

SILVER FALLS DRINKING WATER CONFERENCE WELL CONSTRUCTION



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WHAT DOES OHA REGULATE

- ✘ Water system construction standards that include:
 - + Well construction (must meet WRD construction standards as per OAR 690 divisions 200 through 220.
 - + Perpetual restrictive easement
 - + Sanitary setback
 - + Flood hazards

WHAT DOES OHA REGULATE

- ✘ When reviewing construction of a Public Water Supply well:
 - + 333-061-0050(1)(b) – facilities must meet construction standards at the time that they were constructed or installed for use as a Public Water Supply. No alterations required unless there is a significant deficiency and it creates a public health hazard or if a maximum contaminant level is being exceeded.

OHA DRINKING WATER SERVICES HYDROGEOLOGISTS

- ✘ Review proposed well construction
- ✘ Review As-built well construction for wells being added to a public water system
- ✘ Evaluate water source susceptibility and provide recommendations to DWS Management regarding Setback Waiver Requests
- ✘ Evaluate and determine if groundwater sources need to undergo monthly assessment monitoring
- ✘ Evaluate and determine if abandonment or reconstruction of a public water supply source should be required to protect public health if E.coli is confirmed in the well.

WHERE TO FIND EVALUATION RESULTS ON DATA ON-LINE

| Sources | | | | |
|-----------------------------|---|---------------------------------|------------------------------|--------------------------|
| Facility ID | Facility Name - Well Logs | Activity Status | Availability | Sub Type |
| EP-A | EP FOR WELLFIELD | A | | GW |
| SRC-AA | WELL #1 - JACK6991 | A | Permanent | GW |
| SRC-AB | WELL #3 - L7373 | A | Permanent | GW |
| EP-B | EP FOR WELL #2 | A | | GW |
| SRC-BA | WELL #2 - JACK30259 | A | Permanent | GW |

Click a GW link

SRC-AB: WELL #3 GW, Active, Permanent ---- *Operating Period Unknown*
Disinfection: None

Sensitivity Analysis Data

| | | | |
|--|------------------------------------|--------------------------------|------------|
| Aquifer sensitivity: | High | Surface water within 500 feet: | No |
| Well construction adequate?: | No - Seal Not Constructed Properly | Surface water type: | Unknown |
| <i>E. coli</i> sources within 2-year time-of-travel: | Yes | Data last updated: | 07/02/2013 |

Monthly Assessment Monitoring Data

Monthly Assessment Schedule: Requires 49 M...

Monthly Schedule (Open): 1 sample(s) per month to be taken beginning 05/01/2013 -

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| # Samples | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 6 |
| TC+ | - | - | - | - | 1 | 0 | 0 | 0 | - | - | - | - | 1 |
| <i>E. coli</i> + | - | - | - | - | 0 | 0 | 0 | 0 | - | - | - | - | 0 |

No historic GWUDI data were found.

HYDROGEOLOGIST REVIEW – ANNUAL NUMBERS

Annual Evaluation Requests (for Wells and Springs)



WRD – OHA MEMORANDUM OF UNDERSTANDING

- ✘ Finalized and signed in March 2015
- ✘ Documents the ongoing working relationship between the two agencies that has been in existence since the 1990's

WRD – OHA MEMORANDUM OF UNDERSTANDING

✘ Allows for:

- + Coordination and data sharing on matters of common concern
- + OWRD review of well reports and any additional information on existing or proposed wells at OHA request
- + OHA to notify public water supply owners/operators of applicable OWRD regulations during OHA Plan Review
- + Each agency may notify the other of PWSs encountered that pose a health hazard or health threat, that are not properly maintained, or are not properly constructed
- + Cross training and public education on subjects of mutual concern

WRD – OHA MEMORANDUM OF UNDERSTANDING

✘ Clarifies that:

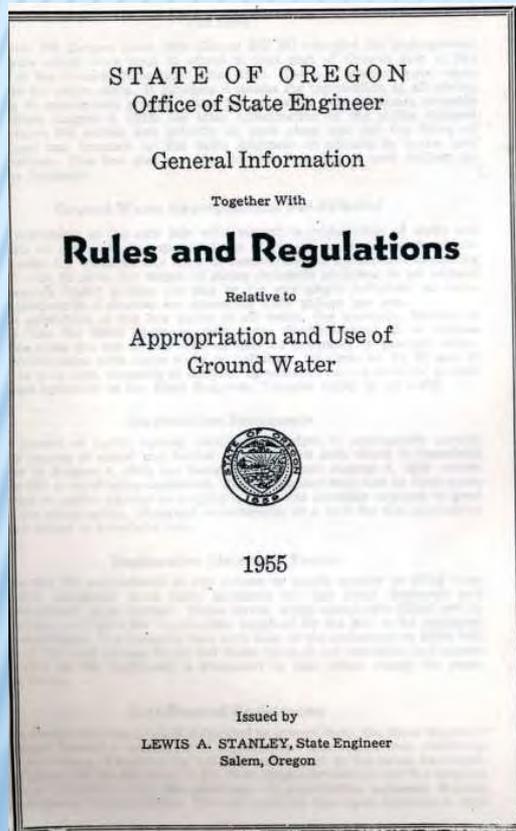
- + OHA shall take action to assure safe drinking water at all public water supplies
- + OWRD regulates water supply well maintenance
- + OWRD regulates water supply well abandonments
- + Enforcement action against owners of PWS wells will only be pursued by OWRD if voluntary compliance can not be achieved by OHA or by OWRD
- + If enforcement action is necessary in order to bring public water system wells into compliance with minimum well construction standards, OWRD will handle the enforcement action

What Does WRD Regulate

- Oregon Well Construction Standards
 - Water Well
 - Monitoring Well
 - Winter Recheck
 - Piezometers
 - Geotechnical Holes
 - Closed Loops

Rules and Regulations

- Oregon Rules First Adopted in 1955



1955 Rules Included:

- 1.) Well Constructor Licensing
- 2.) Well Report Requirement
- 3.) Basic Sealing Standards
- 4.) Water Right Issues

**No Start Cards or Fees for New Wells

1955 Well Rules

Consisted of a few paragraphs.

Rules Regarding Well Construction

A well driller shall perform no work in the drilling or alteration of a well which requires a State Engineer permit without first ascertaining that the person or public agency contracting for such work has been issued a permit to construct or alter a well and appropriate the ground water.

Each well driller who contracts for and installs pumps and motors in connection with the construction or alteration of a well or any person or public agency who makes such installation, shall install as a part of the work, adequate equipment for determination of the elevation of water in the well at all times.

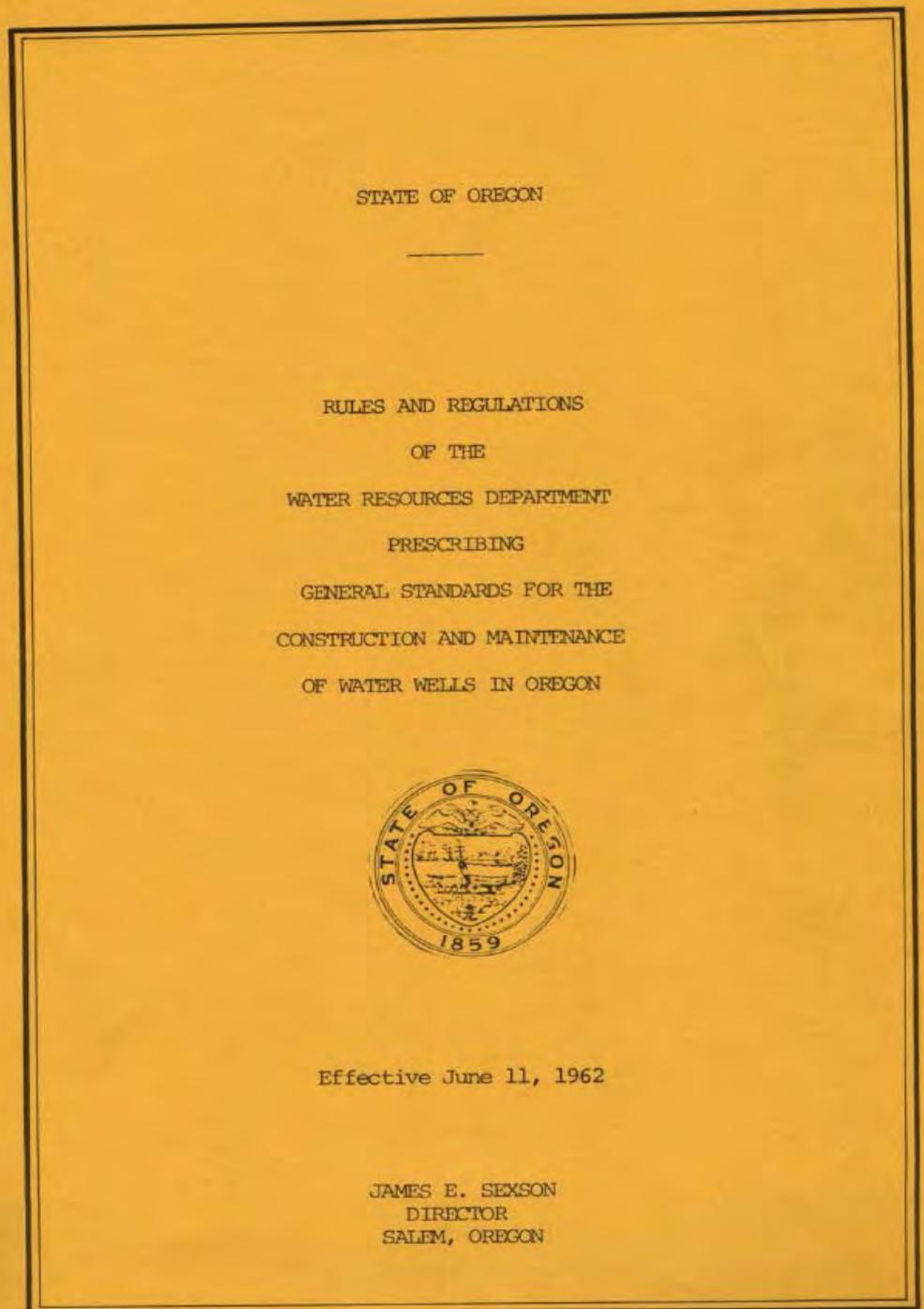
Upon completion of any well constructed by a licensed well driller, said driller shall make a test to determine the capacity of the well and the draw-down at varying yields. In case of a flowing well (artesian), he shall determine the flow and the shut-in pressure. These data will be included in the well log. At the option of the owner, the yield and drawdown test may be made by an agency other than the driller, but the driller shall be responsible for including the results of the test in the well log.

Artesian wells shall be designed and constructed so that water will not be lost into strata overlying or underlying water bearing stratum. To this end, the casing shall be of first quality and shall not be perforated so as to allow flow between water bearing zones. It shall be sealed into the confining stratum by cement or other approved methods. All flowing wells shall be capped and provided with valves to regulate the flow to the amount lawfully appropriated and to prevent waste.

1962 Rules Were Updated

Specifically Addressed Well
Construction:

- Installation
 - Maintenance
 - Abandonment
 - Setbacks
-
- Figures & Drawings Added
 - Still No Start Card or Fee.



2014 WELL CONSTRUCTION AND INSPECTION INFORMATION

| Start Cards Received | | | |
|----------------------|------|--------------|-----------|
| Water Supply | 2887 | 11% increase | from 2013 |
| Monitoring | 1126 | 18% decrease | from 2013 |
| Total: | 4013 | | |

| Start Cards Received - "New" | | | |
|------------------------------|------|--------------|-----------|
| Water Supply | 2162 | 10% increase | from 2013 |
| Monitoring | 475 | 8% increase | from 2013 |
| Total: | 2637 | | |

| Well Reports Received | |
|-----------------------|------|
| Water Supply | 2894 |
| Monitoring | 1167 |
| Total: | 4061 |

| Well Reports - Type of Work | |
|-----------------------------|------|
| New | 2587 |
| Deepening | 156 |
| Conversion | 2 |
| Abandonment | 889 |
| Repair/Alteration | 210 |
| Multiple Type | 79 |
| Other Type | 138 |
| Total: | 4061 |

| Geotechnical Hole Reports Received | |
|------------------------------------|------|
| Geotechnical | 6322 |

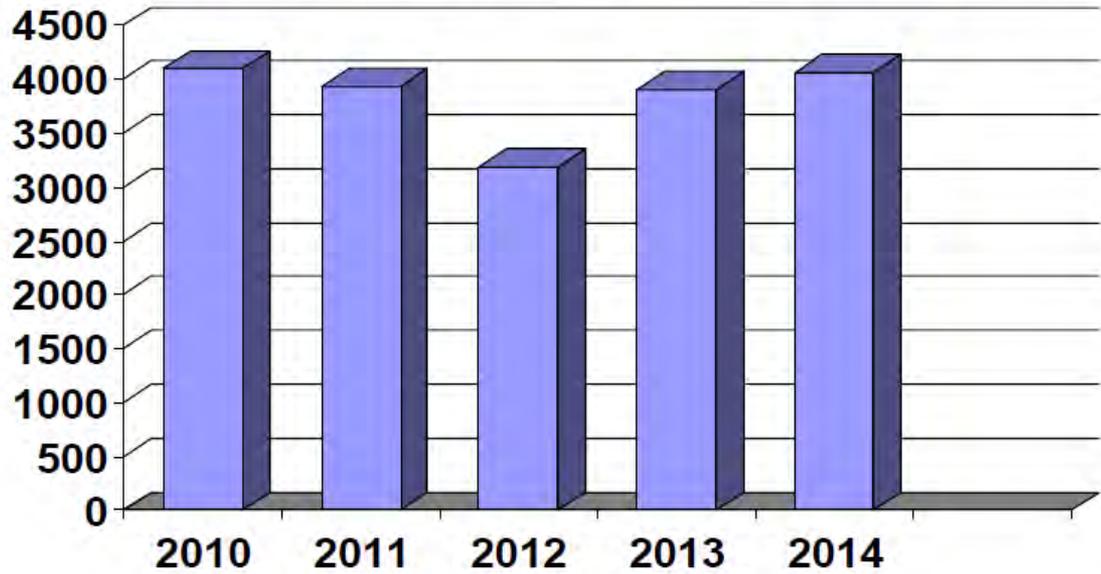
| Well Reports Received by Use | | | |
|------------------------------|------|---------------|-----|
| Domestic | 2244 | Industrial | 19 |
| Monitoring | 1167 | Injection | 5 |
| Irrigation | 222 | Thermal | 0 |
| Community | 25 | Livestock | 116 |
| | | Multiple Uses | 82 |
| | | Dewatering | 100 |
| | | Other Uses | 81 |

| Well Reports Received - by County | | | |
|-----------------------------------|-----|------------|-----|
| Baker | 56 | Harney | 116 |
| Benton | 115 | Hood | 15 |
| Clackamas | 346 | Jackson | 148 |
| Clatsop | 29 | Jefferson | 28 |
| Columbia | 86 | Josephine | 167 |
| Coos | 87 | Klamath | 149 |
| Crook | 74 | Lake | 77 |
| Curry | 36 | Lane | 396 |
| Deschutes | 251 | Lincoln | 30 |
| Douglas | 112 | Linn | 237 |
| Gilliam | 5 | Malheur | 81 |
| Grant | 20 | Marion | 223 |
| | | Morrow | 29 |
| | | Multnomah | 448 |
| | | Polk | 63 |
| | | Sherman | 3 |
| | | Tillamook | 20 |
| | | Umatilla | 109 |
| | | Union | 40 |
| | | Wallowa | 38 |
| | | Wasco | 61 |
| | | Washington | 225 |
| | | Wheeler | 2 |
| | | Yamhill | 139 |

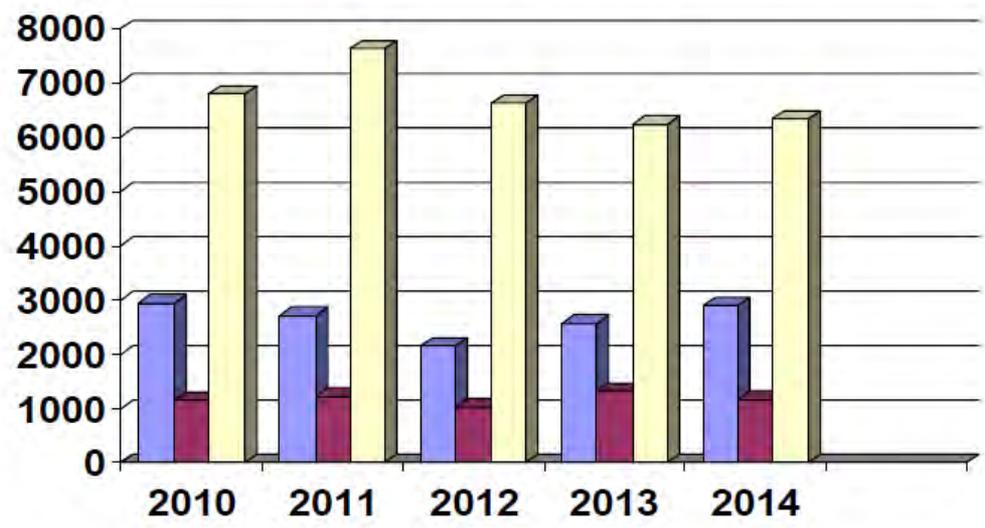
| Well Inspections | | | |
|---|------|-----|--|
| Number of Inspections (All Visits) | 1225 | | |
| Wells Inspected (First Visit) | 1114 | | |
| "New" Wells Inspected (First Visit) | 947 | | |
| Water Supply Wells | 865 | 40% | |
| Monitoring Wells | 82 | 17% | |
| % of "New" Wells Inspected (Combined) | 36% | | |
| "New" Wells With Deficiencies (1st Visit) | 127 | 5% | |

| Inspections (All Visits) | |
|--------------------------|-----|
| Eastern | 327 |
| North Central | 100 |
| Northwest | 480 |
| South Central | 6 |
| Southwest | 312 |

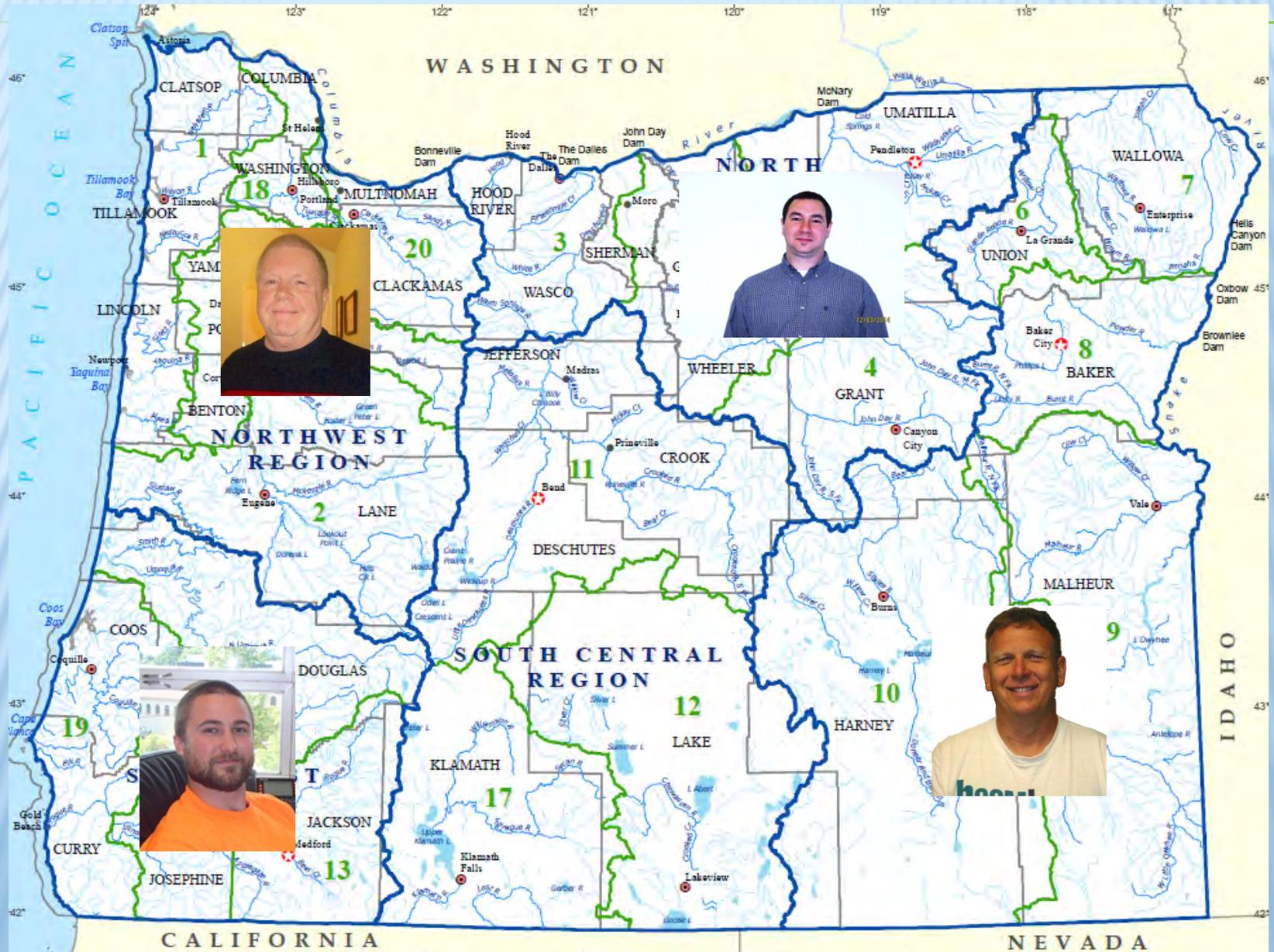
■ Total Well Reports Received (M & W)



■ All Water ■ All Monitor ■ All Geotechnical



How Do We Verify Construction



WHAT PERCENTAGE GET INSPECTED

- ❖ At least 25% of new wells inspected
- ❖ Inspectors review logs for wells inspected
- ❖ Priorities include:
 - New wells
 - Deepening's
 - Dug wells
 - Complaints



WELL INSPECTION FORM

ATTACH START CARD

Start Card Number on Well _____
Well ID Number on Well _____
County Log ID _____

Inspection Date _____ Previous Inspection Yes No Date _____
Inspected By _____ Special Standards Yes No
Witness _____

Well: Owner _____
Street Address of Well _____
Driller's Legal Description T _____ N/S R _____ E/W Section _____ 1/4 _____ 1/4
Inspection Legal Description T _____ N/S R _____ E/W Section _____ 1/4 _____ 1/4

GPS Yes No Accuracy _____ ft
Latitude _____ Longitude _____
Driller's Name _____ License Nbr _____ Date Started _____ Completed _____

Comments:

Inspection
Drill Machine on Site Yes No Driller Present Yes No
Checked Rough Log Yes No Checked Supply Truck Yes No
Monitoring wells:
Well Completion Above Ground Below Ground
Protection Posts Yes No Well Locked Yes No
Consultant on Site Yes No Water in Vault Yes No
Seal: Material _____ Samples Taken Yes No
Probed _____ ft Augered _____ ft Drilled _____ ft

Comments:

Casing: Diameter _____ Casing above Land Surface _____ Borehole Diameter _____
Sanitary Well Cap Yes No Dedicated Measuring Tube Yes No
Type of Cap _____ Access Port Yes No

Septic: Drain Field Location Obtained from Landowner Yes No Septic Map obtained from County Yes No
Tank Located Yes No Distance to Well _____ ft
Drain Field Located Yes No Distance to Well _____ ft

Measuring: Measuring Point (MP) is: _____ ft above below the land surface datum (LSD)
Water Level Measurement **Sounded Well Depth** **Sounded Open Annulus**
Tape Reading _____ ft Tape Reading _____ ft Annulus Depth _____ ft
MP (+/-) _____ ft MP (+/-) _____ ft Ft Below LSD _____ ft
Depth to Water _____ ft Depth of Well _____ ft

Cascading Water Yes No Deficiencies Yes No
Photo's taken Yes No Measurement Status _____

Comments:



03/09/2015



STATE OF OREGON-DAS

USE ONLY

Parker



05/05/2011 10:41

503-630-3974
ESTACADA 4017
MADERA PIPE & WELL DRILLING

Garmin

ZOOM
MOB IN OUT
NAV PAGE
QUIT MENU
ENTER

GPSmap 76S MARK

SPEED 0.0' GPS ELEVATION ACCURACY 257.4' 25.6'
3D GPS Location

05-DEC-12 11:44:32
N 45.26057°
W 122.63139°

GARMIN





03/09/2015



03/09/2015

Licensing Requirements

- (1) Be at least 18 years old
- (2) Pass a written examination
- (3) At least one year experience during past 3 years:
 - Including operation of well drilling machinery
 - On a minimum of 15 water supply wells
- (4) Any other evidence the Director may deem suitable
- (5) A license held in another state shall not substitute for required evidence of experience
- (6) Pay a license fee

OWRD Setbacks

- (a) W[w]ithin 50 feet of any septic tank; or
- (b) Within 100 feet of a septic drainline or sewage disposal structure or facility; or
- (c) Within 50 feet of a closed sewage or storm drainage system (except those in or underneath a building); or
- (d) Within 50 feet of a confined animal feeding or holding area; or
- (e) Within 50 feet of any animal waste holding area such as a pond or lagoon; or
- (f) Within 100 feet of any sewage sludge disposal area; or
- (g) Within 5 feet from a permanent structure or the roof, eaves or overhangs of a permanent structure. This includes decks or other additions to the structure that may hinder the ability of a drilling machine to get over the well. This does not include pump houses or other outbuildings that are easily moved; or
- (h) Within 500 feet of a hazardous waste storage, disposal or treatment facility[unit] without written permission of the Director.

OWRD Setbacks

(2) A new water supply well may be constructed at the site of an abandoned septic tank or drain field one year after the septic tank or drain field is taken out of use. The abandoned septic tank shall be pumped by a DEQ licensed sewage disposal business to remove all contents. Following pumping, the tank shall be filled with reject sand, bar run gravel or other material approved by the on site sub-surface sewage permitting agent. The delivery line between the building and the tank shall be permanently capped or filled with cement grout. A water supply well shall not be constructed through an abandoned septic tank or septic drain line. The new water supply well shall be located to meet other setbacks as directed in section (1) of this rule.

(3) Rain water gutter downspouts and drains are exempt from the setback requirements.

(4) The constructor should consider whether greater setback distances are required for the protection of the ground water depending on the topography and local geology.

(5) Additional setback standards may apply to wells used for public water systems. See OAR 333-061-0050(2) or contact the Oregon Health Authority for more information.

Requirements to Drill a Well

- (1) Start Card - Prior to the start of construction
- (2) Well Report within 30 days of completion
 - Maps now required for all exempt use wells
 - Optional maps can now be easily created for all wells by the well constructor
- (3) Landowner drilled wells must meet all requirements and must have LOPB

STATE OF OREGON
WELL LOCATION MAP

Oregon Water Resources Department

725 Summer St NE, Salem OR 97301
(503)986-0900



This map is supplemental to the WATER SUPPLY WELL REPORT

LOCATION OF WELL

Latitude: 45.43645289 Datum: WGS84

Longitude: -122.22771116

Township/Range/Section/Quarter-Quarter Section:

WM 1S 5E 32 SWNW

Address of Well:

11220 SE BULL RUN RD

Well Label: L123

Printed: October 21, 2014

DISCLAIMER: This map is intended to represent the approximate location of the exempt use well provided by the land owner. It is not intended to be construed as survey accurate in any manner.

Provided by well constructor



Common Questions

1. Difference between exempt wells and community wells?
2. How are winter recheck wells classified?
 - What are requirements?
3. When does WRD require abandonment or repair?
4. What are some common problems that we see?

Winter Recheck



Fast Food Drive-Thru







School well is contaminated with heating oil.



50 Feet





11/14/2012 10:37

Well in parking lot
at rural store.





Alteration of City Well

Well is inside
bldg. Effluent
on ground.



Rat Poison



Chemicals
and open
well.





Flooding







Well at store. Water ponds around well.

Flowing artesian.
No pressure
gauge/no label.





Gas Station Facility

Flowing Artesian



Questions?

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