

Groundwater Review Summary Form

Application # G- 18398

GW Reviewer Thomas Date Review Completed: 12-22-16

Summary of GW availability and Injury Review:

Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date December 22, 2016
 FROM: Groundwater Section Michael Thoma
Reviewer's Name
 SUBJECT: Application G- 18398 Supersedes review of _____
Date of Review(s)

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) *The Department shall presume that a proposed groundwater use will ensure the preservation of the public welfare, safety and health as described in ORS 537.525. Department staff review groundwater applications under OAR 690-310-140 to determine whether the presumption is established. OAR 690-310-140 allows the proposed use be modified or conditioned to meet the presumption criteria. This review is based upon available information and agency policies in place at the time of evaluation.*

A. GENERAL INFORMATION: Applicant's Name: Java Properties County: Lane

A1. Applicant(s) seek(s) 0.22 cfs from 1 well(s) in the Willamette Basin,
Coast Fork Willamette subbasin

A2. Proposed use Nursery (8.77 ac) Seasonality: Year-round

A3. Well and aquifer data (**attach and number logs for existing wells; mark proposed wells as such under logid**):

| Well | Logid | Applicant's Well # | Proposed Aquifer* | Proposed Rate(cfs) | Location (T/R-S QQ-Q) | Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36 |
|------|------------|--------------------|-------------------|--------------------|-----------------------|--|
| 1 | LANE 20037 | 1 | Bedrock | 0.22 | 19S/02W-8 SWSW | 102 ft N, 664 ft E of NE cor DLC 54 |
| 2 | | | | | | |

* Alluvium, CRB, Bedrock

| Well | Well Elev ft msl | First Water ft bls | SWL ft bls | SWL Date | Well Depth (ft) | Seal Interval (ft) | Casing Intervals (ft) | Liner Intervals (ft) | Perforations Or Screens (ft) | Well Yield (gpm) | Draw Down (ft) | Test Type |
|------|------------------|--------------------|------------|----------|-----------------|--------------------|-----------------------|----------------------|------------------------------|------------------|----------------|-----------|
| 1 | 560 | 58 | 18 | 7/10/78 | 70* | 0-25 | +1-27* | - | - | 50 | | A |

Use data from application for proposed wells.

A4. **Comments:** *The application includes a letter from the former owner of the property and states that the well log for LANE 20037 does not correctly reflect actual well construction. Specifically the letter states that the well depth and casing diameter are different. See Section D

A5. **Provisions of the** Willamette (OAR 690-502) Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water **are, or** **are not,** activated by this application. (Not all basin rules contain such provisions.)
 Comments: _____

A6. **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: _____

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that groundwater* for the proposed use:

- a. is over appropriated, is not over appropriated, or cannot be determined to be over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;
- b. will not or will likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;
- c. will not or will likely to be available within the capacity of the groundwater resource; or
- d. will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource:
 - i. The permit should contain condition #(s) Medium Water-use Reporting;
 - ii. The permit should be conditioned as indicated in item 2 below.
 - iii. The permit should contain special condition(s) as indicated in item 3 below;

- B2. a. **Condition** to allow groundwater production from no deeper than _____ ft. below land surface;
- b. **Condition** to allow groundwater production from no shallower than _____ ft. below land surface;
- c. **Condition** to allow groundwater production only from the _____ groundwater reservoir between approximately _____ ft. and _____ ft. below land surface;
- d. **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

Describe injury –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): _____

B3. **Groundwater availability remarks:** There is an OWRD State Observation Well (LANE 20028) located < ¼ mile from the proposed POA that shows stable long-term water levels over the past several decades – indicating the groundwater has not been over-appropriated in this area.

There are four (4) permitted groundwater POAs within ½ mile of the proposed POA (three are groundwater claims). One of these claims is for 0.35 cfs while the other three are for < 0.05 cfs (22 gpm). Interference is difficult to predict in fractured aquifers so injury cannot be conclusively established. Standard interference conditions should be applied to any permit resulting from this review.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

| Well | Aquifer or Proposed Aquifer | Confined | Unconfined |
|------|--|-------------------------------------|--------------------------|
| 1 | Volcaniclastic Bedrock of Western Cascades | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | | <input type="checkbox"/> | <input type="checkbox"/> |

Basis for aquifer confinement evaluation: Well logs for the surrounding area and of similar depths as the applicant's proposed wells typically report SWLs above First Water indicating at least partially-confined aquifer conditions.

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

| Well | SW # | Surface Water Name | GW Elev ft msl | SW Elev ft msl | Distance (ft) | Hydraulically Connected? | | | Potential for Subst. Interfer. Assumed? | |
|------|------|--------------------|----------------|----------------|---------------|-------------------------------------|--------------------------|--------------------------|---|-------------------------------------|
| | | | | | | YES | NO | ASSUMED | YES | NO |
| 1 | 1 | Bear Creek | 540 | 540-600 | 2070 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Basis for aquifer hydraulic connection evaluation: GW elevations are estimated to be similar to SW elevations suggesting groundwater is flowing towards and discharging to surface water

Water Availability Basin the well(s) are located within: Coast Fk Willamette R > Willamette R – At Mouth (ID# 532)

C3a. **690-09-040 (4):** Evaluation of stream impacts for each well that has been determined or assumed to be hydraulically connected and less than 1 mile from a surface water source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% natural flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked box indicates the well is assumed to have the potential to cause PSI.

| Well | SW # | Well < ¼ mile? | Qw > 5 cfs? | Instream Water Right ID | Instream Water Right Q (cfs) | Qw > 1% ISWR? | 80% Natural Flow (cfs) | Qw > 1% of 80% Natural Flow? | Interference @ 30 days (%) | Potential for Subst. Interfer. Assumed? |
|------|------|--------------------------|--------------------------|-------------------------|------------------------------|--------------------------|------------------------|------------------------------|----------------------------|---|
| 1 | 1 | <input type="checkbox"/> | <input type="checkbox"/> | NA | - | <input type="checkbox"/> | 65.6 | <input type="checkbox"/> | << 25% | <input type="checkbox"/> |
| | | <input type="checkbox"/> | <input type="checkbox"/> | | | <input type="checkbox"/> | | <input type="checkbox"/> | | <input type="checkbox"/> |
| | | <input type="checkbox"/> | <input type="checkbox"/> | | | <input type="checkbox"/> | | <input type="checkbox"/> | | <input type="checkbox"/> |

Comments: Interference @ 30 d was estimated using the Hunt (1999) stream-depletion model and aquifer parameter values typical for fractured bedrock aquifers. The presence of low-conductivity streambed material and partially-confined nature of the aquifer (i.e., allowing for dewatering) reduces estimated impacts to surface water

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be hydraulically connected and less than 1 mile from a surface water source. Complete only if Q is distributed among wells. Otherwise same evaluation and limitations apply as in C3a above.

| SW # | Qw > 5 cfs? | Instream Water Right ID | Instream Water Right Q (cfs) | Qw > 1% ISWR? | 80% Natural Flow (cfs) | Qw > 1% of 80% Natural Flow? | Interference @ 30 days (%) | Potential for Subst. Interfer. Assumed? |
|------|--------------------------|-------------------------|------------------------------|--------------------------|------------------------|------------------------------|----------------------------|---|
| | <input type="checkbox"/> | | | <input type="checkbox"/> | | <input type="checkbox"/> | | <input type="checkbox"/> |

Comments:

C4a. **690-09-040 (5):** Estimated impacts on **hydraulically connected surface water sources greater than one mile** as a percentage of the proposed pumping rate. Limit evaluation to the effects that will occur up to one year after pumping begins. This table encompasses the considerations required by 09-040 (5)(a), (b), (c) and (d), which are not included on this form. Use additional sheets if calculated flows from more than one WAB are required.

| Non-Distributed Wells | | | | | | | | | | | | | |
|-----------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Well | SW# | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | % | % | % | % | % | % | % | % | % | % | % | % |
| Well Q as CFS | No surface water sources beyond 1 mile were evaluated | | | | | | | | | | | | |
| Interference CFS | | | | | | | | | | | | | |
| Distributed Wells | | | | | | | | | | | | | |
| Well | SW# | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | % | % | % | % | % | % | % | % | % | % | % | % |
| Well Q as CFS | | | | | | | | | | | | | |
| Interference CFS | | | | | | | | | | | | | |
| (A) = Total Interf. | | | | | | | | | | | | | |
| (B) = 80 % Nat. Q | | | | | | | | | | | | | |
| (C) = 1 % Nat. Q | | | | | | | | | | | | | |
| (D) = (A) > (C) | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| (E) = (A / B) x 100 | | % | % | % | % | % | % | % | % | % | % | % | % |

(A) = total interference as CFS; (B) = WAB calculated natural flow at 80% exceed. as CFS; (C) = 1% of calculated natural flow at 80% exceed. as CFS; (D) = highlight the checkmark for each month where (A) is greater than (C); (E) = total interference divided by 80% flow as percentage.

Basis for impact evaluation: _____

C4b. **690-09-040 (5) (b)** The potential to impair or detrimentally affect the public interest is to be determined by the Water Rights Section.

C5. **If properly conditioned**, the surface water source(s) can be adequately protected from interference, and/or groundwater use under this permit can be regulated if it is found to substantially interfere with surface water:
 i. The permit should contain condition #(s) _____;
 ii. The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** The applicant's proposed well would be producing from an aquifer that has been found to be hydraulically connected to surface water at a distance of < 1 mile. However, the reviewer is unable to find a preponderance of evidence that the proposed use will have the Potential for Substantial Interference (PSI) with surface water.

References Used:

Hunt, B. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19
 Oregon Department of Geology and Mineral Industries, *Geologic Map of Oregon*. <http://www.oregongeology.org/geologicmap/>
 OWRD Well Log Database – Accessed 12/22/2016.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 1 Logid: LANE 20037

D2. **THE WELL does not appear to meet current well construction standards based upon:**

- a. review of the well log;
- b. field inspection by _____;
- c. report of CWRE _____;
- d. other: (specify) Notes provided with application

D3. **THE WELL construction deficiency or other comment is described as follows:**

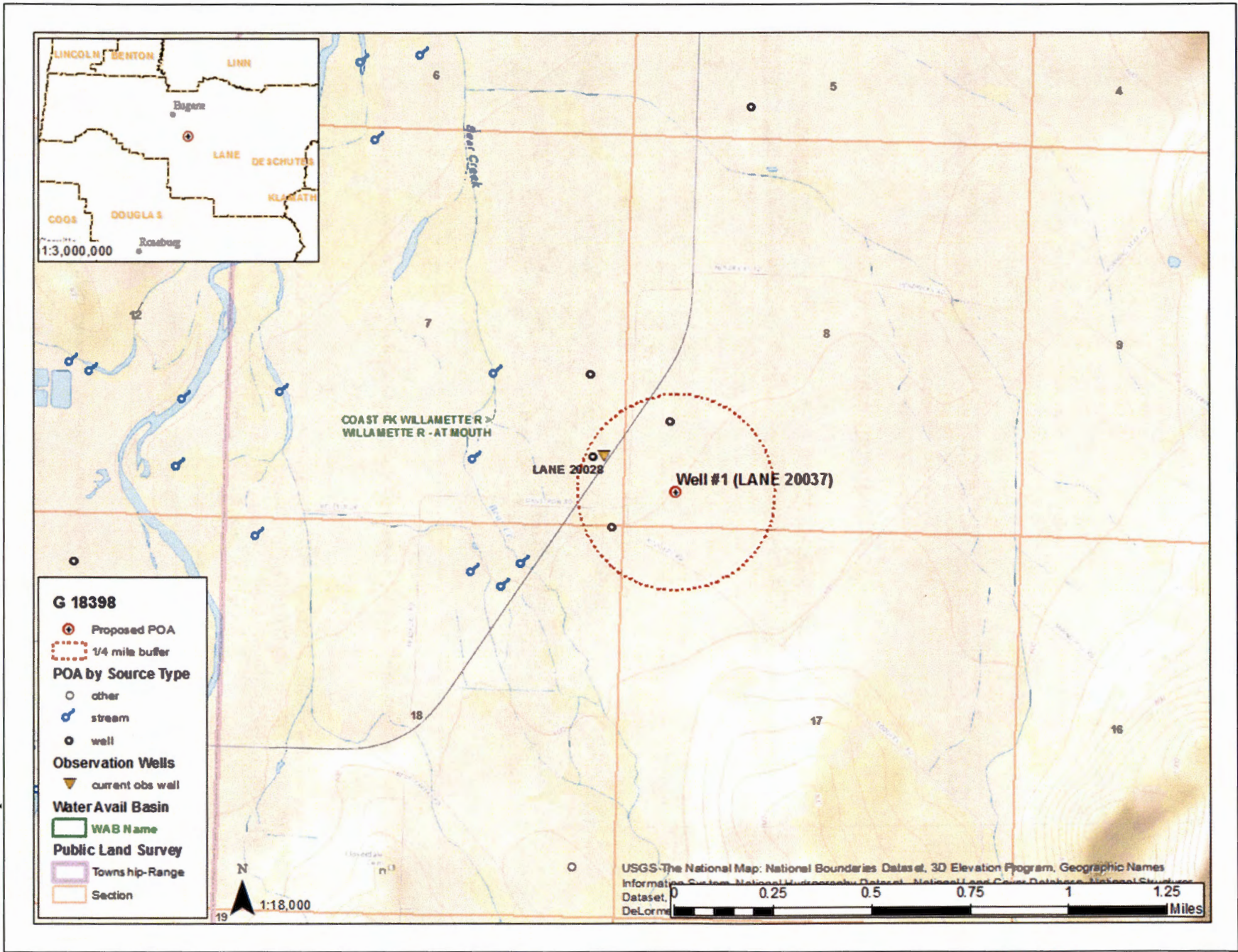
The application includes comments and a letter stating that the actual well construction is different than what the log reports; specifically casing size and total depth. OWRD Well Construction Staff should review the well log and well construction to ensure that proper standards have been followed. The mentioned discrepancies in well construction will not change the conclusion of this review

D4. **Route to the Well Construction and Compliance Section for a review of existing well construction.**

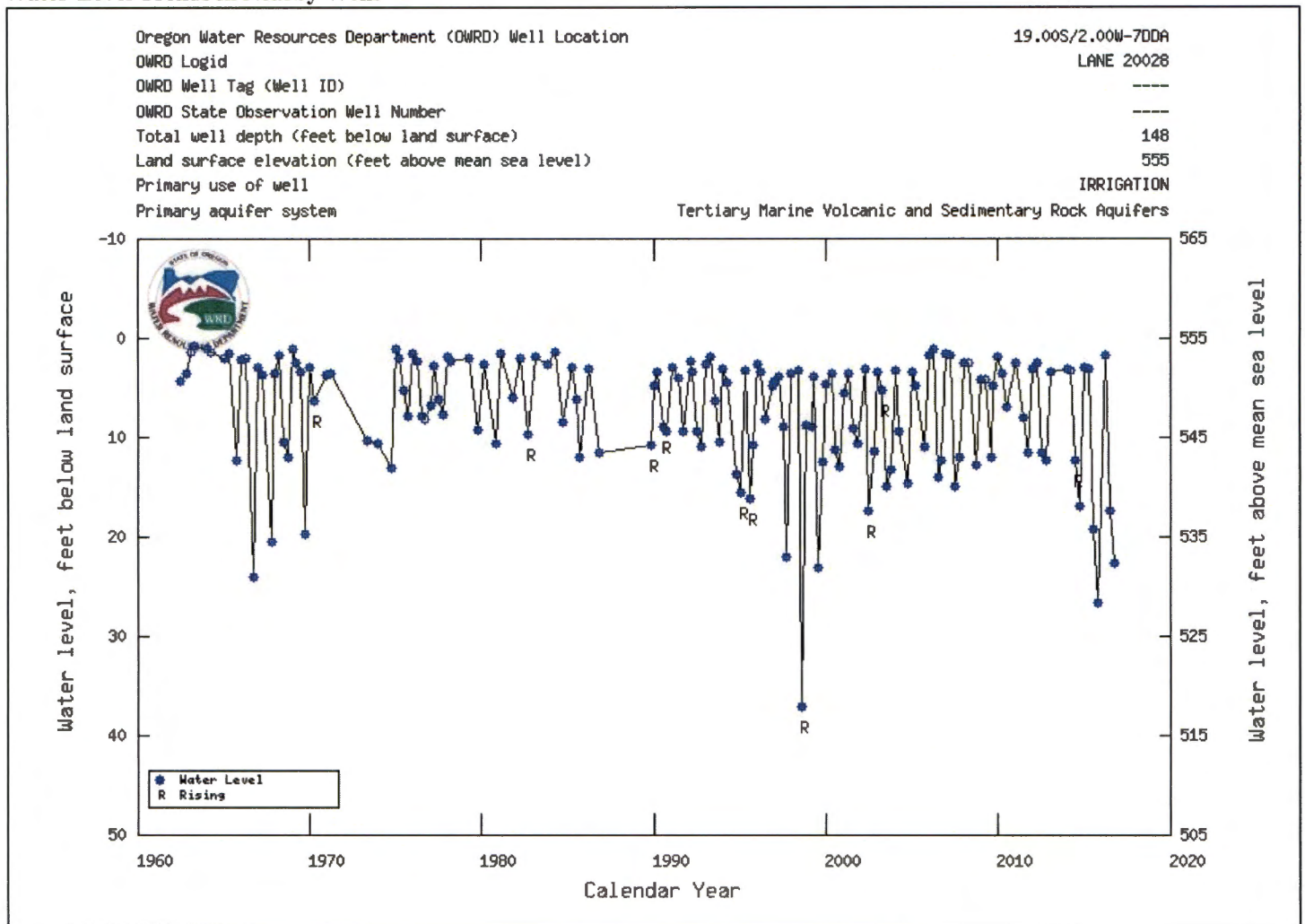
Water Availability Tables

| Water Availability Analysis Detailed Reports | | | | | | |
|---|---------------------|-------------------------------|---------------------------|----------------------------|---------------------------|---------------------|
| COAST FK WILLAMETTE R > WILLAMETTE R - AT MOUTH WILLAMETTE BASIN | | | | | | |
| Water Availability as of 12/22/2016 | | | | | | |
| Watershed ID #: 532 (Map) | | | | Exceedance Level: 80% ▾ | | |
| Date: 12/22/2016 | | | | Time: 8:56 AM | | |
| Water Availability Calculation | | Consumptive Uses and Storages | | Instream Flow Requirements | | Reservations |
| Water Rights | | | Watershed Characteristics | | | |
| Water Availability Calculation | | | | | | |
| Monthly Streamflow in Cubic Feet per Second | | | | | | |
| Annual Volume at 50% Exceedance in Acre-Feet | | | | | | |
| Month | Natural Stream Flow | Consumptive Uses and Storages | Expected Stream Flow | Reserved Stream Flow | Instream Flow Requirement | Net Water Available |
| JAN | 955.00 | 123.00 | 832.00 | 0.00 | 200.00 | 632.00 |
| FEB | 1,080.00 | 297.00 | 783.00 | 0.00 | 200.00 | 583.00 |
| MAR | 1,080.00 | 468.00 | 612.00 | 0.00 | 200.00 | 412.00 |
| APR | 928.00 | 370.00 | 558.00 | 0.00 | 40.00 | 518.00 |
| MAY | 531.00 | 236.00 | 295.00 | 0.00 | 40.00 | 255.00 |
| JUN | 216.00 | 28.60 | 187.00 | 0.00 | 40.00 | 147.00 |
| JUL | 108.00 | 37.30 | 70.70 | 0.00 | 40.00 | 30.70 |
| AUG | 70.50 | 33.10 | 37.40 | 0.00 | 40.00 | -2.57 |
| SEP | 65.60 | 24.70 | 40.90 | 0.00 | 40.00 | 0.86 |
| OCT | 86.40 | 8.13 | 78.30 | 0.00 | 40.00 | 38.30 |
| NOV | 268.00 | 93.70 | 174.00 | 0.00 | 200.00 | -25.70 |
| DEC | 761.00 | 9.47 | 752.00 | 0.00 | 200.00 | 552.00 |
| ANN | 754,000.00 | 104,000.00 | 651,000.00 | 0.00 | 77,000.00 | 574,000.00 |

Well Location Map



Water-Level Trends in Nearby Wells



SECTION 9: WITHIN A DISTRICT

Check here if the point of diversion or place of use are located within or served by an irrigation or other water district.

| | | |
|--------------------------|---------|-----|
| Irrigation District Name | Address | |
| City | State | Zip |

SECTION 10: REMARKS

Use this space to clarify any information you have provided in the application (*attach additional sheets if necessary*).

Well LANE 20037 was constructed differently than reflected in the well log (8 inch casing rather than 6; approx. 100 feet rather than 70). We can have a well driller provide additional information to verify how the well was constructed if needed by OWRD.

RECEIVED BY OWRD

OCT 11 2016

SALEM, OR