

## Groundwater Application Review Summary Form

Application # G- 18442

GW Reviewer JWoody Date Review Completed: 6-8-2017

### 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).*



PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section  
 FROM: Groundwater Section Jen Woody Date 6/8/2017  
Reviewer's Name  
 SUBJECT: Application G- 18442 Supersedes review of n/a  
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: Max Murray County: Yamhill

A1. Applicant(s) seek(s) 0.05 cfs from 1 well(s) in the Willamette Basin,  
Yamhill River subbasin

A2. Proposed use nursery 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	YAMH 50641		alluvial	0.05	T5S/R3W-18 SE ¼ SE ¼	360' N, 640' W fr SE cor S 18
2						
3						
4						
5						

\* 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	142	42	18	4/30/1997	140	0-42	0-65	n/a	55-65	18	8	bailer

Use data from application for proposed wells.

A4. **Comments:** none

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: 690-502-0240 classifies use from unconfined alluvial aquifers. This application proposes use from a confined aquifer, so this rule is not activated.

A6.  Well(s) # \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, tap(s) an aquifer limited by an administrative restriction.  
 Name of administrative area: N/A  
 Comments: none

**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) 7E, Medium 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 Alluvial 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 well on this application produces water from the Willamette aquifer (Woodward and Gannett, 1998). In this area, the aquifer is about 40 feet thick; it is overlain by about 100 feet of fine-grained Willamette Silt Unit and underlain by about 1600 feet of the predominantly fine-grained Willamette confining unit. The regional water table resides in the Willamette Silt, generally within 10 feet of land surface and the silt acts as a leaky confining unit in relation to the underlying aquifer. Recharge to the aquifer is primarily through the silt unit. Regional discharge is to the Willamette River which is incised completely through the silt unit into the underlying Willamette aquifer. Smaller streams, such as Palmer Creek, are entrenched in, but do not fully penetrate, the silt unit. Although these smaller streams are hydraulically connected to the Willamette aquifer, the connection is very weak because of the low vertical permeability of the silt that occurs between the streambed and the aquifer. Because the Willamette aquifer is confined (S = 0.0001), pumping impacts will propagate rapidly to aquifer boundaries. The principal boundaries are the Willamette River and the Willamette Silt (diffuse downward seepage over a large area). Smaller streams will be very weak boundaries (diffuse seepage over a small area). Pumping withdrawals will be offset by a decrease in stored water in the aquifer, reduced streamflow in the Willamette River, downward leakage of water from the overlying silt into the aquifer, and reduced streamflow to smaller streams. However, the geometry of the system and the low vertical permeability of the silt unit indicate that most pumping impacts will be to the Willamette River and the Willamette Silt with very little impact to the smaller streams.

Long-term hydrographs in the area show approximately 5 feet of water level decline since 1965 (see Figure 3). Seasonal fluctuations are on the order of 20 feet. Seasonal fluctuations in the Willamette Aquifer prior to extensive ground water development were on the order of 10-15 feet (Piper, 1942). Since seasonal fluctuations represent about 15 percent of the available hydraulic head in the aquifer (winter water table surface elevation (from Woodward and Gannett) minus top of aquifer elevation), additional ground water is available for development in the area. However, as seasonal fluctuations increase due to increased use, hydraulic interference during the irrigation season will become more pronounced over time and shallow wells may need to be deepened to compensate for these impacts.

**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	Willamette Aquifer	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** The static water level is reported above the first water-bearing zone, indicating the aquifer is confined.

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	Palmer Creek	124	125	>6000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer hydraulic connection evaluation:** See comments in Section B3. The groundwater level is below the stream bed within one mile of the subject well, so the closest point of hydraulic connection is estimated at greater than one mile.

**Water Availability Basin the well(s) are located within:** Watershed ID #: 30200801: YAMHILL R > WILLAMETTE 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?
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>		<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.

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

**Comments:** Efficient hydraulic connection within a mile of the subject well is not expected.

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.

<b>Non-Distributed Wells</b>													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
<b>Distributed Wells</b>													
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													
<b>(A) = Total Interf.</b>													
<b>(B) = 80 % Nat. Q</b>													
<b>(C) = 1 % Nat. Q</b>													
<b>(D) = (A) &gt; (C)</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>(E) = (A / B) x 100</b>		%	%	%	%	%	%	%	%	%	%	%	%



**D. WELL CONSTRUCTION, OAR 690-200**

D1. Well #: N/A 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:** N/A

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

D4.  **Route to the Well Construction and Compliance Section for a review of existing well construction.**

\_\_\_\_\_



## Water Availability Tables

## Water Availability Analysis Detailed Reports

### YAMHILL R > WILLAMETTE R - AT MOUTH WILLAMETTE BASIN

Water Availability as of 6/8/2017

Watershed ID #: 30200801 ([Map](#))

Exceedance Level:80%

Date: 6/8/2017

Time: 9:25 AM

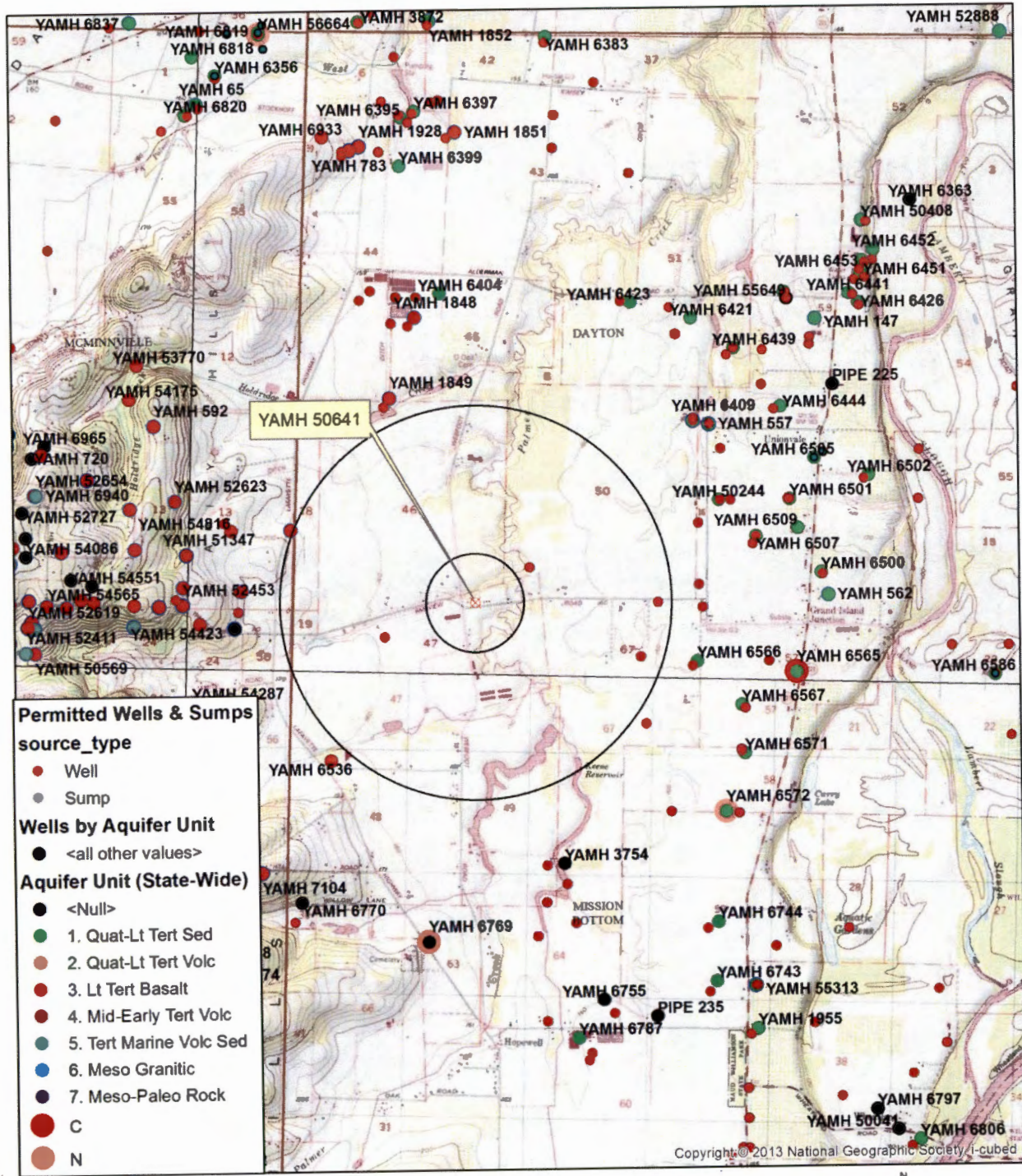
## Water Availability Calculation

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	67.70	1,770.00	0.00	31.70	1,740.00
FEB	2,070.00	65.50	2,000.00	0.00	31.70	1,970.00
MAR	1,760.00	41.40	1,720.00	0.00	31.70	1,690.00
APR	1,060.00	49.70	1,010.00	0.00	31.70	979.00
MAY	523.00	66.50	456.00	0.00	31.70	425.00
JUN	232.00	88.70	143.00	0.00	31.70	112.00
JUL	108.00	112.00	-4.01	0.00	31.70	-35.70
AUG	66.90	99.60	-32.70	0.00	31.70	-64.40
SEP	56.50	64.50	-8.00	0.00	31.70	-39.70
OCT	72.50	17.10	55.40	0.00	31.70	23.70
NOV	462.00	38.60	423.00	0.00	31.70	392.00
DEC	1,670.00	64.50	1,610.00	0.00	31.70	1,570.00
ANN	1,180,000.00	46,900.00	1,130,000.00	0.00	23,000.00	1,110,000.00

Well Location Map

G-18442 Murray  
T5S/R3W- Section 18 SE 1/4 SE 1/4



### Water-Level Trends in Nearby Wells

