

Groundwater Application Review Summary Form

Application # G- 18509

GW Reviewer Phil Marcy

Date Review Completed: 8/2/2017

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

8/2, 2017

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

☐ YES☒ NO☐ YES☒ NO[illegible]

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 08/02/2017

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

SUBJECT: Application G- 18509 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: Shane Westphal County: Clackamas

A1. Applicant(s) seek(s) 0.067 cfs from 1 well(s) in the Willamette Basin,
_____ subbasin

A2. Proposed use Nursery (2.11 acres) Seasonality: Year-round (1.14 AF/year)*

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 14091	1	Alluvium	0.067	4S/2E-26 NW-NE	15'S, 130'E fr E 1/16 cor, S26
2						
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	522	98	68	10/14/1972	100	0-18	0-98	None	None	12	22	Bailer

Use data from application for proposed wells.

A4. **Comments:** The applicant proposes to irrigate 2.11 acres of nursery stock by pumping groundwater from CLAC 14091, a 6" well drilled for domestic supply which produces from 2 feet of black sand beneath 93' of fine-grained sediments.
* 1.14 AF/year averages to 0.0016 cfs.

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: The proposed POA well falls within ¼ mile of surface waters and is completed in unconfined alluvium, therefore is classified the same as surface water for purposes of allocation, per OAR 690-502-0240.

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:
- ☒ The permit should contain condition #(s) 7N=Annual Measurement Condition;
 - ☐ The permit should be conditioned as indicated in item 2 below.
 - ☐ 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 is very little groundwater data in the area surrounding the proposed POA location. The proposed POA well produces from sands and fine-grained sediments of the Troutdale Formation, which locally discharges to Cedar Creek and its tributary streams.
- _____
- _____
- _____
- _____
- _____
- _____
- _____

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	Sand lenses within the Troutdale Formation	☐	☒
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: Static water level elevation within the POA well does rise above the reported water-bearing zone, but this phenomenon is explained by the location of the well in a discharge zone. Movement of groundwater in the Troutdale aquifer here is upward as land surface declines from recharge zones located in highlands to the east, which are often capped by Boring Volcanics, which have a high degree of vertical permeability (Conlon and others, 2005).

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	Little Cedar Creek	454	320-450*	800	☒	☐	☐	☒	☐
1	2	Cedar Creek	454	260-370**	1645	☒	☐	☐	☐	☒
1	3	Milk Creek	454	262-267**	5100	☒	☐	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The part of the Troutdale Formation tapped by the POA well corresponds to the Lower Sedimentary Unit of Conlon and others (2005), who ascribe some level of regional confinement, but state that locally, the presence of interbedded sands and gravels allow for moderate to high well yields. This observation suggests that where these lithologies are incised, there is a high capacity for groundwater to discharge to local drainages.

*Surface water elevations within one quarter mile.

** Surface water elevation within one mile.

Water Availability Basin the well(s) are located within: MILK CR> 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?
1	1	☒	☐			☐	8.92	☐	44.1	☒
1	2	☐	☐			☐	8.92	☐	12.3	☐
1	3	☐	☐	MF131A	20.0	☐	8.92	☐	0.0	☐

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: Impacts to local surface water due to pumping at the proposed rate and location were calculated using the model of Hunt (1999). The choice of this model was based upon the probable lack of a continuous confining layer between the water-bearing zone within the POA well and the incised drainages in which the streams reside. Aquifer parameters considered in the model runs were taken from Conlon and others (2005) representing the Lower Confining Unit.

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:
- ☐ The permit should contain condition #(s) _____;
 - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

C6. SW / GW Remarks and Conditions: _____

References Used: Application G-18509, local well log reports, OWRD water level database

Conlon, T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-water Hydrology of the Willamette Basin, Oregon: U.S. Geologic Survey Scientific Investigations Report 2005-5168, 83 p.

McFarland, W.D., and Morgan, D.S., 1996, Simulation analysis of the ground-water flow system in the Portland Basin, Oregon and Washington: U.S. Geological Survey Water Supply Paper 270-B, 83 p.

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: 88	
Time: 11:06 AM		Basin: WILLAMETTE			Date: 08/02/2017	
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



1:24,000

0 0.125 0.25 0.5 0.75 1 Miles