

Groundwater Application Review Summary Form

Application # G- 18583

GW Reviewer M. Thoma Date Review Completed: 02-01-19

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.

2/1/19

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).

OK
HJD

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18583
Date: February 6, 2019

Thoma

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

Applicant's Well # L-15989 (JACK 51434): Based on a review of the Well Report, Applicant's Well # L-15989: appears to protect the groundwater resource.

The construction of Applicants Well # L-15989 may not satisfy hydraulic connection issues.

[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 02/01/2019
 FROM: Groundwater Section Michael Thoma
 SUBJECT: Application G- 18583 Reviewer's Name
 Supersedes review of _____ 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: Greg Batuyios, Rogue Valley Land Holdings
 County: Jackson

- A1. Applicant(s) seek(s) 0.003* cfs from 1 well(s) in the Rogue Basin,
Middle Rogue subbasin
- A2. Proposed use Commercial Irrigation (1 acre) 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 51434	L-15989	Bedrock	0.003	35S/2W-32 SWSE	374'N, 1734'W fr SE cor S 32

* 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	1,245	37	15	9/1/1997	190	0-19	-3-19	3-190	90-190	50	-	A

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: _____
- 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 (Scenic); 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 two OWRD Obs Wells in the area of the proposed POA and the data from these wells show stable long-term trends suggesting that the proposed use is within the Capacity of the Resource. There are two groundwater rights within 1 mile of the proposed POA and although injury is unlikely given the low pumping rate and annual volume of use proposed on the application, conditions listed in B2(d) should be applied.

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 Payne Cliff Formation	☒	☐
		☐	☐

Basis for aquifer confinement evaluation: The well log for the proposed POA reports Static Water Level above "First Water" and lists 31 ft of "claystone" overlying the water-bearing zones – this implies confinement of the local strata. Additionally, a nearby OWRD Obs Well (JACK 34198) seasonally has a static water level above land surface, further supporting the finding of aquifer confinement.

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	Rock Creek	1208	< 1210	8000*	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: groundwater elevations are near surface water elevations implying that groundwater is flowing towards and discharging to surface water

*Rock Creek is intermittent near the proposed POA and not likely perennially hydraulically connected to groundwater. The distance reported is the nearest downstream point where a water right POD is located on the creek that is not tied to a reservoir.

Water Availability Basin the well(s) are located within: SAMS CR > ROGUE R – AT MOUTH (ID# 274)

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?
		☐	☐			☐		☐		☐

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?
		☐			☐		☐		☐

Comments: no surface water sources were evaluated within 1 mile

- 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	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %
Well Q as CFS		0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Interference CFS		< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001
(A) = Total Interf.		< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001	< .001
(B) = 80 % Nat. Q		8.17	14.70	12.80	6.14	2.83	1.11	0.56	0.46	0.32	0.36	0.76	3.55
(C) = 1 % Nat. Q		0.08	0.15	0.13	0.06	0.03	0.01	0.006	0.005	0.003	0.004	0.008	0.04
(D) = (A) > (C)													
(E) = (A / B) x 100		<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%

(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:

Stream-depletion was estimated using the Hunt (2003) stream-depletion model and a reasonable range of aquifer parameters. Results indicate that stream-depletion will be very low over one year.

- 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 POA would be producing from an aquifer that has been found to be hydraulically connected to surface water – specifically Rock Creek – at a distance of over 1 mile. Estimates of stream-depletion are far less than 1% of the pertinent adopted 80% Natural Flows for the given WAB.

The application notes that the request is for 0.003 cfs or "max allowed". It is not within the purview of this groundwater review to review alternative rates but the maximum allowed rate would be 0.013 cfs (1/80 cfs x 1 acre). Given the information reported in Table C4a, a rate of 0.013 cfs would not likely trigger an automatic assumption of PSI under OAR 690-009-0040, **but a new groundwater review would be required if the requested rate were increased.**

References Used:

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

Oregon Department of Geology and Mineral Industries, *Geologic Map of Oregon*. <http://www.oregongeology.org/geologicmap/>

OWRD Well Log Database – Accessed 2/1/2019.

Smith, J. G., N. J. Page, M. G. Johnson, B. C. Moring, F. Gray. 1982. *Preliminary Geologic Map of the Medford 1 by 2 Degree Quadrangle, Oregon and California*. USGS Open-file Report 82-955

Wiley, T. K. and J. G. Smith. 1993. *Preliminary Geologic Map of the Medford East, Medford West, Eagle Point, and Sams Valley Quadrangles, Jackson County, Oregon*. Oregon Dept. of Geology and Mineral Industries. OFR O-93-13

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

SAMS CR > ROGUE R - AT MOUTH
ROGUE BASIN

Water Availability as of 1/28/2019

Watershed ID #: 274 ([Map](#))
Date: 1/28/2019

Exceedance Level: 80% ▾
Time: 4:09 PM

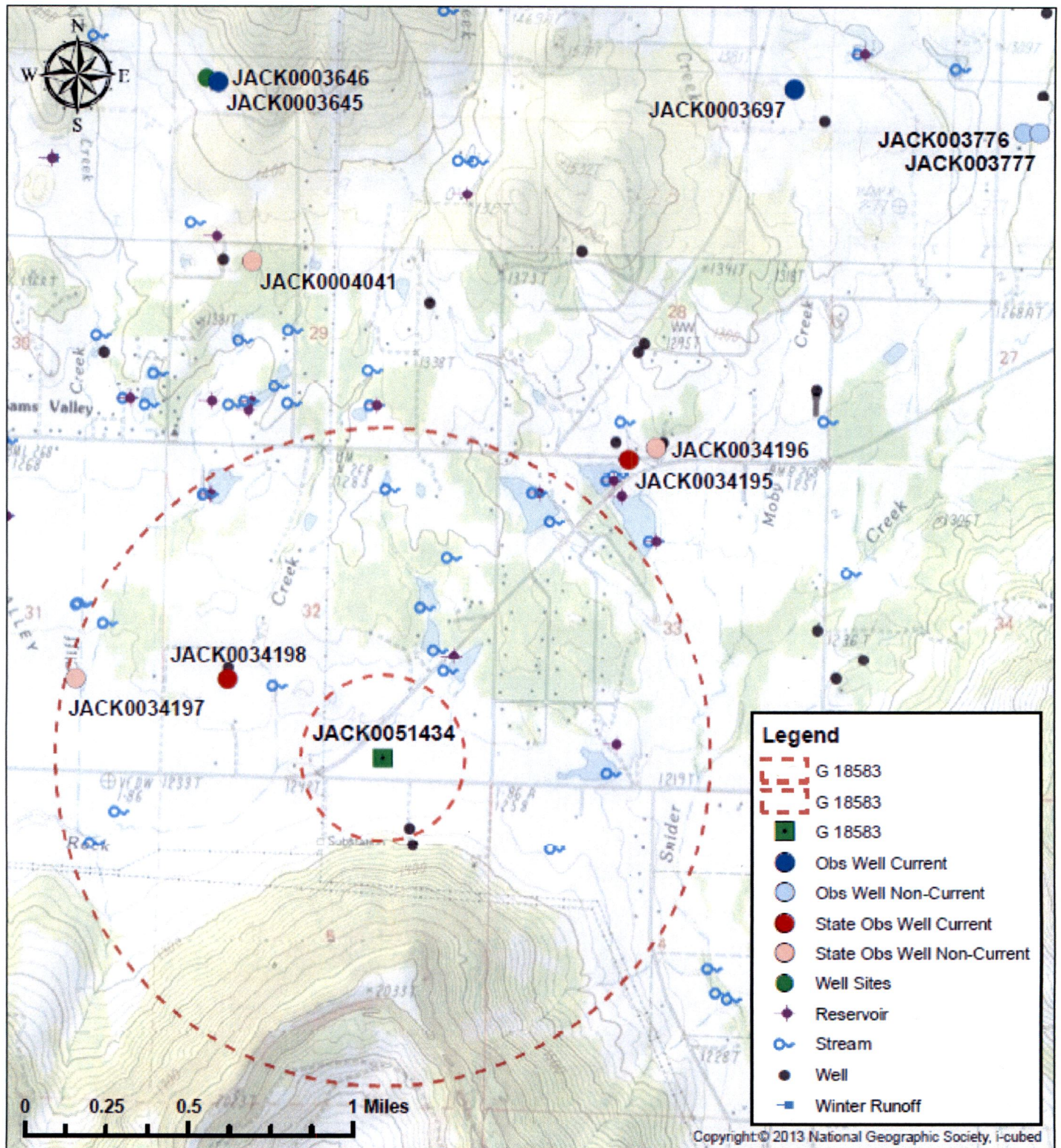
Water Availability Calculation**Consumptive Uses and Storages****Instream Flow Requirements****Reservations****Water Rights****Watershed Characteristics****Water Availability Calculation**

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

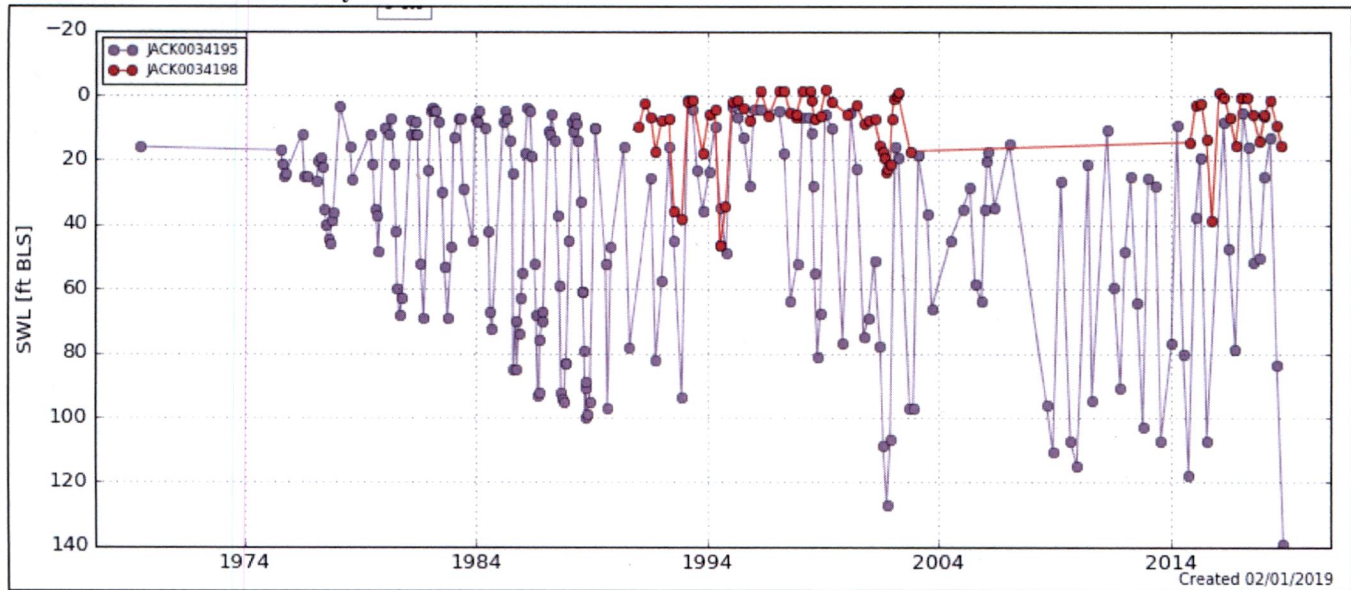
Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	8.17	5.58	2.59	0.00	5.00	-2.41
FEB	14.70	7.13	7.57	0.00	5.00	2.57
MAR	12.80	6.17	6.63	0.00	5.00	1.63
APR	6.14	0.97	5.17	0.00	5.00	0.17
MAY	2.83	1.42	1.41	0.00	2.00	-0.59
JUN	1.11	1.96	-0.85	0.00	1.00	-1.85
JUL	0.56	2.62	-2.06	0.00	1.00	-3.06
AUG	0.46	2.17	-1.71	0.00	1.00	-2.71
SEP	0.32	1.43	-1.11	0.00	2.00	-3.11
OCT	0.36	0.49	-0.13	0.00	5.00	-5.13
NOV	0.76	0.50	0.26	0.00	5.00	-4.74
DEC	3.55	4.30	-0.75	0.00	5.00	-5.75
ANN	7,590.00	2,090.00	5,750.00	0.00	2,530.00	3,990.00

Well Location Map

POA Location Map for Application G-18583



Water-Level Trends in Nearby Wells



Stream-Depletion Estimates

74 PyHunt stream depletion analysis tool

Application type: G
 Application number: 18583
 Well number: 1
 Stream Number: 1
 Pumping rate (cfs): 0.003
 Pumping duration (days): 365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	8000	8000	8000	ft
Aquifer transmissivity	T	100	500	1000	ft ² /day
Aquifer storativity	S	0.005	0.001	0.0005	-
Aquitard vertical hydraulic conductivity	Kva	0.001	0.001	0.001	ft/day
Aquitard saturated thickness	ba	20	20	20	ft
Aquitard thickness below stream	babs	15	15	15	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	5	5	5	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	0	0	0	0	0	0	0	0
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

