WATER RESOURCES DEPARTMENT

MEMO

August 22, 2014

TO: Application G- 17872

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 Ground Water 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 Ground Water 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 22, 2014**

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

SUBJECT: Application G- **17872** 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: **Brad E. and June C. Allen** County: **Baker**

A1. Applicant(s) seek(s) **5.0** cfs from **four** well(s) in the **Powder** Basin, _____ subbasin Quad Map: **Haines**

A2. Proposed use **Irrigation, 344.7 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	**BAKE 52275**	**B**	**Bedrock**	**2.23**	**7S/39E-14 NW-SW**	**2700' S, 100' E fr NW cor S 14**
2	**BAKE 51323**	**E**	**Bedrock**	**4.46**	**7S/39E-14 SW-NE**	**1450' S, 1820' W fr NE cor S 14**
3	**Proposed**	**B-1**	**Bedrock**	**5.0**	**7S/39E-15 NE-NE**	**1206' S, 520' W fr NE cor S 15**
4	**Proposed**	**B-2**	**Bedrock**	**5.0**	**7S/39E-11 NE-SW**	**1922' N, 1481' E fr SW cor S 11**
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	**3272**	**145**	**83**	**06/12/2013**	**385**	**0-85**	**0-155**	**None**	**None**	**1000**		**Air**
2	**3312**	**160**	**11**	**02/25/2005**	**525**	**0-106**	**0-106**	**None**	**None**	**2000**		**Air**
3	**3358**				**400+**	*						
4	**3300**				**500+**	*						

Use data from application for proposed wells.

A4. **Comments: *Wells are proposed to be sealed six feet into basalt.**

A5. ☒ **Provisions of the Powder** 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:** **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 approximately 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	**Basalt or Andesite (Tba)**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: **The water-bearing zones in local bedrock wells are typically below the static water levels.**

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**	**Powder River**	**3189**	**3275**	**2400**	☐	☒	☐	☐	☒
2	**1**	**Powder River**	**3301**	**3268**	**1400**	☐	☒	☐	☐	☒
3	**1**	**Powder River**	**3200±**	**3275**	**850**	☐	☒	☐	☐	☒
4	**1**	**Powder River**	**3200±**	**3270**	**300**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: **The local bedrock aquifers are in indirect hydraulic connection, at best, with alluvial deposits, which may overlie and are adjacent to these rocks. The alluvial deposits are in good hydraulic connection with the river. The shallowest water-bearing zones reported at the existing wells are below the elevation of the nearby reaches of the river. Most water levels at local bedrock wells are also below the river.**

Water Availability Basin the well(s) are located within: **POWDER R > SNAKE R - AB UNN STR (72191).**

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													

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(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: **Geology of the Oregon Part of the Baker 1° by 2° Quad, Brooks, 1976; OWRD Ground Water Report #6; Ground Water Resources of Baker Valley, Baker County, Oregon, by Frederick D. Trauger; Ground Water of Baker Valley, Baker County, Oregon, by Lystrom, Nees and Hampton, 1967; past personal communications with DOGAMI Regional Geologist Mark Ferns and other OWRD staff; nearby reviews.**

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-17872, Brad E. and June C. Allen