

Groundwater Application Review Summary Form

Application # G- 19239

GW Reviewer Gabriela Ferreira / Dennis Orłowski Date Review Completed: 10/26/2022

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

October 26, 2022

TO: Application G- 19239

FROM: GW: Gabriela Ferreira / 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 Clackamas River 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
8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date October 26, 2022
 FROM: Groundwater Section Gabriela Ferreira / Dennis Orlowski
 Reviewer's Name
 SUBJECT: Application G- 19239 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: Richard Wagner County: Clackamas

A1. Applicant(s) seek(s) 0.20 cfs from two well(s) in the Willamette Basin,
Clackamas River subbasin

A2. Proposed use Nursery Seasonality: 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 ^b , e.g. 2250' N, 1200' E fr NW cor S 36
1	PROPOSED	Well 1	Alluvium	0.20 ^a	3S-3E -02 NESW	1,400' N, 1,080' E fr SW cor DLC 55
2	PROPOSED^c	Well 2	Alluvium	0.20 ^a	3S-3E -02 NESW	1,320' N, 1,110' E fr SW cor DLC 55

* 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	525 ^d	TBD	TBD	TBD	250	25	250	TBD	TBD	TBD	TBD	TBD
2	525 ^d	TBD	TBD	TBD	250	25	250	TBD	TBD	TBD	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU is approximately 5 miles northwest of Estacada, Oregon. Applicant proposes irrigation of 8 acres for nursery production. Applicant proposes installation of two new wells for development.

^aThe proposed POA was evaluated at a total rate of 0.20 cfs and 40 acre-feet per year.

^bThe described metes and bounds locations in the application did not match the depicted well locations. The mapped locations are approximately 60 feet from the described metes and bounds locations. This offset appears to be due to a discrepancy in the Public Lands Survey System (PLSS) projection used in the application map and that used by Department. Table A3 includes the description as written in the application; however, the wells were evaluated based on the location as depicted on the map.

^cApplication Section 3 did not include a checkmark for "Proposed" well. Since construction details were described as "TBD", Well 2 was evaluated as a proposed well.

^dLand surface elevation estimated to nearest 5-foot interval from LIDAR at the proposed well site (OLC, 2016)

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 POA is greater than ¼-mile from the nearest stream or surface water source and produces groundwater from a confined alluvial aquifer; therefore, per OAR 690-502-0240, the relevant Willamette Basin rules (OAR 690-502-0040 & 690-502-0140) do not apply.

A6. ☒ **Well(s) #** 1 , 2 , _____ , _____ , _____ , tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: **Clackamas River Scenic Waterway**

Comments: The proposed POA will be hydraulically connected to Foster Creek, which is above and tributary to the Clackamas River State Scenic Waterway (ORS 390.826(3)). Any permit issued pursuant to this application should contain the State Scenic Waterway condition (7j).

Stream depletions due to the proposed use will increase with time until a new steady state is reached between recharge (including stream capture) and discharge, at which time approximately 100 percent of the water consumed from the proposed POA will be depleted from surface water (Theis, 1940; Bredehoeft, 2011; Barlow and Leake, 2012). Therefore, the monthly interference with surface water above the State Scenic Waterway is estimated as 1/12 of the full volume of consumptive use, assuming that at steady state the depletion of surface water will be distributed approximately evenly throughout the year. For nursery and irrigation use, this approach is expected to overestimate stream depletion during the cool, high-precipitation months (when groundwater demand is anticipated to be lowest) and underestimate stream depletion during the hot, dry summer months (when groundwater demand is anticipated to be highest). This bias will be greatest for wells that are closest to streams and will lessen the further a well is located from a stream (Bredehoeft, 2011; Barlow and Leake, 2012).

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) 7n (annual groundwater level measurement), 7j (Scenic Waterway condition), medium 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 175 ft. below land surface;
 - c. ☐ **Condition** to allow groundwater production only from the _____ 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 location is on an upland terrace bounded by several perennial stream reaches, including Foster Creek located approximately 2,700 feet to the northeast, an unnamed tributary to Clear Creek about 3,100 feet to the southwest, and the Clackamas River about 4,500 feet to the east. The larger streams such as Clear Creek and the Clackamas River are deeply incised into underlying Quaternary alluvium/terrace deposits, the Troutdale Formation (specifically the Troutdale Gravel Aquifer (TGA)), and in some areas the Tertiary Sandy River Mudstone (SRM). Basalt flows of the Boring Lava or High Cascade volcanics are also present in the area, although such occurrences are more extensive to the south (Leonard and Collins, 1983; Conlon and others, 2005; Gannett and Caldwell, 1998; Wells and others, 2020).

Local wells obtain groundwater either from the uppermost Quaternary terrace deposits, the Troutdale Formation (specifically the Troutdale Gravel Aquifer (TGA)), or relatively permeable sand and/or gravel units encased within the generally fine-grained Sandy River Mudstone.

At the proposed POA location, available groundwater level data indicate the likely presence of two discrete aquifers: nearby shallower wells (<200 ft deep) have recorded static water level elevations ranging from approximately 480-490 ft msl (e.g., CLAC 69007 and CLAC 55478); deeper wells (>200 feet deep) have recorded static water level elevations ranging from about 340-360 ft msl (e.g., CLAC 60857 and CLAC 72198). It is probable that the shallower wells obtain groundwater from the younger terrace deposits, whereas the deeper wells tap either the TGA or water-bearing deposits within the Sandy River Mudstone (possibly the Troutdale Sandstone Aquifer (TSA)) (Swanson and others, 1993; Wells and others, 2020).

The proposed wells are planned to be relatively deep (250 feet) and thus will also obtain groundwater from either the TGA or the SRM. Although somewhat sparse, local groundwater data for deeper wells in the area (e.g., CLAC 66847 and CLAC 66853) show generally stable conditions for the deep aquifers (see attached hydrograph). Consequently, groundwater in this area does not appear to be over-appropriated.

Median yield for nearby wells was 23 gallons per minute and ranged from 10 to 250 gpm, with most wells yielding less than 40 gpm. The requested rate of 90 gpm from two wells appears high but within the range of yields reported for similar nearby wells.

There are several nearby wells completed within both the shallow and deep aquifer systems:

- The nearest known groundwater user is approximately 0.11 mile (~600 feet) east of the proposed POA and located on the same tax lot. CLAC 63264 is a domestic use well completed to a depth of 121 feet below land surface (bls), thus a “shallow” aquifer well.
- Groundwater permit G-5270 is for the irrigation of 39 acres located approximately 400 feet west of this permit application’s POA location. There are two authorized wells on permit G-5270, but there are no well logs associated with these wells, thus the well completion depths (and source aquifer) are not known.
- Four domestic use wells are located within approximately 2,000 feet of the proposed POA location:
 - CLAC 72198 is a “deep” aquifer well (depth 234 feet bls) located about 1,400 feet to the southeast; CLAC 55478 is nearby at about 1,600 feet to the southeast and is a “shallow” aquifer well (depth 128 ft bls).
 - CLAC 60857 is a “deep” aquifer well (depth 243 ft bls) located about 2,000 feet to the northeast; CLAC 69007 is a “shallow” aquifer well (depth 125 ft bls) located on the same parcel as CLAC 60857.
 - The recorded static water levels for these two sets of co-located wells illustrate the marked difference in heads for the “deep” and “shallow” aquifer system wells.

Despite lacking known completion details, because they are likely the nearest wells to the proposed POA, for this review it was assumed that both wells authorized by permit G-5270 are relatively deeper wells and thus most likely to be affected by the proposed use. A Theis non-equilibrium drawdown analysis was performed to estimate additional drawdown expected at the G-5270 well locations due to the use proposed by this application. The results of the Theis analysis (attached to this review) indicate that this proposed use is unlikely to cause Substantial or Undue Interference, as defined in OAR 690-008-0001(8), to either the G-5270 wells or other nearby similarly completed wells.

NOTE: the application proposes a well seal interval from 0 to 25 feet below land surface, with a total anticipated well depth of 250 feet. However, this proposed well construction would lead to the well obtaining groundwater from the two discrete aquifer systems identified in this area (i.e., the shallower terrace deposits and the deeper TGA and/or SRM aquifer systems). Therefore, to prevent this likely commingling of aquifers, **it is recommended that the seal interval for the proposed POA be extended to at least 175 feet bls.**

The conditions specified in Items B1(d) and B2(b) above are recommended for any permit issued pursuant to this application.

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	☒	☐
2	Alluvium	☒	☐

Basis for aquifer confinement evaluation: Nearby wells completed in alluvium report SWLs above the water-bearing zone(s), indicating a confined aquifer or series of aquifers. Clays and claystone, likely confining units, were identified in nearby well logs (CLAC 60857 and CLAC 72198) at multiple intervals between 75 and 180 feet bls.

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	Foster Creek	350 ^b	340-355 ^c	2680	☒	☐	☐	☐	☒
2	1	Foster Creek	350 ^b	340-355 ^c	2750	☒	☐	☐	☐	☒
1	2	Unnamed tributary to Clear Creek ^a	350 ^b	300-500 ^c	3150	☒	☐	☐	☐	☒
2	2	Unnamed tributary to Clear Creek ^a	350 ^b	300-500 ^c	3120	☒	☐	☐	☐	☒
1	3	Clackamas River	350 ^b	215-220 ^c	4400	☐	☒	☐	☐	☒
2	3	Clackamas River	350 ^b	215-220 ^c	4350	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation:

^a Refers specifically to the perennial reach to the south and southwest of the proposed POA; the mapped unnamed tributary to the west-northwest of the proposed POA location is not a perennial stream reach based on available data (OLC, 2016; USGS, 2014).

^b Available groundwater level data indicates the likely presence of two discrete aquifers in this area: nearby shallower wells (<200 ft deep) (e.g., CLAC 69007 and CLAC 55478) have recorded static water level elevations ranging from approximately 480-490 ft msl; deeper wells (>200 feet deep) (e.g., CLAC 60857 and CLAC 72198) have recorded static water level elevations ranging from about 340-360 ft msl. Because the proposed wells are planned to be deeper (250 feet), a groundwater elevation of 350 ft msl was assumed for this review, based on the levels reported for the nearby existing deep wells.

^c Estimated ranges of stream surface elevations are based LIDAR data for respective perennial reaches within approximately 1 mile of the proposed POA (OLC, 2016)

Because the estimated groundwater elevation for the POA is coincident with or slightly above the estimated elevation ranges for SW 1 (Foster Creek) and SW 2 (unnamed tributary to Clear Creek), the aquifer system proposed to be accessed by the POA is efficiently hydraulically connected to those stream reaches.

Conversely, the estimated elevation range for SW 3 (Clackamas River) is much farther below the estimated groundwater elevation, and thus is not considered to be hydraulically connected, and/or not as efficiently connected as the other streams evaluated. Furthermore, because SW 3 is in the same WAB as SW 1 (Foster Creek) and is also farther away from the proposed POA locations, any potential stream impacts to that WAB will be focused on SW 1.

Water Availability Basin the well(s) are located within:

SW 1, SW 3: WID#80, Clackamas River > Willamette River – at mouth

SW 2: WID#82, Clear Creek>Clackamas River – 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?
1	1	☐	☐	MF80A	400	☐	822	☐	<25%	☐
2	1	☐	☐	MF80A	400	☐	822	☐	<25%	☐
1	2	☐	☐	MF82A	20	☐	5.65	☒	<25%	☒
2	2	☐	☐	MF82A	20	☐	5.65	☒	<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.

	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: C3a: Both proposed POAs (Well 1 and Well 2) trigger a PSI criterion with SW2, the unnamed tributary to Clear Creek; specifically, the requested instantaneous pumping rate of 0.2 cfs exceeds 1% of the 80% natural exceedance flow in the applicable WAB (WID #82).

Anticipated interference with both SW1 and SW2 due to the proposed use was quantitatively estimated using the Hunt (2003) model. Hydraulic parameters used for the analysis were derived from regional data and studies (pumping test reports; Conlon and others, 2005; McFarland and Morgan, 1996) or are within a typical range of published values for the given parameter within the hydrogeologic regime (Freeze and Cherry, 1979). Results from the stream depletion analyses indicate that interference with either SW1 or SW2 is not anticipated to exceed 25 percent of the rate of withdrawal within the first 30 days of pumping.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
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 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-19239

Water well reports: CLAC 55478, CLAC 60857, CLAC 63264, CLAC 69007, CLAC 72198

Barlow, P., and Leake, J., 2012, Streamflow depletion by wells – understanding and managing the effects of groundwater pumping on streamflow: U.S. Geological Survey, Circular 1376, 84 p.

Bredehoeft, J., 2011, Hydrologic trade-offs in conjunctive use management: Ground Water, v. 49, no. 4, p. 468-475.

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, Scientific Investigations Report 2005-5168: U. S. Geological Survey, Reston, VA.

Freeze, R.A. and Cherry, J.A., 1979, Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604 p.

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

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, Vol 8, p. 12-19.

Leonard, A.R. and Collins, C. A. 1983. Ground Water in the Northern Part of Clackamas County, Oregon. Ground Water Report No. 29, Open-File Report 80-1049, 95 p: U.S. Department of the Interior Geological Survey.

McFarland, W.D., and Morgan, D.S., 1996, Description of the Ground-Water Flow System in the Portland Basin, Oregon and Washington, Water Supply Paper 2470-A, 58 p: U. S. Geological Survey, Reston, VA.

Theis, C.V., 1940, The source of water derived from wells: Essential factors controlling the response of an aquifer to development: Civil Engineering, Vol. 10, p. 277-280.

Oregon Lidar Consortium (OLC), 2016, OLC metro 2014 lidar project, Oregon Department of Geology & Mineral Industries, Portland, OR, November 30.

United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

Wells, R.E., Haugerud, R.A., Niem, A.R., Niem, W.A., Ma, L., Evarts, R.C., O'Connor, J.E., Madin, I.P., Sherrod, D.R., Beeson, M.H., Tolan, T.L., Wheeler, K.L., Hanson, W.B., and Sawlan, M.G., 2020, Geologic map of the greater Portland metropolitan area and surrounding region, Oregon and Washington: U.S. Geological Survey Scientific Investigations Map 3443, pamphlet 55 p., 2 sheets, scale 1:63,360, <https://doi.org/10.3133/sim3443>.

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 ReportsCLACKAMAS R > WILLAMETTE R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 10/5/2022

Watershed ID #: 80 (Map)
Date: 10/5/2022Exceedance Level: 80%
Time: 11:34 AM

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	2,670.00	326.00	2,340.00	0.00	1,000.00	1,340.00
FEB	2,900.00	362.00	2,540.00	0.00	1,000.00	1,540.00
MAR	2,800.00	330.00	2,470.00	0.00	1,000.00	1,470.00
APR	3,010.00	399.00	2,610.00	0.00	1,000.00	1,610.00
MAY	2,740.00	398.00	2,340.00	0.00	1,000.00	1,340.00
JUN	1,620.00	309.00	1,310.00	0.00	1,000.00	311.00
JUL	980.00	309.00	671.00	0.00	1,000.00	-329.00
AUG	822.00	294.00	528.00	0.00	890.00	-362.00
SEP	833.00	283.00	550.00	0.00	890.00	-340.00
OCT	882.00	277.00	605.00	0.00	1,000.00	-395.00
NOV	1,630.00	324.00	1,310.00	0.00	1,000.00	306.00
DEC	2,650.00	328.00	2,320.00	0.00	1,000.00	1,320.00
ANN	2,110,000.00	238,000.00	1,870,000.00	0.00	711,000.00	1,200,000.00

Water Availability Analysis
Detailed ReportsCLEAR CR > CLACKAMAS R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 10/5/2022

Watershed ID #: 82 (Map)
Date: 10/5/2022Exceedance Level: 80%
Time: 1:35 PM

Water Availability Calculation

Consumptive Uses and Storages

Instream Flow Requirements

Reservations

Water Rights

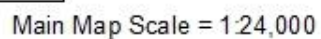
Watershed Characteristics

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	126.00	1.37	125.00	0.00	0.00	125.00
FEB	128.00	1.28	127.00	0.00	0.00	127.00
MAR	128.00	0.90	127.00	0.00	0.00	127.00
APR	131.00	1.05	130.00	0.00	0.00	130.00
MAY	111.00	2.76	108.00	0.00	0.00	108.00
JUN	48.10	3.81	44.30	0.00	40.00	4.29
JUL	19.00	6.52	12.50	0.00	40.00	-27.50
AUG	8.02	5.34	2.68	0.00	20.00	-17.30
SEP	5.65	2.33	3.32	0.00	20.00	-16.70
OCT	6.23	0.97	5.26	0.00	0.00	5.26
NOV	21.50	0.94	20.60	0.00	0.00	20.60
DEC	103.00	1.44	102.00	0.00	0.00	102.00
ANN	99,100.00	1,740.00	97,300.00	0.00	7,260.00	93,200.00

**Application G-19239 Wagner
T3S, R3E, Section 2**



Version: 07/28/2020

Water-Level Measurements in Nearby Wells