

Groundwater Application Review Summary Form

Application # G- 19148

GW Reviewer Joe Kemper Date Review Completed: 6/30/2023

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

6/30/2023

TO: Application G- 19148

FROM: GW: Joe Kemper
(Reviewer's Name)

**SUBJECT: Scenic Waterway Interference & General/Local Surface Water
Evaluation for Deschutes Ground Water Study Area**

The source of appropriation is within or above the Deschutes Scenic
Waterway

Use the Scenic Waterway condition (Condition 7J).

PREPONDERANCE OF EVIDENCE FINDING UNDER ORS 390.835:

Department has found that there is a preponderance of evidence that the proposed use of groundwater will measurably reduce the surface water flows necessary to maintain the free-flowing character of the Deschutes Scenic Waterway in quantities necessary for recreation, fish and wildlife.

LOCALIZED IMPACT FINDING

☒ The proposed use of groundwater will have a localized impact to surface water in the Middle Deschutes River/Creek Subbasin.

If the localized impact box above is checked, then the water use under any right issued pursuant to this application is presumed to have a localized impact on surface water within the identified subbasin. Mitigation of the impact, originating from within the Local Zone of Impact identified by the Department, will be required before a permit may be issued for the proposed use.

If the localized impact box above is not checked, then the water use under any right issued pursuant to this application is presumed to have a general (regional) impact on surface water. Mitigation of the impact, originating anywhere within the Deschutes Basin above the Madras gage, will be required before a permit may be issued for the proposed use.

PUBLIC INTEREST REVIEW FOR GROUNDWATER APPLICATIONS

TO: Water Rights Section Date 6/30/2023
 FROM: Groundwater Section Joe Kemper
 Reviewer's Name
 SUBJECT: Application G- 19148 Supersedes review of 11/30/2021
 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: Zadoff County: Deschutes

A1. Applicant(s) seek(s) 0.0445 cfs from 1 well(s) in the Deschutes Basin,
 _____ subbasin

A2. Proposed use Nursery (4.96 acres) 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 | DESC0010001 | 1 | Bedrock | 0.0445 | 17.00S-12.00E-4-NE SW | 1390 FEET NORTH AND 2160 FEET EAST OF SE CORNER, SECTION 4 |
| 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 | 3430 | 761 | 704 | 7/10/95 | 840 | 0-18 | +1-18 | 10-840 | 800-840 | 25 | 0 | A |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Use data from application for proposed wells.

A4. **Comments:** _____

A5. ☒ **Provisions of the Deschutes (OAR 690-505)** 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 POA is within the Deschutes Groundwater Study Area

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) 7N (Annual SWL); 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 proposed POA is located in an area of the Deschutes Basin aquifer system that represents a transition across the Sisters Fault Zone, which transects the Deschutes Basin from the northeast to the southwest. Water levels to the southwest (up-gradient) of the SFZ tend to be shallower than to the northeast and typically show long-term trends that reflect short- and mid-term climate cycles. The SFZ acts as a narrow, low-permeable zone where potentiometric head is higher up-gradient and decreases down-gradient. Water levels are much deeper to the northeast of the SFZ and, away from the SFZ, water level trends often show long-term declines that have been attributed to lack of natural and artificial recharge as well as increased groundwater pumping (Gannett et al., 2017). The only available water level measurement from the applicant's well falls within the elevation range of wells that are downgradient of the low-permeability SFZ and show continual year-on-year declines since the mid-1990s. Notably, DESC 5045 has declined more than 50 feet since 1979, which is considered to have declined excessively as per OAR 690-008. Water levels in this area declined approximately 1 ft/yr from 1995 to 2019. Those declines have doubled to approximately 2 ft/yr from 2019-2023 (see DESC 5045 and DESC 61863). **Because the target aquifer has seen excessive declines, the target aquifer is considered over-appropriated in this area. Because pumping has been shown to exacerbate these observed declines, the proposed use is determined to be not within the capacity of the resource.** If the permit is issued, the conditions listed in B1(d) are strongly recommended.

C. GROUNDWATER/SURFACE WATER CONSIDERATIONS, OAR 690-09-040

Impacts to surface water are addressed by the Deschutes Basin Rules: OAR 690-505

References Used:

Gannett, M. W. and K. E. Lite. 2004. Simulation of Regional Ground-Water Flow in the Upper Deschutes Basin, Oregon. USGS Water Resources Investigations Report 2003-4195

Gannett, M. W. and K. E. Lite. 2013. Analysis of 1997-2009 Groundwater Level Changes in the Upper Deschutes Basin, Central Oregon. USGS Scientific Investigations Report 2013-5092

Gannett, M. W., Lite, K. E., Risley, J. C., Pischel, E. M., and J. L. LaMarche. 2017. Simulation of Groundwater and Surface-Water Flow in the Upper Deschutes Basin, Oregon. USGS Scientific Investigations Report 2017-5097

Lite, K. E. and M. W. Gannett. 2002. Geologic Framework of the Regional Ground-Water Flow System in the Upper Deschutes Basin, Oregon. USGS Water-Resources Investigations Report 02-4015

OWRD Well Log Database, Accessed 11/30/2021 [https://apps.wrd.state.or.us/apps/gw/well_log/Default.aspx]

OWRD Groundwater Information System Database, Accessed 11/30/2021 [https://apps.wrd.state.or.us/apps/gw/gw_info/gw_info_report/gw_search.aspx]

Sherrod, D. R., Taylor, E. M., Ferns, M. L., Scott, W. E., Conrey, R. M., and G. A. Smith. 2004. Geologic Map of the Bend 30- X 60-Minute Quadrangle, Central Oregon. USGS Geologic Investigations Series Map I-2683

D. WELL CONSTRUCTION, OAR 690-200

D1. Well #: _____ Logid: _____

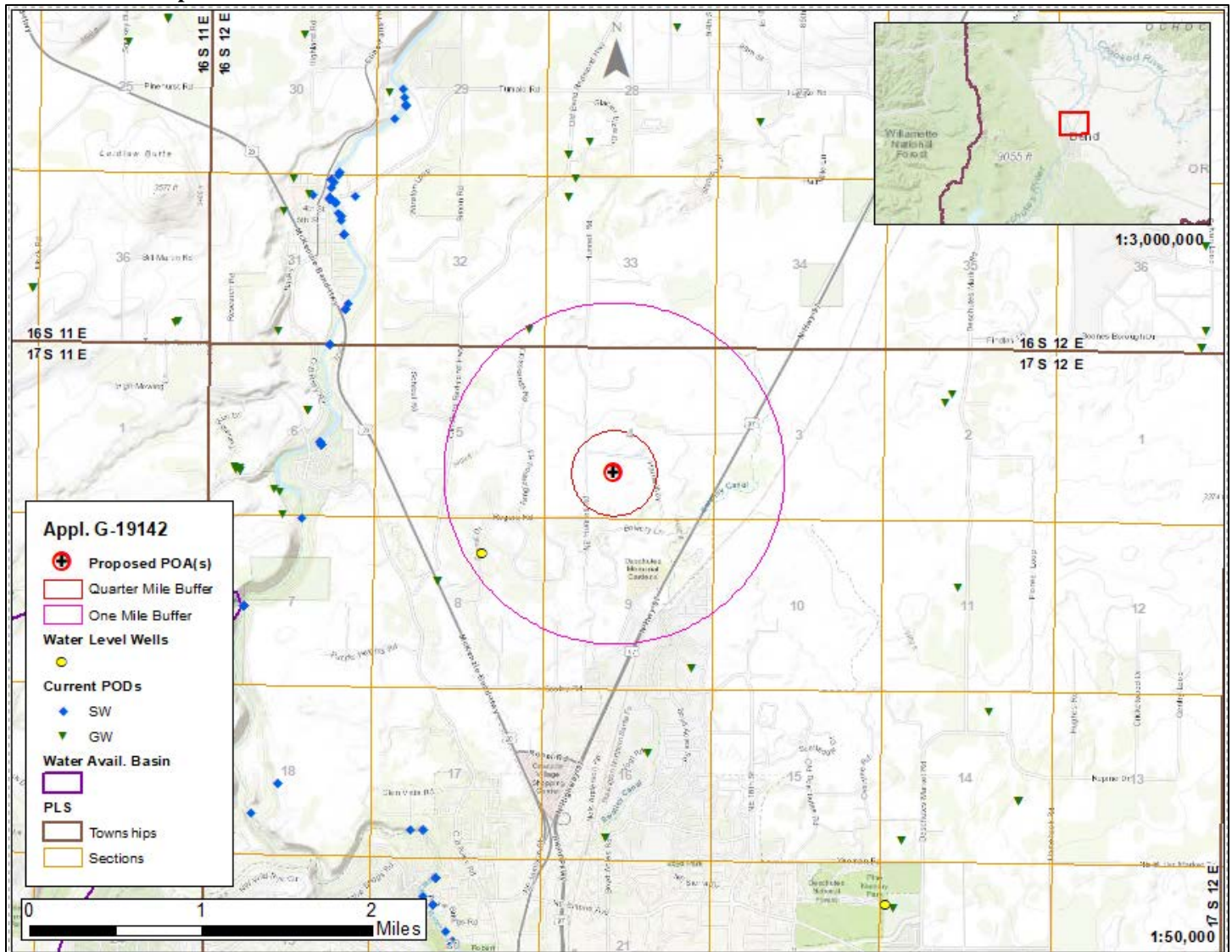
D2. **THE WELL does not appear to meet current well construction standards based upon:**

- a. ☐ review of the well log;
- b. ☐ field inspection by _____;
- c. ☐ report of CWRE _____;
- d. ☐ other: (specify) _____

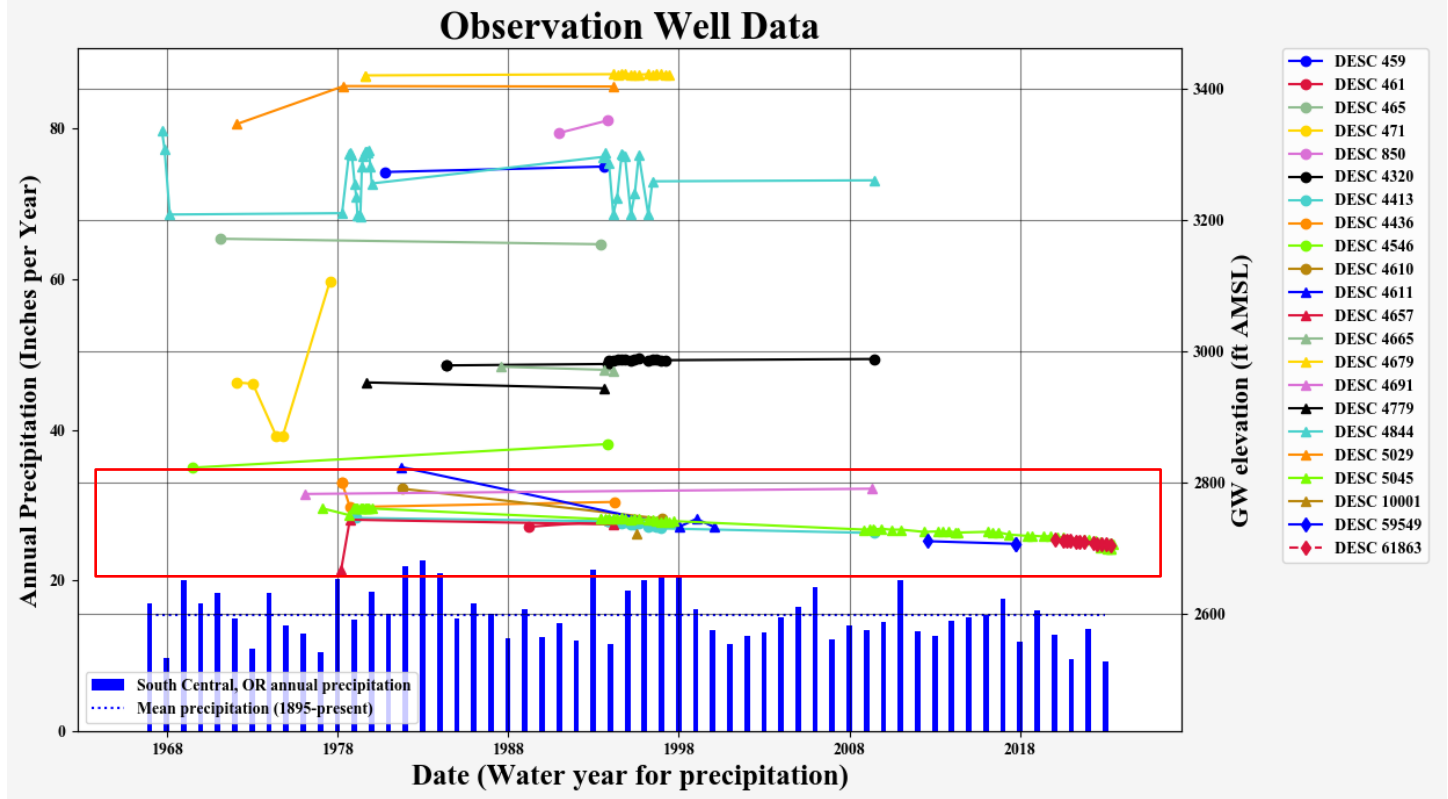
D3. **THE WELL construction deficiency or other comment is described as follows:** _____

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

Well Location Map



Water-Level Measurements in Nearby Wells – red box covers wells shown in second hydrograph



Water-Level Measurements in Nearby Wells – Hydrograph depicting general water level elevation of applicant's well and excessive declines in the Deschutes regional groundwater system.

