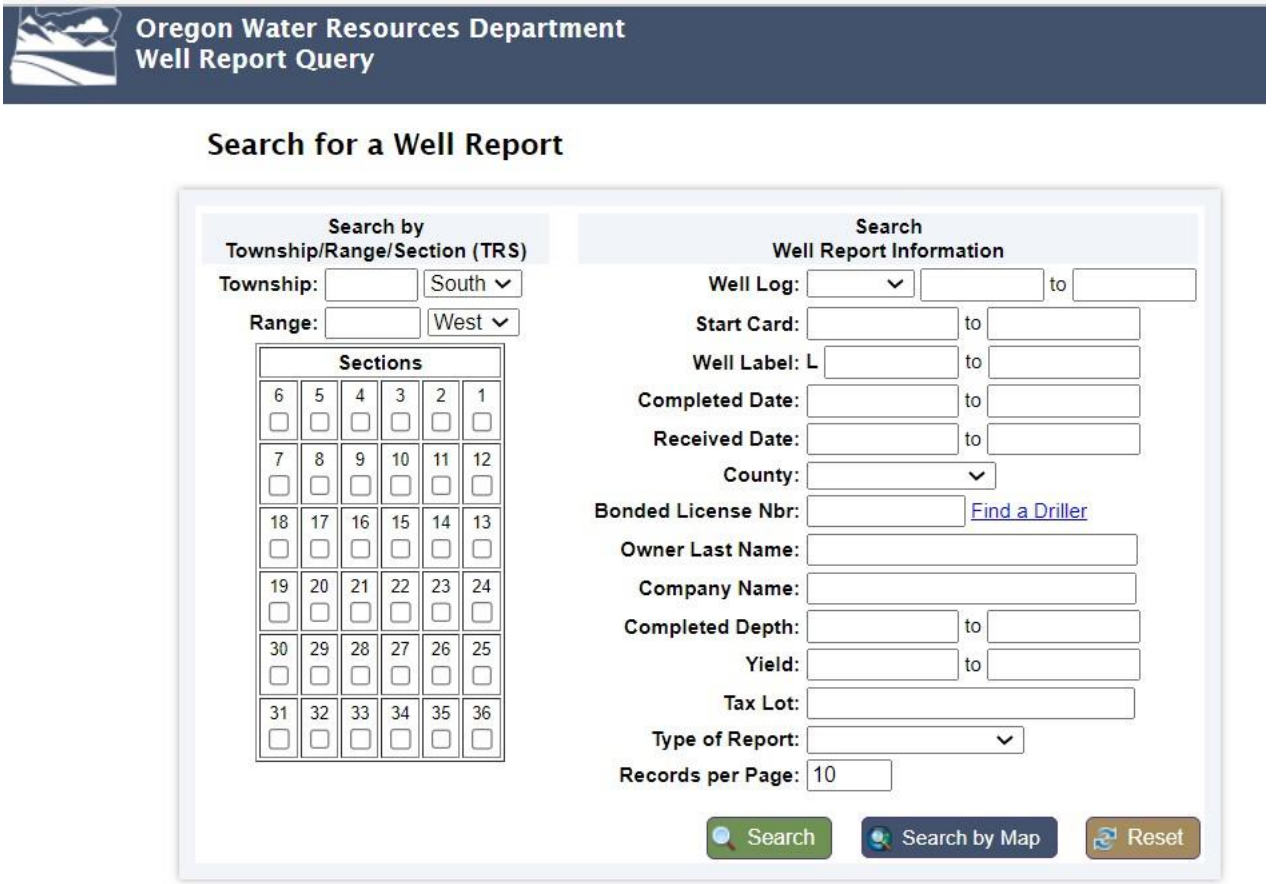
WATER WELL REPORT FACT SHEET

The Oregon Water Resources Department (OWRD) requires that wells in Oregon are drilled by licensed well constructors and that they submit a water supply well report to OWRD's office for each well that is drilled, modified, or abandoned. This requirement became effective in 1955. 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 OWRD's website www.oregon.gov/owrd. Under Groundwater & Wells, click Find a Well Report. The well report query page appears (see page 2).

A number of search criteria are available to help you locate your well report. Typically, you will use some combination of Township, Range, and Section number; 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 specific Township (36 square miles) can be located in terms of the number of individual townships north or south of an east-west line (called the Willamette Baseline) that runs through Portland and east or west of a north-south line (called the Willamette Meridian) that runs along the eastern margin of the Willamette Valley. The Willamette Baseline and Willamette Meridian intersect near Portland at the Willamette Stone State Heritage Site. Using this system, the City of Bend is located in Township 17 S., Range 12 E, (T. 17 S., R. 12 E.), i.e., 17 townships south of the Willamette Baseline and 12 townships east of the Willamette Meridian. The City of Seaside is located within T. 6 N., R. 10 W. Each Township is divided into 36 sections, each one mile square. Within each Township, Sections are numbered as follows:

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

Well Report Query Page



For assistance or more information contact Ladeena Ashley 971-287-8218

Resources:

- How To Search for Well Reports
- About Well Reports
- Well ID Program & Application
- Well Owner's Handbook
- Well Owner's Handbook [Español]

Therefore, site locations within the state can be described by a given Township. The location can be more precisely described within that Township by further identifying the section where the site is located. Bend is more precisely located in T. l7 S., R. l2 E., Section 32, and Seaside in T. 6 N., R. 10 W., Section 15. So, if you enter the Township, Range, and Section in which your well is located in the well report query shown on the previous page and press Search, a list of all the well reports within those coordinates will be shown. In similar fashion, an address can be entered using the "Find TRS by Address" option and the website will autofill the correct Township, Range, and Section number. Individual well reports can be selected and viewed from this list.

Note the resources available at the bottom of the well report query page. If you don't know the Township, Range, and Section for the well report, follow the directions in "How to Search for Well Reports."

If you are unable to locate your well report, you can contact the regional Watermaster nearest you for assistance. The locations of these offices are provided at https://www.oregon.gov/owrd/aboutus/contactus/Pages/RegionalOfficesandWatermastersDirectory.aspx.

Well Report Information

Well reports have evolved over the years. A typical version is shown at the end of this document. The numbers below refer to the categories shown on the sample well report provided.

1. **Land Owner:** Landowners mailing address at the time the well was drilled. In some cases, this may not correspond to the address where the well is located.
2. **Type of Work:** Type of work done by the well constructor, i.e., whether it is a new well, a deepening of an existing well, etc.
3. **Drill Method:** Describes the drilling method used to construct the well. These methods also indicate how the drill cuttings were removed from the borehole (i.e., circulated air vs. circulated mud). For example, was a rotary drill bit used during drilling and was there air or circulating fluid (mud) that was used to bring the drill cuttings to the surface? Other drilling options include auger, cable tool (where the bit is raised and dropped repeatedly), and reverse rotary.
4. **Proposed Use:** The proposed use of the well at the time it was drilled.
5. **Bore Hole Construction:** How the well was constructed. OWRD has specific rules

(see Oregon Administrative Rules 690-210, Well Construction Standards) 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 to be installed. If, as in the example, the casing is six inches in diameter, the upper part of the hole must be 10 inches in diameter. After the casing has been installed, the annular space between the casing and the hole is filled with cement, bentonite (an expanding clay), or another 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 helps 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, a casing seal was constructed to a depth of 36 ft using 10 bags of cement 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 and 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 these allowed methods are designed to help ensure that there is a continuous seal around the casing.

6. **Casing/Liner:** This section describes how the well constructor placed the casing and liner in the well. 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 water 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 line a well through a caving formation that could slough off the borehole wall and damage the pump. The pump is placed within the liner. The casing and/or liner may be perforated or have screens set at specific depths to allow water access to the pump. In this section of the form, the well driller indicates whether they are describing Casing or Liner, its diameter, placement depth (in the example, the casing extends from two feet above the surface to a depth of 72 feet), the pipe gauge, type of pipe used (steel or plastic), and method for connecting the pipe lengths together (welded or threaded). Casing and liner materials generally come in 20-foot sections. These individual lengths are connected to one another to reach an appropriate depth as determined by the driller.
7. **Perforations/Screens:** Perforations and/or screens permit water to enter the well from the aquifer while helping to prevent sediment from entering. The pipe may be perforated at the site, or a preconstructed section of screen can be added to the pipe as it is pieced together and installed in the hole. Screens have the advantage that they can be designed to eliminate the potential for some fine grain materials from

the formation, e.g., sand, from entering the well. In the example provided, the casing has been perforated along two separate intervals, from 39 to 44 feet and from 48 to 56 feet.

8. **Well Tests:** Wells are tested to determine what yield is possible over time and how much water-level drawdown occurs in the well as a result of pumping the well at a specific pumping rate. Well tests help determine what size pump to place in the well and a safe pumping rate (in gallons per minute) to keep from drawing the water level down to the pump. Most of these tests are one hour in duration. Longer tests can provide useful information about the character of the aquifer.
9. **Location of Well:** This section provides the legal description of the well location. Location information includes county; Township, Range, and Section number (down to the ¼ section); tax lot number; latitude and longitude; and street address.
10. **Static Water Level (SWL):** SWL represents the depth from the surface to water in the well when the well has been at rest (not pumping) for at least an hour. However, in a flowing artesian well, if not enclosed, water will flow over the top of the casing. Therefore, it is customary to describe the SWL as pressure in pounds/square inch when this occurs. 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 an SWL of 5.8 feet above the surface (= + 5.8). If an existing well is being deepened, the well driller will measure the SWL prior to beginning the deepening and take a second measurement in the completed well after deepening. The second measurement helps ensure that the deepening has not extended the well 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 driller to determine whether the water-bearing zones are within the same aquifer. If the SWL changes from one water-bearing zone to another, the well driller knows that they must seal off one of the water-bearing zones to prevent commingling of aquifers. The SWLs can also be used in conjunction with the well log (item 11 below) to determine whether the aquifer is unconfined or confined.
11. **Well Log:** The well log provides a description of the subsurface geology with depth as interpreted by the driller. Well drillers are generally not geologists, though some in Oregon are, and the accuracy of their interpretations may vary. However, they are very good at identifying changes in physical properties as they drill through different geologic materials. The well log is an important part of the report because it allows you to reasonably interpret the character of the subsurface materials, e.g., clay (usually silt), sand and gravel, basalt, sandstone, etc.; estimate

hydraulic properties (e.g., permeability) of these materials; 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 moves more easily through the more permeable sand-and-gravel materials than through silt and clay which are made up of smaller particles. Note that both water-bearing zones have the same static water level indicating that they are part of the same aquifer.

At the top right of the well report, there are two important numbers:

Well Label #L: When the well driller completes a well, they are 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 1996 and is designed to link a specific well report (or series of well reports) with a specific hole in the ground. The past method of simply locating well reports by township, range and section, or by address, was not precise enough to track changes made to a well (deepening, alterations, etc.) over time. In addition, since the L numbers allow the investigator to more easily relate a well report (or several well reports) to a specific well, the L numbers also enable an investigator to more accurately characterize the hydrologic conditions at the site.

Start Card #: Well drillers are required to notify the OWRD 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 [X] New Well [ ] Deepening [ ] Conversion [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD [ ] Rotary Air [ ] Rotary Mud [X] Cable [ ] Auger [ ] Cable Mud [ ] Reverse Rotary [ ] Other

(4) PROPOSED USE [X] 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 [X] 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
[X]	[ ]	6"	[ ]	+2	72	20	[X]	[ ]	[X]	[ ]

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 (X) 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			28
	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
Grdy 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: