Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE # # G-17744

ROUTED TO: Water Rights - Mary

TOWNSHIP/
RANGE-SECTION: 26S/29E-18

CONDITIONS ATTACHED?: [✓] yes [ ] no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: Mike Zwart

WATER RESOURCES DEPARTMENT

MEMO December 20, 2013

TO: **Application** G- 17744

FROM: **GW:** Mike Zwart
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

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

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

☐ 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 12, 2014**

FROM: Groundwater Section **Mike Zwart**
Reviewer's Name

SUBJECT: Application G- **17744** Supersedes review of **December 20, 2013**
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 ground water 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: **William and Lori Peila** County: **Harney**

A1. Applicant(s) seek(s) **2.67** cfs from **two** well(s) in the **Malheur Lake** Basin, **Silver Creek** subbasin Quad Map: **Stinking Lake**

A2. Proposed use **Irrigation, 160 acres** Seasonality: **April 1 to October 31**

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**	**5**	**Alluv./Volcanics***	**2.67**	**26S/29E-18 SE-NE**	**50' N, 50' W fr E ¼ cor S 18****
2	**Proposed**	**6**	**Alluv./Volcanics**	**2.67**	**26S/29E-18 SE-NE**	**150' N, 50' W fr E ¼ cor S 18****
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	**4118**				**400**	**0-40±**						
2	**4119**				**400**	**0-40±**						

Use data from application for proposed wells.

A4. **Comments: *The application states "basalt" as the intended aquifer, but the proposed well construction does not differ from that originally proposed in file G-17677. The intent is to seal into basalt and two well logs were provided that describe basalt in the subsurface, but these are four or more miles to the east of this site. See additional comments at C1 and C6. **The amended application changes only the proposed well locations as shown above.**

A5. ☒ **Provisions of the Malheur Lake** Basin rules relative to the development, classification and/or management of ground water 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. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7N**;
   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 ground water production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow ground water production only from the _____ ground water 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 Ground Water 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. **Ground water availability remarks:** **Condition 7N is typically used in this part of the Malheur Lake Basin.**

This application is about seven miles west of the western part of an area of the Malheur Lake Basin, known as the Weaver Springs area, for which the Department has concerns about the groundwater resource. As a result, several years ago, the Department selected about 15 wells for quarterly water-level monitoring. Most of those wells are displaying year-to-year water-level declines. As a result, the Department is currently finding that groundwater is not available within the capacity of the resource in that area. The positive findings here are based on the significant distance from that area of the basin and on the lack of more local water-level data with an adequate period of record to conclude whether or not water levels are stable. However, given the documented water-level declines there, and elsewhere in the basin, and the fact that several of the permitted groundwater rights there are not yet developed, it is possible that the proposed use here will result in water level declines that will eventually exceed one or more of the triggers in the measurement condition that is being recommended.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1,2	**Basin-fill sediments (Qal and Tvs of GW Report #16)**	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: **Groundwater in the basin fill is generally unconfined and hydraulically connected to surface water, including Malheur and Harney Lakes. There is no local evidence that multiple aquifers are available in this area. In most parts of the basin, the Department considers the basin-fill deposits and underlying volcanic sediments to be a single source of groundwater.**

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**	**Silver Creek**	**4110±**	**4112**	**5400**	☒	☐	☐	☐	☒
2	**1**	**Silver Creek**	**4110±**	**4112**	**5500**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: **The likely head relationship with Silver Creek and the proposed wells suggests an efficient hydraulic connection.**

Water Availability Basin the well(s) are located within: **Silver Cr > Harney Lk ab unn stream (31200408).**

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 ground water 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** This application is apparently seeking to modify the proposed well construction from that originally proposed in file G-17677 in an effort to avoid a finding of PSI. This file includes two similarly located wells and proposes to case and seal them into basalt, but the proposed seal depth is the same (±40 feet) as originally proposed. Two well logs were included as "examples of nearby wells" that penetrate basalt (HARN 51141 and HARN 2323). These wells are not in fact very local to the site here and their construction may not have any relevance to the local conditions. There are not many local well logs on file, but two much closer wells, HARN 1311 and HARN 1312, do not report any basalt at depths of 154 and 109 feet, respectively. As stated above, the Department considers the basin-fill deposits and underlying volcanic sediments to be a single source of groundwater. The Tertiary volcanic sediments often include basalt layers, but most wells that penetrate basalt do not report multiple heads (static water levels) as drilling progresses. My findings are the same as were made for file G-17677, based on the proposed well construction, including the seal depth, and the local well logs on file. There may be a local or regional confining layer at depth in this area that would, if properly sealed into, result in a finding of no hydraulic connection with the nearest reach of Silver Creek. Unfortunately, there are no local well logs on file that are relatively deep and it is therefore speculative as to whether any deeper aquifer is available in this area and, if so, at what depth. However, the proposed well construction here is not likely to result in the development of a deep confined aquifer. If such aquifer is available, the wells will certainly need to be cased and sealed well beyond ±40 feet and perhaps several hundred feet below land surface.

References Used: Local well logs; local recent reviews; GW Report 16, by Leonard, 1970; Greene, Walker, and Corcoran, 1972, Geologic Map of the Burns Quadrangle, Oregon, USGS Miscellaneous Geologic Investigations Map I-680; Memo by Ivan Gall, 1/15, 2008, Stream Assessment for Division 9 Review in the Malheur Lakes Basin.

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