PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date April 27, 2015

FROM: Groundwater Section Josh Hackett
Reviewer's Name

SUBJECT: Application G- 17774 Supersedes review of December 11, 2014
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: Hat Rock Water Co. County: Umatilla

A1. Applicant(s) seek(s) 1.0 cfs from 1 well(s) in the Umatilla Basin, Columbia-Umatilla Plateau subbasin Quad Map: Hat Rock

A2. Proposed use Quasi-Municipal 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	**Proposed**	**#1**	Basalt - CRBG	**1.0**	05N/29E-15 NWNE	*1540'N, 580'E from center of S 15
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	429	254**	50**		< 800	100	100			450		

Use data from application for proposed wells.

A4. **Comments:** *The applicant has proposed a new well location. This review evaluates impacts at the new location.
** Estimated from nearby basalt well UMAT 55889 (log attached).
Applicant is proposing a new well into CRBG aquifer because existing source of water, a spring on Permit S-52968, contains high concentrations of nitrate. Any new well should be conditioned to be open to only one aquifer within the CRBG which will require much deeper case and seal than what is proposed – see B3.

A5. ☒ **Provisions of the Umatilla Basin – Columbia-Umatilla Sub.** 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 well, if properly cased and sealed into a single CRBG aquifer as conditioned below, will not be hydraulically connected to surface water.

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; 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 **a single aquifer within the Columbia River Basalt Group** 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's proposed well is located in an area that contains basalt flows of the Columbia River Basalt Group (CRBG) from land surface to depths of several thousand feet. Within the CRBG, most water occurs in confined aquifers that occupy thin rubble zones (interflow zones) at the contacts between lava flows. The interiors of the basalt flows generally have low porosity and permeability and act as confining beds. This geometry generally produces a stack of thin aquifers (interflow zones) separated by thick confining beds (flow interiors). The low permeability of the basalt flow interiors probably limits the natural vertical connection between overlying aquifers.

Surficial geologic mapping (Madin and Geitgy, 2007) and geologic cross-sections (Wozniak, 1995) indicate that the proposed well should encounter the Umatilla Member of the Saddle Mountains Basalt Formation from land surface to a depth of approximately 90 feet (elevation 430 to 340 feet above mean sea level (msl)). Beneath the Umatilla Member, the well will likely encounter multiple flows of the Frenchman Springs Member of the Wanapum Basalt Formation. Locally, the total thickness of the Frenchman Springs Member is approximately 700 feet and is found between elevations of 340 feet above msl and 270 feet below msl.

Driller's logs for nearby wells report multiple water-bearing zones (WBZs) in the Frenchman Springs Member (see logs for UMAT 5255, UMAT 55889, and UMAT 57027). An upper WBZ is found between elevations of 100 and 200 feet above msl and a lower WBZ is found between elevations of 100 and 200 feet below msl. Production from the upper WBZ is limited to 10-40 gallons per minute (gpm), while wells producing from the lower WBZ report yields ranging from 150-400 gpm.

The applicant has proposed a well that will be cased and sealed to a depth of 100 feet and will not exceed a total depth of 800 feet and requested maximum pumping rate is 450 gpm (~1 cubic foot per second). Both the proposed construction and the requested rate raise several concerns. First, the proposed construction will not meet current OWRD well construction standards as it will allow commingling of the upper and lower WBZs. Also, the requested maximum pumping rate will not likely be available from the upper WBZ as no wells currently completed in the upper WBZ report yields greater than 40 gpm, and some wells report yields of less than 10 gpm. In order to protect the groundwater resource and nearby groundwater users, I recommend the following conditions:

Special Condition #1:
Groundwater production in any well drilled under this permit shall be limited to a single aquifer in the Columbia River Basalt Group lavas. The well(s) shall be cased and sealed into hard basalt below an elevation of approximately 100 feet below mean sea level or cased and sealed to sufficient depth to ensure that the open interval is no shallower than the deeper water-bearing zone in the Frenchman Springs Member of the Columbia River Basalt Group. The open interval in the well(s) shall be no greater than 100 feet except as noted below. Open interval means the total length of borehole that is not behind sealed casing. The borehole above the open interval shall be continuously cased and sealed to land surface. A larger open interval may be approved by the Department if the applicant can demonstrate, using packer tests or other suitable methods, that the hydraulic heads of water-bearing zones in the proposed open interval are equivalent or if the applicant can demonstrate that the open interval is part of a continuous zone of interconnected porous materials such as a sequence of pillow lavas or a hyaloclastite complex.

Special Condition #2:
The permittee shall instruct the well constructor to contact the Ground Water Section of the Water Resources Department prior to drilling the well to arrange for the collection of drill cuttings.

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	**Columbia River Basalt***	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: CRBG aquifers are generally under confined conditions in this area, particularly aquifers in deeper basalt flows that do not outcrop nearby. Well logs from nearby CRBG wells show static water levels much higher than depths were water is encountered (see UMAT 55889) indicating confined conditions.
* This evaluation assumes that the well will be constructed as listed in the conditions B2(c).

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? YES	NO	ASSUMED	Potential for Subst. Interfer. Assumed? YES	NO
1	**1**	**Columbia River**	**360**	**340**	**750**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The proposed well will be conditioned to pump from a single CRBG aquifer that will be several hundred feet below the base of the Columbia River and so not hydraulically connected.

Water Availability Basin the well(s) are located within: None

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?
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐
		☐	☐			☐		☐		☐

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?
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐
			☐			☐		☐		☐

Comments: ____________________

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

References Used: Madin, I. P. and R. P. Geitgey, 2007. Preliminary Geologic Map of the Umatilla Basin, Morrow and Umatilla Counties, Oregon. Open-File Report O-07-17. State of Oregon – Dept. of Geology And Mineral Industries.

"Columbia River Basalt Stratigraphy in the Pacific Northwest". USGS – Oregon Water Science Center website. http://or.water.usgs.gov/projs_dir/crbg/. Accessed Sept. 2014

Wozniak, K.C., 1995 Chapter 2: Hydrogeology of the Lower Umatilla Basin. In Grondin G.H. et al., Hydrogeology, Groundwater Chemistry and Land Uses in the Lower Umatilla Basin Groundwater Management Area, Oregon Department of Environmental Quality, 601 p.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** _____ **Logid:** _____

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

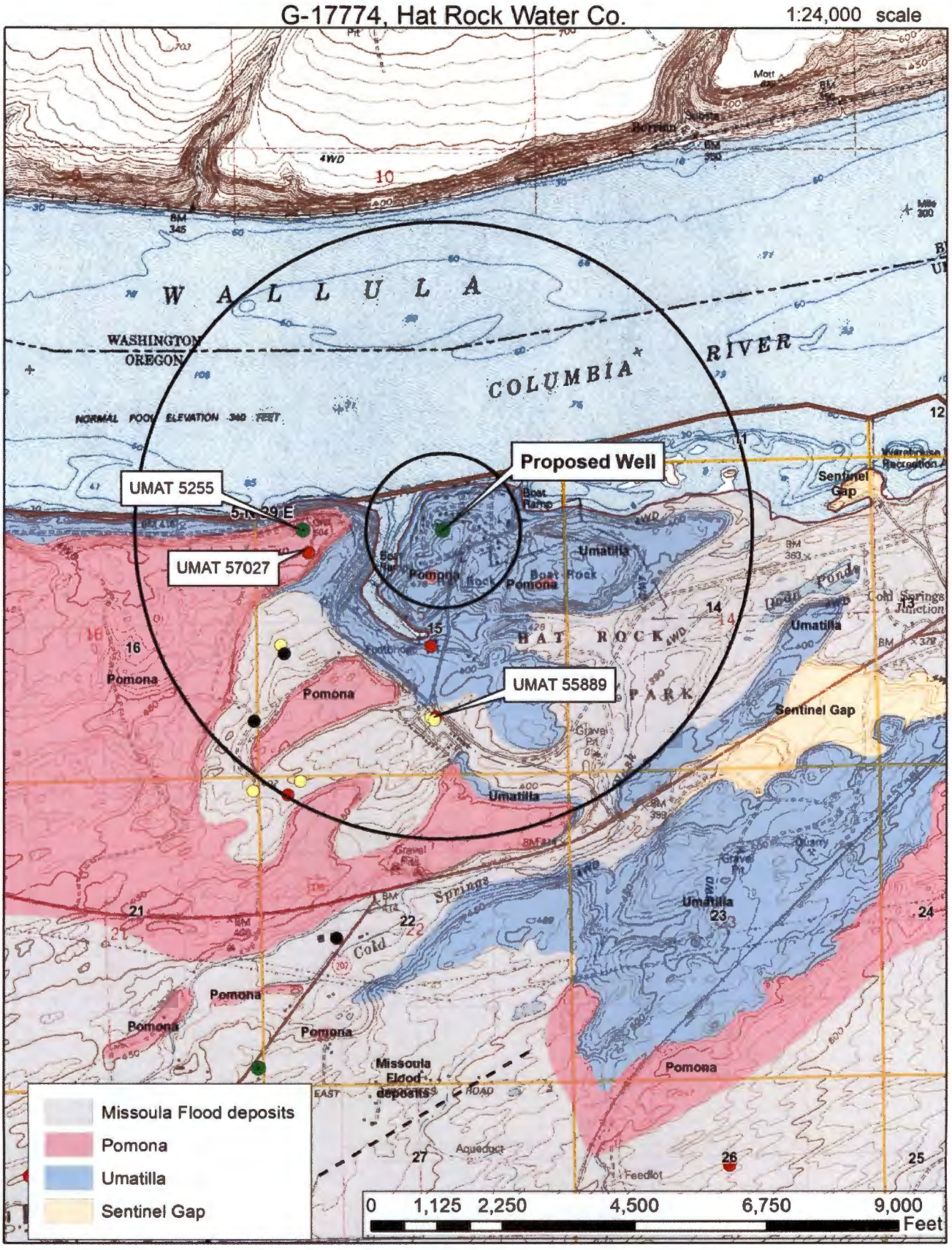
a. ☐ review of the well log;
b. ☐ field inspection by _____;
c. ☐ report of CWRE _____;
d. ☐ other: (specify) _____

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

Well Location Map



Well Logs

UMAT 5255 :: UMAT 5255 5N/29E/15dd

STATE OF OREGON
WATER WELL REPORT
(as required by ORS 537.765)

WATER RESOURCES DEPT.
SALEM, OREGON

(START CARD) # 4013

(1) OWNER: Well Number:
Name Don Christensen
Address 345 NW 13th
City Hermiston State OR Zip 97838

(2) TYPE OF WORK:
☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD
☒ Rotary Air ☐ Rotary Mud ☐ Cable
☐ Other

(4) PROPOSED USE:
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval Yes ☐ No ☒ Depth of Completed Well 323 ft.
Explosives used Yes ☐ No ☒ Type Amount

HOLE Diameter	From	To	SEAL Material	From	To	Amount sacks or pounds
10	0	39	Cement	0	39	12 SKS
6	39	323				

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+1	39	250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4	-5	323	160	☐	☒	☒	☐
					☐	☐	☐	☐

Final location of shoe(s) 39

(7) PERFORATIONS/SCREENS:
☒ Perforations Method Skill saw
☐ Screens Type Material

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
283	323	1/8x7	60	4	pipe	☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
45		320	1 hr.

Temperature of water 59° Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Umatilla Latitude Longitude
Township 5N N or S, Range 29E E or W, WM.
Section 15 SW ¼ NW ¼
Tax Lot Lot Block Subdivision
Street Address of Well (or nearest address) Hyway 730 at Hat Rock

(10) STATIC WATER LEVEL:
163 ft. below land surface. Date 1-6-88
Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES:
Depth at which water was first found 283

From	To	Estimated Flow Rate	SWL
283	323	40	163

(12) WELL LOG: Ground elevation

Material	From	To	SWL
Silt	0	3	
Broken Basalt	3	5	
Black Basalt	5	55	
Tan Clay	55	58	
Red Cinders	58	81	
Black Basalt	81	117	
Red Cinders	117	138	
Black Basalt	138	240	
Blue Gray & Visicular Basalt	240	260	
Soft Black Basalt	260	283	
Visicular Basalt	283	315	163
Broken Basalt	315	323	1

Date started 1-5-88 Completed 1-6-88

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

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, 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 well construction standards. This report is true to the best of my knowledge and belief.
WWC Number
Signed S Brown Date 1-6-88

ORIGINAL & FIRST COPY - WATER RESOURCES DEPARTMENT SECOND COPY - CONSTRUCTOR THIRD COPY - CUSTOMER 6038C 1/98

UMAT 55889

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

WELL I.D. # L 85466
START CARD # 162832

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

(1) LAND OWNER Well Number
Name Mike Jewitt
Address 82284 Hat Rock Rd
City Hermiston State OR Zip 97838

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

(3) DRILL METHOD
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Other

(4) PROPOSED USE
☐ Domestic ☒ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION Special Construction: ☐ Yes ☒ No
Depth of Completed Well 530 ft.
Explosives used: ☐ Yes ☒ No Type Amount

BORE HOLE Diameter	From	To	SEAL Material	From	To	Sacks or Pounds
14	0	76	cement	0	76	2 yds
			cement	490	510	2 yds

How was seal placed: Method ☐ A ☒ B ☐ C ☐ D ☐ E
☐ Other
Backfill placed from ft. to ft. Material
Gravel placed from ft. to ft. Size of gravel

(6) CASING/LINER

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	10	+1	76	250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	8	+1	510	250	☒	☐	☒	☐
					☐	☐	☐	☐

Drive Shoe used ☐ Inside ☒ Outside ☐ None
Final location of shoe(s) No shoe on 8"

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

From	To	Slot Size	Number	Diameter	Tele/pipe size	Casing	Liner
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
500		530	4hrs

Temperature of water 62° Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little ☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

RECEIVED
DEC 26 2006
WATER RESOURCES DEPT
SALEM, OREGON

(9) LOCATION OF WELL (legal description)
County Umatilla
Tax Lot 1101 Lot
Township 5 N N or S Range 29E E or W WM
Section 15 SW 1/4 SE 1/4
Lat ° ' " or (degrees or decimal)
Long ° ' " or (degrees or decimal)
Street Address of Well (or nearest address) 82276 Hat Rock Rd. Hermiston

(10) STATIC WATER LEVEL
51 ft. below land surface. Date 12-12-06
ft. below land surface. Date
Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES
Depth at which water was first found 254

From	To	Estimated Flow Rate	SWL
254	261	10	40
517	525	500	51

(12) WELL LOG Ground Elevation

Material	From	To	SWL
Sand & gravels	0	26	
~~Basalt Boulders~~	26	58	
Tan Clay	58	70	
Black Basalt	70	135	
Blue Clay	135	143	
Black Basalt	143	185	
Vesicular Blue Clay	185	216	
Black Basalt	216	254	
Fractured Basalt	254	261	40
Black Basalt	261	295	
Blue Clay	295	330	
Black Basalt	330	432	
Blue Clay	432	438	
Black Basalt	438	517	
Vesicular Basalt	517	530	51

Date Started 11-1-06 Completed 12-12-06

(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.

WWC 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.

WWC Number 1766 Date 12-18-06
Signed

ORIGINAL - WATER RESOURCES DEPARTMENT FIRST COPY - CONSTRUCTOR SECOND COPY - CUSTOMER 06/16/2004

Version: 08/01/2014

Page 1 of 1

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

UMAT 57027
5/23/2012

WELL I.D. LABEL# L 101747
START CARD # 1016582
ORIGINAL LOG #

(1) LAND OWNER
Owner Well I.D.
First Name RICK Last Name MCANDREW
Company
Address PO BOX 1496
City HERMISTON State OR Zip 97838

(2) TYPE OF WORK
[X] 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
[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

(4) PROPOSED USE
[X] Domestic [ ] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION
Special Standard [ ] (Attach copy)
Depth of Completed Well 664.00 ft.

BORE HOLE

Dia	From	To
12	0	27
8	27	664

SEAL

Material	From	To	Amt	sacks/lbs
Bentonite	0	1	1	S
Cement	1	27	8	S

How was seal placed: Method [ ] A [X] B [ ] C [ ] D [ ] E
[X] Other BENTONITE 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
●		8	X	1	27	.250	●		X	
	●	6		4	664	sch 80		●		X

Shoe [ ] Inside [ ] Outside [ ] Other Location of shoe(s)
Temp casing [ ] Yes Dia From To

(7) PERFORATIONS/SCREENS
Perforations Method skill saw
Screens Type Material

Perf/ Screen	Casing/ Screen Liner	Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner	6	644	664	.25	6	80	

(8) WELL TESTS: Minimum testing time is 1 hour
○ Pump ○ Bailer ◉ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
150		664	1

Temperature 556 °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 UMATILLA Twp 5.00 N N/S Range 29.00 E E/W WM
Sec 15 NW 1/4 of the NE 1/4 Tax Lot 600
Tax Map Number Lot
Lat ° ' " or DMS or DD
Long ° ' " or DMS or DD
◉ Street address of well ○ Nearest address
82637 SALMON POINT LANE
HERMISTON, OREGON 97838

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	5/23/2012			165

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 360.00

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
5/16/2012	360	381	9			165
5/23/2012	651	664	150			165

(11) WELL LOG
Ground Elevation

Material	From	To
Silt	0	3
brocken basalt	3	15
black basalt	15	73
fractured brown basalt/ tan clay	73	80
black basalt	80	207
hard grey basalt	207	239
fractured black basalt/ blue clay	239	258
black basalt	258	338
hard grey basalt	338	360
fractured black basalt	360	381
visicular basalt & blue clay	381	410
black basalt	410	458
hard grey basalt	458	527
fractured black basalt	527	594
black basalt	594	651
fractured black basalt	651	664

Date Started 5/14/2012 Complete 5/23/2012

(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 1766 Date 5/23/2012
Signed BRANDON C BROWN (E-filed)
Contact Info (optional) brandon@waterwelldeveloping.com

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