Groundwater Transfer Review Summary Form

Transfer/PA # T- _14482_

GW Reviewer _Grayson Fish_ Date Review Completed: _11/15/2024_

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 Water Level Decline Condition Review:

☐ Water levels at the original point(s) of appropriation have exceeded the allowed decline threshold defined by conditions in the originating water right.

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-14482 Applicant Name: Thomas A MacDonald

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

Reviewer(s): Grayson Fish Date of Review: 11/15/2024

Date Reviewed by GW Mgr. and Returned to WRSD: JI 4/18/25

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: The applicant proposes to add 9 APOAs to supplement or potentially replace the 11 authorized POAs under Permit G-18433. It should be noted that Permit G-18433 is listed as canceled on OWRD's WRIS. The current iteration of the permit is G-18914. Permit G-18914 has a deadline for completing construction of October 1, 2025. Currently authorized POAs are as follows:

POA #	Well Log ID	Notes
1	LAKE 3030	GW Review of T-13337 notes well is open to receive groundwater from both basin-fill and the underlying volcanic rocks and sediments.
2	LAKE 1507	GW Review of T-13337 notes well is open to receive groundwater from both basin-fill and the underlying volcanic rocks and sediments.
3	LAKE 4444	GW Review of T-13337 notes well is open to receive groundwater from both basin-fill and the underlying volcanic rocks and sediments. Listed for replacement/abandonment in Permit G-18914.
4	LAKE 3029	GW Review of T-13337 notes well is open to receive groundwater from both basin-fill and the underlying volcanic rocks and sediments. Listed for replacement/abandonment in Permit G-18914.

5	LAKE 52367	GW Review of T-13337 notes well is open to receive groundwater from basin-fill only.
6	LAKE 52368	GW Review of T-13337 notes well is open to receive groundwater from the volcanic rocks and sediments below the basin fill.
7	LAKE 52369	GW Review of T-13337 notes well is open to receive groundwater from the volcanic rocks and sediments below the basin fill, but casing and seal does not extend into the volcanic rocks and sediments.
8	LAKE 52487	GW Review of T-13337 notes well is open to receive groundwater from the volcanic rocks and sediments below the basin fill.
9	LAKE 53401	Completed 12/7/2023. Sealed and cased to receive groundwater from the volcanic rocks and sediments below the basin fill. The location of this well on the application map appears to be ~220 feet south-southwest of the location OWRD has collected with GPS during well inspections. OWRD location is assumed to be correct for the purpose of this review.
10	Not constructed	Permit notes this well is to replace WELL 3 or 4
11	Not constructed	Permit notes this well is to replace WELL 3 or 4

Permit G-18914 contains numerous conditions, several are highlighted and discussed below:

* No more than a total of nine (9) wells may be authorized under Permit G-18433. Therefore:

a. If both additional points of appropriation WELL 10 and WELL 11 are drilled, then existing authorized WELL 3 (LAKE 4444) and WELL 4 (LAKE 3029) shall be abandoned in accordance with current well construction standards, and will result in a one for one replacement of WELL 3 and WELL 4;

b. If only one of the additional points of appropriation WELL 10 or WELL 11 is drilled, then only one of the existing authorized WELL 3 (LAKE 4444) and WELL 4 (LAKE 3029) shall be abandoned in accordance with current well construction standards, and the remaining well must be constructed (repaired) in accordance with current well construction standards. If repair of the remaining well does not meet current well construction standards, it must be abandoned in accordance with current well construction standards; or

c. If neither of the additional points of appropriation WELL 10 or WELL 11 are drilled, then existing authorized WELL 3 (LAKE 4444) and WELL 4 (LAKE 3029) shall be constructed (repaired) in accordance with current well construction standards. If repair of either WELL 3 (LAKE 4444) or WELL 4 (LAKE 3029) does not meet current well construction standards, it must be abandoned in accordance with current well construction standards.

The applicant proposes to increase the number of authorized points of appropriation on this permit up to 20. It is unclear which proposed wells would be replacements for currently authorized wells and if this would comply with the 9 well limit noted above. At the time of this review, WELL 3 and/or WELL 4 have not been replaced and abandoned or repaired to meet current well construction standards.

Condition for construction of existing WELL 1 (LAKE 3030), WELL 2 (LAKE 1507), WELL 3 (LAKE 4444), WELL 4 (LAKE 3029), WELL 5 (LAKE 52764), WELL 6 (LAKE 52368), WELL 7 (LAKE 52369), WELL 8 (LAKE 52487), WELL 9 and proposed replacement WELL 10 and WELL 11 and all future wells:

All wells authorized under the permit shall be constructed consistent with Oregon statutes and rules, to obtain groundwater solely from the predominately volcanic rock and sediment unit below the predominately basin-fill unit. The wells shall at minimum have continuous casing and continuous seal from land surface through the basin-fill unit into the predominantly volcanic rock and sediment unit below the basin-fill.

Water shall be acquired from the same aquifer as the original points of appropriation WELL 1 (LAKE 3030), WELL 2 (LAKE 1507), WELL 3 (LAKE 4444), WELL 4 (LAKE 3029), WELL 5 (LAKE 52764), WELL 6 (LAKE 52368), WELL 7 (LAKE 52369), WELL 8 (LAKE 52487), WELL 9.

The above condition notes that all authorized and future wells will be cased and sealed through the basin-fill unit and into the predominantly volcanic rock and sediment unit. As noted in the groundwater review of T-13337 and the above table, WELL 1 (LAKE 3030), WELL 2 (LAKE 1507), WELL 3 (LAKE 4444), WELL 4 (LAKE 3029), WELL 5 (LAKE 52764), WELL 6 (LAKE 52368), and WELL 7 (LAKE 52369) do not meet the requirements of the above listed permit condition.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
☐ Yes ☒ No Comments: Assuming all authorized and proposed wells are constructed or re-constructed to source water solely from the predominately volcanic rock and sediment unit below the predominately basin-fill unit as required by conditions of groundwater permit G-18914. However, this is not currently the case as noted in section 1 of this review form.

3. a) Is the existing authorized POA subject to a water level decline condition?
☐ Yes ☒ No Comments: Permit G-18914 does not contain any groundwater level decline conditions. However, the permit does include a condition related to insufficient flow from Ana Springs that requires authorized wells to deliver their flow to the Ana River or shut off.

b) If yes, for each POA identify the reference level, most recent spring-high water level, and whether an applicable permit decline condition has been exceeded: N/A

4. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?
☒ Yes ☐ No Comments: As currently constructed, authorized wells under this permit source water from both the basin-fill unit and predominately volcanic rock and sediment unit. As noted in sections 1 and 2 of this review form, groundwater permit G-18914 includes a condition that requires all authorized and future wells will be cased and sealed through the basin-fill unit and into the predominantly volcanic rock. Assuming all authorized and proposed wells are constructed or re-constructed to source water solely from the predominately volcanic rock and sediment unit below the predominately basin-fill unit, **it is likely a single source would be developed under this right.**

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.): The groundwater review for T-13337 notes that likely more than 90% of groundwater discharge is from the predominately volcanic rock and sediment unit below the predominately basin-fill unit.

5. 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 location of APOA WELL #20 will move groundwater use ~300 feet closer to LAKE 1503, an authorized POA for Certificate 90178, than currently authorized POA WELL #5 (LAKE 52367). This reduction in intervening distance is likely to result in an increase in interference with existing well LAKE 1503.

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: The potential increase in drawdown was calculated using the Theis equation (see attachments). The values used for the calculation are conservative and appropriate until better values become available. Storage coefficient (0.00029) and transmissivity values (260,677 ft^2/day) used for the calculation were sourced from Brown (1957). At the maximum allowed pumping rate of 17.8 cfs the increase in drawdown is estimated to be <1 foot compared to what is already occurring under the currently authorized POA, which is unlikely to result in another groundwater right not receiving the water to which it is legally entitled.

6. 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 location of APOA Well #20 will move groundwater use ~100 feet closer to Ana Springs/Ana Reservoir when compared to authorized WELL #5 (LAKE 52367).

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: Ana Springs/Ana Reservoir ☒ Minimal ☐ Significant

Stream: _____ ☐ Minimal ☐ Significant

Provide context for minimal/significant impact: Given the minor decrease in distance between Ana Springs/Ana Reservoir and the proposed APOA compared to the authorized POA, the expected change in degree of interference is expected to be minimal.

7. 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: N/A

8. What conditions or other changes in the application are necessary to address any potential issues identified above: It may be necessary for the applicant to specific which existing wells are to be replaced if the permit only allows for a total of 9 authorized POAs.

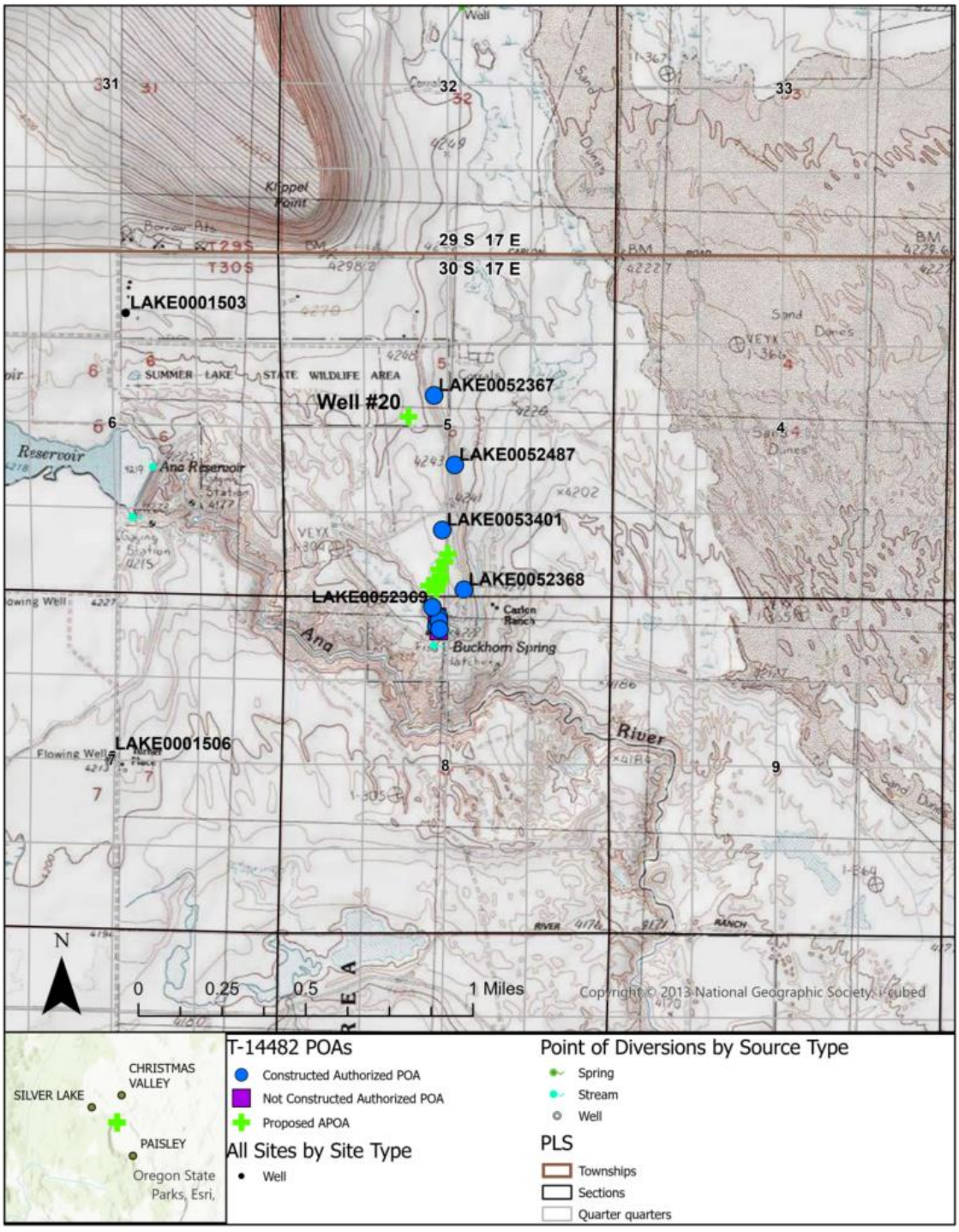
9. Any additional comments:_____

References:

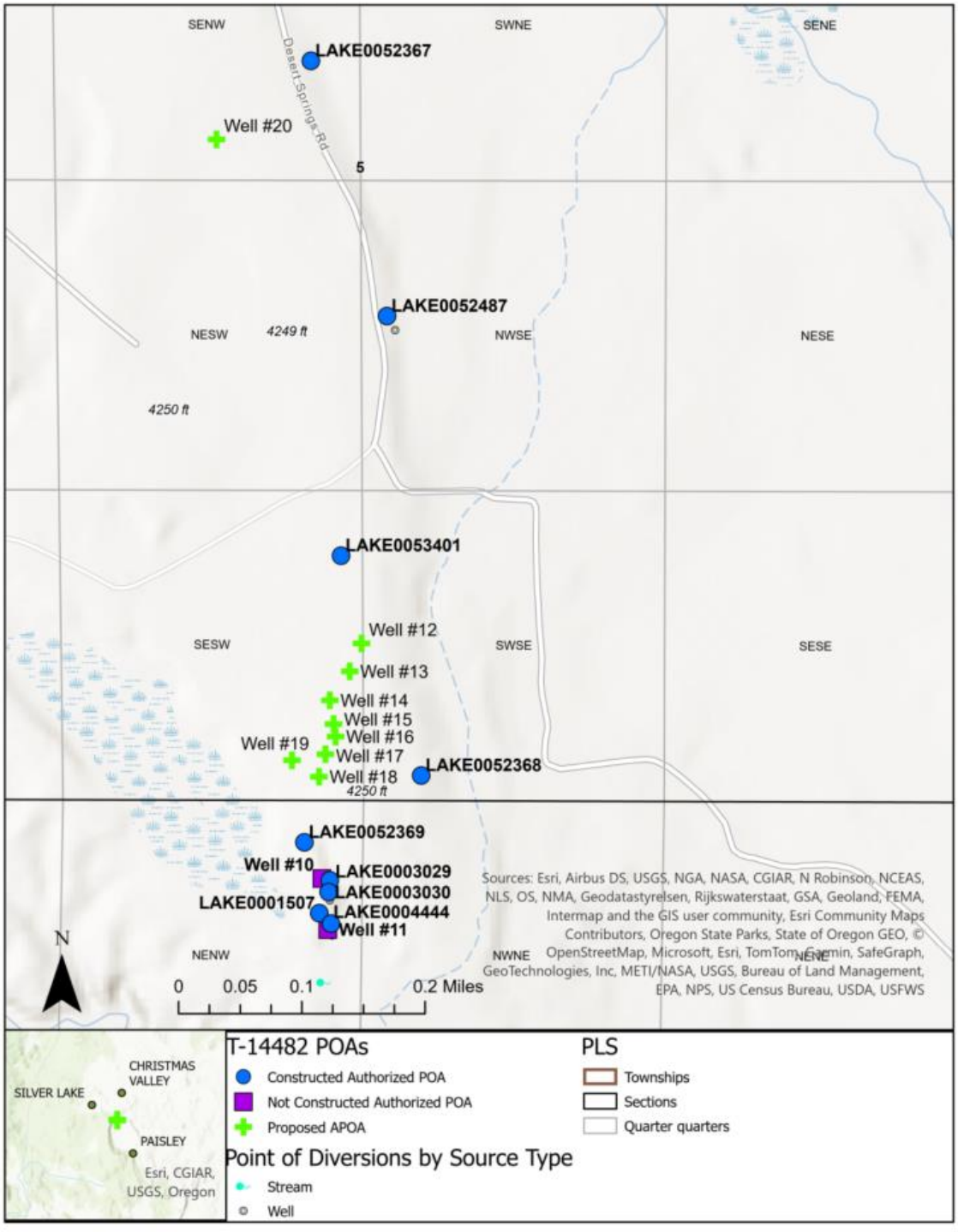
Brown, S.G. 1957. Occurrence of groundwater near Ana Springs, Summer Lake Basin, Lake County, Oregon. U.S. Geological Survey Open-File Report 57-17, 26 p., 11 plates, 3 tables.

OWRD. Groundwater Permit Amendment Review T-13337.

T-14482 - AREA MAP



T-14482 - POA MAP



Drawdown at LAKE 1503 from Well #5

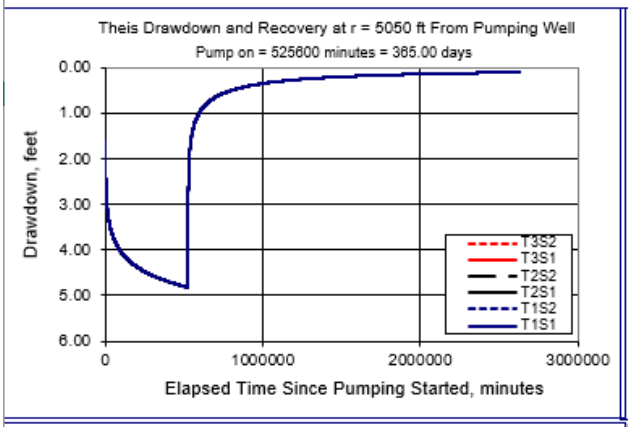
Theis Time-Drawdown Workshee v.5.00

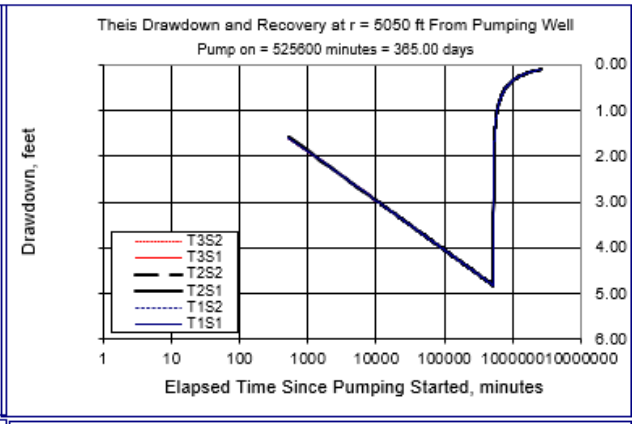
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.

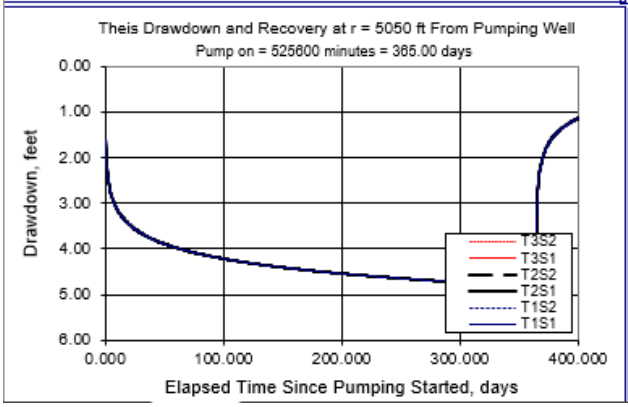
Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

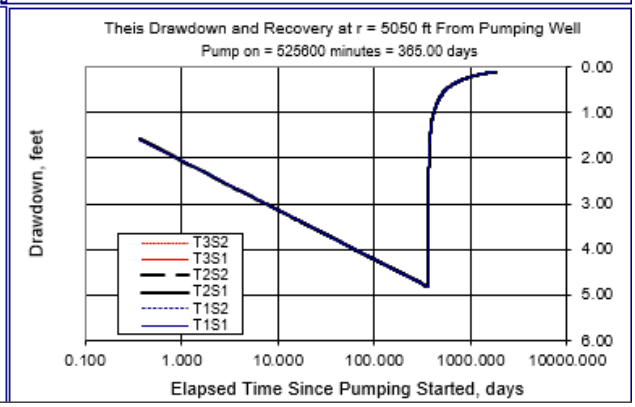
Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		5050		ft	Q conversions
Pumping rate	Q		17.8		cfs	7,988.64 gpm
Hydraulic conductivity	K	2606.77	2606.77	2606.77	ft/day	17.80 cfs
Aquifer thickness	b		100		ft	1,068.00 cfm
Storativity	S_1		0.00029			########## cfd
	S_2		0.00029			35.31 af/d
Transmissivity Conversions	T_f2pd	260677	260677	260677	ft2/day	
	T_ft2pm	181.02569	181.02569	181.02569	ft2/min	Recalculate
	T_gpdpft	1949864	1949864	1949864	gpd/ft	

Use the Recalculate button if recalculation is set to manual









Drawdown at LAKE 1503 from WELL #20

Theis Time-Drawdown Workshee 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		4750		ft	Q conversions
Pumping rate	Q		17.8		cfs	7,988.64 gpm
Hydraulic conductivity	K	2606.77	2606.77	2606.77	ft/day	17.80 cfs
Aquifer thickness	b		100		ft	1,068.00 cfm
Storativity	S_1		0.00029			########## cfd
	S_2		0.00029			35.31 af/d
Transmissivity Conversions	T_f2pd	260677	260677	260677	ft2/day	
	T_ft2pm	181.02569	181.02569	181.02569	ft2/min	Recalculate
	T_gpdpft	1949864	1949864	1949864	gpd/ft	

Use the Recalculate button if recalculation is set to manual