

Groundwater Transfer Review Summary Form

Transfer/PA # T- 13836

GW Reviewer Joe Kemper Date Review Completed: 11/3/2023

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.



Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, Oregon 97301-1271
(503) 986-0900
www.wrd.state.or.us

Ground Water Review Form:

- ☐ Water Right Transfer
☒ Permit Amendment
☐ GR Modification
☐ Other

Application: T-13836

Applicant Name: City of Prineville

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

Reviewer(s): Joe Kemper

Date of Review: 11/3/2023

Date Reviewed by GW Mgr. and Returned to WRSD: _____

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 _____

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1. Basic description of the changes proposed in this transfer: This permit amendment proposes to change the location of one POA on permit G-18482 and add four APOAs to permit G-18482. See table below for specifics.
 2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
☒ Yes ☐ No Comments: The valid POAs all produce or will produce groundwater from 10-30 feet of coarse-grained sediment at the base of the Pleistocene-aged fluvio-lacustrine sediment package identified in Robinson and Price (1963). The proposed APOAs and relocated POA are all designed to access this same aquifer. There are rate limits at Clear Pine Well 1, 2, and 3 (CROO 1521, CROO 1551, and CROO 1453) but not on other wells on permit G-18482. Because the application does not specify rates for APOAs, this review assumes the max permitted rate (3.99 cfs) for all APOAs.
 3. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?
☐ Yes ☒ No Well construction for CROO 1551 and CROO 1453 may allow for water from unconfined quaternary alluvium to flow into the well. However, the primary source of water still appears to be the confined Pleistocene-aged sands and gravels at depth. Assuming that construction details for proposed wells are followed, these wells will also produce from this confined aquifer.

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: This permit amendment would add 4 APOAs, which will moved groundwater production closer to other groundwater users. This may increase well-to-well interference with other groundwater users.

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: For 4 of the wells (Juniper Well, 5th & Deer St. Well, Yancey Well 3, and 4th St. Deep Well), groundwater production would remain very close to a current valid POA. Any increase in well-to-well interference would not be expected to be significant. Additionally, the Department is currently unaware of problematic interference caused by the current POAs in the target aquifer.

Conversely, Stearns well 3 is located 1.25 miles east of the nearest POA under permit G-18482 and thus would move groundwater production into an area that did not have acute impacts from this water right before. The nearest senior groundwater users accessing the target aquifer are CROO 3132 and CROO 2083 under the City of Prineville's certificate 94816. Because these POAs are owned by the applicant, they are not included in an injury analysis. The nearest senior groundwater user accessing the target aquifer appears to be one or more domestic wells (e.g. CROO 2183) on the Ochoco Lumber site approximately 3000 feet to the west. A Theis (1935) distance drawdown model using published transmissivity values indicates full appropriation at the maximum permitted rate could result in drawdown of 80 to 150 at CROO 2183. While that degree of drawdown could be considered injurious, it is extremely unlikely that Stearns Well 3 could pump at 3.99 cfs for long enough to cause such high magnitude interference. Thus, the potential interference with senior groundwater users from the proposed changes is not considered to be injury. In light of the potential for groundwater interference, OWRD will track seasonal and year-on-year water level trends in the area.

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 target aquifer likely discharges diffusely to the overlying unconfined sediments and potentially at the western margin of the aquifer extent. The POA changes will largely keep groundwater production in the same overall area. Because of the diffuse nature of groundwater-surface water interaction, the proposed changes are unlikely to result in an increase in interference.

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: Crooked River ☐ Minimal ☐ Significant

Stream: _____ ☐ Minimal ☐ Significant

Provide context for minimal/significant impact: NA

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: Increased use in 2020, 2021, and 2022 noted in WUR from the Yancey Well 2 and Lamonta Well 2 may be correlated to recent sharp declines observed in permit condition water levels submitted to the department.

References

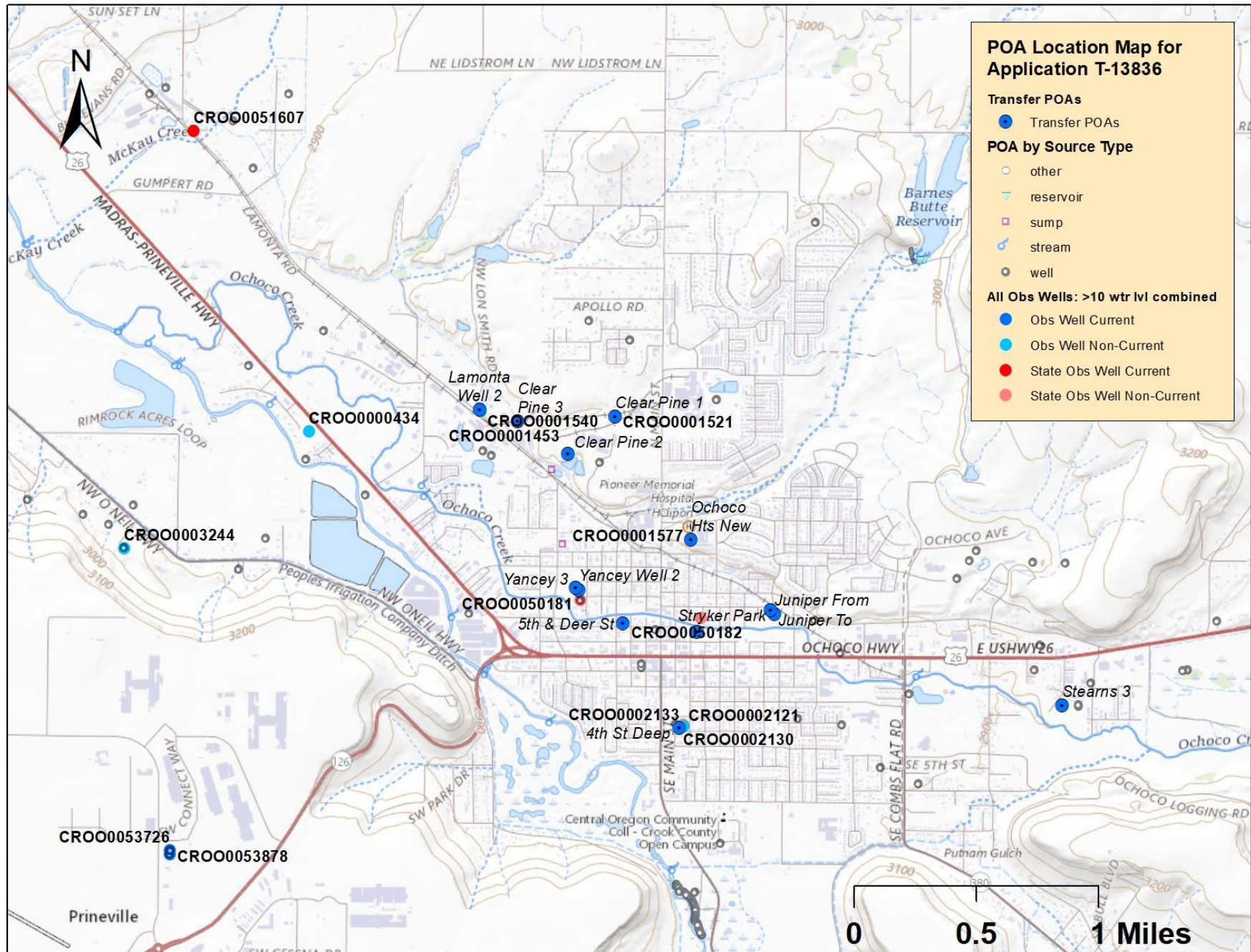
Robinson, J. W., and Price, D., 1963, Ground Water in the Prineville Area Crook County, Oregon: U.S. Geological Survey Water-Supply Paper 1619-P.

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.

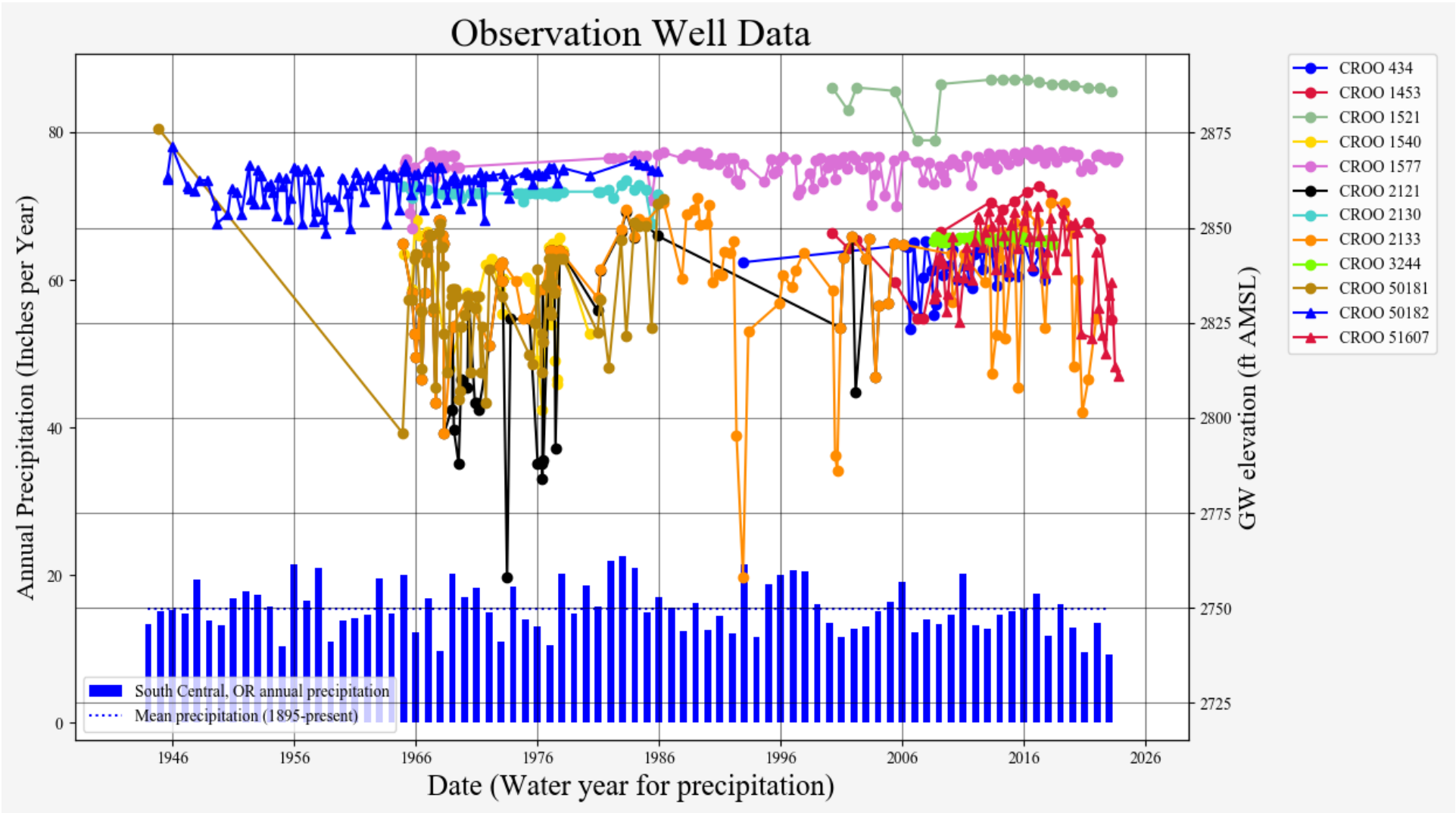
Well Summary Table

Well Name	Permit Status	GWIS LOGID	TRS QQ	Surveyed Location	Rate Limit (cfs)
Clear Pine Well 1	Authorized	CROO 1521	14S/16E-31 NE-NE	878' S, 1009' W fr NE cor, Section 31	1.33
Clear Pine Well 2	Authorized	CROO 1551	14S/16E-31 SW-NE	1678' S, 2033' W fr NE cor, Section 31	1.33
Clear Pine Well 3	Authorized	CROO 1453	14S/16E-31 NE-NW	1002' S, 3087' W fr NE cor, Section 31	1.33
Yancey Well 2	Authorized	CROO 54711	14S/16E-31 SW-SE	613' N, 1730' W fr SE cor, Section 31	3.99
New Ochoco Heights Well	Authorized	Undrilled	14S/16E-32 NW-SW	1677' N, 680' E fr SW cor, Section 32	3.99
Stryker Park Well	Authorized	Undrilled	15S/16E-5 NW-NW	277' S, 812' E fr SW cor, Section 32	3.99
Lamonta Well 2	Authorized	CROO 54871	14S/16E-31 SW-SE	765' S, 1240' E fr NW cor, Section 31	3.99
Juniper Well "From"	Authorized	Undrilled	14S/16E-32 SE-SW	97' N, 2493' E fr SW cor, Section 32	3.99
Juniper Well "To"	Proposed	Undrilled	14S/16E-32 SE-SW	190' N, 2400' E fr SW cor, Section 32	3.99
Fifth & Deer St. Well	Proposed	Undrilled	15S/16E-6 NE-NE	100' S, 780' W fr NW cor of Section 5	3.99
Yancey Well 3	Proposed	Undrilled	14S/16E-31 SW-SE	655' N, 1800' W fr SE cor Section 31	3.99
Fourth St. Deep Well 2	Proposed	Undrilled	15S/16E-5 SW-NW	2340' S, 440' E fr NW cor Section 5	3.99
Stearns Well 3	Proposed	Undrilled	15S/16E-4 SW-NE	1800' S, 1830' W fr NE cor section 4	3.99

Transfer Map



Water Level Trends in Adjacent Observation Wells



Theis (1935) Drawdown Modeling

Theis Time-Drawdown Worksheet v.5.00

Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r , from a pumping well for 3 different T values and radial distance, r , from a pumping well for 3 different T values and 2 different S values.

Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		3000		ft	Q conversions
Pumping rate	Q		3.99		cfs	1,790.71 gpm
Hydraulic conductivity	K	30	40	50	ft/day	3.99 cfs
Aquifer thickness	b		30		ft	239.40 cfm
Storativity	S 1		0.001			344,736.00 cfd
	S 2		0.0001			7.91 af/d
Transmissivity Conversions	T f2pd	900	1200	1500	ft ² /day	
	T ft2pm	0.625	0.8333333	1.0416667	ft ² /min	
	T gpd/ft	6732	8976	11220	gpd/ft	

Recalculate

Use the Recalculate button if recalculation is set to manual

