Groundwater Application Review Summary Form

Application # G- _19448_

GW Reviewer _Aaron Orr_ Date Review Completed: _02/07/2025_

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 **_February 7, 2025_**

TO: **Application** G-**_19448_**

FROM: **GW:** **_Aaron Orr_**
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☐ **YES**
☐ **NO**

The source of appropriation is hydraulically connected to a State Scenic 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 February 7, 2025
FROM: Groundwater Section Aaron Orr
Reviewer's Name
SUBJECT: Application G- **19448** 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: **Janet Lee** County: **Marion**

A1. Applicant(s) seek(s) 0.226 cfs from 6 well(s) in the Willamette Basin, subbasin

A2. Proposed use Irrigation Seasonality: March 1st – October 31st, 45.25 AF / 18.1 Acres

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	MARI 55650	Roth Well	CRB	0.226	T7S/R2W-34 SE-NW	1966' S, 1400' W fr NE cor DLC 44
2	MARI 61370	Kuenzi Well	CRB	0.226	T7S/R2W-34 NW-SW	1880' N, 190' E fr SW cor S 34
3	MARI 64807	Zeek Well	CRB	0.226	T7S/R2W-33 NW-SE	470' S, 1540' W fr E ¼ cor S 33
4	PROP 564	Proposed Well 1	CRB	0.226	T7S/R2W-33 NE-SE	2100' N, 1010' W fr SE cor S 33
5	PROP 565	Proposed Well 2	CRB	0.226	T7S/R2W-33 NE-SE	2235' N, 595' W fr SE cor S 33
6	PROP 566	Proposed Well 3	CRB	0.226	T7S/R2W-33 NE-SE	2535' N fr SE cor S 33

* 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	240	0 to 178	+1.25 to 178	N/A	N/A	500	47.66	pump
2	445	0 to 223	+2 to 223	N/A	N/A	250	N/A	air
3	505	0 to 107	+3 to 107	N/A	N/A	500	39.75	pump
4	500	0 to 5 feet in competent rock	0 to 5 feet in competent rock	N/A	N/A	N/A	N/A	N/A
5	500	0 to 5 feet in competent rock	0 to 5 feet in competent rock	N/A	N/A	N/A	N/A	N/A
6	500	0 to 5 feet in competent rock	0 to 5 feet in competent rock	N/A	N/A	N/A	N/A	N/A

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	240	84	20.08	3/19/2024	221.24	3/27/2001
2	265	150	44.67	3/19/2024	221.24*	3/27/2001
3	236	49	20.72	4/18/2024	217.24**	3/27/2001
4	240	N/A	N/A	N/A		
5	243	N/A	N/A	N/A		
6	253	N/A	N/A	N/A		

Use data from application for proposed wells.

A4. **Comments:** The POAs and proposed POAs are approximately 1.5 miles southeast of Salem, OR. The applicant proposes to irrigate up to 18.1 acres using the maximum annual volume of 45.25 acre-feet. Note that while the metes and bounds from the PLSS submitted by the applicant match the metes and bounds in the OWRD PLSS projection, POAs 1, 2, and 3 are 80, 90, and 110 feet away from their well locations recorded in the Oregon Groundwater Information System database (GWIS; GPS and field visit verified). Because the well location discrepancies are not all the same bearing from the actual well location, this is likely an issue with the location information that the applicant's agent has for POAs 1-3. The location data used in GWIS was used in this application for POAs 1-3. The proposed well locations for the POAs 4-6 are assumed correct.

*From this application. Water levels in POA 1 and 2 track together.

**From this application. Water levels in POA 3 track with POAs 1 and 2. The difference between water levels at POA 1 and POA 3 in April 2014 is 3.72 feet. The reference level is set to the same date as POAs 1 and 2 and was calculated by subtracting this difference from the reference level set for POAs 1 and 2.

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 POAs are greater than ¼ mile from the nearest surface water source and are for the confined CRB aquifer; therefore, the relevant basin rules (OAR 690-502-0240) do not apply.

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

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

B1. **Based upon available data**, I have determined that groundwater* for the proposed use:

a. ☐ **is** over appropriated, ☒ **is not** over appropriated, *or* ☐ **cannot be determined to be** over appropriated during any period of the proposed use. * This finding is limited to the groundwater portion of the over-appropriation determination as prescribed in OAR 690-310-130;

b. ☐ **will not** *or* ☐ **will** likely be available in the amounts requested without injury to prior water rights. * This finding is limited to the groundwater portion of the injury determination as prescribed in OAR 690-310-130;

c. ☐ **will not** *or* ☐ **will** likely to be available within the capacity of the groundwater resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing groundwater rights or to the groundwater resource:

i. ☒ The permit should contain condition #(s) **7RLN, 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 **Confined Basalt Aquifer** 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 existing POAs (MARI 55650, MARI 61370, MARI 64807) and proposed POAs develop the Columbia River Basalt (CRB) aquifer system (Gannett and Caldwell, 1998; Conlon et al., 2005). 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 & 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 (Tolan & Beeson 2001). Based on well logs for POAs 1-3, the existing wells likely utilize water from the Basalt of Silver Falls (Frenchman Springs member) or the Sentinel Bluffs and/or Winter Water members of the Grand Ronde Basalt. (Tolan & Beeson 2001). The POA is in an area deformed by faults, possibly resulting in compartmentalization of aquifers (Tolan & Beeson 2001). Northwest and northeast trending faults separate the POAs in the following groups: Wells 3, 4, and 5; Wells 2 and 6; Well1. 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.

The nearest streams are Fruitland Creek to the west and Little Pudding River to the east. Water generally flows northwest. Recharge in the Willamette Basin is predominantly from the infiltration of precipitation into the groundwater system (Conlon et al., 2005). The Columbia River Basalt Aquifer is mostly recharged through precipitation and infiltration where the hydrostratigraphic unit is exposed at land surface (Woodward et al., 1998).

There are 307 wells completed within the surrounding Township and Range Sections (~1 mile) of the proposed POAs. The median yield among these wells is 30 gpm, with a maximum well yield of ~1,550 gpm. See **Well Statistics** in the appendix for more details.

For Well 1, the existing rate from Cert 79606 is 1.15 cfs and from Permit G15780 is 0.838 cfs. If all authorizations are utilized, including the proposed rate of 0.226 cfs for this review, **the total pumping rate is 2.21 cfs, or ~992 gpm**. For Well 2, the existing rate from Cert 79606 is 0.783 cfs. If all authorizations are utilized, including the proposed rate of 0.226 cfs for this review, the **total pumping rate is 1.01 cfs or ~ 453 gpm**. For Well 3, the existing rate from Cert 95773 is 0.99 cfs. If all authorizations are utilized, including the proposed rate of 0.226 cfs for this review, the **total pumping rate is the 1.22 cfs, or ~ 548 gpm**. Department-reviewed pump tests on Wells 1 and 3 provide estimates of maximum yield rates: 500 gpm for Well 1 with a drawdown of 47.66 feet, and 500 gpm for Well 3 with a drawdown of 39.75 gpm. The yield for Well 2 (MARI 61370) recorded on the well log is 250 gpm, which is 55 percent of the total pumping rate for this review. Well 2 likely has similar hydraulic properties as Wells 1 and 3. The proposed POAs appear capable of supplying the proposed rate.

Water level trends for CRB wells within 3 miles of the POAs are relatively stable (see **Water Levels Measurements in Nearby Wells**). The static water level in MARI 55650 (POA 1) has declined 2.32 feet since its reference level date of 3/27/2001. MARI 61370 and MARI 64807 (POAs 2 and 3) have experienced similar declines of 2.50 and 2.86 feet over 15 and 10 years, respectively. Variations in static water level in the CRB wells within 3 miles of the POAs do not yet suggest long-term decline in the CRB aquifer.

Given a total pumping rate of 2.21 cfs for POA 1, the nearest well completed in the same aquifer (MARI 18738, 300 feet away) is estimated to experience between 33 and 50 feet of drawdown during a 245-day pumping period. This equates to an additional ~3 to 5 feet of drawdown from pumping an additional 0.226 cfs requested from this application.

Given a total pumping rate of 1.01 cfs for POA 2, the nearest well completed in the same aquifer (MARI 18878, 1,800 feet away) is estimated to experience between 9 and 16 feet of drawdown over a 245-day pumping period. This equates to an additional ~2 to 4 feet of drawdown from pumping an additional 0.226 cfs requested from this application.

Given a total pumping rate of 1.22 cfs for POA 3, the nearest well completed in the same aquifer (MARI 9590, 2,850 feet away) is estimated to experience between 10 and 18 feet of drawdown during a 245-day pumping period. This equates to an additional ~2 to 3 feet of drawdown from pumping an additional 0.226 cfs requested from this application.

POAs 4-6 are within 2,800, 2,400, and 1,750 feet of MARI 18878, respectively, which is also the closest well completed in the same aquifer as POA 2. The difference in radial distances from POAs 4-6 and MARI 18878 equates to a change in drawdown of with 1 foot. Given a total pumping rate of 0.226 cfs, MARI 18878 is estimated to experience ~2 to 4 feet of drawdown over a 245-pumping period when pumping at POA 4, POA 5, or POA 6. Breakdowns of each parameter are described in the **Theis Interference Analysis** section of the appendix.

This analysis of the available data indicates that groundwater for the proposed use **is likely available in the amounts requested and within capacity of the resource.** However, due to the relatively large drawdown and presence of faults in the area, the likelihood of well-to-well interference is substantial enough in the case of POA 1 (MARI 55650) and MARI 18738 that it is suggested that POAs 2-6 are the only wells authorized to pump at the additional rate. **If a water right is permitted for this application, the conditions specified in B1.d., B2.c, and B3 are strongly recommended to protect senior users and the groundwater resource.**

Special Conditions:

To protect senior users and the groundwater resource, the following Special Conditions are recommended:

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.

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	**CRB**	☒	☐
2	**CRB**	☒	☐
3	**CRB**	☒	☐
4	**CRB***	☒	☐
5	**CRB***	☒	☐
6	**CRB***	☒	☐

Basis for aquifer confinement evaluation:
The static water level of the CRB aquifers is 4-10 feet lower than the static water level of the overlying unconfined aquifer.

*The proposed CRB aquifers must be cased and sealed into the confined basalt aquifer and not be open to the unconfined basalt aquifer that is in hydraulic connection with the unconfined sedimentary aquifer.

C2. **690-09-040 (2) (3):** Evaluation of distance to, and hydraulic connection with, surface water sources. All wells located a horizontal distance less than ¼ mile from a surface water source that produce water from an unconfined aquifer shall be assumed to be hydraulically connected to the surface water source. Include in this table any streams located beyond one mile that are evaluated for PSI.

Well	SW #	Surface Water Name	[a]GW Elev ft msl	[b]SW Elev ft msl	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1-6	**1**	**Fruitland Creek**	**215 – 220[a]**	**180 - 250**	**1,800 – 7,700**	☐	☒	☐	☐	☒
1-6	**2**	**Unnamed Trib to Fruitland Creek**	**215 – 220[a]**	**209 - 215**	**5,080 – 8,300**	☐	☒	☐	☐	☒
1-6	**3**	**Little Pudding River**	**215 – 220[a]**	**185 - 195**	**4,550 – 8,300**	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The existing wells, POAs 1-3, all utilize water bearing zones within the confined basalt aquifers. All three POAs sufficiently seal off unconfined aquifers in the sediments or uppermost weathered basalts, and have static water levels 4 to 10 feet lower than the upper unconfined aquifer. The utilized water-bearing zones at each well are below 54 feet msl (POA 1), -4 feet msl (POA 2), and 120 feet msl (POA 3). It does not appear that any streams have incised through the confined basalt aquifer within the vicinity of the POAs. As a result, the existing POAs are not in hydraulic connection with any of the surface water bodies within 1-mile. Provided the proposed wells, POAs 4-6, are sealed to the same aquifer, they will also not be in hydraulic connection with the surface water bodies within 1-mile.

[a]Calculated from subtracting the most recent spring high water measurement from the wellhead elevation at each of the existing POAs. Land surface elevation at the wellheads was calculated using LiDAR data.
[b]Surface water elevations were estimated from land surface elevations along surface waters (Watershed Sciences, 2009; USGS, 2013).

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

		☐	☐			☐		☐		☐

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: N/A

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:

i. ☐ The permit should contain condition #(s)_____;

ii. ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. **SW / GW Remarks and Conditions:** No surface water bodies are hydraulically connected to the existing POAs (1-3). If the proposed POAs are properly constructed, no surface water bodies will be hydraulically connected to POAs 4-6.

References Used:

Application file: G-19448

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.

Gannett and Caldwell, 1998, Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington, USGS Professional Paper 1424-A.

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.

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/.

Woodward et al., 1998, Hydrogeologic Framework of the Willamette Lowland Aquifer System, Oregon and Washinton, USGS Professional Paper 1424-B.

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 Table

Water Availability Analysis
Detailed Reports

PUDDING R > MOLALLA R - AB MILL CR
WILLAMETTE BASIN
Water Availability as of 2/5/2025

Watershed ID #: 151 (Map)
Date: 2/5/2025

Exceedance Level: 80%
Time: 11:00 AM

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

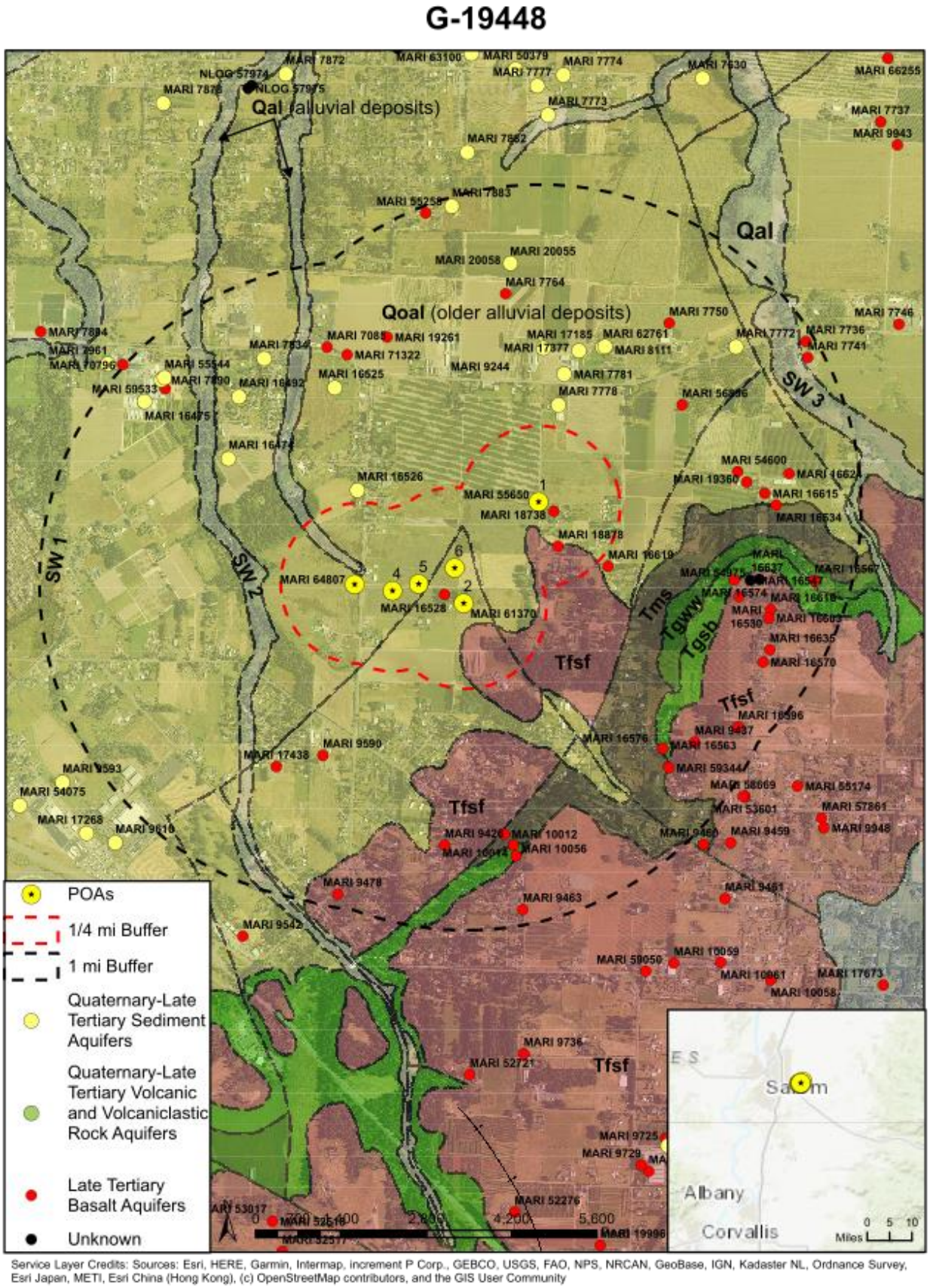
Water Availability Calculation

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	115.00	1,070.00	0.00	80.00	985.00
MAR	1,010.00	76.60	933.00	0.00	80.00	853.00
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	48.60	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	56,400.00	650,000.00	0.00	46,500.00	606,000.00

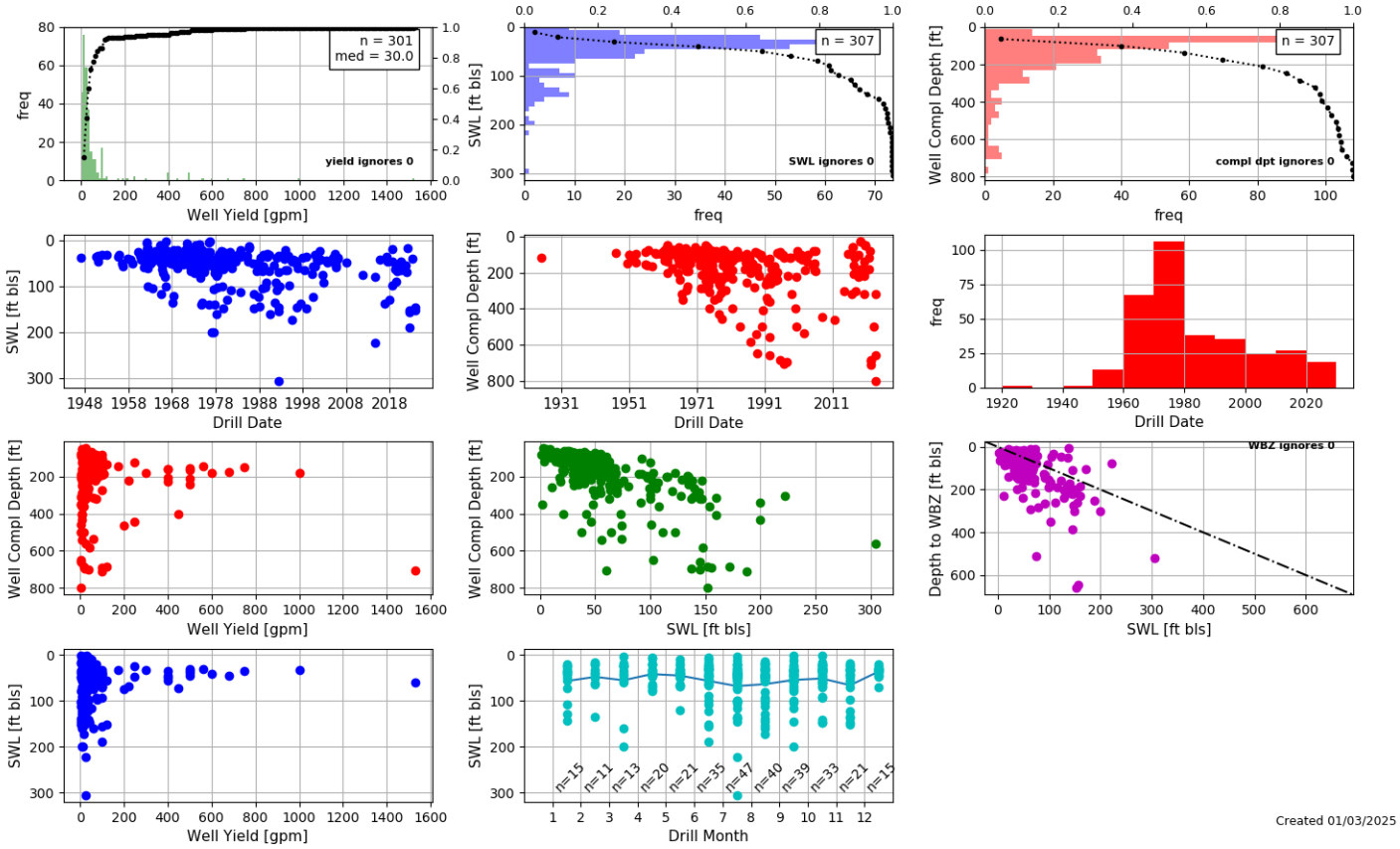
Download Data (Text - Formatted , Text - Tab Delimited , Excel)

Well Location Map



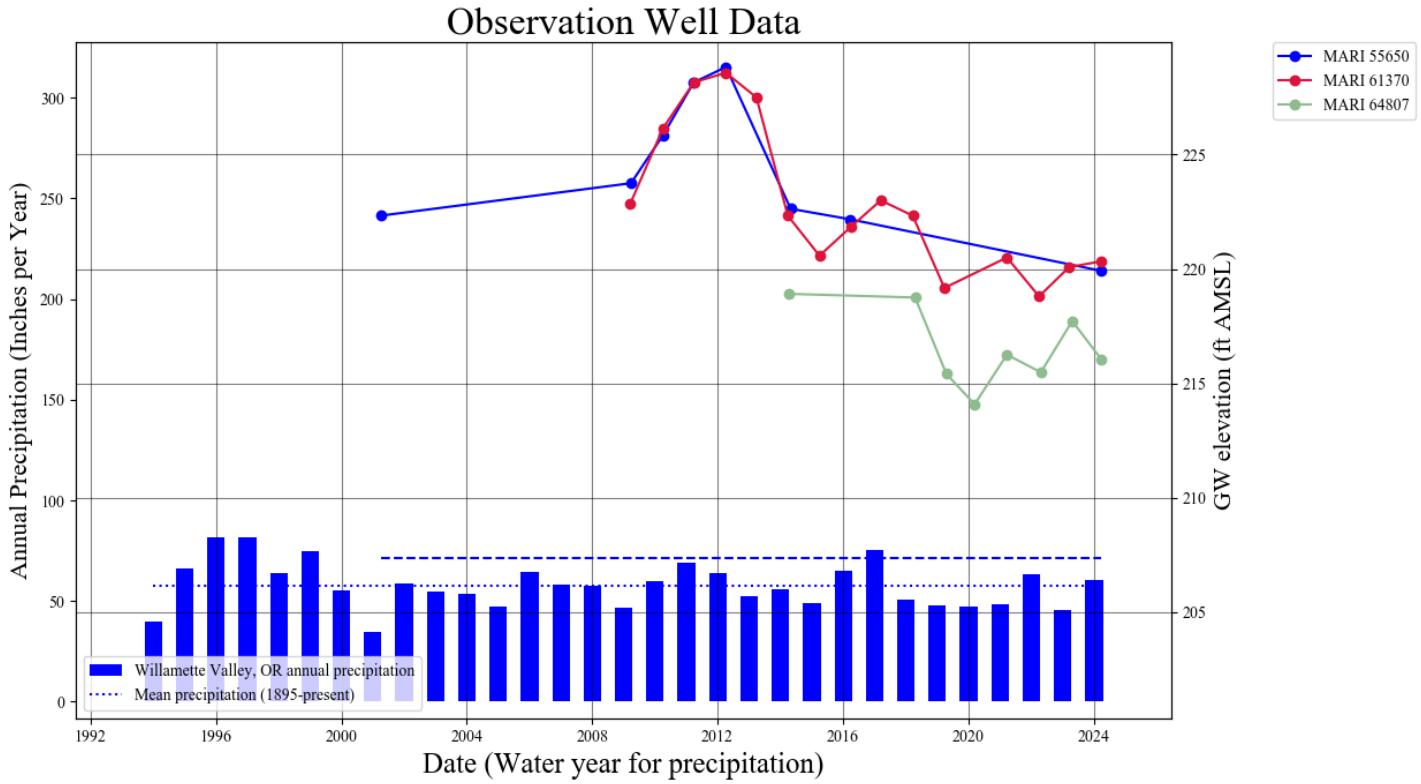
***Tfsf**: Basalt of Silver Falls; **Tgsb**: Sentinel Bluffs Member; **Tgww**: Winter Water Member; **Tms**: Tertiary Marine Sediment. POAs 1, 2, and 3 are MARI 55650, MARI 61370, and MARI 64807, respectively.*

Well Statistics (T7S, R2W, Sections 27, 28, 33, 34)

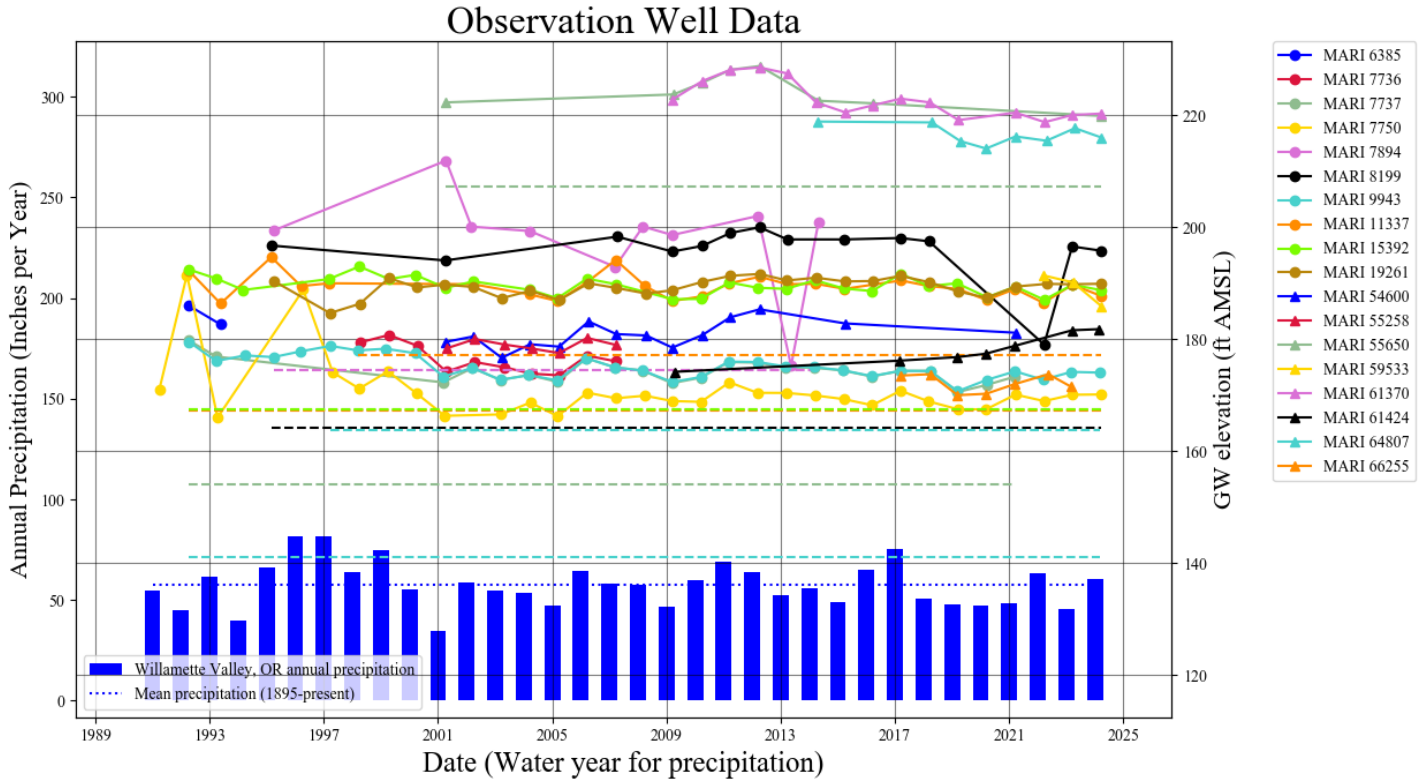


Created 01/03/2025

Water-Level Measurements in Nearby Wells



Static water level hydrograph for POAs 1-3.



Static water level hydrograph for CRB wells within 3 miles of the POAs. Dashed lines indicate permit decline conditions for corresponding wells, none of which have been tripped.

Theis Interference Analysis

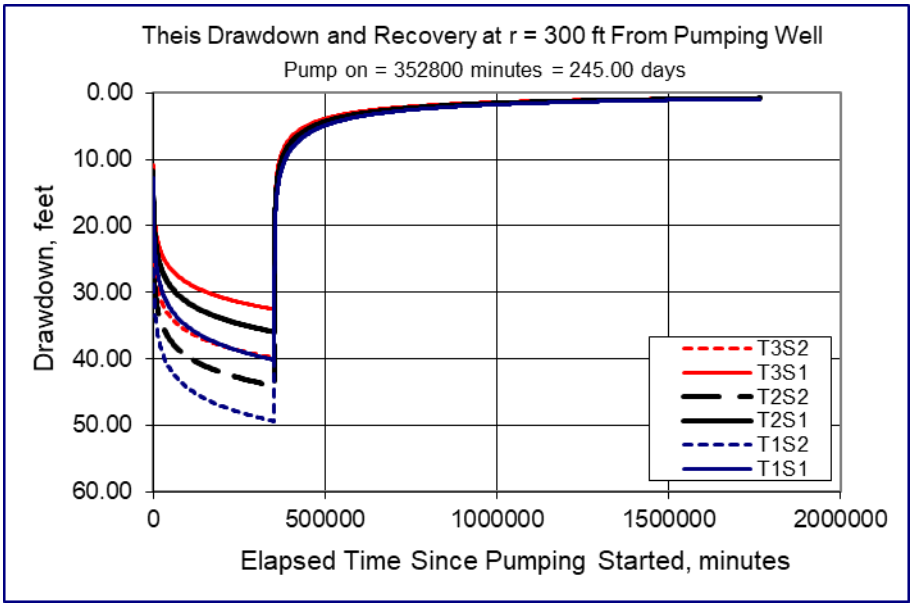
Transmissivity: Values ranged from 3,800 ft^2/day to 4,800 ft^2/day for POA 1 and 3,900 ft^2/day to 5,100 ft^2/day for POAs 2 through 6. The range of values is based on an existing pump test for POA 1 and an existing pump test for POA 3. The range of values for POA 3 was used for POAs 2 through 6 due to the wider range of uncertainty. Transmissivity values were compared to Conlon et al., 2005, Table 2 for validation.

Storativity: 0.0001 to 0.001 (basalt wells in Marion County, Conlon et al., Table 2).

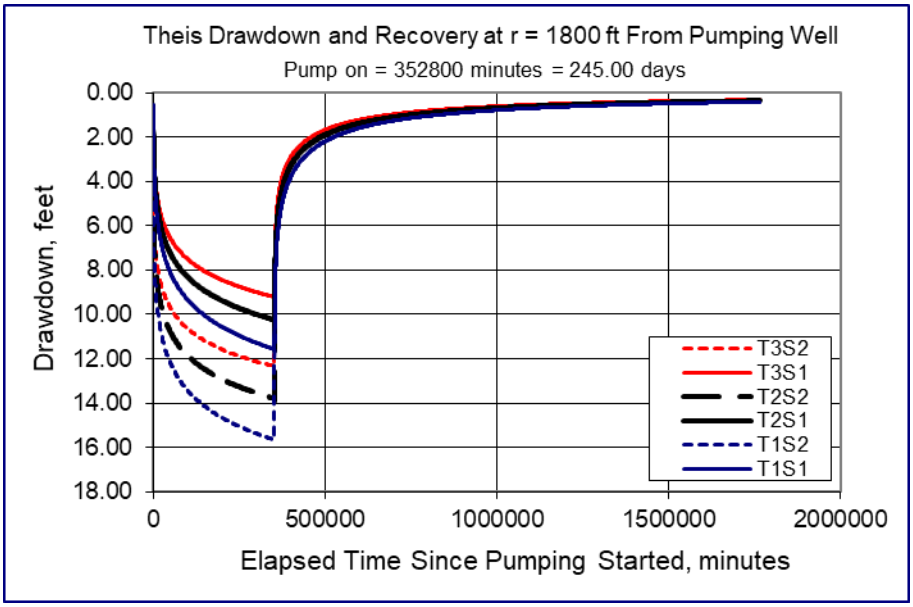
Time: 245 days.

Rate: POA 1: 2.21 cfs (1.15 cfs from Cert 79606 + 0.838 cfs from G15780 + 0.226 cfs)
POA 2: 1.01 cfs (0.783 cfs from Cert 79606 + 0.226 cfs)
POA 3: 1.22 cfs (0.99 cfs from Cert 95733 + 0.226 cfs)
POAs 4-6: 0.226 cfs

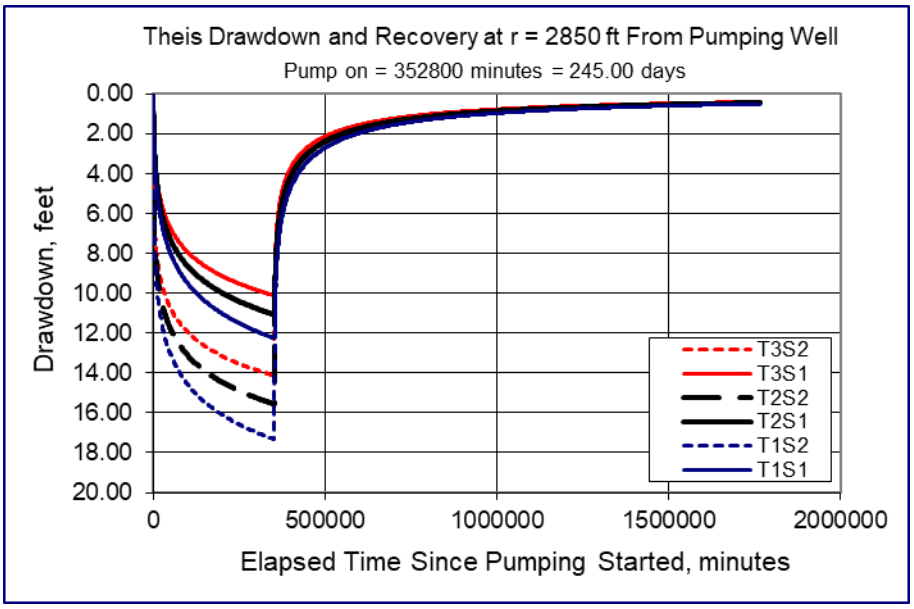
Distances: POA 1: 300 feet to MARI 18738
POA 2: 1,800 feet to MARI 18878
POA 3: 2,850 feet to MARI 9590
POAs 4-6: 2,800; 2,400; 1,750 feet to MARI 18878



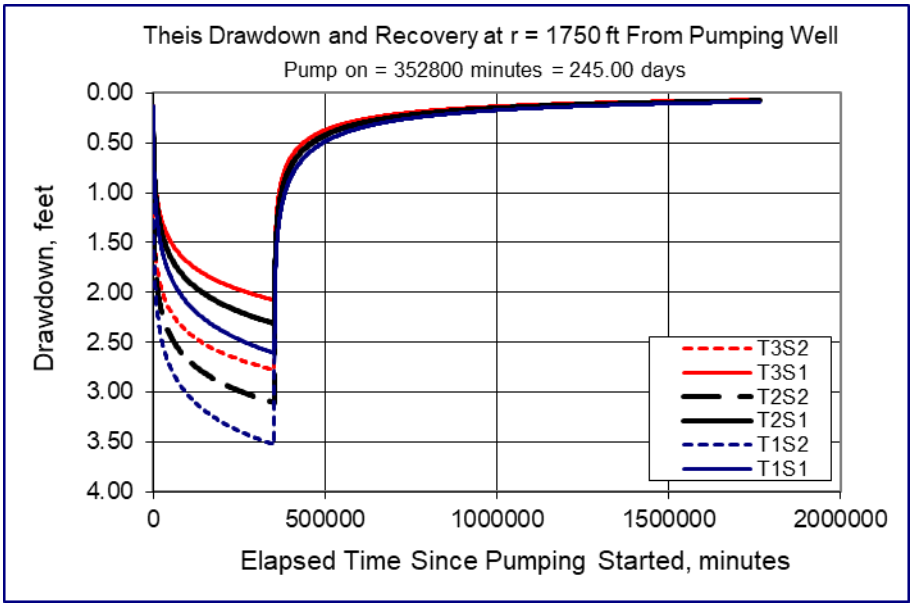
Drawdown at 300 feet away pumping at 2.21 cfs (POA 1)



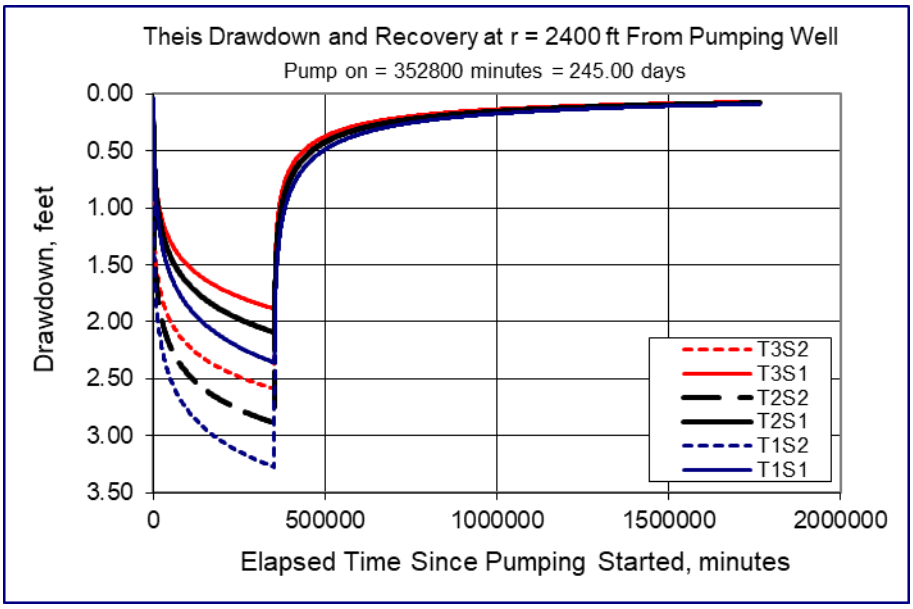
Drawdown at 1,800 feet away pumping at 1.01 cfs (POA 2)



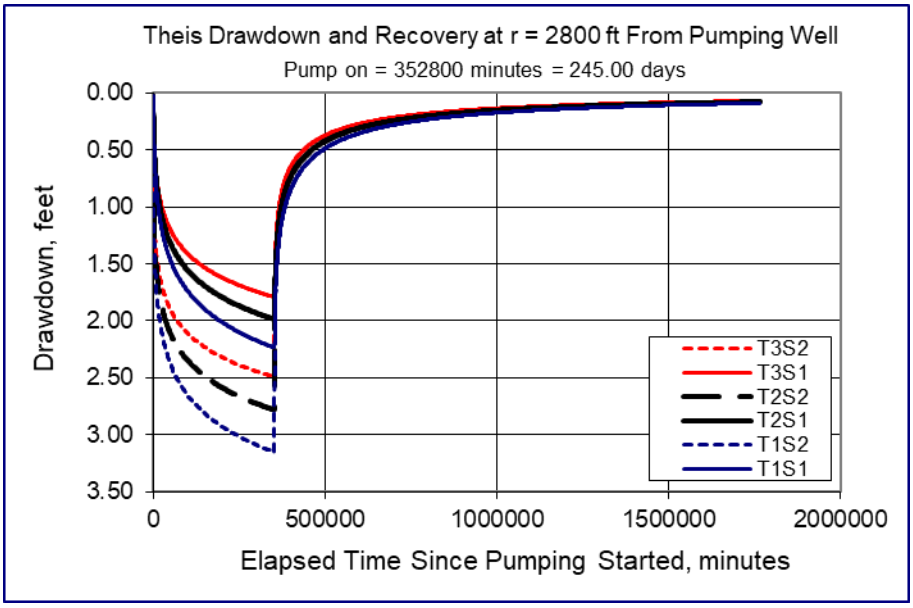
Drawdown at 2,850 feet away pumping at 1.22 cfs (POA 3)



Drawdown at 1,750 feet away pumping at 0.226 cfs (POA 4)



Drawdown at 2,400 feet away pumping at 0.226 cfs (POA 5)



Drawdown at 2,800 feet away pumping at 0.226 cfs (POA 6)