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WEST PLAINS GEOPHYSICAL ORIENTATION SURVEY WORK PLAN

Submitted to:

Utilities Division, Water Resources Program Public Works Department Spokane County, Washington

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April 15, 2009

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083-93096.200

TABLE OF CONTENTS

1.0	INTF	RODUCTION1	L
	1.1	Project Background	l
	1.2	Project Description	2
	1.3	Project Schedule	2
2.0	SITE	SELECTION	3
	2.1	Line 1 - Craig Road and Highway 902 to Hayford Road	3
	2.2	Line 2 - Ventura Road	1
	2.3	Line 3 - Craig Road (Highway 902 to Four Lakes)	1
	2.4	Line 4 - Wood Road (between Bowie and Euclid Roads)	5
	2.5	Line 5 - Meadow Lake Road	5
3.0	GEO	PHYSICAL METHODS	7
	3.1	Seismic Refraction)
		3.1.1 Seismic Refraction Survey Design)
	3.2	Seismic Reflection.)
		3.2.1 Seismic Reflection Survey Design)
	3.3	Electrical Resistivity Imaging)
		3.3.1 Electrical Resistivity Imaging Survey Design)
	3.4	Gravity)
		3.4.1 Gravity Survey Design	1
	3.5	Time-Domain Electromagnetics	1
		3.5.1 Time Domain Electromagnetics Survey Design	1
4.0	MON	VITORING WELL INSTALLATION	3
	4.1	Goals of the Monitoring Well	3
	4.2	Potential Sites	3
5.0	REF	ERENCES12	1

LIST OF TABLES

Table 1	Project Budget
Table 2	Project Schedule
Table 2	Matrix of Coophysical Mathada and Appl

Table 3Matrix of Geophysical Methods and Applications

LIST OF FIGURES

- Figure 1 West Plains Study Area
- Figure 2 Line 1 Craig Road and Highway 902 to Hayford Road
- Figure 3 Line 2 Ventura Road
- Figure 4 Line 3 Craig Road (Hwy 902 to Four Lakes)
- Figure 5 Line 4 Wood Road
- Figure 6 Line 5 Meadow Lake Road

LIST OF APPENDICES

Appendix A Well Logs

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1.0 INTRODUCTION

The West Plains area is located west of the City of Spokane, at the boundary of WRIA 54 (Lower Spokane River Watershed), WRIA 56 (Hangman Creek Watershed) and WRIA 34 (Palouse River Watershed) and includes land within these three Water Resource Inventory Areas (WRIAs) (Figure 1). The study objective is to determine the feasibility of various geophysical methods to delineate the top of the basement rocks across the West Plains.

The project is funded by the Washington Department of Ecology (Ecology) as Grant No. G080030. Table 1 presents the project budget.

TABLE 1

Budget	Budget Task	
\$1,700.00	Project Management	
\$28,100.00	Project Work Plan and Quality Assurance Project Plan	
\$57,100.00	Geophysical Orientation Survey	
\$40,000.00	Installation of Confirmation Borehole	
\$13,100.00	Orientation Survey Report	
\$140,000.00	Total Project Budget	

Project Budget

This Work Plan presents details regarding the locations of each of the field trials and the geophysical methods to be employed at each of the sites. The Work Plan is intended to outline a systematic approach that will help ensure the geophysical data collected for Spokane County will achieve the project objective.

1.1 **Project Background**

The West Plains area is located west of the City of Spokane and includes the City of Airway Heights, the City of Medical Lake, the City of Four Lakes and Fairchild Air Force Base (Figure 1). A formal boundary for the West Plains does not exist. However, the West Plains is generally considered as the relatively low lying land that occurs west of the Spokane River and is surrounded by low lying hills and buttes that occur north of Cheney, east of Rearden and south of Four Mound Prairie. Two primary drainages, Deep Creek and Coulee Creek, flow in an easterly direction across the northern portion of the West Plains and discharge into the Spokane River.

The geology of West Plains is comprised of, from the youngest to the oldest units:

- Sand and gravel deposits that occur within palaeochannels
- Columbia River Basalt Group
- Crystalline basement rocks (such as granite and quartzite)

The crystalline basement rocks are exposed on a number of topographic highs such as Olson Hill (just north of Medical Lake), Booth Hill and Fancher Butte (west of Medical Lake) and McDowell Hill (south of Coulee Creek and north of Deep Creek). The crystalline basement rocks also underlie the basalts and the sand and gravel deposits. Recent geologic mapping by Washington State Department

of Natural Resources (DNR) and by Eastern Washington University (EWU) has improved the understanding of the distribution and occurrence of geologic units; however, the topography and nature of the subsurface contact between the basement rocks and overlying basalts and sediments are not well understood.

The primary aquifers in the West Plains area occur within the paleochannel deposits and within the Wanapum and Grande Ronde Basalt flows. The basement rocks, defined as metamorphic and intrusive igneous rocks, are low permeability units that provide poor yield to wells and are considered to be an aquitard (i.e., barrier to groundwater flow). Recharge to the West Plains aquifers is from precipitation (rain and snowmelt) and totals about 15 to 19 inches annually. The Washington State Department of Ecology (Ecology) has compiled groundwater level information for a number of wells located across the West Plains and has concluded that in some areas groundwater levels within the basalt aquifers are declining (Covert, 2007). Documented groundwater level declines between 2001 and 2003 range from about 15 feet in a Medical Lake well to about 120 feet in a Four Lakes well between 1997 and 2005 (TetraTech and GeoEngineers, 2007). Aquifer testing data also suggests that well interference occurs between some of West Plains municipal wells (Covert, 2007). The conceptual model for the West Plains hydrogeology suggests that the nature and topography of the top of basement controls groundwater flow and that the basalts are divided into small, compartmentalized aquifers.

1.2 Project Description

The purpose of this project is to evaluate several geophysical methods in order to select one or more methods that can be used to determine the depth to basement beneath unconsolidated sediment and to delineate the contact between the basalt and the crystalline basement rock. The geophysical methods (including equipment, field operations and processing) will need to consider cultural interference associated with development (e.g., roads, power lines and buried utilities), depth to the contact, and the geophysical attributes of the geologic contacts. Geophysics (primarily seismic reflection) has been used across the West Plains to delineate the configuration of the Deep Creek, Airport and Airway Heights palaeochannels (McCollum, 2009; Budinger, 2001; GeoEngineers, 2002; GeoEngineers, 2007). However, this investigation did not identify deeper reflectors that may be associated with the basalt – crystalline basement contact.

1.3 Project Schedule

Field activities are scheduled to begin in March of 2009 and to be finished in June of 2009. The table below summarizes the schedule of project activities.

TABLE 2

Project Schedule

Date	Monitoring Activities	
March 2009	arch 2009 Submission of Quality Assurance Project Plan and Work Plan	
March 2009	Begin geophysical field trials at select locations	
April 2009	Complete geophysical field trials at select locations, process data from all field trials and prepare orientation survey draft report.	
May 2009 Drill confirmation borehole, prepare orientation survey final report		
June 2009	Submit final project deliverables	

2.0 SITE SELECTION

Figure 1 shows the approximate location of the geophysical lines at the five proposed study areas. Additional information in the immediate vicinity of the lines, e.g. the approximate location of nearby wells, is included in Figures 2 through 6. Lithologic logs for wells associated with each of the lines are included in Appendix A and summarized in the following section that describes each of the sites.

The five lines, their general location, and order of priority as determined with Spokane County, are:

- Line 1: Craig Road and Highway 902 towards Hayford Road
- Line 2: Ventura Road
- Line 3: Craig Road
- Line 4: Wood Road
- Line 5: Meadow Lake Road

The actual location of the lines will be confirmed with Spokane County and Ecology once Spokane County has confirmed landowner permission to access the land.

The following section provides a brief description of the lines, the general geology and the objective of the geophysical investigation.

2.1 Line 1 - Craig Road and Highway 902 to Hayford Road

This line runs in a northeasterly direction from the Delegans well (166859), also known as the Airway Heights Park West well, through a significant exposure of granite that is located about 3,000 feet south of Thorpe Road (Figure 2). This line is approximately 5,500 feet long (Figure 2).

The Mayhan well (166590) is anticipated to be the closest residential well to this line, based on information available from Ecology's on-line well viewer. It was logged as basalt from 9 feet to 303 feet below ground surface.

The granite exposure located approximately three-quarters of the way along the line has been recently mapped by the Washington State Department of Natural Resources (DNR) as basement rock. However, there is no evidence of crystalline bedrock, at a depth of less than 300 feet, in the three wells closest to this outcrop. Below is a summary of the stratigraphy in the three wells.

Maynan well (166590)		
0 to 9 feet	overburden	
9 to 105 feet	basalt	
105 to 145 feet	scoria	
145 to 260	basalt, medium hardness	
260 to 303 feet	scoria	

Delegans well (166859)

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0 to 42 feet	gravel, sand and clay
42 to 301 feet	basalt

redical Lake wen (417000)		
0 to 64 feet	gravel and sandy clay	
64 to 805 feet	basalt	
805 to 1301 feet	clay	
1301 to 1404 feet	quartzite / granite	

Medical Lake well (417068)

Geophysics will be conducted to determine if the basalt - clay - basement contact, noted in the Medical Lake well (417068) log, can be detected with geophysics, and to determine if the granite exposure located at the northeast end of the line is an basement outcrop or float.

It should be noted that the borehole control along this line is poor and that a monitoring well could be considered this line to improve our understanding of the stratigraphy in the area and provide additional control for geophysics. However, the contact between the basalt and granite may be located at considerable depth (greater than 800 feet) along the northeastern end of this line and a monitoring well penetrating the contact may be expensive to drill and install (i.e., up to \$60,000 or more).

2.2 Line 2 - Ventura Road

Ventura Road is one block east of Rambo Road on the north side of Highway 2 (Figure 3). The Ventura Road line runs northwards through an open field, crosses Highway 2 and then along Venture Road. It is approximately 4,250 feet long. Several of the well logs north of Highway 2 and in the vicinity of Ventura Road indicate that the basalt - granite contact occurs at a depth between 90 and 543 feet (Figure 3). Below is a summary of the stratigraphy of two wells close to the line.

Harding well (170106)		
0 to 5 feet	sand and clay	
5 to 55 feet	basalt	
55 to 182 feet	clay	
182 to 205	granite	

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Audett Wen (175270)	
0 to 9 feet	sand and clay
9 to 190 feet	basalt
190 to 260 feet	clay
260 to 543 feet	basalt
543 to 600 feet	granite

Audett well (173290)

Geophysical data will be acquired along this line to attempt to produce a 2D profile of the basement high. Based on the well log data, the contact with basement rock is clay in the north that transitions to basalt near the center of the line. The Fairchild Air Force Base well (371438) did not encounter basement rock in the upper 439 feet, so the data obtained on this line will be used determine to what depth the top of bedrock can be detected.

2.3 Line 3 - Craig Road (Highway 902 to Four Lakes)

This line is approximately 5,600 feet long and runs south to north from near the Four Lakes well (468689) to White Road (Figure 4). The Four Lakes well (468689) located just north of Interstate 90,

logged the basalt-basement contact at a depth of 285 feet. Below is a summary of the stratigraphy in two wells close to the line.

The approximate location of the Keys well, based on information available from the Ecology's online well viewer, which was drilled to a depth of 225 feet, is shown on Figure 2.

Keys (170665) well		
0 to 17 feet	gravel, sand and clay	
17 to 225 feet	basalt	

Southern Four Lakes well (468689)

1 to 178 feet	basalt
178 to 198 feet	clay and sand
198 to 234 feet	basalt
234 to 244 feet	clay
244 to 285 feet	basalt
285 to 300 feet	decomposed granite

Geophysics will be conducted at this location to attempt to map the top of the basement rock from the Four Lakes well (468689) north to White Road where it is expected to be 1,000 feet below the ground surface.

2.4 Line 4 - Wood Road (between Bowie and Euclid Roads)

The Wood Road line runs in a southeasterly direction from Bigler well (175566) to the Hutterian well (172973) located just north of Euclid Road (Figure 5). Line 4 is approximately 3,500 feet long. The two most northerly of the three Hutterian wells notes quartz sand 230 and 240 feet bgs. This may indicate a contact with granite since granite decomposes to a quartz-dominant sand. The Bigler well (175566) is located on the southeastern edge of McDowell Hill, a basement high. Below are the summaries of the stratigraphy in the Bigler and Hutterian wells.

Bigler well (175566)		
0 to 30 feet	sand and gravel	
30 to 320 feet	granite	

Northern Hutterian well (172973)

1 to 230 feet	basalt
230 to 240 feet	fine quartz sand

Geophysics data will be obtained at this location to delineate the basalt - basement contact as it dips in an easterly direction from McDowell Hill.

2.5 Line 5 - Meadow Lake Road

Line 5 runs from west to east along Meadow Lake Road, a gravel road about 0.75 miles long located between Murphy Road and Hwy 904 (Figure 6). The line begins near the KimLee well (419003) and ends near the Harmon well (168343). The well logs (see Appendix A) indicate that basement rock occurs on the eastern (Schulter well) and western (Schroeder well) extent of the traverse and that basalt occurs in between The Schroeder well (173276) encountered granite at a depth of

248 feet while the Schluter well (175937) encountered granite at a depth of 392 feet. It should be noted that the locations of the wells shown on Figure 6 are approximate and are based on information available from Ecology's on-line well viewer. Below are the stratigraphy in the KimLee and Harmons Wells.

KimLee well (419003)

1 to 18 feet	clay
18 to 98 feet	basalt
98 to 105 feet	clay
105 to 120 feet	granite

Harmon well (168343)

3 to 23 feet	clay
23 to 110 feet	basalt
110 to 213 feet	clay
213 to 240 feet	basalt

The purpose of obtaining geophysical data on this line is to attempt to map the contacts that are indicated in the well logs and also to determine the presence of a fault.

3.0 GEOPHYSICAL METHODS

The selection of the geophysical methods to be used for the West Plains study was based on a literature search and a pilot test that was conducted in December of 2008. The following table summarizes the methods that were considered and their application. The important selection criteria for this study was focused on methods that would be most likely able to detect the contact between different rock types, e.g. basalt over granite and to determine the depth to the top of competent rock covered by unconsolidated overburden, e.g. sand and gravel over granite. Also of importance were the expected depth of subsurface penetration and the resolution of each method.

TABLE 3

Geophysical Methods and Applications

	Rock Layers	Depth to bedrock	Depth to water table	Fractures and fault zones	Voids and sinkholes	Soil and rock properties	Dam and lagoon leakage	Salt water intrusion	Utility location	Abandoned wells
Seismic refraction	S	Р	Р	S	С	S				
Seismic reflection	Р	Р	Р	S	S					
Ground penetrating radar (GPR)	S	Р	Р	S	Р		S	S	Р	
Electrical resistivity imaging (ERI)	S	S	S	S	S	Р	S	Р		
Induced polarization (IP)			S	S	S			S		
Spontaneous potential (SP)							Р			
Very low Frequency EM (VLF)		S	S	Р						
Frequency domain EM		S	S	Р	S	S	S	Р	S	S
Time domain EM (TEM)		S	S	S				Р	Р	Р
Gravity		Р		S	Р					
Magnetics				S						S

(Adapted from ASTM Guide D 6429-99 Standard Guide for Selecting Surface Geophysical Methods)

P. Denotes primary choice of method for application.

S. Denotes secondary choice of method for application.

The geophysical methods listed in Table 3 that are the most appropriate for the West Plains study area based on the stated criteria are: seismic refraction, seismic reflection, GPR, ERI, gravity, and TEM.

Seismic Methods

There is an increase in velocity with depth and a significant acoustic impedance contrast between basalt and granite suggesting seismic methods, reflection and/or refraction, are a good choice for most geologic conditions on the West Plains. The typical depth of penetration for the seismic refraction method is less than 100 feet unless explosives are used as the source. This limits it's applicability within the West Plains area, although refraction data, with some limitations, can be collected simultaneously with seismic reflection data and could be used to map the alluvial-bedrock contact at depths less than 100 feet. The typical depth of penetration for seismic reflection measurements ranges between 50 and 1,000 feet; measurement at depths beyond 1,000 feet often require seismic sources not common to hydrogeologic investigations.

GPR Method

The depth of GPR measurements in most soil and rock conditions is generally less than 30 feet, and may be less than 3 feet in mineralogical clays or materials containing conductive pore fluids. The depth limitation of GPR indicates that this method would only have applications for rapid reconnaissance mapping of the top of shallow bedrock such as in the vicinity of known bedrock or basalt outcrops.

ERI Method

Electrical resistivity is a secondary choice to map rock layers and the depth to bedrock. The depth of signal penetration and resolution of ERI measurements are primarily related to the electrode spacing. This method is a good choice to use in areas where the top of basement rock is in contact with unconsolidated sediments at depths less than 200 feet.

TEM Method

The TEM is a secondary choice to map rock layers and the depth to bedrock. The depth of measurements can be as shallow as 20 feet and as great as 3,000 feet. Measurements for depths greater than 500 feet require a large loop size. Horizontal resolution can be problematic because large loops often cross lateral discontinuities, such as dramatic increase in the depth to bedrock, which produces erroneous measurements. TEM could be a good choice for mapping depths to deeper rock layers and basement in most areas in the West Plains.

Gravity Method

Gravity measurements are primarily used to map regional geologic structure including the depth to bedrock. Vertical resolution is a function of the accuracy of density estimates for the geologic units. Lateral resolution is a function of station spacing. Because there is a large contrast in the density of unconsolidated sediments and granitic basement rocks, as well as good density estimates for the basalt and granite, gravity is a good choice for the West Plains area.

Test of Geophysical Methods

A pilot geophysical study was conducted by Golder in December 2008 as a component of the project. At the pilot site the depth to basement rock ranged from zero feet at an outcrop to greater than 220 feet below the ground surface at a well just 250 feet to the north. The site provided fairly representative conditions for evaluating the effectiveness of various geophysical methods including seismic refraction, seismic reflection, time-domain electromagnetics, electrical resistivity imaging, and gravity methods. However, the top of basement rock dips steeply to the north and is difficult to image. Seismic refraction, seismic reflection, electrical resistivity and gravity methods proved successful for mapping the depth and topography of the surface of the basement rock.

The following is a summary of the results from a pilot study that was conducted at the Abel property (line P1 on Figure 1).

- Seismic refraction successfully imaged the overburden-granite contact, but did not image the basalt-granite contact.
- Seismic reflection successfully imaged the overburden-granite contact, but did not image the basalt-granite contact with certainty.
- Electrical resistivity imaging successfully imaged the overburden-granite contact, but did not image the basalt-granite contact.

- TEM did not work well for detecting the basalt granite; results are inconclusive. There appeared to be a sharp lateral variation in the electrical resistivity imaging data coincident with the locations of the time domain loops.
- Gravity successfully imaged the overburden-granite contact, but was not able to image the basalt-granite contact with certainty.

The geophysical methods selected as the most appropriate to investigate the West Plains area includes seismic refraction, seismic reflection, ERI, and gravity. Because the TEM results from the Pilot Test were inconclusive, it will be evaluated along with the previously listed methods.

3.1 Seismic Refraction

Seismic refraction, using sledgehammers and portable weight drop energy sources, is used for geologic investigations to map stratigraphy and the depth to bedrock where the top of bedrock is less than 150 feet. The method requires a seismic energy source to introduce seismic waves into the subsurface. The seismic waves penetrate the overburden, are refracted by the soil or rock and travel as head waves along interfaces with higher seismic velocity than the layer above. This interface can be stratigraphic contacts, such as silt to sand, alluvium over bedrock, or at the groundwater table. While the head waves are traveling along this interface, they continually produce seismic waves that travel to the ground surface where they are detected by geophones. Geophones convert the acoustic energy in the ground to an electric signal that is transmitted by the geophone cable to the seismograph. The seismograph records the arriving electric signals with respect to time and stores the first arrivals for future data processing. The seismic data is processed to determine the seismic velocity of the earth material through which the energy has traveled and to model the subsurface geology. This geophysical model depicts the earth in cross-section showing the velocity and thickness of the subsurface layers below the seismic line.

3.1.1 <u>Seismic Refraction Survey Design</u>

Seismic refraction data will be collected using a 24-channel Geometrics GEODE (or equivalent) seismograph. The 24 geophones will be spaced at 3 meter intervals. A 16-lb sledge hammer and a PEG-40 (or equivalent) elastic weight drop will be used as the seismic source. A minimum of seven shot points will be recorded for each spread, two that are a full spread length off the end geophone, two that are a half spread length off the end, two that are 3 meters off the end geophone, and one between geophone 12 and 13. Because imaging deep refractors is often impracticable due to the size of the seismic source required, only sites where basement rock is expected to be less than 100 feet below the ground surface will be surveyed using seismic refraction.

3.2 Seismic Reflection

Seismic reflection is a method commonly used to map stratigraphic or geologic contacts where the contacts are greater than 100 feet below the ground surface. This method involves using a seismic energy source to create a seismic wave, which travels into the subsurface. At interfaces that have an acoustic impedance contrast (related to velocity and density), a portion of these waves is reflected back to the ground surface, and a portion is transmitted through the interface to be reflected at the next interface or contact. Geophones on the ground surface record the reflected arrivals which are then recorded on a seismograph.

3.2.1 Seismic Reflection Survey Design

Seismic reflection data will be collected using a 96-channel Geometrics GEODE (or equivalent) seismograph. Geophones will be spaced at 3 meter intervals and a 16-lb sledge hammer and a PEG-40 (or equivalent) elastic weight drop will be used as the seismic source. Shot points will be recorded every two geophone intervals along the line. Because imaging shallow reflectors is impracticable due to the relatively high frequency energy source required, only sites where basement rock is expected to be greater than 75 feet below the ground surface will be surveyed using seismic reflection.

3.3 Electrical Resistivity Imaging

Electrical resistivity imaging is used to map changes in subsurface soil conductivity or resistivity. The resistivity values are used to interpret geologic features such as lithology, structure, fractures, and stratigraphy. In an electrical resistivity imaging survey, a direct current, at a specified voltage, is passed into the ground through current electrodes. Because of soil resistance the current produces a voltage, and the resulting voltage drop is measured across a pair of potential electrodes. There are several electrode configurations commonly used to map geologic features. The dipole-dipole array is used most commonly to map lateral changes, but is also effective when mapping vertical changes in geology. The measurements of voltage across the current and potential electrodes are used to compute electrical resistance. Electrical resistance is multiplied by the geometric factor associated with the particular electrode configuration to derive apparent resistivity values that represent bulk average resistivities for the volume of earth being sampled. Representative resistivity values for various geologic layers are interpreted from the apparent resistivity values. The resistance of the alluvium and/or soil is expected to be considerable greater than basalt, particularly if it is fractured and weathered to clay.

3.3.1 <u>Electrical Resistivity Imaging Survey Design</u>

Electrical resistivity imaging data will be collected using a 96-channel IRIS Syscal PRO system. Data will be collected using a dipole-dipole electrode configuration with an electrode spacing of 6 meters.

3.4 Gravity

Gravity is a method that measures small spatial differences in the gravitational pull of the Earth and is commonly used to map the depth and topography of basement rocks. If the bedrock and overburden have different densities, the gravity pull will change over bedrock topographic features. This instrument does not record the absolute value of the pull of gravity, but measures spatial differences in the gravity pull i.e. lateral density changes in the subsurface cause a change in the force of gravity at the surface. The anomalous gravitational field over a bedrock structure (depression or mound) depends on the amplitude of the depression, its width and depth, and the density contrast between the overburden and the bedrock. Significant bedrock topography with large density contrasts will produce large gravitational anomalies. Conversely, small amplitude structures at depth, even with large density contrasts, may produce only very small anomalies.

The gravity method involves measurement of the gravitational attraction exerted by the earth at a measurement station on the surface. Gravity data will be collected using a LaCoste and Romberg (or equivalent) gravimeter using a station spacing of 50 feet. Each station will consist of two consecutive measurements to ensure repeatability.

3.4.1 <u>Gravity Survey Design</u>

At the start of each day a measurement will be made at the gravity base station located at the downtown Spokane Post Office. The field crew will then drive to the survey line and establish a local base station. From this station, they will record gravity data at each station along the line. After approximately 50 measurements, or three hours, gravity measurements will again be taken at the local base station. This circuit will be repeated up to three times per day. After the last measurement of the local base station, the field crew will return to the gravity base station to record the final measurement of the survey day. The latitude, longitude and elevation of each gravity station will be recorded using a Real Time Kinematic GPS.

3.5 Time-Domain Electromagnetics

Time-domain electromagnetic surveying (TEM) is used to measure vertical changes in subsurface electrical properties by recording the decay rate of an induced electromagnetic signal as it propagates through the earth. Changes in the decay rate are used to model the electrical properties of the subsurface. This model is then used to infer the subsurface soil conditions and stratigraphy.

TEM surveying requires a transmitter, square loop transmitter coil, a receiving unit and receiver coil. The transmitter sends an electrical current through the transmitter coil, which is turned off after a very brief time producing an EM field. This EM field induces eddy currents in the ground, which in turn, produce a secondary magnetic field. As the eddy currents propagate downward and away from the transmitter coil, the secondary magnetic field loses strength (decays) at a rate proportional to the electrical conductivity of the subsurface. A receiver measures the decaying secondary magnetic field at different points in time (record length). One sequence of secondary magnetic field will decay at a predictable rate. Deviations from this decay rate correspond to changes in subsurface electrical properties. The TEM method takes advantage of these properties by correlating both the magnetic field strength and measurement time with changes in the electrical properties of the subsurface.

During the TEM sounding, the transmitter and receiver are synchronized via a reference cable. The receiver instructs the transmitter to turn on and off at predetermined measurement intervals (time gates), and then measures the strength of the decaying secondary magnetic field at up to 30 time gates during the transmitter off period. The signal is enhanced by taking multiple sets of readings and averaging them during a user-determined measurement period (from 2 to 64 seconds in length). The total number of measurements available for averaging per measurement period is determined by the repetition frequency, with higher frequencies giving a larger sample set at the expense of a shorter record length.

The depth of penetration of the TDEM signal depends on the subsurface electrical properties and the area (size) and current strength of the transmitter antenna. In general, a larger antennae size and larger transmitter current strength are required to investigate greater depths. For a given antenna size (and current strength), a greater depth of investigation is achieved in areas underlain by relatively resistive material.

3.5.1 <u>Time Domain Electromagnetics Survey Design</u>

TEM soundings will be collected using a Zonge TEM system (or equivalent). Transmitter and receiver coil dimensions will be based on available geologic information along each of the proposed line locations. For areas such as Line 2 where bedrock is reported to be as shallow as 90 feet below

the ground surface, a 100 foot diameter coil will be used. For areas such as Line 1 where basalt is shallow and the basement is reported to be approximately 1,300 feet below the ground, a 1000 foot diameter coil will be used. The size of the coil will control the number of soundings performed along each line. The presence of cultural features such as roads, driveways, fencing, pipelines, and power lines restrict the use of TEM to areas of open agricultural fields.

4.0 MONITORING WELL INSTALLATION

One monitoring well installation is planned to augment the geophysical program. Specific plans for this well will be developed as soon preliminary geophysical results are available. These plans will include a specific location for the well, a target depth for drilling, and a target depth for a screened interval.

4.1 Goals of the Monitoring Well

The goals for drilling and installation of the monitoring well are as follows:

- 1. Provide information to support interpretation of the geophysical data.
- 2. Provide information on the nature and depth of geologic units down to the crystalline basement.
- 3. Construct a 2-inch diameter monitoring well across an aquifer zone that will provide useful groundwater level monitoring data.
- 4. Construct the monitoring well in accordance with Washington State well construction standards.

4.2 Potential Sites

The monitoring well will be installed along one of the geophysical lines to conform to the goals for the well.

Potential sites for the monitoring well include:

- Along Line 1 in the vicinity of the surface exposure of granite
- Along Line 3, between the two Four Lakes wells
- Along Line 4, southeast of the Bigler (175566) well

5.0 **REFERENCES**

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FIGURES



08393096200F01R03.mxd | 3/24/2009 | THAMMOND





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08393096200F02R02.mxd | 3/24/2009 | THAMMOND

APPENDIX A1

WELL LOGS

LINE 1: CRAIG ROAD AND HIGHWAY 902 TO HAYFORD ROAD

WELL LOG	13 417068
263	1.1. 17777
File Original and First Copy with	Start Card No. WOJJJ
Department of Ecology VVAIER VVE	UNIQUE WELL I.D. # AAL 5 34
Third Copy — Driller's Copy STATE OF W	ASHINGTON Water Right Permit No. 63-28917 F
OWNER: Name CITY OF MEDICAL LANBAG	POBOX 369 MEDICAL LAKE WA.
SPOKANE SPOKANE	Alter Alter 11 - 24 415
LOCATION OF WELL: County STONANE	$\frac{1}{14} \underbrace{1}_{14} \underbrace{1}_$
(2a) STREET ADDRESS OF WELL (or nearest address) CY 737 GT_D	+ STATE ATWAY YOL
(3) PROPOSED USE: O Domestic Industrial Municipal	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
DeWater Test Well Other	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each
(4) TYPE OF WORK: Owner's number of well (If more than one)	change of information.
Abandoned 🗆 New well 🗶 Method: Dug 🗆 🛛 Bored 🗆	MATERIAL FROM TO
Reconditioned Retary K Jetted	RACALT RON 64 94
(5) DIMENSIONS: Diameter of well 16" X12" inches.	BASALT GRAY 84 189
Drilled 1404 feet. Depth of completed well 1404 tt.	* BASALT BLK+BRN CLAY 189 243
(6) CONSTRUCTION DETAILS:	BASALT GREY 243 290
Casing Installed: 20 Diam. from 0 ft. to 53 ft.	LASALT FREY FOREY (LAY 240 326
Welded K 16 Diam. from +1, 5 ft. to 924 ft.	X BASALT BIN + BRU 366 346
Threaded \Box $/2$ Diam. from 315 ft. to $/404$ ft.	CLAV BRN + GREN 499 572
Perforations: Yes No	* BASALT GREY FRAC. 572 800
Type of perforator used MILL CUT CY HOLES PERFI	BASALT BLK 800 805
3840 perforations from 329 ft. to 489 ft	BASAST CLAY BRN 805 961
2880 perforations from 610 ft. to 750 ft.	CINY BRY CREY 961 485
2400 perforations from 1280 th. to 1380 th.	CLAY GRU + CREV 1150 1150
Screens: Yes No 🕱	CLAY GREY + WHITE SAND 1163 1211
Manufacturer's Name	CLAY BRN 1211 1231
Type Model No	CLAY GREY 1231 1258
Diam. Slot size from ft. to ft.	CLAY GREY + WHITE SAND 1258 1278
	A CALLAGTITE COCYLUMITE /201 1344
Gravel placed fromft. toft.	GRANITE 1364 1404
Surface seal: Yes No To what death? 324 #	
Material used in seal NEAT CEMENT GROUT	* INDICATES WATER BEARING
Did any strata contain unusable water? Yes No	ZOHE
Type of water? Depth of strata	16" + 20" PRESSURE GROUTED
Method of sealing strata of	FROM BOTTOM BACK TO GROUND
(7) PUMP: Manufacturer's Name	SURFACE
Туре: Н.Р	
(8) WATER LEVELS: Land-surface elevation above mean sea levelt.	· · · · · · · · · · · · · · · · · · ·
Static level	
Artesian water is controlled by (Controlled by	· · · · · · · · · · · · · · · · · · ·
	Work Started 10/24 / 1994 mpleted 3/28 / 1995
(9) WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes No If yes, by whom? DRILLER	WELL CONSTRUCTOR CERTIFICATION:
Yield: 500 gal./min. with 74 ft. drawdown after 2 hrs:	Constructed and/or accept responsibility for construction of this well, and its
" 1000 " 171 " 6.5 "	compliance with all Washington well construction standards. Materials used and
" 1400 " 233 " 24 "	
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) 流氓的 化 化 化化化化	NAME TOLMAN WRILLING CORP.
Time Water Level Time Water Level Time Water Level	Address E3410 9TH AVE SPOKEDAVE WA
OSEC 205 10" 152 30" 122	Cu Ol Clip
MIN_170_14" 148_ 3HR 73	(Signed) Universe No. 0187
Date of test <u>c/cs/75</u>	Contractor's
Airtestgal./min. with stem set atft. forhrs.	Registration MADC 13104 MARCH 15 .95
Artesian flow g.p.m. , Date	
remperature of water 1 9 Was a chemical analysis made? Yes 🔀 No 🗌	(USE ADDITIONAL SHEETS IF NECESSARY)
ECL 050-1-20 (2/93) ** f	3

•

port		WELL LOGID	417068	R
Vell Rei		Well Tag	ging Form	
n this V	WASHINGTON STATE UU310	3	AUC BRE	
tion o	ECOLOGY	Unique Well Tag No:		
rma	RECOR	D VERIFICATION (C	necky one)	
Info	Well Report available (ple	ease attach this form to the well report an	d submit it to the Ecology Regional Office near	
the	Verification inconclusive	Pws 53400	Source 05	
d/or	Well Report not available	9		
ta an	WELL OWNERSH	IIP, IF DIFFERENT	ROMWELLRERØRT	
Da	Ist Name: Medical Lake,	City CF Last Name:		
v the	treet Address:		· · · · · · · · · · · · · · · · · · ·	
rant	itv:	State:		
War	LOCATION OF WE		FROM WELL REPORT	
IOT		· · · · ·		
es N	Vell Address:		<u> </u>	
v do	ity:	County:) pukthe	
polo)NR	W.M. Sec	1/4 of the	
fEco	;	OR AGENCY USE	ONLY	
ent o	47° 35	. 37, 279	" GPS	
rtme	$\frac{112^{\circ}}{36}$	26.013	Topographic Map	
epal			Computer generated	
Je D	·	feetImaters (circle one)	Digital Altimeter	
	Elevation at land surface		Topographic Map	
	Additional information, if available	9:	Other	
	Location marked on topogra	aphic map (please attach)	9	
	Location marked on air pho	to (please attach)		
	4		ç.	

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O File Original and First Copy with	#3
O Department of Ecology Second Copy Owner's Copy	

WATER WELL REPORT

WRN WG 1) 166859

Application No.

Third Co	py - Driller's Copy		STATE OF V	ASHINGTON	Permit No.		
(1) 01	WNER: Name	G. and J De	legans	Addres 2912 Raymond	Cr. Spokane Wa	shingto	n 0020
LO	CATION OF WI	ELL: County	Spokane	SW	14 SW 14 Sec 2 T	24 N B	41 E
A Bearing	and distance from sect	lon or subdivision	corner				
5 (3) PR	OPOSED USE:	Domestic 🔲 Inc	lustrial 🔲 Municipal [(10) WELL LOG:			·····
5		Irrigation 🕅 Te:	st Well 🔯 Other 🛛	Formation: Describe by cold	or, character, size of mater	ial and stru	cture, and
	PF OF WORK	Owner's number	of well	stratum penetrated, with at	t least one entry for each	change of	al in each formation.
3	New wel	(if more than one l □X Metho	d: Dug 🗍 Bored 🗍	MATI	ERIAL	FROM	то
U	Deepenee	4 🖸	Cable 🗍 Driven 🗍	Sand & clay		0	
	Recondit	loned []	Rotary 🛛 Jetted 🗌	gravel and c	lav	19	26
(5) DI	MENSIONS:	Diameter of v	vell	red clay	damp	26	42
Dril	lled	Depth of complet	led well	claybasalt	gravel	42	
(6) CO	INSTRUCTION I)ETAILS:		<u>broken basalt</u>		67	69
Ca	sing installed:(' Diam. from .	+1 n 10671 2"n	<u>tirm basalt</u>	hacal+	69	102
2 2	Threaded []	Z' Diam. from .	±1	basalt with bl	ue clav	120	139
	Welded LA	Diam. from .	: :	broken basalt		139	147
Pe	rforations: Yes 🗆	No KK		firm_basalt_po	rous water	147	161
	Type of perforator u SIZE of perforation	15edi	n by in	<u>blue clay seam</u>	s water	161	170
		ions from	ft. to ft.	firm basalt		170	175
	perforat	ions from	ft. to ft.	hard	•	192	102
	periorat			broken		195	210
Sci	reens: Yes D No)			firm_basalt		210	249
	Type	6	Model No.	clay_brown	water	249	268
Õ	Diam Slot	size from .		porous_basalt	water	268	273
		Jize Irom .		hard	wdter	201	294
Gr	avel packed: Yes (🗋 No 🔀 Size	of gravel.				
:	Gravel placed from	f	t. to ft.	·		_	
Su	rface seal: Yes 🕅	No C To what	t depth?150				
	Material used in sea	L. CONCY		TT M	0	-+	
	Type of water?	Depth	of strata	Dall AP IC	702	-	
;	Method of sealing st	rata off		AND AN			
(7) PU	MP: Manufacturer's	Name		- Man	RECEL	VED)
	Туре:		H.P		MAYDAA	070	
(8) WA	ATER LEVELS:	Land-surface ele above mean sea	level 2400 ft.			3/3	
Static lev	el <u>50</u>	ft. below top of v	vell Date	1	DEPARTMENT OF	ECOLOGY	
Artesian j	pressure Artesian water is co	lbs. per square in ntrolled by	nch Date	·	SPOKANE REGION	AL OFFICE	
			(Cap, valve, etc.)				
(9) WE	ELL TESTS:	Drawdown is amo lowered below sta	unt water level is atic level	Work started 4/5/	1.79	5/4/	
Was a put	mp test made? Yes 🗌	No [] If yes, by	whom?	WELL DDILLEDIC C		×/1/	
Yield:	gai./min. with	n. drawd	iown after hrs.	WELL DRILLERS S	ALEMENT:	125	
		,		true to the best of my l	under my jurisdiction knowledge and belief.	and this i	report is
Recovery	data (time taken as	zero when pump	turned off) (water level		· · · · · · ·		
Time	Water Level Time	Water Level	Time Water Level	NAMEAmerican Dri	lling & Developm	ent Inc	•
	·				AD77 Challens 11	Type or pr	1.0
0				Address F.U. BOX 14		<u>- 992</u>	14
Date of	of test			B.W.G	() Munn		
SADEX Les	1 900+ gal/min. wit	thft. draw	down afterhrs.	[Signea]	(Well Driller)	u j	•••••••
Artesian f	flow	as a chemical anal	vsis made? Yes 🗋 No 🖻	License No. 0322	Data / 5	1221	1079
remberan	W	RA.			· ·		., 181
	5/2.41	19 MA	USE ADDITIONAL SH	EETS IF NECESSARY)			
ECY 050-1-2	20 -1-11			· · · · · · · · · · · · · · · · · · ·		*	a

		↓ FU	6, LOG. 1)	166590		
sport.	File Depa Seco Thir	Original and First Copy with artment of Ecology nd Copy — Owner's Copy d Copy — Driller's Copy STATE OF V	LL REPORT	Application Permit No.	No	
Re	$\overline{\mathbf{a}}$	OWNER: Name Florid Manhan	Address Rt 1	Bx 17-A Shaka	mo Min	. 1
	<u>(-)</u>	LOCATION OF WELL: County SDOKane	Adoress_7.1	SWW NF 4 Son 1	74	L/
Ξĺ		ing and distance from section or subdivision corner	·			
his	(3)	PROPOSED USE: Domestic & Industrial Municipal	(10) WELL LO	G:		
nt		Irrigation 🛛 Test Well 🔲 Other 📋	Formation: Describe show thickness of ag	by color, character, size of mater uifers and the kind and nature of	ial and stru the materi	cture, and
0	(4)	TYPE OF WORK: Owner's number of well (if more than one)	stratum penetrated, a	with at least one entry for each MATERIAL	change of	formation.
jor		New well 2 Method; Dug Decrement Cable Decrement Cable Decrement	overbu	rden	O	9
lat		Reconditioned Rotary Jetted	Basalt	Blue, Hard.	9	46
'n	(5)	DIMENSIONS: Diameter of well inches.		Brn Soft	46	47
nfc		Drilled 30.3 ft. Depth of completed well 30.3 ft.	1	Scoria Med	105	145
e	(6)	CONSTRUCTION DETAILS:		Med.	145	260
ţ		Casing installed: 6." Diam. from O. ft. to 20 ft.		SCOVIG.	260	303
/or		Welded D	·			
nd		Perforations: Ves D No E	·	· · ·		
3 3		Type of perforator used				·
ati	н.	SIZE of perforations in. by in. ft. to ft. to				
		perforations from ft. to ft.			·	
the						
≥		Manufacturer's Name	·			
an		Type			+	
- La		Diam. Slot size from ft. to ft.				
Ň		Gravel packed: Yes D No Size of gravel:		· · · · · · · · · · · · · · · · · · ·		
5		Gravel placed from ft. to ft.		······································		
ž		Surface seal: Yes No To what depth? 20 ft.		······································		
es		Material used in seal. Den J. D. I. J. S. Did any strata contain unusable water? Yes No D				
op	·	Type of water? Depth of strata	·			
ΣĒ	(7)	DIIMP.	· · ·			
ŏ	(1)	Type:		• • • •		
8	(8)	WATER LEVELS: Land-surface elevation			11	;
т Ш	Stati	c levelft. below top of well Date 6-26-		· · · · · · · · · · · · · · · · · · ·	+	
to	Artes	sian pressurelbs, per square inch Date Artesian water is controlled by				
len		(Cap, valve, etc.)				
t H	(9)	WELL TESTS: Drawddwn is amount water level is lowered below static level	Work started	1	-6	1977
oar	Yield	i: gal./min. with .ft. drawdown after hrs.	WELL DRILLE	R'S STATEMENT:		
Del	"	n n n	This well was d	Irilled under my jurisdiction	and this 1	report is
e	Reco	very data (time taken as zero when pump turned off) (water level		/ /		
片	. n Tin	neasured from well top to water level) ne Water Level Time Water Level Time Water Level	NAME OYA	ham Drilling		
	•••••			o M. Lo Falla	Type or pr	
Ĩ	Ť			D / A	NUL.	
1	Baile	ate of test	[Signed] Jun	Caraha	m	
	Artes	tan flow		(Well Driller)	10	<u> </u>
	Temp	perature of water	License No	> 0 Date 6-	10	, 19
		193/7- Vise additional sh	EETS IF NECESSARY)			
	ECY 0	150-1-20 LE/L /		1. 1.		3

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APPENDIX A2

WELL LOGS

LINE 2: VENTURA ROAD

WILL LOG 10 431	395	5
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WATER WELL REPORT Original & 1 st copy - Ecology, 2 nd copy - owner, 3 nd copy - driller	CURRENT Notice of Intent No. WE04517		
Construction/Decommission ("x" in circle)	Unique Ecology Well ID Tag No. ALR829		
Construction	Water Right Permit No.		
Decommission ORIGINAL INSTALLATION Notice	Property Owner Name Jason Stevens		
of Intent Number	Well Street Address Rambo Road		
PROPOSED USE: 7 Domestic I Industrial Municipal			
DeWster Irrigation Test Well Other	City County Spoks	ne	
TYPE OF WORK: Owner's number of well (if more than one)	Location NW1/4-1/4 SW 1/4 Sec 22 Twn 25	R 41 EW	M 🗹 irde
Image: New well □ Reconditioned Method : □ Dug □ Bored □ Driven □ Deepened □ Cable Ø Rotary □ Jetted	Lat/Long (s, t, r Lat Deg La	www. t Min/Sec	
DIMENSIONS: Diameter of well 6 inches, drilled 238 ft.	Still REQUIRED	20.00	
Depth of completed well 238ft.	Long Deg Lo	ing Min/Sea	c
CONSTRUCTION DETAILS	Tax Parcel No		
Casing 2 Welded 6 " Diam. from +1 ft. to 19 ft. Installed: 21 Liner installed 4 " Diam. from 9 ft to 239 ft.			
Threaded Diam. from fl. to ft.	CONSTRUCTION OR DECOMMISSIO	N PROCEDU	JRE
Perforations: Z Yes No	Formation: Describe by color, character, size of material and nature of the material in each stratum nenetrated with at less	i structure, and t	the kind and
Type of perforator used 3/8" Spade Bit - See Perf. Note Below Right	information. (USE ADDITIONAL SHEETS IF NECH	SSARY.)	ant one the or
SIZE of perfsin. byin. and no. of perfsfromfl. tofl.	MATERIAL	FROM	ro
Screens: Yes INO K-Pac Location	Topsoil	0	1
Manufacturer's Name	Sand	1	5
Diam. Slot size from fL to ft	Clay, Brown	5	12
Diam. Slot size from ft. to ft.	Basalt, Medium w/ Shale, Brown	12	58
Gravel/Filter packed: Yes Z No Size of gravel/send	Basalt, Fractured	58	63
Materials placed from ft.	Basalt, Hard	63	150
Surface Seal: Yes No To what depth? 18+f.	Basait, Fractured - Water 2gpm	150	153
Material used in seal Barroid Bentonite	Shale, Brown and Medium	153	155
Did any strata contain unusable water? Yes 🗹 No	Shale, Grey and Medium w/ some Quartz Sand	155	165
Type of water? Depth of strata	Water - 1gpm	1	
Method of sealing strata off	Basalt, Fractured	165	178
Type: H.P.	Shale, Brown and Medium	178	190
	Basalt, Fractured	190	205
WATER LEVELS: Land-surface elevation above mean sea level	Basalt, Medium	205	230
Artesian pressure Ibs per aguara inch. Data	Basalt, Fractured - Water 5gpm	230	236
Artesian water is controlled by	Shale, Brown	230	237
(cap, valve, etc.)	Clay, Orange	237	238
WELL TESTS: Drawdown is amount water level is lowered below static level		·	<u> </u>
Was a pump test made? Yes I No If yes, by whom?	Recommended nume donth is 150 feat	<u> </u>	
Yield: gal /min. with ft. drawdown after hrs.	Recontinended pump deput is 150 reet.	<u>}</u>	
Yield:ft. drawdown afterhrs.	A" BVC Lingt Perforations: 100 to 120 feet	<u> </u>	<u> </u>
Recovery data (time taken as zero when pump turned off) (water level measured from well	140 to 160 feet 180 to 200 feet 220 to 238 feet		
lop to water level)			
Time Water Level Time Water Level Time Water Level			
		0 0 1 5	
Date of test	├─── ─ ┣	B 211	
Bailer test gal/min with ft drowdown after be-			001001
Aintest & gal/min with stern set at f for her	DEPARTN	ENT OF E	DULULAY -
Artesian flow g n m Date	EASTERN	REGIONA	E-OFPICE
Temperature of water Was a chemical analysis made? Yes 7 No			
	Start Date 11/11/05 Complete	ad Date 11/12	/05
WELL CURSTRUCTION CERTIFICATION: I CONSTRUCTED and/or acc	to responsibility for construction of this well, and	I its complian	nce w th all
Doubles C Engineer C Trainee News Opins Don Anderson	Delling Comments & Delling Inc.	ia bener.	
Diller Conner Treiner Simpling	Address E 17213 Links Dood		
Delles os tenines license No. 1447	City State Zin Greenacres WA 00016		
Commune of particular into a set	Contractor		
Driller's Licensed No.	Registration No. JJDRII-177KU	Date 11/17/0	5
Driller's Signature	Foolow i	an Emal Orea	ntumity implaye

ECY 050-1-20 (Rev 3/05)

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annaí Taoist 5) The Department of Ecology does NOT warranty the Data and/or Information on this Weil Report.

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File Original and First Copy with	ih,
Department of Ecology	
Second Copy-Owner's Copy Third Copy-Diller's Copy	

WATER WELL REPORT

WELL WE ID

Start Card No. W 21658 #2

STATE	OF	WASHINGTON
SIAIE	UF	WASHINGIUN

Water Right Permit No. _

170106

		Water Hight Permit No.		_
(1)	OWNER: Name_ Lloyd Harding B B L CO. INC	Address W 913 12th. Spokane, WA	99204	
	LOCATION OF WELL: County Spokane	Shi k Sec 22 T	25 41	
(2a)	STREET ADDDRESS OF WELL (or nearest address) Rambo	R. Hwy. 2 Spokane, WA	FractZo	
(3)	PROPOSED USE: To Domestic Industrial D Municipal D	(10) WELL LOG or ABANDONMENT PROCED	URE DESCRIPTIC)N
(4)	DeWater Test Well Other	Formation: Describe by color, character, size of material thickness of aquifers and the kind and nature of the material in with at least one entry for each change of information.	and structure, and shi each stratum penetrat	iow led.
()	(Il more than one)	MATERIAL	FROM TO	_
	Abandoned I New well 🔁 Method: Dug I Bored I Deepened I Cable I Driven (Topsoil	0 1	
	Reconditioned Rotary 🗊 Jetted 🗆	Sand	1 3	
(5)	DIMENSIONS: Diameter of well 6 inches	Clay-brn.	3 5	
	Drilled 205 test. Depth of completed well 205 th	Basalt-med.	5 55	
(8)		Clay-brn.	55 75	
(0)	CONSTRUCTION DETAILS:	Clay-red	75 122	
	Casing installed: O Diam. from TI ft. to IV ft.	Clay-red w/basalt-fract.	122 135	
	Liner installed	Quartz sand-water-10-G.P.M.	135 136	
	Threaded Diam. fromft. toft.	Clay-tan w/sand strips	136 163	
	Perforations: Yas No	Clay-tan w/Dasait strips	103 102	
	Type of perforator used	Granit-soit	102 205	
	SIZE of perforations in. by in.			
	perforations from H. to H.			
	perforations from H. to H.			
	perforations fromft. toft.			
	Manufacturer's Name			
	Type Model No			
	DiamSiot alze(romft. toft.			
~				
	Gravel packed: Yes No 🗠 Size of gravel			
	Gravel placed fromft. toft.			
	Surface seal: Yes X No To what depth? 18+ ft. Material used in seal Bentonite			_
	Did any strate contain unueable water? Yes No X		+	
	Type of water?Depth of strata			
	Method of sealing strate off			-
(7)	PUMP: Manufacturaria Nama			
,		· · · · · · · · · · · · · · · · · · ·		
(8)	WATER LEVELS: above mean sea level 8/16/02 tt.			
	Static level It below top of well Date	······································		
	Artesian pressure ibs. per equare inch. Date			
	(Cap, valva, etc.))	West started 8/13/93 18 Completed 8/	/16/	73
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level	Hork statted, is. Completed	. 18 18	=
	Was a pump test made? Yes No 🗠 If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION:		
	Yield: gal /mm, with fi drawdown after hrs.	I constructed and/or accept responsibility for con	nstruction of this we	nli,
	Alr test approx. 10-G.P.M.	and its compliance with all Washington well co Materials used and the information reported abov	instruction standard	IS.
	Recovery data (time taken as zero when pump turned off) (water level measured	knowledge and belief.		
	from well top to water level) Trns Water Level Time Water Lavel Time Water Level	NAME J & J DRILLING INC		_
		(PERSON, FIRM, OR CORPORATION)	(TYPE OR PRINT)	
-		Address S 5613 Linke Rd. Greenacre	8. WA 99016	
	Date of test	- 1 a ala	7	
\sim		(Signed) Lacon T Marrat License	NO. 2139	
	Bailer test gal./min. with fl. drawdown after hrs.	(WELL DRUCLER) Contractor's		
	Airtest gal,/min, with stem set at fi, for hra.	Registration JURII-177KU Data 8/19/		93
	Artesian (low g.p.m. Date		, 19	
	Temperature of water Was a chemical analysis made? Yes No	(USE ADDITIONAL SHEETS IF NECE	SSARY)	2

WEU LOG 1	D 315953
File Original with Department of Ecology Second Copy - Owner's Copy 10160 - STATE OF WASHINGTON	RT Notice of Intent <u>W 27483</u> UNIQUE WELL I D # <u>HAL 165</u>
Third Copy - Driller's Copy 104012	Water Right Permit No 992-18
(1) OWNER: Name BB is CO. INC. J. Harding Ad	idress W. 903 W. ustorer Rd. Spakare, u) A
 (2) LOCATION OF WELL: County S POKANE NWF SUC (2a) STREET ADDRESS OF WELL: (or nearest address)	1/4 S (1/4 Sec. 22 T 25 MN R 41 LTM Rd TRACT 35
(3) PROPOSED USE: Ø Domestic □ Industrial □ Municipal □ Irrigation □ Test Well □ Other □ DeWater	(10) WELL LOG or DECOMMISSIONING PROCEDURE DESCRIPTION Formation Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least
(4) TYPE OF WORK: Owner's number of well (if more than one) New Well Method Deepened Dug Bored Reconditioned Cable Driven Decommission Rotary Jetted	one entry for each change of information Indicate all water encountered MATERIAL FROM TO BAA WAI TOP Souther O 2 FROM TO Z Z FROM TO Z Z
(5) DIMENSIONS · Diameter of well 6 inches Drilled 124 feet Depth of completed well 124 ft	YELLOW-BROWN 25 90 CLAY-Sand
(6) CONSTRUCTION DETAILS Casing Installed: Welded Toft	Water from 90 124
Perforations. Ves DNo Type of perforator used Tarch SIZE of perforations	
Screens· I Yes K-Pac Location Manufacturer's Name	
Material placed fromft Io ft Io ft Surface seal: ID ves To what depth? Is ft ft Material used in seal B Image: Seal Control Image: Seal Control ft ft ft Did any strata contain unusable water? If Yes Image: Seal Control Image: Seal Control ft Type of water?	DEI THE EVELOGY
7) PUMP: Manufacturer's Name	
WATER LEVELS: Land-surface elevation above mean sea levelft Static level3 4ft below top of well Artesian pressurelbs per square inch Date	Work Started 10-20-01 Completed 11-10-01
Artesian pressureibs per square inch Date Artesian water is controlled by (Cap, valve, etc.)	WELL CONSTRUCTION CERTIFICATION:
WELL TESTS: Urawdown is amount water level is towered below static level Was a pump test made? Yes Yes	Interview and the accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and ballef Type or Print Name BOYA L. LOCKENSE No 12-83 (Vicensed Driller/Engineer) Trainee Name License No Drilling Company BOYA L. LOCKENSE No (Signed) Bergent C. License No/283 (Licensed Driller/Engineer) Address/5910 S.C.ANPE ELL
Date of test	Contractor's Registration No Boyd L use 14 Solution 2 403 () Luit (USE ADDITIONAL SHEETS IF NECESSARY) Ecology is an Equal Opportunity and Affirmative Action employer For special accommodation needs, contact the Water Resources Program at (360) 407-

WELL LOG 1D 176932

WELL FEPORT WATER Start Card No. W111067 Unique Well I.D. # AEM035 STATE OF WASHINGTON Water Fight Permit No. (1) OWNER: Name FLINT CHARLES Address 1010 S PAIRVIEN REIGHTS MEDICAL LAKE, WA 99022-(2) LOCATION OF WELL: County SPOKANE - SE 1/4 SW 1/4 Sec 22 T 25 N , R 41 WM (2a) STREET ADDRESS OF WELL (or nearest address) 1010 S FAIRVIEW HEIGETS, MEDICAL LAKE (3) PROPOSED USE: DOMESTIC | (10) WELL LOG (4) TYPE OF WORK: Owner's Number of well Formation: Describe by color, character, size of material (If more than one) and structure, and show thickness of aquifers and the kind 1 NEW WELL Method: ROTARY | and nature of the material in each stratum penetrated, with at least one entry for each change in formation. (5) DIMENSIONS: 0 TOPSOIL 11 (6) CONSTRUCTION DETAILS: SAND COARSE 1 1 | 12 " Dia. from +2 ft. to 19 ft. | BASALT BROKEN BLACK + BROWN 1 12 Casing installed: 6 52 52 | 70 MELDED 4 " Dia, from -5 ft. to 200 ft. | BASALT BLACK SOFT " Dia. from ft. to ft. [CLAY ORANGE 1 70 80 SANDSTONE BROWN WITH 1 80 | 190 Perforations: NO CLAY W/WATER 1 190 DECOMPOSED GRANITE Type of perforator used 1 190 1 200 SIZE of perforations in. by in. 200 ft. to perforacions from ft. perforations from ft. to ft. perforations from ft. to fr. ------Screens: YIS BOART Manufacturer's Name Type PVC Model No. Diam. 4 slot size 20 from 160 ft. to 100 ft. from ft. to ft. Diam. slot size ----..... 《 @ 寻 뭐 Gravel packed: NO Size of gravel avel packed: NO Size of gra-Gravel placed from ft. to ft. Surface seal: YES To what depth? 18 ft. 9 1999 Material used in seal BERTONITE Did any strata contain unusable water? NO ft. Type of water? Depth of strata Method of sealing strata off CASING (7) PUMP: Manufacturer's Name Type NONE H.P. (8) WATER LEVELS: Land-surface elevation Static level 30 ft. below top of well Date 04/17/99 Artesian Pressure lbs per source in the state of the state of the second s Artesian water controlled by CAP Work started 04/27/99 Completed 04/27/99 (9) WELL TESTS: Drawdown is amount water level is lowered below | WELL CONSTRUCTOR CERTIFICATION: I constructed and/or accept responsibility for constatic level. Was a pump test made? NO If yes, by whom? struction of this well, and its compliance with all gal./min with ft. drawdown after Washington well construction standards. Materials used hrs. ! Yield: and the information reported above are true to my best knowledge and belief Recovery data Time Water Level Time Water Level Time Water Level ; NAME FOGLE PORP & SUPPLY, INC. (Person, firm, or corporation) (Type or print) ADDRESS POB 1450, AIRWAY HTS. WA. Date of test / / (SIGNED) Ind il Y.LUNT License No. 2311 gal/min. ft. drawdown after hrs. [Bailer test gal/min. w/ stem set at 200 ft. for 1 hrs. Air test 12+ Date Arcesian flow Contractor's g.p.m. Temperature of water Was a chemical analysis made? NO | Registration No FOGLEPS095L4 Date 04/28/99

WELL 173290 LOG ID



REPORT WAT Ξ

STATE OF WASHINGTON

Start Card No

056840 -#1

Third	Copy—Dritter's Copy	Water Right Permit No.		
	OWNER: NameTed Audett	Address Rt. 2 Box 75 W. Medical	LK., WA	99022
	LOCATION OF WELL' Causty Spokene	5W % Sec. 22 T	25_N. B.	41 .w.M.
1 12a1	STREET ADDRESS OF WELL (or pearent address) 15610 H	WY2 West, Medical LK., WA		
		1401 WELL LOC & ARANDONMENT PROCEDU		PIDTION
(3)	PROPOSED USE: Doministic Industrial I Municipal I Municipal Dewater Test Well Other D	(10) WELL LOG OF ABANDONMENT PROCEDU	nd structure	, and show
		thickness of equifers and the kind and nature of the material in e with at least one entry for each change of information.	ach stratum	penetrated
(4)	TYPE OF WORK: Owner in number of well (Il more than one)	MATERIAL	FROM	TO
	Abandoned Development New well Da Method: Dug Development Development	Topsotl	0	1
	Raconditioned C Rotary Z Jetted C	ClavObrnsand	1	9
		Basalt-fract. w/clay brn.	9	26
(3)	600 filmeter of well 600	Basalt-med. w/fracts.	26	55
	Drilled 000 feet. Depth of completed well 000 feet.	- Basalt-hard	55	61
(6)	CONSTRUCTION DETAILS:	Basalt-fract. water bearing	61	78
	Casing installed: _6 * Diam. from _+1t. to290	n. 47-G.P.M.		
	Welded	Basalt-fract. w/clay brn.	78	135
	Threaded Diam. fromft. 10	Basalt-fract. w/sand quartz	135	138
<u></u>	Perforations: Yes No X	Basalt-med. w/clay brn.	138	190
	Type of perforator used	Clay-brnhard	190	260
	SIZE of perforations in. by	. Sand stone hard	260	270
	perforations from1. to	n. Basalt-med.	270	280
	perforations fromft, to	n. Basalt-hard	280	310
	perforations from fl. to	n. Basalt-med. w/clay-brn.	310	350
	Screens: Yes No X	Basalt-hard	350	301
	Menulacturer's Name	Basalt-med. w/clay-brn.	361	390
	Type Model No	Basalt-med. w/clay-white	390	1403
	Diam Slot aize fromtt. to	n. Basalt-med. w/fracts.	403	410
-	DiamSlot aizefromft. to	n Basalt-hard	470	505
	Gravel packed: Yes No X Size of gravel	Basalt-med.	505	543
	Gravel placed from fl. to	Granit-soft	543	503
	18+	Granit-med.	503	1 5/1
	Surface seal: Yes No lownst bepin?	Granit-hard-white	211	+
	Material used in sealBentonite	- · · · · · · · · · · · · · · · · · · ·		i
	Did any strate contein unuesple water? Yes No L		<u> </u>	
	Helbod of seeing strate off 300ft -10" drilling-sealed			
	to surface		1: :000	
(7)	PUMP: Manufacturer's Name	-	1 1 1	
	Type: H.P	=		<u> </u>
(8)	WATER LEVELS: Land-surface elevation show mean sea level	I	+	
	Static level 0 ft. below top of well Date 9/29/92			
	Artesian preasure Ibs. per square inch Date			+
	Artesian water is controlled by(Cap, valve, etc.))	9/16/52 9/	29/	
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 19. Completed		
	Was a pump test made? Yes No II yes, by whom?	- WELL CONSTRUCTOR CERTIFICATION:		
	Yield: gel./min. with h, drawdown after hr	a. I constructed and/or accept responsibility for con	struction o	t this well,
	- · · · · · · · · · · · · · · · · · · ·	and its compliance with all Washington well compliance with all Washington well compliance to the information reported shows	natruction	standards.
	Description of the second seco	knowledge and belief.	, 4.0	io my boat
	from well top to water level)			
	Time Waler Level Time Water Level Time Water Level	NAME J& J DRILLING INC	(7)(7)	
		(PENSON FIRM OR COMPONATION)		
-		Address 5513 Linke Rd. Greenacres	, WA 9	9010
10	Dele of test	GIN TH		1.7
-		(Signed) Len Anchan License	No 14	4(
	Bailer test get./min. with h, drawdown after hr	Contractor's		
	Autest gal,/min, with stem set al tor ff	No. JUDRII-177KII Date 10/4/		19_92
	Artealan flow g p.m. Date			
	Temperature of water Was a chemical analysis made? Yes La No La	USE ADDITIONAL SHEETS IF NECE	SSARY)	

(USE ADDITIONAL SHEETS IF NECESSARY)





	- 5	AMPLE	S			
Downhole	Type Tumber		(mqq) MNO	Graphic Log	uscs	MATERIAL DESCRIPTION
	-		F		SP	SAND dry
	1		Ļ			
1	5				SM	SILLY SAND Had brown rock tragments gravel dry
	~		ſ	14		-
	1					-
1(0-1					
				~ ~ ~		Weathered fragmants frable
	-			1.1	}	Unweathered fragments light gray to gray 1 2 mm grains trace phenocrysts
15	5-]		.		f	 Light oray to pray basall dry
	1		ŀ		ļ	
	1			~	ŀ	As above some weathered oxidized fragments dry
20	-0			21		-
	-			~	ł	
	.]			~1	F	Red brown highly weathered fragments and red somewhat leable layers
25	7				ļ	
	1			~ .	Ļ	
30	1				ŀ	-
	-			1	b	
	-				F	As above slight water
35	; -{		ľ		F	-
	1				ļ	As above gray trace oxidized fragments trace dark gray to black "vamished"
	1		, ,		Ļ	Slight water
40	H		1	:1	t	-
	-		1		-	As above slight water
AC			1	~	F	
40	-		-	1	F] <mark> </mark> NOV 1 7 2003 ⊺
					F	
50	1			1	t	EASTERN REGIONAL OFFIC



A		- OF			1	1		
E	feet			â	fo			
at l	t f	5		bbu	C L		MATERIAL DESCRIPTION	REMARKS AND
aefe	No de	g de		ž	hde	CS		OTHER TESTS
102		N N		5	ð	SU		
	-				1-1	<u></u>	Increasing green mineralization slightly frable trace wood fragments	
	110-	1			· ` /			-
]			11		Decreasing green mineralization secondary mineralization on basait fragments	15 30 Pause to cool
	-		1		()			compressor
1	-				11		-	
	115-				1.		As above	1
	-				11			15 47
	-				133		-	-
	120				~~		-	-
	120-				11			1
1			1				- Ar should some mean alou electo	10.00
	1				1		Bessit, dark gray with some secondary crystallization quartz epoarent on	1602
1	125				. 4 .		fractured faces quartz crystals to 3 mm rounded]
					121	ŀ	-	18.44
	-				120	ł		16 24
	1				×	[
	130-					ł		ł
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]				171	ļ		
	-				- * -	ŀ		
	135-	<u> </u>			11		-	
	7					F	As above easier driling	
	-	Í				ł	· _	16 51
,	140				11		Σ-	
1	·~~]			-]-	121	-	-	
	- 1				~~~	ł	As above some vesicles, trace secondary crystallization	17.00
	1	1				Ľ		17 00
1 .	145-				12.1	F		
	-				~ 1	F	dian appression dealers of a secondary charactering and a said dark	17 09 500 8/28/03
]			- ·	1	Ę]	8/27/03 07 35
I	- 1	1		ŀ		-	1	
1	150-					Ľ	Dark gray basalt with green altered/weathered minerals secondary crystalization	07 43
	-				**	F		
	-				~1	ŀ		07 4B
	155-		1		1	Ľ	. 4	
	-			1		ŀ	1	
1	1		ļ		1	ŀ	Easier dniling increased green mineralization	07.59
1	4			1	~ .	F		
1 1	160-			1	5	F	· _	
1]			1	21	Ę	-	I
	-				~ ;	F		08 03
,	165			Ļ	-fic		-Very easy drilling	
	-			-	31	F	As above with gray sultationed In E C E I V EINT	LATAH
	L				1			Formation
l						~	Hange Partern NOV 17 2003	
Ļ								
							DEPARTMENT OF ECOLOGY	······································
							EASTERN REGIONAL OFFICE	

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Elevation	Depth feet	Type Number	(Indd) MVO	Graphic Log	nscs	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
2	85					As above grading gray to gray green silistone somewhat friable increasing water few gallons per minute	EOD 8/28/03 07 30 8/29/03
2	90-			/ ¥ / / ¥ / / ¥ / / ¥ /		- Grading black vesicular basait vesicies 2 3mm docreasing water -	
2	95-			~ ~ ~ ~ ~ ~ ~		As above decreasing vericles	08 21
3	05-			~~~~		As above no vesicles As above As above	- _ 08 48
3	10						
3	15- 			~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		As above trace secondary crystallization] 0₽ 40 - - - 10 02
3;	20			ころの	- - - - -	As above trace vesicles	10 25
3:	25-			<u> </u>		As above black to dark green basait trace secondary crystallization (Quartz grains) Seme elletone clough, R	10 46 EQD 8/29/03 08 25 9/3/03
35				~~~	-	As above fine grained	08 42
34				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		As above trace secondary crystallization Slow dolling	09 11 09 25
]	NOV 17 2003	0951
						DEPARTMENT OF ECOLOGY EASTEPN REGIONAL OFFICE	

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.



1	T		SA	AMPLES	5			-	
	Elevation feet	Downhole Depth feet	Type Number		(mdd) MVO	Graphic Log	nscs	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
		405-				/ 2 / 2 / 2 / 2 / 2 / 2 / 2 / 2		As above much wood Veaicular Basait, gray finc grained sandstone Increasing water(agnificant)	14 07 14 15
		- - 410- -				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		As above increasing rig chatter	14 45
		415-				· · · · · · · · · · · · · · · · · · ·	 	Fractured Baselt some vesicles nome secondary crystalization continuing water	15 17 15 27
		420				>>> >>> >>> >>> >>>> >>>>>>>>>>>>>>>>>			17 00
		425						Dark gray fine grained basalt.	17 30 EOD 9/7/03 07 25 9/8/03 08 30
	4	430- - -						As above decreasing vesicles and secondary crystallization (quartr)	09 55 10 30
	4	35 ~ -				~ ~ ~ ~ ~ ~		As above decreasing vasicles	2 40 3 DO
	4	40					112 12-1-1	As above Toran Durana 935 Jun Monne Sicare -1 Bui jun monio Astrono Mari	5 30
	4	45							
	4	5							
	- 10 ove						-	DEGEIVERI 10 1:07 1 7 2003	
l								DEPARTMENT OF ECOLOGY EASTEPN REGIONAL OFFICE	

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

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APPENDIX A3

WELL LOGS

LINE 3: CRAIG ROAD (HWY 902 TO FOUR LAKES)

WELL LE	417068
12	
300	Surgery 11/0 57375
Department of Ecology with	
Second Copy - Owner's Copy	
Third Copy — Driller's Copy OTATE OF V	Water Right Permit No. 63-28917 F
OWNER: Name CITY OF MEDICAL LAKE	1055 POBOX 369 MEDICAL LAKE WA.
CRANALIE SRANAL	
LOCATION OF WELL: County JTON AND	<u>NW1/4 KIW 1/4 Sec 11 T. 24N. R 41 EW.M.</u>
(2a) STREET ADDRESS OF WELL (or nearest address) <u>CIXAIG</u>	+ STATE NIWAY 902
(3) PROPOSED USE: O Domestic Industrial Municipal 🕱	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION
DeWater Test Well Cother	Formation: Describe by color, character, size of material and structure, and show thickness of aquifers
(4) TYPE OF WORK: Owner's number of well	change of information.
Abandoned New well Abandoned Second Second	MATERIAL FROM TO
Deepened Cable Driven	GRAVEL & SAHDY CLAY 0 64
	BASALT BRN 64 84
(5) DIMENSIONS: Diameter of well / to X (2 inches.	BASALT GRAY 84 189
Drineu <u>7-70 r</u> ieer. Deprin of completed well <u>7-70 r</u> ft.	A BASALT BLK+ BRN CLAY 189 243
(6) CONSTRUCTION DETAILS:	RASALT GREY 243 240
Casing Installed: Diam. from ft. to ft.	A BASALT ROUTRIK (CIAN 326 341
Liner installed Diam. from T1, 5 ft. to 524 ft.	# BASALT BLK + BRN 346 499
	CLAY BRN + GREY 499 572
Perforations: Yes No D	* BASALT GREY FRAC. 572 800
SIZE of perforations 3 in by	BASALT BLK' 800 805
3840 perforations from 329 ft. to 489 ft	BASANT CLAY BRN 805 961
28.80 perforations from 610 h. to 750 h.	CLAY GAN & GREY 961 985
7400 perforations from 1280 th. to 1380 th.	CLAY GOUL CARV 405 /150
Screens: Yes No 🕱	CLAY GRENT GREY 1130 1163
Manufacturer's Name	CLAY BRN 1211 1231
Type Model No	CLAY GREY 1231 1258
DiamSlot sizefromft. toft.	CLAY GAREY + WHITE SAND 1258 1278
t. toft.	* WASHED GRAVEL + SAND 1278 1301
Gravel placked: Yes No K Size of gravel	A QUARTZITE GREY +WHITE 1301 1364
	GIRANITE 1364 1404
Surface seal: Yes M No To what depth? 324 It.	A WDIGATCO WATTO POLO IN
Did any strata contain unusable water? Vec / No 20	ZOUE
Type of water? Depth of strata	
Method of sealing strata off	16 "+ 20" PRESSURE GROUTED
	FROM BOTTOM BACK TO GROUND
(7) PUMP: Manufacturer's Name	SURFACE
(8) WATER I EVELS: Land-surface elevation	
Static lavel	
Artesian pressure Ibs. per square inch Date	······································
Artesian water is controlled by(Cen unkno pto)	
(Q) WELL TESTS: Development	Work Started 10/24 / 1994 Simpleted 3/28 / 1995
Was a pump test made? Yes No If yes by whom? DRILLER	
Vield: 506 gal./min. with 74 ft. drawdown alter 2 hrs:	A sector of the line of the li
" 1000 " 171 " 6.5 "	constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and
7400 " 233 " 24 "	the information reported above are true to my best knowledge and belief.
Recovery data (time taken as zero when pump turned off) (water level measured from well	NAME HOLMAN DRILLING CORD
Time Water Level Time Water Level Time Water Level	(PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
ASER 205 104 152 20 11 138	Address E 3410 9TH AUE SPOKANE WA
Mu 170 14" 189 3110 77	(Signed) and & Holman Linner to 0189
Date of test 2/28/95	(WELL DRILLER)
Bailer testgal./min. withtt. drawdown atterhrs.	Contractor's
Airtest gal./min. with stem set at t. for hrs.	No. HOLMADCISIN4Date MARCH 15 1095
Temperature of water 6 Was a chemical analysis made? Yee X No	(USE ADDITIONAL SHEETS IF NECESSARY)
ECI 050-1-20 (202) ***	(A COLOR COLOR NEOLOGANT)
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164483 When how Ŵ File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy Application No. WATER WELL REPORT Report 25465 Permit No7.3 STATE OF WASHINGTON 24 Kes Four lon (1) OWNER: Name. ash Addre Sec 14 24 N. R41 WELLY County (2) LOCATION OF 5WUL 1280' and distance from section or subdivision corner -(10) WELL LOG: (3) PROPOSED USE: Domestic 📋 Industrial 📋 Municipal 🗊 Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation. Irrigation [] Test Well [] Other n Owner's number of well (if more than one)..... (4) TYPE OF WORK: FROM MATERIAL TO New well P Method: Dug Bored 0 2 Cable Driven 🛛 Deepened 7 Rotary D 4 Reconditioned Jetted 15 (5) DIMENSIONS: Drilled G 15 ft Depth of completed well G 75 ft. 28 14 an 28 53 124 53 (6) CONSTRUCTION DETAILS: 133 124 Casing installed: 7 Diam. from O. rt. to 440 rt. 188 123 Threaded [] Diam. from ft. to ft. 185 189 " Diam. from ft. to ft Welded D 209 189 209 210 Perforations: Yes No 🗆 Type of perforator used mille 212 ЭG 3/16 in. by in. SIZE of perforations perforations from J. 70 ft. to J.2.0 ft. 27 307 27.7 ... perforations from ft. to ft. 310 307 ft. to perforations from ft. 310 728 Screens: Yes D No G 228 330 Manufacturer's Name. 34 230 Model No.... Туре 247 300 ft. to Diam. Slot size from ft. 300 756 356 1755 Gravel packed: Yes D No B Size of gravel: 315-8 372 ft. to ... Gravel placed from 372 390 400 390 US 200 42 421 420 Did any strata contain unusable water? Yes 🗖 No D salt Type of water?..... Depth of strata..... n 436 426 Method of sealing strata off .. 436 442 NN2 46 (7) PUMP: Manufacturer's Name... 47 The . H.P. Type: 412 44 Land-surface elevation above mean sea level... (8) WATER LEVELS: 192 59 Static level 36 .ft, below top of well Date. **r97** 66Ibs, per square inch Date. Artesian pressure 64 775 Artesian water is controlled by (Cap, valve, etc.) Drawdown is amount water level is lowered below static level (9) WELL TESTS: .; Completed: a 19 Work started Was a pump test made? Yes | No | If yes, by whom?.... Yield a RO gal/min, with 3 ft, drawdown afte WELL DRILLER'S STATEMENT: Vield 680 gal/min. with ft. drawdown after hrs. This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief. ... Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) DO : NAME. Water Level | Time Water Level Time Time Water Level (Type or pript) corporation) son, firm, or 79 0 60 renn. Address... 2011 .58 Bate of test 58 [Signed]. Well Driller dier test.gal./min. with..... ft. drawdown after Artegian flow Date Aalysis made? Yes 🛛 No 🗆 License No.... Temperature of water Was a chemica LaKes FOU 28 (USE ADDITIONAL SHEETS IF NECESSARY) ECY 060-1-20

Well S thi LO the Information The Department of Ecology does NOT Warranty the Data and/or

	WATER WE	I PEDADT	Aunilection	No.	
Cond Copy Owner's Copy Difd Copy Driller's Copy	STATE OF W		633-3	2025	~~~
(1) OWNER CHIELE			1 K		
(1) OWNICK: Name 17 66. FOR A. A. S.	E	Address find allot	A Des Washing	1.07	
DUCATION OF WELL: County 25.01	att for the second second	Il of Ire -3	S. WARLIN Sec. Z. J. T.	: - N. R.	1/Lw
ting and ill mance from parties of subdivision corner	<u></u>				
_, PROPOSED USE: Domentic D Industria	al 🗋 Municipal 🖉	(10) WELL LOC	k:		
frigation 🖸 Test Wei	II Other []	Formation: Describe b	y color, character, size of materi	the mater	churn, i
(4) TYPE OF WORK: Owner's number of we	n	stratum penetraled, u	th at least one entry for each	change of	format
New well 2 Method: Du	C Bared C		Maralant	FROM	TO
Despended D Cal	ble () Drives ()	Dok	Benken	10	16
		Bisdel	Roy baid	14	141
5) DIMENSIONS: Diameter of well	Le todas	Bisul Cb	1 Block	148	123
Drute	all and a letter and the	hatich Chy	12 and Sonds:	178	18:
6) CONSTRUCTION DETAILS:	ş.	Latip Clay	Court	18.1.	170
Casing installed: 6 - Diam. sront	n 10 205 n	CHY Ste	an a	194	196
Thisided	R. 10 R.	Russel 01	ACK FOUL	19F	301
Vielden of	me the to manage the	Radut B	it have	Jul -	
Perforations: Yes D No D	1	Basil. Bu	in Archan	317	3,9
Type of performer used		Dates - Der	corposed.	319	23.
Star of perforsions many many in by	L 65	Eley yella	24	334	150
	. to	Elsy Ben	01.	119	200
perforations from	to assume the	DOSCHT DICA	masia	244	3.50
Screens: yes D Ra D	с.	BOUNET OT	1 have	350	37/
Mon utacturar's Name		Contra to	Orch Pased "	385	200
Tipt	No	Clay type	what > Franks	-	
Dista,			2		
Gravel nacked:			• • • • • • • • • • • • • • • • • • •		
_ Gin rel placed from another and the to		- M	MMATHER		
Emfan colo			KEGENEN		
Matural ment in seal 222 re T.	an filler R	C 11			
Dif any size contain unusable water?	THE NO D	11	AUC 19 1914	++	
Typ: of weiter	rata		/		
FUT IDE OF SPELINE FITTLE OF STATES	======================================	160	EPARTISHT OF ECOLOG	Υ	
7) PUMP: MANUfacturer's Name			SPENANE REGIONAL OFFICE		
	HP	-114			
3) WATER; LEVELS; Land-surface disvation	2400		Thik		
intic level	Sata		Ma		
Artenian water is controlled by					
(Cap,	valve, etc.)				
)) WELL PESTS: Drawdown is amount with	atter level in	1000	1.00 - 11		
as a pump lest made? Yes D Re Brit yes, by whom		ter starsoif 1419	13_11.74 Completed of g	1233	., mZ
ald: 7/ gal/min. with 2.0 fl. drawdown a	stor T bru.	FELL DRULLER	S STATEMENT:		
		This well was dr	illed under my jurisdiction a	and this a	report
covery data (time taken as many when pump impod	elli (pater lavel	THE WE WERE DEAL OF	ty anowacilie and benet.	2.53	
moused horn well top to writer level) Ture Water Level Time Weiter Level Time	Native Land N	ADDE ER.H.	Iman Duilling	60	
الا المرجب علي المرجب	Martha de served by served break and a served by	(Purs	an, tirm, er corporation) (1	ype or pr	nt)
		servel al	Tides Bod Slott	Zac. U	221
Parts of soil To 18 Jan		10	11/0		
test and mis with f description	1	Simel]	up on the		
and an an Train		0	(white with the second	de e	
Persent av Parte and an addition and an and a first and a second states of the second second	A A A A A A A A A A A A A A A A A A A	James Wa MIAI	Data Guel	23	, hZ
mperature of water		NO.LACKA.			
mperature of water Was a chemical sectors					·
E. NO. 1250-(G-(Bev. 4-71).		RS IF NECESSARY	DECEM	ED	د' نځ
E. HD. 1250-(G-(Bev. 4-72).		NO LI MECEBOARY	RECEIM	ED	

DEPARTMENT OF ECOLOGY EASTERN REGIONAL OFFICE

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The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report. The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report. File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

170665 When how is

WATER WELL REPORT

Application No. 62-27108

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1) OWNER: Name. Jim Keys. *** LOCATION OF WELL: County. Spokane. ns and distance from section or subdivision corner	Address P.O. Box 30 Med. Lk. Was - ME 14 ME 14 Sec. 22 T. 24 SE 6R 15 (10) WELL LOG: Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of the stratum penetrated, with at least one entry for each chu MATERIAL Over burden Basalt hard and gray Basalt fractured Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	n. R. M. R. M. R. M. R. M. A. and structure mass of form FROM 0 17 185 1 196 2	To 17. 185 196 225
A. LOCATION OF WELL: County. Spokane ng and distance from section or subdivision corner 3) PROPOSED USE: Domestic [] Industrial [] Municipai [] Irrigation [] Test Well [] Other [] 4) TYPE OF WORK: Owner's number of well (If more than one). New well [] Method: Dug [] Bored [] Deepened [] Cable [] Driven [] Reconditioned [] Rotary [] Jetted [] 5) DIMENSIONS: Diameter of well 6. inches. Drilled 225. ft. Depth of completed well. 225. ft. 6) CONSTRUCTION DETAILS: Casing installed: 6. " Diam. from 0. ft. to 19. ft. Threaded [] " Diam. from . ft. to . ft. Welded []	(10) WELL LOG: Formation: Describe by color, character, size of material show thickness of agaifers and the kind and nature of the stratum penetrated, with at least one entry for each che MATERIAL Over burden Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	and structure material is mage of form FROM 0 17 185 196 2	To 17 185 196
nf and distance from section or subdivision corner 3) PROPOSED USE: Domestic [] Industrial [] Municipal [] Irrigation [] Test Well [] Other [] 4) TYPE OF WORK: Owner's number of well (if more than one)	<u>SE GE 15</u> (10) WELL LOG: Formation: Describe by color, character, size of material show thickness of againers and the kind and nature of the stratum penetrated, with at least one entry for each cha MATERIAL Over burden Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	and structure material is made of form FROM 0 17 1 185 1 196 2	70 17 185 196 225
3) PROPOSED USE: Domestic [] Industrial [] Municipal [] Irrigation [] Test Well [] Other [] 4) TYPE OF WORK: Owner's number of well (if more than one) [] Bored [] New well [] Method: Dug [] Bored [] Deepened [] Cable [] Driven [] Reconditioned [] Rotary [] Jetted [] 5) DIMENSIONS: Diameter of well 6. inches. Drilled 225. ft. Depth of completed well 225. ft. 6) CONSTRUCTION DETAILS: Casing installed: 6. "Diam. from 0	(10) WELL LOG: Formation: Describe by color, character, size of material show thickness of agailers and the kind and nature of the stratum pemetrated, with at least one entry for each cha MATERIAL Over burden Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	and structure material (BRGS of form FROM 0 17 1 185 1 196 2	17. 17. 185. 196. 225.
Irrigation Test Well Other 4) TYPE OF WORK: Owner's number of well (if more than one) Bared New well Method: Dug Bared Deepened Cable Driven Reconditioned Rotary Jetted 5) DIMENSIONS: Diameter of well 6 Drilled 225 ft. Depth of completed well 6) CONSTRUCTION DETAILS: Casing installed: 6." Diam. from ft. to Threaded "'Diam. from ft. to ft. Perforations: Yes No Totations:	Formation: Describe by color, character, size of material show thickness of aquifers and the kind and nature of the stratum penetrated, with at least one entry for each chu MATERIAL Over burden Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	and structure material i sngs of form FROM 0 17 1 185 1 196 2	TO 17. 185. 196. 225.
4) TYPE OF WORK: Owner's number of well New well If more than one) New well If more than one) Deepened Cable Beconditioned Rotary Jetted Jetted 5) DIMENSIONS: Diameter of well Drilled 225 ft. Depth of completed well 225 ft. b) CONSTRUCTION DETAILS: Casing installed: 6." Diam. from "Diam. from ft. to Welded "Diam. from Perforations: Yes	show thickness of apillers and the kind and nature of the stratum penetrated, with at least one entry for each che MATERIAL Over burden Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at. 50 plus G.P.M Very strong well	TROM 17.1 185.1 196.2	To 17. 185. 196. 225
A) TIPE OF WORK: Off more than one	MATERIAL Over burden Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	Image: PROM 0 0 17 1 185 1 196 2	TO 17. 185 196 225
Arew well Bit Method: Dug Bared Deepened Cable Driven Reconditioned Rotary Jetted 5) DIMENSIONS: Diameter of well 6 Drilled 225 ft. Depth of completed well 225 6) CONSTRUCTION DETAILS: Casing installed: 6 19 ft. Threaded	Over burden Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	$ \begin{array}{c} 0 \\ 17 \\ 185 \\ 196 \\ 2 \end{array} $	17 185 196 225
Reconditioned Rotary Jetted 5) DIMENSIONS: Diameter of well 6 inches. Drilled 225 ft. Depth of completed well 225 ft. 6) CONSTRUCTION DETAILS: Casing installed: 6." Diam. from 0	Basalt hard and gray Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong wall	17 1 185 1 196 2	185
5) DIMENSIONS: Diameter of well 6 inches. Drilled 225 ft. Depth of completed well 225 ft. 6) CONSTRUCTION DETAILS: Casing installed: 6 Diam. from 0	Basalt fractured Basalt fractured with water Air Tested at 50 plus G P M Very strong well	185 1 196 2	196
b) Differences Diameter of well Q inches Drilled 225 ft Depth of completed well 225 ft 6) CONSTRUCTION DETAILS: Casing installed: 6." Diam. from Q ft. to 19. ft Threaded "" Diam. from ft. to ft. to ft. Welded "" Diam. from ft. to ft. Perforations: Yes No ft.	Basalt fractured with water Air Tested at 50 plus G P M Very strong well	196 2	225
6) CONSTRUCTION DETAILS: Casing installed: Diam. from Q ft. to ft. Threaded Diam. from ft. to ft. Welded Diam. from ft. to ft. Perforations: Yes No	Air Tested at 50 plus G P M Very strong well		
6) CONSTRUCTION DETAILS: Casing installed: <u>6</u> "Diam. from 0ft. to <u>19</u> ft. Threaded <u>"Diam. from ft. to <u>19</u> ft. Welded <u>"Diam. from ft. to <u>19</u> ft. Welded <u>Read Strain</u> The strain ft. to <u>19</u> ft. Perforations: Yes <u>No</u></u></u>	Air Tested at 50 plus G P M Very strong well		
Casing installed: <u>6</u> "Diam. from <u>0</u>	Air Tested at 50 plus G P M Very strong well		
Threaded [] "Diam. from	Very strong well		
Welded Diam. from ft. to ft.	Very strong well		
Perforations: Yes D No			
Lype of perforator used			
SIZE of perforations in. by in.			
Burforations from			-
perforations from			
Screens:			
Manufacturera Nome			
Type			
Diam			
Diam			
Gravel packed: Yes I No B Size of gravel			·
Gravel placed from ft. to ft.	PO PE AT PULLA A PROPERTY		
Surface contraction and			
Material used in seal Dividiling Clay			
Did any strata contain unusable water? Yes No fil	CCT 7 1982		
Type of water? Depth of strata			
Method of sealing strata of	DEPARTMENT OF ECOLOGY		
) PUMP: Manufacturer's Name	SPOKANE REGIONAL OFFICE		
Type: HP			
WATER LEVELS: Land-surface elevation 7/1//			
above mean rea level			
tesian pressure			
Artesian water is controlled by			
(Cap, Valve, etc.)			
) WELL TESTS: Drawdown is amount water level is lowered below static level			
a nump test made? Yes No I If yes, by whom?	Work started 11_01. CompletedH/O	16	981
ad: gal/min. with rt. drawdown after hrs.	WELL DRILLER'S STATEMENT:		
	This well was drilled under my jurisdiction and	d this repo	ort .
overy data (time taken as your when nume tunned all (make tout	a de to the best of my knowledge and bellef.		
measured from well top to water level)	NAME OF CC. D. LILL		
'ime Water Level Time Water Level Time Water Level	(Person, firm, or corporation) (Typ	or print)	
	Address	.99004	
ate of test	T. Laller		
ser test gal/min. with	[Signed]		
erian flow	The second secon		
aperature of water	License No. 0572 Date 10) 19)81
10/2/82 11			
UNDER ADDITIONAL DEE	ITS IF NECESSARY)		

APPENDIX A4

WELL LOGS

LINE 4: WOOD ROAD

itart Lard 49. лн 1 Е Л 4 E _ W44457 unique meil lui. # ABW156 mater Aught Permit No. STATE OF WASHINGTEN 305779992626262626262626756262675626626 BIBLER, BARRY 1917 EAST LIBERTY AVENUE SPOKANE, WA 99207daress LUCHTION OF WELL: COUNTY SPOKANE - NE 124 NE 124 DEC 83 1 25 14. 1 48E WM 13, SIREET HUDRESS OF WELL for nearest address/ , E (10) WELL LIE L/ FREPOSED USE: DOMESTIC 14: TOPE OF WURKS wher's Number of Well rormation: Jescribe by color, character, size of material if more than one, and structure, and snow thickness of aquifers and the kind dethoo: ROTARY and nature of the material in each stratum penetrated, with NEW HELL at least one entry for each change in formation. . .. DIMENSIONS: Glageter of well 6 inches ----urilled 328 ft. Depth of completed well 328 MATER1AL FROM ÛĨ I ft. 1 THTERIAL I DECOMPOSED GRAVEL SAND I DECOMPOSED GRAVEL BROWN ft. : SHALL BROWN GRANITE ft. : SHALL BROWN GRANITE ft. : SHALL BROWN GRANITE ------ HARD BLACK & WHITE GRANITE 10 8 ____ 1 30 -67 CENSTRUCTION DETAILS: 10 1 38 ft. to 38 ft. to 78 lasing installed: 6 Dia. from +2 Dia, trom -5 HELDED 60 ft. to 320 Dia. iros 98 188 60 4 160 Sectorations: YES 329 type or perforator used SKILL SAM sliE of perforations 1/8 in by 6 10. ft. to 310 ft. 88 perforations from 230 perforations from ft. to ft. perforations from rt. to ft. Screens: YES Manufacturer's Name Type PVC Model No. ft. to 78 slot size 10 from 5A ft. Dias, 4 Dian. slot SIZE from ft. to ft. Gravel packed: NO Size of gravel fE. Gravel placed from ft. to Surface seal: YES To what depth? 20+ ft. Material used in seal BENTONITE Did any strata contain unusable water? ND Type of water? Depth of strata ft. Method of sealing strata off OVERBORE (7) PUMP: Manufacturer's Name Type H.P. 32232222222222222222222 18) WATER LEVELS: Land-surface elevation above mean sea level .. ft. below top of well Date 12/06/94 Static level lbs. per square inch Artesian Pressure Date Hrtesian water controlled by Completed 12/06/94 Work started 11/30/94 _____ (9) WELL TESTS: Drawdown is abount water level is lowered below WELL CONSTRUCTOR CERTIFICATION: I constructed and/or accept responsibility for con-struction of this well, and its compliance with all static level. Was a pump test made? NO If yes, by whom? ft. drawdown after Washington well construction standards. Materials used Yield: gal./min with hrs. and the information reported above are true to my best knowledge and belief. Recovery data Water Level NAME PONDEROSA DRILLING 1100 Water Level Tise Water Level Time (Person, firm, or corporation) (Type or print) ADDRESS E 6010 BROADWAY Date of test gal/min. gal/min. w/ [SIGNED] ft. drawdown after License No. 1901 hrs. Bailer test stem set at 320 Har test 5+ ft. for 1 hrs. M. Lelly Date Contractor's Hrteslan flow g. p. s. Was a chemical analysis made? NO Temperature of water I Registration No. PO-ND-EI#248JE Date 12/14/94 -----_____ ------

WEN 100 1) 17 5566

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

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File Dapa Saco Thin	Original and First Copy with extranent of Ecology ond Copy — Owner's Copy 55957 STATE OF	ELL REPORT UNDER FIGHT POTTON No. WORL 529 UNDER WELL LD. 0 ACK 935
(1)	OWNER: Name_ Frances Steel	4202 Wood Road, Reardan WA 99029
(2) (2n)	LOCATION OF WELL: County	<u>NW 14 NW 14 Sec 2 T 25 N. R. 40 N</u>
(3)	PROPOSED USE: 12 Domenaisc Industrial Municipal Infgation DeWater Test Weil Other	(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION Formation Describe by color, character size of material and structure, and show thickness of aqui
(4)	TYPE OF WORK: Owner a number of well	change of information
	Abandoned D New well 25 Method: Dug D Bored D	BATERIAL FROM TO
	Ceepaned Cable Driven	
181		
(5)	Deliver 300 feet Death of completed well 300 B	Granita (decomposed) 18 2
		Clav 22 0
(6)	CONSTRUCTION DETAILS:	Granite (red & white) 05 17
	Casing installed: 6 · Diam from +2 to 98	Granite (blk & wht) 175 250
	Welded D. Diem from ft. to ft. to ft.	Auartz (wht) (1 g. n.m.) 250 25
	Threaded Utern fromf to ft	Granite 252 300
	Perforationa; Yes No 🔀	
	Type of performor used	
	SIZE of performations in byIn	
	perforations from ft toft	•
	periorations from fi to fi	
	Screens' Yes No St	
	Manutecturer's Name	
	Type Model No	
	Diam Slot size from N to M	· · · · · · · · · · · · · · · · · · ·
		+
	Control precedence. Tes No I Size of gravel	
	General prevent in	
	Surface seel: Yes X . No To what depth? 18 R.	
	Matanal used in seal DENTCONLLE	
	Did any strata contain unusable water? Yes 📋 No 🗷	
	Nethod of sealing strate of	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1	
7)	PUMP: Manufacturer's Name	
	Туре НР	
8)	WATER LEVELS: Land surface elevation	Work Started 10-16-96 19 Competed 10-17-96 19
	Static level ft below top of well. Date ft	
	Artesian presquite be per square inch. Date	WELL CONSTRUCTOR CERTIFICATION:
	Artesian water is controlled by //Cap, valve etc.}	I constructed and/or accept responsibility for construction of this well, and the
9)	WELL TESTS: Drawdown is amount water laval is toward halow static laval	the information reported above are true to my best knowledge and belief
-1	Was a pump test made? Yes Note: 1/ yes by whom?	Troy Tarbert
	Yield gal /min_with ft_ drawdown alter hra	NAME TARDERT Urilling LLC
	10 11 41 m	Address Bt 1. Box 20 Devenant WA coder
	n H a H	The Taylort WA 99122
1000 1000 1000	Recovery data (time taken as zero when pump turned off) (water level measured from well	(Signed) License No 1709
Ti	me Water Lovel Time Water Lovel Time Water Lovel	Catimena
		Registralion
<u>.</u>		No. TARBEDL044C8 Date 10/20/96
	Date of heat	(USE ADDITIONAL SHEETS IF NECESSARY)
0	Late of test	
	Artest gal /min. with stem set at to severe it for hrs	Ecology is an Equal Opportunity and Affirmative Action employer. For some

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When how 1) 172973

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WATER WELL REPORT

Start Card No. 057648 #2

r

STATE OF WASHINGTON

Water Right Permit No. _____

1)	OWNER: NameSpokane_Hutterian	Address Rton Box 6 E Reardan, W	99029	
∡) {2a	LOCATION OF WELL: County Spoker	ne SW <u>w Sw _w Sec 2</u> 2 Euclid Rd. Reardan, WA	15 _{N. A} 40	0 ^E
(3)	PROPOSED USE: ID Domestic Industrial I Municipal I	(10) WELL LOG or ABANDONMENT PROCEDUR	E DESCRIP	TION
(4)	TYPE OF WORK: Owner's number of well	Pormation: Describe by color, character, size of material and thickness of aquifers and the kind and nature of the material in ea with at least one entry for each change of information.	i structure, an oh stratum pen	d show etrated,
	Abandoned New well R Mathad: Due D Barad D	MATERIAL	FROM	то
	Despend Cable Driven	Topsoil	0	1
-	Reconditioned 🖸 Rotary 🔁 Jetted 🖸	Basalt-hard	1	9
(5)	DIMENSIONS: Diameter of well 6	Basalt-med. w/fracts.	9 2	Ĺ
	Drillad 240 fast Depth of completed well 240	Basalt-fract, w/clay brn.	24 1	1
(0)		Basalt-med. w/fracts.	11 5	Ś
(0)	CONSTRUCTION DETAILS:	Basalt-hard	55 1	15
	Casing installed: <u>6</u> Diam. from +1 ft. to 65 ft.	Basalt-fractured	115 1	18
	Liner installed * Diam, fromft. toft.	Basalt-hard	118 1	25
	Threaded1 Diam, from1, to1.	Clay-grey-hard	125 1	31
	Perforations: Yes No 24	Basalt-fractured-hard	131 1	83
	Type of perforator used	Benalt-hard	183 2	30
	SIZE of perforations in. by in.	Send-quertz-fine	230 2	1.0
		ome-quartizetine	230 2	40
	perforations from h. to h			
	perforations from ft. to ft.			
teriler -	Screens: Yest No I			
	Matulacturar's Name			
	Diam Sicture from the			
	DiamStot size from h to h			
	Gravel nacked: Yes No X			
	Size of gravel			
N <u></u>	Gravel placed from ft. to ft.			
	Surface seal: Yea No To what depth? 10+			
	Material used in seal Bentonite			
	Did any strata contain unusable water? Yas No		1	-
	Type of water?Depth of atrata			1-
	Method of sealing strata off			:///.
(7)	PUMP: Manufacturer's Name			įЩ
				141
	H.P			
(8)	WATER LEVELS: above mean sea level 6/1 1/0m-th.	··· ··		
	Static levelft below top of well Date			
	Artesian pressure Ibs. per squere inch. Date			
	Artesign water is controlled by(Cap, valve, etc.))			
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level	Work started 6/11/92	, 11 , 11	9.92
0	Was a pump test made? Yes No II yes, by whom?	WELL CONSTRUCTOR OFFICIALTION		
	Yield: gal./min. with h. drawdown after hre.	WELL CONSTRUCTOR CERTIFICATION:		
	"Air test spprox. 20-G.P.M. "	and its compliance with all Washington well constru-	iction of this	well,
		Materials used and the information reported above an	e true to my	best
, i	Hecovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	knowledge and belief		
1	lime Water Lavel Time Water Lavel Time Water Lavel			
		IPERSON FIRM, OR CORPORATION	TYPE OR PRIN	(T)
				,
		Address 2 2013 Linke Hd. Greenscres	WA 99016	2
-	Date of leat	All Att.	000 • 0 • • • • • • •	
E	Bailer test gal./mm. with fl. drawdown after hra.	(Signed) LIET (Meller License No.	1447	
	kirlest gal./min. with stem set at ft. for hre	Contractor's		
	ntesian flow 0.p.m. Date	No. JJDRII-177KU Date 6/16/	10	00
т	emperature of water Way a chemical analysis mode? Var		, (3.	-70
		(USE ADDITIONAL SHEETS IF NECESSA	RY)	

File Dep	Original and First Copy with ariment of Ecology and Copy_Owner's Copy	LL REPORT Start Card No	<u>05764</u>	8 #1
Third	d Copy—Driller's Copy STATE OF	Waster Right Permit No		•
(י	OWNER: Name Spokane Hutterian	Address Rt1 Box 6 5, Reardan, WA	9902	9
j (2a)	LOCATION OF WELL: County Spokane	SW x SW x sec 2 r 2	5_N., R.	<u>40^Е</u>
(3)	PROPOSED USE: 22 Domestic Industrial Municipal Dirigation Teat Well Other	(10) WELL LOG or ABANDONMENT PROCEDUR Formation: Describe by color, character, size of material and	tE DESC	CRIPTIO
(4)	TYPE OF WORK: Owner's number of well	thickness of aquifers and the kind and nature of the material in ea with at least one entry for each change of information.	ich stratum	i penetrate
	Abandoned New well 33 Method: Dug Bored Driven Despend Cable Driven D	Clay-brnmed.	O	10 20
(5)	DIMENSIONS: Diamater of well 6 inches.	Basalt-hard	20	29 42
	Drilled 300 feet. Depth of completed well 300 ft.	Basalt-highly fractured Clay-grey-hard	<u>42</u> 130	130
(6)	CONSTRUCTION DETAILS: Casing installed: 6. Diam. from +1 ft. to 146 ft.	Basalt-med. w/fracts. Basalt-fractured	150 217	217 255
	Welded 4 Diam. fromft. toft. Liner installed Diam. fromft. toft. Threaded Diam. fromft. toft.	Basalt-hard	255	300
	Perforations: Yes Not			
	perforations (romft. toft. toft. toft.	· · · · · · · · · · · · · · · · · · ·		
	perforations from fl. to ft.			-
	Aground: res in Normal Model No.			
_3	Diam. Slot size from			
	Gravel packed: Yea No Size of gravel			
	Gravel placed fromR.			
	Surface seal: Yes K; No 10 what depiny Material used in seal Bentonite Did any strate contain unuseable water? Yes 10 hot		5 15 1	
	Type of water? Depth of strata Method of senting strata off			
7)	PUMP: Menufacturer's Name			
(8)	WATER LEVELS: Land-surface elevation above mean see level n.			· · · · ·
	Artesian pressure Ibs. per aquare inch Date Artesian water is controlled by			
(9)	WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes No I If yes, by whom?			19.92
	Yield: <u>50</u> gal./min with <u>t. drawdown atter</u> hrs. Alr test approx, 50-G.P.M.	I constructed and/or accept reaponsibility for const and its compliance with all Washington well cons Materials used and the information reported above a	ruction of itruction are true t	f this wel standard: o my ber
	Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) Time Water Level Time Water Level Time Water Level	knowledge and belief.		
		Address S 5613 Linke Rd. Greenscree	UYPE O	99016
	Date of test Bailer test ft_drawdown after hrs.	(Signed)	lo. <u>1</u>	ևև7
	Airteat gal./min. with atem set at ft. for hrs. Artealan flow g p.m. Date	Registration a NoDRII~177KUDate_6/16/		19_94
	Temperature of water Was a chemical analysis made? Yes 🔲 No 🗖	USE ADDITIONAL SHEETS IF NECESS	SARY	

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	WELL LOG 1) 163	899	
Tight and First Copy with Tight Cology - Owner's Copy Cov - Owner's Copy Cov - Owner's Copy	ELL REPORT Application	No	· ··
The State of	WASHINGTON Permit No	00000	
U CLOCATION OF WELL. Stoken	Address Rt.1, BOX C-E, Reardon, Wash.	99059	
⁴ , 54 and distance from section or subdivision corner	50 14 Sec. 2 72	N., R.	LOE W
PROPOSED USE: Domentic & Industrial C Municipal	(10) WELL LOG:		
Irrigation [] Test Well [] Other	Formation: Describe by color, character, size of materia	l and etm	
(4) TYPE OF WORK: Owner's number of well	show thickness of aquifers and the kind and nature of t stratum penetrated, with at least one entry for each c	he materia	al in e
New well D Method: Dug D Bored	MATERIAL	FROM	то
Deepened Cable Driven D	Bagelt beer front be blb and b	0*	
	Clay.moist.brn w/basalt moch	21	_
(5) DIMENSIONS: Diameter of well 6 inches.	Baselt, heav fract, blk, brn sediment		
Diffective and the second seco	in cracks, med hrd	91	1
(6) CONSTRUCTION DETAILS:	Basalt, fract, blk, med hrd	151	3
Casing installed; 6 " Diam. from 41 ft. to 22 ft.	Clay, molst, yellow, firm	- 54 '	3
Threaded []	Clay, orange-hun med had	- 591	5
Weiter []	Basalt, heav fragt, brn, med hrd.	DH •	
Perforations: Yes D No L	water 5 GPM	631	6
SIZE of perforations in by in	Basalt, gray, hrd	661	7
perforations from	Basalt, heav fract, blk, med hrd	761	
perforations from	Water 9 GFM	- BAT	0
A. IO INTERIOR I. I.	Basalt. oggas fragt. grav. hvd	021	
Screens: Yes D No D	Clay, gray, med hrd	991	10
Type	Basalt, occas fragt, gray, hrd	1021	10
Diam,	Clay, blue-gray, med hrd	1091	11
Diam	Shala, grn, w/wood chips, firm	1111	119
Gravel packed: Yes D No Z Size of gravel;	Basalt, fract, blk, med hrd	1191	_154
Gravel placed from	Basalt, fract, blk.med byd	1091	19:
Surface seal: Yes I No To what depth? 22 ft	Basalt, occas, fract, gray, med hrd	2031	21
Material used in seal Bentinite	Clay, moist, gray, firm, w/basslt rooks	2171	22
Did any strata contain unusable water? Yes 🗌 No 🎩	Basalt, fract, blk, med hrd, water		
Method of sealing strata of	18 GPM	223*	24
(7) PUMP: Manufacture Name	Basalt, fract, blk.med hyd	248	260
Type:HP	Basalt, gray, hrd	2791	205
(8) WATER LEVELS. Land-surface elevation A117.77	Shale, grn, med hrd, w/wood chaps	2951	296
above mean sea level	Basalt, fract, gray, med hrd	2981	311
urtesian pressure	Basalt, fract, blk, med hrd	5111	316
Artestan water is controlled by	Baselt front may and had	316*	323
	(Well log continued on page 2)	_ <u>523* </u> _ 	_ <u>_</u> 2£
air iowered below static level	Work started June 16 19 75 Completed Jun	e 20	19 7
field 55 to 401/min. with 360 ft. drawdown after 1 hra	WELL DRILLER'S STATEMENT		
	This well was deilled under me insististion		1 ann 10 an 10
0 p ' n w	true to the best of my knowledge and belief.	ia this re	eport
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)	THE DARKS HELL DOTITION CON		
Time Water Level Time Water Level Time Water Level	NAME (Person firm or corporation) (The	PANY	
		, or prin	
	Address	a992(02
Date of test	[Simul] Queneral G. Ditt.	1	
dier test	Bell Driller	¢	••••••
Remperature of water	License No. 0544 Data June 2	5	1075
105 MTN	Date - and Di	. ,	195.92.
1.1 (USE ADDEPIONAL SH	ETS IF NECESSARY)		
. F. No. 7356-05-(Rev. 4-71) (r / 4		,	
<i>i</i>			

Well Tagging Form	R
SECOLOGY Unique Well Tag No: AHC 090 SECORD VERIEICATION (checks one)	÷
Well Report available (please attach this form to the well report and submit it to the Ecology Regional Office near you) Verification inconclusive PWS 18375 SouRCE 02 Well Report not available	x
WELL OWNERSHIP, IF DIFFERENT EROM WELL REPORT st Name: DEEP CREEK HUTTERITE reet Address:	
Ell Address: County: SpokANE N. R. W.M. Sec. 1/4 of the So	ž
FOR AGENCY USE ONLY FOR AGENCY USE ONLY GPS Topographic Map Survey Computer generated	
Ievation at land surfacefeet/meters (circle one) Digital Altimeter Topographic Map Other Location marked on topographic map (please attach)	
Location marked on air photo (please attach)	

APPENDIX A5

WELL LOGS

LINE 5: MEADOW LAKE ROAD

Second Copy	and First Copy with f Ecology	WATER WE	LL REPORT	Application	20	
Third Copy -	— Owner's Copy Duller's Copy	STATE OF V	VASHINGTON	Permit No	110	
(1) OWN	ER: Name T. Schroede	T & Wm. Sylvester	Address Rt 1 Box 241	K Nedical La	leo Vo	00
(2) LOCA	TION OF WELL: Count	v Snokane	_ SE 1/ N	W 1/ 5- 26 -2	24	41 .
earing and	distance from section or subdiv	vision corner				
PROP	OSED USE: Domestic	Industrial 🗇 Municipal 🖓	(10) WELL LOG:	· · · · · · · · · · · · · · · · · · ·		
	Irrigation] Test Well [] Other []	Formation: Describe by color, ch	aracter, size of materi	al and stri	ucture,
	OF WORK, Owner's nur	mber of well	show thickness of aquifers and t stratum penetrated, with at leas	he kind and nature of t one entry for each	the mater change of	forma
	New well X	an one) Method: Dug 📋 Bored 🗍	MATERIA	L	FROM	TO
	Despened	Cable 🛛 Driven 🖂	top soil		0	2
	Reconditioned	Rotary Jetted	basalt		2	72
5) DIME	NSIONS: Diamete	r of well	basalt and clay		72	83
Drilled.		ompleted well <u>300</u> ft.	clay		83	248
6) CONS	TRUCTION DETAILS:		decomposed grani	te	248	26
Casin	g installed: Diam. I	trom	granite	·····	263	300
Th	readed 🔲 🛛	from ft. to ft.			-	
<u>_</u>	veided of Diam. f	rom ft. to ft.				1
Perfor	ations: Yes 🗆 No 🖬					
Т	ype of perforator used	in hv				
а. 	perforations from	nenomenan ft. to an enominant ft.				1
-	perforations from	# 40			-	
<u></u>	periorations from	п. ю п.			1	1
Scree	IS: Yes No Dr					1
M	anufacturer's Name	Model No				
D	iam Slot size i	from ft. to ft.			-	<u> </u>
ם	iam Slot size i	from ft. to ft.	3			-
Grave	l packed: Yes D No DE	Size of gravel:	· · · · · · · · · · · · · · · · · · ·		+	
G	ravel placed from	ft. to				
<u>G</u> Surfa	e scal: yes x No x	n. to				
G Surfa M	ravel placed from	nite				
G Surfa M D T	ravel placed from	ft. toft. what depth?ft. mite e water? Yes No Depth of strate				
G Surfa D T M	ravel placed from ce seal: yes _x No _ To aterial used in seal	ft. to ft. o what depth? 18 nite ft. e water? Yes [] No [] Depth of strata				
G Surfac D T T X	ravel placed from CONTRACT OF SEAL: Yes DX No D To aterial used in seal	ft. toft. b what depth?ft. mite e water? Yes [] No [] Depth of strata				
G Surfa D T Т M 7)- PUMI	ravel placed from E SCAI: Yes DX No D To aterial used in seal	ft. to ft. o what depth?ft. ft. ft. ft. ft. ft. ft. ft.				
G Surfa D T T M 7)-PUMI T 8) WATI	ravel placed from to see all: yes No To aterial used in seal	ft. to ft. o what depth? 18 nite ft. e water? Yes [] No [] Depth of strate				
G Surfa D T T M 7)- PUMI T T 8) WATI	ravel placed from	ft. to ft. o what depth? 18. nite ft. e water? Yes [] No [] Depth of strata				
G Surfa D T T M T T S) WATI tatic level	ravel placed from te scal: yes No To aterial used in scalbortfo id any strata contain unusable /pe of water? ethod of scaling strata off ': Manufacturer's Name /pe: CR LEVELS: Land-surfa above mea ft. below to mure ibs. per squ	ft. to ft. o what depth? 18_ft. mite ft. e water? Yes [] No [] Depth of strata				
G Surfa D T T M 7)-PUMI T T 8) WATI tatic level	ravel placed from te seal: yes No To aterial used in seal bento di sealing strata of thod of sealing strata of Manufacturer's Name The low top mure the low top the low top mure the low top the low top	ft. to ft. o what depth? 18ft. mite ft. re water? Yes [] No [] Depth of strata				
G Surfa D T T M 7)- PUMI T T 8) WATI tatic level riestan pres A 2) WELI	ravel placed from te seal: yes No To aterial used in seal bentfo d any strata contain unusable ope of water? Hanufacturer's Name above mea the below top sure below top sure below top testian water is controlled by TESTS: Drawdown [ft. to ft. o what depth? 18. nite ft. nite No Depth of strata No H.P. H.P. nce elevation 2500/r. p of well Date. In recember 100 million (Cap, valve, etc.) is amount, water level is				
G Surfa D T; M 7)-PUMI T; 8) WATI tatic level riegian pres A 9) WELI	ravel placed from ::e scal: yes rx :aterial used in seal	ft. to ft. o what depth? 18. ft. to ft. mite ft. re water? Yes Depth of strata No Depth of strata no H.P . tce elevation 2500% p of well Date . (Cap, valve, etc.) . s amount water level is ow static level . et, by whom? .		Completed 1	0/15/7	5., 19.
G Surfac D T; M 7) PUMI T: 8) WATI tatic level riestan pres A: 9) WELI 7as a pump i leid:	ravel placed from	ft. to ft. o what depth? 18 ft. to ft. mite ft. re water? Yes Depth of strata No Depth of strata no hP	Work started 10/15/75, 10 WELL DRILLER'S STA	Completed_1 TEMENT:	0/15/7	5_, 19
G Surfac D T; M 7)-PUMI T; 8) WATI stic level riesian pres A: 9) WELL 9) WELL 7as a pump	ravel placed from	ft. to ft. o what depth? 18 nite ft. nite No Depth of strata No HP HP nce elevation 2500 ft. p of well Date Ite (Cap, valve, etc.) is amount water level is ow static level es, by whom? m " "	Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und	Completed 1 TEMENT: ler my jurisdiction	0/15/7 and this	5_, 19.
G Surfa D T; M 7) PUMI T; 8) WATI tatic level riesian pres riesian pres 9) WELI 7as a pump t leid:	ravel placed from	ft. to ft. o what depth? 18. ft. to ft. mite ft. rite No Depth of strata No Depth of strata No Depth of strata No HP	Work started 10/15/75, 10 Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und true to the best of my know	Completed 1 TEMENT: fer my jurisdiction viedge and belief.	0/15/7 and this	5_, 19.
G Surfac D T, M 7)-PUMI T. 8) WATI tatic level rtestan pres A: 9) WELL 7as a pump leld: ecovery dat	ravel placed from	ft. to ft. o what depth? 18 niite ft. e water? Yes b opth of strata No Depth of strata No Down state 2.500 ft. p of well Date Interval (Cap, valve, stc.) Is amount water level is ow static level cs, by whom? The state level """"""""""""""""""""""""""""""""""""	Work started 10/15/75, 11 WELL DRILLER'S STA This well was drilled und true to the best of my know	Completed_1 TEMENT: ler my jurisdiction viedge and belief.	0/15/7 and this	5_, 19.
G Surfac D T T M 7)-PUMI T T 8) WATI tatic level r testan pres A 9) WELLI 7 9) WELLI 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ravel placed from	ft. to ft. o what depth? 18 nite ft. nite No Depth of strain No Depth of strain No HP HP nce elevation 2500ft. p of well Date Is (Cap, valve, etc.) samount water level is s amount water level is w static level et, by whom? m """"""""""""""""""""""""""""""""""""	Work started 10/15/75, 10 Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und true to the best of my know NAME. Bartholomet (Person, frm,	Completed 1 TEMENT: ler my jurisdiction viedge and belief. f Drilling or corporation)	0/15/7 and this	5_, 19. repor
G Surfa D T; M 7) PUMI T; 8) WATI tatic level riesian pres A 9) WELI 7 9) WELI 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ravel placed from	ft. to ft. ft. to ft.	Work started 10/15/75, 10 Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und true to the best of my know NAME Bartholomen (Person, firm, Address, Ninge Miple J	Completed 1 TEMENT: fer my jurisdiction viedge and belief. f. Drilling or corporation Fails, Wa 99	0/15/7 and this	5_, 19. repor
G Surfac D T T M 7)-PUMI T T 8) WATI tatic level rtestan pres A 9) WELL 7 9) WELL 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ravel placed from	ft. to ft. o what depth? 18 niite ft. reite No Depth of strata Depth m sca level 2.500. (Cap, valve, stc.) stata g amount water level is ow static level cs, by whom? hrs. """"""""""""""""""""""""""""""""""""	Work started 10/15/75, 10 Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und true to the best of my know NAME Bartholomen (Person, firm, Address Nime Hole L	Completed_1 TEMENT: der my jurisdiction viedge and belle!. f Drilling or corporation) Falls, Wa 99	0/15/7 and this	5_, 19. repor
G Surfac D T T M 7)-PUMI T T 8) WATI tatic level A 9) WELLI Van a pump field: Times Date of to D	ravel placed from	ft. to ft. o what depth? 18 nite ft. rite no e water? Yes Depth of strain No Depth of strain No Depth of strain No HP HP nce elevation 2500 ft. p of well Date point (Cap, valve, etc.) samount water level is cs, by whom? max drawdown after hrs. """"""""""""""""""""""""""""""""""""	Work started 10/15/75, 10 Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und true to the best of my know NAME Bartholomen (Person, firm, Address Nine Hole I (Signed)	Completed 1 TEMENT: der my jurisdiction viedge and belief. f Drilling or corporation Palls, Wa 99	0/15/7 and this (Type or p 026)	repor
G Surfac D T T M 7)-PUMI T T 8) WATI tatic level 8) WATI tatic level 9) WELL 9) WELL 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ravel placed from	ft. to ft. ft. to ft. o what depth? 18 ft. to ft. mitbe is e water? Yes [] No [] Depth of strata	Work started 10/15/75, 11 Work started 10/15/75, 11 WELL DRILLER'S STA This well was drilled und true to the best of my know NAME Bartholomen (Person, firm, Address Nine Hiple I [Signed]	Completed 1 TEMENT: fer my jurisdiction viedge and belief. f. Drilling or corporation) Falls, Way 99	0/15/7 and this Type or p 026	repor
G Surfat M D T T M (7) PUMI T tatic level rtestan pres A (7) WELI (7) WELI (7) WELI (7) WELI (7) WELI (7) Control (7) (7) Control (7) Control (7) Control (7) (7) Control (7) Control (7) Control (7) (7) Control (7)	ravel placed from	ft. to ft. o what depth? 18 ft. to ft. rite ft. rite ft. e water? Yes Depth of strata No Depth of strata no Depth of strata no Depth of strata no m sca level 2500 ft. p of well Date point (Cap, valve, stc.) gamount water level is (Cap, valve, stc.) samount water level is es, by whom? hrs. """"""""""""""""""""""""""""""""""""	Work started 10/15/75, 10 Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und true to the best of my know NAME Bartholompi (Person, firm, Address Nine Hole I (Signed) The Hole I (Signed) The Hole I (Signed) The Hole I	Completed_1 TEMENT: der my jurisdiction viedge and belle!. f Drilling or corporation) Calls, Wa 99 Content of the second view Date 10/2	0/15/7 and this (Type or p (26)	5_, 19. repor
G Surfac D T T M 7)-PUMI T T 8) WATI tatic level r testan press A 9) WELLI 7 as a pump to teld: 7 7 7 9) WELLI 7 7 9) WELLI 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	ravel placed from Se Scal: yes No To aterial used in seal Dente d any strata contain unusable /pe of water? ethod of sealing strata off : Manufacturer's Name 	ft. to ft. o what depth? 18_ft. rite rite e water? Yes [] No [] Depth of strain	Work started 10/15/75, 10 Work started 10/15/75, 10 WELL DRILLER'S STA This well was drilled und true to the best of my know NAME Bartholomen (Person, firm, Address Nine Hiple I (Signed) Market Starter [Signed] Market Starter License No. 0027	Completed_1 TEMENT: Iter my jurisdiction viedge and belief. (Ven Drilling or corporation) Falls, Way 99 (Ven Driller) Date_10/2	0/15/7 and this Type or p 026 7/75	5_, 19.

	WER LOG 1) 419003
WATER WELL REPORT	CURRENT Notice of Intent NoW179789
Original & 1st copy - Ecology, 2nd copy - owner, 3rd copy - driller	Unique Ecology Well ID Tag No. AL P 569
Construction/Decommission ("x" in circle)	Unique Leology Well in Fag NoAIK 50.5
Construction Decommission ORIGINAL CONSTRUCTION Notice of Internal Number	Water Right Permit No
oj inteni vumoer	Property Owner Name 12212 G
DeWater Dirrigation Test Well Other	Well Street Address 12212 S. Murny
FVPE OF WORK+ ()where a number of well (if more than one)	City N/A County: Spokane
New Well Reconditioned Method: Dug Bored Driven	Location <u>NW 1/4-1/4 SE 1/4 Sec 26</u> Tw24 R41 (EWM) or WWM
DIMENSIONS: Diameter of well 6 inches, drilled 120 ft.	(s,l,r still Lat Deg Lat Min/Sec
Depth of completed well <u>120</u> ft.	REQUIRED) Long Deg Long Min/Sec
CONSTRUCTION DETAILS	Tax Parcel No
Diam from +1 ft. to 39 ft installed: ☐ Liner installed — —	CONSTRUCTION OR DECOMMISSION PROCEDURE Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information. Indicate all water encountered.
Perforations: 🗌 Yes 🖾 No	(USE ADDITIONAL SHEETS IF NECESSARY.)
Type of perforator used	MATERIAL FROM TO
Aanufacturer's Name	Basalt-Fract w/Clay 19 100
TypeModel No	Basalt-H, Fracts. w/Clay 30 95
DiamSlot Sizefromft. toft.	1 GPM @ 50'
	Basalt-Fract. w/ Clay 95 98
Anertals placed from ft to ft	Brn. Clay=F to H 98 105
Surface Seal: XYes No To what denth? 20+ ft	Very Decomp. Granite-\$ 105 120
Did any strata contain unusable water? Yes No Sype of water? Depth of strata Method of scaling strata off PUMP: Manufacturer's Name Form: H.P.	
A TRUE I MAKE S. Land surface elevation above mean sea level	
Static level 20 ft below top of well Date	
Artesian pressurelbs. per square inch Date	
Artesian water is controlled by (can value etc.)	
RELL TESTS: Drawdown is amount water level is lowered below static level	
Was a pump test made? Yes No If yes, by whom?	CASIT TO FEOLOGY
Yreldgal./min. withft. drawdown afterhrs.	
fieldgal./minwithft_drawdown afterhrs.	
ecovery data (time taken as zero when pump turned off)(water level measured from ell top to water level)	
Approx. 1 GPM by Airtest	
ale of testgal./min. withft. drawdown afterhrs.	
irtest1_gat/min. with stem set atft. forhrs. rtestan flowg.p.m. Date	Start Date 8/9/05 Completed Date 8/9/05
emperature of water	
ELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsion well construction standards. Materials used and the information re	onsibility for construction of this well, and its compliance with all eported above are true to my best knowledge and belief.
Touter DEngineer DTrainge Name (Hynn) Benson Carpenter	Drilling Company <u>Carpenter Drilling Co.I</u>) Address <u>8918 N. Forker Rd.</u>
riller or Trainee License No. 1278	- City State Zin Spokane, Wa. 99217
6, ' I' J.M. I	Contractor's
I trainee, licensed driller's	- Registration NcCARPEDCO22JIDate 8/10/05

If trainee, licensed driller's -Signature and License no._

Ecology is an Equal Opportunity Employer - ECY 050-1-20 (Rev 4/01)

De Se Th				And the second s
Se Th		LL REPORT	•	
	ird Copy-Diller's Copy	ASHINGTON Water Right Permit No.		•
~	1bil Processing	2011 S Grove Ed: Spokers	MA OC	2201
21) OWNER: NameJILLI Dresseur /	Address 1011 S Grove Rd. Spokene	WA 72	7204
	STOPPORE NELLE CONTRACTOR NE	Y NWYIJEY W & St & Sec 26 I	211 N R	41
	a constant ADDRESS OF WELL (a constant address) 12313 Murr	hy Ed. Cheney, LA		
(2	a) STREET ADDDRESS OF WELL (or negress address)			
(3) PROPOSED USE: L Domestic Industrial . Municipal .	(10) WELL LOG or ABANDONMENT PROCEDU	RE, DESC	RIPT
_	DeWater Test Well L Other L	Formation: "Describe by color, character, size of material at thickness of aquifers and the kind and nature of the material in e	nd structure ach stratum	r, and penet
(4) TYPE OF WORK: Owner's number of well (if more than one)	with at least one entry for each change of information.	1	
	Abandoned D New well 🔯 Method: Dug D Bored D	MATERIAL	FHOM	1, 10
	Deepened Cable Driven	Cley-Drn.		- 1
	Keconomical Hotery Carlos Carl	Beselt-faratunad-u/cond	21	5
- (5	b) DIMENSIONS: Diameter of well inches	Clauden.	50	11.
_	Drilledfeet. Depth of completed wellft	Besalt-med.	140	15
໌ (F	B) CONSTRUCTION DETAILS:	Clay-fed 7/ 2_	155	17
	Casing Installed: Diam. from tt. to tt.	Sand .	175.	178
	Welded Diam. fromft. toft.	Clay-brn.	1.78	200
	Threaded Diam. from th. to the transfer of the		•	
	Perforations: Yes No		0	
•.	Type of perforator used		·.	
: A.	SIZE of perforations in. by in.	· · ·		ľ
	perforations from tt. to tt.			· ·
	ft. toft.			<u> </u>
_			1 <u>1</u>	+
	Screens: Yes No			1
	Manufacturer's Name	· · · · · · · · · · · · · · · · · · ·	+	1
	TypeModel No			
5	Diam		1.1.1	1
<u> </u>				~
	Gravel placed from fit to fit		· ·	
	Surface seal: Yes NoL To what deput	· · · · · · · · · · · · · · · · · · ·		
	Material used in seal		<u> </u>	
	Type of water?			
	Method of sealing strata off		+	
- ī	7) PUMP: Manufacturar's Name		4	+
			+	†
	NATED LEVELS. Land-surface elevation		1.	† •
(8	C) TRIER LEVELS: above mean sea level ft			
	Artesian pressureIbs. per square inch Date^		•	-
	Artesian water is controlled by(Cap. valve. etc.))	(6-27)	L.,	
	a) WELL TESTS. Drowdown is smount water level is lowered below static level	Work started 6/27	0/2	2.1
(4	Was a pump test made? Yes No If yes, by whom?	WELL CONSTRUCTOR CERTIFICATION.		
•	Yield: gal./min, with ft. drawdown after hrs.	1 constructed and/or accept responsibility for con	etruction o	d this
· .	New 10 10 10 10 10 10 10 10 10 10 10 10 10	and its compliance with all Washington well com	nstruction	stand
	"""	Materials used and the information reported above knowledge and belief.	are true	to my
[•]	from well top to water level)			
	Time WaterLevel Time WaterLevel Time AWaterLevel	NAME J & J DRILLING INC		· : \$4
	A CONTRACTOR OF THE PARTY OF TH	T(PERSON, FIRM, OR CORPORATION)	STYPE-C	JR PRIN
5	The contraction of the second states and the second states and the second states and the second states and the	Address 5 5013 lanke. Rd. Greenacru	B , NA	990
1	Date of test		11.1.7	
).	Bailer test gal / min. with ft. drawdown after three	(Signed)License	No. 1441	
	Airtest gsl./min. with stem set at ft. for hrs.	Registration's	· . ·	1. 2.
	Artesian flow g.p.m. Date	No. JULILIE 1 / INU Date 1/ 1/	<u> </u>	

	WELL LOG	-1) 16801	°5	
File Original and First Copy with Department of Ecology WATER W	ELL REPORT	Application	No	
Third Copy - Driller's Copy STATE OF	WASHINGTON	Permit No		
(1) OWNER: Name Inez Malcolm	Address Cohan A	orth Dakot	a	878
LOCATION OF WELL: County Spokane	-NW	SW 14 Sec 25 T	24 N. R	41 w)
T and distance from section or subdivision corner	**			
(3 - "ROPOSED USE: Domestic Z Industrial D Municipal	(10) WELL LOG:			
Irrigation 🗍 Test Well 🕞 Other	Formation: Describe by color, c	haracter, size of mater	ial and stru	icture, an
(4) TYPE OF WORK: Owner's number of well	stratum penetrated, with at lea	st one entry for each	change of	formatio
New well Z Method: Dug 🗆 Bored	Overhunden	Soil		10
Reconditioned [] Cable [] Driven Reconditioned [] Rotary 2] Jetted	Fr. Basalt Gre	w Med		10
(5) DIMENSIONS	- Loose Sand+	Krave/	10	15
Drilled /35. ft. Depth of completed well /35	Basalt Gra	y Hard	15	25
(A) CONCERNICAL DURATES	Clay Drou	in med	25	26
6) CONSTRUCTION DETAILS:	Clay Broy	n Med	31	32
Casing installed: 2 "Diam. from 11 at to 14 at t	Basalt Gro	Hard	33	10
Welded	E Basatt Gran	mad	40	50
Perforations: yes of No D	- Chay Blue	T mod	00	53
Type of perforator used 5 Steel Liner	" Clay Blue	mad	60	63
SIZE of perforations	F. Basalt Gra	1 Med	63	70
3.0 perforations from 115 It. to 25	Clay Blue	mad	70	2
Derforations from 25 It to 3	1. Dusalt Gray	mal	72	75
Screens: Yes D No	Class Grant	Marker Marker	1 55	160
Manufacturer's Name	- Clark Brou	UN Soft	700	112
Diam	. Basett Gray	1 med	+	
Diam	L Class Para	(water)	112	134
ravel packed: Yes [No] Size of gravel;		5Ser /	134	130
	<u>.</u>		-	
Surface seal: Yes No D To what depth: 192_ 1	1 A. to St	$-\sqrt{1}$		
Did any strata contain unusable water? Yas D No.		2/1		
Type of water?	·]	<u>REC</u>	Fr	
	= /5	Allo	FIV	EE
(1) FUME: Manufacturer's Name		DEPAD	40 1970	
(0) WATED I FUELS. Land-surface elevation 0/100	-	SPOKANTENT	OF FCO	
(0) WAILER DEVELS, above mean sea level.	ь [<u></u>	THE REG	IDNAL O	LUGY
riesian pressure	···			TICE
Artesian water is controlled by	n*			
9) WELL TESTS: Drawdown is amount water level is	-			<u> </u>
Vas a pump test made? Yes No I If yes, by whom?	Work started	9 Completed	Wy 30	19
field: gal./min. with ft. drawdown after hr	WELL DRILLER'S STA	TEMENT:		
11 11 11 11 11 11 11 11 11 11 11 11 11	This well was drilled un true to the best of my kno	der my jurisdiction	and this	report
Recovery data (time taken as zero when pump turned off) (water law				
measured from well top to water level } Time Water Level Time Water Level Time Water Level	NAME CFS L	Itilling	· <u>····</u> ·······	
		or corporation)	Type or p	rint)
·····	Address W. 1127	and space	ere 7	720%
• of test	"Isimul Allon	Lodgen		
BL	r [outren]	(Well Driller)	·····	
Artesian flow	License No. 1004	Date Ang	1	19 7
1 - Kh A				.,
ECY 050-1-20	SHIEFTS IF NECESSARY)			

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with 5526 WATER WELL REPORT STATE OF WASHINGTON Weter Bight Bernit No.	37 079 9 <i>cf</i>	704
1) OWNER: Name SHAHA SCHLATER Address \$103 E. ELDE SpakANE	,99	2/2
221) STREET ADDRESS OF WELL (or nearest address)	<u>Υ_</u> Ν. <u>π</u>	<u>+1 w.m.</u>
3) PROPOSED USE: Domestic Industrial Municipal (10) WELL LOG or ABANDONMENT PROCEDURE DE Irrigation DeWater Test Well Other Formation: Describe by color, character, size of material and structure, and s and the kind and nature of the material in each structure perturbed, with at	SCRIPTI	ON ss of aquifers
4) TYPE OF WORK: Owner's number of well change of information.		
Abandoned Deepened Cable Driven 705 501	FROM.	
5) DIMENSIONS: Diameter of well inches. Clay Decomposed Grante	88	201
Santhy Clay	235	247
6) CONSTRUCTION DETAILS:	247	392
Velded D' Diam from 71.) th. to CO2 the Dectomposed Grante	392	405
Liner installed Diam. from the to the Grante Med Hard	405	460
Grante Soft Whater	460	465
Perforations: Yes I No II	465	500
SIZE of perforations in. by In.		
perforations fromft. toft.		
perforations fromfl. toft.		
perforations fromft, toft,		
Screens: Yes No P		
Manufacturer's Name		
Type Model No		
Diam. Slot size from tt. to tt.		
piamSlot sizefromft. toft.		
Gravel packed: Yes No Z Size of gravel		
Gravel placed fromft. toft.		
Surface east: Yes H No F To what death?	2	<u>}</u>
Material used in seal Reating te	3 nl	
Did any strata contain unusable water? Yes No		
Type of water? Muddie Clay Depth of strata 88	IUI	
Method of sealing strata off Carea off	K	
JULY 23, 1996	and	
7) PUMP: Manufacturer's Name DEPARTMENT OF ECOL	OGY	
Type:	FILE	
B) WATER LEVELS: Land-surface elevation ft. Work Started <u>6-9-93</u> 19. Completed <u>7-2</u>		19 <u>76</u>
Static level ft. below top of well Date WELL CONSTRUCTOR CERTIFICATION:		
Artesian pressure lbs. per square inch Date Artesian water is controlled by (Cap, valve, etc.) l constructed and/or accept responsibility for construction compliance with all Washington well construction standards.	of this we Materials	I, and its used and
9) WELL TESTS: Drawdown is amount water level is lowered below static each Was a numb test made? Yes No. If yes by whom?	and belief	11:00
Yield:	Dr.	A MARCA
" Estamateil Hir litt " " Address [S 31] Diench LA KA	CKR "	7 <u>7007</u>
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) Time Water Level Time Water Level Time Water Level Time Water Level Time Water Level	No. <u>CO</u>	<u>, , , , , , , , , , , , , , , , , , , </u>
Contractor's Registration No.// TOUW/ 101 TR Date	3	196
Date of test	RY)	····
Bailer testgal./min. withft. drawdown after hrs.		
Airtest	mployer. I Program	For spe- at (206)
remperature of water Was a chemical analysis made? Yes No No 407-0000. The FDD fluttiber is (200) 407-6006. CY 050-1-20 (9/93) **!	• •	~

		when wo	- 1) 16834	3	
File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy	VATER WE	CLL REPORT	Application 1 Permit No.	No	1
(1) OWNER, James V. Harmon		Route 2 Bo	v 161 Cheney	Washi	
(I) OWNER: Name. School () Harmon	Spokano	Address Route 2, bo	$\frac{1}{1}$	wasiiii	192011
LOCATION OF WELL: County	Spokalle		14 Sec.25 T.24	+ N. R.4	IE W.M
aring and distance from section or subdivision corner	Meadow	Lake 1st & Vac Stp	North of Adj to	Lot 24	
(3) PROPOSED USE: Domestic M Industrial	Municipal	(10) WELL LOG:			
Irrigation 🗌 Test Well	Other 🖸	Formation: Describe by color, show thickness of aquifers an	character, size of materia I the kind and nature of t	l and struc the materic	ture, an
(4) TYPE OF WORK: Owner's number of well (if more than one)		stratum penetrated, with at u	east one entry for each c	hange of f	ormatio
New well 🕅 Method: Dug	Bored	Top Soil		0	
Reconditioned Cabl	ary 🕅 Jetted 🗌	Clay, Brown, Mois	t	3	10
(F) DIMENSIONS:	611	Clay, Bluish, Moi	st	10	15
Drilled 240' ft. Depth of completed well	1 240' inches.	<u>Clay, Brownish, D</u>	ry	15	23
		Basalt, Brown, So	ft	23	55
(6) CONSTRUCTION DETAILS:		Basalt Brown	· · · · · · · · · · · · · · · · · · ·	60	62
Casing installed: 8" " Diam. from +1"	ft. toft.	Basalt, Black		62	95
Welded W	ft. to ft.	Basalt, Brown, Cl	ay Seams/Water	95	110
73		<u>Clay, Gravel, Moi</u>	st	110	160
Type of perforator used		<u>Clay, Brown</u>		160	213
SIZE of perforations in. by	in.	Basalt, Fractured	With Water	213	240
perforations from ft.	to ft.			i	
perforations from ft.	to ft.				
S					
Screens: yes No M Manufacturer's Name					
Type Model 1	No				
Diam. Slot size from	ft. to ft.				
	10. 00				
Gravel packed: Yes No X Size of grav	rel:				
Gravel placed from	1.01	60' of 4" PVC Lin	er Installed	-	
Surface seal: Yes X No D To what depth	? 18 ft.	<u>b" Drive Shoe Ins</u>	talled		
Did any strata contain unusable water?	Yes 🔲 No 🛣	DLIVE_SHOE_LUS			
Type of water? Depth of stra	ata				
Method of sealing strata off					
(7) PUMP: Manufacturer's Name		REC.	FIVED		
Type:					
(8) WATER LEVELS: Land-surface elevation above mean sea level.	2500	INAY I	0 6 1980		
Static level	ate 5/01/80	DEPARTMEN	T-OF FOOLOGY		
Artesian pressure	ate	SPOKANE RE	GIONAL OFFICE		
(Cap, v	valve, etc.)		UTION OTTIOL		
(9) WELL TESTS: Drawdown is amount wa lowered below static level	ter level is el			5/01	: 8
Was a pump test made? Yes 🗌 No 🕅 If yes, by whom?	?	WORK Started	19 Completed		., 19
Yield: JO gal./min. with ft. drawdown af	ter hrs.	WELL DRILLER'S ST	ATEMENT:		٠
" " "		true to the best of my kn	nder my jurisdiction a owledge and belief.	and this r	eport i
Recovery data (time taken as zero when pump turned	off) (water level				
measured from well top to water level) Time Water Level Time Water Level Time	Water Level	NAME Ponderosa Di	illing & Develop	pment,	Inc.
		East 6010 B	n, or corporation) (1 Coadway Spole	Type or pri	nt) 0020
		Address.	oadway Spokar	ue, wA	9920
Date of test	·····	1.0	/VIA	Tee f	1
Bailer test	afierhrs.	[Signed]	(Well Driller)	. Joe (tose
Artesian flow		1040	5/03	2	80
Temperature of water Was a chemical analysis ma	ae? Yes 🗌 No 🖄	License Nø			, 19
-11/20 MA more		FFTS IF NEOBOGANES			
ECY 050-1-20 3/4/00 (USE	- ADDITIONAL SI				

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