

Groundwater Application Review Summary Form

Application # G- 19052

GW Reviewer Joe Kemper Date Review Completed: 1/8/2024

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

1/8/2024

TO: **Application G- 19052**

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

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

NO

YES Use the Scenic Waterway Condition (Condition 7J)

NO

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 1/8/2024
 FROM: Groundwater Section Joe Kemper
Reviewer's Name
 SUBJECT: Application G- 19052 Supersedes review of 6/7/2021
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: Logan Carr County: Jackson

A1. Applicant(s) seek(s) 0.0011 cfs from 2 well(s) in the Rogue Basin,
Applegate subbasin

A2. Proposed use Nursery (5 acres) 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 63405	1	Bedrock	0.0011	39S/2W-18 SE-SE	1580' N, 480' W fr SE cor S 18
2	JACK 18162	2	Bedrock	0.0011	39S/2W-18 SW-SE	40' N, 1670' W fr SE cor S 18
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	2167	250	80	4/27/2018	270	0-18	0-18	0-270	230-270	50		Air
2	2156	200	110	9/15/1989	640	0-35	0-40	Na	Na	2.5		Air

Use data from application for proposed wells.

A4. **Comments:** JACK 18162 is associated with deepening log JACK 18154.

A5. **Provisions of the** 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: The 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): **7RLN (March and October), 7J, large 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:** JACK 63405 accesses a fractured rock aquifer hosted within metamorphosed volcanics of the Applegate Group while JACK 18162 accesses a fractured rock aquifer hosted within a distal limb of the Squaw Mountain Pluton (Blair et al., 1981). Aquifer properties are likely very similar (low permeability and low storage) between the two formations. There are no water level data that suggest hydraulic conditions vary between the two wells or the formations they access; the wells are considered to access the same overall aquifer system. JACK 59411 to the north has limited water level data from 2017 to 2020, but the Sterling Creek canyon likely precludes most hydraulic connection between it and the applicant's wells. There are limited water level data in the area to establish recent or historical aquifer trends. There are no reasonably accurate water budget estimates available for the target aquifer. Considering the apparent amount of groundwater appropriation and generally accepted hydrogeologic principles, there is not a preponderance of evidence that the target aquifer is over-appropriated.

Wells accessing low-yield fractured aquifers in high relief topography are particularly susceptible to seasonal fluctuation/drawdowns. There are 80 well reports filed for TRS 39S/2W sections 17-19, indicating that exempt-use well development is relatively high. The proposed POAs may be as close as 500 feet to exempt-use wells, risking injury to those senior groundwater uses. JACK 63405 has an estimated yield of 50 gpm (0.11), and 5 acres of nursery use should have a requested rate of 0.125 cfs (1/40 cfs per acre). A requested rate of that magnitude in this location would likely result in a finding of injury and is not approved by this review. However, the applicant has requested a very low rate (presumably to avoid a finding of PSI as per OAR 690-009), which is unlikely to result in injury to adjacent groundwater users. The permit shall be conditioned to require recording monthly water use and reporting that use annually to ensure that the applicant does not exceed their instantaneous rate (note: it is acceptable for the user to pump up to 50 gpm if they do not exceed a total daily limit of 710 gallons, which is equivalent to pumping 0.0011 cfs for 24 hours. The applicant shall also be required to submit static water level measurements in the months March and October each year.

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 Applegate Group	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Fractured Bedrock of Squaw Mountain Pluton	<input type="checkbox"/>	<input checked="" 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. While the applicant’s wells appear to access different bedrock formations, they are considered to access the same aquifer system because hydraulic properties are likely very similar across the two distinct lithologies.

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	Sterling Creek	2087	1835	1800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Sterling Creek	2046	1805	2145	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Little Applegate River	2087	1815	5400	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Little Applegate River	2046	1740	3510	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Groundwater levels are at higher elevations than adjacent streams, indicating that groundwater is flowing towards and discharging to surface water. Additionally, there are multiple mapped and permitted springs within the area suggesting that groundwater is discharging to surface water in this high relief topography.

Water Availability Basin the well(s) are located within: LITTLE APPLGATE R > APPLGATE 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	<input type="checkbox"/>	<input type="checkbox"/>	na	na	<input type="checkbox"/>	0.11	<input type="checkbox"/>	<25	<input type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	na	na	<input type="checkbox"/>	0.11	<input type="checkbox"/>	<25	<input type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	IS70982A	1.51	<input type="checkbox"/>	0.11	<input type="checkbox"/>	<25	<input type="checkbox"/>
2	2	<input type="checkbox"/>	<input type="checkbox"/>	IS70982A	1.51	<input type="checkbox"/>	0.11	<input type="checkbox"/>	<25	<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: Stream depletion is estimated with the Hunt (1999) analytical model with parameters representative of bulk aquifer properties. Results from the closest well-stream combination are presented below.

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	%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS		0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q		18.7	33.1	44.3	56.3	63.4	25.5	1.87	3.56	0.11	1.29	15.9	17.9
(C) = 1 % Nat. Q		0.187	0.331	0.443	0.563	0.634	0.255	0.0187	0.0356	0.0011	0.0129	0.159	0.179
(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		%	%	%	%	%	%	%	%	%	%	%	%

(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: Stream depletion for Well 1 to the Little Applegate River is not calculated because the requested rate is already 1% of the limiting low flow. A finding of 100% stream depletion would not trigger a PSI finding as per the above metric.

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 wells access an aquifer that is hydraulically connected to the Little Applegate River and Sterling Creek. There is not a preponderance of evidence that the proposed use has the Potential for Substantial Interference as per OAR 690-009.

References Used:

Blair, W.N., Wong, Albert, Moring, B.C., Barnard, J.B., Page, N.J., and Gray, Floyd, 1981, Reconnaissance geologic map of parts of the Gold Hill, Ruch, Medford, and Talent 15' quadrangles, southwestern Oregon: U.S. Geological Survey, Open-File Report OF-81-1076, scale 1:62,500

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

OWRD Groundwater Information System Database – Accessed 5/24/2021.

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

LITTLE APPLGATE R > APPLGATE R - AT MOUTH
ROGUE BASIN

Water Availability as of 5/24/2021

Watershed ID #: 70982 ([Map](#))

Exceedance Level: 80% ▾

Date: 5/24/2021

Time: 9:06 AM

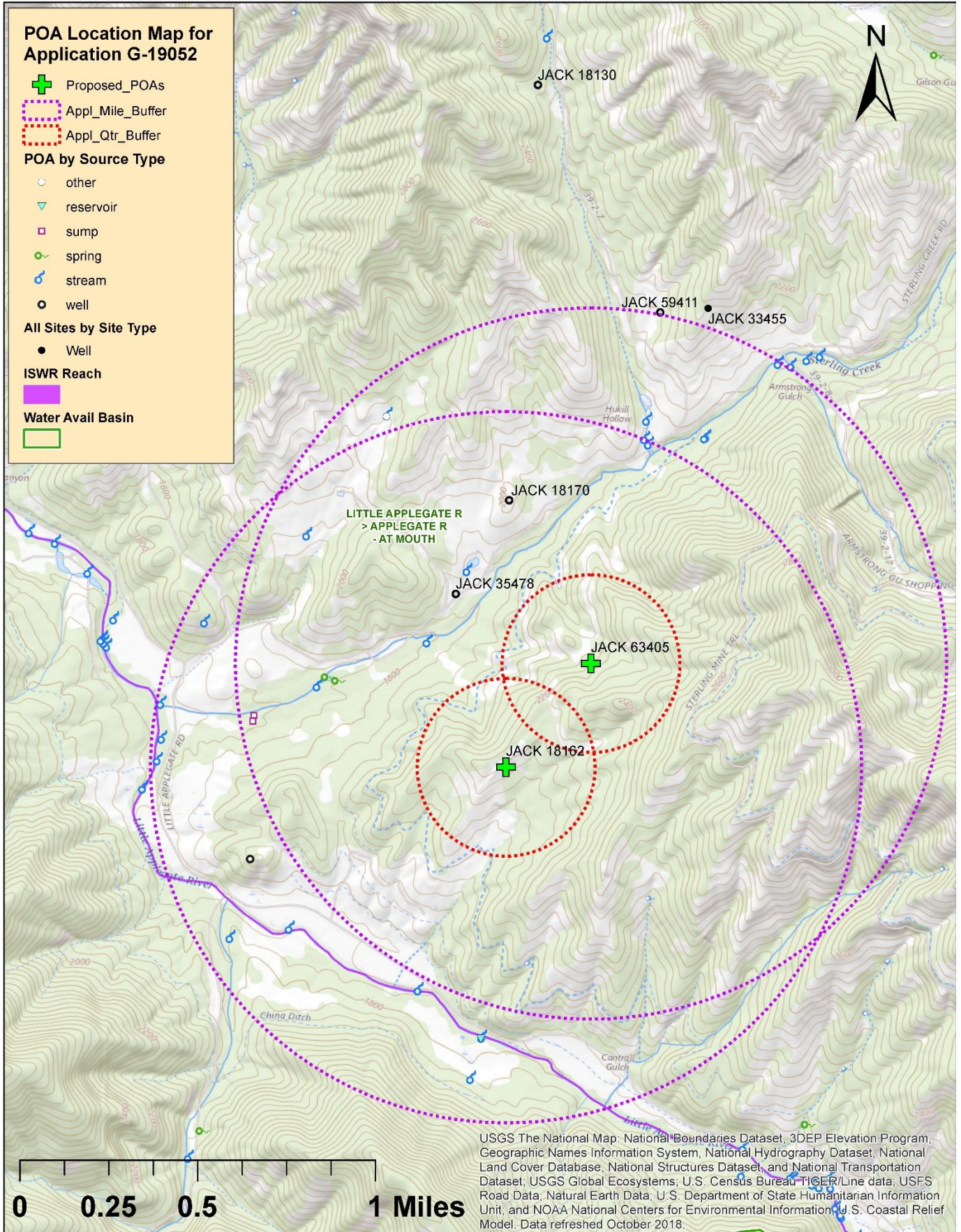
Water Availability Calculation	Consumptive Uses and Storages	Instream Flow Requirements	Reservations
Water Rights	Watershed Characteristics		

Water Availability Calculation

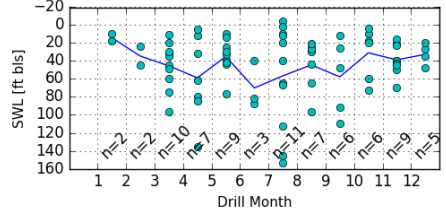
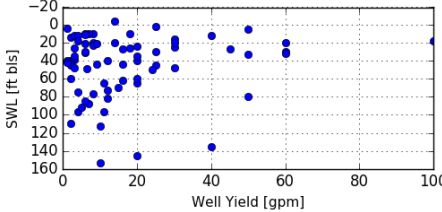
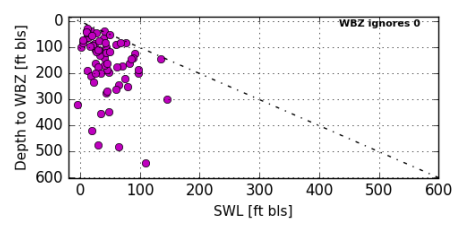
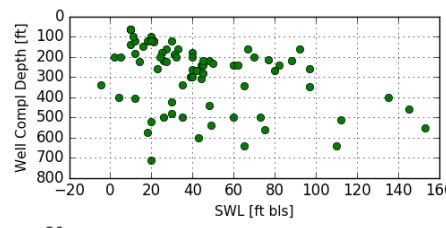
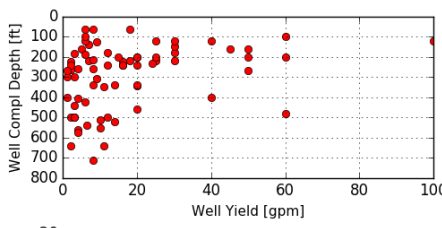
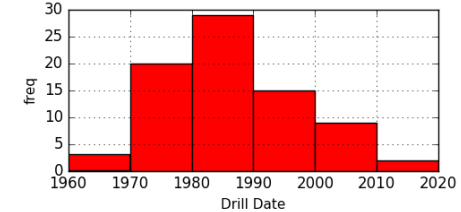
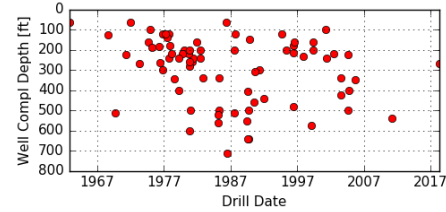
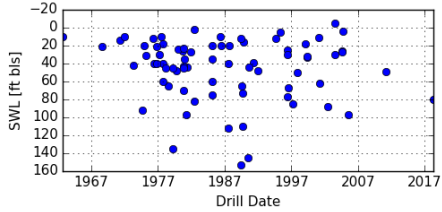
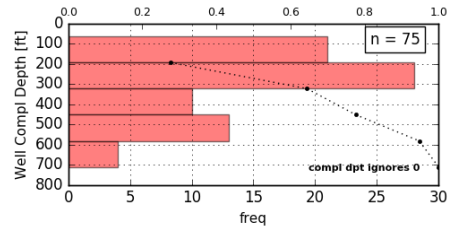
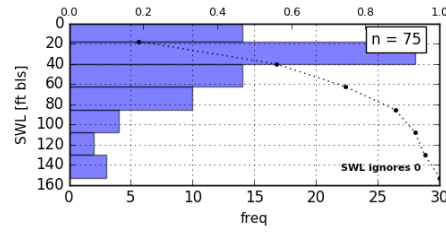
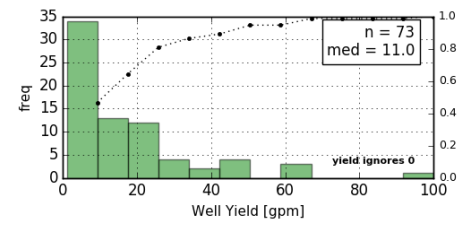
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	18.70	1.28	17.40	0.00	45.90	-28.50
FEB	33.10	1.82	31.30	0.00	85.00	-53.70
MAR	44.30	1.32	43.00	0.00	76.20	-33.20
APR	56.30	10.30	46.00	0.00	75.90	-29.90
MAY	63.40	15.90	47.50	0.00	73.20	-25.70
JUN	25.50	21.90	3.61	0.00	50.00	-46.40
JUL	1.87	29.00	-27.10	0.00	14.60	-41.70
AUG	3.56	24.10	-20.50	0.00	2.01	-22.50
SEP	0.11	16.10	-16.00	0.00	1.51	-17.50
OCT	1.29	5.91	-4.62	0.00	11.50	-16.10
NOV	15.90	1.25	14.60	0.00	25.40	-10.80
DEC	17.90	1.26	16.60	0.00	29.40	-12.80
ANN	31,700.00	7,890.00	26,900.00	0.00	29,400.00	880.00

Well Location Map



Summary Statistics for Well Reports Filed in TRS 39S/2W sections 17, 18 & 19



Created 05/24/2021

Stream Depletion Modeling Parameters and Results

Application type:	G
Application number:	19052
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.0011
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	1800	1800	1800	ft
Aquifer transmissivity	T	100	320	1000	ft ² /day
Aquifer storativity	S	0.001	0.0005	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		1	1	1	
Aquitard thickness below stream	babs	20	10	5	ft
Not used		1	1	1	
Stream width	ws	10	10	10	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	10	20	29	35	40	43	46	48	50	52	54	55	57
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

