



Clearwater Geosciences, LLP
Ground Water Development and Exploration

October 11, 2014
Mr. James Cefalo
Idaho Department of Water Resources
900 North Skyline Drive, Suite A
Idaho Falls, ID 83402-1718

RE: AQUIFER TEST FOR JENSEN WATER RIGHTS APPLICATION

Dear Mr. Cefalo:

A groundwater impact assessment is provided in this letter report for the Anton Jensen Water Right Application. This is a modification of a previous version where I used the wrong pumping rate. Mr. Jensen has farmland near Samaria, Idaho, which he would like to irrigate. His property is located in the NENE Section 14, T15S, R35E as shown in Figure 1. For this impact analysis, we use a pumping test conducted on April 23, 2011 in an existing well 0.62 miles south of the Jensen proposed (POD), but in the same geologic formation. The parameters from the aquifer test are used in a computer simulation to predict the potential impacts to neighboring wells within ½ mile of the POD. The results of the computer analysis show that the proposed diversion rate will cause 1.75 ft of drawdown below static water level at the POD and 0.8 ft at a distance of ½ mile from the POD. This amount of drawdown will have a minimal or negligible impact on neighboring wells.

Nearby Wells

An evaluation was made for all existing wells and springs and permitted wells within ½ mile radius of the proposed well location. Figure 2 shows a circle of ½ mile radius centered on the proposed Jensen well location. The circle encompasses portions of sections 11, 12, 13 and 14, T15S, R35E. As Tables 1-4 show, a search of the IDWR on-line data base indicates that there are two water right permits (both ground water) and four water rights (all ground water) in section 11, one water right (ground water) in section 12, one water right (ground water) in section 13, and eight water rights (five ground water, and three springs), one water right permit (ground water), and one water right application (ground water) for section 14. Seventeen well logs were found in the IDWR drillers' log database in this area and these are provided in Attachment 1. The average depth of the wells is 141 ft and the average depth to water is 34 ft. The density of ground water PODs to the southwest of the Jensen POD is higher than the density of ground water PODs to the northeast, northwest and southeast.

The lithology in this area is a series of unconsolidated sands, gravels and clays. There is not a marker layer or geologic unit that can be correlated over distances between wells (~ ½ mile) based on a comparison of the lithology recorded on the well logs. The inability to correlate geologic layers is consistent with the area being situated in a cut and fill sequence of the Malad River. It is further complicated by waxing and waning cycles of Lake Bonneville. For the purposes of this investigation it is assumed that the aquifer thickness is 200 ft in this area. This is based on driller logs for three irrigations wells in Section 30, T15S, R36E about 3 miles southeast of the proposed well and on regional considerations of the hydrogeology. It should be noted that the aquifer is not one homogenous layer but a sequence of permeable lens of sand and gravel stringers, which are primarily confined. However, it is anticipated that locally the shallow



sequences of the aquifer are mostly confined and in other local areas the aquifer is unconfined. Because of the natural layering of the sedimentary beds the aquifer behaves as a confined aquifer.

Pumping Test

The test well is an irrigation well owned by Mr. Jeff Davis and it is located about 0.62 miles south of the location of Mr. Jensen's POD (see Figure 1). The Davis irrigation well is 140 ft deep, having an open bottom completion in gravel at 140 ft. For the pumping test the Davis Irrigation Well was equipped with an INSITU brand downhole pressure transducer to collect automated water levels during the pumping test. The pumping test began at 11:20 AM on April 23, 2011 and the well was pumped at a steady rate of 140 gpm for 24 hours. A plot of the data can be found in Attachment 2.

Curve matching methods were conducted using the AQTESOLV aquifer test software. Output plots from the AQTESOLV analyses are presented in Attachment 3. Figure 3-1 shows the match of the early time data to the Theis unconfined solution. The calculated transmissivity is 1.3×10^4 ft²/day and the storativity is unreliable because there is no observation well. The match of the late time data is presented in Figure 3-2 and the calculated transmissivity is 7.8×10^4 ft²/day. Based on the good match to the Theis confined solution the aquifer appears to be confined in this area. For long term pumping calculations it is appropriate to use the late time value of 7.8×10^4 ft²/day for the transmissivity. This transmissivity is consistent with another pumping test conducted in the Davis Stock Well located about 1 mile southwest of the proposed site (Figure 1), which had a measured transmissivity of 5.1×10^4 ft²/day. The storativity cannot be measured reliably with a single well pumping test, so an estimated value of 0.1 is used, which is typical for these types of unconsolidated aquifer materials (Freeze and Cherry, 1979).

Impact Assessment

Mr. Jensen wishes to irrigate ground that will require a total of 233 gpm or 0.52 cfs. To estimate the long-term drawdown and impact to neighboring wells from pumping of the proposed Jensen Well, the forward solution capabilities of the AQTESOLV program were employed. The input parameters to the model are listed in Table 4-1 (see Attachment 4). Boundaries in AQTESOLV were enabled as shown in Figure 4-1 to represent Malad Valley. As depicted in Figure 4-1 and listed in Table 4-2 the model is 32,000 ft wide and 50,000 ft long. Because the Malad Valley is bounded by mountains consisting of Paleozoic and Mesozoic sedimentary rock that do not provide much water compared to the unconsolidated valley fill, the east, west and south boundaries were set as impermeable or "no flow" boundaries. Water is allowed to enter the model domain only through the north boundary. Because the south boundary is the down gradient edge of the domain and it is unlikely that water will be pulled upgradient by pumping, it is also represented as a no-flow boundary. In the model domain the proposed POD well is located 4000 ft east of the west boundary and 7400 ft north of the south boundary.

Figure 4-2 shows the AQTESOLV[®] output plot of the forward calculation for the proposed well pumping at 0.52 cfs (233 gpm) constantly for 6 months (April 15 to Oct 15). At the end of the time period the predicted drawdown is estimated to be approximately 1.75 feet in the proposed Anton Jensen Well. The calculated drawdowns for wells 1/2 mile north and south of the



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proposed well are both about 0.8 ft. This amount of drawdown will be negligible to other groundwater users in the area.

The Samaria Water and Irrigation Company have protested this water right application over concerns about impacts to their Warm Springs POD. Figure 3 shows the approximate location of the Warm Springs POD, which is situated 2.2 miles north-northwest from the Anton Jenson POD. The Warm Springs POD is 66 ft in elevation above the Jenson POD. The hydrological mechanism creating springs along the west side of the valley is mainly exposure of sands and gravels at the toes of alluvial fans formed by the ancestral Malad River during times of higher precipitation and water flow. As these fans thin onto the basin the stringers of higher permeability carry water recharged at higher elevations and discharge it at the ground surface. The basin is filled with a sequence of sediments with a relatively high clay and silt content, because of layers of clay and silt separate the alluvial fingers of sand and gravel charging Warm Springs from the layers open to the Jensen well, there will negligible impact on Warm Springs. This specifically means that Warm Springs and the Jenson Well are not in direct hydraulic communication (i.e. not in the same hydrologic unit). In the numerical model, Warm Springs is west of the west boundary of the model, meaning that the numerical model does not pull water from the location of Warm Springs. The model boundary runs north south and because of aquifer thinning the boundary is not taken to be exactly on the contact of the mountains with the valley floor.

It is my professional opinion that Mr. Jensen's water right application will not excessively impact his neighbors' right to divert water. For several reasons, I believe that the calculated drawdown over estimates the actual drawdown to be expected: 1) Mr. Jensen will never pump continuously at the maximum rate for 180 days nor will he consume the total volume of his water right in a single year so the calculations over predict the impact from pumping; 2) the Paleozoic/Mesozoic rocks of the mountains are not totally impermeable and will provide some water to the aquifer and because the mountains were treated as impermeable in the model the drawdown will be less than predicted, and 3) several canals, reservoirs and the Malad River are within the domain of the model and no credit for recharge/leakage from surface water is taken in the model. Unaccounted for recharge will reduce predicted drawdown. All of these factors will reduce the predicted drawdown presented here.

Please do not hesitate to call me if you have any questions about this letter or the calculations presented.

Respectfully,

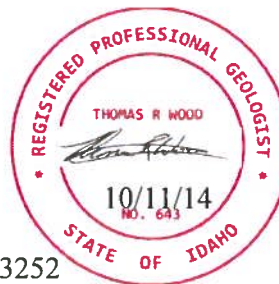
A handwritten signature in black ink, appearing to read 'Thomas R. Wood', is written over a light blue horizontal line.

Thomas R. Wood, PhD, PG

cc

Mr. Anton Jenson 80 Rennolds St. Malad City, Idaho 83252

References





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Ground Water Development and Exploration

Freeze, R.A. and J.A. Cherry, 1979, Groundwater, ISBN 0-13-365312-9, Prentice-Hall, Inc., Englewood Cliffs, New Jersey 07632.

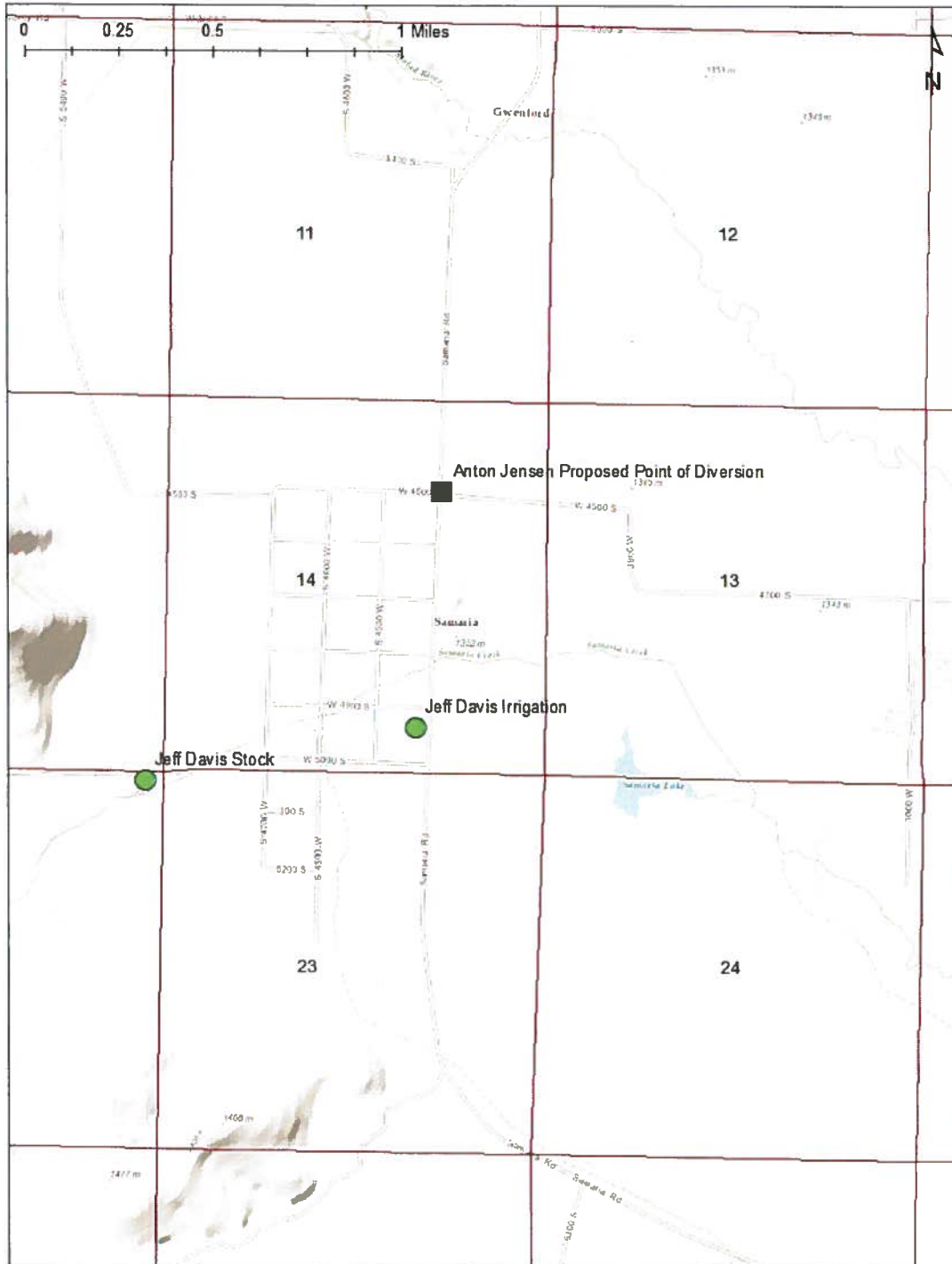


Figure 1. Map showing locations of the Proposed Jensen well, the Davis Irrigation Well and the Davis Stock Well.

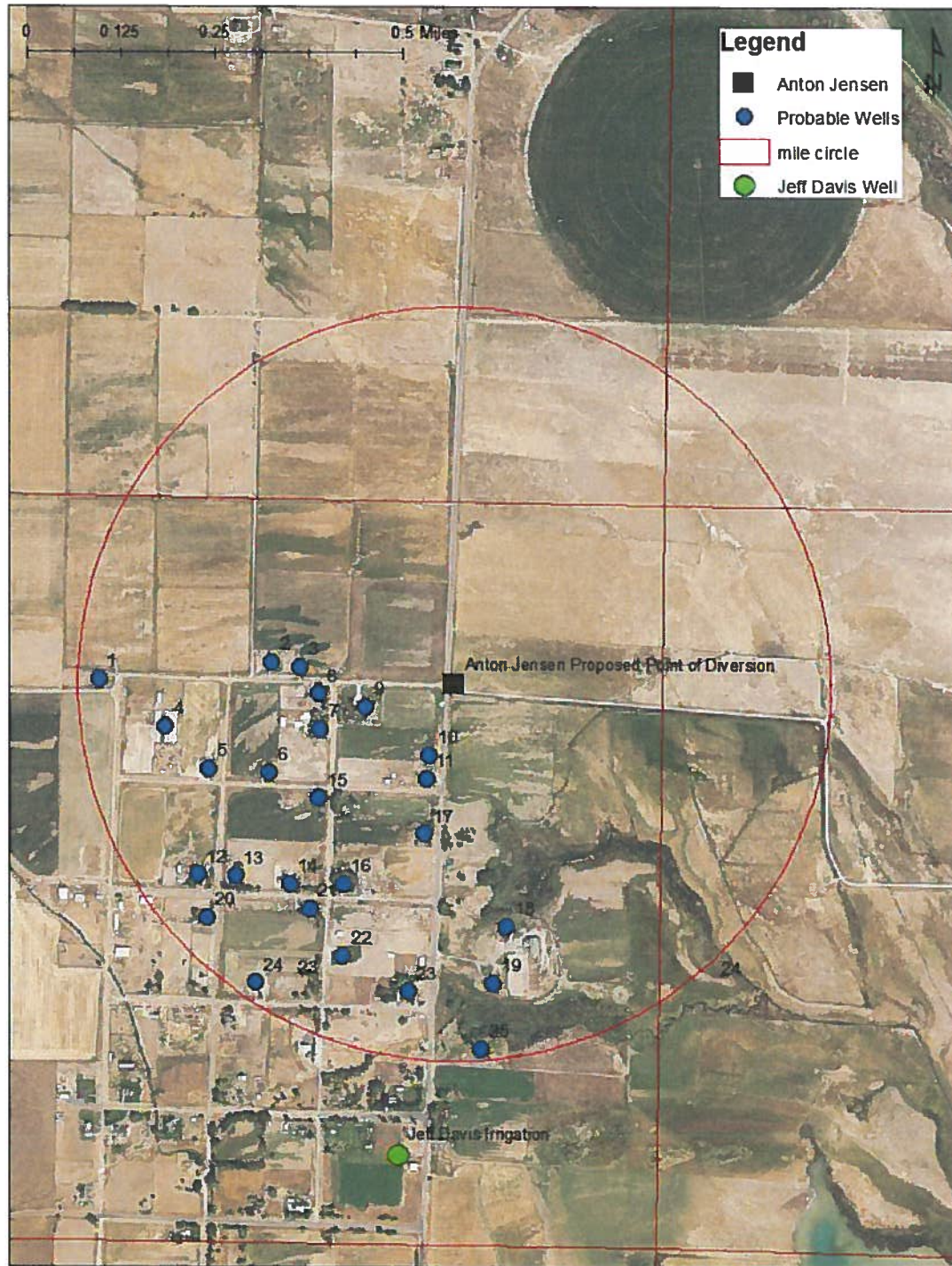


Figure 2 Aerial image of area with a red circle of 1/2 mile diameter. Records of neighboring wells are plotted with blue dots.

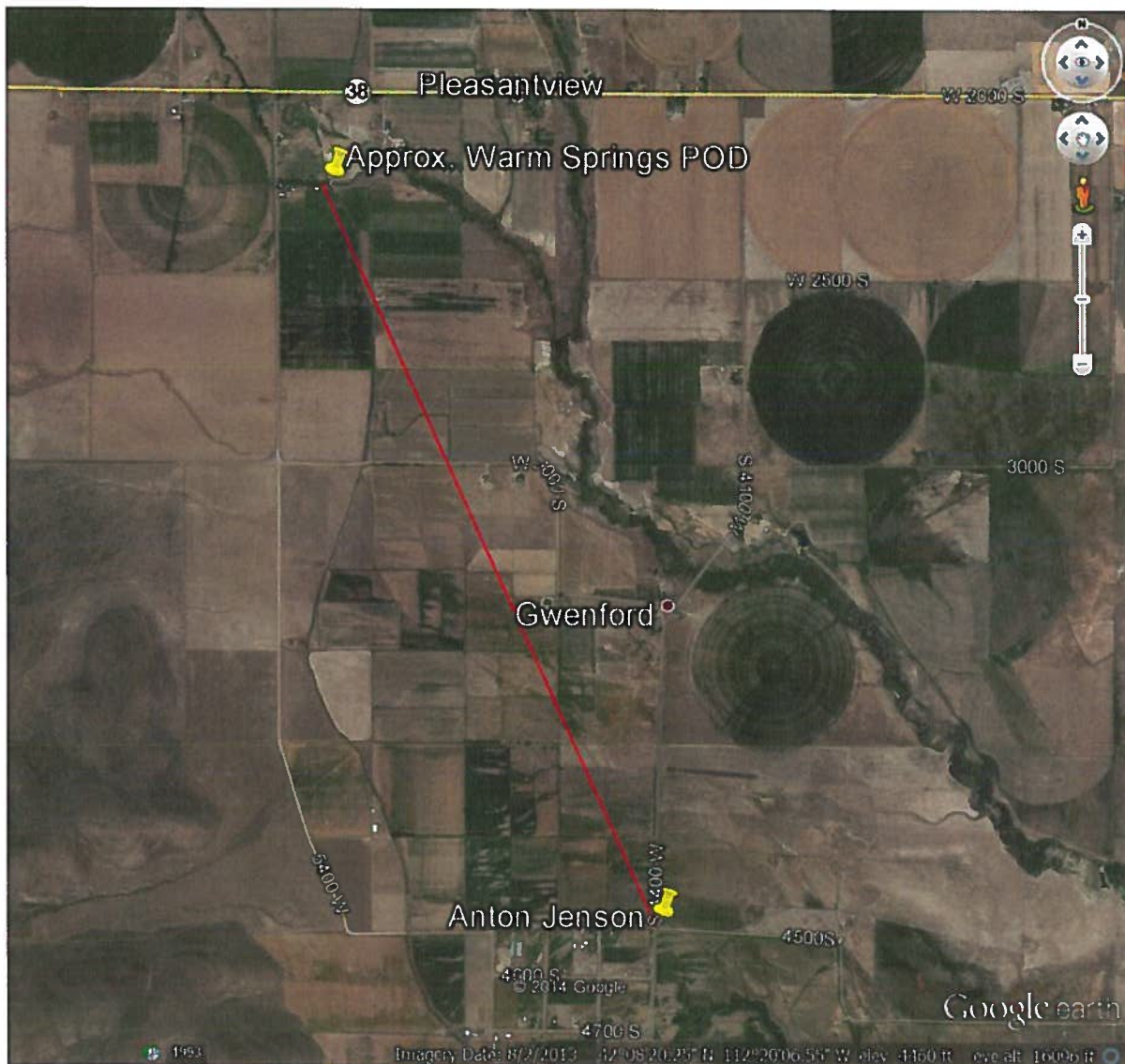


Figure 3. Approximate location of Warm Springs POD. Distance from Anton Jenson POD from Warm Springs (red line) is 2.2 miles.



Table 1 IDWR Search results for point of diversions in T15S, R35E, Section 13

Options	Type	Basin	Sequence	Suffix	Application Number	Basis	Status	Priority Date	Div. Rate (cfs)	Source	Water Use	Owner
Details More Options	Water Right	15	2059			License	Active	07/17/1961	3.95	GROUND WATER	IRRIGATION	JOHN E BLAISDELL & SONS; WILLIAMS, ELVA P; WILLIAMS, JAMES B

Table 2 IDWR Search results for point of diversions in T15S, R35E, Section 11

Options	Type	Basin	Sequence	Suffix	Application Number	Basis	Status	Priority Date	Div. Rate (cfs)	Source	Water Use	Owner
Details More Options	Water Right	15	2021			License	Active	01/12/1937	0.48	GROUND WATER	DOMESTIC, IRRIGATION	WRIGHT, LYNN A; WRIGHT, SHAUNA
Details More Options	Water Right	15	2072			License	Active	05/10/1967	2.4	GROUND WATER	IRRIGATION	WALDRON, L R; WALDRON, REX P
Details More Options	Water Right	15	4000			Statutory Claim	Active	06/01/1938	0.03	GROUND WATER	DOMESTIC, STOCKWATER	PRICE, EVAN P; PRICE, MRS EVAN PLATT
Details More Options	Water Right	15	4185			Statutory Claim	Active	01/01/1930	0.5	GROUND WATER	IRRIGATION, STOCKWATER	WRIGHT, LYNN A; WRIGHT, SHAUNA
Details More Options	Water Permit	15	7288				Active	06/20/2007	0.66	GROUND WATER	IRRIGATION, STOCKWATER	WRIGHT, LYNN A
Details More Options	Water Permit	15	7365				Active	01/24/2014	1.8	GROUND WATER	IRRIGATION, STOCKWATER	EVANS, DANIEL



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Table 3 IDWR Search results for point of diversions in T15S, R35E, Section 12

Options	Type	Basin	Sequence	Suffix	Application Number	Basis	Status	Priority Date	Div. Rate (cfs)	Source	Water Use	Owner
Details More Options	<u>Water Right</u>	15	2059			License	Active	07/17/1961	3.95	GROUND WATER	IRRIGATION	JOHN E BLAISDELL & SONS; WILLIAMS, ELVA P; WILLIAMS, JAMES B

Table 4 IDWR Search results for point of diversions in T15S, R35E, Section 14

Options	Type	Basin	Sequence	Suffix	Application Number	Basis	Status	Priority Date	Div. Rate (cfs)	Source	Water Use	Owner
Details More Options	<u>Water Right</u>	15	2005			License	Active	03/16/1911	0.2	UNNAMED STREAM	DOMESTIC, IRRIGATION	WILLIAMS, DANIEL M
Details More Options	<u>Water Right</u>	15	4031			Statutory Claim	Active	05/12/1920	0.04	GROUND WATER	DOMESTIC, IRRIGATION, STOCKWATER	JOHN, DEVERL
Details More Options	<u>Water Right</u>	15	4138			Statutory Claim	Active	04/01/1900	2.05	SPRINGS	IRRIGATION	FLINDERS SAMARIA RANCH LC
Details More Options	<u>Water Right</u>	15	4139			Statutory Claim	Active	04/01/1900	2	THORPE SPRINGS	IRRIGATION	THORPE, S GRANT; THORPE, WILLIAM D
Details More Options	<u>Water Right</u>	15	7094			License	Active	06/07/1983	0.06	GROUND WATER	DOMESTIC, IRRIGATION	WALDRON, REX P



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Details More Option s	<u>Water Right</u>	15	7154			Licen se	Acti ve	08/12/199 6	1.19	GROU ND WATE R	IRRIGATIO N	ATKINSON, DELON
Details More Option s	<u>Water Right</u>	15	7175			Licen se	Acti ve	08/30/199 9	0.31	GROU ND WATE R	IRRIGATIO N, STOCKWA TER	M J DAVIS MEMORIAL LTD PARTNERSHIP
Details More Option s	<u>Water Right</u>	15	7267			Licen se	Acti ve	06/04/200 8	1.8	GROU ND WATE R	IRRIGATIO N	GLEED, JULI A
Details More Option s	<u>Water Permi t</u>	15	7243				Acti ve	02/26/200 4	1.3	GROU ND WATE R	IRRIGATIO N	JOHN, ELDON ; JOHN, MIKE
Details More Option s	<u>Water Applica tion</u>	15	7381		79476		Acti ve	07/21/201 4	0.48	GROU ND WATE R	DOMESTIC , IRRIGATIO N	JENSEN, ANTON; JENSEN, LACIE



Attachment 1

WELL LOGS

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 _____

11. WELL TESTS:

☐ Pump ☐ Bailer

Yield gal/min	Drawdown	Pumping Level	Time
20			

Water Temp. cold Bottom hole temp. cold
Water Quality test or comments. good
Depth first Water Encounter 86'

Sketch map location must agree with written location.

12. LITHOLOGIC LOG: (Describe repairs or abandonment)


 Twp. 15 North ☐ or South ☒
 Rge. 35 East ☒ or West ☐
 Sec. 14 1/4 NW 1/4 NW 1/4
 Gov't Lot _____ County Oneida 160 acres
 Lat: _____ Long: _____
 Address of Well Site 4150 S. 4170 W.
Samaria City _____
 (Circle all best names of place) - (Indicate if Road or Landmark)

Lt. _____ Blk. _____ Sub. _____ Name _____

4. USE:

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

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

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

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
Bentonite	0	20	5	Over Bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 140
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	0	140	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations	Method
Screens	Screen Type

From	To	Slot Size	Number	Diameter	Material	Casing	liner
		None				☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

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

[illegible]

Completed Depth 140' (Measurable)
Date: Started 10-9-89 Completed 10-11-89

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 Mountain West Health Holdings Firm No. 543

Firm Official Michael Friedman Date 11-17-99

Driller or Operator _____ Date _____
(Sign once if First Officer & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-1 Well log for Hudd Excavation



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Ground Water Development and Exploration

Form 230-7
194

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT 057169

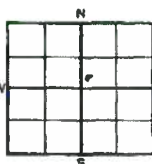
Use Typewriter
or
Ball Point Pen

1. DRILLING PERMIT NO. 15-95-E-013-000
Other IDWR No. _____

2. OWNER:
Name Alvin + Williams
Address 385 S. 2nd W
City Somerco State Id Zip 83252

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.



Twp. 15 North ☐ or South ☒
Rge. 35 East ☒ or West ☐
Sec. 14 1/4 50 1/4 NE 1/4
Gov't Lot _____ County Blaine

Address of Well Site 1st N 150 W
City Somerco

(Give at least name of road - Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. PROPOSED USE:

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

5. TYPE OF WORK

☒ New Well ☐ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD

☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT		METHOD
Material	From	To	Sacks or Pounds		
gravel	0	24	600		dry pour

Was drive shoe used? Y ☐ N ☒

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	18	105	.25	SL-1	☒	☐	☒	☐

Length of Headpipe 18" Length of Tailpipe _____

9. PERFORATIONS/SCREENS

☒ Perforations Method touch in cut
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
85	105	.25	30	6	SL-1	☒	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

24 ft. below ground Artesian pressure _____ lb.
Depth flow encountered 12 ft. Describe access port or control devices: water cap

11. WELL TESTS:

☐ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Pumping Level	Time
75 gpm	400'	100'	4 hrs.

Water Temp. 47° Bottom hole temp. 65°

Water Quality test or comments: pass

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8 1/2	0	17	Hard clay		X
6	17	32	gravel	X	
6	32	70	gray clay		X
6	70	109	gravel	X	

RECEIVED
OCT 28 1996
Department of Water Resources

OCT 10 1996
Department of Water Resources
Blaine District Office

MICROFILMED
OCT 10 1996

Completed Depth 105' (Measurable)
Date Started 8-14-95 Completed 9-2-95

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 DB Drilling Firm No 542

Firm Official Richard Benson Date 10-1-96

and Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-2 Well log for Alvin Williams.



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Ground Water Development and Exploration

Form 238-7
8/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

15

1. WELL TAG NO. D 0057528

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Chris Boggess

Name _____

Address 515 E 7200 S

City Midvale State UT Zip 84047

3. WELL LOCATION:

Twp. B North ☐ or South ☒ Rge. 35 East ☒ or West ☐

Sec. 7 1/4 1/4 NE 1/4 SW 1/4

Gov't Lot _____ County Oneida

Lat. _____ (Deg. and Decimal minutes)

Long. _____ (Deg. and Decimal minutes)

Address of Well Site 4600 W 4750 S

City Samaria

Lot _____ Blk. _____ Sub. Name _____

4. USE:

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

☐ Other _____

5. TYPE OF WORK:

☐ New well ☒ Replacement well ☒ Modify existing well

☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method/procedure
<u>Benitank</u>	<u>0</u>	<u>38</u>	<u>35 bag</u>	<u>overbore</u>

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
<u>6"</u>	<u>0</u>	<u>111</u>	<u>.250</u>	<u>steel</u>	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 110

9. PERFORATIONS/SCREENS:

Perforations ☒ Y ☐ N Method touch

Manufactured screen ☐ Y ☐ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
<u>94</u>	<u>111</u>	<u>1/4-6</u>	<u>45</u>	<u>6</u>	<u>steel</u>	<u>.250</u>

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☐ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 65 Static water level (ft) 45

Water temp. (°F) cold Bottom hole temp. (°F) cold

Describe access port well cap

Well test: _____ Test method: _____

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Bailer	Air	Flowing artesian
	<u>35</u>		☐	☐	☒	☐

Water quality test or comments: good

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water
				Y N
<u>10</u>	<u>0</u>	<u>38</u>	<u>Ben Clay</u>	☐ ☒
<u>6</u>	<u>38</u>	<u>55</u>	<u>Ben Clay</u>	☐ ☒
<u>6</u>	<u>55</u>	<u>60</u>	<u>Gravel Ben Clay</u>	☐ ☒
<u>6</u>	<u>60</u>	<u>65</u>	<u>Gravel Ben Clay</u>	☒ ☐
<u>6</u>	<u>65</u>	<u>100</u>	<u>Ben Clay</u>	☐ ☒
<u>6</u>	<u>100</u>	<u>111</u>	<u>Gravel</u>	☒ ☐

REC-111

OCT-21 2010

Department of Water Resources
Eastern Region

Completed Depth (Measurable): 111

Date Started: 9-5-10 Date Completed: 9-3-10

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 MT Westwell Drilling Co. No. 543

*Principal Driller Michael Frandson Date 9-10-10

*Driller Miles Frandson Date 9-5-10

*Operator II _____ Date _____

*Operator I _____ Date _____

*Signature of Principal Driller and rig operator are required.

Figure 1-3 Well log for Chris Boggess

Form 238-7
6/07IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

15

1. WELL TAG NO. D 0059735
Drilling Permit No. _____
Water right or injection well # _____

2. OWNER: David Zundel
Name _____
Address 2050 J. 1400 E
City St George State Ut Zip 84790

3. WELL LOCATION:

Twp. 15 North ☐ or South ☒ Rge 35 East ☒ or West ☐

Sec. 14 36 SECS 1/4 SW 1/4 NE 1/4 100 ACRES

Gov't Lot _____ County Onida

Lat. 42 ° 07.212 (Deg. and Decimal minutes)

Long 112 ° 20.077 (Deg. and Decimal minutes)

Address of Well Site 4700 S 4500 W

State of Montana or Idaho - (Check by county) _____ City Samarita

Sub. Name _____

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

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well

☐ Abandonment ☐ Other

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

Seal material	From (ft)	To (ft)	Quantity (lbs or ft)	Placement method/procedure
Bentonite	0	38	15 bags	overhaul

8. CASING/LINER:					Casing	Liner	Threaded	Welded
Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material				
6	0	110	250	Steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 110

9. PERFORATIONS/SCREENS:
Perforations ☒ Y ☐ N Method Machine

Manufactured screen ☐ Y ☐ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number(s)	Diameter (nominal)	Material	Gauge or Schedule
58	75	1/4"	204	6"	Steel	.250
85	90	1/4"	60	6"	Steel	.250

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

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method

11. FLOWING ARTESIAN:
 Flowing Artesian? ☐ Y ☐ N Artesian Pressure (PSIG) _____
 Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 30 Static water level (ft) 27
Water temp. (°F) _____ Bottom hole temp. (°F) 57°
Describe access port well cap

Well test:			Test method:			
Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Bailer	Air	Flowmeter
	46		☐	☐	☒	☐

Water quality test or comments: Good

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp	Water	
				Y	I
10	0	30	Brn clay little gravel		X
10	30	39	gravel	X	
6	38	55	Brn clay		X
6	55	75	gravel	X	
6	75	85	Brn clay		X
6	85	92	Gravel	X	
6	92	96	Brn clay		X
6	96	105	Gravel		X
6	105	110	Brn clay w/ gravel string		X

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NOV 02 1971
Department of Defense
Post Office Box 117

Completed Depth (Measurable): 110'

Date Started: 9-28-11 Date Completed: 11-29-11

14. DRILLER'S CERTIFICATION:

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

Company Name H. W. & L. Dillards Co. No 543

Principal Office: 10-11-11 Date: 10-11-11

*Driver Miles + Sanchez Date 10-4-1

Operator II _____ Date _____

Quantal

Operator: _____ Date: _____

* Signature of Principal Driller and rig operator are required

Figure 1-4 Well log for David Zundel.



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 238-7
8/95

DMD

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

66418

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
1/4 _____ 1/4 _____ 1/4 _____
Lat: : : Long: : :
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

1. DRILLING PERMIT NO. 15-97-E-0024-000
Other IDWR No. _____

2. OWNER:

Name Albert Jones
Address 280 W 500 N
City Malden State ID Zip 83252

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

North
Twp. 15 North ☐ or South 2
Rge. 35 East ☒ or West ☐
Sec. 14 1/4 NW 1/4 SE 1/4
Gov't Lot _____ County Oneida 10 acres 40 acres 160 acres
Lat: : : Long: : :
Address of Well Site Samira
City _____
(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name _____

4. USE:

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

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK		AMOUNT		METHOD
Material	From	To	Sacks or Pounds	
Bentonite Pudding clay	0	20	2	Over Bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 123

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

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	0	123	12.75	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:

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

11. WELL TESTS:

Yield gal/min	Drawdown	Pumping Level	Time
100			

Water Temp. cold Bottom hole temp cold

Water Quality test or comments. good

Depth first Water Encountered 30

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8 1/2"	0	30	Clay		X
6"	20	30	Clay		X
6"	30	50	Gravel + Sand	X	
6"	50	55	Clay		X
6"	55	73	Gravel bad	X	
6"	73	95	Brown clay		X
6"	95	110	Gravel & Sand	X	
6"	110	120	Brown clay		X
6"	120	123	Gravel good	X	

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JUL 28 1997

Department of Water Resources
Eastern Region

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AUG 08 1997

Department of Water Resources

Completed Depth 123 (Measurable)

Date: Started 6-7-97 Completed 6-9-97

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 Mountain West Well Drilling Firm No. 543

Firm Official Mike Frandson Date 6-17-97

and
Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

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Figure 1-5 Well log for Albert Jones



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 2007
EQ2

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

15

Office Use Only
Well ID No. _____
Inspected by _____
Twp _____ Rge _____ Sec _____
Lat _____ Long _____
L. Flowing Artesian _____

1. WELL TAG NO. D 500 37833
DRILLING PERMIT NO. _____
Water Right or Injection Well No. _____

2. OWNER:
Name Juli A. Glead
Address 738 W Hwy 58
City Malach State ID Zip 83452

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 15 North X or South X
Rge. 35 East X or West X
Sec. 14 SE 1/4 SW 1/4 NW 1/4
Gov. Lot _____
Lat. _____ Long. _____
Address of Well Site 4700 W 4700 S.
City _____

LL _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES
Seal Material Benlate From 0 To 200 Weight/Volume _____ Seal Placement Method _____
Was drive shoe used? ☒ Y ☐ N Shoe Depth(s): 300
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:
Casing Liner ☒ Welded ☐ Threaded
Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforator Method Machine
Screen Type & Method of Installation _____
From To Set Size Number Wire Size Casing Liner
100 140 3/8" 4 10" Steel 16 ☐
185 245 3/8" 4 10" Steel 4 ☐

10. FILTER PACK
Filter Material _____ From _____ To _____ Weight/Volume _____ Placement Method _____

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
Static water level below ground _____ Artesian pressure _____
Depth flow encountered _____ ft. Describe excessive part or unusual conditions: _____

12. WELL TESTS:
☐ Pump ☐ Bailor ☐ Air ☐ Flowing Artesian
Water Temp Cold Bottom hole temp Cold
Water Quality test or comments: Good

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Depth	Remarks	Lithology	Water Quality & Temperature	Y	N
14 0 20	Brown clay				X
10 20 85	Brown clay				X
10 85 105	gravel			X	
10 105 120	Bk. clay gravel			X	
10 120 140	gravel clay Hard Pan			X	
10 140 155	clay				X
10 155 165	gravel clay			X	
10 165 185	clay gravel			X	
10 185 210	clay cemented gravel			X	
10 210 225	clay			X	
10 225 230	gravel			X	
10 230 235	gravel clay			X	
10 235 238	clay				X
10 238 255	gravel clay			X	
10 255 265	Hard Pan gravel clay			X	
10 265 300	gravel clay			X	

Completed Depth 300 (Measured)
Date Started 11-17-05 Completed 11-17-05

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 Malach Well Drilling Firm No. 543
Principal Driller Michael Frondew Date 1-10-06
Driller or Operator Michael Frondew Date 1-1-06
Operator _____ Date _____
Principal Driller and Rig Operator Required
Operator I must have signature of Driller/Operator II

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Figure 1-6 Well log for Juli Glead.



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 238-7
11/97

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 _____	
☒ Pump ☐ Bailer ☐ Flowing Artesian		

1. WELL TAG NO. D 0014339
DRILLING PERMIT NO. _____
Other IDWR No. 762940
2. OWNER: Michael Evans
Name _____
Address 4588 W. 4800 S.
City Malden State ID Zip 83252

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N		Twp. <u>15</u> North ☐ or South ☐	
E		Rge. <u>35</u> East ☒ or West ☐	
S		Sec. <u>14</u> NE 1/4 SW 1/4	
Gov't Lot _____		County <u>Oneida</u>	
Lat. _____		Long. _____	
Address of Well Site <u>Samaria</u>		City _____	

(Draw at least 1/2 inch of road - Distance to Road on Card)

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 0 20	6	Overbore

Was drive shoe used? ☒ Yes ☐ No Shoe Depth(s) 140
Was drive shoe seal tested? ☐ Yes ☐ No How? _____

8. CASING/LINER:

Diameter	From	To	Depth	Material	Casing	Inner	Weight	Threads
6"	0	140	140	Steel	☒	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations _____ Method _____
Screens _____ Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Inner
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

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

11. WELL TESTS:

Yield gal/min	Drawdown	Pumping Level	Time
100			

Water Temp. cold Bottom hole temp. cold
Water Quality test or comments: good

Depth first Water Encounter 60'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Core Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8 1/2"	0	10	Brown clay		X
8 1/2"	10	15	Gravel		X
8 1/2"	15	20	Brown clay		X
6"	20	60	Brown clay		X
6"	60	63	Gravel	X	
6"	63	75	Brown clay		X
6"	75	80	Gravel & clay	X	X
6"	80	95	Brown clay		X
6"	95	125	Gravel & clay & sand	X	X
6"	125	138	Brown clay		X
6"	138	140	Gravel	X	

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OCT 10 2000

Department of Water Resources

Completed Depth 140' (Measurable)
Date Started 8-3-00 Completed 8-4-00

13. DRILLER'S CERTIFICATION

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

Company Name West Well Drilling Firm No. 543

Firm Official Michael Franchon Date 10-4-00

and _____
Driller or Operator _____ Date _____
(Sign once if Firm Official & Operator)

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Figure 1-9 Well log for Michael Evans



Clearwater Geosciences, LLP
Ground Water Development and Exploration

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

1. WELL TAG NO. D 0032158
DRILLING PERMIT NO. _____
Water Right or Injection Well No. 15

2. OWNER: Mike + Eldon John
Name _____
Address 623. Main St.
City Malad State ID Zip 83352

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 15 North ☐ or South ☒
Rge. 35 East ☒ or West ☐
Sec. 14 1/4 NW 1/4 NW 1/4
Gov't Lot _____
County Oneida
Lat: _____ Long: _____
Address of Well Site same City Malad
Lt. _____ Blk. _____ Sub. Name _____

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

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 Bentonite From 0 To 20 Weight / Volume 18 bag Seal Placement Method overbore
Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 180
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:
Diameter 10" From 0 To 180 Gauge 20 Material steel Casing ☒ Liner ☐ Welded ☒ Threaded ☐
Length of Headpipe _____ Length of Tailpipe _____
Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method Machined
Screen Type & Method of Installation
From 130 To 180 Slot Size 1/2" Number 10 Diameter 10" Material steel Casing ☒ Liner ☐

10. FILTER PACK
Filter Material _____ From _____ To _____ Weight / Volume _____ Placement Method _____

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

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

12. WELL TESTS:
☐ Pump ☐ Bafer ☒ Air ☐ Flowing Artesian
Yield gal./min. 300 Drawdown _____ Pumping Level _____ Time _____
Water Temp cold Bottom hole temp cold
Water Quality test or comments: good

13. LITHOLOGIC LOG: (Describe repairs or abandonment)						Water	
Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N		
10"	0	20	Brown Clay gravel				
10"	20	75	Gravel Boulders clay				
10"	75	120	Gravel Sand Brown Clay				
10"	120	130	Brown clay gravel				
10"	130	150	cemented gravel clay				
						Completed Depth <u>180</u> (Measurable)	
						Date Started <u>Dec. 10, 03</u> Completed <u>Dec. 11-03</u>	

14. DRILLER'S CERTIFICATION
We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Mike + Eldon John Firm No. 543
Principal Driller Michael Franden Date 12-20-03
and Operator Mike Franden Date 12-19-03
Operator I _____ Date _____
Principal Driller and Rig Operator Required
Operator II must have signature of Driller/Operator I

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Figure 1-10 Well log for Mike and Eldon John



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 138-1
3/85

BMD

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint Pen

093825

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
1/4 1/4 1/4
Lat: _____ Long: _____
☒ Air ☐ Flowing Artesian

1. DRILLING PERMIT NO. 15-96-E-0000-000
Other IDWR No. _____

2. OWNER:
Name Sandra Braker
Address 62 South main
City maled State ID Zip 83252

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

Map grid showing Twp. 15 North ☐ or South 5
Rge. 35 East 2 or West ☐
Sec. 14 1/4 SW 1/4 NE 1/4
Gov't Lot _____ County Oneida
Lat: _____ Long: _____
Address of Well Site
Samarra City _____
(Give at least name of road + distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

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

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

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT		METHOD
Material	From	To	Backs	Pounds	
Bentonite + Pudding clay	0	35	5		Over Bore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 111
Was drive shoe seal tested? ☒ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	0	111	30	Steel	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

☒ Perforations Method Machine
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
100	110	1/2	30	44	Steel	☒	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

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

11. WELL TESTS:

Yield gal/min	Drawdown	Pumping Level	Time
100			

Water Temp. cold Bottom hole temp cold
Water Quality test or comments: good

Depth first Water Encountered 35
12. LITHOLOGIC LOG: (Describe repairs or abandonment) Water

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8 1/2	0	35	clay		X
8 1/2	35	40	clay + Gravel	bad	X
6	40	60	clay + Gravel		X
6	60	100	clay		X
6	100	111	clay + Gravel		X

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JUN 17 1996

Department of Water Resources
Eastern Region

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JUL 17 1996

Department of Water Resources

SEP 11 1996

Completed Depth 111 (Measurable)
Date Started 5-21-96 Completed 5-22-96

13. DRILLER'S CERTIFICATION

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

Firm Name Mountain West Drilling Firm No 543

Firm Official Mike Frandsen Date 5-27-96

and Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

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Figure 1-11 Well log for Sandra Braker



Clearwater Geosciences, LLP
Ground Water Development and Exploration

✓ C DMO

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

60229

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
1/4 _____ 1/4 _____ 1/4 _____
Lvl _____ Log _____
Flowing Artesian _____

1. DRILLING PERMIT NO. '5-98-E-0008-000
Contract No. D-000-4617

2. OWNER:

Name Shawn Delaney
Address 4575 W. 500 S.
City Malad State ID Zip _____

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

Map grid showing Section 15, Range 35, Township 14, North 1/4, East 1/4, NE 1/4, NW 1/4, SE 1/4, SW 1/4, and County Oneida.

Address of Well Site _____ City _____
Sub Name _____

4. USE:

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

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK	AMOUNT	METHOD
(Material)	From To	Sacks or Pounds
Bentonite	0 20	4-Sacks Overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 140'

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

8. CASING/LINER:

Depth	From	To	Size	Material	Casing	Line	Welded	Threaded
6"	1	140	250	Steel	☒	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

☒ Perforations (Method) Air Perforator
☐ Screens Screen Type _____

From	To	Size	Number	Diameter	Material	Casing	Line
105	113	1/4	50	2	Steel	☒	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

18' Static pressure Artesian pressure _____ lb.
Depth first encountered 113' ft. Describe access point or control device: Well Cap

11. WELL TESTS:

Well	Pump	Bailer	Flowing Artesian
20	3'	90'	1 Hour

Water Temp. 51 Bottom hole temp. 51

Water Quality test or comments: Not Tested

Depth first Water Encountered 30'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Depth (ft)	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
10"	0	5	Dry Brown clay		X
	5	10	Hard Pan Clay		X
	10	25	Sticky Brown Clay		X
6"	25	80	Wet Sandy clay		X
	80	102	Brown Clay		X
	102	115	Cement Gravel	X	
	115	255	Wet Sandy Clay & Streaks of Shale		X

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Department of Water Resources

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MAY 18 1998
Department of Water Resources
Eastern Region

Completed Depth 200' (Measurements)
Date Started 4/14/98 Completed 4/15/98

13. DRILLER'S CERTIFICATION

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

Firm Name Jack Cushman Drilling, Inc. Firm No. #94

Firm Official Bob Cushman Date 4/15/98

and Supervisor or Operator Scott Stapp Date 4/15/98

(Signatures in Blue Ink Only)

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Figure 1-12 Well log for Shawn Delaney



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 2387
1/03 **WELL DRILLER'S REPORT**

1. WELL TAG NO. D 0034840
DRILLING PERMIT NO. _____
Water Right or Injection Well No. _____

2. OWNER: Shirley Olsen
Name _____
Address 46554 9700 S.
City Malad State Id Zip 83252

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 15 North ☐ or South ☒
Rge. 35 East ☒ or West ☐
Sec. 19 1/4 SE 1/4 SW 1/4
Gov't Lot _____ County Oneida
Lat: _____ Long: _____
Address of Well Site Same City _____
(Give at least name of road - Distance to Right or Left) _____
Lt. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
<u>Bentonite</u>	<u>0</u>	<u>20</u>	<u>8 bags overline</u>	

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 114
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>6"</u>	<u>0</u>	<u>114</u>	<u>005</u>	<u>steel</u>	☒	☐	☒	☐

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

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method touch
Screen Type & Method of Installation _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>96</u>	<u>114</u>	<u>1/4-6"</u>	<u>40</u>	<u>6"</u>	<u>steel</u>	☒	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

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

12. WELL TESTS:
☐ Pump ☐ Bailor ☐ Air ☐ Flowing Artesian
Yield gal./min. 30 Drawdown _____ Pumping Level _____ Time _____
Water Temp. cold Bottom hole temp. cold
Water Quality test or comments: good

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

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>10"</u>	<u>0</u>	<u>20</u>	<u>Brown clay</u>		☒
<u>6"</u>	<u>20</u>	<u>60</u>	<u>Brown clay</u>		☒
<u>6"</u>	<u>60</u>	<u>93</u>	<u>Brown clay some gravel</u>		☒
<u>6"</u>	<u>93</u>	<u>114</u>	<u>gravel some brown clay</u>	☒	

RECEIVED
NOV 01 2004
Department of Water Resources
Eastern Region

Completed Depth 114 (Measurable)
Date: Started 9-27-04 Completed 9-27-04

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 Mike West Well Drilling Firm No. 543
Principal Driller Michael Frank Date 10-10-04
and Driller or Operator II Mike Frank Date 10-10-04
Operator I _____ Date _____
Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-13 Well log for Shirley Olsen



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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.

USE TYPEWRITER OR
POINT PEN

RECEIVED
DEC 13 1983

1. WELL OWNER Name <u>Spencer Atkinson</u> Address <u>Rt. 1, Box 36A, Samaria, Idaho</u> Owner's Permit No. _____		7. WATER LEVEL Static water level <u>40</u> feet below land surface Flowing? ☐ Yes ☒ No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: ☐ Valve ☐ Cap ☐ Plug Temperature <u>52</u> °F. Quality <u>Good</u>																																																													
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Repacement ☐ Abandonment (describe method of abandoning) _____		8. WELL TEST DATA <u>No test available</u> ☐ Pump ☐ Bailer ☐ Air ☐ Other _____																																																													
3. PROPOSED USE ☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection ☐ Other _____ (specify type) _____		9. LITHOLOGIC LOG <u>74007</u>																																																													
4. METHOD DRILLED ☐ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary ☒ Cable ☐ Dug ☐ Other _____		<table border="1"><thead><tr><th>Hole Diam.</th><th>Depth From</th><th>To</th><th>Material</th><th>Water Yes No</th></tr></thead><tbody><tr><td>12</td><td>0</td><td>2</td><td>Topsoil</td><td>X</td></tr><tr><td>12</td><td>2</td><td>19</td><td>White clay</td><td>X</td></tr><tr><td>8 1/2</td><td>19</td><td>21</td><td>Gravel & Brown clay</td><td>X</td></tr><tr><td>21</td><td>29</td><td>58</td><td>Boulders & Brown clay</td><td>X</td></tr><tr><td>29</td><td>58</td><td>60</td><td>Brown clay</td><td>X</td></tr><tr><td>58</td><td>60</td><td>83</td><td>Boulders & Brown clay</td><td>X</td></tr><tr><td>60</td><td>83</td><td>87</td><td>Brown clay (soft)</td><td>X</td></tr><tr><td>83</td><td>87</td><td>97</td><td>Gravel</td><td>X</td></tr><tr><td>87</td><td>97</td><td>99</td><td>Brown clay</td><td>X</td></tr><tr><td>97</td><td>99</td><td>104</td><td>Gravel</td><td>X</td></tr><tr><td>99</td><td>104</td><td></td><td>Brown clay soft</td><td>X</td></tr></tbody></table>		Hole Diam.	Depth From	To	Material	Water Yes No	12	0	2	Topsoil	X	12	2	19	White clay	X	8 1/2	19	21	Gravel & Brown clay	X	21	29	58	Boulders & Brown clay	X	29	58	60	Brown clay	X	58	60	83	Boulders & Brown clay	X	60	83	87	Brown clay (soft)	X	83	87	97	Gravel	X	87	97	99	Brown clay	X	97	99	104	Gravel	X	99	104		Brown clay soft	X
Hole Diam.	Depth From	To	Material	Water Yes No																																																											
12	0	2	Topsoil	X																																																											
12	2	19	White clay	X																																																											
8 1/2	19	21	Gravel & Brown clay	X																																																											
21	29	58	Boulders & Brown clay	X																																																											
29	58	60	Brown clay	X																																																											
58	60	83	Boulders & Brown clay	X																																																											
60	83	87	Brown clay (soft)	X																																																											
83	87	97	Gravel	X																																																											
87	97	99	Brown clay	X																																																											
97	99	104	Gravel	X																																																											
99	104		Brown clay soft	X																																																											
5. WELL CONSTRUCTION Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____ Thickness <u>.250</u> inches Diameter <u>8 5/8</u> inches From <u>1</u> foot To <u>104</u> feet Was casing drive shoe used? ☒ Yes ☐ No Was a packer or seal used? ☐ Yes ☒ No Perforated? ☒ Yes ☐ No How perforated? ☐ Factory ☐ Knife ☒ Torch Size of perforation <u>1/4</u> inches by <u>8</u> inches Number <u>25</u> perforations From <u>93</u> feet To <u>100</u> feet Well screen installed? ☐ Yes ☒ No Manufacturer's name _____ Type _____ Model No. _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel pack? ☐ Yes ☒ No ☐ Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>18</u> feet Material used in seal: ☐ Cement grout ☒ Pudding clay ☐ Well cuttings Sealing procedure used: ☐ Slurry p. ☐ Temp. surface casing ☒ Overbore to sea depth Method of joining casing ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between slats Describe access port <u>3/4" threaded plug in sanitary cap.</u>		10. Work started <u>11-5-83</u> finished <u>12-5-83</u>																																																													
6. LOCATION OF WELL Sketch map location must agree with written location. N W E S County <u>Oneida</u> Subdivision Name _____ Lot No. _____ Block No. _____ NE 1/4 SW 1/4 Sec. 14, T. 15 N/S. R. 35 E		11. DRILLER'S CERTIFICATION <u>Reel</u> I/We certify that all minimum well construction standards were complied with at the time the rig was removed. Firm Name <u>Reel Well Drilling</u> Firm No. <u>350</u> P.O. Box <u>20</u> Address <u>Stons, Idaho</u> Date <u>12-8-83</u> Signed by (Firm Official) <u>Steve Reel</u> and (Operator) <u>Steve Reel</u>																																																													

USE ADDITIONAL SHEETS IF NECESSARY - FORWARD THE WHITE COPY TO THE DEP. ATTNEY

Figure 1-14 Well log for Spencer Atkinson



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 238-7
3/96
VAD
YMD

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT 057767

Use Typewriter or Ballpoint Pen

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
1/4 _____ 1/4 _____ 1/4 _____
Lat: _____ Long: _____
☐ Air ☐ Flowing Artesian

1. DRILLING PERMIT NO. 15-74 E-0030-000
Other IDWR No _____

2. OWNER:
Name THOMAS FLINDERS
Address 5850 OLD RANCH RD
City PARK CITY State UT Zip 84098

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location

N
W
E
S
Twp. 15 North ☐ or South ☒
Rge. 35 East ☒ or West ☐
Sec. 14 NE 1/4 SE 1/4 SW 1/4 NE 1/4
Gov't Lot _____ County BLAKE 100 acres
Lat: _____ Long: _____
Address of Well Site SAMARIA RD
City SAMARIA
(If at least name of road or landmark)

Lt. _____ Blk. _____ Sub Name _____

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

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

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
Bentonite	0	20.5	5	over Bore

Was drive shoe used? ☒ N Shoe Depth(s) 174'
Was drive shoe seal tested? ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>6"</u>	<u>0</u>	<u>174</u>	<u>28</u>	<u>Steel</u>	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

☐ Perforations Method _____
☐ Screens Screen Type _____

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

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

_____ ft. below ground Artesian pressure 0 lb.
Depth flow encountered 174 ft. Describe access port or control devices: Valve

11. WELL TESTS:
☐ Pump ☐ Bailor

Yield gal/min	Drawdown	Pumping Level	Time
<u>1.00</u>			

Water Temp Cold Bottom hole temp Cold

Water Quality test or comments: _____

Depth first Water Encountered 10'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>8 1/2"</u>	<u>0</u>	<u>20</u>	<u>Clay</u>	☒	☒
<u>6 1/2"</u>	<u>20</u>	<u>40</u>	<u>Clay + Gravel</u>	☒	☒
<u>6 1/2"</u>	<u>40</u>	<u>63</u>	<u>Clay + Gravel</u>	☒	☒
<u>6 1/2"</u>	<u>63</u>	<u>74</u>	<u>Clay</u>	☒	☒
<u>6 1/2"</u>	<u>74</u>	<u>81</u>	<u>Gravel + Water</u>	☒	☒
<u>6 1/2"</u>	<u>81</u>	<u>123</u>	<u>Clay</u>	☒	☒
<u>6 1/2"</u>	<u>123</u>	<u>148</u>	<u>Clay + Gravel</u>	☒	☒
<u>6 1/2"</u>	<u>148</u>	<u>152</u>	<u>Clay + Gravel + Sand</u>	☒	☒
<u>6 1/2"</u>	<u>152</u>	<u>160</u>	<u>Gravel + Sand</u>	☒	☒
<u>6 1/2"</u>	<u>160</u>	<u>173</u>	<u>Clay</u>	☒	☒
<u>6 1/2"</u>	<u>173</u>	<u>175</u>	<u>Gravel</u>	☒	☒

RECEIVED

NOV 22 1996

Department of Water Resources
Eastern Region

RECEIVED

DEC 05 1996

Department of Water Resources

MICROFILMED

DEC 05 1996

Completed Depth 174 (Measurable)
Date: Started 11-16-96 Completed 11-20-96

13. DRILLER'S CERTIFICATION

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

Firm Name Mountain West Drilling Firm No. 543

Firm Official Mike Frandsen Date 11-20-96

and
Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-15 Well log for Thomas Flinders



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0051491
DRILLING PERMIT NO. _____
Water Right or Injection Well No. _____

2. OWNER:
Name Verla Mortenson
Address 18395 E. Side Hill Lane
City Idaho Falls State ID Zip 83404

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk. Sub. or Directions to well.
Twp. 15 North ☐ or South ☒
Rge. 36 East ☒ or West ☐
Sec. 14 1/4 SW 1/4 NE 1/4
Gov't Lot _____
County Ada State ID
Lat: _____ Long: _____
Address of Well Site Samara
City _____
Lt. _____ Blk. _____ Sub. Name _____

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

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

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

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	20	7 bags	Overshoe

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 117
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	0	117	250	Steel	☒	☐	☒	☐

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

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method touch
Screen Type & Method of Installation

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
97	117	1/4	6	45	6"	Steel	☒

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

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

15

Office Use Only
Well ID No. _____
Inspected by _____
Twp. _____ Rge. _____ Sec. _____
Lat. _____ Long. _____
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
50			

Water Temp. Cold Bottom hole temp. Cold
Water Quality test or comments: good
Depth first Water Encounter 70

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia	From	To	Remarks: Lithology, Water Quality & Temperature	Water	Y	N
10	0	20	Bsm clay			X
6	20	60	Bsm clay			X
6	60	70	gravel		X	
6	70	80	Bsm clay			X
6	80	93	gravel		X	X
6	93	98	Bsm clay gravel		X	X
6	98	115	gravel		X	X
6	115	117	Bsm clay			X

Completed Depth 117 (Measurable)
Date: Started 11-6-08 Completed 11-8-08

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 MT. West Well Drilling Firm No. 543
Principal Driller Michael Frandsen Date 11-10-08
and Driller or Operator II Niles Frandsen Date 11-9-08
Operator I _____ Date _____
Principal Driller and Rig Operator Required.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-16 Well log for Verla Mortenson



Clearwater Geosciences, LLP
Ground Water Development and Exploration

USE TYPEWRITER OR
BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

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

RECEIVED
JUL 30 1974
Department of Water Resources
Eastern District Office

1. WELL OWNER Name <u>Albert Jones</u> Address <u>315 No 200 W</u> Owner's Permit No. <u>Malach Idaho</u>		7. WATER LEVEL Static water level <u>13</u> feet below land surface Flowing? ☐ Yes ☒ No G.P.M. flow _____ Temperature <u>41</u> ° F. Quality _____ Artesian closed in pressure _____ p.s.i. Controlled by ☐ Valve ☐ Cap ☐ Plug																																			
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Replacement ☐ Abandoned (describe method of abandoning)		8. WELL TEST DATA ☐ Pump ☐ Baller ☒ Other Discharge G.P.M. <u>60 gpm</u> Draw Down _____ Hours Pumped <u>2 hrs</u>																																			
3. PROPOSED USE ☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type) _____ ☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection		9. LITHOLOGIC LOG <u>014915</u> <table border="1"><thead><tr><th rowspan="2">Hole Diam.</th><th colspan="2">Depth</th><th rowspan="2">Material</th><th colspan="2">Water</th></tr><tr><th>From</th><th>To</th><th>Yes</th><th>No</th></tr></thead><tbody><tr><td>6</td><td>0</td><td>6</td><td>Top soil</td><td></td><td></td></tr><tr><td>6</td><td>6</td><td>22</td><td>Clay - mudstone</td><td></td><td></td></tr><tr><td>6</td><td>22</td><td>48</td><td>Red sandstone</td><td></td><td></td></tr><tr><td>6</td><td>48</td><td>69</td><td>Sandstone conglomerate</td><td></td><td></td></tr></tbody></table>		Hole Diam.	Depth		Material	Water		From	To	Yes	No	6	0	6	Top soil			6	6	22	Clay - mudstone			6	22	48	Red sandstone			6	48	69	Sandstone conglomerate		
Hole Diam.	Depth		Material		Water																																
	From	To		Yes	No																																
6	0	6	Top soil																																		
6	6	22	Clay - mudstone																																		
6	22	48	Red sandstone																																		
6	48	69	Sandstone conglomerate																																		
4. METHOD DRILLED ☐ Cable ☒ Rotary ☐ Aug ☐ Other																																					
5. WELL CONSTRUCTION Diameter of hole <u>6</u> inches Total depth <u>80</u> feet Casing schedule ☒ Steel ☐ Concrete Thickness <u>1/2</u> inches Diameter <u>6</u> inches From <u>80</u> feet _____ inches _____ inches _____ feet _____ feet _____ inches _____ inches _____ feet _____ feet _____ inches _____ inches _____ feet _____ feet _____ inches _____ inches _____ feet _____ feet Was a packer or seal used? ☒ Yes ☐ No Perforated? ☒ Yes ☐ No How perforated? ☐ Factory ☐ Knife ☒ Torch Size of perforation <u>3/8</u> inches by <u>3</u> inches Number <u>10</u> perforations From <u>59</u> feet To <u>80</u> feet _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet Well screen installed? ☐ Yes ☒ No Manufacturer's name _____ Type _____ Model No. _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☐ Yes ☒ No Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>18</u> Material used in spot ☒ Cement grout ☐ Peddling clay ☐ Well cuttings Sealing procedure used ☐ Sherry pit ☐ Temporary surface sealing ☒ Overbore to seal depth																																					
6. LOCATION OF WELL Sketch map location must agree with written location. Subdivision Name <u>BH (P)</u> Lot No. <u>2</u> Block No. <u>3</u> County <u>Blaine</u> Section <u>SE 1/4</u> & Sec. <u>14</u> T. <u>15</u> N. R. <u>35</u> E.		10. Work started <u>3/8/74</u> finished <u>3/8/74</u>																																			
		11. DRILLER'S CERTIFICATION Firm Name <u>Northwest A & D</u> Firm No. <u>238</u> Address <u>1012 Pershing</u> Date _____ Signed by (Firm Official) <u>Jerry Mitchell</u> and <u>Dean Mitchell</u> Operator <u>Dean Mitchell</u> MICROFILMED																																			

Figure 1-17 Well log for Albert Jones



Clearwater Geosciences, LLP
Ground Water Development and Exploration

Form 238-7
11/97

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 0026225
DRILLING PERMIT NO 788856
Other IDWR No. _____

2. OWNER:
Name Tom Flinders
Address 4089 S 4400W
City Malden State ID Zip 83252

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

Section _____
Twp 15 North _____ or South _____
Rge 35 East _____ or West _____
Sec. 13 1/4 _____ 1/4 _____ 1/4 _____ 1/4 _____
Gov't Lot _____ County Oneida
Lat _____ Long _____
Address of Well Site Santa Fe
City Malden

Lt. _____ Blk. _____ Sub. _____ Name _____

4. USE:

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

5. TYPE OF WORK check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD

☐ Air Rotary ☒ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK		AMOUNT		METHOD
Material	From	To	Barrels or Pounds	
Bentonite	0	20	20	Overhaul

Was drive shoe used? ☒ Yes ☐ No Shoe Depth(s) 180'
Was drive shoe seal tested? ☐ Yes ☐ No How? _____

8. CASING/LINER:

Diameter	From	To	Usage	Material	Casing	Liner	Welded	Threaded
16"	0	180	375	Steel	X		X	

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations Method machined
Screens Screen Type _____

From	To	Bot Size	Number	Diameter	Material	Casing	Liner
50	70	1/2"	160	16"	Steel	X	
137	139	3/4"	16	16"	Steel	X	
150	155	1"	40	16"	Steel	X	

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

0 ft. below ground Artesian pressure 2 lb
Depth flow encountered _____ ft. Describe access port or control devices 4" valve

11. WELL TESTS:

☐ Pump	☒ Bailer	☐ Air	☐ Flowing Artesian
Time	Drawdown	Flowing rate	Time

Water Temp cold Bottom hole temp cold
Water Quality test or comments _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment) Water _____

Start	From	To	Remarks, Lithology, Water Quality & Temperature	W	M
20"	0	2	Brown clay		X
22"	2	28	White clay		X
16"	28	80	White clay	X	
16"	28	80	Gray clay		X
16"	50	60	Black & Gray Gravel		
16"	60	80	Gravel & clay	X	
16"	80	90	Brown clay		X
16"	90	95	Brown clay & gravel		X
16"	95	100	Brown clay		X
16"	100	129	White clay		X
16"	129	131	Gravel & sand	X	
16"	131	135	gray sand	X	
16"	135	140	Gravel gravel	X	
16"	140	145	red sand clay gravel		X
16"	145	150	red clay		X
16"	150	155	red clay & gravel	X	
16"	155	160	Blue clay		X
16"	160	175	Blue clay		X
16"	175	180	gravel	X	

Completed Depth 180' (Measurable)
Date Started 11-07-02 Completed 11-26-02

13. DRILLER'S CERTIFICATION

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

Company Name Mountain West Drilling Firm 543

Firm Official Michael Flinders Date 1-6-03

and _____

Driller or Operator _____ Date _____

(Sign Once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-18 Well log for Tom Flinders



Attachment 2

DATA PLOTS



Pumping Test of Davis used for Impact Assessment

140 gpm April 23, 2011

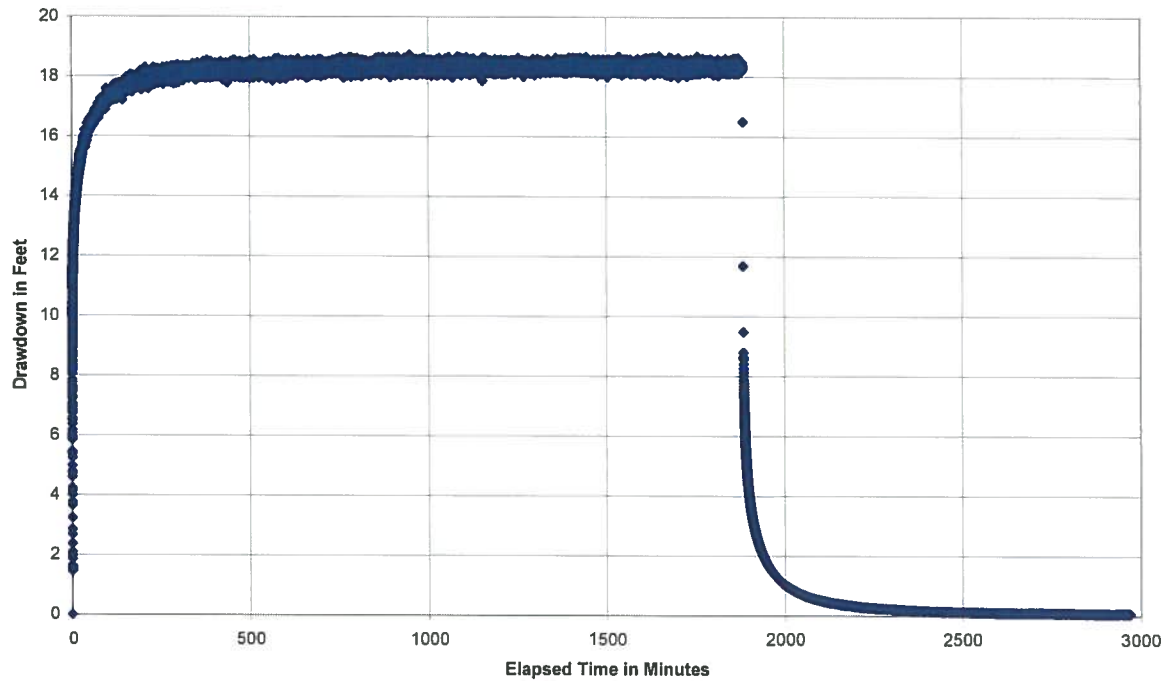


Figure 2-1. Plot of entire data set for pumping test of the Jeff Davis Irrigation well.



Attachment 3

AQTESOLV PLOTS

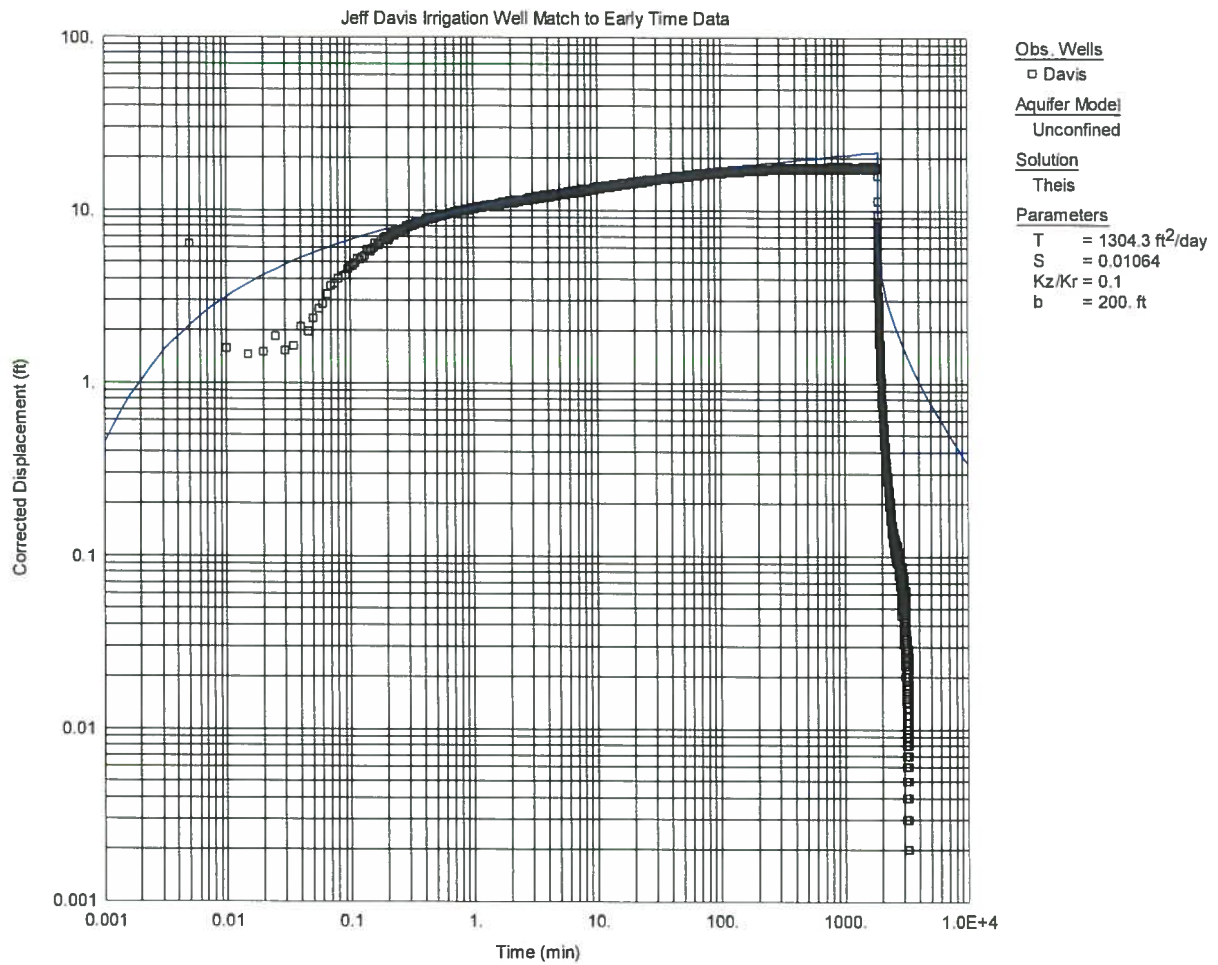


Figure 3-1 Theis unconfined solution matched to early time well data.

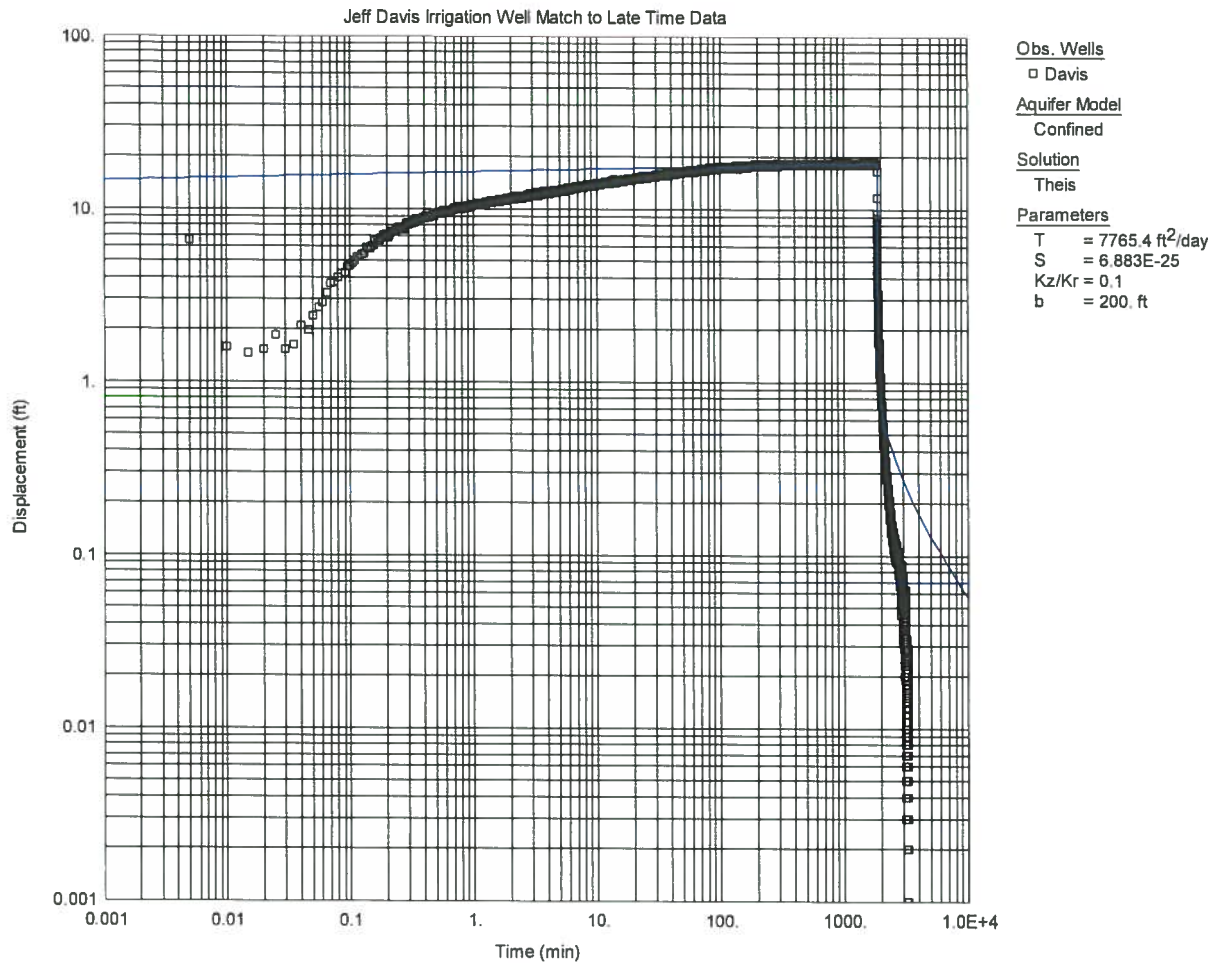


Figure 3-2 Theis unconfined solution matched to late time well data.



Attachment 4

AQUIFER IMPACT ANALYSIS



Table 4-1 Table of values used in AQTESOLV simulation.

Parameter	Value	Unit
Transmissivity	78,000	ft ² /d
Storativity	0.1	unitless
Flow Rate	1500	gpm
Duration	259,200	min
Total volume	1,193	ac-ft
aquifer thickness (b)	200	ft
kz/Kr	0.1	na

Table 4-2 Table of locations for various boundary corners and wells used in the AQESOLV simulation.

Location	x	y
NW Corner	0	50000
NE Corner	32000	50000
SW Corner	0	0
SE Corner	32000	0
Jensen POD	3976	7435
Well 1/2 mile North	3976	10075
Well 1/2 mile South	3976	4795



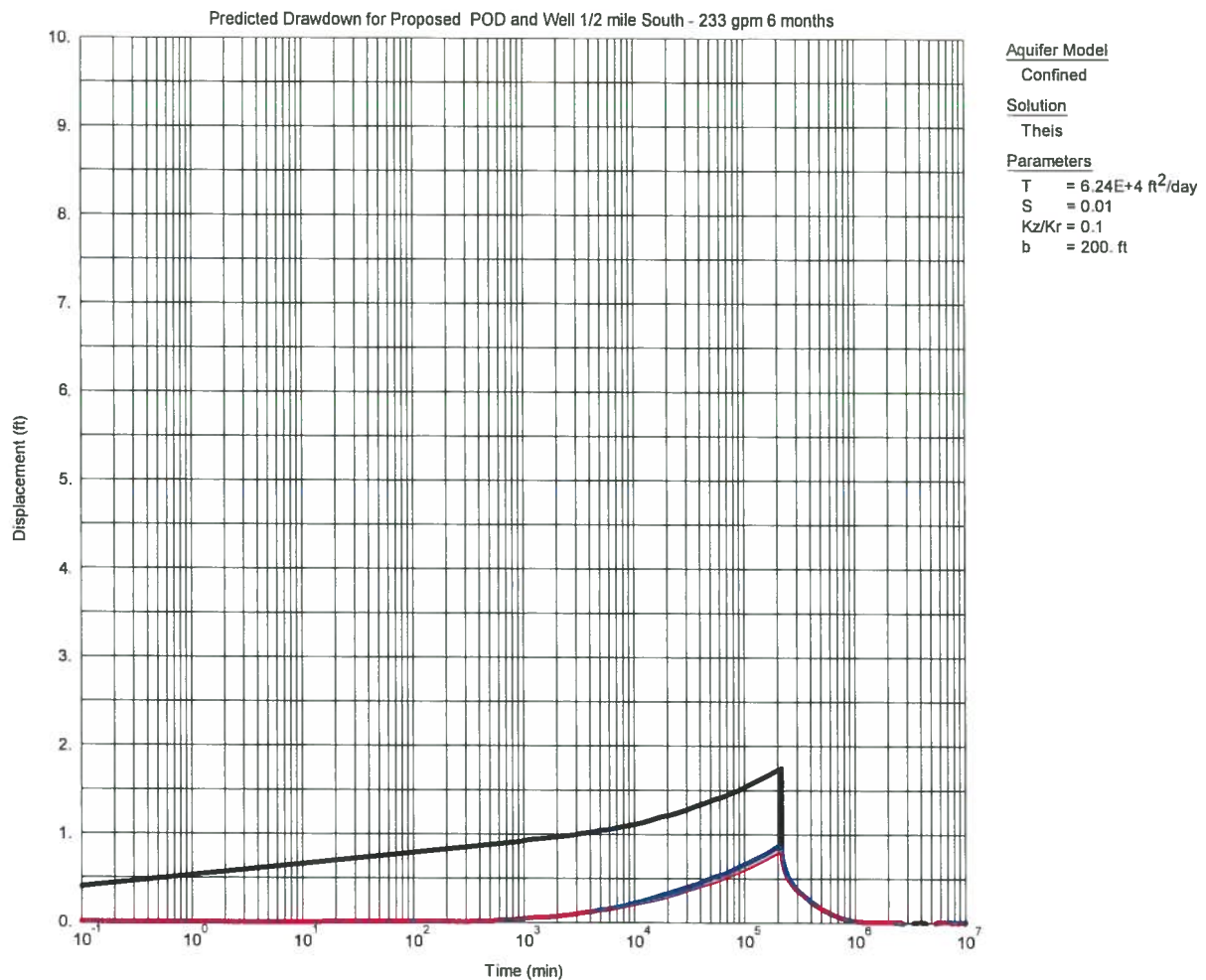


Figure 4-2 Predictive plot of drawdown at 233 gpm or 0.52 for the full period of use 180 days. The red line is for the water level in the proposed Jensen's Point of Diversion (POD), the blue line is the water level predicted in a well 1/2 mile south of the Jensen POD and the red line is the water level predicted in a well 1/2 mile north of the Jensen POD.

Key to line colors

- Black Proposed POD for Anton Jensen
- Blue Imaginary well 1/2 mile south of the proposed POD
- Red Imaginary well 1/2 mile north of the proposed POD