

Groundwater Application Review Summary Form

Application # G- 19451

GW Reviewer Stacey Garrison Date Review Completed: 12/17/2024

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

December 17 2024

TO: Application G- 19451

FROM: GW: Stacey Garrison
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES The source of appropriation is hydraulically connected to a State Scenic
☒ NO Waterway or its tributaries

☐ YES
☒ NO Use the Scenic Waterway Condition (Condition 7J)

☐ 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 12/17/2024
 FROM: Groundwater Section Stacey Garrison
 Reviewer's Name
 SUBJECT: Application G- 19451 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: Allen Helm County: Marion

A1. Applicant(s) seek(s) 0.82 cfs from 2 well(s) in the Willamette Basin,
Molalla-Pudding 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):

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	PROP 575	1	CRBG	0.82	7S/2W-26 SE-SW	1175'N, 1700' E fr SW cor S 26
2	PROP 576	2	CRBG	0.82	7S/2W-26 SE-SW	585' N, 1700' E fr SW cor S 26

* 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	300	0 to 5 ft into top of basalt ~ 110 ft	0 to 5 ft into top of basalt ~ 110 ft					
2	300	0 to 5 ft into top of basalt ~ 110 ft	0 to 5 ft into top of basalt ~ 110 ft					

Use data from application for proposed wells.

A4. **Comments:** POAs are approximately five miles east of Salem, OR. Applicant proposes maximum rate of 0.82 cfs (368 gpm) from two wells for irrigation of 65.6 ac from March 1 through October 31 with a maximum annual volume of 164 acre-feet.

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: Proposed POAs are anticipated to develop a confined aquifer, therefore the relevant basin rules 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) 7RLN, Large Water Use;
 - 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 Columbia River Basalt 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. Special Conditions: The conditions detailed in B1(d)(i) and B2(c), above, are recommended for any permit issued pursuant to this application in order to protect the groundwater resource and senior users. In addition, the following Special Conditions should be applied to the proposed wells:

1. Each basalt well shall be cased and continuously sealed from land surface to a depth of at least 50 feet to preclude hydraulic connection to nearby streams.
2. Any well authorized as a Point of Appropriation (POA) under this or subsequent permits shall be open to a single aquifer of the Columbia River Basalt Group and shall meet the applicable well construction standards (OAR 690-200 and OAR 690-210). In addition, the open interval in each well shall be no greater than 100 feet. An open interval of greater than 100 feet may be allowed if substantial evidence of a single aquifer completion can be demonstrated to the satisfaction of the Department Hydrogeologists, using information from a video log, downhole flowmeter, water chemistry and temperature, or other downhole geophysical methods. These methods shall characterize the nature of the basalt rock and assess whether water is moving in the borehole. Any discernable movement of water within the well bore when the well is not being pumped shall be assumed as evidence of the presence of multiple aquifers in the open interval. Single aquifer completion for any well with an open interval greater than 100 ft should be demonstrated to the satisfaction of the Department Hydrogeologists prior to authorization as a POA under this or subsequent permits.

If, during well construction or repair, it becomes apparent that the well can be constructed to eliminate aquifer commingling or interference with hydraulically connected streams in a manner other than specified in this permit, the permittee can contact the Department Hydrogeologist for this permit or the Ground Water/Hydrology Section Manager to request approval of such construction. The request shall be in writing and shall include a rough well log and a proposed construction design for approval by the Department. The request can be approved only if it is received and reviewed prior to placement of any new permanent casing and sealing material. If the request is made after casing and seal are placed, the requested

modification will not be approved. If approved, the new well depth and construction specifications will be incorporated into any certificate issued for this permit.

3. For any well constructed under this or subsequent permits, a dedicated water-level measuring tube shall be installed in each well. The measuring tube shall meet the standards described in OAR 690-215-0060. When requested, access to the wells shall be provided to Department staff in order to make water-level measurements.
4. For any wells constructed or deepened under this or subsequent permits, the applicant shall coordinate with the driller to ensure that drill cuttings are collected at 10 ft intervals and at changes in formation in each well. A split of each sampled interval shall be provided to the Department.
5. If any geologic and hydrogeologic reports are completed for the permittee during the development of permitted wells, including geophysical well logs and borehole video logs, then copies of the reports shall be provided to the Department. Except for borehole video logs, two paper copies or a single electronic copy shall be provided of each report. Digital tables of any data shall be provided upon request.

Groundwater availability remarks: The POAs (PROP 575, PROP 576) are located on Quaternary silts and clays comprised of Missoula flood deposits and older alluvial materials underlain by the Basalt of Silver Falls, a flow in the Frenchman Springs Member of the Wanapum Basalt in the Columbia River Basalt Group (CRBG) aquifer. The POAs would likely utilize water-bearing zones (WBZs) from the Sentinel Bluffs and/or Winter Water members of the Grand Ronde Basalt, or Basalt of Silver Falls from the Frenchman Springs member (Tolan and Beeson, 2001). Aquifers in the CRBG are typically thin interflow zones between lava flows and confined by thicker flow interiors that have low porosity and low permeability (Conlon et al., 2005; Gannett and Caldwell, 1998; Reidel et al., 2002). The interconnected pore spaces of the thin interflow zones have limited storage space for water and are thus more likely to experience rapid drawdown. The Basalt of Silver Falls is a single flow that is 60 to 100 ft thick, while the Sentinel Bluffs and Winter Water members are 0 to 130 ft thick; the WBZ(s) in a given flow is thinner than the flow (Tolan and Beeson, 2001). Well logs near the proposed location for the POAs indicate multiple WBZs in the CRBG between 430 and -170 ft amsl with widths from 2 to 127 ft thick^a. The POAs are in an area deformed by faults, possibly resulting in compartmentalization of aquifers (Tolan and Beeson, 2001). There is a concealed northeast trending fault that dips to the northwest located 1.2 miles to the southeast of the POAs, and the POAs are flanked by a pair of northwest trending faults that both dip to the northeast (Tolan and Beeson, 2001). The degree of compartmentalization due to nearby faults, which is unknown at this time, may exacerbate well-to-well interference and longer-term water level declines in the local basalt aquifer. Although the CRBG is overall plunging to the northeast (Tolan and Beeson, 2001), in the vicinity of the POAs the topography slopes down to the north and the west, likely due to the erosive activity of the Little Pudding River that flows north-northwest here.

A query of wells in the area (see Well Statistics) shows a maximum yield of 1,530 gpm and a median of 430 gpm; the proposed rate of 0.82 cfs (368 gpm) is 24 percent of the maximum and 86 percent of the median. Wells^a within the same fault block as the POAs and utilizing the CRBG have a maximum yield of 900 gpm and a median of 250 gpm; the proposed rate is 41 percent of the maximum and 147 percent of the median. Of the twenty well logs in the same fault block, only two record actual pumping tests, seventeen record air tests, and one is a bailer test. Air and bailer tests tend to be less accurate than pumping tests for determining maximum yield. It is likely that the groundwater resource is capable of supplying the proposed rate.

Water level trends for nearby (0 to 1 miles from POAs) wells are stable (see Water Level Measurements in Nearby Wells). Although there have been notable declines (MARI 8199), these do not appear to represent the dominant trend and have since recovered. There are 26 groundwater POAs on 20 water rights within one mile of the proposed POAs. The groundwater resource is likely not over-appropriated.

The closest proposed-POA-to-groundwater-user distance is 329 ft between POA 1 (PROP 575) and MARI 7746, authorized under Claim GR 3925 with priority date 11/30/1948. It is likely the proposed use would cause some degree of well-to-well interference with MARI 7746. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis). Results indicate that the proposed use is not likely to cause well-to-well interference with MARI 7746 that exceeds the threshold under the standard condition for CRBG aquifers in the Willamette Basin.

Based on this analysis of the available data and under the assumptions previously identified, groundwater for the proposed use is likely available in the amounts requested within the capacity of the resource. If a water right is permitted for this application, the conditions specified in B1.d. and B2.c. are strongly recommended to protect senior users and the groundwater resource.

NOTE: This evaluation considers a conservative scenario for the nearest authorized POA not owned by the applicant. Other authorized POAs in the area may also experience an increase in interference as a result of this application, although to a lesser extent than the scenario evaluated here.

^a CRBG wells within one mile and within the same fault block as the POAs include MARI 7682, MARI 7729, MARI 7736, MARI 7737, MARI 7741, MARI 8199, MARI 9943, MARI 11337, MARI 15392, MARI 16574, MARI 17928, MARI 51838, MARI 57150, MARI 59346, MARI 59543, MARI 59786, MARI 62018, MARI 66255, MARI 66833, MARI 68150.

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	☒	☐
2	CRBG	☒	☐

Basis for aquifer confinement evaluation: A review of CRBG well logs in the area ^a identifies consistent confining layers overlying confined aquifers; the SWL is above the bottom of the confining layer, indicating a confined aquifer.

^a CRBG wells within one mile and within the same fault block as the POAs include MARI 7682, MARI 7729, MARI 7736, MARI 7737, MARI 7741, MARI 8199, MARI 9943, MARI 11337, MARI 15392, MARI 16574, MARI 17928, MARI 51838, MARI 57150, MARI 59346, MARI 59543, MARI 59786, MARI 62018, MARI 66255, MARI 66833, MARI 68150.

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	170-484	203-330	1,230	☒	☐	☐	☐	☒
2	1	Little Pudding River	170-484	197-340	740	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: POA 1 (PROP 575) and POA 2 (PROP 576) are proposed to be continuously cased and sealed at least 5 ft into basalt, at an approximate depth of 110 ft bls [132 and 155 ft amsl, respectively], and with a maximum depth of 330 ft bls [-58 and -35 ft amsl, respectively]. The groundwater elevation and water-bearing zones (WBZs) of surrounding wells ^a vary from 170 to 484 ft amsl and -155 to 430.5 ft amsl, respectively. The local streambed of SW 1 (Little Pudding River) has elevations ranging from 203 to 340 ft amsl. The Little Pudding River (SW 1) flows over the Sentinel Bluffs member of the Grande Ronde Basalt within a mile of the POAs; the Sentinel Bluffs member is overlain by the Basalt of Silver Falls and underlain by the Winter Water member (Tolan and Beeson, 2001). In the portion of SW 1 (Little Pudding River) that flows over the Sentinel Bluffs member, the streambed elevation ranges from 240 to 340 ft amsl. Given the northwest dip of the topography between where SW 1 (Little Pudding River) flows over the Sentinel Bluffs member and the POAs, it is likely that the interflow zone in contact with SW 1 (Little Pudding River) within a mile of the POAs will be developed by the POAs at their proposed location and given their construction. Therefore, it is assumed that there is hydraulic connection between the POAs and SW 1 (Little Pudding River).

^a CRBG wells within one mile and within the same fault block as the POAs include MARI 7682, MARI 7729, MARI 7736, MARI 7737, MARI 7741, MARI 8199, MARI 9943, MARI 11337, MARI 15392, MARI 16574, MARI 17928, MARI 51838, MARI 57150, MARI 59346, MARI 59543, MARI 59786, MARI 62018, MARI 66255, MARI 66833, MARI 68150.

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

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	☐	☐			☐	67.3	☒	*	☒
2	1	☐	☐			☐	67.3	☒	*	☒

Comments: POAs 1 and 2 have hydraulic connection to and the proposed maximum rate of 0.82 cfs (368 gpm) is greater than 1 percent (0.673 cfs, 302 gpm) of the 80 percent Natural Flow (67.3 cfs) for SW 1 (Little Pudding River), so there is PSI per OAR 690-009-0040(4)(c). The applicant may revise the proposed maximum rate to 0.673 cfs (302 gpm) to avoid triggering PSI on this basis without the need for a new groundwater review.

* There is no appropriate model to estimate stream depletion from pumping in fractured rock that is incised by streams. Therefore, the percentage of interference at 30 days is not calculated.

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: N/A, Q is not distributed.

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, streams within a mile evaluated above.

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: **POAs 1 and 2 have hydraulic connection to and the proposed maximum rate of 0.82 cfs (368 gpm) is greater than 1 percent (0.673 cfs, 302 gpm) of the 80 percent Natural Flow (67.3 cfs) for SW 1 (Little**

Pudding River), so there is PSI per OAR 690-009-0040(4)(c). The applicant may revise the proposed maximum rate to 0.673 cfs (302 gpm) to avoid triggering PSI on this basis without the need for a new groundwater review.

References Used:

Application File: G-19451

Pumping Test Files: MARI 63686, MARI 66255, MARI 9943, MARI 7729, MARI 51838, MARI 11337,

Well Reports: MARI 7682, MARI 7729, MARI 7736, MARI 7737, MARI 7741, MARI 8199, MARI 9943, MARI 11337, MARI 15392, MARI 16574, MARI 17928, MARI 51838, MARI 57150, MARI 59346, MARI 59543, MARI 59786, MARI 62018, MARI 66255, MARI 66833, MARI 68150

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.

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.

O'Connor, J.E., Sarna-Wojcick, A., Wozniak, K.C., Polette, D.J., Fleck, R.J., 2001, *Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon*; U.S. Geological Survey, Professional Paper 1620, 51 p.

Theis, C.V., 1935, *The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground-water storage*: American Geophysical Union transactions, v. 16, p. 519-524.

Tolan, T.L. and Beeson, M.H. Digital Database By DuRoss, C.B. 2001. *Geologic Map and Database of the Salem East and Turner 7.5-Minute Quadrangles, Marion County, Oregon*: A Digital Database: U.S. Geological Survey Open-file Report 00-351, <https://pubs.usgs.gov/of/2000/0351/>.

United States Geological Survey, 2013, *National Elevation Dataset (NED) [DEM geospatial data]*. 1/9th arc-second, updated 2013.

Watershed Sciences, 2009, *LIDAR remote sensing data collection*, Department of Geology and Mineral Industries, Willamette Valley Phase I, Oregon: Portland, OR, December 21.

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 12/13/2024

Watershed ID #: 151 [\(Map\)](#)
Date: 12/13/2024

Exceedance Level: 80%
Time: 1:42 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	1,040.00	125.00	915.00	0.00	80.00	835.00
FEB	1,180.00	114.00	1,070.00	0.00	80.00	986.00
MAR	1,010.00	76.50	934.00	0.00	80.00	854.00
APR	787.00	52.40	735.00	0.00	80.00	655.00
MAY	425.00	51.00	374.00	0.00	80.00	294.00
JUN	224.00	73.20	151.00	0.00	50.00	101.00
JUL	109.00	115.00	-6.28	0.00	40.00	-46.30
AUG	71.00	94.50	-23.50	0.00	36.00	-59.50
SEP	67.30	53.60	13.70	0.00	36.00	-22.30
OCT	91.60	11.50	80.10	0.00	50.00	30.10
NOV	363.00	48.50	314.00	0.00	80.00	234.00
DEC	957.00	118.00	839.00	0.00	80.00	759.00
ANN	706,000.00	56,300.00	650,000.00	0.00	46,500.00	606,000.00

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 12/13/2024

Watershed ID #: 151 [\(Map\)](#)
Date: 12/13/2024

Exceedance Level: 80%
Time: 1:43 PM

Water Availability Calculation

Water Rights

Consumptive Uses and Storages

Instream Flow Requirements

Watershed Characteristics

Reservations

Detailed Report of Instream Flow Requirements

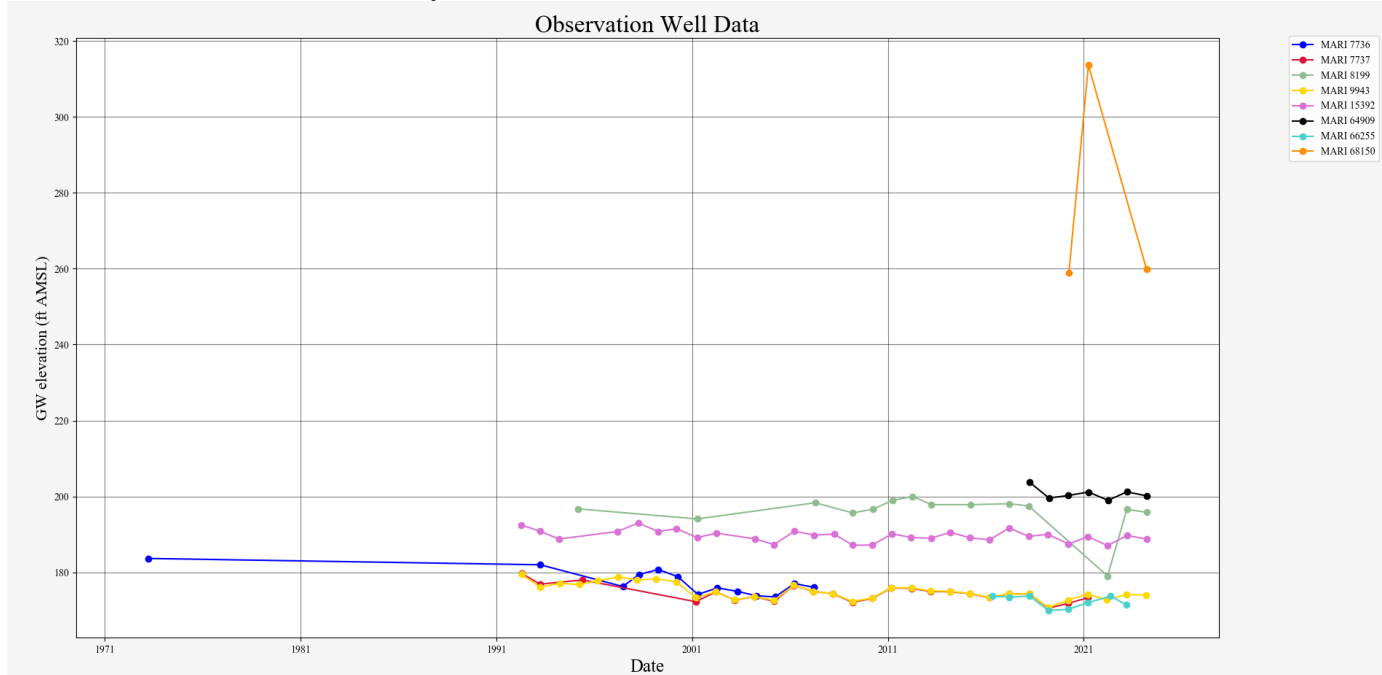
Instream Flow Requirements in Cubic Feet per Second

Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MF151A	CERTIFICATE	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
IS73532B	CERTIFICATE	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00
IS73533A	CERTIFICATE	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
IS73534A	CERTIFICATE	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
IS89621B	APPLICATION	80.00	80.00	80.00	80.00	80.00	50.00	40.00	30.00	30.00	50.00	80.00	80.00
Maximum		80.00	80.00	80.00	80.00	80.00	50.00	40.00	36.00	36.00	50.00	80.00	80.00

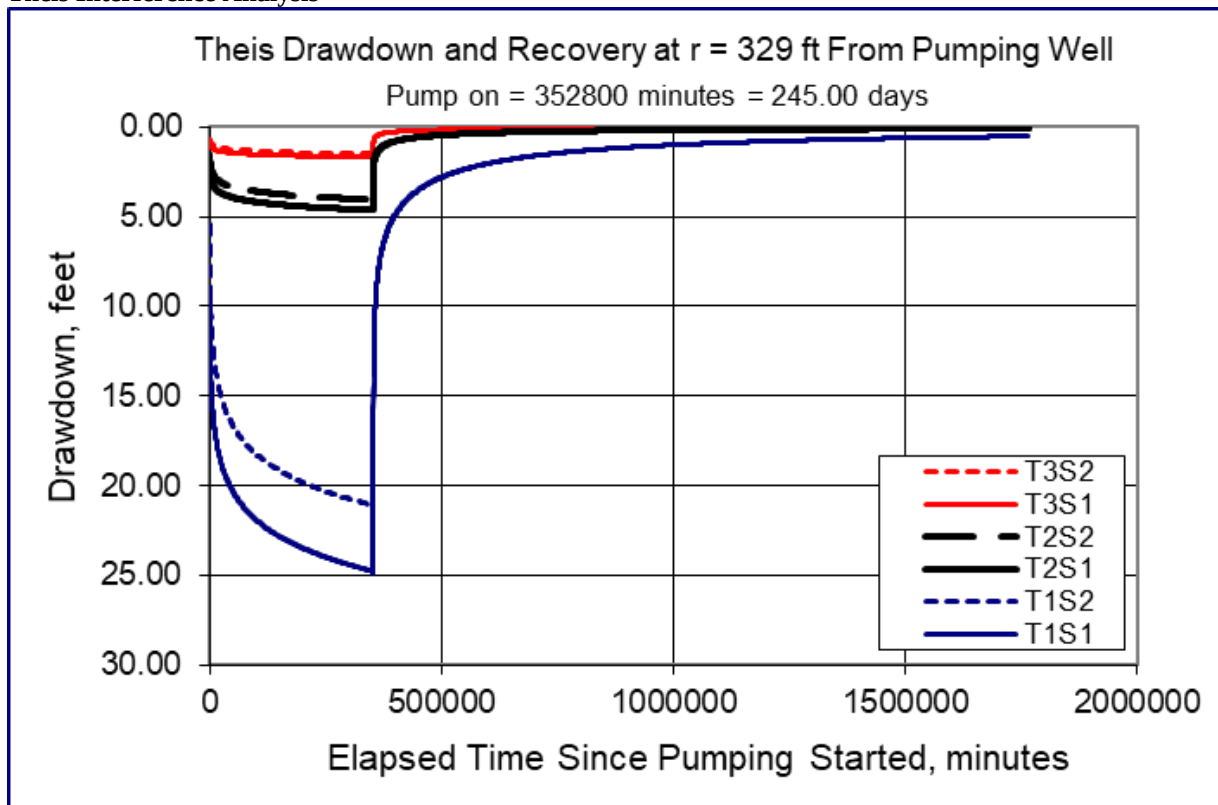
G-19451
Allen Helm



Water-Level Measurements in Nearby Wells



Theis Interference Analysis



Radial distance from pumping well (r)=329 ft [estimated radial distance to nearest user, MARI 7746]

Pumping Rate (Q)= 0.3375 cfs (~151.5 gpm)*

Aquifer Transmissivity (T_1)= 7,600 gpd/ft (1,016 ft²/day), (T_2)= 47,498 gpd/ft (6,350 ft²/day), (T_3)= 142,494 gpd/ft (19,050 ft²/day)

Storativity (s_1) = 0.0001, (s_2) = 0.0005 [Conlon et al 2005, Table 2 values for Central CRB]

Total pumping time=245 days [irrigation season, March 1-October 31]

*The full pumping rate could not be utilized continuously for the entire 245-day period of use without exceeding the 164 ac-ft maximum allowed duty. For the maximum allowed duty of 164 ac-ft, continuous pumping would occur for 245 days at a rate of 0.337484 cfs (~151.473 gpm).