# Groundwater Application Review Summary Form

**Application # G-** 18532

**GW Reviewer** Joe Kemper **Date Review Completed:** 8/14/2018

**Summary of GW Availability and Injury Review:**

[ ] Groundwater for the proposed use is either over appropriated, will not likely be available in the amounts requested without injury to prior water rights, OR will not likely be available within the capacity of the groundwater resource per Section B of the attached review form.

**Summary of Potential for Substantial Interference Review:**

[ ] There is the potential for substantial interference per Section C of the attached review form.

**Summary of Well Construction Assessment:**

[ ] The well does not appear to meet current well construction standards per Section D of the attached review form. Route through Well Construction and Compliance Section.

*This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations and for conditions that may be necessary for a permit (if one is issued).*

**WATER RESOURCES DEPARTMENT**

**MEMO** 8/14 ,2018

**TO:** **Application G-** 18532

**FROM:** **GW:** Joe Kemper
(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 Rogue 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.083 | 0.683 | 0.083 |

OK. KLO

# MEMO

**To:** Kristopher Byrd, Well Construction and Compliance Section Manager

**From:** Joel Jeffery, Well Construction Program Coordinator

**Subject:** Review of Water Right Application G-18532

**Date:** August 16, 2018

The attached application was forwarded to the Well Construction and Compliance Section by Water Rights. Joe Kemper reviewed the application. Please see Joe's Groundwater Review and the Well Log.

Applicant's Well #1 (JACK 62237): Based on a review of the Well Report, Applicant's Well #1 appears to protect the groundwater resource.

The construction of Applicants Well #1 may not satisfy hydraulic connection issues.

# JACK 62237

JACK 62237

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

7/8/2015

WELL I.D. LABEL# L 118366
START CARD # 1026930
ORIGINAL LOG #

## (1) LAND OWNER

Owner Well I.D.
First Name Last Name
Company MARTIN FARM PROPERTIES
Address 1 MAIN ST. 401
City MEDFORD State OR Zip 97501

## (2) TYPE OF WORK

[X] New Well [ ] Deepening [ ] Conversion [ ] Alteration (complete 2a & 10) [ ] Abandonment(complete 5a)

## (2a) PRE-ALTERATION

| | Dia | + | From | To | Gauge | Stl | Plstc | Wld | Thrd |
|---|---|---|---|---|---|---|---|---|---|
| Casing: | | | | | | | | | |

| | Material | From | To | Amt | sacks/lbs |
|---|---|---|---|---|---|
| Seal: | | | | | |

## (3) DRILL METHOD

[X] Rotary Air [ ] Rotary Mud [ ] Cable [ ] Auger [ ] Cable Mud
[ ] Reverse Rotary [ ] Other

## (4) PROPOSED USE

(55)
[ ] Domestic [X] Irrigation [ ] Community
[ ] Industrial/ Commericial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

## (5) BORE HOLE CONSTRUCTION

Special Standard [ ] (Attach copy)
Depth of Completed Well 120.00 ft.

BORE HOLE

| Dia | From | To |
|---|---|---|
| 10 | 0 | 38 |
| 6 | 38 | 120 |
| | | |
| | | |

SEAL

| Material | From | To | Amt | sacks/lbs |
|---|---|---|---|---|
| Bentonite Chips | 0 | 38 | 19 | S |
| | | Calculated | 16 | |
| | | | | |
| | | Calculated | | |

How was seal placed: Method [ ] A [ ] B [ ] C [ ] D [ ] E
[X] Other DRY POURED
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: [ ] Yes Type Amount

## (5a) ABANDONMENT USING UNHYDRATED BENTONITE

Proposed Amount Actual Amount

## (6) CASING/LINER

| Casing | Liner | Dia | + | From | To | Gauge | Stl | Plstc | Wld | Thrd |
|---|---|---|---|---|---|---|---|---|---|---|
| ● | | 6 | X | 2 | 98 | .250 | ● | | X | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Shoe [ ] Inside [X] Outside [ ] Other Location of shoe(s) 98
Temp casing [ ] Yes Dia From To

## (7) PERFORATIONS/SCREENS

Perforations Method AIR / HOLTE
Screens Type Material

| Perf/ Screen | Casing/ Screen Liner | Dia | From | To | Scrn/slot width | Slot length | # of slots | Tele/ pipe size |
|---|---|---|---|---|---|---|---|---|
| Perf | Casing | 6 | 77 | 97 | .188 | 1 | 480 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

## (8) WELL TESTS: Minimum testing time is 1 hour

( ) Pump ( ) Bailer (●) Air ( ) Flowing Artesian

| Yield gal/min | Drawdown | Drill stem/Pump depth | Duration (hr) |
|---|---|---|---|
| 17 | | 120 | 1 |
| | | | |
| | | | |

Temperature 54 °F Lab analysis [ ] Yes By
Water quality concerns? [ ] Yes (describe below) TDS amount 400 ppm

| From | To | Description | Amount | Units |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

## (9) LOCATION OF WELL (legal description)

County JACKSON Twp 37.00 S N/S Range 2.00 W E/W WM
Sec 33 1/4 of the 1/4 Tax Lot 1300
Tax Map Number Lot
Lat ° ' " or 42.30674000 DMS or DD
Long ° ' " or -122.94913000 DMS or DD
(●) Street address of well ( ) Nearest address
4735 SOUTH STAGE RD. MEDFORD, OR 97501

## (10) STATIC WATER LEVEL

| | Date | SWL(psi) | + | SWL(ft) |
|---|---|---|---|---|
| Existing Well / Pre-Alteration | | | | |
| Completed Well | 6/25/2015 | | | 22 |

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 77.00

| SWL Date | From | To | Est Flow | SWL(psi) | + | SWL(ft) |
|---|---|---|---|---|---|---|
| 6/25/2015 | 77 | 96 | 17 | | | 22 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

## (11) WELL LOG

Ground Elevation 1633.00

| Material | From | To |
|---|---|---|
| TIGHT BROWN CLAY | 0 | 29 |
| TIGHT TAN CLAY | 29 | 41 |
| BROWN BROKEN BASALT MED HARD | 41 | 96 |
| HARD GREY BLUE BASALT | 96 | 120 |

Date Started 6/25/2015 Completed 6/25/2015

**(unbonded) Water Well Constructor Certification**

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number Date

Signed

**(bonded) Water Well Constructor Certification**

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1835 Date 7/8/2015

Signed KEVIN D GILL (E-filed)
Contact Info (optional) CLOUSER DRILLING INC

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version:

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 8/14/2018
FROM: Groundwater Section Joe Kemper
Reviewer's Name
SUBJECT: Application G- 18532 Supersedes review of NA
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: **BGE Properties LLC** County: **Jackson**

A1. Applicant(s) seek(s) 0.0579 cfs from 1 well(s) in the Rogue Basin, Bear Creek subbasin

A2. Proposed use Supplemental Irrig. (21.8 acres) Seasonality: April 1st to Oct. 31st

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 62237 | 1 | Bedrock | 0.0579 | 37S/2W-33 NW-SW | 82°38'27" E, NW cor DLC 95, 1324 ft |
| 2 | | | | | | |
| 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 | 1626 | 77 | 22 | 6/25/2015 | 120 | 0-38 | 0-98 | NA | 77-98 | 17 | | Air |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Use data from application for proposed wells.

A4. **Comments:**

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: The Rogue Basin rules contain no such provision.

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); 7J; 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:** The applicant's well would produce from a fractured bedrock aquifer system in metasedimentary units of the Applegate Group. SWL measurements in nearby wells appear stable but lack the continuity to provide a preponderance of evidence that the resource is or is not over-appropriated (see Figure 3).

There is moderate groundwater development to the northwest, but considering the requested rate and the nature of the aquifer (decomposed bedrock and local fracture systems), it is unlikely the proposed use will cause injury to senior users. There is a POA located less than 300 feet to the west (GR-2241), but it is located on the same tax lot. There is a likelihood of well-to-well interference, but because they have the same owner, this review does not consider the potential injury or interference to this particular POA.

## 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 | **Fractured Bedrock of Applegate Group** | ☒ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |
| | | ☐ | ☐ |

**Basis for aquifer confinement evaluation:** The well log for Well 1 reports "first water" at 77 feet BLS and a SWL of 22 feet BLS, indicating confined conditions. Adjacent well logs report similar confined conditions.

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** | **Jackson Creek** | **1604** | **1525** | **5550** | ☒ | ☐ | ☐ | ☐ | ☒ |
| **1** | **2** | **Griffin Creek** | **1604** | **1440** | **7125** | ☒ | ☐ | ☐ | ☐ | ☒ |
| | | | | | | ☐ | ☐ | ☐ | ☐ | ☐ |
| | | | | | | ☐ | ☐ | ☐ | ☐ | ☐ |

**Basis for aquifer hydraulic connection evaluation:** GW elevations are higher than SW elevations, indicating that groundwater is flowing towards, and discharging to, adjacent streams.

Note: the Medford Irrigation District reports that Daisy Creek does not flow consistently through summer months but carries water when used to convey appropriated water to downstream customers. As such, Daisy Creek is not considered in this review as a surface water source as per OAR 690-009.

**Water Availability Basin the well(s) are located within:** GRIFFIN CR > BEAR CR - AT MOUTH; PSI also evaluated for JACKSON CR > BEAR CR - 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? |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ☐ | ☐ | | | ☐ | | ☐ | | ☐ |
| | | ☐ | ☐ | | | ☐ | | ☐ | | ☐ |
| | | ☐ | ☐ | | | ☐ | | ☐ | | ☐ |
| | | ☐ | ☐ | | | ☐ | | ☐ | | ☐ |
| | | ☐ | ☐ | | | ☐ | | ☐ | | ☐ |
| | | ☐ | ☐ | | | ☐ | | ☐ | | ☐ |
| | | ☐ | ☐ | | | ☐ | | ☐ | | ☐ |

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:** There are no hydraulically connected surface water sources within 1 mile of the applicant's well.

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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | <.1% | <1% | <1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% |
| Well Q as CFS | | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 |
| Interference CFS | | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| **(A) = Total Interf.** | | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| **(B) = 80 % Nat. Q** | | 4.54 | 2.86 | 1.65 | 0.57 | 0.33 | 0.27 | 0.3 | 0.71 | 3.11 | 6.1 | 7.6 | 7.03 |
| **(C) = 1 % Nat. Q** | | 0.0454 | 0.0286 | 0.0165 | 0.0057 | 0.0033 | 0.0027 | 0.003 | 0.0071 | 0.0311 | 0.061 | 0.076 | 0.0703 |
| **(D) = (A) > (C)** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **(E) = (A / B) x 100** | | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** |

| **Non-Distributed Wells** Well | SW# | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% | <.1% |
| Well Q as CFS | | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 | 0.0579 |
| Interference CFS | | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| **(A) = Total Interf.** | | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| **(B) = 80 % Nat. Q** | | 4.6 | 5.79 | 5.43 | 3.64 | 2.38 | 1.56 | 0.6 | 0.37 | 0.31 | 0.35 | 0.75 | 2.44 |
| **(C) = 1 % Nat. Q** | | 0.046 | 0.0579 | 0.0543 | 0.0364 | 0.0238 | 0.0156 | 0.006 | 0.0037 | 0.0031 | 0.0035 | 0.0075 | 0.0244 |
| **(D) = (A) > (C)** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **(E) = (A / B) x 100** | | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** | **<1 %** |

(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:** Pumping effects on adjacent surface water sources are evaluated using the Hunt (2003) stream depletion model with aquifer parameters representative of the local geology. Parameters and results for the closest well-surface water source combination are presented in Figure 4.

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 applicant's well would access an aquifer system that has been determined to be hydraulically connected to adjacent surface water sources. The reviewer has not found a preponderance of evidence for the Potential for Substantial Interference (PSI) as per OAR 690-009.

**References Used:**

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

OWRD Groundwater Site Information System Database – Accessed 8/14/2018.

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.**

**Figure 1. Water Availability Tables**

GRIFFIN CR > BEAR CR - AT MOUTH
ROGUE BASIN

Water Availability as of 8/13/2018

Watershed ID #: 71200 (Map) Exceedance Level: 80%
Date: 8/13/2018 Time: 10:35 AM

Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

## 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 | 4.60 | 0.03 | 4.57 | 0.00 | 10.00 | -5.43 |
| FEB | 5.79 | 0.04 | 5.75 | 0.00 | 13.00 | -7.25 |
| MAR | 5.43 | 0.03 | 5.40 | 0.00 | 11.00 | -5.60 |
| APR | 3.64 | 0.14 | 3.50 | 0.00 | 7.00 | -3.50 |
| MAY | 2.38 | 0.22 | 2.16 | 0.00 | 5.00 | -2.84 |
| JUN | 1.56 | 0.31 | 1.25 | 0.00 | 3.00 | -1.75 |
| JUL | 0.60 | 0.41 | 0.19 | 0.00 | 1.00 | -0.81 |
| AUG | 0.37 | 0.34 | 0.03 | 0.00 | 0.50 | -0.47 |
| SEP | 0.31 | 0.23 | 0.08 | 0.00 | 0.40 | -0.32 |
| OCT | 0.35 | 0.08 | 0.27 | 0.00 | 0.50 | -0.23 |
| NOV | 0.75 | 0.01 | 0.74 | 0.00 | 2.00 | -1.26 |
| DEC | 2.44 | 0.02 | 2.42 | 0.00 | 7.00 | -4.58 |
| ANN | 3,610.00 | 113.00 | 3,500.00 | 0.00 | 3,620.00 | 19.10 |

JACKSON CR > BEAR CR - AT MOUTH
ROGUE BASIN

Water Availability as of 8/13/2018

Watershed ID #: 71201 (Map) Exceedance Level: 80%
Date: 8/13/2018 Time: 10:35 AM

Water Availability Calculation | Consumptive Uses and Storages | Instream Flow Requirements | Reservations | Water Rights | Watershed Characteristics

## 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 | 6.10 | 0.47 | 5.63 | 0.00 | 14.00 | -8.37 |
| FEB | 7.60 | 0.58 | 7.02 | 0.00 | 17.00 | -9.98 |
| MAR | 7.03 | 0.49 | 6.54 | 0.00 | 14.00 | -7.46 |
| APR | 4.54 | 2.18 | 2.36 | 0.00 | 9.00 | -6.64 |
| MAY | 2.86 | 3.50 | -0.64 | 0.00 | 6.00 | -6.64 |
| JUN | 1.65 | 4.92 | -3.27 | 0.00 | 3.00 | -6.27 |
| JUL | 0.57 | 6.60 | -6.03 | 0.00 | 1.00 | -7.03 |
| AUG | 0.33 | 5.43 | -5.10 | 0.00 | 0.50 | -5.60 |
| SEP | 0.27 | 3.55 | -3.28 | 0.00 | 0.40 | -3.68 |
| OCT | 0.30 | 1.13 | -0.84 | 0.00 | 0.40 | -1.23 |
| NOV | 0.71 | 0.09 | 0.62 | 0.00 | 2.00 | -1.38 |
| DEC | 3.11 | 0.33 | 2.78 | 0.00 | 9.00 | -6.22 |
| ANN | 4,610.00 | 1,780.00 | 3,810.00 | 0.00 | 4,570.00 | 0.00 |

**Figure 2. Well Location Map**

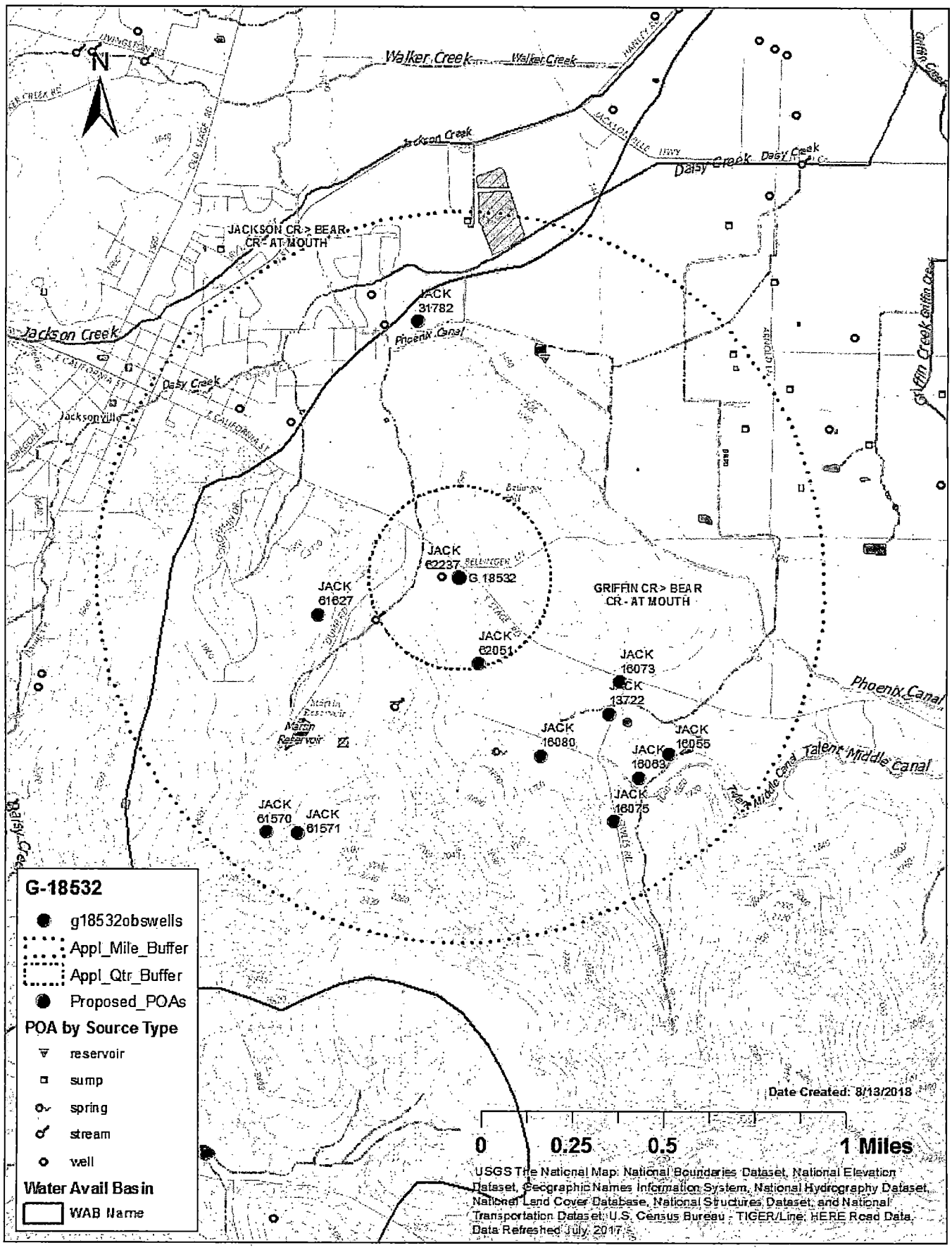

**Figure 3. Water-Level Trends in Nearby Wells**

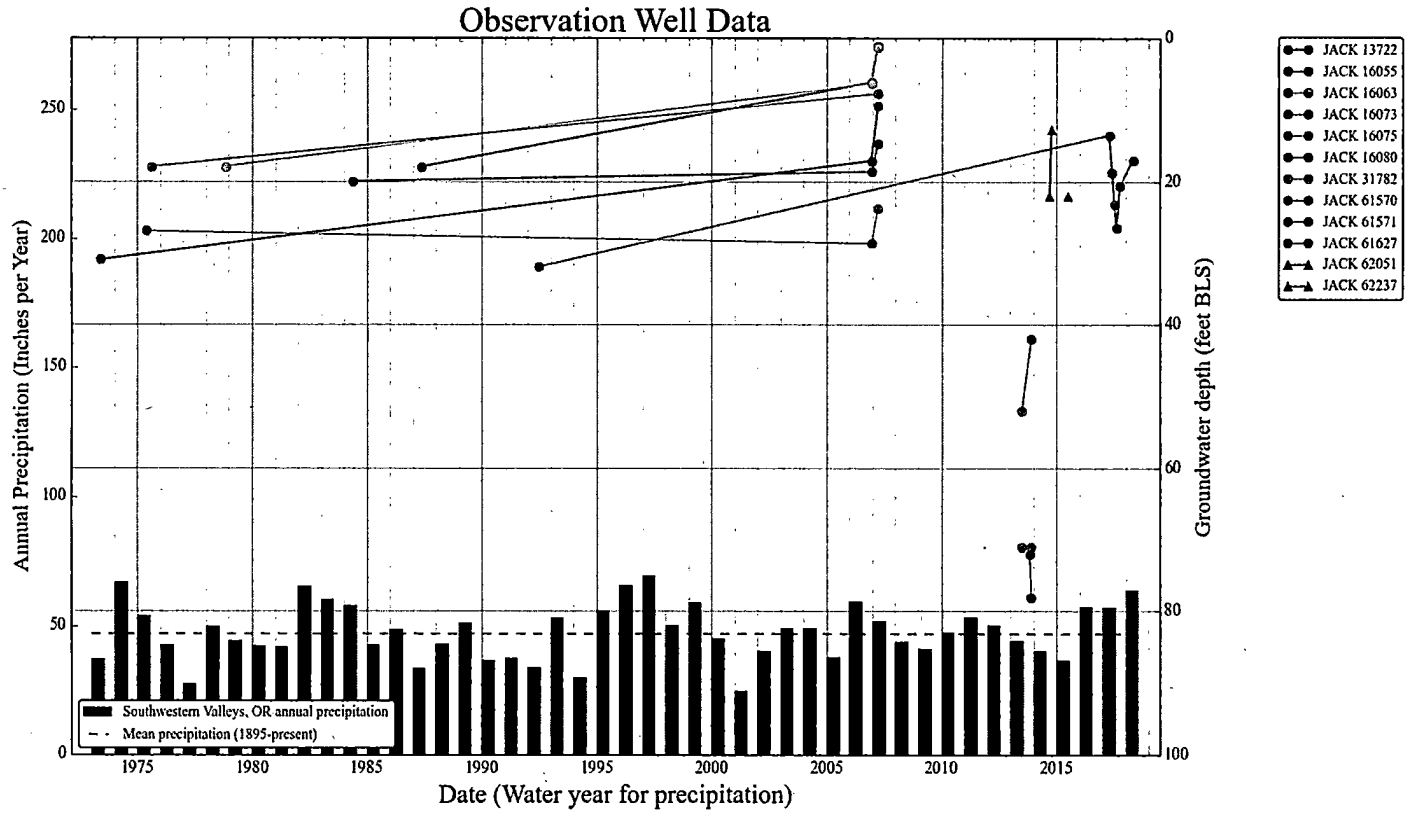

**Figure 4. Stream Depletion Model**

| | |
|---|---|
| Application type: | G |
| Application number: | 18532 |
| Well number: | 1 |
| Stream Number: | 1 |
| Pumping rate (cfs): | 0.0579 |
| Pumping duration (days): | 213 |

| Parameter | Symbol | Scenario 1 | Scenario 2 | Scenario 3 | Units |
|---|---|---|---|---|---|
| Distance from well to stream | a | 5550 | 5550 | 5550 | ft |
| Aquifer transmissivity | T | 500 | 1000 | 5000 | ft2/day |
| Aquifer storativity | S | .1 | .01 | .001 | - |
| Aquitard vertical hydraulic conductivity | Kva | 0.05 | 0.05 | 0.05 | ft/day |
| Aquitard saturated thickness | ba | 20.0 | 20.0 | 20.0 | ft |
| Aquitard thickness below stream | babs | 3.0 | 3.0 | 3.0 | ft |
| Aquitard specific yield | Sya | 0.2 | 0.2 | 0.2 | - |
| Stream width | ws | 10 | 15 | 20 | ft |

Stream depletion for Scenario 2:

| Days | 10 | 30 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depletion (%) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Depletion (cfs) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |