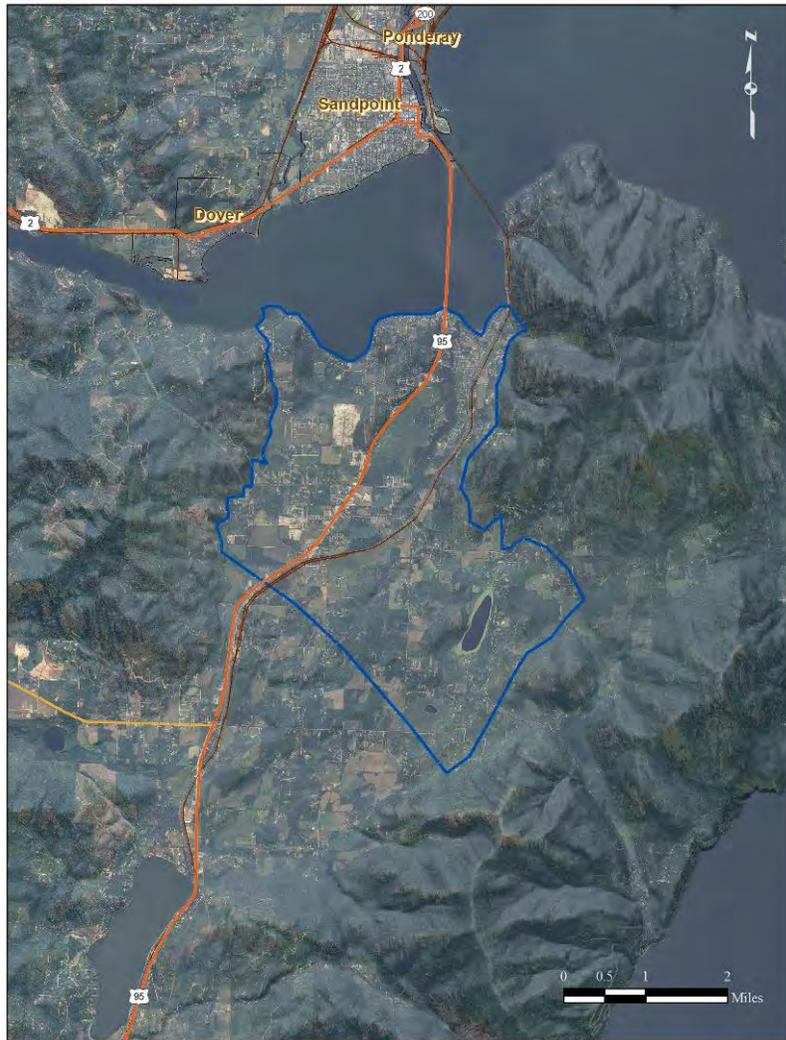


Sagle, Idaho Area Ground Water Quality Study



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Table of Contents

Executive Summary	iii
Introduction.....	1
Study Area Description	1
Climate.....	3
Geology	3
Hydrogeology	3
Historic Ground Water Quality	4
State Databases	4
Uranga (2001).....	4
Southside Water and Sewer District Monitoring wells	5
DEQ Sampling in 2006 and 2007	8
Sample Results	9
Summary.....	12
Conclusion	12
Limitations.....	12
References.....	13

List of Figures

Figure 1. Location of Sagle study area, Bonner County Idaho.....	2
Figure 2. Results of State Database Ground Water Quality Review.	5
Figure 3. Southside Water and Sewer District Waste Water Reuse Facility Monitoring Wells.....	7
Figure 4. Analytical Results for DEQ Ground Water Sampling, October 2006 and April 2007.....	10

List of Tables

Table 1. Summary of Available Historic Nitrate Data.	A-1
Table 2. Ground Water Quality Data from Uranga (2001).....	A-2
Table 3. Summary of Southside Water and Sewer District Monitoring Well Sampling Results.	A-3
Table 4. Sample Well Location and Construction Information.	A-4
Table 5. Laboratory sample results from October 2006 and April 2007 Sagle Aquifer sampling events. Samples collected by DEQ.....	A-5

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Executive Summary

The Idaho Department of Environmental Quality conducted a ground water quality investigation in the Sagle, Idaho area in response to the increasing population and the area's reliance on individual septic systems to treat domestic wastewater. The increased population and the number of septic systems have the potential to degrade water quality in the Sagle Aquifer, the area's primary drinking water source.

Subsurface septic systems discharge a number of constituents including nitrate. The properties of nitrate allow it to readily be transported through soils and its presence can be an indicator of an impact to ground water from subsurface septic systems. In addition, there is evidence that consumption of nitrate in drinking water at elevated concentrations can cause some adverse health-related issues. Because of the potential health-related issues, nitrate is listed as a primary constituent in Idaho's Ground Water Quality Rule and the U.S. Environmental Protection Agency's (EPA) drinking water standards. To determine if nitrate concentrations in the Sagle Aquifer are increasing, DEQ compiled historic data from state databases, reports, and ground water sampling conducted in the fall of 2006 and spring of 2007.

Based on a review of all available data, it appears that ground water nitrate concentrations in the Sagle area are stable and well below Idaho's drinking water standard for the analytes investigated, with limited evidence of any significant impact from septic systems. Some areas, such as the Southside Water and Sewer District's wastewater reuse facility, however, do show evidence of anthropogenic impacts to the aquifer.

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Introduction

The purpose of this report is to present data from two rounds of ground water sampling conducted during October 2006 and April 2007, and determine if there is a cause for concern with nitrate trends in ground water in the Sagle, Bonner County, Idaho area. The work performed for this study is a continuation of ground water quality sampling and modeling work done by Uranga (2001) and Wicherski (2001) on nitrate concentrations in the Southside (Sagle) aquifer. The study was prompted by concern that the continued population growth in Sagle and the surrounding areas may be negatively impacting ground water quality in the aquifer that is the primary source of drinking water for area residents.

The growing population relies primarily on septic systems to handle wastewater flows, increasing the potential for nitrate and other contaminants associated with septic systems to impact the local aquifer. Nitrate is readily transported by ground water, is listed as a primary constituent in Idaho's ground water quality standard and the United States Environmental Protection Agency's (EPA's) drinking water standard, and is typically used by the Idaho Department of Environmental Quality (DEQ) as an indicator chemical for septic system contaminants.

In addition to the septic systems, a wastewater reuse facility is operated within the study area by the Southside Water and Sewer District (SWSD). The SWSD facility applies wastewater from 302 equivalent residential units to approximately 22 acres of land located in Township 56N, Range 02W, parts of Sections 9 and 10.

Historically, ground water samples collected from monitoring wells at the wastewater reuse facility have had nitrate concentrations as high as 7.2 milligrams per liter (mg/L). The highest nitrate concentration in sample results found in the Idaho Department of Water Resources (IDWR) Statewide Monitoring Program databases is 7.1 mg/L, which occurred in a well approximately 1 mile south of the reuse facility in 1995. Generally, ground water nitrate levels in the Sagle aquifer have been below 1 mg/L. EPA's and Idaho's ground water quality standard is 10 mg/L (IDAPA 58.01.11.200.01.a).

Study Area Description

The study area is approximately 14 square miles located in the Cocolalla lowlands south of Sandpoint, Idaho and the Pend Oreille River in Bonner County, Idaho. Figure 1 shows the study area in relation to the State of Idaho. The north, east, and west study area boundaries were based on model boundaries per Uranga (2001) and Wicherski (2001). The southern boundary is an east-west ground water divide located about midway between the Pend Oreille River and Cocolalla Lake based on Wicherski's (2001) model results. North of the divide and within the study area, ground water flows generally to the north and to the Pend Oreille River. South of the divide, ground water flows south then west to the Pend Oreille River.

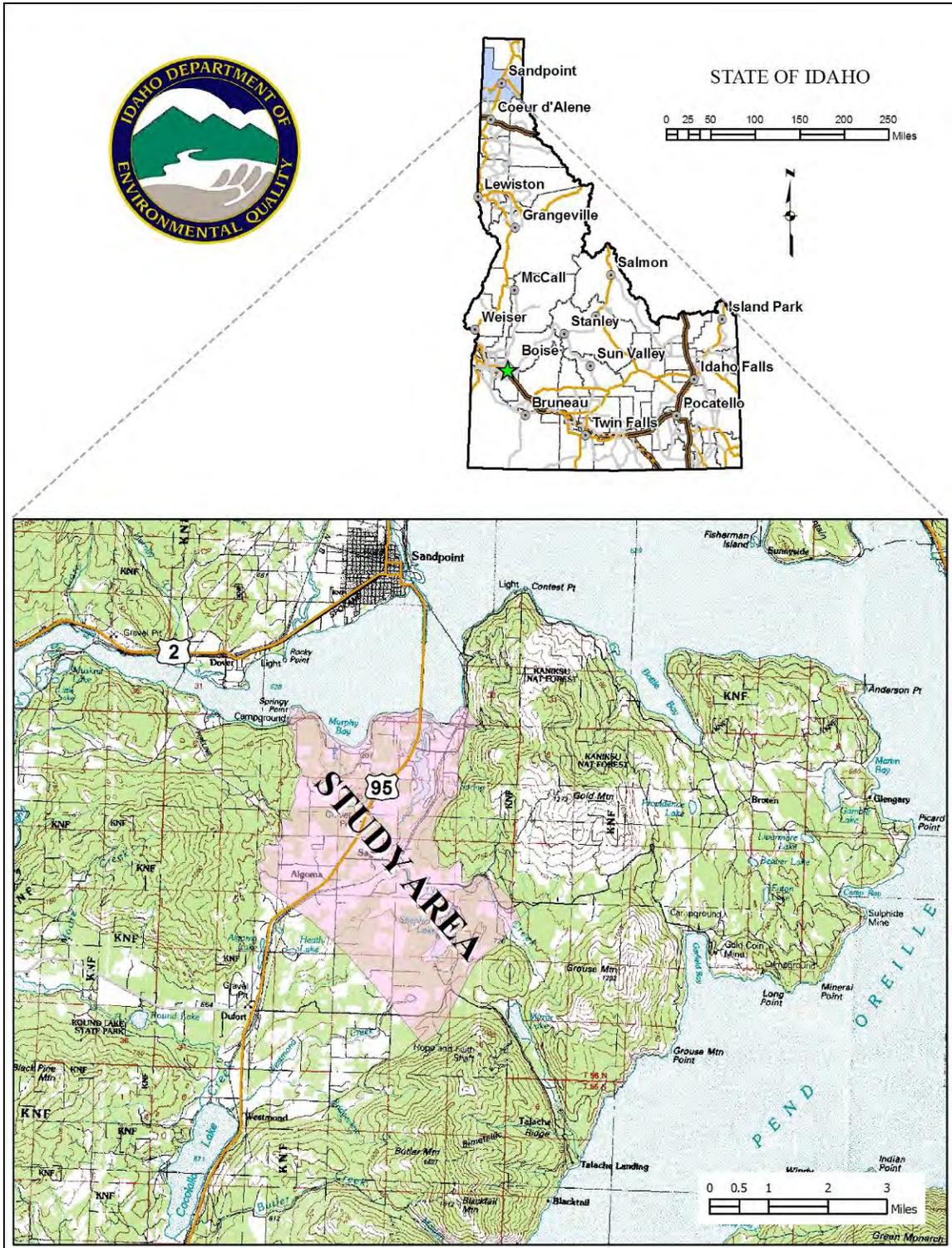


Figure 1. Location of Sagle study area, Bonner County Idaho.

The water-bearing media in the study area is composed of two units. The upper unit is almost entirely clay and/or silt with interbedded sand and gravel layers. The fine-grained

sediments of the upper unit are up to 150 feet thick and laterally extensive, while the thinner sand and gravel layers form the water-bearing portions that provide water to a few domestic wells. The deeper unit is comprised primarily of water-bearing sand and gravel and is defined in this study as the Sagle Aquifer. The majority of the domestic wells in the area are believed to be completed in the Sagle Aquifer. The ground water in the lower unit is in areas under pressure or confined conditions. Where confined conditions exist, contaminants originating on or near the surface may not migrate down into the deeper portions of the aquifer.

Climate

The region is characterized by a cool and temperate climate with a short growing season averaging 113 days (Walker, 1964). Average annual precipitation is 28-32 inches with up to 40 inches in the surrounding mountains (IDWR, 2007). The majority of precipitation falls as snow during the winter months.

Geology

The Cocolalla lowlands have seen a complex geologic history, resulting in a unique geologic environment. The study area is located in the northernmost extent of a trough that is part of a larger north-northwest trending valley, known as the Purcell Trench, created by faulting during the Mesozoic, 65 to 248 million years ago (Uranga, 2001 and De Smet). Intrusion of the Kaniksu Batholith during the Mesozoic Period formed the Selkirk Mountains to the west of the study area and uplifted low-grade metamorphic Belt Rocks from the Cabinet Mountains located to the east.

Numerous glacial advances of the Cordilleran ice sheet occurred during the Pleistocene period, 55 to 65 million years ago, covering most of northern Idaho, Montana, and Washington. The Purcell lobe of the Cordilleran ice sheet covered much of the Sagle area during its maximum extent, protecting the basin from the most of the Missoula floods. The resulting unstratified clay, silt, sand, gravel, and boulder deposits fill the basin to depths of 250 feet or more. Although the number of glacial advances during the Pleistocene is not known, evidence indicates more than one advance occurred. More recently deposited sediments from Fry Creek entering Sagle Slough on the east margin of the study area, and lacustrine sediments, are mostly reworked glacial deposits (Lewis and others, 2006; Uranga, 2001).

Hydrogeology

The Sagle aquifer is composed primarily of glaciofluvial sediments and glacial drift material. The glaciofluvial sediments are described by De Smet as well-sorted gravels and sands with some clay lenses. Layered heterogeneity is pronounced in these units and expected hydraulic conductivities range from 10^{-6} centimeters/second (cm/sec) to 10^{-1} cm/sec. The vertical movement of water through these units is believed by De Smet to be very rapid.

Glacial drift materials contain very poorly sorted clays, sands, gravels, and boulders deposited by ice or melt water in close proximity to glacial ice. Layering is more pronounced than in the glaciofluvial sediments and is a major controlling factor in the

vertical movement of water through the aquifer. Hydraulic conductivities of the finer materials are expected to range from 10^{-8} to 10^{-5} cm/sec (De Smet).

The Sagle aquifer is generally unconfined; however, layers of glacial drift and fine-grained sediments may form confining conditions at some locations. Uranga (2001) describes the eastern portion of the study area associated with Fry Creek and Sagle Slough as confined with a local perched system. Depth to ground water varies from near ground surface to 200 feet below ground surface (bgs) with an average of 51 feet bgs. Within the study area, ground water flow is to the north towards Lake Pend Oreille and the Pend Oreille River.

Aquifer discharge is through springs and seeps into the Murphy Slough, Sagle Slough, Lake Pend Oreille, and the Pend Oreille River. The springs discharging into the sloughs supply the SWSD and the Idaho Fish and Game Hatchery with potable water. The extent of aquifer discharge to Lake Pend Oreille and the Pend Oreille River is unknown (De Smet).

Historic Ground Water Quality

As part of this study, DEQ acquired and reviewed water quality information from several sources, for comparison purposes and to analyze for any trends that might be present in the data. The sources of the reviewed data are: 1) DEQ public water system database, 2) Idaho Department of Water Resources' statewide monitoring well network, 3) Idaho State Department of Agriculture (ISDA) statewide monitoring well network, 4) previous work as described in Uranga (2001), and 5) the SWSD ground water quality data

State Databases

A review of available data from DEQ, IDWR, and ISDA ground water quality databases identified 17 wells in the study area with nitrate water quality data. For the majority of these wells, well construction and depth are not known; however, data from wells with known depths greater than 200 feet were not included in the data set. Table 1 (see Appendix A) summarizes the historic nitrate data available from the various databases. Figure 2 shows the approximate sampling location, along with dates and analytical results, for all identified wells.

Nitrate concentrations in the study area have historically ranged from non-detection to 7.10 milligrams per liter (mg/L) with the majority of values below 1.0 mg/L, based on state data. The highest value (7.10 mg/L) was detected in well 56N-02W-16dca1 during July 1995. No data for this well could be found after that time. Of the wells represented in the state databases, those that have more than two data points appear to have relatively stable nitrate concentrations over the period of 2001 to 2006.

Uranga (2001)

Ground water quality data collected by Uranga (2001) from locations within the study area generally showed nitrate/nitrite concentrations at or below 0.7mg/L, reflecting the low concentrations found in the state databases. Two samples, one collected to the northeast of well E0005138 and one collected to the northeast of well 56N-02W-09dbb2,

shown in Figure 2, had concentrations of 1.30 and 1.14 mg/L, respectively. Table 2 (see Appendix A) shows the sampling results provided by Uranga; no sample dates were given in the report.

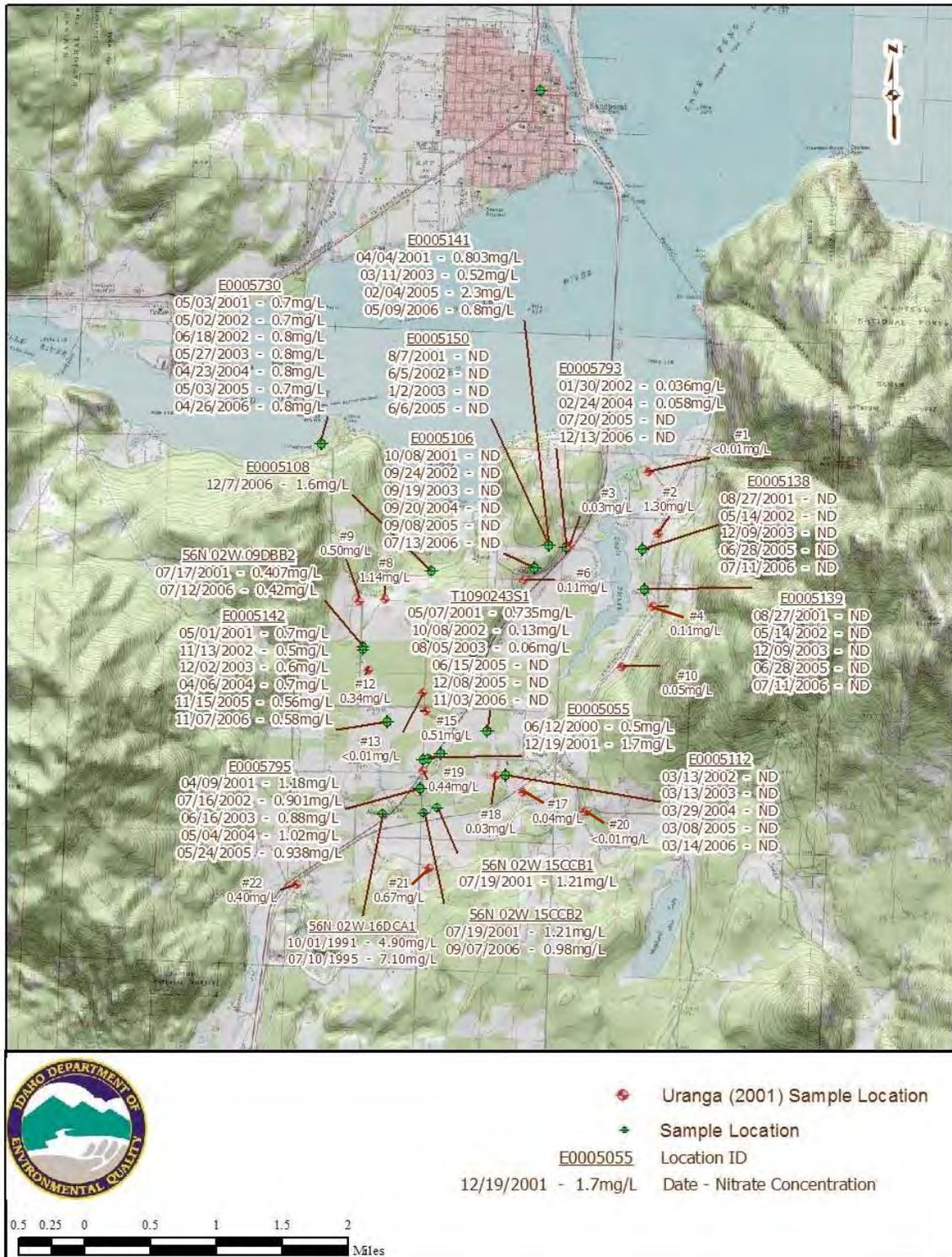


Figure 2. Results of State Database Ground Water Quality Review of Nitrate Concentrations in the Sagle Study Area.

Southside Water and Sewer District Monitoring wells

SWSD installed three ground water monitoring wells (North Well, South Well, and West Well) in April 2003 at their wastewater reuse facility, located in the study area as seen in Figure 3. The three monitoring wells were drilled into the first water-producing zone and screened across the water table. The wells ranged in depth from 100 to 135 feet. Each well was constructed with a total of 15 feet of screen installed in two sections that are separated by a blank section of well casing. Nitrate data from the SWSD wells since 2003 has shown nitrate concentrations elevated above concentrations typically seen in historic data sets for the surrounding aquifer. Since 2003, nitrate levels in the facility's monitoring wells have ranged from non-detection in the North and West wells during 2006, to 7.2 mg/L in the West well during 2003. Table 3 (see Appendix A) summarizes the SWSD monitoring well nitrate data from August 2003 to October 2006.

Ground water samples collected from two private domestic wells (PW-1 and PW-2) located just north and west of the reuse facility's boundaries, and until recently part of the reuse facility's monitoring network, have had nitrate concentrations more representative of data obtained from state monitoring wells in the study area, indicating nitrate from the reuse facility is not migrating off-site in large quantities.



Figure 3. Southside Water and Sewer District Waste Water Reuse Facility Monitoring Wells.

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DEQ Sampling in 2006 and 2007

To identify potential sampling locations within the study area, DEQ conducted a search of IDWR's Well Information database. Approximately 30 wells were identified that are completed at depths of less than 200 feet and screened in the first encountered water-bearing unit within the Sagle aquifer. For each of these wells, an attempt was made to contact the well owner and request permission to collect a sample from their well during each of the planned October 2006 and April 2007 sampling events. For wells with no contact information or with outdated information, an attempt was made to find the well or a similarly completed well by talking, in person, to home owners in the general location of the well.

Twenty-five wells were identified and sampled during the week of October 23, 2006. Well locations were recorded by using a Tremble™ geographic positioning system instrument at the time of sampling. Ground water samples were obtained from wells in general accordance with ASTM D4448-01 and D6089-97, Standard Guide for Sampling Ground-water monitoring Wells and Standard Guide for Documenting a Ground-water Sampling Event, respectively. Samples were collected from an access point closest to the well prior to any water filtration or storage device that may be installed on the system. A sample was collected when consecutive field parameter measurements were within 10% of each other. Collected samples were labeled, placed in an iced cooler, and recorded in the field book and on the chain-of-custody form. All samples collected on a given day were delivered the following morning to SVL Analytical Inc., located in Coeur d'Alene. Sampled well location and construction information is provided in Table 4 (see Appendix A) and locations are shown on Figure 4. Well logs for the sampled wells are included in Appendix B.

Nineteen of the 25 wells sampled in October 2006 were resampled during the week of April 23, 2007. The remaining six wells were not sampled during the April sampling event due to owner's request. The same sampling procedures were followed as during the prior event.

Sampling was performed by DEQ in accordance with the Ground Water Sampling Procedure (DEQ, 2006), established for this and other projects in the Coeur d'Alene region.

Sample Results

October 2006 and April 2007 ground water samples were analyzed for chloride, nitrate, and total dissolved solids (TDS). Sulfate was added to the analyte list for the April 2007 samples. All analyte concentrations were below ground water standards for all samples analyzed. Sample results are summarized in Table 5 and shown in Figure 4.

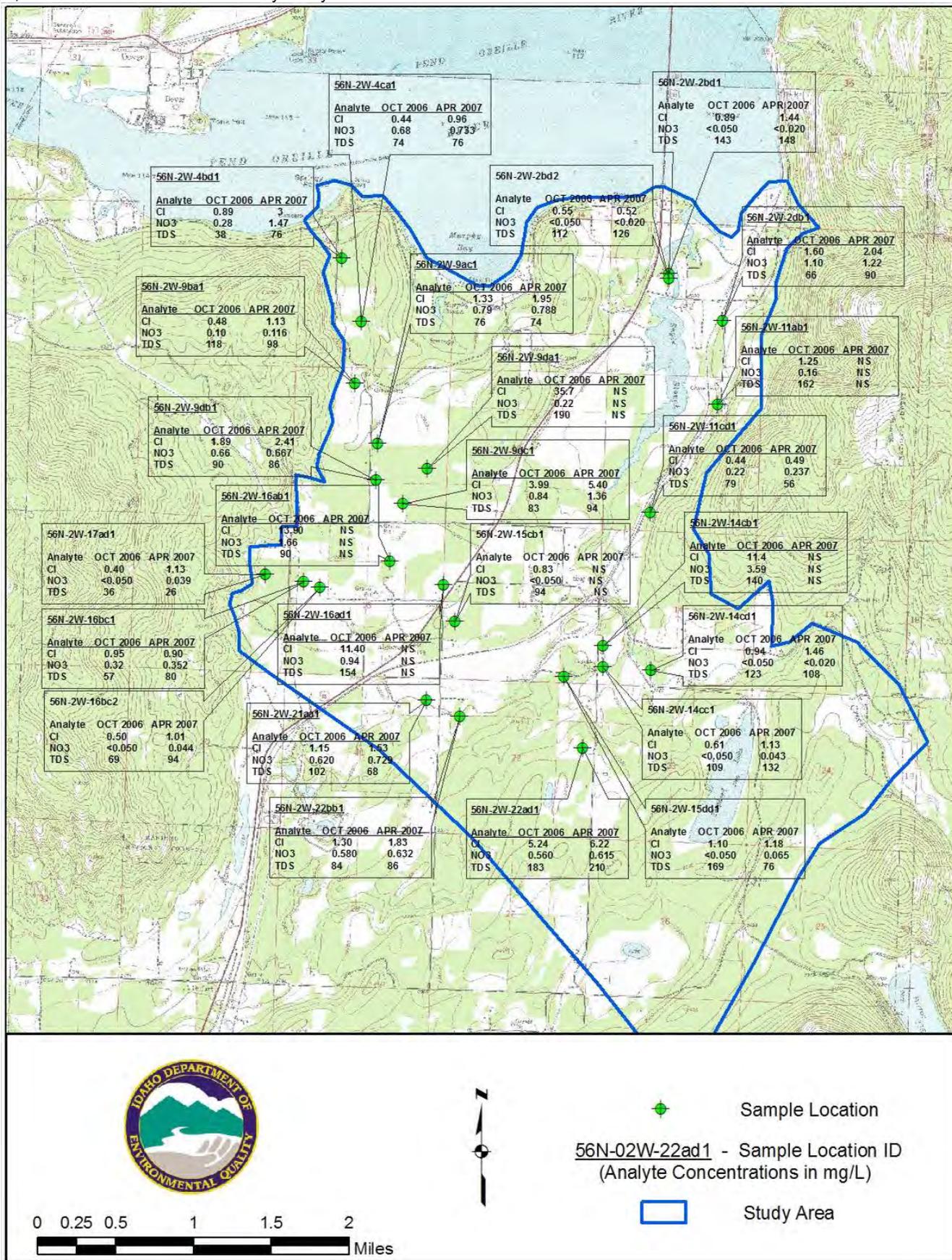


Figure 4. Analytical Results for DEQ Ground Water Sampling, October 2006 and April 2007.

Nitrate concentrations detected in October and April samples ranged from less than 0.02 mg/L to 3.59 mg/L. The highest nitrate concentration detected was from well 56N-2W-14cb1 during the October sampling event. This well was not sampled in April at the owner's request. Nitrate concentrations were generally below 1.0 mg/L with 25% of all samples having concentrations below the laboratory's practical quantification limit. Nitrate levels appeared to be stable between sampling events and agreed with data from public drinking water wells. Of those wells that had samples with nitrate concentrations above 1.0 mg/L, two were under confined conditions, two were under water table conditions, and one had undetermined conditions, due to there being no lithology description in the driller's log.

No significant difference was noted in nitrate concentrations between wells that were screened within 20 feet of the top of the water table and those screened at depths greater than 20 feet below the top of the water table (Table 4). Depths of the screens in relation to the water table were determined based on depth to water information provided on drillers' logs.

Chloride concentrations detected in October and April samples ranged from 0.4 to 35.7 mg/L with an average of 3.07 mg/L. Concentrations are generally higher in the spring than in the fall, most likely due to increased precipitation causing the chloride in the soil to be transported to the ground water at an increased rate; however, the seasonal differences are relatively small.

Concentrations of TDS and sulfate detected in October and April samples ranged from 26 to 210 mg/L TDS and 1.5 to 23.1 mg/L sulfate with averages of 101 mg/L TDS and 7.63 mg/L sulfate. No seasonal patterns are seen in TDS data and seasonal data are not available for sulfate.

Correlation between chloride or TDS and nitrate is often an indicator of septic system influences on the aquifer. This study considered nitrate correlations with chloride and with TDS. Chloride had a weak linear coefficient ($R = 0.315$) and Spearman's Rank Correlation coefficient ($R = 0.667$) with nitrate. For samples obtained from the Sagle Aquifer resulting in "non-detection" (below the laboratory's practical quantification limit) for chloride, nitrate correlations became weaker still, indicating the analyte concentrations observed in the samples are at or near background levels. No correlation was seen between TDS and nitrate concentrations. Relatively elevated levels of nitrate observed in samples from wells 56N-2W-14cb1, 56N-2W-4bd1, 56N-2W-2db1, 56N-2W-9dc1, and 56N-2W-16ab1 may be from anthropogenic impacts other than septic systems as evidenced from the poor correlations with chloride and TDS.

Summary

DEQ conducted a ground water quality investigation in the Sagle, Idaho area in response to the increasing population and the area's reliance on individual septic systems to treat domestic wastewater. The increased population and the number of septic systems have the potential to degrade water quality in the Sagle Aquifer, the area's primary drinking water source. Nitrate as a byproduct of septic system effluent is generally used as an indicator of septic system related ground water concerns due to its property of being readily transportable in water and its listing as a primary constituent in Idaho's Ground Water Quality Rule and in the U.S. Environmental Protection Agency drinking water standards.

DEQ reviewed historic data from state databases and reports and conducted ground water sampling in the fall of 2006 and spring of 2007, to determine if nitrate concentrations in the Sagle Aquifer are increasing and if further action is warranted.

Conclusion

Based on a review of all available data, ground water nitrate concentrations in the Sagle area appear to be stable and well below Idaho's ground water quality standard of 10 mg/L. Additionally, based on the evidence, the current number and density of septic drainfields has little to no regional impact on nitrate concentration in ground water in the Sagle area. Some areas, such as the Southside Water and Sewer District's wastewater reuse facility, however, do show evidence of anthropogenic impacts to the aquifer.

Limitations

The Sagle Aquifer hydrogeological report was created to evaluate the general potential for the subsurface discharge of septic waste to impact the water quality of the underlying aquifer. The subsurface lithology, water elevations, and report conclusions are dependent largely on well drillers' reports on file at the Idaho Department of Water Resources. The data in the drillers' reports are general in nature and not necessarily described with the detail necessary for a more complete analysis. If a more detailed analysis is required or the report is to be used for another purpose, a ground water professional should be consulted for the proper application limits of this report or the requirements for additional studies.

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Appendix A

Data Tables

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Table 1. Summary of Available Historic Nitrate Data.

Location ID	Sample Date	Nitrate as Nitrogen (mg/L)
E0005141	04/04/2001	0.803
	03/11/2003	0.52
	02/04/2005	2.3
E0005730	05/03/2001	0.7
	05/02/2002	0.7
	06/18/2003	0.8
	04/23/2004	0.8
	05/03/2005	0.7
E0005150	08/07/2001	ND
	06/05/2002	ND
	01/02/2003	ND
	06/06/2005	ND
E0005793	01/30/2002	0.036
	02/24/2004	0.058
	07/20/2005	ND
E0005106	10/08/2001	ND
	09/24/2002	ND
	09/19/2003	ND
	09/20/2004	ND
	09/08/2005	ND
E005108	12/07/2006	1.60
E0005138	08/27/2001	ND
	05/14/2002	ND
	12/09/2003	ND
	06/28/2005	ND
56N-02W-09dbb2	07/17/2001	0.407
E0005139	08/27/2001	ND
	05/14/2002	ND
	12/09/2003	ND
	06/28/2005	ND
T1090243S1	05/07/2001	0.735
	10/08/2002	0.13
	08/05/2003	0.06
	06/15/2005	ND
E0005142	05/01/2001	0.7
	11/13/2002	0.5
	12/02/2003	0.6
	04/06/2004	0.7
E0005055	12/19/2001	1.7
E0005795	04/09/2001	1.18
	07/16/2002	0.901
	06/16/2003	0.88
	05/04/2004	1.02
	05/24/2005	0.938
56N-02W-15ccb2	07/19/2001	1.21
E0005112	03/13/2002	ND
	03/13/2003	ND
	03/29/2004	ND
	03/08/2005	ND
56N-02W-16dca1	10/01/1991	4.90
	07/10/1995	7.10
56N-02W-15ccb2	07/19/2001	1.21
	09/07/2006	0.98

Notes:

ND – Not detected (laboratory detection limits were not reported)

Table 2. Ground Water Quality Data from Uranga (2001)

WELL ID #	CHLORIDE (mg/L)	TDS (mg/L)	TKN (mg/L)	NITRATE & NITRITE (mg/L)	PHOSPHORUS (mg/L)
1	1.00	155	<0.05	<0.01	0.04
2	4.00	82	<0.05	1.30	0.01
3	1.00	173	<0.05	0.03	0.11
4	1.00	155	<0.05	0.11	0.02
6	1.50	149	<0.05	0.11	0.03
8	2.00	83	<0.05	1.14	0.01
9	1.00	73	<0.05	0.50	0.01
10	1.00	79	<0.05	0.05	<0.002
12	1.50	84	<0.05	0.34	0.004
13	1.50	156	<0.05	<0.01	0.02
14	1.50	59	<0.05	0.40	0.01
15	3.50	136	<0.05	0.51	0.03
17	1.00	120	<0.05	0.04	0.02
18	1.00	130	<0.05	0.03	0.02
19	1.50	119	<0.05	0.44	0.02
20	1.50	148	<0.05	<0.01	0.03
21	1.50	93	<0.05	0.67	0.01
22	0.50	94	<0.05	0.40	0.01
23	1.00	138	<0.05	0.07	0.02

Notes:

Table modified from Uranga (2001) Table 3.

< - denotes the analyte concentration is below the laboratory practical quantification limit.

Table 3. Summary of Southside Water and Sewer District Monitoring Well Sampling Results.

Location ID	Sample Date	Nitrate as Nitrogen (mg/L)
North Well	8/13/2003	3.4
	8/28/2003	3.3
	10/27/2003	NS
	11/13/2003	3.4
	04/07/2004	3.5
	11/15/2004	3.34
	07/25/2006	ND
	10/24/2006	1.4
South Well	8/13/2003	0.9
	8/28/2003	0.9
	10/27/2003	1.0
	11/13/2003	1.0
	04/07/2004	1.0
	11/15/2004	1.03
	07/25/2006	1.3
	10/24/2006	3.8
West Well (56N-2W-9da1)	8/13/2003	7.2
	8/28/2003	6.5
	10/27/2003	5.9
	11/13/2003	5.9
	04/07/2004	5.3
	11/15/2004	3.6
	07/25/2006	3.7
	10/24/2006	ND
PW-1	8/28/2003	1.7
	8/16/2004	1.6
PW-2	08/28/2003	ND
	08/16/2003	ND

Notes:

NS – Not Sampled

ND – Not detected (detection limits not reported)

Table 4. Sample Well Location and Construction Information.

Sample Location ID	Easting	Northing	Well Depth (ft bgs)	Screen Top/ Bottom (ft bgs)	Depth to Water* (ft bgs)
56N-2W-11ab1	2312053.645	1894106.946	97	86/---	60
56N-2W-11cd1	2311359.546	1892988.735	102	94/---	50
56N-2W-14cb1	2310871.457	1891612.303	59	54/58	40
56N-2W-14cc1	2310870.148	1891392.753	186	175/185	30
56N-2W-14cd1	2311370.708	1891355.347	105	59/105	40
56N-2W-15cb1	2309338.991	1891859.696	132	132/---	50
56N-2W-15dd1	2310468.021	1891293.315	25	24/---	9
56N-2W-16ab1	2308669.928	1892487.064	88	83/88	45
56N-2W-16ad1	2309220.177	1892242.465	117	102/117	58
56N-2W-16bc1	2307772.468	1892274.986	101	95/101	60
56N-2W-16bc2	2307940.839	1892219.618	107	101/107	70
56N-2W-17ad1	2307383.938	1892351.976	68	63/68	30
56N-2W-21aa1	2309044.281	1891045.05	118	103/110	31
56N-2W-22ad1	2310661.859	1890551.277	100	93/99	40
56N-2W-22bb1	2309393.54	1890874.789	135	120/135	100
56N-2W-2db1	2311552.391	1895466.196	160	138/158	5
56N-2W-2bd1	2312108.692	1894977.549	97	92/96	20
56N-2W-2bd2	2311549.665	1895412.864	125	120/125	3
56N-2W-4bd1	2308174.925	1895618.661	118	113/117	37
56N-2W-4ca1	2308376.435	1894966.357	105	93/103	50
56N-2W-9ac1	2308541.36	1893708.093	104	98/104	102
56N-2W-9ba1	2308305.163	1894330.013	198	120/195	100
56N-2W-9da1	2309057.045	1893442.6	130	95/125	100
56N-2W-9db1	2308524.195	1893325.716	120	110/120	70
56N-2W-9dc1	2308799.939	1893083.534	86	86/---	66

Notes:

bgs below ground surface

* - Depth of water below ground surface is based on data obtained from driller's logs.

Sample Location ID follows the U.S. Geological Survey standard protocol for well identification.

Easting and Northing in IDTM83 coordinate system.

Well depths and screened intervals are based on information from drillers' reports located in the Idaho

Department of Water Resources Well Information database located at the following URL:

<http://www.idwr.idaho.gov/water/well/search.htm>. The actual driller's report could not be confirmed in all cases; efforts were made to match known well information to the drillers' reports.

--- Based on driller's reports the well is not screened, the top of screen depth is the bottom of well casing.

Table 5. Laboratory sample results from October 2006 and April 2007 Sagle Aquifer sampling events. Samples collected by DEQ.

Well ID	Sample Date	Cl (mg/L)			NO ₃ -N (mg/L)			TDS (mg/L)			SO ₄ (mg/L)		
		Conc.	MDL	Method	Conc.	MDL	Method	Conc.	MDL	Method	Conc.	MDL	Method
56N-2W-16bc1	10/25/06	0.95	0.2	EPA 300.0	0.32	0.05	EPA 300.0	57	10	EPA 160.1	NA	---	---
	04/24/07	0.9	0.013	EPA 300.0	0.352	0.002	EPA 353.2	80	9.2	EPA 160.1	2.56	0.037	EPA 300.0
56N-2W-15dd1	10/25/06	1.1	0.2	EPA 300.0	<0.05	0.05	EPA 300.0	169	10	EPA 160.1	NA	---	---
	04/25/07	1.18	0.013	EPA 300.0	0.065	0.002	EPA 353.2	76	9.2	EPA 160.1	12	0.037	EPA 300.0
56N-2W-2bd2	10/23/06	0.55	0.013	EPA 300.0	<0.05	0.005	EPA 300.0	112	4.4	EPA 160.1	NA	---	---
	04/25/07	0.52	0.013	EPA 300.0	<0.02	0.002	EPA 353.2	126	9.2	EPA 160.1	13.4	0.037	EPA 300.0
56N-2W-14cc1	10/25/06	0.61	0.2	EPA 300.0	<0.05	0.005	EPA 300.0	109	10	EPA 160.1	NA	---	---
	04/25/07	1.13	0.013	EPA 300.0	0.043	0.002	EPA 353.2	132	9.2	EPA 160.1	11.1	0.037	EPA 300.0
56N-2W-11ab1	10/23/06	1.25	0.013	EPA 300.0	0.16	0.005	EPA 300.0	162	4.4	EPA 160.1	NA	---	---
56N-2W-22bb1	10/26/06	1.3	0.013	EPA 300.0	0.58	0.005	EPA 300.0	84	4.4	EPA 160.1	NA	---	---
	04/25/07	1.83	0.013	EPA 300.0	0.632	0.002	EPA 353.2	86	9.2	EPA 160.1	3.72	0.037	EPA 300.0
56N-2W-4bd1	10/24/06	0.89	0.013	EPA 300.0	0.28	0.005	EPA 300.0	38	4.4	EPA 160.1	NA	---	---
	04/24/07	3	0.013	EPA 300.0	1.47	0.002	EPA 353.2	76	9.2	EPA 160.1	5.23	0.037	EPA 300.0
56N-2W-11cd1	10/23/06	0.44	0.013	EPA 300.0	0.22	0.005	EPA 300.0	79	4.4	EPA 160.1	NA	---	---
	04/25/07	0.49	0.013	EPA 300.0	0.237	0.002	EPA 353.2	56	9.2	EPA 160.1	3.02	0.037	EPA 300.0
56N-2W-14cd1	10/23/06	0.94	0.013	EPA 300.0	<0.05	0.005	EPA 300.0	123	4.4	EPA 160.1	NA	---	---
	04/25/07	1.46	0.013	EPA 300.0	<0.02	0.002	EPA 353.2	108	9.2	EPA 160.1	7.67	0.037	EPA 300.0
56N-2W-22ad1	10/25/06	5.24	0.2	EPA 300.0	0.56	0.05	EPA 300.0	183	10	EPA 160.1	NA	---	---
	04/25/07	6.22	0.013	EPA 300.0	0.615	0.002	EPA 353.2	210	9.2	EPA 160.1	23.1	0.037	EPA 300.0
56N-2W-2bd1	10/23/06	0.89	0.013	EPA 300.0	<0.05	0.005	EPA 300.0	143	4.4	EPA 160.1	NA	---	---
	04/25/07	1.44	0.013	EPA 300.0	<0.02	0.002	EPA 353.2	148	9.2	EPA 160.1	19.3	0.037	EPA 300.0
56N-2W-9ba1	10/24/06	0.48	0.013	EPA 300.0	0.1	0.005	EPA 300.0	118	4.4	EPA 160.1	NA	---	---
	04/24/07	1.13	0.013	EPA 300.0	0.116	0.002	EPA 353.2	98	9.2	EPA 160.1	2.43	0.037	EPA 300.0
56N-2W-9ac1	10/24/06	1.33	0.013	EPA 300.0	0.79	0.005	EPA 300.0	76	4.4	EPA 160.1	NA	---	---
	04/24/07	1.95	0.013	EPA 300.0	0.788	0.002	EPA 353.2	74	9.2	EPA 160.1	4.58	0.037	EPA 300.0
56N-2W-15cb1	10/26/06	0.83	0.013	EPA 300.0	<0.05	0.005	EPA 300.0	94	4.4	EPA 160.1	NA	---	---
56N-2W-14cb1	10/25/06	11.4	0.2	EPA 300.0	3.59	0.05	EPA 300.0	140	10	EPA 160.1	NA	---	---
56N-2W-9db1	10/24/06	1.89	0.013	EPA 300.0	0.66	0.005	EPA 300.0	90	4.4	EPA 160.1	NA	---	---
	04/24/07	2.41	0.013	EPA 300.0	0.667	0.002	EPA 353.2	86	9.2	EPA 160.1	5.75	0.037	EPA 300.0
56N-2W-2db1	10/23/06	1.6	0.013	EPA 300.0	1.1	0.005	EPA 300.0	66	4.4	EPA 160.1	NA	---	---
	04/25/07	2.04	0.013	EPA 300.0	1.22	0.002	EPA 353.2	90	9.2	EPA 160.1	7.89	0.037	EPA 300.0

Table 5. Laboratory sample results from October 2006 and April 2007 Sagle Aquifer sampling events. Samples collected by DEQ.

Well ID	Sample Date	Cl (mg/L)			NO ₃ -N (mg/L)			TDS (mg/L)			SO ₄ (mg/L)		
		Conc.	MDL	Method	Conc.	MDL	Method	Conc.	MDL	Method	Conc.	MDL	Method
56N-2W-16bc2	10/25/06	0.5	0.2	EPA 300.0	<0.05	0.05	EPA 300.0	69	10	EPA 160.1	NA	---	---
	04/24/07	1.01	0.013	EPA 300.0	0.044	0.002	EPA 353.2	94	9.2	EPA 160.1	6.62	0.037	EPA 300.0
56N-2W-9dc1	10/25/06	3.99	0.2	EPA 300.0	0.84	0.05	EPA 300.0	83	10	EPA 160.1	NA	---	---
	04/24/07	5.4	0.013	EPA 300.0	1.36	0.002	EPA 353.2	94	9.2	EPA 160.1	5.39	0.037	EPA 300.0
56N-2W-9da1	10/24/06	35.7	0.065	EPA 300.0	0.22	0.005	EPA 300.0	190	4.4	EPA 160.1	NA	---	---
56N-2W-16ad1	10/24/06	11.4	0.013	EPA 300.0	0.94	0.005	EPA 300.0	154	4.4	EPA 160.1	NA	---	---
56N-2W-4ca1	10/24/06	0.44	0.013	EPA 300.0	0.68	0.005	EPA 300.0	74	4.4	EPA 160.1	NA	---	---
	04/24/07	0.96	0.013	EPA 300.0	0.733	0.002	EPA 353.2	76	9.2	EPA 160.1	1.67	0.037	EPA 300.0
56N-2W-21aa1	10/26/06	1.15	0.013	EPA 300.0	0.62	0.005	EPA 300.0	102	4.4	EPA 160.1	NA	---	---
	04/25/07	1.53	0.013	EPA 300.0	0.729	0.002	EPA 353.2	68	9.2	EPA 160.1	7.98	0.037	EPA 300.0
56N-2W-17ad1	10/25/06	0.4	0.013	EPA 300.0	<0.05	0.005	EPA 300.0	36	4.4	EPA 160.1	NA	---	---
	04/25/07	1.13	0.013	EPA 300.0	0.039	0.002	EPA 353.2	26	9.2	EPA 160.1	1.5	0.037	EPA 300.0
56N-2W-16ab1	10/25/06	13.9	0.013	EPA 300.0	1.66	0.005	EPA 300.0	90	4.4	EPA 160.1	NA	---	---

Appendix B
Driller's Logs

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Well ID	Northing	Easting	Well Depth	Top of Screen	Bottom of Screen
56N-2W-11ab1	1894107	2312054	97	86	---
56N-2W-11cd1	1892989	2311360	102	94	---
56N-2W-14cd1	1891355	2311371	105	59	105
56N-2W-9db1	1893326	2308524	120	110	120
56N-2W-2bd1	1895466	2311552	160	138	158
56N-2W-2bd2	1895413	2311550	125	120	125
56N-2W-2db1	1894977	2312108	97	92	96
56N-2W-9ac1	1893708	2308541	104	98	104
56N-2W-9da1	1893443	2309057	130	95	125
56N-2W-16ad1	1892242	2309220	117	102	117
56N-2W-9ba1	1894330	2308305	198	120	195
56N-2W-4ca1	1894966	2308376	105	93	103
56N-2W-4bd1	1895619	2308175	118	113	117
56N-2W-16ab1	1892487	2308670	88	83	88
56N-2W-9dc1	1893084	2308800	86	86	---
56N-2W-17ad1	1892352	2307384	68	63	68
56N-2W-16bc2	1892220	2307941	107	101	107
56N-2W-14cb1	1891612	2310871	59	54	58
56N-2W-15dd1	1891293	2310468	25	24	---
56N-2W-14cc1	1891393	2310870	186	175	185
56N-2W-22ad1	1890551	2310662	100	93	99
56N-2W-16bc1	1892275	2307772	101	95	101
56N-2W-15cb1	1891860	2309339	132	132	---
56N-2W-22bb1	1890875	2309394	135	120	135
56N-2W-21aa1	1891045	2309044	118	103	110

Well ID: 56N-2W-11ab1

Form 238-7
8/90

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR
BALLPOINT PEN

WELL DRILLER'S REPORT

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

<p>1. WELL OWNER</p> <p>Name <u>Tom Butterworth</u></p> <p>Address <u>Sagle, Idaho</u></p> <p>Drilling Permit No. <u>96-91-N-67</u></p> <p>Water Right Permit No. _____</p>	<p>7. WATER LEVEL</p> <p>Static water level <u>60'</u> feet below land surface.</p> <p>Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____</p> <p>Artesian closed-in pressure _____ p.s.i.</p> <p>Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug</p> <p>Temperature <u>Cool</u> OF. Quality <u>Good No Small</u></p> <p><i>Describe artesian or temperature zones below.</i></p>																																														
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement</p> <p><input type="checkbox"/> Well diameter increase</p> <p><input type="checkbox"/> Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input type="checkbox"/> Bailor <input checked="" type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td style="text-align: center;">30</td> <td></td> <td></td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	30																																										
Discharge G.P.M.	Pumping Level	Hours Pumped																																													
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<p>3. PROPOSED USE</p> <p><input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Irrigation <input type="checkbox"/> Test <input type="checkbox"/> Municipal</p> <p><input type="checkbox"/> Industrial <input type="checkbox"/> Stock <input type="checkbox"/> Waste Disposal or Injection</p> <p><input type="checkbox"/> Other _____ (specify type)</p>	<p>9. LITHOLOGIC LOG</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Bore 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 style="text-align: center;">8</td> <td style="text-align: center;">0</td> <td style="text-align: center;">26</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">26</td> <td style="text-align: center;">97</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">27</td> <td style="text-align: center;">Clay & gravel</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">27</td> <td style="text-align: center;">30</td> <td style="text-align: center;">Granite boulders</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">30</td> <td style="text-align: center;">72</td> <td style="text-align: center;">Clay gravel & boulders</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td style="text-align: center;">72</td> <td style="text-align: center;">97</td> <td style="text-align: center;">gravel & sand</td> <td></td> <td style="text-align: center;">X</td> </tr> </tbody> </table> <p style="text-align: center; font-weight: bold; font-size: 1.2em;">101512</p>	Bore Diam.	Depth		Material	Water		From	To	Yes	No	8	0	26				6	26	97					0	27	Clay & gravel		X		27	30	Granite boulders		X		30	72	Clay gravel & boulders		X		72	97	gravel & sand		X
Bore Diam.	Depth		Material	Water																																											
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	72	97	gravel & sand		X																																										
<p>4. METHOD DRILLED</p> <p><input checked="" type="checkbox"/> Rotary <input checked="" type="checkbox"/> Air <input type="checkbox"/> Hydraulic <input type="checkbox"/> Reverse rotary</p> <p><input type="checkbox"/> Cable <input type="checkbox"/> Dug <input type="checkbox"/> Other _____</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p style="text-align: center; font-weight: bold;">RECEIVED</p> <p style="text-align: center;">JUN 25 1991</p> <p style="text-align: center; font-size: 0.8em;">NORTHWEST REGION</p> </div>																																														
<p>5. WELL CONSTRUCTION</p> <p>Casing schedule: <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____</p> <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 style="text-align: center;">200</td> <td style="text-align: center;">6</td> <td style="text-align: center;">1</td> <td style="text-align: center;">86</td> </tr> </tbody> </table> <p>Was casing drive shoe used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Was a packer or seal used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Perforated? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>How perforated? <input type="checkbox"/> Factory <input type="checkbox"/> Knife <input type="checkbox"/> Torch <input type="checkbox"/> Gun</p> <p>Size of perforation _____ inches by _____ inches</p> <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>_____ perforations</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ perforations</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ perforations</td> <td>_____ feet</td> <td>_____ feet</td> </tr> </tbody> </table> <p>Well screen installed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Manufacturer's name _____</p> <p>Type _____ Model No. _____</p> <p>Diameter _____ Slot size _____ Set from _____ feet to _____ feet</p> <p>Diameter _____ Slot size _____ Set from _____ feet to _____ feet</p> <p>Gravel packed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Size of gravel _____</p> <p>Placed from _____ feet to _____ feet</p> <p>Surface seal depth <u>25'</u> Material used in seal: <input type="checkbox"/> Cement grout</p> <p><input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Puddling clay <input type="checkbox"/> _____</p> <p>Sealing procedure used: <input type="checkbox"/> Slurry pit <input type="checkbox"/> Temp. surface casing</p> <p><input checked="" type="checkbox"/> Overbore to seal depth</p> <p>Method of joining casing: <input type="checkbox"/> Threaded <input checked="" type="checkbox"/> Welded <input type="checkbox"/> Solvent</p> <p style="text-align: center;">Weld</p> <p><input type="checkbox"/> Cemented between strata</p> <p>Describe access port _____</p>	Thickness	Diameter	From	To	200	6	1	86	Number	From	To	_____ perforations	_____ feet	_____ feet	_____ perforations	_____ feet	_____ feet	_____ perforations	_____ feet	_____ feet	<p>10.</p> <p>Work started <u>6-18-91</u> finished <u>6-19-91</u></p>																										
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200	6	1	86																																												
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<p>6. LOCATION OF WELL</p> <p>Sketch map location <input checked="" type="checkbox"/> must agree with written location</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">N</td> <td style="width: 20px;"></td> <td style="text-align: center;">E</td> </tr> <tr> <td style="text-align: center;">W</td> <td style="width: 20px;"></td> <td style="text-align: center;">E</td> </tr> <tr> <td style="text-align: center;">S</td> <td style="width: 20px;"></td> <td style="text-align: center;">E</td> </tr> </table> <p>Subdivision Name <u>DEC 27 1991</u></p> <p>Lot No. _____ Block No. _____</p> <p>County <u>Bonner</u></p> <p>_____ 1/4 NE 1/4 Sec. <u>4</u> T. <u>56</u> N. <u>2</u> S. R. <u>2</u> W. <u>2</u></p>	N		E	W		E	S		E	<p>11. DRILLERS CERTIFICATION <u>20</u></p> <p>I/We certify that all minimum well construction standards were complied with at the time the rig was removed.</p> <p>AQUA Drilling & Exploration Inc.</p> <p>Firm Name _____ Firm No. <u>163</u></p> <p><u>P.O. Box 225</u></p> <p>Address <u>CDA, Idaho 83814</u> Date <u>6-19-91</u></p> <p>Signed by (Firm Official) <u>Scott M. Beaumont</u></p> <p>and</p> <p>(Operator) <u>Wayne Miller</u></p>																																					
N		E																																													
W		E																																													
S		E																																													

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

Well ID: 56N-2W-11cd1

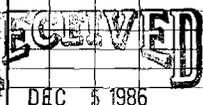
Form 238-7
9/82

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

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



<p>1. WELL OWNER</p> <p>Name <u>Howard L. Converse</u> Address <u>1034 Lignite Rd.</u> <u>Sagle, ID 83860</u> Owner's Permit No. <u>96-86-N-93</u></p>	<p>7. WATER LEVEL</p> <p>Static water level <u>50</u> feet below land surface. Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug Temperature _____ °F. Quality _____ <i>Describe artesian or temperature zones below.</i></p>																																					
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement <input type="checkbox"/> Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td colspan="3" style="text-align:center;">6-10 GPM - ESTIMATED AIRLIFT</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	6-10 GPM - ESTIMATED AIRLIFT																																	
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<p>3. PROPOSED USE</p> <p><input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Irrigation <input type="checkbox"/> Test <input type="checkbox"/> Municipal <input type="checkbox"/> Industrial <input type="checkbox"/> Stock <input type="checkbox"/> Waste Disposal or Injection <input type="checkbox"/> Other _____ (specify type)</p>	<p>9. LITHOLOGIC LOG</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Bore Diam.</th> <th colspan="2">Depth</th> <th rowspan="2">Material</th> <th rowspan="2">Water Yes/No</th> </tr> <tr> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>10"</td> <td>0</td> <td>5</td> <td>Top soil</td> <td>X</td> </tr> <tr> <td>10"</td> <td>5</td> <td>20</td> <td>Sand & gravel</td> <td>X</td> </tr> <tr> <td>6"</td> <td>20</td> <td>27</td> <td>Sand & gravel</td> <td>X</td> </tr> <tr> <td>6"</td> <td>27</td> <td>58</td> <td>Clay w/gravel, orange</td> <td>X</td> </tr> <tr> <td>6"</td> <td>58</td> <td>90</td> <td>Clay w/gravel, tan</td> <td>X</td> </tr> <tr> <td>6"</td> <td>90</td> <td>102</td> <td>Sand & large gravel</td> <td>XX</td> </tr> </tbody> </table> <p style="text-align:center;">100904</p> <p>NOTE: SET PUMP AT 85'</p> <p>No PVC Liner Installed</p> <p>6" Drive shoe utilized</p>	Bore Diam.	Depth		Material	Water Yes/No	From	To	10"	0	5	Top soil	X	10"	5	20	Sand & gravel	X	6"	20	27	Sand & gravel	X	6"	27	58	Clay w/gravel, orange	X	6"	58	90	Clay w/gravel, tan	X	6"	90	102	Sand & large gravel	XX
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N																																						
	W	X	E																																			
		S																																				



Well ID: 56N-2W-14cd1

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 0028739
DRILLING PERMIT NO. 806682
Water Right or Injection Well No. _____

2. OWNER:
Name Shawn Zener
Address PO Box 10815
City Sage State Id. Zip 83860

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 56N North or South
Rge. 2 East or West
Sec. 14 SE 1/4 SW 1/4
Gov't Lot _____
Address of Well Site _____
City Sage

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 _____
Deposit

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	30	300#	Overbone

Was drive shoe used? Y N Shoe Depth(s) 90
Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	11	90	250	Steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

9. PERFORATIONS/SCREENS PACKER TYPE

Perforation Method _____
Screen Type & Method of Installation Stainless Steel

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
-95	105	16		6	Steel	<input type="checkbox"/>	<input type="checkbox"/>

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

40 ft. below ground Artesian pressure _____ lb.
Depth flow encountered 90 ft. Describe access port or control devices:
Well Seal

12. WELL TESTS:

Pump Bailer Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
15	65	105	4 hr

Water Temp. 46° Bottom hole temp. _____
Water Quality test or comments: _____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water
8	0	3	Fill dirt	Y
8	3	4	Top Soil	Y
8	4	19	Clay - Bolders	Y
8	19	87	Hardpan - Bolders	Y
8	87	90	Brown clay gravel	Y
8	90	97	Gravel	Y
8	97	105	Water Sand	X

300.00
5830.12
RECEIVED
MAY 1 2003
IDW 1000

Completed Depth 97 (Measurable)
Date: Started 9-10-03 Completed 9-11-07

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 Bob Pitts, sons Firm No. 235
Principal Driller Bob Pitts Date 9-11-03
and _____
Driller or Operator II _____ Date _____
Operator I _____ Date _____

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

FORWARD WHITE COPY TO WATER RESOURCES

56 N 2 W 14

Well ID: 56N-2W-9db1

RECEIVED
 Form 208-7
 3/95
MAR 25 1997
 NORTHERN REGION
 DRILLING PERMIT NO. 96-97-N-17

DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
 Use Typewriter or Ballpoint Pen **097359**

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

Other IDWR No. _____

2. OWNER: Jon Nylund
 Name _____
 Address 206 N. 4th Ave #125
 City Sawtooth State ID Zip 83864

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

Twp. 56 North or South
 Rge. 2 East or West
 Sec. 9 SE 1/4 NW 1/4 SW 1/4
 Gov't Lot _____ County Bonner 10 acres 40 acres 160 acres
 Lat: : : Long: : :
 Address of Well Site Spade Rd
 City Sagle
 (Give at least name of road - Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

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

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

6. DRILL METHOD
 Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Pounds	
<u>Bentonite</u>	<u>0</u>	<u>20</u>	<u>6</u>	<u>Overbored</u>

Was drive shoe used? Y N Shoe Depth(s) 110'
 Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>6 7/2</u>	<u>0</u>	<u>110</u>	<u>.250</u>	<u>Steel</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe 5' Length of Tailpipe 0

9. PERFORATIONS/SCREENS
 Perforations Method _____
 Screens Screen Type Stainless Steel (316)

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>120</u>	<u>115</u>	<u>#20</u>	<u>1</u>	<u>5"</u>	<u>S. Steel</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>115</u>	<u>110</u>	<u>#12MM</u>	<u>1</u>	<u>5"</u>	<u>S. Steel</u>	<input type="checkbox"/>	<input type="checkbox"/>

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

SE NWSW 9 56N 2W

11. WELL TESTS:
 Pump Bailer Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
<u>20</u>			<u>4 Hours</u>

Water Temp. _____ Bottom hole temp. _____
 Water Quality test or comments: _____
 Depth first Water Encountered 73'

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

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>8</u>	<u>0</u>	<u>3</u>	<u>SAND and Soil</u>		<input checked="" type="checkbox"/>
<u>8</u>	<u>3</u>	<u>33</u>	<u>SAND and GRAVEL</u>		<input checked="" type="checkbox"/>
<u>6</u>	<u>33</u>	<u>72</u>	<u>SAND</u>		<input checked="" type="checkbox"/>
<u>6</u>	<u>72</u>	<u>73</u>	<u>Clay</u>		<input checked="" type="checkbox"/>
<u>6</u>	<u>73</u>	<u>120</u>	<u>SAND</u>	<input checked="" type="checkbox"/>	

Completed Depth 120' (Measurable)
 Date: Started 2-19-97 Completed 2-19-97

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

Firm Name Hester Well Drilling Inc. Firm No. 528
 Firm Official Ken West Date 2-19-97
 and
 Supervisor or Operator C. Mark Heston Date 2-19-97
 (Sign once if Firm Official & Operator)

Well ID: 56N-2W-2bd2

Form 238-7
9/82

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

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

USE TYPEWRITER OR BALLPOINT PEN
RECEIVED
90
MAR 13 1988

<p>1. WELL OWNER</p> <p>Name <u>BILL CLERIHAN</u> Address <u>72868 PITINMYA PALM DESERT, CA, 92260</u> Owner's Permit No. <u>96-87-N-62</u></p>	<p>7. WATER LEVEL</p> <p>Department of Water Resources Static water level <u>3</u> feet below land surface. Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug Temperature _____ °F. Quality _____ <i>Describe artesian or temperature zones below.</i></p>																																														
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement <input type="checkbox"/> Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td style="text-align: center;">10</td> <td style="text-align: center;">60'</td> <td style="text-align: center;">2</td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	10	60'	2																																								
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<p>6. LOCATION OF WELL</p> <p>Sketch map location must agree with written location.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">N</td> <td style="width: 50px;"></td> <td style="text-align: center;">E</td> </tr> <tr> <td style="text-align: center;">W</td> <td style="text-align: center;">•</td> <td style="text-align: center;">E</td> </tr> <tr> <td style="text-align: center;">S</td> <td style="width: 50px;"></td> <td style="text-align: center;">E</td> </tr> </table> <p>Subdivision No. _____ Lot No. <u>6</u> Block No. _____ County <u>BONNER</u></p>	N		E	W	•	E	S		E	<p>11. DRILLERS CERTIFICATION</p> <p>I/We certify that all minimum well construction standards were complied with at the time the rig was removed.</p> <p>Firm Name <u>WOOD WELL DRILLING</u> Firm No. <u>389</u> Address <u>N. 21303 NEWPORT HWY CALBERT, WA 99005</u> Date <u>2/1/88</u> Signed by (Firm Official) <u>Philip Wood</u> and _____ (Operator)</p>																																					
N		E																																													
W	•	E																																													
S		E																																													

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

Well ID: 56N-2W-2db1

Form 238-7
1/78

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

USE TYPEWRITER OR
BALLPOINT PEN

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

<p>1. WELL OWNER Name <u>Alfred Mensterman</u> Address <u>RT 1 B 35 Sage, Ida 83860</u> Owner's Permit No. <u>96-82-N-16</u></p>	<p>7. WATER LEVEL Static water level <u>20'</u> feet below land surface. Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____ Artesian closed-in pressure <u>0</u> p.s.i. Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug Temperature <u>42</u> °F. Quality _____</p>																																					
<p>2. NATURE OF WORK <input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement <input type="checkbox"/> Abandoned (describe method of abandoning) _____</p>	<p>8. WELL TEST DATA <input checked="" type="checkbox"/> Pump <input checked="" type="checkbox"/> Bailor <input type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td style="text-align: center;">30</td> <td style="text-align: center;">40'</td> <td style="text-align: center;">3</td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	30	40'	3																															
Discharge G.P.M.	Pumping Level	Hours Pumped																																				
30	40'	3																																				
<p>3. PROPOSED USE <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Irrigation <input type="checkbox"/> Test <input type="checkbox"/> Municipal <input type="checkbox"/> Industrial <input type="checkbox"/> Stock <input type="checkbox"/> Waste Disposal or Injection <input type="checkbox"/> Other _____ (specify type)</p>	<p>9. LITHOLOGIC LOG</p> <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 rowspan="2">Water Yes No</th> </tr> <tr> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>1</td> <td>2</td> <td>Topsoil</td> <td style="text-align: center;">✓</td> </tr> <tr> <td></td> <td>2</td> <td>4</td> <td>hard clay sand</td> <td style="text-align: center;">✓</td> </tr> <tr> <td></td> <td>4</td> <td>40</td> <td>brown clay</td> <td style="text-align: center;">✓</td> </tr> <tr> <td></td> <td>40</td> <td>85</td> <td>blue clay</td> <td style="text-align: center;">✓</td> </tr> <tr> <td></td> <td>85</td> <td>92</td> <td>brown clay hard</td> <td style="text-align: center;">✓</td> </tr> <tr> <td></td> <td>92</td> <td>97</td> <td>sand & gravel</td> <td style="text-align: center;">✓</td> </tr> </tbody> </table>	Hole Diam.	Depth		Material	Water Yes No	From	To	6	1	2	Topsoil	✓		2	4	hard clay sand	✓		4	40	brown clay	✓		40	85	blue clay	✓		85	92	brown clay hard	✓		92	97	sand & gravel	✓
Hole Diam.	Depth		Material	Water Yes No																																		
	From	To																																				
6	1	2	Topsoil	✓																																		
	2	4	hard clay sand	✓																																		
	4	40	brown clay	✓																																		
	40	85	blue clay	✓																																		
	85	92	brown clay hard	✓																																		
	92	97	sand & gravel	✓																																		
<p>4. METHOD DRILLED <input type="checkbox"/> Rotary <input type="checkbox"/> Air <input type="checkbox"/> Hydraulic <input type="checkbox"/> Reverse rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Dug <input type="checkbox"/> Other _____</p>	<p>10. Work started <u>11/1/82</u> finished <u>11/4/82</u></p>																																					
<p>5. WELL CONSTRUCTION Casing schedule: <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____ Thickness _____ inches Diameter _____ inches From _____ feet To _____ feet Was casing drive shoe used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Was a packer or seal used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Perforated? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No How perforated? <input type="checkbox"/> Factory <input type="checkbox"/> Knife <input checked="" type="checkbox"/> Torch Size of perforation <u>.4"</u> inches by <u>3</u> inches Number _____ perforations From _____ feet To _____ feet _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet Well screen installed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Manufacturer's name <u>COOK</u> Type <u>stainless steel</u> Model No. _____ Diameter <u>6</u> Slot size <u>25</u> Set from <u>92</u> feet to <u>97</u> feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>18'</u> Material used in seal: <input type="checkbox"/> Cement grout <input type="checkbox"/> Well cuttings <input checked="" type="checkbox"/> Pudding clay <input type="checkbox"/> Slurry pit <input checked="" type="checkbox"/> Temp. surface casing <input type="checkbox"/> Overbore to seal depth Method of joining casing: <input type="checkbox"/> Threaded <input checked="" type="checkbox"/> Welded <input type="checkbox"/> Solvent Weld <input type="checkbox"/> Cemented between strata Describe access port <u>hole in well seal</u></p>	<p>11. DRILLERS CERTIFICATION <u>RL</u> I/We certify that all minimum well construction standards were complied with at the time the rig was removed. Firm Name <u>Bob Pitts & Sons</u> Firm No. <u>235</u> Address <u>RT 3 Box 106</u> Date <u>11/19/82</u> Signed by (Firm Official) <u>Jyle Pitts</u> and (Operator) <u>Marl Pitts</u></p>																																					
<p>6. LOCATION OF WELL Sketch map location must agree with written location. Subdivision Name _____ Lot No. _____ Block No. _____ County <u>Bonner</u> NW 1/4 <u>8E</u> 1/4 Sec. <u>2</u> T. <u>56</u> N/S, R. <u>2</u> E/W</p>	<p>USE ADDITIONAL SHEETS IF NECESSARY - FORWARD THE WHITE COPY TO THE DEPARTMENT</p>																																					

Well ID: 56N-2W-9da1

Form 238-7
7/98
Starships Consulting and
Management Services

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. **WELL TAG NO.** D0028339
Drilling Permit No: 799862
Other IDWR No. 370781

2. **OWNER** Well Number: 710
Name SOUTHSIDE WATER & SEWER C/C
Address 7825 MEADOWLARK WAY #A
City COEUR D'ALENE State ID Zip 83815

3. **LOCATION OF WELL by legal description**
sketch map location must agree with written location

N W E S	Twp. 56 <input checked="" type="checkbox"/> North or <input type="checkbox"/> South	
	Rge. 02 <input type="checkbox"/> East or <input checked="" type="checkbox"/> West	
	Sec. 9 <input type="checkbox"/> 1/4 NE <input type="checkbox"/> 1/4 SE <input type="checkbox"/> 1/4	
Gov't Lot _____ County <u>BONNER</u>		
Lat: : : Long: : : :		
Address of Well Site <u>GRAVEL PIITS</u>		
City <u>SAGLE</u>		

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

Lt. _____ Blk. _____ Sub. Name _____

4. **USE:**

Domestic Municipal Monitor Irrigation
 Thermal Injection Other RESOURCE PRO

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	
3/8 HOLE PLUG				
BENTONITE	0	85	28	DRY POUR

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
2	3	130		PVC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Length of Headpipe _____ Length of Tailpipe _____

9. **PERFORATIONS/SCREENS**

Perforations Method _____

Screens Screen Type PVC JOHNSON

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
95	105	10		2	S STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>
120	125	10		2	S STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>

10. **STATIC WATER LEVEL OR ARTESIAN PRESSURE:**

100 ft. below ground Artesian pressure _____ lb.

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

56N 2W 9

11. **WELL TESTS:**

Pump Bailer Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
3			

Water Temp. _____ Bottom Hole Temp _____

Water Quality test or comments: _____

Depth first Water encountered 100

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

Bore Diam	From	To	Remarks: Lithology, Water Quality, Temperature	Water	
				Y	N
6	0	16	SAND & GRAVEL	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	16	135	SAND FINE SILTY W/ CLAY SEA	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Revised

RECEIVED

FEB 22 2004

IDWR/North

RECEIVED

JAN 22 2004

IDWR/North

Completed Depth 130 (Measurable)

Date: Started 4/29/03 Completed 4/30/03

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 H2O Well Service, Inc. Firm No. 448

Firm Official [Signature] Date 1-19-04

and [Signature] Date 1-15-04

Supervisor or Operator [Signature] Date _____

(Sign Once if Firm Official and Operator)

Well ID: 56N-2W-16ad1

Form 238-7
7/98
Starships Consulting and
Management Services

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

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

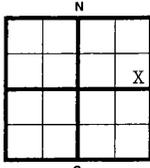
RECEIVED
DEC 18 2001



1. WELL TAG NO. D0017909
Drilling Permit No: 771523
Other IDWR No. 96-8993

2. OWNER **Well Number:**
Name TRAVEL AMERICA / NELSON FERF 348
Address P.O. BOX 199
City SAGLE State ID Zip 8.3860

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



Twp. 56N North or South
Rge. 2W East or West
Sec. 16 SE 1/4 NE 1/4 1/4

Gov't Lot _____ County BONNER
Lat. : : Long. : :

Address of Well Site
City SAGLE

(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Bik. _____ Sub. Name _____

4. USE:
 Domestic Municipal Monitor Irrigation
 Thermal Injection Other multiple Residence

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

Material	SEAL/FILTER PACK		AMOUNT Sacks or Pounds	METHOD
	From	To		
BENTONITE	0	30	22 BAGS	TEMP. CASING

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
7	-97	102	.250	STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8	+2	102	.322	STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe 5 Length of Tailpipe _____

9. PERFORATIONS/SCREENS
 Perforations Method
 Screens Screen Type STAINLESS STEEL

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
102	107	16		7	SS	<input type="checkbox"/>	<input type="checkbox"/>
107	117	15		7	S.S.	<input type="checkbox"/>	<input type="checkbox"/>

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
58 ft. below ground Artesian pressure _____ lb.
Depth flow encountered 80 ft. Describe access port or control devices: _____

56N 2W 16

11. WELL TESTS:
 Pump Bailor Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
50+			3 HRS

Water Temp. COLD Bottom Hole Temp. COLD
Water Quality test or comments: CLEAR
Depth first Water encountered 80

12. LITHOLOGIC LOG:(Describe repairs or abandonment)

Bore Diam	From	To	Remarks: Lithology, Water Quality, Temperature	Water	
				Y	N
12	1	4	Top Soil	<input type="checkbox"/>	<input type="checkbox"/>
12	4	13	Sand & Gravel	<input type="checkbox"/>	<input type="checkbox"/>
12	13	30	Sand	<input type="checkbox"/>	<input type="checkbox"/>
8	30	58	Sand	<input type="checkbox"/>	<input type="checkbox"/>
8	58	117	Sand	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Completed Depth 117 (Measurable)
Date: Started 12/12/01 Completed 12/14/01

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 H2O WellService, Inc. Firm No. 448
Firm Official Todd Morgan Date 12-17-01

and
Supervisor or Operator Todd Morgan Date 12-17-01
(Sign Once if Firm Official and Operator)

Todd Morgan

Well ID: 56N-2W-4ca1

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES *state*
WELL DRILLER'S REPORT

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

1. WELL TAG NO. D 40627
DRILLING PERMIT NO. 836a50
Other IDWR No. _____
2. OWNER: Steve Hecker
Name Steve Hecker
Address 713 Spades Rd
City Sagle State ID Zip 83860

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

North or South
Rge. 2 East or West
Sec. 4 1/4 SW 1/4 SW 1/4
Gov't Lot _____ County Bonner
Lat: _____ Long: _____
Address of Well Site Same City Sagle
(Give at least name of road - Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name _____

4. USE:
 Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____
5. TYPE OF WORK check all that apply (Replacement etc.)
 New Well Modify Abandonment Other _____
6. DRILL METHOD
 Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK		AMOUNT		METHOD
Material	From	To	Sacks or Pounds	
Granular Bentonite	0	20	200#	Temp Casing

Was drive shoe used? N Shoe Depth(s) 94'
Was drive shoe seal tested? Y N How? Bailor

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	94	250	Steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe 2' Length of Tailpipe N/A

9. PERFORATIONS/SCREENS

Perforations Method Telescoping
Screens Screen Type Stainless Steel

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
93'	103'	35		5"	S.S.	<input type="checkbox"/>	<input type="checkbox"/>

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

11. WELL TESTS:

Yield gal./min.	Drawdown	Pumping Level	Time
Approx. <u>5</u> GPM	<u>100%</u>	<u>103'</u>	<u>2 hours</u>

Water Temp. Cold Bottom hole temp. Cold
Water Quality test or comments: Cloudy

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

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8"	0	20			
6"	20	105			
	0	40	cemented sand & cobbles Lt. Br.		<input checked="" type="checkbox"/>
	40	75	Lt. Br. Sandy clay Hd. pn		<input checked="" type="checkbox"/>
	75	80	" " sandy clay		<input checked="" type="checkbox"/>
	80	95	gravel & sand Hd. pn		<input checked="" type="checkbox"/>
	95	105	strips of water sand in Hd. pn.		<input checked="" type="checkbox"/>
			Lost 2' in screen installation		

RECEIVED
OCT 19 2005
IDWR/Norid

208-263-5974

Mark Pitts
Robin Pitts

Serving
North Idaho
Over 20 Years



DRILLING • PUMPS • WATER TREATMENT
Complete Systems • From the Well To The House

435 Woodview Rd. • Sandpoint, ID 83864

Completed Depth 103 (Measurable)
Date: Started 16 Sept 2005 Completed 17 Sept 05

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 Sweetwater Dnlg. Firm No. 509

Firm Official Mark W. Pitts Date 9/19/05

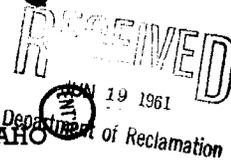
and
Driller or Operator _____ Date _____
(Sign once if Firm Official & Operator)

56N 2W 4

FORWARD WHITE COPY TO WATER RESOURCES

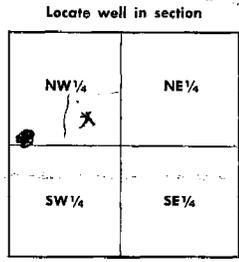
Well ID: 56N-2W-4bd1

024778



WELL LOG AND REPORT OF THE STATE RECLAMATION ENGINEER OF IDAHO

Permit No. 96-61-N-3 Well No. 6 County Bonner
 Owner Jerry Spade
 Address Sagle Idaho
 Driller Bob. Pitts & Keith Booth
 Address Sandpoint, Idaho



Well location S. E 1/4 N.W. 1/4 Sec. 4, T. 56 N. R. 2 W.
 Size of drilled hole 6"
 Total depth of well 117' 6"

Give depth to standing water from the ground 37 Water temp. 42 °Fahr.
 On "Pumping Test" delivery was 12 g.p.m. or c.f.s. Drawdown was 62 feet.
 Size of pump and motor used to make test rig bucket
 Length of time of test 2 hours 50 minutes.
 If flowing well, give flow c.f.s. or g.p.m. and of shut off pressure

If flowing well, described control works (TYPE AND SIZE OF VALVE, ETC.)
 Water will be used for domestic Weight of casing per lineal foot 161 lbs.
 Thickness of casing 230 Casing material steel (STEEL, CONCRETE, WOOD, ETC.)
 Diameter, length and location of casing 6" 117' 9" underground
(CASING 12" IN DIAMETER OR LESS, GIVE INSIDE DIAMETER; CASING OVER 12" IN DIAMETER, GIVE OUTSIDE DIAMETER)

CASING RECORD

Diam. Casing	From Feet	To Feet	Length	Remarks—seals, grouting, etc.
6"	0	117' 6"	117' 6"	

Number and size of perforations 20 - 3" perf. located 113 feet to 117 feet from ground

Date of commencement of well 5-24-1961 Date of completion of well 6-8-1961

SE NW 5. 4 56 N 2 W *well*

76

Well ID: 56N-2W-16ab1

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Form 238-7
3/95

JUN 25 1997

IDAHO DEPARTMENT OF WATER RESOURCES

POSTED

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

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

NORTHERN REGION

1. DRILLING PERMIT NO. 16-97-N-80-79

11. WELL TESTS:

Yield gal/min.	Drawdown	Pumping Level	Time
8	30	75	1hr

2. OWNER: Mike Kinney
Name _____
Address 579 Sunpoint, IDAHO 83864
City _____ State _____ Zip _____

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

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N		Twp. <u>56</u> North <input checked="" type="checkbox"/> or South <input type="checkbox"/>	
W		Rge. <u>2</u> East <input type="checkbox"/> or West <input checked="" type="checkbox"/>	
E		Sec. <u>16</u> 1/4 <u>SW</u> 1/4 <u>NE</u> 1/4	
S		Gov't Lot _____ County <u>BONNER</u> 10 acres 40 acres 160 acres	
		Lat: _____ Long: _____	

Address of Well Site _____
City SAGE
Lt. 1 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

Material	SEA/FILTER PACK		METHOD
	From	To	
<u>DRY BENTONITE</u>	<u>0</u>	<u>20</u>	<u>TEMP SURF CASING</u>

Was drive shoe used? Y N Shoe Depth(s) 83'
Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>6"</u>	<u>1</u>	<u>83'</u>	<u>20</u>	<u>STEEL</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations Method _____
 Screens Screen Type COOK STAINLESS STEEL

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>83</u>	<u>88</u>	<u>.016</u>		<u>6"</u>		<input type="checkbox"/>	<input type="checkbox"/>

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

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

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>8"</u>	<u>0</u>	<u>1</u>	<u>TOP SOIL</u>		<input checked="" type="checkbox"/>
<u>8"</u>	<u>1</u>	<u>20</u>	<u>SAND + GRAVEL</u>		<input checked="" type="checkbox"/>
<u>6"</u>	<u>20</u>	<u>25</u>	<u>SAND + GRAVEL</u>		<input checked="" type="checkbox"/>
<u>6"</u>	<u>25</u>	<u>75</u>	<u>GRAVEL + CLAY</u>		<input checked="" type="checkbox"/>
<u>6"</u>	<u>75</u>	<u>88</u>	<u>SAND + GRAVEL</u>		<input checked="" type="checkbox"/>

Completed Depth 88' (Measurable)
Date: Started 13 JUN 97 Completed 18 JUN 97

13. DRILLER'S CERTIFICATION

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

Firm Name Bob Pitts & Sons Firm No. 235

Firm Official Dale Pitts Date 19-June-97

and Supervisor or Operator Mike Ahner Date 19-June 97

SWNE 16 56N 2W

IDAHO DEPARTMENT OF WATER RESOURCES

Well ID: 56N-2W-9dc1

Form 238-7
9/82

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR
BALLPOINT PEN

WELL DRILLER'S REPORT

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

RECEIVED
SEP 30 1985
Department of Water Resources
Northern District Office

<p>1. WELL OWNER</p> <p>Name <u>Mrs & Mrs Bruce Bengeman</u></p> <p>Address <u>Box 175 Sagle, Idaho 83860</u></p> <p>Owner's Permit No. <u>96-85-N-96</u></p>	<p>7. WATER LEVEL</p> <p>Static water level <u>66</u> feet below land surface</p> <p>Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Artesian closed-in pressure _____ p.s.i.</p> <p>Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug</p> <p>Temperature <u>50</u> °F. Quality <u>clear</u></p> <p><small>Describe artesian or temperature zones below.</small></p>																																		
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement</p> <p><input type="checkbox"/> Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input type="checkbox"/> Bailor <input checked="" type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td><u>15-20</u></td> <td><u>at test approx</u></td> <td></td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	<u>15-20</u>	<u>at test approx</u>																													
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<p>3. PROPOSED USE</p> <p><input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Irrigation <input type="checkbox"/> Test <input type="checkbox"/> Municipal</p> <p><input type="checkbox"/> Industrial <input type="checkbox"/> Stock <input type="checkbox"/> Waste Disposal or Injection</p> <p><input type="checkbox"/> Other _____ (specify type)</p>	<p>9. LITHOLOGIC LOG</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Bore 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><u>8</u></td> <td><u>0</u></td> <td><u>1</u></td> <td><u>top soil</u></td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><u>8</u></td> <td><u>1</u></td> <td><u>26</u></td> <td><u>sand-light gravel</u></td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><u>6</u></td> <td><u>26</u></td> <td><u>72</u></td> <td><u>fine sand</u></td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><u>72</u></td> <td><u>86</u></td> <td></td> <td><u>trans sand + gravel</u></td> <td></td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table>	Bore Diam.	Depth		Material	Water		From	To	Yes	No	<u>8</u>	<u>0</u>	<u>1</u>	<u>top soil</u>		<input checked="" type="checkbox"/>	<u>8</u>	<u>1</u>	<u>26</u>	<u>sand-light gravel</u>		<input checked="" type="checkbox"/>	<u>6</u>	<u>26</u>	<u>72</u>	<u>fine sand</u>		<input checked="" type="checkbox"/>	<u>72</u>	<u>86</u>		<u>trans sand + gravel</u>		<input checked="" type="checkbox"/>
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Well ID: 56N-2W-17ad1

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

ENT'D

RECEIVED

WELL DRILLER'S REPORT

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

Department of Water Resources
Northern District Office

1. WELL OWNER
Name Tony Koble
Address Box D, Sandpoint
Owner's Permit No. 96-76-N-33

2. NATURE OF WORK
 New well Deepened Replacement
 Abandoned (describe method of abandoning)

3. PROPOSED USE
 Domestic Irrigation Test Other (specify type)
 Municipal Industrial Stock Waste Disposal or injection

4. METHOD DRILLED
 Cable Rotary Dug Other

5. WELL CONSTRUCTION
Diameter of hole 6 inches Total depth 69 feet
Casing schedule: Steel Concrete
Thickness 220 inches Diameter 6 inches From 1 feet To 68 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 7/16 inches by 204 inches
Number 20 perforations From 63 feet To 68 feet
Well screen installed? Yes No
Manufacturer's name _____
Type _____ Model No. _____
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
 Pudding clay Well cuttings
Sealing procedure used Slurry pit Temporary surface casing
 Overbore to seal depth

6. LOCATION OF WELL
Sketch map location must agree with written location. 96
Subdivision Name _____
Lot No. _____ Block No. _____
County Bonner
SE 1/4 NE 1/4 Sec. 17, T. 56 N, R. 2 W

7. WATER LEVEL
Static water level 30 feet below land surface
Flowing? Yes No G.P.M. flow _____
Temperature 42 F. Quality good
Artesian closed-in pressure _____ p.s.i.
Controlled by Valve Cap Plug

8. WELL TEST DATA
 Pump Bailor Other
Discharge G.P.M. 20 Draw Down 30-60 Hours Pumped 1

9. LITHOLOGIC LOG
Hole Diam. Depth From To Material Water Yes No
6 0 2 top soil
2 30 fine sand
30 60 fine sand & little gravel
60 68 gravel

10. Work started 8-18-76 finished 8-28-76

11. DRILLERS CERTIFICATION
Firm Name Bob P. H. & Sons Well Drilling Firm No. 235
Address Rt 3 Box 106 Date 8-30-76
Signed by (Firm Official) Bob P. H.
and Lyle P. H.
(Operator)

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

Well ID: 56N-2W-16bc2

USE TYPEWRITER OR BALL POINT PEN

State of Idaho Department of Water Resources

RECEIVED

WELL DRILLER'S REPORT

JUL 25 1976

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

1. WELL OWNER
Name David Fournier
Address Rt 1 Box 287 Ingledale
Owner's Permit No. 96-76-N-17

2. NATURE OF WORK
 New well Deepened Replacement
 Abandoned (describe method of abandoning)

3. PROPOSED USE
 Domestic Irrigation Test Other (specify type)
 Municipal Industrial Stock Waste Disposal or injection

4. METHOD DRILLED
 Cable Rotary Dug Other

5. WELL CONSTRUCTION
Diameter of hole 6 inches Total depth 106⁵ feet
Casing schedule: Steel Concrete
Thickness Diameter From To
280 inches 6 inches 1 feet 100 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 _____ inches by _____ inches
Number From To
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
_____ perforations _____ feet _____ feet
Well screen installed? Yes No
Manufacturer's name Johanson
Type Stamper Model No. _____
Diameter 6 Slot size 15 Set from 101 feet to 106⁵ 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
 Pudding clay Well cuttings
Sealing procedure used Sherry pit Temporary surface casing
 Overbore to seal depth

6. LOCATION OF WELL
Sketch map location must agree with written location. (96)
Subdivision Name _____
Lot No. _____ Block No. _____
County Bonner
S.W. 1/4 NW 1/4 Sec. 16, T. 56 N., R. 2 W.

7. WATER LEVEL
Static water level 60 feet below land surface
Flowing? Yes No G.P.M. flow _____
Temperature 42 ° F. Quality good
Artesian closed-in pressure _____ p.s.i.
Controlled by Valve Plug

8. WELL TEST DATA
 Pump Bailer Other
Discharge G.P.M. 15 Draw Down 15 Hours Pumped 2

9. LITHOLOGIC LOG
Hole Diam. Depth From To Material Water Yes No
6 0 1 Top soil _____
1 14 14 gravelly sand _____
14 60 60 fine sand _____
60 86 86 bluish sand _____
86 91 91 fine sand _____
91 106 106 clay s _____

10. Work started 6-12-76 finished 6-24-76

11. DRILLERS CERTIFICATION
Firm Name Bob Pitts Well Drilling Firm No. 235
Address Rt 1 Box 106 Ingledale Date 7-14-76
Signed by (Firm Official) Bob Pitts
and Bob Pitts
(Operator)

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

Well ID: 56N-2W-14cb1

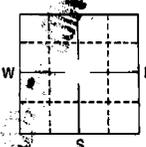
Form 238-7
1/78



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

USE TYPEWRITER OR
BALLPOINT PEN

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

<p>1. WELL OWNER</p> <p>Name <u>Jim Reel</u></p> <p>Address <u>Box 1421 Sandpoint Id.</u></p> <p>Owner's Permit No. <u>96-82-N-9883864</u></p>	<p>7. WATER LEVEL</p> <p>Static water level <u>34</u> feet below land surface.</p> <p>Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow <u>---</u></p> <p>Artesian closed-in pressure _____ p.s.i.</p> <p>Controlled by: <input type="checkbox"/> Valve <input checked="" type="checkbox"/> Cap <input type="checkbox"/> Plug</p> <p>Temperature <u>42</u> of. Quality <u>Good</u></p>																																																				
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USE ADDITIONAL SHEETS IF NECESSARY - FORWARD THE WHITE COPY TO THE DEPARTMENT

Well ID: 56N-2W-15dd1

Form 238-7
1/78

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

USE TYPEWRITER OR
BALLPOINT PEN

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



<p>1. WELL OWNER</p> <p>Name <u>Mr & Mrs Wm Bidwell</u> Address <u>Rt 1 Box 224 Seale Ida</u> Owner's Permit No. <u>96-80-N-24</u></p>	<p>7. WATER LEVEL</p> <p>Static water level <u>9</u> feet below land surface. Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug Temperature _____ of. Quality <u>good</u></p>																																								
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement <input type="checkbox"/> Abandoned (describe method of abandoning) _____</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td><u>15-20</u></td> <td><u>air test</u></td> <td></td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	<u>15-20</u>	<u>air test</u>																																			
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<p>11. DRILLERS CERTIFICATION</p> <p>I/We certify that all minimum well construction standards were complied with at the time the rig was removed.</p> <p>Firm Name <u>Intermountain Drilling</u> Firm No. <u>252</u> Address <u>Orist River</u> Date <u>8-30-80</u> Signed by (Firm Official) <u>Thomas D. Huffer</u> and (Operator) <u>Thomas D. Huffer</u></p>																																									

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

Well ID: 56N-2W-14cc1

RECEIVED
Form 238-7
11/82
SEP 20 1999

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

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

1. WELL DRILLER'S NO. 10563
DRILLING PERMIT NO. 96-99-N-213
Other IDWR No. _____

11. WELL TESTS: 077039

Yield gal/min	Drawdown	Pumping Level	Time
50 plus	165'	185'	2 Hr.

2. OWNER: Bill Brown
Name _____
Address 747 S. Sagle Rd
City Sagle State ID Zip 83860

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

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

Sketch map location must agree with written location.

N		Twp. <u>56</u> North <input checked="" type="checkbox"/> or South <input type="checkbox"/>	
E		Rge. <u>7</u> East <input type="checkbox"/> or West <input checked="" type="checkbox"/>	
S		Sec. <u>14</u> 1/4 NW 1/4 SW 1/4	
W		Gov't Lot _____ County <u>Banner</u> 10 acres 40 acres 160 acres	

Lat: _____ Long: _____
Address of Well Site Same
Near Galvanized Sided St. City Sagle
(Give at least name of road or Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

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

Bore Dia	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8"	0	185'			
	0	6"	Topsoil		<input checked="" type="checkbox"/>
	6"	169'	Dirty Sand, Boulders and hard pan Clay		<input checked="" type="checkbox"/>
	169'	174'	Reddish hard dry Clay		<input checked="" type="checkbox"/>
	174'	186'	Water Sand & Gravel		<input checked="" type="checkbox"/>

Completed _____ Depth 185' (Measurable)
Date Started 9/10/99 Completed 9/11/99

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

SEA/FILTER PACK	METHOD
Material	From To Spacing Pounds
Bentonite	0 20 8
also Holte Drill Ring	

Was drive shoe used? N Shoe Depth(s) 176
Was drive shoe seal tested? Y N How? Air

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	2	176'	14	Steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe 1 Foot Length of Tailpipe None

9. PERFORATIONS/SCREENS

Perforations Method Telescoping
Screens Screen Type Stainless Steel

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
175	185	20	—	6"	SS.	<input type="checkbox"/>	<input type="checkbox"/>

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

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 Bob Pitts Sons Firm No. 235
Firm Official Dale Pitts Date 9-17-99
and
Driller or Operator Mark Pitts Date 9-17-99
(Sign once if Firm Official & Operator)

56N 2W 14 FORWARD WHITE COPY TO WATER RESOURCES

Well ID: 56N-2W-22ad1

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT



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

<p>1. WELL OWNER</p> <p>Name <u>FLORENCE TIMOSKEVICH</u></p> <p>Address <u>RT 1 BOX 420 SABLE, IDAHO</u></p> <p>Owner's Permit No. _____</p>	<p>7. WATER LEVEL</p> <p>Static water level <u>40</u> feet below land surface</p> <p>Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____</p> <p>Temperature _____ ° F. Quality _____</p> <p>Artesian closed-in pressure _____ p.s.i.</p> <p>Controlled by <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug</p>																																					
<p>2. NATURE OF WORK <u>96-77-N-40</u></p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement</p> <p><input type="checkbox"/> Abandoned (describe method of abandoning)</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input type="checkbox"/> Bailer <input checked="" type="checkbox"/> Other <u>AIR</u></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Discharge G.P.M.</th> <th>Draw Down</th> <th>Hours Pumped</th> </tr> </thead> <tbody> <tr> <td><u>18 GPM</u></td> <td></td> <td></td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Discharge G.P.M.	Draw Down	Hours Pumped	<u>18 GPM</u>																																	
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N			E																																			
W			E																																			
S			E																																			

Well ID: 56N-2W-16bc1

RECEIVED

Form 238-7
3/9 MAY 08 1998

IDAHO DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

77947

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

NORTHERN REGION
IDWR

1. DRILLING PERMIT NO. 96-98-1138
Other IDWR No. D 3763

2. OWNER: Chari & Jesse Adkins
Name _____
Address P.O. Box 460
City Sagle State ID Zip 83860

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N		Twp. <u>56</u> North <input checked="" type="checkbox"/> or South <input type="checkbox"/>	
E		Rge. <u>2</u> East <input type="checkbox"/> or West <input checked="" type="checkbox"/>	
S		Sec. <u>16</u> 1/4 <u>NE</u> 1/4 <u>SW</u> 1/4	
W		Gov't Lot _____ County <u>Banner</u>	
K		Lat: : : Long: : :	

Rd. _____ Address of Well Site 1607 Gunn Club
City Sagle
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:

- Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____

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

- New Well Modify Abandonment Other _____

6. DRILL METHOD

- Air Rotary Cable Mud Rotary Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	(Sacks or Pounds)	
<u>Bentonite</u>	<u>-4</u>	<u>-20</u>	<u>5</u>	<u>Temp. Casing</u>

Was drive shoe used? Y N Shoe Depth(s) 96
Was drive shoe seal tested? Y N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>96"</u>	<u>+1</u>	<u>96</u>	<u>14</u>	<u>Steel</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe *K* Packer Length of Tailpipe _____

9. PERFORATIONS/SCREENS

- Perforations Method telescoping
 Screens Screen Type Stainless Steel

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
<u>95</u>	<u>101</u>	<u>12</u>		<u>6</u>	<u>S.S.</u>	<input type="checkbox"/>	<input type="checkbox"/>

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

70 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: pitless well cap.
56N 2W 16 NE SW

11. WELL TESTS:

- Pump Bailor Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
<u>5-7</u>	<u>30'</u>	<u>101'</u>	<u>2 Hrs</u>

Water Temp. Cold Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encountered 60.

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
<u>8"</u>	<u>0</u>	<u>20</u>			
<u>6"</u>	<u>20</u>	<u>101</u>			
	<u>0</u>	<u>1</u>	<u>Topsoil</u>		<input checked="" type="checkbox"/>
	<u>1</u>	<u>12</u>	<u>Sand</u>		<input checked="" type="checkbox"/>
	<u>12</u>	<u>60</u>	<u>Sandy clay & gravel</u>		<input checked="" type="checkbox"/>
	<u>60</u>	<u>63</u>	<u>Slippy dirty water sand</u>		<input checked="" type="checkbox"/>
			<u>No Good</u>		
	<u>63</u>	<u>95</u>	<u>Sand, gravel & Hard pan clay</u>		<input checked="" type="checkbox"/>
	<u>95</u>	<u>101</u>	<u>Water sand</u>		<input checked="" type="checkbox"/>

Completed Depth 101 (Measurable)
Date: Started 4/15/98 Completed 4/20/98

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 Sweetwater Drilling Firm No. 509

Firm Official Max Pitts Date 5/4/98

and _____
Supervisor or Operator _____ Date _____

(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Well ID: 56N-2W-15cb1

Form 238-7
8/90

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

USE TYPEWRITER OR
BALLPOINT PEN

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

<p>1. WELL OWNER</p> <p>Name <u>Royce Bond</u> Address <u>Sagle, Idaho</u> Drilling Permit No. <u>96-91-N-154</u> Water Right Permit No. _____</p>	<p>7. WATER LEVEL</p> <p>Static water level <u>50'</u> feet below land surface. Flowing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: <input type="checkbox"/> Valve <input type="checkbox"/> Cap <input type="checkbox"/> Plug Temperature <u>Good</u> °F. Quality <u>Good No Smell</u> <small>Describe artesian or temperature zones below.</small></p>																																					
<p>2. NATURE OF WORK</p> <p><input checked="" type="checkbox"/> New well <input type="checkbox"/> Deepened <input type="checkbox"/> Replacement <input type="checkbox"/> Well diameter increase <input type="checkbox"/> Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)</p>	<p>8. WELL TEST DATA</p> <p><input type="checkbox"/> Pump <input type="checkbox"/> Bailor <input checked="" type="checkbox"/> Air <input type="checkbox"/> Other _____</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Discharge G.P.M.</th> <th>Pumping Level</th> <th>Hours Pumped</th> </tr> <tr> <td><u>100 +</u></td> <td></td> <td></td> </tr> </table>	Discharge G.P.M.	Pumping Level	Hours Pumped	<u>100 +</u>																																	
Discharge G.P.M.	Pumping Level	Hours Pumped																																				
<u>100 +</u>																																						
<p>3. PROPOSED USE</p> <p><input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Irrigation <input type="checkbox"/> Test <input type="checkbox"/> Municipal <input type="checkbox"/> Industrial <input type="checkbox"/> Stock <input type="checkbox"/> Waste Disposal or Injection <input type="checkbox"/> Other _____ (specify type)</p>	<p>9. LITHOLOGIC LOG</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Bore Diam.</th> <th colspan="2">Depth</th> <th rowspan="2">Material</th> <th rowspan="2">Water Yes No</th> </tr> <tr> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td><u>8</u></td> <td><u>0</u></td> <td><u>110</u></td> <td></td> <td></td> </tr> <tr> <td><u>6</u></td> <td><u>110</u></td> <td><u>135</u></td> <td></td> <td></td> </tr> <tr> <td></td> <td><u>0</u></td> <td><u>70</u></td> <td><u>Sand of Brown silt</u></td> <td><u>X</u></td> </tr> <tr> <td></td> <td><u>70</u></td> <td><u>85</u></td> <td><u>Sandy Clay & gravel</u></td> <td><u>X</u></td> </tr> <tr> <td></td> <td><u>85</u></td> <td><u>117</u></td> <td><u>Brown sandy clay</u></td> <td><u>X</u></td> </tr> <tr> <td></td> <td><u>117</u></td> <td><u>132</u></td> <td><u>Sand gravel & cobbles</u></td> <td><u>X</u></td> </tr> </tbody> </table> <p style="text-align: center; font-weight: bold; font-size: 1.2em;">101545</p> <p style="text-align: center;">H2O water approx 110 ft.</p> <div style="text-align: center; border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="font-size: 2em; font-weight: bold; margin: 0;">RECEIVED</p> <p style="margin: 0;">OCT 28 1991</p> <p style="margin: 0;">Department of Water Resources</p> </div>	Bore Diam.	Depth		Material	Water Yes No	From	To	<u>8</u>	<u>0</u>	<u>110</u>			<u>6</u>	<u>110</u>	<u>135</u>				<u>0</u>	<u>70</u>	<u>Sand of Brown silt</u>	<u>X</u>		<u>70</u>	<u>85</u>	<u>Sandy Clay & gravel</u>	<u>X</u>		<u>85</u>	<u>117</u>	<u>Brown sandy clay</u>	<u>X</u>		<u>117</u>	<u>132</u>	<u>Sand gravel & cobbles</u>	<u>X</u>
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<p>4. METHOD DRILLED</p> <p><input checked="" type="checkbox"/> Rotary <input checked="" type="checkbox"/> Air <input type="checkbox"/> Hydraulic <input type="checkbox"/> Reverse rotary <input type="checkbox"/> Cable <input type="checkbox"/> Dug <input type="checkbox"/> Other _____</p>	<p>10. Work started <u>9-23-91</u> finished <u>9-24-91</u></p>																																					
<p>5. WELL CONSTRUCTION</p> <p>Casing schedule: <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____</p> <table border="0" style="width:100%;"> <tr> <td>Thickness</td> <td>Diameter</td> <td>From</td> <td>To</td> </tr> <tr> <td><u>250</u> inches</td> <td><u>6</u> inches</td> <td><u>1</u> feet</td> <td><u>132</u> feet</td> </tr> <tr> <td>_____ inches</td> <td>_____ inches</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ inches</td> <td>_____ inches</td> <td>_____ feet</td> <td>_____ feet</td> </tr> <tr> <td>_____ inches</td> <td>_____ inches</td> <td>_____ feet</td> <td>_____ feet</td> </tr> </table> <p>Was casing drive shoe used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Was a packer or seal used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Perforated? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No How perforated? <input type="checkbox"/> Factory <input type="checkbox"/> Knife <input type="checkbox"/> Torch <input type="checkbox"/> Gun Size of perforation _____ inches by _____ inches Number _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet</p> <p>Well screen installed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Manufacturer's name _____ Model No. _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>50'</u> Material used in seal: <input type="checkbox"/> Cement grout <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> Puddling clay <input type="checkbox"/> _____ Sealing procedure used: <input type="checkbox"/> Slurry pit <input type="checkbox"/> Temp. surface casing <input checked="" type="checkbox"/> Overbore to seal depth Method of joining casing: <input type="checkbox"/> Threaded <input checked="" type="checkbox"/> Welded <input type="checkbox"/> Solvent Weld _____ <input type="checkbox"/> Cemented between strata</p> <p>Describe access port _____</p>	Thickness	Diameter	From	To	<u>250</u> inches	<u>6</u> inches	<u>1</u> feet	<u>132</u> feet	_____ inches	_____ inches	_____ feet	_____ feet	_____ inches	_____ inches	_____ feet	_____ feet	_____ inches	_____ inches	_____ feet	_____ feet	<p>11. DRILLERS CERTIFICATION</p> <p>I/We certify that all minimum well construction standards were complied with at the time the rig was removed.</p> <p>Firm Name <u>Aqua Drilling & Exploration, Inc.</u> Firm No. <u>163</u> Address <u>P.O. Box 225, Coon, Idaho</u> Date _____ Signed by (Firm Official) <u>Scott M. Baumgardner</u> and (Operator) <u>Wayne Miller</u></p>																	
Thickness	Diameter	From	To																																			
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<p>6. LOCATION OF WELL</p> <p>Sketch map location must agree with written description</p> <div style="text-align: center;"> </div> <p>Subdivision Name _____ Lot No. _____ Block No. _____</p> <p>County <u>Bonner</u> <u>NW 1/4 SW 1/4 Sec. 15, T. 56, R. 2, W. 5</u></p>	<div style="text-align: center; border: 1px solid black; padding: 5px; transform: rotate(-15deg);"> <p style="font-weight: bold; font-size: 1.5em;">MICROFILMED</p> <p style="font-weight: bold;">DEC 27 1991</p> </div>																																					

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

Well ID: 56N-2W-22bb1

RECEIVED

Form 238-7
9/95

JAN 21 1997

IDAHO DEPARTMENT OF WATER RESOURCES



WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

097392

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

1. **DRILLING PERMIT NO.** 96-96-N-304
 Other IDWR No. _____

2. **OWNER:** Hal Carter
 Name _____
 Address 20 Box 759
 City Sagle State ID Zip 83860

3. **LOCATION OF WELL by legal description:**

Sketch map location must agree with written location.

N		Twp. 56N North <input checked="" type="checkbox"/> or South <input type="checkbox"/>	
E		Rge. 2 East <input type="checkbox"/> or West <input checked="" type="checkbox"/>	
S		Sec. 22 1/4 SW 1/4 NW 1/4	
W		Gov't Lot _____ County Bonner	
		Lat: : : Long: : : :	
		Address of Well Site Sagle Spur Rd City Sagle	

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

Lt. _____ Blk. _____ Sub. Name _____

4. **USE:**

- Domestic Municipal Monitor Irrigation
 Thermal Injection Other _____

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

- New Well Modify Abandonment Other _____

6. **DRILL METHOD**

- Air Rotary Cable Mud Rotary Other _____

7. **SEALING PROCEDURES**

SEAL/FILTER PACK			AMOUNT	METHOD
Material	From	To	Sacks or Reams	
DRY BENTONITE	0	20	5	OVERDRILL

Was drive shoe used? Y N Shoe Depth(s) 122'
 Was drive shoe seal tested? Y N How? _____

8. **CASING/LINER:**

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	122'	350	STEEL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Length of Headpipe _____ Length of Tailpipe _____

9. **PERFORATIONS/SCREENS**

- Perforations Method Tele Scooping
 Screens Screen Type COOK STAINLES STEEL

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
120	135	.035		6"	STAINLES	<input type="checkbox"/>	<input type="checkbox"/>
					STEEL	<input type="checkbox"/>	<input type="checkbox"/>

10. **STATIC WATER LEVEL OR ARTESIAN PRESSURE:**

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

SW NW 22 56N 2W

11. **WELL TESTS:**

- Pump Bailor Air Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
50 GPM	20'	120'	

Water Temp. COLD Bottom hole temp. _____

Water Quality test or comments: _____

Depth first Water Encountered 122'

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

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8"	0	1	TOPSOIL		<input checked="" type="checkbox"/>
8"	1	20	SAND		<input checked="" type="checkbox"/>
8"	20	70	SAND		<input checked="" type="checkbox"/>
6"	70	110	SAND + BLUE CLAY		<input checked="" type="checkbox"/>
6"	110	119	BLUE CLAY		<input checked="" type="checkbox"/>
6"	119	122	CLAY + GRAVEL		<input checked="" type="checkbox"/>
6"	122	135	SAND + GRAVEL	<input checked="" type="checkbox"/>	

Completed Depth 135' (Measurable)
 Date: Started 30 OCT 96 Completed 4 NOV 96

Bob Pitts & Sons Inc
 4775 Baldy Mtn. Rd
 Sandpoint, ID 83864
 208-263-3042

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 Bob Pitts & Sons Firm No. Inc

Firm Official Dale Pitts Date 1-3-97

and Supervisor or Operator J.D.O. Date 4 NOV 96

(Sign once if Firm Official & Operator)

