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PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 8/12/216

FROM: Groundwater Section Darrick E. Boschmann
Reviewer's Name

SUBJECT: Application G- 18338 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: Olson Living Trust County: Harney

A1. Applicant(s) seek(s) 3.9 cfs from 1 well(s) in the Malheur Lake Basin,
Alvord Lake subbasin

A2. Proposed use Irrigation (277 acres primary; 40 acres suppl.) 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	Not yet constructed	Olson	Basin Fill	3.9	35.00S-33.00E-22-NE NE	2650 FEET NORTH AND 90 FEET WEST FROM E1/4 CORNER, SECTION 22
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	4225	?	?	?	300	0-40	?	?	?	?	?	?

Use data from application for proposed wells.

A4. **Comments:** _____

The proposed well is located in the Harney County in the Wildhorse Valley east of Steens Mountain, about 6 miles north of Alvord Lake. The area is mapped as Qal (alluvium) by Walker and Repenning, 1965. Underlying the Quaternary basin fill deposits at an unknown depth is the Miocene age Steens Basalt.

The well log for HARN 51135, located in the SE-NE S22 indicates predominantly sand, clay and gravel to a total depth of 125 feet. The driller does indicate a thin basalt zone from 21-44 feet, but it is unlikely that this represents the underlying Steens Basalt unit. The well log for HARN 17311, located in NE-NW S23 indicates clay, sand, and gravel to a total depth of 614 feet. Based on this limited downhole data it is likely that the well will be completed in basin fill at the proposed depth.

***Note: The period of use requested is not the typical period of use allowed for irrigation. The typical period of use for irrigation is March 1st to October 31st. For the purposes of this review it is assumed the applicant intends to use water only through the typical period of use. If a permit is issued for year-round use the analyses and findings contained herein do not apply.**

- 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: _____

- A6. ☐ **Well(s) # _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.**

Name of administrative area: _____
Comments: Currently no administrative area here.

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:
- ☒ The permit should contain condition #(s) 7B, 7F, 7N, 7P, 7T, Flow meter,;
 - ☐ The permit should be conditioned as indicated in item 2 below.
 - ☐ 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 193 (HARN 1753) is located ~6 miles southwest of the proposed well and has a period of record from 1969 to the present. The hydrograph for this well (see attached) shows an increase in seasonal drawdown since about 2010, but there is insufficient data to substantiate long term year to year water level declines at this time.

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

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	☐	☒
		☐	☐
		☐	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: _____

Some local well logs report water levels that are somewhat above the depth at which 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
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: _____

This evaluation considers perennial reaches of surface water only (see memo by Ivan Gall, 1/15/2008).

Based on nearby well logs the groundwater elevation at the proposed well is below the elevation of nearby perennial reaches of upland streams, suggesting groundwater likely does not provide baseflow to these reaches at this location.

Water Availability Basin the well(s) are located within: WILDHORSE CR > ALVORD L - AT MOUTH 31200902

- 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: This section does not apply. See section C2.

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													
		%	%	%	%	%	%	%	%	%	%	%	%
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: _____

This section does not apply. See section C2.

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 all wells are not hydraulically connected to surface water.

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

No analysis here. See section C2.

C4a. 690-09-040 (5)

No analysis here. See section C2.

References Used: _____

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

Memo by Ivan Gall, 1/15, 2008

Oregon Administrative Rules

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

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****Water Availability Analysis
Detailed Reports**WILDHORSE CR > ALVORD L - AT MOUTH
MALHEUR LAKE BASINWatershed ID #: 31200902 (Map)
Date: 8/12/2018

Water Availability as of 8/12/2018

Exceedance Level: 10%
Time: 3:02 PM

Water Availability Calculation

Contributing Area and Storage

Instream Flow Requirements

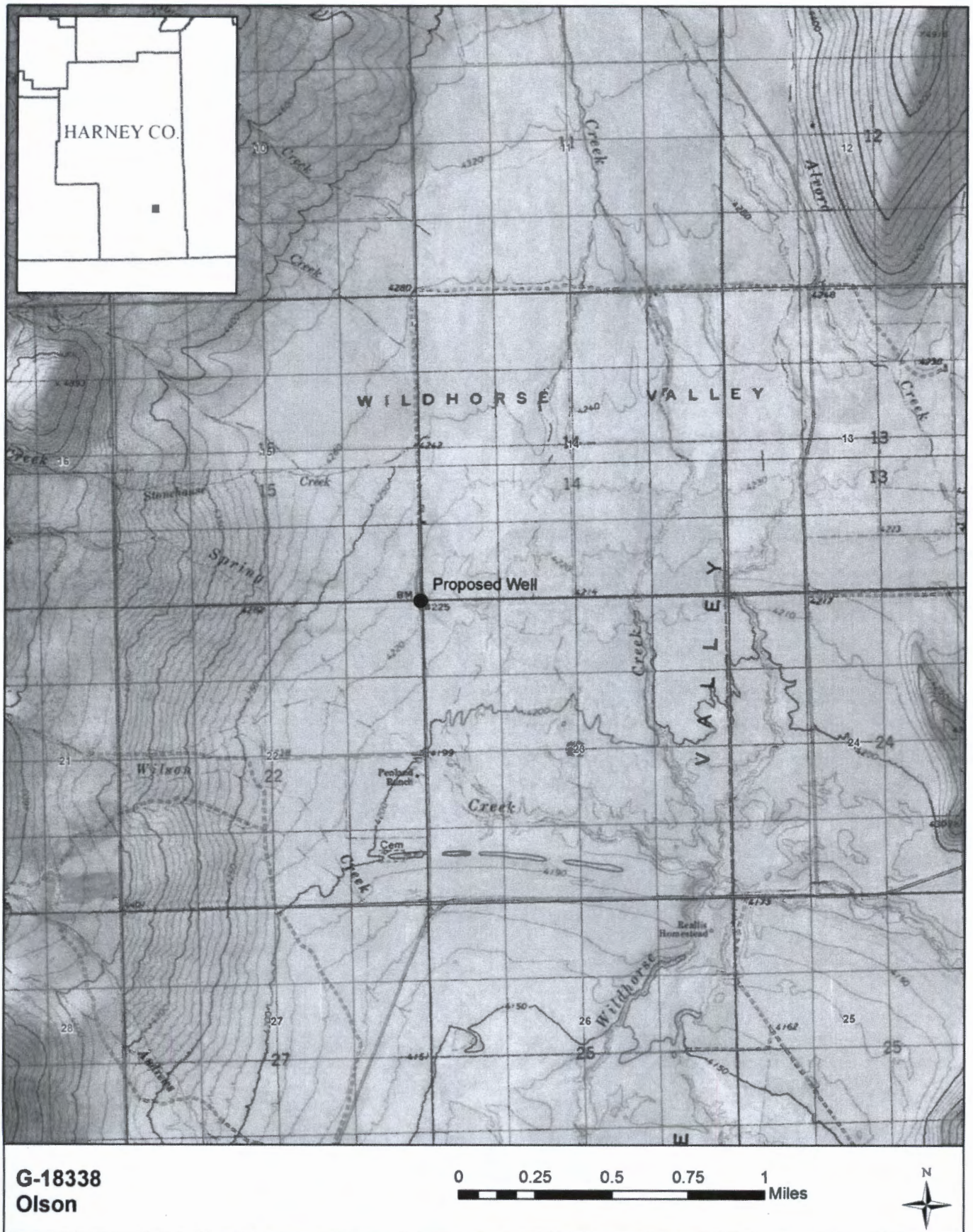
Reservoirs

Water Rights

Waterbody Characteristics

Water Availability CalculationMonthly Streamflow in Cubic Feet per Second
Annual Volume of 50% Exceedance in Acre-Feet

Month	Reservoir Storage (Acre-Feet)	Contributing Area and Storage (Acre-Feet)	Instream Flow Requirements (CFS)	Exceedance Storage (Acre-Feet)	Instream Flow Requirements (CFS)	Net Water Availability (CFS)
JAN	3.82	0.94	3.48	0.00	0.00	3.48
FEB	7.37	0.95	7.32	0.00	0.00	7.32
MAR	9.27	2.81	7.38	0.00	0.00	7.38
APR	17.30	10.10	7.18	0.00	0.00	7.18
MAY	29.48	25.18	4.27	0.00	0.00	4.27
JUN	38.19	20.94	7.38	0.00	0.00	7.38
JUL	3.58	6.48	2.98	0.00	0.00	2.98
AUG	2.88	2.81	0.53	0.00	0.00	0.53
SEP	1.83	2.38	4.72	0.00	0.00	4.72
OCT	1.28	0.91	0.33	0.00	0.00	0.33
NOV	2.18	0.88	2.88	0.00	0.00	2.88
DEC	7.58	0.88	2.48	0.00	0.00	2.48
ANN	12,809.00	4,270.80	8,540.00	0.00	0.00	8,540.00



G-18338
Olson

0 0.25 0.5 0.75 1 Miles



Water-Level Trends in Nearby Wells

