

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date July 14, 2016

FROM: Groundwater Section J. Hackett
Reviewer's Name

SUBJECT: Application G- 18285 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: Hood River Cherry County: Hood

A1. Applicant(s) seek(s) 1.31 cfs from 1 well(s) in the Hood River Basin,
 _____ subbasin

A2. Proposed use Irrigation Seasonality: March 1 – 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	HOOD 50199	1	High Cascades volcanics/volcaniclastics	1.31	1S/10E-17 SW-SW	1075' N, 163' E fr SW cor S 17
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	2275	172	105	5/8/2000	250	0-24	+1-246		238-246	55		A

Use data from application for proposed wells.

A4. **Comments:** _____

A5. **Provisions of the** Hood 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: _____

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 _____ 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 material underlying the Upper Hood River Valley is composed primarily of Late High-Cascade volcanic and volcanoclastic deposits to depths of at least 250 ft bls in most of the valley and more than 450 ft bls in some places, but the total thickness is unknown for most of the valley. There are no wells deeper than 450 ft so there is no information on the deeper geologic material but there are likely lava flows of the Columbia River Basalt Group (CRBG) at depth. The shallow aquifer in this area is composed of local, laterally discontinuous lava flows and volcanoclastic deposits. Some of the fine-grained volcanoclastic deposits may act as local confining layers, but at the regional scale wells producing from this aquifer will be hydraulically connected to nearby surface water sources. The efficiency of the hydraulic connection with local surface water sources is likely to be greater with shallower wells but deeper wells are still likely penetrating aquifer units that ultimately discharge to streams and springs.

Water level trends in nearby wells show no obvious signs of declines (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	High Cascade Volcanics	<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: Existing well logs in the area show static water levels higher than depth of water-bearing zones, indicating confined conditions. However, the lack of a laterally extensive confining layer (i.e. no laterally extensive fine-grained layer) and the presence of several springs in the area imply effective connection between GW and SW.

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	East Fork Evans Creek	2170	2280-2120	2050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	2	West Fork Evans Creek	2170	2360-2120	3100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1	3	East Fork Hood River	2170	2000	5820	<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"/>

Basis for aquifer hydraulic connection evaluation: Groundwater levels are coincident with or above the elevation of local stream reaches and numerous springs are present in the area. These factors indicate groundwater flow is toward the streams and suggests hydraulic connection between the groundwater system and nearby surface water sources.

Water Availability Basin the well(s) are located within: 30410508: EVANS CR > E FK HOOD R – AT MOUTH; 189 E FK HOOD R > HOOD R – AB M FK HOOD R

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?
1	1	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	1.49	<input checked="" type="checkbox"/>	<25%	<input checked="" type="checkbox"/>
1	2	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	1.49	<input checked="" type="checkbox"/>	<25%	<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"/>

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: Modeling in similar circumstances suggests that due to the presence of fine-grained material in the channels of the East and West Forks of Evans Creek, pumping impacts will be less than 25% of the pumping rate after 30 days of pumping.

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: Impacts to the East Fork of Hood River were not calculated because the requested pumping rate is less than 1% of the 80% exceedance flow for each month of the year. Therefore, pumping impacts could never exceed 1% of the natural flow in the East Fork of Hood River.

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:** The geologic material in the area of the applicant's well is composed of overlapping and laterally discontinuous volcanic and volcanoclastic deposits. These units form an aquifer which may be confined and/or semi-isolated locally but ultimately hydraulically connected to nearby surface water sources. The abundance of springs in the area attests to the connection between groundwater and surface water. The well's seal depth of 24 ft is not sufficient to effectively isolate the production zones from nearby wells or surface water sources, thus we make a finding that there is potential for substantial interference.

References Used:

McCloughy, J.D and others, 2012, Digital geologic map of the Hood River Valley, Hood River and Wasco Counties, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report O-12-03 142 p.

Sherrod, D.R., and Scott, W.E., 1995, Preliminary geologic map of the Mount Hood 30- by 60-minute Quadrangle, Northern Cascade Range, Oregon: U.S. Geological Survey Open-File Report 95-219.

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

EVANS CR > E FK HOOD R - AT MOUTH HOOD BASIN

Water Availability as of 7/14/2016

Watershed ID #: 30410508 ([Map](#))

Exceedance Level: ▼

Date: 7/14/2016

Time: 5:26 PM

Water Availability Calculation

Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	6.54	0.05	6.49	0.00	0.00	6.49
FEB	10.90	0.05	10.80	0.00	0.00	10.80
MAR	14.70	0.10	14.60	0.00	0.00	14.60
APR	13.90	0.85	13.00	0.00	0.00	13.00
MAY	6.75	1.57	5.18	0.00	0.00	5.18
JUN	3.12	2.05	1.07	0.00	0.00	1.07
JUL	3.04	2.67	0.37	0.00	0.00	0.37
AUG	2.28	2.15	0.13	0.00	0.00	0.13
SEP	2.03	1.35	0.68	0.00	0.00	0.68
OCT	1.49	0.28	1.21	0.00	0.00	1.21
NOV	2.22	0.05	2.17	0.00	0.00	2.17
DEC	1.64	0.05	1.59	0.00	0.00	1.59
ANN	6,610.00	682.00	5,930.00	0.00	0.00	5,930.00

E FK HOOD R > HOOD R - AB M FK HOOD R
HOOD BASIN

Water Availability as of 7/14/2016

Watershed ID #: 189 ([Map](#))

Exceedance Level:

Date: 7/14/2016

Time: 11:10 AM

Water Availability Calculation

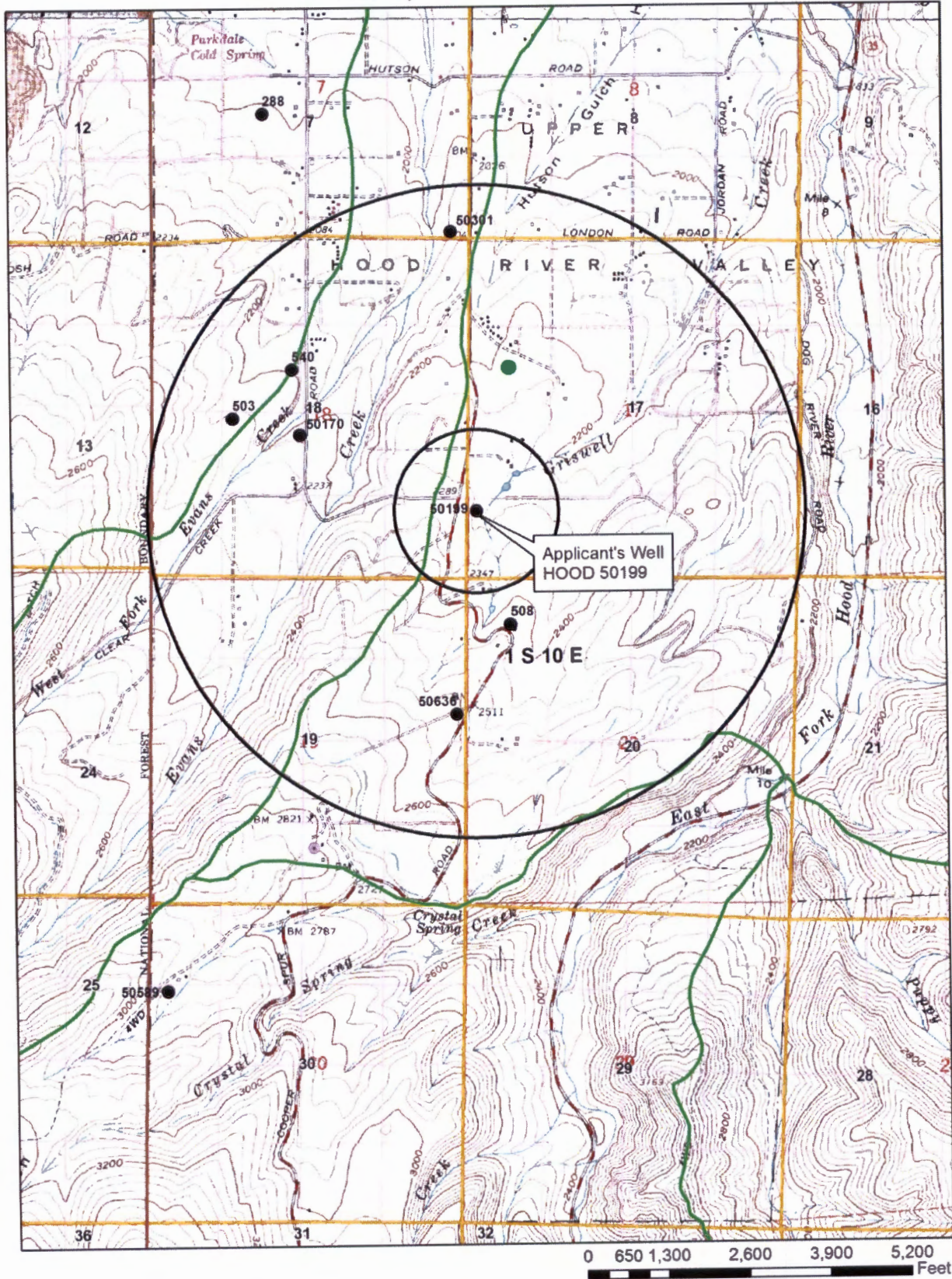
Monthly Streamflow in Cubic Feet per Second
Annual Volume at 50% Exceedance in Acre-Feet

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	207.00	13.70	193.00	130.00	100.00	-36.30
FEB	268.00	17.50	250.00	136.00	100.00	14.10
MAR	286.00	34.90	251.00	122.00	100.00	28.80
APR	288.00	57.50	231.00	104.00	150.00	-23.40
MAY	308.00	105.00	203.00	111.00	150.00	-57.80
JUN	253.00	151.00	102.00	79.30	150.00	-127.00
JUL	206.00	161.00	44.50	0.00	100.00	-55.50
AUG	152.00	149.00	2.77	0.00	100.00	-97.20
SEP	146.00	109.00	36.90	0.00	100.00	-63.10
OCT	134.00	60.00	74.00	22.20	150.00	-98.20
NOV	163.00	17.80	145.00	41.60	150.00	-46.40
DEC	190.00	12.50	178.00	86.10	150.00	-58.60
ANN	206,000.00	53,900.00	152,000.00	50,000.00	90,600.00	22,700.00

Well Location Map

G-18285, Hood River Cherry

1:24,000 scale



Water-Level Trends in Nearby Wells

