

Groundwater Application Review Summary Form

Application # G- 18596 (RE-REVIEW)

GW Reviewer DEBORAH O'LOWSKI

Date Review Completed: 8/30/2016

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).

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 8/30/2018
 FROM: Groundwater Section Dennis Orlowski
 Reviewer's Name
 SUBJECT: Application G- 18596 Supersedes review of 7/31/2018
 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: Kraxberger Living Trust County: Washington

A1. Applicant(s) seek(s) 0.019 cfs from one well(s) in the Willamette Basin,
McFee Creek > Tualatin River subbasin

A2. Proposed use Nursery (11.1 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	WASH 52339/53693	1	CRB	0.019	T2S/R2W-17 SW-SE	See comment

* 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	260	385	140	6/3/98	412	0-98	+2-98	15-275	215-275, 385-412	130	--	Air

Use data from application for proposed wells.

A4. **Comments:** This re-review was done because a previous location discrepancy for the proposed POA, WASH 52339/53693, together with associated groundwater levels, has subsequently been resolved.

Note: the location map attached to this revised review still shows the previous location for WASH 52339/53693. However, relevant distances were measured from the resolved well location shown several hundred feet to the east.

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 produces groundwater from a confined basalt aquifer, and thus the pertinent Basin rules (OAR 690-502-0240) do not apply.

A6. ☒ **Well(s) #** 1, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.

Name of administrative area: Chehalem Mountain Groundwater Limited Area

Comments: Groundwater in the basalt aquifers in the Chehalem Mountain Groundwater Limited Area (GWLA) is classified for exempt uses, irrigation and rural residential fire protection systems only. Permits may be issued, for a period not to exceed five years, for fire protection and for drip or equally efficient irrigation provided the Director finds the proposed use and amount do not pose a threat to the groundwater resource or existing permit holders. The amount of water used for irrigation shall be further limited to one acre-foot per acre per year. Permits may be extended for additional five-year periods if the Director finds that the groundwater resource can probably support the extended use (OAR 690-502-0200 (1)).

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) **Large water-use reporting; 7I (Willamette CRB condition)** ;
 - 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:**

The proposed POA, WASH 52339/53693, obtains groundwater from one or more water-bearing zones in the Columbia River Basalt Group (CRBG) aquifer system. The CRBG in this area consists of a series of lava flows/basalt layers with a composite thickness that ranges from 800 to 1000 feet (Conlon et al., 2005). Each layer is characterized by a series of internal features, including a thin rubble zone at the contact between flows and a thick, dense, low porosity and low permeability interior zone. In some cases, sedimentary layers were deposited during the time between basalt flow emplacements. A flow top, sedimentary interbed and flow bottom are collectively referred to as an “interflow zone”. Unconfined groundwater can occur near the weathered top of the basalts, but most water occurs under confined conditions in deeper interflow zones at the contacts between lava flows. CRBG flow features result in a series of stacked, thin aquifers that are confined by dense flow interiors. The low permeability of the basalt flow interiors usually results in little connection between stacked aquifers, which generally results in tabular aquifers with unique water level heads (Reidel et al., 2002).

Groundwater elevations in the area suggest the water-bearing zone(s) in the applicant’s well may be shared by other groundwater users (see attached hydrograph). Long-term trends indicate relatively stable water levels in the area, with no significant losses in head within the CRBG aquifers at the current level of use. However, the typically low storativity of CRBG aquifers limit their potential productivity, both in rate and total volume and the long-term duration of sustainable use.

To protect existing users, water use reporting and water level monitoring conditions are recommended.

SPECIAL GWLA CONDITION: If issued, the permit should also include relevant limitations of the Chehalem Mountain GWLA, including type and quantity of use, the 5-year time limit, and best management practices that maximize the efficiency of water use.

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	CRBG	☒	☐

Basis for aquifer confinement evaluation: Nearby CRBG well logs report static water levels above respective water-bearing zones, indicating a confined aquifer or series of aquifers. Additionally, aquifer tests in the CRBG yield storativity values typical of confined aquifers.

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 tributary to McFee Creek (west)	110-120	140-500	1235	☐	☒	☐	☐	☒
1	2	Heaton Creek	110-120	150	4850	☐	☒	☐	☐	☒

Basis for aquifer hydraulic connection evaluation: The range of groundwater elevations measured at Well 1 is below estimated elevations of SW1 and SW2 within approximately one mile of Well 1. Thus it is unlikely that the basalt aquifer tapped by Well 1 and the two streams are hydraulically connected.

Water Availability Basin the well(s) are located within: WID 30201001: McFee Creek > Tualatin River – 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: C3a: not applicable.

C3b: not applicable.

- 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													
(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: Not applicable.

- 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-18596 file.

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. Geological Survey Scientific Investigations Report 2005-5168.

Reidel, S.P., Johnson, V.G., and Spane, F.A., 2002, Natural gas storage in basalt aquifers of the Columbia Basin, Pacific Northwest USA—A guide to site characterization: Richland, Wash., Pacific Northwest National Laboratory, 277 p.

US Geological Survey Scholls, Oregon Topographic Quadrangle Map.

OWRD water level database, includes reported water levels, accessed 7/31/2018.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

D2. **THE WELL does not appear to meet current well construction standards based upon:**

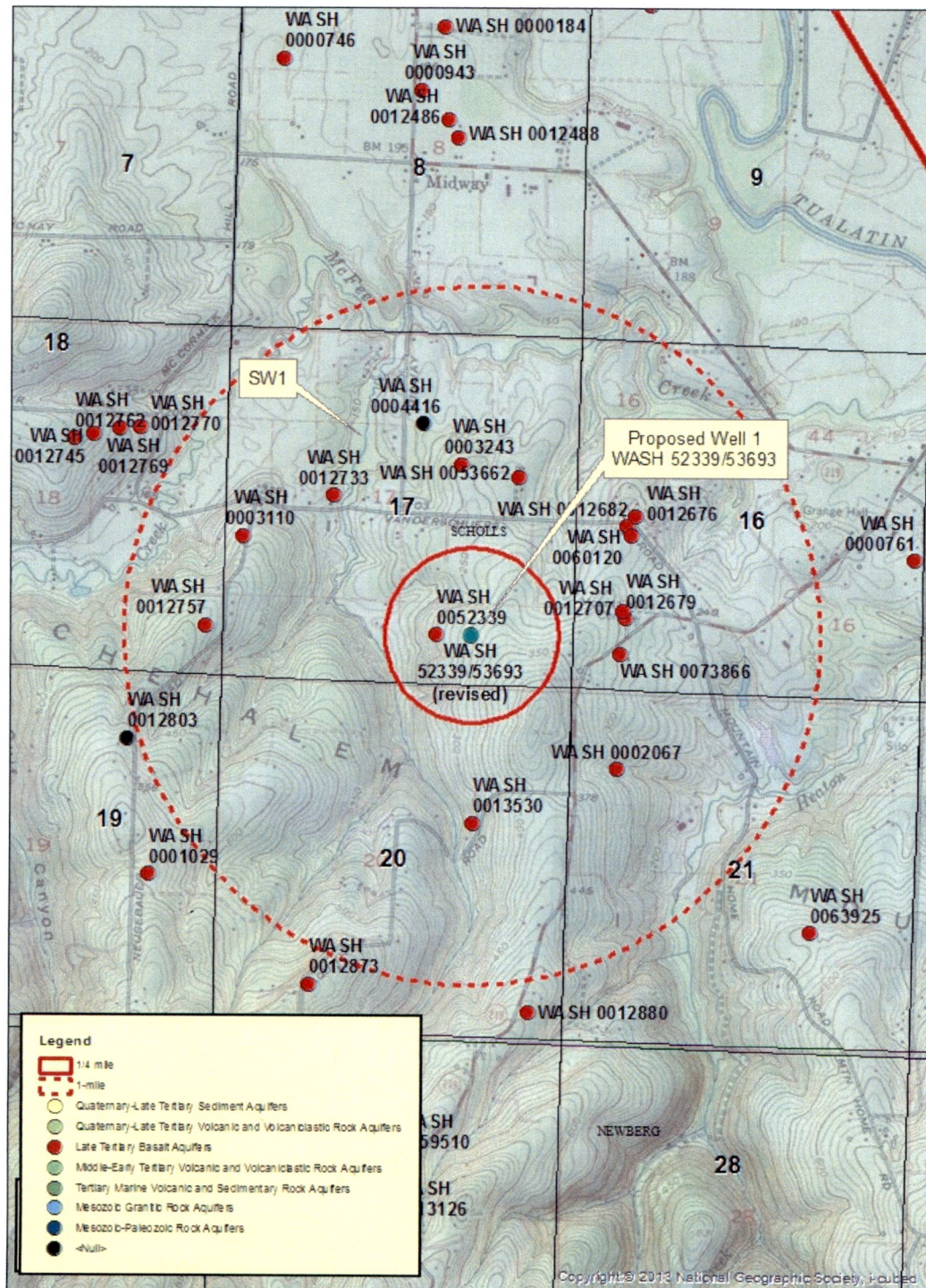
- a. ☐ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

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.**

Well Location Map

Application G-18596, Kraxberger Living Trust T2S, R2W - Section 17



Water Availability Table



Oregon Water Resources Department
Water Availability Analysis

Main

Help

Return

Contact Us

Water Availability Analysis

Detailed Reports

MCREE CR > TUALATIN R - AT MOUTH
WILLAMETTE BASIN

Watershed ID #: 30201001 (Map)
Date: 7/31/2018

Water Availability as of 7/31/2018

Exceedance Level: 80%
Time: 1:05 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	36.60	0.90	35.70	0.00	0.00	35.70
FEB	42.00	0.90	41.10	0.00	0.00	41.10
MAR	34.20	0.76	33.40	0.00	0.00	33.40
APR	21.60	0.66	20.90	0.00	0.00	20.90
MAY	11.70	2.96	8.74	0.00	0.00	8.74
JUN	5.10	3.60	1.50	0.00	0.00	1.50
JUL	3.02	4.96	-1.94	0.00	0.00	-1.94
AUG	2.22	4.27	-2.05	0.00	0.00	-2.05
SEP	1.97	2.33	-0.36	0.00	0.00	-0.36
OCT	1.90	0.41	1.50	0.00	0.00	1.50
NOV	5.34	0.49	4.85	0.00	0.00	4.85
DEC	25.20	0.87	24.30	0.00	0.00	24.30
ANN	22,300.00	1,400.00	21,100.00	0.00	0.00	21,100.00

Water-Level Trends in Nearby Wells

