WATER RESOURCES DEPARTMENT MEMO March 17, 2015

TO: **Application G-** 17919

FROM: J. Hackett **- Groundwater Section**

SUBJECT: **Scenic Waterway Interference Evaluation**

_____ YES
__✓__ NO

The source of appropriation is within or above a Scenic Waterway

_____ YES
__✓__ NO

Use the Scenic Waterway condition (condition 7J)

_____ Per ORS 390.835, the Groundwater Section is able to calculate groundwater interference with surface water that contributes to a Scenic Waterway. The calculated interference distribution is provided below.

_____Per ORS 390.835, the Groundwater Section is unable to calculate groundwater 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 flows necessary to maintain the free-flowing character of a scenic waterway.

DISTRIBUTION OF INTERFERENCE

Calculate interference as the monthly fraction of the annual consumptive use and fill in the table below. If interference cannot be calculated, per criteria in 390.839, do not fill in the table but check the "unable" option above, thus informing the Water Rights Section that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in the _____ Scenic Waterway by the following amounts, expressed as a proportion of the annual consumptive use pumped from the well.

Monthly Fraction of Annual Consumptive Use

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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date March 17, 2015

FROM: Groundwater Section J. Hackett
Reviewer's Name

SUBJECT: Application G- 17919 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: Al Osmin County: Morrow

A1. Applicant(s) seek(s) 0.66 cfs from 1 well(s) in the Umatilla Basin, subbasin Quad Map: Heppner

A2. Proposed use Irrigation Seasonality: April 1 – October 15

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	**MORR 263**	**1**	CRB	**0.66**	3S/26E-12 NW-SE	2600' S, 3300' E fr NW cor S 12
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	2260	90	22.06	4/18/2014	500	0-40	0-40			300	344	B

Use data from application for proposed wells.

A4. **Comments:**

A5. ☒ **Provisions of the** Umatilla Basin rules relative to the development, classification and/or management of groundwater hydraulically connected to surface water ☒ **are**, *or* ☐ **are not**, activated by this application. (Not all basin rules contain such provisions.)
Comments: The proposed POA is located within 5 miles of the city of Heppner's municipal wells and produces from the basalt reservoir. However, a barrier to groundwater movement separates the proposed POA from the municipal wells. Additionally, the Heppner city manager (Kim Cutsforth) has submitted a letter with this application in support of the proposed groundwater use.

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) **7B, 7N**;
   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's well (MORR 263) is located in an area that contains lava flows of the Columbia River Basalt Group from near land surface to a depth of 1500 to 2000 feet. The well is 500 feet deep and is open to water-bearing zones between 90-278 and 476-500 feet below land surface. Water levels in nearby wells appear relatively stable (see attached hydrograph).

The applicant's well is located within 5 miles of the city of Heppner's Well #3 (MORR 189) and Well #5 (MORR 245) and is therefore subject to OAR 690-507-0090(3)(b)(C) which precludes new appropriation from the basalt aquifer utilized by the city of Heppner's wells unless a hydrogeologic barrier separates the proposed well from the City's wells. As shown on the well location map (see attached map), MORR 263 is located directly south of a northwest trending geologic fault. This fault acts as a barrier to groundwater flow between MORR 263 and the City's Well #3 (MORR 189) which is located north of the fault. Evidence of the barrier is manifest in water levels in the wells (see attached hydrograph). The water level elevation in MORR 263 is 75 to 100 feet higher than the water level elevation in MORR 189. This difference in water level elevations indicates the wells produce from different aquifers. Water level trends also indicate that MORR 263 produces from a different aquifer than the City's Well #5 (MORR 245). The water level in MORR 263 is approximately 150 feet higher than the water level elevation in MORR 245 (see attached hydrograph).

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	**CRB**	☒	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: The water level in the well rose above the elevation which it was encountered.

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**	**Balm Fork**	**2238**	**2140-2390**	**100**	☐	☒	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: Water-bearing zones in the applicant's well are below the elevation of local stream reaches.

Water Availability Basin the well(s) are located within:

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: Nearby reviews; nearby well logs; local knowledge; GW Reports 30 and 35.

Madin, I.P., and Geitgy, R.P., 2007, Preliminary geologic map of the Umatilla basin, morrow and Umatilla counties, Oregon, Oregon Department of Geology and Mineral Industries, Open-File Report O-07-15, 23p.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** 1 **Logid:** MORR 263/262

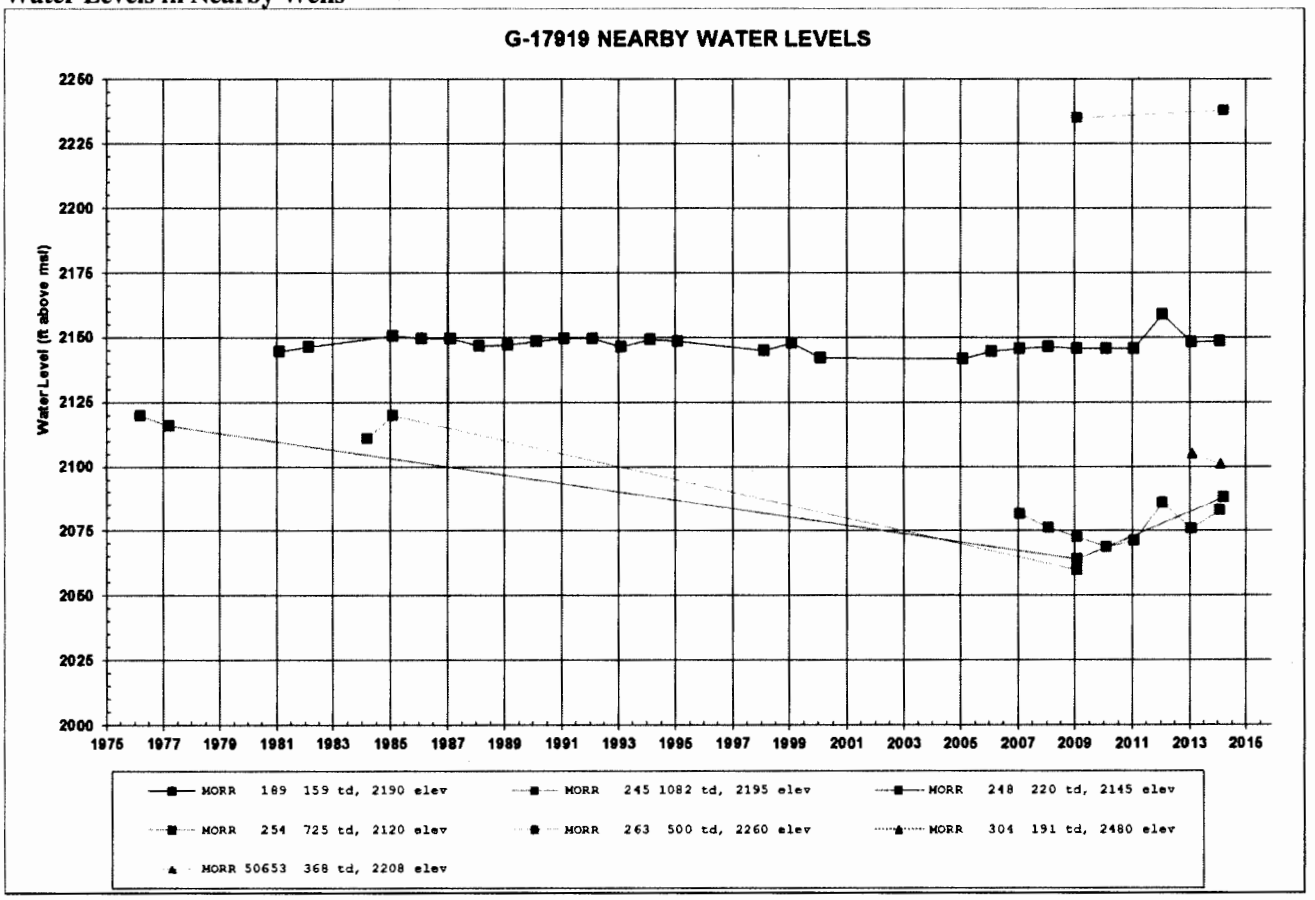
D2. **THE WELL does not appear to meet current well construction standards based upon:**

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

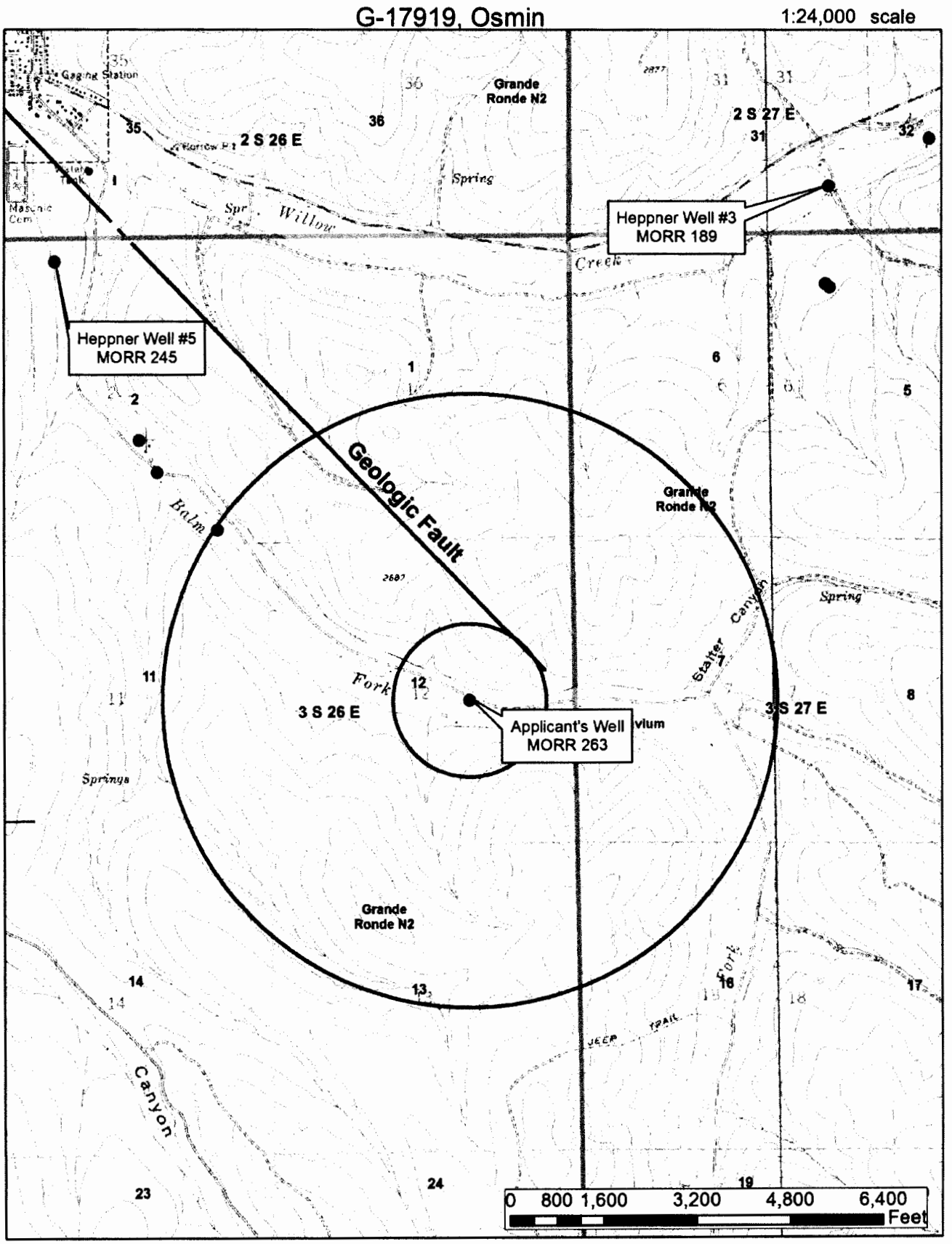
D3. **THE WELL construction deficiency or other comment is described as follows:** The well is 500 feet deep and is open to water-bearing zones from 90-278 feet and 475-496 feet. Well penetrates water-bearing zones in Columbia River Basalt Group lavas that are naturally vertically separated by low-permeability flow interiors. It is my opinion that the well may commingle these aquifers.

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

Water Levels in Nearby Wells



Well Location Map



NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
APR 9 1979
WATER RESOURCES DEPT
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

MORR 262

State Well No. 3S/26E-12dd

State Permit No.

(1) OWNER:
Name G. L. Damon
Address Rt 1
Heppner, Oregon 97836

(2) TYPE OF WORK (check):
New Well ☐ Deepening ☒ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☐
None" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? ☐ Yes ☐ No.
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☐ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☐ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
AIR TEST 500 " 444 " 1 "
Bailer test AIR 300 gal./min. with 344 ft. drawdown after 1 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Not disturbed
Well sealed from land surface to ft.
Diameter of well bore to bottom of seal in.
Diameter of well bore below seal in.
Number of sacks of cement used in well seal sacks
How was cement grout placed?

Was a drive shoe used? ☐ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☐ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Morrow Driller's well number
NW ¼ SE ¼ Section 12 T. 3 S. R. 26 E. W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found ft.
Static level 56 ft. below land surface. Date 3-28-79
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 8"
Depth drilled 274 ft. Depth of completed well 500 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Basalt, black w/ green claystone	226	278	W.B.
Basalt, black	278	306	
Rock, brown, soft	306	316	
Basalt, black	316	428	
Basalt, gray	428	444	
Basalt, brown w/ green claystone	444	459	
Basalt, black	459	475	
Rock, red w/ green claystone	475	496	W.B.
Basalt, black	496	500	

Work started 3-26 19 79 Completed 3-28 19 79
Date well drilling machine moved off of well 3-28 19 79

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] Donald Osborne (Drilling Machine Operator) Date 3-28, 19 79
Drilling Machine Operator's License No. 1210

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name TROY GRIFFIN (Person, firm or corporation) (Type or print)
Address 900 HERMISTON AVE. HERMISTON ORE
[Signed] Troy Griffin (Water Well Contractor)
Contractor's License No. 65 Date 3-28, 1979

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

NOTICE TO WATER WELL CONTRACTOR
The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT
SALEM, OREGON 97310
within 30 days from the date of well completion

RECEIVED
OCT 28 1977
WATER RESOURCES DEPT.
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON

(Please type or print) (Do not write above this line)

MORR 263

State Well No. 35/26E-12db

State Permit No. G-8933

(1) OWNER:
Name A. L. Osmin
Address Rt 1
Heppner, Oregon 97836

(2) TYPE OF WORK (check):
New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☒ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(5) CASING INSTALLED:
Threaded ☐ Welded ☒
8" Diam. from 0 ft. to 40 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

(6) PERFORATIONS:
Perforated? ☐ Yes ☒ No
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☒ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☒ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "
~~Air~~ Bailer test 350 gal./min. with 140 ft. drawdown after 1 hrs.
Artesian flow g.p.m.
Temperature of water Depth artesian flow encountered ft.

(9) CONSTRUCTION:
Well seal—Material used Cement
Well sealed from land surface to 40 ft.
Diameter of well bore to bottom of seal 11 in.
Diameter of well bore below seal 8 in.
Number of sacks of cement used in well seal 9 sacks
How was cement grout placed?

Was a drive shoe used? ☒ Yes ☐ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☒ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☒ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County Morrow Driller's well number
NW ¼ SE ¼ Section 12 T. 3S. R. 26E. W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 90 ft.
Static level 25 ft. below land surface. Date 10-19-77
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
Diameter of well below casing 8"
Depth drilled 226 ft. Depth of completed well 226 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
Topsoil	0	21	
Clay stone & gravel	21	25	
Basalt, black	25	90	
Rock, black & green clay stone	90	226	W.B.

Work started 10-18 1977 Completed 10-19 1977
Date well drilling machine moved off of well 10-19 1977

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] John Van Sandt (Drilling Machine Operator) Date 10-20, 1977
Drilling Machine Operator's License No. 1027

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name TROY GRIFFIN (Person, firm or corporation) (Type or print)
Address 900 HERMISTON AVE, HERMISTON ORE
[Signed] Troy Griffin (Water Well Contractor)
Contractor's License No. 65 Date 10-20, 1977

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119