

Groundwater Application Review Summary Form

Application # G- 18457

GW Reviewer DEAN S ORLOWSKI

Date Review Completed: 7/31/2017

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☐ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☐ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 07/31/2017
 FROM: Groundwater Section Dennis Orłowski
 Reviewer's Name
 SUBJECT: Application G- 18457 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 groundwater 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: Tom and Mary Elder County: Marion

A1. Applicant(s) seek(s) 0.225 cfs from one well(s) in the Willamette Basin,
Pudding River subbasin

A2. Proposed use Irrigation Seasonality: March 1 – 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	1	Alluvium	0.225	T6S/R2W-28 SE-SE	*1230' N, 1345' W SE cor S28

* 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	180		TBD		100	TBD	TBD		TBD	TBD	TBD	

Use data from application for proposed wells.

A4. **Comments:** *Note: location description on application map states well is located 1345 ft east of SE corner of Section 28; this appears to be incorrect because this would put the proposed POA in Section 27 and in the wrong tax lot; also disagrees with the location shown on the application map. Thus for this review the location shown on the application map was assumed.

A5. ☒ **Provisions of the Willamette** Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☐ are, or ☒ are not, activated by this application. (Not all basin rules contain such provisions.)

Comments: The proposed well depth indicates it will produce from a confined aquifer, so the pertinent basin rules (OAR 690-502-0240) do not apply.

A6. ☐ Well(s) # _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
 Name of administrative area: _____
 Comments: _____

B. GROUNDWATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that groundwater* 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 groundwater 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 groundwater 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 groundwater resource; or
- d. ☒ will, if properly conditioned, avoid injury to existing groundwater rights or to the groundwater resource:
 - i. ☒ The permit should contain condition #(s) Medium water use reporting, 7c (7-yrs measurements);
 - 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 groundwater production from no deeper than _____ ft. below land surface;
- b. ☐ **Condition** to allow groundwater production from no shallower than _____ ft. below land surface;
- c. ☒ **Condition** to allow groundwater production only from the alluvial groundwater 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 Groundwater 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. **Groundwater availability remarks:** In this area the Willamette Aquifer is approximately 160 ft thick and overlain by 50-60 feet of Willamette Silt which is saturated beginning at depths ranging from about 5-15 feet (Conlon and others, 2005; Gannett and Caldwell, 1998; Woodward and others, 1998). Irrigation wells in the area completed in the Willamette Aquifer typically yield from about 100-700 gpm (~0.22-1.5 cfs), and thus the groundwater resource should be capable of providing the requested maximum rate of 0.225 cfs.

Irrigation well density is moderate in the area, but the low proposed rate should preclude injury to existing rights.

Groundwater levels in nearby alluvial aquifer wells appear to be reasonably stable, with no apparent progressive declines.

These facts indicate that water for the proposed use is likely available within the capacity of the resource.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040**C1. 690-09-040 (1): Evaluation of aquifer confinement:**

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	Alluvium	☒	☐

Basis for aquifer confinement evaluation: Proposed Well 1 will tap water-bearing sand and gravel deposits that are confined by 50-60 of low-permeability, fine-grained sediments (Willamette Silt). In the central Willamette Valley, Conlon and others (2005) report that fine-grained deposits (silt and clay) of 'more than 40 ft' thickness typically create confined conditions in the underlying water-bearing sand/gravel deposits. Furthermore, static groundwater levels in nearby wells are above the top of water-bearing units within the aquifer. These factors suggest that proposed Well 1 will obtain groundwater from a confined aquifer.

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	Little Pudding River	140-150	130-140	2750	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Groundwater elevations in the alluvial aquifer are coincident with or above the elevations of SW1 within approximately one mile of proposed Well 1. Furthermore, water table maps in the area indicate that groundwater in the alluvial aquifer system flows towards and discharges into local streams incised in the Willamette Silt (Conlon and others, 2003, 2005; Gannett and Caldwell, 1998). These facts indicate that the alluvial aquifer and local streams are hydraulically connected.

The depletion of local streams by proposed Well 1 will be attenuated, but not eliminated, by the low vertical hydraulic conductivity (permeability) of the Willamette Silt and other clays and silts that lie between the deeper sands and gravels and the stream beds. Net impacts will be small at the onset of pumping but will increase with time until a new equilibrium between local recharge and discharge is reached. At that time depletion is expected to be relatively constant throughout the year.

An unnamed tributary to the Little Pudding River is present approximately 300 feet south of the proposed Well 1 location. A series of aerial photographs dating from 1994 through July 2016 suggest that this reach of the unnamed tributary is intermittent, and thus not subject to interference evaluation.

Water Availability Basin the well(s) are located within: Pudding River > Molalla River – above Mill Creek (WID 151).

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	☐	☐	IS73532B	36.00	☐	67.30	☐	<<25%	☐

- 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.

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?
			☐			☐		☐		☐

Comments: C3a: Stream depletion/interference modeling was not completed for this evaluation because previous model results for similar hydrogeologic settings, coupled with the relatively-low requested allocation, suggest that interference at 30 days is expected to be much less than 25% of the allocated rate.

C3b: not applicable.

- 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													
(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: Not applicable.

- 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 groundwater 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: _____

References Used: Application file: G-18457.

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.

Conlon, T.D., Lee, K.K., and Risley, J.R., 2003, Heat tracing in streams in the central Willamette Basin, Oregon, in Stonestrom, D.A. and Constantz, Jim, eds., Heat as a tool for studying the movement of groundwater near streams: U.S. Geological Survey Circular 1260, chapter 5, p. 29-34.

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, 32 p.

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, 82 p.

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



Oregon Water Resources Department
Water Availability Analysis

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Water Availability Analysis

Detailed Reports

PUDDING R > MOLALLA R - AB MILL CR
WILLAMETTE BASIN

Water Availability as of 7/31/2017

Watershed ID #: 151 ([Map](#))

Date: 7/31/2017

Exceedance Level: 80% ▾

Time: 12:35 PM

Water Availability Calculation

Consumptive Uses and Storages

Instream Flow Requirements

Reservations

Water Rights

Watershed Characteristics

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	1,040.00	124.00	916.00	0.00	36.00	880.00
FEB	1,180.00	114.00	1,070.00	0.00	36.00	1,030.00
MAR	1,010.00	75.70	934.00	0.00	36.00	898.00
APR	787.00	51.50	735.00	0.00	36.00	699.00
MAY	425.00	48.90	376.00	0.00	36.00	340.00
JUN	224.00	69.90	154.00	0.00	36.00	118.00
JUL	109.00	110.00	-0.97	0.00	36.00	-37.00
AUG	71.00	90.20	-19.20	0.00	36.00	-55.20
SEP	67.30	51.40	15.90	0.00	36.00	-20.10
OCT	91.60	11.00	80.60	0.00	36.00	44.60
NOV	363.00	48.30	315.00	0.00	36.00	279.00
DEC	957.00	118.00	839.00	0.00	36.00	803.00
ANN	706,000.00	55,100.00	651,000.00	0.00	26,100.00	627,000.00

Application G-18457 Elder
T6S, R2W, Section 28



Water-Level Trends in Nearby Wells (static levels only)