Groundwater Application Review Summary Form

Application # G- 19460

GW Reviewer Stacey Garrison Date Review Completed: 11/12/2025

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 **November 12, 2025**

TO: **Application** G-**19460**

FROM: **GW:** **Stacey Garrison**
(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 11/12/2025

FROM: Groundwater Section Stacey Garrison
Reviewer's Name

SUBJECT: Application G- **19460** Supersedes review of 9/22/2025
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: **Clearlake Farms, LLC** County: **Marion**

A1. Applicant(s) seek(s) 2.88 cfs from 4 well(s) in the Willamette Basin, Molalla-Pudding 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)**:

POA Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)[a]	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	MARI 17388	1/Johnson Well	Alluvium	0.55	6S/3W-23 SE-NE	40' N, 580' W fr E ¼ cor S 23
2	MARI 5169	2/Main Well	Alluvium	1.31	6S/3W-24 NW-NW	1,680' N, 40' E fr W ¼ cor S 24
3	PROP 600	3/Proposed Well	Alluvium	1.34	6S/3W-23 NE-NE	1,040' S, 825' W fr NE cor S 23
4	MARI 5170	4/Canyard Well	Alluvium	0.67	6S/3W-24 SW-NW	870' N, 310' E fr W 1.4 cor S 24

* 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	200	0 to 19	+1 to 200		120 to 150, 183 to 200	500		Air
2	140	0 to 20	0 to 140		80 to 139	700	33	Pump
3	360	0 to 20	0 to 360					
4	112	0 to 15	0 to 112		75 to 111	300	60	Pump

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	183[b]	**75**	**62**	**6/19/1991**	63.53[c]	3/7/2018
2	183[b]	**80**	**42**	**2/16/1971**	40.2[d]	3/21/2001
4	181[b]	**75**	**36**	**9/10/1958**	38.2[d]	3/21/2001

Use data from application for proposed wells.

A4. **Comments:** The proposed POU/POAs are immediately north of city limits for Keizer, Oregon. Applicant proposes a total combined rate not to exceed 2.88 cfs (1,292.5 gpm), an annual volume of 576.5 AF, and well specific rates. Well specific volumes were not proposed, therefore, the maximum volume possible at the proposed rate was used if it was equal to or less than the maximum combined rate, otherwise the maximum combined rate was used as the well specific volumes: POA 1/Johnson Well (MARI 17388) has a rate of 0.55 cfs (246.9 gpm) and a volume of 398.2 AF; POA 2/Main Well (MARI 5169) has a rate of 1.31 cfs (588 gpm) and volume of 576.5 AF; Well 3/Proposed Well (PROP 600) has a rate of 1.34 cfs (601 gpm) and a volume of 576.5 AF; POA 4/Canyard Well (MARI 5170) has a rate of 0.67 cfs (300.7 gpm) and a volume of 485.05 AF.

[a] POAs 1/Johnson Well (MARI 17388), 2/Main Well (MARI 5169), and 4/Canyard Well (MARI 5170) are also authorized under other water rights and will be evaluated at the full combined rate. POA 1/Johnson Well (MARI 17388) is also authorized under Permit G-17828 at a maximum rate of 0.29 cfs and maximum annual duty of 58.5 AF; Claim GR-907 at a maximum rate of 0.0023 cfs and maximum annual duty of 3.75 AF; the total combined maximum rate for **POA 1/Johnson Well (MARI 17388)** is **0.8423 cfs** (378 gpm) and the maximum combined duty is **460.43 AF**. POA 2/Main Well (MARI 5169) is also authorized under Certificate 46698 at a maximum rate of 0.45 cfs and a maximum annual duty of 81.75 AF; Certificate 55720 at a maximum rate of 0.3 cfs and a maximum annual duty of 59.25 AF; Certificate 97362 at a maximum rate of 0.31 cfs and a maximum annual duty of 62.5 AF; the total combined rate for **POA 2/Main Well (MARI 5169)** is **2.37 cfs (1,064 gpm)** and a maximum combined duty of **780 AF**. POA 4/Canyard Well (MARI 5170) is also authorized under

Certificate 46718 at a maximum rate of 0.07 cfs and a maximum annual duty of 14.75 AF; the total combined rate for **POA 4/Canyard Well (MARI 5170)** is **0.74 cfs (332 gpm)** and a maximum combined duty of **500 AF**.

[b] Well head elevation estimated based on LIDAR measurements at proposed well locations (Watershed Sciences, 2009).

[c] Reference level extrapolated from reference level for MARI 17388 set for application G-18341/permit G-17828.

[d] Reference levels extrapolated from nearby well MARI 5148

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 0.25 miles from the nearest surface water source. 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: _____

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) **7RLS, 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 **alluvial** 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 POAs are located on 60 to 80 ft of fine-grained Missoula flood deposits, which overlies the 100 to 120 ft thick Willamette Aquifer that the POAs are likely to develop (O'Connor et al., 2001; Gannett and Caldwell, 1998). Within a mile of the POAs the sand and gravel water-bearing zones, WBZs, of the Willamette Aquifer are between 35 and 400 ft bls [-214 to 129 ft amsl] and range in thickness from 7 to 290 ft[a].

A review of statistics for nearby well records was completed: the median reported well yield is 50 gpm and the maximum reported well yield is 2,000 gpm; of the 754 wells included in the statistical review, only six wells are reported with yields exceeding 1,000 gpm (see Well Statistics). Within one mile of the POAs, the median well yield is 368 gpm and the maximum is 1,200 gpm. Within three miles of the POAs, pumping tests in the Department's database report a maximum discharge of 1,104 gpm; of these 20 pumping tests, 13 reported discharges of less than 400 gpm and only one reported a discharge greater than 1,000 gpm (MARI 17870). The Well Statistics were compared with the highest maximum combined rates for the proposed POAs: 0.84 cfs (378 gpm) for POA 1/Johnson Well (MARI 17388) which is below the reported yield of 500 gpm for this well, 19% of the maximum yield, and 756% of the median yield; 2.37 cfs (1,063.7 gpm) for POA 2/Main Well (MARI 5169) which is above the reported yield of 700 gpm for this well, 53% of the maximum yield, and 2,127% of the median yield; 1.34 cfs (601.4 gpm) for POA 3/Proposed Well (PROP 600) which is 0% of the maximum yield and 1,203% of the median yield; 0.74 cfs (332 gpm) for POA 4/Canyard Well (MARI 5170) which is approximately the same as the reported yield of 300 gpm for this well, 17% of the maximum yield, and 664% of the median yield . The undeveloped POA 3 (PROP 600) is anticipated to be deeper than the existing POAs and may encounter additional WBZs that allow it to have a higher yield than the existing POAs. **The proposed rates of use are likely within the capacity of the groundwater resource.**

Water levels are stable (see Water Level Measurements in Nearby Wells). Of the eleven observation wells within one-and-a-half miles of the POAs, four have records over the last five years: MARI 17269, MARI 68355, MARI 58798, and POA 1/MARI 17388. A couple of observation wells show declines between 20 and 30 years ago, however, more recent measurements indicate recovery of water levels since then. There are 57 POAs for 63 groundwater rights within one mile of

the POAs, however, the overall steady water levels described above indicate that there is a low likelihood of interference with other groundwater users. The groundwater resource is not likely over-appropriated.
It is likely the proposed use would cause some degree of well-to-well interference with nearby wells. The nearest groundwater users to the four POAs are MARI 5080, MARI 5110, and MARI 71298. To assess the degree of drawdown caused by simultaneous pumping of the four POAs at their respective maximum combined rates, the Law of Superposition was used in combination with Theis drawdown analyses. For POA 2/Main Well (MARI 5169), POA 3/Proposed Well (PROP 600), and POA 4/Canyard Well (MARI 5170) the respective full combined rates could not be used for the entire year without exceeding the maximum allowed combined duty; the average rate of use for the maximum allowed combined duty was used.
Results indicate that the proposed use is likely to cause well-to-well interference that exceeds the threshold under the standard conditions for alluvial wells in the Willamette Basin *within 10 days*. Therefore, the proposed use is not within the capacity of the resource.
Based on this analysis of the available data and under the assumptions previously identified, groundwater for the proposed use is likely not within the capacity of the resource; if a permit is issued for this application, the conditions in B1(d)(i) and B2(c) are 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] Well logs within one mile utilizing confined alluvium: MARI 4878, MARI 4880, MARI 4902, MARI 4916, MARI 4991, MARI 5030, MARI 5059, MARI 5064, MARI 5078, MARI 5079, MARI 5084, MARI 5089, MARI 5110, MARI 5148, MARI 5164, MARI 5165, MARI 5167/5112/8106/5098, MARI 5169, MARI 5170, MARI 5180, MARI 5182/5099, MARI 5279, MARI 5280, MARI 17269, MARI 17319, MARI 17388, MARI 17870, MARI 51900, MARI 57704, MARI 58798, MARI 68355, MARI 70362, MARI 71120, MARI 71280, MARI 71298.

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	**Confined sand and gravel**	☒	☐
2	**Confined sand and gravel**	☒	☐
3	**Confined sand and gravel**	☒	☐
4	**Confined sand and gravel**	☒	☐

Basis for aquifer confinement evaluation: The three developed POAs (POA 1/MARI 17388, POA 2/MARI 5169, POA 4/MARI 5170) report static water levels (SWL) well above the top of the WBZ. There were 39 well logs identified within a mile of the POAs[a], of those, 32 in addition to the three developed POAs above reported a SWL higher than the top of the WBZ. The 60-to-80-ft-thick Missoula Flood Deposits mapped at the surface are a confining layer to the underlying sand and gravel WBZs.

[a] Well logs within one mile: MARI 4878, MARI 4880, MARI 4902, MARI 4911, MARI 4914, MARI 4916, MARI 4991, MARI 5030, MARI 5059, MARI 5064, MARI 5076, MARI 5078, MARI 5079, MARI 5080, MARI 5084, MARI 5089, MARI 5110, MARI 5148, MARI 5164, MARI 5165, MARI 5167/5112/8106/5098, MARI 5169, MARI 5170, MARI 5180, MARI 5182/5099, MARI 5279, MARI 5280, MARI 17269, MARI 17319, MARI 17388, MARI 17870, MARI 51900, MARI 57704, MARI 58798, MARI 68355, MARI 70362, MARI 71120, MARI 71280, MARI 71298.

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Clear Lake/Claggett Creek**	**119-121**	**105-106**	**4,250**	☒	☐	☐	☐	☒
2	**1**	**Clear Lake/Claggett Creek**	**141**	**105-106**	**5,050**	☒	☐	☐	☐	☒
3	**1**	**Clear Lake/Claggett Creek**	**107-165[a]**	**105-106**	**4,210**	☒	☐	☐	☐	☒
4	**1**	**Clear Lake/Claggett Creek**	**145**	**105-106**	**5,200**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The groundwater elevation is above or coincident with the surface water elevation for SW 1 (Clear Lake/Claggett Creek), indicating groundwater discharges to surface water and the water table is between 120 and 140 ft amsl (O'Connor et al., 2001; Gannett and Caldwell, 1998). The surface water drainage of SW 1 (Clear Lake/Claggett Creek) has not incised below the elevation of the WBZs of the confined alluvial POAs. Hydraulic connection to SW 1 (Clear Lake/Claggett Creek) is likely but anticipated to be inefficient due to the horizontal distance and the low vertical permeability of the overlying fine-grained sediments.

a Well logs within one mile utilizing confined alluvium: MARI 4878, MARI 4880, MARI 4902, MARI 4916, MARI 4991, MARI 5030, MARI 5059, MARI 5064, MARI 5078, MARI 5079, MARI 5084, MARI 5089, MARI 5110, MARI 5148, MARI 5164, MARI 5165, MARI 5167/5112/8106/5098, MARI 5169, MARI 5170, MARI 5180, MARI 5182/5099, MARI 5279, MARI 5280, MARI 17269, MARI 17319, MARI 17388, MARI 17870, MARI 51900, MARI 57704, MARI 58798, MARI 68355, MARI 70362, MARI 71120, MARI 71280, MARI 71298.

Water Availability Basin the well(s) are located within: WILLAMETTE R>COLUMBIA R-AB MOLALLA R

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**	☐	☐	**MF182A**	**1500**	☐	**3830**	☐	**<25%**	☐

2	**1**	☐	☐	**MF182A**	**1500**	☐	**3830**	☐	**<25%**	☐
3	**1**	☐	☐	**MF182A**	**1500**	☐	**3830**	☐	**<25%**	☐
4	**1**	☐	☐	**MF182A**	**1500**	☐	**3830**	☐	**<25%**	☐

Comments: Potential depletion (interference with) SW 1 (Clear Lake/Claggett Creek) by proposed pumping at POA 1/Johnson Well (MARI 17388), POA 2/Main Well (MARI 5169), POA 3/Proposed Well (PROP 600), and POA 4/Canyard Well (MARI 5170) was estimated using Hunt 2003 analytical model. Hydraulic parameters used for the model were derived from regional data or studies of the hydrogeologic regime (OWRD Well Log Query Report; Conlon et al., 2003, 2005; Iverson, 2002; McFarland and Morgan, 1996; Woodward et al., 1998) or are within a typical range of values for the parameter within the hydrogeologic regime (Freeze and Cherry, 1979; Domenico and Mifflin, 1965). See attached "Stream Depletion Analysis" for the specific parameters used in the analysis. The Hunt 2003 analytical model results indicate that depletion of (interference with) SW 1 due to pumping of the proposed POAs is anticipated to be much less than 25 percent of the well discharge at 30 days of continuous pumping.

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?		Potential for Subst. Interfer. Assumed?
	1		☐	**MF182A**	**1500**	☐	**3830**	☐		☐
			☐			☐		☐		☐

Comments: The combined maximum rate of 2.88 cfs is less than 1% of the 80% Natural Flow (38.3 cfs) and the 1% of the Instream Water Right (15 cfs).

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 one 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:

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:** _____

References Used: _____

Application File: G-19460

Pumping Test Files: MARI 4160, MARI 4614, MARI 5368, MARI 5367, MARI 4792, MARI 17319, MARI 18339, MARI 18339, MARI 4510, MARI 3846, MARI 17870, MARI 58798, MARI 17388, MARI 60275, MARI 5079, MARI 4218, MARI 4218, MARI 4880, MARI 18338, MARI 54503

Well Reports: MARI 4878, MARI 4880, MARI 4902, MARI 4911, MARI 4914, MARI 4916, MARI 4991, MARI 5030, MARI 5059, MARI 5064, MARI 5076, MARI 5078, MARI 5079, MARI 5080, MARI 5084, MARI 5089, MARI 5110, MARI 5148, MARI 5164, MARI 5165, MARI 5167/5112/8106/5098, MARI 5169, MARI 5170, MARI 5180, MARI 5182/5099, MARI 5279, MARI 5280, MARI 17269, MARI 17319, MARI 17388, MARI 17870, MARI 51900, MARI 57704, MARI 58798, MARI 68355, MARI 70362, MARI 71120, MARI 71280, MARI 71298

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O'Connor, J.E., Sarna-Wojcick, A., Woznikak, 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.

Riely, T.E., Franke, O.L., Bennett, G.D. 1987. The Principle of Superposition and its application in Ground-Water Hydraulics. Techniques of Water Resources Investigations 03-B6. 28 p.

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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

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Water Availability Analysis

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Water Availability Analysis
Detailed Reports

WILLAMETTE R > COLUMBIA R - AB MOLALLA R
WILLAMETTE BASIN
Water Availability as of 1/21/2025

Watershed ID #: 182 (Map)
Date: 1/21/2025

Exceedance Level: 80%
Time: 12:23 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	21,400.00	2,310.00	19,100.00	0.00	1,500.00	17,600.00
FEB	23,200.00	7,490.00	15,700.00	0.00	1,500.00	14,200.00
MAR	22,400.00	7,260.00	15,100.00	0.00	1,500.00	13,600.00
APR	19,900.00	6,910.00	13,000.00	0.00	1,500.00	11,500.00
MAY	16,600.00	4,250.00	12,300.00	0.00	1,500.00	10,800.00
JUN	8,740.00	1,980.00	6,760.00	0.00	1,500.00	5,260.00
JUL	4,980.00	1,810.00	3,170.00	0.00	1,500.00	1,670.00
AUG	3,830.00	1,650.00	2,180.00	0.00	1,500.00	681.00
SEP	3,890.00	1,390.00	2,500.00	0.00	1,500.00	998.00
OCT	4,850.00	753.00	4,100.00	0.00	1,500.00	2,600.00
NOV	10,200.00	887.00	9,310.00	0.00	1,500.00	7,810.00
DEC	19,300.00	975.00	18,300.00	0.00	1,500.00	16,800.00
ANN	15,200,000.00	2,250,000.00	13,000,000.00	0.00	1,090,000.00	11,900,000.00

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Oregon Water Resources Department
Water Availability Analysis

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Detailed Reports

WILLAMETTE R > COLUMBIA R - AB MOLALLA R
WILLAMETTE BASIN
Water Availability as of 1/21/2025

Watershed ID #: 182 (Map)
Date: 1/21/2025

Exceedance Level: 80%
Time: 12:24 PM

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

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
MF182A	APPLICATION	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00
Maximum		1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00

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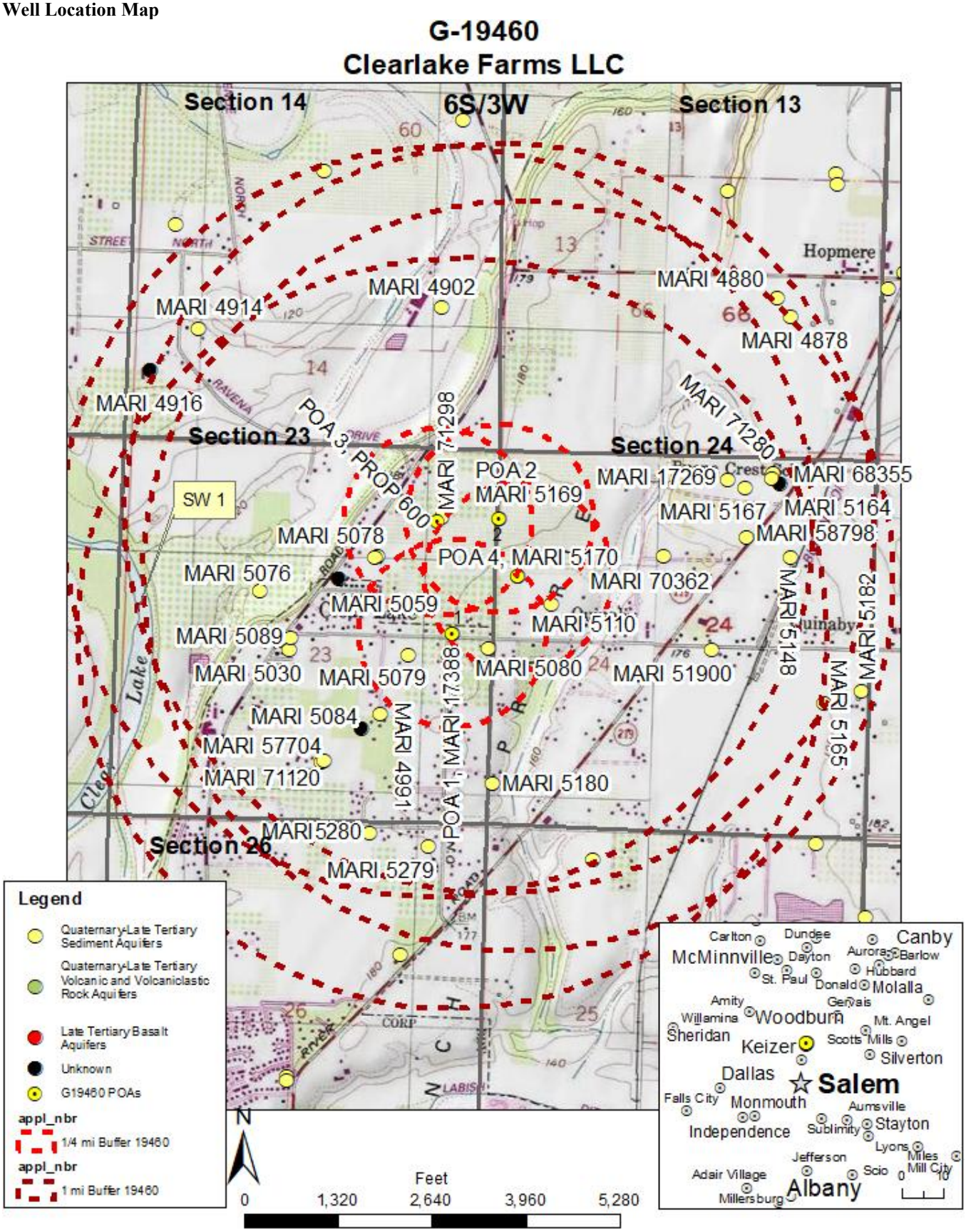
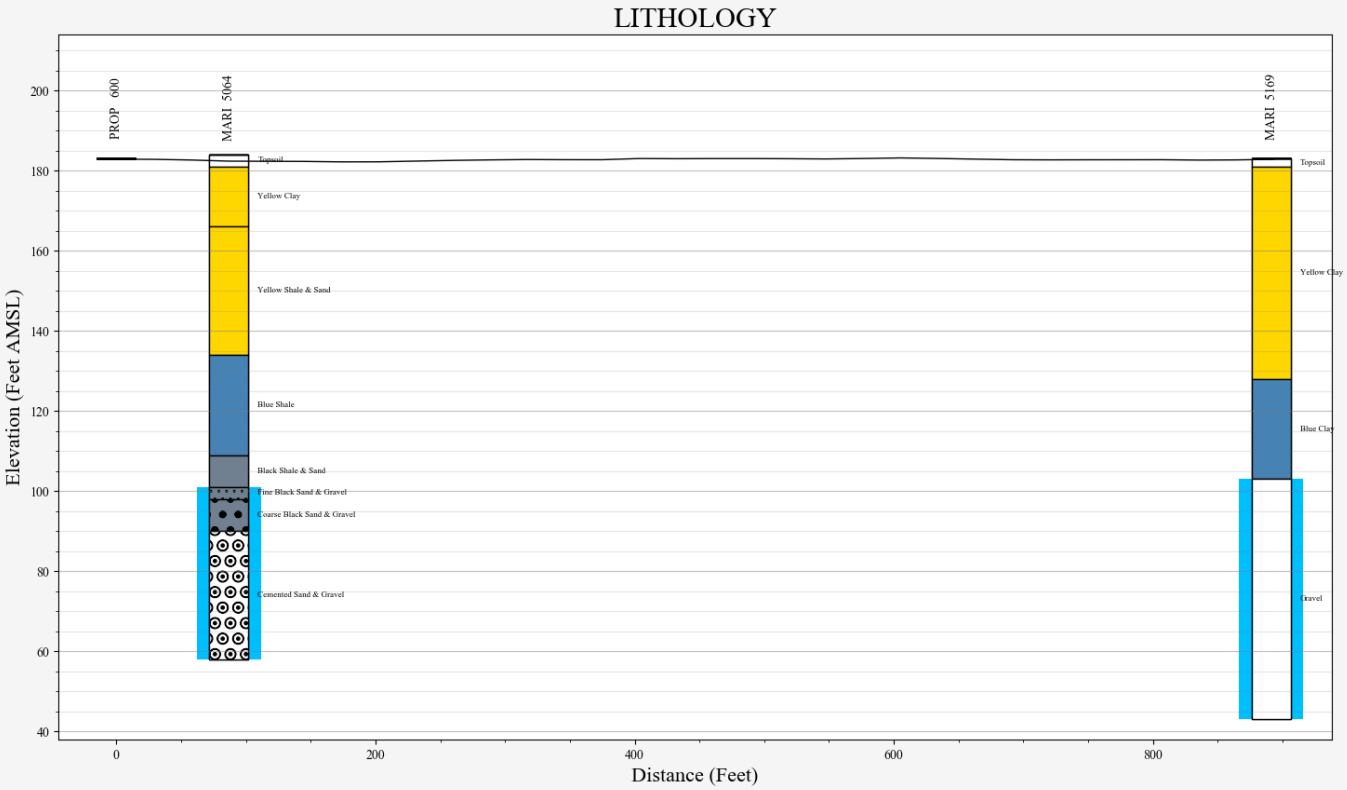
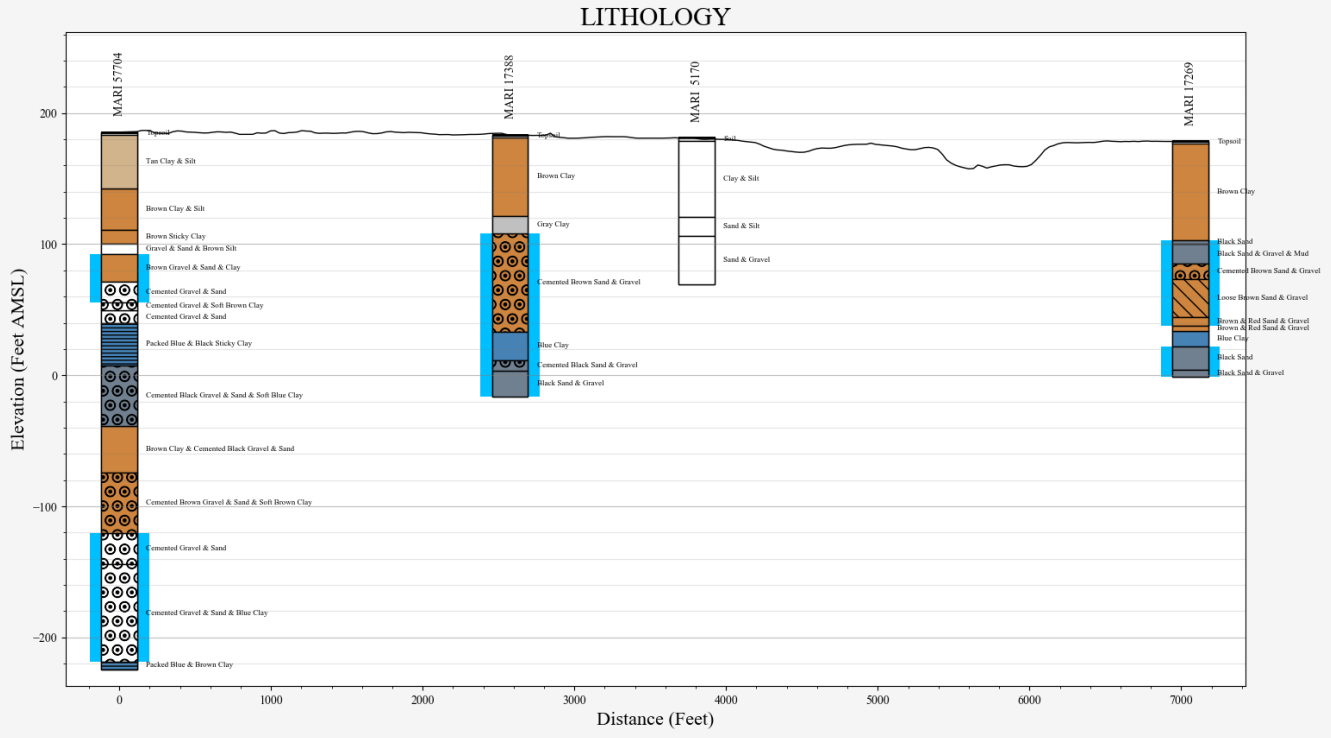
Well Location Map

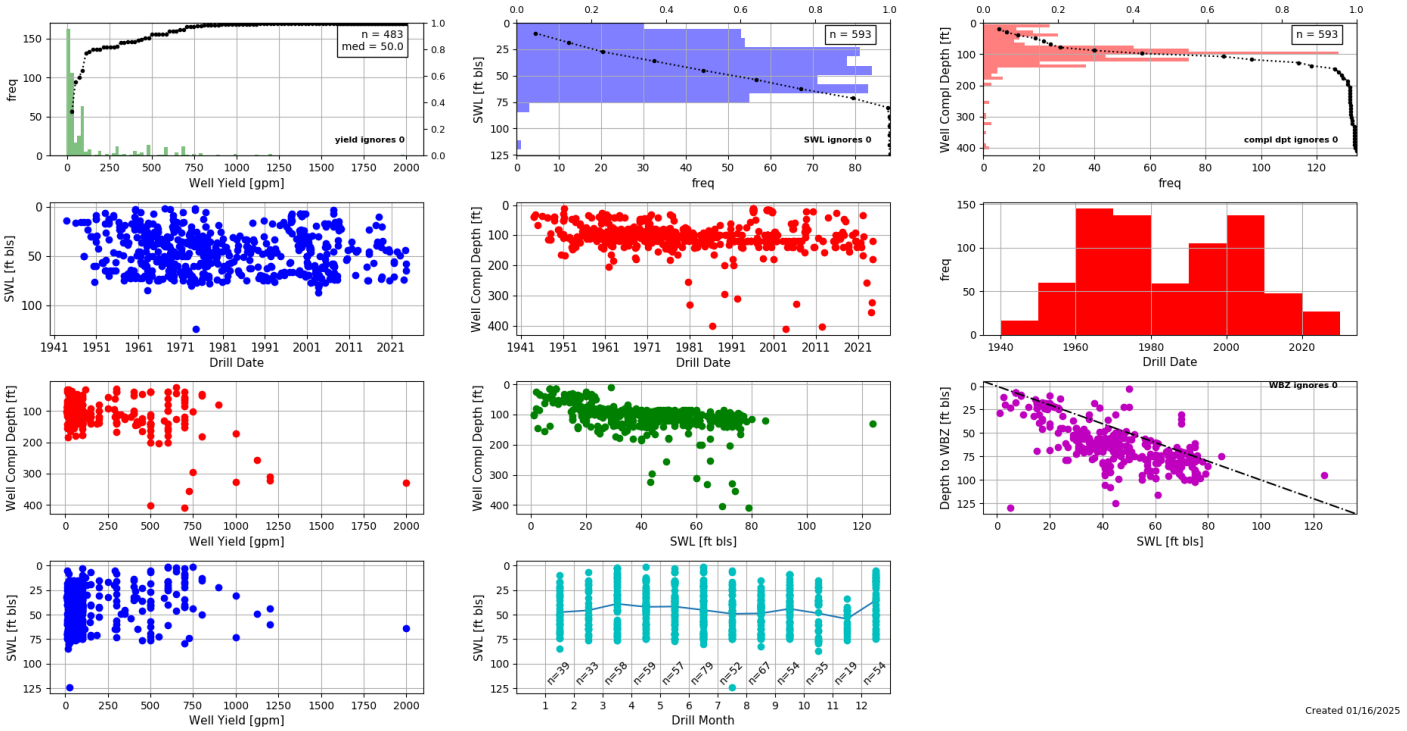


Cross-Section



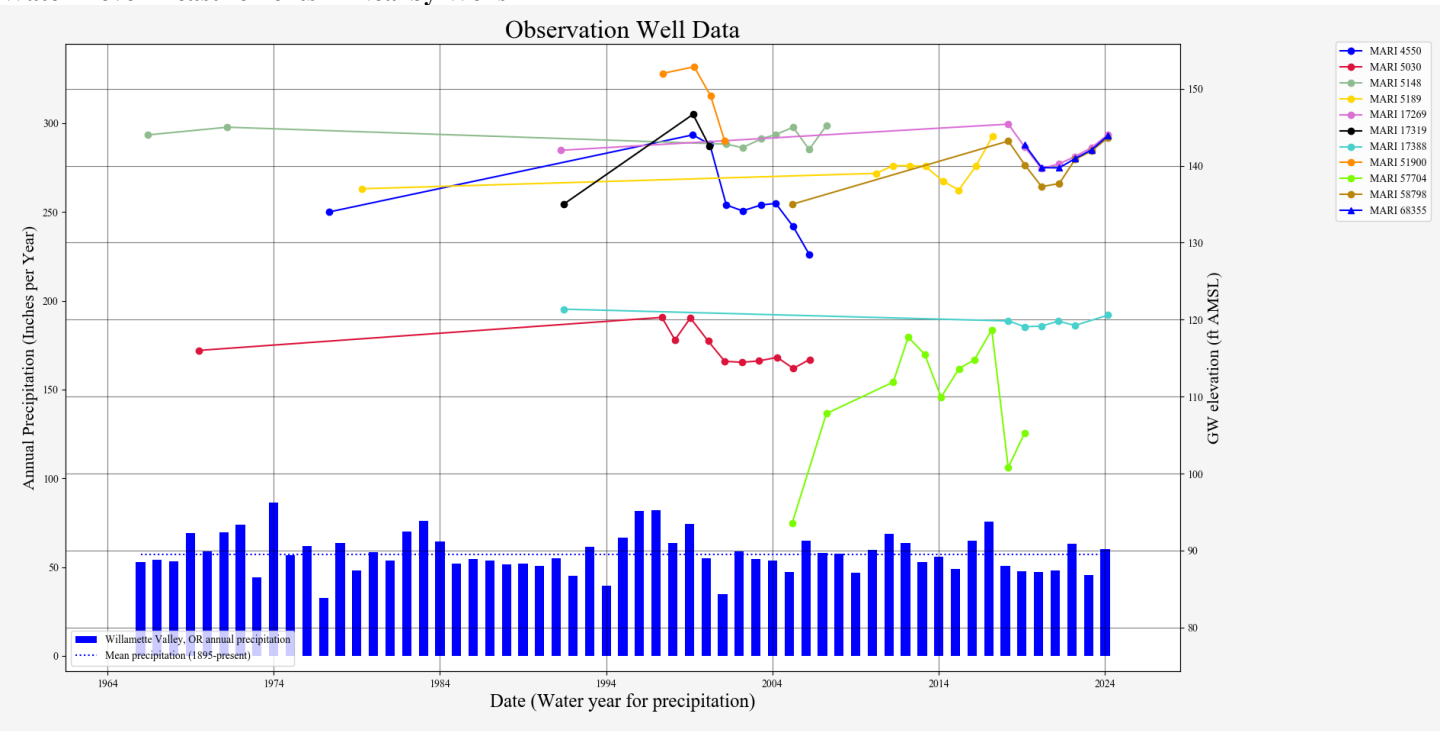


Well Statistics



Created 01/16/2025

Water-Level Measurements in Nearby Wells

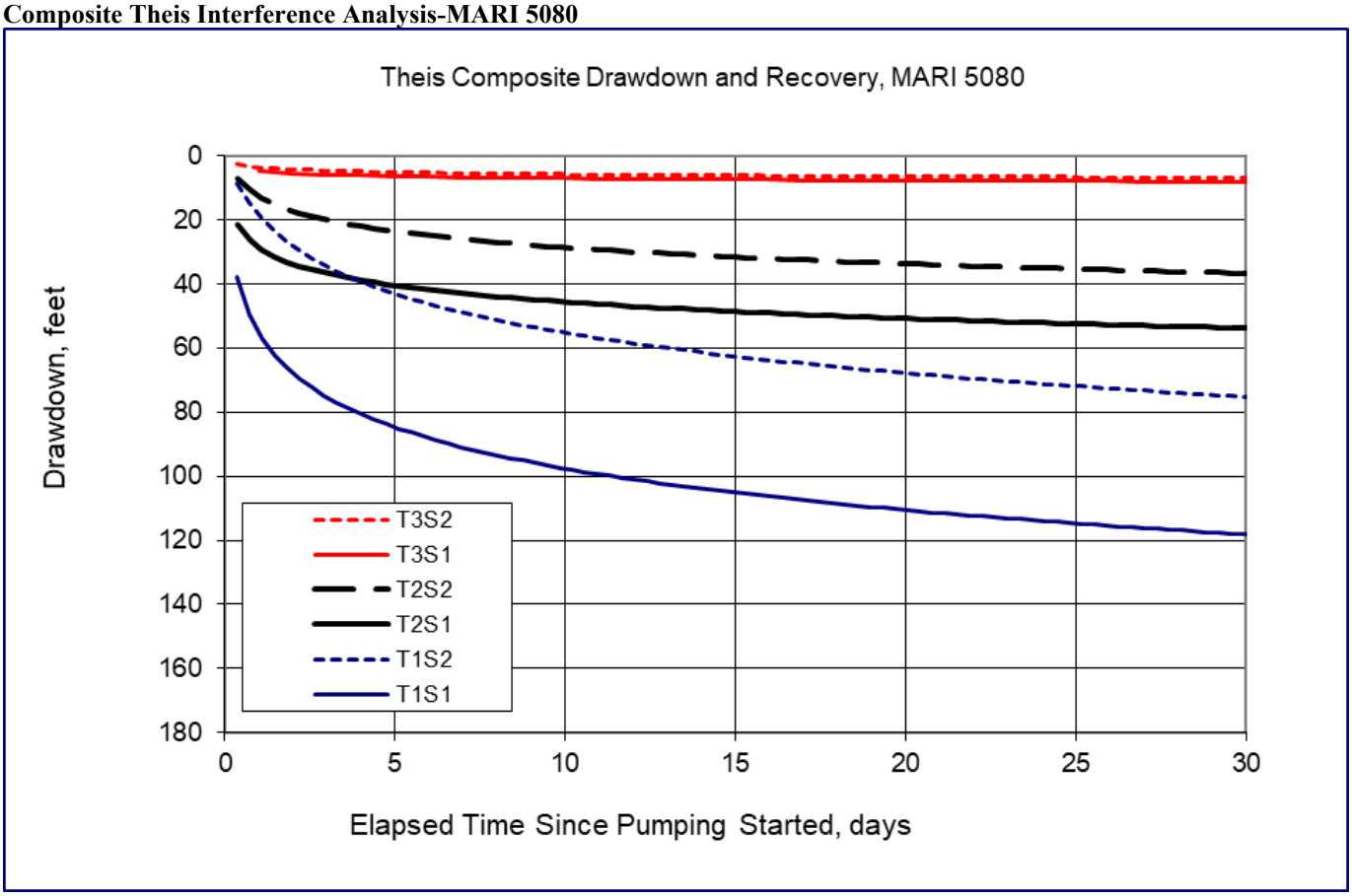


Composite Theis Interference Analyses-Parameters

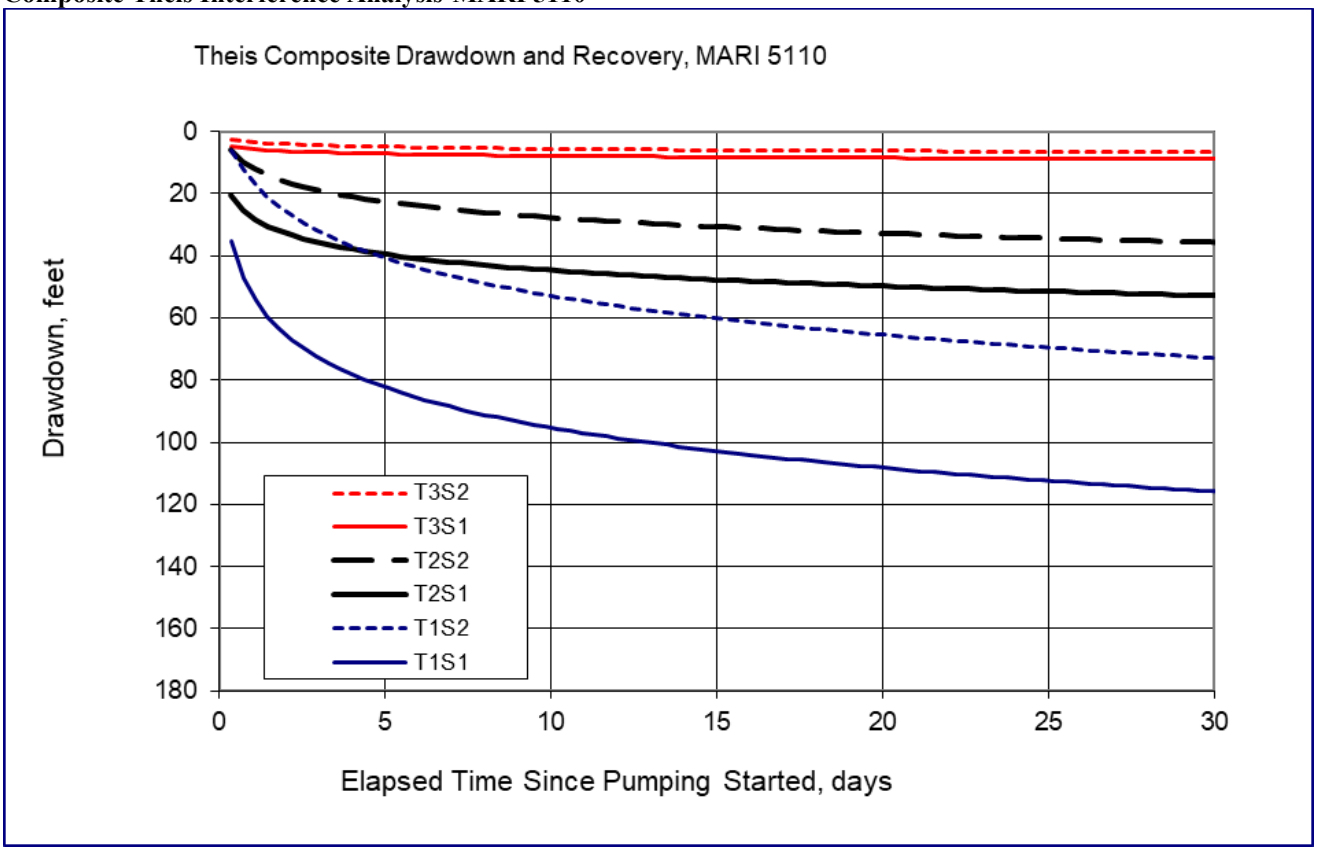
POA	r, Distance to Neighboring Well (ft)			Rate (cfs)
	MARI 5080	MARI 5110	MARI 71298	
POA 1/MARI 17388	556	1465	1518	0.8423
POA 2/MARI 5169	1829	1436	1791	1.077
POA 3/PROP 600	1916	1988	972	0.796309
POA 4/MARI 5170	1094	639	2000	0.690371

Aquifer Transmissivity (T1)= 9,350 gpd/ft (1,250 ft^2/day), (T2)= 23,562 gpd/ft (3,150 ft^2/day), (T3)= 179,520 gpd/ft (24,000 ft^2/day)
Storativity (s1) = 0.0001, (s2) = 0.001 [Conlon et al 2005, Table 1 and 2 values for MSU]
Total pumping time=365 days*
*In the graphs below, only the first 30 days of pumping are shown to provide greater detail on when drawdown exceeds the 25 ft threshold under the standard conditions for alluvial wells in the Willamette Basin.

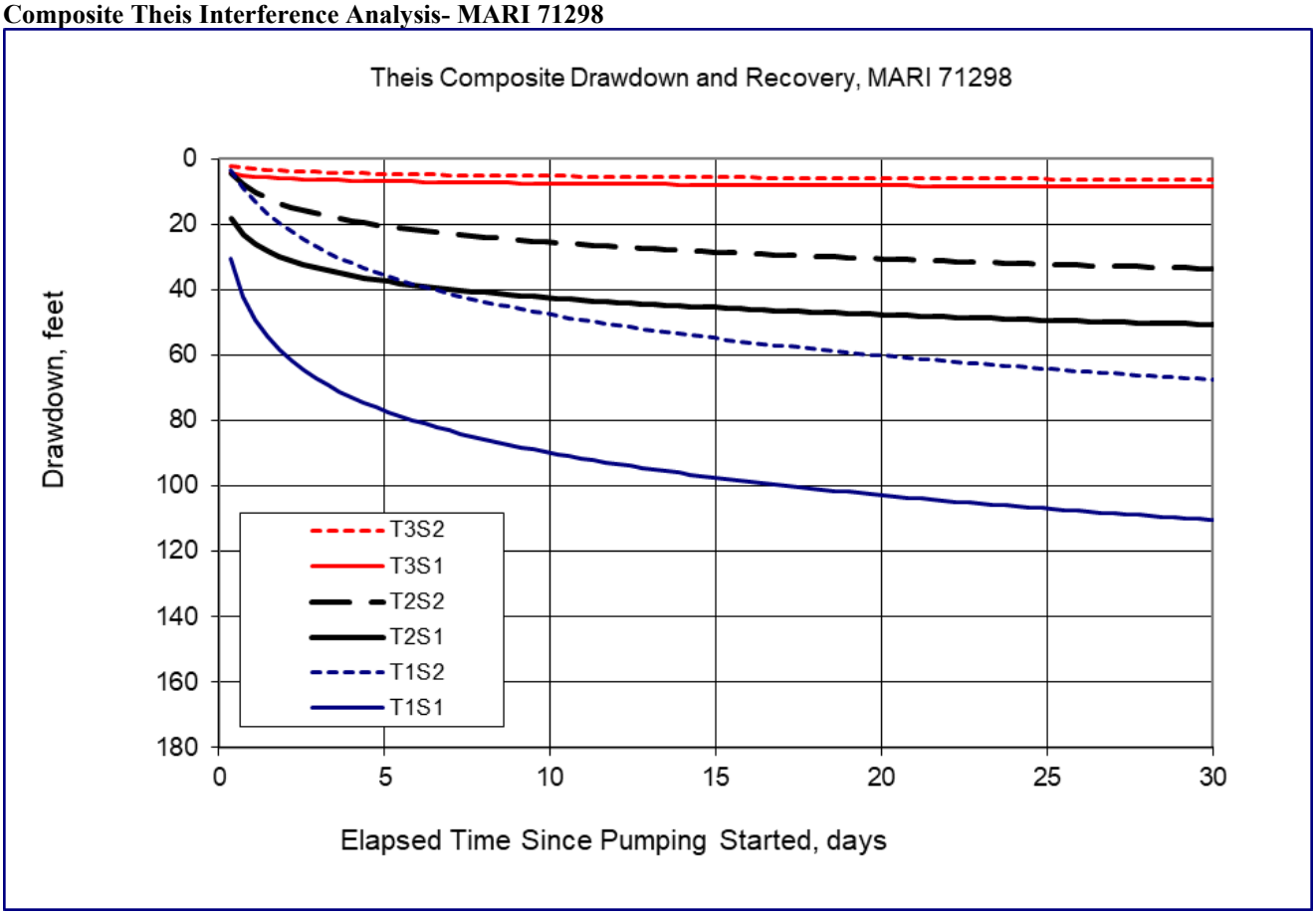
Composite Theis Interference Analysis-MARI 5080



Composite Theis Interference Analysis-MARI 5110



Composite Theis Interference Analysis- MARI 71298



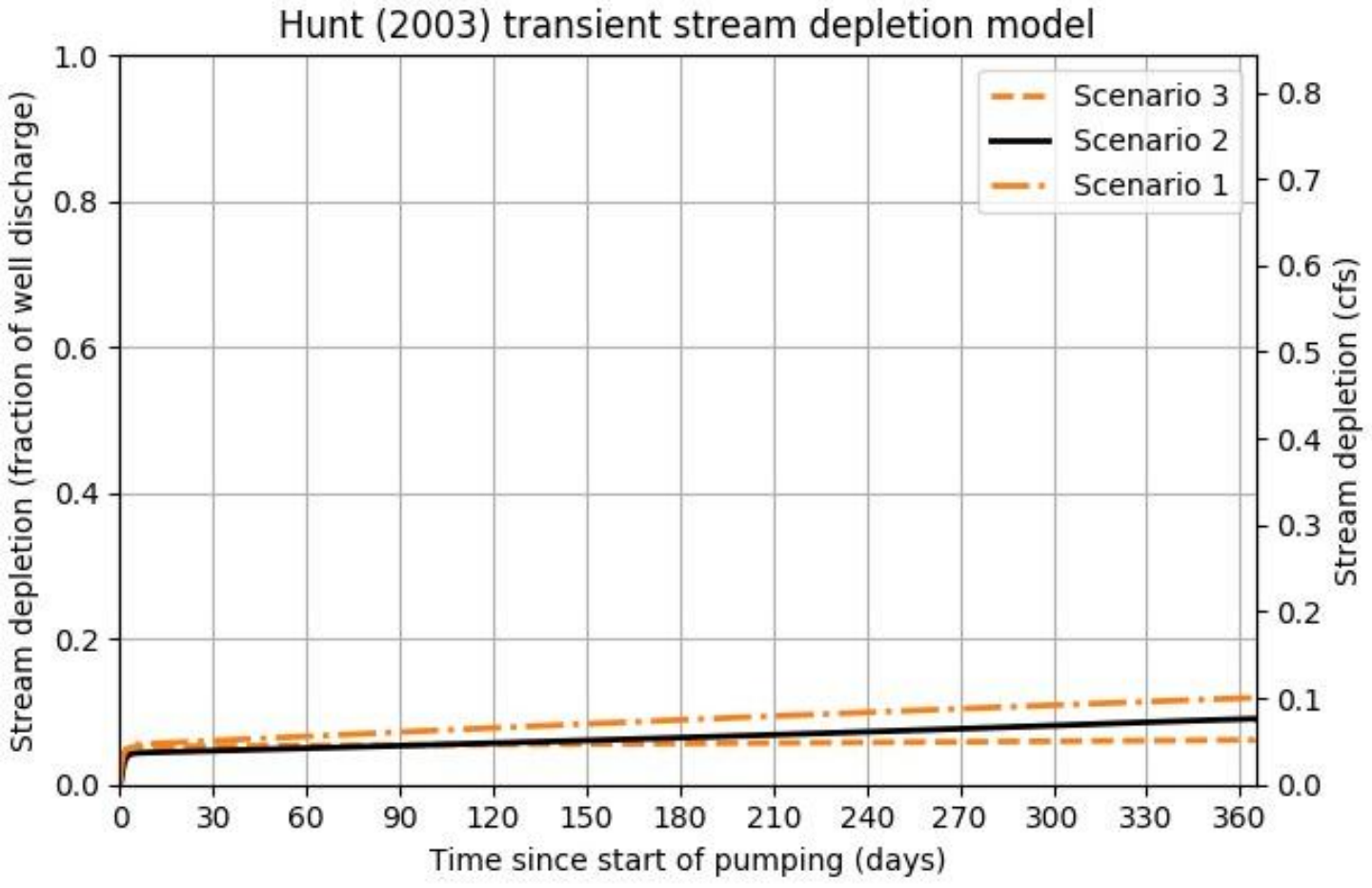
Stream Depletion (Hunt) Model Analysis-POA 1

Application type:	G
Application number:	19460
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.8423
Pumping duration (days):	365
Pumping start month number (3=March)	1.0
Plotting duration (days)	365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	4250	4250	4250	ft
Aquifer transmissivity	T	24000.0	3150.0	1250.0	ft2/day
Aquifer storativity	S	0.001	0.0005	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.005	0.001	ft/day
Aquitard saturated thickness	ba	11.0	11.0	11.0	ft
Aquitard thickness below stream	babs	2.0	2.0	2.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	265.0	265.0	265.0	ft

Stream depletion for Scenario 2:

Days	1	31	62	92	122	153	183	213	244	274	304	335	365
Depletion (%)	2	5	5	5	6	6	6	7	7	8	8	9	9
Depletion (cfs)	0.02	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.08



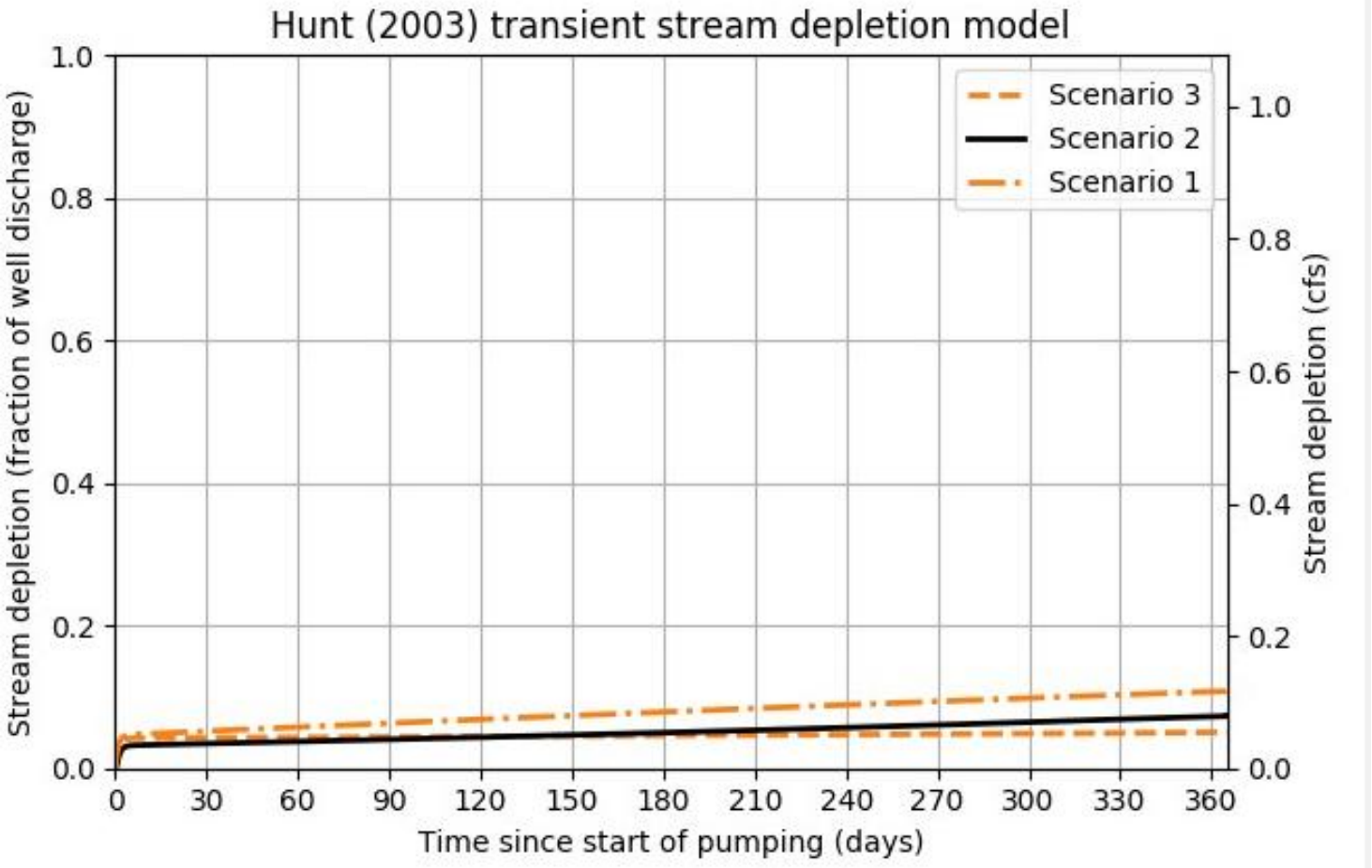
Stream Depletion (Hunt) Model Analysis-POA 2

Application type:	G
Application number:	19460
Well number:	2
Stream Number:	1
Pumping rate (cfs):	1.077399
Pumping duration (days):	365
Pumping start month number (3=March)	1.0
Plotting duration (days)	365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	5050	5050	5050	ft
Aquifer transmissivity	T	24000.0	3150.0	1250.0	ft2/day
Aquifer storativity	S	0.001	0.0005	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.005	0.001	ft/day
Aquitard saturated thickness	ba	11.0	11.0	11.0	ft
Aquitard thickness below stream	babs	2.0	2.0	2.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	265.0	265.0	265.0	ft

Stream depletion for Scenario 2:

Days	1	31	62	92	122	153	183	213	244	274	304	335	365
Depletion (%)	1	3	4	4	4	5	5	5	6	6	7	7	7
Depletion (cfs)	0.01	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.08



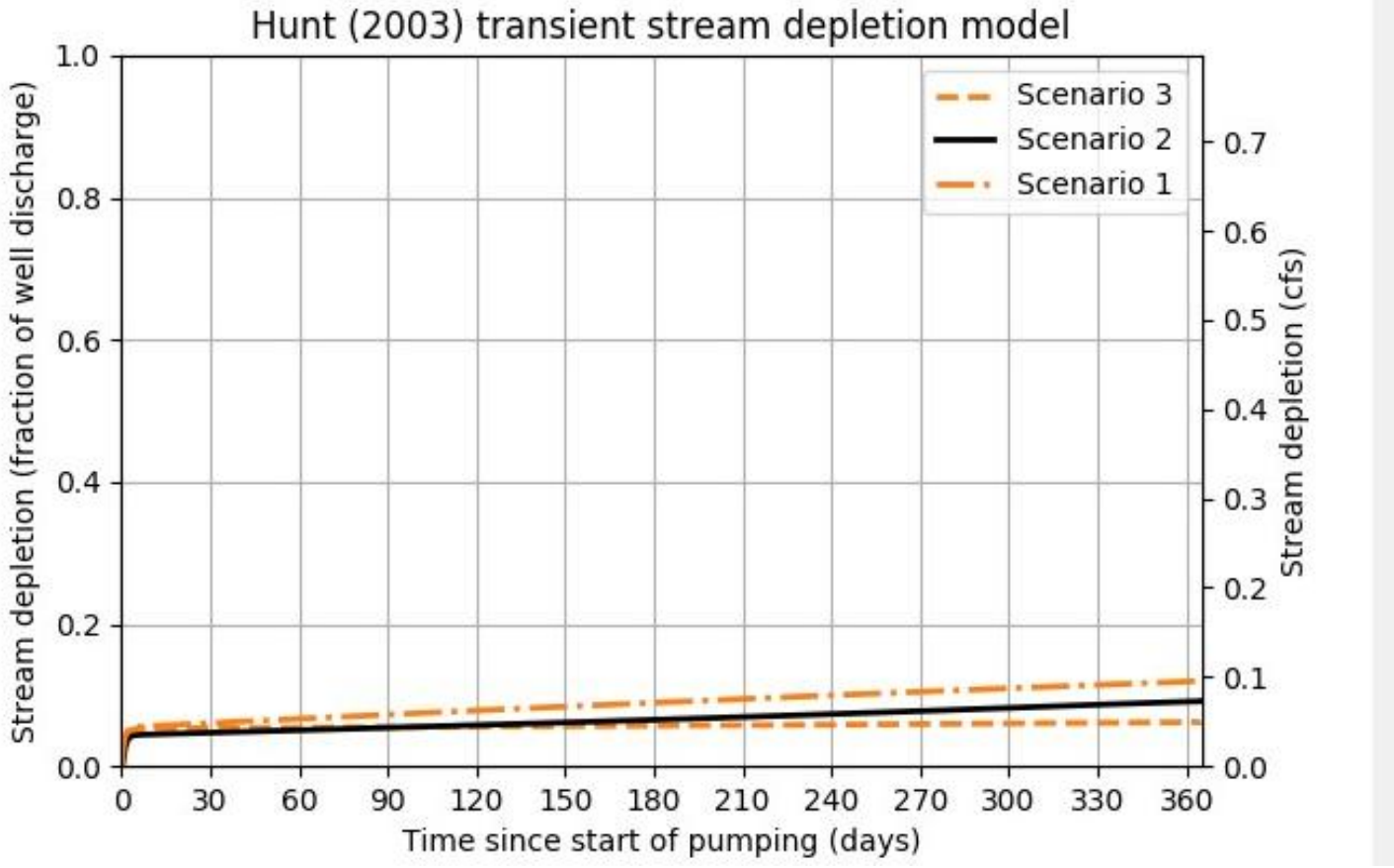
Stream Depletion (Hunt) Model Analysis-POA 3

Application type:	G
Application number:	19460
Well number:	3
Stream Number:	1
Pumping rate (cfs):	0.796309
Pumping duration (days):	365
Pumping start month number (3=March)	1.0
Plotting duration (days)	365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	4210.0	4210.0	4210.0	ft
Aquifer transmissivity	T	24000.0	3150.0	1250.0	ft2/day
Aquifer storativity	S	0.001	0.0005	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.005	0.001	ft/day
Aquitard saturated thickness	ba	11.0	11.0	11.0	ft
Aquitard thickness below stream	babs	2.0	2.0	2.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	265.0	265.0	265.0	ft

Stream depletion for Scenario 2:

Days	1	31	62	92	122	153	183	213	244	274	304	335	365
Depletion (%)	2	5	5	5	6	6	7	7	7	8	8	9	9
Depletion (cfs)	0.02	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07



Stream Depletion (Hunt) Model Analysis-POA 4

Application type:	G
Application number:	19460
Well number:	4
Stream Number:	1
Pumping rate (cfs):	0.690371
Pumping duration (days):	365.0
Pumping start month number (3=March)	1.0
Plotting duration (days)	365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	5200	5200	5200	ft
Aquifer transmissivity	T	24000.0	3150.0	1250.0	ft2/day
Aquifer storativity	S	0.001	0.0005	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.005	0.001	ft/day
Aquitard saturated thickness	ba	11.0	11.0	11.0	ft
Aquitard thickness below stream	babs	2.0	2.0	2.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	265.0	265.0	265.0	ft

Stream depletion for Scenario 2:

Days	1	31	62	92	122	153	183	213	244	274	304	335	365
Depletion (%)	1	3	4	4	4	4	5	5	5	6	6	7	7
Depletion (cfs)	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05