

Groundwater Application Review Summary Form

Application # G- 18795

GW Reviewer Ben Scandella, Justin Iverson Date Review Completed: 3/31/2020

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).

WATER RESOURCES DEPARTMENT

MEMO

3/31/2020

TO: **Application G- 18795**

FROM: **GW: Ben Scandella, Justin Iverson**
 (Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

YES The source of appropriation is hydraulically connected to a State Scenic Waterway or its tributaries

NO

YES

NO Use the Scenic Waterway Condition (Condition 7J)

Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below

Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water interference with surface water that contributes to a scenic waterway; **therefore, the Department is unable to find that there is a preponderance of evidence that the proposed use will measurably reduce the surface water flows necessary to maintain the free-flowing character of a scenic waterway**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in [Enter] Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 3/31/2020
 FROM: Groundwater Section Ben Scandella, Justin Iverson
 Reviewer's Name
 SUBJECT: Application G- 18795 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: Gregory Reed County: Columbia

A1. Applicant(s) seek(s) 0.446 cfs from 1 well(s) in the North Coast Basin,
 _____ subbasin

A2. Proposed use Irrigation of 10 acres Seasonality: April 1 through 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	COLU 53662	1	Alluvium	0.446	7N/5W-4 NE-SW	2598' N, 1442' E fr SW cor S 4
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	7	20	12.2	9/5/2008	80	0-19	2-73	N/A	72.5-77.7	200	N/A	Air

Use data from application for proposed wells.

A4. **Comments:** The application requests 0.446 cfs (200 gpm), but the maximum allowed rate for irrigation of 10 acres at 1/80 cfs per acre is 0.125 cfs (56 gpm). For the remainder of this review, a maximum rate of 0.125 cfs was assumed.

A5. **Provisions of the** North Coast 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: North Coast Basin rules have no such provision

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:
 - i. The permit should contain condition #(s) _____;
 - 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, COLU 53662, obtains groundwater from recent alluvium deposited by the Columbia River system. Water levels in many nearby well logs are reported to be within a few feet of ground surface, even during drier summer months, due to an extensive network of surface water features (canals and sloughs) located in this lowland area that are connected to the alluvial aquifer.

Furthermore, existing groundwater exploitation appears minimal in the area. The nearest groundwater right is Permit G-17247, for a shallow sump located about 3200 ft to the NE, and large tax lots suggest that neighboring domestic wells are also relatively distant. For this reason, there is minimal groundwater level data available; the next nearest well measurement in the OWRD database is from COLU 55222, about 6 miles to the east. The low allowed allocation, coupled with the surface- and groundwater rich environment and dearth of existing users, suggests that injury to any nearby users is highly unlikely.

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

Basis for aquifer confinement evaluation: The water level reported in the well log for COLU 53662 is 8 feet above the top of the water-bearing zone, indicating confined conditions.

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	Westport Slough	-5	5	370	<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"/>

Basis for aquifer hydraulic connection evaluation: Groundwater elevation is roughly coincident with surface water, indicating hydraulic connection. The shallow clay layer apparently creates confined or semi-confined conditions in the water-bearing zone accessed by this well, but there is no known geologic feature providing a barrier to hydraulic connection at this distance in the alluvial aquifer system.

There are several other surface water features located within 1 mile of the proposed POA that are hydraulically connected to the alluvial aquifer system. However, none of these are in a natural, free-flowing state; instead, all are part of an extensive network of excavated canals which both intersect and interconnect the sloughs. Consequently, PSI was not evaluated for any of these surface water features.

Water Availability Basin the well(s) are located within: This well is outside of any WAB, and the hydrogeologic setting suggests that significant impacts will not extend into the WABs in the Marine Sedimentary aquifer system to the south. Therefore, Columbia River Basin water availability will apply.

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 checked="" type="checkbox"/>	<input type="checkbox"/>	N/A	N/A	<input type="checkbox"/>	N/A	<input type="checkbox"/>	<25%	<input checked="" 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"/>

Comments: Using the Hunt, (2003) model and parameters appropriate for the hydrogeologic setting (Freeze and Cherry, 1979), streamflow depletion at 30 days is estimated to be likely less than 25% (see model parameters and results below).

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: PSI was assumed because the well is hydraulically connected with Westport Slough and located less than 1/4 mile away, as per OAR 690-009-040 (4) (a).

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:** _____

References Used:

Application G-18795

OWRD Groundwater Information System and Well Log Databases, accessed 3/31/2020.

Freeze, R.A. and J.A. Cherry, 1979. Groundwater. Prentice-Hall, Englewood Cliffs, N.J.

Hunt, B., 2003. Unsteady Stream Depletion When Pumping from Semiconfined Aquifer. Journal of Hydrologic Engineering 8:12-19.

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.**

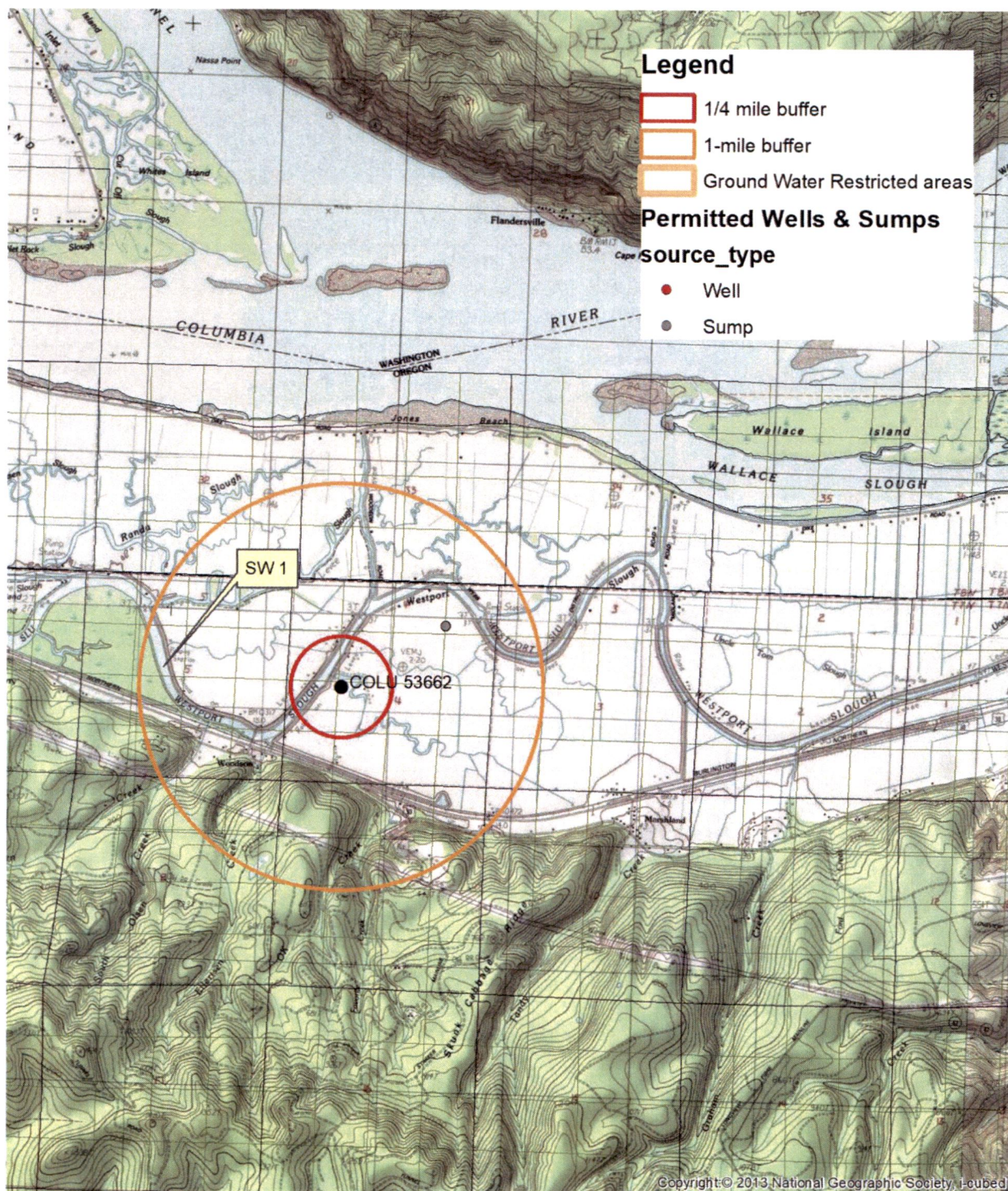
Water-Level Measurements in Nearby Wells

Observation Well Data



Well Location Map

Application G-18795 (Reed): T7N / R5W S4



0 0.3 0.6 1.2 1.8 2.4 Miles



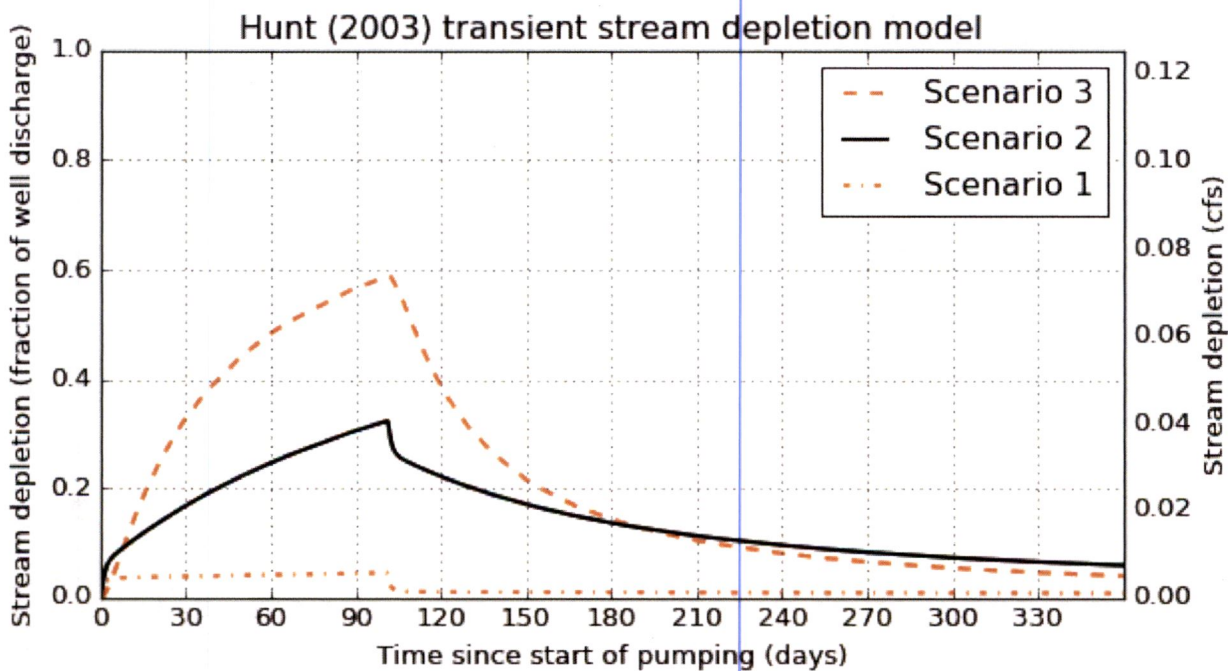
Stream Depletion Modeling Results:

Application type:	G
Application number:	18795
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.125
Pumping duration (days):	101
Pumping start month number (3=March)	3.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	370	370	370	ft
Aquifer transmissivity	T	1000	300	100	ft ² /day
Aquifer storativity	S	0.001	0.005	0.01	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	20	15	10	ft
Aquitard thickness below stream	babs	15	10	5	ft
Aquitard specific yield	Sya	0.1	0.05	0.02	-
Stream width	ws	100	120	140	ft

Stream depletion for Scenario 2:

Days	10	330	360	30	60	90	120	150	180	210	240	270	300
Depletion (%)	10	6	6	17	25	31	22	17	14	11	10	8	7
Depletion (cfs)	0.01	0.01	0.01	0.02	0.03	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.01



Approved: 

MEMO

To: Kristopher Byrd, Well Construction and Compliance Section Manager
From: Travis Kelly, Well Construction Program Coordinator
Subject: Review of Water Right Application G-18795
Date: April 8, 2020

The attached application was forwarded to the Well Construction and Compliance Section by the Ground Water Section. Ben Scandella and Justin Iverson reviewed the application. Please see Ben and Justin's Groundwater Review and the Well Log.

Applicant's Well #1 (COLU 53662): Based on a review of the Well Report, Applicant's Well #1 seems to protect the groundwater resource.

The construction of Applicant's Well #1 may not satisfy any hydraulic connection issues.

colu
531002

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # L 88685
START CARD # 159614

(1) LAND OWNER Owner Well I.D. _____
First Name David Last Name Rieben
Company _____
Address 12230 Marshland Road
City Clatskanie State OR Zip 97016

(2) TYPE OF WORK New Well Deepening Conversion
 Alteration (repair/recondition) Abandonment

(3) DRILL METHOD
 Rotary Air Rotary Mud Cable Auger Cable Mud
 Reverse Rotary Other _____

(4) PROPOSED USE Domestic Irrigation Community
 Industrial/ Commercial Livestock Dewatering
 Thermal Injection Other _____

(5) BORE HOLE CONSTRUCTION Special Standard (Attach copy)
Depth of Completed Well 77.67 ft.

BORE HOLE			SEAL		sacks/		
Dia	From	To	Material	From	To	Amt	lbs
10	0	19	Bentonite	0	19	12	S
6	19	80					

How was seal placed: Method A B C D E
 Other Poured
Backfill placed from _____ ft. to _____ ft. Material _____
Filter pack from _____ ft. to _____ ft. Material _____ Size _____
Explosives used: Yes Type _____ Amount _____

(6) CASING/LINER
Casing Liner Dia + From To Gauge Stl Plstc Wld Thrd

<input checked="" type="checkbox"/>	<input type="checkbox"/>	6	<input checked="" type="checkbox"/>	1.92	73	250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 Shoe Inside Outside Other Location of shoe(s) 73
Temp casing Yes Dia 10 From 1 To 19

(7) PERFORATIONS/SCREENS
Perforations Method _____
Screens Type Telescoping Material S. Steel

Perf/S	Casing/Screen	Screen Dia	From	To	Sern/slot width	Slot length	# of slots	Tele pipe size
Screen		6	72.5	77.67	16			

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
Yield gal/min 200 Drawdown _____ Drill stem/Pump depth 72 Duration (hr) 1

Temperature 52 °F Lab analysis Yes By _____
Water quality concerns? Yes (describe below)
From _____ To _____ Description _____ Amount _____ Units _____

(9) LOCATION OF WELL (legal description)
County COLUMBI Twp 7 N N/S Range 5 W E/W WM
Sec 4 NE 1/4 of the SW 1/4 Tax Lot 01200
Tax Map Number _____ Lot _____
Lat _____ " or _____ DMS or DD
Long _____ " or _____ DMS or DD
 Street address of well Nearest address
12230 Marshland Road, Clatskanie, Oregon 97016

(10) STATIC WATER LEVEL
Date _____ SWL (psi) + SWL (ft)
Existing Well / Predeepening _____
Completed Well 09-05-2008 5.3 12.2
Flowing Artesian? Dry Hole?

WATER BEARING ZONES Depth water was first found 20'

SWL Date	From	To	Est Flow	SWL (psi)	+ SWL (ft)
09-05-2008	20	80	200		12.2

(11) WELL LOG Ground Elevation _____

Material	From	To
TOP SOIL	0	1
CLAY GRAY-BROWN	1	10
SILTY SAND BLUE	10	51
SILTY SAND W/WOOD	51	69
SAND GRAY-BLUE MED-FINE	69	80

Date Started 09-05-2008 Completed 09-05-2008

(unbonded) Water Well Constructor Certification
I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
License Number _____ Date _____
Password: (if filing electronically) _____
Signed _____

(bonded) Water Well Constructor Certification
I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
License Number 1646 Date 09-12-2008
Password: (if filing electronically) _____
Signed Chris McGhee
Contact Info (optional) _____

RECEIVED
OCT 17 2008
WATER RESOURCES DEPT
SALEM, OREGON