

# Groundwater Transfer Review Summary Form

Transfer/PA # T- 13280

GW Reviewer Michael Thoma

Date Review Completed: 08/21/2020

## 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-13280

Applicant Name: Swan Lake North Holdings

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

Reviewer(s): Michael Thoma

Date of Review: 08/21/2020

Date Reviewed by GW Mgr. and Returned to WRSD: JTI 8/25/2020

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: This transfer application is in conjunction with HE-617 for development of a power-generation hydroelectric project. HE-617 includes details on the initial fill of the hydroelectric reservoirs and this transfer is for annual maintenance of those reservoirs, including to cover annual water loss to the system (e.g., evaporation). This application proposes changes to Cert. 92375 and Cert. 87006. Cert. 92375 currently authorizes use of three (3) POAs (gw logids: KLAM0002263, KLAM0002259, and KLAM0002260) for irrigation of 1119.0 acres; Cert. 87006 currently authorizes use of two (2) POAs (gw logids: KLAM0002262 and KLAM0002227) for irrigation of 1088.6 acres. This application proposes changing the Character of Use and Place of Use of 123.1 acres on Cert. 92375, changing the Character of Use and Place of Use of 18.5 acres on Cert. 87006, and adding an APOA (gw logid: KLAM0002260, currently authorized on Cert. 92375) to Cert. 87006. The change in Character of Use and Place of Use is to transfer the volume of water permitted for irrigation of 141.6 acres, at a duty of 3 AF/acre, to allow 424.8 AF of water to be used annually for reservoir maintenance.
2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
  - Yes     No    Comments: All POAs are producing from the volcanic-rock aquifer system that underlies the Swan Lake Valley based on review of driller's logs and the wells show SWL data that are within 10 ft of each other, suggesting a single aquifer that is continuous between the wells. Additionally, a report submitted along with the HE-617 application presents results of several aquifer tests in the area that further supports aquifer continuity across the POAs.

3. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?  
 Yes  No \_\_\_\_\_
- 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.): \_\_\_\_\_
4. a) Will this proposed change, at its maximum allowed rate of use, likely result in an increase in interference with **another groundwater right**?  
 Yes  No Comments:

**Regarding APOA:**

The addition of the APOA to Cert. 92375 will not likely result in increased interference with other groundwater rights because the APOA is between two other POAs on Cert. 92375 so the drawdown due to use will become more spread-out among all the POAs; since there is no change in the maximum rate of appropriation, hydraulic interference will not be increased beyond the area of the existing POAs due to the APOA change.

**Regarding Character of Use Change:**

The applicant proposes to change the character of use from irrigation to reservoir maintenance. Reservoir maintenance use is proposed at the full duty assigned on the water right of 3 AF/acre. It is very likely that the current and historical use on these certificates has not been full exercise of this 3 AF/acre duty which appears to be an unreasonably high duty when compared to water-use data collected elsewhere in the Klamath Basin. The increase in actual duty from historical use would be brought about by an increase in average pumping rate over the irrigation season and result in an increase in drawdown at nearby groundwater POAs compared to historical interference.

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 Comments: Despite the increase in total duty and average pumping rate that is likely to occur with the change in use proposed on this application, interference to nearby groundwater POAs is not likely to be great enough to be considered injury per OWRD standards. The increase in drawdown to the nearest existing groundwater POA (not operated by the applicant), which is approximately 1.4 miles away, is estimated to be less than 0.2 ft compared to historical interference.

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: Surface water sources in the immediate area are fed mainly through drainage from elevated terrain surrounding Swan Lake Valley or direct precipitation to the valley floor or Swan Lake itself, which exists as a closed basin receiving precipitation and runoff. Previous studies have suggested that groundwater flows out of the Swan Lake Valley to the south and may ultimately discharge to the Lost River (Grondin, 2014). Similar to interference with groundwater users, the increase in annual duty and volume, compared to historical use, that is likely to occur as a result of this transfer will impact discharge and baseflow to the Lost River system.

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: Lost River

Minimal  Significant

Stream: \_\_\_\_\_

Minimal  Significant

Provide context for minimal/significant impact: The distance to the Lost River from the POAs subject to this transfer is approximately 12 miles. At this distance, and given the hydraulic properties and complexity of the aquifer system as well as uncertainty in groundwater flowpaths (due to complex geologic structure) estimates of impacts to the Lost River and surface water users due to the proposed changes in this transfer are likely to be minimal in terms of a noticeable affect on existing water rights.

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: \_\_\_\_\_

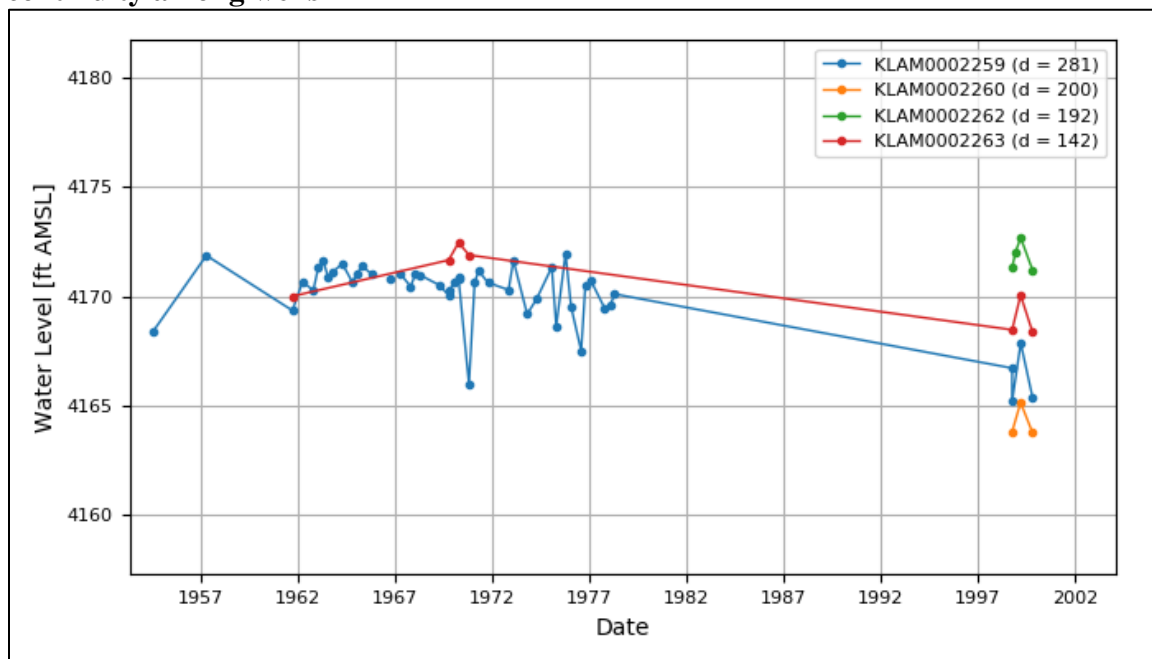
7. What conditions or other changes in the application are necessary to address any potential issues identified above: \_\_\_\_\_

8. Any additional comments: \_\_\_\_\_

**References Cited:**

Grondin, G. H. 2014. *Ground Water in the Eastern Lost River Sub-Basin, Langell, Yonna, Swan Lake, and Poe Valleys of Southeastern Klamath County, Oregon*. Ground Water Report No. 41. Oregon Water Resources Department. 689p.

**Hydrograph of water level data for wells subject to this transfer highlighting hydraulic continuity among wells**

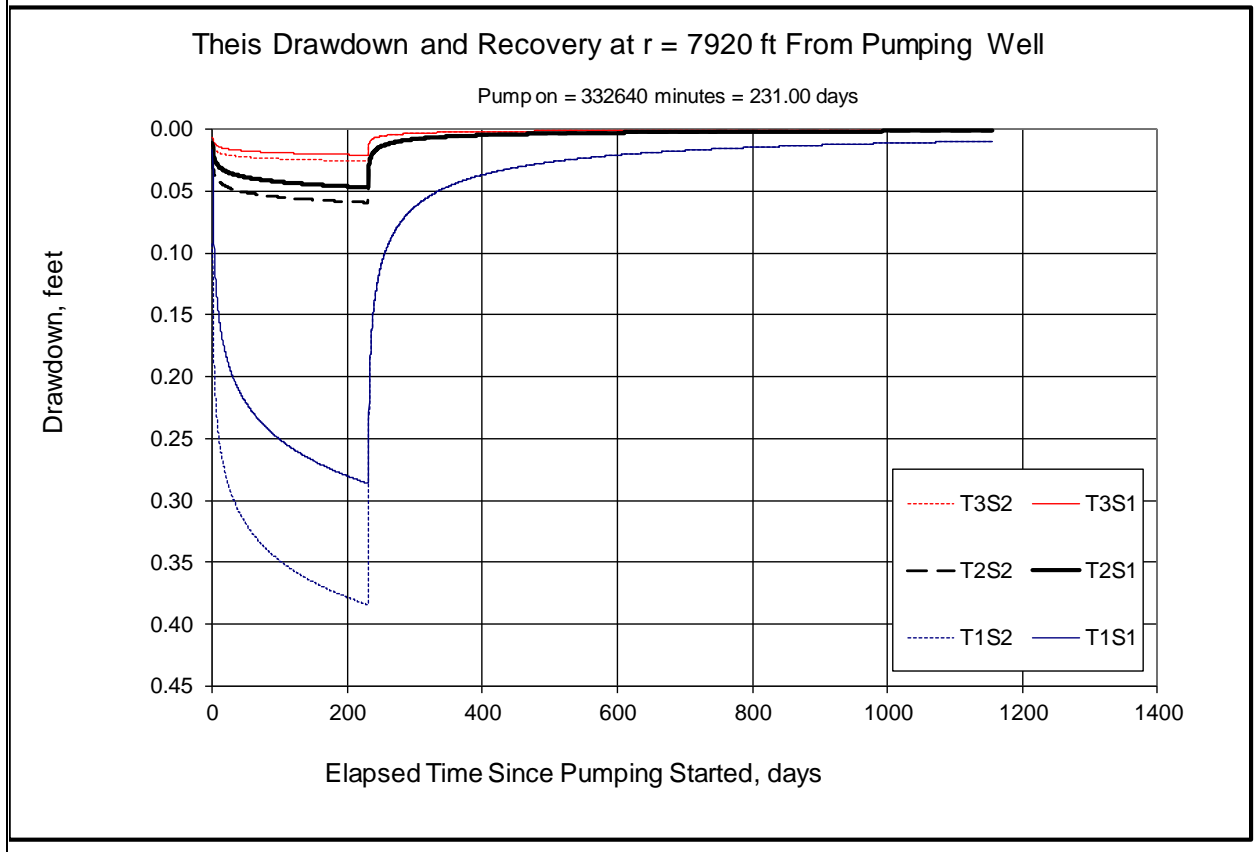


**Estimated drawdown at nearest groundwater POD from use at 2 AF/acre representing “historical” duty; rate is averaged over entire irrigation season**

**Theis Time-Drawdown Worksheet** v.3.00  
 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		231		d	
Radial distance from pumped well:	r		7920		ft	<b>Q conversions</b>
Pumping rate	Q		0.62		cfs	278.26 gpm
Hydraulic conductivity	K	100	800	2000	ft/day	0.62 cfs
Aquifer thickness	b		1000		ft	37.20 cfm
Storativity	S_1		0.001			53,568.00 cfd
	S_2		0.0001			1.23 af/d
Transmissivity Conversions	T_ftpd	100000	800000	2000000	ft <sup>2</sup> /day	<input type="button" value="Recalculate"/>
	T_ft2pm	69.4444444	555.5555556	1388.88889	ft <sup>2</sup> /min	
	T_gpdft	748000	5984000	14960000	gpd/ft	

Use the Recalculate button if recalculation is set to manual

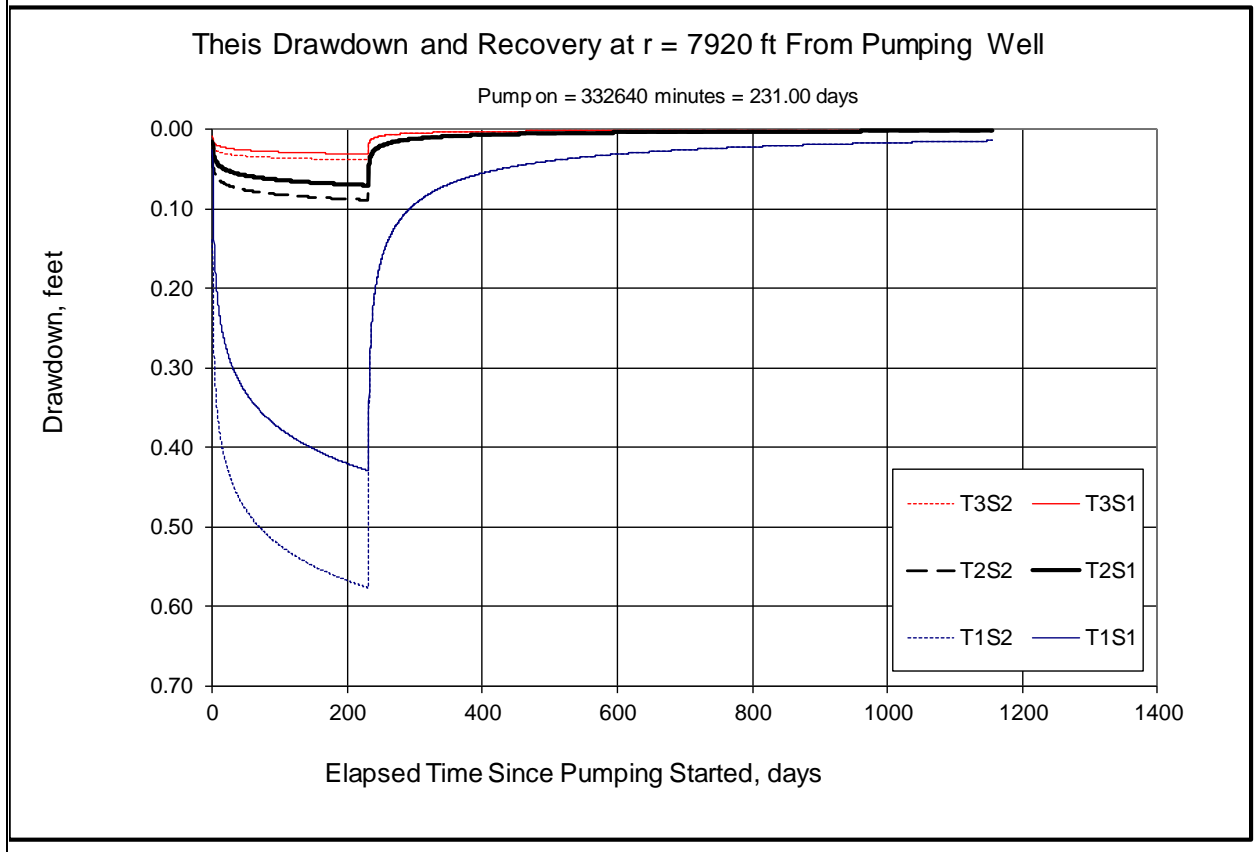


**Estimated drawdown at nearest groundwater POD from use at 3 AF/acre representing maximum duty; rate is averaged over entire irrigation season**

**Theis Time-Drawdown Worksheet** v.3.00  
 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		231		d	
Radial distance from pumped well:	r		7920		ft	<b>Q conversions</b>
Pumping rate	Q		0.93		cfs	417.38 gpm
Hydraulic conductivity	K	100	800	2000	ft/day	0.93 cfs
Aquifer thickness	b		1000		ft	55.80 cfm
Storativity	S_1		0.001			80,352.00 cfd
	S_2		0.0001			1.84 af/d
Transmissivity Conversions	T_ftpd	100000	800000	2000000	ft <sup>2</sup> /day	<input type="button" value="Recalculate"/>
	T_ft2pm	69.4444444	555.555556	1388.88889	ft <sup>2</sup> /min	
	T_gpdft	748000	5984000	14960000	gpd/ft	

Use the Recalculate button if recalculation is set to manual



**Application Review Map**

