

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date June 8, 2016
 FROM: Groundwater Section Michael J. Thoma
 SUBJECT: Application G- 18187 Reviewer's Name
 Supersedes review of February 2, 2016

PUBLIC INTEREST PRESUMPTION; GROUNDWATER

OAR 690-310-130 (1) The Department shall presume that a proposed groundwater use will be in the public interest if the use is necessary for the public welfare, safety and health as described in ORS 537.525. Department staff review groundwater applications to determine whether the presumption is established. OAR 690-310-140 allows the proposed use to meet the presumption criteria. **This review is based upon available information and agency policy.**

Re review
new well

A. GENERAL INFORMATION: Applicant's Name: Erik Leib

A1. Applicant(s) seek(s) 0.04 cfs from 1 well(s) in the Rogue Basin, Applegate 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	JOSE 59773	1	Bedrock	0.04	39S/05W-9 NENW	750'S, 178'W of N cor S 09
2						

* 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	~1690	191	34	5/20/2016	540	0-20	+2-58			8.5		A

Use data from application for proposed wells.

A4. **Comments:** JOSE 59773 was drilled as a replacement well for the original well on the original application (JOSE 2235 – see GW Review for 02/02/2016). This current well is significantly deeper than the original well but is producing from the same aquifer (fractured bedrock of Grayback Pluton)

A5. **Provisions of the** Rogue (OAR 690-515) 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: _____

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) "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 _____ 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 applicant proposes groundwater production from a well completed in plutonic rocks (quartz-diorite and tonalite or "granitic"). This is considered a fractured-rock aquifer that is generally low-yielding, which has limited groundwater development in the area to primarily small-acreage irrigation and domestic use. There are a few OWRD observation wells located near the proposed wells and data from these wells show stable long-term groundwater levels, which is typical of the region (see attached water levels figure)

Williams Cr. is a heavily appropriated stream and often subject to regulation. To avoid undue injury to surface water users, a medium water-use reporting condition should be attached to the permit to confirm that the user is not exceeding the allowed rate, which should be limited by OAR 690-009 in Section C below.

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	Bedrock of Grayback Pluton	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: Reported SWL is several 10s of feet higher than the “first water” reported on the driller’s log, indicating confined conditions. Also, it is typical of these types of geologic formations (fractured granitic rock) to show increasingly confined conditions with depth.

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	W. Fk Williams Cr	1666	1530-1600	2800	<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"/>

Basis for aquifer hydraulic connection evaluation: higher GW elevation than SW elevation suggests that groundwater is flowing toward and discharging to surface water.

Water Availability Basin the well(s) are located within: W Fk Williams Cr > Williams Cr – At Mouth (ID# 70976)

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"/>	IS70976	1.08	<input checked="" type="checkbox"/>	0.80	<input checked="" type="checkbox"/>	*see comments	<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"/>

Comments: The proposed rate of 0.04 cfs is > 1% of both the lowest monthly natural flow and lowest monthly instream flow requirement.

*Interference @ 30 d could not be estimated because the terrain (high-relief slopes) and geology (fractured bedrock aquifer) do not meet model assumptions of the widely accepted techniques for determining stream depletion (e.g., Hunt 1999, 2003).

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 #	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"/>

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: _____

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:** The applicant's well is within 1 mile of and has been determined to be hydraulically connected to the W. Fk Williams Cr. The proposed rate of 0.04 cfs (18 gpm) exceeds 1% of both the minimum perennial stream flow and instream water right and therefore must be considered to have Potential for Substantial Interference under OAR 690-009 Rules. Only if the proposed rate were decreased to < 0.008 cfs (~3.5 gpm) would the use not be determined to have PSI.

References Used:

Hunt, B. 1999. *Unsteady Stream Depletion from Ground Water Pumping*. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

Hunt, B. 2003. *Unsteady Stream Depletion when Pumping from a Semiconfined Aquifer*. Journal of Hydrologic Engineering. Vol 8(1), pp 12-19

Wiley, T. J. 2006. *Preliminary Geologic Map of the Sexton Mountain, Murphy, Applegate, and Mount Isabelle 7.5' Quadrangles, Jackson and Josephine Counties, Oregon*. Oregon Dept. of Geology and Mineral Industries. OFR O-06-11

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) _____

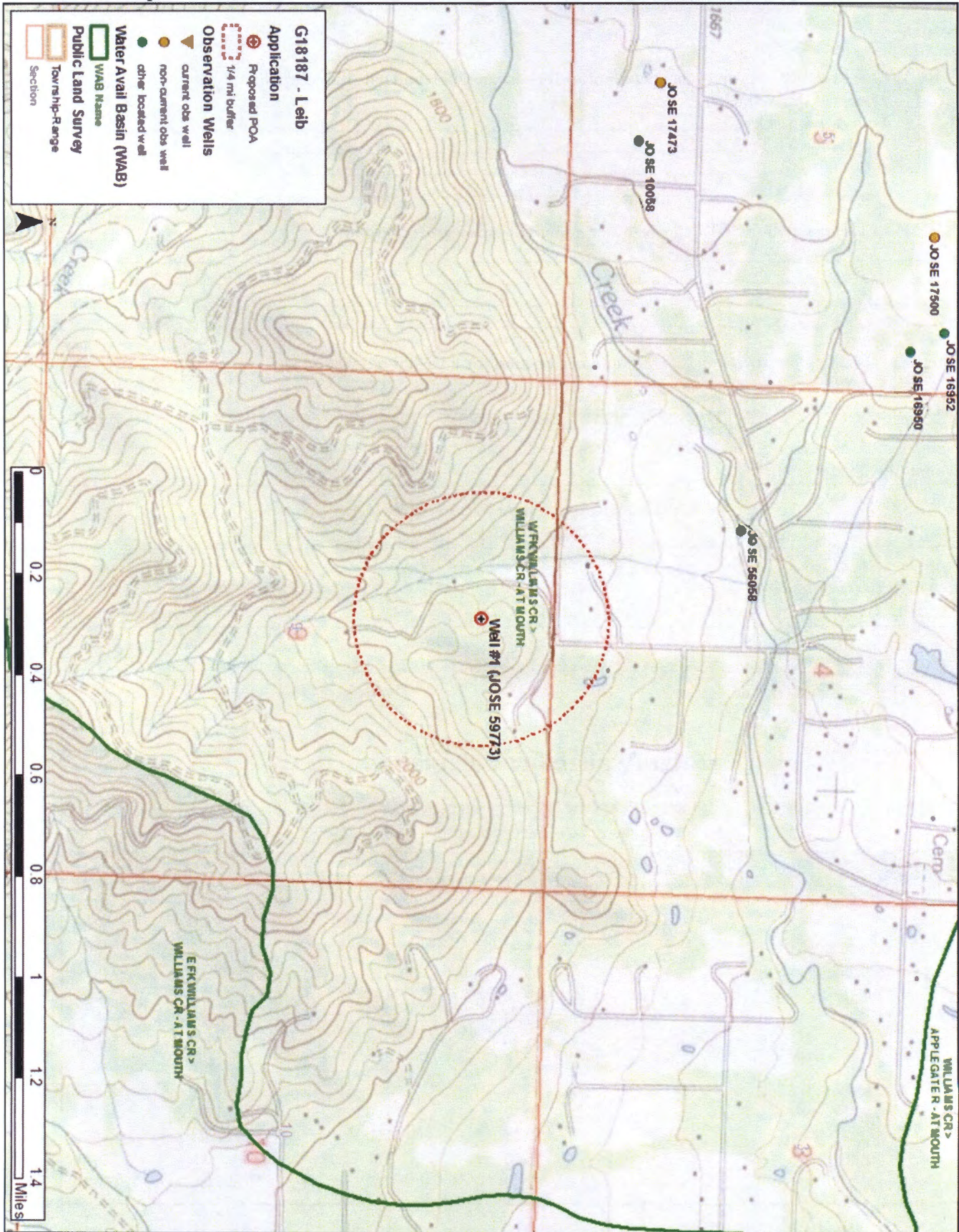
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

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

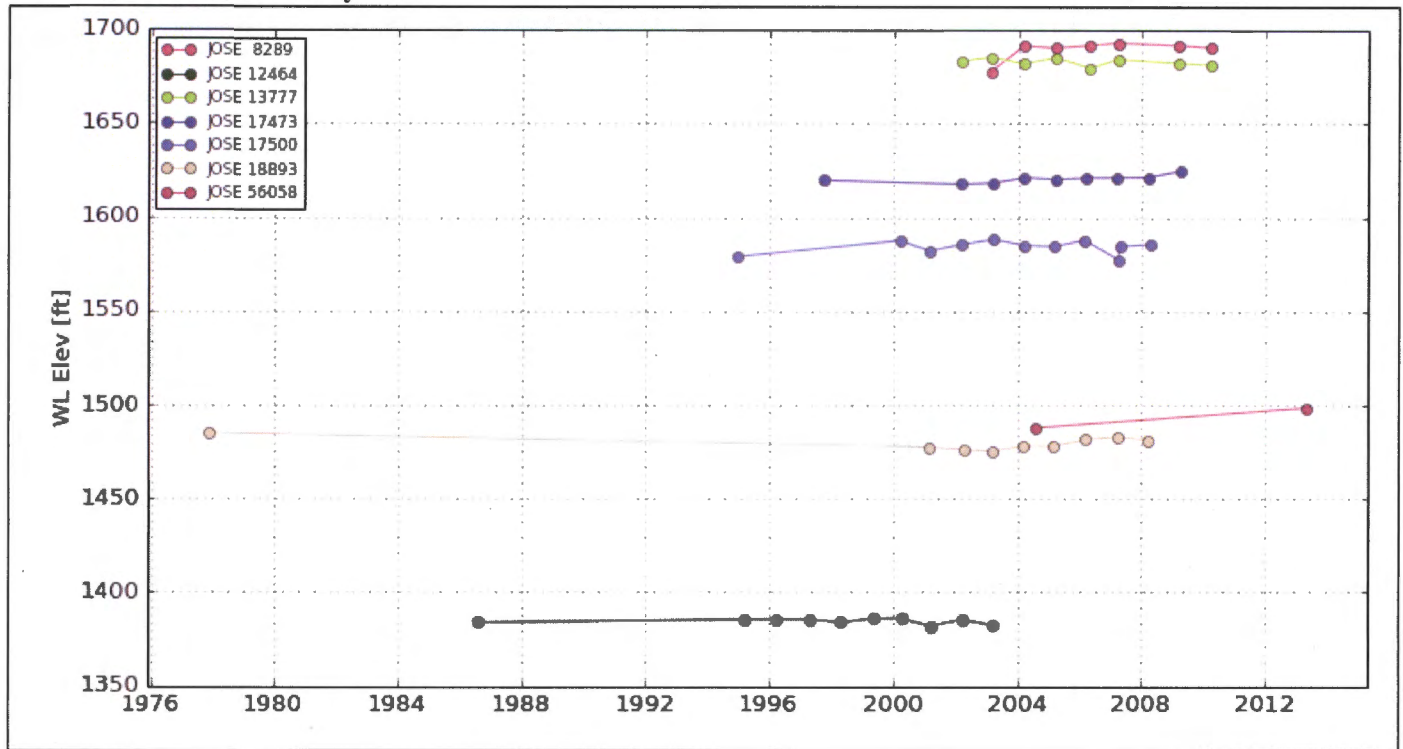
Water Availability Tables

W FK WILLIAMS CR > WILLIAMS CR - AT MOUTH							
ROGUE BASIN							
Water Availability as of 2/2/2016							
Watershed ID #: 70976 (Map)				Exceedance Level: 80%			
Date: 2/2/2016				Time: 10:01 AM			
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	31.70	0.26	31.40	0.00	42.00	-10.60	
FEB	52.40	0.31	52.10	0.00	42.00	10.10	
MAR	51.60	0.27	51.30	0.00	42.00	9.33	
APR	30.20	1.20	29.00	0.00	42.00	-13.00	
MAY	14.10	1.84	12.30	0.00	25.00	-12.70	
JUN	5.01	2.55	2.46	0.00	8.85	-6.39	
JUL	1.93	3.38	-1.45	0.00	2.88	-4.33	
AUG	1.14	2.81	-1.67	0.00	1.40	-3.07	
SEP	0.80	1.87	-1.07	0.00	1.08	-2.15	
OCT	1.06	0.68	0.38	0.00	1.89	-1.51	
NOV	3.46	0.15	3.31	0.00	12.10	-8.79	
DEC	16.10	0.21	15.90	0.00	42.00	-26.10	
ANN	26,500.00	942.00	25,700.00	0.00	15,800.00	10,600.00	

Well Location Map



Water-Level Trends in Nearby Wells



Well Logs

JOSE 59773
JOSE 59773
5/25/2016

WELL I.D. LABEL# 122102
START CARD # 1030637
ORIGINAL LOG #

Page 1 of 2

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

(1) LAND OWNER Owner Well I.D. _____
First Name ERIK Last Name LEIB
Company _____
Address P.O. BOX 518
City WILLIAMS State OR Zip 97544

(2) TYPE OF WORK New Well Deepening Conversion
 Alteration (complete 2a & 10) Abandonment (complete 5a)

(2a) PRE-ALTERATION
Dia + From To Gauge Stl Plstc Wld Thrd
Casing:
Material From To Amt sacks/lbs
Seal: _____

(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 540.00 ft.
BORE HOLE SEAL sacks/lbs
Dia From To Material From To Amt lbs
10 0 20 Bentonite Chips 0 20 17 S
6 20 540 Calculated 9.13
Calculated _____

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

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount _____ Actual Amount _____

(6) CASING/LINER
Casing Liner Dia + From To Gauge Stl Plstc Wld Thrd
 6 2 58 .250
Shoe Inside Outside Other Location of shoe(s) 58
Temp casing Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Perforations Method _____
Screens Type _____ Material _____
Perf/ Casing/ Screen Dia From To Scrw/slot Slot # of Tete/ width length slots pipe size
Screen Liner Dia From To width length slots pipe size

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)
8.5 _____ 540 _____ 1 _____
Temperature 56 °F Lab analysis Yes By _____
Water quality concerns? Yes (describe below) TDS amount 139 ppm
From To Description Amount Units

(9) LOCATION OF WELL (legal description)
County JOSEPHINE Twp 39.00 S N/S Range 5.00 W E/W WM
Sec 9 NE 1/4 of the NW 1/4 Tax Lot 301
Tax Map Number _____ Lot _____
Lat _____ or 42.19740120 DMS or DD
Long _____ or -123.29904611 DMS or DD
 Street address of well Nearest address
555 DAVIDSON RD. WILLIAMS, OR 97544

(10) STATIC WATER LEVEL
Date SWL (psi) + SWL (ft)
Existing Well / Pre-Alteration _____
Completed Well 5/20/2016 _____ + 34
Flowing Artesian? Dry Hole?
WATER BEARING ZONES Depth water was first found 191.00
SWL Date From To Est Flow SWL (psi) + SWL (ft)
5/20/2016 191 196 2 _____ + 34
5/20/2016 414 416 5 _____ + 34
5/20/2016 497 499 1.5 _____ + 34

(11) WELL LOG Ground Elevation 1839.00
Material From To
DECOMPOSED GRANITE 0 11
BLACK & WHITE GRANITE MEDIUM 11 47
BLACK & WHITE GRANITE MEDIUM HARD 47 56
BROWN & WHITE GRANITE HARD 56 73
BLACK & WHITE GRANITE HARD 73 167
BLACK & WHITE L.TL. GRN GRANITE HARD 167 191
GREY L.TL. WHITE & GREEN GRANITE HARD 191 363
GREY GREEN WHITE GRANITE HARD 363 369
GREY & WHITE GRANITE HARD 369 540

Date Started 5/19/2016 Completed 5/20/2016

(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 1945 Date 5/24/2016
Signed JUSTIN SPLIETHOF (E-filed)

(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 1835 Date 5/25/2016
Signed KEVIN D GILL (E-filed)
Contact Info (optional) CLOUSER DRILLING INC.

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version: