

Approved:



MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Travis Kelly, Well Construction Program Coordinator
Subject: Review of Water Right Application G-19201
Date: February 4, 2022

The attached application was forwarded to the Well Construction and Compliance Section by the Groundwater Section. Joe Kemper reviewed the application. Please see Joe's review and the Well Report.

Applicant's Well #1 (JACK 64922): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

Groundwater Application Review Summary Form

Application # G- 19201

GW Reviewer Joe Kemper Date Review Completed: 11/29/2021

Summary of GW Availability and Injury Review:

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

Summary of Potential for Substantial Interference Review:

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

Summary of Well Construction Assessment:

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

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

WATER RESOURCES DEPARTMENT

MEMO

November 29, 2021

TO: **Application G- 19201**

FROM: **GW: Joe Kemper**
 (Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic
 NO 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 11/29/2021
 FROM: Groundwater Section Joe Kemper
 Reviewer's Name
 SUBJECT: Application G- 19201 Supersedes review of NA
 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: Kelley Thomas County: Jackson

A1. Applicant(s) seek(s) 0.089 cfs from 1 well(s) in the Rogue Basin,
Middle Rogue subbasin

A2. Proposed use Irrigation (19.7 acres) Seasonality: Aug 1 – Sept 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	JACK 64922	1	Bedrock	0.089	38S/1W-11 SW-NW	1590' S, 450' W fr NE cor,NW-NW, S11
2						
3						
4						

* 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	1642	105	18	6/8/2021	200	0-19	0-19	0-200	140-200	36	-	Air

Use data from application for proposed wells.

A4. **Comments:** This applicant applied for a drought permit during the 2021 irrigation season with JACK 64922 as the primary POA.

A5. **Provisions of the** Rogue (OAR 690-515) 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: Rogue basin rules contain no 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) 7-C, 7-J, medium-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 applicant’s well accesses an aquifer hosted in secondary porosity (fractures and jointing) of the Hornbrook Formation at the foot of the Payne Cliffs physiographic feature. Wells in the area are low producing (median yield for TRS 38S/1W-S11 is 8 gpm) with shallow (10-60 feet BLS) water levels. While most wells are less than 200 feet deep, many are constructed 400 or 500 feet deep and encounter WBZs producing 10-60 gpm at depth. There is one OWRD observation well (JACK 53462) located ~1500 feet NE of the applicant’s well, but the water level record is sparse. Because there is limited recent groundwater data available for the target aquifer, over-appropriation cannot be determined.

The closest groundwater uses are likely exempt-use wells supplying adjacent tax lots 600, 700, 800, and 1100 at a minimum range of 350-400 feet from JACK 64922. A Theis distance drawdown model is used to estimate the magnitude of any well-to-well interference that may result from the proposed use. Results indicate that this use could cause 5-25 feet of drawdown in adjacent wells, but this is not considered a preponderance of evidence that the proposed use would injure these adjacent 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	Hornbrook Formation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

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 on driller’s logs.

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?			Potential for Subst. Interfer. Assumed?	
						YES	NO	ASSUMED	YES	NO
1	1	Bear Creek	1624	1485	5450	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Payne Creek	1624	1610	780	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Bear Creek serves as the valley’s regional groundwater discharge point. Considering the lack of irrigation PODs, lack of annual riparian vegetation, and channel size/morphology, Payne Creek is not considered to be a surface water source that is hydraulically connected to the target aquifer in the vicinity of the applicant’s well.

Water Availability Basin the well(s) are located within: BEAR CR > ROGUE 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?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

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?
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: There are no hydraulically connected surface water sources within 1 mile of the applicant’s well.

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
1	1	5%	4%	3%	3%	2%	2%	2%	46%	60%	22%	11%	7%
Well Q as CFS		0	0	0	0	0	0	0	0.089	0.089	0	0	0
Interference CFS		0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.041	0.053	0.019	0.01	0.007
(A) = Total Interf.		0.005	0.004	0.003	0.002	0.002	0.002	0.001	0.041	0.053	0.019	0.01	0.007
(B) = 80 % Nat. Q		107	129	129	105	84.2	61.6	28.1	19.3	17.1	18.3	30.9	65.3
(C) = 1 % Nat. Q		1.07	1.29	1.29	1.05	0.842	0.616	0.281	0.193	0.171	0.183	0.309	0.653
(D) = (A) > (C)													
(E) = (A / B) x 100		0%	0%	0%	0%	0%	0%	0%	21%	31%	10%	3%	1%

(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 rate (0.089 cfs) is less than 1% of the 80% exceedance flow for Bear Creek in the months requested. The estimated stream depletion and above metrics do not lead to an assumption of PSI.

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 applicant's well accesses an aquifer that is determined to be hydraulically connected to Bear Creek. There is not a preponderance of evidence that the proposed use has the potential for substantial interference with Bear Creek as per OAR 690-009.

References Used:

Hunt, B. 1999. Unsteady Stream Depletion from Ground Water Pumping. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

OWRD Groundwater Information System (GWIS) Database – Accessed 6/28/2021.

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., McClaughry, J.D., and D'Allura, J., 2011, Geologic database and generalized geologic map of Bear Creek Valley, Jackson County, Oregon: Oregon Department of Geology and Mineral Industries, Open-File Report O-2011-11, 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.

Water Availability Tables

Water Availability Analysis

Detailed Reports

BEAR CR > ROGUE R - AT MOUTH
 ROGUE BASIN

Water Availability as of 11/19/2021

Watershed ID #: 70993 ([Map](#))
 Date: 11/19/2021

Exceedance Level: 80% ▼
 Time: 2:19 PM

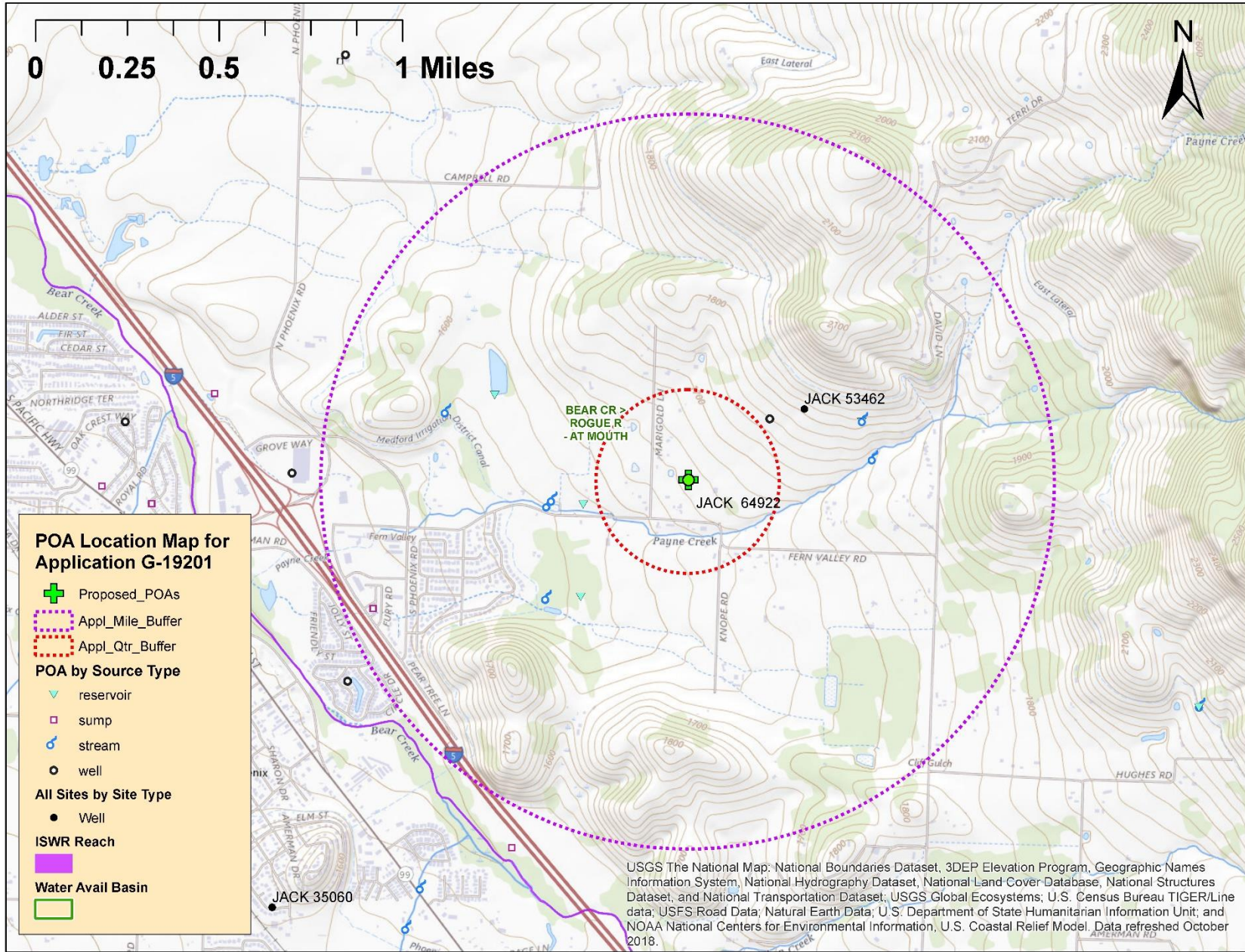
Water Availability Calculation	Consumptive Uses and Storages	Instream Flow Requirements	Reservations
Water Rights	Watershed Characteristics		

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	107.00	192.00	-85.40	0.00	170.00	-255.00
FEB	129.00	235.00	-106.00	0.00	170.00	-276.00
MAR	129.00	214.00	-85.20	0.00	170.00	-255.00
APR	105.00	31.10	73.90	0.00	170.00	-96.10
MAY	84.20	47.20	37.00	0.00	170.00	-133.00
JUN	61.60	73.50	-11.90	0.00	100.00	-112.00
JUL	28.10	94.20	-66.10	0.00	40.00	-106.00
AUG	19.30	79.90	-60.60	0.00	24.00	-84.60
SEP	17.10	56.50	-39.40	0.00	20.00	-59.40
OCT	18.30	18.20	0.14	0.00	24.00	-23.90
NOV	30.90	58.00	-27.10	0.00	62.00	-89.10
DEC	65.30	138.00	-72.30	0.00	153.00	-225.00
ANN	89,800.00	74,400.00	24,300.00	0.00	76,600.00	0.00

Well Location Map



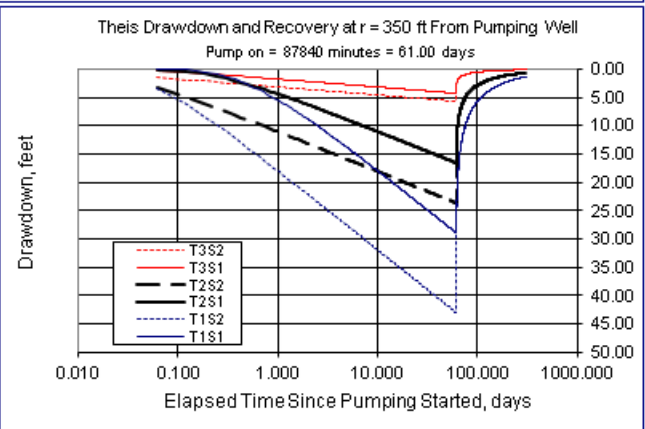
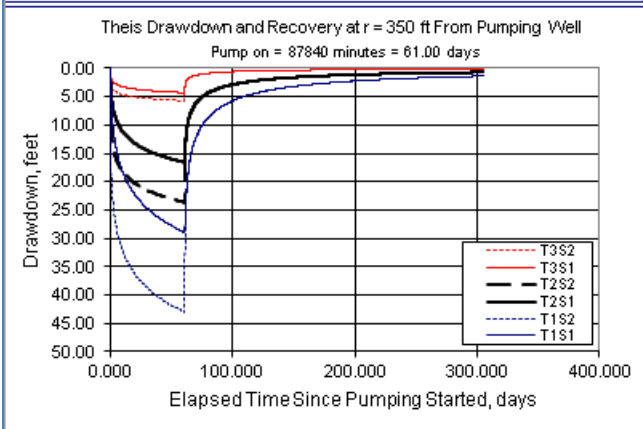
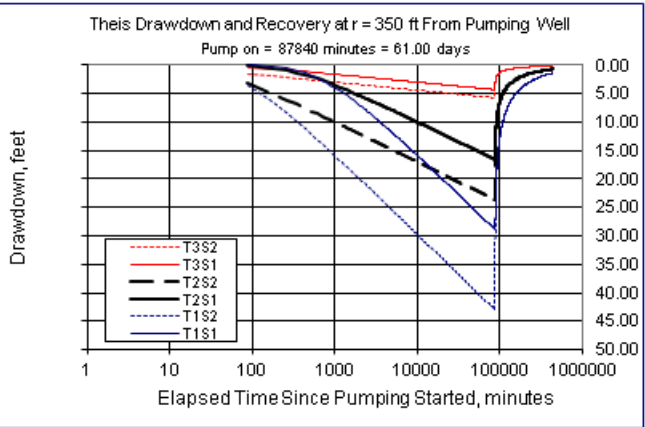
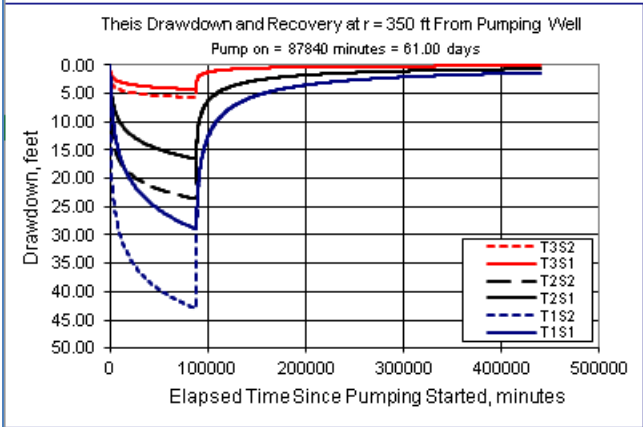
Theis Distance Drawdown Modeling

The pumping rate below is half the permitted rate (an expected sustainable pumping rate for the well) in use for the entire period of use (61 days). Model parameters are estimates of bulk aquifer properties in the Hornbrook Formation based on published values for flow in fractured sedimentary aquifers.

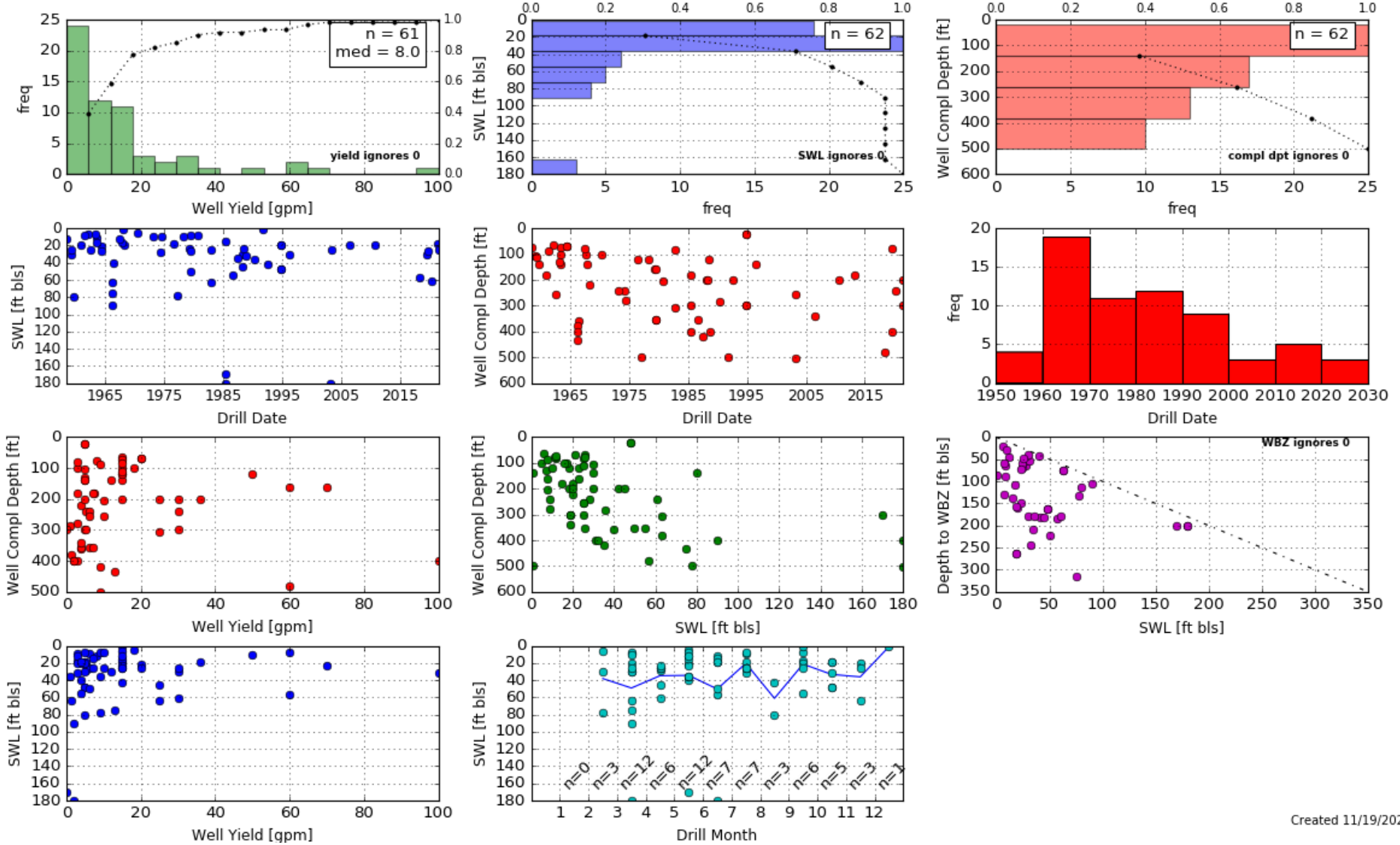
Theis Time-Drawdown Worksheet v.5.00
 Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.
 Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		61		d	
Radial distance from pumped well:	r		350		ft	Q conversions
Pumping rate	Q		20		gpm	20.00 gpm
Hydraulic conductivity	K	0.25	0.5	2.5	ft/day	0.04 cfs
Aquifer thickness	b		200		ft	2.67 cfm
Storativity	S_1		0.0005			3,850.27 cfd
	S_2		0.00005			0.09 a/fd
Transmissivity Conversions	T_ft2pd	50	100	500	ft ² /day	Recalculate
	T_ft2pm	0.034722	0.069444	0.347222	ft ² /min	
	T_gpdpft	374	748	3740	gpd/ft	

Use the Recalculate button if recalculation is set to manual



Summary Statistics for Well Reports filed in TRS 38S/1W-S11



Created 11/19/2021

Stream Depletion Modeling

Application type:	G
Application number:	19201
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.089
Pumping duration (days):	61
Pumping start month number (3=March):	8

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	5450	5450	5450	ft
Aquifer transmissivity	T	50	100	500	ft ² /day
Aquifer storativity	S	0.0005	0.0001	0.00005	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		1	1	1	
Aquitard thickness below stream	babs	4.0	3.0	2.0	ft
Not used		1	1	1	
Stream width	ws	40	40	40	ft

Stream depletion for Scenario 2:

Days	10	180	210	240	270	300	330	360	30	60	90	120	150
Depletion (%)	20	5	4	3	3	2	2	2	46	60	22	11	7
Depletion (cfs)	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.02	0.01	0.01

