

WATER RESOURCES DEPARTMENT

MEMO

September 9, 2013

TO: Application G-17630 Re-Review
FROM: GW: J. Hackett (Reviewer's Name)
SUBJECT: Scenic Waterway Interference Evaluation

YES
The source of appropriation is within or above a Scenic Waterway
[checked] NO

YES
Use the Scenic Waterway condition (Condition 7J)
[checked] NO

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.

Table with 12 columns: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. All cells are empty.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date September 9, 2013
 FROM: Groundwater Section J. Hackett
Reviewer's Name
 SUBJECT: Application G- 17630 Supersedes review of July 30, 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: Northwest Conservative Baptist Assoc. County: Linn

A1. Applicant(s) seek(s) 0.089** cfs from 2 well(s) in the Willamette Basin,
 _____ subbasin Quad Map: Sweet Home

A2. Proposed use Irrigation and Commercial Seasonality: March 1 – October 31 and year-round

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	LINN 12125	1	Bedrock	0.4	13S/1E-2 SE-NE	385' N, 595' W fr E1/4 cor S 2
2	LINN 55655	2	Bedrock	0.4	13S/1E-2 SE-NE	1370' N, 195' W fr E1/4 cor S 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	1700	70	71	08/28/2003	285	0-28	0-119	0-285	60-285	35	26	P
2	1750	80	74	08/21/2003	660	0-60	+1-159		80-135	40	2	P

Use data from application for proposed wells.

A4. **Comments:** **The Department's Water Rights Database incorrectly lists the requested pumping rate as 0.40 cfs. The actual requested rate is 40 gpm (0.089 cfs).

A5. **Provisions of the Willamette** _____ 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: The applicant's wells are not located within 1/4 mile of the nearest surface water source, so the pertinent basin rules do not apply.

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) 7B, 7C;
 - 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 applicant's wells are located in an area that contains several hundred feet of low-yield Early Western Cascades volcanic rocks. The applicant's wells produce water from fractures within these low-yield volcanic rocks. The low-yield aquifer system is characterized by large amounts of drawdown and production rates typically less than 50 gpm.

No water-level data is available to assess the stability of the groundwater system. This suggests the need for long-term monitoring.

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	Low-yield bedrock (Western Cascades volcanics)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Low-yield bedrock (Western Cascades volcanics)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Water levels in nearby wells are above the level of water-bearing zones. This suggests the aquifer is confined which is consistent with general knowledge about the low-yield bedrock aquifer system.

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	Cedar Creek	1630	2080-1180	2050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Cedar Creek	1630	2080-1180	1375	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Fall Creek	1670	1840-1360	3300	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Fall Creek	1670	1840-1360	4050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Water level elevations in the applicant’s wells are above the elevations of local reaches of Cedar and Fall Creeks. This indicates groundwater flows toward local streams and suggests hydraulic connection.

Water Availability Basin the well(s) are located within: 123: MCDOWELL CR > S SANTIAM 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?
1	1	<input type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	4.87	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	4.87	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	4.87	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
2	2	<input type="checkbox"/>	<input type="checkbox"/>	n/a	n/a	<input type="checkbox"/>	4.87	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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?
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: No model is readily available to estimate impacts to streams by the pumping of a well in a fractured system. However, because of the low permeability and porosity of the Western Cascades volcanics aquifer system, pumping impacts are likely to be localized to a relatively small area around the wells. Therefore, impacts to Cedar and Fall Creeks are likely to be less than 25% of the pumping rate after 30 days of pumping.

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: _____

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: _____

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005-5168.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32p.

McClaghry, J.D., Wiley, T.J., Ferns, M.L., and Madin, I.P., 2010, Digital geologic map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk counties, Oregon: DOGAMI Open File Report O-10-03, 116p.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82p.

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

MCDOWELL CR > S SANTIAM R - AT MOUTH WILLAMETTE BASIN

Water Availability as of 7/30/2013

Watershed ID #: 123

Exceedance Level:

Date: 7/30/2013

Time: 7:05 AM

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	83.30	0.05	83.20	0.00	45.00	38.20
FEB	82.20	0.05	82.20	0.00	45.00	37.20
MAR	59.90	0.02	59.90	0.00	45.00	14.90
APR	34.30	0.05	34.20	0.00	45.00	-10.80
MAY	30.00	0.25	29.80	0.00	45.00	-15.20
JUN	26.00	0.49	25.50	0.00	15.00	10.50
JUL	12.30	0.85	11.50	0.00	8.00	3.45
AUG	5.56	0.68	4.88	0.00	3.00	1.88
SEP	4.88	0.34	4.54	0.00	3.00	1.54
OCT	4.87	0.04	4.83	0.00	20.00	-15.20
NOV	31.00	0.03	31.00	0.00	45.00	-14.00
DEC	56.60	0.04	56.60	0.00	45.00	11.60
ANN	47,400.00	176.00	47,200.00	0.00	21,900.00	25,900.00

Well Location Map

G-17630, Northwest Conservative Baptist Association

1:24,000 scale

