

Water Right Conditions
Tracking Slip

Groundwater/Hydrology Section

FILE # # G-17581

ROUTED TO: Kerry Kavanagh

TOWNSHIP/
RANGE-SECTION: 23S/26E-12

CONDITIONS ATTACHED?: yes no

REMARKS OR FURTHER INSTRUCTIONS:
Re-review as requested.

Reviewer: Mike Zwart

PUBLIC INTEREST REVIEW FOR GROUND WATER APPLICATIONS

TO: Water Rights Section Date March 8, 2013

FROM: Ground Water/Hydrology Section Michael Zwart
Reviewer's Name

SUBJECT: Application G- 17581 Supersedes review of December 21, 2012
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 ground water 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: Macomber Ranch County: Harney

A1. Applicant(s) seek(s) 10.606 cfs from 4 well(s) in the Malheur Lake Basin,
Silver Creek subbasin Quad Map: Riley

A2. Proposed use: Irrigation, 636.37 acres Seasonality: March 1 to October 31

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	3	Alluv./bedrock	2.6515	23S/26E-12 SW-SW	1320' N, 1315' E fr SW cor S 12
2	HARN 51867	4	Alluv./bedrock	2.6515	23S/26E-12 SE-SE	1320' N, 1315' W fr SE cor S 12
3	Proposed	7	Alluv./bedrock	2.6515	23S/26E-12 NW-NW	1320' S, 1315' E fr NW cor S 12
4	Proposed	8	Alluv./bedrock	2.6515	23S/26E-12 NE-NE	1320' S, 1315' W fr NE cor S 12

* 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	4301					0-18						
2	4288	140	140	07/09/12	470	0-50	0-190	None	None	1200		Air
3	4289					0-18						
4	4292					0-18						

Use data from application for proposed wells.

A4. **Comments: The application was revised in response to negative findings regarding groundwater availability in the original review. The applicant stated that one well is existing, but failed to include a well log or description. I am presuming that HARN 51867 is the applicant's well #4.**

A5. Provisions of the Malheur Lake Basin rules relative to the development, classification and/or management of ground water 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. GROUND WATER AVAILABILITY CONSIDERATIONS, OAR 690-310-130, 400-010, 410-0070

B1. Based upon available data, I have determined that ground water* 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 ground water 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 ground water 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 ground water resource; or
- d. will, if properly conditioned, avoid injury to existing ground water rights or to the ground water resource:
 - i. The permit should contain condition #(s) 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 ground water production from no deeper than _____ ft. below land surface;
- b. Condition to allow ground water production from no shallower than _____ ft. below land surface;
- c. Condition to allow ground water production only from the _____ ground water 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 Ground Water 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. Ground water availability remarks: There are no current or non-current State Observation Wells nearby with long-term water-level records. There are also no other water-level data on file for the local area. However, water-level data being collected in the Weaver Springs area to the southeast and in other parts of the Malheur Lake Basin have disclosed groundwater level declines in areas that have experienced significant development of groundwater for irrigation. The Weaver Springs area is noteworthy because it is a local example of over-appropriation of the groundwater resource and it has a similar climate, underlying geology and recharge as the area here. Review of local well logs and the November 2012 draft Harney Basin Groundwater Study indicates that the regional groundwater flow direction in this area is to the southeast toward Malheur and Harney lakes. Therefore, this area is likely upgradient of the Weaver Springs area. This is significant, given the documented water-level declines in the Weaver Springs area and the fact that many existing groundwater rights there are yet to be developed. Thus, the documented water-level declines are likely to increase in time as these rights are more fully developed. These issues provide the basis for recommending the special permit condition below.

Special Permit Condition: The permittee shall construct one 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.

C. GROUND WATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

C1. **690-09-040 (1):** Evaluation of aquifer confinement:

Well	Aquifer or Proposed Aquifer	Confined	Unconfined
All	Interbedded volcanic, sedimentary and volcanoclastic rocks	<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"/>

Basis for aquifer confinement evaluation: Local well logs typically report static water levels that are somewhat above the depth that groundwater was first encountered. However, well HARN 51867 reports the water-bearing zone and the static water level to be the same. 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
All	1	Silver Creek	4160±	4155±	**	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
All	2	Miller Canyon	4160±	4155±	**	<input checked="" type="checkbox"/>	<input 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"/>
						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Basis for aquifer hydraulic connection evaluation: The static water level reported at nearby wells ranges from 106 to 167 feet below land surface and the average is about 137 feet. The groundwater elevation is likely to range from about 4145 to 4165 feet above sea level, which is well below the elevation of the nearby reaches of Silver Creek and Miller Canyon and several miles downstream below the confluence of these creeks. Groundwater does not appear to provide baseflow to surface water within one mile of any of the proposed wells. **It is not known with certainty where hydraulic connection occurs, but based on the head relationship, it is likely to be at least five miles downgradient and could be as far as the reach near Moon Reservoir, which has an elevation of 4158 feet and is over ten miles away.

Water Availability Basin the well(s) are located within: 71471, Silver Ck; 31200404, Miller Canyon

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"/>

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: This section does not apply.

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												
	(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 distance where hydraulic connection likely occurs with surface water. However, it is clear that the proposed use will eventually have a negative impact on downstream flows in Silver Creek and, ultimately, with Harney Lake.

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 ground water 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: Local well logs; local recent reviews; review of water level data collected at wells in the Weaver Springs area from 2009 to November 2012; GW Report 16, by Leonard, 1970; Greene, Walker, and Corcoran, 1972, Geologic Map of the Burns Quadrangle, Oregon, USGS Miscellaneous Geologic Investigations Map I-680; Harney Basin Groundwater Study, DRAFT Report by Aquaveo, LLC for the Harney County Watershed Council, November 2012; Memo by Ivan Gall, 1/15, 2008: Stream Assessment for Division 9 Review in the Malheur Lakes Basin.

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: 2 Logid: HARN 51867

D2. THE WELL does not 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:

- a. constitutes a health threat under Division 200 rules;
- b. commingles water from more than one ground water reservoir;
- c. permits the loss of artesian head;
- d. permits the de-watering of one or more ground water reservoirs;
- e. other: (specify) _____

D4. THE WELL construction deficiency is described as follows: I have no issues with the construction of the well.

D5. THE WELL a. was, or was not constructed according to the standards in effect at the time of original construction or most recent modification.

b. I don't know if it met standards at the time of construction.

D6. Route to the Enforcement Section. I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Enforcement Section and the Ground Water Section.

THIS SECTION TO BE COMPLETED BY ENFORCEMENT PERSONNEL

D7. Well construction deficiency has been corrected by the following actions: _____

_____, 200_____
(Enforcement Section Signature)

D8. Route to Water Rights Section (attach well reconstruction logs to this page).