WATER RESOURCES DEPARTMENT

MEMO 8/17, 2016

TO: **Application G-** 18283

FROM: **GW:** Jen Woody
(Reviewer's Name)

SUBJECT: Scenic Waterway Interference Evaluation

☒ YES
The source of appropriation is within or above a Scenic Waterway
☐ NO

☒ YES
Use the Scenic Waterway condition (Condition 7J)
☐ NO

☐ Per ORS 390.835, the Groundwater Section is **able** to calculate ground water interference with surface water that contributes to a Scenic Waterway. The calculated interference is distributed below.

☒ Per ORS 390.835, the Groundwater Section is **unable** to calculate ground water 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 water flows necessary to maintain the free-flowing character of a scenic waterway.**

DISTRIBUTION OF INTERFERENCE

Calculate the percentage of consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.835, do not fill in the table but check the "unable" option above, thus informing Water Rights that the Department is unable to make a Preponderance of Evidence finding.

Exercise of this permit is calculated to reduce monthly flows in _____ Scenic Waterway by the following amounts expressed as a proportion of the consumptive use by which surface water flow is reduced.

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

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date **8/17/2016**

FROM: Groundwater Section **Jen Woody**
Reviewer's Name

SUBJECT: Application G- **18283** Supersedes review of **n/a**
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: **David Brodkey, Chosen Ventures, LLC** County: **Jackson**

A1. Applicant(s) seek(s) **0.169** cfs from **3** well(s) in the **Rogue** Basin, **Bear Creek** subbasin

A2. Proposed use **nursery** 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	PROP 999999	900	Bedrock	0.169	T38S/R1E-33 NE ¼ SE ¼	*
2	PROP 999999	901	Bedrock	0.169	T38S/R1E-33 SE ¼ SE ¼	1141' N, 750' W fr SE cor S 33
3	JACK 20052	902	Bedrock	0.169	T38S/R1E-33 SW ¼ SE ¼	673' N, 1380' W fr SE cor S 33
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	1880	30**	20**		187	0-28.5	+1.5-28.5	none	none			
2	1860	30**	20**		187	0-28.5	+1.5-28.5	none	none			
3	1820	29	21	12/16/1985	187	0-28.5	0-28.5	none	none	8	n/a	air

Use data from application for proposed wells.

A4. **Comments:** *metes and bounds on application do not agree with provided map and GPS latitude/longitude. This review uses the latitude/longitude coordinates because they agree with the application map location.

** Depth to water for proposed wells estimated from water information available on well log JACK 20052.

A5. ☐ **Provisions of the** Rogue 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: Rogue Basin Rules contain no such provision.

A6. ☐ **Well(s) #** _____, _____, _____, _____, _____, tap(s) an aquifer limited by an administrative restriction.
Name of administrative area: **N/A**
Comments: N/A

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) **7J, Medium Water Use Reporting Condition**;
   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 application proposes to develop about 18 gpm from the Blue Gulch Member of the Hornbrook Formation, about ½ mile northeast of Ashland. The aquifer is characterized by marine mudstone, sandstone, and siltstone. The median yield of well logs reported in this section is 15 gallons per minute (gpm). To date, groundwater development is minimal in the vicinity of the proposed wells, with only one groundwater right point of appropriation within a mile. There are no nearby groundwater level data available within a mile of the proposed development, so the resource cannot be determined to be over-appropriated.

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	**Hornbrook Formation**	☒	☐
2	**Hornbrook Formation**	☒	☐
3	**Hornbrook Formation**	☒	☐
		☐	☐
		☐	☐

Basis for aquifer confinement evaluation: JACK 20052 reports the static water level rises above the water-bearing zone, indicating a confined aquifer. Other well logs in the same section indicate similar hydraulics.

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	**Unnamed tributary to Bear Cr**	**1860**	**1860**	**200**	☒	☐	☐	☐	☒
2	1	**Unnamed tributary to Bear Cr**	**1840**	**1840**	**1050**	☒	☐	☐	☐	☒
3	1	**Unnamed tributary to Bear Cr**	**1800**	**1800**	**840**	☒	☐	☐	☐	☒
1	2	**Bear Creek**	**1860**	**1760-1700**	**2900**	☒	☐	☐	☐	☒
2	2	**Bear Creek**	**1840**	**1760-1700**	**2650**	☒	☐	☐	☐	☒
3	2	**Bear Creek**	**1800**	**1760-1700**	**1730**	☒	☐	☐	☐	☒
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐
						☐	☐	☐	☐	☐

Basis for aquifer hydraulic connection evaluation: The static water level is above or coincident with surface water within hundreds of feet, indicating the groundwater discharges to surface water nearby.

Water Availability Basin the well(s) are located within: Watershed ID #: 70993 BEAR CR > ROGUE R - AT MOUTH

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	☒	☐	**n/a**	**n/a**	☐	**17.10**	☐	*	☒
2	1	☒	☐	**n/a**	**n/a**	☐	**17.10**	☐	*	☒
3	1	☒	☐	**n/a**	**n/a**	☐	**17.10**	☐	*	☒
1	2	☐	☐	IS70993A	**20**	☐	**17.10**	☐	*	☐
2	2	☐	☐	IS70993A	**20**	☐	**17.10**	☐	*	☐
3	2	☐	☐	IS70993A	**20**	☐	**17.10**	☐	*	☐

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: **Interference at 30 days could not be estimated because the terrain (high-relief slopes) and geology (fractured bedrock aquifer) do not meet model assumptions of the widely accepted techniques for determining stream depletion (e.g., Hunt 1999, 2003).

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: N/A

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:

Hunt, B. 1999. Unsteady Stream Depletion from Ground Water Pumping. Journal of Hydrologic Engineering, Vol 8(1), pp 12-19

Hunt, B. 2003. Unsteady Stream Depletion when Pumping from a Semiconfined Aquifer. Journal of Hydrologic Engineering. Vol 8(1), pp 12-19

Wiley. T, McClaughry, J. D., D'Allura, J.A. 2011. Geologic Database and Generalized Geologic Map of Bear Creek Valley, Jackson County, Oregon. State of Oregon Department of Geology and Mineral Industries Open File report O-11-11.

U.S. Geological Survey topographic map, Ashland Quad.

D. WELL CONSTRUCTION, OAR 690-200

D1. **Well #:** n/a **Logid:** this section is not applicable

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

BEAR CR > ROGUE R - AT MOUTH

ROGUE BASIN

Water Availability as of 8/17/2016

Watershed ID #: 70993 (Map) Exceedance Level:80%

Date: 8/17/2016 Time: 2:03 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	107.00	192.00	-85.40	0.00	170.00	-255.00
FEB	129.00	235.00	-106.00	0.00	170.00	-276.00
MAR	129.00	214.00	-85.20	0.00	170.00	-255.00
APR	105.00	31.00	74.00	0.00	170.00	-96.00
MAY	84.20	47.20	37.00	0.00	170.00	-133.00
JUN	61.60	73.40	-11.80	0.00	100.00	-112.00
JUL	28.10	94.20	-66.10	0.00	40.00	-106.00
AUG	19.30	79.80	-60.50	0.00	24.00	-84.50
SEP	17.10	56.50	-39.40	0.00	20.00	-59.40
OCT	18.30	18.10	0.17	0.00	24.00	-23.80
NOV	30.90	57.90	-27.00	0.00	62.00	-89.00
DEC	65.30	138.00	-72.30	0.00	153.00	-225.00
ANN	89,800.00	74,400.00	24,400.00	0.00	76,600.00	0.00

Well Location Map

G-18283 Chosen Ventures, LLC
T38S/R1E-Section 33