PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date **05/09/2014**

FROM: Groundwater Section Jen Woody
Reviewer's Name

SUBJECT: Application G- 17843 Supersedes review of **n/a**
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 ground water 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: **Robert O. & Mary E Kerr** County: **Coos**

A1. Applicant(s) seek(s) 0.02 cfs from 1 well(s) in the South Coast Basin, subbasin Quad Map: Coos Bay

A2. Proposed use irrigation and domestic expanded Seasonality: March 1- October 31 and year-round, respectively

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	COOS 810	1	Marine sediments*	0.02	26S/12W S 29 SW1/4 NW1/4	2400' S, 640' E fr NW cor S 29
2						
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	280	75	35	9-14-1993	150	0-20	0-73	50-150	75-150	10		A

Use data from application for proposed wells.

A4. **Comments:** The well is located in the Coaledo Formation, which consists of fine to coarse grained sandstone with siltstone, mudstone, coal and minor conglomerate. This aquifer is likely dominated by fracture flow; based on nearby well logs the aquifer is low yield bedrock.

A5. ☒ **Provisions of the** South Coast Basin rules relative to the development, classification and/or management of ground water hydraulically connected to surface water ☐ **are**, *or* ☒ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments: South Coast Basin Program rules do not address groundwater use at this location.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: _____
Comments: _____

B. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. **Based upon available data**, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or

d. ☒ **will, if properly conditioned**, avoid injury to existing ground water rights or to the ground water resource:
   i. ☒ The permit should contain condition #(s) **7E, 7P**;
   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 ground water production from no deeper than _____ ft. below land surface;

b. ☐ **Condition** to allow ground water production from no shallower than _____ ft. below land surface;

c. ☐ **Condition** to allow ground water production only from the _____ ground water 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 Ground Water 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. **Ground water availability remarks:** There are no groundwater level data or groundwater permits for nearby wells in the same aquifer as COOS 810. The nearest well with water level data is greater than 5 miles away, while the nearest groundwater permit or certificate is about 3 miles away and uses a different aquifer. Given the complex structural geology, groundwater conditions at those distances are not representative of local conditions. Therefore the current relationship between use and natural recharge cannot be assessed.

There are 43 well logs in T26S/R12W Sections 29, 30, 19. Reported yields derived from bailer or air tests range from 0.2 to 300 gpm with a median yield of 7 gpm. There are several examples of multiple well logs in the name of the same owner, drilled in the same time period and displaying yields less than 5 gpm with drawdown nearly to the bottom of the well in one hour. This indicates a very low yielding aquifer that is unlikely to have the capacity to support more than domestic use. On-site storage may be necessary to meet instantaneous demands. The fractured nature of the aquifer is illustrated by the variable yield of wells within a small area, where fracture flow dominates the system.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
1	**Marine Sediments of the Coaledo Formation**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: The well log for COOS 810 reports first water at 75 feet below land surface (bls) and static water level at 35 feet bls, indicating the aquifer is more confined than unconfined.

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	1	**Catching Creek**	**205**	**35**	**2710**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Water level elevation in the well is 170 feet above Catching Creek. Although the cone of depression will probably not intersect the creek directly, this well will capture groundwater that would otherwise discharge to the surface to support streamflow or senior surface water rights. There are permitted springs at the approximate elevation of the groundwater at COOS 810, suggesting groundwater discharges to the surface locally.

Water Availability Basin the well(s) are located within: Watershed ID #: 72944, CATCHING CR > CATCHING SL - 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	☐	☐	IS72944A	**1.29**	☒	**0.90**	☒	*	☒
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: * The assumptions of the analytical stream depletion models (Hunt or Jenkins) cannot be met in this situation, therefor they were not applied. The pumping rate triggers PSI, because it is greater than 1% of 80% exceedence natural flow and 1% of the instream water right (see attached water availability table).

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
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
(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:

Impacts at greater than 1 mile cannot be accurately modeled in this situation.

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 ground water 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**

References Used: Baldwin, E.M., 1973, Geology and Mineral Resources of Coos County, Oregon, State of Oregon Department of Geology and Mineral Industries Bulletin 80.

Hunt, B., 1999, Unsteady stream depletion from ground water pumping: Ground Water, v. 37, no. 1, p. 98-102.

Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, 2003.

Jenkins, C.T., 1968, Techniques for computing rate and volume of stream depletion by wells: Ground Water, v. 6, no. 2, p. 37-46.

Madin, I. P. and others, 1995, Geologic Map of the Charleston Quadrangle, Coos County, Oregon, State of Oregon Geology and Mineral Industries GMS-94.

OWRD Well log database, accessed 5/8/2014.

USGS topographic map of the Coos Bay Quadrangle.

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 Analysis

Detailed Reports

CATCHING CR > CATCHING SL - AT MOUTH
SOUTH COAST BASIN

Water Availability as of 5/8/2014

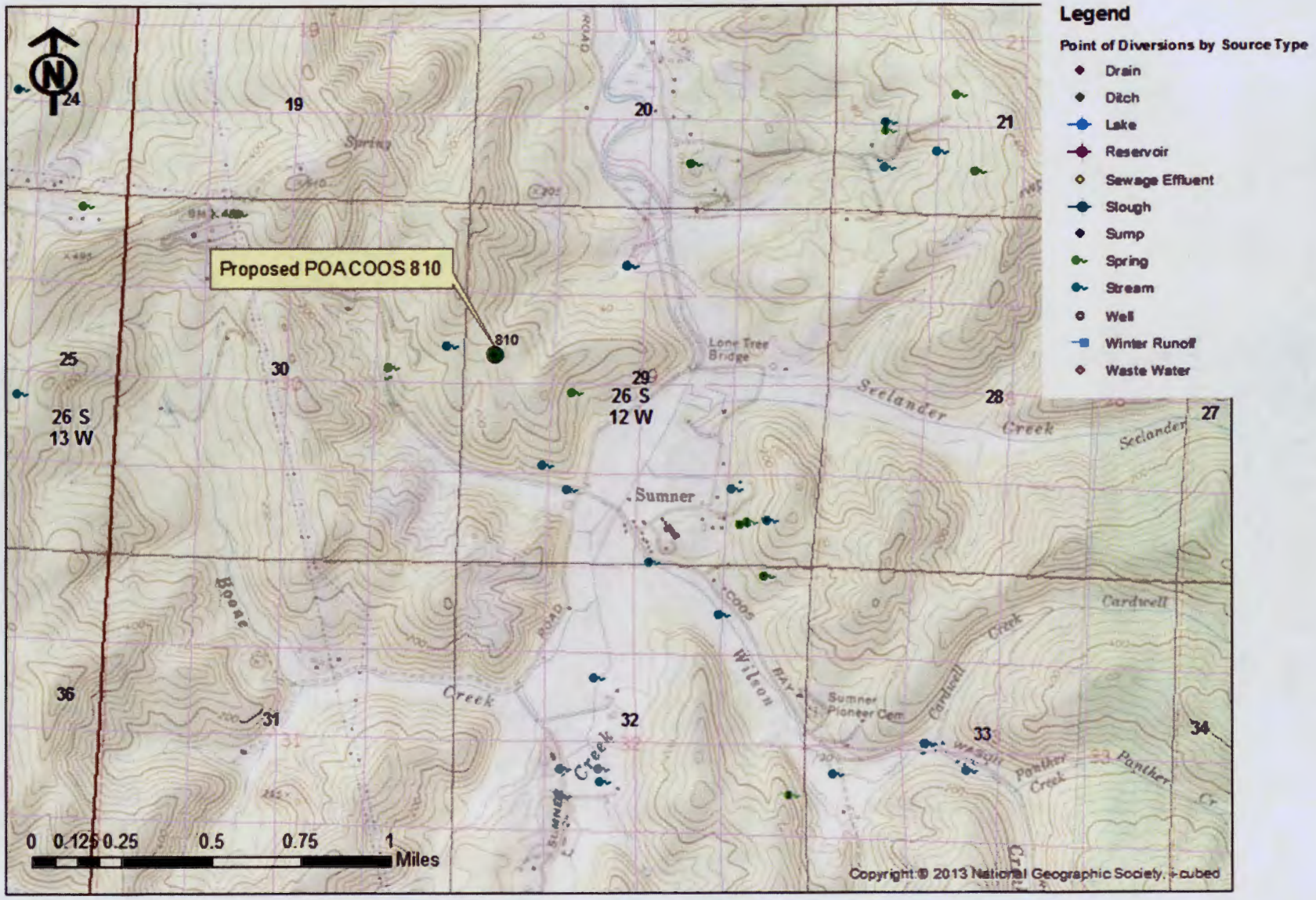
Watershed ID #: 72944 (Map) Exceedance Level:
Date: 5/8/2014 Time: 9:27 AM

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	29.20	0.00	29.20	0.00	14.00	15.20
FEB	38.60	0.00	38.60	0.00	14.00	24.60
MAR	28.80	0.00	28.80	0.00	14.00	14.80
APR	19.30	0.02	19.30	0.00	14.00	5.28
MAY	9.82	0.07	9.75	0.00	14.00	-4.25
JUN	4.92	0.20	4.72	0.00	7.61	-2.89
JUL	2.40	0.32	2.08	0.00	3.28	-1.20
AUG	1.22	0.26	0.97	0.00	1.57	-0.61
SEP	0.93	0.11	0.83	0.00	1.11	-0.29
OCT	0.90	0.02	0.88	0.00	1.29	-0.41
NOV	3.76	0.00	3.76	0.00	10.70	-6.94
DEC	20.50	0.00	20.50	0.00	14.00	6.50
ANN	17,600.00	60.50	17,500.00	0.00	6,590.00	10,900.00

Download Data (Text - Formatted , Text - Tab Delimited , Excel)


Legend
Point of Diversions by Source Type
Drain
Ditch
Lake
Reservoir
Sewage Effluent
Slough
Sump
Spring
Stream
Well
Winter Runoff
Waste Water
Proposed POACOOS 810
810
26 S
13 W
26 S
12 W
Sumner
Lone Tree Bridge
Seelander Creek
Seelander
Cardwell Creek
Cardwell
Boone Creek
Coos Wilson Hwy
Sumner Pioneer Cem
Panther Creek
Panther Cr
19
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0 0.125 0.25 0.5 0.75 1 Miles
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