

MEMO

OK.
JH

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18529
Date: August 7, 2018

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Joe Kemper reviewed the application. Please see Joe's Groundwater Review and the Well Log.

Applicant's Well #1 (JOSE 13338): Based on a review of the Well Report, Applicant's Well #1 appears to protect the groundwater resource.

The construction of Applicants Well #1 may not satisfy hydraulic connection issues.

MEMO

August 6th, 2018

FROM: GW: Joe Kempas
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☒ YES

The source of appropriation is within or above a Scenic Waterway

☐ 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.

[illegible]

Groundwater Application Review Summary Form

Application # G- 18529

GW Reviewer Joe Kemper Date Review Completed: 8/6/2018

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.~~
in 8/6/18

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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 8/6/2018
 FROM: Groundwater Section Joe Kemper
 Reviewer's Name
 SUBJECT: Application G- 18529 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: Stephen Poppe County: Josephine

A1. Applicant(s) seek(s) 0.1938 cfs from 1 well(s) in the Rogue Basin,
 Jumpoff Joe Creek subbasin

A2. Proposed use Irrigation/Nursery Seasonality: Irrigation/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	JOSE 13338	1	Sediments/Bedrock*	0.0267	34S/6W-S36 NE-NE	930' S, 1020' W fr NE cor S 35
2	Proposed	2	Sediments/Bedrock*	0.1938**	34S/6W-S36 NE-NE	730' S, 1100' W fr NE cor S 35
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	1327	NA	10	10/4/1988	80	0-20	0-47	0-80	40-79	12	70	Air
2	1341	NA	NA*	NA	150	0-20	NA	NA	NA	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** *Well 2 is proposed, and thus the hydraulics are unknown. The underlying geology is highly complex: unconsolidated sediments overlying fractured bedrock near a major contact/faulting between the Greenback Melange and the Grants Pass Pluton (Ramp and Peterson, 2004; Wiley, 2006). Generally speaking, however, upper zones in fractured rock aquifers have hydraulic connection with overlying sediments. Well 2's proposed location is 200 feet from Well 1 and will be constructed only 60 feet deeper than well 1. Given the vertical and horizontal proximity of the POAs, stratigraphic differences will not likely preclude hydraulic connection. As such, the reviewer assumes that Well 2 will encounter similar hydraulic conditions when constructed.

**The applicant did not specify a rate for Well 2; the reviewer assumes the full proposed rate.

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: 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 (7-yr SWL); 7J; Medium 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:** There are few current OWRD observation well data within 1 mile of the proposed POA. Two wells indicate previously stable water levels (see Figure 3) but cannot confirm current conditions. As a result, aquifer over-appropriation cannot be determined.

There are several valid PODs, including both wells and springs, within 0.5 miles of the applicant's wells, posing the risk of injury to senior water rights. However, adjacent taxlot density (as a proxy for well development) is moderate and the Department is unaware of any historic interference problems. As such, it is unlikely that the proposed use at the rate requested will cause injury to adjacent senior users.

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	Sediments/Fractured Bedrock	☒	☐
2	Sediments/Fractured Bedrock	☒	☐
		☐	☐

Basis for aquifer confinement evaluation: The well log for Well 1 reports the WBZ at 70-80 ft BLS and a SWL of 10 feet. Adjacent well logs report similar confined conditions. As per comments in section A4, the reviewer assumes that Well 2 will encounter similar hydraulic conditions when drilled. It is unknown, however, what aquifer the proposed well will access.

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	Breakdown Creek	1317	1305	2275	☒	☐	☐	☐	☒
2	1	Breakdown Creek	1317*	1305	2345	☒	☐	☐	☐	☒
1	2	Jumpoff Joe Creek	1317	1085	3350	☒	☐	☐	☐	☒
2	2	Jumpoff Joe Creek	1317*	1085	3515	☒	☐	☐	☐	☒
1	3	Bannister Creek	1317	1095	3780	☒	☐	☐	☐	☒
2	3	Bannister Creek	1317*	1095	3795	☒	☐	☐	☐	☒
1	4	Unnamed trib Jumpoff Joe Ck	1317	1300	~2500	☒	☐	☐	☐	☒
2	4	Unnamed trib Jumpoff Joe Ck	1317*	1300	~2500	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: GW elevations are higher than adjacent stream elevations, indicating that groundwater is flowing towards and discharging to surface water. Based on aerial imagery and street view images, SW 4 has no surface water diversions and lacks riparian vegetation (as a proxy for annual GW contribution) north of Jumpoff Joe Creek Rd. Distance reported to SW 4 is measured to where it incises into bedrock south of Jumpoff Joe Creek Rd.

*Well 2 is proposed. The reviewer assumes that the well, when drilled, will encounter similar hydraulic conditions based on proximity to Well 1 as per comments in section A4.

Water Availability Basin the well(s) are located within: JUMPOFF JOE CR > ROGUE R - AB LOUSE CR # 71032

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 source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that surface water source, and 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	☐	☐	NA	NA	☐	1.98	☒	<1 %	☒
2	1	☐	☐	NA	NA	☐	1.98	☒	<1 %	☒
1	2	☐	☐	IS71032A	2.51	☒	1.98	☒	<1 %	☒
2	2	☐	☐	IS71032A	2.51	☒	1.98	☒	<1 %	☒
1	3	☐	☐	NA	NA	☐	1.98	☒	<1 %	☒
2	3	☐	☐	NA	NA	☐	1.98	☒	<1 %	☒
1	4	☐	☐	NA	NA	☐	1.98	☒	<1 %	☒
2	4	☐	☐	NA	NA	☐	1.98	☒	<1 %	☒

- 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?
	1		☐	NA	NA	☐	1.98	☒	<1 %	☒
	2		☐	IS71032A	2.51	☒	1.98	☒	<1 %	☒
	3		☐	NA	NA	☐	1.98	☒	<1 %	☒
	4		☐	NA	NA	☐	1.98	☒	<1 %	☒

Comments: Pumping effects on adjacent surface water sources are evaluated using the Hunt (2003) stream depletion model with aquifer parameters representative of the local geology. Model parameters and results for the closest well-surface water source combination are presented in Figure 4.

- 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													
(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: No streams further than 1 mile were evaluated for 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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

- C6. **SW / GW Remarks and Conditions:** The applicant's proposed POAs would produce water from an aquifer that has been determined to be hydraulically connected to surface water. The proposed rate of 0.1938 cfs is larger than 1% of the relevant instream water right (1% of 2.51 cfs) and 1% of the WAB's lowest Natural Stream Flow (1% of 1.98 cfs), thus triggering an assumption of PSI as per OAR 690-009. The applicant would need to reduce their total rate to below 0.0198 cfs or 8.8 gpm to avoid triggering an assumption of PSI.
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References Used:

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

OWRD Groundwater Site Information System Database – Accessed 8/6/2018.

Ramp, L. and Peterson, N. 2004. *Geologic Map of Josephine County, Oregon*. Oregon Dept. of Geol. and Mineral Industries, OFR O-04-13.

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

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

D2. **THE WELL does not appear to meet current well construction standards based upon:**

- a. ☐ review of the well log; _____;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

D3. **THE WELL construction deficiency or other comment is described as follows:** _____D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.****Figure 1. Water Availability Tables**

JUMPOFF JOE CR > ROGUE R - AB LOUSE CR
ROGUE BASIN

Water Availability as of 7/18/2018

Watershed ID # 71032 ([Map](#))

Exceedance Level 80% ▼

Date: 7/18/2018

Time: 9:23 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	34.50	0.42	34.10	0.00	31.00	3.08
FEB	60.70	0.47	60.20	0.00	31.00	29.20
MAR	54.80	0.44	54.40	0.00	31.00	23.40
APR	28.60	0.90	27.70	0.00	31.00	-3.30
MAY	13.90	1.28	12.60	0.00	20.10	-7.48
JUN	6.21	1.69	4.52	0.00	11.80	-7.28
JUL	3.41	2.18	1.23	0.00	3.37	-2.14
AUG	2.67	1.84	0.83	0.00	4.84	-4.01
SEP	1.98	1.29	0.69	0.00	2.51	-1.82
OCT	2.56	0.59	1.97	0.00	4.06	-2.09
NOV	6.38	0.28	6.10	0.00	16.20	-10.10
DEC	18.50	0.38	18.10	0.00	31.00	-12.90
ANN	32,600.00	712.00	31,900.00	0.00	13,100.00	19,300.00

Figure 2. Well Location Map

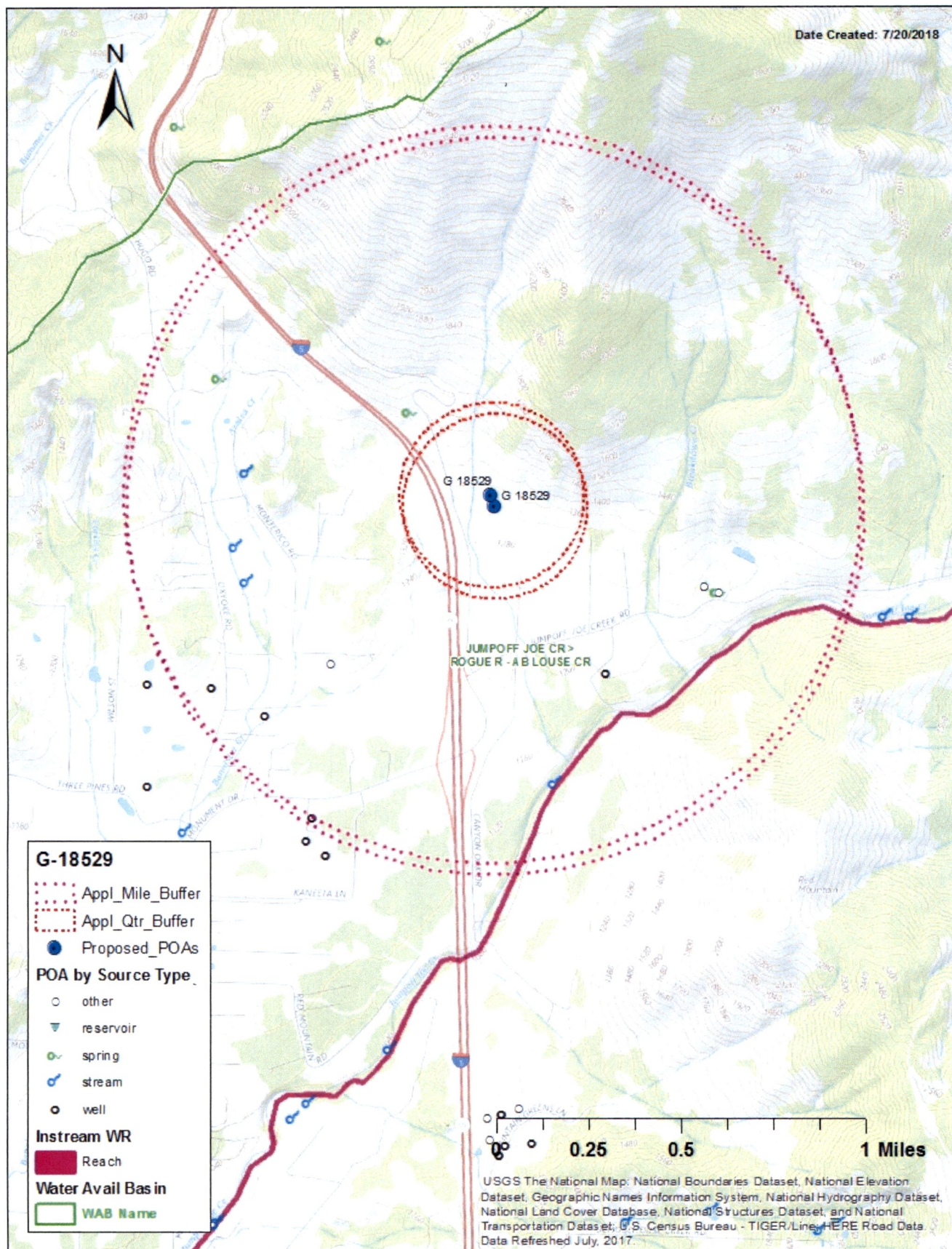


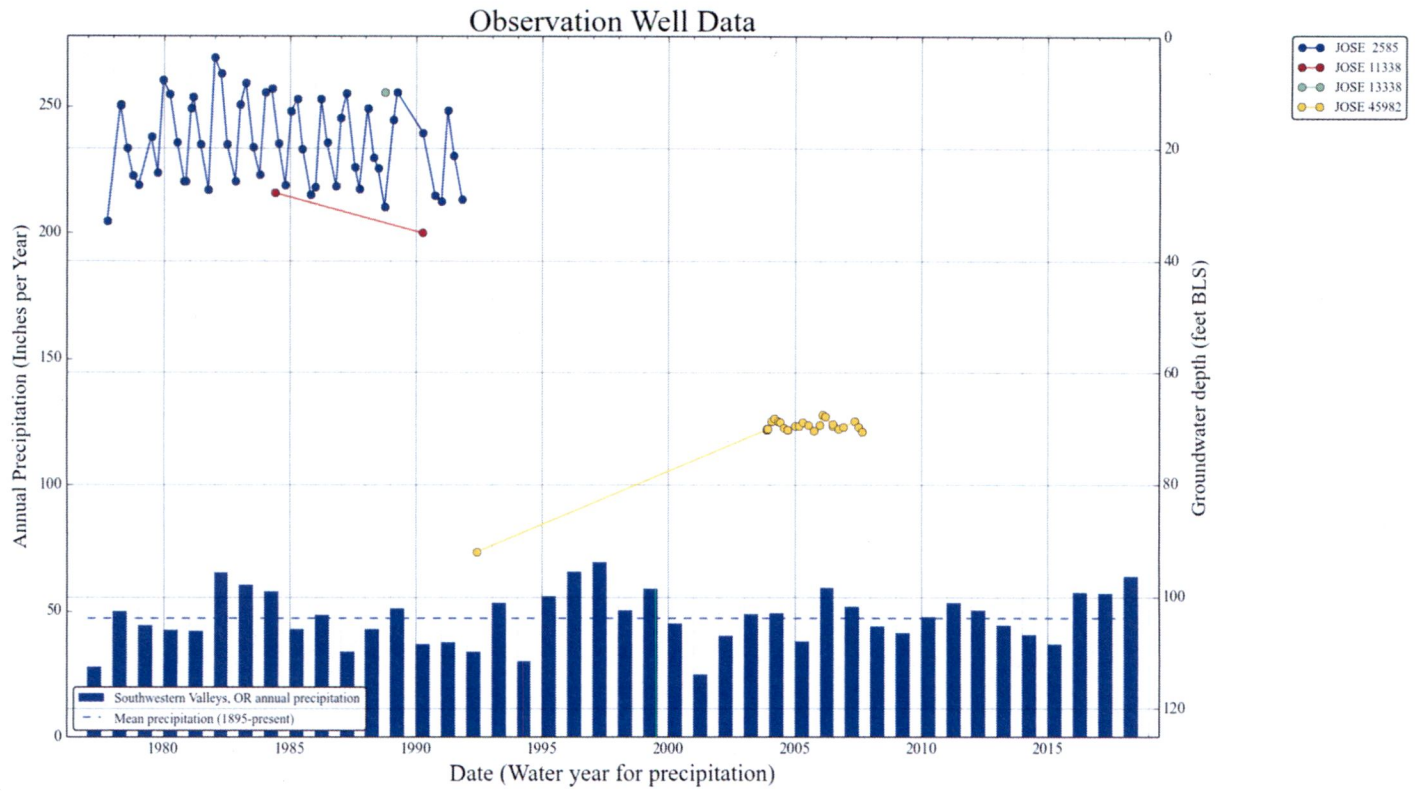
Figure 3. Water-Level Trends in Nearby Wells

Figure 4. Stream Depletion Model

Application type:	G
Application number:	18529
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.1938
Pumping duration (days):	100

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	2275	2275	2275	ft
Aquifer transmissivity	T	500	1000	5000	ft ² /day
Aquifer storativity	S	.1	.01	.001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	10.0	20.0	30.0	ft
Aquitard thickness below stream	babs	4.0	3.0	2.0	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	5	10	15	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	0	0	0	0	0	1	1	1	1	1	1	1	1
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

