

July 24, 2015

**FROM:** J. Hackett - Groundwater Section

                     YES

✓ NO

YES

✓ NO

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

*Calculate interference as the percentage of annual consumptive use by month and fill in the table below. If interference cannot be calculated, per criteria in 390.839, do not fill in the table but check the "unable" option above, thus informing the Water Rights Section that the Department is unable to make a Preponderance of Evidence finding.*

Exercise of this permit is calculated to reduce monthly flows in the \_\_\_\_\_ Scenic Waterway by the following amounts, expressed as a proportion of the annual consumptive use pumped from the well.

[illegible]

## PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section

Date July 24, 2015FROM: Groundwater Section J. Hackett

Reviewer's Name

SUBJECT: Application G- 17938Supersedes review of March 26, 2015

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: Patrick Campbell County: Gilliam

A1. Applicant(s) seek(s) 1.49\* cfs from 3 well(s) in the John Day Basin,  
 subbasin Quad Map: Lone Rock Creek

A2. Proposed use Irrigation Seasonality: April 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 | 1                  | CRB               | 1.49               | 4S/23E-8 SW-NW        | 2440' S, 640' E fr NW cor S 8                                    |
| 2    | Proposed | 2                  | CRB               | 1.49               | 4S/23E-8 SW-NW        | 1760' S, 1140' E fr NW cor S 8                                   |
| 3    | Proposed | 3                  | CRB               | 1.49               | 4S/23E-8 NE-NW        | 1100' S, 1600' E fr NW cor S 8                                   |
| 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    | 1890             |                    |            |          | ±300            | 0-200              | 0-200                 |                      |                              |                  |                |           |
| 2    | 1880             |                    |            |          | ±300            | 0-200              | 0-200                 |                      |                              |                  |                |           |
| 3    | 1890             |                    |            |          | ±300            | 0-200              | 0-200                 |                      |                              |                  |                |           |
|      |                  |                    |            |          |                 |                    |                       |                      |                              |                  |                |           |
|      |                  |                    |            |          |                 |                    |                       |                      |                              |                  |                |           |

Use data from application for proposed wells.

A4. **Comments:** Supersedes review of March 26, 2015. Applicant has revised proposed well construction to include casing and seal to a depth of at least 200 feet.

A5. ☒ **Provisions of the** John Day 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: The proposed wells will not produce from Quaternary alluvium, so the pertinent basin rules do not apply.

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) 7B, 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 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: \_\_\_\_\_

**SPECIAL CONDITIONS:**

- 1) **Groundwater production in each well shall be limited to a single aquifer in the Columbia River Basalt Group lavas and each well shall be cased and sealed into hard basalt below a depth of at least 200 feet.**
- 2) **The permittee shall instruct the well constructor to contact the Ground Water Section of the Water Resources Department prior to drilling each well to arrange for the collection of drill cuttings.**

The applicant has proposed three wells that will produce from water-bearing zones in the Columbia River Basalt Group (CRBG). The CRBG consists of a series of lava flows that range up to 2000 feet thick in the vicinity of the proposed wells. Although unconfined ground water occurs near the surface of the basalts, most water occurs in confined aquifers that occupy thin rubble zones (interflow zones) that occur at the contacts between lava flows. The thick interiors of the basalt flows generally have very low porosity and permeability and act as confining beds. This physical geometry generally produces a stack of thin aquifers (interflow zones) separated by thick confining beds (flow interiors).

This is the first groundwater permit application in 4S/23E. Well density in the area is very sparse. The Department's Well Log Database contains only three wells for the entire 36 square mile township. As a result, very little is known about water-level trends and long-term groundwater availability. If a permit is issued it should contain water level measurement and water use reporting conditions.

\_\_\_\_\_

\_\_\_\_\_

**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    | Basalt                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2    | Basalt                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3    | Basalt                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|      |                             | <input type="checkbox"/>            | <input type="checkbox"/> |
|      |                             | <input type="checkbox"/>            | <input type="checkbox"/> |

**Basis for aquifer confinement evaluation:** Water-bearing zones in the applicant's proposed wells will likely be confined by dense flow interiors.

**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<br>Connected? |                                     |                          | Potential for<br>Subst. Interfer.<br>Assumed? |                                     |
|------|------|--------------------|-------------------|-------------------|------------------|-----------------------------|-------------------------------------|--------------------------|-----------------------------------------------|-------------------------------------|
|      |      |                    |                   |                   |                  | YES                         | NO                                  | ASSUMED                  | YES                                           | NO                                  |
| 1    | 1    | Rock Creek         | ?                 | 1800-1900         | 185              | <input type="checkbox"/>    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                      | <input checked="" type="checkbox"/> |
| 1    | 2    | Rock Creek         | ?                 | 1800-1900         | 300              | <input type="checkbox"/>    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                      | <input checked="" type="checkbox"/> |
| 1    | 3    | Rock Creek         | ?                 | 1800-1900         | 425              | <input type="checkbox"/>    | <input checked="" 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:** The proposed wells will cased and sealed to a depth of at least 200 feet and will produce from water-bearing zones that are well below the elevation of the local reach of Rock Creek. As a result, the wells will not be hydraulically connected to the nearby reach of the creek.

**Water Availability Basin the well(s) are located within:** #30620427: ROCK CR > JOHN DAY R – AB WALLACE CAN

**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 <<br>¼ mile?        | Qw ><br>5 cfs?           | Instream<br>Water<br>Right<br>ID | Instream<br>Water<br>Right Q<br>(cfs) | Qw ><br>1%<br>ISWR?      | 80%<br>Natural<br>Flow<br>(cfs) | Qw > 1%<br>of 80%<br>Natural<br>Flow? | Interference<br>@ 30 days<br>(%) | Potential<br>for Subst.<br>Interfer.<br>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: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

[illegible]

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\_\_\_\_\_

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

### References Used:

Gannett, M., 1984, Groundwater assessment of the John Day basin. Oregon Water Resources Department, 99p.

**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.

\_\_\_\_\_

Well Location Map

