

Approved:



## MEMO

**To:** Kristopher Byrd, Well Construction and Compliance Section Manager  
**From:** Travis Kelly, Well Construction Compliance Coordinator  
**Subject:** Review of Water Right Application G-19065  
**Date:** January 6, 2022

The attached application was forwarded to the Well Construction and Compliance Section by the Groundwater Section. Mike Thoma reviewed the application. Please see Mike's Groundwater Review and the Well Report.

Applicant's Well #1 (LANE 8397): Based on a review of the Well Report, Applicant's Well #1 does not appear to comply with current minimum well construction standards (See OAR 690 Division 210). There is no well report associated with this well that shows how it was originally constructed. The only information available is a deepening Well Report. This Well Report does not confirm the construction of this well and is not adequate to verify compliance with well construction standards.

My recommendation is that the Department **not issue** a permit for Applicant's Well #1 unless it is brought into compliance with current minimum well construction standards or information is provided showing that it is constructed to meet current minimum well construction standards.

Applicant's Well #2 (Proposed Well): Applicant's Well #2 is a proposed well, therefore it cannot be reviewed for construction. Construction of this proposed well shall be completed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240. During construction of this well, specific attention should be paid to ensure sealing requirements are met and that the well does not commingle aquifers.

The construction of applicant's proposed Well #2 may not satisfy hydraulic connection issues.



# Groundwater Application Review Summary Form

Application # G- 19065

GW Reviewer M. Thoma Date Review Completed: 11/23/2021

## 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

11/23/2021

TO: Application G- 19065

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

SUBJECT: Scenic Waterway Interference Evaluation

☐ YES The source of appropriation is hydraulically connected to a State Scenic  
☒ NO Waterway or its tributaries

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

☐ 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 [Enter] 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 11/23/2021  
 FROM: Groundwater Section M. Thoma  
 Reviewer's Name  
 SUBJECT: Application G- 19065 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: Lisa Johnson / Sunset Farms County: Lane

A1. Applicant(s) seek(s) 0.31 cfs from 2 well(s) in the Willamette Basin,  
Upper Willamette / Long Tom subbasin

A2. Proposed use Irrigation (25 ac) Seasonality: March 1 – October 31 (244 d)

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    | LANE0008397 | 1                  | Alluvium          | 0.31               | 16.00S-5.00W-1-NW SE  | 520 FEET SOUTH AND 260 FEET EAST FROM C1/4 CORNER, SECTION 1     |
| 2    | PROPOSED    | 2                  | Alluvium          | 0.31               | 16.00S-5.00W-1-NW SE  | 704 FEET SOUTH AND 337 FEET EAST FROM C1/4 CORNER, SECTION 1     |
| 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    | 330              | -                  | 5-15       |          | 115             |                    |                       |                      |                              | 50               |                |           |
| 2    | 330              | -                  | 5-15       |          | 115             |                    |                       |                      |                              |                  |                |           |
|      |                  |                    |            |          |                 |                    |                       |                      |                              |                  |                |           |
|      |                  |                    |            |          |                 |                    |                       |                      |                              |                  |                |           |

Use data from application for proposed wells.

A4. **Comments:** POD #2 is a proposed well but should encounter similar hydrologic and geologic conditions as POD #1

A5. ☐ **Provisions of the** \_\_\_\_\_ 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-year SWL); Large Water-Use Reporting;
  - ii. ☐ The permit should be conditioned as indicated in item 2 below.
  - iii. ☐ The permit should contain special condition(s) as indicated in item 3 below;

- B2.
- a. ☐ **Condition** to allow groundwater production from no deeper than \_\_\_\_\_ ft. below land surface;
  - b. ☐ **Condition** to allow groundwater production from no shallower than \_\_\_\_\_ ft. below land surface;
  - c. ☐ **Condition** to allow groundwater production only from the \_\_\_\_\_ groundwater reservoir between approximately \_\_\_\_\_ ft. and \_\_\_\_\_ ft. below land surface;
  - d. ☐ **Well reconstruction** is necessary to accomplish one or more of the above conditions. The problems that are likely to occur with this use and without reconstructing are cited below. Without reconstruction, I recommend withholding issuance of the permit until evidence of well reconstruction is filed with the Department and approved by the Groundwater Section.

**Describe injury** –as related to water availability– that is likely to occur without well reconstruction (interference w/ senior water rights, not within the capacity of the resource, etc): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

B3. **Groundwater availability remarks:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

**Basis for aquifer confinement evaluation:** The majority of well logs in the area report similar SWLs regardless of depth, implying a single, vertically-continuous aquifer system

**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    | Amazon Creek       | 325               | 310-320           | 3500             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/> |
| 2    | 1    | Amazon Creek       | 325               | 310-320           | 3530             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/> |
|      |      |                    |                   |                   |                  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                | <input type="checkbox"/> |

**Basis for aquifer hydraulic connection evaluation:** similar GW and SW elevations;

Nearby Flat Creek was not evaluated for PSI because there are no surface water PODs within a reasonable distance of the proposed PODs

**Water Availability Basin the well(s) are located within:** LONG TOM R > WILLAMETTE R – AB MOUTH (ID# 114)

**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 (SW) source. Limit evaluation to instream rights and minimum stream flows that are pertinent to that SW source, not lower SW sources to which the stream under evaluation is tributary. Compare the requested rate against the 1% of 80% *natural* flow for the pertinent Water Availability Basin (WAB). If Q is not distributed by well, use full rate for each well. Any checked ☒ box indicates the well is assumed to have the potential to cause PSI.

| Well | SW # | Well < ¼ mile?           | Qw > 5 cfs?              | Instream Water Right ID | Instream Water Right Q (cfs) | Qw > 1% ISWR?            | 80% Natural Flow (cfs) | Qw > 1% of 80% Natural Flow? | Interference @ 30 days (%) | Potential for Subst. Interfer. Assumed? |
|------|------|--------------------------|--------------------------|-------------------------|------------------------------|--------------------------|------------------------|------------------------------|----------------------------|-----------------------------------------|
| 1    | 1    | <input type="checkbox"/> | <input type="checkbox"/> | -                       |                              | <input type="checkbox"/> | 32.1                   | <input type="checkbox"/>     | < 25                       | <input type="checkbox"/>                |
| 2    | 1    | <input type="checkbox"/> | <input type="checkbox"/> | -                       |                              | <input type="checkbox"/> | 32.1                   | <input type="checkbox"/>     | < 25                       | <input type="checkbox"/>                |
|      |      | <input type="checkbox"/> | <input type="checkbox"/> |                         |                              | <input type="checkbox"/> |                        | <input type="checkbox"/>     |                            | <input type="checkbox"/>                |

**Comments:** Stream-depletion was estimated using the Hunt-1999 stream-depletion models and a range of expected parameters for the geologic material; there are no instream water rights in the WAB

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 # |  | Q <sub>w</sub> > 5 cfs?  | Instream Water Right ID | Instream Water Right Q (cfs) | Q <sub>w</sub> > 1% ISWR? | 80% Natural Flow (cfs) | Q <sub>w</sub> > 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"/>                |

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      |     |     |     |     |     |     |     |     |     |     |     |     |     |
| (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: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_**References Used:**

Gannett, M. W. and R. R. Caldwell. 1998. Geologic Framework of the Willamette Lowland Aquifer System, Oregon and Washington. USGS Professional Paper 1424-A.

Herrera, N. B., Burns, E. R., and T. D. Conlon. 2014. Simulation of Groundwater Flow and the Interaction of Groundwater and Surface Water in the Willamette Basin and Central Willamette Subbasin, Oregon. USGS Scientific Investigations Report 2014-5136.

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

McClaghry, J. D., T. J. Wiley, M. L. Ferns, and I. P. Madin. 2010. Digital Geologic Map of the Southern Willamette Valley, Benton, Lane, Linn, Marion, and Polk Counties, Oregon. Oregon Dept. of Geology and Mineral Industries. Open File Report O-10-13.

OWRD Well Log Database, Accessed 11/23/2021 [https://apps.wrd.state.or.us/apps/gw/well\_log/Default.aspx]

OWRD Groundwater Information System Database, Accessed 11/23/2021  
[https://apps.wrd.state.or.us/apps/gw/gw\_info/gw\_info\_report/gw\_search.aspx]

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

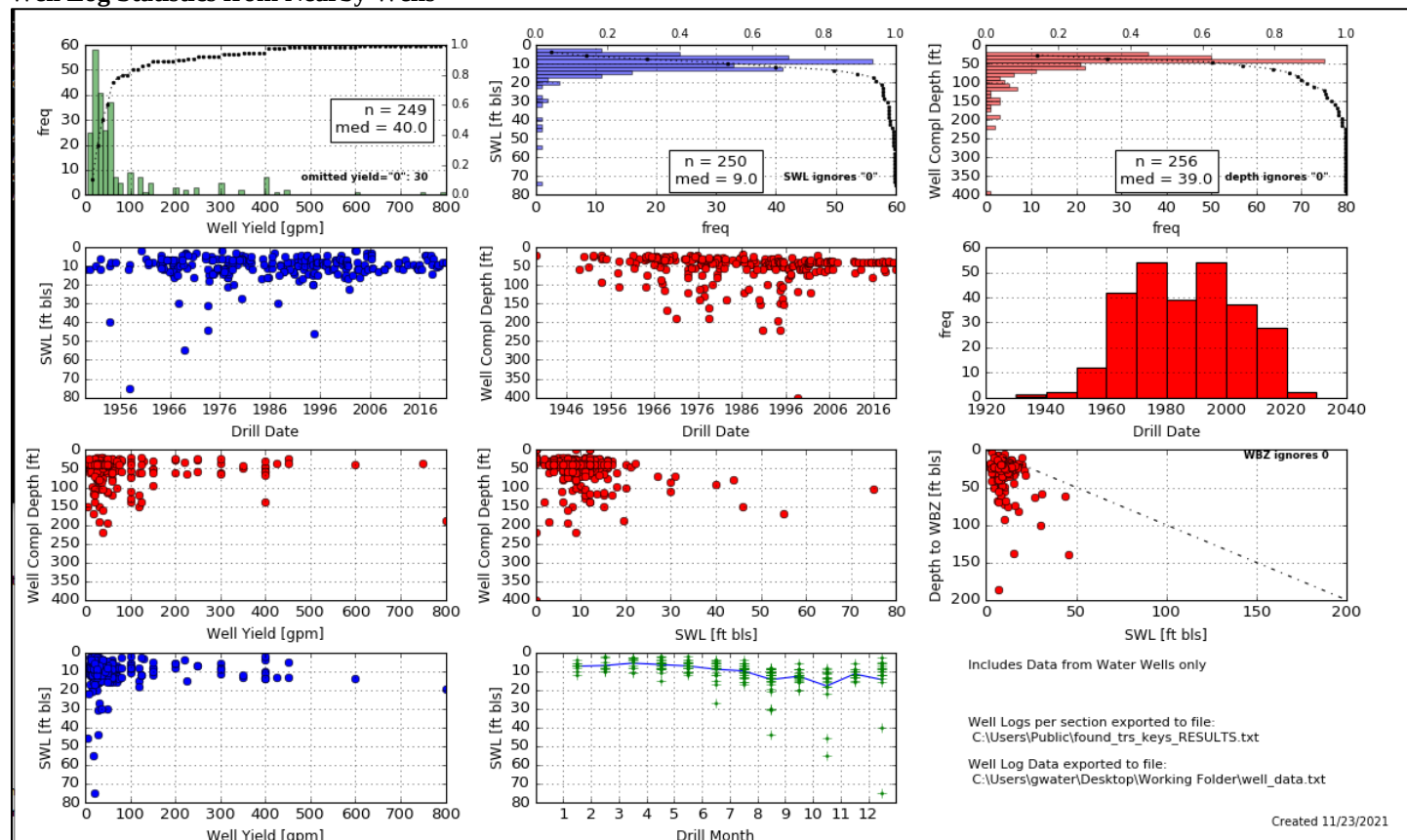
D4. ☐ **Route to the Well Construction and Compliance Section for a review of existing well construction.**

  
\_\_\_\_\_  
\_\_\_\_\_

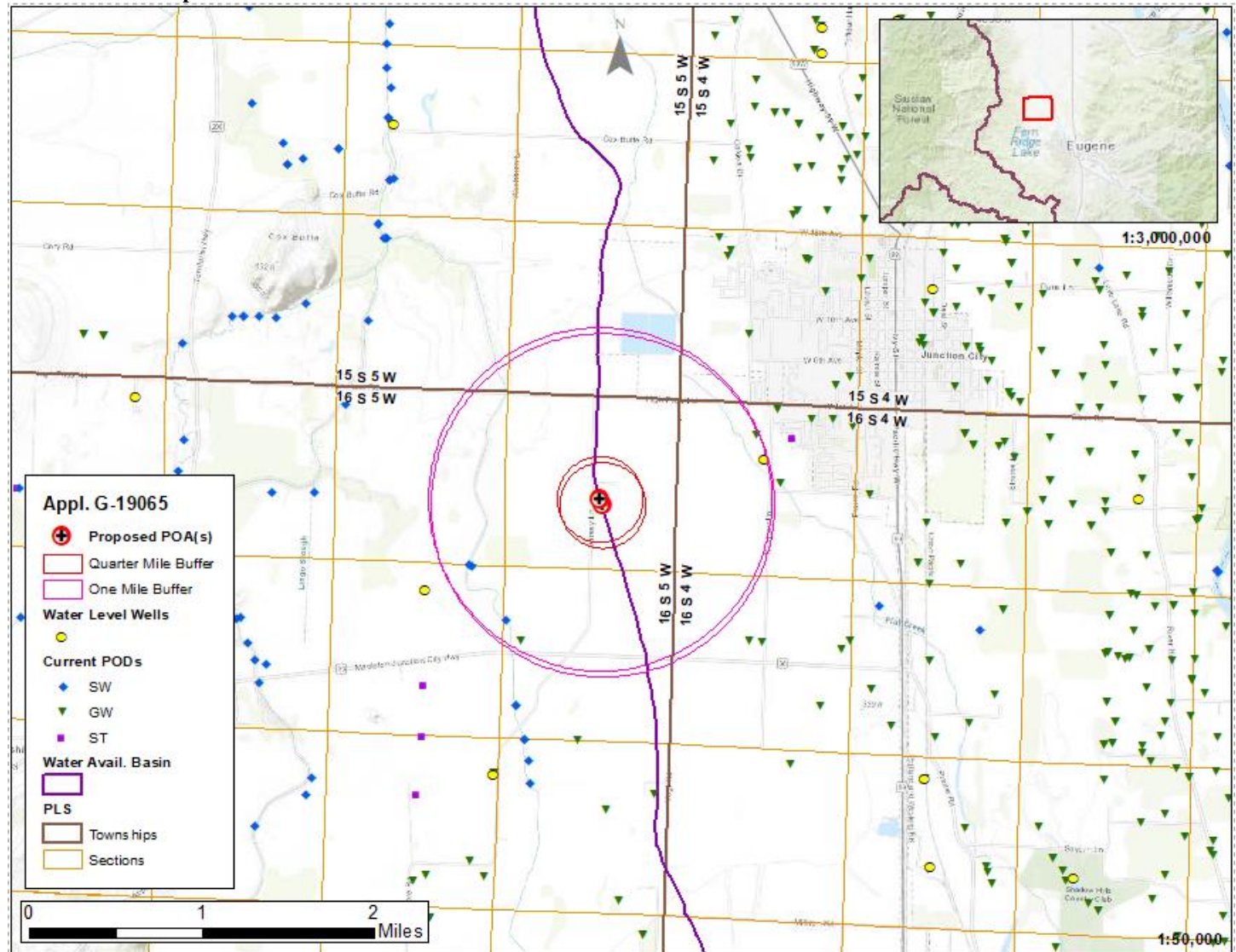
## Water Availability Tables

| DETAILED REPORT ON THE WATER AVAILABILITY CALCULATION                                  |                           |                                      |                            |                            |                          |                           |
|----------------------------------------------------------------------------------------|---------------------------|--------------------------------------|----------------------------|----------------------------|--------------------------|---------------------------|
| Watershed ID #: 114                                                                    |                           | LONG TOM R > WILLAMETTE R - AB MOUTH |                            |                            | Exceedance Level: 80     |                           |
| Time: 10:00 AM                                                                         |                           | Basin: WILLAMETTE                    |                            |                            | Date: 11/23/2021         |                           |
| Month                                                                                  | Natural<br>Stream<br>Flow | Consumptive<br>Use and<br>Storage    | Expected<br>Stream<br>Flow | Reserved<br>Stream<br>Flow | Instream<br>Requirements | Net<br>Water<br>Available |
| Monthly values are in cfs.<br>Storage is the annual amount at 50% exceedance in ac-ft. |                           |                                      |                            |                            |                          |                           |
| JAN                                                                                    | 568.00                    | 149.00                               | 419.00                     | 0.00                       | 0.00                     | 419.00                    |
| FEB                                                                                    | 697.00                    | 389.00                               | 308.00                     | 0.00                       | 0.00                     | 308.00                    |
| MAR                                                                                    | 596.00                    | 555.00                               | 40.70                      | 0.00                       | 0.00                     | 40.70                     |
| APR                                                                                    | 373.00                    | 250.00                               | 123.00                     | 0.00                       | 0.00                     | 123.00                    |
| MAY                                                                                    | 215.00                    | 64.10                                | 151.00                     | 0.00                       | 0.00                     | 151.00                    |
| JUN                                                                                    | 105.00                    | 29.90                                | 75.10                      | 0.00                       | 0.00                     | 75.10                     |
| JUL                                                                                    | 50.60                     | 48.30                                | 2.32                       | 0.00                       | 0.00                     | 2.32                      |
| AUG                                                                                    | 35.40                     | 39.20                                | -3.80                      | 0.00                       | 0.00                     | -3.80                     |
| SEP                                                                                    | 32.10                     | 21.70                                | 10.40                      | 0.00                       | 0.00                     | 10.40                     |
| OCT                                                                                    | 35.30                     | 5.93                                 | 29.40                      | 0.00                       | 0.00                     | 29.40                     |
| NOV                                                                                    | 82.50                     | 5.68                                 | 76.80                      | 0.00                       | 0.00                     | 76.80                     |
| DEC                                                                                    | 364.00                    | 106.00                               | 258.00                     | 0.00                       | 0.00                     | 258.00                    |
| ANN                                                                                    | 362,000                   | 99,600                               | 262,000                    | 0                          | 0                        | 262,000                   |

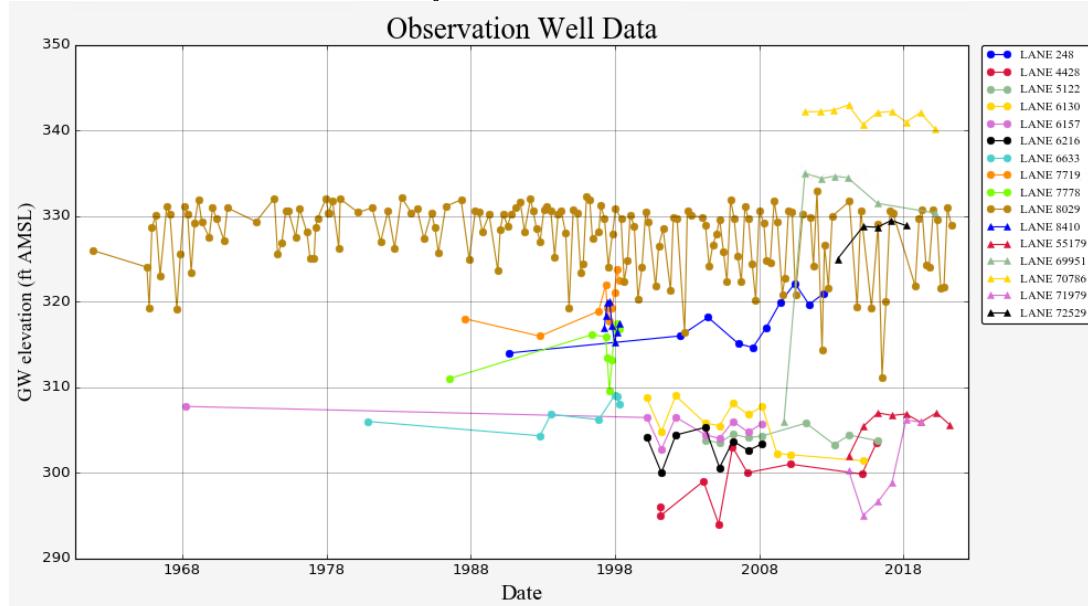
## Well Log Statistics from Nearby Wells



## Well Location Map



## Water-Level Measurements in Nearby Wells



## Stream-Depletion Model Results

## 74 PyHunt stream depletion analysis tool

|                                      |       |
|--------------------------------------|-------|
| Application type:                    | G     |
| Application number:                  | 19065 |
| Well number:                         | 1     |
| Stream Number:                       | 1     |
| Pumping rate (cfs):                  | 0.31  |
| Pumping duration (days):             | 244.0 |
| Pumping start month number (3=March) | 3.0   |

| Parameter                                | Symbol | Scenario 1 | Scenario 2 | Scenario 3 | Units                |
|------------------------------------------|--------|------------|------------|------------|----------------------|
| Distance from well to stream             | a      | 3500       | 3500       | 3500       | ft                   |
| Aquifer transmissivity                   | T      | 5000       | 2000       | 500        | ft <sup>2</sup> /day |
| Aquifer storativity                      | S      | 0.001      | 0.0001     | 0.00001    | -                    |
| Aquitard vertical hydraulic conductivity | Kva    | 0.0001     | 0.0005     | 0.001      | ft/day               |
| Not used                                 |        | 20.0       | 20.0       | 20.0       |                      |
| Aquitard thickness below stream          | babs   | 3.0        | 3.0        | 3.0        | ft                   |
| Not used                                 |        | 0.2        | 0.2        | 0.2        |                      |
| Stream width                             | ws     | 15         | 15         | 15         | ft                   |

Stream depletion for Scenario 2:

|                 |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Days            | 10   | 330  | 360  | 30   | 60   | 90   | 120  | 150  | 180  | 210  | 240  | 270  | 300  |
| Depletion (%)   | 1    | 3    | 2    | 1    | 2    | 3    | 3    | 4    | 4    | 4    | 4    | 3    | 3    |
| Depletion (cfs) | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |

