

Groundwater Application Review Summary Form

Application # G- 18590

GW Reviewer M. Thoma Date Review Completed: 01-30-19

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.
SI 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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 01/30/2019
 FROM: Groundwater Section Michael Thoma
Reviewer's Name
 SUBJECT: Application G- 18590 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: Nick Kerby County: Josephine

A1. Applicant(s) seek(s) 0.056* cfs from 2 well(s) in the Rogue Basin,
Illinois subbasin

A2. Proposed use Irrigation (11 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	JOSE 57315	L-85497	Bedrock	0.056*	39S/8W-22 SENE	550'S, 850'W of E cor NE1/4 S 22
2	JOSE 57356	L-87914	Bedrock	0.056*	39S/8W-22 SENE	780'S, 1310'W of E cor NE1/4 S 22

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	1,442	77	53	10/18/2006	240	0-20	-1-26	-	-	0.5	-	A
2	1,410	82	24	10/26/2006	240	0-20	-2-78	0-240	220-240	5	-	A

Use data from application for proposed wells.

A4. **Comments:** *The application lists a total maximum rate of 0.056 cfs but then list well-specific rates of 0.001 and 0.01 cfs in the well-development section of the application; the well-specific rate reflect the well-yields reported on the well logs so this review assumes that the applicant is not requesting well-specific rates. Therefore the maximum requested rate will be evaluated for each proposed POA.

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 POAs so Capacity of the Resource cannot be determined. While there are four permitted groundwater POAs within 1 mile of the applicant’s proposed POAs it is unlikely that the applicant’s use would result in injury to these 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 Applegate Group	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Fractured bedrock of Applegate Group	<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. Additionally, both wells on this application penetrate the same aquifer zone but report different static water levels that corresponding roughly to the different elevations of the two wells and implies potentiometric surface sub-parallel to land surface which further implies unconfined aquifer 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	E Fk Illinois River	1390	1280-1310	5210	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	E Fk Illinois River	1390	1280-1310	4850	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	George Cr.	1390	< 1300	7100*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	George Cr.	1390	< 1300	7000*	<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 implying that groundwater is flowing towards and discharging to surface water

*George Cr. is a small, seasonally dry creek at its upper reaches near the applicant’s POAs but there is a surface water POD near the lower 1/3 of the creek. It is likely that George Cr. is not perennially hydraulically connected nor would be considered a “viable surface water source” until its lower reaches. Therefor the distance measured to George Cr. for this review is to where the most-upstream surface water POD exists – this distance is over 1 mile.

Water Availability Basin the well(s) are located within: E FK ILLINOIS R > ILLINOIS R – AT MOUTH (ID# 70980) and hydraulically connected to ILLINOIS R > ROGUE R – AB JOSEPHENE 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"/>	IS70980A	51.40	<input type="checkbox"/>	41.50	<input type="checkbox"/>	< 25%*	<input type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>	IS70980A	51.40	<input type="checkbox"/>	41.50	<input type="checkbox"/>	< 25%*	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: **Stream-depletion was not estimated because the hydrogeology (high-relief bedrock aquifer juxtaposed with alluvial sediments) does not reasonably meet the model assumptions of widely-used stream-depletion models (e.g., Hunt, 1999). However, modeling in more-simplistic hydrogeologic regimes, which would predict higher stream-depletion than this regime, yields stream-depletion estimates much less than 25% after 30 days and implies that interference for this proposed use would not exceed 25%.

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: This review assumes that Q is not distributed

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													
Distributed Wells													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
X	2	see comments below											
Well Q as CFS		0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
(A) = Total Interf.													
(B) = 80 % Nat. Q		625	964	981	810	469	192	83.6	53.5	47.9	60.2	161	529
(C) = 1 % Nat. Q		6.25	9.64	9.81	8.10	4.69	1.92	0.84	0.54	0.48	0.60	1.61	5.29
(D) = (A) > (C)		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
(E) = (A / B) x 100		< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 1 %	< 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: _____

Comments: A suitable model is not available to estimate monthly stream-depletion caused by the proposed use, nor can monthly values be reasonable assumed from available modeling. However, the maximum proposed rate of appropriation is less than 1% of the 80% Natural Flows for the given WAB in all months.

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 POAs would be producing from an aquifer that has been found to be hydraulically connected to surface water – specifically the East Fork Illinois River at a distance of less than 1 mile, and to George Creek at a distance of greater than 1 mile. The proposed maximum rate of appropriation is less than 1% of the pertinent adopted perennial streamflow and also less than 1% of the adopted instream water rights for either surface water source. Per OAR 690-009-0040(4) the POAs are 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 3/29/2019.

Ramp, L. and Peterson, N. 2004. *Geologic Map of Josephine County, Oregon*. Oregon Dept. of Geol. and Mineral Industries, OFR O-04-13

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

E FK ILLINOIS R > ILLINOIS R - AT MOUTH
ROGUE BASIN

Water Availability as of 1/25/2019

Watershed ID #: 70980 ([Map](#))
Date: 1/25/2019

Exceedance Level:
Time: 4:42 PM

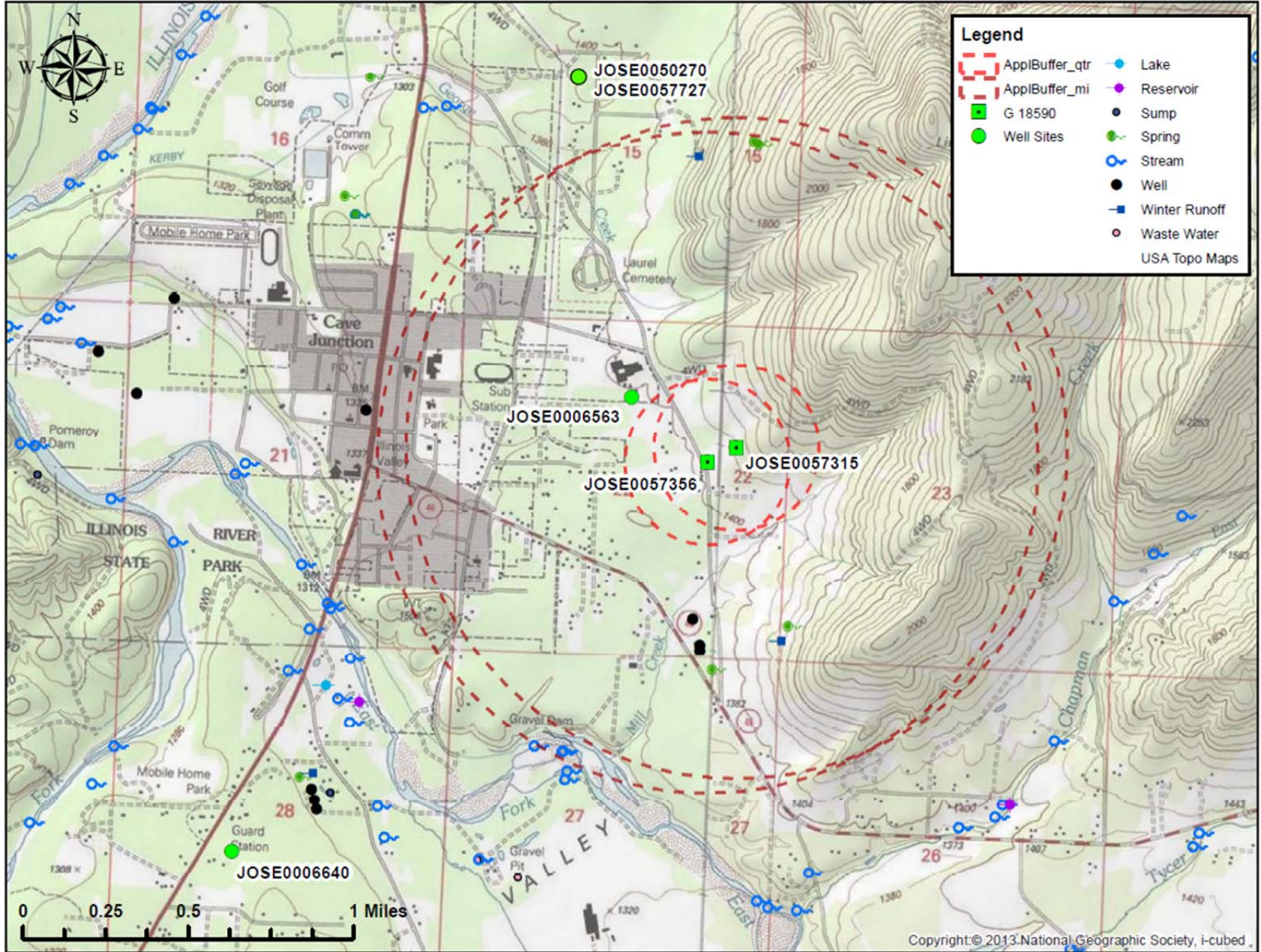
Water Availability Calculation	Consumptive Uses and Storages	Instream Flow Requirements	Reservations
Water Rights	Watershed Characteristics		

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	342.00	4.09	338.00	0.00	135.00	203.00
FEB	535.00	4.24	531.00	0.00	135.00	396.00
MAR	556.00	4.27	552.00	0.00	135.00	417.00
APR	498.00	8.84	489.00	0.00	135.00	354.00
MAY	317.00	11.70	305.00	0.00	135.00	170.00
JUN	139.00	14.90	124.00	0.00	80.00	44.10
JUL	66.30	18.80	47.50	0.00	60.00	-12.50
AUG	46.10	16.10	30.00	0.00	54.00	-24.00
SEP	41.50	11.80	29.70	0.00	70.00	-40.30
OCT	47.70	6.19	41.50	0.00	100.00	-58.50
NOV	102.00	3.70	98.30	0.00	135.00	-36.70
DEC	290.00	3.95	286.00	0.00	135.00	151.00
ANN	330,000.00	6,570.00	323,000.00	0.00	78,900.00	249,000.00

POA Location Map for Application G-18590



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