

Groundwater Application Review Summary Form

Application # G- 19022

GW Reviewer Joe Kemper Date Review Completed: 6/13/2023

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

June 13, 2023

TO: **Application G- 19022**

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 6/13/2023
 FROM: Groundwater Section Joe Kemper
Reviewer's Name
 SUBJECT: Application G- 19022 Supersedes review of 1/13/2021
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: Heiberto and Raquel Garay County: Jackson

A1. Applicant(s) seek(s) 0.0525 cfs from 1 well(s) in the Rogue Basin,
Middle Rogue subbasin

A2. Proposed use Irrigation (4.2 ac) Seasonality: Year-round

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 6269	1	Bedrock	0.0525	36S/1W-22 NW-SW	116' S, 448'E fr W1/4, S 22
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	1384	38	12	11/23/2018	108	NA	0-38	NA	NA	45	10	

Use data from application for proposed wells.

A4. **Comments:** Reported surface seal method is "drive shoe".

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) 7C, 7J, 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 is located ~1400 feet east of the contact between the continental sedimentary Payne Cliffs Formation and the overlying Western Cascades volcanics (Wiley, 1993) (Wiley et al, 2011). The well penetrates a thin (5-20 feet) package of terrace sediments before encountering bedrock. The driller’s log indicates ~30 feet of decomposed rock (which may represent a weathered lava flow) then ~60 feet of claystone (undivided volcanogenic sediments of Wiley [1993] and/or the upper extent of the Payne Cliffs Formation). Typically, water in this aquifer system is stored and transmitted via secondary porosity (i.e. fractures) so the geologic contact does not likely separate two distinct aquifers. Wells logs report low-moderate yielding (median yield in 36S/1W-22 = 25 gpm) wells with predominately shallow water levels. Several OWRD observation wells located in the lowlands northeast of Medford show seasonal water level fluctuations of 10-20 feet but there is little year-to-year change. While there are no observation wells immediately adjacent to the applicant’s well, its assumed that similar hydrologic conditions exist. As such, there is not a preponderance of evidence that the target aquifer is over-appropriated.

Groundwater development in the area is moderate. There are approximately 5 groundwater POAs within 1 mile of the applicant’s well, the closest of which is 1850 feet away. Surrounding tax lots are very dense and are not currently serviced by municipal supply, so it is likely that several domestic wells are within a few hundred feet of the POA. Well-to-well interference in this scenario is estimated with a Theis distance drawdown model to be 5-10 feet at a distance of 275 feet away after pumping the requested volume at the requested rate. As this represents a “worst-case scenario”, the requested use will not likely injure senior users with the appropriate permit conditions listed above.

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 Western Cascades Volcanics	<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"/>

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	Whetstone Creek	1373	1362	6185	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	Dry Creek	1373	1355	5545	<input checked="" type="checkbox"/>	<input 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: Groundwater elevations are commensurate with adjacent surface water sources indicating that water is flowing towards and discharging to surface water. The unnamed tributary to Whetstone Creek that flows through Hoover Ponds County Park is reportedly intermittent and does not appear to receive groundwater base flow.

Water Availability Basin the well(s) are located within: ROGUE R > PACIFIC OCEAN - AB CURRY G AT GAGE 14359000; impacts also considered for ANTELOPE CR > LITTLE BUTTE CR - 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"/>
		<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	2	2%	14%	27%	35%	41%	46%	50%	53%	55%	57%	59%	61%
Well Q as CFS		0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
Interference CFS		0.002	0.004	0.005	0.006	0.006	0.007	0.007	0.008	0.008	0.008	0.009	0.009
(A) = Total Interf.		0.002	0.004	0.005	0.006	0.006	0.007	0.007	0.008	0.008	0.008	0.009	0.009
(B) = 80 % Nat. Q		17.5	29	31.7	34.7	11.7	6.62	5.74	5.92	3.31	1.06	2.21	5.47
(C) = 1 % Nat. Q		0.175	0.29	0.317	0.347	0.117	0.0662	0.0574	0.0592	0.0331	0.0106	0.0221	0.0547
(D) = (A) > (C)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(E) = (A / B) x 100		0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.8%	0.4%	0.2%

(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: Impacts to surface water are estimated using the Hunt (1999) stream depletion analytical model with bulk aquifer parameters representative of the local geology. The above table shows modeled stream depletion for the closest hydraulically connected stream (Dry Creek) in the Antelope Creek WAB. The pumping rate of 0.014 cfs represents the total requested volume (4.2 acres at 2.5 AF/yr) prorated across the requested period of use (1/1 to 12/31). Modeled interference does not exceed 1% of the 80% exceedance flow for the most limiting WAB in the vicinity. Thus, there is not an assumption of PSI as per OAR 690-009.

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;

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 1 Logid: JACK 6269

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:** Reported surface seal may not meet current well construction standards.

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

Water Availability Tables

Water Availability Analysis
Detailed Reports

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

Water Availability as of 10/28/2020

Watershed ID #: 270 ([Map](#))

Exceedance Level:

Date: 10/28/2020

Time: 8:06 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	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	47.40
ANN	1,900,000.00	529,000.00	1,370,000.00	0.00	869,000.00	532,000.00

Water Availability Analysis

Detailed Reports

LITTLE BUTTE CR > ROGUE R - AT MOUTH
ROGUE BASIN

Water Availability as of 10/29/2020

Watershed ID #: 263 ([Map](#))
Date: 10/29/2020

Exceedance Level:
Time: 8:43 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	133.00	45.40	87.60	0.00	100.00	-12.40
FEB	206.00	56.90	149.00	0.00	100.00	49.10
MAR	236.00	60.40	176.00	0.00	100.00	75.60
APR	297.00	19.70	277.00	0.00	100.00	177.00
MAY	141.00	31.20	110.00	0.00	60.00	49.80
JUN	82.50	49.30	33.20	0.00	20.00	13.20
JUL	73.90	70.20	3.73	0.00	20.00	-16.30
AUG	70.70	57.10	13.60	0.00	20.00	-6.35
SEP	45.90	35.70	10.20	0.00	120.00	-110.00
OCT	23.30	12.40	10.90	0.00	120.00	-109.00
NOV	34.40	22.40	12.00	0.00	100.00	-88.00
DEC	60.80	38.60	22.20	0.00	100.00	-77.80
ANN	153,000.00	30,100.00	122,000.00	0.00	57,800.00	82,400.00

Water Availability Analysis Detailed Reports

ANTELOPE CR > LITTLE BUTTE CR - AT MOUTH
ROGUE BASIN

Water Availability as of 10/29/2020

Watershed ID #: 248 ([Map](#))

Exceedance Level:

Date: 10/29/2020

Time: 8:45 AM

Water Availability Calculation

Consumptive Uses and Storages

Instream Flow Requirements

Reservations

Water Rights

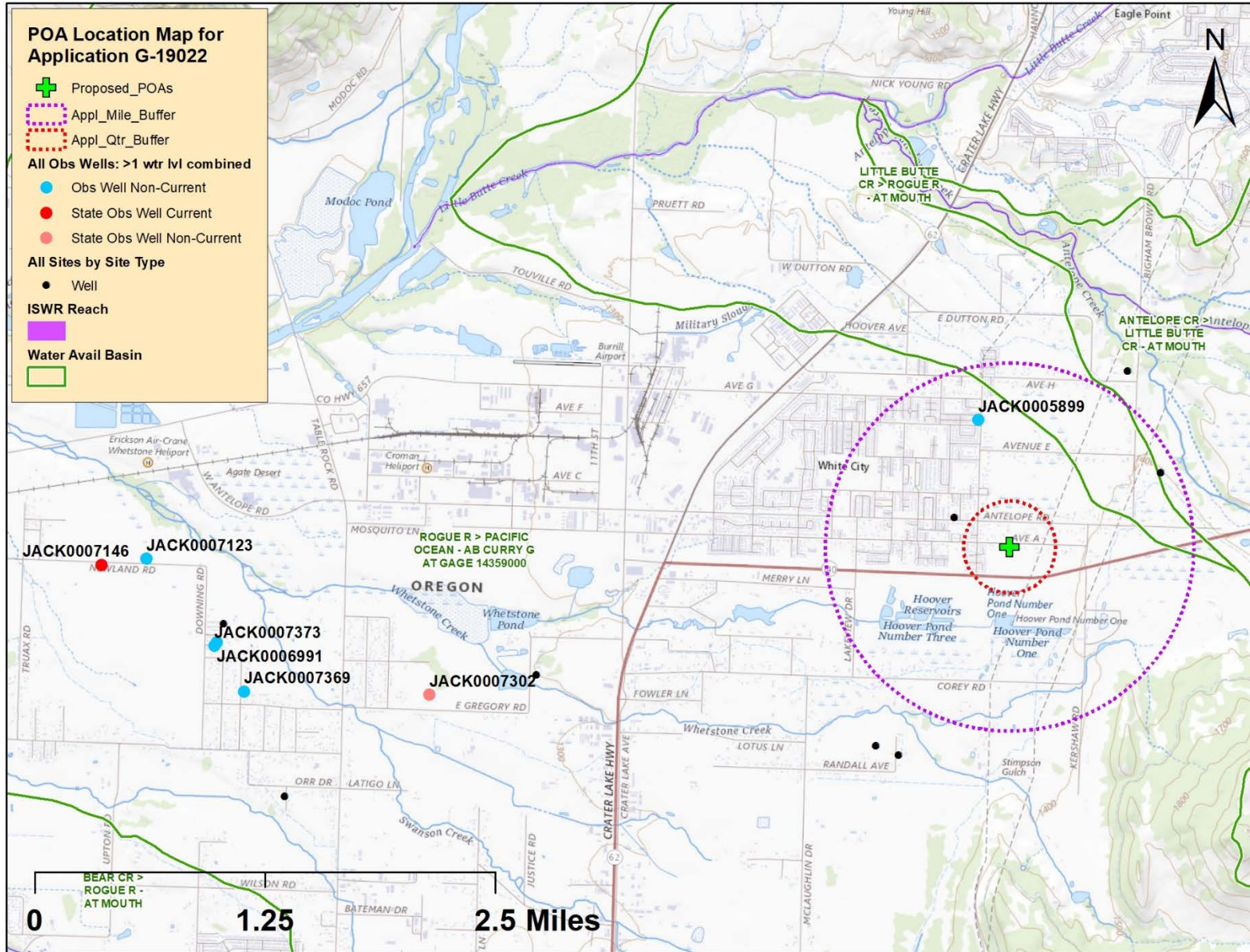
Watershed Characteristics

Water Availability Calculation

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

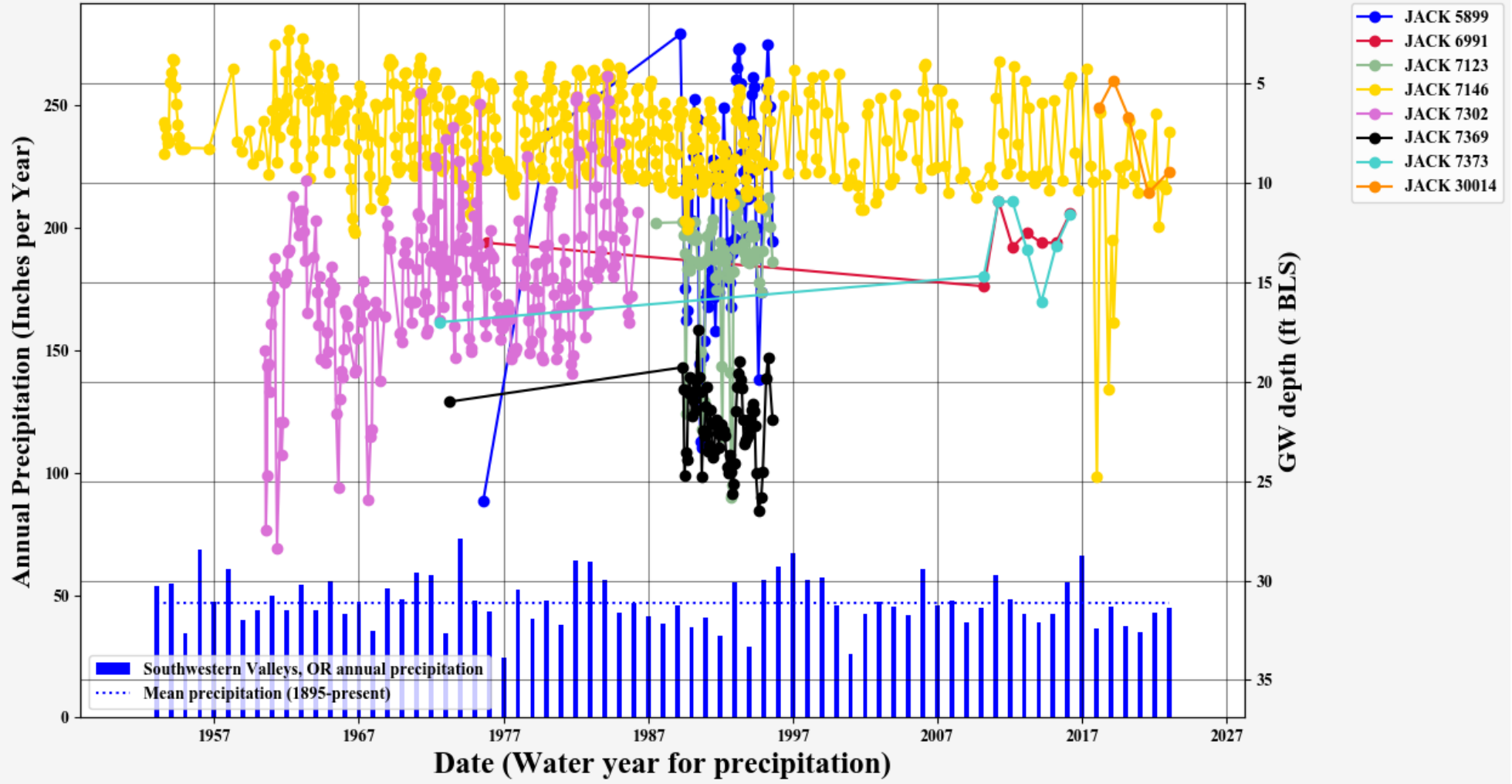
Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	17.50	4.93	12.60	0.00	25.00	-12.40
FEB	29.00	6.19	22.80	0.00	25.00	-2.19
MAR	31.70	5.92	25.80	0.00	25.00	0.78
APR	34.70	0.66	34.00	0.00	25.00	9.04
MAY	11.70	1.36	10.30	0.00	10.00	0.34
JUN	6.62	2.12	4.51	0.00	5.00	-0.50
JUL	5.74	3.00	2.74	0.00	5.00	-2.26
AUG	5.92	2.44	3.48	0.00	5.00	-1.52
SEP	3.31	1.54	1.77	0.00	20.00	-18.20
OCT	1.06	0.24	0.83	0.00	20.00	-19.20
NOV	2.21	0.51	1.70	0.00	25.00	-23.30
DEC	5.47	3.08	2.39	0.00	25.00	-22.60
ANN	19,100.00	1,920.00	17,100.00	0.00	12,900.00	8,040.00

Well Location Map



Water-Level Measurements in Nearby Wells

Observation Well Data

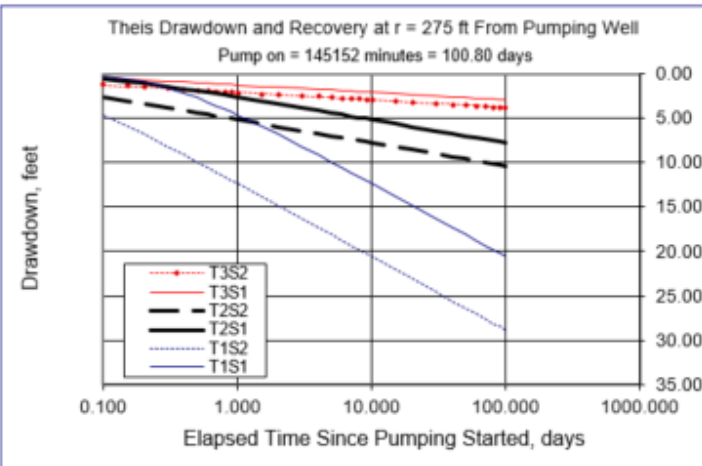
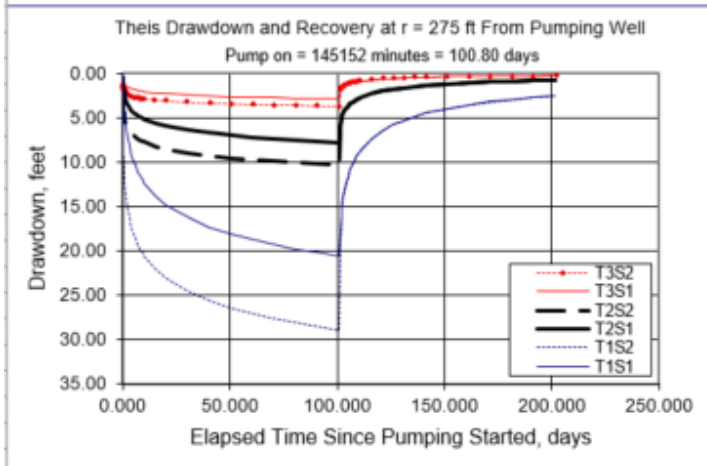
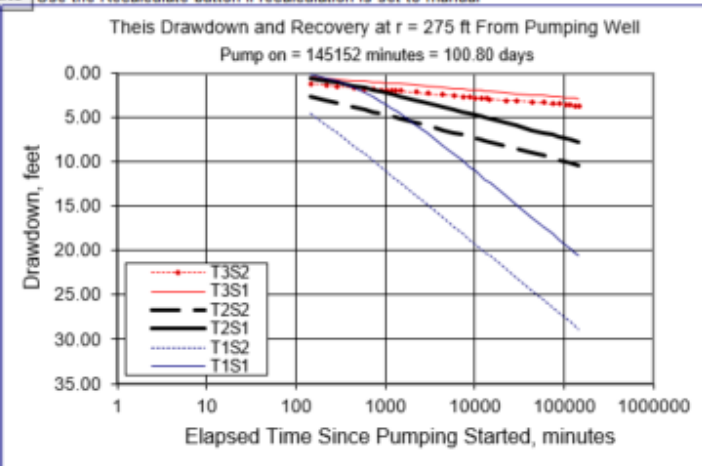
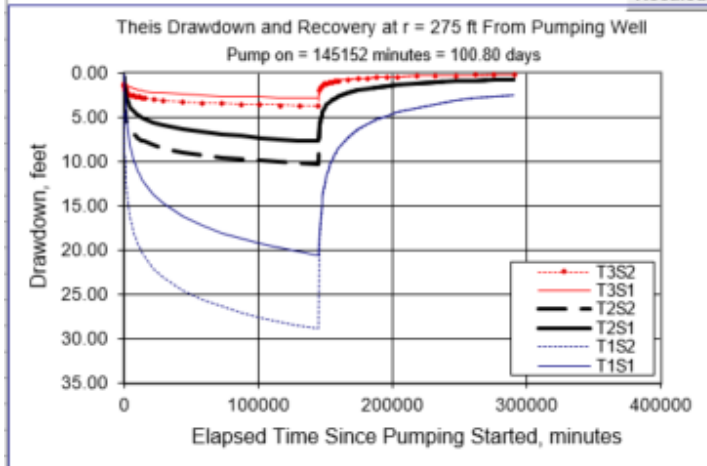


Theis Distance Drawdown Modeling

Theis Time-Drawdown Worksheet v.3.00
 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 30, 2014

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		100.8		d	
Radial distance from pumped well:	r		275.00		ft	Q conversions
Pumping rate	Q		0.053		cfs	23.56 gpm
Hydraulic conductivity	K	1.000	3.200	10.000	ft/day	0.05 cfs
Aquifer thickness	b		100		ft	3.15 cfm
Storativity	S 1		0.00100			4,536.00 cfd
	S 2		0.00010			0.10 af/d
Transmissivity Conversions	T_ft2pd	100	320	1,000	ft2/day	
	T_ft2pm	0.0694	0.2222	0.6944	ft2/min	
	T_gpdpft	748	2,394	7,480	gpd/ft	

Recalculate Use the Recalculate button if recalculation is set to manual



Stream Depletion Modeling (Hunt, 1999)

Application type:	G
Application number:	19022
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.014
Pumping duration (days):	365
Pumping start month number (3=March)	1

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	5545	5545	5545	ft
Aquifer transmissivity	T	100	500	1000	ft ² /day
Aquifer storativity	S	0.0001	0.001	0.01	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		0	0	0	
Aquitard thickness below stream	babs	5	5	5	ft
Not used		0	0	0	
Stream width	ws	25	25	25	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	2	14	27	35	41	46	50	53	55	57	59	61	62
Depletion (cfs)	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

