

Groundwater Application Review Summary Form

Application # G- 18787

GW Reviewer Travis Brown Date Review Completed: 6/13/2019

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 6/13/2019
 FROM: Groundwater Section Travis Brown
 Reviewer's Name
 SUBJECT: Application G- 18787 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: David J Bielenberg RLT County: Clackamas

A1. Applicant(s) seek(s) 0.7798 cfs from 2 well(s) in the Willamette Basin,
Molalla-Pudding subbasin

A2. Proposed use Irrigation (237 acres) 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	PROPOSED	1	Bedrock (Basalt) ^a	0.7798	5S/1E-36 NW-NE	70' S, 1800' W fr NE cor S 36
2	PROPOSED	2	Bedrock (Basalt) ^a	0.7798	5S/1E-36 NW-NE	340' S, 1500' W fr NE cor S 36

* 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	477 ^b				~400-500							
2	480 ^b				~400-500							

Use data from application for proposed wells.

A4. **Comments:** The proposed POA/POU are ~4 miles southwest of the City of Molalla, Oregon. The maximum annual volume of appropriation for the proposed irrigated acreage is 592.5 af based on the applicable duty of 2.5 af/acre.

^a The application does not list a proposed source aquifer. However, based on geologic mapping in the area (Tolan and Beeson, 1999) and the proposed well depth, the proposed POA would develop water within the Little Butte Volcanics.

^b LIDAR ground surface elevation at proposed POA locations (Watershed Sciences, 2009).

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 are greater than ¼ mile from the nearest surface water source and would produce water from a confined aquifer; therefore, per OAR 690-502-0240, the relevant Willamette Basin rules (OAR 690-502-0140) do not apply.

A6. **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction. Name of administrative area: N/A

Comments: The proposed POA are ~140-400 ft outside of the southern boundary of the Gladtidings Groundwater Limited Area (OAR 690-502-0180).

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, 7t (dedicated measuring tube), 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 Little Butte Volcanics 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: Groundwater for the proposed use cannot be determined to be over-appropriated due to insufficient available data regarding rates of recharge and the current quantity of groundwater withdrawals from the aquifer system.**

Screen or perforation depths are not provided for the 2 proposed POA, only approximate total depths. However, based on the approximate total depths and geologic mapping in this area, it appears that the proposed POA will produce water from the Little Butte Volcanics (Tolan and Beeson, 1999). Water well reports from nearby wells completed in the Little Butte Volcanics indicate predominantly thin (<15 ft thick) water bearing zones producing small quantities of water (<10 gpm) to depths of up to 730 ft below land surface (bls). The Little Butte Volcanics consists predominantly of narrow (5-15 m thick) interbedded basalt, basaltic andesite, and porphyritic andesite flows interfingered with marine tuff and sandstone (Peck et al., 1964; Hampton, 1972; Miller and Orr, 1984; Tolan and Beeson, 1999). The Little Butte Volcanics and the marine tuff and sandstone have been folded and eroded (Hampton, 1972); therefore, water bearing zones within are likely discontinuous and limited in extent, as supported by the substantially varied depths of water bearing zones noted in nearby water well reports.

Reported yields from nearby water wells range from less than 1 to ~120 gpm, with a median of 20 gpm (see attached Well Statistics). The requested rate of 350 gpm (~0.7798 cfs) therefore represents ~290 percent of the maximum yield and ~1,750 percent of the median yield reported for water wells in this area. If the requested rate is assumed to be equally distributed amongst the 2 proposed POA (i.e. a rate of 175 gpm for each well), then the per-POA rate would represent ~145 percent of the maximum yield and ~875 percent of the median yield reported for water wells in this area. **It appears highly unlikely that the applicant will be able to achieve the requested maximum rate with the proposed POA without impairing the character of the aquifer; therefore, the proposed use will not likely be available within the capacity of the groundwater resource.**

The nearest known groundwater users in the Little Butte Volcanics are greater than 2,500 feet from the proposed POA (see attached Well Location Map). Well-to-well interference could not be quantitatively assessed due to the lack of an appropriate analytical model for the hydrogeology of the Little Butte Volcanics. However, to protect senior users, the conditions specified in B(1)(d)(i), above, are recommended for any permit issued for this application.

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	Little Butte Volcanics	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Little Butte Volcanics	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Nearby water well reports generally indicate static water levels above the first-encountered water bearing zones (see attached Well Statistics). Therefore, the aquifer appears to be predominantly 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	Unnamed Tributary to Garret Creek	~375-425 ^a	190-315 ^b	~1,400	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	Corner Creek	~375-425 ^a	300-370 ^b	~4,950	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	Rock Creek	~375-425 ^a	210-315 ^b	~4,870	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Unnamed Tributary to Garret Creek	~375-425 ^a	190-315 ^b	~1,600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Corner Creek	~375-425 ^a	300-370 ^b	~4,870	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	3	Rock Creek	~375-425 ^a	210-315 ^b	~5,120	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: Estimated static water level for groundwater in this area of the Little Butte Volcanics is above the nearby surface water elevations. The folded and eroded nature of the Little Butte Volcanics precludes discerning laterally-continuous confining units which would inhibit hydraulic connection between groundwater and surface water. Nearby streams have incised below the elevation of several water bearing zones noted in nearby well logs. Furthermore, perennial reaches of several nearby streams (including SW 1) appear to emerge from the Little Butte Volcanics, indicating a groundwater-fed component to nearby streamflows. Based on the available evidence, groundwater in the Little Butte Volcanics is hydraulically connected to nearby surface water sources.

^a Groundwater elevations estimated from nearby well logs. Statistical analysis of reported static water levels versus well depth for nearby water wells indicates there is a trend of lower static water levels with deeper well completions. The applicant has not provided proposed well construction specifications beyond an estimate of total depth; therefore, a broad range of groundwater elevations are considered.

^b Approximate LIDAR elevation of stream channel within 1 mile of proposed POA (Watershed Sciences, 2009).

Water Availability Basin the well(s) are located within: PUDDING R > MOLALLA R – AB MILL CR

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"/>			<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	*	<input checked="" type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	*	<input checked="" type="checkbox"/>
1	3	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	*	<input checked="" type="checkbox"/>
2	1	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	*	<input checked="" type="checkbox"/>
2	2	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	*	<input checked="" type="checkbox"/>
2	3	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	67.30	<input checked="" type="checkbox"/>	*	<input checked="" 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"/>

Comments: The requested rate of appropriation (0.7793 cfs) is greater than one percent (0.673 cfs) of the discharge that is equalled or exceed 80 percent of the time (67.30 cfs) as estimated for the PUDDING R > MOLALLA R = AB MILL CR Water Availability Basin (WAB), which includes SW 1-3. Therefore, per OAR 690-09-040(4)(c), the proposed use is assumed to have the potential to cause substantial interference (PSI) with SW 1-3.

* Potential interference with nearby surface water sources could not be quantitatively assessed due to lack of an appropriate analytical model for the hydrogeology of the Little Butte Volcanics.

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: PSI for the proposed use was assumed per OAR 690-09-040(4)(c) because the requested rate of appropriation exceeded one percent (0.673 cfs / =302 gpm) of the 80 percent exceedance flow. If the requested rate of appropriation were reduced to less than 302 gpm (0.673 cfs), PSI would no longer be assumed on this basis.

References Used:

Application File: G-18787

Water Well Reports: CLAC 10536, 19689, 51023, 61007, 62138, 62921, 64786

Hampton, E. R., 1972, *Geology and Ground Water of the Molalla-Salem Slope Area, Northern Willamette Valley, Oregon*, Water-Supply Paper 1997: U. S. Geological Survey, Reston, VA.

Miller, P. R. and Orr, W. N., 1984, *Geologic Map of the Wilhoit Quadrangle, Oregon* [map], 1:24,000, GMS-32: Oregon Department of Geology and Mineral Industries, Portland, OR.

Peck, D. L., Griggs, A. B., Schlicker, H. G., Wells, F. G., and Dole, H. M., 1964, *Geology of the central and northern parts of the Western Cascade Range in Oregon*, Professional Paper 449: U. S. Geological Survey, Reston, VA.

Tolan, Terry L. and Beeson, Marvin H., 1999, *Geologic Map of the Silverton and Scotts Mills NE 7.5 Minute Quadrangles, Northwest Oregon* [map], 1:24,000, Open File Report 99-141: U.S. Geological Survey, Reston, VA.

Tolan, Terry L. and Beeson, Marvin H., 1999, *Geologic Map of the Scotts Mills, Silverton, and Stayton Northeast 7.5 Minute Quadrangles, Oregon* [pamphlet], Open File Report 99-141: U.S. Geological Survey, Reston, VA.

United States Geological Survey, 2013, National Elevation Dataset (NED) [DEM geospatial data]. 1/9th arc-second, updated 2013.

United States Geological Survey, 2017, *Scotts Mills quadrangle, Oregon* [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

Watershed Sciences, 2009, *LIDAR remote sensing data collection, Department of Geology and Mineral Industries, Willamette Valley Phase I, Oregon*: Portland, OR, December 21.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

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

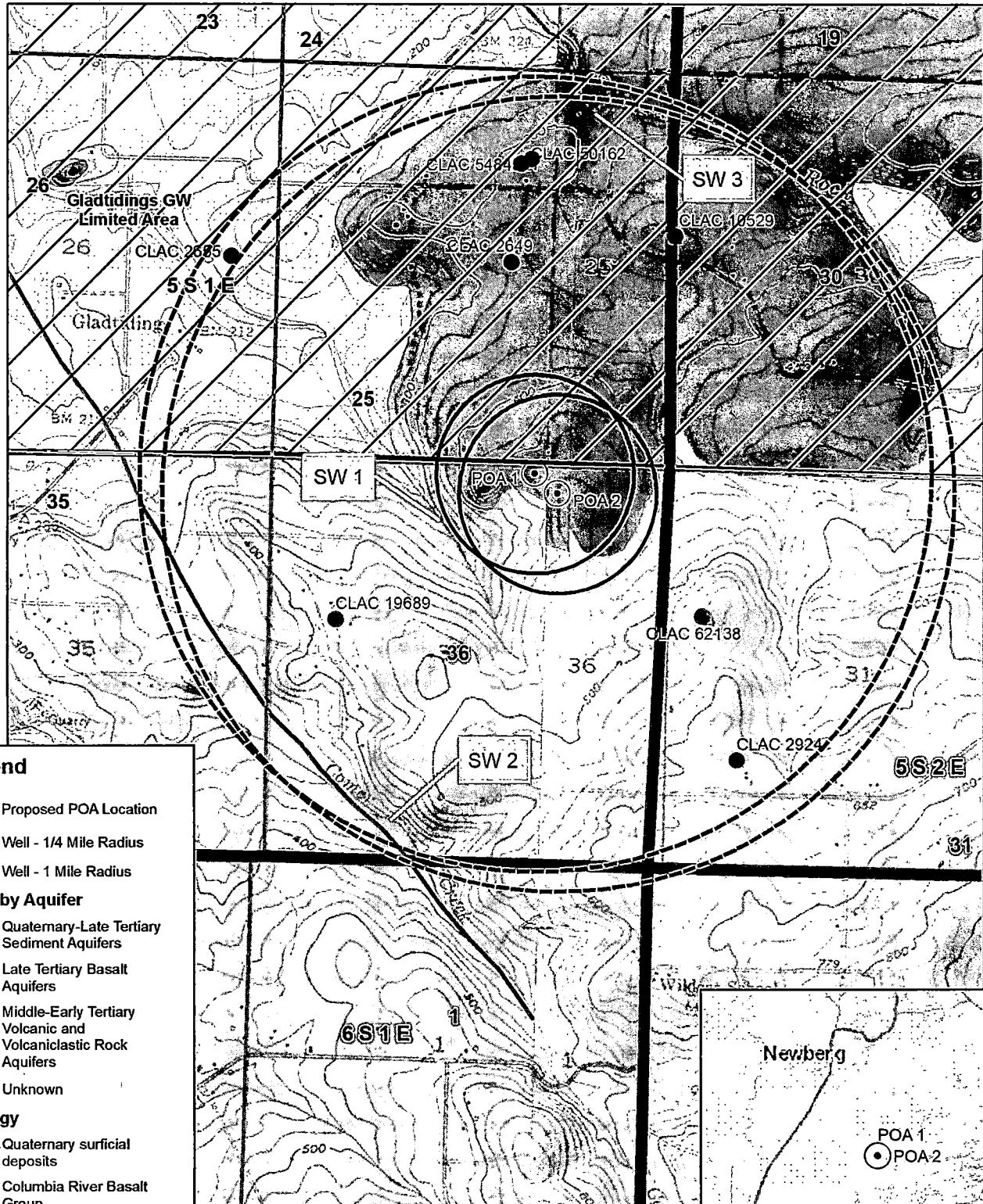
- a. review of the well log;
- b. field inspection by _____;
- c. report of CWRE _____;
- d. other: (specify) _____

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

G-18787 Bielenberg RLT



Legend

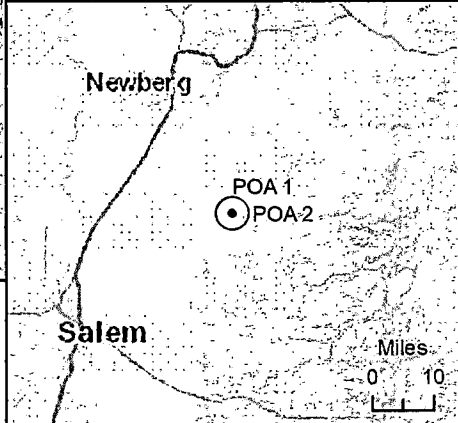
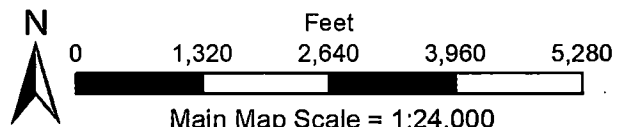
- Proposed POA Location
- Well - 1/4 Mile Radius
- Well - 1 Mile Radius

Wells by Aquifer

- Quaternary-Late Tertiary Sediment Aquifers
- Late Tertiary Basalt Aquifers
- Middle-Early Tertiary Volcanic and Volcaniclastic Rock Aquifers
- Unknown

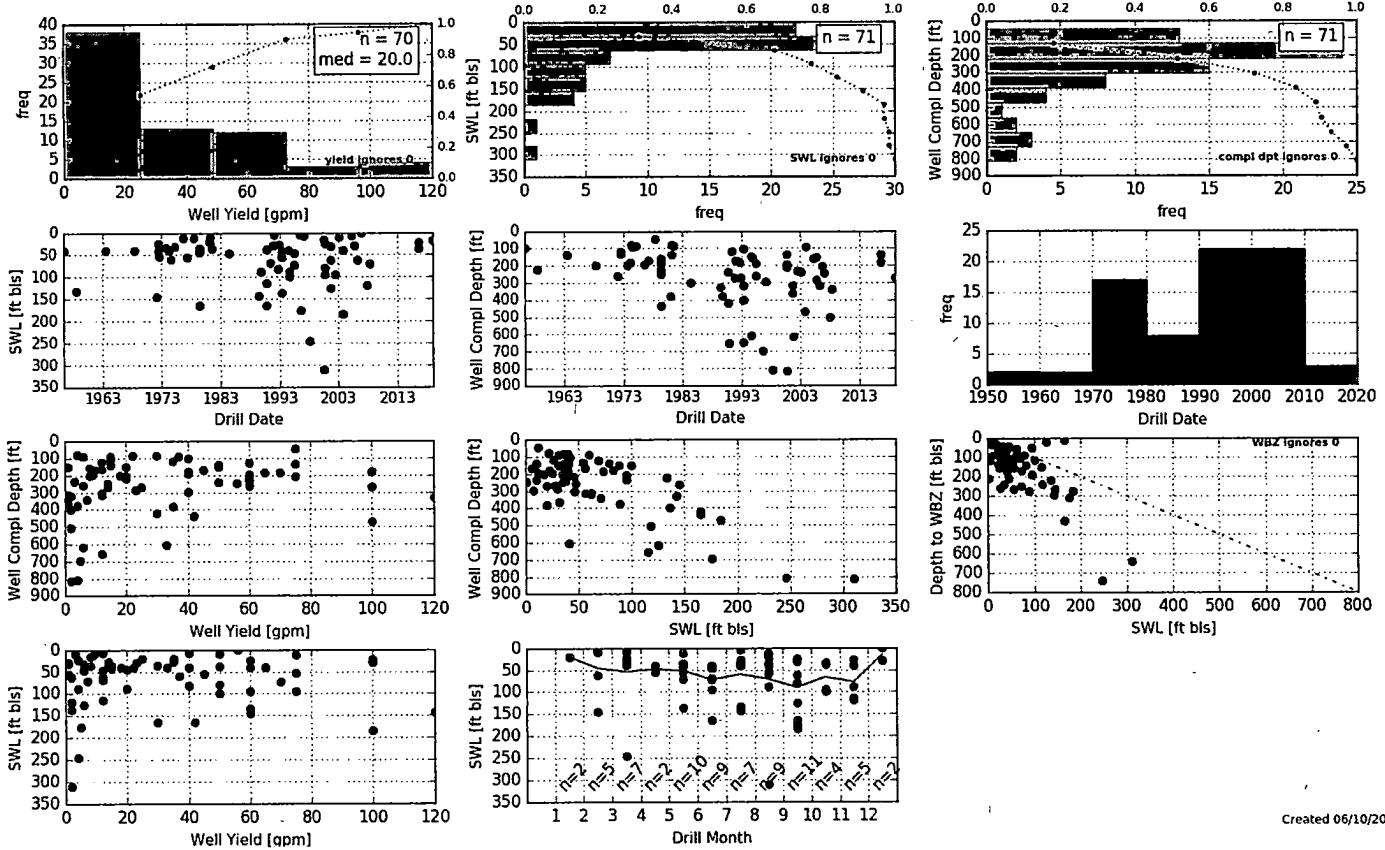
Geology

- Quaternary surficial deposits
- Columbia River Basalt Group
- Little Butte Volcanics
- Scotts Mills Formation (marine sedimentary)
- Geologic Faults



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Well Statistics – T5S/R1E-36 & T5S/R2E-31



Created 06/10/2019

Water Availability Table



PUDDING R > MOLALLA R - AB MILL CR
WILLAMETTE BASIN

Water Availability as of 6/12/2019

Watershed ID #: 151 (Map)
Date: 6/12/2019

Exceedance Level: 80%
Time: 3:47 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	1,040.00	125.00	915.00	0.00	36.00	879.00
FEB	1,180.00	114.00	1,070.00	0.00	36.00	1,030.00
MAR	1,010.00	76.10	934.00	0.00	36.00	898.00
APR	787.00	51.90	735.00	0.00	36.00	699.00
MAY	425.00	49.90	375.00	0.00	36.00	339.00
JUN	224.00	71.50	153.00	0.00	36.00	117.00
JUL	109.00	112.00	-3.34	0.00	36.00	-39.30
AUG	71.00	92.00	-21.00	0.00	36.00	-57.00
SEP	67.30	52.20	15.10	0.00	36.00	-20.90
OCT	91.60	11.10	80.50	0.00	36.00	44.50
NOV	363.00	48.50	314.00	0.00	36.00	278.00
DEC	957.00	118.00	839.00	0.00	36.00	803.00
ANN	706,000.00	55,700.00	650,000.00	0.00	26,100.00	626,000.00