

Groundwater Application Review Summary Form

Application # G- 18436

GW Reviewer M. Thoma Date Review Completed: 07-25-17

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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date July 25, 2017
 FROM: Groundwater Section Michael Thoma
 Reviewer's Name
 SUBJECT: Application G- 18436 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: James Nasset and Kelsey Bigelow County: Jackson

A1. Applicant(s) seek(s) 0.04 cfs from 1 well(s) in the Rogue Basin,
Applegate River subbasin

A2. Proposed use Suppl. Irrigation (6.5 ac) Seasonality: April 2 – Oct. 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	JACK 16985	1	Bedrock	0.04	38S/03W-10 SENW	800'N, 100'W of center of S 10
2						

* 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	2000	80	7	4/16/1980	120	0-25	34	-		20		B

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 are no OWRD Observation Well data in the area of the proposed POA so groundwater over-appropriation cannot be determined. There is one other groundwater POA in the area (Cert 67799 for supplemental irrigation) and it is located < 1000 ft from the proposed POA. Interference in fractured aquifer systems is difficult to predict and it is likely that both wells are strongly connected to Forest Creek, which runs between the existing POA and the proposed POA, which will dampen any impacts caused by pumping. For these reasons, this review finds that there is not a preponderance of evidence that the proposed POA will cause injury to existing groundwater rights.

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 Gp.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Water-bearing zones in fractured aquifer systems are typically found in limited fractures or fracture-sets that may or may not be isolated from adjacent sets. This can produce partially-confined aquifer conditions locally (at the well) when a productive fracture is encountered at depths substantially below the overall water level in the fractured-bedrock aquifer but the aquifer system taken as a whole may be more represented as unconfined (i.e., lacks a distinct, low-permeability confining layer)

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	Forest Creek	1993	1960-2000	420	<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: GW elevations are estimated to coincident with SW elevations suggesting that groundwater is flowing to / from surface water

Water Availability Basin the well(s) are located within: Forest Cr > Applegate R – At Mouth (ID# 71614)

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 checked="" type="checkbox"/>	<input type="checkbox"/>	IS71614	0.10	<input checked="" type="checkbox"/>	0.01	<input checked="" type="checkbox"/>	25	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: Interference @ 30 d was calculated using the Hunt (1999) stream-depletion model and model aquifer parameters that are typical of fractured aquifer systems. An unconfined aquifer model was used for the reasons described in Section C1. The stream bed conductance used in the model was set to a value of 1 ft/d to represent the coarse nature of the streambed material (maps indicated dredge tailings line the stream in the area)

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.

Well	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	No surface water sources beyond 1 mile were evaluated												
Interference CFS													
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: _____

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 well would be producing from an aquifer that has been found to be hydraulically connected to surface water, specifically Forest Creek, at a distance of < 1/4 mile causing an automatic assumption of Potential for Substantial Interference (PSI). In addition, the proposed rate is > 1% of both the minimum monthly stream flow and the pertinent instream water right on Forest Creek which further requires the Department to assume that the proposed use will have PSI. Finally, the estimated stream-depletion for the proposed use is approx. 25% of the pumping rate after 30 d of pumping which also requires an assumption of PSI.

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 7/25/2017.

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.

E. ATTACHMENTS

Water-Level Trends in Nearby Wells

There are no observation well data in the area

Water Availability Tables

Water Availability Analysis Detailed Reports

FOREST CR > APPLGATE R - AT MOUTH
ROGUE BASIN

Water Availability as of 7/25/2017

Watershed ID #: 71614 [\(Map\)](#) Exceedance Level: 80% ▾

Date: 7/25/2017 Time: 12:59 PM

Water Availability Calculation
Consumptive Uses and Storages
Instream Flow Requirements
Reservations

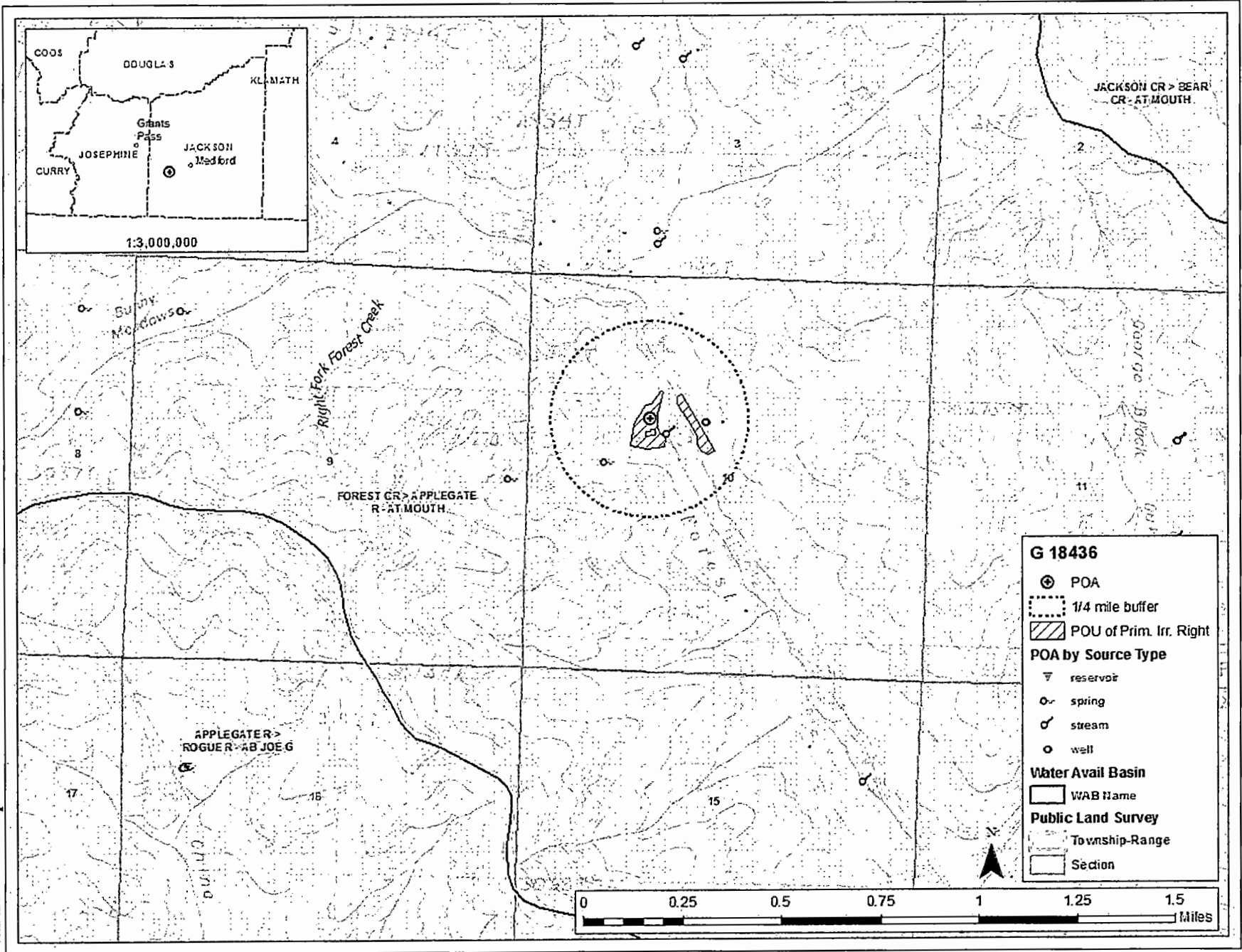
Water Rights
Watershed Characteristics

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	3.47	0.03	3.44	0.00	9.39	-5.95
FEB	6.24	0.06	6.18	0.00	12.00	-5.82
MAR	7.45	0.04	7.41	0.00	12.00	-4.59
APR	7.02	0.33	6.69	0.00	11.30	-4.61
MAY	5.73	0.53	5.20	0.00	8.19	-2.99
JUN	2.04	0.74	1.30	0.00	5.40	-4.10
JUL	0.13	0.98	-0.85	0.00	0.92	-1.77
AUG	0.25	0.81	-0.56	0.00	0.12	-0.68
SEP	0.01	0.54	-0.53	0.00	0.10	-0.63
OCT	0.09	0.18	-0.09	0.00	0.82	-0.91
NOV	1.25	0.02	1.23	0.00	2.63	-1.40
DEC	2.46	0.02	2.44	0.00	5.66	-3.22
ANN	4,720.00	260.00	4,530.00	0.00	4,110.00	600.00

Well Location Map



G 18436

- ⊕ POA
- ⋯ 1/4 mile buffer
- ▨ POU of Prim. Irr. Right

POA by Source Type

- ▽ reservoir
- spring
- ♂ stream
- well

Water Avail Basin

- ▭ WAB Name

Public Land Survey

- ⋯ Township-Range
- ▭ Section