

Groundwater Application Review Summary Form

Application # G- 18705

GW Reviewer Joe Kemper Date Review Completed: 5/16/2019

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.

5/16/19

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.
JH

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Joel Jeffery, Well Construction Program Coordinator,
Subject: Review of Water Right Application G-18705
Date: May 28, 2019

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

Applicant's Well #1 (JACK 8234): Based on a review of the well report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). The well report indicates that 5 sacks of cement grout were used to seal the well's annular space, however, by calculation, a minimum of 9 sacks of cement grout is required. In addition, the cement grout seal was "poured" instead of being placed by the use of a grout pipe. In order to meet minimum well construction standards, the well must be properly resealed with the correct amount of grout sealing material.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 (JACK 8234) unless it is brought into compliance with minimum well construction standards or information is provided showing that it is in compliance with current minimum well construction standards.

Bringing Applicant's Well #1 into compliance with minimum well construction standards may not satisfy hydraulic connection issues.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 5/16/2019
 FROM: Groundwater Section Joe Kemper
 Reviewer's Name
 SUBJECT: Application G- 18705 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: Andrew Harrison County: Jackson

A1. Applicant(s) seek(s) 0.0334 cfs from 1 well(s) in the Rogue Basin,
Middle Rogue subbasin

A2. Proposed use Nursery (2 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 8234	1	Bedrock	0.0334	36S/3W-11 NWNW	637.5'S, 363'E fr NW cor S 11*

* 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	1,250	41	19	5/20/1978	84	0-38	0-39	-	-	12	65	B

Use data from application for proposed wells.

A4. **Comments:** The application map describes the well location as 637.5'S from the NW corner of section 11, but the distance to the physical location indicated on the map is 637.5' S. The applicant will need to submit a corrected application map.

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 contains 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 (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 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 two groundwater/springs rights within 1 mile of the applicant's proposed POA, but it is unlikely that the applicant's use would result in injury to these or other permitted water rights given the low requested rate. 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 Applegate Group	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: In fractured-bedrock aquifer systems, water is stored and transmitted primarily by discrete but connected fracture sets. These fractures generally extend to near the surface, 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	Rogue River	1232	1079	1515	<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"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input 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 hydraulic connection evaluation: Groundwater elevations are above or coincident with adjacent stream elevations, indicating that water is flowing towards and discharging to surface water sources.

Water Availability Basin the well(s) are located within: ROGUE R > PACIFIC OCEAN - AB FALL CR

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"/>	NA	NA	<input type="checkbox"/>	1130	<input type="checkbox"/>	<25%	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input 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"/>
	<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: Interference at 30 days was estimated using an analytical stream depletion model (Hunt, 1999) using bulk aquifer parameters representative of the local geology (see Figure 4 below).

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: Streams beyond 1 mile were not evaluated for PSI under 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:
 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 well is found to be hydraulically connected to the Rogue River. 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. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

OWRD Groundwater Site Information System Database – Accessed 5/16/2019.

Wiley, T. J. 2006. *Preliminary Geologic Map of the Gold Hill and Rogue River 7.5' Quadrangles, Jackson and Josephine Counties, Oregon*. Oregon Dept. of Geol. and Mineral Industries. OFR O-06-18.

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

ROGUE R > PACIFIC OCEAN - AB FALL CR
ROGUE BASIN

Water Availability as of 1/30/2019

Watershed ID #: 268 (Map)
Date: 1/30/2019

Exceedance Level: 80% ▾
Time: 2:31 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	2,540.00	1,080.00	1,460.00	0.00	1,200.00	261.00
FEB	3,150.00	1,990.00	1,160.00	0.00	1,200.00	-44.40
MAR	3,160.00	1,770.00	1,390.00	0.00	1,200.00	191.00
APR	3,110.00	1,020.00	2,090.00	0.00	1,200.00	889.00
MAY	2,900.00	361.00	2,540.00	0.00	1,200.00	1,340.00
JUN	1,810.00	368.00	1,440.00	0.00	1,200.00	242.00
JUL	1,350.00	404.00	946.00	0.00	1,200.00	-254.00
AUG	1,170.00	359.00	811.00	0.00	1,200.00	-389.00
SEP	1,130.00	290.00	840.00	0.00	1,200.00	-360.00
OCT	1,170.00	213.00	957.00	0.00	1,200.00	-243.00
NOV	1,460.00	306.00	1,150.00	0.00	1,200.00	-45.70
DEC	2,050.00	521.00	1,530.00	0.00	1,200.00	329.00
ANN	2,110,000.00	519,000.00	1,590,000.00	0.00	869,000.00	753,000.00

Figure 2. Well Location Map

POA Location Map for Application G-18705

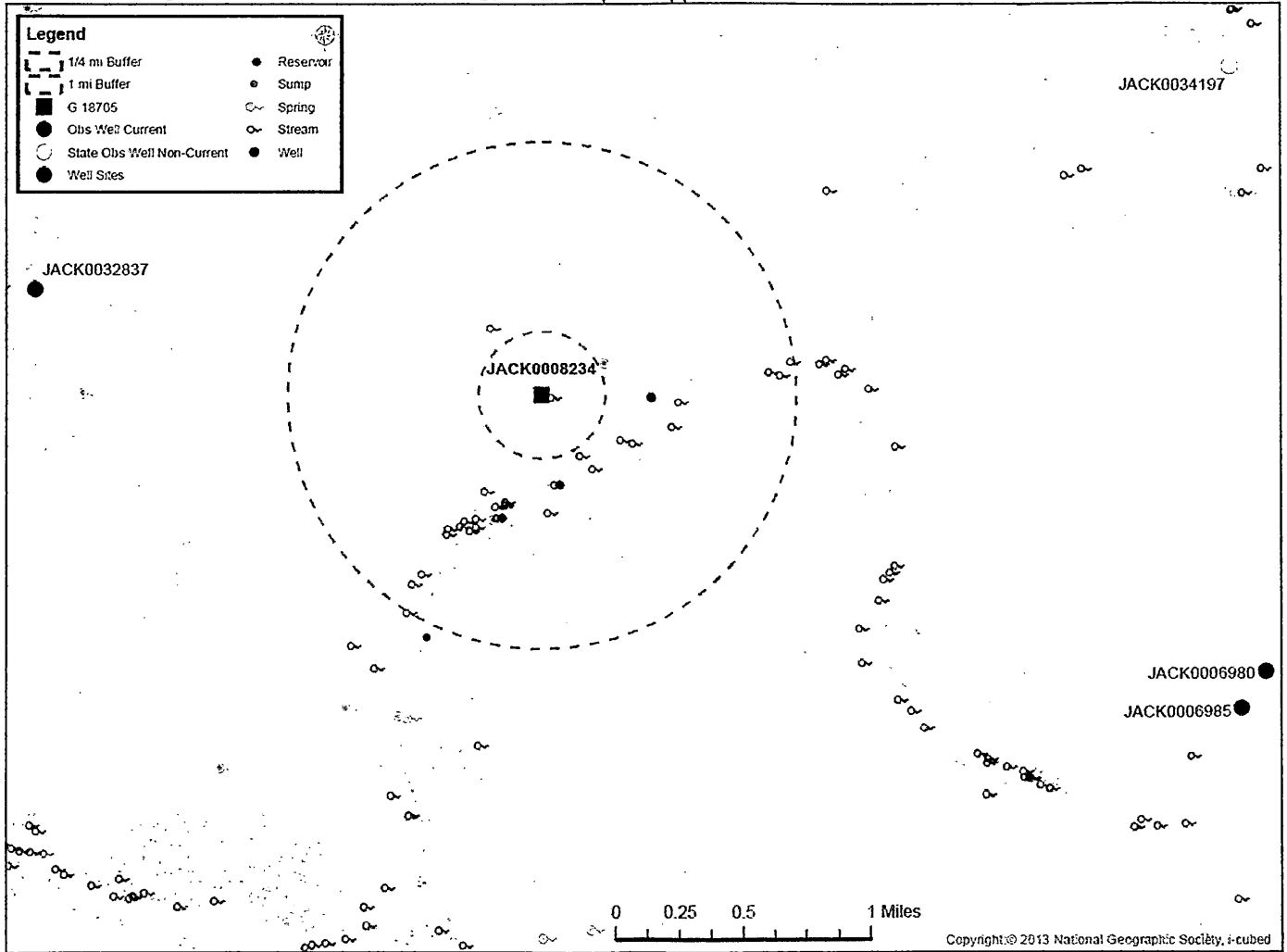


Figure 3. Stream Depletion Model (Hunt, 1999)

Application type:	G
Application number:	18705
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.033
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	1515	1515	1515	ft
Aquifer transmissivity	T	50	100	500	ft ² /day
Aquifer storativity	S	0.1	0.01	0.001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Not used		0	0	0	
Aquitard thickness below stream	babs	5	5	5	ft
Not used		0	0	0	
Stream width	ws	200	200	200	ft

Stream depletion for Scenario 2:

Days	10	30	60	90	120	150	180	210	240	270	300	330	360
Depletion (%)	0	4	14	23	30	35	39	43	46	48	51	53	54
Depletion (cfs)	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02

