Groundwater Application Review Summary Form

Application # G- 19425

GW Reviewer Steve Ahlquist Date Review Completed: 5/10/2024

Summary of GW Availability and Injury Review:

☐ Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

Summary of Potential for Substantial Interference Review:

☒ There is the potential for substantial interference per Section C of the attached review form.

Summary of Well Construction Assessment:

☐ The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).

WATER RESOURCES DEPARTMENT

MEMO **_May 10, 2024_**

TO: **Application** G-**_19425_**

FROM: **GW:** **_Steve Ahlquist_**
(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 Rogue 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
0.083	**0.083**	**0.083**	**0.083**	**0.083**	**0.083**	**0.083**	**0.083**	**0.083**	**0.083**	**0.083**	**0.083**

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 5/10/2024
FROM: Groundwater Section Steve Ahlquist
Reviewer's Name
SUBJECT: Application G- **19425** 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: **Warrick Vineyard, LLC** County: **Jackson**

A1. Applicant(s) seek(s) 0.04 cfs from 1 well(s) in the Rogue Basin, Applegate subbasin

A2. Proposed use Irrigation (6.7 acres, 6.0 af) Seasonality: April 1 – October 31

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

POA Well	Logid	Applicant's Well #	Proposed Aquifer*	Proposed Rate(cfs)	Location (T/R-S QQ-Q)	Location, metes and bounds, e.g. 2250' N, 1200' E fr NW cor S 36
1	JACK 14443	3	Bedrock	0.04	**T37S/R4W-32 SE-SW**	1090' N, 3380' W fr E ¼ cor S 32[a]
2						
3						

* 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	168	0 - 24	+1 - 79	1 - 168	88 - 168	50	NA	Air
2								
3								

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	1535	NA	27.78[b]	8/2/2006	TBD	TBD
2						
3						

Use data from application for proposed wells.

A4. **Comments:** The application is for seasonal irrigation of 6.7 acres. Applicant proposes to obtain water from one existing well (JACK 14443) completed to a depth of 168 feet to provide an instantaneous maximum flow rate of 0.04 cfs and a total maximum annual volume of 6.0 acre-feet.
[a] The meets and bounds location description provided in the application map does not match the location of JACK 14443 shown on the application map. For the purposes of this review, JACK 14443 is assumed to be located as depicted on the application map, which matches location records from previous OWRD site inspection.
[b] Water level recorded by OWRD on 8/2/2006 indicates level was rising at measurement. No static water level data available.

A5. ☐ **Provisions of the** Rogue 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 Rogue Basin Program rules (OAR 690-515) does not contain such provisions.

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

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

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

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

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

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

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

i. ☒ The permit should contain condition #(s) **7RLN (annual measurements); 7j; small 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 _____ 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 (JACK 14443) produces water from the fractured-rock aquifer of the Grayback Pluton (Wiley, 2006). Water in this aquifer is transmitted via interconnected fractures. The OWRD well report database contains records for 20 water wells near the proposed POAs (Sec. 32, T37S R4W). According to the well reports, the median and maximum yields are 40 and 110 gpm, respectively (see attached Well Statistics). Hydrographs for nearby wells indicate groundwater levels are relatively stable with no long-term declines (see attached Water-Level Measurements in Nearby Wells).

There are several groundwater rights within 1 mile and several residential properties on adjacent tax lots that are likely supplied by exempt use groundwater wells. A Theis (1935) drawdown analysis was conducted to assess potential well-to-well interference at the closest residential property (Tax Lot 1400), located approximately 350 feet west of JACK 14443. Hydraulic parameters used in the Theis analysis are based on pumping tests for nearby wells and are within the typical range of values for the hydrogeologic regime (Freeze and Cherry, 1979). To be conservative, the analysis assumed JACK 14443 would be pumped continuously at the maximum requested rate (0.04 cfs) until reaching the requested annual volume of 6 acre-feet, which would take approximately 76 days. Results of the Theis analysis indicate drawdown at adjacent residential properties would likely not exceed 10 feet as a result of the proposed use at JACK 14443 (see attached Theis Interference Analysis). The magnitude of well-to-well interference is difficult to predict for fractured-bedrock aquifer systems but based on the relatively low requested pumping rate, it is unlikely that the proposed use would result in injury to other permitted groundwater rights or exempt use wells.

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	**Fractured Bedrock of Grayback Pluton**	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: The proposed POA and nearby wells are completed in the fractured bedrock aquifer of the Grayback Pluton overlain by approximately 30 feet of fine-grained fluvial terrace sediments. Well logs and water level data indicate that water levels measured in nearby wells are considerably above the water-bearing zones, and are above ground level in some locations, indicating the wells obtain groundwater from a confined aquifer.

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

Well	SW #	Surface Water Name	GW Elev ft msl	SW Elev ft msl	Distance (ft)	Hydraulically Connected? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Wooldridge Creek**	**1507**	**1366-1518**	**70**	☒	☐	☐	☐	☒
1	**2**	**Unnamed Tributary to Wooldridge Creek**	**1507**	**1380-1524**	**380**	☒	☐	☐	☐	☒
1	**3**	**Slagle Creek**	**1507**	**1256-1507**	**1130**	☒	☐	☐	☐	☒
1	**4**	**Applegate River**	**1507**	**1170**	**7800**	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: Static water levels measured in JACK 14443 and other nearby wells completed in the fractured bedrock aquifer of the Grayback Pluton are higher than surface water elevations in nearby streams, indicating that groundwater is discharging to surface water. Deeper groundwater flow paths likely discharge to the Applegate River.

Water Availability Basin the well(s) are located within: APPLEGATE R>ROGUE R – AT MOUTH (WID #249)

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**	☒	☐			☐	**45.80**	☐	**<25**	☐
1	**2**	☒	☐			☐	**45.80**	☐	**<25**	☐
1	**3**	☒	☐			☐	**45.80**	☐	**<25**	☐
		☐	☐			☐		☐		☐

C3b. **690-09-040 (4):** Evaluation of stream impacts by total appropriation for all wells determined or assumed to be **hydraulically connected and less than 1 mile** from a surface water source. **Complete only if Q is distributed among wells**. Otherwise same evaluation and limitations apply as in C3a above.

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

Comments: C3a: An analytical stream depletion model (Hunt, 2003) was used to estimate potential interference with streamflow at the closest stream, Wooldridge Creek, due to the proposed use. Hydraulic parameters used in the model were obtained from regional data (Pumping Test Reports) and are representative of bulk aquifer properties. Specific parameter values used in the analyses are listed in the attached Stream Depletion Model Analyses. Hunt model results indicate that stream depletion (interference) at Wooldridge Creek is anticipated to be much less than 25% of the well discharge at 30 days of continuous pumping at the maximum requested rate of 0.04 cfs. Other streams are located much farther from the proposed POA and are expected to experience less interference as a result.

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:

The requested maximum pumping rate (0.04 cfs) is less than 1% of the minimum natural streamflow in Applegate River (45.80 cfs for September). Therefore, interference is expected to be less than 1% of the natural streamflow throughout the year.

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:** The proposed POA produces water from an aquifer which is hydraulically connected to nearby streams (Wooldridge Creek, Slagle Creek) and the Applegate River, which is tributary to the Rogue River. **The OWRD Water Availability Reporting System (WARS) has determined that groundwater use has already measurably reduced the surface water flows necessary to maintain the free-flowing character of the Rogue Scenic Waterway from the Applegate River to Lobster Creek as per ORS 390.835. The proposed groundwater use would further reduce surface water flow to the Rogue Scenic Waterway.**

References Used:

Application File: G-19417

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

Hunt, B. 2003. Unsteady Stream Depletion when Pumping from a Semiconfined Aquifer. Journal of Hydrologic Engineering. Vol 8(1), pp 12-19

Theis, C.V., 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, Am. Geophys. Union Trans., vol. 16, pp. 519-524.

Wiley, T. J. 2006. Preliminary Geologic Map of the Sexton Mountain, Murphy, Applegate, and Mount Isabelle 7.5' Quadrangles, Jackson and Josephine Counties, Oregon. Oregon Dept. of Geology and Mineral Industries. OFR O-06-11

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:** _____

_____

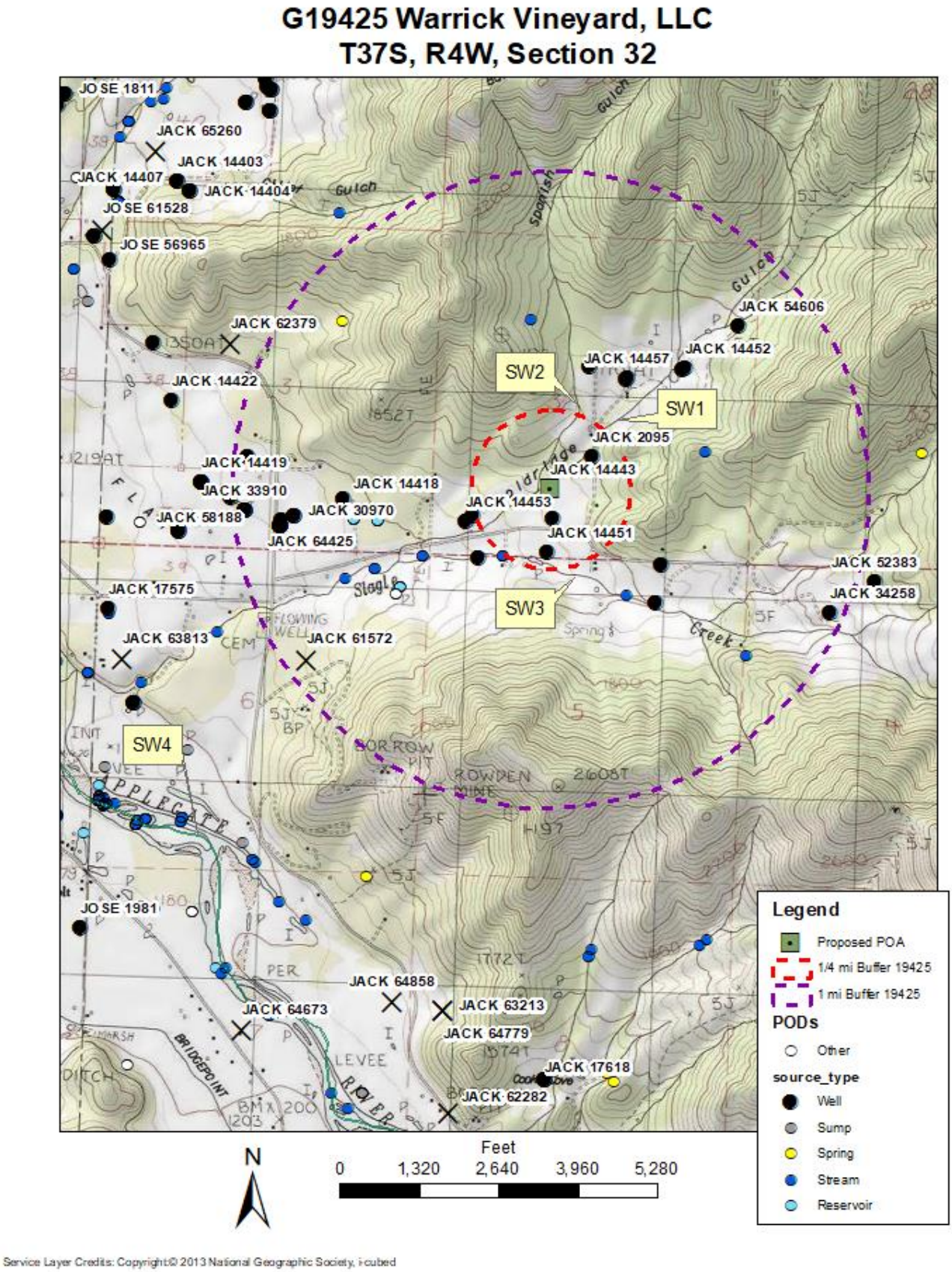
_____

_____

_____

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

Well Location Map



Water Availability Tables

APPLEGATE R > ROGUE R - AT MOUTH
ROGUE BASIN

Water Availability as of 5/6/2024

Watershed ID #: 249 (Map)
Date: 5/6/2024

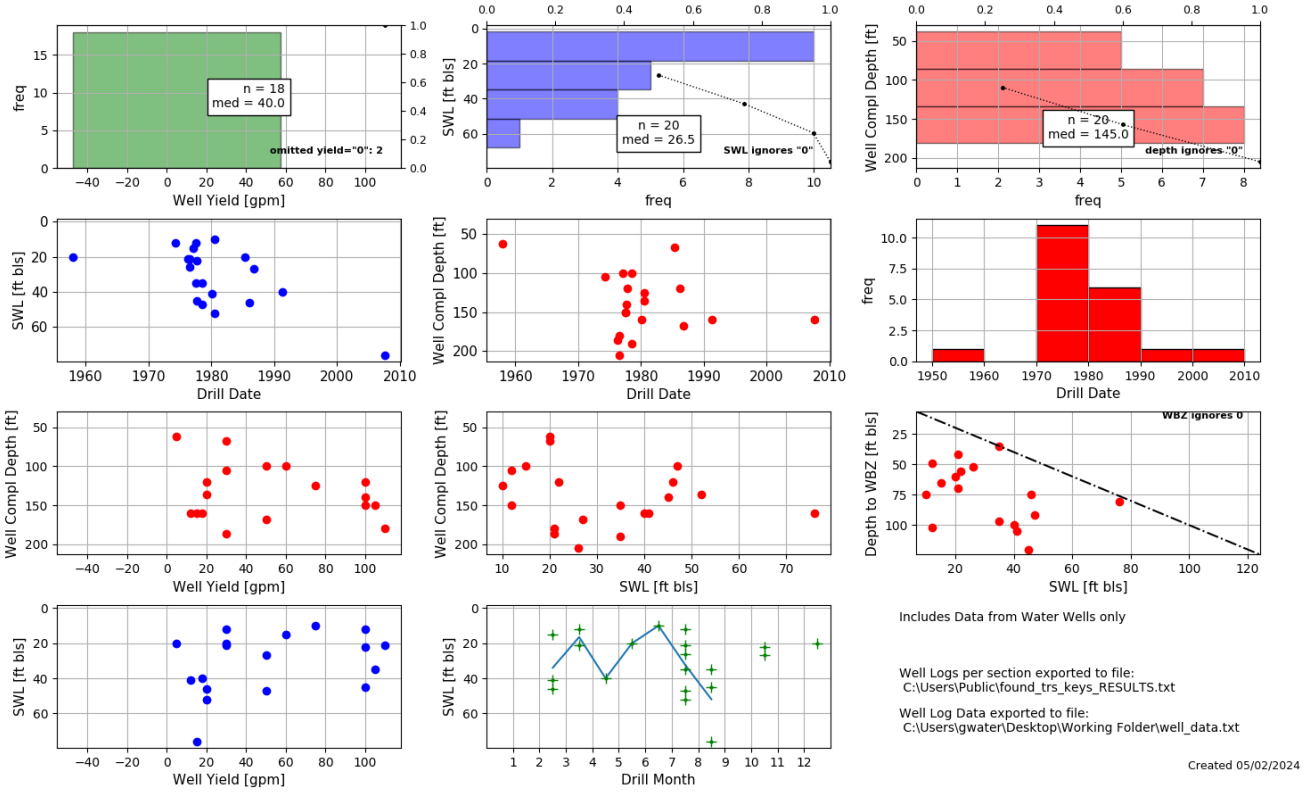
Exceedance Level: 80%
Time: 10:16 AM

Water Availability Calculation

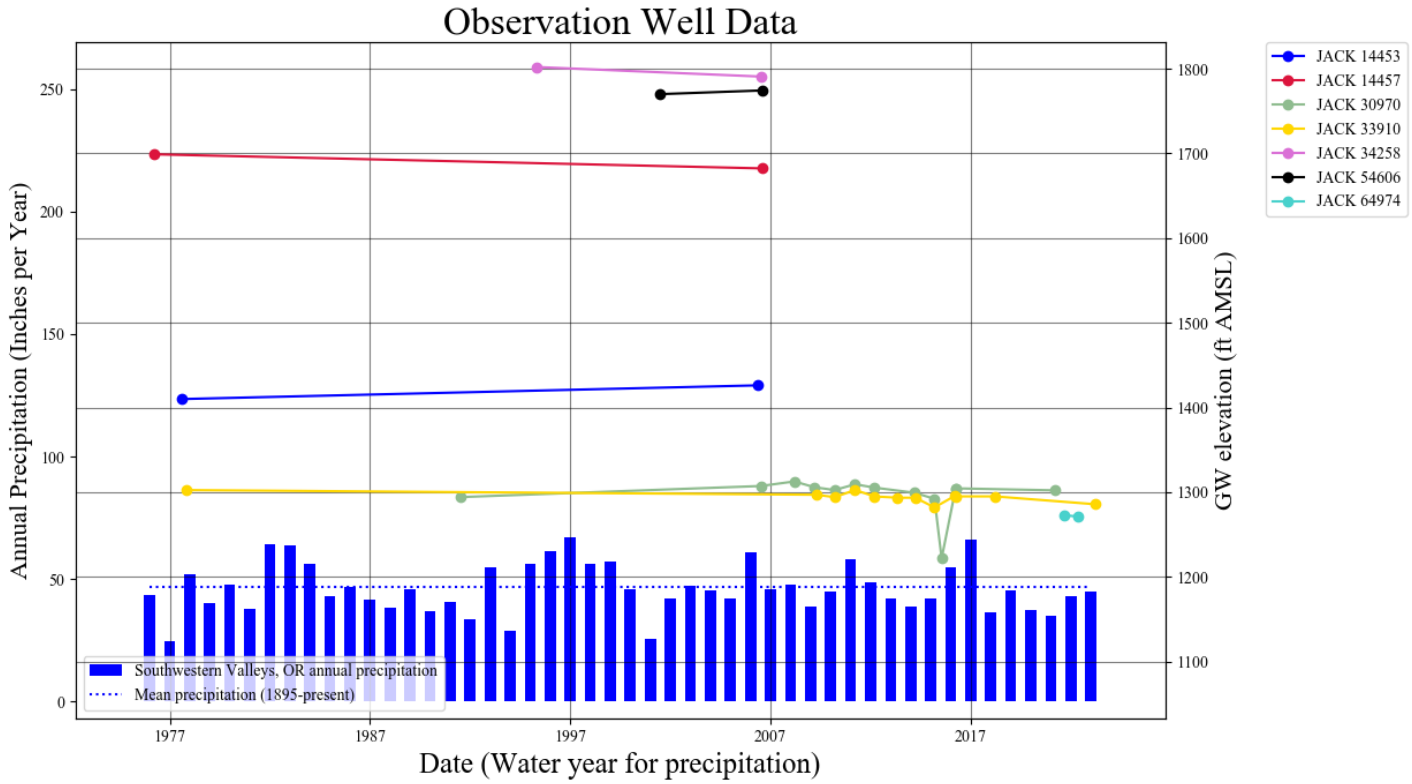
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	373.00	5.68	367.00	0.00	300.00	67.30
FEB	674.00	439.00	235.00	0.00	300.00	-65.10
MAR	792.00	438.00	354.00	0.00	340.00	13.90
APR	662.00	460.00	202.00	0.00	340.00	-138.00
MAY	591.00	42.80	548.00	0.00	360.00	188.00
JUN	222.00	58.20	164.00	0.00	360.00	-196.00
JUL	91.80	77.00	14.80	0.00	120.00	-105.00
AUG	59.00	64.00	-5.02	0.00	120.00	-125.00
SEP	45.80	42.90	2.89	0.00	120.00	-117.00
OCT	56.00	15.90	40.10	0.00	360.00	-320.00
NOV	146.00	3.82	142.00	0.00	360.00	-218.00
DEC	244.00	4.73	239.00	0.00	300.00	-60.70
ANN	421,000.00	98,100.00	322,000.00	0.00	204,000.00	160,000.00

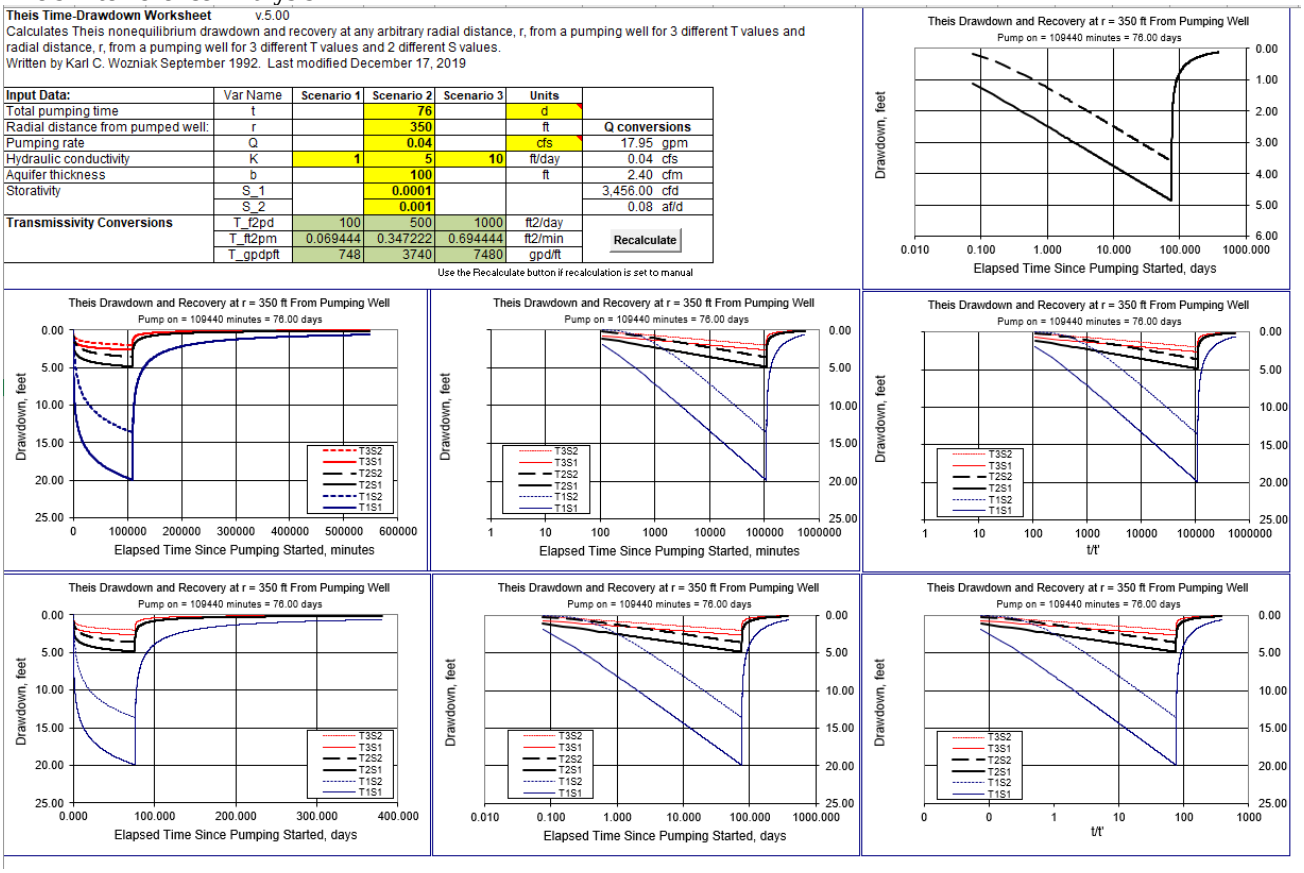
Well Statistics



Water-Level Measurements in Nearby Wells



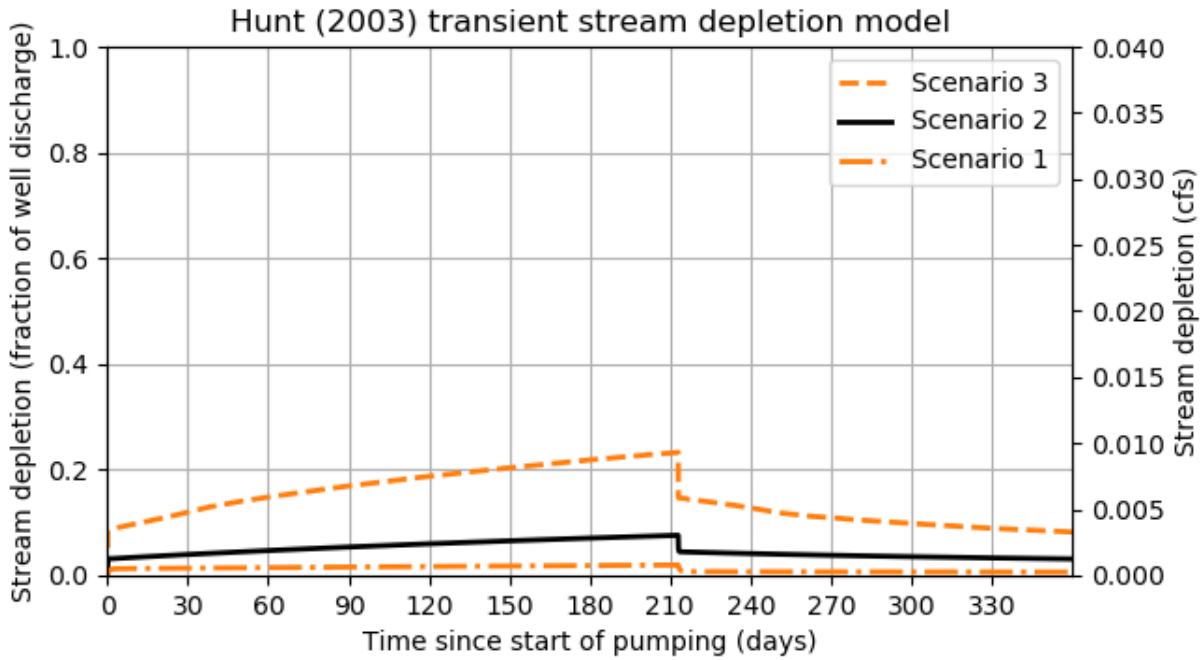
Theis Interference Analysis



Stream Depletion (Hunt) Model Analysis

Application type:	G
Application number:	19425
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.04
Pumping duration (days):	213
Pumping start month number (3=March)	4

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	70	70	70	ft
Aquifer transmissivity	T	100	500	1000	ft2/day
Aquifer storativity	S	.001	.0005	.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	10	15	20	ft
Aquitard thickness below stream	babs	15	10	5	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	15	20	25	ft

Stream depletion for Scenario 2:

Days	10	300	330	360	30	60	90	120	150	180	210	240	270
Depletion (%)	3	4	3	3	4	5	5	6	7	7	8	4	4
Depletion (cfs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00