Water Right Conditions Tracking Slip

Groundwater/Hydrology Section

FILE # # G-17834

ROUTED TO: Water Rights - Rim

TOWNSHIP/
RANGE-SECTION: 25S/30E - 33+34
26S/30E - 3+4

CONDITIONS ATTACHED?: [x] yes [ ] no

REMARKS OR FURTHER INSTRUCTIONS:

Reviewer: Mike Zwart

WATER RESOURCES DEPARTMENT

MEMO April 18, 2014

TO: **Application G-** 17834

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 GROUND WATER APPLICATIONS

TO: Water Rights Section Date **April 18, 2014**

FROM: Ground Water/Hydrology Section **Michael Zwart**
Reviewer's Name

SUBJECT: Application G- **17834** 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 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: **Andy Root** County: **Harney**

A1. Applicant(s) seek(s) **4.62** cfs from **ten** well(s) in the **Malheur Lake** Basin, _____ subbasin Quad Map: **Northwest & Northeast Harney Lake**

A2. Proposed use: **Irrigation, 277 acres** Seasonality: **March 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	**HARN 51448**	**9**	**Volcanic Seds.**	**4.62**	**25S/30E-33 SE-SW**	**4423' S, 2750' W fr NE cor S 33**
2	**HARN 51765**	**10**	**Volcanic Seds.**	**4.62**	**26S/30E-3 NW-NW**	**985' S, 455' E fr NW cor S 3**
3	**HARN 51760**	**11**	**Volcanic Seds.**	**4.62**	**26S/30E-3 NW-NW**	**1005' S, 375' E fr NW cor S 3**
4	**HARN 51817**	**12**	**Volcanic Seds.**	**4.62**	**25S/30E-33 SE-NW**	**2605' S, 2450' E fr NW cor S 33****
5	**HARN 51445**	**13**	**Volcanic Seds.**	**4.62**	**26S/30E-4 NE-NW**	**1090' S, 2705' W fr NE cor S 4**
6	**HARN 51871**	**14**	**Volcanic Seds.**	**4.62**	**25S/30E-33 SE-SE**	**1000' N, 10' W fr SE cor S 33**
7	**HARN 51970**	**15**	**Volcanic Seds.**	**4.62**	**25S/30E-33 SE-SE**	**1000' N, 30' W fr SE cor S 33**
8	**HARN 1094**	**1**	**Volcanic Seds.**	**4.62**	**25S/30E-33 NE-NW**	**1317' S, 1355' E fr NW cor S 33**
9	**HARN 51146**	**5**	**Volcanic Seds.**	**4.62**	**25S/30E-33 SE-SW**	**4195' S, 2672' W fr NE cor S 33**
10	**HARN 51272**	**7**	**Volcanic Seds.**	**4.62**	**25S/30E-34 SE-SW**	**4725' S. 1877' E fr NW cor S 34**

* 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	**4152**	**107**	**86**	**05/02/08**	**200**	**0-20**	**0-92**	**None**	**None**	**4000**	**10**	**P**
2	**4162**	**104**	**104**	**02/11/11**	**167**	**0-18**	**0-60**	**None**	**None**	**2800**	**2**	**P**
3	**4162**	**104**	**104**	**01/28/11**	**195**	**0-24**	**0-102**	**None**	**None**	**2800**	**5**	**P**
4	**4135**	**88**	**88**	**10/21/11**	**170**	**0-18**	**0-108**	**None**	**None**	**1000**		**Air**
5	**4159**	**100**	**92**	**02/10/08**	**280**	**0-35**	**0-35**	**None**	**None**	**1000**	**140**	**P**
6	**4138**	**94**	**94**	**08/15/12**	**232**	**0-18**	**0-94**	**None**	**None**	**800**		**Air**
7	**4138**	**107**	**107**	**08/24/13**	**310**	**0-18**	**0-183**	**None**	**None**	**1000**		**Air**
8	**4129**	**75**	**70**	**02/01/10**	**170**	**0-18**	**0-107**	**None**	**None**	**1000**		**Air**
9	**4148**	**117**	**74**	**01/18/05**	**125**	**0-105**	**0-105**	**None**	**None**	**1000**		**Air**
10	**4165**	**349**	**98**	**04/30/06**	**375**	**0-64**	**0-77**	**None**	**None**	**550**	**102**	**P**

Use data from application for proposed wells.

A4. **Comments:** _____

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 (provided that the above findings are overcome)**;
   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:** **The Region Manager recommends use of Condition 7N in the Harney Valley. These wells are within an area known as Weaver Springs, which has experienced significant groundwater development for irrigation in recent years. As a result of this, the Department has been collecting quarterly water-level data at selected wells in the Weaver Springs area for several years. These data have disclosed a pattern of year-to-year groundwater level declines. This is significant, given the fact that several existing groundwater permits in the area have yet to be developed. In addition, other recent applications are pending in the area. Thus, the water-level declines are likely to increase in time as these existing and pending rights are more fully developed. Issuance of a permit for the amounts proposed here will likely result in water-level declines at the proposed wells that would exceed the limits set forth in recommended permit condition 7N. The use of the proposed wells would also likely result in an increased rate of water-level declines and possibly also substantial interference at existing and proposed wells with senior rights.**

Special Permit Condition: The permittee shall construct one minimum six-inch diameter observation well to penetrate the same aquifer as the production wells. The well shall meet the Department's minimum well construction standards and shall be cased and sealed to the same depth as the production wells. The well shall be constructed at a location approved by the Department for the purpose of instrumentation with continuous water-level monitoring equipment. The landowner or permittee shall provide access to Department staff to install and maintain the monitoring equipment. The well shall not be used for any other purpose while the Department is monitoring water levels. The well shall be completed prior to water use under the terms of any permit issued.

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
All	**Late Tertiary to Quaternary basalt and volcaniclastic sedimentary rocks**	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: **Water levels in these and nearby wells are coincident with or somewhat above the depths where groundwater was first encountered. Regionally, this aquifer is likely unconfined and discharges to Harney or Malheur Lakes.**

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
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: **There are no surface water sources within 1 mile of the applicant's wells. The head relationship suggests an inefficient hydraulic connection with Harney Lake. However, Harney and Malheur Lakes are recognized in the literature as discharge areas for the groundwater resource.**

Water Availability Basin the well(s) are located within: **No WAB data in this area.**

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: **This section does not apply.**

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**

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; Harney Basin Groundwater Study, DRAFT Report by Aquaveo, LLC for the Harney County Watershed Council, November 2012.

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

Application G-17834, Andy Root