

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
APPLICATION FOR PERMIT
To appropriate the public waters of the State of Idaho

Ident. No. 15-1346
RECEIVED
AUG 08 2011
Department of Water Resources
Eastern Region

1. Name of applicant(s) Paul Gunnell Phone 435-881-2778
Name connector (check one): ☐ and ☐ or ☐ and/or
Mailing address: 12295 S 300 E City Woodruff
State ID Zip 83252 Email: _____
2. Source of water supply Ground Water which is a tributary of _____
3. Location of point(s) of diversion:

Twp	Rge	Sec	Govt Lot	¼	¼	¼	County	Source	Local name or tag #
16S	36E	27		SW	NE	SE	Oneida	Ground Water	

4. Water will be used for the following purposes:
- Amount 5.0 cfs for Irrigation purposes from 4/15 to 10/15 (both dates inclusive)
(cfs or acre-feet per year)
- Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per year)
- Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per year)
- Amount _____ for _____ purposes from _____ to _____ (both dates inclusive)
(cfs or acre-feet per year)
5. Total quantity to be appropriated is (a) 5.0 cubic feet per second (cfs) and/or (b) 992 acre-feet per year (af).
6. Proposed diverting works:
- a. Describe type and size of devices used to divert water from the source. Deep well pump diverted into a main line and then transferred to wheel lines.
- b. Height of storage dam _____ feet; active reservoir capacity _____ acre-feet; total reservoir capacity _____ acre-feet. If the reservoir will be filled more than once each year, describe the refill plan in item 11.
For dams 10 feet or more in height OR reservoirs with a total storage capacity of 50 acre-feet or more, submit a separate Application for Construction or Enlargement of a New or Existing Dam. Application required? ☐ Yes ☐ No
- c. Proposed well diameter is 16 inches; proposed depth of well is 500 feet.
- d. Is ground water with a temperature of greater than 85°F being sought? ☐ Yes ☒ No
- e. If well is already drilled, when? no; drilling firm _____;
Well was drilled for (well owner) _____; Drilling Permit No. _____
7. Description of proposed uses (if irrigation only, go to item 8):
- a. Hydropower; show total feet of head and proposed capacity in kW. _____
- b. Stockwatering; list number and kind of livestock. _____
- c. Municipal; show name of municipality or the applicant's qualifications as a municipal provider. _____
- d. Domestic; show number of households _____
- e. Other; describe fully. _____

8. Description of place of use:

- a. If water is for irrigation, indicate acreage in each subdivision in the tabulation below.
- b. If water is used for other purposes, place a symbol of the use (example: D for Domestic) in the corresponding place of use below. See instructions for standard symbols.

TWP	RGE	SEC	NE				NW				SW				SE				TOTALS
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
16S	36E	26					31	40	36	29	38	31	40	19					264
16S	36E	27									5				35	32		23	95

Total number of acres to be irrigated: 359

9. Describe any other water rights used for the same purposes as described above. Include water delivered by a municipality, canal company, or irrigation district. If this application is for domestic purposes, do you intend to use this water, water from another source, or both, to irrigate your lawn, garden, and/or landscaping? Not for domestic purposes.

10. a. Who owns the property at the point of diversion? Paul Gunnell
- b. Who owns the land to be irrigated or place of use? Paul Gunnell
- c. If the property is owned by a person other than the applicant, describe the arrangement enabling the applicant to make this filing: _____

11. Describe your proposal in narrative form, and provide additional explanation for any of the items above. Attach additional pages if necessary. The irrigation system will include a deep well with a pump used to bring water to land surface and pressurize the system. The water will flow to a main line and from there to a network of wheel lines used for crop irrigation.

12. Time required for completion of works and application of water to proposed beneficial use is 5 years (minimum 1 year).
13. **MAP OF PROPOSED PROJECT REQUIRED** - Attach an 8½" x 11" map clearly identifying the proposed point of diversion, place of use, section #, township & range. A photocopy of a USGS 7.5 minute topographic quadrangle map is preferred.

The information contained in this application is true to the best of my knowledge. I understand that any willful misrepresentations made in this application may result in rejection of the application or cancellation of an approval.


Signature of Applicant

L Paul Gunnell
Print Name (and title, if applicable)

Signature of Applicant

Print Name (and title, if applicable)

For Department Use:

Received by Km Date 6/10/2011 Time _____ Preliminary check by Km
Fee \$ 610.00 Received by Km Receipt No. E036876 Date 8-10-2011

ACKNOWLEDGMENT

State of Utah
County of Cache

On this 4th day of August, 2011, L Paul Gunnell personally appeared before me,
✓ who is personally known to me,
_____ whose identity I verified on the basis of _____,
_____ whose identity I verified on the oath/affirmation of _____,
a credible witness,
to be the signer of the foregoing document, and he/she acknowledged that he/she signed it.



Bonnie Hendricks

Notary Public

My Commission Expires: 09-23-2014

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15 - 7346

Attachment to Paul Gunnell Water Right Application

Maps and Air Photographs



Entire Paul Gunnel Parcel outlined in pink showing various topographic features and acreage for various pieces of property as determined by Department of Agriculture GIS System. Note that the proposed well location is indicated by a green dot.



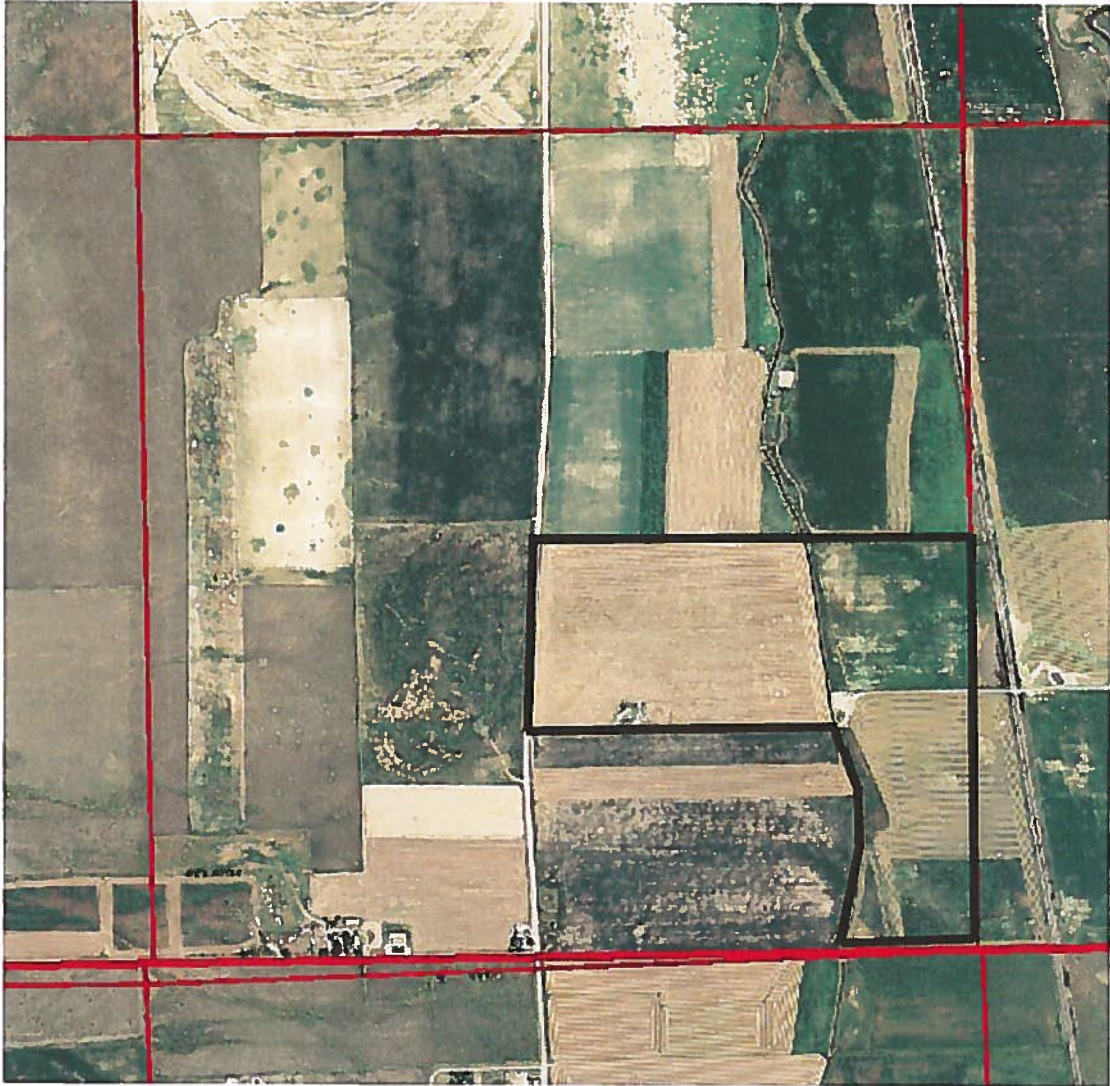
ONEIDA COUNTY February 08, 2011

15 - 7346

Section 26, T16S, R36E, Paul Gunnel property boundary outline in white



Section 26, T16S, R36E, Paul Gunnel Property in this section is outlined in black. Basemap is from IDWR website.



Section 27, T16S, R36E, Paul Gunnel Property in this section is outlined in black.
Basemap is from IDWR website.



July 24, 2011

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

RECEIVED

AUG 08 2011
Department of Water Resources
Eastern Region

RE: AQUIFER TEST FOR GUNNELL WATER RIGHTS APPLICATION

Dear Mr. Cefalo:

A groundwater impact assessment is provided in his letter report for the Water Right Application by Mr. Paul Gunnell. He has 359 acres of farm land southwest of Woodruff, Idaho (Figure 1), which he would like to irrigate. For this impact analysis we conducted a pumping test on April 23, 2011 and the parameters from the aquifer test are used in a computer simulation to predict the potential impacts to existing wells. The pumping test measured representative aquifer parameters within ½ mile of the Gunnell Property. The results of the computer analysis allowed us to adjust Mr. Gunnell diversion rate so that drawdown impacts from the Gunnell Application will negligible impact on neighboring wells.

Nearby Wells

An evaluation was made for all existing wells and springs and permitted wells within ½ mile radius and farther of the proposed well. Figure 2 shows a circle of ½ mile radius centered on the proposed Gunnell well location. The circle encompasses portions of sections 26 and 27, T16S, R36E. A search of the IDWR on-line data base indicates that there is one permitted point of diversion in section 27 (Jeff Louder) and three in section 26 (all Neil Schoenenberger). The results of the water right search are provided in Tables 1 and 2. All permits are for groundwater use. Of the 3 Schoenenberger water rights, one 515 ft deep well is within a radius of ½ mile. It is labeled probable Well E in Figure 2 due to some uncertainty in its actual location based on the drillers log. There appears to be other wells to the south and west of the Gunnell location but there is no record of water rights or drillers' logs on file in the IDWR data base. The locations of the other two wells within a ½ mile radius are very near the Idaho – Utah border and are labeled Probable Well S and Probable Well SW in Figure 2. There are also no drillers logs on file for the southern wells.

The well logs for the Louder, the Gunnell domestic and the Schoenenberger wells are presented in Attachment 1. 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 175 ft in this area. This is based on the fact that the driller perforated 161 feet of casing in the Schoenenberger well, the depth of the Louder well and 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 unconfined.

Pumping Test

The test well is owned by Mr. Jeff Louder and it is located about ½ mile north of the location where Mr. Gunnell proposes to drill an irrigation well (see Figure 1). The Louder Well was equipped with an INSITU brand downhole pressure transducers for collecting automated water levels during the pumping test. The pumping test began at 3 PM on April 23, 2011 and the well was pumped at a steady rate of 1000 gpm for 24 hours. Plots of the data for all wells can be found in Attachment 2.

There was a problem with the pumping test data that needs to be explained. Due to access to measure water levels in the well the data line (thick coaxial type wire) could not be used. A thinner wire was used to lower the probe to depth, but this did not allow reading the water level data from land surface and the probe had to be pulled from the well to be connected to a laptop computer. Prior to starting the test the probe was lowered into the well and the probe did not reach the full length of the line, probably resting on a pipe coupling (this was unknown at the time). After running the test for about an hour the probe was removed and the data downloaded. The probe was reinstalled and this time it dropped past the sticking point (pipe coupling?) and went to the end of the line. The test was completed and the probe removed. This is depicted in Figure 2-1. The problem with the sticking probe invalids the drawdown portion of the test and for analysis purposes the recovery data will be interpreted which is shown in Figure 2-2. This will have no effect on the calculations as the recovery data are simply the inverse of the pumping test data and a simple mathematical conversion is applied to convert the data into a drawdown data set.

A comparison between the early drawdown information for the Louder well and the recent testing suggests that loose mobile sand and formation materials are causing a reduction in the well yield. During this test the Louder well experienced 104 ft of drawdown, which is a specific capacity of 9.6 gpm/ft. The 1979 invoice for the pumping test work conducted on the Louder well shortly after it was drilled is plotted in Figure 1-5. At that time the specific capacity was 12 gpm/ft. The reduction in specific capacity between 1979 and 2011 is probably related to plugging of perforations or sloughing of sediment into the well. During the pumping test it was noted that the water contained visible sand and clay. Mr. Louder mentioned that the previous owner had to have the well cleaned out to return the well to its original capacity. This suggests that well efficiency problems will make it difficult to properly interpret the early time data and more emphasis should be placed on the late time data.

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 data to the recovery curve of the Louder well for the Theis confined solution. The calculated transmissivity is 6.7×10^4 ft²/day and the storativity is unreliable because there is no observation well. The Theis solution does not match the very early data (<2 minutes), probably because of the affects of well bore storage, partial aquifer penetration and well skin effects. However, there appears to be an excellent match to data after two minutes. Based on the good match to the Theis confined solution the aquifer appears to be confined in this area. The aquifer



storativity cannot be determined accurately with only a single well pumping test. However, a pumping test on a well ~1.5 miles to the northeast found the aquifer storativity to be 0.0012. Because the geology is similar between the two sites, a storativity value of 0.0012 was used in the impact assessment presented below.

Impact Assessment

Mr. Gunnell wishes to irrigate 359 acres with the proposed application using wheel lines. At a rate of 0.02 cfs per acre his application could be as much as 7.18 cfs. To estimate the long-term drawdown and impact to neighboring wells from pumping of the proposed Gunnell 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 the relatively narrow and long Malad Valley. As depicted in Figure 4-1 and listed in Table 4-2 the model is 15,000 ft wide and 47,520 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 and west boundaries were set as impermeable or “no flow” boundaries. Water is allowed to enter the model domain through the north and south boundaries.

Figure 4-2 shows the results of the forward calculation for the case where the proposed well is pumping at 7.18 cfs (3,224 gpm) constantly for 6 months (April 15 to Oct 15). At the end of the time period the predicted drawdown is estimated to be about 35 feet at the Louder Well. Clearly, this amount of drawdown would be excessive, especially given the somewhat diminished yield of the Louder well.

In conversations with Mr. Gunnell he feels that he only needs water for about 100 days out of the 6 month season. The pumping would not be continuous due to crop harvesting, etc. So, figuring full time pumping at 7.18 cfs for 100 days yields 1424 acre-ft per year (even though the pumping will be stop and start over a period of 6 months). Figure 4-3 shows the results of this calculation. At this reduced duration the drawdown in the Louder well is still 26 ft, which is a bit excessive considering it would be result in a 25% increase in the lifting head for the Louder Well.

A third scenario is considered where the maximum flow rate of the well is 5 cfs and it is pumped continuously for a period of 100 days for a total volume of 992 acre-ft. The results are presented in Figure 4-4. It indicates that the impact to the Louder Well will be 18 ft, or about a 17% increase in pumping lift. However, this method over estimates the actual impact from Gunnell's proposed well because he will pump at that rate intermittently during the 6 month season. The actual dates of pumping will vary from year to year depending on the weather, crops planted, harvesting and other factors, therefore the actual duration of the pumping cannot be modeled. A time integrated – volume averaged approach is taken to refine the impact assessment. Mathematically, over the long-term and long-distances (~ ½ to nearest neighbor), this is representative of the drawdown to nearby water users. Specifically, continuous pumping at a reduced rate to produce the same volume of water is modeled. This amounts to 55% of 5 cfs or 2.77 cfs continuous pumping for 180 days. His total water right use is limited to 992 acre – ft per year, which is equivalent to pumping continuously for 180 days at 2.78 cfs.



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Ground Water Development and Exploration

Figure 4-5 presents the results and the AQTESOLV[®] output plots. The calculated drawdown for the wells within a ½ mile radius is 10 ft. This is my best estimate of the actual impact to the aquifer and wells in the area. I suspect the actual impact may be less, especially if Mr. Gunnell drills a deep well as he is proposing.

It is my professional opinion that Mr. Gunnell'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. Gunnell will probably never pump continuously at the volume averaged rate for 180 days nor will he consume 991 acre – ft in a single year; 2) near the Gunnell property the width of the Malad Valley is a bit wider than 15000 ft and the Paleozoic, 3) Paleozoic/Mesozoic rocks of the mountains are not totally impermeable and will provide some water to the system, and 4) two canals and the Malad River are within the domain of the model and no credit for recharge/leakage is taken in the model. 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".

Thomas R. Wood, PhD, PG



cc

Mr. Paul Gunnell, 12295 South 300E, Woodruff, Idaho 83252

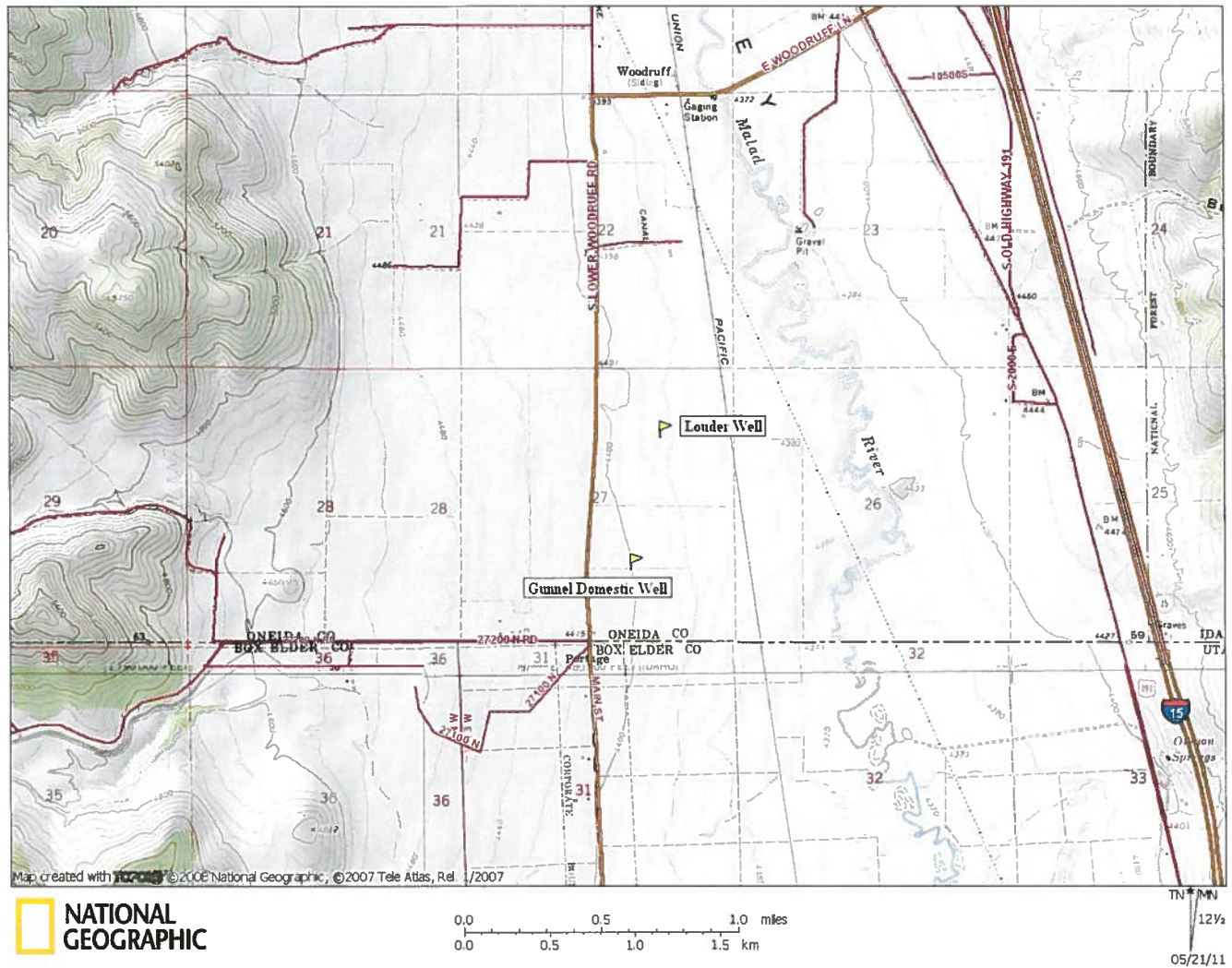


Figure 1. Map (upper) showing locations of the Gunnell domestic well and the Louder well

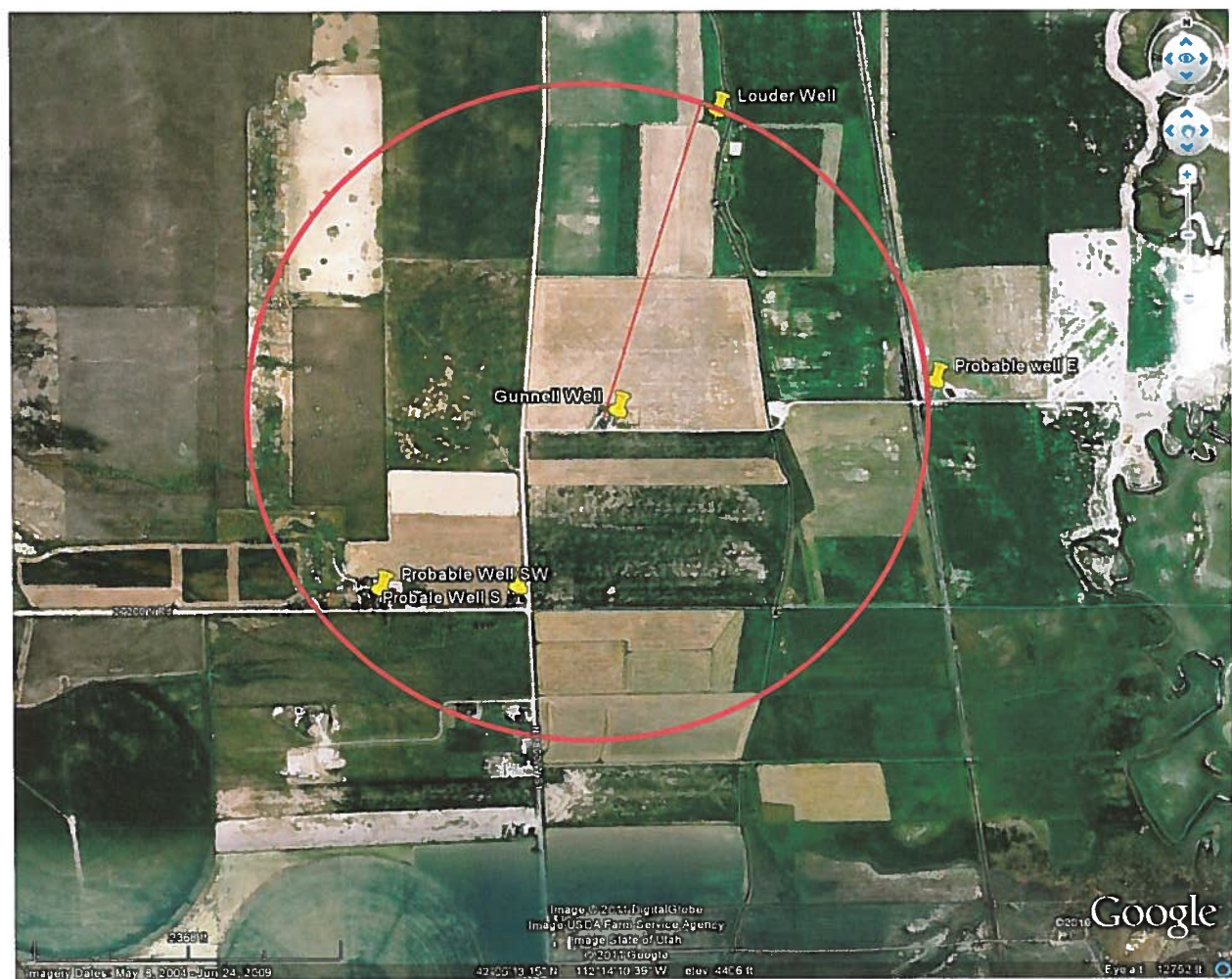


Figure 2 Google Earth image of area with a red circle of $\frac{1}{2}$ mile diameter. Records of neighboring wells are limited so probable locations of wells are plotted to be used in simulations.



Table 1-1 IDWR Search results for point of diversions in T16S, R36E, Section 27

Record	Basin	Sequence	Suffix	Version	Basins	Status	Priority Date	Diversions Rate	Source List	Water Uses	Owner List
1	15	7037				Active	1977-03-28	3.2	GROUND WATER	IRRIGATION	LOUDER, CATHY (Current); LOUDER, JEFFREY R (Current); NORTHWEST FARM CREDIT SERVICES FLCA (Current)

Table 1-2 IDWR Search results for point of diversions in T16S, R36E, Section 26

Record	Basin	Sequence	Suffix	Version	Basins	Status	Priority Date	Diversions Rate	Source List	Water Uses	Owner List
1	15	7128				Active	1991-04-08	5.28	GROUND WATER	IRRIGATION	SCHOENENBERGER, NEIL (Current)
2	15	7132				Active	1991-09-12	6.26	GROUND WATER	IRRIGATION	SCHOENENBERGER, NEIL (Current)
3	15	7133				Active	1991-09-30	1.2	GROUND WATER	IRRIGATION	SCHOENENBERGER, NEIL (Current)



Attachment 1

WELL LOGS



Well Log For Norman Howell

5-17-79

1 Mile North of Utah Border
Connelly Farm.

0-2 Topsoil
2-18 Yellow clay
18-20 Blue sandy clay
20-30 Blue clay
30-33 ^{1st H₂O} Gravel + Blue clay
33-57 Gravel
57-118 Clay
118-128 Pea Gravel
128-150 ^{Brown} ~~white~~ clay
150-158 white clay
158-160 Sandstone
160-162 Gravel
162-185 Brown clay
185-188 white clay & gravel
188-198 Pea Gravel
198-204 Red Sandy clay
204-212 white clay & gravel
212-214 Hard baked clay
214-229 Red clay with strips
of sand & pea gravel
229-237 Pea gravel & boulders
237 Gravel

Figure 1-1 Well driller notes on formations penetrated by Louder Well.



Figure 1-2 Invoice for pumping test run on Louder well shortly after it was drilled.



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Ground Water Development and Exploration

(Form 238-7
12/97)

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

59417

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

1. WELL TAG NO. D 0011319
DRILLING PERMIT NO. 15-99-E-0030-000
Other IDWR No. _____

2. OWNER:
Name Paul Gunnell
Address 690 E 2nd St.
City Blaineville State UT Zip 84339

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N		Twp. <u>16</u>		North ☐ or South ☒	
E		Rge. <u>36</u>		East ☒ or West ☐	
S		Sec. <u>27</u>		1/4 <u>NE</u> 1/4 <u>SE</u> 1/4	
W		Gov't Lot _____		County <u>Oneida</u>	
		Lat: _____		Long: _____	
		Address of Well Site _____		City <u>Woodruff</u>	

(Give 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 Sacks or Pounds	METHOD
Material	From	To		
<u>Portacote</u>	<u>0</u>	<u>20</u>	<u>5</u>	<u>Over Bone</u>

Was drive shoe used? ☒ N Shoe Depth(s) 80'
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Linear	Welded	Threaded
<u>6"</u>	<u>0</u>	<u>80</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	Linear
<u>None</u>							
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

35' 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>70</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	Y	N
<u>8 1/2"</u>	<u>0'</u>	<u>20'</u>	<u>Brown clay</u>		☒
<u>6"</u>	<u>20'</u>	<u>30'</u>	<u>Brown clay</u>		☒
<u>6"</u>	<u>30'</u>	<u>38'</u>	<u>Blue clay</u>		☒
<u>6"</u>	<u>38'</u>	<u>40'</u>	<u>Brown clay</u>		☒
<u>6"</u>	<u>40'</u>	<u>50'</u>	<u>Brown clay</u>		☒
<u>6"</u>	<u>50'</u>	<u>55'</u>	<u>Gravel</u>	☒	
<u>6"</u>	<u>55'</u>	<u>70'</u>	<u>Brown clay</u>		☒
<u>6"</u>	<u>70'</u>	<u>80'</u>	<u>Gravel</u>	☒	

RECEIVED

OCT 22 1999

Department of Water Resources
Eastern Region

RECEIVED

NOV 1 - 1999

Department of Water Resources

MICROFILMED

SEP 1 1999

Completed Depth 80' (Measurable)
Date: Started 9-16-99 Completed 9-16-99

13. DRILLER'S CERTIFICATION

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 Michael Frandson Date 9-19-99

and
Driller or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-3 Driller's log for Gunnell domestic well.



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Ground Water Development and Exploration

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Page 1 of 3

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

1. WELL TAG NO. D 0021254

DRILLING PERMIT NO. 76.9674

Other IDWR No. Water Right # 15-27132

2. OWNER:

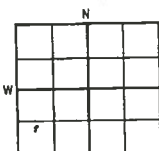
Name Neil Schoonenburger

Address 19005 3000 E

City MALAD State ID Zip 83252

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.



Twp. 16 North ☐ or South ☒
Rge. 36 East ☒ or West ☐
Sec. 26 1/4 SW 1/4 SW 1/4
Gov't Lot _____ County Owyhee
Lat _____ Long _____

Address of Well Site 1 mile North of Malad

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/FILTER PACK	AMOUNT	METHOD
Material	From To Sacks or Pounds	
Cement	-1 25 240	Poured from driller's to sack

Was drive shoe used? ☒ N Shoe Depth(s) 515
Was drive shoe seal tested? ☐ Y ☒ N How? Bailers

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
16"	+1	515	250	Steel	☒	☐	☒	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations Method Mills Knife
Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
See attached log							

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

51 ft. below ground Artesian pressure _____ lb.

Depth flow encountered _____ ft. Describe access port or control devices: Through side as per

11. WELL TESTS:

☐ Pump ☐ Bailor ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Pumping Level	Time

Water Temp. 60.1d Bottom hole temp. _____

Water Quality test or comments: Fair

Depth first Water Encounter 110

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
20	1	25	Topsoil, Sandy Clay		
16	25	80	Sandy Clay		
	80	95	Brown Clay		
	95	110	Brown Sandy Clay		
	110	130	Gravel	X	
	130	127	Brown Sandy Clay		
	127	130	Gravel Sand		X
	130	140	Sandy Brown Clay		
	140	155	Thin gravel Sand	X	
	155	165	Thin Brown Clay, much gravel		
	165	172	Thin gravel	X	
	172	190	Brown Sandy Clay		
	190	200	Thin Brown Clay		
	200	230	Thin Brown Sand with		X
			limestone & gravel		
	230	280	Gravel with limestone & clay	X	
	280	295	Brown Clay		
	295	303	Gravel & Thin Clay	X	
	303	310	Thin Brown Clay		
	310	340	Gravel	X	
	340	345	Thin Clay		
	345	360	Gravel & limestone	X	
			& clay		
	360	367	Gravel sandy clay		
	367	400	Gravel with limestone & clay	X	
	400	415	Gravel & clay		
	415	440	Gravel & limestone & clay	X	
	440	515	Thin Brown Clay		

See attached log for details
Date: Started 7-2-01 Completed 8-8-01

13. DRILLER'S CERTIFICATION

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

Company Name Upcech Drilling Firm No. 210

Firm Official _____ Date RECEIVED

Driller or Operator _____ Date SEP 26 2001

(Sign once if Firm Official & Operator)

Department of Water Resources
Eastern Region

FORWARD WHITE COPY TO WATER RESOURCES

Figure 1-4 Driller's log for Neil Schoonenberger well



Page 2 of 3

Well Log

Weech Drilling Inc.

Guy Weech
720 Berkeley
Burley, Idaho
83318
208-678-4577

Date: 8/8/01

Purchaser: Neil Schoenenberger

11900S 2000E

Malad, Id. 83252 208-766-5420

Permit #: Tag # 21254

Water Right # 15-7132

Legal Location: Twn;16S.,Rge; 36E., Sec.; 26, SW,SW Oneida

Address of well site: One mile north of Utah border south of Malad 1/4 mile west of frontage road along freeway.

Work time: 7/2/01 8/11/01

Static Water Level 51 ft

Pipe: 515 ft of 16X.250 steel casing 16 " Atlas drive shoe

Perforations: 110-120	3 rows of 8 perfs 1/2"X3"
127-130	2
142-155	5
162-172	5
236-240	2
242-248	3
250-258	3
260-262	1
270-275	2
279-284	2
298-303	2
310-340	16
345-348	2
354-360	3
389-400	5
415-421	3

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Figure 1-4 (con't) Driller's log for Neil Schoenenberger well



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424-428	3 rows of 8 perfs 1/4"X3"
433-438	3
440-446	3
448-451	2
465-468	2
475-490	5

Log:

0-60	Sandy Clay
60-80	Gravel and Clay
80-95	Brown Clay Some Gravel
95-98	Gravel
98-110	Brown Sandy Clay
110-120	Gravel H2O
120-127	Brown Sandy Clay
127-130	Gravel & Sand
130-142	Sandy Brown Clay
142-155	Pea Gravel and Sand H2O
155-165	Tan Brown Clay and Mixed Gravel
165-172	Pea Gravel & Sand H2O
172-190	Brown Sandy Clay
190-200	Tan Brown Clay
200-230	Tan Brown Sandy Clay with Lenses of fine gravel& sand some green rock which is shale like
230-284	Gravel with Brown Sandy Clay windows 236-40,242-48,250-58,260-2,270-5,279-84
284-298	Brown Clay
298-303	Gravel & tan clay H2O
303-310	Tan Brown Clay
310-340	Gravel with thin layers of clay H@)
340-345	Firm Tan Brown Gravelly Clay
345-348	Gravel H2O
348-354	Stick Tan Brown Clay
354-360	Gravel H2O
360-387	Grey Sandy Clay some rock and sand
387-400	Gravel and some Large Cobbles some thin windows of tan clay open 384-7
400-415	Grey Sticky sandy Clay
415-490	Gravel with thin windows of clay 415-21,433-38,440-46,448-51,465-468,475-490
490-515	Bottom 515 Tan brown clay

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Eastern Region

Figure 1-4 (con't) Driller's log for Neil Schonenberger well



Drawdown versus Pumping Rate for Norman Howell Water Well, May 17, 1979

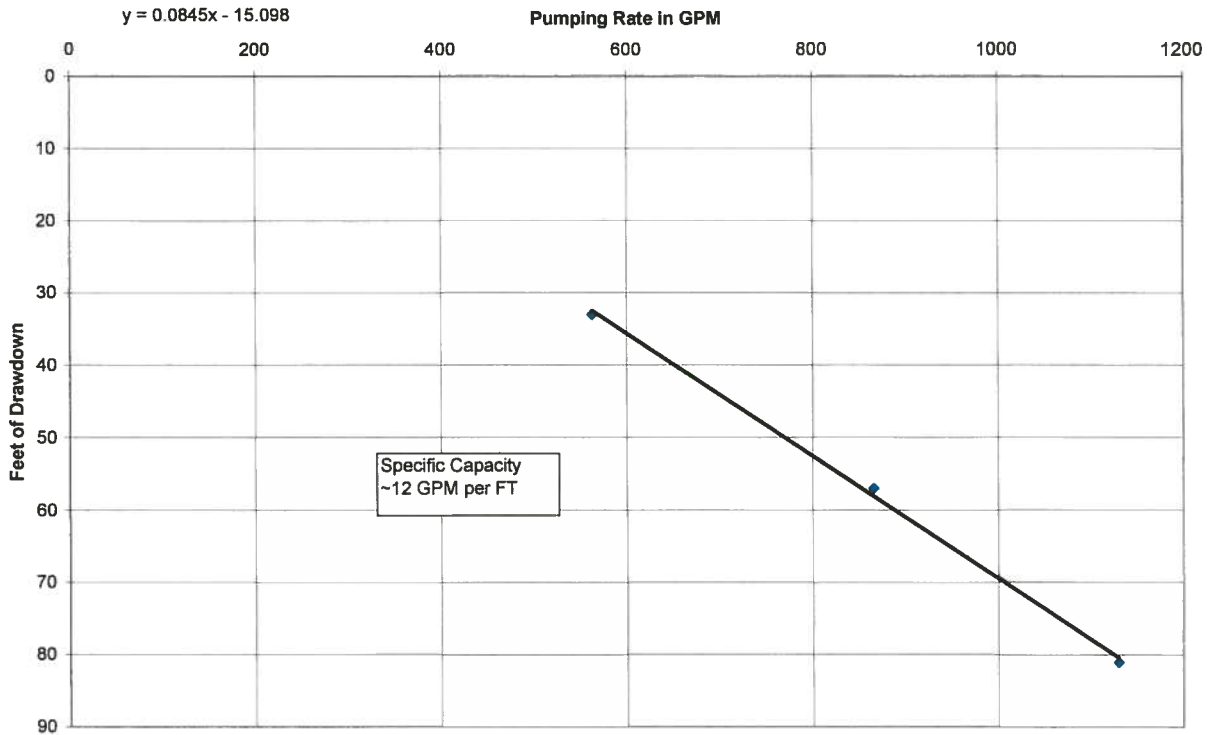


Figure 1-5 Plot of drawdown versus pumping for data listed on invoice for pumping test work performed shortly (1979) after the well was drilled. By comparison the specific capacity of the recent testing is 9.6 gpm per ft. The decline is probably caused by plugging of the well perforations and filling of the well by debris.



Attachment 2

DATA PLOTS

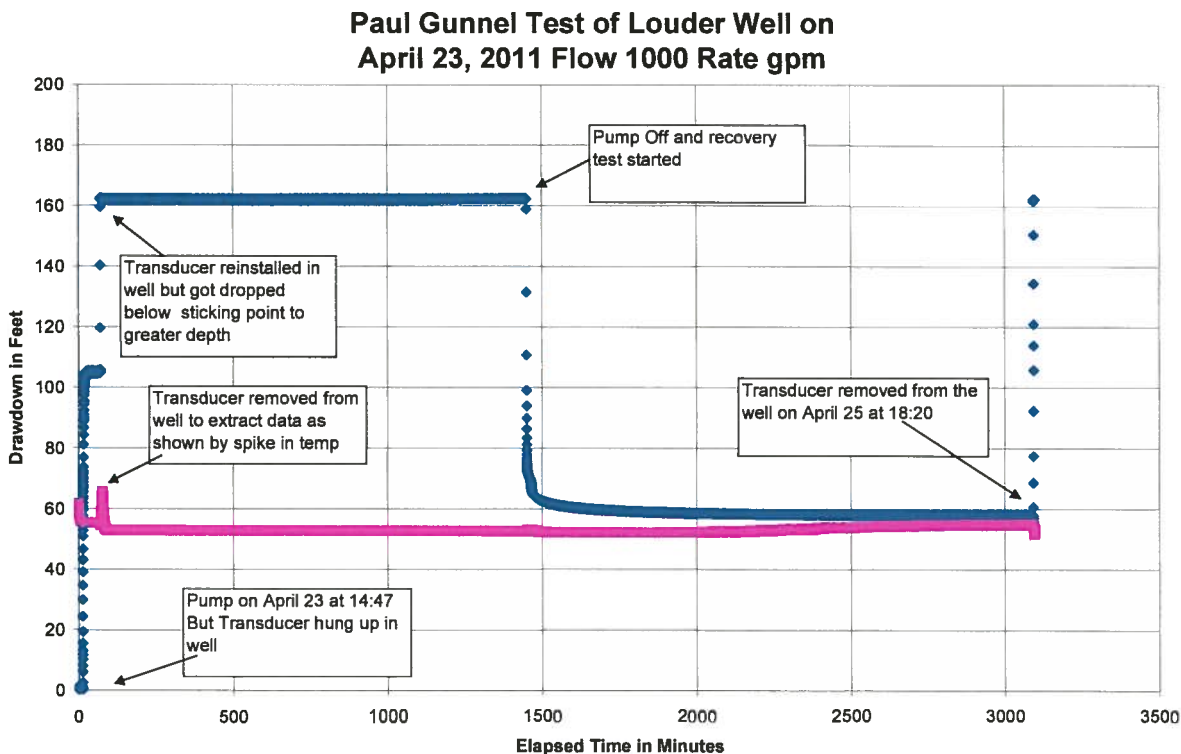


Figure 2-1. Plot of entire data set showing problem with stuck transducer that dropped past sticking point upon re-insertion in well.

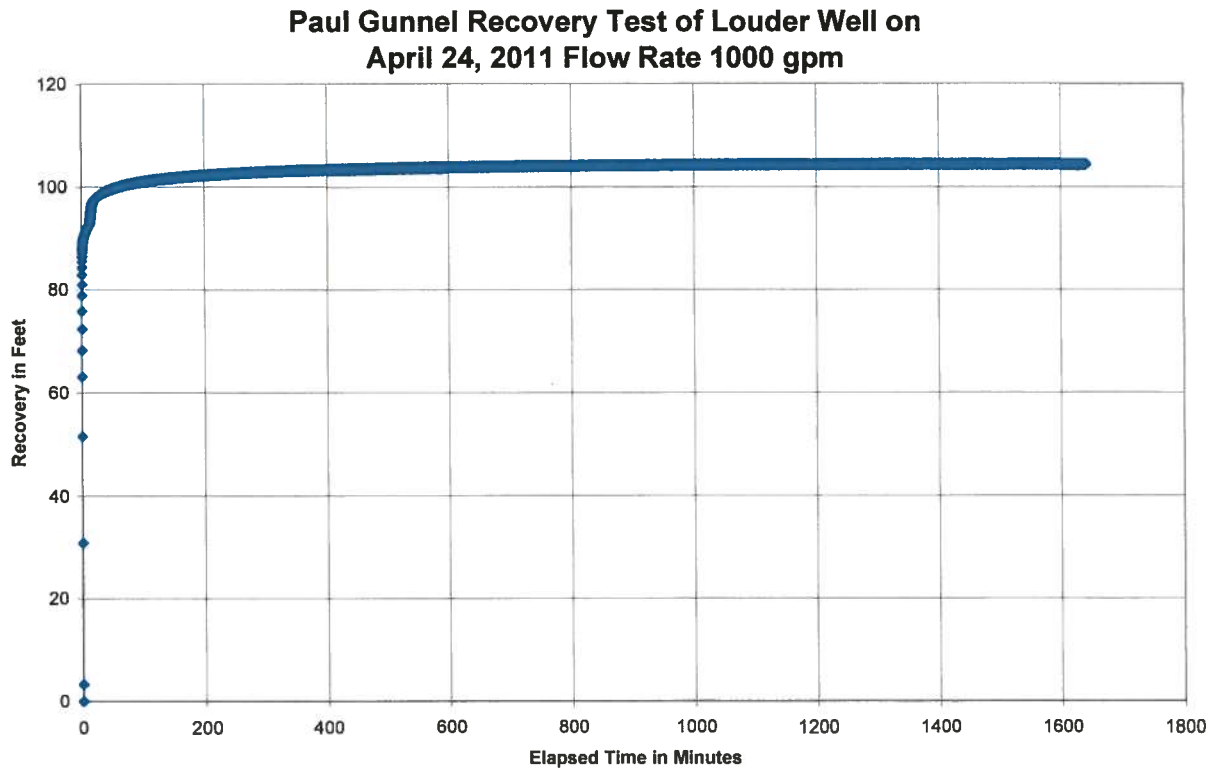


Figure 2-2 Recovery data for Louder Test. This is the data set used for the aquifer test analysis.



Attachment 3

AQTESOLV PLOTS

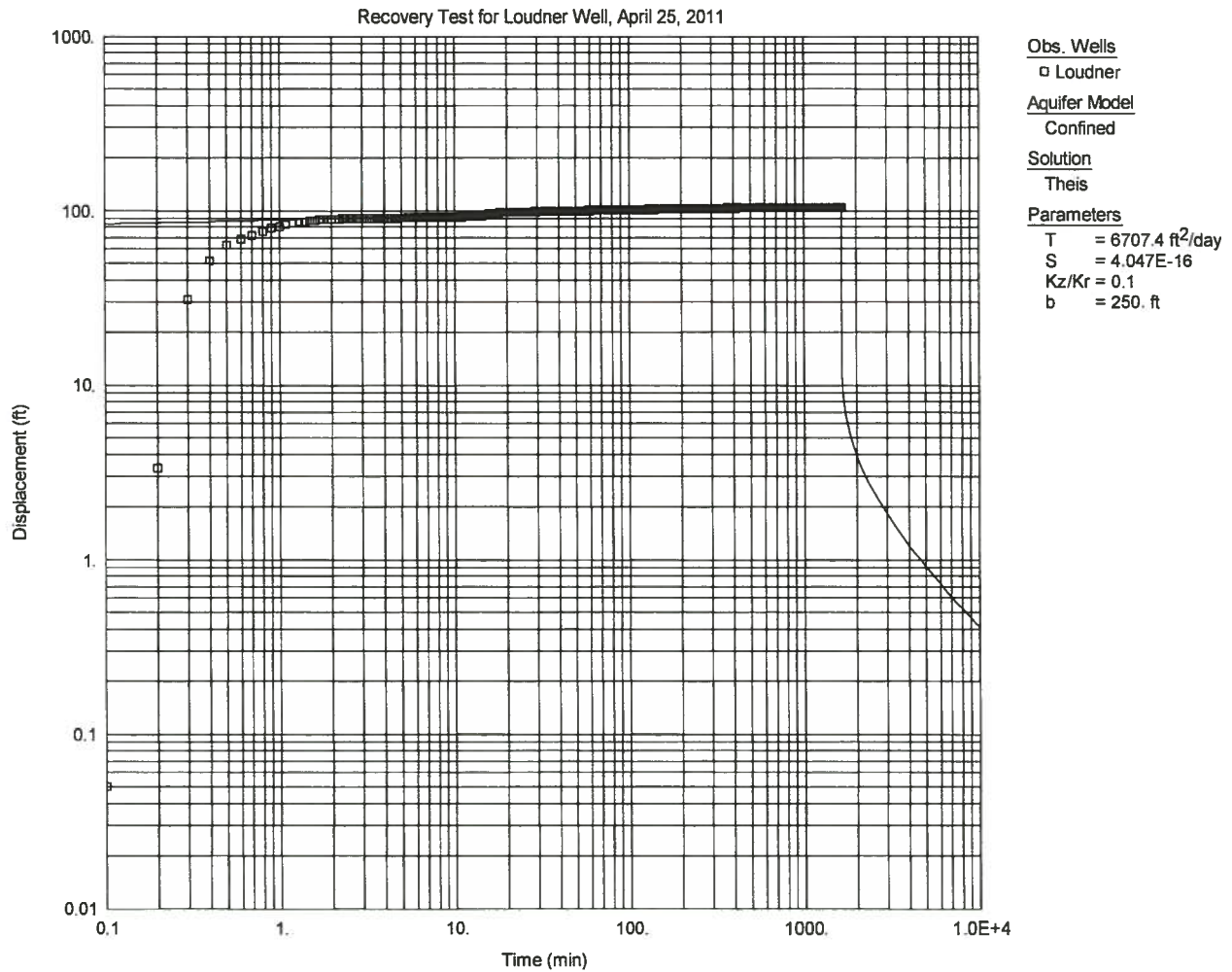


Figure 3-1 Theis confined solution matched to Loudner Well data.



Attachment 4

AQUIFER IMPACT ANALYSIS



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

Parameter	Value	Unit
Transmissivity	67,000	ft ² /d
Storativity	0.0012	unitless
Flow Rate	1347	gpm
Duration	259,200	min
Total volume	1,072	ac-ft
aquifer thickness (b)	175	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	-6600	21120
NE Corner	8400	21120
SW Corner	-6600	-26400
SE Corner	8400	-26400
Gunnell POD	0	0
Probable Well East	240	400
Probable Well South	-880	-1320
Probable Well SW	-2200	-1320
Louder Well	1300	2000

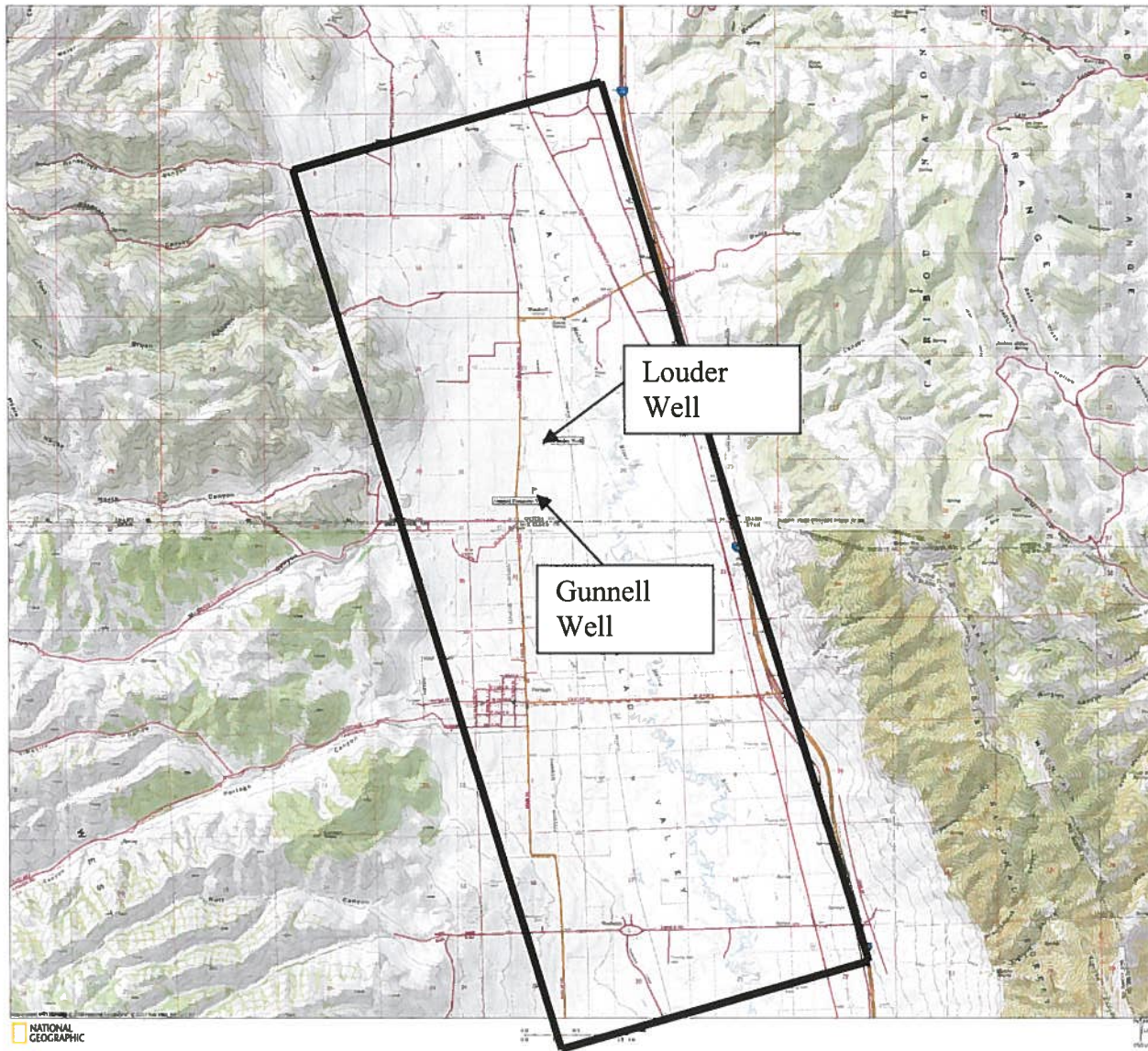


Figure 4-1 Location of proposed point of diversion for Gunnell application, the Louder Well and the outline of the conceptual framework used in the AQTESOLV forward solution calculations.

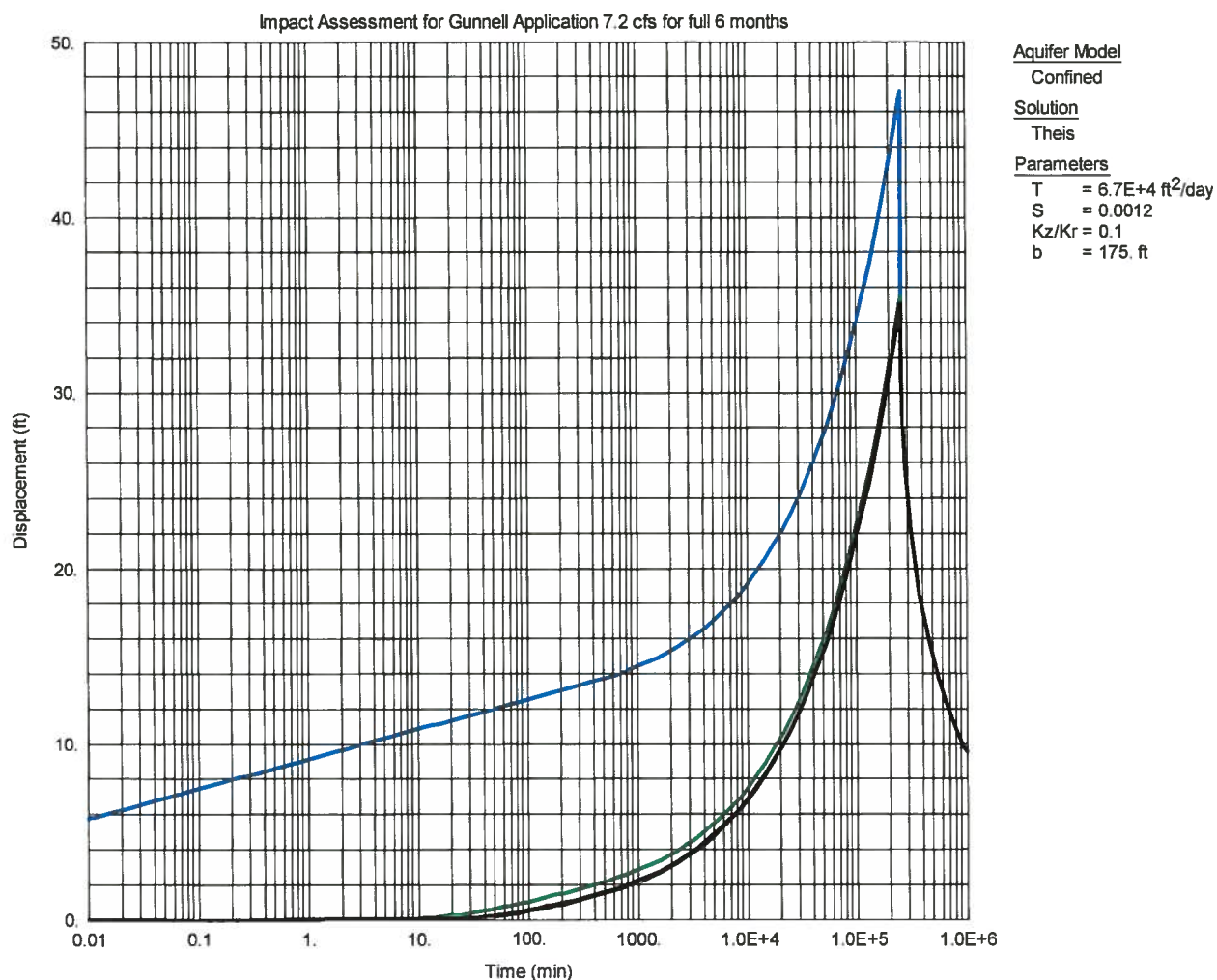


Figure 4-2 Predictive plot of drawdown at 7.18 cfs for the full period of use 180 days. The blue line is for the Gunnell Application Well pumping at 3224 gpm for 6 months and the red line is the drawdown predicted in the Louder Well (approximately ½ mile from the Gunnell Well).

Key to line colors

Blue Gunnell Well
 Red Louder Well
 Purple Probable Well East
 Green Probable Well South
 Black Probable Well Southwest

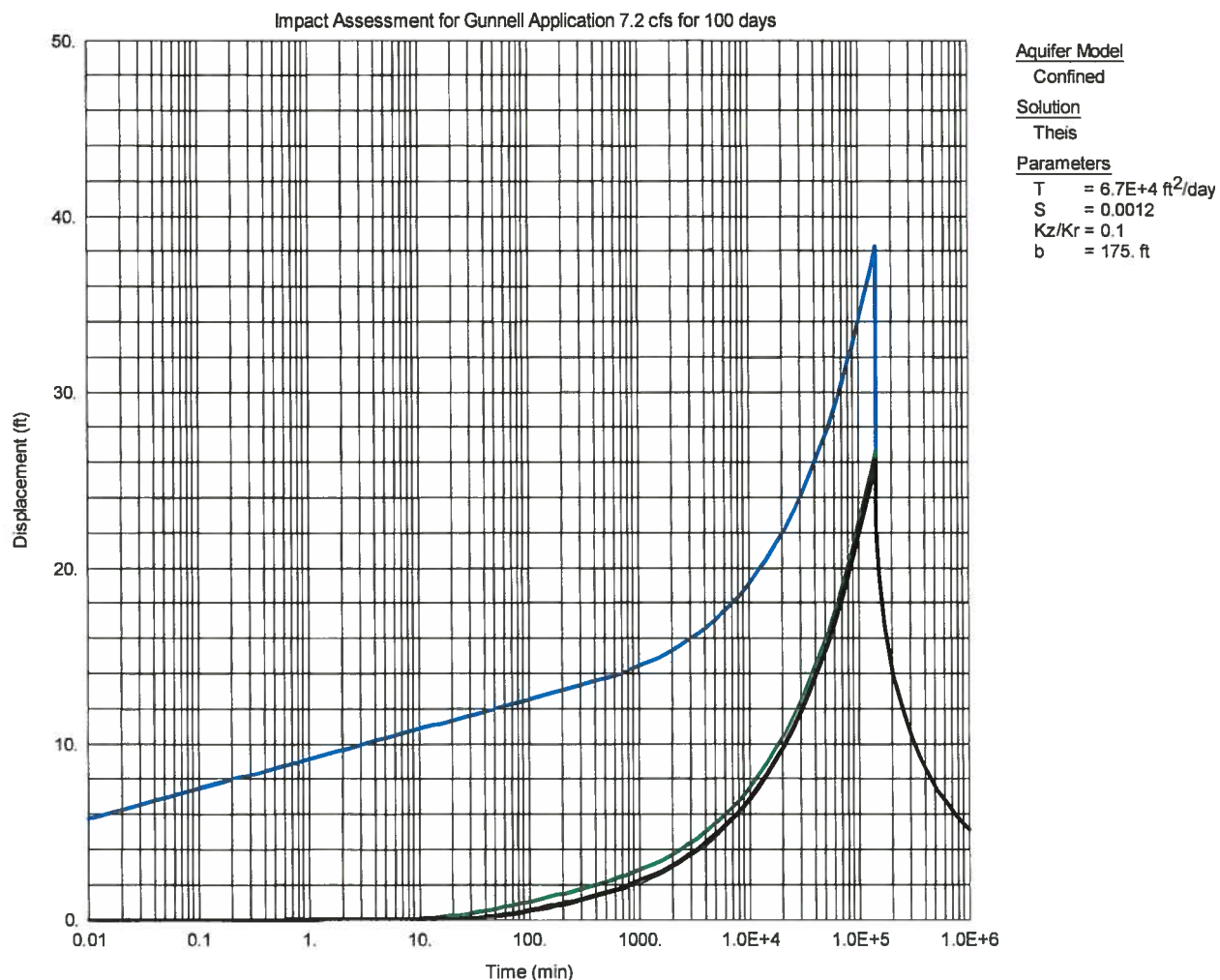


Figure 4-3 Predictive plot of drawdown at 7.18 cfs for 100 days. The blue line is for the Gunnell Application Well pumping at 3224 gpm for 100 days and the red line is the drawdown predicted in the Louder Well (approximately ½ mile from the Gunnell Well).

Key to line colors

Blue Gunnell Well
Red Louder Well
Purple Probable Well East
Green Probable Well South
Black Probable Well Southwest

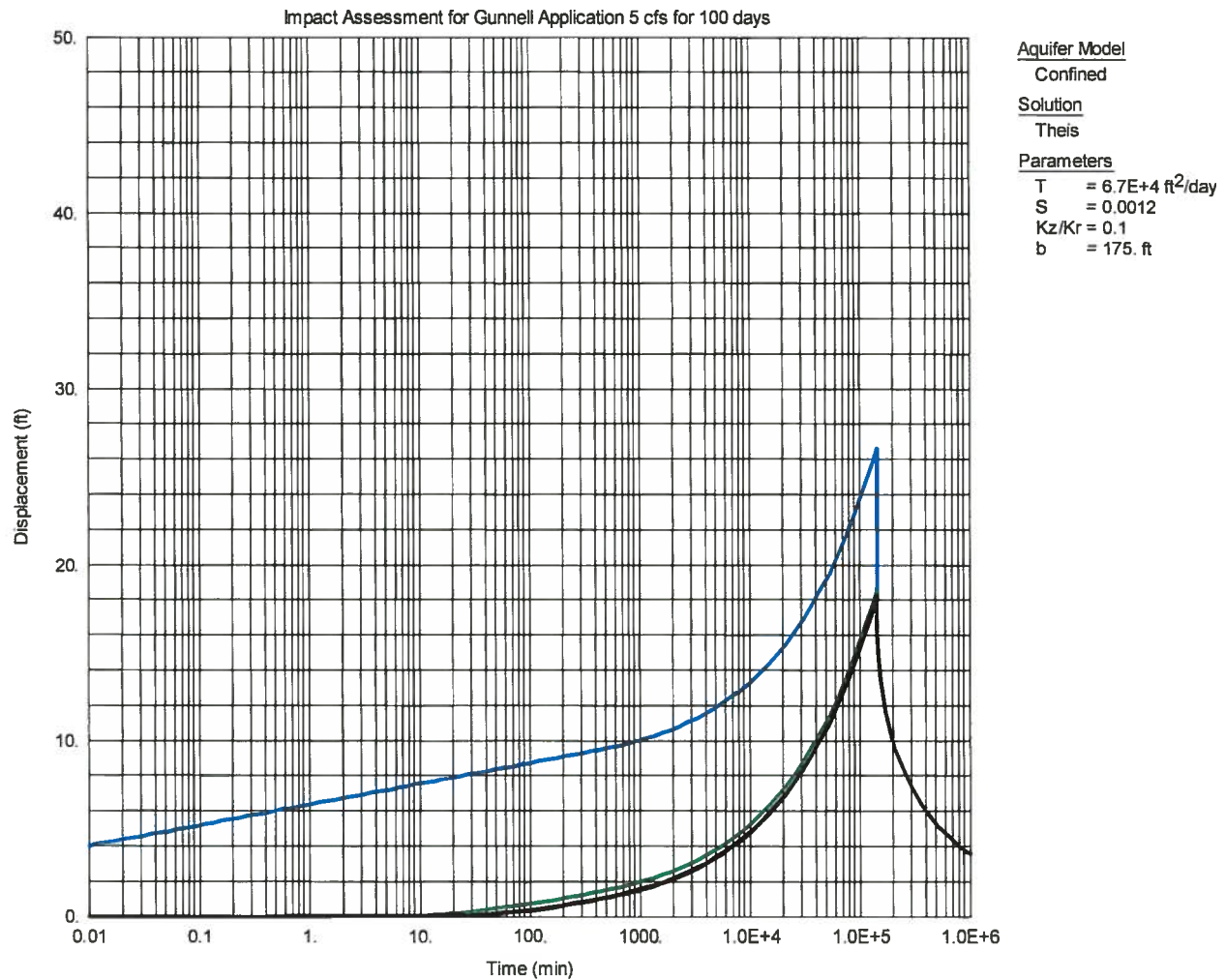


Figure 4-4 Predictive plot of drawdown at 5 cfs for 100 days. The blue line is for the Gunnell Application Well pumping at 2243 gpm for 100 days and the red line is the drawdown predicted in the Louder Well (approximately ½ mile from the Gunnell Well).

Key to line colors

Blue Gunnell Well
Red Louder Well
Purple Probable Well East
Green Probable Well South
Black Probable Well Southwest

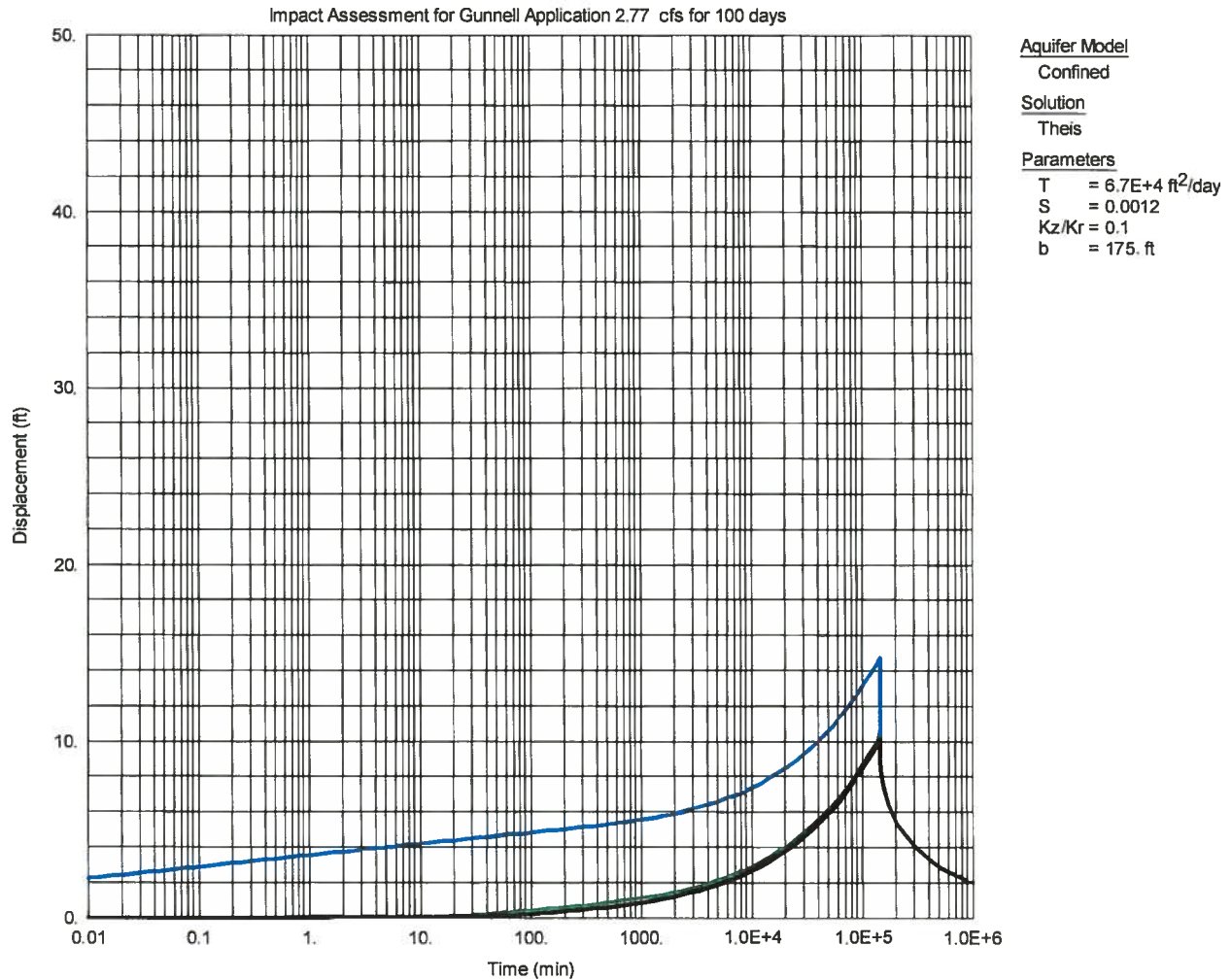


Figure 4-5 Predictive plot of drawdown at 55% of 5 cfs or 2.77 cfs for 180 days. The blue line is for the Gunnell Well pumping at 1244 gpm for 180 days and the red line is the drawdown predicted in the Louder Well (approximately ½ mile from the Gunnell Well).

Key to line colors

Blue Gunnell Well
Red Louder Well
Purple Probable Well East
Green Probable Well South
Black Probable Well Southwest



State of Idaho

DEPARTMENT OF WATER RESOURCES

Eastern Region, 900 North Skyline Drive, Suite A • Idaho Falls, Idaho 83402-1718

Phone: (208) 525-7161 • Fax: (208) 525-7177 • Web Site: www.idwr.idaho.gov

August 25, 2011

C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Interim Director

PAUL GUNNELL
12295 S 300 E
WOODRUFF, ID 83252

Application For Permit No. 15-7346

Dear Applicant(s):

The Department of Water Resources has received your water right application. Please refer to the number referenced above in all future correspondence regarding this application.

A legal notice of the application has been prepared and is scheduled for publication in the IDAHO ENTERPRISE on September 1 and 8, 2011. Protests to this application may be submitted for a period ending ten (10) days after the second publication.

If the application is protested, you will be sent a copy of each protest. All protests must be resolved before the application can be considered for approval. If the protest(s) cannot be resolved voluntarily, the Department will conduct a conference and/or hearing on the matter.

If the application is not protested, the Department will process your application and notify you of any action taken on the application. If your application is approved, the Department will send you a copy of the permit.

Please contact this office if you have any questions regarding the application.

Sincerely,

Sharla Cox
Administrative Assistant

Cox, Sharla

From: Cox, Sharla
Sent: Thursday, August 25, 2011 10:48 AM
To: 'enterpriseneews@atcnet.net'
Subject: Legal Ad for your paper
Attachments: Idaho Enterprise E-Mail.doc

Contacts: Idaho Enterprise

Sharla

Sharla Cox
Administrative Assistant
Idaho Department of Water Resources
900 N. Skyline Dr. Ste. A
Idaho Falls ID 83402
208-525-7161 - telephone
208-525-7177 - fax
sharla.cox@idwr.idaho.gov

The following application(s) have been filed to appropriate the public waters of the State of Idaho:

15-7346

PAUL GUNNELL

12295 S 300 E

WOODRUFF, ID 83252

Point of Diversion SWNESE

S27 T16S R36E

ONEIDA County

Source GROUND WATER Tributary

Use: IRRIGATION

04/15 to 10/15 5 CFS 992 AF

Total Diversion: 5 CFS

Date Filed: 8/8/2011

Place Of Use: IRRIGATION

T06S R36E S26

NENW NWNW SWNW SENW NESW NWSW SWSW SESW

T06S R36E S27

NESW NESE NWSE SESE

Total Acres: 359

Permits will be subject to all prior water rights. For additional information concerning the property location, contact Eastern Region office at (208) 525-7161. Protests may be submitted based on the criteria of Idaho Code § 42-203A. Any protest against the approval of this application must be filed with the Director, Dept. of Water Resources, Eastern Region, 900 N Skyline Dr Ste A, Idaho Falls ID 83402 together with a protest fee of \$25.00 for each application on or before September 19, 2011. The protestant must also send a copy of the protest to the applicant.

GARY SPACKMAN, Interim Director

Published on September 1 and 8, 2011