

Groundwater Application Review Summary Form

Application # G- 19422

GW Reviewer Travis Brown 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

12/17/2024

TO: Application G- 19422

FROM: GW: Travis Brown
(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 Travis Brown
 Reviewer's Name
 SUBJECT: Application G- 19422 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: Travis Brown County: Clackamas

A1. Applicant(s) seek(s) 0.5 cfs from 3 well(s) in the Willamette Basin,
Pudding-Molalla subbasin

A2. Proposed use Nursery (20 ac | 100 af/year) Seasonality: Year-round

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 ID	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	CLAC 54578/60358	Well 1	Alluvium	0.5	T5S/R2E-S6 SW-NW	2012' S, 121' E fr NW cor S 6
2	PROP 586	Well 2	Alluvium	0.5	T5S/R2E-S6 SW-NW	1330' S, 25' E fr NW cor S 6
3	PROP 587	Well 3	Alluvium	0.5	T5S/R2E-S6 SW-NW	1850' S, 30' E fr NW cor S 6

* 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	218	0-35	+2-218	TBD	TBD	98 (7/30/2008)	69.2 (7/30/2008)	Pump (7/30/2008)
2	300	0-35	0-300	TBD	TBD	TBD	TBD	TBD
3	300	0-35	0-300	TBD	TBD	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	~281 ^a	4	26.83	2/24/2015	22.50	3/9/2011
2	~279 ^a	TBD	TBD	TBD	TBD	TBD
3	~278 ^a	TBD	TBD	TBD	22.50	3/9/2011

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU is ~1 mile northwest of the City of Molalla, OR. The proposed POA Well 1 (CLAC 54578/60358) is already an authorized POA under Certificate 85578 for 15.46 acres of Nursery Use at a maximum rate of 0.22 cfs.

^a From LIDAR.

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 would produce groundwater from a confined aquifer. Per OAR 690-502-0240, the relevant basin rules do not apply.

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

Name of administrative area: N/A

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 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) 7RLS, 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 Troutdale Formation 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 wells would produce groundwater from the sands and gravels of the Troutdale Formation, which are overlain by confining silt and clay units (O'Connor et al., 2001).

Water levels in nearby wells do not appear to be Declined Excessively or Excessively Declining (see attached Hydrograph). The groundwater resource is not over-appropriated.

The nearest neighboring well to the proposed POA is presumed to be CLAC 9983, ~150 north of proposed Well 2. The potential interference with CLAC 9983 from Well 2 was analyzed using the Theis (1935) solution for drawdown in a confined aquifer (see attached Well Interference Analysis). Results of the analysis indicate that, within 1 week of continuous pumping at the maximum requested rate of 0.5 cfs, interference with CLAC 9983 from the proposed use would likely exceed 25 ft – the limit for acute hydraulic interference under the standard permit conditions for new groundwater rights. Once the permit condition limit is exceeded, the proposed use would need to be curtailed, meaning the proposed use could not operate at the requested rate. **Therefore, the proposed use is beyond the capacity of the groundwater resource.** At a rate of 0.206 cfs, sufficient to exhaust the full duty (100 af) within 245 days (the standard irrigation season – not the requested season of use), the 25 ft limit on hydraulic interference would not likely be exceeded; **if the application were amended to lower the requested rate for proposed POA Well 2 to 0.206 cfs or less, the proposed use would then be within the capacity of the resource and a technical re-review would not be necessary to confirm this finding.**

The next nearest neighboring well is presumed to be CLAC 2208, ~550 ft southwest of proposed Well 1 (CLAC 54578/60358). The potential interference with CLAC 2208 from Well 1 was analyzed using the Theis (1935) solution for drawdown in a confined aquifer (see attached Well Interference Analysis). Results of the analysis indicate that, within 10 days of continuous pumping at the maximum combined rate of 0.72 cfs (under both this application and Certificate 85578), interference with CLAC 2208 from the proposed use would likely exceed 25 ft – the limit for acute hydraulic interference under the standard permit conditions for new groundwater rights. Once the permit condition limit is exceeded, the proposed use would need to be curtailed, meaning the proposed use could not operate at the requested rate. **Therefore, the proposed use is beyond the capacity of the groundwater resource.** At a rate of 0.35 cfs (0.22 cfs from Certificate 85578 plus 0.13 cfs from this application), the 25 ft limit on hydraulic interference would not likely be exceeded; **if the application were**

amended to lower the requested rate on this application for proposed POA Well 1 to 0.13 cfs or less, the proposed use would then be within the capacity of the resource and a technical re-review would not be necessary to confirm this finding.

CLAC 2208 is also presumed to be the closest neighboring well to proposed Well 3, being ~650 ft south of proposed Well 3. The potential interference with CLAC 2208 from Well 3 was analyzed using the Theis (1935) solution for drawdown in a confined aquifer (see attached Well Interference Analysis). Results of the analysis indicate that, within 79 days of continuous pumping at the maximum rate of 0.5 cfs, interference with CLAC 2208 would likely exceed 25 ft - the limit for acute hydraulic interference under the standard permit conditions for new groundwater rights. Once the permit condition limit is exceeded, the proposed use would need to be curtailed, meaning the proposed use could not operate at the requested rate. **Therefore, the proposed use is beyond the capacity of the groundwater resource.** At a rate of 0.206 cfs, sufficient to exhaust the full duty (100 af) within 245 days (the standard irrigation season – *not* the requested season of use), the 25 ft limit on hydraulic interference would not likely be exceeded; **if the application were amended to lower the requested rate for proposed POA Well 3 to 0.206 cfs or less, the proposed use would then be within the capacity of the resource and a technical re-review would not be necessary to confirm this finding.**

Reported yields for nearby wells range from 5-500 gpm (~0.01-1.1 cfs) with a median of 40 gpm (~0.09 cfs) (see attached Well Statistics). POA Well 1 (CLAC 54578/60358) has a yield of at least 98 gpm (~0.218 cfs) as verified by a pumping test conducted on 7/30/2008; however, the Specific Capacity and available water column from the 7/30/2008 pumping test suggest that Well 1 could be capable of yielding up to ~240 gpm (0.535 cfs). Well 1 is already the sole authorized POA under Certificate 85578 for 0.22 cfs of Nursey Use, leaving potentially 0.315 cfs of yield for this application. Therefore, Wells 2 and 3 would need to provide, at minimum, 0.185 cfs collectively and 0.0925 cfs individually. Based on the reported yields for nearby wells, the requested rate is achievable with the proposed POA wells.

The conditions specified in B1(d) and B2(c) are strongly recommended for any permit issued pursuant to this application. The reference level for Well 2 will be determined after well completion and the first annual measurement based on the reference level for Well 1 (22.50 ft bls) with an adjustment for the hydraulic gradient between Well 1 and Well 2.

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	Troutdale Formation	☒	☐
2	Troutdale Formation	☒	☐
3	Troutdale Formation	☒	☐

Basis for aquifer confinement evaluation: Water levels in nearby wells are typically above the applicable water-bearing zone(s) and within overlying fine-grained units. Based on the available evidence, the aquifer is predominantly confined.

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	Bear Creek	~254-258 ^a	~246-296 ^c	~3,060	☒	☐	☐	☐	☐
2	1	Bear Creek	~250-260	~247-290 ^c	~3,660	☒	☐	☐	☐	☐
3	1	Bear Creek	~250-260	~246-294 ^c	~3,160	☒	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Groundwater levels in or near the proposed POA wells are coincident with or above surface water levels in SW 1 (Bear Creek) within 1 mile of the proposed POA. Although SW 1 does not appear to have incised completely through the overlying confining silt and clay units, these units do appear to be saturated and capable of propagating hydraulic stress. Based on the available data and the conceptual model, the proposed POA would be hydraulically connected to SW 1.

^a Based on permit condition measurements for CLAC 54578/60358 under Cert 85578.

^b Estimated from CLAC 54578/60358 permit condition measurements and Woodward et al. (1998).

^c From LIDAR, within 1 mile of proposed POA.

Water Availability Basin the well(s) are located within: SW 1: PUDDING R > MOLALLA R – AB MILL CR

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?	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	☐	☐	N/A	N/A	☐	67.30	☐	<<25%	☐
1	2	☐	☐	N/A	N/A	☐	67.30	☐	<<25%	☐
1	3	☐	☐	N/A	N/A	☐	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.

	SW #		Qw > 5 cfs?	Instream Water Right ID	Instream Water Right Q (cfs)	Qw > 1% ISWR?	80% Natural Flow (cfs)	Qw > 1% of 80% Natural Flow?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐

Comments: Interference with SW 1 (Bear Creek) from the proposed use was analyzed using the Hunt (2003) stream depletion model (see attached Stream Depletion Analysis). Results of the analysis indicate that the proposed use is unlikely to deplete (interfere with) SW 1 at a rate greater than 25% of the rate of pumping within 30 days of continuous pumping. Therefore, the Potential for Substantial Interference (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													
(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:** None

References Used:

Application File: G-19422

Pumping Test Reports: CLAC 2049, 2454, 2473, 12524, 14260, 17723, 18102, 18360, 18557, 54578, 60032, 64005, 64205, 74503, 77268

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.

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

O'Connor, J. E., Sarna-Wojcicki, A., Wozniak, K. C., Polette, D. J., Fleck, R. J., 2001, Origin, Extent, and Thickness of Quaternary Units in the Willamette Valley, Oregon, Professional Paper 1620: U. S. Geological Survey, Reston, VA.

Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, American Geophysical Union Transactions, vol. 16, p. 519-524.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

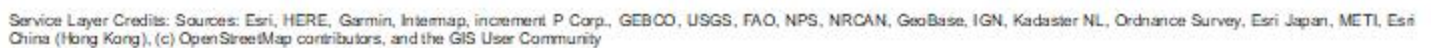
D2. **THE WELL does not appear to meet current well construction standards based upon:**

- 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.**

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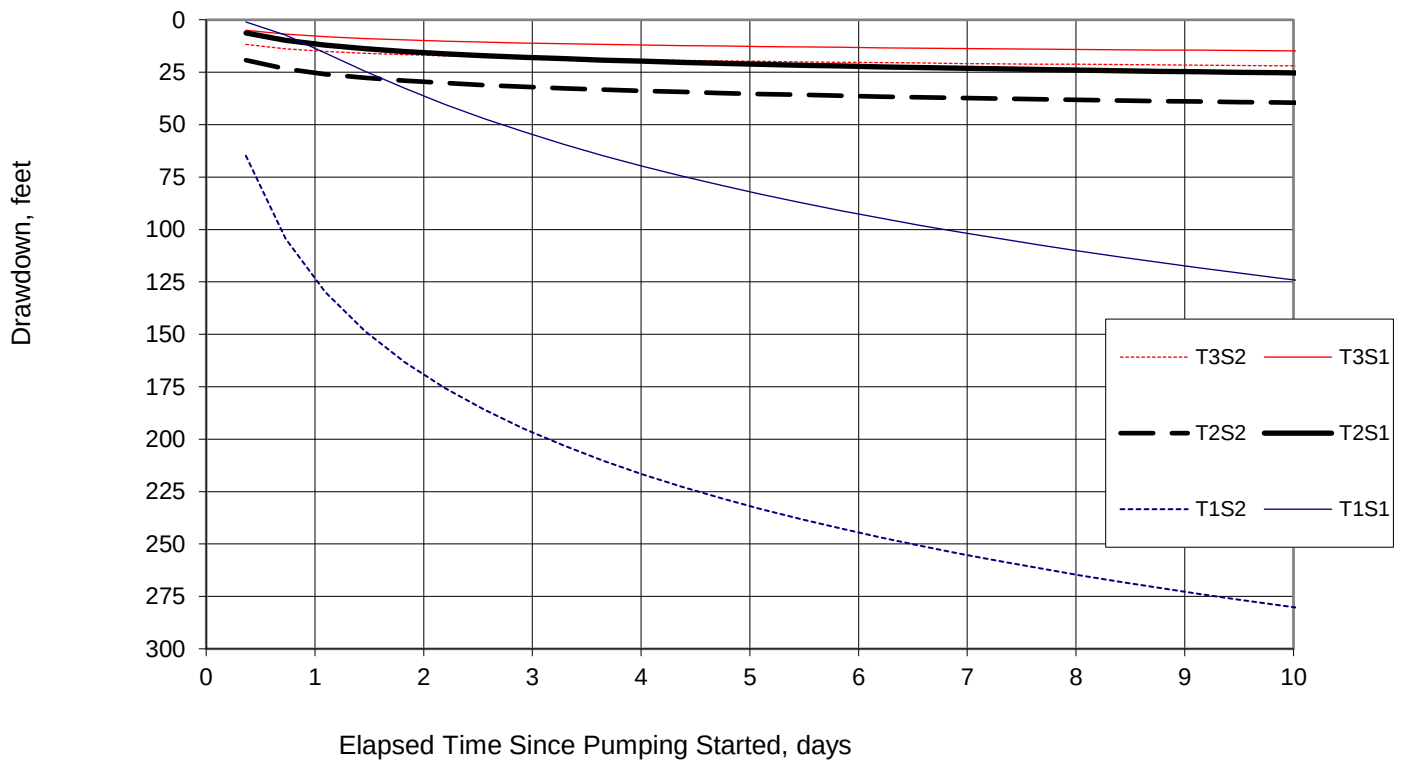


Well Interference Analysis (Theis, 1935)Parameters for All AnalysesTransmissivity: T1 = 70 ft²/day | T2 = 800 ft²/day | T3 = 1,600 ft²/day [Pumping Test Reports]

Storativity: S1 = 0.001 | S2 = 0.0001 [Conlon et al., 2005]

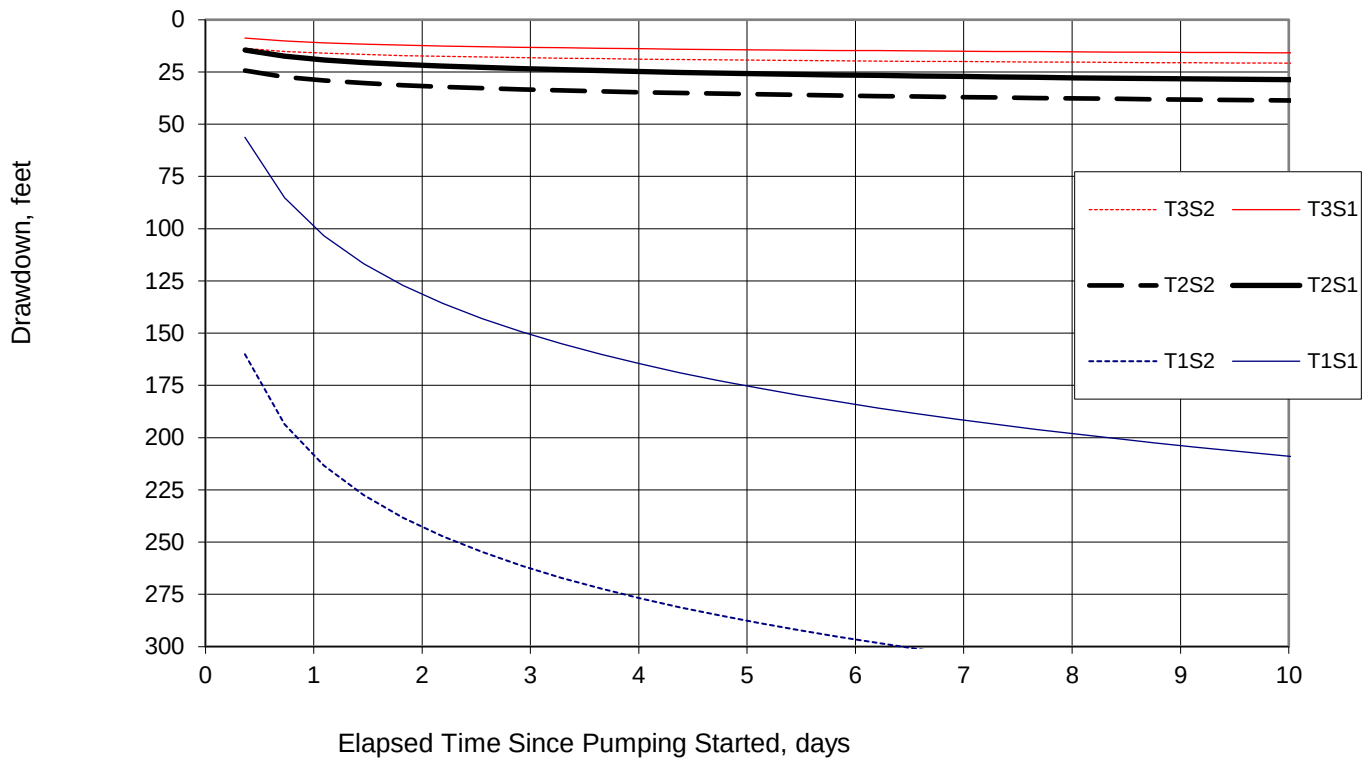
Well 1 to CLAC 2208

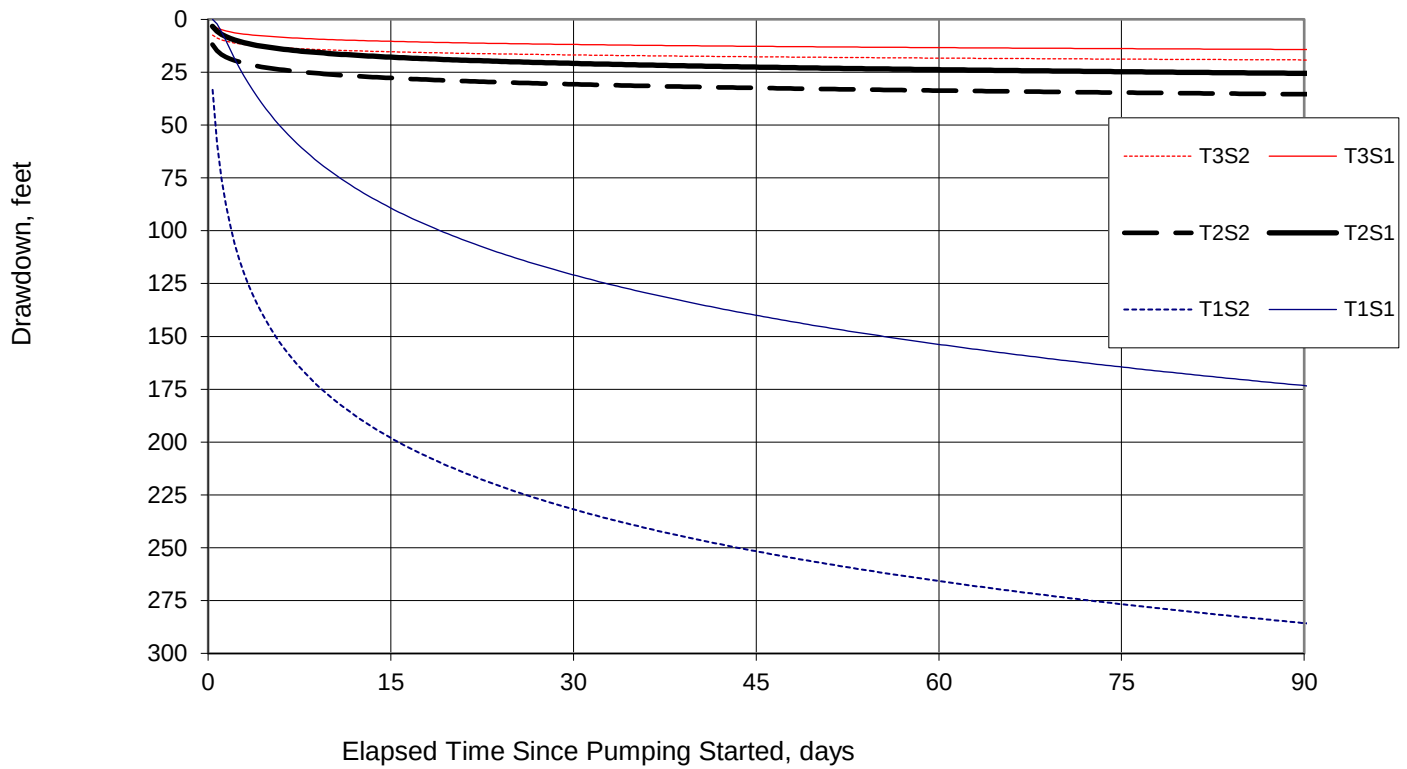
Theis Drawdown and Recovery at r = 550 ft From Pumping Well



Pumping rate, Q = 0.72 cfs [max combined rate under Certificate 85578 and this application]

Radial distance, r = 550 ft [approximate distance to CLAC 2208]

Well 2 to CLAC 9983Theis Drawdown and Recovery at $r = 150$ ft From Pumping WellPumping rate, $Q = 0.5$ cfs [maximum requested rate]Radial distance, $r = 150$ ft [approximate distance from Well 2 to CLAC 9983]

Well 3 to CLAC 2208Theis Drawdown and Recovery at $r = 650$ ft From Pumping WellPumping rate, $Q = 0.5$ cfs [maximum requested rate]Radial distance, $r = 650$ ft [approximate distance from Well 3 to CLAC 2208]

Water Availability Analysis

Water Availability Analysis
Detailed Reports

PUDDING R > MOLALLA R - AB MILL CR
WILLAMETTE BASIN

Water Availability as of 12/17/2024

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

Exceedance Level: 80% ▼

Date: 12/17/2024

Time: 10:38 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	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

Stream Depletion Analysis

Application type:	G
Application number:	19422
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.5
Pumping duration (days):	244.0
Pumping start month number (3=March)	3.0
Plotting duration (days)	365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	3060	3060	3060	ft
Aquifer transmissivity	T	70	800	1600	ft ² /day
Aquifer storativity	S	0.001	0.0005	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.001	0.005	0.01	ft/day
Aquitard saturated thickness	ba	25	18	10	ft
Aquitard thickness below stream	babs	25	18	10	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	10	10	10	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	0	0	0	0	0	0	0	0	0	0	0	0	0
Depletion (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

