

Groundwater Application Review Summary Form

Application # G- 18345

GW Reviewer Phil Mavey Date Review Completed: 4/6/2017

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

April 6, 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.**

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 04/06/2017

FROM: Groundwater Section Phillip I. Marcy
Reviewer's Name

SUBJECT: Application G- 18345 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: Carolyn Good County: Clackamas

A1. Applicant(s) seek(s) 0.089 cfs from 3 well(s) in the Willamette Basin,
Molalla subbasin

A2. Proposed use Nursery & Pond Maintenance 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	Proposed	1	Volcanic Rock	0.089	5S/3E-1 NE-NW	1050'S, 645'W fr N1/4 cor S 1
2	Proposed	2	Volcanic Rock	0.089	5S/3E-1 NE-NW	1095'S, 185'W fr N1/4 cor S 1
3	Proposed	3	Volcanic Rock	0.089	5S/3E-1 NE-NW	1240'S, 125'W fr N1/4 cor S 1

* 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	1069	NA	NA	NA	TBD	0-50	0-500	Unknown	TBD	NA	NA	NA
2	1084	NA	NA	NA	TBD	0-50	0-500	Unknown	TBD	NA	NA	NA
3	1102	NA	NA	NA	TBD	0-50	0-500	Unknown	TBD	NA	NA	NA

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to use groundwater for both nursery production on 9.7 acres (48.5 AF/Year) and pond maintenance (0.01 cfs). The application states that the annual duty for pond maintenance is adjustable, based on results of the OWRD review process.

A5. ☒ **Provisions of the** Willamette (690-502-0120) 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) 7N;
 - 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 Sardine Formation groundwater reservoir between approximately 250 ft. and 500 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 other groundwater rights in the vicinity of the proposed POA location, and correspondingly little groundwater level information. The applicant proposes to develop water from Sardine Formation rocks, a sequence of intermediate lava flows and vitric tuff units, in addition to interbedded mudflow and breccia deposits. One local well penetrates this lithology (CLAC 59116), which is reported as “fractured multi-colored lava”, with the first water-bearing zone encountered at 235’ below land surface. The static water level reported upon completion of drilling was 40 feet higher, at 195’ below land surface, indicating some degree of local confinement.

The Sardine Formation is locally a source for multiple domestic and public supply wells, with yields ranging from a few to more than 50 gallons per minute. In much of the area where the Sardine Formation outcrops, water levels tend to decrease with increasing well depth, indicating this is a recharge area (Leonard and Collins, 1983).

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	Permeable zones within Sardine Formation	☒	☐
2	Permeable zones within Sardine Formation	☒	☐
3	Permeable zones within Sardine Formation	☒	☐

Basis for aquifer confinement evaluation: See B3.

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	Jackson Creek	892-930	865-1320	2200	☐	☒	☐	☐	☒
2	1	Jackson Creek	892-930	865-1320	1800	☐	☒	☐	☐	☒
3	1	Jackson Creek	892-930	865-1320	1800	☐	☒	☐	☐	☒
1	2	Bee Creek	892-930	928-1060	2060	☐	☒	☐	☐	☒
2	2	Bee Creek	892-930	928-1060	2150	☐	☒	☐	☐	☒
3	2	Bee Creek	892-930	928-1060	2050	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The Sardine Formation lavas locally are overlain by a thick sequence of clays and low-permeability rocks, rendering hydraulic connection with nearby surface waters diffuse and inefficient.

Groundwater elevation based upon two nearby exempt use wells, CLAC 68092 and CLAC 69642, which are completed to produce from Sardine Formation rocks, and lie less than one mile from proposed POA locations. At a distance of one mile, Jackson Creek incises to an elevation of 865' ALSD, but two wells located within ¼ mile of this location (CLAC 11552 and CLAC 11570, drilled to 240' and 258' respectively) do not report the sequence of multicolored lavas that lie above the water-bearing zone targeted by the applicant, despite the area being mapped as Sardine Formation. It appears likely that local dip of Sardine Formation rocks is generally toward the NW, and that Jackson Creek follows this dip. Therefore, the water-bearing zone proposed to be developed by the three POA wells on this application does not appear to provide flow to Jackson Creek within one mile, and there is not sufficient information to perform stream depletion calculations without more complete data.

Water Availability Basin the well(s) are located within: Milk Creek > Molalla R – 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?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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: This section does not apply.

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													
(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: Local well logs, application file G-18345, OWRD exempt use map database

Leonard, A.R. and Collins, C.A., 1983, Ground Water in the Northern Part of Clackamas County Oregon, Oregon Water Resources Department – USGS Open File Report 80-1049, 85 p.

Yeats, R.S., Werner, K.S., Popowski, T.A., 1996, Geologic map of the northern Willamette Valley, Clackamas, Marion, Multnomah, Polk, Tillamook, Washington and Yamhill counties, Oregon: U.S. Geological Survey, Reston, VA., Professional Paper PP-1560, map

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 #: 131 MILK CR > MOLALLA R - AT MOUTH Exceedance Level: 80
 Time: 4:33 PM Basin: WILLAMETTE Date: 04/05/2017

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	124.00	2.05	122.00	0.00	85.00	37.00
FEB	117.00	1.93	115.00	0.00	85.00	30.10
MAR	121.00	1.63	119.00	0.00	85.00	34.40
APR	91.50	1.87	89.60	0.00	85.00	4.63
MAY	59.20	5.02	54.20	0.00	85.00	-30.80
JUN	26.50	7.49	19.00	0.00	60.00	-41.00
JUL	10.80	12.70	-1.91	0.00	40.00	-41.90
AUG	8.92	10.50	-1.54	0.00	20.00	-21.50
SEP	8.95	4.64	4.31	0.00	20.00	-15.70
OCT	15.20	1.68	13.50	0.00	40.00	-26.50
NOV	32.20	1.53	30.70	0.00	85.00	-54.30
DEC	92.00	2.16	89.80	0.00	85.00	4.84
ANN	93,600	3,230	90,400	0	46,700	48,800

Well Location Map

