

Groundwater Transfer Review Summary Form

Transfer/PA # T- 14165

GW Reviewer Joe Kemper Date Review Completed: 4/11/2023

Summary of Same Source Review:

The proposed change in point of appropriation is not within the same aquifer as per OAR 690-380-2110(2).

Summary of Injury Review:

The proposed transfer will result in another, existing water right not receiving previously available water to which it is legally entitled or result in significant interference with a surface water source as per 690-380-0100(3).

Summary of GW-SW Transfer Similarity Review:

The proposed SW-GW transfer doesn't meet the definition of "similarly" as per OAR 690-380-2130.

This is only a summary. Documentation is attached and should be read thoroughly to understand the basis for determinations.



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Ground Water Review Form:

- Water Right Transfer**
- Permit Amendment**
- GR Modification**
- Other**

Application: T-14165 Applicant Name: Kameron DeLashmutt/Pinnacle Utilities, LLC

Proposed Changes: POA APOA SW→GW RA
 USE POU OTHER

Reviewer(s): Joe Kemper

Date of Review: 4/11/2023

Date Reviewed by GW Mgr. and Returned to WRSD: JTI 5/15/23

The information provided in the application is insufficient to evaluate whether the proposed transfer may be approved because:

- The water well reports provided with the application do not correspond to the water rights affected by the transfer.
- The application does not include water well reports or a description of the well construction details sufficient to establish the ground water body developed or proposed to be developed.
- Other _____

1. Basic description of the changes proposed in this transfer: Certificate 96029 currently authorizes 0.7141 cfs of quasi-municipal use from DESC 51145. The proposed transfer would move 0.453 cfs of production from DESC 51145 under certificate 96029 to 7 undrilled POAs located 12-15 miles to the north and would move a portion of use from the current POU to the location originally associated with permit G-17036.
2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
 Yes No Comments: DESC 51145 (the “from” well) penetrates Quaternary-aged volcanics erupted from the Cascades and then at depth likely encounters the older volcanic units of the Deschutes Formation, a geographically extensive series of interbedded extrusive volcanics and volcanoclastic sediment from the Cascades and alluvial deposits from the ancestral Deschutes River. There, DESC 51145 accesses the regional aquifer system largely recharged by precipitation in the Cascades and transmitted via the Deschutes Formation. Water levels in the vicinity of the DESC 51145 are typically several-hundred feet below land surface at elevations between 3400 and 3500 ft AMSL. The 7 proposed “to” wells are between 12 and 15 miles north of the current POA but along the regional groundwater flowpath through the middle Deschutes basin. The proposed POAs will also be producing from the Deschutes Formation aquifer system. Water levels in the vicinity of the proposed APOAs are also several-hundred feet below land surface and are generally at elevations between 2600 and 2800 ft AMSL.

Note: there is a cluster of wells (including but not limited to DESC 378, DESC 1198, DESC 3479, DESC 3474, DESC 54485, and DESC 62931) that are drilled into or are adjacent to the 6.1 MA aged Cline Buttes silicic dome complex and have water levels with a general elevation of 2580-2600 feet AMSL. These wells are surrounded by wells drilled into the Deschutes formation (aged 7.5 to 4.0 MA) with water levels around 2700 feet AMSL. The groundwater depression associated with Cline Buttes is likely caused by a combination of water budget fluctuations (e.g., pumpage and recharge) and a contrast in permeability between the silicic dome complex and the arc-adjacent volcanics of the Deschutes Formation. The exact areal extent of this groundwater depression is not known. However, the available data do not distinguish this zone as a separate aquifer from the Deschutes Formation.

3. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?
 Yes No All POAs access or would access the regional groundwater system hosted within the Deschutes Formation and are located along the same general flowpath.
- b) If yes, estimate the portion of the right supplied by each of the sources and describe any limitations that will need to be placed on the proposed change (rate, duty, etc.): NA
4. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with **another ground water right**?
 Yes No Comments: The proposed change would move the POA approximately 12 to 15 miles from the current location. This will mean that the current right would be seasonally interfering with an entirely separate group of groundwater users that would not be similarly affected by the use at the current POA.
- b) If yes, would this proposed change, at its maximum allowed rate of use, likely result in another groundwater right not receiving the water to which it is legally entitled?
 Yes No If yes, explain: Considering the maximum proposed rate of 0.45 cfs, the aquifer's high permeability and storage properties, and the distances to adjacent groundwater users, the new use would not likely result in well-to-well interference to the degree that would be considered injury. In order for a well to be injured, it must be reasonably-efficient and fully-penetrate the aquifer. Also, it is unlikely that the new use would trigger decline conditions or interference conditions of nearby POAs.
5. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with **another surface water source**?
 Yes No Comments: The proposed change would move the POA closer to the regional discharge of the middle Deschutes aquifer zone, which is the lower reaches of the Crooked and Deschutes rivers above Lake Billy Chinook, and so shorten the timing of stream-depletion effects.
- b) If yes, at its maximum allowed rate of use, what is the expected change in degree of interference with any **surface water sources** resulting from the proposed change?
 Stream: Deschutes River Minimal Significant
 Stream: Crooked River Minimal Significant
 Provide context for minimal/significant impact: The distance to the hydraulic connection and the regional discharge zone on either river is still several miles (approx. 10) and, at that distance, the change in distance will have only a minimal effect on the timing of stream-depletion.

6. For SW-GW transfers, will the proposed change in point of diversion affect the surface water source similarly (as per OAR 690-380-2130) to the authorized point of diversion specified in the water use subject to transfer?
 Yes No Comments: NA
7. What conditions or other changes in the application are necessary to address any potential issues identified above: _____
8. Any additional comments: _____

References

Gannett, M.W., Lite, Jr., K.E., Morgan, D.S., and Collins, C.A., 2001, Ground-water hydrology of the upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report 00-4162, 74 p.

Gannett, Marshall W., and Kenneth E. Lite Jr. "Simulation of Regional Ground-Water Flow in the Upper Deschutes Basin, Oregon." Water-Resources Investigations Report. Portland, OR: U. S. Geological Survey, 2004.

Lite, K.E., Jr., and Gannett, M.W., 2002, Geologic framework of the regional ground-water flow system in the upper Deschutes Basin, Oregon: U.S. Geological Survey Water-Resources Investigations Report 02-4015, p. 44.

Sherrod, David R., Taylor, Edward M., Ferns, Mark L., Scott, William E., Conrey, Richard M., and Smith, Gary A., 2004, Geologic map of the Bend 30- x 60-minute quadrangle, central region: U.S. Geological Survey Geologic Investigations Series I-2683, scale 1:100,000.

Theis, C.V., 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, Am. Geophys. Union Trans., vol. 16, pp. 519-524.

Figure 1. Hydrograph of Wells in Cline Buttes Area

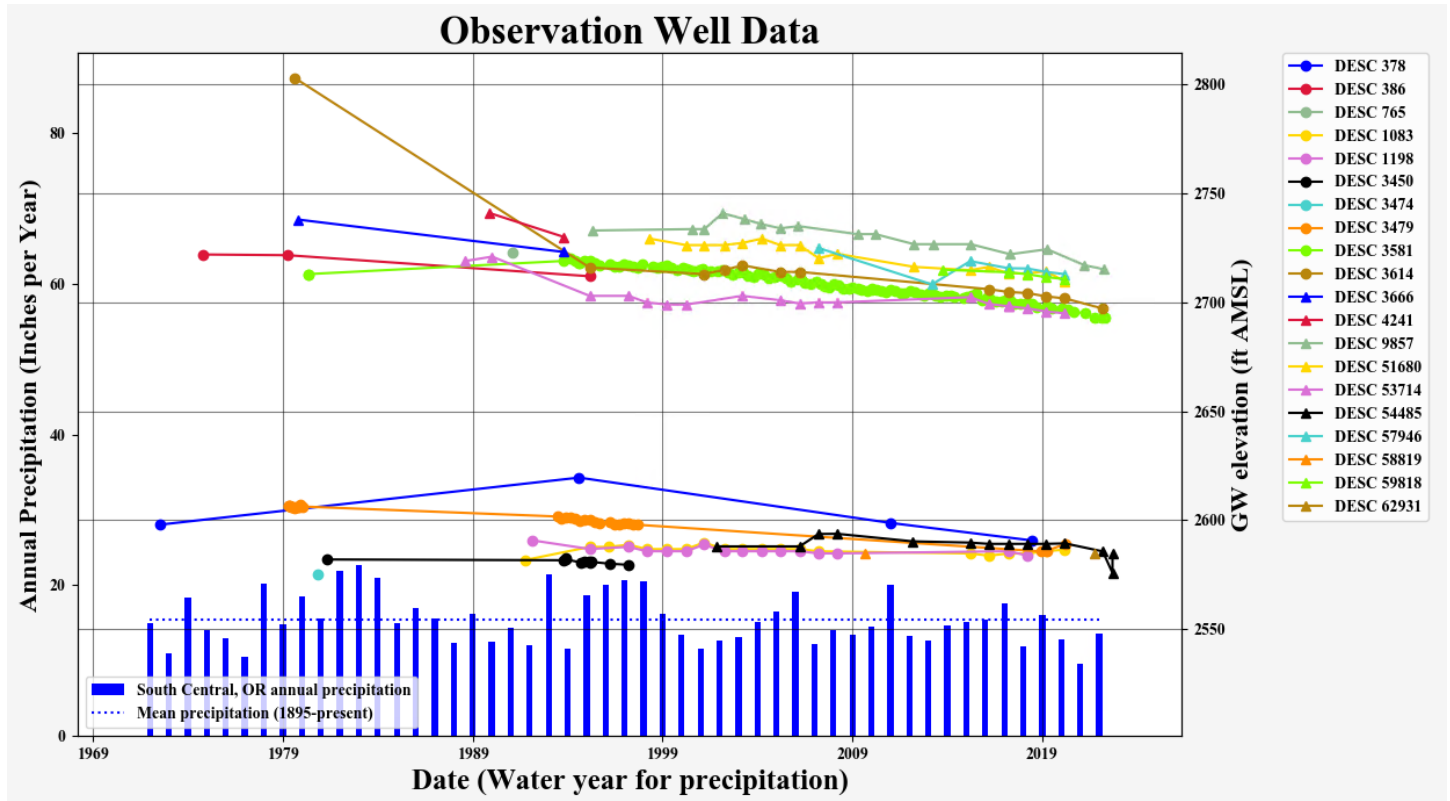


Figure 2. Hydrograph of Wells Near DESC 51145

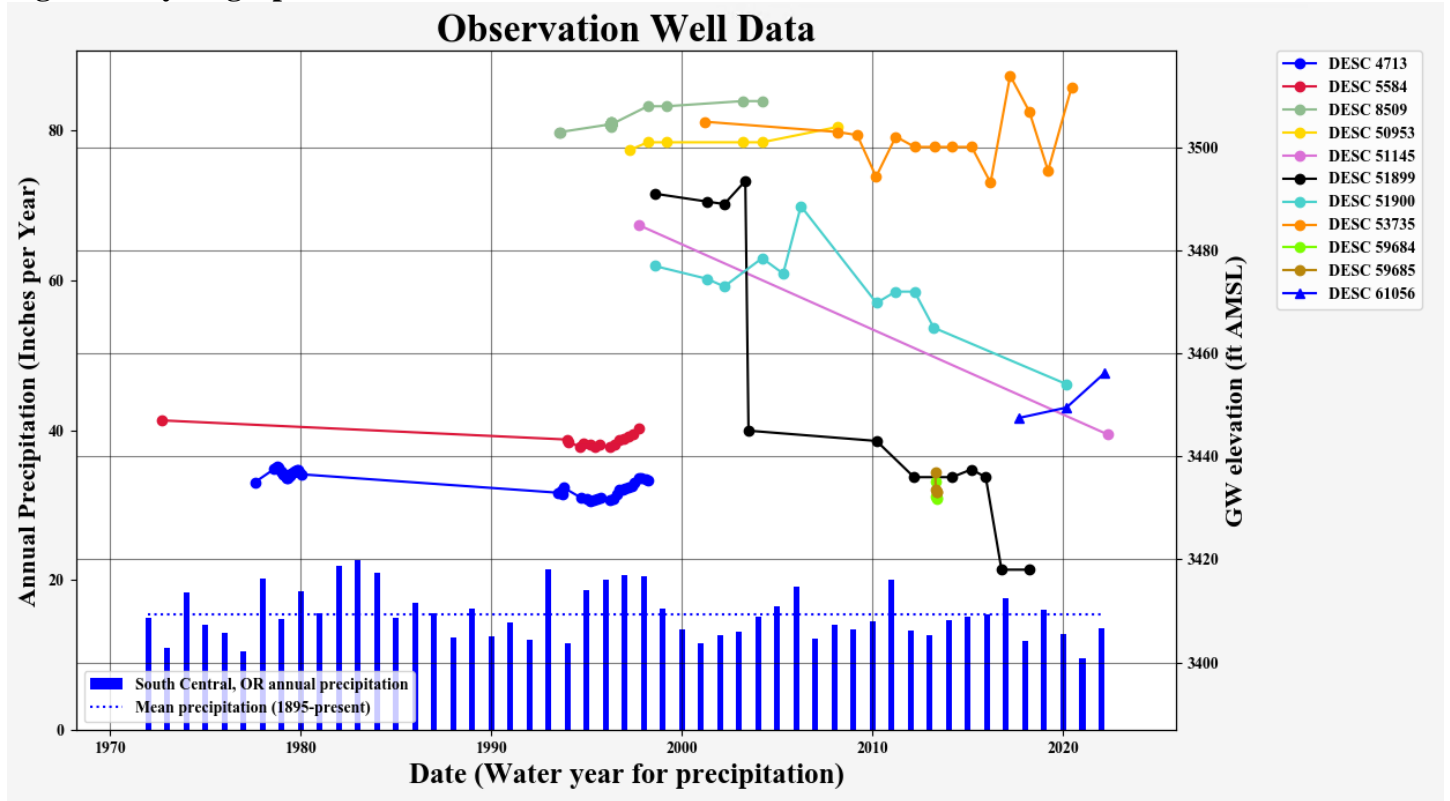
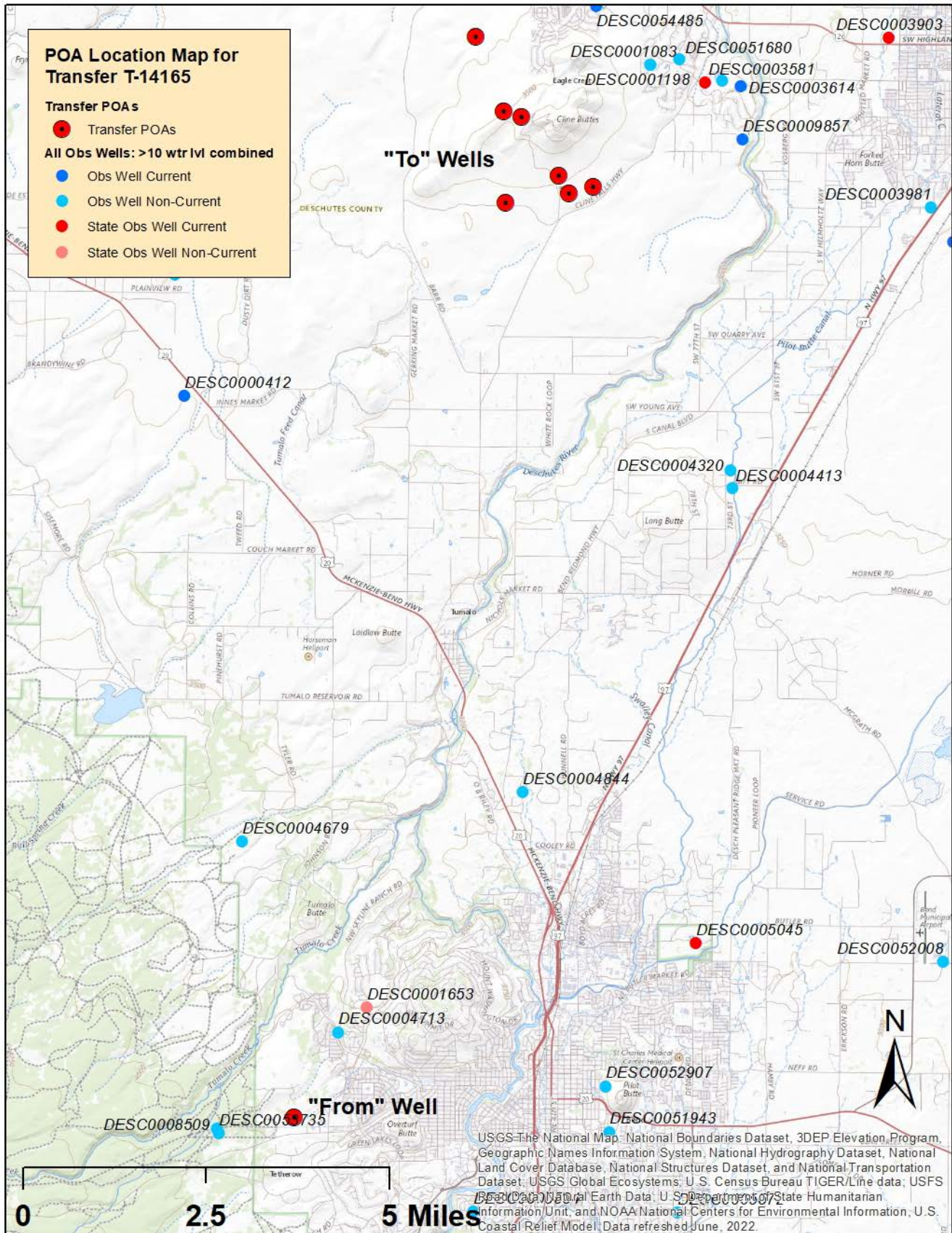


Figure 3. Map of Proposed Well Changes.



Note that scale of map does not allow for display of all wells on the hydrographs above.