

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 03/17/2015
 FROM: Groundwater Section Phil Marcy
Reviewer's Name
 SUBJECT: Application G- 17974 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: JR Land & Livestock County: Malheur

A1. Applicant(s) seek(s) 4.48 cfs from 3 well(s) in the Malheur Basin,
Malheur River subbasin Quad Map: Hope Butte, Little Valley, and Swede Flat

A2. Proposed use: Irrigation (166.7 acres) and Supplemental Irrigation (196.4 acres) Seasonality: April 1st – October 31st

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	MALH 54108	1	Basalt	1.63	18S/42E-28 NE-NW	775'S, 2225'E fr NW cor, S 28
2	MALH 54113	2	Basalt	2.10	18S/42E-4 SE-SW	4340'S, 1560'E fr NW cor, S 4
3	MALH 53867	3	Sediments	0.75	18S/43E-7 NE-SW	250'S, 1800'W fr E ¼ cor, S 7
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	2792	280	97	02/27/2014	460	0-104	+2-104	N/A	N/A	1500	?	Air
2	3386	97	76	04/03/2014	460	0-168	+1.5-298	N/A	168-298	1500	?	Air
3	2729	120	82	05/31/2011	280	0-40	+2-43	N/A	N/A	250	?	Air

Use data from application for proposed wells.

A4. **Comments:** The driller's air test for well 3 (MALH 53867) states a yield of 250 gallons per minute (GPM), but applicant is proposing to pump 341.1 GPM. Therefore, the requested amount from this well may not be available. In general, the groundwater flow direction in this area appears to be toward the east, with recharge occurring in the topographic highs to the west.

A5. Provisions of the Malheur (OAR 690-510) 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) 7N (annual measurement condition); 7P (well tag condition); "Large water use condition"
 - 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:** _____

Regarding Injury: The only existing groundwater right (G-2205) within a mile of any of the proposed POAs belongs to the applicant, rendering other right holders unlikely to be injured by approval of this application.

Regarding Capacity: Well logs for wells 1 and 2 (MALH 54108 and MALH 54113) state a yield of 1500 gallons per minute, and appear to pull from the same volcanic aquifer. Well 3 only yielded 250 gallons per minute during the driller's test, and so is unlikely to provide the volume specified (341.1 gpm) on the permit 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	Basalt	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Basalt	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Sediments	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer confinement evaluation: The age and complex assemblage of volcanic rocks and volcanoclastic sediment in the are creates a groundwater flow system that is likely fracture controlled. Therefore, the degree of confinement may be highly localized as evidenced by common hydraulic head elevations occurring at vastly different elevations of water bearing zones.

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	Bully Creek	2695	2783	150	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	2	Swede Flat Creek	3310	3320	3350	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	3	Bully Creek	2647	2581	2958	<input type="checkbox"/>	<input checked="" 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"/>

Basis for aquifer hydraulic connection evaluation: Well 1 is located very near Bully Creek, but when considering the groundwater elevation in the well, the nearest potential discharge point is nearly 2 miles downstream. Groundwater elevation in Well 2 (MALH 54133) is coincident with the elevations of mapped springs less than one mile downstream in Swede Flat Creek. Well 3 shows a water level significantly above the elevation of Bully Creek, and shows no evidence of hydraulic connection within 1 mile.

Water Availability Basin the well(s) are located within: Wells 1 and 3 are located within Bully Creek > Malheur River WAB, Well 2 is located within the Cottonwood Creek > Bully Creek – At mouth WAB.

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?
2	2	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	0.03	<input checked="" 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"/>

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: Analytical solutions are not an appropriate evaluation tool for this situation.

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												
		%	%	%	%	%	%	%	%	%	%	%	%
	Well Q as CFS												
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	Well Q as CFS												
	Interference CFS												

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** Given the lack of groundwater data in this area, it is difficult to evaluate the effects of increased pumping on surface water discharge from local springs. The measured groundwater elevation in Well 2 is equivalent to that of a spring complex feeding Swede Flat Creek within 1 mile downstream, establishing a hydraulic connection between the water-bearing zone in the well and the creek. Regular measurements of Wells 1 and 3 should be made to evaluate the effects of pumping on the ground water flow system.

If issued, this permit should contain the following permit conditions: 7N-annual water level measurement condition; 7P-well tag condition; "Large Water Use Condition".

References Used:

U.S. Geological Survey. Hope Butte Quadrangle, OR Map. [ca. 1:24,000]. Denver, Colorado: USGS, 1988. Print.

U.S. Geological Survey, Little Valley Quadrangle, OR Map. [ca 1:24,000]. Denver, Colorado: USGS, 1990. Print.

U.S. Geological Survey, Swede Flat Quadrangle, OR Map. [ca. 1:24,000]. Denver, Colorado: USGS, 1990. Print.

JR Land and Livestock, 2014. Application G-17974.

McLeran, Daniel, 2014. Well log for MALH 54108, Well log for MALH 54113

Wineberg, Alan, 2011. Well log for MALH 53867

Ferns, M.L., H.C. Brooks, J.G. Evans, M.L. Cummings. 1993. Geologic map of the Vale 30x60 minute quadrangle, Malheur County, Oregon and Owyhee County, Idaho. Oregon Dept. of Geology and Mineral Industries Geological Map Series 77.

Brooks, H.C., McIntyre, J.R., Walker, G.W., 1976. Geology of the Oregon Part of the Baker 1° by 2° Quadrangle. Oregon Dept. of Geology and Mineral Industries Geological Map Series 7.

Brooks, H.C., O'Brien, J.P., 1992. Geology and Mineral Resources Map of the Little Valley Quadrangle, Malheur County, Oregon. Oregon Dept. of Geology and Mineral Industries Geological Map Series 72.

Well Logs Attached:

MALH 54108 (applicant's Well #1)

MALH 54113 (applicant's Well #2)

MALH 53867 (applicant's Well #3)

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

DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION

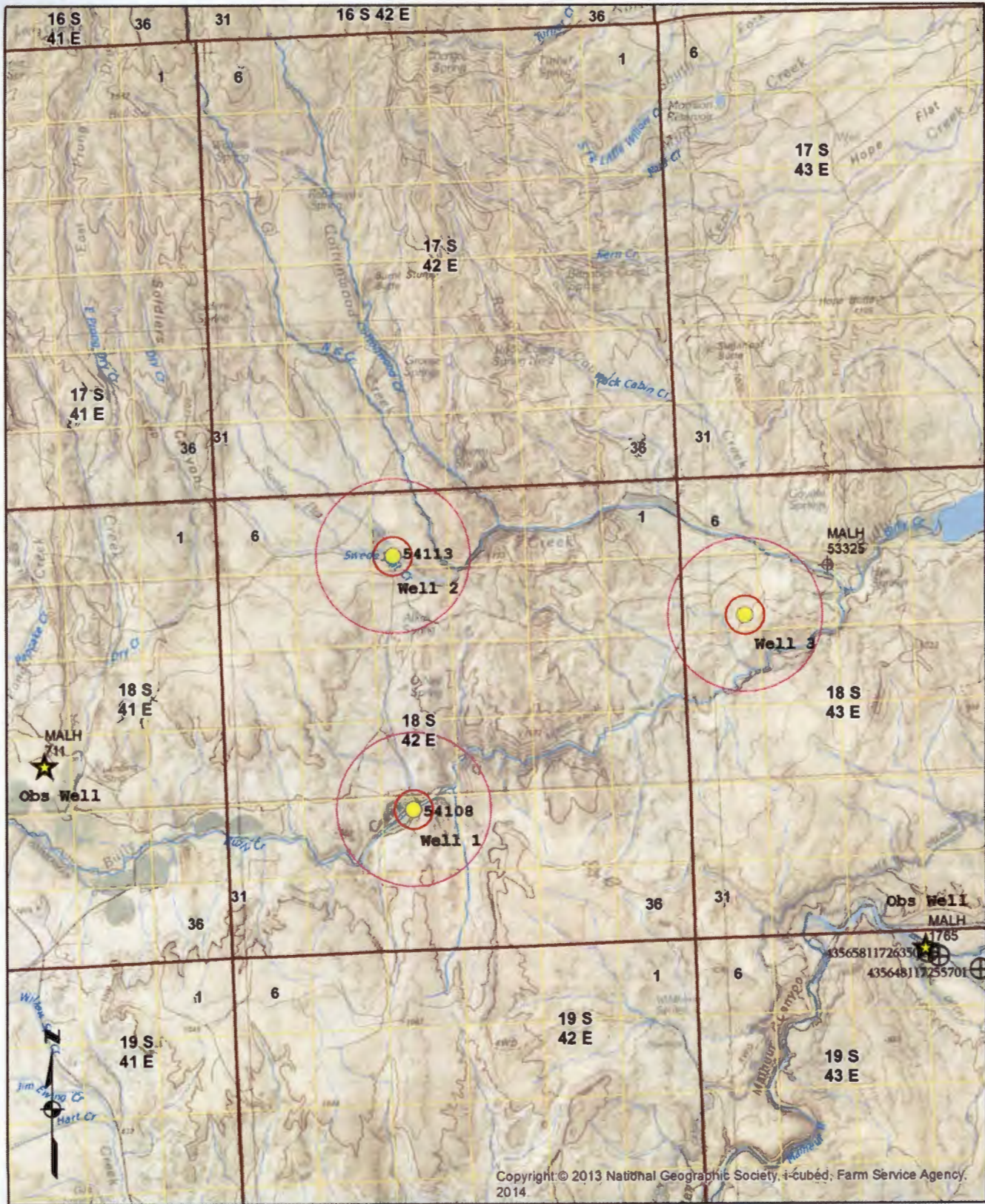
Watershed ID #: 31011802
Time: 3:12 PM

COTTONWOOD CR > BULLY CR - AT MOUTH
Basin: MALHEUR

Exceedance Level: 80
Date: 03/10/2015

Month	Natural Stream Flow	Consumptive Use and Storage	Expected Stream Flow	Reserved Stream Flow	Instream Requirements	Net water Available
Monthly values are in cfs. Storage is the annual amount at 50% exceedance in ac-ft.						
JAN	0.38	0.03	0.35	0.00	0.00	0.35
FEB	1.45	0.06	1.39	0.00	0.00	1.39
MAR	2.32	0.31	2.01	0.00	0.00	2.01
APR	2.17	1.08	1.09	0.00	0.00	1.09
MAY	3.01	2.66	0.35	0.00	0.00	0.35
JUN	2.50	2.17	0.33	0.00	0.00	0.33
JUL	0.37	0.73	-0.36	0.00	0.00	-0.36
AUG	0.10	0.29	-0.19	0.00	0.00	-0.19
SEP	0.03	0.16	-0.13	0.00	0.00	-0.13
OCT	0.03	0.08	-0.05	0.00	0.00	-0.05
NOV	0.11	0.01	0.10	0.00	0.00	0.10
DEC	0.29	0.02	0.27	0.00	0.00	0.27
ANN	1,860	460	1,410	0	0	1,410

Figure 1: Location map, showing proposed POAs on application G-17974 in addition to state observation wells nearby.



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

MALH 54113

WELL ID, LABEL # 108948
START CARD # 1022374
ORIGINAL LOG #

4/5/2014

(1) LAND OWNER Owner Well ID.
First Name DICK Last Name JORDAN
Company JR LAND AND LIVESTOCK
Address PO BOX 800
City HARPER State OR Zip 97906

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

(2a) PRE-ALTERATION
Dia + From To Gauge Sd 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 460.00 ft.

BORE HOLE			SEAL				
Dia	From	To	Material	From	To	Amt	sacks/lbs
20	0	298	Bentonite Chips	0	4	300	P
12	298	306	Cement	4	160	7800	P
6	306	460	Bentonite Chips	160	168	600	P

How was seal placed: Method A B C D E
 Other

Backfill placed from 300 ft to 460 ft. Material CUTTINGS/REAMT
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 Sd Plstc Wld Thrd
 16 1.5 298 375
Shoe Inside Outside Other Location of shoe(s)
Temp casing Yes Dia From To

(7) PERFORATIONS/SCREENS
Perforations Method Plasma cutter
Screens Type Material
Perf Casing/Screen Dia From To Scrn/slot Slot # of Tele/
Screen Liner Dia From To width length slots pipe size
Perf Casing 16 168 298 375 6 1170

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
Yield gal/min Drawdown Drill stem Pump depth Duration (hr)
1500 298 10
Temperature 60 °F Lab analysis Yes By

Water quality concerns? Yes (describe below) TDS amount
From To Description Amount Units

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County MALHEUR Twp 18.00 S N/S Range 42.00 E E/W WM
Sec 4 SE 1/4 of the SW 1/4 Tax Lot 500
Tax Map Number Lot
Lat " or 44.02878000 DMS or DD
Long " or -117.58190000 DMS or DD
 Street address of well Nearest address
3393 OLD STAGE RD WESTFALL

(10) STATIC WATER LEVEL
Date SWL(psi) + SWL(ft)
Existing Well / Pre-Alteration
Completed Well 4/3/2014 76
Flowing Artesian? Dry Hole?

WATER BEARING ZONES Depth water was first found 97.00

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
3/3/2014	97	114	25		97
5/1/2014	168	298	1500		76

(11) WELL LOG Ground Elevation

Material	From	To
topsoil	0	5
gravel	5	12
sandy clay	12	40
gravel	40	46
sandstone or hard sandy clay	46	97
gravel and grey rock mix	97	114
Black rock with some clay mix	114	118
yellow rock with some clay mix	118	130
black, brown, and orange rock	130	158
broken black rock	158	168
broken brown rock (caved)	168	185
broken grey and green rock	185	191
broken brown rock with red & green layer	191	295
hard brown rock	295	380
grey and green colored rock	380	400
hard black rock	400	407
brown rock	407	460

Date Started 2/27/2014 Complete 4/3/2014

(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
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 1818 Date 4/5/2014
Signed DANIEL MCCLERAN (E-filed)
Contact Info (optional) 208-941-0647

MALH 53867

**STATE OF OREGON
WATER SUPPLY WELL REPORT**

(as required by ORS 537.765 & OAR 690-205-0210)

WELL LABEL # 101316

START CARD # 1013668

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER Owner Well I.D. _____
 First Name RICHARD Last Name LEDDAN
 Company _____
 Address 2785 BULLY CREEK RD
 City VALE State OR Zip 97181

(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 Injection
 Thermal Other TEST

(5) BORE HOLE CONSTRUCTION Special Standard: Yes (attach copy)
 Depth of Completed Well 280 ft.

BORE HOLE			SEAL			Amount	@/ft
Dia	From	To	Material	From	To		
12	0	40	Benbelle	0	40	32	

How was seal placed: Method A B C D E
 Other dry pack
 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	Steel	Plastic	Welded	Thrd
✓	8	7.2	41	38	✓		✓	

Shoe Inside Outside Other Location of shoe(s) _____
 Temporary casing Yes Diameter _____ From _____ To _____

(7) PERFORATIONS/SCREENS
 Perforations Method _____
 Screens Type _____ Material _____

Perf	Scr	Casing	Liner	Screen Dia	From	To	Screen/ slot width	Slot length	# of slots	Telo/ pipe size

(8) WELL TESTS: Minimum testing time is 1 hour
 Pump Bailer Air Flowing Artesian
 Yield gal/min _____ Drawdown _____ Drill stem/Pump depth 280 Duration (hr) 2hr

Temperature 63 °F Lab analysis Yes By _____
 Water quality concerns? Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
 County Malheur Twp 18S N or S Range 43E E or W W.M.
 Sec 7 NE 1/4 of the 34 1/4 Tax Lot 900
 Tax Map Number _____ Lot _____
 Lat 44° 00' 58.5" or _____ DMS or DD
 Long 117° 29' 23" or _____ DMS or DD
 Street Address of Well (or nearest address) SAME

(10) STATIC WATER LEVEL

	Date	SWL (psi)	SWL (ft)
Existing Well/Predeepening			
Completed Well	<u>5-31-11</u>		<u>82</u>

Flowing Artesian? Yes Dry Hole? Yes
 WATER BEARING ZONES Depth water was first found 120

SWL Date	From	To	Est Flow	SWL (psi)	SWL (ft)
<u>5-31-11</u>	<u>120</u>	<u>168</u>	<u>100</u>		<u>82</u>
<u>5-2-11</u>	<u>230</u>	<u>255</u>	<u>150</u>		<u>82</u>

(11) WELL LOG Ground Elevation _____

Material	From	To
<u>Dark Stone</u>	<u>0</u>	<u>32</u>
<u>Green Claystone</u>	<u>32</u>	<u>120</u>
<u>Green chert dark shale</u>	<u>120</u>	<u>168</u>
<u>Clay shale</u>	<u>168</u>	<u>230</u>
<u>Green clay dark shale</u>	<u>230</u>	<u>255</u>
<u>Clay shale</u>	<u>255</u>	<u>280</u>

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JUN 10 2011

WATER RESOURCES DEPT
 SALEM, OREGON
 Date Started 5-31-11 Completed 5-31-11

(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 _____
 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 1867 Date 5-31-11
 Signed Alan J. Finckley
 Contact Info. (optional) _____

**STATE OF OREGON
EXEMPT USE WELL MAP**

(as required by ORS 537.545 & OAR 690.190)
This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem, OR 97301
(503)986-0900

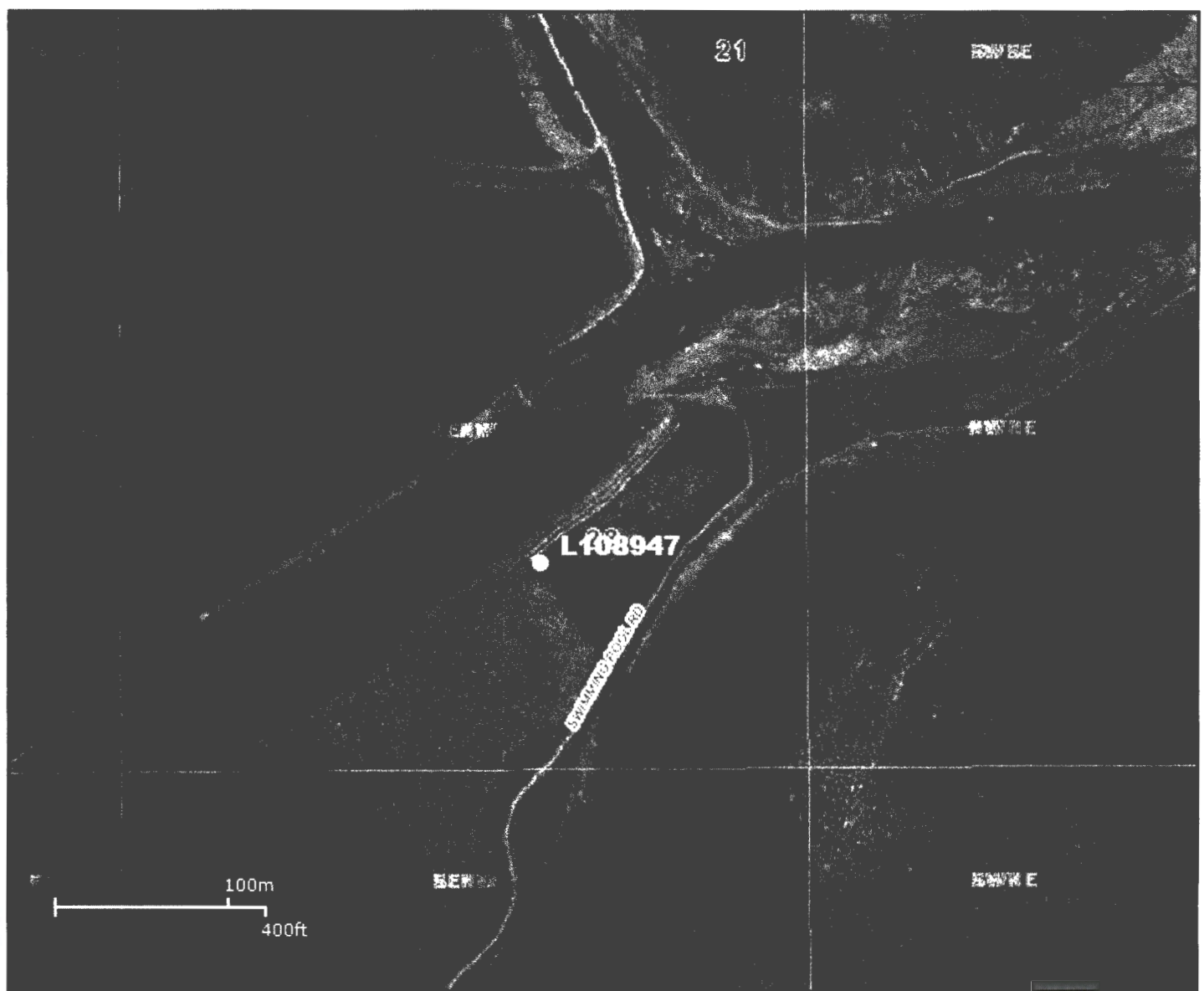


LOCATION OF WELL

Latitude: 43.98070000
Longitude: -117.57910000
Datum: WGS84
Township/Range/Section/Quarter-Quarter Section:
WM 18.00S 42.00E 28 NENW
Address of Well:
3393 OLD STAGE RD WESTFALL

Well Label: L108947
Well Log: MALH 54108
Printed: May 30, 2014

DISCLAIMER: This map is intended to represent the approximate location of the exempt use well provided by the land owner. It is not intended to be construed as survey accurate in any manner.



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

MALH 54108

3/13/2014

WELL I.D. LABEL# L 108947
START CARD # 1022015
ORIGINAL LOG #

(1) LAND OWNER
Owner Well I.D. _____
First Name DICK Last Name JORDAN
Company JR LAND AND LIVESTOCK
Address PO BOX 800
City HARPER State OR Zip 97906

(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 460.00 ft.
BORE HOLE
Dia From To Material SEAL From To Amt sacks/lbs
20 0 104 Bentonite Chips 0 4 200 P
15 104 360 Cement 4 104 70 S
8 360 460

How was seal placed: Method A B C D E
 Other _____
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
 16 2 104 .375
Shoe Inside Outside Other Location of shoe(s) _____
Temp casing Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS
Screens Type _____ Material _____
Perf/ Casing/ Screen Scrm/slot Slot # of Tele/
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)
1500 _____ 460 1
Temperature 60 °F Lab analysis Yes By _____
Water quality concerns? Yes (describe below) TDS amount
From To Description Amount Units

(9) LOCATION OF WELL (legal description)
County MALHEUR Twp 18.00 S N/S Range 42.00 E E/W WM
Sec 28 NE 1/4 of the NW 1/4 Tax Lot 800
Tax Map Number _____ Lot _____
Lat _____ " or 43.98070000 DMS or DD
Long _____ " or -117.57910000 DMS or DD
 Street address of well Nearest address
3393 OLD STAGE RD WESTFALL

(10) STATIC WATER LEVEL
Date SWL(psi) + SWL(ft)
Existing Well / Pre-Alteration _____
Completed Well 2/27/2014 _____ 97
Flowing Artesian? Dry Hole?

WATER BEARING ZONES Depth water was first found 280.00
SWL Date From To Est Flow SWL(psi) + SWL(ft)
2/27/2014 280 460 1500 _____ 97

(11) WELL LOG Ground Elevation _____
Material From To
topsoil 0 4
gravel and grey rock 4 12
black basalt 12 23
yellow clay 23 25
black basalt 25 35
gravel and rock with some clay 35 50
grey basalt 50 72
red and brown rock 72 75
red and brown rock with some clay mixed 75 83
black basalt (very hard) 83 280
black hard basalt w/fractured layers 280 460

Date Started 1/16/2014 Complete 2/28/2014

(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 _____
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 1818 Date 3/13/2014
Signed DANIEL MCLERAN (E-filed)
Contact Info (optional) _____

**STATE OF OREGON
EXEMPT USE WELL MAP**

(as required by ORS 537.545 & OAR 690.190)
This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem, OR 97301
(503)986-0900



LOCATION OF WELL

Latitude: 44.02878000
Longitude: -117.58190000
Datum: WGS84
Township/Range/Section/Quarter-Quarter Section:
WM 18.00S 42.00E 4 SESW
Address of Well:
3393 OLD STAGE RD WESTFALL

Well Label: L108948
Well Log: MALH 54113
Printed: May 30, 2014

DISCLAIMER: This map is intended to represent the approximate location of the exempt use well provided by the land owner. It is not intended to be construed as survey accurate in any manner.



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

MALH 54113

WELL I.D. LABEL# L 108948
START CARD # 1022374
ORIGINAL LOG #

4/5/2014

(1) LAND OWNER

Owner Well I.D. _____
First Name DICK Last Name JORDAN
Company JR LAND AND LIVESTOCK
Address PO BOX 800
City HARPER State OR Zip 97906

(2) TYPE OF WORK

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

(2a) PRE-ALTERATION

Casing: Dia + From To Gauge Stl Plstc Wld Thrd
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 460.00 ft.

BORE HOLE			SEAL			sacks/
Dia	From	To	Material	From	To	Amt lbs
20	0	298	Bentonite Chips	0	4	300 P
12	298	306	Cement	4	160	7800 P
6	306	460	Bentonite Chips	160	168	600 P

How was seal placed: Method A B C D E

Other _____

Backfill placed from 300 ft. to 460 ft. Material CUTTINGS/REAMIT

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
 16 1.5 298 375

Shoe Inside Outside Other Location of shoe(s) _____

Temp casing Yes Dia _____ From _____ To _____

(7) PERFORATIONS/SCREENS

Perforations Method Plazma cutter

Screens Type _____ Material _____

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrnm/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Casing	16	168	298	.375	6	1170	

(8) WELL TESTS: Minimum testing time is 1 hour

Pump Bailer Air Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1500		298	10

Temperature 60 °F Lab analysis Yes By _____

Water quality concerns? Yes (describe below) TDS amount

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)

County MALHEUR Twp 18.00 S N/S Range 42.00 E E/W WM
Sec 4 SE 1/4 of the SW 1/4 Tax Lot 500
Tax Map Number _____ Lot _____
Lat _____ " or 44.02878000 DMS or DD
Long _____ " or -117.58190000 DMS or DD
 Street address of well Nearest address

3393 OLD STAGE RD WESTFALL

(10) STATIC WATER LEVEL

Existing Well / Pre-Alteration Completed Well	Date	SWL(psi)	+ SWL(ft)
	4/3/2014		76

Flowing Artesian? Dry Hole?

WATER BEARING ZONES

Depth water was first found 97.00

SWL Date From To Est Flow SWL(psi) + SWL(ft)

SWL Date	From	To	Est Flow	SWL(psi)	+ SWL(ft)
3/3/2014	97	114	25		97
5/1/2014	168	298	1500		76

(11) WELL LOG

Ground Elevation _____

Material	From	To
topsoil	0	5
gravel	5	12
sandy clay	12	40
gravel	40	46
sandstone or hard sandy clay	46	97
gravel and grey rock mix	97	114
Black rock with some clay mix	114	118
yellow rock with some clay mix	118	130
black, brown, and orange rock	130	158
broken black rock	158	168
broken brown rock (caved)	168	185
broken grey and green rock	185	191
broken brown rock with red & green layer	191	295
hard brown rock	295	380
grey and green colored rock	380	400
hard black rock	400	407
brown rock	407	460

Date Started 2/27/2014 Complete 4/3/2014

(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 _____

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 1818 Date 4/5/2014

Signed DANIEL MCLERAN (E-filed)

Contact Info (optional) 208-941-0647

**STATE OF OREGON
EXEMPT USE WELL MAP**

(as required by ORS 537.545 & OAR 690.190)

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department

725 Summer St NE, Salem, OR 97301

(503)986-0900



LOCATION OF WELL

Latitude: 44.01625

Longitude: -117.48972

Datum: WGS84

Township/Range/Section/Quarter-Quarter Section: 18S 43E 7 NESE

Address of Well: 2900 BULLY CREEK RD

Well Label #: L101316

Well Log: MALH 53867

Printed: Jul 06, 2011

DISCLAIMER: This map is intended to represent the approximate location of the exempt use well provided by the land owner. It is not intended to be construed as survey accurate in any manner.



MALH 53867

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

WELL LABEL # L 101316
 START CARD # 1013668

Instructions for completing this report are on the last page of this form.

(1) LAND OWNER Owner Well I.D. _____
 First Name RICHARD Last Name JORDAN
 Company _____
 Address 2785 BULLY CREEK RD
 City VALE State OR Zip 97918

(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 Injection
 Thermal Other test

(5) BORE HOLE CONSTRUCTION Special Standard: Yes (attach copy)
 Depth of Completed Well 280 ft.

BORE HOLE			SEAL				
Dia	From	To	Material	From	To	Amount	cks/lbs
12	0	40	bertrulle	0	40	32	

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

(6) CASING/LINER

Csng	Lintr	Dia	+	From	To	Gauge	Steel	Plastic	Welded	Thrd
1		8		+2	41	3/8				

Shoe Inside Outside Other Location of shoe(s) _____
 Temporary casing Yes Diameter _____ From _____ To _____

(7) PERFORATIONS/SCREENS
 Perforations Method _____
 Screens Type _____ Material _____

Perf	Scrn	Csng	Lintr	Screen Dia	From	To	Screen/slot width	Slot length	# of slots	Tele/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)
250		280	2 hr

Temperature 63 °F Lab analysis Yes By _____
 Water quality concerns? Yes (describe below)

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
 County Malheur Twp 185 N or S Range 43E E or W W.M.
 Sec 7 NE 1/4 of the SW 1/4 Tax Lot 400
 Tax Map Number _____ Lot _____
 Lat 44° 00' 58.5" or _____ DMS or DD
 Long 117° 29' 23." or _____ DMS or DD
 Street Address of Well (or nearest address) SAME

(10) STATIC WATER LEVEL

	Date	SWL (psi)	+	SWL (ft)
Existing Well/Predeepening				
Completed Well	5-31-11			82

Flowing Artesian? Yes Dry Hole? Yes
 WATER BEARING ZONES Depth water was first found 120

SWL Date	From	To	Est Flow	SWL (psi)	+	SWL (ft)
5-31-11	120	168	100			82
5-31-11	230	255	150			82

(11) WELL LOG Ground Elevation _____

Material	From	To
Dand Stone	0	32
Green Claystone	32	120
Green Claystone Dand Stone	120	168
Clay DK Brown	168	230
Green Clay Dand Stone	230	255
Clay Green	255	280

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JUN 10 2011

WATER RESOURCES DEPT

SALEM, OREGON

Date Started 5-31-11 Completed 5-31-11

(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 _____
 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 1867 Date 5-31-11
 Signed Alan J. Juretzko
 Contact Info. (optional) _____