Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE # # G-18108

ROUTED TO: Water Rights

TOWNSHIP/
RANGE-SECTION: 1S/43E-3

CONDITIONS ATTACHED?: [✓] yes [ ] no

REMARKS OR FURTHER INSTRUCTIONS:
see conditions on p 2.

Reviewer: J. Hackett

WATER RESOURCES DEPARTMENT

MEMO August 11, 2015

TO: **Application** G- 18108

FROM: **GW:** J. Hackett
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☑ YES
The source of appropriation is within or above a Scenic Waterway
☐ NO

☑ YES
Use the Scenic Waterway condition (Condition 7J)
☐ NO

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

☑ 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.**

DISTRIBUTION OF INTERFERENCE

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.

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date **August 11, 2015**

FROM: Groundwater Section **J. Hackett**
Reviewer's Name

SUBJECT: Application G- **18108** 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: **Robert Perry** County: **Wallowa**

A1. Applicant(s) seek(s) **0.858** cfs from **1** well(s) in the **Grande Ronde** Basin, _____ subbasin

A2. Proposed use **Irrigation** Seasonality: **April 1 – October 15**

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	Proposed	1	CRB	0.858	1S/43E-3 NW-SW	1247' S, 608' E fr W ¼ cor S3
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	3300		92 est.									

Use data from application for proposed wells.

A4. **Comments:** Applicant did not provide proposed well construction information. If the well is constructed with shallow case and seal depths, it will be hydraulically connected to nearby streams. In order to avoid that situation this review assumes the well will be cased and sealed to a depth sufficient to avoid hydraulic connection to local surface water sources (see Special Condition on page 2).

A5. ☒ **Provisions of the** Grande Ronde 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) **7N; 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 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:** The applicant's proposed well is located near the topographic divide between the Lostine and Wallowa River watersheds about 1 mile north of the town of Lostine. Locally, these rivers are incised into lava flows of the Columbia River Basalt Group (CRBG). The CRBG consists of a series of lava flows that have a composite thickness of several hundred feet in the vicinity of the proposed well. Although unconfined ground water occurs near the surface of the basalts, most water occurs in confined aquifers that occupy thin rubble zones (interflow zones) that occur at the contacts between lava flows. The thick interiors of the basalt flows generally have very low porosity and permeability and act as confining beds. This physical geometry generally produces a stack of thin, tabular aquifers (interflow zones) separated by thick confining beds (flow interiors). Because of the low permeability of the basalt flow interiors, there is very little (very inefficient) natural connection between the stacked aquifers. Commingling under these circumstances will result in a wasteful loss of hydraulic head (water level) between aquifers. To avoid this, the proposed well should be completed in a single basalt aquifer if a permit is issued. Additionally, to avoid hydraulic connection with local reaches of Lostine and Wallowa Rivers, the well should be cased and sealed to a depth that is far lower than river channel elevations.

SPECIAL CONDITION: Groundwater production in the well shall be limited to a single aquifer in the Columbia River Basalt Group lavas. The well shall be cased and sealed into hard basalt below an elevation of approximately 3150 feet (depth of approximately 150 feet). The open interval in the well shall be no greater than 100 feet except as noted below. Open interval means the total length of borehole that is not behind sealed casing. The borehole above the open interval shall be continuously cased and continuously sealed to land surface. A larger open interval may be approved by the Department if the applicant can demonstrate, using packer tests or other suitable methods, that the hydraulic heads of water-bearing zones in the proposed open interval are equivalent or if the applicant can demonstrate that the open interval is part of a continuous zone of interconnected porous materials such as a sequence of pillow lavas or an hyaloclastite complex.

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	**Basalt**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Water-bearing zones in CRB aquifers are found in high-permeability flow-tops and flow-bottoms and are typically confined by low-permeability flow interiors.

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	**WALLOWA R**	**3210**	**3275-3220**	**3275**	☐	☒	☐	☐	☐
1	2	**LOSTINE R**	**3210**	**3320-3190**	**2500**	☐	☒	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: If the well is cased and sealed to an approximate elevation of 3150 feet (150 feet depth), it will produce from water-bearing zones well below the elevations of the local reaches of Lostine and Wallowa Rivers. As a result, the well will not be locally hydraulically connected to either river.

Water Availability Basin the well(s) are located within: 72034: WALLOWA R > GRANDE RONDE R – AB LOSTINE R; 233: LOSTINE R > WALLOWA R – AT MOUTH

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

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: ______________________________

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 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:**

References Used:

Oregon Geologic Data Compilation (OGDC) – Release 5, Oregon Department of Geology and Mineral Industries (DOGAMI)

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

WALLOWA R > GRANDE RONDE R - AB LOSTINE R
GRANDE RONDE BASIN

Water Availability as of 8/10/2015

Watershed ID #: 72034 (Map)

Exceedance Level: 80%

Date: 8/10/2015

Time: 12:00 PM

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	59.40	22.60	36.80	0.00	187.00	-150.00
FEB	60.60	23.80	36.80	0.00	200.00	-163.00
MAR	77.60	24.20	53.40	0.00	297.00	-244.00
APR	141.00	39.80	101.00	0.00	300.00	-199.00
MAY	299.00	132.00	167.00	0.00	300.00	-133.00
JUN	561.00	281.00	280.00	0.00	300.00	-20.00
JUL	251.00	250.00	0.56	0.00	200.00	-199.00
AUG	111.00	168.00	-57.20	0.00	205.00	-262.00
SEP	77.90	68.00	9.87	0.00	191.00	-181.00
OCT	74.10	16.90	57.20	0.00	176.00	-119.00
NOV	67.10	24.00	43.10	0.00	200.00	-157.00
DEC	58.50	19.40	39.10	0.00	170.00	-131.00
ANN	179,000.00	64,800.00	115,000.00	0.00	165,000.00	23,300.00

Detailed Report of Instream Flow Requirements

Instream Flow Requirements in Cubic Feet per Second

Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IS72034A	CERTIFICATE	187.00	200.00	297.00	300.00	300.00	300.00	200.00	205.00	191.00	176.00	200.00	170.00
Maximum		187.00	200.00	297.00	300.00	300.00	300.00	200.00	205.00	191.00	176.00	200.00	170.00

Water Availability Analysis

LOSTINE R > WALLOWA R - AT MOUTH
GRANDE RONDE BASIN

Water Availability as of 8/10/2015

Watershed ID #: 233 (Map)

Exceedance Level: 80%

Date: 8/10/2015

Time: 12:05 PM

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	31.70	8.09	23.60	0.00	40.00	-16.40
FEB	32.50	7.78	24.70	0.00	40.00	-15.30
MAR	39.90	7.63	32.30	0.00	40.00	-7.73
APR	70.10	7.48	62.60	0.00	40.00	22.60
MAY	242.00	39.80	202.00	0.00	60.00	142.00
JUN	533.00	97.40	436.00	0.00	60.00	376.00
JUL	160.00	91.60	68.40	0.00	50.00	18.40
AUG	62.40	61.70	0.71	0.00	70.00	-69.30
SEP	40.60	21.80	18.80	0.00	70.00	-51.20
OCT	35.50	8.79	26.70	0.00	50.00	-23.30
NOV	34.30	8.69	25.60	0.00	60.00	-34.40
DEC	29.90	8.46	21.40	0.00	40.00	-18.60
ANN	133,000.00	22,400.00	111,000.00	0.00	37,400.00	80,000.00

Detailed Report of Instream Flow Requirements

Instream Flow Requirements in Cubic Feet per Second

Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MF233A	CERTIFICATE	40.00	40.00	40.00	40.00	60.00	60.00	50.00	70.00	70.00	50.00	60.00	40.00
Maximum		40.00	40.00	40.00	40.00	60.00	60.00	50.00	70.00	70.00	50.00	60.00	40.00

Well Location Map