



**Well Interference Report
for Hartvigsen Permit Application
May 20, 2014**

Background

Mr. Eric Hartvigsen is applying for a water-right permit to irrigate 42 acres in Township 14 South, Range 36 East, Section 29. The location is illustrated in Figure 1 (attached). This report documents an analysis by Rocky Mountain Environmental Associates, Inc. (RMEA) of the possibility of interference with other wells from pumping Hartvigsen's proposed well.

Data

Two sources of data are utilized in this analysis. The first is a report on a pumping test by JUB Engineers for the City of Malad, recorded in Idaho Department of Water Resources (IDWR) water-right file 15-7333. A copy of this report is attached as Appendix A. It indicates that aquifer transmissivity in a well near Hartvigsen's proposed point of diversion was 6,100 ft²/day. Test data did not allow calculation of aquifer storativity, but JUB Engineers used an estimate of 1×10^{-4} . Both the transmissivity and storativity values are reasonable and are used in this evaluation.

The second source of data is a collection of well logs for the vicinity of the proposed well, obtained from IDWR. These are attached in Appendix B.

Methods

The Theis Equation was applied using image well theory, with an image well located northeast of the proposed well location to simulate an assumed no-flow boundary representing the abutment of valley alluvial materials with the eastern mountains bounding the valley. The locations of the presumed boundary and the assigned image well are illustrated in Figure 2. The Theis Equation assumes a confined aquifer with no recharge. It will therefore over-estimate drawdown at long time periods, but it is assumed to be reasonably accurate for a 215-day pumping period.

The volume of pumping was estimated by applying the IDWR standard 3.5 acre feet per acre gross pumping volume on 42.0 acres, to obtain 147 acre feet maximum pumping volume. This volume was applied over the standard 215-day pumping period to obtain an average pumping rate of 0.345 cfs. This average rate compensates for the fact that the water right volume limitations and typical irrigation practices do not contemplate operation 24 hours per day for

215 consecutive days. Using the standard water-right diversion rate would have over-estimated the pumping volume and therefore the drawdown effects.

Well logs were evaluated qualitatively to assess the nature of the subsurface in the vicinity of the proposed well. Reported depths, static water levels and first encounters of groundwater were recorded and mapped.

Results

Figure 3 shows the estimated drawdowns *in the pumped aquifer zone* at various locations of interest near and around the proposed point of diversion. The figure is marked with a circle defining a half-mile radius surrounding the proposed point of diversion. The IDWR water-rights data indicate one well within this radius, for irrigation water right 15-2071 in the name of Eugene Colton. Figure 3 also shows additional presumed domestic wells which were placed by identifying structures that appeared to be homes, on the 2013 NAIP aerial photograph. The nearest presumed well to the point of diversion would have a drawdown of approximately 6.1 feet *in the pumped aquifer zone*. The Colton irrigation well is estimated to experience a drawdown of approximately 5.0 feet.

Figure 4 shows the basic characteristics of the wells that were identified. The log identifier is printed above the well symbol and the data string below or to the left of the well shows the reported depth (D); the static water level (S); and the depth at which water was first encountered (1st H2O). These data and other information are provided in Table 1, keyed by log number. All the logs showed alternating layers of clays or fine-grained materials reported to be non-water bearing, and coarse-grained water-bearing materials. The domestic wells tended to be shallower and irrigation wells tended to be deeper.

The only domestic near to the proposed point of diversion that is deeper than about 100 feet is well number 5, a domestic well in the name of Bruce Hawkin. It is reported to be 180 feet deep with a static water level of 50 feet. All wells, domestic or otherwise, are reported to have static water levels many tens of feet above the reported bottoms of the well.

No.	Name	Depth (ft)	T	R	S	QQ	Use ¹	Static	FirstH2O	Note
1	Roscoe Colton	320	14S	36E	29	NWNW	Irrigation	59	45	Log notes unusable water cased out at 54,' next water at 98'
2	Lester Nick Davis	130	14S	36E	29	NESW	Domestic	33	97	First H2O presumed from note "perforated 90-97 feet and 122-125 feet"

¹ Use was obtained from field "LotBlockUse" in the IDWR well-log database or from notations in the logs.

No.	Name	Depth (ft)	T	R	S	QQ	Use ¹	Static	FirstH2O	Note
3	Tyler L Davis	145	14S	36E	29	SWNW	Domestic	46	90	Presume address should have been 1900 not 190; 1900 matches PLS
4	Betty Kay Gardner	60	14S	36E	29	NENW	Domestic	16	38	
5	Bruce Hawkin	180	14S	36E	29	NENE	Domestic Single	50	60	Placed by address, not by PLS description
6	Roger Herron	98	14S	36E	29	NESE	Domestic Single	29	61	
7	Donald C Hughes	150	14S	36E	29	SWSW	Domestic, Stock, Irrigation	12	20	
8	Jerry Derk Jones	187	14S	36E	29	NESW	Domestic	20	20	Placed by address, not by PLS description
9	Rodney K Moon	90	14S	36E	29	NWSW	Stock	40	83	
10	Travis Nalder	105	14S	36E	29	SWSW	Domestic Single	27	78	Placed by address, not by PLS description
11	Elden Nielson	290	14S	36E	29	SESW	Irrigation	5	39	First H2O presumed from note "perforated below 39 feet"
12	Kenneth E Pitcher	140	14S	36E	29	SENE	Domestic Single	38	60	Placed by address, not by PLS description
13	Teresa Tubbs	95	14S	36E	29	SWNW	Domestic	30	20	
14	Clint Bastian	173	14S	36E	20	SWSW	Domestic Single	93	120	Placed by address, not by PLS description
15	Jeff Gibson	112	14S	36E	20	SWSW		20	20	Placed by address, not by PLS description
16	Kevin Stevens	120	14S	36E	20	SWSW		67	20	Placed by address, not by PLS description

Discussion and Conclusions

The following factors are important in consideration of well interference issues from the proposed point of diversion:

1. With the exception of the Hawkin well, nearby domestic wells tend to be less than approximately 100 feet deep.
2. All well logs show a layered geologic configuration, with water-bearing zones in materials expected to be more transmissive separated by non-water-bearing clay or fine-grained zones.
3. Wells greater than approximately 100 feet deep tend to be distant from the proposed point of diversion or to be irrigation wells.
4. All wells have static water levels tens of feet above the reported bottom of the well.
5. With two exceptions, wells have static water levels less than 60 feet below land surface. The exceptions are reported to have static water levels less than 100 feet below land surface.
6. It is RMEA's understanding that the reasonable pumping lift standard applies to irrigation wells in the Malad Valley.

Based on these factors, RMEA concludes the following:

1. The proposed well should be cased to a depth of 100 feet, with no perforations or screen above this depth. This construction combined with the layered nature of the aquifer should isolate nearby domestic wells from adverse drawdowns, with the possible exception of the Hawkin well.
2. The Hawkin well has a static water level approximately 130 feet above the bottom of the well. Hence, should adverse drawdown affect Hawkin, RMEA expects the applicant to be able to make Hawkin whole by paying to have the Hawkin pump lowered in the well.
3. Drawdowns at irrigation wells, from pumping of the proposed well, are estimated to be approximately 5.0 feet or less. Given the relatively shallow groundwater levels and large depths of standing water within the wells, RMEA believes that this small increment of drawdown does not exceed a reasonable pumping lift standard.

Attachments

Figure 1. Location Geometry

Figure 2. Theis Geometry

Figure 3. Theis Drawdown Calculations

Figure 4. Well Log Map

Appendix A: JUB report from water-right file 15-7333

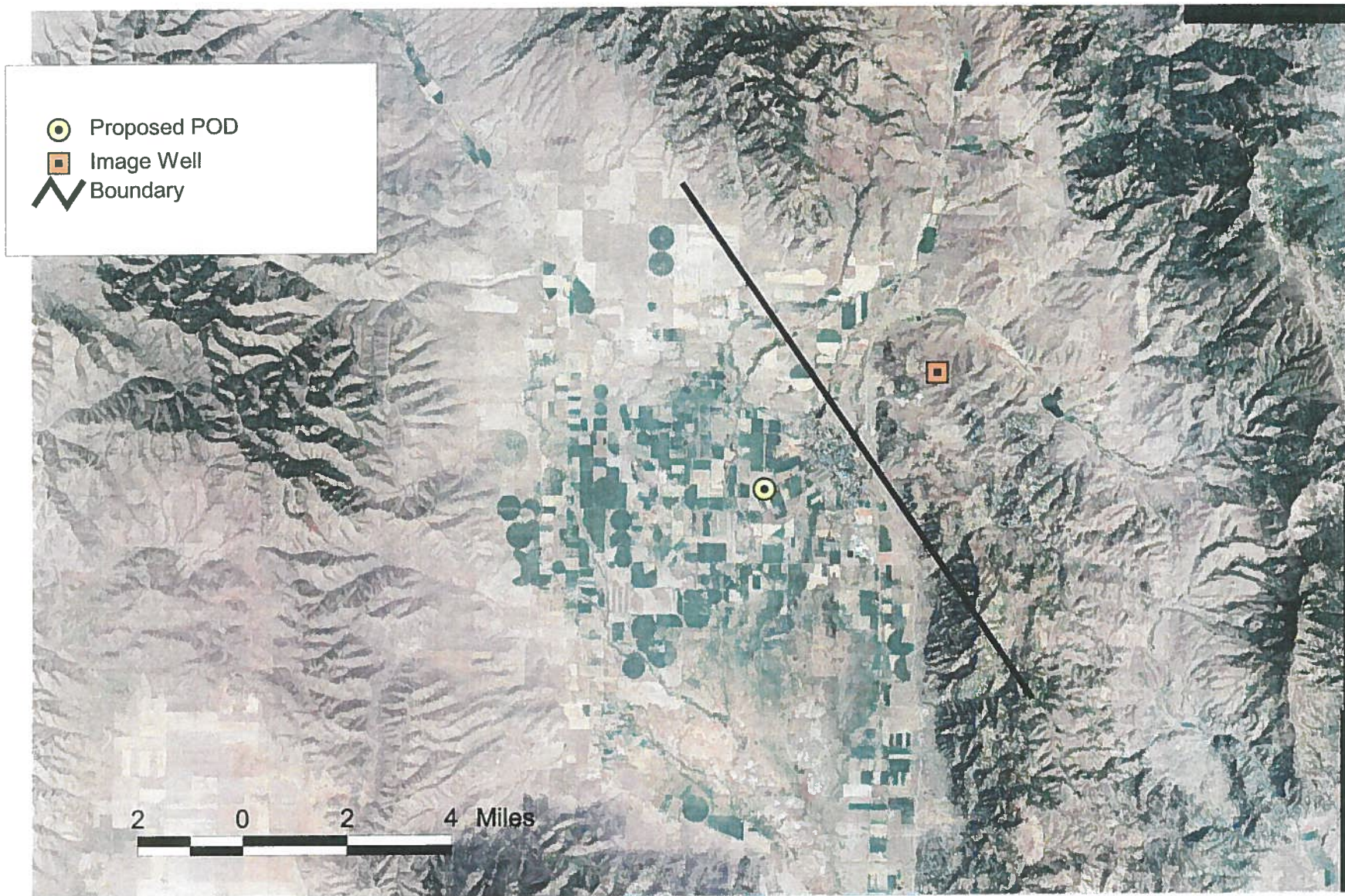
Appendix B: Well Logs



482 Constitution Way, Idaho Falls, ID 83402
208-524-2353

Figure 1 - Location Geometry
Hartvigsen WR Permit Application
Project 14-0048





482 Constitution Way, Idaho Falls, ID 83402
208-524-2353

Figure 2 - Theis Geometry
Hartvigsen WR Permit Application
Project 14-0048





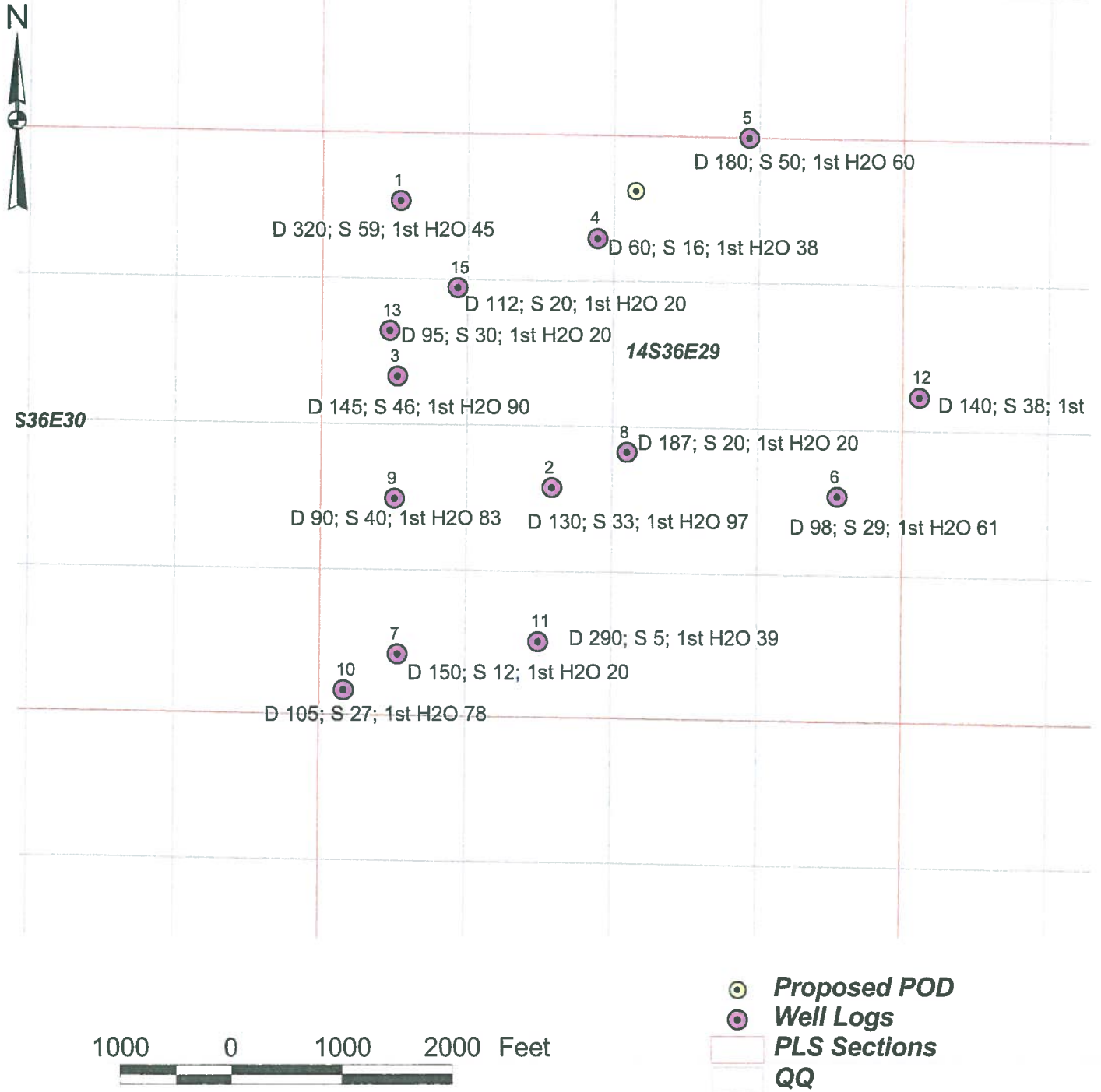
482 Constitution Way, Idaho Falls, ID 83402
208-524-2353

Figure 3 - Theis Drawdown Calculations
Hartvigsen WR Permit Application
Project 14-0048



1S36E19

D = reported depth; S = static water level;
1st H2O = depth of first encountered water



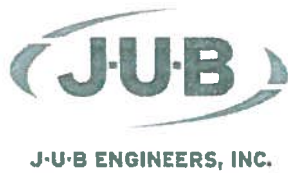
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208-524-2353

Figure 4 - Well Logs
Hartvigsen Permit Application

Project 14-0048

Appendix A

J-U-B Engineers, Inc. Report



J-U-B COMPANIES



THE
LANGDON
GROUP



GATEWAY
MAPPING
INC.

October 3, 2011

James Cefalo
Idaho Department of Water Resources – Eastern Region
900 North Skyline Drive, Suite A
Idaho Falls, ID 83402-1718

Re: City of Malad Application for Permit 15-7333 – IDWR's request for additional information

Dear Mr. Cefalo,

As you recall, the Department requested further information regarding the above referenced application in a letter to Malad City dated December 9, 2009. Our office provided such information in a January 28, 2010 letter to Mr. Ernest Carlsen.

On September 2, 2010, I placed a phone call to the Eastern Regional office to inquire on the status of the application. In our conversation we discussed the fact that our letter had been overlooked since most of the other applicants had not responded or provided additional information as requested. It is our understanding the information we provided in that letter has subsequently been review and that further information specific to the properties of the aquifer into which the proposed well will be completed is required. Consequently further information about aquifer properties, calculations, and results are provided herein.

The most readily available information relating to the properties of the local aquifer is the pump test of the recently drilled Well #4 for Malad City. A 24-hour constant rate pump test was conducted in May of 2009, at the conclusion of the well drilling effort. A graph of the pump test results has been attached. The proposed well is located 4,290 feet south-southeast from Well #4.

The semi-log plot of time-drawdown results was used to calculate the transmissivity of the aquifer using the modified non-equilibrium equation described by Driscoll (1986). This equation is:

$$T = \frac{264Q}{\Delta s}$$

Where T = transmissivity in gallons per day per foot (gpd/ft), Q =pumping rate, in gallons per minute (gpm), and Δs = change in drawdown between one log cycle of the time-drawdown graph.

Thus the calculated value for transmissivity is 46,000 gpd/ft or 6,100 ft²/d.

The coefficient of storage for the aquifer was estimated. While there are methods to estimate this parameter from recovery data at observation wells after test pumping has stopped, this data was not available. The coefficient of storage was estimated at 0.0001.

The Theis non-equilibrium equation was used to predict the cone of depression resulting from pumping the proposed well. This equation is:

$$s = \frac{114.6QW(u)}{T}$$

where

s = drawdown (ft), Q = pumping rate (gpm), T = transmissivity (gpd/ft), and

$$W(u) = \int_u^{\infty} \frac{e^{-x}}{x} dx = -0.5772 - \log_e u + u - \frac{u^2}{(2)2!} + \frac{u^3}{(3)3!} + \frac{u^4}{(4)4!} + \dots$$

where

$$u = \frac{1.87r^2S}{Tt}$$

with

r = distance (ft) from the center of the pumped well to a point where the drawdown is measured,
S = the dimensionless coefficient of storage,
T = transmissivity (gpd/ft)
t = time since pumping started in days

A spreadsheet was utilized to solve the Theis non-equilibrium equation to determine the drawdown effected by the proposed well.

Two approaches were taken to determine the drawdown of the proposed well. The first approach was to use an average pumping rate required from the well. As stated in our January 28, 2010 letter, the estimated annual diversion for the nature of use considered under the application is 123.27 acre-feet. This volume of water evenly distributed over the 214 day irrigation period results in a pumping rate of 130 gallons per minute. Drawdown calculations for this approach used a pumping rate of 130 gallons per minute over a 214 day period.

The second approach used the peak summer months pumping rate over a 62 day period (July and August). Preliminary sizing of the required irrigation system for the 31.5 acres to be irrigated resulted in an approximate pumping rate requirement of 200 gpm during these peak months. Thus, drawdown calculations for this approach used a pumping rate 200 gpm over 62 days.

The value of r was initially taken as 2640 feet, or ½ mile. This and other distances and resulting s (drawdown) values are given in Tables 1.1 and 1.2 for these two approaches.

Table 1.1 – solution pairs to Theis non-equilibrium equation with $Q = 130$ gpm, $T = 46,000$ gpd/ft, $S = 0.0001$, and $t = 214$ days.

r (ft)	s (ft)
100	4.9
500	3.8
1320	3.2
2,640	2.8
5,280	2.3

Table 1.2 – solution pairs to Theis non-equilibrium equation with $Q = 200$ gpm, $T = 46,000$ gpd/ft, $S = 0.0001$, and $t = 62$ days.

r (ft)	s (ft)
100	6.9
500	5.3
1320	4.3
2,640	3.6
5,280	3.0

The results are also graphically depicted in Figure 1.1 below.

Drawdown Curves for Proposed Well under Application 15-7333

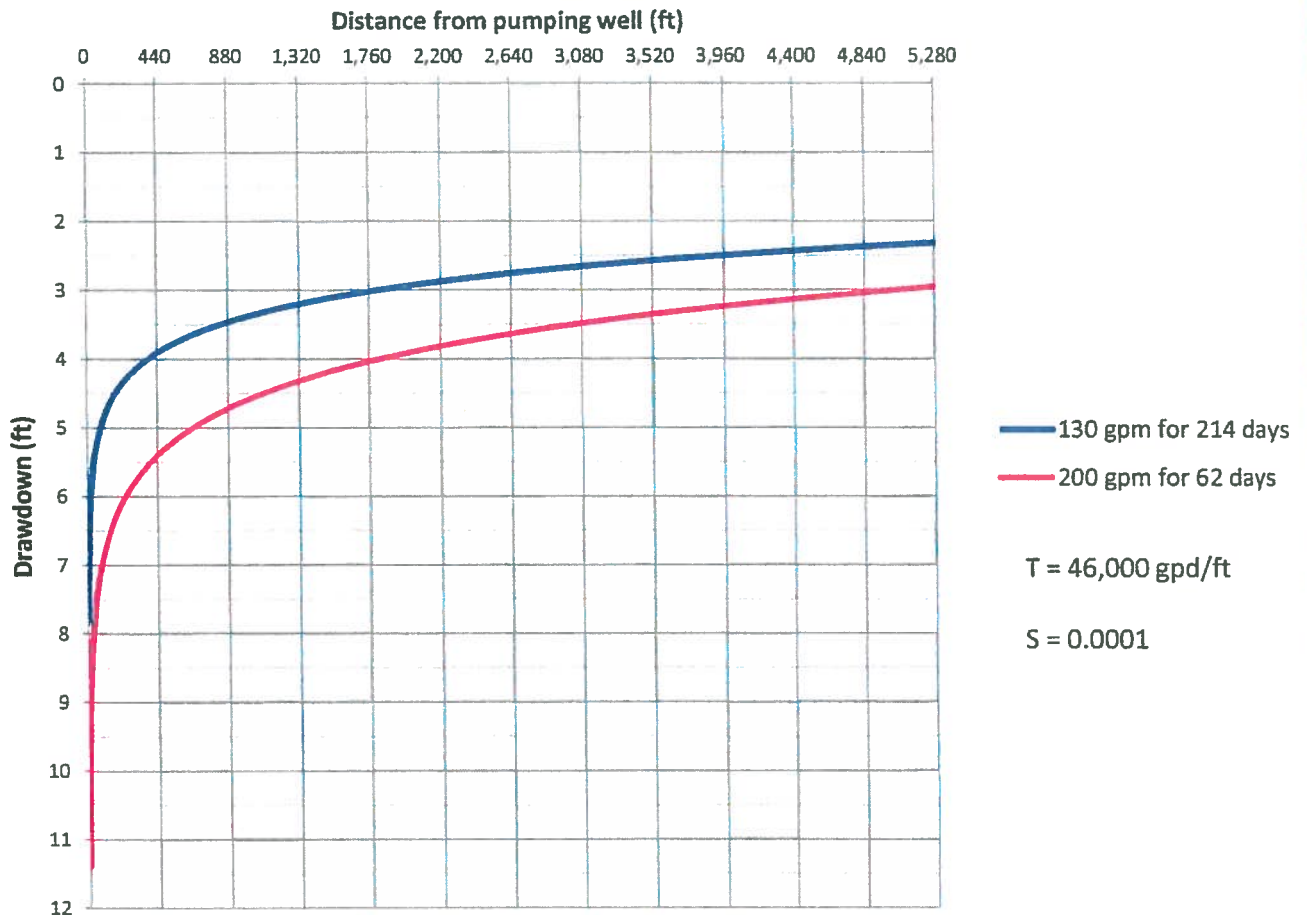


Figure 1.1 – Well Drawdown Plot.

From these calculations, it is our opinion that the existing water rights will not be unreasonably affected by this application.

We trust this information, together with the previously submitted information will allow for the favorable review of this application.

Sincerely,

J-U-B ENGINEERS, Inc.

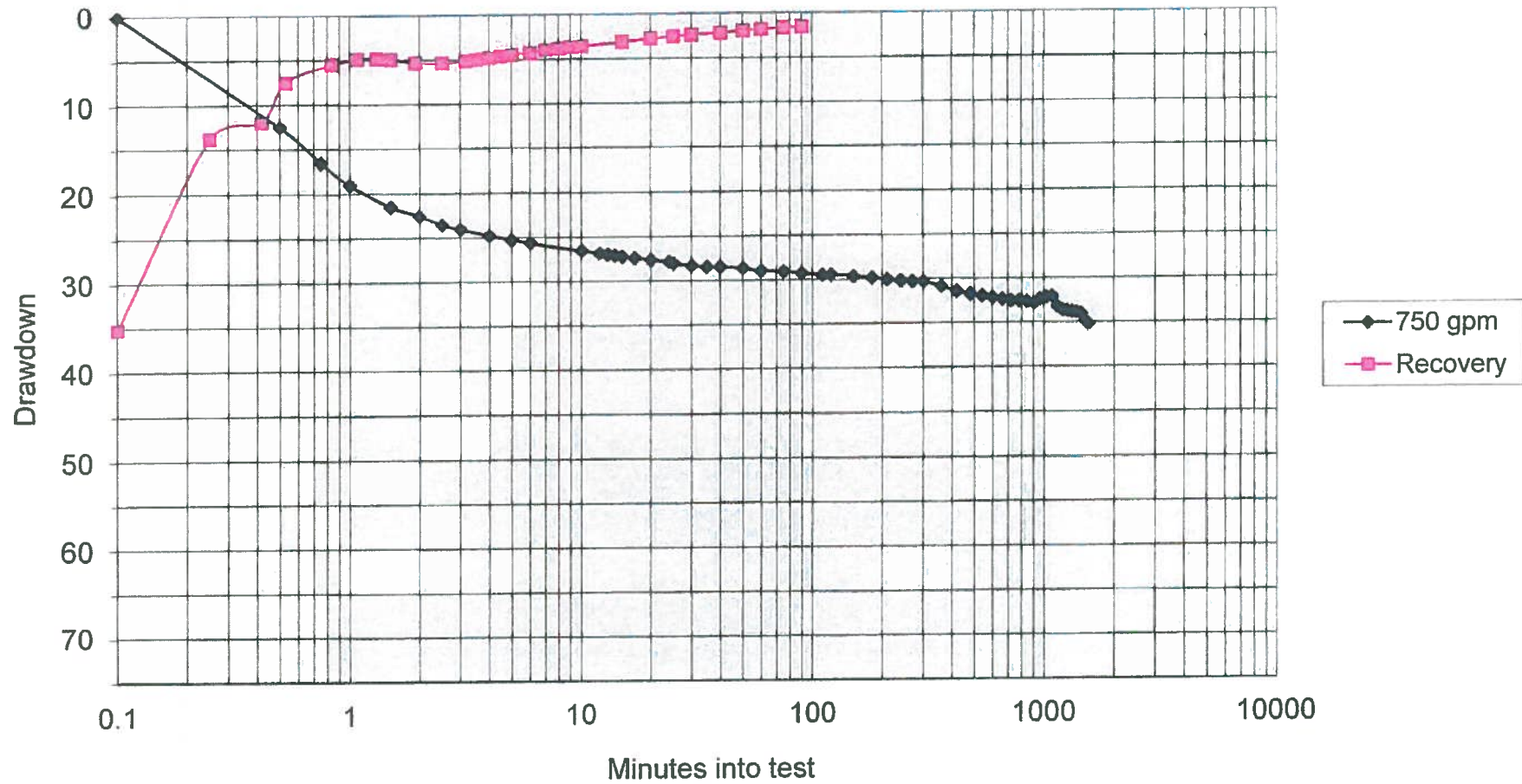
A handwritten signature in dark ink, appearing to read "Brandon R. Nielsen". The signature is fluid and cursive, with the first name "Brandon" being more prominent.

Brandon R. Nielsen
Project Manager

Attachment

cc: Mayor Spence Horsley
File

Malad City Well #4
Constant rate test
11-12 May 2009 - 55-07-039



USE TYPEWRITER
BALL POINT PEN

State of Idaho
Department of Water Administration

IDAHO DEPARTMENT OF WATER ADMINISTRATION
EAST DISTRICT OFFICE

WELL DRILLER'S REPORT

240 S. HOLMES
DAHO FALLS, IDAHO 83401

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well

103 Idaho 506
650 P.2d 648

1. WELL OWNER Name <u>Eddy (Darius)</u> Address <u>Shelbrook St. R. Melnd</u> Owner's Permit No. <u>38</u>	7. WATER LEVEL Static water level <u>45</u> feet below land surface Flowing? ☐ Yes ☐ No G.P.M. flow _____ Temperature <u>55</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 ☐ Bailer ☒ Other <u>air lift</u> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Draw Down</th> <th>Hours Pumped</th> </tr> <tr> <td><u>150</u></td> <td><u>30 ft</u></td> <td><u>15</u></td> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Discharge G.P.M.	Draw Down	Hours Pumped	<u>150</u>	<u>30 ft</u>	<u>15</u>																																								
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3. PROPOSED USE ☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal ☐ Industrial ☐ Stock	9. LITHOLOGIC LOG 044919 <table border="1" style="width:100%; border-collapse: collapse;"> <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>4"</td> <td>0</td> <td>2</td> <td>Soil</td> <td> </td> <td> </td> </tr> <tr> <td>ED</td> <td>2</td> <td>20</td> <td>Clay without</td> <td> </td> <td> </td> </tr> <tr> <td></td> <td>20</td> <td>65</td> <td>Shaly Clay</td> <td> </td> <td> </td> </tr> <tr> <td></td> <td>65</td> <td>71</td> <td>Gravel</td> <td> </td> <td> </td> </tr> <tr> <td></td> <td>71</td> <td>125</td> <td>Gravel-clay</td> <td> </td> <td> </td> </tr> <tr> <td></td> <td>125</td> <td>142</td> <td>Gravel</td> <td> </td> <td> </td> </tr> </tbody> </table>	Hole Diam.	Depth		Material	Water		From	To	Yes	No	4"	0	2	Soil			ED	2	20	Clay without				20	65	Shaly Clay				65	71	Gravel				71	125	Gravel-clay				125	142	Gravel		
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4. METHOD DRILLED ☐ Cable ☒ Rotary ☐ Dug ☐ Other	RECORDED APR 24 1974 WATER ADMINISTRATION Area Office																																														
5. WELL CONSTRUCTION Diameter of hole <u>4</u> inches Total depth <u>142</u> feet Casing schedule: ☐ Steel ☐ Concrete <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Thickness</th> <th>Diameter</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td><u>.250</u> inches</td> <td><u>4</u> inches</td> <td><u>+1</u> feet</td> <td><u>142</u> feet</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> 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>4</u> inches <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Number</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td><u>165</u> perforations</td> <td><u>20</u> feet</td> <td><u>135</u> feet</td> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> 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 <u>pea</u> Placed from <u>20</u> feet to <u>142</u> feet Surface seal? ☒ Yes ☐ No To what depth <u>142</u> feet Material used in seal ☐ Cement grout ☒ Puddling clay		Thickness	Diameter	From	To	<u>.250</u> inches	<u>4</u> inches	<u>+1</u> feet	<u>142</u> feet																	Number	From	To	<u>165</u> perforations	<u>20</u> feet	<u>135</u> feet																
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6. LOCATION OF WELL Sketch map location must agree with written location. County <u>Oneida</u> <u>SE</u> 1/4 <u>SW</u> 1/4 Sec. <u>36</u> T. <u>14</u> S. R. <u>36</u> E. 1/4	10. Work started <u>Nov 29, 72</u> finished <u>Dec 6, 72</u>																																														
11. DRILLER'S CERTIFICATION This well was drilled under my supervision and this report is true to the best of my knowledge. <u>Gordon Well Drilling Co</u> Driller's or Firm's Name _____ Number _____ Address <u>147 S Main</u> Signed By <u>Bernard Gordon</u> <u>8/2/73</u>																																															

USE ADDITIONAL SHEETS IF NECESSARY

FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

MICROFILMED

~0.4 miles from proposed well

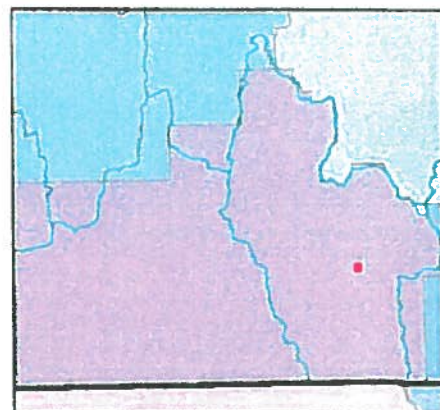


Idaho Department of Water Resources

Application
15-7333
(IRRIGATION)

Legend

- Point of Diversion
- Place of Use
- State Outline
- Townships
- PLS Sections
- Quarter Quarters



Oneida County
IDWR Basin 15



Prepared by Blake Jordan
On November 30, 2009
2006 Aerial Photography

0 0.05 0.1 0.2
Miles

15 - 7333

Appendix B

Well Logs

State law requires that this report shall be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

WELL OWNER:

Name Rodcoe Bolton
Address Malad Idaho

Owner's Permit No. G 33498

NATURE OF WORK (check): Replacement well ☐
New well ☒ Deepened ☐ Abandoned ☐

Water is to be used for: irrigation

METHOD OF CONSTRUCTION: Rotary ☐ Cable ☒
Dug ☐ Other ☐

(explain)

CASING SCHEDULE: Threaded ☐ Welded ☐
16 in Diam. from 0 ft. to 221 ft.
14 "Diam. from 220 ft. to 320 ft.
"Diam. from ft. to ft.
"Diam. from ft. to ft.

Thickness of casing: 1/4 Material:
Steel ☒ concrete ☐ wood ☐ other ☐

(explain)

PERFORATED? Yes ☒ No ☐ Type of
perforator used: 100 foot 14 mill per

Size of perforations: 1/2 " by 5 "
perforations from 108 ft. to 218 ft.
mill perforations from 220 ft. to 320 ft.
perforations from ft. to ft.
perforations from ft. to ft.

WAS SCREEN INSTALLED? Yes ☐ No ☒

Manufacturer's name
Type Model No.

Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

CONSTRUCTION: Well gravel packed? Yes ☐
No. ☐ size of gravel Gravel
placed from ft. to ft. Surface seal
provided? Yes ☐ No ☐ To what depth?
 ft. Material used in seal:

Did any strata contain unusable water? Yes ☒

No. ☐ Type of water: rough sand
Depth of strata 54 ft. Method of sealing
strata off: Drill casing to clay

Surface casing used? Yes ☐ No. ☐
Cemented in place? Yes ☐ No ☐

Locate well in section

LOCATION OF WELL: County Oneida

Size of drilled hole: 16 inch Total
depth of well: 320 Standing water
level below ground: 59 feet Temp.
Fahr. ° Test delivery: 1700 gpm
or cfs Pump? ☒ Bail ☐
Size of pump and motor used to make test:
12 inch 500 H.P. Engle
Length of time of test: 14 Hrs. Min.
Drawdown: 140 ft. Artesian pressure: ft.
above land surface Give flow cfs
or 1700 gpm. Shutoff pressure:
Controlled by: Valve ☐ Cap ☐ Plug ☐
No control ☐ Does well leak around casing?
Yes ☐ No ☐

DEPTH		MATERIAL	WATER YES OR NO
FROM	TO		
FEET	FEET		
0	6	Top soil	
6	20	Clay & gravel	
20	45	Blue clay & sand	
45	46	good gravel	yes
46	50	gravel & blue clay	
50	57	gravel & water	
57	60	clay & gravel	
60	69	good gravel	
69	94	blue clay & gravel	
94	95	brown clay	
95	108	good gravel & water	yes
108	110	brown clay	
110	116	good gravel	yes
116	120	brown clay & gravel	
120	146	good gravel & gravel	yes
146	154	balders & gravel	yes
154	167	gravel gravel	yes
167	175	brown clay	
175	182	good gravel	yes
182	183	red clay	
183	197	gravel & clay	
197	201	good gravel	yes
201	210	clay & gravel	
210	221	blue gravel & sand	yes
221	240	fine gravel & sand	yes
240	300	good clay gravel	yes
300	320	brown clay	

Work started: May 20 1967
Work finished: July 14 1967
Well Driller's Statement: This well was
drilled under my supervision and this report
is true to the best of my knowledge.
Name: Steve Gage
Address: Bozeman Idaho
Signed by: P. W. Gage
License No. 169 Date: July 16 1967

1. WELL OWNER

Name

Address

Owner's Permit No.

7. WATER LEVEL

Static water level 33 feet below land surfaceFlowing? ☐ Yes ☒ No G.P.M. flowTemperature 51 ° F. Quality Good

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 ☒ Bailer ☐ Other

Discharge G.P.M.

Draw Down

Hours Pumped

155

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☐ Cable ☒ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 4 1/2 inches Total depth 126 feetCasing schedule: ☐ Steel ☐ Concrete

Thickness	Diameter	From	To
<u>.237</u> inches	<u>4 1/2</u> inches	<u>0</u> feet	<u>20</u> feet
<u>.188</u> inches	<u>4 1/2</u> inches	<u>20</u> feet	<u>126</u> feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☐ NoPerforated? ☐ Yes ☐ NoHow perforated? ☐ Factory ☐ Knife ☒ TorchSize of perforation 3/16 inches by 4 inches

Number	From	To
<u>28</u> perforations	<u>90</u> feet	<u>97</u> feet
<u>12</u> perforations	<u>122</u> feet	<u>125</u> feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

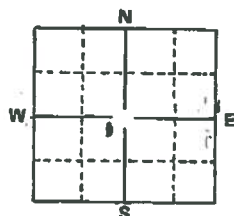
Diameter _____ Slot size _____ Set from _____ feet to _____ feet

Diameter _____ Slot size _____ Set from _____ feet to _____ feet

Gravel packed? ☒ Yes ☐ No Size of gravel 3/8 -Placed from 20 feet to 126 feetSurface seal? ☒ Yes ☐ No To what depth 20 feetMaterial used in seal ☐ Cement grout ☒ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



10.

Work started 12/31/70 finished 3/28/71

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

Driller's or Firm's Name

Number

Form 238-7
1/94IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORTUse Typewriter
or
Ball Point Pen

56286

1. DRILLING PERMIT NO. 15-94-E-019-000

Other IDWR No. _____

2. OWNER:

Name Tyler L DavisAddress 190 Samara LaneCity Malad State ID Zip 83252

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N					
S					

Twp. 14 North ☐ or South ☒
 Rge. 36 East ☒ or West ☐
 Sec. 29 1/4 SW 1/4 NE 1/4 SE 1/4
 Gov't Lot _____ County Oneida

Address of Well Site Same as above City Malad
(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		
<u>Cement</u>	<u>0</u>	<u>18</u>	<u>400 lb</u>		

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
<u>6"</u>	<u>0</u>	<u>146</u>	<u>250</u>	<u>Steel</u>	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

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:

46 ft. below ground Artesian pressure _____ lb.

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

11. WELL TESTS:

☐ Pump ☐ Bailor ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
<u>100</u>			

Water Temp. Cold Bottom hole temp. _____

Water Quality test or comments: _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water	Y	N
<u>8</u>	<u>0</u>	<u>20</u>	<u>clay</u>			☒
<u>6</u>	<u>20</u>	<u>30</u>	<u>clay</u>			☒
<u>6</u>	<u>30</u>	<u>62</u>	<u>clay + Gravel</u>			☒
<u>6</u>	<u>62</u>	<u>73</u>	<u>clay</u>			☒
<u>6</u>	<u>73</u>	<u>90</u>	<u>clay + Gravel</u>			☒
<u>6</u>	<u>90</u>	<u>95</u>	<u>Gravel</u>	<u>iron</u>	☒	
<u>6</u>	<u>95</u>	<u>100</u>	<u>clay</u>			☒
<u>6</u>	<u>100</u>	<u>115</u>	<u>Gravel</u>		☒	
<u>6</u>	<u>115</u>	<u>123</u>	<u>clay</u>			☒
<u>6</u>	<u>123</u>	<u>125</u>	<u>Gravel</u>	<u>iron</u>	☒	
<u>6</u>	<u>125</u>	<u>137</u>	<u>clay + Gravel</u>			☒
<u>6</u>	<u>137</u>	<u>140</u>	<u>clay</u>			☒
<u>6</u>	<u>140</u>	<u>145</u>	<u>Gravel</u>	<u>gas</u>	☒	

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OCT 17 1994

Department of Water Resources
Eastern District Office

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NOV 17 1994

MAY 08 1995

Completed Depth 145 (Measurable)
Date: Started 9-10-94 Completed 9-12-94

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 Firm No. 543Firm Official Mike Franden Date 9-12-94

and

Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-
6/02IDAHO 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 0044055
 DRILLING PERMIT NO. _____
 Water Right or Injection Well No. _____

2. OWNER: Bruce Hawkins
 Name _____
 Address 1300 W Samana Ln
 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. 14 North ☐ or South ☒
 Rge. 36 East ☒ or West ☐
 Sec. 29 1/4 NE 1/4 NE 1/4
 Gov't Lot _____
 Lat: : : Long: : :
 Address of Well Site Same
 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 Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	20	9 bags	overbore

Was drive shoe used? ☒ N ☐ Shoe Depth(s) 180Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	0	180	250	steel	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method forch

Screen Type & Method of Installation _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
162	180	1/4	54	6"	steel	☒	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

50 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
50			

Water Temp. cold Bottom hole temp. coldWater Quality test or comments: goodDepth first Water Encounter 60

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
10	0	20	Br. clay		X
6	20	60	clay gravel cobbles		X
6	60	107	gravel clay	X	
6	107	137	clay Br. clay		X
6	137	145	Gravel	X	
6	145	170	Br. clay gravel		X
6	170	180	Gravel	X	

Completed Depth 180 (Measurable)Date: Started 6-17-06 Completed 6-17-06

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. 543Principal Driller Michael Frandsen Date 6-17-06and Driller or Operator II Miles Frandsen Date 6-17-06

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 238-7
6/02IDAHO 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 37972
 DRILLING PERMIT NO. _____
 Water Right or Injection Well No. _____

2. OWNER:
 Name Roger Herron
 Address 1132 BUENO AVE
 City S.L.C. State UT Zip 84120

3. LOCATION OF WELL by legal description:

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

Twp. 14 North ☐ or South ☒
 Rge. 36 East ☒ or West ☐
 Sec. 29 1/4 NE 1/4 SE 1/4
 Gov't Lot _____ County ONEIDA
 Lat: _____ Long: _____
 Address of Well Site 1.5 M. W. of Malad
 City _____

(Give at least name of road - Distance to Road or Landmark)
 Lt. 3 Blk. _____ Sub. Name ELKHORN PEAK
RANCHETTES

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 CHIPS	0	20	450 lbs	overburden

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	+1	19	250	STEEL	☒	☐	☐	☐
6	+15	98 1/2	"	"	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method DOWN HOLE

Screen Type & Method of Installation _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
80	95	3/8x3	210		STEEL	☒	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method
-----------------	------	----	-----------------	------------------

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

29 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.	Drawdown	Pumping Level	Time
306.35		78'	3 hrs.

Water Temp. 53° Bottom hole temp. 53°

Water Quality test or comments: _____

Depth first Water Encounter 61'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
12 1/4	0	1	overburden		X
"	1	19	clay		
7 7/8	19	21	"		
"	21	27	Gravel		
"	27	53	clay		
"	53	58	Gravel		
"	58	61	clay		
"	61	95	Gravel	X	
6	95	98	clay		X

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MAY 10 2006

Department of Water Resources
Eastern RegionCompleted Depth 98 (Measurable)Date: Started 5-2-06 Completed 5-3-06

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 NEILSON DRILLING INC. Firm No. 215Principal Driller Ray Nelson Date 5-5-06and Driller or Operator II Shay Cook Date 5-5-06

Operator I _____ Date _____

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

FORWARD WHITE COPY TO WATER RESOURCES

1. WELL OWNER

Name Donald C. Hughes
 Address Rt. 1 Box 109 Malad, Id. 83252
 Owner's Permit No. 15-7066

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

3. PROPOSED USE

☒ Domestic ☒ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☒ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☐ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☒ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
<u>.250</u> inches	<u>10</u> inches	<u>1</u> feet	<u>149</u> feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

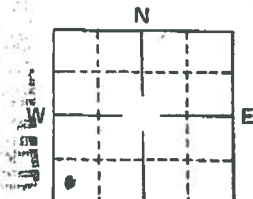
Was casing drive shoe used? ☒ Yes ☐ No
 Was a packer or seal used? ☐ Yes ☒ No
 Perforated? ☒ Yes ☐ No
 How perforated? ☐ Factory ☐ Knife ☒ Torch
 Size of perforation 1/4 inches by 8 inches

Number	From	To
<u>190</u> perforations	<u>50</u> feet	<u>144</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 22 Material used in seal: ☒ Cement grout
☒ Pudding clay ☒ Well cuttings
 Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing
☒ Overbore to seal depth
 Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent
 Weld _____
☐ Cemented between strata
 Describe access port Pipe welded into side
of casing

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____

Lot No. _____ Block No. _____

7. WATER LEVEL

Static water level 121 feet below land surface.
 Flowing? ☐ Yes ☒ No G.P.M. flow _____
 Artesian closed-in pressure _____ p.s.i.
 Controlled by: ☐ Valve ☐ Cap ☐ Plug
 Temperature 56 °F. Quality Good

8. WELL TEST DATA

☐ Pump ☐ Bailor ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
10	0	1	Topsoil & gravel		X
	1	6	Hardpan & gravel		X
	6	20	Brown clay		X
	20	23	Gravel	X	
	23	38	Brown clay		X
	38	42	Gravel	X	
	42	50	Clay		X
	50	98	Hard baked clay & gravel		X
	98	112	Fine gravel & sand	X	
	112	138	Hard baked clay & gravel		X
	138	144	Gravel & sandy clay	X	
	144	150	Hard baked clay & gravel		X

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FEB 27 1981

RECEIVED

Department of Water Resources FEB 20 1981

Department of Water Resources
 Eastern District Office

10.

Work started 12-6-80 finished 2-12-81

11. DRILLERS CERTIFICATION

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

Firm Name Reel Well Drilling Firm No. 350

Address Stone, Id. 83280 Date 2-12-81

Signed by (Firm Official) PD R. O

1. WELL OWNER

Name Rod Moon
Address W-malad
Owner's Permit No. 15-946-34-000

2. NATURE OF WORK

- ☒ New well ☐ Deepened ☐ Replacement
- ☐ Well diameter increase
- ☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

- ☐ Domestic ☒ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

- ☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness		Diameter		From		To
<u>250</u>	inches	<u>8</u>	inches	+	<u>0</u>	feet
<u> </u>	inches	<u> </u>	inches		<u> </u>	feet
<u> </u>	inches	<u> </u>	inches		<u> </u>	feet
<u> </u>	inches	<u> </u>	inches		<u> </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 ☐ Gun
 Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ 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 18 Material used in seal: ☐ Cement grout
☒ Bentonite ☒ Puddling clay ☐ _____

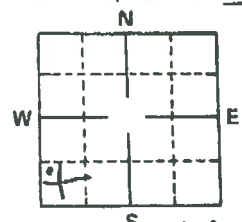
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing
☒ Overbore to seal depth

Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld

☐ Cemented between strata

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____

Lot No. _____ Block No. _____

7. WATER LEVEL

Static water level 410 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below

8. WELL TEST DATA

- ☐ Pump ☐ Bailer ☒ Air ☐ Other

Discharge G.P.M.	Pumping Level	Hours Pumped
35	55	1 1/2

9. LITHOLOGIC LOG

80222

Bore Diam.	Depth		Material	Water	
	From	To		Yes	No
12	0	3	TOP SOIL		
	3	16	white clay		
8	16	35	Tan clay		
	35	67	Blue clay		
	67	80	white clay		
	83	87	gravel		
	87	90	clay		

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MAR 14 1996

**Department of Water Resources
Eastern Region**

~~RECEIVED~~

~~MAR 20 1996~~

Department of Water Resources

10.

Work started June 4, 94 finished Dec 20, 94

11. DRILLERS CERTIFICATION

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

Firm Name Gardner Drilling Firm No. 454

Address 151 Smain st Date Dec 31-94

Signed by (Firm Official) Colin Gahr

1. WELL OWNER

Name Eldon Nelson
 Address Holbrook New Mexico
 Owner's Permit No. 915-7005

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☐ Domestic ☒ Irrigation ☐ Test
☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☐ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 14 inches Total depth 290 feet
 Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
<u>1/4</u> inches	<u>14</u> inches	<u>+1</u> feet	<u>290</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 3/8 inches by 4 inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

all below 39' perforated

Well screen installed? ☐ Yes ☒ No

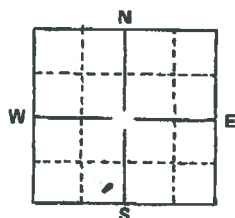
Manufacturer's name _____
 Type _____ Model No. _____
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet
 Diameter _____ Slot size _____ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____
 Placed from _____ feet to _____ feet

Surface seal? ☒ Yes ☐ No To what depth 20' feet
 Material used in seal ☐ Cement grout ☒ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



7. WATER LEVEL

Static water level 5' feet below land surface
 Flowing? ☐ Yes ☒ No G.P.M. flow _____
 Temperature 56 ° F. Quality Good
 Artesian closed-in pressure _____ p.s.i.
 Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
<u>1500</u>	<u>12'</u>	<u>10</u>

9. LITHOLOGIC LOG

044916

Hole Diam.	Depth		Material	Water	
	From	To		Yes	No
	0	2	Soil		
	2	11	Clay		
	11	11-6	Gravelly clay		
	11-6	20	Clay		
	20	30	Gravelly clay		
	30	39	Clay		
	39	49	Gravel		
	49	52	Gravelly clay		
	52	58	Clay		
	58	75	gravel		
	75	82	Clay		
	82	92	Gravel		
	92	97	Clay		
	97	105	Gravel		
	105	111	Gravelly clay		
	111	123	Gravel		
	123	130	Gravelly clay		
	130	146	Clay		
	146	150	Gravelly clay		
	150	153	Clay		
	153	160	dirty Gravel		
	160	177	Gravelly clay		
	177	179	Gravel		
	179	185	Gravelly clay		
	185	221	Clay yellow		
	221	223	Gravel		
	223	227	Gravelly clay		
	227	234	Gravel		
	234	238	Gravelly clay		
	238	239	Gravel		
	239	253	Sticky clay yellow		
	253	256	Gravel		
	256	258	Clay yellow		
	258	260	Gravel		
	260	262	Clay yellow		

10.

Work started Oct 7, 1971 finished Dec 15, 1971

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

Gardner Well Drilling 16
 Driller's or Firm's Name Number

Name Eldon Nielsen
Address Hallbrook Ave St
Owner's Permit No. _____

☐ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

☐ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☐ Stock

☐ Cable ☐ Rotory ☐ Dug ☐ Other

Diameter of hole _____ inches Total depth _____ feet

Casing schedule: ☐ Steel ☐ Concrete

Thickness	Diameter	From	To
_____ inches	_____ inches	_____ feet	_____ 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

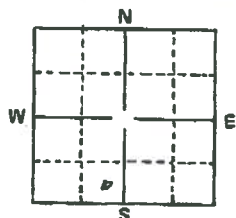
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ 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? ☐ Yes ☐ No To what depth _____ feet.
Material used in seal ☐ Cement grout ☐ Puddling clay

Sketch map location must agree with written location.



Static water level _____ feet below land surface
Flowing? ☐ Yes ☐ No G.P.M. flow _____
Temperature _____ ° F. Quality _____
Artesian closed-in pressure _____ p.s.i.
Controlled by ☐ Valve ☐ Cap ☐ Plug

Discharge G.P.M.	Draw Down	Hours Pumped

[illegible]

Work started 10-7-71 finished 12-15-71

This well was drilled under my supervision and this report is true to the best of my knowledge.

Gardner Well Drilling 16
Driller's or Firm's Name Number

Form 2187
6/02IDAHO 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 NO 36080
 DRILLING PERMIT NO. _____
 Water Right or Injection Well No. _____

2. OWNER: Kenneth E. Pitcher
 Name _____
 Address 475 S. Ranch Lane
 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. 14 North ☐ or South ☒
 Rge. 36 East ☒ or West ☐
 Sec. 29 1/4 SE 1/4 NE 1/4
 Gov't Lot _____
 Lat: : : Long: : :
 Address of Well Site Same City _____

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

Lt. _____ Blk. _____ Sub. Name Elk Creek

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>6 bags</u>	<u>overline</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>6"</u>	<u>0</u>	<u>140</u>	<u>28</u>	<u>steel</u>	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☐ N Type _____

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method torch

Screen Type & Method of Installation _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>125</u>	<u>140</u>	<u>1/4-615</u>	<u>1</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:

38 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.	Drawdown	Pumping Level	Time
<u>50</u>			

Water Temp. Cold Bottom hole temp. ColdWater Quality test or comments: goodDepth first Water Encounter 60

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water	
				Y	N
<u>10</u>	<u>0</u>	<u>15</u>	<u>Br. clay</u>		☒
<u>10</u>	<u>15</u>	<u>20</u>	<u>Br. clay gravel</u>		☒
<u>6</u>	<u>20</u>	<u>45</u>	<u>Br. clay gravel</u>		☒
<u>6</u>	<u>45</u>	<u>85</u>	<u>gravel Brown clay</u>	☒	
<u>6</u>	<u>85</u>	<u>95</u>	<u>Br. clay</u>		☒
<u>6</u>	<u>95</u>	<u>110</u>	<u>gravel</u>	☒	
<u>6</u>	<u>110</u>	<u>130</u>	<u>Br. clay</u>		☒
<u>6</u>	<u>130</u>	<u>140</u>	<u>gravel Sand</u>	☒	☒

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JUN 14 2005

Department of Water Resources
Eastern RegionCompleted Depth 140' (Measurable)Date: Started 6-10-05 Completed 6-11-05

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 Mid West Well Drilling Firm No. 5413Principal Driller Michael Zandson Date 6-12-05and Driller or Operator II Miles F. Lamber Date 6-11-05

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 238-7
6/07IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT1. WELL TAG NO. D 005527

Drilling Permit No. _____

Water right or injection well # _____

2. OWNER: Clint Bastian

Name _____

Address 290 W 600 NCity Malad State ID Zip 83252

3. WELL LOCATION:

Twp. 14 North ☐ or South ☒ Rge. 36 East ☒ or West ☐Sec. 30 1/4 SW 1/4 SW 1/4Gov't Lot _____ County Oneida

Lat. _____ (Deg. and Decimal minutes)

Long. _____ (Deg. and Decimal minutes)

Address of Well Site 247 N 200 W

(Give at least name of road + distance to road or landmark)

City Malad

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>Bentonite</u>	<u>0</u>	<u>38</u>	<u>21 bags</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>173</u>	<u>250</u>	<u>Steel</u>	☒	☐	☐	☒

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 173

9. PERFORATIONS/SCREENS:

Perforations ☒ Y ☐ N Method touchManufactured screen ☐ Y ☐ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
<u>157</u>	<u>173</u>	<u>1/4"</u>	<u>24</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) 120 Static water level (ft) 93'Water temp. (°F) cold Bottom hole temp. (°F) coldDescribe access port well cap

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
	<u>35</u>	

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐

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>5</u>	<u>Brown clay</u>		☒
<u>10</u>	<u>5</u>	<u>38</u>	<u>Grey clay</u>		☒
<u>6</u>	<u>38</u>	<u>50</u>	<u>over clay</u>		☒
<u>6</u>	<u>50</u>	<u>90</u>	<u>gravel Brn clay</u>		☒
<u>6</u>	<u>90</u>	<u>95</u>	<u>Brn clay</u>		☒
<u>6</u>	<u>95</u>	<u>120</u>	<u>Gravel Brn clay</u>	☒	☒
<u>6</u>	<u>120</u>	<u>130</u>	<u>Brn clay gravel</u>	☒	☒
<u>6</u>	<u>130</u>	<u>140</u>	<u>Gravel Brn clay</u>		☒
<u>6</u>	<u>140</u>	<u>145</u>	<u>Brn clay</u>		☒
<u>6</u>	<u>145</u>	<u>155</u>	<u>Brn clay gravel</u>		☒
<u>6</u>	<u>155</u>	<u>165</u>	<u>gravel</u>		☒
<u>6</u>	<u>165</u>	<u>168</u>	<u>Brn clay Gravel</u>	☒	☒
<u>6</u>	<u>168</u>	<u>173</u>	<u>gravel</u>	☒	☒

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SEP 08 2010

Department of Water Resources
Eastern RegionCompleted Depth (Measurable): 173Date Started: 8-30-10 Date Completed: 9-1-10

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 West Well Drilling Co. No. 5413*Principal Driller Michael Franden Date 9-6-10*Driller Miles Franden Date 9-6-10

*Operator II _____ Date _____

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.

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. : :
☒ Air ☐ Flowing Artesian

1. WELL TAG NO. D 0004745
 DRILLING PERMIT NO. 13-98-E-0025-
 Other IDWR No. _____

2. OWNER:
Name Jeff Gibbons
Address 5092 W. 2550 So
City Ogden State Ut. Zip 84401

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N
 W E S
 Twp. 14 North ☐ or South ☒
 Rge. 36 East ☒ or West ☐
 Sec. 20 1/4 SW 1/4 SW 1/4
10 acres 40 acres 160 acres
 Gov't Lot _____ County Oneida
 Lat. : : Long. : :
 Address of Well Site Mahad
1800 W. Santa Lane City _____
 (Give at least name of road, a 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		
Barite	0	20	5	Over Bone	

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 112
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	0	112	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations	Method
--------------	--------

Screens Screen Type -

From	To	Slot Size	Number	Diameter	Material	Casing	Lines
		none					

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:

☐ Pump ☐ Bailer

Yield gal./min.	Drawdown	Pumping Level	Time
30			

Water Temp. Cold Bottom hole temp. Cold

Water Quality test or comments: and

Depth first Water Encounter *9d*

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

[illegible]

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 Well Drilling Firm No. 543

Firm Official M. L. Franks Date 7-22-98

and _____ Date 7 Oct 80

Driller or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

054639

2. OWNER:
Name Kevin Stevens
Address P.O. Box 70
City Malden State MA Zip 02148

Sketch map location must agree with written location.

N
 W E S
 Twp. 14 North ☐ or South ☒
 Rge. 36 East ☒ or West ☐
 Sec. 20 1/4 SW 1/4 SW 1/4
10 acres 40 acres 160 acres
 Gov't Lot _____ County Oneida
 Lat. _____ Long. _____
 Address of Well Site 245 N 2100 W
 City Malden

Lt. Bk. Sub. Name_____

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

☒ New Well ☐ Modify ☐ Abandonment ☐ Other

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

SEAL/FILTER		PACK		AMOUNT	METHOD
Material	From	To	Sacks or Pounds		
Bantonito	0	20	4	Over Bore	

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 120'
Was drive shoe seal tested? ☐ Y ☐ N How?

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	0	120	25	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

Perforations	Method
Screens	Screen Type

From	To	Slot Size	Number	Diameter	Material	Casing	Line
6	None					☐	☐
						☐	☐
						☐	☐

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

☐ Pump ☐ Bailer

Yield gal./min.	Drawdown	Pumping Level	Time
30			

Water Temp. cold Bottom hole temp. cold

Water Quality test or comments:

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

[illegible]

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

Company Name Mt. Westfield Dr. Inc. Firm No. 543

Firm Official Michael Franck Date 7-1-99

and
Driller or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES