

Groundwater Application Review Summary Form

Application # G- 66-1744

GW Reviewer JEANIS OLOWSKI

Date Review Completed: 4/23/2018

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 04/23/2018
 FROM: Groundwater Section Dennis Orłowski
 Reviewer's Name
 SUBJECT: Application LL- 1744 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: Jeff Stiling County: Yamhill

A1. Applicant(s) seek(s) 0.027 cfs from one well(s) in the Willamette Basin, Yamhill River subbasin

A2. Proposed use Irrigation (estab. vineyard, 7.5 ac)) Seasonality: March 1 – October 31

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	YAMH 57781		CRBG	0.027	T5S/R4W-25 NE-NE	950' S, 825' W fr NE cor S 25

* 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	385	228	205	9/6/2017	301	0-39	+1-39	3-301	242-260, 289-299	17	--	Air

Use data from application for proposed wells.

A4. **Comments:** The applicant is requesting a maximum instantaneous rate of 0.027 cfs (~12 gpm), and a seasonal volumetric total allocation of only 100,000 gallons, or ~0.31 acre-feet. This requested total seasonal allocation is substantially less than the maximum annual duty allowed in this particular GWLA (see A6), which in this case would total 7.5 acre-ft per 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: The proposed POA (YAMH 57781) produces groundwater from a confined aquifer, and thus the pertinent 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: Amity Hills/Walnut Hill Groundwater Limited Area
 Comments: The proposed POA (YAMH 57781) obtains groundwater from the CRBG aquifer system, which in the Amity Hills/Walnut Hill GWLA is classified for exempt uses and irrigation only (OAR 690-502-0200). Irrigation use under this rule is further limited to drip or equally efficient irrigation and an annual duty of one acre-ft per acre per year.

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) 7i (Willamette CRB conditions); large water-use reporting;
 - 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 Columbia River Basalt 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, YAMH 57781, is located on a lobe-like extension of the eastern foothills of the Amity Hills; this small upland extension protrudes into the otherwise flat floodplain of the Willamette River and its tributaries with headwaters in the uplands of the Amity Hills (Woodward and others, 1998; Conlon and others, 2005; Gannett and others, 1998).

The Amity Hills, including the upland extension at YAMH 57781, are comprised of Columbia River Basalt (CRB). In this area the Miocene CRB overlies Eocene marine sedimentary rocks. Extensive contacts between the CRB and marine sedimentary rocks are mapped near the YAMH 57781 location. The YAMH 57781 log shows about 280 feet of basalt overlying marine clay/claystone deposits.

Groundwater development within ~1 mile of YAMH 57781 is relatively high, particularly to the west at higher elevations in the Amity Hills. Logs for several area wells completed in the CRB show low to moderate yields from ~5-100 gpm, with a typical range of ~20-40 gpm (the YAMH 57781 log indicates "17 gpm" estimated from an air-lift test).

Groundwater data for the CRB in this area is reasonably abundant, particularly in an area about ¾ to 1 ½ miles to the west of the proposed POA location. Due to the relatively-high local relief and differing well completion depths, the range of groundwater levels in nearby CRB wells are correspondingly variable. Though most groundwater level datasets extend to only about 2012, and despite the concentration of wells to the west, water-level trends up to that time were generally stable; this stability was demonstrated both in the cluster of wells located to the west and in two wells closer to the proposed POA (YAMH 3900 and YAMH 7104). These past stable trends and the relatively low presence of large-scale pumping in the immediate area of the proposed POA, coupled with the temporary and low allocation requested for this application (0.027 cfs, or ~12 gpm, for up to 5 years), suggests that injury to other users is unlikely. Nonetheless, the Willamette Basin rules require the permit conditions noted in B1(d).

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	CRB	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: The well log for the proposed POA, YAMH 57781, shows the predominant water-bearing zone present from a depth of 228-285 ft bls. The static water level reported on the YAMH 57781 log was 205 ft bls on 9/6/2017, which is above the uppermost water-bearing zone. This fact suggests confined conditions in the CRB aquifer tapped by Well 1/YAMH 57781.

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 Palmer Creek	200-210	180-560	2040	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Within approximately one mile of Well 1/YAMH 57781, estimated surface water elevations for SW 1 range from about 560 ft msl in the western uplands down to about 180 ft msl in the alluvial plain to the southeast. The estimated range of groundwater level elevations in the CRB aquifer system tapped by Well 1 is coincident with elevations in a nearby reach of SW 1, indicating hydraulic connection between groundwater and SW 1.

Water Availability Basin the well(s) are located within: WID 30200801: Yamhill River > Willamette 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?
1	1	<input type="checkbox"/>	<input type="checkbox"/>	IS73547A	31.70	<input type="checkbox"/>	56.50	<input type="checkbox"/>	See note	<input type="checkbox"/>

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.

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?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Comments: C3a: a suitable analytical model for estimating surface water interference from basalt or fractured rock aquifers is not readily available.

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:

- 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 LL-1744 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.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 p.

Woodward, D.G., Gannett, M.W., and Vaccaro, J.J., 1998, Hydrogeologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-B, 82 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

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

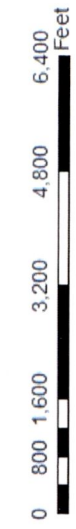
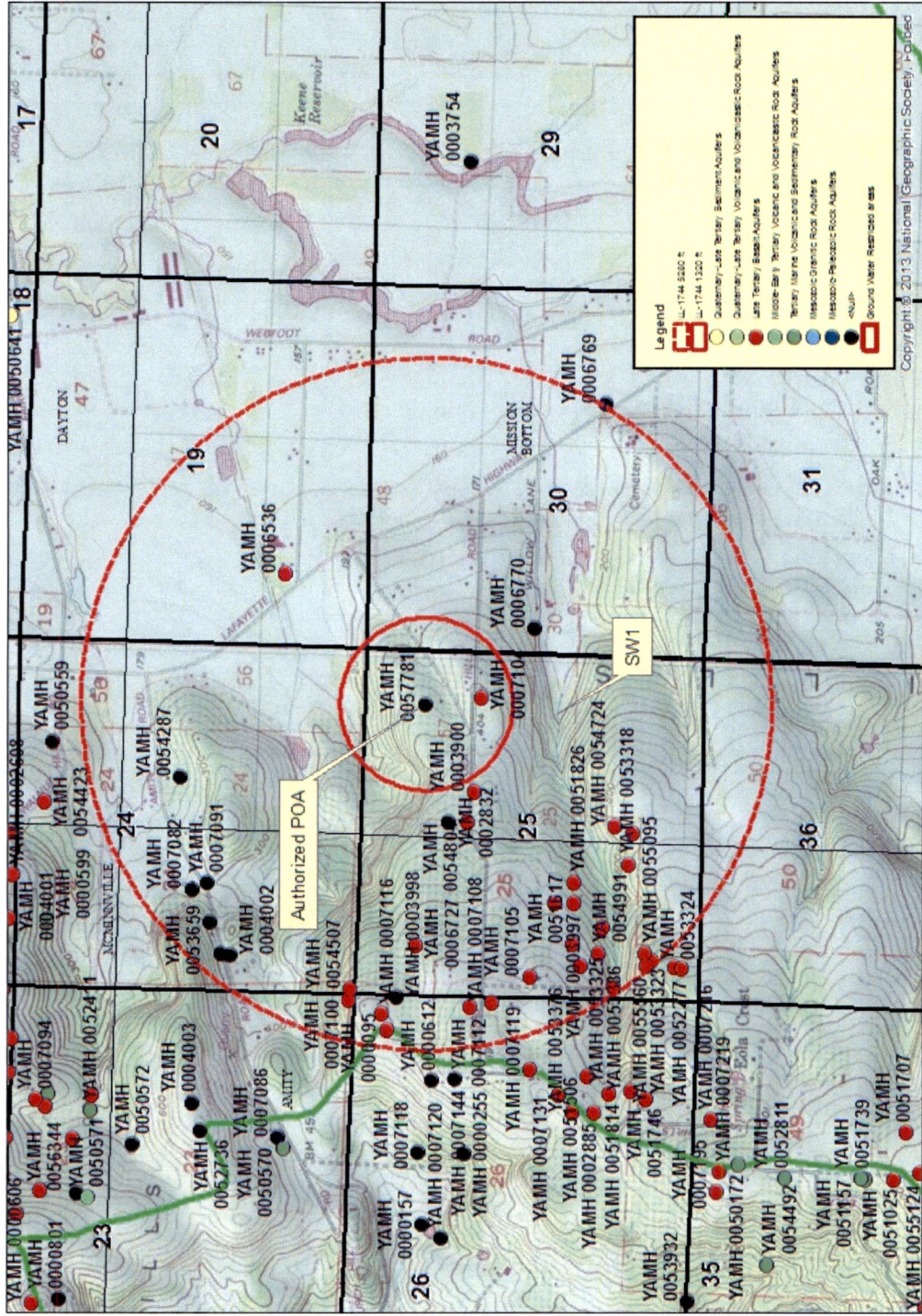
- a. review of the well log;
- b. field inspection by _____ ;
- c. report of CWRE _____ ;
- d. other: (specify) _____

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.**

Well Location Map

LL-1744 Stiling
T5S, R4W, Section 25



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Water Availability Analysis Detailed Reports

YAMHILL R > WILLAMETTE R - AT MOUTH
WILLAMETTE BASIN

Water Availability as of 4/23/2018

Watershed ID #: 30200801 (Map)
Date: 4/23/2018

Exceedance Level: 80%
Time: 10:11 AM

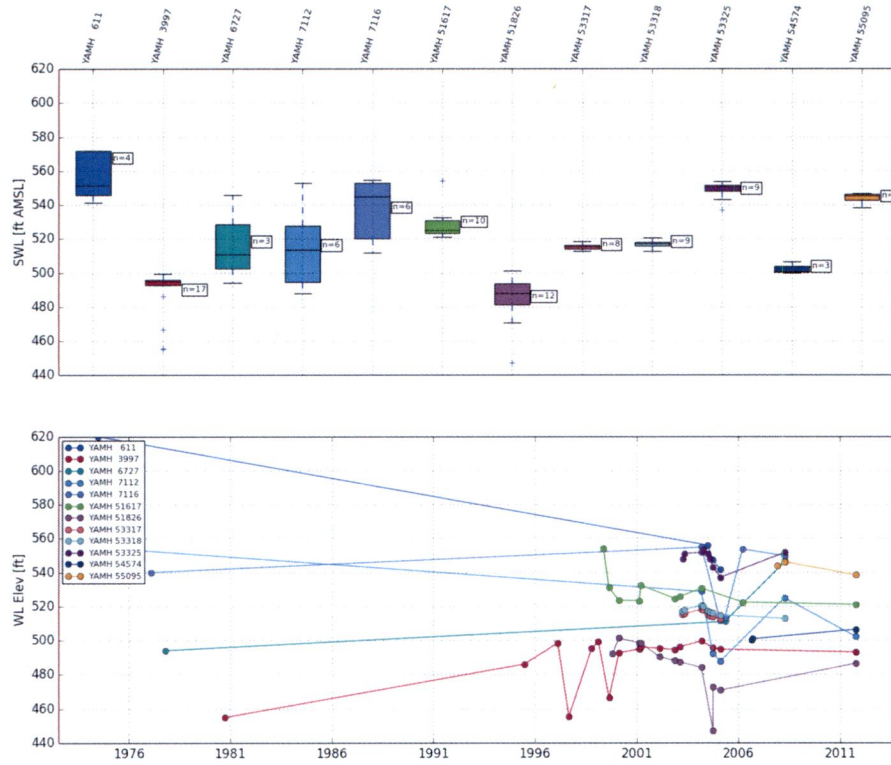
Water Availability Calculation
Consumptive Uses and Storages
Water Rights
Instream Flow Requirements
Watershed Characteristics
Reservations

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	1,840.00	68.60	1,770.00	0.00	31.70	1,740.00
FEB	2,070.00	66.40	2,000.00	0.00	31.70	1,970.00
MAR	1,760.00	42.00	1,720.00	0.00	31.70	1,690.00
APR	1,060.00	49.90	1,010.00	0.00	31.70	978.00
MAY	523.00	66.60	456.00	0.00	31.70	425.00
JUN	232.00	88.60	143.00	0.00	31.70	112.00
JUL	108.00	112.00	-3.96	0.00	31.70	-35.70
AUG	66.90	99.50	-32.60	0.00	31.70	-64.30
SEP	56.50	64.40	-7.95	0.00	31.70	-39.60
OCT	72.50	17.00	55.50	0.00	31.70	23.80
NOV	462.00	38.70	423.00	0.00	31.70	392.00
DEC	1,670.00	65.40	1,600.00	0.00	31.70	1,570.00
ANN	1,180,000.00	47,100.00	1,130,000.00	0.00	23,000.00	1,110,000.00

Groundwater level trends in nearby wells clustered to the west



Groundwater level trends in wells nearer to Well 1/YAMH 57781

