

MEMO

Nov 22, 2016

FROM: GW: 18373
(Reviewer's Name)

☒ YES☐ NO☒ YES☐ NO

☒ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date November 22, 2016
 FROM: Groundwater Section Michael J Thoma
 Reviewer's Name
 SUBJECT: Application G- 18373 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: David Elbel County: Josephine

A1. Applicant(s) seek(s) 0.022 cfs from 1 well(s) in the Rogue Basin,
Illinois River subbasin

A2. Proposed use nursery (3 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 55408/ 57019*	1	Bedrock	0.02	39S/08W-29 SWSW	1272' N, 303' E of SW cor S 29
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	1420	179	0-11 [†]	8/1/2003	350	0-18	+2-18	0-319	299-319	3		A

Use data from application for proposed wells.

A4. **Comments:** *JOSE 55408 is the original well log; JOSE 57019 is an alteration log where the liner was replaced
[†]The original log reports a SWL of 11 ft BLS in August and the alteration log reports SWL of 0 ft BLS in February. This is
not unexpected given the geology of the area.

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) 7J (Scenic); 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 _____ 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.
- _____
- _____
- _____

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 Galice Fm	☒	☐
		☐	☐

Basis for aquifer confinement evaluation: The well log(s) for the applicant's proposed POA reports SWL above *First Water*, in the case of the alteration log SWL is at land surface, implying confined aquifer conditions.

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	Choke Cherry Cr	1420	< 1300	1420*	☒	☐	☐	☐	☒
1	2	W Fk Illinois R	1420	1280-1300	3170	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

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

*Choke Cherry Cr is likely an ephemeral stream for much of its length, potentially receiving groundwater contribution at its lower reach where it becomes more incised, but aerial imagery does not show a clearly defined riparian channel. However, there are a few surface water PODs on the creek. The distance reported in C2 is to the nearest surface water POD – i.e., where the creek could be considered a viable surface water source.

Water Availability Basin the well(s) are located within: W Fk Illinois R > Illinois R – At Mouth (ID# 70997)

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	☐	☐	NA	-	☐	16.8	☐	**	☐
1	2	☐	☐	IS70997	26.1	☐	16.8	☐	**	☐
		☐	☐			☐		☐		☐

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?
	☐			☐		☐		☐

- 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 sources beyond 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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ 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

Ramp, L. 1986. *Geologic Map of the Northwest Quarter of the Cave Junction Quadrangle, Josephine Co, Oregon*. USDA Forest Service Report. GMS-38.

Ramp, L. and Peterson, N. 2004. *Geologic Map of Josephine County, Oregon*. Oregon Dept. of Geol. and Mineral Industries, OFR O-04-13.

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**

Water Availability Analysis Detailed Reports						
W FK ILLINOIS R > ILLINOIS R - AT MOUTH ROGUE BASIN						
Water Availability as of 11/22/2016						
Watershed ID #: 70997 (Map)			Exceedance Level: 80% ▾			
Date: 11/22/2016			Time: 11:07 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	235.00	0.77	234.00	0.00	170.00	64.20
FEB	352.00	0.79	351.00	0.00	170.00	181.00
MAR	357.00	0.79	356.00	0.00	170.00	186.00
APR	221.00	1.59	219.00	0.00	170.00	49.40
MAY	118.00	2.16	116.00	0.00	149.00	-33.20
JUN	57.30	2.79	54.50	0.00	89.40	-34.90
JUL	28.10	3.53	24.60	0.00	37.00	-12.40
AUG	17.70	3.02	14.70	0.00	26.10	-11.40
SEP	16.80	2.19	14.60	0.00	80.00	-65.40
OCT	20.10	1.13	19.00	0.00	125.00	-106.00
NOV	67.80	0.67	67.10	0.00	170.00	-103.00
DEC	227.00	0.73	226.00	0.00	170.00	56.30
ANN	218,000.00	1,220.00	216,000.00	0.00	91,900.00	134,000.00

Well Location Map

