PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date **December 7, 2009**

FROM: Ground Water/Hydrology Section **Karl Wozniak**
Reviewer's Name

SUBJECT: Application G- **17276** 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 ground water 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: **Lane Forest Products** County: **Lane**

A1. Applicant(s) seek(s) **0.668** cfs from **1** well(s) in the **Willamette** Basin, **Flat Creek** subbasin Quad Map: **Junction City**

A2. Proposed use: **Industrial** 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 69951**	**1**	**Alluvium**	**0.668**	**16S/4W-17 NE/SW**	**1925' N, 2675' W fr SE cor S 17**
2						
3						
4						
5						

* 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	**338**	**35**	**35**	**9/18/2009**	**196**	**0-19**	**-4-155**	**154-196**	**154-196**	**300**		**Air**

Use data from application for proposed wells.

A4. **Comments:** _____

A5. ☒ **Provisions of the Willamette** Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water ☐ **are**, *or* ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments: The well produces from a confined aquifer so the pertinent rules do not apply.

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

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

B1. **Based upon available data**, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7C, large 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 ground water production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow ground water production only from the _____ ground water 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 Ground Water 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. **Ground water availability remarks:** About 300 feet of alluvial sediments overly older bedrock in the vicinity of the proposed permit. The upper 70-80 feet are largely sand and gravel, Deeper sediments are mostly clay and silt with some interbedded sand beds. An unconfined aquifer (the Willamettte aquifer of the U.S. Geological Survey) occurs in the shallow sands and gravels and the water table occurs within about 10 feet of land surface. Confined water-bearing zones occur in the deeper sand beds. The subject well, LANE 69951, is open to a confined sand layer at depths of 154-184 feet. The well log describes sandy blue clay with gravel from 70-154 feet which corresponds to the regional Willamette confining unit of the U.S. Geological Survey.

The hydrograph for LANE 8029, a well located about 0.75 miles to the east, shows a stable, long-term water-level trend that is likely to be representative for the general area. This indicates that groundwater is likely available within the capacity of the resource. However, LANE 8029l produces from unconfined and confined water-bearing zones so the hydrograph may not be representative of the confined aquifer. The density of domestic wells and permitted wells is relatively low in the area so hydraulic interference from this new use is not expected to be excessive. Since we have no water-level data to characterize the behavior of the confined aquifer in this area, it would be prudent to condition the permit to require annual water-level and water-use measurements.

The well is just west of the DEQ Southern Willamette Groundwater Management Area which was established in response to widespread contamination of the shallow, unconfined aquifer in the southern Willamette Valley. To preclude cross-contamination between the unconfined and the confined aquifer system, production in the well should be restricted to the confined aquifer system. This condition is reflected in a proposed GW/SW condition in section C6.

C. GROUND WATER/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 (Willamette confining unit of the USGS)**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: U.S. Geological Survey maps and nearby well logs indicate the presence of a regional confining layer below depths of 70-80 feet in the surrounding area. The production zone in the well is a sand bed that occurs at depths of 154-184 feet.

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Flat Creek**	**330**	**330-345**	**2100**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Water table maps published by the U.S. Geological indicate that groundwater in the alluvial aquifer system flows toward and discharges into local streams. Flat Creek and its tributaries are shown as intermittent streams on U.S. Geological 7.5-minute topographic maps. This suggests that they are not hydraulically connected to the alluvial aquifer during the summer irrigation season. However, these streams are likely to be connected to the alluvial aquifer in the winter time when the water table is within a few feet of land surface. Since the proposed use is year round, the aquifer will likely be hydraulically connected to nearby stream reaches during a portion of the year when the well is in use.

Water Availability Basin the well(s) are located within: WILLAMETTE R > COLUMBIA R - AB PERIWINKLE CR AT GAGE 14174

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**	☐	☐			☐	**2540**	☐	**<<25**	☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: The confining layer that occurs between depths of 70-154 should reduce the efficiency of the hydraulic connection between the water-bearing zone (154-184 feet) and nearby streams. Therefore, as long as the well does not produce from the shallow, unconfined aquifer, pumping impacts to nearby streams are likely to be much less than 25% of the well production after 30 days of pumping.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
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 ground water 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**

Special Condition: Groundwater production shall be limited to confined water-bearing zones below depths of about 100 feet.

This condition is needed to preclude the potential for substantial interference. It will also preclude cross-contamination between the unconfined and the confined aquifer systems.

References Used:

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32p.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82p.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #**: _____ **Logid:** _____

D2. **THE WELL does not 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**:
- a. ☐ constitutes a health threat under Division 200 rules;
- b. ☐ commingles water from more than one ground water reservoir;
- c. ☐ permits the loss of artesian head;
- d. ☐ permits the de-watering of one or more ground water reservoirs;
- e. ☐ other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

D5. **THE WELL**
- a. ☐ **was**, *or* ☐ **was not** constructed according to the standards in effect at the time of original construction or most recent modification.
- b. ☐ I don't know if it met standards at the time of construction.

D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

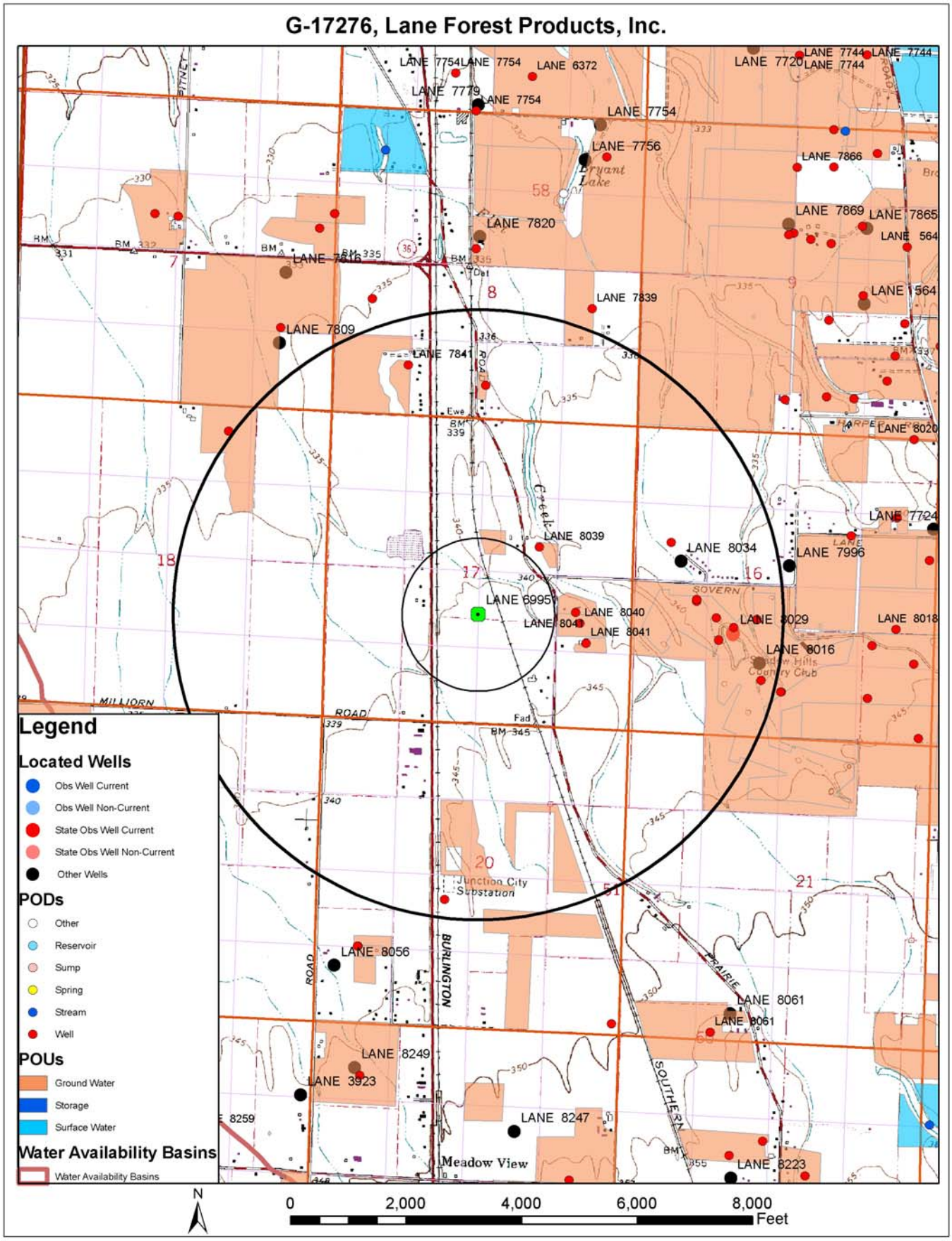
THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. ☐ Well construction deficiency has been corrected by the following actions: _____

_____ _____, 200____.
(Enforcement Section Signature)

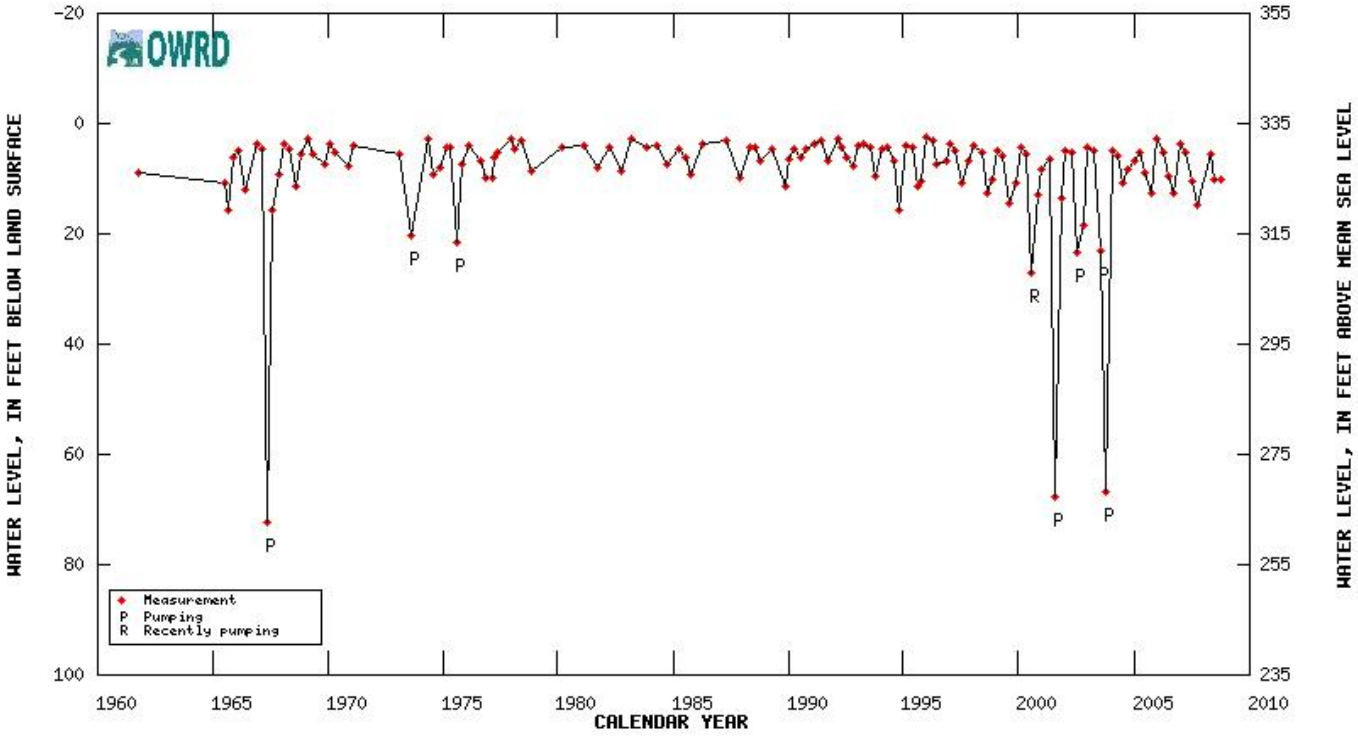
D8. ☐ **Route to Water Rights Section (attach well reconstruction logs to this page).**

Location Map



Groundwater-Level Trends

Well Location	16.00S4.00W16CAC
Oregon Water Resources Department Well Log ID	LANE 8029
Oregon Water Resources Department State Observation Well Number	468
Well depth, in feet below land surface	140
Land surface elevation, in feet above mean sea level	335
Primary use of well	IRRIGATION



Water Availability Tables

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

WILLAMETTE BASIN

Water Availability as of 12/7/2009

Watershed ID #: 30200321

Exceedance Level: 80%

Date: 12/7/2009

Time: 10:43 AM

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

Water Availability Calculation

Monthly Streamflows in Cubic Feet per Second
Storage 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	1,330.00	8,770.00	0.00	1,750.00	7,020.00
FEB	11,600.00	4,250.00	7,350.00	0.00	1,750.00	5,600.00
MAR	11,000.00	4,520.00	6,480.00	0.00	1,750.00	4,730.00
APR	9,760.00	4,220.00	5,540.00	0.00	1,750.00	3,790.00
MAY	8,430.00	2,500.00	5,930.00	0.00	1,750.00	4,180.00
JUN	5,360.00	806.00	4,550.00	0.00	1,750.00	2,800.00
JUL	3,270.00	608.00	2,660.00	0.00	1,750.00	912.00
AUG	2,560.00	555.00	2,000.00	0.00	1,750.00	255.00
SEP	2,540.00	476.00	2,060.00	0.00	1,750.00	314.00
OCT	2,860.00	235.00	2,630.00	0.00	1,750.00	875.00
NOV	4,170.00	320.00	3,850.00	0.00	1,750.00	2,100.00
DEC	8,150.00	342.00	7,810.00	0.00	1,750.00	6,060.00
STO	7,460,000.00	1,210,000.00	6,260,000.00	0.00	1,270,000.00	4,990,000.00