

# Groundwater Application Review Summary Form

Application # G- 18450

GW Reviewer M. Thoma Date Review Completed: 08-16-18

## 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.

dt 8/17/18

*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).*





# MEMO

**To:** Kristopher Byrd, Well Construction and Compliance Section Manager  
**From:** Joel Jeffery, Well Construction Program Coordinator  
**Subject:** Review of Water Right Application G-18450  
**Date:** August 21, 2018

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Mike Thoma reviewed the application. Please see Mike's Groundwater Review and the Well Log.

Applicant's Well #1 (LANE 301): Based on a review of the Well Report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The Water Supply Well Report reveals that this well was improperly abandoned. In order to meet minimum well construction standards, Applicant's Well #1 must be cleaned out to the natural bottom and completely filled with an appropriate sealing material.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 (LANE 301) unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicant's Well #1 into compliance with minimum well construction standards may not satisfy hydraulic connection issues.





**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) 7C (7-yr SWL); 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 50 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 a State Observation Well less than 1 mile from the proposed POAs that reports long-term, stable water level data implying that the groundwater in the area is not over-appropriated. However, stable water levels, when taken with the amount of groundwater development in the area, are indicative of an efficient hydraulic connection to surface water, which is addressed in Section C. Injury to existing water rights is unlikely given the low rate of appropriation and high transmissivity of the aquifer, but the conditions in Section B1(d) are recommended.

**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	Alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Alluvium	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** information from nearby well logs suggest that the aquifer in the area, at the proposed depth of the wells, is unconfined

**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	Unnamed Trib. to Willamette R.	345	345	2080*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Unnamed Trib. to Willamette R.	345	345	4010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Flat Creek	345	345	3000	<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:** incision of nearby streams is to the elevation of the groundwater level reported on the well log for Well #1 and other well logs from nearby wells; unconfined nature of aquifer

\* distance to SW#1 is below the point where the stream is mapped as perennial on the NHD coverage which corresponds to where the incision of the stream is approx. equal to the reported groundwater elevation, suggesting this is the nearest point of perennial hydraulic connection.

**Water Availability Basin the well(s) are located within:** Willamette R > Columbia R – AB Periwinkle Cr at Gage 14174 (WAB ID# 30200321)

**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*	NA	<input type="checkbox"/>	2540	<input type="checkbox"/>	< 0.01	<input type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	NA*	NA	<input type="checkbox"/>	2540	<input type="checkbox"/>	< 0.01	<input type="checkbox"/>
2	2	<input type="checkbox"/>	<input type="checkbox"/>	NA*	NA	<input type="checkbox"/>	2540	<input type="checkbox"/>	< 0.01	<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:** \*There is an instream water right on the Willamette River but it does not extend to the unnamed tributary; there is no instream water right on Flat Cr. Interference @ 30 days was estimated using the Hunt (1999) stream-depletion model and aquifer parameters appropriate for this type of material.

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?
	1	<input type="checkbox"/>	NA	NA	<input type="checkbox"/>	2540	<input type="checkbox"/>	<0.01	<input type="checkbox"/>
	2	<input type="checkbox"/>	NA	NA	<input type="checkbox"/>	2540	<input type="checkbox"/>	<0.01	<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: \_\_\_\_\_

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													
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 POAs would be producing from an aquifer that has been found to be hydraulically connected to surface water at a distance of less than 1 mile. However, this review is unable to find that the proposed use will have the Potential for Substantial Interference per OAR 690-009.



**References Used:**

Gannett, M. W. and R. R. Caldwell. 1998. *Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-A.

Herrera, N. B., Burns, E. R., and T. D. Conlon. 2014. *Simulation of Groundwater Flow and the Interaction of Groundwater and Surface Water in the Willamette Basin and Central Willamette Subbasin, Oregon*. USGS Scientific Investigations Report 2014-5136.

Hunt, B. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

O’Conner, J. E., A. Sarna-Wojcicki, K. C. Wozniak, D. J. Polette, and R. J. Fleck. *Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon*. USGS Professional Paper 1620

OWRD Well Log Database – Accessed 8/16/2018.

Woodward, D. G., M. W. Gannett, and J. J. Vaccaro. 1998. *Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington*. USGS Professional Paper 1424-B.

**D. WELL CONSTRUCTION, OAR 690-200**

D1. Well #: 1 Logid: LANE 301

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) \_\_\_\_\_

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

The well log does not report that any casing was installed

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

Water Availability Tables

# Water Availability Analysis Detailed Reports

WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174  
WILLAMETTE BASIN

Water Availability as of 8/16/2018

Watershed ID #: 30200321 (Map)  
Date: 8/16/2018

Exceedance Level: 80% ▾  
Time: 11:45 AM

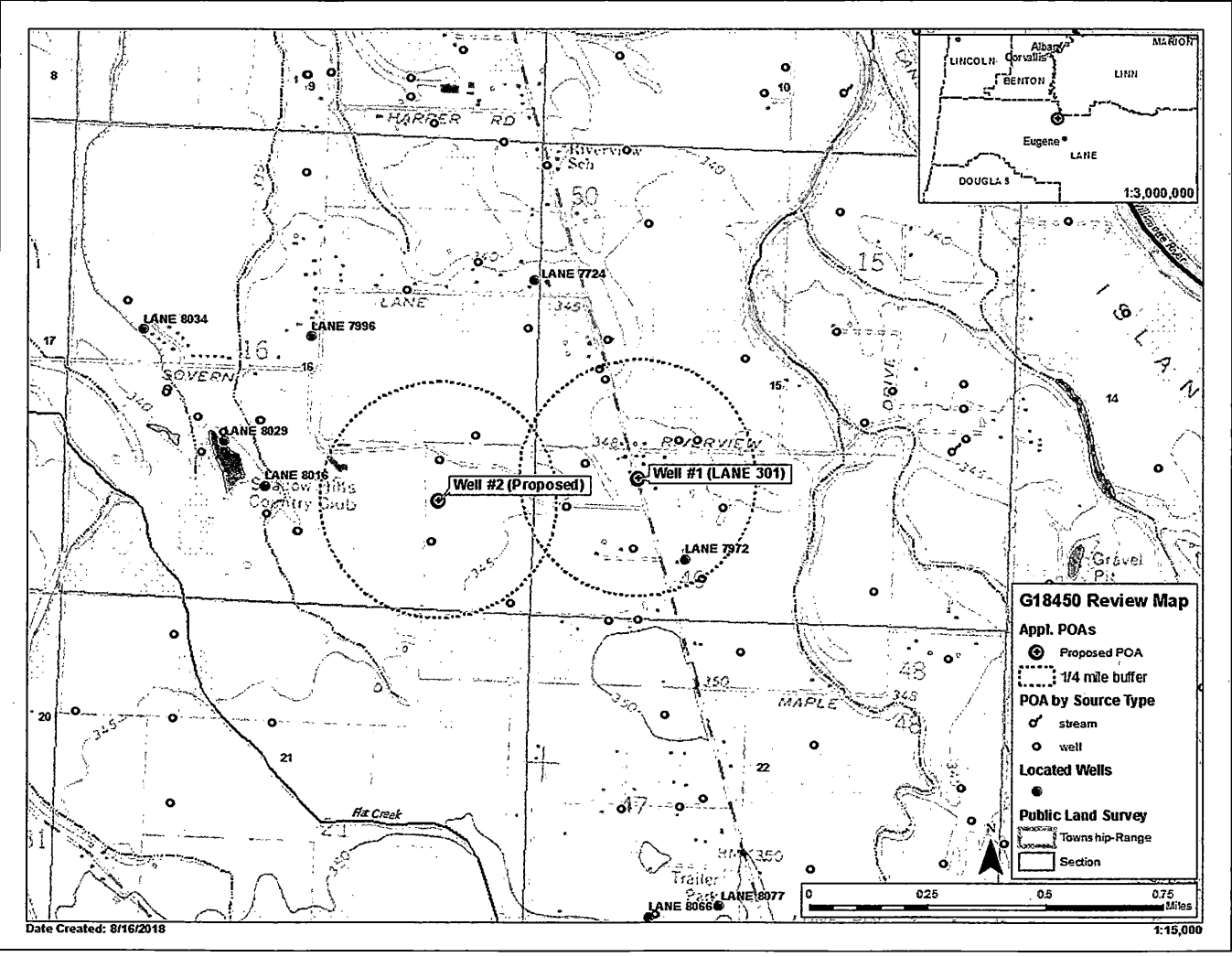
Water Availability Calculation	Consumptive Uses and Storages	Instream Flow Requirements	Reservations
Water Rights		Watershed Characteristics	

## 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	10,100.00	1,370.00	8,730.00	0.00	1,750.00	6,980.00
FEB	11,600.00	4,290.00	7,310.00	0.00	1,750.00	5,560.00
MAR	11,000.00	4,560.00	6,440.00	0.00	1,750.00	4,690.00
APR	9,760.00	4,260.00	5,500.00	0.00	1,750.00	3,750.00
MAY	8,430.00	2,560.00	5,870.00	0.00	1,750.00	4,120.00
JUN	5,360.00	856.00	4,500.00	0.00	1,750.00	2,750.00
JUL	3,270.00	662.00	2,610.00	0.00	1,750.00	858.00
AUG	2,560.00	601.00	1,960.00	0.00	1,750.00	209.00
SEP	2,540.00	517.00	2,020.00	0.00	1,750.00	273.00
OCT	2,860.00	270.00	2,590.00	0.00	1,750.00	840.00
NOV	4,170.00	355.00	3,820.00	0.00	1,750.00	2,070.00
DEC	8,150.00	380.00	7,770.00	0.00	1,750.00	6,020.00
ANN	7,460,000.00	1,240,000.00	6,230,000.00	0.00	1,270,000.00	4,960,000.00

Well Location Map



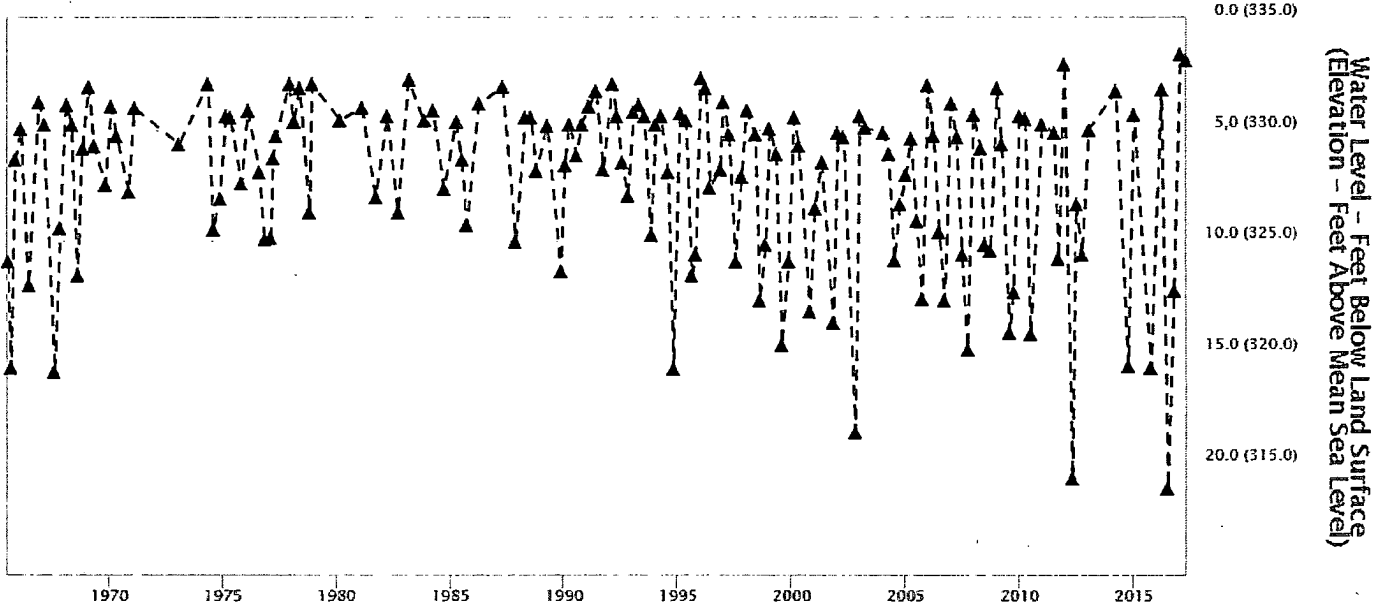
**Water-Level Trends in Nearby Wells**

<b>Well Location:</b> 16.00S/4.00W-16CAC	<b>Total Depth (ft):</b> 140 ft	<b>Water Level Count:</b> 153
<b>Log ID:</b> LANE 8029 Well Log	<b>Land Surface Elevation:</b> 335 ft	<b>Wtr Lvl Date Range:</b> 7/21/1965 - 4/06/2017
<b>Well Tag:</b> —	<b>Vertical Reference Datum:</b> NGVD 1929	<b>Wtr Lvl Min-Max:</b> 1.63 - 21.1 ft
<b>State Observation:</b> 468	<b>Primary Use of Well:</b> IRRIGATION	<b>Recorder Wtr Lvl Count:</b> 0
<b>USGS Site:</b> —	<b>Primary Aquifer System:</b> Quaternary-Late Tertiary sediment Aq	<b>Recorder Wtr Lvl Date Range:</b> —
		<b>Recorder Wtr Lvl Min-Max:</b> —

**Groundwater Levels for LANE 8029**

Zoom All

From Jul 21, 1965 To Apr 6, 2017



### Area Well-log Information Statistics

