

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 1/19/2016

FROM: Groundwater Section Gerald H. Grondin (Darrick E. Boschmann)  
Reviewer's Name

SUBJECT: Application G- 18169 Supersedes review of NA  
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: Duane Grant, Pueblo Mountain Land Co. LLC  
 County: Harney

A1. Applicant(s) seek(s) 7.2 cfs from 4 well(s) in the Malheur Lake Basin,  
Alvord Lake subbasin

A2. Proposed use Irrigation (77.8 ac primary; 293.2 ac supplemental) Seasonality: March 15 – 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	Proposed	DW1	BASIN FILL	7.2	39.00S-35.00E-4-NE NW	385 FEET SOUTH AND 1670 FEET EAST FROM NW CORNER, SECTION 4
2	Proposed	DW2	BASIN FILL	7.2	39.00S-35.00E-4-NE SW	2455 FEET NORTH AND 1710 FEET EAST FROM SW CORNER, SECTION 4
3	HARN 1793	DW3	BASIN FILL	7.2	39.00S-35.00E-4-SW SW	50 FEET NORTH AND 490 FEET EAST FROM SW CORNER, SECTION 4
4	Proposed	DW4	BASIN FILL	7.2	39.00S-35.00E-9-NW SE	2510 FEET NORTH AND 2630 FEET EAST FROM SW CORNER, SECTION 9
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	4090	?	?	?	300-600	0-25	TBD	?	TBD	?	?	?
2	4100	?	?	?	300-600	0-25	TBD	?	TBD	?	?	?
3	4125	?	*47.32	11/11/2015	370	0-19	0-370	none	100-360	1760	54	pump
4	4125	?	?	?	300-600	0-25	TBD	?	TBD	?	?	?

Use data from application for proposed wells.

A4. **Comments:** \_\_\_\_\_

The proposed wells are located in Pueblo Valley, about 4 miles southeast of Fields, OR. The area is mapped as Qal (Quaternary Alluvium) by Rytuba and others (1982). Qal is underlain at an unknown depth by QTs (Sedimentary deposits including lacustrine, fluvialite, and aeolian sedimentary rocks, interstratified tuff, ashy diatomite, and unconsolidated clay, sand, silt, and gravel) and Tst (semiconsolidated lacustrine tuffaceous sandstone and siltstone, ash and ashy diatomite, conglomerate and minor fanglomerate, boulder bearing slope wash, vitric-crystal and vitric-lithic tuff, pumice lapilli tuff, and tuff breccia) (Walker and others, 1965).

HARN 1793 penetrates materials described by the driller as clay, gravel, and sand; which is consistent with materials in unit Qal, but could also be interpreted as sedimentary rocks of underlying unit QTs.

**\*Note:** The static water level listed above for HARN 1793 is taken from the application materials provided by the applicant.

A5.  **Provisions of the Malheur Lake** 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 rule states: “(1) Except as provided in section (3) of this rule, the Department shall not accept an application for permit, or issue a permit, for any use of surface water, or of groundwater the use of which has the potential to substantially interfere with surface water, in the Malheur Lake Basin unless the applicant shows, by a preponderance of evidence, that unappropriated water is available to supply the proposed use at the times and in the amounts requested. The evidence provided shall be prepared by a qualified hydrologist or other water resources specialist and shall include:

(a) Streamflow measurements of gage records from the source or, for use of groundwater, the stream in hydraulic connection with the source; or

(b) An estimate of water availability from the source or, for use of groundwater, the stream in hydraulic connection with the source which includes correlations with streamflow measurements or gage records on other, similar streams and considers current demands for water affecting the streamflows.”

**This review does not find a potential for substantial interference with surface water.**

A6.  **Well(s) #** \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, tap(s) an aquifer limited by an administrative restriction. Name of administrative area: \_\_\_\_\_

Comments: \_\_\_\_\_

Currently no administrative area.

**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, 7F, 7N, 7P, 7T, Flow meter, \_\_\_\_\_;
  - 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:** \_\_\_\_\_

State Observation Well 198 (HARN 1806) is located over ~5 miles to the southeast of the proposed wells, and records a ~0.5 ft/year or less water level decline since the 1980s. Existing well HARN 1793 is non-current State Observation Well 197, and has a fairly consistent water level record from the mid-1960s through the late 1980s. Based on the 11/11/2015 static water level reported on this application HARN 1793 has experienced a ~12 foot decline since 11/1987 – or about ~0.4 ft/year over this period.

\_\_\_\_\_

If a permit is issued, the following conditions are recommended: \_\_\_\_\_

- 7B:** Interference Condition \_\_\_\_\_
- 7F:** Proposed Well location Condition \_\_\_\_\_
- 7N:** Annual Measurement and Decline Condition \_\_\_\_\_
- 7P:** Well Tag Condition \_\_\_\_\_
- 7T:** Dedicated Measuring Tube Condition for all POA wells \_\_\_\_\_

**Flow meter condition:** Use the water rights “large” permit condition requiring a totalizing flow meter and reporting

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**Special Permit Condition:**

The permittee shall construct one (1) minimum six-inch diameter observation well to penetrate the same aquifer as the production wells. The well shall meet the Department’s minimum well construction standards and shall be cased and sealed to the same depth as the production wells. The well shall be constructed at a location approved by the Department for the purpose of instrumentation with continuous water-level monitoring equipment. The landowner or permittee shall provide access to Department staff to install and maintain the monitoring equipment. The well shall not be used for any other purpose while the Department is monitoring water levels. The well shall be completed prior to water use under the terms of any permit issued.

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**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	BASIN FILL	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	BASIN FILL	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	BASIN FILL	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	BASIN FILL	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

**Basis for aquifer confinement evaluation:** \_\_\_\_\_

Some local well logs report static water levels that are somewhat above the depth that groundwater was first encountered; and locally some wells have a history of flowing artesian conditions. The regional aquifer is likely unconfined to poorly confined.

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	Willow Creek	4078	4125	5075	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	1	Willow Creek	4078	4125	2820	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	1	Willow Creek	4078	4125	175	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	1	Willow Creek	4078	4125	2890	<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"/>

**Basis for aquifer hydraulic connection evaluation:** \_\_\_\_\_

This evaluation considers perennial reaches of surface water only (see Memo by Ivan Gall, 1/15, 2008). Additional perennial surface water sources exist in the uplands, up hydraulic gradient from the proposed wells. The effect of groundwater use in the valley on upland streams is currently unclear, so the upland streams reaches are not evaluated for PSI.

The groundwater elevation at the proposed location is below the elevation of the nearest perennial reach of Willow Creek, suggesting groundwater likely does not provide baseflow to this reach at this location.

The overall regional flow of groundwater in the Pueblo Valley is toward Alvor Lake, over nine miles to the north of the proposed wells. It is not known with certainty exactly where hydraulic connection with surface water occurs.

**Note:** The groundwater elevation cited above for all wells is derived from the 11/11/2015 static water level reported on the application for well HARN 1793.

**Water Availability Basin the well(s) are located within:** No WAB data available.

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?
		<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"/>
		<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:** \_\_\_\_\_

C3a./C3b. No analysis here. All wells are located at a distance greater than 1 mile from perennial reaches of hydraulically connected surface water.

\_\_\_\_\_

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.

<b>Non-Distributed Wells</b>													
Well	SW#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		%	%	%	%	%	%	%	%	%	%	%	%
Well Q as CFS													
Interference CFS													
<b>Distributed Wells</b>													
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:** \_\_\_\_\_

\_\_\_\_\_  
No calculations were performed here, due to the large uncertainty of where hydraulic connection likely occurs with surface water. However, it is likely that the proposed use will eventually have a negative impact on down gradient groundwater discharge to Alvord Lake.

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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:** \_\_\_\_\_

**C1. 690-09-040 (1)**

It is determined that all wells will produce water from an unconfined aquifer.

**C2. 690-09-040 (2) (3)**

It is determined that the proposed well is not hydraulically connected with Willow Creek.

**C3a./C3b. 690-09-040 (4)**

No analysis here. All wells are located at a distance greater than 1 mile from perennial reaches of hydraulically connected surface water.

**C4a. 690-09-040 (5)**

No calculations were performed here, due to the large uncertainty of where hydraulic connection likely occurs with surface water. However, it is likely that the proposed use will eventually have a negative impact on down gradient groundwater discharge to Alvord Lake.

If a permit is issued, the following conditions are recommended:

**7B:** Interference Condition

**7F:** Proposed Well location Condition

**7N:** Annual Measurement and Decline Condition

**7P:** Well Tag Condition

**7T:** Dedicated Measuring Tube Condition for all POA wells

**Flow meter condition:** Use the water rights "large" permit condition requiring a totalizing flow meter and reporting

**Special Permit Condition:**

The permittee shall construct one (1) minimum six-inch diameter observation well to penetrate the same aquifer as the production wells. The well shall meet the Department's minimum well construction standards and shall be cased and sealed to the same depth as the production wells. The well shall be constructed at a location approved by the Department for the purpose of instrumentation with continuous water-level monitoring equipment. The landowner or permittee shall provide access to Department staff to install and maintain the monitoring equipment. The well shall not be used for any other purpose while the Department is monitoring water levels. The well shall be completed prior to water use under the terms of any permit issued.



**References Used:** \_\_\_\_\_

Rytuba, J.J., Vander Meulen, D.B., Vercoutere, T.L., Minor, S.A., Caress, M.E., and Kriens, B.J.C., 1982, Reconnaissance geologic map of the Tum Tum Lake quadrangle, Harney County, Oregon: U.S. Geological Survey, Open-File Report OF-82-1127, scale 1:24,000.

Walker, G.W., and Repenning, C.A., 1965, Reconnaissance geologic map of the Adel quadrangle, Lake, Harney, and Malheur Counties, Oregon: U.S. Geological Survey, Miscellaneous Geologic Investigations Map I-446, scale 1:250,000

OWRD water well reports, water level data, and/or hydrographs

Oregon Administrative Rules

Waring, Gerald Ashley, 1909, Geology and water resources of the Harney Basin region, Oregon: Govt. Print. Off., Water Supply Paper 231, 93 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) \_\_\_\_\_

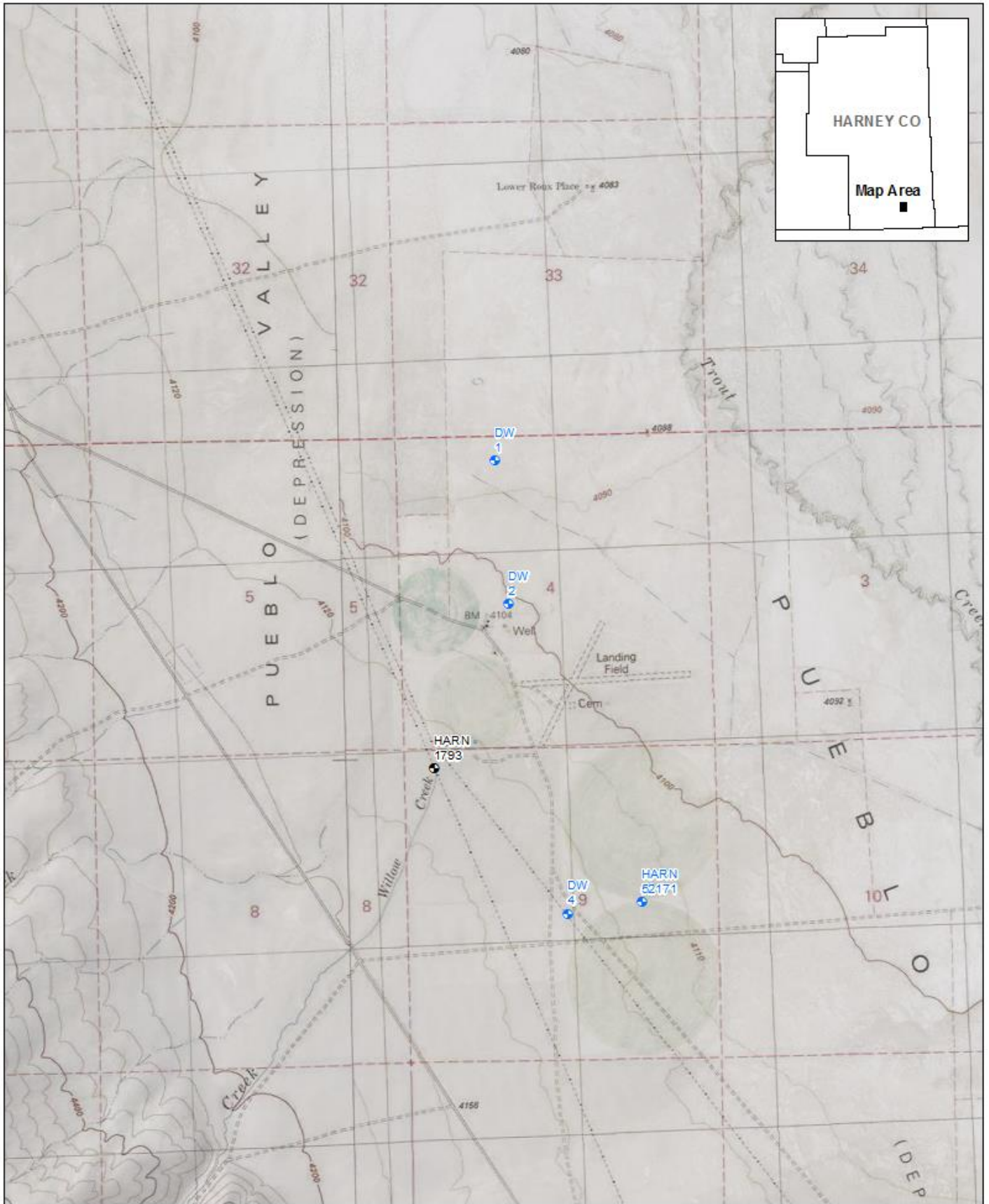
D3. **THE WELL construction deficiency or other comment is described as follows:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

**Water Availability Tables**

\*No WAB data available.



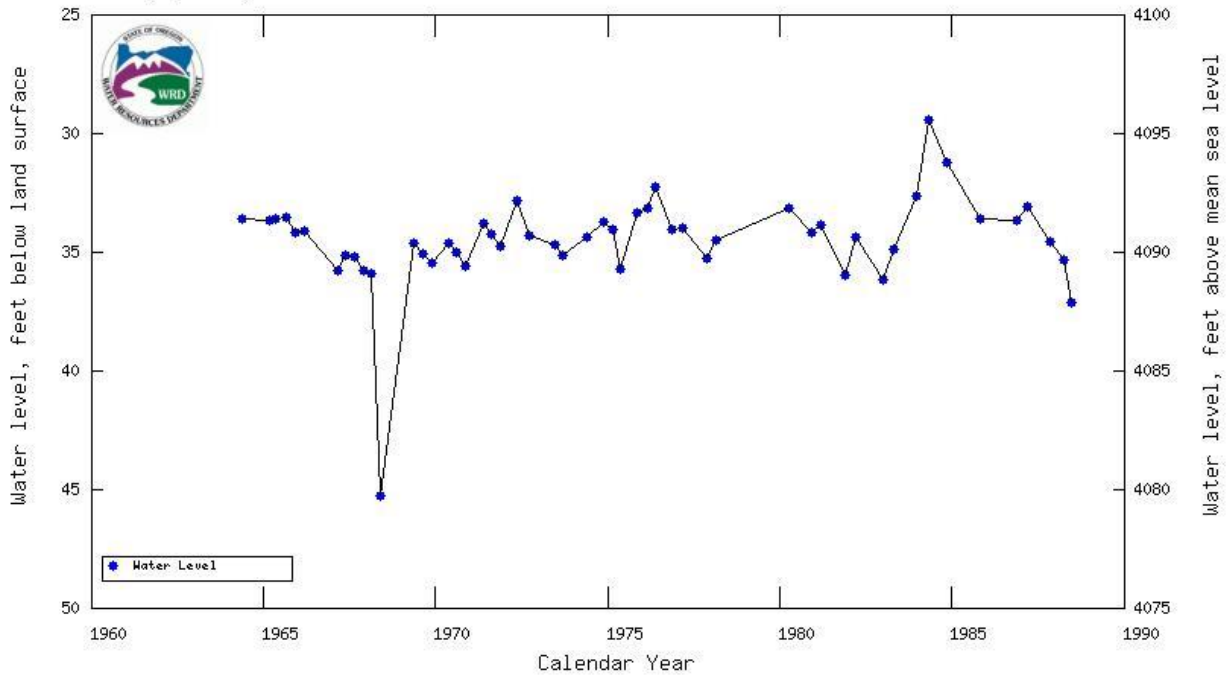
G-18169  
Duane Grant, Pueblo Mountain Land Co. LLC

0 0.25 0.5 1 Miles



### Water-Level Trends in Nearby Wells

Oregon Water Resources Department (OWRD) Well Location	39.00S/35.00E-4CCC
OWRD Logid	HARN 1793
OWRD Well Tag (Well ID)	----
OWRD State Observation Well Number	197
Total well depth (feet below land surface)	370
Land surface elevation (feet above mean sea level)	4125
Primary use of well	----
Primary aquifer system	----



### HARN 1806

