

## Groundwater Review Summary Form

Application # G- 18400

GW Reviewer Thoma Date Review Completed: 12-21-16

### 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 J Thoma  
Reviewer's Name  
 SUBJECT: Application G- 18400 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: Paul Eichwald County: Josephine

A1. Applicant(s) seek(s) 0.01 cfs from 1 well(s) in the Rogue Basin,  
Applegate subbasin

A2. Proposed use Nursery (1.5 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	JOSE 13480	1	Bedrock	0.01	37S/05W-28 NWSE	735'S, 2361'W of E ¼ cor S28
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	1220	31	30	8/29/89	250	0-25	+2-27	+2-250	210-250	6		A

Use data from application for proposed wells.

A4. **Comments:** \_\_\_\_\_

A5.  **Provisions of the Rogue (OAR 690-515) 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) 7C (7-yr SWL); 7J (Scenic); 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 are no OWRD Observation Well data in the area of the proposed POA so groundwater over-appropriation cannot be determined. There are also no permitted groundwater POAs within several miles of the proposed POA so injury to existing permitted groundwater users is unlikely. However, standard interference conditions should be applied to any permit dependent on 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	Bedrock of Greys Cr Pluton	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** The well log for the applicant's proposed POA reports SWL at similar depth to *First Water*, indicating unconfined aquifer conditions. Unconfined conditions are not unexpected in shallow, near-surface fractured aquifers.

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	Johnston Cr	1190	1100-1200	2600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Applegate River	1190	1070-1100	2830	<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 above SW elevations suggesting groundwater is flowing towards and discharging to surface water; the Applegate River is likely the regional groundwater discharge source

**Water Availability Basin the well(s) are located within:** Applegate R > Rogue R – At Mouth (ID# 249)

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"/>	45.8	<input type="checkbox"/>	**	<input type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	MF249	120	<input type="checkbox"/>	45.8	<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 could not be estimated because the terrain (high-relief slopes) and geology (fractured bedrock aquifer) do not meet model assumptions of the widely accepted techniques for determining stream depletion (e.g., Hunt 1999, 2003).

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	<b>No surface water sources beyond 1 mile were evaluated</b>												
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

Hunt, B. 2003. *Unsteady Stream Depletion when Pumping from a Semiconfined Aquifer*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

Wiley, T. J. 2006. *Preliminary Geologic Map of the Sexton Mountain, Murphy, Applegate, and Mount Isabelle 7.5' Quadrangles, Jackson and Josephine Counties, Oregon*. Oregon Dept. of Geology and Mineral Industries. OFR O-06-11

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

D1. Well #: \_\_\_\_\_ Logid: \_\_\_\_\_

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:** \_\_\_\_\_

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

**Water Availability Tables**

<h2 style="margin: 0;">Water Availability Analysis</h2> <h3 style="margin: 0;">Detailed Reports</h3>																																																																																																									
APPLGATE R > ROGUE R - AT MOUTH ROGUE BASIN																																																																																																									
Water Availability as of 12/22/2016																																																																																																									
Watershed ID #: 249 ( <a href="#">Map</a> )				Exceedance Level: 80% ▾																																																																																																					
Date: 12/22/2016				Time: 12:34 PM																																																																																																					
Water Availability Calculation	Consumptive Uses and Storages	Instream Flow Requirements	Reservations																																																																																																						
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<h3 style="margin: 0;">Water Availability Calculation</h3> <p style="margin: 0;">Monthly Streamflow in Cubic Feet per Second                      Annual Volume at 50% Exceedance in Acre-Feet</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: #4F81BD; color: white;"> <th>Month</th> <th>Natural Stream Flow</th> <th>Consumptive Uses and Storages</th> <th>Expected Stream Flow</th> <th>Reserved Stream Flow</th> <th>Instream Flow Requirement</th> <th>Net Water Available</th> </tr> </thead> <tbody> <tr><td>JAN</td><td>373.00</td><td>5.60</td><td>367.00</td><td>0.00</td><td>300.00</td><td>67.40</td></tr> <tr><td>FEB</td><td>674.00</td><td>439.00</td><td>235.00</td><td>0.00</td><td>300.00</td><td>-64.80</td></tr> <tr><td>MAR</td><td>792.00</td><td>438.00</td><td>354.00</td><td>0.00</td><td>340.00</td><td>14.00</td></tr> <tr><td>APR</td><td>662.00</td><td>460.00</td><td>202.00</td><td>0.00</td><td>340.00</td><td>-138.00</td></tr> <tr><td>MAY</td><td>591.00</td><td>42.20</td><td>549.00</td><td>0.00</td><td>360.00</td><td>189.00</td></tr> <tr><td>JUN</td><td>222.00</td><td>57.30</td><td>165.00</td><td>0.00</td><td>360.00</td><td>-195.00</td></tr> <tr><td>JUL</td><td>91.80</td><td>75.90</td><td>15.90</td><td>0.00</td><td>120.00</td><td>-104.00</td></tr> <tr><td>AUG</td><td>59.00</td><td>63.00</td><td>-4.00</td><td>0.00</td><td>120.00</td><td>-124.00</td></tr> <tr><td>SEP</td><td>45.80</td><td>42.10</td><td>3.66</td><td>0.00</td><td>120.00</td><td>-116.00</td></tr> <tr><td>OCT</td><td>56.00</td><td>15.50</td><td>40.50</td><td>0.00</td><td>360.00</td><td>-319.00</td></tr> <tr><td>NOV</td><td>146.00</td><td>3.57</td><td>142.00</td><td>0.00</td><td>360.00</td><td>-218.00</td></tr> <tr><td>DEC</td><td>244.00</td><td>4.64</td><td>239.00</td><td>0.00</td><td>300.00</td><td>-60.60</td></tr> <tr><td>ANN</td><td>421,000.00</td><td>97,700.00</td><td>323,000.00</td><td>0.00</td><td>204,000.00</td><td>160,000.00</td></tr> </tbody> </table>								Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available	JAN	373.00	5.60	367.00	0.00	300.00	67.40	FEB	674.00	439.00	235.00	0.00	300.00	-64.80	MAR	792.00	438.00	354.00	0.00	340.00	14.00	APR	662.00	460.00	202.00	0.00	340.00	-138.00	MAY	591.00	42.20	549.00	0.00	360.00	189.00	JUN	222.00	57.30	165.00	0.00	360.00	-195.00	JUL	91.80	75.90	15.90	0.00	120.00	-104.00	AUG	59.00	63.00	-4.00	0.00	120.00	-124.00	SEP	45.80	42.10	3.66	0.00	120.00	-116.00	OCT	56.00	15.50	40.50	0.00	360.00	-319.00	NOV	146.00	3.57	142.00	0.00	360.00	-218.00	DEC	244.00	4.64	239.00	0.00	300.00	-60.60	ANN	421,000.00	97,700.00	323,000.00	0.00	204,000.00	160,000.00
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Well Location Map

