

Groundwater Application Review Summary Form

Application # G- 18835

GW Reviewer Joe Kemper Date Review Completed: 10/30/2019

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.

di whttr

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).

[illegible]

MEMO

OK
HJ

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18835
Date: November 4, 2019

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 59952): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource

The construction of Applicant's Well #1 may not satisfy hydraulic connection issues.

Contact Info (optional) CLOUSER DRILLING INC.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 10/30/2019
 FROM: Groundwater Section Joe Kemper
 SUBJECT: Application G- 18835 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: Adam Hoke County: Josephine

A1. Applicant(s) seek(s) 0.0378 cfs from 1 well(s) in the Rogue Basin, Applegate River subbasin

A2. Proposed use Irrigation (3 acres) Seasonality: 1/1 to 12/31

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	1	Bedrock	0.0378	37S/5W-S16 SE-SE	195' N, 475' W fr SE cor, S16
2	59952					
3						
4						
5						

* 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	1294	97	8	11/14/2016	120	0-57	2-98	Na	na	15		Air

Use data from application for proposed wells.

A4. Comments:

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: 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 (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 limited water level data from wells adjacent to the applicant's proposed POA so Capacity of the Resource cannot be determined and water-level reporting conditions in B1(d) are recommended. There are no groundwater rights within 1 mile of the applicant's proposed POA, and it is unlikely that the applicant's use would result in injury to other permitted water rights given the low requested rate. However, standard interference conditions should be applied. A spring-fed POD for Permit R-14023 is located approximately 1000 feet from the applicant's well, but it appears to draw seasonal discharge from the alluvial sediments rather than from the fractured bedrock system and thus will not likely be injured by the proposed use.

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	Bedrock of Sexton Mountain Ophiolite	☒	☐
		☐	☐

Basis for aquifer confinement evaluation: The applicant's POA accesses water hosted in fractured bedrock of the Sexton Mountain Ophiolite overlain by fine-grained fluvial terrace sediments. The driller's log for the applicant's well indicates "first water" at 97 feet and a final SWL of 8 feet BLS. This evidence indicates that the target aquifer is under predominately confined conditions.

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	Board Shanty Creek	1286	1225	2420	☒	☐	☐	☐	☒
1	2	Applegate River	1286	1065	2900	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Groundwater elevations are higher than adjacent streams, indicating that groundwater is flowing towards and discharging to surface water.

Water Availability Basin the well(s) are located within: APPLEGATE R > ROGUE 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 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	☐	45.8	☐	<5%	☐
1	2	☐	☐	MF249A	120	☐	45.8	☐	<5%	☐
		☐	☐			☐		☐		☐

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: Streamflow depletion is estimated using an analytical stream depletion model (Hunt, 2003) using bulk aquifer parameters representative of the local geology. Model parameters and results for the closest well-stream combination are shown in Figure 3.

- 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: Surface water sources beyond 1 mile were not evaluated for PSI.

- 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 well accesses an aquifer that is found to be hydraulically connected to the Applegate River and Board Shanty Creek. However, there is not a preponderance of evidence that the proposed use/rate has the Potential for Substantial Interference (PSI) as per OAR 690-009.

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 10/30/2019.

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

Water Availability Analysis

Detailed Reports

APPLEGATE R > ROGUE R - AT MOUTH
 ROGUE BASIN

Water Availability as of 10/30/2019

Watershed ID #: 249 ([Map](#))

Date: 10/30/2019

Exceedance Level: 80% ▼

Time: 9:05 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	373.00	5.60	367.00	0.00	300.00	67.40
FEB	674.00	439.00	235.00	0.00	300.00	-64.80
MAR	792.00	438.00	354.00	0.00	340.00	14.00
APR	662.00	460.00	202.00	0.00	340.00	-138.00
MAY	591.00	42.20	549.00	0.00	360.00	189.00
JUN	222.00	57.40	165.00	0.00	360.00	-195.00
JUL	91.80	76.10	15.70	0.00	120.00	-104.00
AUG	59.00	63.20	-4.22	0.00	120.00	-124.00
SEP	45.80	42.40	3.44	0.00	120.00	-117.00
OCT	56.00	15.70	40.30	0.00	360.00	-320.00
NOV	146.00	3.75	142.00	0.00	360.00	-218.00
DEC	244.00	4.66	239.00	0.00	300.00	-60.70
ANN	421,000.00	97,800.00	323,000.00	0.00	204,000.00	160,000.00

Figure 2. Well Location Map

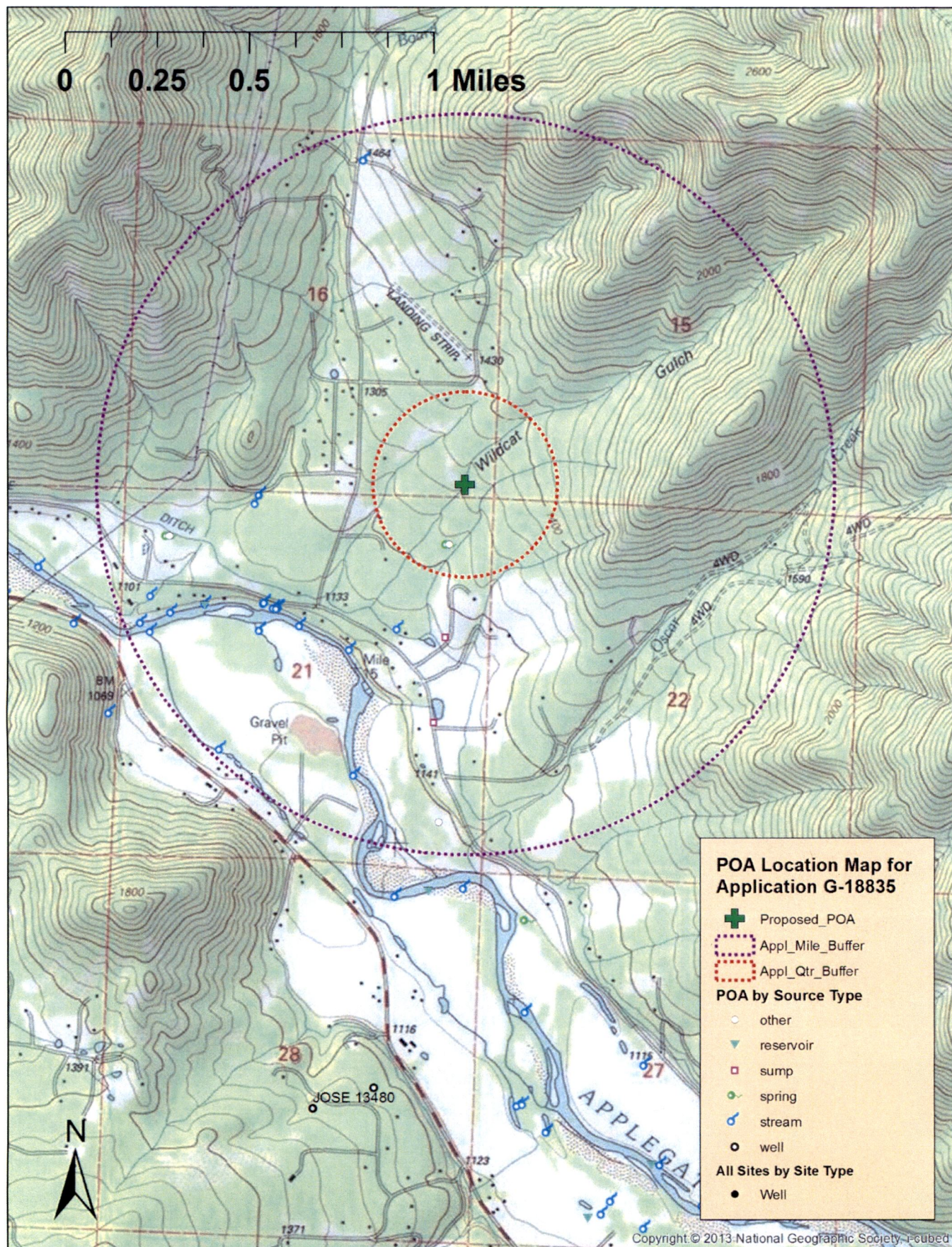


Figure 3. Stream Depletion Model Results (Hunt, 2003)

Application type:	G
Application number:	18835
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.0378
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	2900	2900	2900	ft
Aquifer transmissivity	T	500	1000	2500	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	20	20	20	ft
Aquitard thickness below stream	babs	5	5	5	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	150	150	150	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	0	1	2	2	3	3	4	4	5	6	6	7	8
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

