

Groundwater Application Review Summary Form

Application # G- G-19406

GW Reviewer Dennis Orlowski Date Review Completed: March 21, 2024

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).

WATER RESOURCES DEPARTMENT

MEMO

March 21, 2024

TO: Application G- 19406

FROM: GW: Dennis Orlowski
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

- ☐ YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries
- ☐ NO
-
- ☐ YES Use the Scenic Waterway Condition (Condition 7J)
- ☐ NO
-
- ☐ 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 [Enter] 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 March 21, 2024
 FROM: Groundwater Section Dennis Orłowski
 Reviewer's Name
 SUBJECT: Application G- 19406 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: Robert Jossy County: Washington

A1. Applicant(s) seek(s) 0.2228 cfs from one well(s) in the Willamette River Basin,
Tualatin River subbasin

A2. Proposed use Primary irrigation (43.0 ac) Seasonality: 3/1-10/31

A3. Well and aquifer data (attach and number logs for existing wells; mark proposed wells as such under logid):

POA 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	--	CRBG	0.2228	T1N/R2W-10 NW-SE	415' S, 80' W of NW cor DLC 53

* Alluvium, CRB, Bedrock

POA Well	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Drawdown (ft)	Test Type
1	440 ^a	0-400 ^a	0-400 ^a	--	--	TBD	TBD	TBD

POA Well	Land Surface Elevation at Well (ft amsl)	Depth of First Water (ft bls)	SWL (ft bls)	SWL Date	Reference Level (ft bls)	Reference Level Date
1	230	TBD	TBD	TBD	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** Note a: instead of a single estimated depth, the application provides depth *ranges* for proposed total well depth and casing/seal interval; for this review the greatest depth for each well component was assumed (e.g., assumed total well depth of 440 feet, whereas the application lists a possible range of 380 to 440 feet).

This application is for the use of a single well/POA to provide groundwater for seasonal irrigation of 43.0 acres located in the Helvetia area of Washington County, approximately 1.5 miles due north of Hwy. 26.

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: OAR 690-502-0240 classifies use from unconfined alluvial aquifers. This application proposes use from a confined aquifer in the CRBG, so this rule is not activated.

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

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) 7RLN (with total decline (XX) = 15 ft and interference (YY) = 15 ft); Large water-use reporting;
 - 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 a single aquifer in the CRBG aquifer system 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:** The proposed POA will produce from one or more water-bearing zones in the Columbia River Basalt Group (CRBG), a series of lava flows with a composite thickness that ranges from 600 to 700 feet in this area (Conlon and others, 2005). Each basalt flow is characterized by a series of internal features, including a thin rubble zone at the contact between flows and a thick, dense, and low-permeability interior zone. In some cases, sedimentary layers were deposited during the time between basalt flow emplacements. A flow top, sedimentary interbed and flow bottom are collectively referred to as an “interflow zone.” Unconfined groundwater occurs near the weathered top of the basalts, but most water occurs in interflow zones at the contacts between lava flows. CRBG flow features result in a series of stacked, thin aquifers that are confined by dense flow interiors. The low permeability of the basalt flow interiors usually results in little connection between stacked aquifers, which generally results in tabular aquifers with unique water level heads. These tabular aquifers typically have high transmissivity and low storativity, making them vulnerable to excessive drawdown (Reidel and others, 2002).

Long-term water-level trends in CRBG wells throughout most of the entire Tualatin Valley show significant variability over the past ~30-40 years (see attached hydrographs). CRBG aquifer groundwater levels in the Valley were generally at their lowest from about 2003-2007, after which most wells exhibited either a pronounced and sustained recovery, or generally stabilized. These overall trends were primarily influenced by the cessation of large-scale irrigation pumping in the Valley after many irrigators switched to surface water sources provided by the Tualatin Valley Irrigation District (TVID) around 2005. Locally, a small ASR project at WASH 58925 (ASR LL #017) also began to influence water levels beginning in 2011 (causing unusually pronounced annual variability in WASH 58925 water levels, with similar albeit diminished responses in nearby WASH 5213 and WASH 66930).

The strong anthropogenic influences on local CRBG aquifer water levels complicates evaluation of groundwater availability. Based on its similar planned completion depth/elevation, static water levels in the proposed POA are likely to be similar to those recorded in WASH 5213 and WASH 66930. Despite the persistent wide variability of water levels in both of those wells caused largely by the two reasons discussed previously (reduction of irrigation pumping and local ASR project), the overall record suggests that the proposed use is within the capacity of the local CRBG aquifer system (also taking into account a slight declining trend over the past ~ 5-6 years due to local drought conditions).

The well nearest to the proposed POA with a similar completion depth, WASH 71160, shows a reported yield of 75 gpm on its well log. The proposed rate for this application is 100 gpm (0.2228 cfs), which is generally within the same range as WASH 71160. **However, monitoring and reporting of water levels and water use is required to assure the proposed use is sustainable.**

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	CRBG	☒	☐

Basis for aquifer confinement evaluation: (1) General understanding of CRBG aquifer systems indicate that the vast majority are confined; (2) the CRBG system in this area is overlain by several hundred feet of low-permeability silt and clay, an effective confining unit; (3) static water levels in area CRBG wells are typically far above the water-bearing interflow zones (e.g., WASH 52209).

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	Holcombe Creek	160-170	200-230	5570	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Estimated groundwater levels in the proposed POA are based on levels recorded in nearby WASH 5213 and WASH 66930.

Estimated elevations of perennial streams within approximately one mile of the proposed POA location (actually slightly beyond one mile) are above the estimated groundwater elevation by ~40-70 feet, indicating unlikely connection within that distance. Furthermore, the several hundred feet of low-permeability silt and clay in this area further suggests the POA will not be hydraulically connected to perennial stream reaches within one mile.

Water Availability Basin the well(s) are located within: WID 30201003: McKay Cr > Dairy Creek – at mouth; WID 73545: Rock Cr > Tualatin 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 (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, 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?	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?
		☐	☐			☐		☐		☐

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: Potential hydraulic connection with perennial stream reaches is likely well beyond one mile from the proposed POA location, and thus PSI is not assumed.

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													
(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: N/A

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) N/A;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** None.

References Used: Application G-19406; groundwater reviews for applications G-18405 and G-18538.

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.

Reidel, S.P., Johnson, V.G., and Spane, F.A., 2002, Natural gas storage in basalt aquifers of the Columbia Basin, Pacific Northwest USA—A guide to site characterization: Richland, Wash., Pacific Northwest National Laboratory, 277 p.

US Geological Survey Topographic Map, Forest Grove Quadrangle.

OWRD water level database, includes reported water levels, accessed 3/20/2024.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: N/A Logid: _____

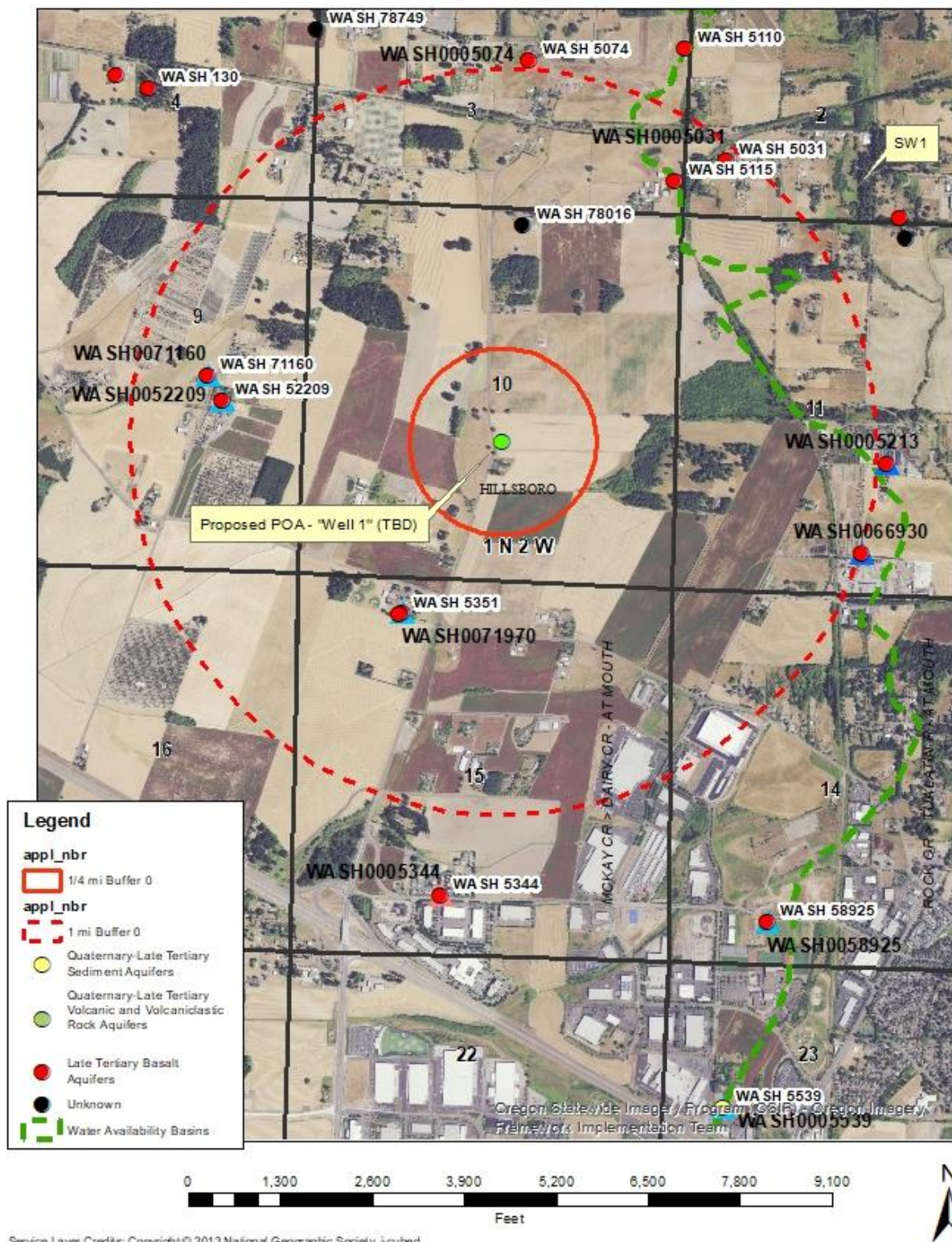
D2. **THE WELL does not appear to meet current well construction standards based upon:**

- a. ☐ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

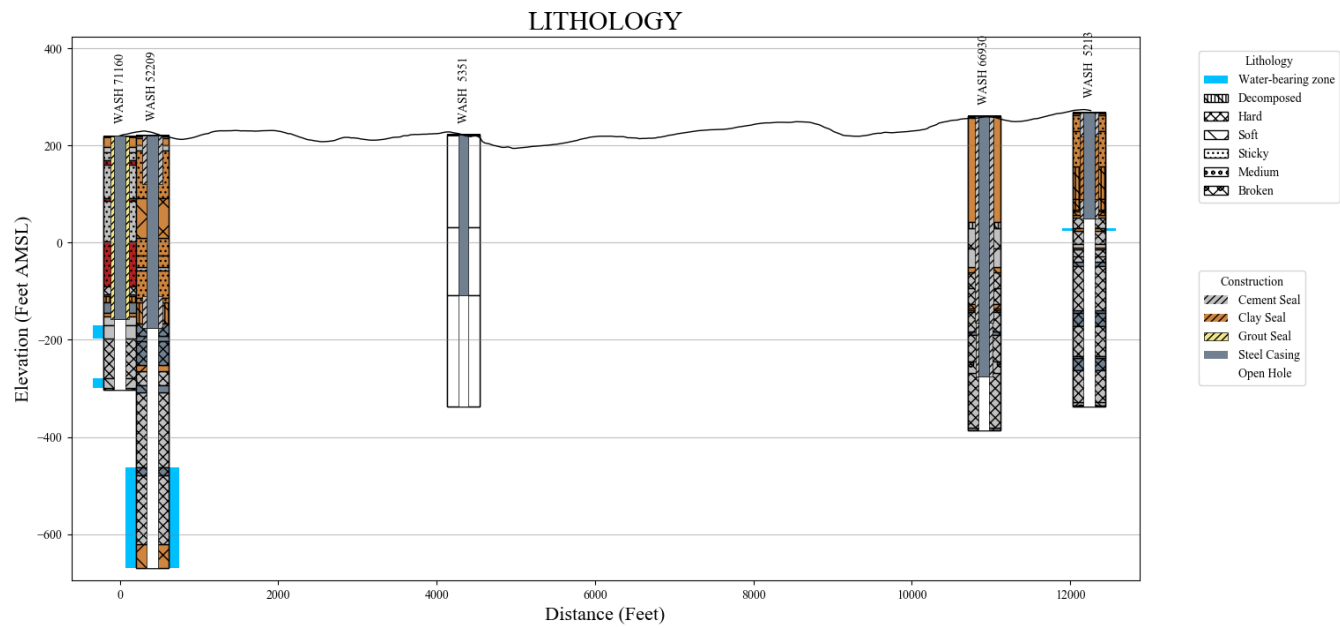
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

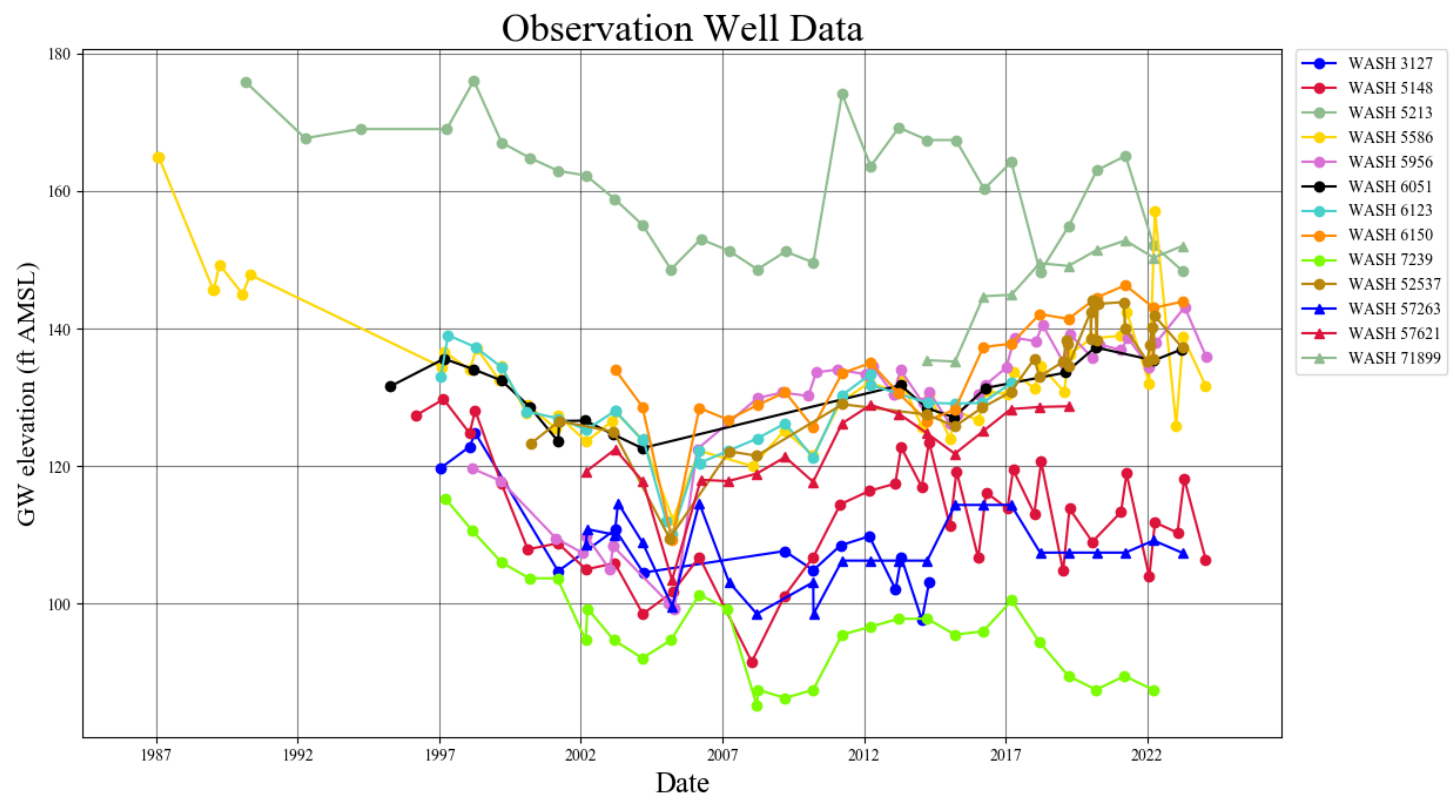
Well Location Map

Application G-19406 - Jossy
T1N, R2W, S10

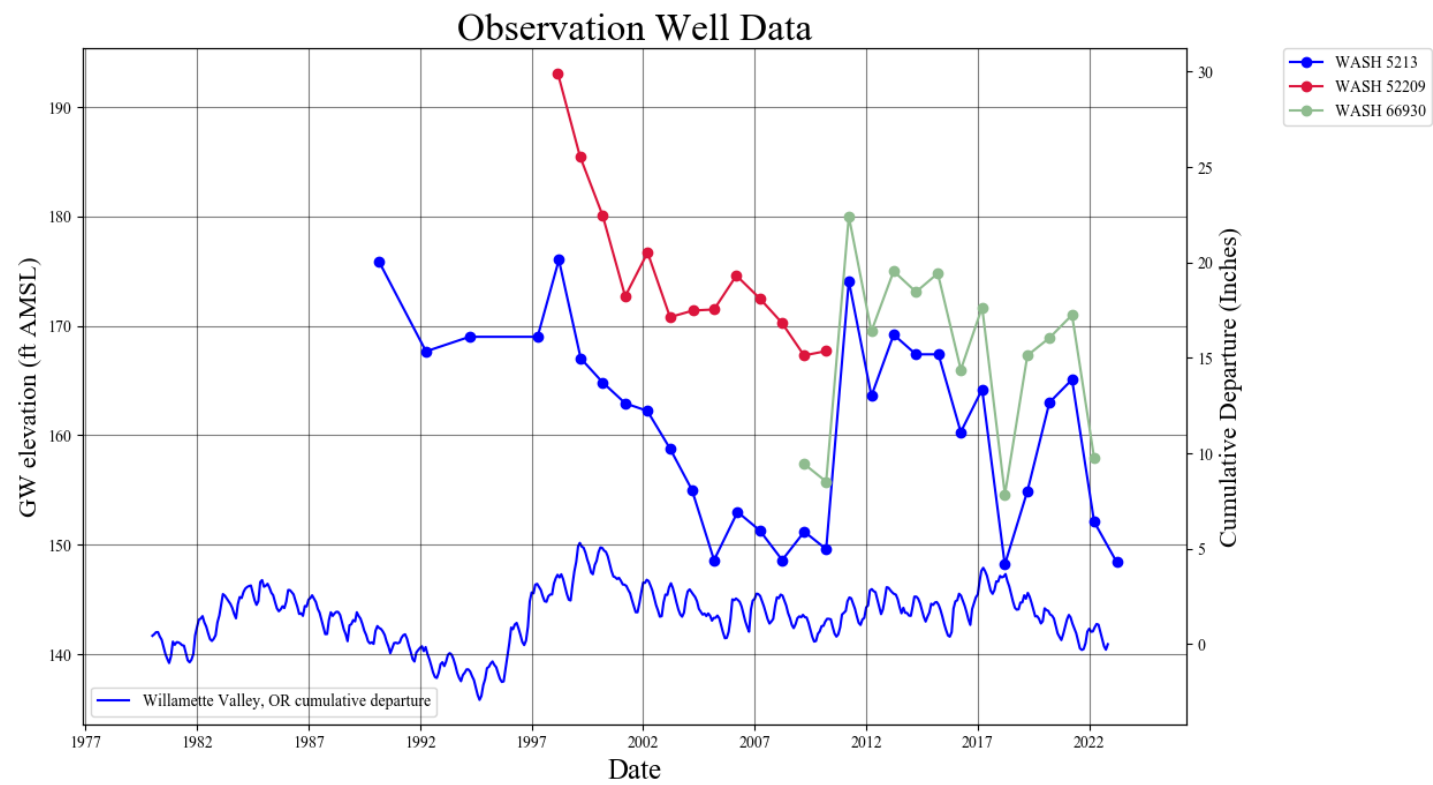
Cross-Section



Water-Level Measurements in wells throughout entire Tualatin Valley (Jan-Apr only)



Water-Level Measurements in wells near the proposed POA location (Jan-Apr only)



Water Availability Tables

Oregon Water Resources Department
Water Availability Analysis

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Water Availability Analysis

Detailed Reports

MCKAY CR > DAIRY CR - AT MOUTH
WILLAMETTE BASIN

Watershed ID #: 30201003 [\(Map\)](#) Water Availability as of 3/21/2024 Exceedance Level: 80%
Date: 3/21/2024 Time: 2:48 PM

Water Availability Calculation

Water Rights

Consumptive Uses and Storages

Instream Flow Requirements

Watershed Characteristics

Reservations

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	99.10	4.17	94.90	0.00	0.00	94.90
FEB	129.00	4.47	125.00	0.00	0.00	125.00
MAR	103.00	3.85	99.10	0.00	0.00	99.10
APR	56.00	3.40	52.60	0.00	0.00	52.60
MAY	25.50	3.65	21.80	0.00	0.00	21.80
JUN	13.50	4.54	8.96	0.00	0.00	8.96
JUL	5.05	6.34	-1.29	0.00	0.00	-1.29
AUG	4.61	5.43	-0.82	0.00	0.00	-0.82
SEP	4.36	2.87	1.49	0.00	0.00	1.49
OCT	6.38	0.36	6.02	0.00	0.00	6.02
NOV	9.48	0.46	9.02	0.00	0.00	9.02
DEC	63.90	4.14	59.80	0.00	0.00	59.80
ANN	72,300.00	2,640.00	69,700.00	0.00	0.00	69,700.00

Version: 07/28/2020

Oregon Water Resources Department
Water Availability Analysis

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Water Availability Analysis

Detailed Reports

ROCK CR > TUALATIN R - AT MOUTH
WILLAMETTE BASINWatershed ID #: 73545 ([Map](#))

Water Availability as of 3/21/2024

Exceedance Level: 80% [v](#)

Date: 3/21/2024

Time: 2:49 PM

- Water Availability Calculation
- Water Rights
- Consumptive Uses and Storages
- Instream Flow Requirements
- Watershed Characteristics
- Reservations

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 Requirements	Net Water Available
JAN	105.00	1.40	104.00	0.00	2.50	101.00
FEB	141.00	1.75	139.00	0.00	2.50	137.00
MAR	115.00	0.99	114.00	0.00	2.50	112.00
APR	60.10	0.77	59.30	0.00	2.50	56.80
MAY	23.80	2.85	21.00	0.00	2.50	18.50
JUN	12.30	3.52	8.78	0.00	2.50	6.28
JUL	2.58	4.93	-2.35	0.00	2.50	-4.85
AUG	2.72	4.22	-1.50	0.00	2.50	-4.00
SEP	3.68	2.21	1.47	0.00	2.50	-1.03
OCT	4.57	0.23	4.34	0.00	2.50	1.84
NOV	4.02	0.48	3.54	0.00	2.50	1.04
DEC	47.40	1.39	46.00	0.00	2.50	43.50
ANN	81,500.00	1,500.00	80,000.00	0.00	1,810.00	78,400.00