Groundwater Application Review Summary Form

Application # G- 19417

GW Reviewer Steve Ahlquist and Grayson Fish 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-**_19417_**

FROM: **GW: _Steve Ahlquist and Grayson Fish_**
(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 and Grayson Fish
Reviewer's Name
SUBJECT: Application G- **19417** 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: **1310 Gregory LLC, Brandon Taffe** County: **Jackson**

A1. Applicant(s) seek(s) 0.05 cfs from 1 well(s) in the Rogue Basin, Middle Rogue subbasin

A2. Proposed use Suppl. Irrigation (14.3 ac; 18.0 af) Seasonality: May 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 64974	1	Bedrock	0.05	36S/1W-30 SW-NE	1470' S & 2430' W fr NE Cor S 30

* 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	205	0-26	+1-39	2-205	145-205	250	-	Air

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	1288	120	17.48	5/19/2022	TBD	TBD

Use data from application for proposed wells.

A4. **Comments:** This application is for seasonal supplemental irrigation of 14.3 acres in Jackson County, northwest of Medford, OR. Applicant proposes to obtain water from existing well JACK 64974 at a maximum instantaneous flow rate of 0.05 cfs (22.5 gpm) for a total annual volume of 18 acre-feet.

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 64974) is completed in the fractured bedrock aquifer of the Payne Cliffs Formation (Wiley, 1993). Water in this aquifer system is transmitted primarily through fractures and joints in the bedrock. The OWRD well report database contains records for 43 water wells near the proposed POAs (Sec. 30, T36S R1W). According to the well reports, the median and maximum yields are 20 and 400 gpm, respectively, and static water levels are predominantly shallow (median=16 feet bls; see attached Well Statistics). Water level records for nearby wells indicate that groundwater levels in the aquifer are relatively stable and do not indicate that groundwater is over appropriated (see attached Water-Level Measurements in Nearby Wells).

There are several adjacent tax lots that are likely supplied by exempt domestic wells. Based on the relatively low requested pump rate (0.05 cfs) and the distance from the proposed POA to the developed properties (>1100 feet), it is unlikely that the proposed use will result in well-to-well interference on neighboring properties which would prevent access to their customary amount of water. A Theis (1935) drawdown analysis was conducted to assess potential well-to-well interference at the potential nearby domestic wells due to the proposed use at JACK 64974. Hydraulic parameters used in the Theis analysis are within the typical range of values for the hydrogeologic regime (Freeze and Cherry, 1979). Results of the Theis analysis indicate drawdown at the adjacent residential properties would likely not exceed 7 feet as a result of pumping the requested volume at the maximum requested rate (see attached Theis Interference Analysis).

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 Payne Cliffs Formation**	☐	☒
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: In fractured-bedrock aquifer systems, water is stored and transmitted primarily by discrete but connected fracture sets. These fractures generally extend to near the surface, so water within these fractures is likely under atmospheric pressure (unconfined) despite an overall low storage coefficient for the aquifer system as a whole and static water levels often reported above water-bearing zones. Water-bearing zones indicated on well logs in fractured-bedrock aquifers of the Rogue River Basin typically identify where wells intersect transmissive fracture systems (Kemper and Thoma, 2019).

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**	**Whetstone Creek**	**1271**	**1257-1279**	**210**	☐	☐	☒	☒	☐
1	**2**	**Unnamed Tributary to Whetstone Creek**	**1271**	**1257-1275**	**1410**	☒	☐	☐	☐	☒
1	**3**	**Rogue River**	**1271**	**1191**	**11700**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Wells completed in an unconfined aquifer and located within ¼ mile of surface water source are assumed to be hydraulically connected to the surface water source per OAR 690-009. Measured groundwater elevations are coincident with surface water elevations within ¼ mile, further indicating that groundwater is in hydraulic connection with surface water. Deeper groundwater flow paths likely discharge to the Rogue River.

Water Availability Basin the well(s) are located within: SW#1: ROGUE R> PACIFIC OCEAN-AB CURRY AB CURRY G AT GAGE 14359000 (WID #270)

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**	☒	☐			☐	**1130**	☐	**>25**	☒
1	**2**	☐	☐			☐	**1130**	☐	**>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: Impact to Whetstone Creek from the proposed use was estimated using the Hunt (1999) stream depletion model using hydrogeologic parameters representative of bulk aquifer properties (see attached Hunt Model Stream Depletion Analysis).

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 (0.05 cfs) is less than 1% of the minimum natural streamflow in Rogue River (1130 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 unconfined aquifer and is located less than ¼ from Whetstone Creek. As per OAR 690-009, the applicant's well is assumed to be hydraulically connected to Whetstone Creek and to have the Potential for Substantial Interference with Whetstone Creek. Additionally, analytical modeling (Hunt 1999) indicates the proposed use would result in greater than 25% stream depletion after 30 days of use which also results in a finding of PSI per OAR-009. Additionally, the aquifer is determined to be hydraulically connected to the Rogue River and an unnamed tributary to whetstone Creek.

The hydrogeologic conceptual model for the Rogue Basin and basin-specific observations (e.g. well logs, pumping tests, groundwater level trends) indicate that groundwater throughout the basin is connected to surface water and pumping from wells impacts streamflow of the Rogue River and its tributaries (Kemper and Thoma, 2019). The OWRD Water Availability Reporting System (WARS) has determined that groundwater use has measurably reduced the surface water flows necessary to maintain the free-flowing character of the Rogue Scenic Waterway 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.

French, D., 2019. Processing Groundwater Applications in or Above the Rogue River Scenic Waterway, Oregon Water Resources Department Memorandum.

Hunt, B. 1999. Unsteady Stream Depletion from Ground Water Pumping. Journal of Hydrologic Engineering, Vol 8(1), pp12-19

Kemper, J., and Thoma,, M. 2019. Hydrogeologic Conceptual Model of the Rogue River Basin, Oregon Water Resources Department Memorandum.

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., and Smith, J.G., 1993, Preliminary geologic map of the Medford East, Medford West, Eagle Point, and Sams Valley quadrangles, Jackson County, Oregon: Oregon Department of Geology and Mineral Industries, Open-File Report 93-13, scale 1:24,000.

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:** _____

_____

_____

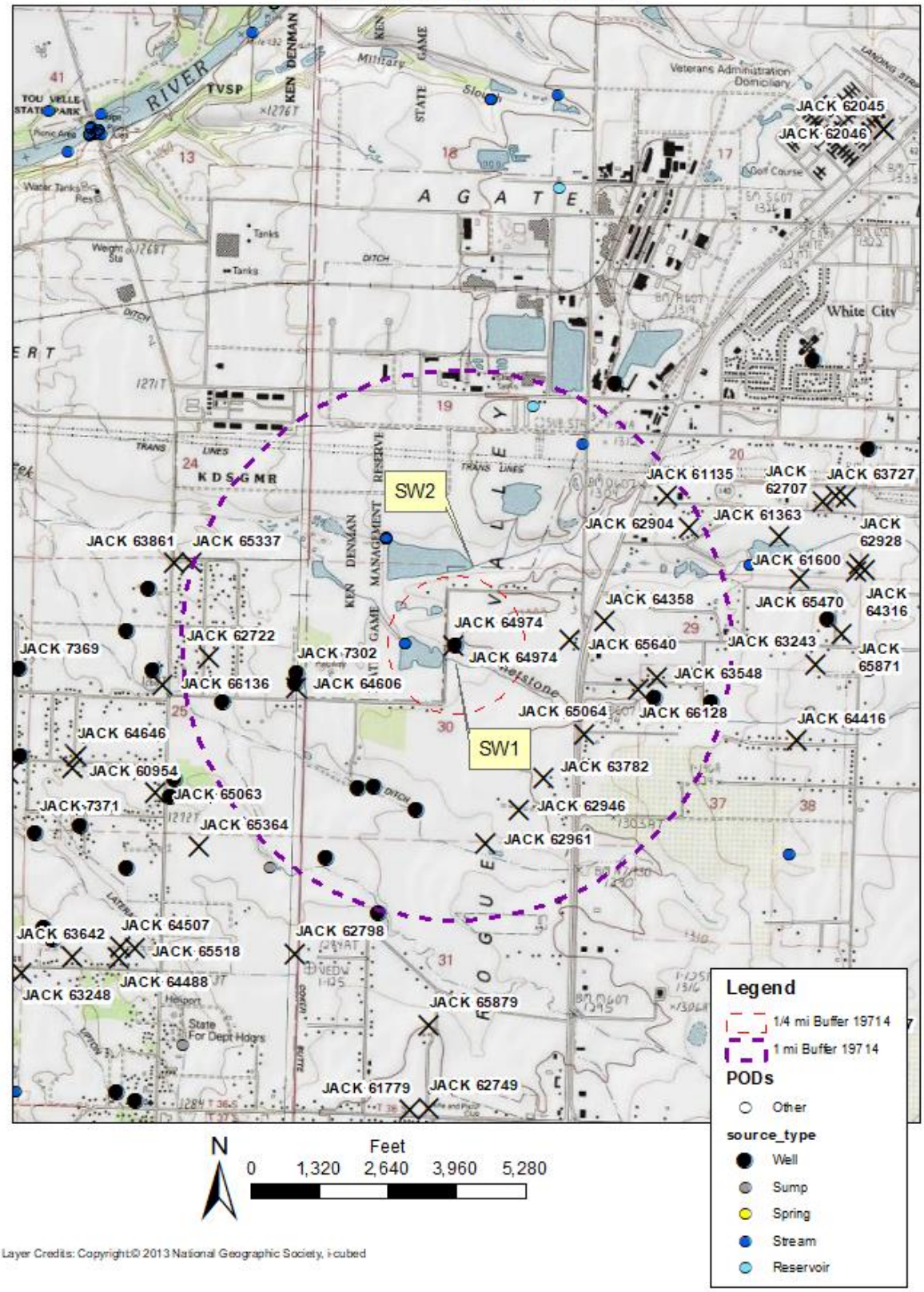
_____

_____

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

Well Location Map

Application G19417 1310 Gregory LLC
T36S, R1W, Section 30



Water Availability Tables

ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000
ROGUE BASIN

Water Availability as of 3/20/2024

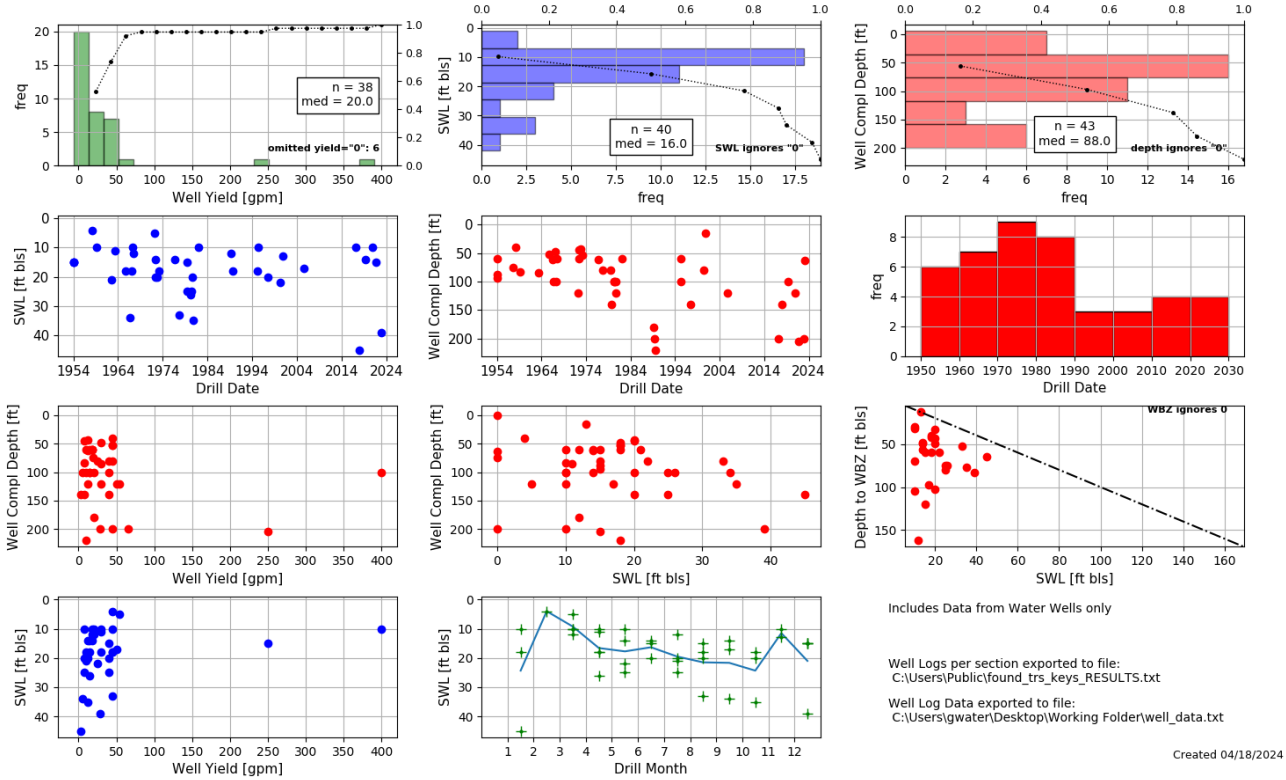
Watershed ID #: 270 (Map) Exceedance Level: 80%
Date: 3/20/2024 Time: 3:48 PM

Water Availability Calculation

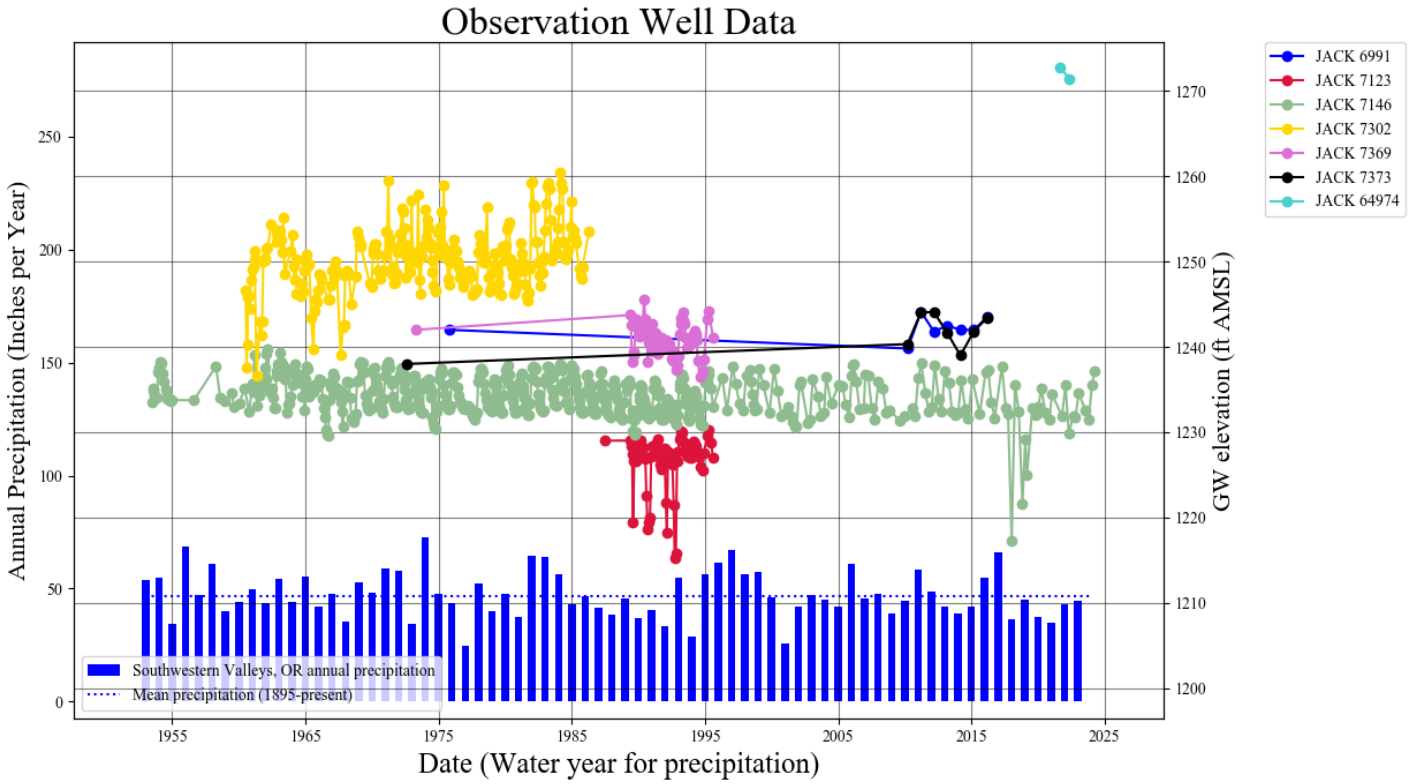
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	2,180.00	1,130.00	1,050.00	0.00	1,200.00	-149.00
FEB	2,710.00	2,050.00	663.00	0.00	1,200.00	-537.00
MAR	2,750.00	1,820.00	932.00	0.00	1,200.00	-268.00
APR	2,810.00	1,040.00	1,770.00	0.00	1,200.00	573.00
MAY	2,750.00	368.00	2,380.00	0.00	1,200.00	1,180.00
JUN	1,760.00	344.00	1,420.00	0.00	1,200.00	216.00
JUL	1,330.00	369.00	961.00	0.00	1,200.00	-239.00
AUG	1,160.00	331.00	829.00	0.00	1,200.00	-371.00
SEP	1,130.00	276.00	854.00	0.00	1,200.00	-346.00
OCT	1,160.00	228.00	932.00	0.00	1,200.00	-268.00
NOV	1,370.00	345.00	1,020.00	0.00	1,200.00	-175.00
DEC	1,810.00	563.00	1,250.00	0.00	1,200.00	47.30
ANN	1,900,000.00	529,000.00	1,370,000.00	0.00	869,000.00	532,000.00

Well Statistics



Water-Level Measurements in Nearby Wells



Theis Interference Analysis

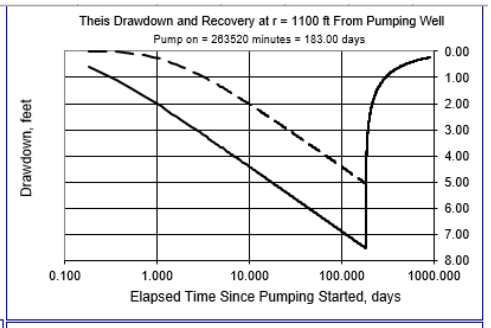
Theis Time-Drawdown Worksheet v.5.00

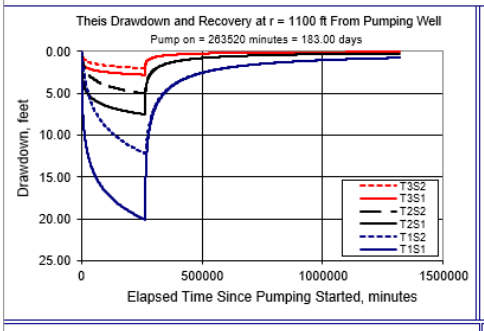
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.

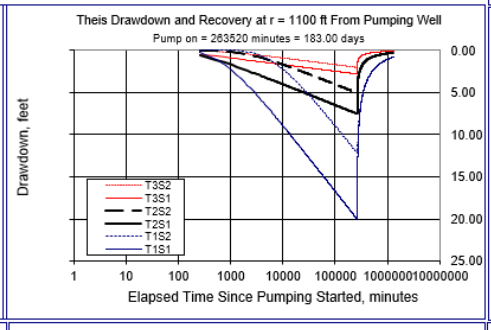
Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

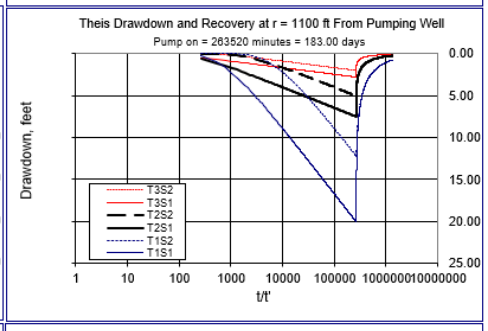
Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		183		d	
Radial distance from pumped well:	r		1100		ft	Q conversions
Pumping rate	Q		0.05		cfs	22.44 gpm
Hydraulic conductivity	K	1	3.2	10	ft/day	0.05 cfs
Aquifer thickness	b		100		ft	3.00 cfm
Storativity	S_1		0.0001			4,320.00 cfd
	S_2		0.001			0.10 af/d
Transmissivity Conversions	T_f2pd	100	320	1000	ft2/day	
	T_ft2pm	0.069444	0.222222	0.694444	ft2/min	Recalculate
	T_gpdpft	748	2393.6	7480	gpd/ft	

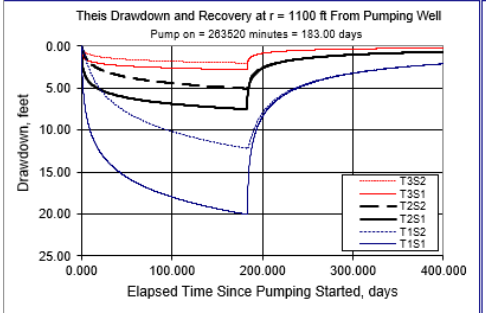
Use the Recalculate button if recalculation is set to manual

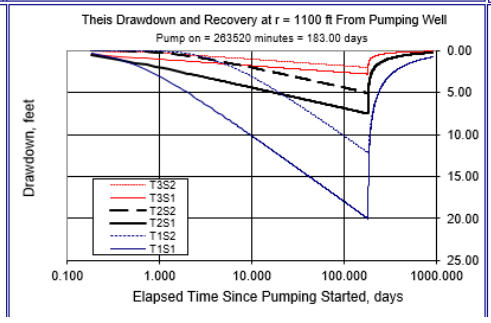


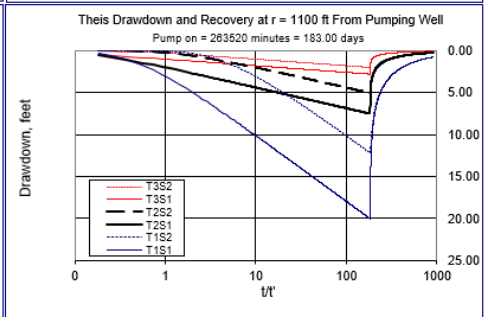








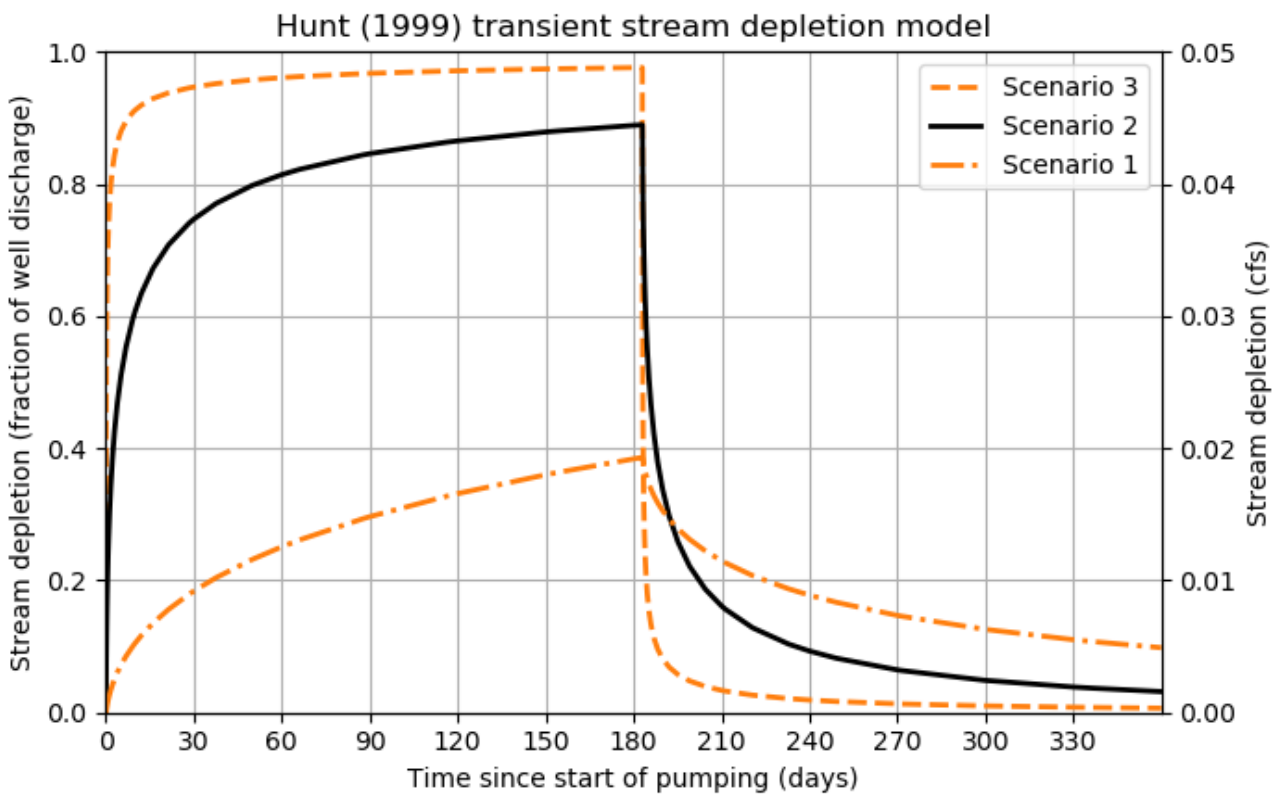




Stream Depletion (Hunt) Model Analysis

Application type:	G
Application number:	19417
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.05
Pumping duration (days):	183
Pumping start month number (3=March)	5

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	210	210	210	ft
Aquifer transmissivity	T	100	320	1000	ft2/day
Aquifer storativity	S	.001	.0005	.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		0	0	0	
Aquitard thickness below stream	babs	4.0	3.0	2.0	ft
Not used		0	0	0	
Stream width	ws	10	20	30	ft

Stream depletion for Scenario 2:

Days	10	270	300	330	360	30	60	90	120	150	180	210	240
Depletion (%)	61	6	5	4	3	75	81	85	87	88	89	16	9
Depletion (cfs)	0.03	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.00