

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date June 21, 2016

FROM: Groundwater Section Michael J Thoma
Reviewer's Name

SUBJECT: Application G- 18267 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: Rogue River Trust County: Josephine

- A1. Applicant(s) seek(s) 0.07 cfs from 1 well(s) in the Rogue Basin,
Williams Cr subbasin
- A2. Proposed use Irrigation (5.8 ac) + Nursery (2.3 ac)
 Seasonality: April 1 – October 31 (Irrigation) + year-round (Nursery)
- 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 12417	1	Bedrock	0.07	38S/05W-33 NENE	1077'S, 1263'W of NE cor of S 33
2						
3						

* 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	1600	62	13	07/02/1986	80	0-18	+2-55	0-140	-	35		A

Use data from application for proposed wells.

- A4. **Comments:** The application contains notes about the intended use, specifically distinguishing between the irrigation and nursery use. The same rate is proposed for both uses so this review will assume the maximum rate (0.07 cfs) is used year-round.
- 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) 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 sparse groundwater observation data in the area of the proposed POA so groundwater over-appropriation could not be readily established. There are a few groundwater POAs in the immediate area which are primarily small rates (< 0.1 cfs) and for small areas. There is typically low concern of well injury in this type of geology in general and in this area in particular. The same applicant has submitted a recent application for a new groundwater right in an adjacent taxlot under App. G18265.

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 Grayback Pluton	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: SWL reported on the driller's log for the proposed POA, along with other driller's logs in the area, are several feet above reported first water; groundwater in fractured bedrock aquifers in this region are typically classified as confined systems

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 1/4 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	Williams Cr.	~1587	1320-1480	6800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Banning Cr.	~1587	< 1400	6300*	<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 above SW elevations suggest that groundwater is flowing toward and discharging to surface water; Williams Cr is likely the local groundwater discharge zone for this part of the basin

*The distance determined to Banning Cr is the distance to where the impacts of groundwater pumping to the creek would be most likely to become significant (see comments in C6).

Water Availability Basin the well(s) are located within: Williams Cr > Applegate R – At Mouth (ID# 70981)

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 < 1/4 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?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: _____

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
1	1	%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS		see comments											
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q													
(C) = 1 % Nat. Q													
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		%	%	%	%	%	%	%	%	%	%	%	%

Non-Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	2	%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS		see comments											
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: _____

Comments: Interference with Williams Cr and Banning Cr 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).

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 POA would be producing from an aquifer that has been found to be hydraulically connected to Williams Cr and Banning Cr. However, the Department is unable to determine impacts to either stream and so is unable to assume that the proposed use will have the Potential for Substantial Interference.

Banning Creek: The ridge between the proposed POA and Banning Cr is likely also a local groundwater divide which would significantly reduce the efficiency of hydraulic connection between the proposed POA and the nearest point on Banning Cr. Furthermore, the higher GW elevation induced by the ridge to the north and west of the proposed POA would warp the cone of depression caused by pumping by shortening it to the north/west and extending it to the east; thereby further reducing the efficiency of hydraulic connection to Banning Cr.

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

WILLIAMS CR > APPLGATE R - AT MOUTH ROGUE BASIN						
Water Availability as of 6/13/2016						
Watershed ID #: 70981 (Map)				Exceedance Level: 80%		
Date: 6/13/2016				Time: 1:53 PM		
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	67.30	1.16	66.10	0.00	110.00	-43.90
FEB	110.00	1.56	108.00	0.00	110.00	-1.56
MAR	107.00	1.16	106.00	0.00	110.00	-4.16
APR	62.70	3.75	59.00	0.00	110.00	-51.00
MAY	29.50	5.82	23.70	0.00	65.00	-41.30
JUN	10.30	8.11	2.19	0.00	40.00	-37.80
JUL	4.24	10.80	-6.56	0.00	15.00	-21.60
AUG	2.68	8.94	-6.26	0.00	5.00	-11.30
SEP	1.89	5.92	-4.03	0.00	50.00	-54.00
OCT	2.28	2.06	0.22	0.00	80.00	-79.80
NOV	6.60	0.38	6.22	0.00	80.00	-73.80
DEC	32.30	0.82	31.50	0.00	110.00	-78.50
ANN	54,800.00	3,060.00	52,600.00	0.00	53,300.00	15,200.00

Water-Level Trends in Nearby Wells

