJ1:	Tucker Johnson
UnkF:	Unknown Female Voice	ALL:	All persons involved

[Tape 1 Side A, Counter 159]

RY: Next under new business is Item 2. We have a number of applications related to the Avimor Planned Community, 05-01-PC, the comprehensive plat text amendment. 501-PC, the zoning ordinance map amendment and 501-PC the development agreement and 0501-PC the zoning ordinance text amendment. Let me officially open the public hearing. I do have some general announcements I'd like to make just as a process to (unintelligible) go through. It's my understanding staff needs an about an hour to present their application and the applicant needs approximately about an hour and half so we're looking at about two and half

TRANSCRIPT: Ada County Board of Commissioners Meeting
RE: Avimor Planned Community
December 14, 2005
Page 2 of 70



that if this company is serious about this development that they would provide a bus service. As many buses that are needed, the drivers, shelters into Boise and Eagle, and where people need to go. That they would educate the residents on an ongoing basis and they would provide incentives for people to take the bus service so it would dramatically cut the trips. We can talk about impact fees those cover the initial development in each stage, but I would propose if the company is serious about this development that they would reimburse in terms of impacts fees for the next decades maybe eight or ten decades. That they would reimburse ACHD, ITD, law enforcement, fire protection, and any kind of infrastructure that needs to be used in this development. This zoning should not be changed from rural preservation. There's good reason for it to be preserved as rural preservation. I'm a hunter and a fisherman and they can talk about how they are proposing to maintain the wildlife in the area, but when this development is done there will be no habitat for deer, elk, badgers will be gone, the ground squirrels, rabbits, and partridge will not be around any more and they will replace by urban animals, coyotes, raccoons, and mice. We need to stay with the Blueprint of Good Growth and wait till it comes out. The people that met with the Blueprint of Good Growth knowing that Spring Valley was going to be a possibility made a clear choice not to develop large parcels in the Foothills by leapfrog sprawl. They made a clear choice that development needed to be along transportation corridors that already exist in the valley and around communities that are already developed. When water is piped up hill whether if it's United Water then all users will pay. United Water makes it money by developing new pipelines. I propose if this company is serious about this development that they will pay all the piping and the infrastructure both now and in the future. Deep-water wells if they are used will affect the aquifer. It is all of our aquifer. They do not know that it's a separate aquifer. They hope that it might be. The easier decision is to approve this because we can say growth is going to happen in the valley. We can say that it's well planned. That the zone change isn't a real big deal, that the impacts can be explained and taken care of. The top courageous decision is not to approve this. This is too drastic for this valley. It is a negative change that will start many of these in this valley. After this one it won't be long until we'll look up on the Foothills and it will look like Denver, which is houses everywhere. This will begin a landslide of unconnected and hillside development. The recommendations for the Blueprint of Good Growth should be taken in the way that they will come to us. They are the best way for us to grow and to live in the Treasure Valley and I thank you for my time-- your time.

RY: Thank you Mr. Keener, any questions? Lyle Mullins? Then Rod Davidson, and Mark Anderson.

LM: Commissioners, my name is Lyle Mullins and I live at 1574 North Ellington

TRANSCRIPT: Ada County Board of Commissioners Meeting

RE: Avimor Planned Community

December 14, 2005

Page 46 of 70

(phonetic) Way in Eagle. I strongly urge the commissioners to deny SunCor's Avimor planned community project because SunCor in my opinion has not fully addressed many of the important economic impact issues. The City of Eagle has identified real and substantial impacts to our schools, police protection, library services, transportations areas that are in my opinion beyond the normally expected incremental impacts and are a direct result of the Avimor project. And I believe that the economic effects on Ada County that were not been fully addressed regarding the provision of essential services, public services without being subsidized by existing taxpayers or rate payers, self sufficiency of commercial facilities, the onsite employment and the impacts of employment and population shifts. As an Ada County taxpayer, I should not be expected to pay for the basic services required for the Avimor planned community. None, zero. (Unintelligible) 50% of the police services, it should be 100%. SunCor should pay for all of these incremental (unintelligible) as prescribed by current Ada County Code, my understanding of it, Section 8 2E-7C. The applicant should be required to disclose to the public in a public forum, in detail, the fiscal transportation, air quality, wildlife, and other impacts of the entire 31,000 acre project before this first phase is approved. You should look at the whole project. He's saying that there's only one phase, well common sense and believability tells me that it's more than what they're asking for. Let's look at the whole project not part of it. If the commissioners approve SunCor's application, you will most assuredly be raising my taxes without a doubt. These unexpected costs for providing basic services to the citizens of Avimor should be paid by (unintelligible) the developer not current Ada County taxpayers, not one dime. My opinion it would be unfair and indirect taxation of the citizens of Ada County if you approve their application as they placed it before you. We expect our elected officials and appointed officials to represent our best interest not those of out of state developers. My question to you is who are you going to represent, the taxpayers and ratepayers or them. It's a tough decision I hope you support the taxpayers. Thank you for the opportunity to comment on the Avimor Planned Community application.

RY: Thank you sir, any questions? Appears not, Rod Davidson?

RD: My name is Rod Davidson and I live at 1541 East Feather Nest (phonetic) Drive in Eagle, Idaho and I would ask that the Commissioners look closely Exhibit 84. There's been a lot of discussion about that tonight. And it basically involves Idaho Transportation Department's findings, recommendations as it concerns the SunCor's development...under district recommendations...

[Tape 2 Side B ends]

[Tape 3 Side A begins]

RD: There's a mention here that hasn't been mentioned much at all tonight that I find it kind of interesting is number two, a safety analysis needs to be submitted for review. Now I'm not sure what format would take and I'm not sure whether Avimor would be in charge of that. It's my feeling that ITD should take care of that. It should be an independent, governmental review of safety concerns involving the siting and the control light at milepost 52. The problem I think a lot of people will see with that is that that siting is between a downhill grade on Horseshoe Bend that's a three mile long 7% grade and I'm sure a few of us have driven that in the winter, in the summer, it's a great highway. Well-designed highway, and I hate to see the functionality of that highway negated by a stoplight at milepost 52. There isn't a full stoplight between Floating Feather in Eagle and Dinehart Lane in McCall. And to put a stoplight at the bottom of Horseshoe Bend grade and at the top of another 7% grade that's a mile and a half long coming up out of Shadow Valley where there's a big reader board and a chain up area. And if a stoplight goes in there, that reader boards going to get a lot of work. Thank you for your time.

RY: Thank you sir. Any questions? Mark Anderson? Then Rachel Weiner and Bob (Unintelligible).

MA: Chairman, Commissioners, my name is Mark Anderson. I live at 3974 Oak Park Place in Boise. I'm opposed to this develop. I did send an exhibit in here of an e-mail I sent just with some cursory comments. I'm opposed to this as another example of leapfrog development. It's possibly a good project from what I've been able to learn in a bad location and I think to put it in context what we're talking about is the first phase of a 38,000 or 30,000-acre project. The implications as other people and even the exhibits in some of the materials handed out have huge implications for traffic. Will there or won't be potential light signals or wildlife. I think Idaho Fish and Game and other groups are unsure of the mitigation plan. Pollution is a huge issue. Especially remember we're talking about 38,000-planned development driving into Boise with our air quality already at significant risk for highway funds. Services like schools, I can tell you that I stood up in front of you against the Hidden Springs development and at that time the developer said this is a different kind of leapfrog development we're going to capture trips, we're going to have a school, we're going to have a restaurant and so on. I've had an opportunity to actually work in Hidden Springs. By the way, I live in Boise, so I commute over to Hidden Springs to do things over there. I see contractors-- I know contractors who live in Hidden Springs and they do all their work in Boise. In the meantime, we're all meeting together in the middle on that Seaman's Gulch Road in the morning when the parents from Boise truck their

IDWR Water Right and Adjudication Search

Note: This search tool identifies active water rights and active transfers. If you want to search both active and inactive water rights, please check the box below.

☐ Search for both active and inactive water right records.

Search Results

Type of Query

USAGE INSTRUCTION

☒ All SRBA & Water Rights	
SRBA ☐ Claims ☐ Recommendations ☐ Both	Water Rights ☐ Applications ☐ Permits ☐ Decrees, Licenses and Statutory Claims ☐ Transfers ☐ All of the above

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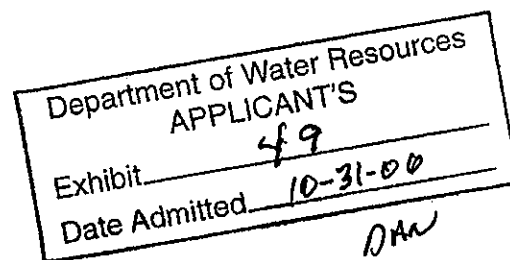
Query parameters:

lastName = Davidson

FirstName = Rod

Search for: active Records

Number of records = 0



IDWR Water Right and Adjudication Search

Note: This search tool identifies active water rights and active transfers. If you want to search both active and inactive water rights, please check the box below.

☒ Search for both active and inactive water right records.

Search Results

Type of Query

USAGE INSTRUCTION

☒ All SRBA & Water Rights

SRBA

- ☐ Claims
☐ Recommendations
☐ Both

Water Rights

- ☐ Applications
☐ Permits
☐ Decrees, Licenses and Statutory Claims
☐ Transfers
☐ All of the above

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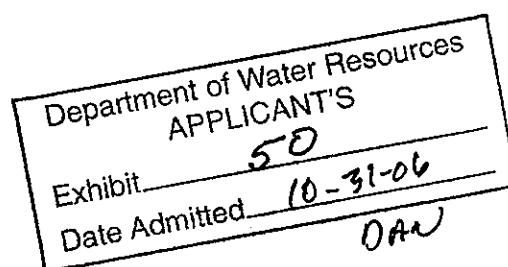
Query parameters:

lastName = Mullins

FirstName = Lyle

Search for: active Records

Number of records = 0



IDAHO DEPARTMENT OF WATER RESOURCES
Water Application Report

10/16/2006

WATER RIGHT NO. 63-31147

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	LIDA R FRY
Current Owner	PHILIP N FRY
	HOMERS HILL TRUST TRUSTEE
	4122 HOMER RD
	EAGLE, ID 83616
	(208)939-9267

Priority Date: 12/29/2000

Status: Active

<u>Source</u>	<u>Tributary</u>
GROUND WATER	

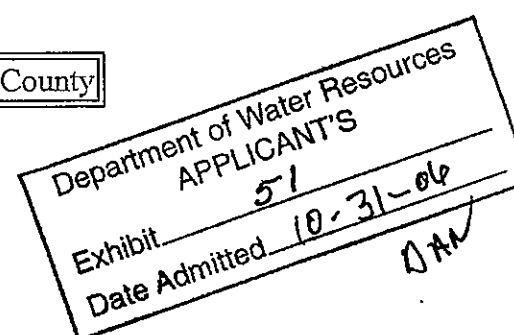
<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	04/01	10/15	0.14 CFS	
Total Diversion			0.14 CFS	

Location of Point(s) of Diversion:

GROUND WATER	SESW	Sec. 25	Township 05N	Range 01W	ADA County
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Place(s) of use:

Place of Use Legal Description: IRRIGATION ADA County



Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
05N	01W	25		NESW	40		NWSW	40		SWSW	40		SESW	40

Total Acres: 160

Dates:

Date Application Received: 12/29/2000

Date Application Denied:

Last Date of Beneficial Use:

Extension End Date:

Protest Deadline Date:

Number of Protests: 0

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Other Information:

State or Federal:

Owner Name Connector:

Water District Number:

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Application Type: New Appropriation

Applicant Remarks: PLEASE NOTE: This application is for 7 acres within the 160 acre permissible place of use.

Other Water Rights:

Time to Complete Works: 4

Transfer Affected Description:

Transfer Affected Contracts:

Old Transfer Number:

Transfer Reason:

Transfer Return Flows:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: True

Close

IDAHO DEPARTMENT OF WATER RESOURCES
Water Permit Report

10/17/2006

WATER RIGHT NO. 65-13447

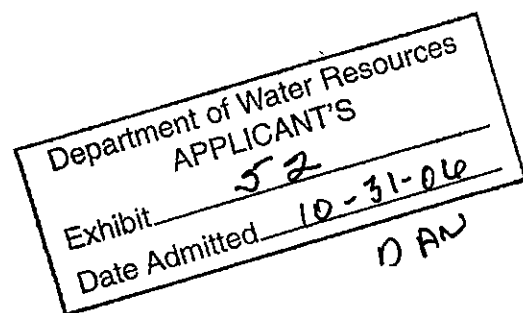
<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	HORSESHU VUE RANCH WATER & ROAD ASSN INC PO BOX 522 HORSESHOE BEND, ID 83629 (208)793-4076
Original Owner	GARTH BALDWIN 8977 W STATE ST BOISE, ID 83703 (208)853-8407
Original Owner	JAMES E YOREN C/O GARTH BALDWIN 8977 W STATE BOISE, ID 83703 (208)853-8407

Priority Date: 06/19/1993

Status: Active

<u>Source</u>	<u>Tributary</u>
GROUND WATER	

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	3/15	11/15	1.2 CFS	
DOMESTIC	1/01	12/31	0.2 CFS	
Total Diversion			1.4 CFS	



Location of Point(s) of Diversion:

GROUND WATER	SWNENW	Sec. 10	Township 06N	Range 02E	BOISE County
GROUND WATER	SWNW	Sec. 10	Township 06N	Range 02E	BOISE County

Place(s) of use:

Place of Use Legal Description: IRRIGATION BOISE County

Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Ac
06N	02E	3		SWSW	3		SESW	15						
				SWSE	3									
		10		NENW	27		NWNW	9		SWNW	3			

Place of Use Legal Description: DOMESTIC same as IRRIGATION

Total Acres: 60

Conditions of Approval:

1.	26A	Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which permit holder had no control.
2.	803	The right holder shall use the full allotment of his surface water right, to the extent it is available, in conjunction with groundwater diverted pursuant to this right.
3.	03A	The rate of diversion of water for irrigation under this right and all other water rights on the same land shall not exceed 0.02 cubic feet per second for each acre of land.
4.	01G	Prior to the diversion of water under this right a flow measurement port or other device as specified by the Department shall be installed to provide for the installation of measuring equipment and the determination of the rate of diversion by the Department.
5.		Domestic use is for 20 homes. The domestic use authorized under this permit shall not exceed 13,000 gallons per day per dwelling in accordance with Section 42-111, Idaho Code.

Dates:

Proof Due Date: 08/01/2002

Proof Made Date:

Approved Date: 08/04/1993

Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Application Received Date: 06/03/1993

Protest Deadline Date:

Number of Protests: 0

Field Exam Date::

Date Sent to State Off:

Date Received at State Off:

Other Information:

State or Federal:

Owner Name Connector:

Water District Number: 65

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

Close

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

10/17/2006

WATER RIGHT NO. 63-7565

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	GARTH BALDWIN 8977 W STATE ST BOISE, ID 83703 (208)853-8407

Priority Date: 03/03/1972

Basis: License

Status: Active

<u>Source</u>	<u>Tributary</u>
GROUND WATER	

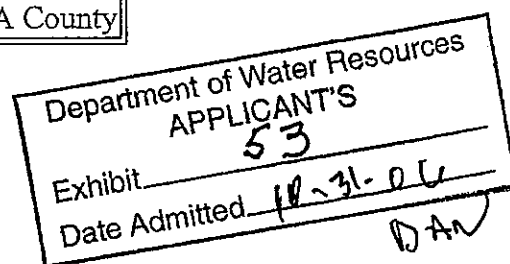
<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
IRRIGATION	4/01	10/15	0.24 CFS	54 AFA
DOMESTIC	1/01	12/31	0.43 CFS	52.8 AFA
Total Diversion			0.67 CFS	

Location of Point(s) of Diversion:

GROUND WATER	NESW	Sec. 13	Township 04N	Range 01W	ADA County
--------------	------	---------	--------------	-----------	------------

Place(s) of use:

Place of Use Legal Description: IRRIGATION ADA County



Township	Range	Section	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres	Lot	Tract	Acres
04N	01W	13		NESW	12									

Place of Use Legal Description: DOMESTIC same as IRRIGATION

Total Acres: 12

Dates:

Licensed Date: 09/12/1983

Decreed Date:

Permit Proof Due Date: 4/1/1977

Permit Proof Made Date: 1/1/1900

Permit Approved Date: 4/19/1972

Permit Moratorium Expiration Date:

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date:

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal:

Owner Name Connector:

Water District Number:

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

Mitigation Plan: False

Close

CLARK DEVELOPMENT

9/19/03

- ① Follow-up
W/Mike, Jerry
- ② MTRH re
multi-jurisdiction
districts

Spring Valley Ranch

Preliminary Feasibility Assessment

Clark Development
Givens Pursley
Roylance & Associates

July, 2001

Department of Water Resources	
APPLICANT'S	
Exhibit	54
Date Admitted	10-31-06

DAN

CLARK DEVELOPMENT

July 10, 2001

Thomas Coughlin
5140 Via Daniel
Yorba Linda, California
92886

Dear Tom:

Enclosed for your review is a copy of the Preliminary Feasibility Assessment for Spring Valley Ranch. As we discussed at the outset of this effort, the primary objective would be to focus on those issues that could present potential "fatal flaws" in obtaining regulatory approvals and constructing a successful development. As such, it contains information and observations that are intended for an internal audience interested in an open discussion of the opportunities and potential problems that exist with development of this property.

In brief, indications are that a very substantial community can be developed on the Spring Valley Ranch property. We truly began this work with no preconceptions. During the past several months we have seen the property on a number of occasions, examined "what ifs", posed and analyzed potential obstacles, talked with various agencies, and met with a range of professionals. It would typical for a property of this size and with substantial development potential to have a number of complex and challenging issues associated with it.

It is frankly quite surprising that there are no apparent fatal flaws or even unusual hurdles to development of the property. A result is that we have become increasingly enthused over the potential for a community development that can cover a range of uses and residential densities and offer something of extraordinary quality and value.

If you want, we can prepare a summary of our findings for a broader audience. We look forward to working with you in proceeding with the next stage of development planning for Spring Valley Ranch.

Sincerely,



Bill Clark

cc: Garth Baldwin
Paul McCann
Dave Roylance
Ed Miller

TABLE OF CONTENTS

INTRODUCTION AND SUMMARY	PAGE 1
DEVELOPMENT POTENTIAL	PAGE 3
REGULATORY FEASIBILITY	PAGE 4
MULTI-JURISDICTIONAL ISSUES	PAGE 6
SCHOOLS	PAGE 7
ROADS AND HIGHWAYS	PAGE 8
TAXING DISTRICTS AND INFRASTRUCTURE FINANCING	PAGE 9
PROPERTY TITLE REVIEW	PAGE 10
WATER SUPPLY	PAGE 10
WATER RIGHTS	PAGE 13
WASTEWATER TREATMENT AND COLLECTION	PAGE 13
PUBLIC UTILITIES	PAGE 15
SENSITIVE AND THREATENED PLANT SPECIES	PAGE 15

APPENDIX

EXHIBIT A: TAXING DISTRICTS
EXHIBIT B: WATER RIGHTS
PROJECT AREA MAP

INTRODUCTION AND SUMMARY

Presented below are the conclusions of a preliminary feasibility assessment for the development of Spring Valley Ranch and is based on the issues outlined for Spring Valley Partners in early April. This report has been prepared by Clark Development, with major involvement by the Givens Pursley law firm and Roycastle & Associates, engineers. Additional assistance for specialized issues was provided by Spatial Dynamics, Hydro Logic, and Dave Kordiyak, consulting botanist. An effort has been made to keep this report succinct; additional detail is available as needed.

The focus of attention has been on the "Core Area", which is roughly estimated to include about 7,000 acres, plus an opportunity for an additional developable area of state land (which might be obtained through trade) of approximately 1,000 acres. An additional development area of about 6,000 acres in the western portion of the property which probably has longer term (perhaps 10 - 15 years) development potential was also identified and evaluated on a preliminary basis.

The key objective of this assessment was to determine whether there are any evident reasons that would prevent or significantly inhibit a major development project on the Spring Valley property. All of the issues identified at the outset have been addressed at a preliminary level and there is no indication of any "fatal flaws" that would present a serious obstacle to development. Also, no critical additional issues have emerged during this effort.

Another objective of this effort was to establish a foundation of understanding necessary for carrying the development planning for this project forward. Beyond the stage just completed, it is anticipated that work will proceed with preparation of a preliminary development concept and land plan for the entire property including an overall approach to phasing.

This development concept would be supported by more extensive engineering, water supply, regulatory approach, a conservation easement strategy, market analysis, preliminary financial projections, a land trade strategy, an approach for dealing with the "multi jurisdictional" issues, and contacts with key political figures, agencies and interest groups. The aim at this point would be to have several public meetings with the three counties and other significant agencies and interests before the end of this year.

A brief summary of findings is as follows:

- The physical development potential of Spring Valley Ranch is very substantial, probably as much as 10,000 to 20,000 homes plus commercial uses and recreational facilities, including golf. This is due to the high percentage of land with less than 25% slopes. The area with the greatest near term development potential straddles State Highway 55 (SH 55), the major north-south highway. A large area to the west has substantial future development possibilities.

- The attributes of the property are exceptionally favorable for a large planned community development. The prime development areas are predominately located in Ada County, where Boise and the most heavily urbanized part of Idaho are located. The vast developable areas have dramatic views of the Treasure Valley and Boise Front - the foothills of the Rockies. Spring Valley Ranch has a major State highway (SH 55) going through its core development area, providing high visibility and excellent access to existing employment and commercial concentrations. Further, the 33,000-acre property allows for large areas of open space and trails.
- The regulatory structure available in the three-county area is favorable to a major planned community with a mix of uses and densities. Initial contacts with staff of the Counties and other key agencies have been favorable towards a very substantial development of Spring Valley Ranch. There are a number of "multi-jurisdictional issues that should be addressed in detail at an early point in development planning. These include questions of how important public services are provided across existing County and district boundaries, taxation and distribution of tax revenues, and potential methods of infrastructure funding through local improvement districts or other special districts that could be established.
- ✓ • Water supply is a key issue for development of Spring Valley Ranch. Availability of a significant water source in the core area for development is uncertain. There has been no exploratory drilling for water in the core area, a task that should be undertaken as soon as possible. There are, however, very real opportunities for obtaining domestic and irrigation water for the development by pumping uphill from existing water sources and distribution facilities in the Eagle area or from the Payette River basin to the north. There appear to be ample sources of domestic water on the western end of Spring Valley Ranch which could be a valuable commodity for trading and/or future development in that area.
- All public utilities are available, although more effort needs to be directed to identifying costs of extension of adequate capacities. Initial contact with school and fire districts has been positive with respect to their willingness to work towards inclusion of Spring Valley Ranch in their service areas and in development of facilities at appropriate points.

DEVELOPMENT POTENTIAL

The primary focus of efforts to this point have been on key issues that could affect whether or not any substantial development could occur on Spring Valley Ranch. Development concepts and preliminary site planning should build on the base that has been established during this stage of work and on additional and more detailed information and analysis. During these early investigations of the property, however, there are some primary observations concerning the development potential for this property.

Foremost among these is the physical nature of the property. The first thought in approaching the property on the State highway (SH 55) from the south (Boise) or the north is that it is steep country. Aerial and ground tours of the Spring Valley Ranch reveal, however, that outside of the valley where the Ranch headquarters are located are large areas of slightly sloping land, with many gentle folds that increase the opportunities for views, open space areas and separation of residential clusters and neighborhoods. Based on initial mapping and analysis, it appears that approximately 20,000 acres of Spring Valley Ranch have slopes under 25%, which is a very appropriate for development. In addition, the geologic characteristics of this developable area do not appear to have unstable soil characteristics or rock formations that would create difficulties for site and home construction.

The presence of SH 55 running through the eastern portion of property is fortuitous. If it were not for this highway, gaining adequate road access to Spring Valley Ranch would be very difficult and expensive. The State of Idaho has already installed the most expensive piece of infrastructure and it has a substantial available capacity. Furthermore, this highway, which gets extensive public use for access to McCall, the Payette River, North Idaho and other recreational areas, provides excellent exposure opportunities for public awareness of any development that may occur on Spring Valley Ranch.

The valley through which SH 55 travels and in which the ranch headquarters is located is a potential signature for the entire development. It has open fields of alfalfa with Spring Valley Creek running through it and is populated mostly by horses and cattle. It would seem that at least a portion of this area should remain in this or only a slightly modified condition as a means of helping establish and maintain the character and of development and identity of Spring Valley Ranch. This valley and the side valleys feeding into it also have very substantial potential for golf, commercial and business park development. This area could also provide access to publicly accessible open spaces and potential park areas that would be usable by residents and also be another attraction for potential buyers.

The steeper and less accessible areas of the property offer great potential for open space, trails, and wildlife. In addition to these being strong attractions for residents, they have great value for public relations and potential tax benefits.

REGULATORY FEASIBILITY

A review was undertaken of the land use regulatory structure for the Ada (which includes the City of Boise), Gem and Boise counties, in each of which a portion of Spring Valley Ranch is located. Meetings have also been held individually with the County Commissioners for Ada County and the planning staffs of all three Counties.

Ada County

407. Ada County is home to Boise and is the capital of Idaho. With a County population of 300,000 (and about 430,000 in the entire metropolitan area), it is the largest urban concentration in Idaho and the location of the primary employment opportunities and services for Spring Valley Ranch. The portion of Spring Valley Ranch located in Ada County (approximately 13,000 acres) has a zoning designation that allows one residential unit per 40 acres. There is, however, the very real opportunity to use the County's "Planned Community Ordinance" (PCO), which has no limit on densities or restriction on uses. This is the ordinance that was used for entitlements in the case of Hidden Springs, not far from the southeast boundary of Spring Valley Ranch. Hidden Springs, approved for 1,035 residential units plus retail and employment based commercial uses, is the only development at this point to make use of this ordinance.

The PCO allows, if an application meets County criteria, essentially any mix and density of uses, and establishes a unique zone and ordinance provisions for the proposed development. While it might be possible to obtain a "rural residential" designation allowing a maximum density of one unit per five acres overall, this is the only way in Ada County to exceed the 40 acre density, other than through the PCO approach. A Rural Residential designation would require one-acre minimum lots and conceivably allow for as many as 2,600 lots. However, given the expressed goals of a mix of densities and uses and for a range of housing types and prices, the PCO is a much more preferable approach. Also, once through with the PCO entitlement process, there can be an umbrella allowing great flexibility in uses and densities that can be accomplished without significant additional entitlement procedures beyond platting processes.

The Ada County commissioners and staff have a very positive view of the Planned Community Ordinance and how it worked and is continuing to work in the case of Hidden Springs. They strongly prefer it to dispersed rural subdivisions. Their tentative view is that it is very appropriate for the Spring Valley property, assuming that water supply and sewer issues can be properly addressed. They also are very positive about working with the two other counties and various districts, such as school and fire, in establishing a development plan for Spring Valley.

Political support for development of Spring Valley Ranch will be important due to its size and prominent location. A positive and proactive approach towards conservation easements, public trails, wildlife habitat, park facilities, schools, and fire protection would significantly affect the reception to development of this property and the time required for approval. Efforts should

be made soon to discuss the development planning effort with neighboring property owners and key interest groups.

Gem County

14 7/6 Approximately 4,500 acres of Spring Valley Ranch is located in Gem County, which had a 2000 population of 15,000. This is a predominately rural county to the northwest of Boise and has begun to see some new residential development around the town of Emmett, which is the County seat. The Core Area of Spring Valley Ranch is distant from most Gem County population. It is important to the development to the core area, however, which is shown by the confluence point of the Ada, Gem and Boise County lines just above the ranch headquarters area around SH 55. This corner, roughly 160 acres, holds a key, though not critical, portion of the Core Area. This corner is adjacent to the roughly 1,000 acres of State land that is a very interesting trade opportunity with significant development potential.

Although Gem County presently has an agricultural designation for the above referenced portion of Spring Valley Ranch, there is a Comprehensive Plan designation of "Mixed Planned Development" which would be appropriate for this area. There is a corresponding zone designation of "Mixed Use Development" which does not have a density limitation as long as there are appropriate community water and sewer systems. Non residential development is also permissible.

Meetings and subsequent conversations with the County planning staff have been very positive. Staff has spoken with the County Commission about Spring Valley and the report is that there is some real enthusiasm for trying to help make a project there work. The staff believes that it would probably best to let Ada County take the lead in agency planning review of the project because of its greater staffing and experience in larger projects, specifically with Hidden Springs. Staff is supportive to an approach of a "task force" type effort wherein the staffs of the three counties and other appropriate agencies would work with the development team in a collaborative effort.

Boise County

45 7/6 Approximately 14,800 acres of Spring Valley Ranch is located in Boise County, which had a 2000 population of less than 7,000. It is a large, mountainous, rural area with two small towns, Idaho City and Horseshoe Bend. A very substantial portion of the Core Area is in Boise County. The Boise County line goes through the ranch headquarters area.

Boise County has an approach of minimal restriction on land use and development. There is a single zoning district, the "Multiple Use Zone District". Generally, the minimum lot size is two acres. Lots of 40 acres or larger can be created and used for residential development without a subdivision process. With community sewer and water and through the Planned Unit Development process, there is no restriction on potential density or uses.

Boise County staff is very positive about working on with the development team to create an approved plan for Spring Valley Ranch. Improving the tax base is a motivating factor, in addition to a generally positive attitude towards development. There is recognition of the need to address issues such as road maintenance (Boise County does not maintain roads at this time), emergency services, and schools. The staff has discussed the possible development of Spring Valley Ranch with the County Commissioners and received a favorable response to the concept of working in a "task force" type approach to involvement in a development planning effort. As with Gem County, Boise County would probably want Ada County staff to take the lead.

MULTI-JURISDICTIONAL ISSUES

In Idaho, a city council or board of county commissioners is ultimately responsible for the approval of all subdivisions and developments within its jurisdiction. County commissions are also responsible for the creation of ordinances and regulations governing all aspects of property development. Because Spring Valley Ranch lies within the borders of Ada, Boise and Gem Counties, a development plan will be faced with the unusual responsibility of complying with three separate development and zoning ordinances and maneuvering through three separate political environments.

There are a number of significant statutory provisions that may present unique opportunities for a development of this magnitude. For example, Idaho has adopted a Local Land Use Planning Act (referred to hereafter as "LUPA") that empowers county commissions of two or more adjoining counties to cooperate in the establishment of joint planning, zoning, or planning and zoning commissions. Additional public agencies may be included in a joint commission, as appropriate. For a project of Spring Valley's size, the creation of a joint commission comprised of representatives of Ada, Boise and Gem counties may be possible. The joint commission could be delegated the authority to exclusively govern Spring Valley; allowing the developer to avoid the likely administrative difficulties in complying with three separate governing jurisdictions. Although the creation of such a district is statutorily possible, much more work is necessary to evaluate whether a joint commission is politically feasible. It may also be possible and preferable to take a similar approach through a more informal structure.

A second significant statutory provision also deals with joint action by public agencies. Joint powers agreements allow public agencies, including counties, school districts, highway districts and other political subdivisions, to make the most efficient use of their powers by avoiding the provision of duplicative services. Joint powers agreements are often appropriate when, as a result of geographic, economic, population and other factors, the provision of certain services is inefficient. For example, the Ada County Sheriff's Office currently has a joint powers agreement with the cities of Kuna and Eagle under which the Ada County Sheriff's Office provides routine police services to Kuna and Eagle, respectively. Because Spring Valley is located in a sparsely populated geographic area which likely does not require

significant county services at this time, joint powers agreements may be useful to avoid the duplication of services by each county. A separate legal entity may also be established by a joint powers agreement. The multi-jurisdictional aspects of additional issues are summarized on the table identified as Exhibit A.

SCHOOLS

There is agreement within the development team that a single school district, at least for the Core Area, is very important to successful marketing of the development. Meridian School District boundaries include the affluent Eagle community and presently extend into the Core Area. Beyond that, it appears that large portions of the property are not within any district boundaries. Although this school district has for a number of years been struggling to keep up with the demands of population growth, adding an average of 1.5 schools each year, it has been able to continue improving its reputation. Inclusion of the entire core area in the Meridian School District would be preferable. As has been discussed in several development planning meetings, school facilities and the specific district will be important to achieving high market absorption rates across a wide range of prices.

There have been several meetings and conversations with Meridian School District officials. Their initial reaction is one of support for the single district approach for Spring Valley Ranch. They point to existing local examples of school district boundaries crossing county lines. Also, an opportunity to plan facilities and school services in several years in advance is a refreshing thought to them.

From a legal perspective, there is a significant multi-jurisdictional issue associated with schools. There are several statutory provisions that could enable Spring Valley to have all resident children attend the same schools. For example, the state board of education may excise territory within one school district and annex it into an adjoining school district. School districts may also be divided and joint districts or subdistricts may be created. It is also possible for pupils within one school district to be transferred to another district. This option may be appropriate for Spring Valley in the near term. Pupils may be transferred whenever a school district's board of trustees determines that it is in the best interest of any of its pupils to attend school in another school district. The board of trustees of each school district must annually agree to transfer pupils. The home school district of the transferred students must pay tuition at least equal to the costs per pupil of the creditor school district. Any school district transferring pupils to another district may raise the funds necessary to pay the transferred students tuition by making a levy above the normal school maintenance and operation levy specifically to pay the costs of the tuition. The difficulty associated with a transfer of pupils is that an agreement must be reached between the two school districts annually.

ROADS AND HIGHWAYS

With respect to the State Highway going through the Core Area (SH 55), Idaho Transportation Department (ITD) staff has indicated that as long as ITD Design Standards and Specifications are followed, there should be no particular problems with development or access to SH 55 in the Spring Valley area. Staff also pointed out that while the SH 55 corridor to McCall is one of the busiest in the State, the Spring Valley area is fairly straight, level and would have good sight distances for prudent roadway design. Consideration should be given as to how best, from both functional and cost perspectives, to provide a safe crossing of SH 55 as the community develops. An at-grade crossing would tend to be less safe, particularly as traffic levels increase and as both sides of the highway develop and create an attraction to crossing for bicycles, pedestrians and vehicles. ITD at some point is likely to require an overpass or underpass in a cloverleaf or diamond type configuration. This consideration may lead to planning for a concentration of development on one side of the highway during the initial years of development.

The existing "farm" roads or property access driveways leading directly from SH 55 have no ITD permits and are an allowed use just for the farming operations. No permits are on record for these existing accesses and ITD has no intention of requesting access permits from the present owners. For future development purposes, new accesses on either side of SH 55 must be applied for through the normal ITD approval process. It was the initial opinion of staff that ITD will not deny access, as long as State Design Standards and Specifications are used.

The Ada County Highway District (ACHD) is an unusual local government agency. It is responsible for design, construction (unless this is performed by a developer under ACHD oversight) and maintenance of all public roads in Ada County, including those within City boundaries. Private roads are possible in some instances, though they usually must be constructed to ACHD standards. ACHD is also responsible for stormwater facilities in all of Ada County.

Several meetings were held with ACHD staff. As with ITD, as long as normal procedures are followed and appropriate development and impact fees paid, ACHD will review the proposed project as a normal development. Were it not for SH 55 access in the middle of the Core Area, ACHD requirements for development of primary access roads could have been problematic and expensive. This has been and will continue to be a difficult financial burden in the case of Hidden Springs.

ACHD has a set of design standards and guidelines. These are, however, subject to modification in some instances. Major exceptions, such as allowing narrow streets, roads that are more rural in character than standards would normally require, and pathways instead of sidewalks have been allowed in developments such as Harris Ranch and Hidden Springs. ACHD maintains only roads. Developers are required to establish license agreements with ACHD assuring maintenance of sidewalks and landscaping in rights-of-way.

Spring Valley Ranch will be required to complete a traffic analysis and study to determine initial and long-term traffic impacts for both ITD and Ada County Highway District review. This will help establish the basis for road standards and intersections. Both ITD and ACHD have indicated an interest in participating in the "task force" type approach to public agency review, as previously described.

TAXING DISTRICTS AND INFRASTRUCTURE FINANCING

The attached as Exhibit A summarizes all of the significant Idaho political subdivisions, taxing districts and other revenue raising opportunities provided under Idaho law. With the exception of local improvement districts (LID's), these political subdivisions and taxing districts are not set up to be directly used by a developer as tools used to raise revenue or finance infrastructure.

An LID may be created by municipalities and have the power to levy assessments on all property within the boundaries of the LID. The definition of a municipality is broad and includes counties, highway districts, and water and sewer districts. LID's are created for specific improvements and may include the construction of streets, sidewalks, sewer improvements, landscaping, bridges, crosswalks, streetlights, canals, and other infrastructure improvements. Although an LID does not directly finance a developer and its construction, it is a powerful tool, which can finance the significant infrastructure necessary to the development of a project like Spring Valley Ranch. It is noteworthy that an LID cannot be used to build schools.

Many other districts may also be created also without limitation: hospital districts, highway districts, fire protection districts, recreation districts, public library districts, and watershed improvement districts. Each district may be financed by assessments levied against the property within the district and each has the power to acquire property and construct infrastructure necessary to its political purpose. It is important to recognize that although these districts may technically be created, there may be significant legal and political hurdles that could render many districts impractical or unrealistic.

However, for a project this size, a recreation district may be a workable option. Recreation districts are created by a petition filed with the clerk of the county board of commissioners and signed by at least twenty percent of the residents of the proposed district. Like many of the creation statutes, the recreation district statute contemplates the potential multi-jurisdictional nature of this district and provides that if the proposed district lies within more than one county each county board of commissioners must issue its approval. In the event the county commission(s) determine that the petition complies with the law they will refer the issue to the electors residing within the proposed district.

Once approved, the recreation district is governed by a three-member board of directors appointed by the governor. The recreation district board has the power to levy assessments against the taxable property within the district or impose a fee on all district residents. The

*Michael
Mullin
Sharon Spivey
Chris Howard
Jared Wain*

✓ money can be used for many things, including the acquisition of property and the construction and operation of recreational facilities, including golf. A similar process is undergone for each of the districts discussed above or described on the attached spreadsheet. Again, the political process might hinder our ability to create many of these districts.

Considering the size and magnitude of Spring Valley Ranch, consideration should be given to introducing legislative changes to the existing LID statute or legislation which creates a new "public infrastructure or community facility" law. Any new legislation must demonstrate that it is a good economic development tool that does not increase taxes without the consent of affected property owners in order to have a realistic chance of success. The LID statute is a realistic tool to build some of the necessary public infrastructure at Spring Valley Ranch. Other political subdivisions and taxing districts may, at some future date, make it possible to develop public libraries, hospitals, and other public amenities. As the project proceeds, a goal should be to ascertain which statutory provisions, in addition to the LID statute, will be useful and politically realistic.

PROPERTY TITLE REVIEW

Givens Pursley has only very recently received a detailed title report, which contains many exceptions. This is not at all unusual for a property of this size. There has not been an opportunity to review this title report in detail and therefore cannot provide any comments on the status of title at this time. Notwithstanding the significant number of exceptions to the title report, the title appears relatively clean. As mentioned in earlier updates, the exceptions are primarily limited oil, gas and mineral rights reservations and easements. However, additional time is needed to further evaluate all of the exceptions. As soon as that process is complete, a more complete summary of title review will be prepared.

* WATER SUPPLY

From the outset of this effort it has been recognized that water supply for both domestic and irrigation purposes is critical to any significant development of the Spring Valley Ranch property. Determining the potential for water supply has been a major focus of this feasibility effort. An extensive effort has been undertaken by Dave Roylance and Jeff Fereday to working with Ed Squires (Hydro Logic), Terry Scanlan (Scanlan Engineering, hydrogeologists), United Water Company, and local irrigation districts. The effort is partially complete and results to date are summarized below.

Water demands, both for domestic purposes and for golf course irrigation, could be provided by one large distribution system utilizing elevated storage and booster pump stations. Since a substantial distance may separate the golf courses and areas of housing concentration, it may be more cost effective to have two or more smaller systems situated throughout the project in close proximity to the water demands. One larger system with elevated storage, looped and tied together would provide more water storage for peak flows and fire protection as well as

providing more flow and pressure stability but perhaps at a greater cost. Smaller, self-contained systems placed throughout the project area may reduce distribution line costs substantially, but require each independent system to have elevated water storage and water source redundancy. As development concepts are refined, both water system approaches should be evaluated for cost and benefit determinations.

Depending upon design, an 18-hole golf course could contain approximately 150 acres of irrigated turf. For discussion purposes, 150 acres of irrigated turf per golf course would equate to a continuous (24 hours a day/7 days a week) flow rate of approximately 710 gallons per minute per golf course. An evaporation and percolation loss of 30% was assumed.

For domestic purposes only, exclusive of residential irrigation, water demand is approximately 0.35 gallons per minute ("gpm") per residence. Residential irrigation requirements are approximately 6.5 gpm per acre. Assuming each residence irrigates an average of 0.25 acres, then total residential demand including individual irrigation demand is approximately 1.98 gpm per residence. Peak flows and fire flows would be provided with elevated water storage rather than from the source or sources. It is recommended that a domestic water source, or supply, for a first stage of infrastructure (providing water supply for up to 1,000 lots) be a minimum of 500 gpm. If the first stage of infrastructure provided for 1,000 dwelling units, one 150-acre golf course, plus 25 acres of irrigated park space, then the domestic water requirement would be 350 gpm plus the irrigation requirement (2,765 gpm). Total water demand, therefore, would be 3,115 gpm for the phase described above.

For the full project build-out of the Core Area, an assumption is made that there would be 8,000 dwelling units (each irrigating an average of 0.25 acres per residence), two golf courses containing a total of 300 irrigated acres, plus an additional 100 acres of irrigated park space. Water requirements for that scenario would be as follows: for domestic use, the project would need 2,800 gpm of finished water, meeting Idaho Drinking Water Standards. Seasonal irrigation demands would be 15,600 gpm.

Based upon preliminary assessments by both hydrogeologists, water supplies in these large quantities are unlikely to be available from ground water sources or wells in the Core Area of the project. A system of this scale should be owned and operated by a professional water purveyor, such as United Water of Idaho. Based on discussions with United Water Company, they would be interested in owning and operating this water system, either as an extension of their existing facilities, or as a separate stand-alone facility. United Water Company is a privately owned public utility, and as such, is governed and regulated by the Idaho Public Utilities Commission (PUC). Any plan to extend water service to the Spring Valley area, or to construct and build a stand-alone water system on site, would require review and approval of the PUC.

One concept discussed with United Water Company consists of the following: Construct a pump station and water transmission line from their existing facilities near the intersection of Floating Feather Road and State Highway 44. This water line extension would be approximately eight miles in length starting at Floating Feather Road and extending north

along SH 55 to the project. Also, construct a well field in the western regions of the Spring Valley property and construct another pump station and transmission line to transport source water from the well field southerly to the intersection of Beacon Light Road and Park Lane. At this intersection, a connection would be made back into the existing United Water system.

The concept would also include purchase of a surface water right in the Boise River and retirement of that water right in order to mitigate the irrigation moratorium issue, (discussed later in this report). Irrigation water rights have been sold in the Sand Hollow area (within the last two or three years) for between \$1,000 and \$2,000 per acre. In a good water year, this can equate to 3.7 to 4.5 acre-feet per acre per year, somewhat less in drought years. 2,400 irrigated acres, assuming that a water right can be purchased for \$1,500 per acre, would equate to a one-time cost of \$3,600,000. There would be annual assessments and maintenance charges for a surface water right, but these should be very minimal.

✓ Although the hydrologists consulted have doubts as to whether there is a significant water supply in the core area, it is possible that a major source exists. This would be the most preferable option for domestic water supplies and could conceivably, through water rights acquisitions, be used for irrigation water as well. In order to determine whether there is a substantial source in the Core Area, a drilling program and detailed hydrological study of this area should be initiated in the near future.

Another option to partner with United Water would be as follows: Construct a well field in the westerly portion of the Spring Valley property. Don't make any connections to the existing United Water system, but instead, pump this water directly northerly and easterly approximately six to eight miles to the core project site. If water in sufficient quantities can be obtained directly from the well fields to supply all domestic and irrigation needs, then an irrigation right could be obtained by purchasing and retiring a surface water right on the Boise River. If these well fields cannot meet both domestic and irrigation needs (including an allowance for future development of the western area), then it may be that these well fields could be used only for domestic purposes. Irrigation water could be obtained by purchasing a surface irrigation water right and transferring that water right into the Farmer's Union Canal. The point of diversion would be changed from its existing location to a location near State Highway 55 and Farmer's Union Canal. A pump station and transport line would be constructed to convey the water approximately eight miles north to the project site.

As an alternative, there is the possibility of obtaining water from the Payette River drainage system from surface and/or subsurface sources. There is no moratorium on new irrigation water development in the Payette River system, as was discussed recently with John Huston of Integrated Water Resources. Although this would be a large scale undertaking and at significant cost, it may have long-term economic potential beyond serving the development. The surface elevation at a well field in the upper portion of Woods Gulch or Little Gulch is only about 300 feet higher than the Payette River at Horseshoe Bend. Obviously, these are large-scale projects with many issues, but they should not be dismissed without thorough evaluation. A decision should be made as to whether work should continue with Mr. Huston to explore these opportunities.

Possibilities for use of treated wastewater for irrigation are discussed in a following section. As a general matter, the quantities that could be utilized would fall substantially short of the overall irrigation requirements of the development.

WATER RIGHTS

Preliminary review of the records of the Idaho Department of Water Resources has identified seven water rights that appear to be associated with the property owned by the Spring Valley Livestock Co., Inc. ("Spring Valley"). Together, these comprise a diversion entitlement of 3.59 cubic feet per second ("cfs"), 3.14 cfs of which is for irrigation (from two of the rights) and 0.45 cfs of which is for domestic uses or stockwater.

One of the irrigation rights, which is claimed for 1.14 cfs, lists ground water as the source; the other, for 2 cfs, lists Spring Valley Creek. Overall, these two rights are claimed as appurtenant to 162.5 acres of irrigated land. There are two other ground water rights claimed for Spring Valley, both for stockwater. The other water rights (stock and domestic) are for diversions from Spring Valley Creek or from unnamed streams or springs in several locations in six sections.

Attached, as Exhibit B, is a schedule listing these seven water rights and the basic attributes for which they were claimed. It should be noted that this information is preliminary only, and that further investigation, including a site visit during the irrigation season and review of any available records, would be necessary to determine the existence, reliability, and likely annual yield of the water rights. In addition, while most of these water rights are still subject to evaluation in the ongoing Snake River Basin Adjudication (SHBA), actions in that adjudication also could significantly change the picture.

Nonetheless, records currently available indicate that there are valid water rights associated with the property. At least until better numbers are available, the maximum amount of diversions that should be considered as potentially available from the irrigation water right is about 500 acre-feet. The domestic and stockwater rights are small, but could provide at least some supply for the project, depending on their history of use, location, and so forth.

WASTEWATER TREATMENT AND COLLECTION

In the central core areas of the project, sewage treatment must be provided with a central system in order to be environmentally responsible and for the project to achieve the projected densities. A central sewage collection and treatment system is also essential for regulatory agency support and approval. In some of the outlying areas, lots of two acres and up could probably be served by individual septic systems as soils and topography allow. There are several types of nitrogen reduction septic systems available now that could also be used, if necessary, to overcome site constraints, if any, on the larger outlying parcels.

Collected wastewater could be treated by "packaged" sewage treatment plants. One source of these packaged plants is Quality Water Systems, Inc. (QWS) headquartered in Bozeman, Montana. There have been two meetings with the owner, Mr. Ray Shackleford, to discuss the viability of utilizing his systems at the Spring Valley Ranch project. These systems seem ideally suited for this situation. These wastewater treatment systems use the "sequencing batch reactor technology", which will not be discussed here in detail. According to Mr. Shackleford, QWS treatment systems have had much success in Montana and Idaho and specifically here in the Treasure Valley. Moreover, they are applauded and supported by the Idaho Division of Environmental Quality, as well as other local review agencies. These packaged plants can treat sewage effluent to drinking water standards (Class A water) that can be discharged into the irrigation ponds without detrimental environmental impact.

This system has been installed at Moon Lake Ranch Subdivision, west of Eagle, Idaho, with apparent success. The system in this project receives wastewater from the homes by way of a central collection system or individual pressure pumps. The mini municipal plant then treats the effluent to at or near drinking water standards and discharges the cleaned wastewater into the ponds to be reclaimed and used for ~~lot~~ irrigation. This project and the use of these wastewater treatment systems came under strict scrutiny from the Central District Health Department and the Division of Environment Quality initially, since the project is located along the Boise River in a sensitive area with known high ground water. Further, this was new technology to this area and DEQ, as well as other review agencies, were very cautious in their evaluation and ultimate approval of the systems.

One necessary and critical component of this type of system is that all operation and maintenance be done by properly trained and certified operators. QWS does provide local operators to provide the required operation and maintenance as mandated by the Division of Environmental Quality. These treatment systems require a relatively small land space and except for the controls, are located in underground tanks and produce very little noise or odor. They can be located and screened so they would not be detrimental to the project.

The Division of Environmental Quality appears to be very familiar with and supportive of this technology and specifically the QWS systems. Although further evaluation is required, at this point it appears that this system could work well at the Spring Valley Ranch project.

The alternative of constructing sewer lines and connecting to an existing treatment facility appears to be prohibitively expensive. If, for example it was possible to obtain annexation into the Eagle Sewer District, the associated costs of line extension and hook up fees would be prohibitive. At some point in development of Spring Valley Ranch, however, it may prove economical to develop a central sewage treatment facility.

For budgeting purposes, QWS system modules designed to handle up to 500 homes should be assumed. The cost of QWS systems of that scale would be approximately \$4,000 per dwelling unit. There is, of course, also the expense of a conventional sewage collection system. Currently the monthly maintenance costs are \$20.00-\$25.00 per month per dwelling unit, which is competitive with and similar to municipal monthly sewer charges.

PUBLIC UTILITIES

Meetings have been held with representatives of Idaho Power Company, Qwest Communications, Intermountain Gas Company, and Cable One. In the case of Idaho Power, it was made clear that a new substation would be required. This can be located on the Spring Valley property, with service to the substation coming from one of the high voltage lines running through the property. With the other utilities, service can be provided, though it will require extension of lines up SH 55 from the Eagle area.

Although Idaho Power is usually the only utility with significant developer costs for off-site and extension improvements, the first indication from staff at Qwest, Cable One and Intermountain Gas Company is that they would expect the developer to pay for costs of extending lines to Spring Valley Ranch. The issue of who pays and rebates must be examined more carefully.

SENSITIVE AND THREATENED PLANT SPECIES

David Kordiyak conducted a very preliminary rare plant survey on the Spring Valley Ranch property during the second week of May 2001. The purpose of the survey was to identify if there may be threatened, endangered and rare plant populations on the 33,000-acre property.

Four rare plant species were found to be indigenous to the site: Aase's onion, Mulford's milkvetch, Slick-spot peppergrass and Wilcox's primrose. Aase's onion and Mulford's milkvetch are presently listed as federal species of concern and Bureau of Land Management (BLM) sensitive species.

Fourteen locations were surveyed on the site. Mr. Kordiyak identified six populations of Aase's onions and although no Mulford's milkvetch, Slick-spot peppergrass or Wilcox's primrose plants were located, habitat on the site indicates they may also occur on the Spring Valley Ranch property. It was recommended that a more comprehensive survey for the species of concern be conducted during the appropriate time of year when the target species are in bloom. It was also recommended that further research be done to determine if there are additional species of concern in the vicinity of the site, especially at the higher elevations.

Fiber

* 42,000 / mile

high total installation + material

* 24,000 now

2" conduit

1 1/4"

Fiber itself

-80-90 lf

w/ 3" - 4" lf

"10 fiber" 10 in = single fiber

infrastructure - pd for by developer.

Switch for 1200 customers * 500,000

in the building

100K for building

3-6 lines per house. 6 best.

1 pair = internet
" = fax
" = cell phone

Take fiber to the house. Then hundreds of lines.

- Boise River
Below Anderson Dam.
Silver Creek
Sun Valley

- Salmon -

Modison R
Jefferson R
Mountain
where in
Idaho
+ Wyoming.
Boise River
Mountain
Town
of River

APPENDIX

Exhibit A
Taxing Districts

SPRING VALLEY

SUMMARY OF APPLICABLE IDAHO POLITICAL SUBDIVISIONS, TAXING DISTRICTS AND LAND USE LAWS

POLITICAL SUBDIVISION AND TAX DISTRICTS	CREATION/PROCESS	CREATION CRITERIA	MANAGEMENT	POWERS	MULTI-JURISDICTIONAL	FINANCING	ANNEXATION	COMMENTS
Dividing an Existing School District (I.C. 33-301)	Dividing a School District: (a) Proposal is presented to state board of education by a school district's board of trustees after public hearing within the district; (b) If approved by state, election is held within the school district. See I.C. 33-312.	Dividing a school district: (a) requires 2 or more secondary schools within existing district and at least 1 secondary school in each new district after the division. See I.C. 33-312.	Board of Trustees	Broad powers under Title 33	Joint School Districts are possible (I.C. 33-304); agreements between school boards is also possible which allows pupils to be transferred. See below	Levy taxes under I.C. 33-801; bonds under I.C. 33-1101.		
Creating Subdistricts (I.C. 33-301)	Creating Subdistricts: (a) Board of Trustees, upon its own motion or upon a Petition being filed with board of trustees signed by not less than 50 school electors may call an election; (b) If passed by the electors, the board of trustees shall certify the creation of the subdistrict to the state board of education and to the county commissioners. See I.C. 33-351.	Creating Subdistricts: (a) requires at least two existing high schools in the current school district and one high school in each after the creation of subdistricts. See I.C. 33-351.	Board of Trustees of entire district governs the subdistrict. See I.C. 33-351.	Broad powers under Title 33		See I.C. 33-354.	Not contemplated by chapter	
Transfer pupils (I.C. 33-1401)	Transfer of pupils by Board of Trustees: (a) Board must reach an agreement with another district that pupils will be transferred to and attend designated schools in another district. See I.C. 33-1403.	Transfer of Pupils: (a) Requires the Board to annually reach a written agreement with the Board of the other district. See I.C. 33-1403.	Board of Trustees	Broad powers under Title 33		Any school district is authorized to levy a tax for the payment of tuition costs in another district. See I.C. 33-1409	Not contemplated by chapter	
Excision and Annexation of Territory (I.C. 33-308)	Petition signed by 10+ school district electors submitted to school district boards. School district submits, with recommendations to State Board of Education. If approved, the issue is submitted to school district electors for vote.	May not leave school district with bond debt in excess of legal limits. I.C. 33-308.						
POLITICAL SUBDIVISION AND TAX DISTRICTS: ROADS	Petition signed by at least 10 electors residing in the proposed district; filed with the clerk of the current highway district having jurisdiction over the proposed area; public hearing. See I.C. 40-2202.	Highway District Commissioners must determine that the proposed district is practicable and to the best interests of the territory to be detached from the existing district and organized into a new district.	The existing Highway District Commissioners shall select a qualified "elector" from each of the three subdistricts of the new highway district. See I.C. 40-2207.	See I.C. 40-1309, 1310. Highway Districts may also create local improvement districts for construction of roads, gutters, sidewalks, etc. See I.C. 40-1322	Contiguous property may be annexed by affirmative vote (I.C. 40-1624). This provision contemplates contiguous property lying in one or more counties.	Power to levy taxes (I.C. 40-801); Power to issue bonds (I.C. 40-1101)	Contiguous property may be annexed by affirmative vote (I.C. 40-1624). This provision contemplates contiguous property lying in one or more counties.	New district need not be created; rather the pre-existing district could be annexed into existing district.

Exhibit A Taxing Districts

POLITICAL SUBDIVISION AND TAXING DISTRICTS	CREATION PROCESS	CREATION CRITERIA	MANAGEMENT	POWERS	MULTI JURIS	FINANCING	ANNEXATION	COMMENTS
Recreation District (I.C. 31-4301)	(1) Any person may file a petition with the clerk of the county board of commissioners signed by 20% of resident electors; (2) petitioner must deposit estimated value of election costs; (3) County Commissioners determine whether petition substantially complies with law and refer to electors for a vote; (4) vote by all residents; (5) division of district into three subdivisions which are approximately equal in population. See I.C. 31-4304.	(1) Proposed district must contain not less than \$5 million assessed property value; (2) county commissioners must decide whether the petition substantially complies with I.C. 31-4303.	Governed by a 3 member Board of Directors; initial directors are appointed by the governor from each of the three subdivisions of the district. Board appoints officers to run daily affairs.	District may acquire property; and construct and operate recreational facilities. See I.C. 31-4317	In the event proposed district is located in more than 1 county, each county board of commissioners must make appropriate findings. See I.C. 31-4304 (g). Annexation of property can also be from one or more counties (I.C. 31-4319).	Board may levy taxes which do not exceed .06% of the market value of the taxable property within the district. In lieu of a tax the Board may impose a fee on all residents. See I.C. 31-4318 et seq.	Board may pass resolution approving annexation of adjacent property (in 1 or more counties); after board approval the resident electors shall vote on the proposed annexation. See I.C. 31-4319.	
Watershed Improvement District (I.C. 42-3701)	Requires petition filed with state soil conservation commission and signed by 15 owners of land within proposed district. In the event there are less than 15 owners, it requires signatures of 2/3 of owners representing 2/3 of total acreage within proposed district. State soil conservation commission shall hold an election for all owners within the proposed district boundaries. See I.C. 42-3705.	It does not appear that the state soil conservation commission has discretionary powers. See I.C. 42-3705.	Governed by 3 directors. See I.C. 42-3706.	Acquire property, construct and operate improvements, etc. See I.C. 42-3708	Application is made with the state and there does not appear to be any multi jurisdictional issues.	Levy taxes, issue bonds, levy assessments (see I.C. 42-3714, 3716).	No annexation provision.	
Public Library District (I.C. 33-2701).	Petition signed by 50 or more qualified electors residing in the proposed district is filed with county clerk of each county in which the proposed district lies; public hearing before the board; if board recommends the district then an election is held. See I.C. 33-2704, 2705.	Board must determine that the district conforms with the public policy found in I.C. 33-2701.	Five Member Board of Trustees; initial members appointed by commissioners. See I.C. 33-2715	Acquire property to build library or other buildings, furnish and equip buildings, purchase motor vehicles.	When property is located in more than one county, petition should go forward with county commissioners of each county (I.C. 33-2709).	Power to tax (I.C. 33-2724); bond election (I.C. 33-2728).	See I.C. 2707, 2708.	
Soil Conservation District (I.C. 22-2701)	Any 25 owners of land lying within the limits of the proposed district may petition the state soil conservation commission; public hearing by state commission; if recommended by commission then a referendum must be held to assist the commission in its determination if a district is administratively practical and feasible. See I.C. 22-2719.	Commission must determine that the district is administratively practical and feasible.	5 Supervisors; 2 are appointed by state commission and 3 are elected. See I.C. 22-2719(f).	Power to acquire property or options on property. See I.C. 22-2722(5).	State application; there does not appear to be any multi jurisdictional issues.	County general fund (I.C. 22-2726); state of Idaho funds (I.C. 22-2727).		

Exhibit A Taxing Districts

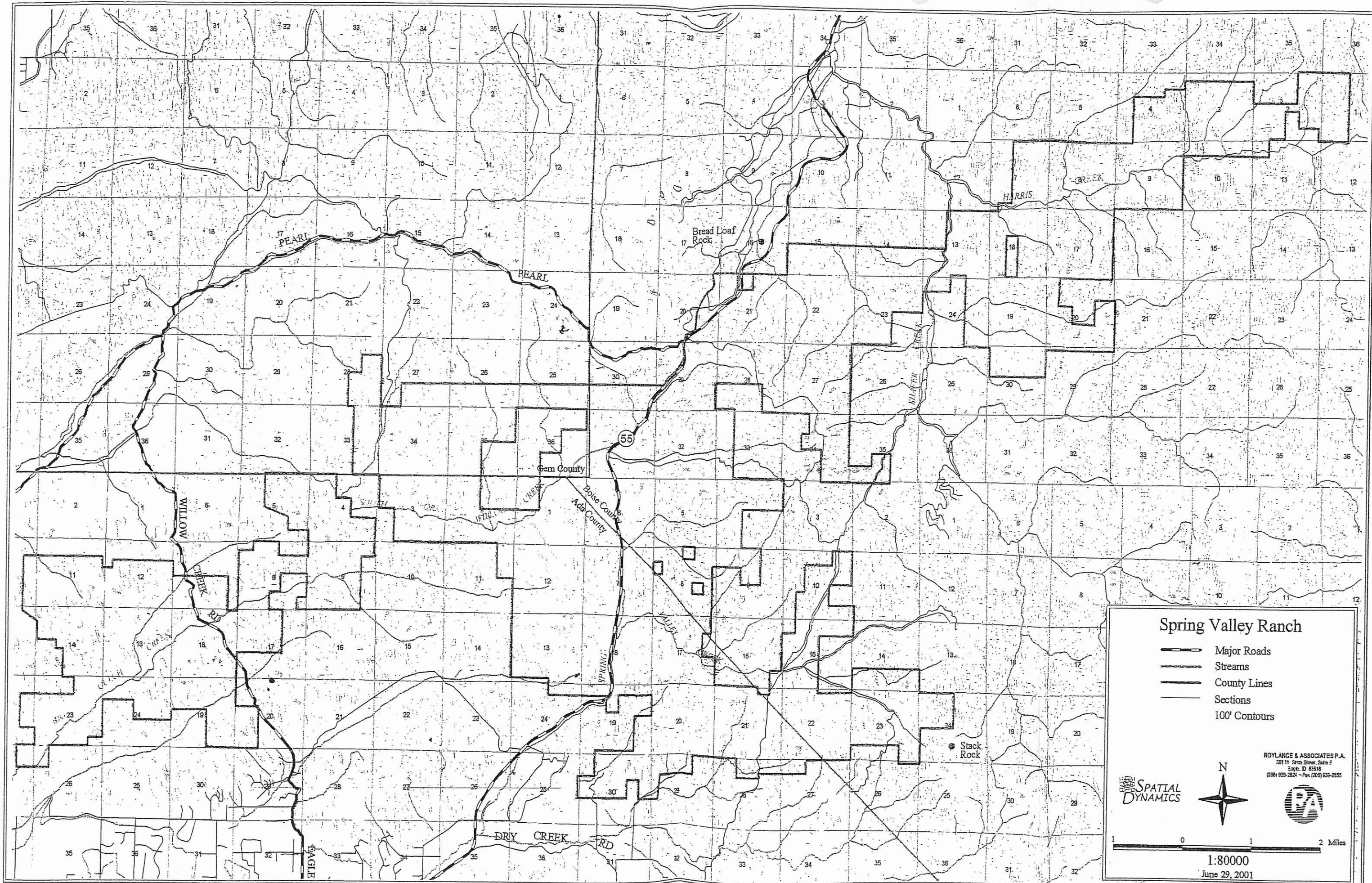
POLITICAL SUBDIVISION (I.C. 50-1701)	CREATION/PROCESS	CREATION CRITERIA	MANAGEMENT	POWERS	JURISDICTION	FINANCING	ANNEXATION	COMMENTS
Local Improvement Districts (I.C. 50-1701)	Petition signed by at least 60% of residents or 2/3 of owners of property subject to assessment OR by resolution of council. See I.C. 1706, 1707. A hearing must also be held by the council.	No additional criteria outside of council approval.	Governed by council, which is the county board of commissioners or the board of directors of a water/sewer district or the council of a municipality. See I.C. 50 1702.	See I.C. 50-1703.		Assessments, (see I.C. 50-1711); Bonds (See I.C. 50-1722.		
Municipal Corporations (I.C. 50-101)	Petition signed by majority of residents of any unincorporated contiguous area containing not less than 125 electors filed with county commissioners. See I.C. 50-101	County Commissioners may not take action on petition if the proposed city is within 1 mile of an existing city of less than 5,000 population; 2 miles of city with 5-10,000 population; 3 miles of city of 10-20,000 population or 4 miles of city with 20,000+ population unless the the neighboring city has declined to annex the territory. In addition, all neighboring cities within the distances provided above must approve the incorporation. See I.C. 50-101.	Once incorporated, county commissioners shall appoint a mayor and 4-6 city council members. See I.C. 50- 102.	See I.C. Title 50		See I.C. 50- 235,236,237	See I.C. 50-222 et seq.	
Joint Action by Public Agencies (I.C. 67-2326)	Any public agency may enter into agreements with one another for joint cooperative action. See I.C. 67-2326. See I.C. 67-2328. Any public agency may also enter into interagency contracts to perform services. See I.C. 67-2332.	Required contents of Agreements are set forth in I.C. 67-2328.			By nature, these agreements are multi jurisdictional.			Public agency include state agency or department, counties, school districts, highway districts, cities, etc. See 67-2327.
Local Land Use Planning Act (I.C. 67-6501).	n/a	n/a	n/a	n/a	Joint Planning and Zoning Commission allowed. See I.C. 67-6505			We may need to form amend the Boise and County Comprehensive Plan which authorizes I.C. 67-650. who also consider develop agreements under I. 6511A; transfer of development rights or I.C. 67-6515A and fut acquisition maps und 67-6517.

Exhibit B Water Rights

Spring Valley Livestock Co. Inc. (based on preliminary review of IDWR documents 6/14/01)

Right No.	Basin	Priority	cfs	Source	Use	Acres	Vol. Limit	cfs/Acre	P.O.U.	Comments
63-5386	Stat. Cla	2/01/1880	2.02	Spring Valley Cr.	Stock, Irr'n	92.5		0.022	T5NR2E \$18	Claimed
3-18972	Ben. Use	12/24/1945	0.15	Spring Valley Cr.	Dom., Stoc	13		0.012	T5NR2E \$6.7	Decreed 2/14/2000
3-18974	Ben. Use	06/01/1948	1.14	Groundwater	Irrigation	57		0.022	T5NR2E \$7	Claimed
3-22879	Ben. Use	12/31/1947	0.1	Groundwater	Stock	NA	3,000 gpd		T5NR1W \$24	Recommended
3-22880	Ben. Use	12/31/1947	0.1	Groundwater	Stock	NA	3,000 gpd		T5NR1W \$23	Recommended
3-31063	Ben. Use	06/01/1945	0	Spring	Stock	NA			T5NR2E \$30	Claimed
3-29124	Ben. Use	1/1/1873	0	Unnamed Stream	Stock	NA	3,000 gpd		T5NR1W \$24	Recommended
						acres		cfs/acre		
						1,611		0.022		
						1,409	162.5			
						202				
						512	57	0.020		
						898	92.5	0.022		

NOTE: The figures on this schedule were obtained from the Idaho Department of Water Resources, but have not been evaluated as to accuracy or completeness. Nor have they been evaluated in light of any actual review of the property, historic irrigation or water use records, or other information. Any such review could find that these figures are not accurate reflections of what the water rights actually are, or what amounts could be successfully transferred to other places or types of use.



Spring Valley Ranch

- Major Roads
- Streams
- County Lines
- Sections
- 100' Contours

SPATIAL
DYNAMICS



ROYLANCE & ASSOCIATES P.A.
301 W. State Street, Suite 2
Eagle, ID 83616
(208) 929-2824 - Fax (208) 929-2955



1 0 1 2 Miles

1:80000

June 29, 2001

CLARK DEVELOPMENT

479 MAIN STREET

BOISE, IDAHO 83702

(208) 342-2625

Fax Memorandum

DATE: June 18, 2001
TO: Tom Coughlin, Garth Baldwin FAX:
FROM: Bill Clark FAX: 342-2627
RE: 45 Day Report

Message

I indicated to Garth last week that I expected to have our report to you by tomorrow. As you know, this is to be a report prepared by me incorporating the summaries by Dave and Ed. Unfortunately, I think the meetings of last week got us off that schedule. I am waiting for Ed and Dave's reports and expect to get them tomorrow. It will be a couple of days after that before I get the complete report to you.

I took several more hours with Joe and Shon last Friday. It went very well. I'm curious to learn how your discussion with Duane went today.

Bill

Number of pages including cover sheet: 1

CLARK DEVELOPMENT

MEMORANDUM

DATE: May 24, 2001
TO: Tom Coughlin, Garth Baldwin, Paul McCann
FROM: Bill Clark
RE: Spring Valley Status Update

At your request I have gathered a brief status summary concerning work being done by Dave Roylance, Ed Miller and myself along with work being performed by subconsultants. Dave and Ed provided me with written summaries, which I have incorporated. This summary should serve as a basis for our status review at 9:00 AM Thursday.

Regulatory feasibility

Ed and I met with Jeff Patlovich, Director of Ada County Development Services and I have met with Kathie Brady, Zoning Administrator for Boise County and Mike Williams, the Zoning Administrator for Gem County. I have met with Grant Kingsford, Ada County Commissioner, and have appointments to meet with the other two Commissioners next week. Overall, the reception is positive. With the Boise and Gem County staffs the attitude is outright enthusiasm with some "can do" added. It appears that their PUD ordinances might fit well with an overall plan developed under the Ada County Planned Community ordinance.

We have reviewed on a preliminary basis the land use regulations of all three counties and have identified several basic options for how we might proceed with regulatory approvals. Ed has completed a preliminary review of how state regulations pertaining to multi-jurisdictional issues such as this project faces and we together have identified several possible approaches. Ed will present a chart summarizing these regulations at our meeting.

In addition, Ed is recommending that we discuss and explore legislative changes that would modify some of the existing statutory provisions to allow the various taxing districts (e.g., recreation districts, etc) to be an effective tool for a project like Spring Valley. Also, we should explore the practicality of new legislation that that would provide for the creation of a special taxing district for the construction, financing, and/or possible ownership and maintenance of infrastructure (sewer, water, roads, schools, libraries, etc) for a large project like Spring Valley.

May 24, 2001
Page Two

Issues include:

- Possible sharing of tax revenues
- Modifications of district boundaries
- Desirability of a cross county, multiple district review group
- Creation of a special infrastructure district
- Usability of existing land use ordinances and their application in an overall master plan
- Detailed examination of potentially proceeding in one County in advance of others.

Real Estate Issues

Ed met with Harold Huston of Pioneer Title to identify additional information needed to complete the title review and provide Harold with the requested format for the title commitments. Harold will provide revised title commitments and the additional information sometime this week (i.e., the week of May 21st).

Generally, based on preliminary review, the title looks quite clean. There are numerous mineral and gas reservations and road and ingress/egress easements, which will need to be investigated further upon receipt of the revised title commitments and additional information from Pioneer Title.

Additional issues to be addressed include:

- Identify properties not critical to the core development and which may be appropriate for sale, trade or gifting. Also identify key acquisitions that might be obtained through trade.
- Develop a strategy relating to use of conservation easements/gifts/sales for maximum financial advantage.

Water

We have had to engage Terry Scanlan, Scanlan Engineering for hydrology. Dave envisions continuing to use Ed Squires, but on a limited consulting basis. Dave will present a summary of the work to be done by Terry and what effect it will have on our schedule.

In working with Ed Squires and United Water, Dave has developed a fairly good understanding of the water issues, both for the golf course and for the potable water system. United Water Company has the utmost confidence in Terry and Ed. Dave has sufficient information to prepare a report on the feasibility and general costs of hooking into United Water and irrigation water sources. Dave has plans to meet with Jeff Fereday and Department of Water Resources staff to examine water rights issues.

Issues:

- Information on McCleod water rights is needed
- A drilling program is needed, particularly in the "core area" near Highway 55 to determine if there is a substantial available water source in that area
- Economic and regulatory feasibility of importing irrigation water must be addressed.

Utilities, Services, Roads

Dave has been in contact with Alan Skille at Idaho Power Company, Russ Plat at Intermountain Gas Company and Margie Gray at US West. Dave will be prepared by May 25th to incorporate the utility availability together with preliminary cost estimates into the report.

Dave has had several meetings and discussions with Mr. Ray Shackelford of Quality Water Systems, Inc. regarding sanitary sewer issues and is prepared to write a report on those issues.

At this point, there have been no contacts with Idaho Transportation Department or Ada County Highway District.

Miscellaneous

There have been several additions to the scope of our work, primarily involving issues to be addressed by other consultants. This additional work will have an effect on the 45 day period, which we should discuss at our meeting with you. A brief summary of that work is presented below.

We should have the initial work products from Spatial Dynamics available for our meeting. Dave will review those maps and make any edits, comments, or corrections and expect to have that product finalized by Friday, May 25th. The other information that Spatial Dynamics is developing, such as soil type overlays, sensitive plant overlays and the like, will be completed on the afternoon of Wednesday, May 30th. The ortho photos are finished. Upon receipt of the final products, Dave will review them for content, make any edits or corrections, and finalize the product by Friday, June 1st.

Dave has also been in contact with Mike Wittenbach (939-4680), a wildlife biologist, which can give us a preliminary assessment of the wildlife issues on the project. He did a significant amount of the work on the Boise Foothill Plan and can incorporate much of that data into our project. Those issues will come up as part of the entitlement process and we should consider retaining Mike for a preliminary assessment of the wildlife issues.

May 24, 2001
Page Four

Dave has coordinated a brief overview of sensitive plant species on the site with Dave Kordiyak, which will give us a preliminary overview on those issues. That work, except for minor editing, is completed and ready for the final report.

Bill has been working with Pete O'Neill to determine that timing of work to be done by Tony Guzzardo. Based on the anticipated completion dates by Spatial Dynamics and other ongoing work, it appears that the week of June 4th would be the ideal time for a several day work session with Tony

cc: Ed Miller
Dave Roylance
Pete O'Neill

Spring Valley Ranch

Preliminary Program Considerations

6-25-01

Core area estimate: 11 sq. miles = 7,040 acres of physically developable land

Subtract: Golf 300 acres (2 courses)
 Retail 30 acres (300,000 sf)
 Bus Park 60 acres (500,000 sf)
 Multipurpose regional Park 150 acres
 Schools, community facilities 100 acres

Revised total 6,400 acres

1 DU/Ac = 6,400 units
 1.5 DU/Ac = 9,600 units
 2 DU/ac = 12,800 units

Potential additional acreage to core area (State of Idaho/BLM) = approx. 1,000 acres

Western area estimate: Approximately 6,400 acres of physically developable land.

Subtract: Golf 150 acres (1 course)
 Retail 30 acres (300,000 sf)
 Bus Park 60 acres (500,000 sf)
 Multipurpose regional Park 150 acres
 Schools, community facilities 100 acres

Revised total 5,900 acres

1 DU/Ac = 5,900 units
 1.5 DU/Ac = 8,900 units
 2 DU/ac = 11,800 units

Price point configuration options/density assumptions for core area - Current market

ST

Price	Units SCENARIOS			Density
	A(%)	B(%)	C(%)	
125-150K	10	0	0	2.5 DU/Ac
150-175K	20	15	10	2.25 DU/Ac
175-200K	30	30	20	2.0 DU/Ac
200-250K	20	25	25	1.5 DU/Ac

0-25000

250-300K	10	15	25	1.0 DU/Ac
300-350K	5	10	10	.5 DU/Ac
350+K	5	5	10	.3 DU/Ac

Possible additional elements: Retirement, Conference center/resort, ranchettes, "trade ranch"

Note: No view premiums added.

Spring Valley Ranch
Preliminary Program Considerations
June 25, 2001
Page Two

Issues/considerations

- Diversity of residential types and price points from beginning. Starter home lots should be part of program.
- Create a core focal point at an early point in development. School, convenience shopping and playfields (perhaps first stage of regional park), community center(s) with pool at earliest possible point. Which side of SR 55?
- Consider overpass at an early point (child and vehicular safety, community connectivity).
- Keep beginning core area fairly tight but also consider both sides of SR 55.
- Identify and put a great deal of focus on providing the primary attraction(s) for buying a home at this (perceived) distance from existing development/employment concentrations. Possibilities: Working ranch, vast permanent open spaces, schools and community facilities within walking/biking distance, view opportunities for lower than normal price points, extensive trail and pedestrian facilities, and genuine community feel.
- If there was a 10M budget for amenities, community facilities, commercial, school, golf, playfields, neighborhood centers and pools, trail system, and neighborhood parks are among the priorities to be evaluated.
- Should aim for at least 500 units annual absorption, though there probably would be some ramp up. Probably need two national level builders that can build and sell more than 100 units a year. Fill in and punctuate with local mid-size builders and custom lots.
- Maintain working ranch.

- Expansion of neighborhood amenities as price point goes up.
- Determine conservation easement strategy at an early point for financial/tax, public relations/political benefits and site planning purposes.
- Southwest and far western areas have strong development potential. Southwest area in near term, perhaps for large lots or as "trade ranch". Western area has high development capability but is probably out 10 years or more.