

## MEMO

Mar 31, 2016

FROM: GW: M. Thoma  
(Reviewer's Name)

☒ YES

☐ NO

☒ YES

☐ NO

☒ 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.**

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.

[illegible]

# PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date March 30, 2016

FROM: Groundwater Section Michael J. Thoma  
Reviewer's Name

SUBJECT: Application G- 18199 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: Samuel W & Mara J Brand County: Jackson

A1. Applicant(s) seek(s) 0.04 cfs from 2 well(s) in the Rogue Basin,  
Sam's Valley subbasin

A2. Proposed use Nursery (28 ac-ft / yr) 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    | JACK 3646 / 31919 <sup>A</sup> | 1                  | Bedrock           | 0.02               | 35S/02W-20 SWSW       | 500'N, 661'E of SW cor S20                                       |
| 2    | JACK 3645                      | 2                  | Bedrock           | 0.02               | 35S/02W-20 SWSW       | 560'N, 490'E of SW cor S20                                       |
| 3    |                                |                    |                   |                    |                       |                                                                  |
| 4    |                                |                    |                   |                    |                       |                                                                  |

\* 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    | 1473             | 543                | 110        | 8/3/1992  | 800             | 0-24               | +1-219                | 0-680                | 480-660                      | 3                | A              |           |
| 2    | 1466             | 105                | 80         | 8/22/1979 | 140             | 0-40               | 0-67                  |                      |                              | 1                | A              |           |
|      |                  |                    |            |           |                 |                    |                       |                      |                              |                  |                |           |
|      |                  |                    |            |           |                 |                    |                       |                      |                              |                  |                |           |

Use data from application for proposed wells.

A4. **Comments:** <sup>A</sup>The well log provided by the applicant for Well #1 is a deepening log that reports that the original hole had to be "totally redone". The applicant provides well log JACK 3645 for Well #2 and states on the application that JACK 3646 – which was drilled on the same date as JACK 3645 and has very similar construction – was the original log for Well #1.

A5. ☒ **Provisions of the Rogue (OAR 690-515)** 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) 7C (7-yr SWL Reporting); Medium 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: There are very few permitted groundwater rights in the immediate area of the proposed POAs which the reviewer attributes to the low-yield nature of the bedrock (median well yield reported on driller's logs for area is < 5 gpm). There are also no OWRD water-level data in the area to determine over-appropriation, however it is unlikely the proposed use will significantly impact the overall state of groundwater in the area given it is for a small rate and duty and that other groundwater appropriation in the area is primarily limited to domestic use.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**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    | Bedrock of Payne Cliffs Fm  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2    | Bedrock of Payne Cliffs Fm  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|      |                             | <input type="checkbox"/>            | <input type="checkbox"/> |
|      |                             | <input type="checkbox"/>            | <input type="checkbox"/> |

**Basis for aquifer confinement evaluation:** well logs for applicant's proposed POA report SWL higher than 'first water'

**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<br>ft msl | SW Elev<br>ft msl | Distance<br>(ft) | Hydraulically Connected?            |                          |                          | Potential for Subst. Interfer. Assumed? |                                     |
|------|------|--------------------|-------------------|-------------------|------------------|-------------------------------------|--------------------------|--------------------------|-----------------------------------------|-------------------------------------|
|      |      |                    |                   |                   |                  | YES                                 | NO                       | ASSUMED                  | YES                                     | NO                                  |
| 1    | 1    | Sam's Creek        | 1360              | ~1320             | 7140             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input checked="" type="checkbox"/> |
| 2    | 1    | Sam's Creek        | 1360              | ~1320             | 6980             | <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"/>            |

**Basis for aquifer hydraulic connection evaluation:** higher GW elevation than SW elevation suggests that groundwater is flowing toward, and likely discharging to, surface water; Sam's Cr. is the main creek in the valley and the likely local groundwater discharge area.

**Water Availability Basin the well(s) are located within:** SAMS CR > ROGUE R – AT MOUTH (watershed ID# 274)

**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? |
|--------------------------------------------------------------------------|------|----------------|-------------|-------------------------|------------------------------|---------------|------------------------|------------------------------|----------------------------|-----------------------------------------|
| <b>There are no hydraulically connected surface waters within 1 mile</b> |      |                |             |                         |                              |               |                        |                              |                            |                                         |

**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? |
|--------------------------------------------------------------------------|------|--|-------------|-------------------------|------------------------------|---------------|------------------------|------------------------------|----------------------------|-----------------------------------------|
| <b>There are no hydraulically connected surface waters within 1 mile</b> |      |  |             |                         |                              |               |                        |                              |                            |                                         |

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

- 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  |     |     |     |     |     |     |     |     |     |     |     |     |     |

  

|                     |                            |   |   |   |   |   |   |   |   |   |   |   |   |
|---------------------|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| (A) = Total Interf. | <b>*see comments below</b> |   |   |   |   |   |   |   |   |   |   |   |   |
| (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 beyond 1 mile where not 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).

- 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:
- ☐ The permit should contain condition #(s) \_\_\_\_\_;
  - ☐ The permit should contain special condition(s) as indicated in "Remarks" below;

- C6. **SW / GW Remarks and Conditions:** The applicant's proposed POAs are located at the edge of the foothills north of Sam's Valley. The wells are producing from terrestrial sedimentary rocks of the Eocene Payne Cliffs Fm – a fractured rock aquifer that generally produces low-yielding wells. There are numerous small creeks that flow from the foothills out into the broad plain of Sam's Valley but most of these are intermittent and have been noted by OWRD staff to flow only seasonally or following precipitation events. Furthermore, many of these small creeks appear to become losing streams as they flow out into Sam's Valley or become channelized / ditched around fields. There are few surface-water rights on some small creeks but many of those are association with reservoir permits as well, further supporting the interpretation that creeks are intermittent or ephemeral.

#### 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. J., J. D. McClaughry, and J. A. D'Allura. 2011. *Geologic Database and Generalized Geologic Map of Bear Creek Valley, Jackson County, Oregon*. Oregon Dept. of Geology and Mineral Industries. OFR O-11-11.

**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**

| SAMS CR > ROGUE R - AT MOUTH<br>ROGUE BASIN                                                 |                     |                               |                      |                            |                           |                     |
|---------------------------------------------------------------------------------------------|---------------------|-------------------------------|----------------------|----------------------------|---------------------------|---------------------|
| Water Availability as of 3/31/2016                                                          |                     |                               |                      |                            |                           |                     |
| Watershed ID #: 274 ( <a href="#">Map</a> )                                                 |                     |                               |                      | Exceedance Level: 80%      |                           |                     |
| Date: 3/31/2016                                                                             |                     |                               |                      | Time: 9:13 AM              |                           |                     |
| Water Availability Calculation                                                              |                     | Consumptive Uses and Storages |                      | Instream Flow Requirements |                           | Reservations        |
| Water Rights                                                                                |                     | Watershed Characteristics     |                      |                            |                           |                     |
| <b>Water Availability Calculation</b>                                                       |                     |                               |                      |                            |                           |                     |
| Monthly Streamflow in Cubic Feet per Second<br>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                                                                                         | 8.17                | 5.58                          | 2.59                 | 0.00                       | 5.00                      | -2.41               |
| FEB                                                                                         | 14.70               | 7.13                          | 7.57                 | 0.00                       | 5.00                      | 2.57                |
| MAR                                                                                         | 12.80               | 6.17                          | 6.63                 | 0.00                       | 5.00                      | 1.63                |
| APR                                                                                         | 6.14                | 0.97                          | 5.17                 | 0.00                       | 5.00                      | 0.17                |
| MAY                                                                                         | 2.83                | 1.42                          | 1.41                 | 0.00                       | 2.00                      | -0.59               |
| JUN                                                                                         | 1.11                | 1.96                          | -0.85                | 0.00                       | 1.00                      | -1.85               |
| JUL                                                                                         | 0.56                | 2.62                          | -2.06                | 0.00                       | 1.00                      | -3.06               |
| AUG                                                                                         | 0.46                | 2.17                          | -1.71                | 0.00                       | 1.00                      | -2.71               |
| SEP                                                                                         | 0.32                | 1.43                          | -1.11                | 0.00                       | 2.00                      | -3.11               |
| OCT                                                                                         | 0.36                | 0.49                          | -0.13                | 0.00                       | 5.00                      | -5.13               |
| NOV                                                                                         | 0.76                | 0.50                          | 0.26                 | 0.00                       | 5.00                      | -4.74               |
| DEC                                                                                         | 3.55                | 4.30                          | -0.75                | 0.00                       | 5.00                      | -5.75               |
| ANN                                                                                         | 7,590.00            | 2,090.00                      | 5,750.00             | 0.00                       | 2,530.00                  | 3,990.00            |

## Well Location Map

