Groundwater Application Review Summary Form

Application # G- _19204_

GW Reviewer _Stacey Garrison/Travis Brown_ Date Review Completed: _3/14/2023_

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 **_March 14 2023_**

TO: **Application** G-**_19204_**

FROM: **GW:** **_Stacey Garrison/Travis Brown_**
(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 3/14/2023
FROM: Groundwater Section Stacey Garrison/Travis Brown
Reviewer's Name
SUBJECT: Application G- **19204** 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: **Jose Jiménez** County: **Clackamas**

A1. Applicant(s) seek(s) 0.22 cfs from 5 well(s) in the Willamette Basin, Molalla-Pudding subbasin

A2. Proposed use irrigation Seasonality: March 1 through October 31

A3. Well and aquifer data **(attach and number logs for existing wells; mark proposed wells as such under logid)**:

Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	Proposed	1	alluvium[a]	0.22	5S/2E-17 SE-SE	895' N, 1095' W fr SE cor S 17 [b]
2	Proposed	2	alluvium[a]	0.22	5S/2E-17 SW-SE	615' N, 1985' W fr SE cor S 17 [b]
3	Proposed	3	alluvium[a]	0.22	5S/2E-21 NW-NW	970' S, 235' E fr NW cor S 21 [b]
4	Proposed	4	alluvium[a]	0.22	5S/2E-16 SW-SW	295' N, 565' E fr SW cor S 16
5	Proposed	5	alluvium[a]	0.22	5S/2E-20 NW-NE	465' S, 1465' W fr NE cor S 20 [b]

* Alluvium, CRB, Bedrock

Well	Well Elev ft msl	First Water ft bls	SWL ft bls	SWL Date	Well Depth (ft)	Seal Interval (ft)	Casing Intervals (ft)	Liner Intervals (ft)	Perforations Or Screens (ft)	Well Yield (gpm)	Draw Down (ft)	Test Type
1	467 [c]				250[a]	0-25[a]	0-250[a]					
2	439 [c]				250[a]	0-25[a]	0-250[a]					
3	474 [c]				250[a]	0-25[a]	0-250[a]					
4	466 [c]				250[a]	0-25[a]	0-250[a]					
5	453 [c]				250[a]	0-25[a]	0-250[a]					

Use data from application for proposed wells.

A4. **Comments:** The POAs/POUs are located 0.5 miles south of Molalla, Oregon. Applicant proposes to irrigate at 0.22 cfs (98.7 gpm) on up to 109.6 ac with a total annual volume limited to 274 af/year.
[a] Proposed well construction from applicant.
[b] There appears to be a discrepancy in the Public Lands Survey System (PLSS) projection used in the application map and that used by Department. The "metes-and-bounds" location descriptions provided in the application for the POAs are: 30 ft SW (POAs 1 and 2), 12 ft NE (POA 3), and 40 ft SW (POA 5) of the mapped locations; the mapped locations are used for this review.
[c] Well head elevation estimated based on LIDAR measurements at well locations (Watershed Sciences, 2009).

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 anticipated to develop confined aquifers; therefore, per OAR 690-502-0240, the relevant Willamette Basin Rules (OAR 690-502-0120) do not apply.

A6. ☐ **Well(s) #** , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **NA**
Comments: Proposed POAs located in Gladtidings Groundwater Limited Area, however, this applies only to the Columbia River Basalt Group aquifers, and the proposed POAs are anticipated to develop the alluvial aquifer.

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) **7c (7-yrs measurements), medium water use reporting**;

ii. ☒ The permit should be conditioned as indicated in item 2 below.

iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

B2. a. ☐ **Condition** to allow groundwater production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow groundwater production from no shallower than _____ 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 proposed POAs/POUs are on the Troutdale Formation, a late-tertiary deposit of fluvial and lacustrine origin, composed primarily of conglomerate and tuffaceous sandstone (Trimble 1963, Hampton 1972). Where hardened, the cement of Troutdale Formation layers is composed of somewhat permeable clay minerals (Trimble 1963). Hampton (1972) estimated the Troutdale Formation is likely to be up to 300 ft thick in this area. Department-located wells within 1 mile of the POAs (CLAC 10370, CLAC 10371, CLAC 10071, CLAC 10257, CLAC 10256, CLAC 20145, CLAC 10280, CLAC 10404) do not exceed 150 ft in depth below land surface, bls. The water-bearing zones, WBZs, are between 50 and 150 ft bls, range in thickness from 1 to 11 ft, and are described in well logs as mixtures of sand, conglomerate, gravel, and clay. Based on the depth and pumping rate of the proposed wells, it is anticipated that the POAs will utilize deeper WBZs with higher yields. There are 102 wells in the surrounding sections of 5S/2E that range in depths from 150 to 350 ft; most of these wells report yields less than 50 gpm. Of the 102, there are 6 wells that report yields above 50 gpm, however, the tests are either air tests (CLAC 58330, CLAC 53324, CLAC 52373, CLAC 10299) or do not report the type of test used (CLAC 10027, CLAC 10900). Location of the three wells with air tests is known to the taxlot scale (CLAC 58330, CLAC 53324, CLAC 52373); these wells are considered in this review as proxies for the anticipated lithology and likely construction of the proposed POAs. These wells utilize WBZs in sand, gravel, and cobble layers that range in thickness from 3 to 21 ft, with WBZ elevations ranging from as 40 to 176 ft msl. The SWLs range from 196 to 268 ft msl, and all three wells tap confined aquifers with confining beds of brown, gray and blue clays, indicating that the wells are likely accessing the Willamette aquifer (Gannett & Caldwell 1998, Conlon et al 2005, Swanson et al 1993). There is a wide variability in hydraulic characteristics of the Willamette aquifer, owing to the variety of compositions and degree of consolidation (O'Connor et al 2001). Based on the relative thinness of the WBZs and intervening layers of clay, silt, and similar lithologies, the WBZs are likely to be formations from discontinuous braided stream deposits (Gannet & Caldwell 1998).
A review of statistics for nearby well records was completed and compared with the proposed rate of 0.22 cfs (98.7 gpm) for this application (see Well Statistics). The proposed rate of use of 0.22 cfs (98.7 gpm) is likely within the capacity of the

groundwater resource; median reported well yield is 24 gpm, and the maximum reported yield is 575 gpm. The proposed rate for this application is 411% of the median and 17% of the maximum reported yield. Previous studies have reported yields for wells using the Willamette aquifer ranging from 64 to 980 gpm, however the higher reported yields are likely utilizing unconsolidated and/or gravel water-bearing zones (Woodward et al 1998).
For nearby (0.2-3 miles from POAs) wells that utilize the portion of the alluvial aquifer anticipated to be targeted by the POAs, water level trends are overall steady (see Water Level Measurements in Nearby Wells-Upper, Middle). In the lower portion of the alluvial aquifer (WBZs at or less than sea level), there are three declines that exceed 10 ft: CLAC 53757 has declined approximately 27 ft over 22 years; CLAC 66134 has declined nearly 11 ft over 11 years; CLAC 74503 has declined nearly 11 ft over 3 years (see Water Level Measurements in Nearby Wells-Lower). The lower portion is less likely to receive regular annual recharge, but is not anticipated to be representative of water supply conditions in the portion of the aquifer targeted by the POAs. There is not a preponderance of evidence to support that the water levels in the groundwater reservoir are declined excessively or excessively declining; therefore, the groundwater reservoir is not over-appropriated.

The nearest groundwater user to Well 1 is CLAC 57932 (an exempt domestic well), 222 ft northwest of the POA at an elevation of ~446 ft msl. It is likely the proposed use would cause some degree of well-to-well interference with CLAC 57932. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-Well 1). Results indicate that the proposed use is not likely to cause well-to-well interference with CLAC 57932 that exceeds the threshold under the standard condition for alluvial aquifers in the Willamette Basin.

The nearest groundwater user to Well 2 is at taxlot 1705, 32817 S Wilhoit Rd Molalla OR (an exempt domestic well) is 444 ft northeast of the POA at an elevation of ~443 ft msl. With the same drill year as the house construction and in the same township/range/section, CLAC 10257 is a potential match for this taxlot. The well's location is assumed to be the center of the developed portion of the taxlot. CLAC 10257 is drilled to 67 ft bls [376 ft msl] with a WBZ from 62 to 63 ft bls [380 to 381 fl msl], and a seal depth of 22 ft bls [421 ft msl]. It is likely the proposed use would cause some degree of well-to-well interference with CLAC 10257. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-Well 2). Results indicate that the proposed use is not likely to cause well-to-well interference with CLAC 10257 that exceeds the threshold under the standard condition for alluvial aquifers in the Willamette Basin.
The nearest groundwater user to Well 3 is CLAC 20145 (an exempt domestic well), 426 ft northeast of the POA at an elevation of ~480 ft msl. CLAC 20145 is drilled to 86 ft bls [394 ft msl] with a WBZ from 73 to 77 ft bls [403 to 407 ft msl], and a seal depth of 35 ft bls [445 ft msl]. It is likely the proposed use would cause some degree of well-to-well interference with CLAC 20145. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-Well 3). Results indicate that the proposed use is not likely to cause well-to-well interference with CLAC 20145 that exceeds the threshold under the standard condition for alluvial aquifers in the Willamette Basin.
The nearest groundwater user to Well 4 is at taxlot 101, 32891 S Sawtell Rd Molalla OR (an exempt domestic well), 170 ft northwest of the POA at an elevation of ~465 ft msl. CLAC 10280 is a likely match for this location, with matching owner name and township/range; the well's location is assumed to be the center of the developed portion of the taxlot. CLAC 10280 is drilled to 135 ft bls [330 ft msl] with a WBZ from 88 to 95 ft bls [370 to 377 ft msl], and a seal depth of 23 ft bls [442 ft msl]. It is likely the proposed use would cause some degree of well-to-well interference with CLAC 10280. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-Well 4). Results indicate that the proposed use is not likely to cause well-to-well interference with CLAC 20145 that exceeds the threshold under the standard condition for alluvial aquifers in the Willamette Basin.
The nearest groundwater user to Well 5 is CLAC 10256 (an exempt domestic well), 566 ft south of the POA at an elevation of ~419 ft msl. CLAC 10256 is drilled to 94 ft bls [325 ft msl] with a WBZ from 85 to 94 ft bls [325 to 334 ft msl], and a seal depth of 50 ft bls [369 ft msl]. It is likely the proposed use would cause some degree of well-to-well interference with CLAC 10256. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-Well 5). Results indicate that the proposed use is not likely to cause well-to-well interference with CLAC 20145 that exceeds the threshold under the standard condition for alluvial 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 within 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.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Alluvium**	☒	☐
2	**Alluvium**	☒	☐
3	**Alluvium**	☒	☐
4	**Alluvium**	☒	☐
5	**Alluvium**	☒	☐

Basis for aquifer confinement evaluation: The proposed POAs are anticipated to utilize equivalent WBZs and have similar construction to CLAC 58330, CLAC 53324, and CLAC 52373. The SWL is above the bottom of the overlying confining layer in these wells, indicating confined aquifer conditions. The proposed wells will be drilled to a maximum depth of 250 ft bls and continuously sealed from the surface to 25 ft bls.

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

Well	SW #	Surface Water Name	GW Elev ft msl[a]	SW Elev ft msl[b]	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Bear Creek**	**379-449**	**353-413**	**3,210**	☒	☐	☐	☐	☒
2	**1**	**Bear Creek**	**379-449**	**351-400**	**3,173**	☒	☐	☐	☐	☒
3	**1**	**Bear Creek**	**379-449**	**372-413**	**4,212**	☒	☐	☐	☐	☒
4	**1**	**Bear Creek**	**379-449**	**373-413**	**3,150**	☒	☐	☐	☐	☒
5	**1**	**Bear Creek**	**379-449**	**373-400**	**4,680**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Proposed POAs are anticipated to be continuously sealed to 25 ft bls [414 to 449 ft msl]. SWLs in surrounding wells utilizing the alluvial aquifer vary from 379 to 449 ft msl (CLAC 10370, CLAC 10371, CLAC 10071, CLAC 10257, CLAC 10256, CLAC 20145, CLAC 10280). Gannett and Caldwell (1998) and Hampton (1972) report water table elevations ranging from 380 to 420 ft msl in this area. The local streambed of SW 1 (Bear Creek) is 351 to 413 ft msl within a mile of the POAs, indicating the local groundwater is likely discharging to surface water, consistent with Woodward et al (1998) findings that groundwater discharges to surface water. The surface water drainages have incised below the elevation of the shallower WBZs of the alluvial aquifer-sourced wells, which range from 325 to 407 ft msl[c], but not the assumed, targeted WBZs at 150 to 250 ft bls [189 to 324 ft msl]. Hydraulic connection to nearby streams is likely but anticipated to be inefficient due to the horizontal distance and the low vertical permeability of the overlying fine-grained sediments.

[a] Groundwater elevation calculated from static water level reported in well logs and/or latest static water level reported for CLAC 10370, CLAC 10371, CLAC 10071, CLAC 10257, CLAC 10256, CLAC 20145, CLAC 10280 and well head elevations estimated based on LIDAR measurements at existing well locations (Watershed Sciences, 2009).
[b] Surface water elevations were estimated from land surface elevations along stream reaches (Watershed Sciences, 2009; USGS, 2013).

[c] Water-bearing zone elevations calculated from alluvial aquifer water-bearing layers reported in well logs for CLAC 10370, CLAC 10371, CLAC 10071, CLAC 10257, CLAC 10256, CLAC 20145, CLAC 10280

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?
1	**1**	☐	☐	**IS70747 A**	**300**	☐	**54.5**	☐	**<25%**	☐
2	**1**	☐	☐	**IS70747 A**	**300**	☐	**54.5**	☐	**<25%**	☐
3	**1**	☐	☐	**IS70747 A**	**300**	☐	**54.5**	☐	**<25%**	☐
4	**1**	☐	☐	**IS70747 A**	**300**	☐	**54.5**	☐	**<25%**	☐
5	**1**	☐	☐	**IS70747 A**	**300**	☐	**54.5**	☐	**<25%**	☐

Comments: Potential depletion (interference with) SW 1 (Bear Creek) by proposed pumping at proposed POA 4 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 – SW 1" 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 POA is anticipated to be much less than 25 percent of the well discharge at 30 days of continuous pumping.

Because only the distance is expected to vary between the POA and surface water sources, only the POA-SW pair with the shortest distance (in this case, POA 4 and SW 1) was analyzed quantitatively for interference (stream depletion). All other POA-SW pairs would presumably result in less interference due to their greater separation relative to POA 4 and SW 1. Therefore, the interference of both proposed POA with all surface water sources within 1 mile are anticipated to result in 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?	Interference @ 30 days (%)	Potential for Subst. Interfer. Assumed?
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: NA-Q is not distributed among wells.

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: NA-streams within 1 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:** NA

References Used:

Application File: G-19204

Pumping Test Files: CLAC 2060, CLAC 18102, CLAC 53757, CLAC 54578, CLAC 64005, CLAC 66134, CLAC 2473, CLAC 2635

Well Reports: CLAC 10370, CLAC 10371, CLAC 10071, CLAC 10257, CLAC 10256, CLAC 20145, CLAC 10280, CLAC 58330, CLAC 53324, CLAC 52373, CLAC 10027, CLAC 10900, CLAC 10299

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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.

Hampton, E.R. 1972. Geology and Ground Water of the Molalla-Salem Slope Area, Northern Willamette Valley, Oregon. USGS Water Supply Paper 1997.

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Iverson, J., 2002, Investigation of the hydraulic, physical, and chemical buffering capacity of Missoula flood deposits for water quality and supply in the Willamette Valley of Oregon: Unpublished M.S. thesis, Oregon State University, 147 p.

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.

Swanson, R.D., McFarland, W.D., Gonthier, J.B., Wilkinson, J.M. 1993. A description of hydrogeologic units in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water Resources Investigations Report 90-4196, 62 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.

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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:** _____

_____

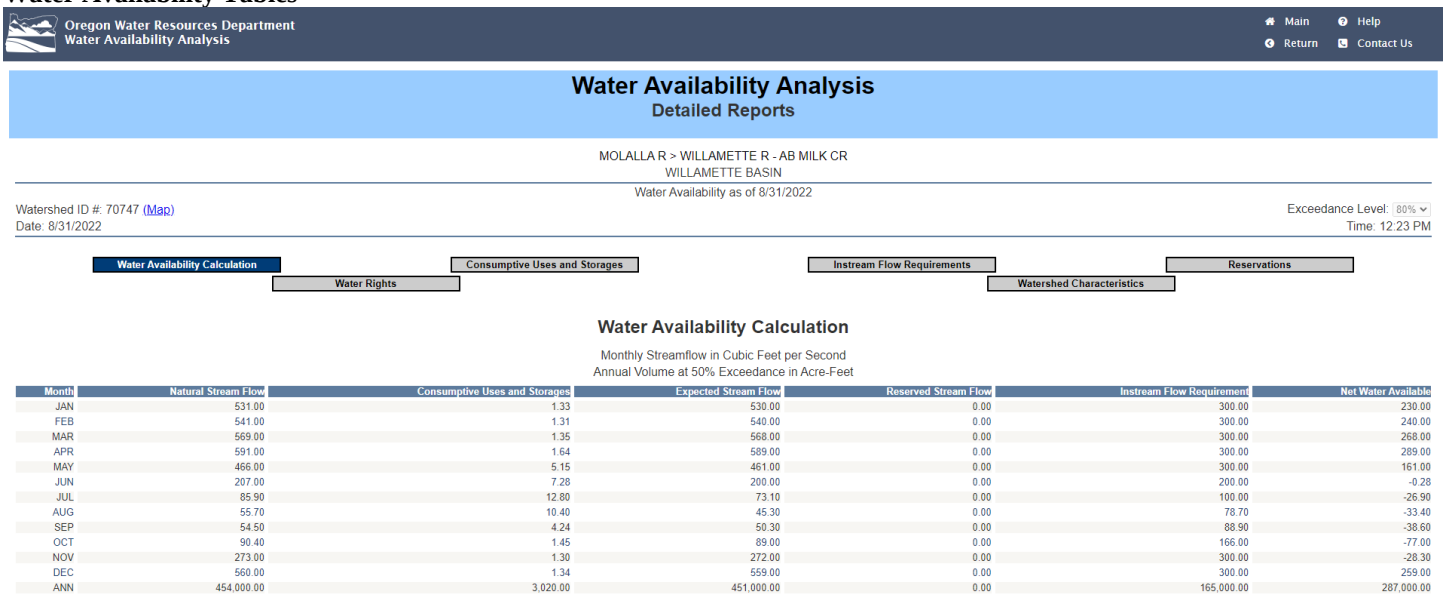
_____

_____

_____

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

MOLALLA R > WILLAMETTE R - AB MILK CR
WILLAMETTE BASIN
Water Availability as of 8/31/2022

Watershed ID #: 70747 (Map)
Date: 8/31/2022

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	531.00	1.33	530.00	0.00	300.00	230.00
FEB	541.00	1.31	540.00	0.00	300.00	240.00
MAR	569.00	1.35	568.00	0.00	300.00	268.00
APR	591.00	1.64	589.00	0.00	300.00	289.00
MAY	466.00	5.15	461.00	0.00	300.00	161.00
JUN	207.00	7.28	200.00	0.00	200.00	-0.28
JUL	85.90	12.80	73.10	0.00	100.00	-26.90
AUG	55.70	10.40	45.30	0.00	78.70	-33.40
SEP	54.50	4.24	50.30	0.00	88.90	-38.60
OCT	90.40	1.45	89.00	0.00	166.00	-77.00
NOV	273.00	1.30	272.00	0.00	300.00	-28.30
DEC	560.00	1.34	559.00	0.00	300.00	259.00
ANN	454,000.00	3,020.00	451,000.00	0.00	165,000.00	287,000.00

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Water Availability Analysis
Detailed Reports

MOLALLA R > WILLAMETTE R - AB MILK CR
WILLAMETTE BASIN
Water Availability as of 8/31/2022

Watershed ID #: 70747 (Map)
Date: 8/31/2022

Exceedance Level: 80%
Time: 12:24 PM

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

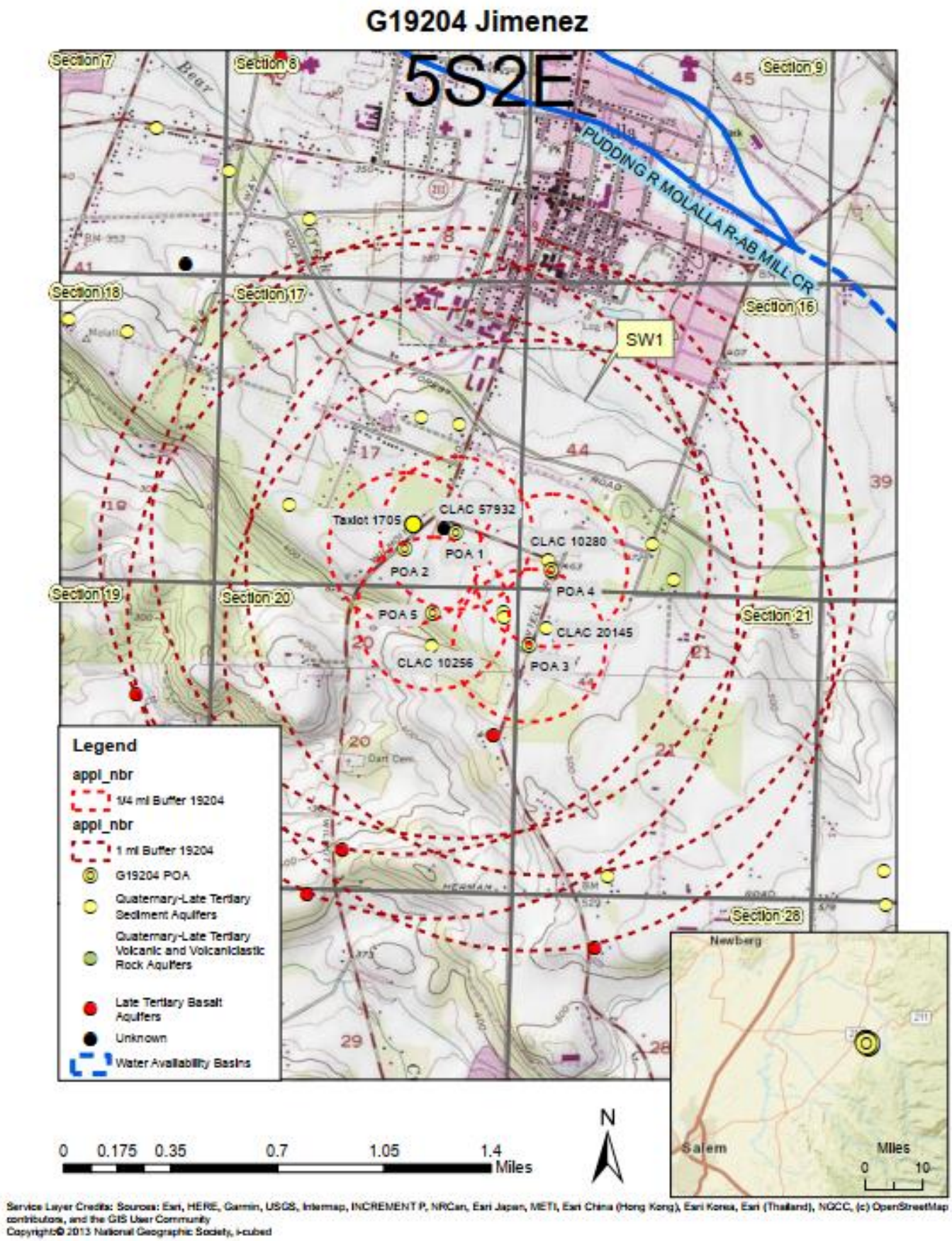
Detailed Report of Instream Flow Requirements

Instream Flow Requirements in Cubic Feet per Second

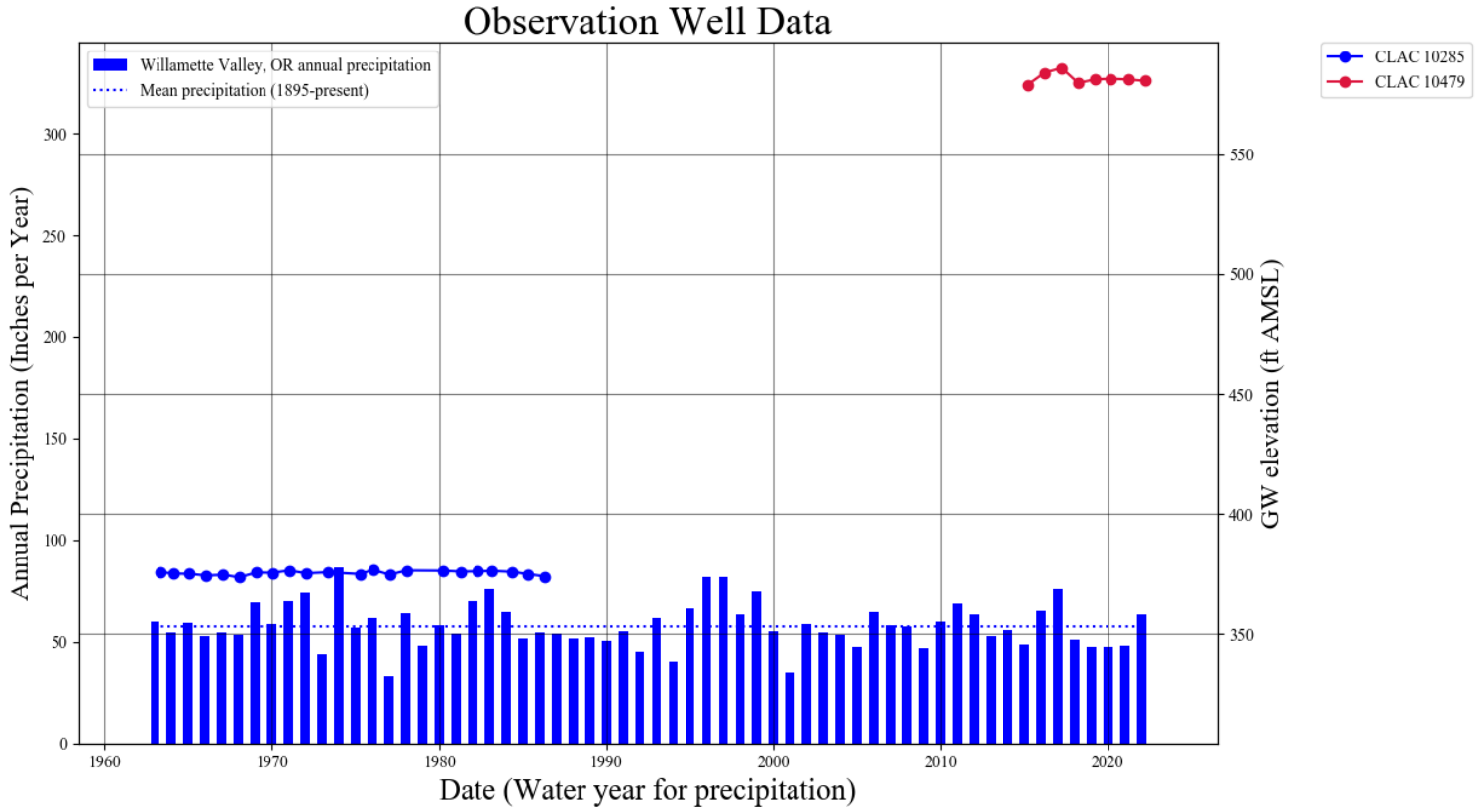
Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IS70747A	CERTIFICATE	300.00	300.00	300.00	300.00	300.00	200.00	100.00	78.70	88.90	166.00	300.00	300.00
Maximum		**300.00**	**300.00**	**300.00**	**300.00**	**300.00**	**200.00**	**100.00**	**78.70**	**88.90**	**166.00**	**300.00**	**300.00**

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

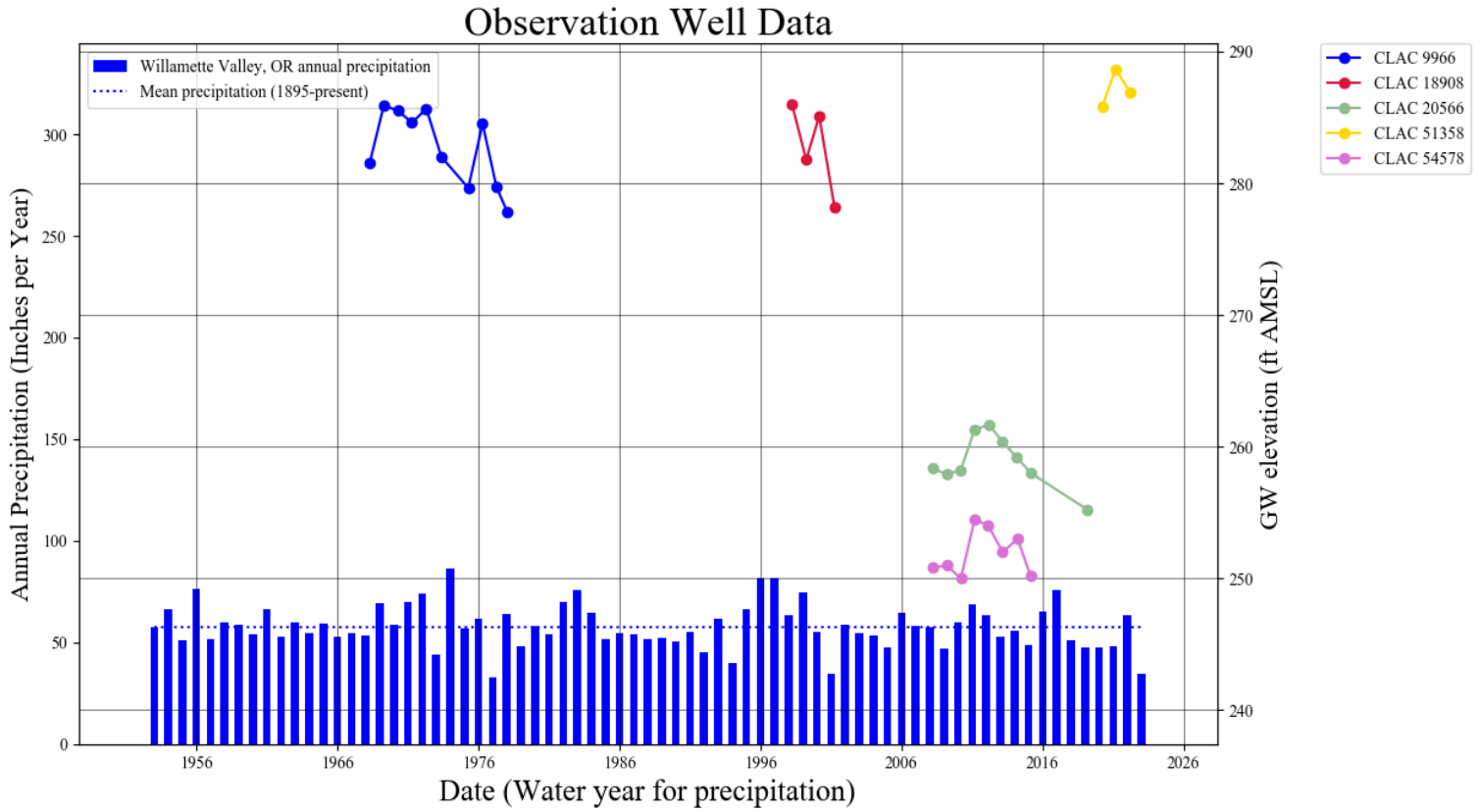
Well Location Map



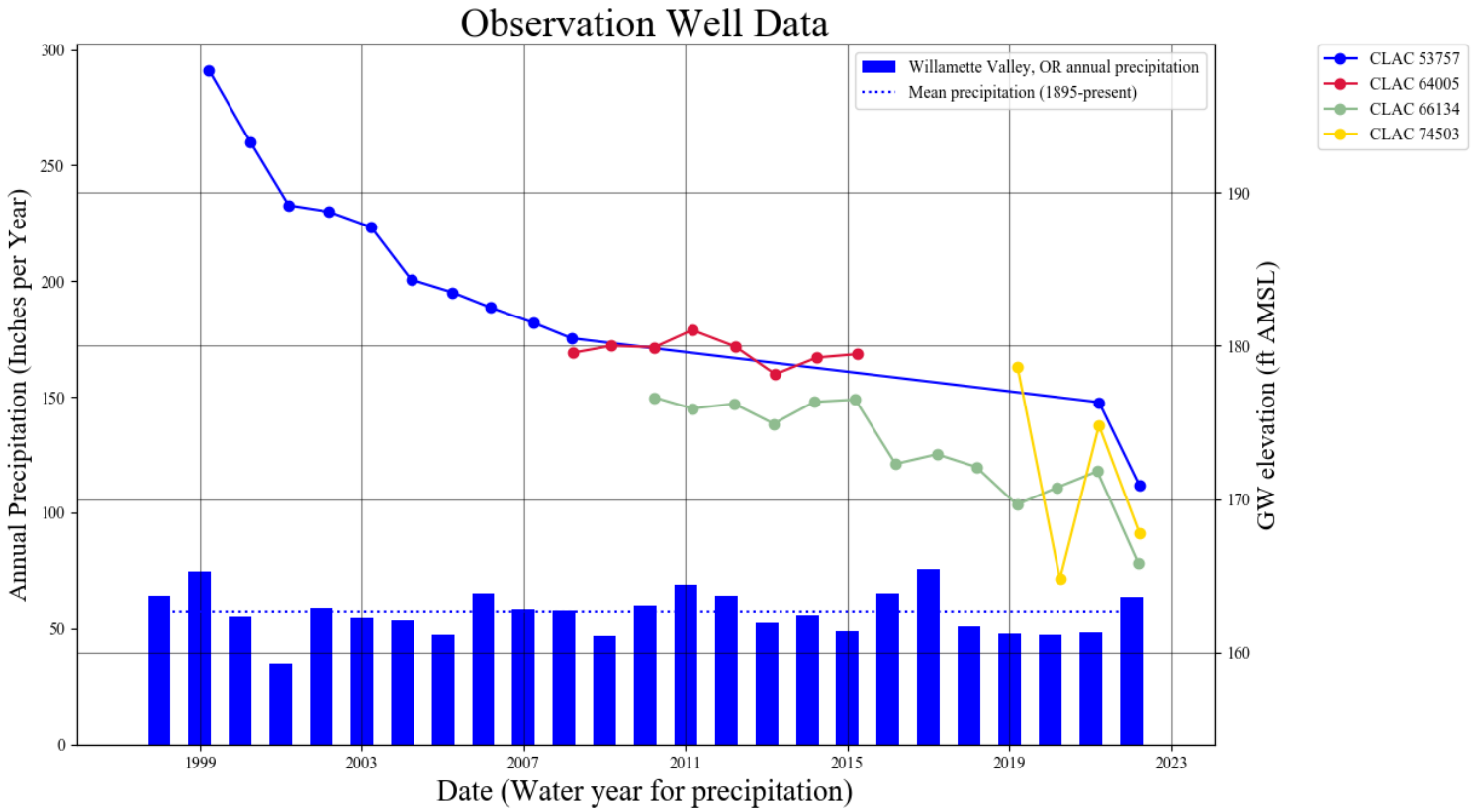
Water-Level Measurements in Nearby Wells
Upper



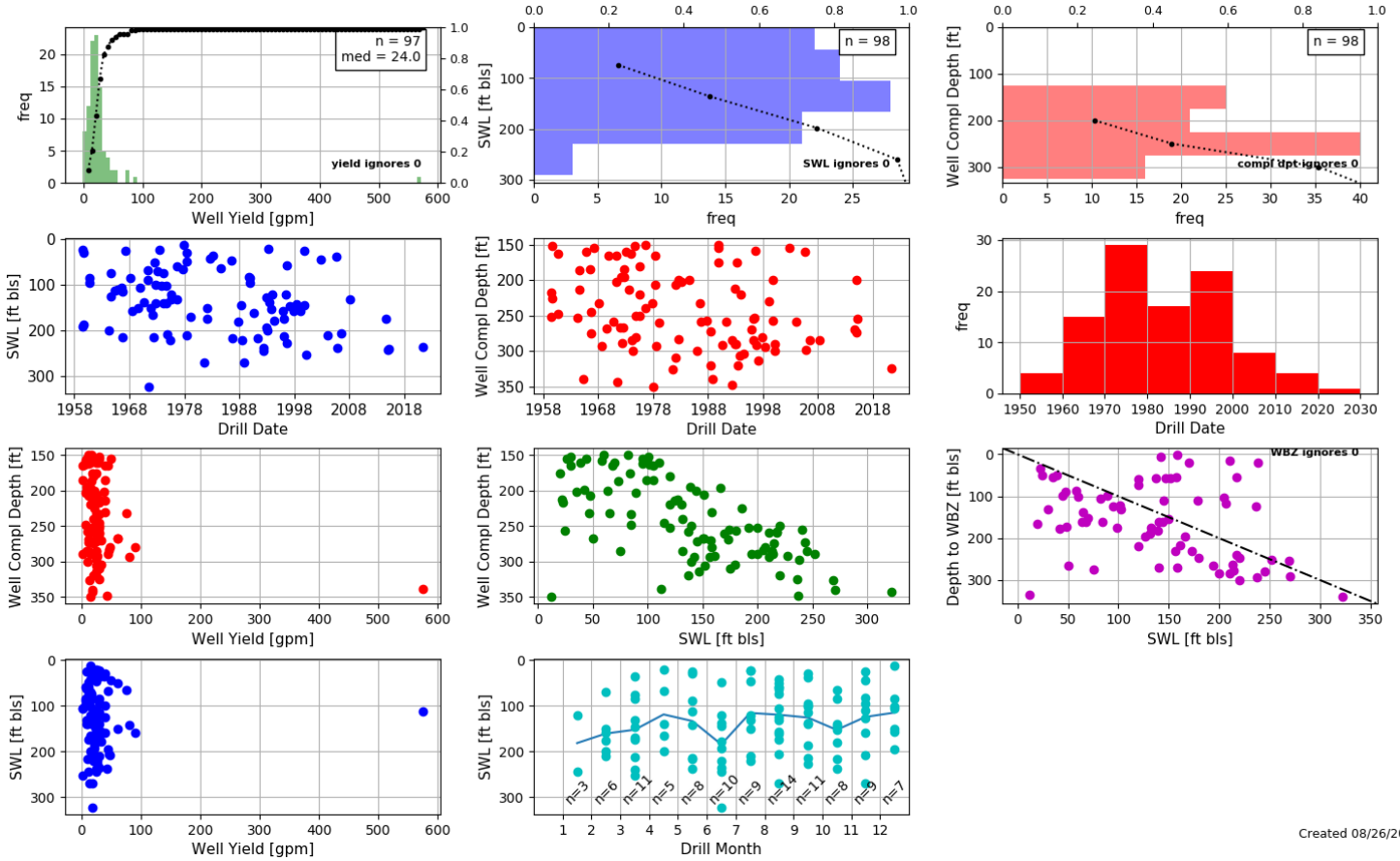
Middle



Lower



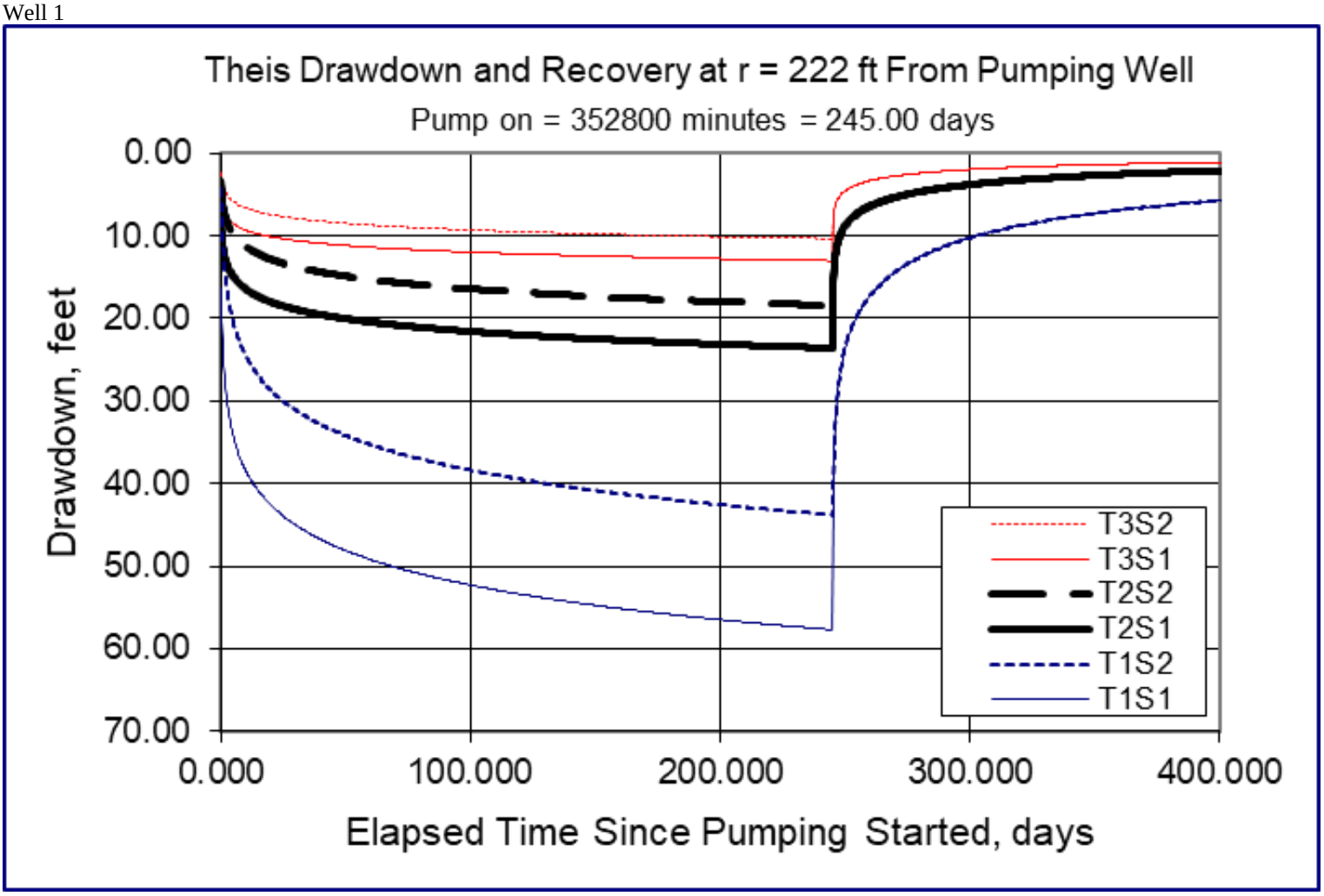
Well Statistics 5S/2E-17 and surrounding sections, completed depth of 150 to 350 ft bls



Created 08/26/2022

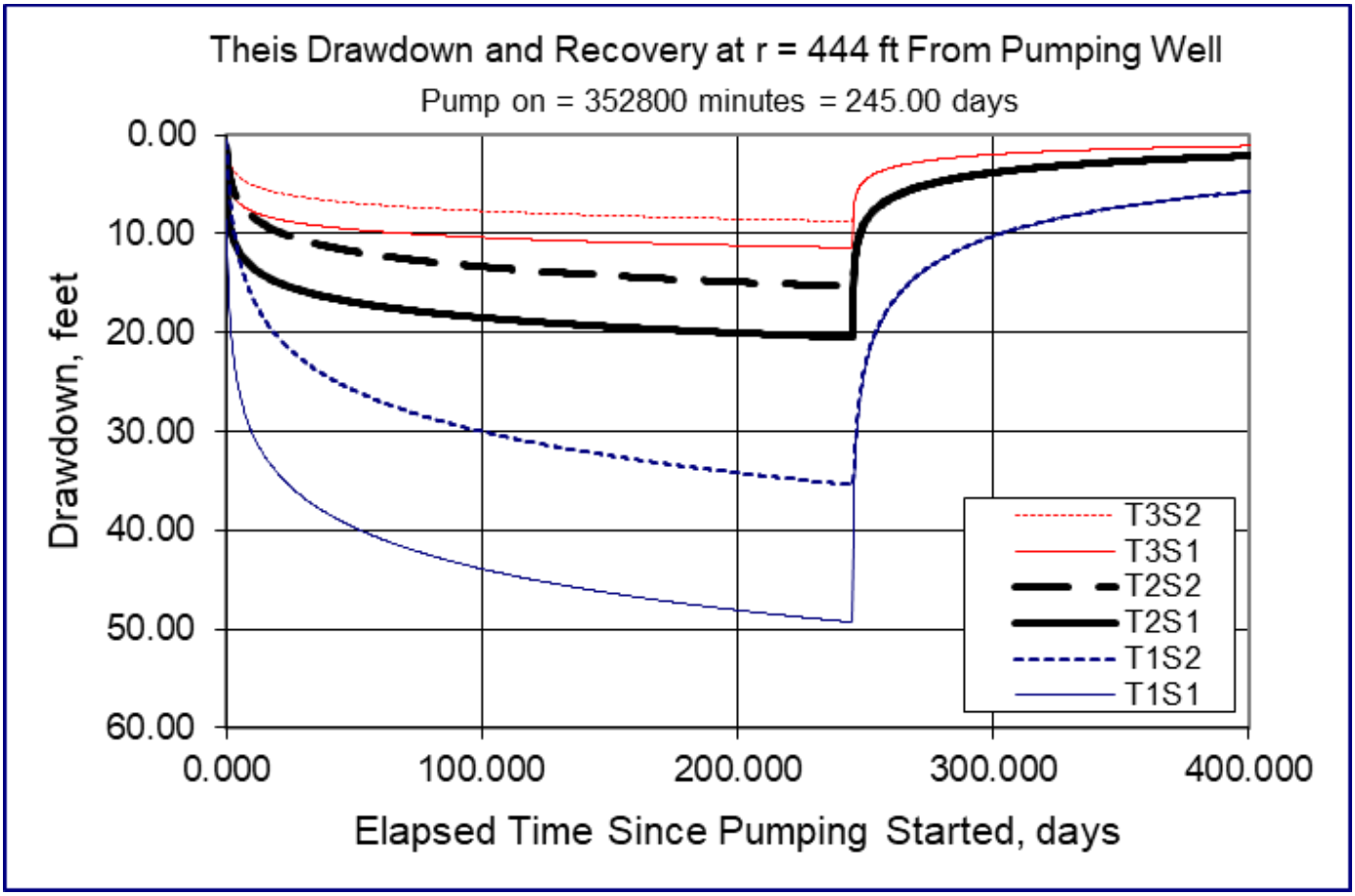
Version: 07/28/2020

Theis Drawdown Analysis
Well 1



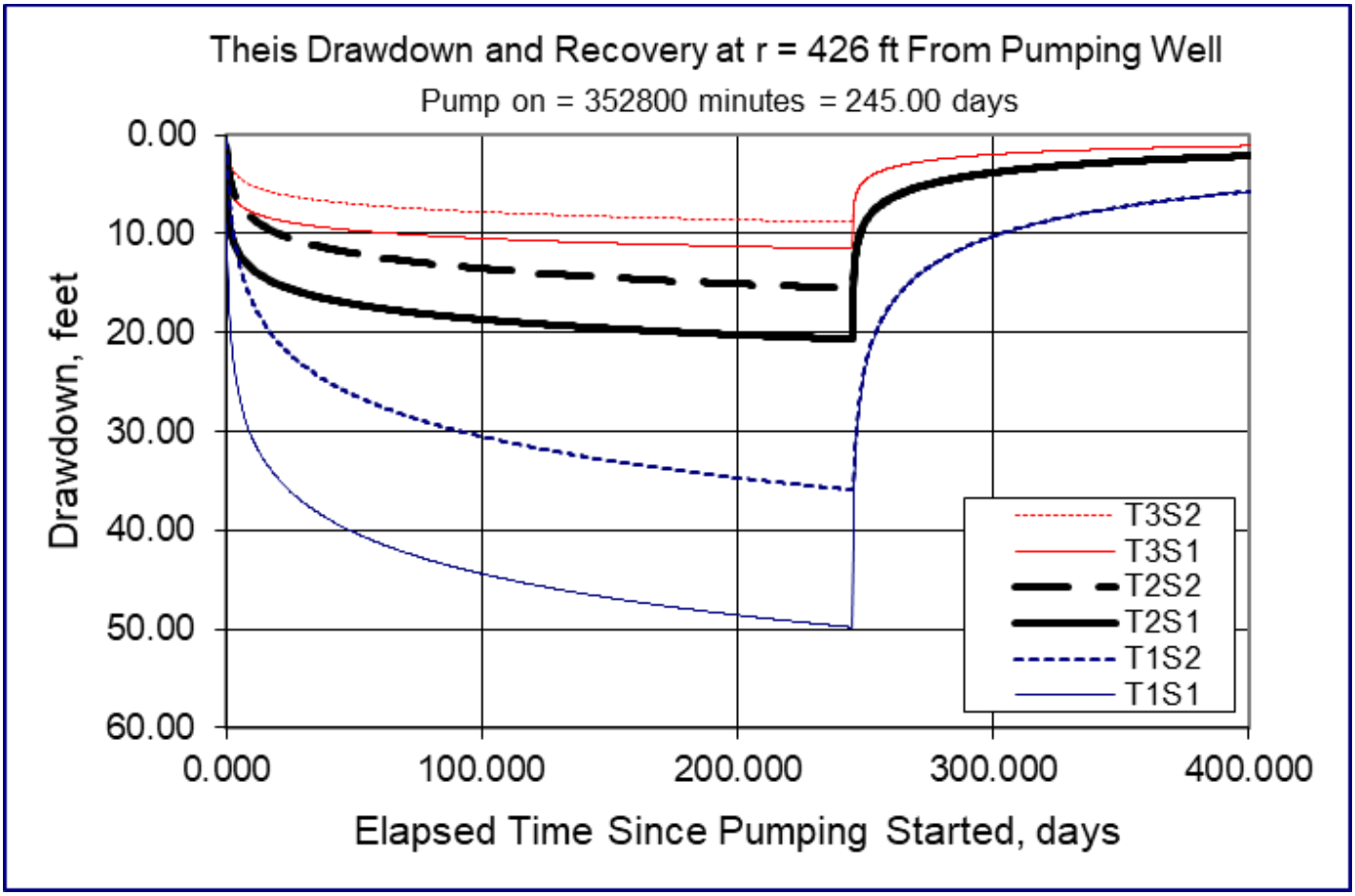
Radial distance from pumping well (r)=222 ft [estimated radial distance to nearest user, CLAC 57932]
Pumping Rate (Q)= 0.219 cfs (~98.7 gpm)
Aquifer Transmissivity (T1)= 1,870 gpd/ft (250 ft^2/day), (T2)= 5,049 gpd/ft (675 ft^2/day), (T3)= 9,709 gpd/ft (1,298 ft^2/day)
Storativity (s1) = 0.0002, (s2) = 0.002 [Conlon et al 2005, Table 2 values for Troutdale Sandstone Aquifer]
Total pumping time=245 days [irrigation season, March 1-October 31]

Well 2



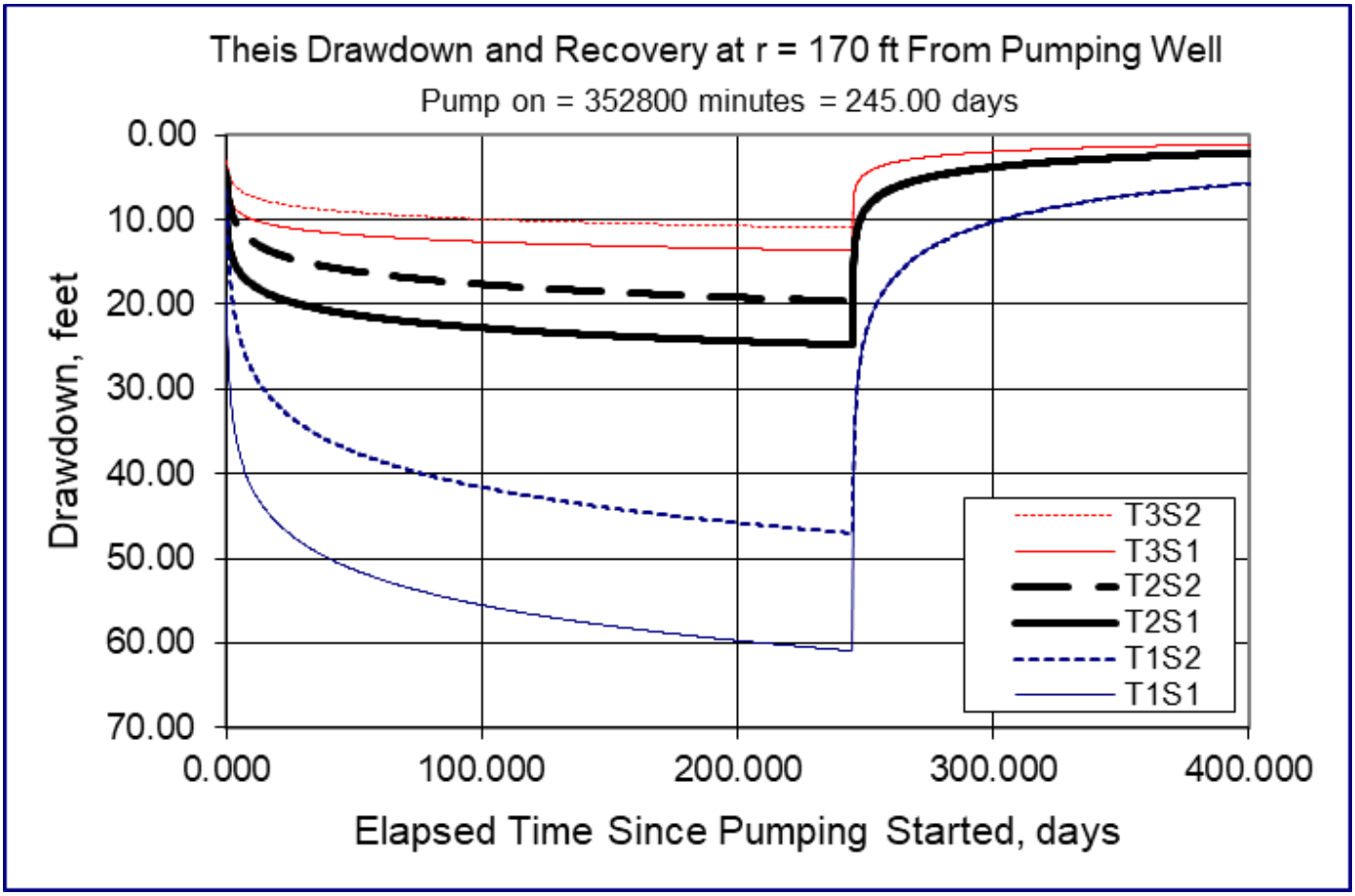
Radial distance from pumping well (r)=444 ft [estimated radial distance to nearest user, CLAC 10257]
Pumping Rate (Q)= 0.219 cfs (~98.7 gpm)
Aquifer Transmissivity (T1)= 1,870 gpd/ft (250 ft^2/day), (T2)= 5,049 gpd/ft (675 ft^2/day), (T3)= 9,709 gpd/ft (1,298 ft^2/day)
Storativity (s1) = 0.0002, (s2) = 0.002 [Conlon et al 2005, Table 2 values for Troutdale Sandstone Aquifer]
Total pumping time=245 days [irrigation season, March 1-October 31]

Well 3



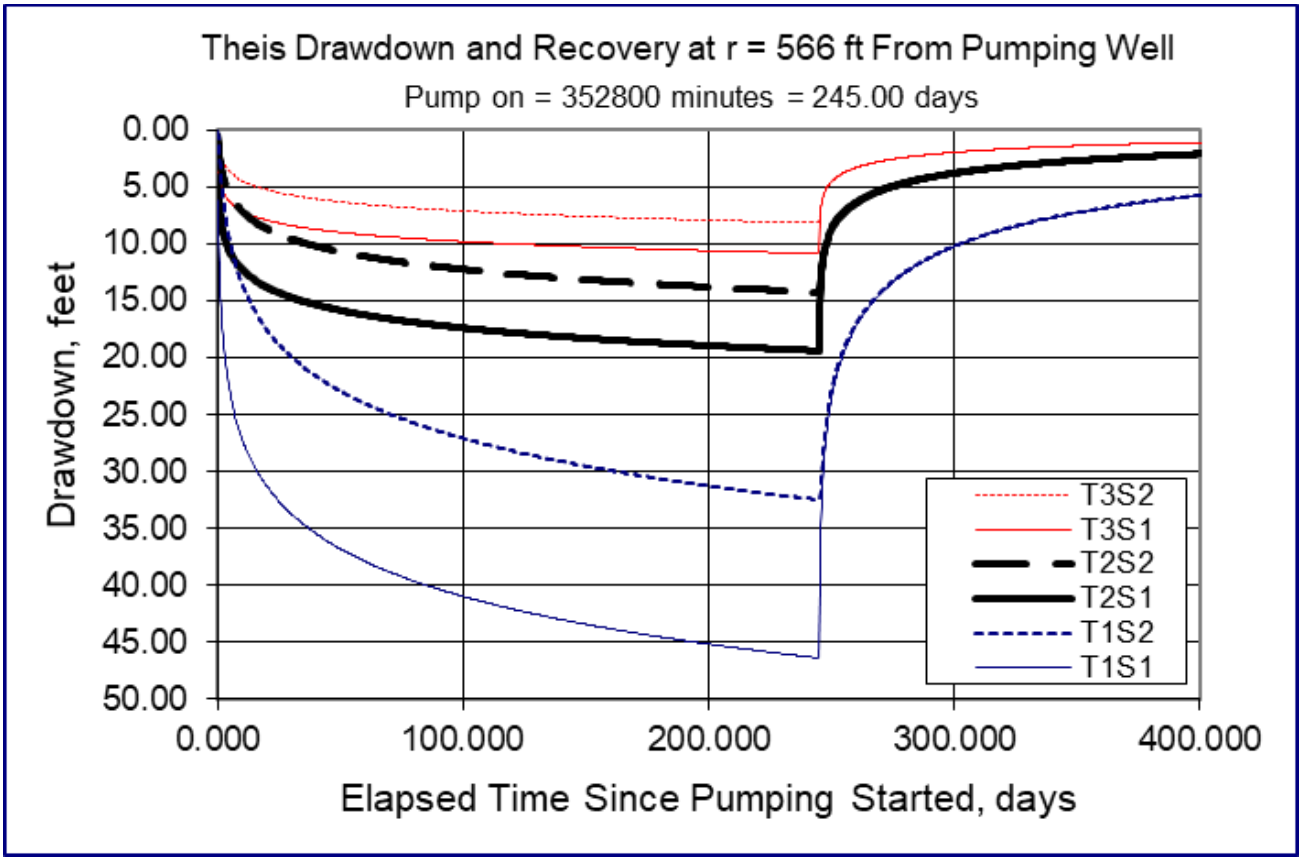
Radial distance from pumping well (r)=426 ft [estimated radial distance to nearest user, CLAC 20145]
Pumping Rate (Q)= 0.219 cfs (~98.7 gpm)
Aquifer Transmissivity (T1)= 1,870 gpd/ft (250 ft^2/day), (T2)= 5,049 gpd/ft (675 ft^2/day), (T3)= 9,709 gpd/ft (1,298 ft^2/day)
Storativity (s1) = 0.0002, (s2) = 0.002 [Conlon et al 2005, Table 2 values for Troutdale Sandstone Aquifer]
Total pumping time=245 days [irrigation season, March 1-October 31]

Well 4



Radial distance from pumping well (r)=170 ft [estimated radial distance to nearest user, CLAC 10280]
Pumping Rate (Q)= 0.219 cfs (~98.7 gpm)
Aquifer Transmissivity (T1)= 1,870 gpd/ft (250 ft^2/day), (T2)= 5,049 gpd/ft (675 ft^2/day), (T3)= 9,709 gpd/ft (1,298 ft^2/day)
Storativity (s1) = 0.0002, (s2) = 0.002 [Conlon et al 2005, Table 2 values for Troutdale Sandstone Aquifer]
Total pumping time=245 days [irrigation season, March 1-October 31]

Well 5



Radial distance from pumping well (r)=566 ft [estimated radial distance to nearest user, CLAC 10256]
Pumping Rate (Q)= 0.219 cfs (~98.7 gpm)
Aquifer Transmissivity (T1)= 1,870 gpd/ft (250 ft^2/day), (T2)= 5,049 gpd/ft (675 ft^2/day), (T3)= 9,709 gpd/ft (1,298 ft^2/day)
Storativity (s1) = 0.0002, (s2) = 0.002 [Conlon et al 2005, Table 2 values for Troutdale Sandstone Aquifer]
Total pumping time=245 days [irrigation season, March 1-October 31]

Stream Depletion Analysis – SW 1

Application type:	G
Application number:	19204
Well number:	4
Stream Number:	1
Pumping rate (cfs):	0.22
Pumping duration (days):	245
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	3150	3150	3150	ft
Aquifer transmissivity	T	250	675	1295	ft2/day
Aquifer storativity	S	0.002	0.0011	0.0002	-
Aquitard vertical hydraulic conductivity	Kva	0.001	0.005	0.01	ft/day
Aquitard saturated thickness	ba	7	35	60	ft
Aquitard thickness below stream	babs	4.0	8	54	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	20	60	114	ft