

Groundwater Application Review Summary Form

Application # G- 18471

GW Reviewer Phil Marcy Date Review Completed: 5/1/2017

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).

MEMO

May 1, 2017

FROM: GW: Phil Marcy
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

- ☐ YES
The source of appropriation is within or above a Scenic Waterway
- ☒ NO
- ☐ YES
Use the Scenic Waterway condition (Condition 7J)
- ☒ NO
- ☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.
- ☐ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 05/01/2017
 FROM: Groundwater Section Phillip I. Marcy
 SUBJECT: Application G- 18471 Supersedes review of _____
 Reviewer's Name
 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: Dale and Eudene Hult County: Clackamas

A1. Applicant(s) seek(s) 0.056 cfs from 2 well(s) in the Willamette Basin,
 _____ subbasin

A2. Proposed use Irrigation (8 acres); Supplemental Irrigation (12 acres) Seasonality: Year-round (365 days)

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	CLAC 64751	1	Alluvium	0.056	2S/4E-25 SE-SE	400'N, 850'W fr SW cor, S30
2	Proposed	2	Alluvium	0.056	2S/4E-25 SE-SE	700'N, 850'W fr SW cor, S30
3						

* 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	1174	160	80	11/07/2006	210	0-110	1-119	100-210	160-170	27	130	Air
2	1151	NA	NA	NA	500	?	0-20*	NA	?	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to develop groundwater from an existing domestic well (CLAC 64751) and a proposed well, both producing from alluvium. Total yearly volume listed on the application is 10 AF (Primary: 4 AF; Supplemental: 6 AF), which averages out to 0.5 AF/acre/year.

A5. ☒ **Provisions of the** Willamette 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: NA

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) _____;
 - 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 110 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:** Based upon the proposed volume used per year (10 AF), the averaged pumping rate is calculated at 0.0138 cfs from a combination of the two proposed POA wells on this application. Based upon water level data in surrounding areas, the water level in the applicant's existing well (CLAC 64751) is most similar to nearby well CLAC 64751 in 2S/4E-25, about ¾ mile north of the proposed POA location. The hydrograph for this well (see attached) shows stable groundwater elevations for the past three decades.

The rate of appropriation proposed is very small, and injury to nearby groundwater users is considered unlikely, provided that the condition that the proposed well (undrilled) be constructed to produce from no less than 110' below land surface.

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	Springwater Formation	☒	☐
2	Springwater Formation	☒	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Wells producing from similar depths and lithologies in this area have static water levels far above the elevation of the water-bearing zone.

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	Unnamed stream to N.	1094	1094*	2440*	☒	☐	☐	☐	☒
2	1	Unnamed stream to N.	1094	1094*	2360*	☒	☐	☐	☐	☒
1	2	Unnamed stream above Kromer Reservoir	1094	1094	2235	☒	☐	☐	☐	☒
2	2	Unnamed stream above Kromer Reservoir	1094	1094	2040	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: *Evaluation of surface water elevation and distance from proposed pOA locations are based upon the point at which the surface water and groundwater elevations are equivalent.

Proposed POA wells produce from water-bearing zones in the Springwater Formation (Madin, 2004) at depths below 110' from land surface. Groundwater elevation is similar to nearby stream reaches where substantial incision has taken place, exposing water-bearing lithologies within 1 mile.

Water Availability Basin the well(s) are located within: Deep Creek > Clackamas River – At Mouth (ID# 89)

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	☐	☐			☐	3.43	☒	<<25%	☒
2	1	☐	☐			☐	3.43	☒	<<25%	☒
1	2	☐	☐			☐	3.43	☒	<<25%	☒
2	2	☐	☐			☐	3.43	☒	<<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?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: The proposed pumping rate of 0.056 cfs is greater than 1% of the 80% exceedance flow for the month of September (0.034 cfs), thus triggering PSI for both POA locations.

Interference with nearby streams is expected to be minimal within 30 days, due to the presence of fine-grained lithologies within the Springwater Formation, in addition to the presence of fine-grained material lining the streambeds, thus delaying impacts from pumping groundwater on local stream reaches.

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													
(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: This section does not apply.

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:** None.

References Used: Application G-18471, local well logs, OWRD water level database.

Madin, I.P., 2004, Geologic Map of the Oregon City 7.5' Quadrangle, Clackamas County, Oregon: DOGAMI Geologic Map Series GMS-119. 46 p.

Swanson, R.D., McFarland, W.D., Gonthier, J.B., and Wilkinson, J.M. 1993, A Description of Hydrogeologic Units in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water-Resources Investigations Report 90-4196, 56 p., 10 sheets, scale 1:100,000.

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) _____

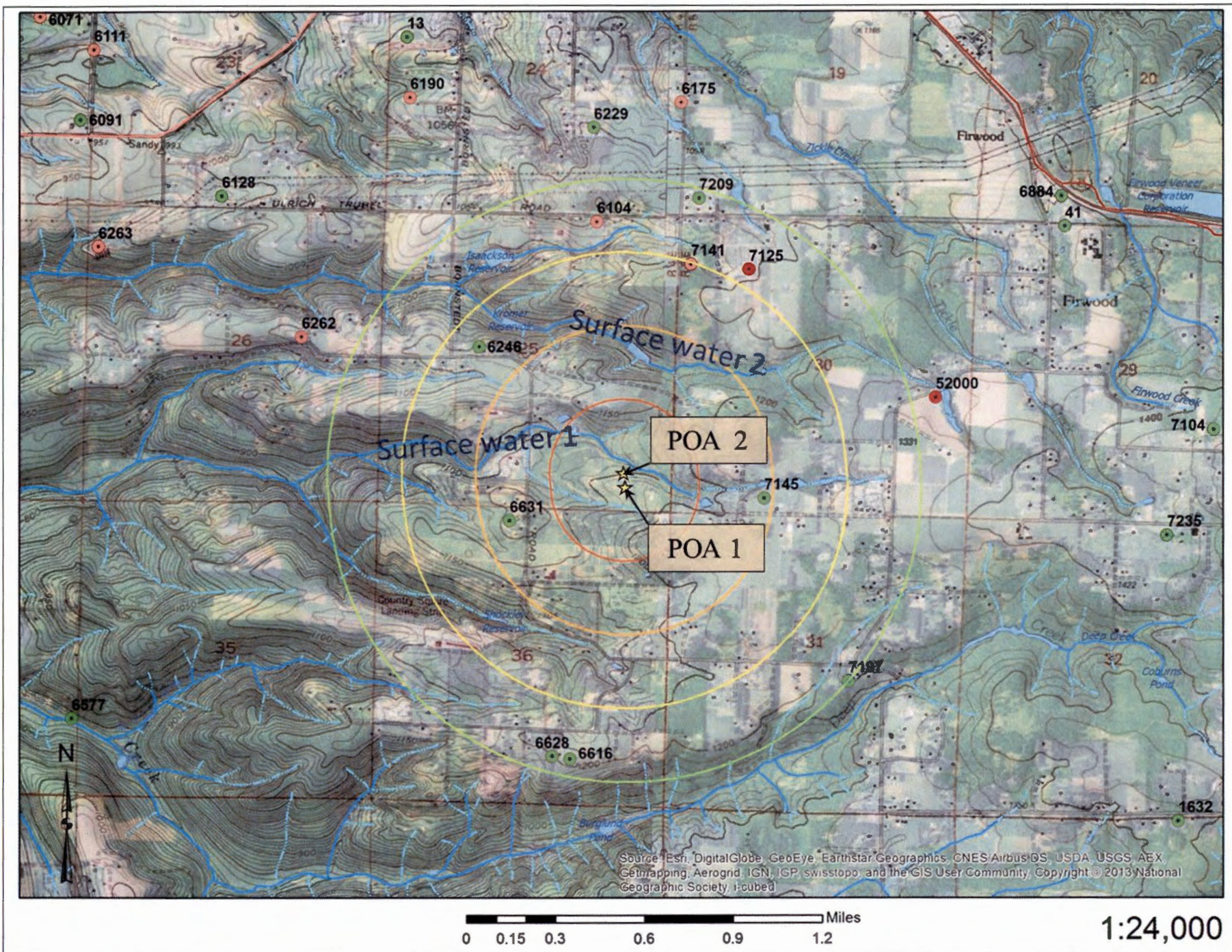
D3. THE WELL construction deficiency or other comment is described as follows: _____

D4. ☐ Route to the Well Construction and Compliance Section for a review of existing well construction.**Water Availability Tables****DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION**

Watershed ID #: 89 DEEP CR > CLACKAMAS R - AT MOUTH Exceedance Level: 80
 Time: 1:17 PM Basin: WILLAMETTE Date: 05/01/2017

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net Water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	96.40	3.22	93.20	0.00	35.00	58.20
FEB	99.10	2.82	96.30	0.00	35.00	61.30
MAR	97.10	1.33	95.80	0.00	35.00	60.80
APR	89.80	1.47	88.30	0.00	35.00	53.30
MAY	68.40	3.56	64.80	0.00	35.00	29.80
JUN	32.20	4.43	27.80	0.00	20.00	7.77
JUL	13.40	7.98	5.42	0.00	20.00	-14.60
AUG	5.11	6.44	-1.33	0.00	10.00	-11.30
SEP	3.43	2.47	0.96	0.00	10.00	-9.04
OCT	4.30	0.68	3.62	0.00	10.00	-6.38
NOV	16.50	0.98	15.50	0.00	35.00	-19.50
DEC	76.70	3.45	73.20	0.00	35.00	38.20
ANN	76,900	2,350	74,500	0	19,000	57,300

Well Location Map



Water-Level Trends in Nearby Wells

