

Groundwater Application Review Summary Form

Application # G- 18597

GW Reviewer M. Thoma Date Review Completed: 02-05-19

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.

✓
2/6/19

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).

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-18597
Date: February 7, 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 #1 (JACK 62953): 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.

STATE OF OREGON
WATER SUPPLY WELL REPORT
 (as required by ORS 537.765 & OAR 690-205-0210)

JACK 62953

3/22/2017

WELL I.D. LABEL # 124431
START CARD # 1033850
ORIGINAL LOG # _____

(1) LAND OWNER

Owner Well I.D. _____
 First Name SEAN Last Name OKELLY
 Company _____
 Address PO BOX 6710
 City MACON State GA Zip 31208

(2) TYPE OF WORK

New Well Deepening Conversion

Alteration (complete 2a & 10) Abandonment (complete 5a)

(2a) PRE-ALTERATION

Casing: Dia + From To Gauge Stl Plstc Wld Thrd
 Material From To Amt sacks/lbs
 Seal: _____

(3) DRILL METHOD

Rotary Air Rotary Mud Cable Auger Cable Mud
 Reverse Rotary Other _____

(4) PROPOSED USE

Domestic Irrigation Community
 Industrial/ Commercial Livestock Dewatering
 Thermal Injection Other _____

(5) BORE HOLE CONSTRUCTION

Special Standard (Attach copy)

Depth of Completed Well 225.00 ft.

BORE HOLE			SEAL			sacks/
Dia	From	To	Material	From	To	Amt
10	0	39	Bentonite Chips	0	39	17 S
6	39	225			Calculated	16
					Calculated	

How was seal placed: Method A B C D E
 Other DRY POURED
 Backfill placed from _____ ft. to _____ ft. Material _____
 Filter pack from _____ ft. to _____ ft. Material _____ Size _____
 Explosives used: Yes Type _____ Amount _____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount _____ Actual Amount _____

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	<input checked="" type="checkbox"/>	1	39	.250	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	4	<input type="checkbox"/>	5	205	sch 40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Shoe Inside Outside Other Location of shoe(s) 39
 Temp casing Yes Dia _____ From + _____ To _____

(7) PERFORATIONS/SCREENS

Perforations Method saw and factory

Screens Type _____ Material _____

Perf/	Casing/	Screen	Scrnn/slot	Slot	# of	Tele/		
Screen	Liner	Dia	From	To	width	length	slots	pipe size
Perf	Liner	4	165	205	.032	2	3200	4

(8) WELL TESTS: Minimum testing time is 1 hour

Pump Bailer Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
150		204	2

Temperature 60 °F Lab analysis Yes By _____

Water quality concerns? Yes (describe below) TDS amount 235 ppm
 From _____ To _____ Description _____ Amount _____ Units _____

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County JACKSON Twp 36.00 S N/S Range 1.00 W E/W WM
 Sec 25 SE 1/4 of the SE 1/4 Tax Lot 803
 Tax Map Number _____ Lot _____
 Lat _____ " or 42.40717762 DMS or DD
 Long _____ " or -122.76162577 DMS or DD
 Street address of well Nearest address
877 DRY CREEK ROAD EAGLE POINT OREGON 97524

(10) STATIC WATER LEVEL

Existing Well / Pre-Alteration	Date	SWL (psi)	+ SWL (ft)
Completed Well	<u>3/22/2017</u>		<u>10</u>

Flowing Artesian? Dry Hole?

WATER BEARING ZONES

Depth water was first found 85.00

SWL Date	From	To	Est Flow	SWL (psi)	+ SWL (ft)
<u>3/22/2017</u>	<u>85</u>	<u>86</u>	<u>10</u>		<u>10</u>
<u>3/22/2017</u>	<u>145</u>	<u>200</u>	<u>140</u>		<u>10</u>

(11) WELL LOG

Ground Elevation _____

Material	From	To
soil	0	1
Clay, black sticky with boulders	1	33
Sand Stone, Dark Consolidated	33	85
Sand Stone, Grey	85	86
Clay Stone, Grey, med hard	86	225

Date Started 3/21/2017 Completed 3/22/2017

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number _____ Date _____
 Signed _____

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1798 Date 3/22/2017
 Signed GARY NEWMAN (E-filed)
 Contact Info (optional) Southern Oregon Well Drilling Inc. 541-772-1177

WATER RESOURCES DEPARTMENT

MEMO

02-05, 2019

TO: Application G- 18597

FROM: GW: M. Thoma
(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 02/05/2019
 FROM: Groundwater Section Michael J Thoma
 Reviewer's Name
 SUBJECT: Application G- 18597 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: Sean Okelley County: Jackson

A1. Applicant(s) seek(s) 0.011 cfs from 1 well(s) in the Rogue Basin,
Upper Rogue subbasin

A2. Proposed use Irrigation (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 62953	Well #1	Bedrock	0.011	36S/1W-25 SESE	2370' N, 1083' W fr SE cor S 25

* 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	1.537	85	10	3/22/2017	225	0-39	+1-39	5-205	165-205	150	-	A

Use data from application for proposed wells.

A4. **Comments:** The application location description puts the well in the NESE quarter, but the application map and a well inspection location dated 3/29/2017 put the well in the SESE quarter. Actual location for the well is closer to 1315'N, 1160' W fr SE cor S 25. **The findings of this review will not change with the updated location.**

A5. **Provisions of the** Rogue (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 are limited water level data in the aquifer and vicinity of the applicant's proposed POA so Capacity of the Resource cannot be determined and water-level reporting conditions in B1(d) are recommended. There is one permitted groundwater right within 1 mile of the applicant's proposed POA and it is unlikely that the applicant's use would result in injury to this or other permitted water rights given the low rate of appropriation and generally low transmissivity of the aquifer in the area. However, standard interference conditions 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 Western Cascades Volcanics	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: In fractured-bedrock aquifer systems the primary movement of water is through discrete but connected fracture sets. These fractures generally extend to near the surface and 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	Antelope Creek	1530	1490-1560	1980	<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"/>

Basis for aquifer hydraulic connection evaluation: Groundwater elevations are above surface water elevations suggesting that groundwater is flowing towards and discharging to surface water.

Impacts to Agate Reservoir were not evaluated because the reservoir does not represent a natural surface water source. Dry Creek, which is the tributary to Agate Reservoir, was not evaluated as a “surface water source” for the purposes of Div. 9 because it is mapped as an intermittent stream and there are no surface water PODs upstream of the reservoir.

Water Availability Basin the well(s) are located within: ANTELPE CR > LITTLE BUTTE CR – AT MOUTH (ID# 248)

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	<input type="checkbox"/>	<input type="checkbox"/>	MF248A	5.0	<input type="checkbox"/>	1.06	<input type="checkbox"/>	< 25%	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: Interference at 30 days was estimated using the Hunt (1999) stream-depletion model with parameter values in the range reasonably expected for fractured bedrock aquifers in the region.

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"/>

Comments: _____

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 surface water sources were evaluated beyond 1 mile

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 proposed POA would be producing from an aquifer that has been found to be hydraulically connected to surface water – specifically the Antelope Creek at a distance of less than 1 mile. The proposed maximum rate of appropriation is less than 1% of the pertinent adopted perennial streamflow for the surface water source. Per OAR 690-009-0040(4) the POA is assumed to **not** have the Potential for Substantial Interference

References Used:

Hunt, B. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. 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 02/05/2019

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. J., J. D. McClaughry, and J. A. D'Allura. 2011. *Geologic Database and Generalized Geologic Map of Bear Creek Valley, Jackson County, Oregon*. Oregon Dept. of Geology and Mineral Industries. OFR O-11-11.

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) _____

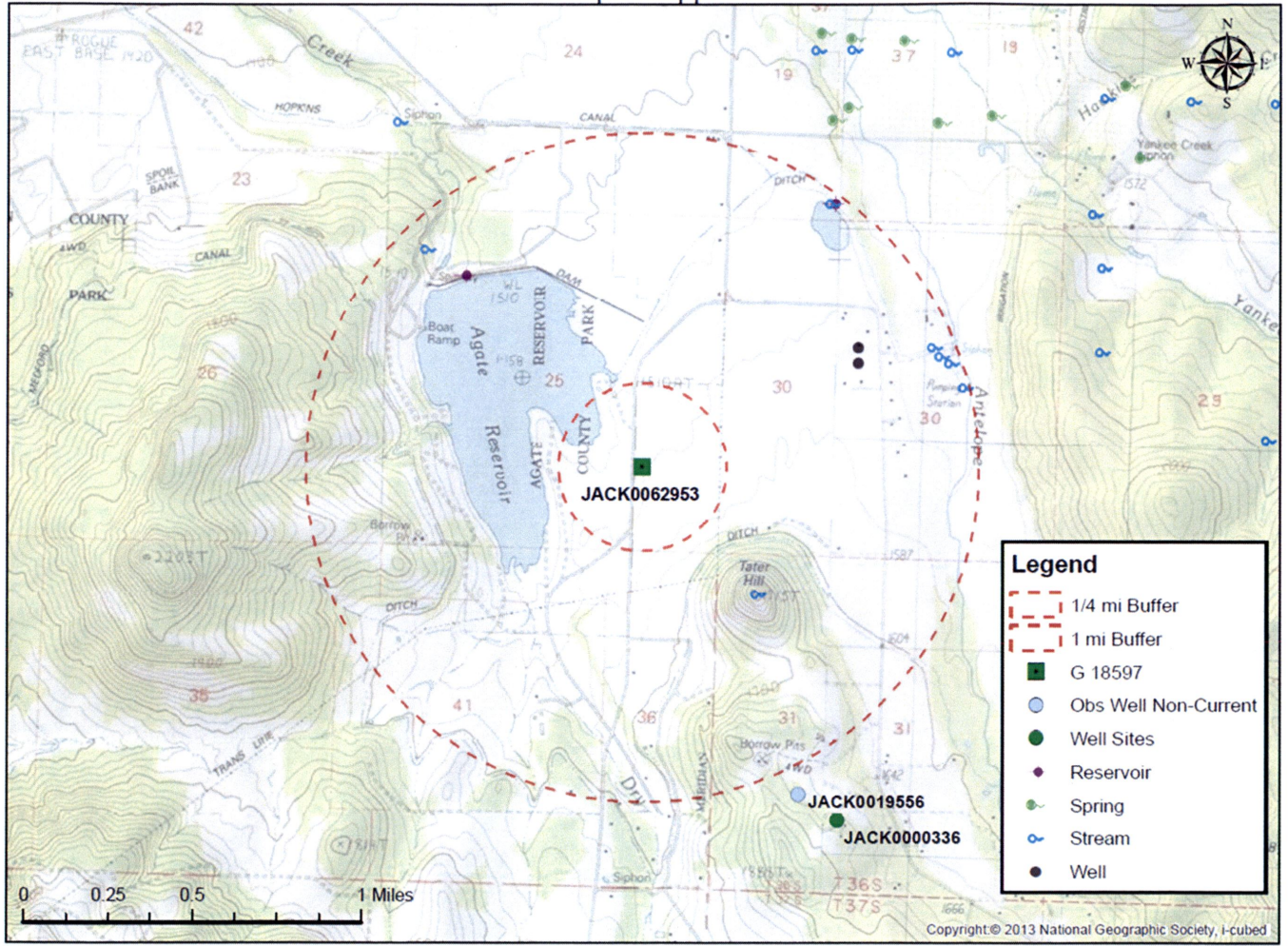
D3. THE WELL construction deficiency or other comment is described as follows: _____

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

Water Availability Tables

Water Availability Analysis Detailed Reports							
ANTELOPE CR > LITTLE BUTTE CR - AT MOUTH ROGUE BASIN							
Water Availability as of 1/29/2019							
Watershed ID #: 248 (Map)				Exceedance Level: 80% ▾			
Date: 1/29/2019				Time: 10:44 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	4.92	12.60	0.00	25.00	-12.40	
FEB	29.00	6.18	22.80	0.00	25.00	-2.18	
MAR	31.70	5.92	25.80	0.00	25.00	0.78	
APR	34.70	0.66	34.00	0.00	25.00	9.05	
MAY	11.70	1.36	10.30	0.00	10.00	0.34	
JUN	6.62	2.11	4.51	0.00	5.00	-0.49	
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	0.23	0.83	0.00	20.00	-19.20	
NOV	2.21	0.50	1.71	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	

POA Location Map for Application G-18597



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Stream-Depletion Model Results (Scenario 2 represent most-likely parameter values)

74 PyHunt stream depletion analysis tool

Application type: G
 Application number: 18597
 Well number: 1
 Stream Number: 1
 Pumping rate (cfs): 0.01
 Pumping duration (days): 365

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1980	1980	1980	ft
Aquifer transmissivity	T	200	500	800	ft ² /day
Aquifer storativity	S	0.01	0.001	0.0001	-
Aquitard vertical hydraulic conductivity	Kva	0.005	0.005	0.005	ft/day
Not used		1	1	1	
Aquitard thickness below stream	babs	5	5	5	ft
Not used		1	1	1	
Stream width	ws	20	20	20	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	2	5	8	10	12	14	15	16	18	19	20	21	21
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

Hunt (1999) transient stream depletion model

