WATER WELL REPORT FACT SHEET

Oregon Department of Human Services, Drinking Water Program

May 10, 2006

The Oregon Water Resources Department (WRD) requires that wells in Oregon be drilled by licensed well constructors and that they submit a water supply well report to WRD's office for each well that is drilled, modified, or abandoned. This requirement became effective in the late 1950s. The report provides considerable information about the well, e.g., how the well was constructed and where the water is coming from. If you have a well but do not have a copy of your well report, you can search for it online at WRD's website http://www.wrd.state.or.us/. From that page, click on "Find a well log" under Access Data and the well log query page below will pop up.

A number of search criteria are available to help you locate your well report. Generally you will use some combination of township, range and section, completed date and owner last name. Township, range and section coordinates were developed by public land surveyors in the late 1800s and define a grid across the state in which a given township (36 square miles) can be located in terms of the number of the individual townships north or south of an east-west line (the Willamette Baseline) that runs through Portland and east or west of a north-south line (the Willamette Meridian) that runs along the eastern margin of the Willamette Valley. The City of Bend is located in township 17S, range 12E (T17S, R12E), i.e., 17 townships south of the Willamette Baseline and 12 townships east of the Willamette Meridian. The City of Seaside is located in T6N, R10W. Each township is divided into 36 sections, each one mile square. Sections are numbered as follows:

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Well Log Query

*Township: 16.00 South

*Range: 2.00 West

Sections					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Find T-R-S by Address

*Well Log:

Startcard:

Well Tag:

* *Completed Date to

* *Received Date to

County

Bonded License# Find a Driller

Owner Last Name

Company Name

* * Completed Depth to

Taxlot

Type of Log

Records per Page: 10

Frequently Asked Questions

Search Reset

Bottom of Form

Sites can therefore be located in a given township across the state, and within a given township, which section the site is located. Bend is therefore located in T17S, R12E, Section 32, Seaside is in T6N, R10W, Section 15. If you enter the township, range and section in which your well is located in the well log query shown above and press "Search", a list of all the well reports within those coordinates will be listed. Individual well reports can be selected and viewed from this list. If you do not know your T-R-S, you can select "Find T-R-S by Address". Enter your address and the program will determine and enter the T-R-S for your location.

In lieu of, or in addition to the T-R-S, you can enter a range of dates that you know to bracket when the well was drilled (Completed Date), the county you live in, and or the last name of the owner when the well was drilled. The program will search the database and pull up well reports that match the criteria you have listed.

Water Resource's website is quite user-friendly and has a considerable amount of useful information, in many cases beyond what is provided in this FACT SHEET. A good place to start to explore the website is the "Frequently Asked Questions" link at the bottom of this page. If you are unable to locate your well report, you can contact the regional Watermaster nearest you for assistance. The locations of these offices is provided at http://www.wrd.state.or.us/OWRD/offices.shtml.

Well Report Information:

Well reports have evolved over the years. The latest version is shown at the end of this document. The numbers below refer to the categories shown on the sample well report provided. After each number the information provided is explained.

(1) Land owner and address at the time the well was drilled. This is the address at which the well is located.
(2) Type of work done by the well constructor, i.e., is it a new well, a deepening of an existing well, etc.
(3) What was the drill method used to construct the well, e.g., did the drill bit rotate during the drilling and is it air or circulating fluid (mud) that was used to bring the drill cuttings to the surface, or was the drilling accomplished by the cable tool method where the bit is raised and dropped repeatedly, etc.
(4) What was the proposed use of the well when it was drilled
(5) Bore Hole Construction, how was the well constructed. Water Resources has specific rules (see http://www.wrd.state.or.us/OWRD/LAW/index.shtml) regarding how a well is to be constructed in Oregon. In general, the driller is required to oversize the diameter of the hole by four inches compared to the casing that is installed. If, as in the example, the casing is to be six inches, the upper part of the hole must be 10 inches. After the casing has been installed, the annular space between the casing and the hole is filled with cement, bentonite (an expanding clay), or some other approved sealant. The purpose of the casing seal is to prevent water at or

near the surface from migrating down the casing to the aquifer, potentially contaminating it. The seal also is used to prevent the mixing of groundwater from two or more aquifers. The depth of the casing seal is therefore controlled by the local geology, but must be a minimum of 18 feet. In the example provided, the seal extends to 36 feet, consists of cement, and 10 bags were required to fill the annular space. The cement was placed by method C, which involves pumping the cement down a pipe to the bottom of the well allowing the annular space to fill from the bottom up. Other methods involve pumping the cement down through the casing and up along the sides. All of these methods are designed to construct a continuous seal around the casing.

(6) This section describes how the well constructor placed the casing and liner in the well. Although some regard the casing as a preventative measure for "surface water contamination", from a regulatory perspective, casing by itself is not considered sufficient for this purpose. The casing seal, a combination of casing and an outside sealant (see (5) above), is designed to serve that purpose. Casing is commonly used to hold the hole open, particularly in unconsolidated formations such as sand or sand and gravel. Without the casing, formation material would slough off with time filling the hole and reducing the storage capacity of the well. In wells that produce from bedrock, e.g., sandstone or lava, casing may not be needed below the depth of the casing seal unless the bedrock is highly fractured. A well liner is often used to isolate the level from which the pump draws its water, e.g., the pump is placed within the liner which has either been perforated or has screens at specific depths. In this section, the well constructor indicates whether he is describing Casing or Liner, it's inner diameter, where it was placed (in the example it extends from two feet above the surface to a depth of 72 feet), the gauge of the pipe, and whether it is steel (Stl) or plastic (Plstc). Casing and liner generally come in 20 foot lengths and have to be connected to one another as the well depth increases. Generally, the casing and liner are either welded together or threaded into one another.

(7) The Perforations/Screens section reports the depth intervals over which access of water into the casing or liner is allowed. Perforating the pipe may be done at the site or pre-constructed screens can be added to the line of pipe as it goes in the hole. Screens have the advantage that they can designed with respect to the size of the openings to match the nature of the natural material. Doing so may eliminate the potential for some of the formation, e.g., sand, from entering the pipe. In the example provided, the casing has been perforated at two intervals, from 39 to 44 feet and from 48 to 56 feet.

(8) Wells are tested to determine what yield is possible over time and how much drawdown of the water level in the well is produced by that level of pumping. This testing helps to determine what size pump to place in the well and what is a safe level of pumping in gallons per minute without drawing the water down to the level of the pump's intake. Most of these tests are one hour in duration. Longer tests can provide useful information about the character of the aquifer.

(9) Section 9 provides the legal description of the well location. Locator information includes county, township, range and section, including down to the ¼ section, tax lot number, latitude and longitude and street address.

(10) The Static Water Level (SWL) represents the depth from the surface to the water level in the well when the well has been at rest (not pumping) for at least and hour. In a flowing artesian well water will be flowing out of the top of the casing and it is customary to describe the SWL as pressure in pounds/square inch. One pound/square inch is equivalent to 2.31 feet of water, so a flowing artesian well with a wellhead pressure of 2.5 pounds/square inch would have a SWL of 5.8 feet above the surface (= + 5.8). If an existing well is being deepened, the well constructor will measure the SWL prior to beginning the deepening and in the completed well after deepening. This measurement ensures that the deepening will not extend into a different aquifer (with a different SWL). Other information provided includes the depth to first observable water in the well, and the depth intervals and respective SWLs for each water-bearing zone identified by the driller. Again, the recording of the individual SWLs is used by the well constructor to determine if the water bearing zones are within the same aquifer. If the SWL changes from one water bearing zone to another, the well constructor knows that he or she must seal off one or the other of these zones to prevent commingling of aquifers. The SWLs are also used in conjunction with the well log (#12 below) to determine if the aquifer is unconfined or confined.

(11) The Well Log provides a description of the subsurface geology with depth as interpreted by the driller. Well constructors are generally not geologists, though some in Oregon are, and the accuracy of their interpretations may vary. However, they are very good in identifying changes in physical properties as they drill through the substrate. The well log is an important part of the report because it allows you reasonably interpret the character of the subsurface, e.g., clay (usually silt), sand and gravel, basalt, sandstone, etc., estimate their hydraulic properties, e.g., permeability, and determine the location of the aquifer at depth. Examination of the sample well log provided indicates that the groundwater is being produced from both a sand and gravel and a coarse sand layer within predominantly silt and clay sediments. Water can move through the more permeable sand and gravel to a greater degree than in the silt and clay where particle size is small. Note that both water-bearing zones have the same static water level indicating that they are part of the same aquifer.

Well Label #L. When the well constructor completes a well, he or she is required to place a permanent metal tag on the casing with a number that uniquely identifies the well. This practice has been in place since the late 1990s and is designed to link a specific well report with a specific hole in the ground. The past method of simply locating the well by township, range and section, or by address, was not precise enough for use in hydrologic assessments of an area. The L numbers allow the investigator to relate a well report to a specific well and therefore be able to more accurately characterize the hydrologic conditions at the site.

Start Card #. Well constructors are required to notify the WRD when drilling a well. The number referred to here is the number assigned to that specific notification.

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L _____
START CARD # _____

(1) LAND OWNER
Owner Well I.D. _____
First Name EXAMPLE Last Name _____
Company _____
Address _____
City _____ State _____ Zip _____

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Conversion ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD
☐ Rotary Air ☐ Rotary Mud ☒ Cable ☐ Auger ☐ Cable Mud ☐ Reverse Rotary ☐ Other _____

(4) PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Community ☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering ☐ Thermal ☐ Injection ☐ Other _____

(5) BORE HOLE CONSTRUCTION
Special Standard ☐ (Attach copy)
Depth of Completed Well 72 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/ lbs
10"	0	36	Cement	0	36	10	5
6"	36	72					

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other _____
Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____
Explosives used: ☐ Yes Type _____ Amount _____

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
☒	☐	6"		+2	72	20	☒	☐	☒	☐

Shoe ☐ Inside ☐ Outside ☐ Other Location of shoe(s) _____
Temp casing ☐ Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Perforations Method Mill Knife
Screens Type _____ Material _____

Perf/ Scree	Casing /Liner	Screen Dia	From	To	Scrn/slot width	Slot lengt h	# of slots	Tele/ pipe size
P	C		39	44				
P	C		48	56				

(8) WELL TESTS: Minimum testing time is 1 hour
○ Pump ○ Bailer ⊗ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
75	10		1 hr

Temperature 57 °F Lab analysis ☐ Yes By _____
Water quality concerns? ☐ Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County _____ Twp 3 (N)S Range 2 E/(W)WM
Sec 14 NE 1/4 of the SW 1/4 Tax Lot _____
Tax Map Number _____ Lot _____
Lat ° ' " or _____ DMS or DD
Long ° ' " or _____ DMS or DD
○ Street address of well ○ Nearest address

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Predeepening				
Completed Well				

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found _____

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
	39	44	15			26
	48	56	25			28

(11) WELL LOG
Ground Elevation 216'

Material	From	To
SOIL	0	2
BROWN SILT/clay	2	7
BROWN SILT AND SAND lenses	7	22
SAND with thin layers of SILT/clay	22	31
Gray clay	31	39
Sand and gravel	39	44
Gray clay	44	48
COARSE Sand	48	56
Gray clay	56	72

Date Started _____ Completed _____

(unbonded) Water Well Constructor Certification
I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
License Number _____ Date _____
Password : (if filing electronically) _____
Signed _____

(bonded) Water Well Constructor Certification
I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
License Number _____ Date _____
Password : (if filing electronically) _____
Signed _____
Contact Info _____

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

Form Version: