

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date January 8, 2016

FROM: Groundwater Section Michael J. Thoma
Reviewer's Name

SUBJECT: Application G- 18176 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: Wesley L & Vicki G Mathis County: Jackson

A1. Applicant(s) seek(s) 0.20 cfs from 2 well(s) in the Rogue Basin,
Little Butte Cr. subbasin

A2. Proposed use Nursery (23.06 ac Primary) 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	JACK 5671	24606	Bedrock	0.10 ^A	36S/01W-5 SENE	2138'S, 943'W of NE cor S 5
2	PROP	Well 2	Bedrock	0.10 ^A	36S/01W-5 SENE	2208'S, 194'W of NE cor S 5
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	1360	62	19	6/23/1981	122	0-22	+2-32	6-122	62-122	50		A
2	1360		19 ^B		~122	0-22	+2-32		62-122			

Use data from application for proposed wells.

A4. **Comments:** ^AThe applicant proposes a total rate of 0.2 cfs (~90 gpm) but well-specific rates for both wells of 0.11 cfs (50 gpm). Since the sum of well-specific rates is greater than the total rate, the reviewer will evaluate for 1/2 the total rate from each well (0.10 cfs per well).

^BThe applicant proposes similar construction of the proposed well as the existing well so the reviewer assumes similar SWL will be encountered, especially since the wells are < 1/4 mile apart and at similar elevations.

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-year SWL); 'Small' 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 wells in the immediate area of the proposed POAs so aquifer over-appropriation could not be determined. There are also very few permitted groundwater POAs in the area, the closest being ~ 1 mile away and on the opposite side of Little Butte Cr from the proposed POAs, and so there is little concern of interference with existing permitted rights.

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 Payne Cliffs Fm.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Bedrock of Payne Cliffs Fm.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Well log for applicant's proposed POA reports SWL above 'first water'

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	Little Butte Cr	1340	1220-1280	3530	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Little Butte Cr	1340	1220-1280	3570	<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: Higher groundwater elevation than surface water elevation suggests that groundwater is flowing toward and discharging to surface water.

Water Availability Basin the well(s) are located within: Little Butte Cr > Rogue R – At Mouth (ID# 263)

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"/>	MF262	20.00	<input type="checkbox"/>	23.30	<input type="checkbox"/>	see comments	<input type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	MF262	20.00	<input type="checkbox"/>	23.30	<input type="checkbox"/>	see comments	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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"/>	MF262	20.00	<input type="checkbox"/>	23.30	<input type="checkbox"/>	see comments	<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 sloping terrain and geology (fractured bedrock aquifer) do not meet model assumptions of the widely accepted techniques for determining stream depletion (e.g., Hunt 1999, 2003).

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 > 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 proposed POAs would be producing from a fractured bedrock aquifer that is likely hydraulically connected to Little Butte Cr. The proposed rate does not rise to the level of PSI under OAR 690-009 rules and interference could not be determined because the nature and hydrogeology of the aquifer-stream system do not meet the assumptions of the accepted models. However, given the low proposed rate, the distance to the stream, and the likely hydraulic properties of the aquifer, it is unlikely that the proposed use will cause significant interference after 30 d.

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

OWRD Well Log Database – Accessed 01/08/2016

Wiley, T. J., J. D. McCloughry, and J. A. D’Allura. 2011. *Geologic Database and Generalized Geologic Map of Bear Creek Valley, Jackson County, Oregon*. Oregon Dept. of Geology and Mineral Industries. OFR O-11-11.

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

LITTLE BUTTE CR > ROGUE R - AT MOUTH
ROGUE BASIN

Water Availability as of 1/8/2016

Watershed ID #: 263 [\(Map\)](#) Exceedance Level: 80% ▾
 Date: 1/8/2016 Time: 2:07 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	133.00	44.20	88.80	0.00	100.00	-11.20
FEB	206.00	55.30	151.00	0.00	100.00	50.70
MAR	236.00	58.90	177.00	0.00	100.00	77.10
APR	297.00	17.80	279.00	0.00	100.00	179.00
MAY	141.00	30.90	110.00	0.00	60.00	50.10
JUN	82.50	48.90	33.60	0.00	20.00	13.60
JUL	73.90	69.80	4.05	0.00	20.00	-15.90
AUG	70.70	56.70	14.00	0.00	20.00	-6.03
SEP	45.90	35.40	10.50	0.00	120.00	-109.00
OCT	23.30	12.00	11.30	0.00	120.00	-109.00
NOV	34.40	22.10	12.30	0.00	100.00	-87.70
DEC	60.80	37.90	22.90	0.00	100.00	-77.10
ANN	153,000.00	29,600.00	123,000.00	0.00	57,800.00	82,800.00

Well Location Map

