

Groundwater Application Review Summary Form

Application # G- 19006

GW Reviewer Joe Kemper Date Review Completed: 4/9/2021

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

4/9/2021

TO: **Application G- 19006**

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 Illinois/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 4/9/2021
 FROM: Groundwater Section Joe Kemper
Reviewer's Name
 SUBJECT: Application G- 19006 Supersedes review of 10/16/2020
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: Holland Loop Holdings County: Josephine

A1. Applicant(s) seek(s) 0.06 cfs from 1 well(s) in the Rogue Basin,
Illinois subbasin

A2. Proposed use Nursery (4.8 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	JOSE 56010	1	Alluvium	0.06	40S/8W-1 SE-SE	1243' S, 474' W fr NE cor TL 1550
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	1407	75	22*	7/24/2004	120	0-21	0-120	na	80-100	75		Air

Use data from application for proposed wells.

A4. **Comments:** _____

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: 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) 7C, 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:** The applicant’s well accesses 120 feet of unconsolidated alluvium of the Illinois River valley. Drillers’ logs from adjacent wells indicate a 10-40 feet thick layer of clay/silt at the surface, underlain by sands and gravels in a clay matrix. The most productive aquifer zones may be hosted in discrete, discontinuous deposits of coarse sediment within the overall fine-grained sediment. Well yields are low to moderate (median for TRS 40S/8W-1 = 35 gpm). Two observation wells ~0.5 miles to the northwest show that water levels in the target aquifer are shallow, fluctuate 5-10 feet seasonally, and show some response to climatic variations. These water level trends do not show evidence that the aquifer is overappropriated at this time.

There are approximately 5 permitted wells within a mile of the applicant’s well, the closest of which is ~1350 feet away. Adjacent tax lot 1500 to the west is likely supplied by an exempt well, estimated to be 650-1200 feet from the applicant’s well, posing the highest risk to senior groundwater users. Given the moderate aquifer transmissivity, low requested rate, and the relative distances between wells, the proposed use is not likely to cause injury to senior groundwater 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	Alluvium of Illinois River Valley	<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"/>

Basis for aquifer confinement evaluation: The applicant’s well appears to produces water from discrete zones of coarse sediment interbedded within predominately clay rich deposits. Drillers’ logs also indicate 10-40 feet of silt/clay at the surface, overlying more productive zones. The result is an aquifer system that is increasingly confined with depth.

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	Althouse Creek	1385-1395*	1392	1215	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Sucker Creek	1385-1395*	1387	3590	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Democrat Gulch**	1385-1395*	1391	575	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Groundwater elevations in an unconsolidated alluvial aquifer are coincident with adjacent streams that flow over these sediments. Thus, water can flow between the surface water source and the target aquifer. The clay horizons that are present may impact the timing of pumping impacts to streams, but it is unlikely that they isolate the stream from hydraulic connection.

*The reported SWL is taken from a well log. These measurements are often recovering from well construction, development, and capacity testing, making the WL measurement deeper than true aquifer conditions.

**According to field investigations by OWRD and ODFW staff, Democrat Gulch appears to lose flow to the groundwater system upon leaving its headwater canyon, then eventually incises sufficiently to become a more persistent stream closer to its confluence with Althouse Creek.

Water Availability Basin the well(s) are located within: ALTHOUSE CR > E FK ILLINOIS R - AT MOUTH; impacts also considered for SUCKER CR > E FK ILLINOIS 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 checked="" type="checkbox"/>	<input type="checkbox"/>	IS69810A	34	<input type="checkbox"/>	6.2	<input type="checkbox"/>	<10	<input checked="" type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>	IS69808A	54	<input type="checkbox"/>	25.9	<input type="checkbox"/>	<10	<input type="checkbox"/>
1	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NA	NA	<input type="checkbox"/>	6.2	<input type="checkbox"/>	<10	<input checked="" 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: Stream depletion after 30 days of pumping is estimated with the Hunt (2003) analytical model using aquifer parameters representative of the site geology.

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: Streams beyond 1 mile were not considered here as the analysis in section C3 is more stringent

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

ALTHOUSE CR > E FK ILLINOIS R - AT MOUTH
 ROGUE BASIN

Water Availability as of 10/14/2020

Watershed ID #: 69810 ([Map](#))

Exceedance Level: 80% ▾

Date: 10/14/2020

Time: 9:25 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	43.50	0.34	43.20	0.00	85.00	-41.80
FEB	73.60	0.42	73.20	0.00	85.00	-11.80
MAR	95.90	0.43	95.50	0.00	85.00	10.50
APR	87.70	0.47	87.20	0.00	85.00	2.23
MAY	46.20	0.46	45.70	0.00	85.00	-39.30
JUN	21.90	0.54	21.40	0.00	50.00	-28.60
JUL	11.70	0.64	11.10	0.00	34.00	-22.90
AUG	7.51	0.57	6.94	0.00	34.00	-27.10
SEP	6.22	0.46	5.76	0.00	50.00	-44.20
OCT	6.83	0.32	6.51	0.00	50.00	-43.50
NOV	11.00	0.26	10.70	0.00	85.00	-74.30
DEC	31.90	0.26	31.60	0.00	85.00	-53.40
ANN	47,500.00	313.00	47,100.00	0.00	49,000.00	10,800.00

Water Availability Analysis

Detailed Reports

SUCKER CR > E FK ILLINOIS R - AT MOUTH
ROGUE BASIN

Water Availability as of 10/14/2020

Watershed ID #: 69808 ([Map](#))

Exceedance Level:

Date: 10/14/2020

Time: 9:26 AM

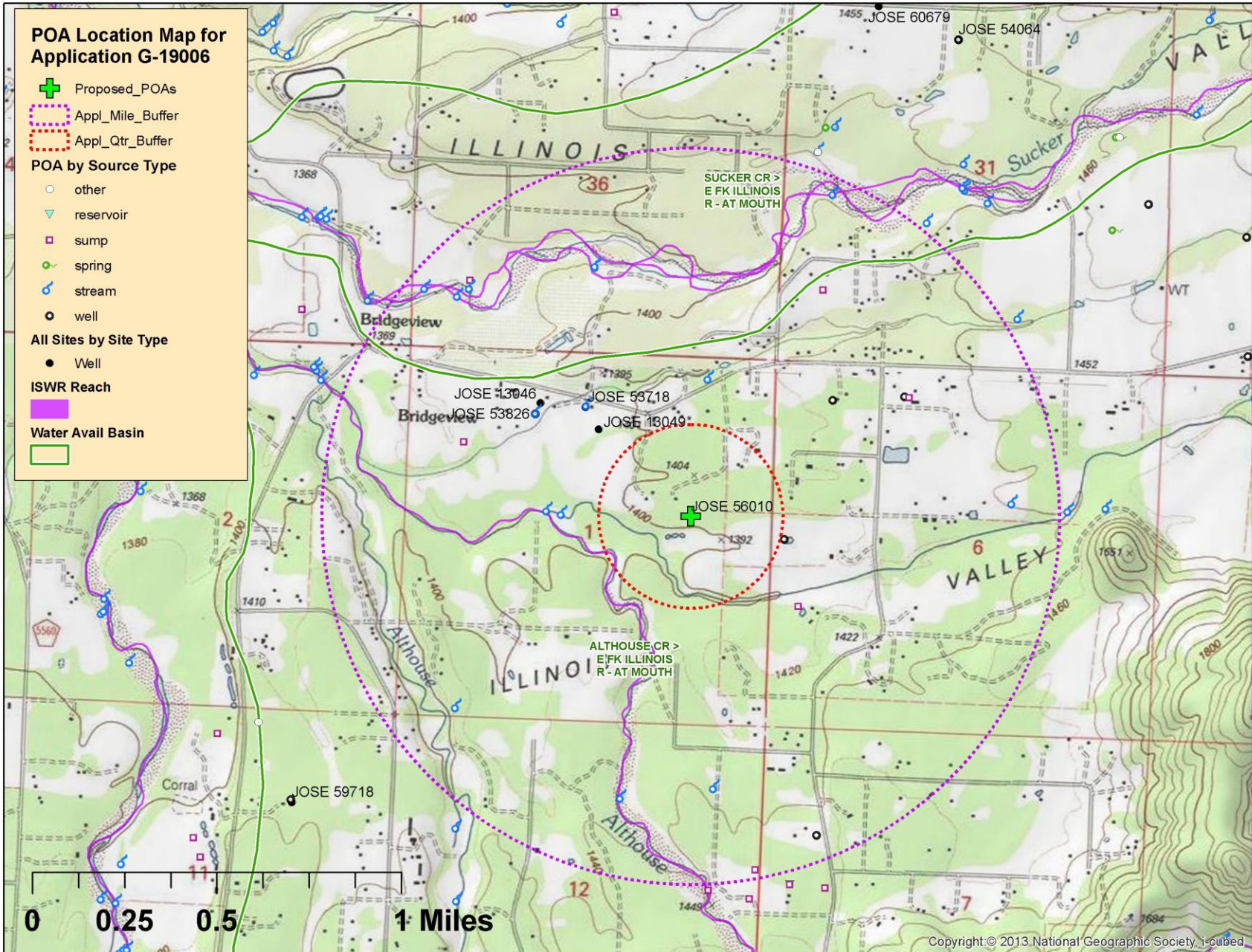
Water Availability Calculation	Consumptive Uses and Storages	Instream Flow Requirements	Reservations
Water Rights	Watershed Characteristics		

Water Availability Calculation

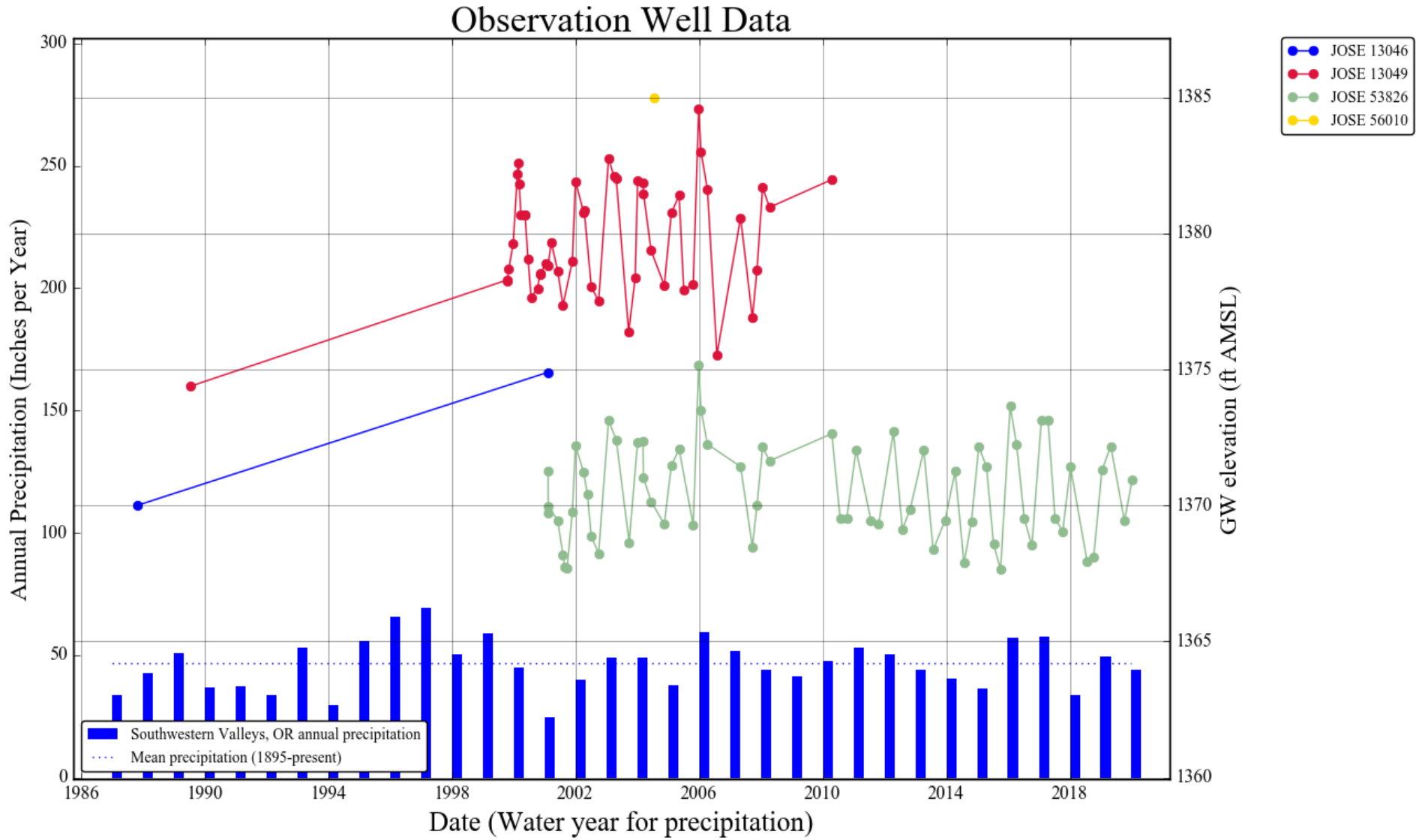
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	132.00	0.16	132.00	0.00	135.00	-3.16
FEB	221.00	0.16	221.00	0.00	135.00	85.80
MAR	220.00	0.16	220.00	0.00	135.00	84.80
APR	215.00	2.55	212.00	0.00	135.00	77.40
MAY	162.00	4.01	158.00	0.00	135.00	23.00
JUN	79.70	5.60	74.10	0.00	80.00	-5.90
JUL	42.60	7.46	35.10	0.00	54.00	-18.90
AUG	30.40	6.17	24.20	0.00	54.00	-29.80
SEP	25.90	4.07	21.80	0.00	80.00	-58.20
OCT	26.10	1.39	24.70	0.00	80.00	-55.30
NOV	36.80	0.16	36.60	0.00	135.00	-98.40
DEC	77.30	0.16	77.10	0.00	135.00	-57.90
ANN	134,000.00	1,950.00	132,000.00	0.00	77,900.00	64,400.00

Well Location Map



Water-Level Measurements in Nearby Wells



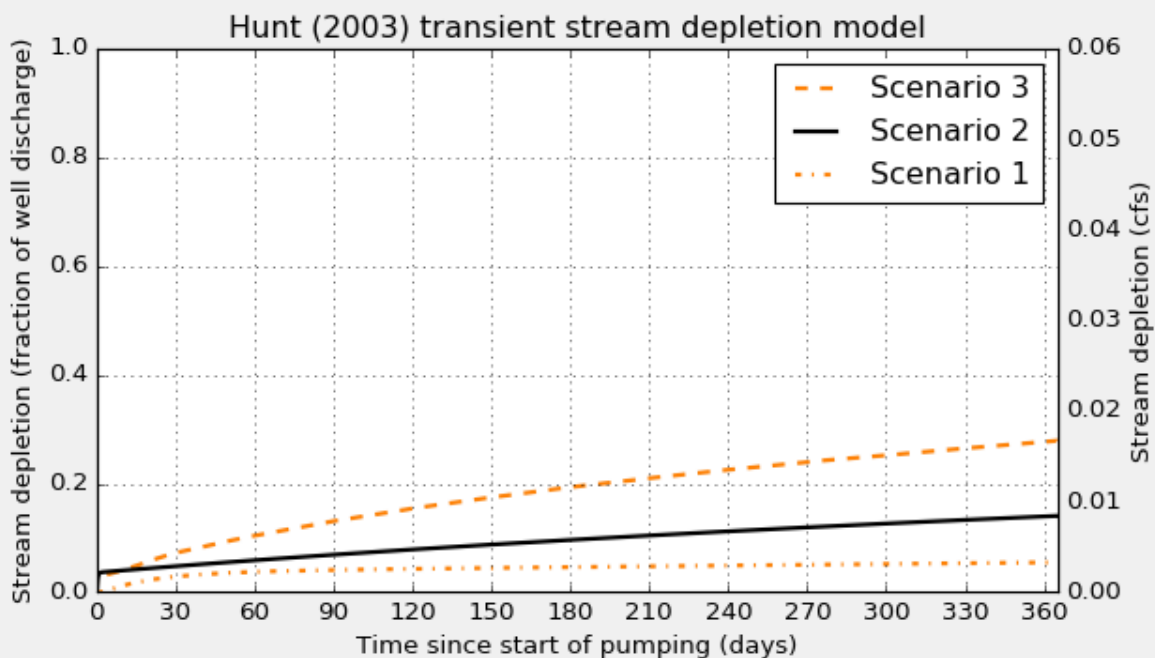
Stream Depletion Modeling Parameters and Results

Application type:	G
Application number:	19006
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.06
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	1215	1215	1215	ft
Aquifer transmissivity	T	1000	5000	10000	ft ² /day
Aquifer storativity	S	0.01	0.001	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	30	20	10	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	40	40	40	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	4	5	6	7	8	9	10	10	11	12	13	13	14
Depletion (cfs)	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01



Application type:	G
Application number:	19006
Well number:	1
Stream Number:	3
Pumping rate (cfs):	0.06
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	575	575	575	ft
Aquifer transmissivity	T	1000	5000	10000	ft ² /day
Aquifer storativity	S	0.01	0.001	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	.0	20	10	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	10	15	20	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	2	3	3	4	4	5	5	5	6	6	6	7	7
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

