Groundwater Application Review Summary Form

Application # G- 19300

GW Reviewer Stacey Garrison/Travis Brown Date Review Completed: 8/16/2023

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 **_September 25 2023_**

TO: **Application** G-_**19300**_

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 9/25/2023
FROM: Groundwater Section Stacey Garrison/Travis Brown
Reviewer's Name
SUBJECT: Application G- **19300** 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: **Elizabeth Lancefield Lane** County: Yamhill

A1. Applicant(s) seek(s) 0.334 cfs from 3 well(s) in the Willamette Basin, Coast Range subbasin

A2. Proposed use irrigation & supplemental irrigation Seasonality: April 1 through September 30

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	2	alluvial	0.334	5S/4W-20 NW-NW	1140'N, 60' W fr SE cor DLC 44 [a]
2	Proposed	3	alluvial	0.334	5S/4W-20 NW-NW	1040' N, 40' E fr SE cor DLC 44 [a]
3	Proposed	4	alluvial	0.334	5S/4W-19 SW-NE	630'N, 2410'W fr SE cor DLC 44 [a]

* 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	162 [b]				100	0-40	0-100		60' to 90'			
2	163 [b]				100	0-40	0-100		60' to 90'			
3	147 [b]				100	0-40	0-100		60' to 90'			

Use data from application for proposed wells.

A4. **Comments:** The POA/POUs are located 0.5 miles northwest of Amity, Oregon. Applicant proposes to irrigate at 0.334 cfs (150 gpm) on up to 19.8 ac and supplemental irrigation on 293.5 ac with a total annual volume limited to 47 af/year. NOTE: the applicant has requested to irrigate for less than the maximum allowed time period for irrigation (April 1 through September 30 instead of March 1 through October 31) and with a volume less than the maximum allowed (47 AF). **The analyses for this review utilize this reduced period of time (April 1 through September 30) and the reduced volume (47 AF).**

[a] 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 POAs 1, 2, and 3 are 35 ft, 45 ft, and 105 ft southwest of the mapped locations respectively; the mapped locations are used for this review.

[b] 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**:** All POAs are anticipated to develop a confined aquifer. POAs 1 and 2 are anticipated to develop wells within 0.25 miles of Salt Creek, POA 3 is greater than 0.25 miles from a surface water source; therefore, per OAR 690-502-0240, the relevant Willamette Basin Rules (OAR 690-502-0100) do not apply. If POAs 1 and/or 2 develop an unconfined aquifer, then the relevant Willamette Basin Rules (OAR 690-502-0100) will apply; neither Irrigation use nor Supplemental Irrigation use are permitted for most of the requested period, per OAR 690-502-0100 (4)(a) Yamhill River and its tributaries are classified only for domestic commercial use for customarily domestic purposes not to exceed 0.01 cfs, livestock and public instream uses from May 1 through October 31.

A6. ☐ **Well(s) #** ____________ , tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: NA
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) **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 POA/POU are on middle terrace deposits of the Missoula Flood deposits, a Quaternary sequence of semiconsolidated clays, silts, sands, and gravels that is poorly sorted and up to 150 ft thick (Brownfield and Schickler 1981a, Brownfield and Schickler 1981b) and assigned to the unconfined Willamette Silt Unit (Herrera et al 2014). Based on the proposed depth of the POA, it will likely utilize beds of gravel, sand, and clay that occur at depths of 50 to 90 ft bls and are overlain by the Willamette Silt, which acts as a confining layer from 10 to 50 ft bls (Brownfield and Schickler 1981a, Brownfield and Schickler 1981b). The fluvial terrace deposits include a variety of grain sizes and different degrees of consolidation, resulting in a wide range of hydraulic conductivity values (Woodward et al 1998). Department-located wells within 1 mile of the POAs and utilizing the Quaternary Late Tertiary Sediment (QLTS) aquifer system (YAMH 639, YAMH 1799, YAMH 1890, YAMH 2756, YAMH 2787, YAMH 2788, YAMH 7038, YAMH 7041, YAMH 7042, YAMH 7043, YAMH 7047, YAMH 7051, YAMH 7058, YAMH 7165, YAMH 7169, YAMH 7366, YAMH 7370, YAMH 7845, YAMH 51104, YAMH 54084, YAMH 54085, YAMH 55121, YAMH 57085, YAMH 57445. YAMH 57856, YAMH 58109, YAMH 59242) identify multiple water-bearing zones, WBZs, ranging from 6.4 to 142 ft bls [24 to 155.5 ft msl], with thickness varying from 1 to 84.5 ft, and described in well logs as clay, sand, and gravel. The SWLs range from 6.5 to 45 ft bls [107 to 168 ft msl]; SWLs are recorded above the elevation of the top of the respective WBZ in some wells indicating confined conditions, however unconfined conditions are also possible if the well construction accesses the exposed WSU (Conlon et al 2005), as demonstrated in YAMH 7366, YAMH 57085, YAMH 57445. If the POAs are constructed such that the WSU is accessed, then unconfined conditions would occur. The proposed construction indicates screening/perforating 60 to 90 ft bls, suggesting an intent to avoid the unconfined WSU.

A review of statistics for nearby well records was completed and compared with the proposed rate of 0.334 cfs (150 gpm) for this application (see Well Statistics). Median reported well yield is 20 gpm, and the maximum reported yield is 230 gpm; of the 151 wells in the Department's database that are in 5S/4W-20 and surrounding sections, only 5 wells have a yield greater than 100 gpm. The proposed rate for this application is 750% of the median and 65% of the maximum reported yield. The gravel and sand aquifer in this area is underlain by low-porosity marine sandstone, in some areas as shallow as 64 ft bls. The limited thickness of the aquifer may prevent the applicant from obtaining the requested rate. For the wells within 1 mile and discussed above the maximum yield is 220 gpm, the minimum is 15 gpm, and the median is 60 gpm. Wells with yields from 150 to 220 gpm demonstrate drawdowns of 15 to 61.5 ft (YAMH 639, YAMH 7047, YAMH 7366, YAMH 7370). The water table in this area is approximately 130 ft msl (Gannet and Caldwell 1998) [32, 33, and 7 ft bls for elevations of POA 1, 2, and 3 respectively] and the POAs will be screened/perforated from 60 to 90 ft bls, a 60 ft maximum drawdown could limit the applicant's ability to obtain the proposed rate. The proposed rate of use of 0.334 cfs (150 gpm) is likely within the capacity of the groundwater resource.
Water levels are declining (see Water Level Measurements in Nearby Wells). For the 6 QLTS observation wells within 3 miles of the POAs that have SWL data in the last 20 years, only 2 have data within the last 5 years (YAMH 453, YAMH 57192) with only 1 additional well with data in the last 10 years (YAMH 6888). While YAMH 6888 shows an increase in water levels over its entire record, the wells with more recent data show declines of 3 ft in the last 5 years. One well has an extended record from 1928 to 2009 (YAMH 7310) showing a 7 ft drop over its entire record. Within 1 mile of the POAs, there are 12 authorized POAs for 13 groundwater rights, including 3 municipal water rights. There is not a preponderance of evidence to indicate the groundwater resource is over-appropriated.

The nearest groundwater user to POA 1 is YAMH 1799 (an exempt use well) 2,684 ft southeast of the POA at an elevation of 162 ft msl. It is likely the proposed use would cause some degree of well-to-well interference with YAMH 1799.
To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-POA 1). Results indicate that the proposed use is not likely to cause well-to-well interference with YAMH 1799 that exceeds the threshold under the standard condition for alluvial aquifers in the Willamette Basin.

The nearest groundwater user to POA 2 is YAMH 1799 (an exempt use well) 2,549 ft southeast of the POA at an elevation of 162 ft msl. It is likely the proposed use would cause some degree of well-to-well interference with YAMH 1799.
To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-POA 2). Results indicate that the proposed use is not likely to cause well-to-well interference with YAMH 1799 that exceeds the threshold under the standard condition for alluvial aquifers in the Willamette Basin.

The nearest groundwater user to POA 3 is the exempt domestic use well that serves tax lot 800 at 10875 SW Lancefield Rd, ~700 ft south of the POA at an elevation of 163 ft msl. It is likely the proposed use would cause some degree of well-to-well interference with the well that serves tax lot 800. To assess the degree of drawdown, a Theis drawdown analysis was conducted for the proposed use (see attached Theis Drawdown Analysis-POA 2). Results indicate that the proposed use is not likely to cause well-to-well interference with well that serves tax lot 800 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 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.

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	**Alluvial**	☒	☐

Basis for aquifer confinement evaluation: The proposed POAs will likely utilize the gravels and sands that underlie the Willamette Silt Unit (WSU), which is exposed at the surface (Brownfield and Schickler 1981a, Brownfield and Schickler 1981b). While the WSU is unconfined (Conlon et al 2005), as indicated in well logs within a mile of the POAs in which the static water level is at the water bearing zone (YAMH 7366, YAMH 57085, YAMH 57445), wells constructed as proposed for POAs 1, 2, and 3 are anticipated to access the confined underlying gravels and sands.

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?			Potential for Subst. Interfer. Assumed?	
						YES	**NO**	**ASSUMED**	**YES**	**NO**
1	**1**	**Salt Creek**	**107-168**	**119-125**	**1,662**	☒	☐	☐	☐	☒
2	**1**	**Salt Creek**	**107-168**	**119-125**	**1,535**	☒	☐	☐	☐	☒
3	**1**	**Salt Creek**	**107-168**	**120-121**	**4,000**	☒	☐	☐	☐	☒
1	**2**	**Unnamed trib. to S Yamhill R**	**107-168**	**134-137**	**5,770**	☒	☐	☐	☐	☒
2	**2**	**Unnamed trib. to S Yamhill R**	**107-168**	**134-137**	**5,900**	☒	☐	☐	☐	☒
3	**2**	**Unnamed trib. to S Yamhill R**	**107-168**	**134-137**	**3,778**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The proposed POAs will be sealed continuously to a depth of 40 ft bls [122, 123, and 107 ft msl] and cased continuously to a depth of 100 ft [62, 63, and 47 ft msl]. SWLs in surrounding wells utilizing the QLTS aquifer vary from 107 to 168 ft msl[a] and the regional water table is between 120 and 140 ft msl (Gannet and Caldwell 1998). The local streambed of SW 1 (Salt Creek) is 119 to 125 ft msl and of SW 2 (Unnamed tributary to South Yamhill River) is 134 to 137 ft msl, indicating the local groundwater is likely discharging to surface water, consistent with Woodward et al (1998) findings that groundwater discharges to surface water. Both SW 1 (Salt Creek) and SW 2 (Unnamed tributary to South Yamhill River) are flowing on the middle terrace deposit portion of the Willamette Silt Unit, which is saturated to within 5 to 10 ft of the surface in this area, but have not completely incised through the silt (Brownfield and Schickler 1981a, Brownfield and Schickler 1981b, Gannet and Caldwell 1998). Hydraulic connection to nearby streams is likely but expected to be limited by the confining Willamette Silt.

[a] Groundwater elevation calculated from static water level reported in well logs and/or latest static water level reported for YAMH 639, YAMH 1799, YAMH 1890, YAMH 2756, YAMH 2787, YAMH 2788, YAMH 7038, YAMH 7041, YAMH 7042, YAMH 7043, YAMH 7047, YAMH 7051, YAMH 7058, YAMH 7165, YAMH 7169, YAMH 7366, YAMH 7370, YAMH 7845, YAMH 51104, YAMH 54084, YAMH 54085, YAMH 55121, YAMH 57085, YAMH 57445. YAMH 57856, YAMH 58109, and YAMH 59242 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).

Water Availability Basin the well(s) are located within: SALT CR>S YAMHILL R-AT MOUTH

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**	☒	☐	**IS73562A**	**0.4**	☒	**9.76**	☒	**<25%**	☒
2	**1**	☒	☐	**IS73562A**	**0.4**	☒	**9.76**	☒	**<25%**	☒
3	**1**	☐	☐	**IS73562A**	**0.4**	☒	**9.76**	☒	**<25%**	☒
1	**2**	☐	☐	**IS73562A**	**0.4**	☐	**9.76**	☒	**<25%**	☒
2	**2**	☐	☐	**IS73562A**	**0.4**	☐	**9.76**	☒	**<25%**	☒
3	**2**	☐	☐	**IS73562A**	**0.4**	☐	**9.76**	☒	**<25%**	☒

Comments: **POAs 1, 2, and 3 are anticipated to develop the confined sand and gravel aquifer overlain by Willamette Silt. POAs 1 and 2 are within 0.25 miles of the nearest surface water source, SW 1 (Salt Creek). POA 3 is within a mile of SW 1 (Salt Creek) and SW 2 (Unnamed tributary to South Yamhill River). Potential for Substantial Interference with SW 1 (Salt Creek) is assumed for POA 1 and POA 2 based on the POAs being within 0.25 miles of the surface water source and being in hydraulic connection with the surface water source. Potential for Substantial Interference occurs for POAs 1, 2, and 3 due to the requested rate exceeding 1% of the ISWR (IS73562A for 0.4 cfs, 1% is 0.004 cfs) and the requested rate also exceeds 1% of the 80% Natural Flow (9.76 cfs, 1% is 0.0976 cfs).**

Potential depletion (interference with) SW 1 (Salt Creek) by proposed pumping at proposed POA 2 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) or are within a typical range of values for the parameter within the hydrogeologic regime (Freeze and Cherry, 1979; Morris and Johnson 1967; Heath 1983). 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 2 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 2 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:**

References Used:

Application File: G-19300

Pumping Test Files: YAMH 7365, YAMH 6867, YAMH 6869, YAMH 453, YAMH 52080

Well Reports: YAMH 639, YAMH 1799, YAMH 1890, YAMH 2756, YAMH 2787, YAMH 2788, YAMH 7038, YAMH 7041, YAMH 7042, YAMH 7043, YAMH 7047, YAMH 7051, YAMH 7058, YAMH 7165, YAMH 7169, YAMH 7366, YAMH 7370, YAMH 7845, YAMH 51104, YAMH 54084, YAMH 54085, YAMH 55121, YAMH 57085, YAMH 57445. YAMH 57856, YAMH 58109, YAMH 59242, YAMH 7365, YAMH 6867, YAMH 6869, YAMH 453, YAMH 52080

Brownfield, M.E., and Schlicker, H.G., 1981a, Preliminary geologic map of the Amity and Mission Bottom quadrangles, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report O-81-5, scale 1:24,000.

Brownfield, M.E., and Schlicker, H.G., 1981b, Preliminary geologic map of the McMinnville and Dayton quadrangles, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report O-81-06, scale 1:24,000.

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, *Ground-water hydrology of the Willamette Basin, Oregon*, Scientific Investigations Report 2005-5168: U. S. Geological Survey, Reston, VA.

Freeze, R.A. and J.A. Cherry, 1979. Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604p

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.

Heath, R.C., 1983. Basic ground-water hydrology, U.S. Geological Survey Water-Supply Paper 2220, 86p.

Herrera, N.B., Burns, E.R., and Conlon, T.D., 2014, Simulation of groundwater flow and the interaction of groundwater and surface water in the Willamette Basin and Central Willamette subbasin, Oregon: U.S. Geological Survey Scientific Investigations Report 2014–5136, 152 p

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.

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.

Morris, D.A. and A.I. Johnson, 1967. Summary of hydrologic and physical properties of rock and soil materials as analyzed by the Hydrologic Laboratory of the U.S. Geological Survey, U.S. Geological Survey Water-Supply Paper 1839-D, 42p

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.

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

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

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _______________ **Logid:** ______________________________

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

a. ☐ review of the well log;

b. ☐ field inspection by ______________________________;

c. ☐ report of CWRE ______________________________;

d. ☐ other: (specify) ______________________________

____

D3. **THE WELL construction deficiency or other comment is described as follows:** ______________________________

____

____

____

____

D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

Water Availability Tables

Oregon Water Resources Department
Water Availability Analysis

Main Help Return Contact Us

Water Availability Analysis

Detailed Reports

SALT CR > S YAMHILL R - AT MOUTH
WILLAMETTE BASIN
Water Availability as of 8/11/2023

Watershed ID #: 73562 (Map) Exceedance Level: 80%
Date: 8/11/2023 Time: 11:21 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	154.00	18.40	136.00	0.00	0.40	136.00
FEB	168.00	16.00	152.00	0.00	0.40	152.00
MAR	143.00	13.40	129.00	0.00	0.40	129.00
APR	75.10	5.68	69.40	0.00	0.40	69.00
MAY	43.90	7.36	36.60	0.00	0.40	36.20
JUN	27.30	14.90	12.40	0.00	0.40	12.00
JUL	18.30	18.40	-0.06	0.00	0.40	-0.46
AUG	12.90	14.70	-1.79	0.00	0.40	-2.19
SEP	9.76	7.39	2.37	0.00	0.40	1.97
OCT	10.00	1.19	8.83	0.00	0.40	8.43
NOV	22.40	4.43	18.00	0.00	0.40	17.60
DEC	107.00	16.90	90.10	0.00	0.40	89.70
ANN	92,900.00	8,370.00	84,700.00	0.00	290.00	84,400.00

Oregon Water Resources Department
Water Availability Analysis

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Water Availability Analysis

Detailed Reports

SALT CR > S YAMHILL R - AT MOUTH
WILLAMETTE BASIN
Water Availability as of 8/11/2023

Watershed ID #: 73562 (Map) Exceedance Level: 80%
Date: 8/11/2023 Time: 1:05 PM

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

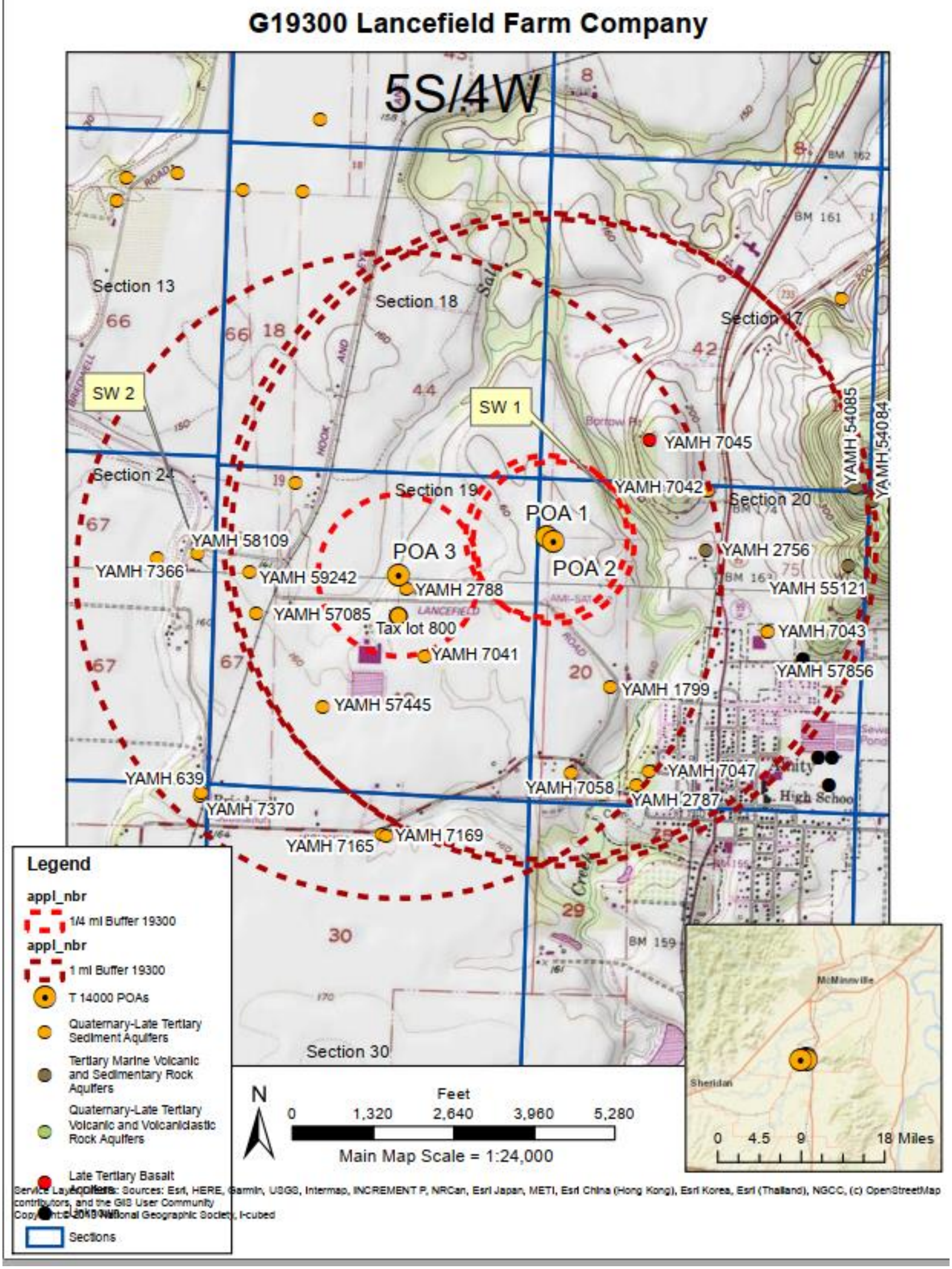
Detailed Report of Instream Flow Requirements

Instream Flow Requirements in Cubic Feet per Second

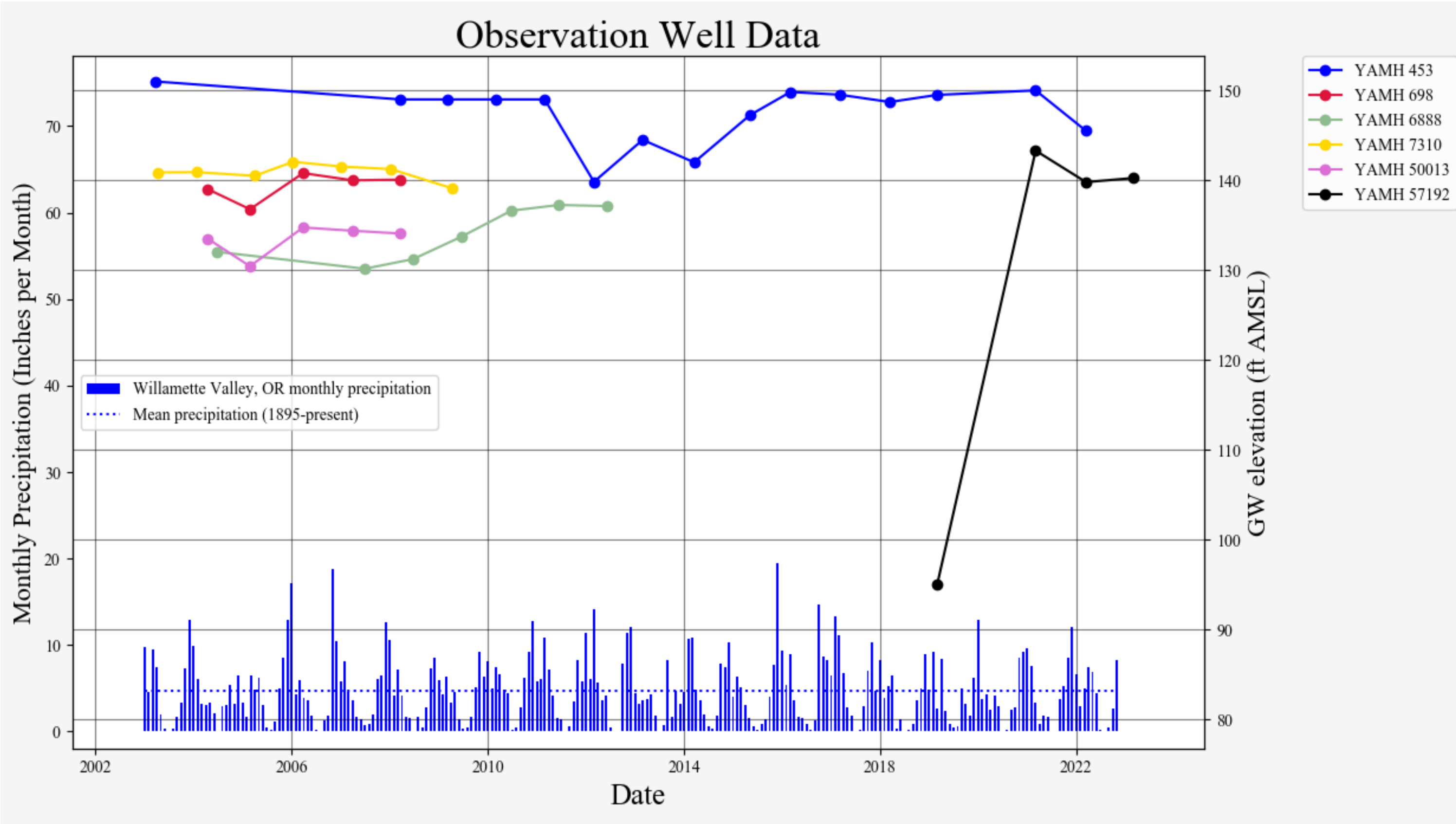
Application #	Status	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IS73562A	CERTIFICATE	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Maximum		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

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

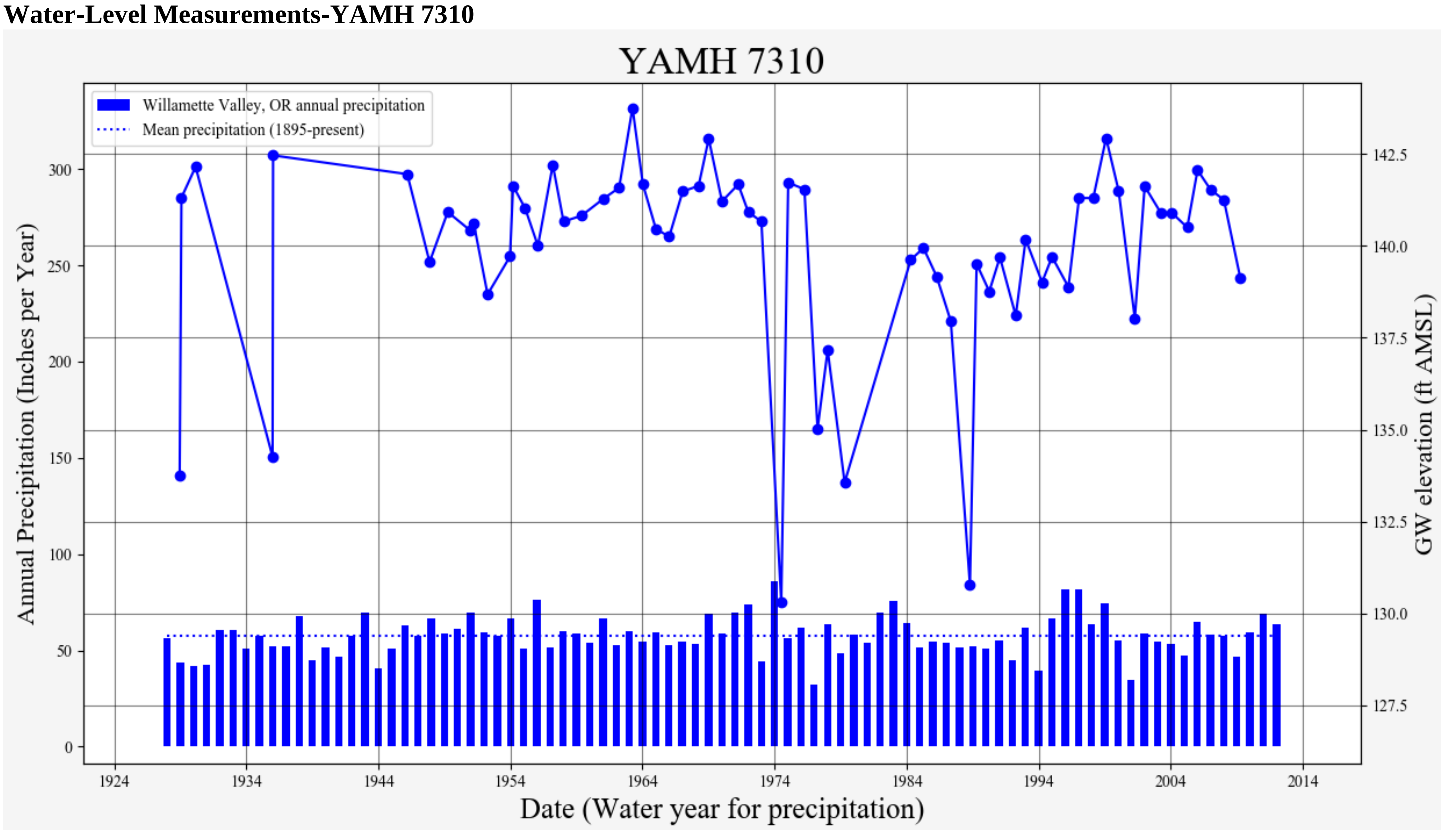
Well Location Map



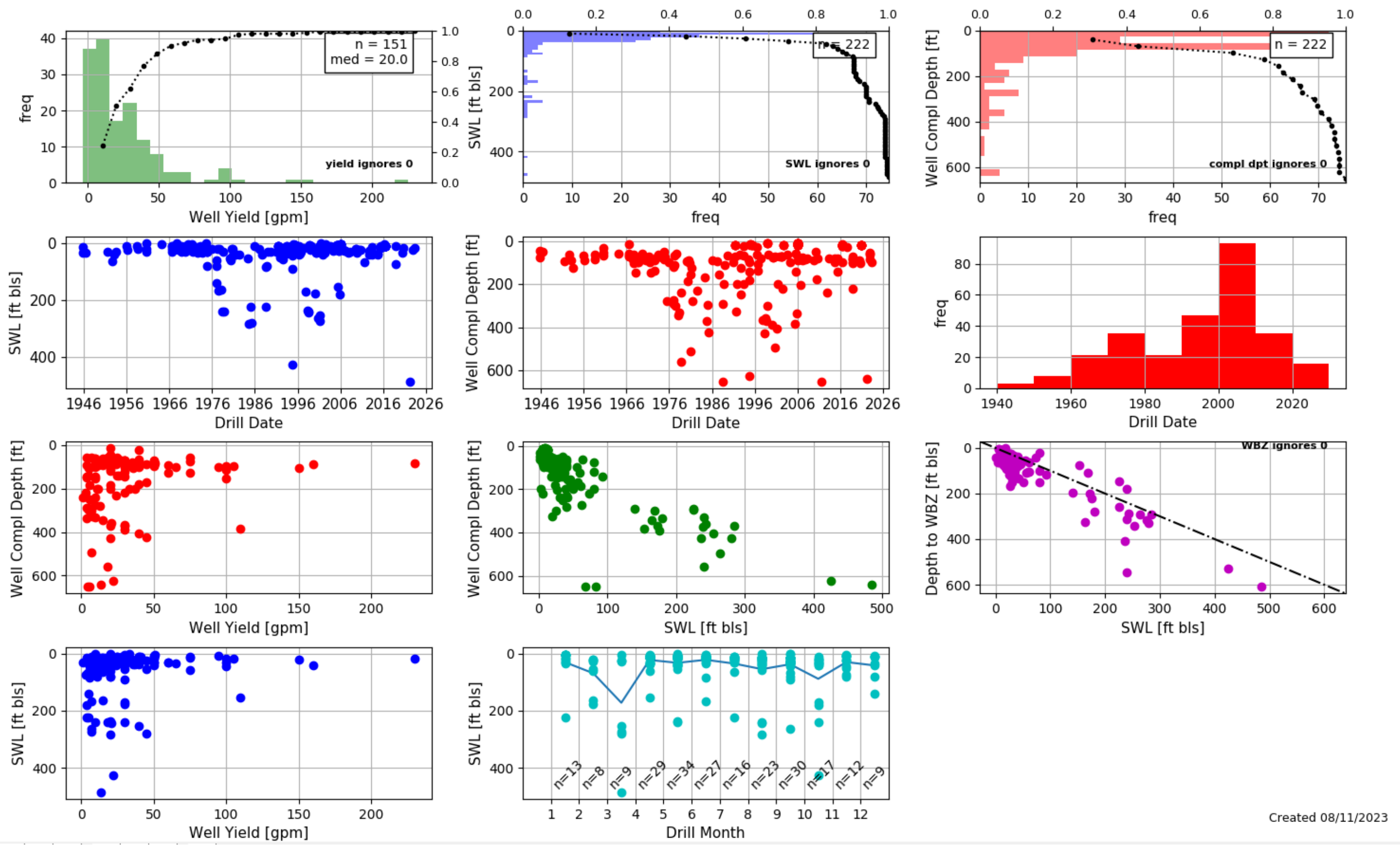
Water-Level Measurements in Nearby Wells



Water-Level Measurements-YAMH 7310

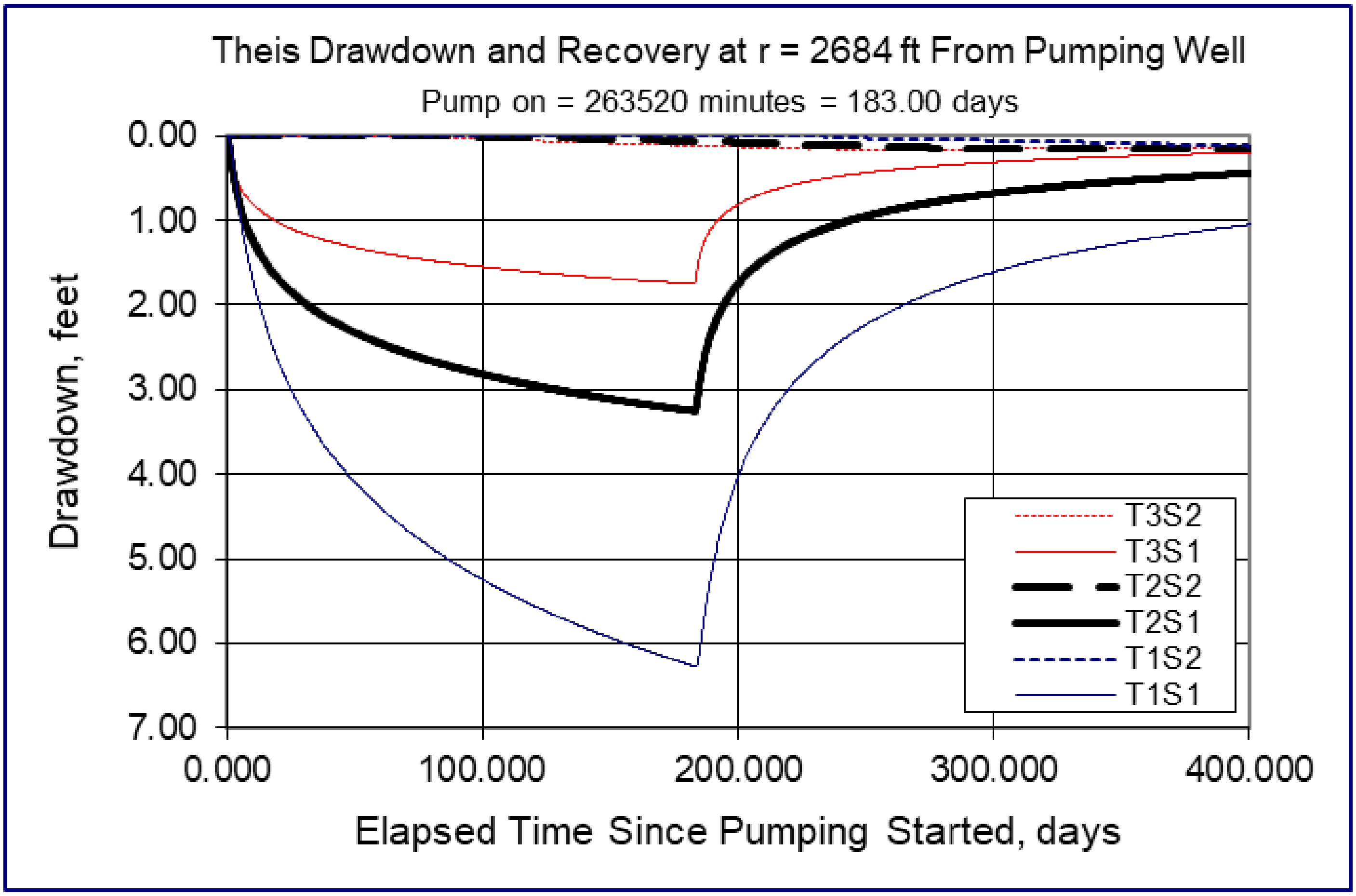


Well Statistics 5S/4W-20 and surrounding sections



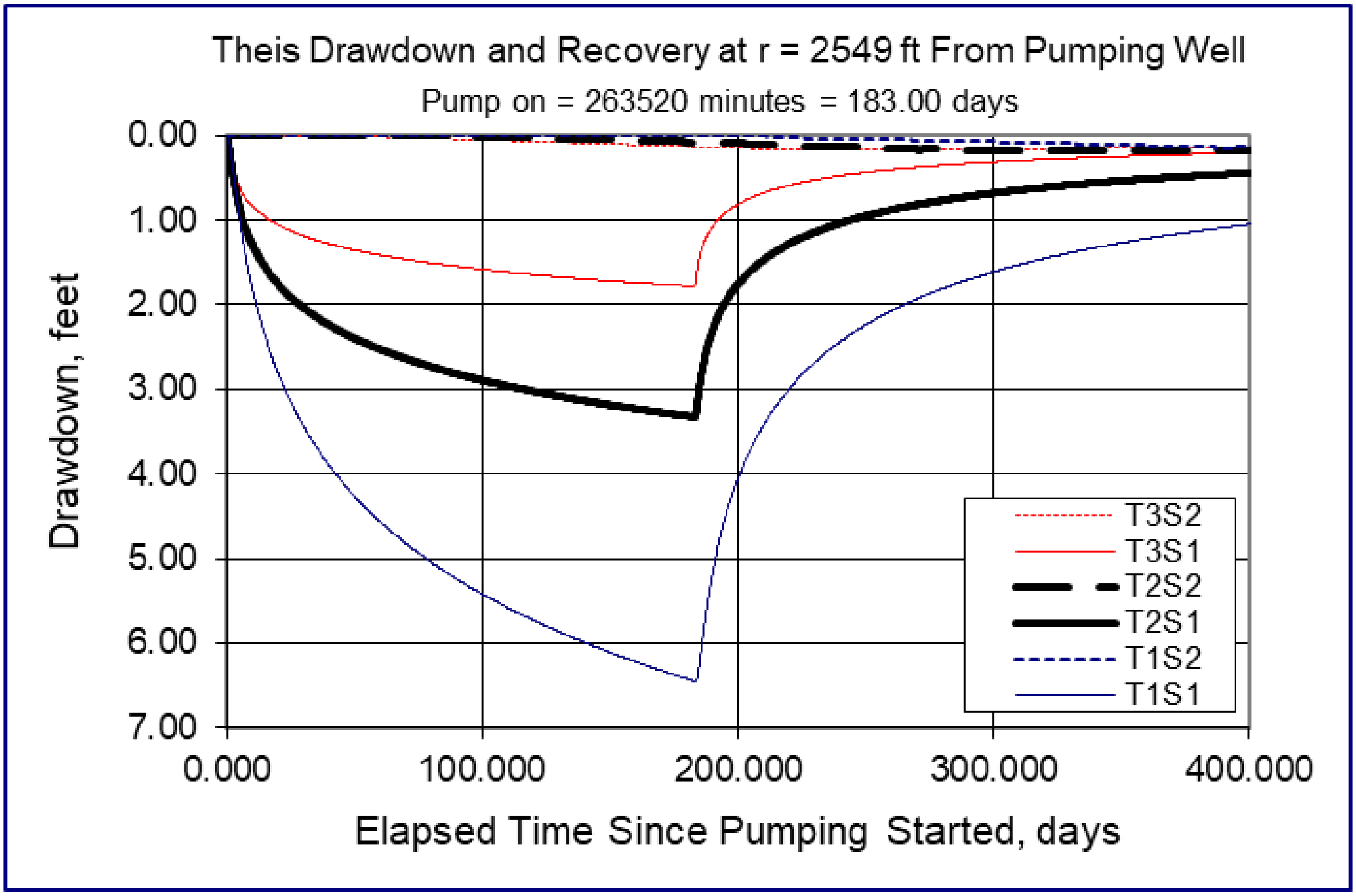
n = 151
med = 20.0
yield ignores 0
freq
Well Yield [gpm]
SWL [ft bls]
n = 222
SWL ignores 0
Well Compl Depth [ft]
compl dpt ignores 0
Drill Date
WBZ ignores 0
Depth to WBZ [ft bls]
n=13
n=8
n=9
n=29
n=34
n=27
n=16
n=23
n=30
n=17
n=12
n=9
Drill Month
Created 08/11/2023

Theis Drawdown Analysis
POA 1



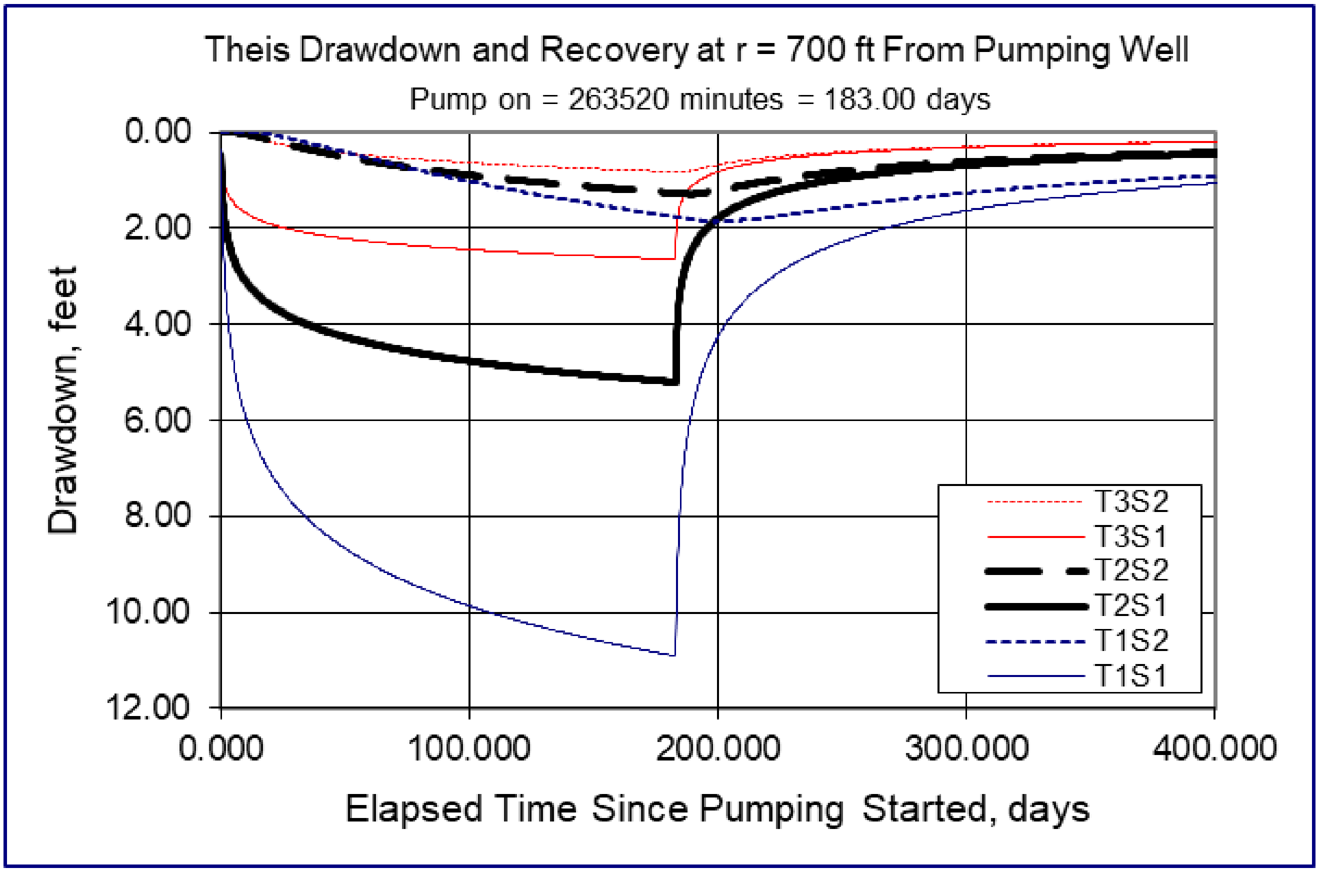
Radial distance from pumping well (r)=2,684 ft [estimated radial distance to nearest user, YAMH 1799]
Pumping Rate (Q)= 0.129 cfs (~58.11 gpm)*
Aquifer Transmissivity (T1)= 3,837 gpd/ft (513 ft^2/day), (T2)= 9,159 gpd/ft (1,224 ft^2/day), (T3)= 19,979 gpd/ft (2,671 ft^2/day)
Storativity (s1) = 0.0008, (s2) = 0.2 [Conlon et al 2005, Table 1 values for Middle Sedimentary Unit, MSU]
Total pumping time=183
*The full pumping rate could not be utilized continuously for the entire 183-day period of use without exceeding the 47 ac-ft maximum allowed duty. For the maximum allowed duty of 47 ac-ft, continuous pumping would occur for 183 days at a rate of 0.129 cfs (~58.11 gpm).

POA 2



Radial distance from pumping well (r)=2,549 ft [estimated radial distance to nearest user, YAMH 1799]
Pumping Rate (Q)= 0.129 cfs (~58.11 gpm)*
Aquifer Transmissivity (T1)= 3,837 gpd/ft (513 ft^2/day), (T2)= 9,159 gpd/ft (1,224 ft^2/day), (T3)= 19,979 gpd/ft (2,671 ft^2/day)
Storativity (s1) = 0.0008, (s2) = 0.2 [Conlon et al 2005, Table 1 values for Middle Sedimentary Unit, MSU]
Total pumping time=183
*The full pumping rate could not be utilized continuously for the entire 183-day period of use without exceeding the 47 ac-ft maximum allowed duty. For the maximum allowed duty of 47 ac-ft, continuous pumping would occur for 183 days at a rate of 0.129 cfs (~58.11 gpm).

POA 3



Radial distance from pumping well (r)=700 ft [estimated radial distance to nearest user, Domestic well at tax lot 800]
Pumping Rate (Q)= 0.129 cfs (~58.11 gpm)*
Aquifer Transmissivity (T1)= 3,837 gpd/ft (513 ft^2/day), (T2)= 9,159 gpd/ft (1,224 ft^2/day), (T3)= 19,979 gpd/ft (2,671 ft^2/day)
Storativity (s1) = 0.0008, (s2) = 0.2 [Conlon et al 2005, Table 1 values for Middle Sedimentary Unit, MSU]
Total pumping time=183
*The full pumping rate could not be utilized continuously for the entire 183-day period of use without exceeding the 47 ac-ft maximum allowed duty. For the maximum allowed duty of 47 ac-ft, continuous pumping would occur for 183 days at a rate of 0.129 cfs (~58.11 gpm).

Stream Depletion Analysis – POA 2 and SW 1

Application type:	G
Application number:	19300
Well number:	2
Stream Number:	1
Pumping rate (cfs):	0.334203
Pumping duration (days):	183
Pumping start month number (3=March)	4

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1535	1535	1535	ft
Aquifer transmissivity	T	513	1224.4	2671	ft2/day
Aquifer storativity	S	0.0008	0.1	0.2	-
Aquitard vertical hydraulic conductivity	Kva	0.001	0.005	0.01	ft/day
Aquitard saturated thickness	ba	50	50	50	ft
Aquitard thickness below stream	babs	40	40	40	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	90	90	90	ft

Stream depletion for Scenario 2:

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