

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date 6/3/2009

FROM: Ground Water/Hydrology Section Donn Miller
Reviewer's Name

SUBJECT: Application G- 17216 Supersedes review of none
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: Randal Buresh, Ore. Wild Harvest County: Clackamas

- A1. Applicant(s) seek(s) 0.2228 cfs from two well(s) in the Sandy Basin,
Bull Run River > Sandy River @ mouth subbasin Quad Map: Bull Run
- A2. Proposed use: gen nursery and gen ag Seasonality: year round
- A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

Well 1	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	To be built	1	---	0.2228	2S/5E-5 SW SE	1120'N, 635'E fr S ¼ cor S5
2	To be built	2	---	0.2228	2S/5E-5 SW SE	785'N, 620'E fr S ¼ cor S5
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	~725	E100	E125	---	E200	18+	18+	---	?	---	---	-
2	~750	E100	E150	---	E200	18+	18+	---	?	---	---	-

Use data from application for proposed wells.

A4. **Comments:** The proposed well construction information is minimal. Based on available information it appears that the interest is to develop ground water from the Rhododendron Formation. The top of the formation is about 600 feet amsl locally. These older rocks of the Portland Basin are lava flows and consolidated volcanic debris. Overlying these rocks are undifferentiated sediments that appear to provide some water to local wells. Developing shallower sediments would probably pose problems with surface water connection that the applicant does not want for purposes of application processing. Yields would also likely be smaller. I have estimated that the SWL's will be over 100' bls since nearby wells to the east reflect that. The owner reports that the existing, domestic, on-site well is 60 feet deep. SWL would be less. No log is available.

A5. ☐ **Provisions of the Sandy** 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: NA

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) 7F, 7G;
 - 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 bedrock ground water reservoir between approximately 150 ft. and 400 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:** There is limited ground water information for section 5 for purposes of establishing long-term trends. One well was reconditioned and the SWL became about 40 feet shallow between reports. This might reflect a seasonal or measuring effect. The use is modest in the area and seems to be limited to domestic purposes. The request of 100 gpm from two wells may not be possible.

There seem to be two sources in the area. One is from cemented gravel about 100 feet. This is described in one publication as terrace deposits. The second is from volcanic rock (Rhododendron Formation) below about 185 feet. This can be a few hundred feet thick. It is the likely target to obtain the desired flow from two wells.

The Sandy Basin rules require measuring and reporting for new ground water permits. There are also decline triggers that are part of the conditioning. The decline conditions provide a provision for resource management should declines occur.

By developing water below 150 feet below land surface, the well will be capable of developing many feet in the bedrock section below the sedimentary materials. Developing water from the sedimentary materials would likely produce a conflict with surface water.

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	Rhododendron Formation	☒	☐
2	Rhododendron Formation	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: well log reporting, descriptions in ground water reports**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	Bull Run River	~600	380	1350	☒	☐	☐	☐	☒
2	1	Bull Run River	~600	380	1650	☒	☐	☐	☐	☒
1	2	Unnamed Trib between wells	~600	740	250	☐	☒	☐	☐	☒
2	2	Unnamed Trib between wells	~600	740	50	☐	☒	☐	☐	☒
1	3	Unnamed trib to northeast	~600	650	800	☐	☒	☐	☐	☒
2	3	Unnamed trib to northeast	~600	650	1000	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Head relationships, proximity, general ground water flow principlesWater Availability Basin the well(s) are located within: Bull Run River > Sandy River @ 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?
1	1	☐	☐	SR389C	19.70-183	☒	123-721	☐	<1	☒
2	1	☐	☐	SR389C	19.70-183	☒	123-721	☐	<1	☒
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

		☐	☐			☐		☐		☐
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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 #		Q _w > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Q _w > 1% ISWR?	80% Natural Flow (cfs)	Q _w > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: NA

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													
(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: NA

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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions** It is difficult to assess the interconnection between the proposed aquifer/wells and surface water. The project wells have not been drilled. The data from nearby wells is a help but there is uncertainty as to what the proposed wells will develop. In particular, the SWL at the proposed wells is currently an estimate. The estimate translates to a head that is about 110 feet above the Bull Run River and could be consistent with discharge there. Alternatively, that head could reflect discharge to the very lowest reaches of the unnamed tributaries. The older rocks of the Rhododendren Formation, that are the proposed aquifer, outcrop at these locations at an elevation about 540 feet amsl and below. All of these locations are more than ¼ mile from the proposed wells.

The ability to describe hydraulic connection is limited. The ability to quantify it in time is even more limited. Currently, there is not a good tool for quantification in this setting.

Local aquifer discharge to surface water makes pretty good sense. The proposed wells are rather shallow. Second, there are strong topographic changes in the area. Third, the estimated water levels in the wells are still higher than the major river-Bull Run. Finally, the target aquifer outcrops at the Bull Run River and in the canyon sides just above the river.

NOTE: This review finds the potential for substantial interference (PSI) with the Bull Run River due to the requested flow being more than 1% of the ISWR for the month of August. At 1%, the threshold is 0.197 cfs. The request is 0.2228 cfs. By asking for a little less, the application does not have PSI. Perhaps the applicant will be open to less.

References Used: well logs, File G-17216, USGS WSP 2470-A, USGS WRIR 90-4196, OWRD GW Report #29

D. WELL CONSTRUCTION, OAR 690-200D1. Well #: NA Logid: _____D2. **THE WELL does not 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:**

- a. ☐ constitutes a health threat under Division 200 rules;
b. ☐ commingles water from more than one ground water reservoir;
c. ☐ permits the loss of artesian head;
d. ☐ permits the de-watering of one or more ground water reservoirs;
e. ☐ other: (specify) _____

D4. **THE WELL construction deficiency is described as follows:** _____

_____D5. **THE WELL** a. ☐ **was, or** ☐ **was not** constructed according to the standards in effect at the time of original construction or most recent modification.b. ☐ I don't know if it met standards at the time of construction.D6. ☐ **Route to the Enforcement Section.** I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.**THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL**D7. ☐ Well construction deficiency has been corrected by the following actions: _____

__________, 200____.
(Enforcement Section Signature)D8. ☐ **Route to Water Rights Section (attach well reconstruction logs to this page).**

Application G-17216, Buresh

