Groundwater Transfer Review Summary Form

Transfer/PA # T- _14369_

GW Reviewer _Gabriela Ferreira / Dennis Orlowski_ Date Review Completed: _February 20, 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 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-14369 Applicant Name: Jason Karam

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

Reviewer(s): Gabriela Ferreira / Dennis Orlowski Date of Review: February 20, 2024

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: The proposed transfer relates to wells located in unincorporated southeast Multnomah County between the city limits of Portland and Gresham, and approximately 0.5 mile north of the boundary for the Damascus Groundwater Limited Area. The proposed transfer would modify **GR Claim 915**, which currently authorizes **0.6684 cfs** (300 gpm) by one existing well, **MULT 2301** on 50.0 acres for Irrigation Use. The proposed transfer would add five APOAs: Well 2, domestic well **MULT 107461**; Well 4, an unlabeled, possibly already constructed well; and three not-yet-constructed wells (Well 3, Well 5, and Well 6). The proposed APOAs are located approximately 0.7 mile west of currently authorized POA MULT 2301. MULT 2301 was altered under MULT 2286, which added 20 inches of surface stick-up casing and re-perforated the casing from 280 to 294 feet bls.

   The proposed transfer would also move 16.0 acres of the authorized POU and requests a maximum combined rate of 0.21 cfs (96 gpm) for the APOAs.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
   ☒ Yes ☐ No Comments: Currently authorized POA MULT 2301 is completed to a total depth of 300 feet bls (82 ft amsl). According to USGS Water Resources Investigation 90-4196, the Troutdale Gravel Aquifer is present from near-surface to approximately 25 to 50 ft amsl, between 300 and 350 feet bls (Swanson et al., 1993).

Without adequate construction details, the same source cannot be identified for proposed Well 4. Therefore, Well 4 should not be authorized under this transfer UNTIL OR IF CONSTRUCTION DETAILS CAN BE CONFIRMED BY THE APPLICANT, AND PROOF OF SUCH DETAILS ARE PROVIDED TO OWRD.

MULT 107461 is constructed to a total depth of 182 feet bls, and the proposed construction for not-yet-constructed Wells 3, 5, and 6 would be completed to depths between 300 and 350 feet bls (25 to 75 ft amsl), which would develop the same aquifer as currently authorized POA MULT 2301.

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.): _____

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 applicant states that the proposed domestic well APOAs are currently owned by the water right holder. However, future property transactions could separate the domestic use from irrigation uses, and thus all potential injury scenarios were evaluated. The currently authorized POA MULT 2301 is located approximately 0.7 mile from domestic well MULT 107461, whereas the proposed POAs would be between 260 and 1,190 feet from MULT 107461. Therefore, potential interference was evaluated by this proposed change for Well 3 to MULT 107461.

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?

4. ☐ Yes ☒ No If yes, explain: The potential interference between Well 3 and MULT 107461 was evaluated with the maximum authorized rate of 300 gpm. The results are shown on the attached figures.
Under more conservative aquifer parameters, drawdown may temporarily exceed 25 feet, particularly during irrigation season pumping; however, under all aquifer parameter scenarios evaluated, the total drawdown equilibrates to less than 25 feet. Therefore, the proposed change is unlikely to result in another groundwater right not receiving the water to which it is legally entitled.

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: Currently authorized POA MULT 2301 is approximately 1,160 feet north of Kelly Creek. The locations for proposed APOAs Well 2, Well 3, and Well 6 would be approximately 350 to 840 feet north of Kelly Creek. The reduced intervening distance is likely to result in an increase in interference with Kelly Creek.

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: Kelly Creek ☒ Minimal ☐ Significant
Stream: _____ ☐ Minimal ☐ Significant
Provide context for minimal/significant impact: The Hunt 2003 analytical stream depletion

model was used to estimate the maximum potential interference at Kelly Creek caused by the proposed change. Model parameters are derived from nearby pumping tests and published values (Freeze and Cherry, 1979). Model results indicate that interference is expected to increase by 1 to 2%. Therefore the anticipated change in interference is expected to be minimal.

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: N/A

7. What conditions or other changes in the application are necessary to address any potential issues identified above: **Without adequate construction details, the same source cannot be identified for proposed Well 4. Therefore, Well 4 should not be authorized under this transfer UNTIL OR IF CONSTRUCTION DETAILS CAN BE CONFIRMED BY THE APPLICANT, AND PROOF OF SUCH DETAILS ARE PROVIDED TO OWRD.**

8. Any additional comments: None

References:

Application File T-14369, GR-915

Water well reports and pump tests: MULT 2301, MULT 107461, MULT 2876, MULT 2150

Freeze, R.A. and Cherry, J.A., 1979, Groundwater, Prentice Hall, Englewood Cliffs, New Jersey, 604 p.

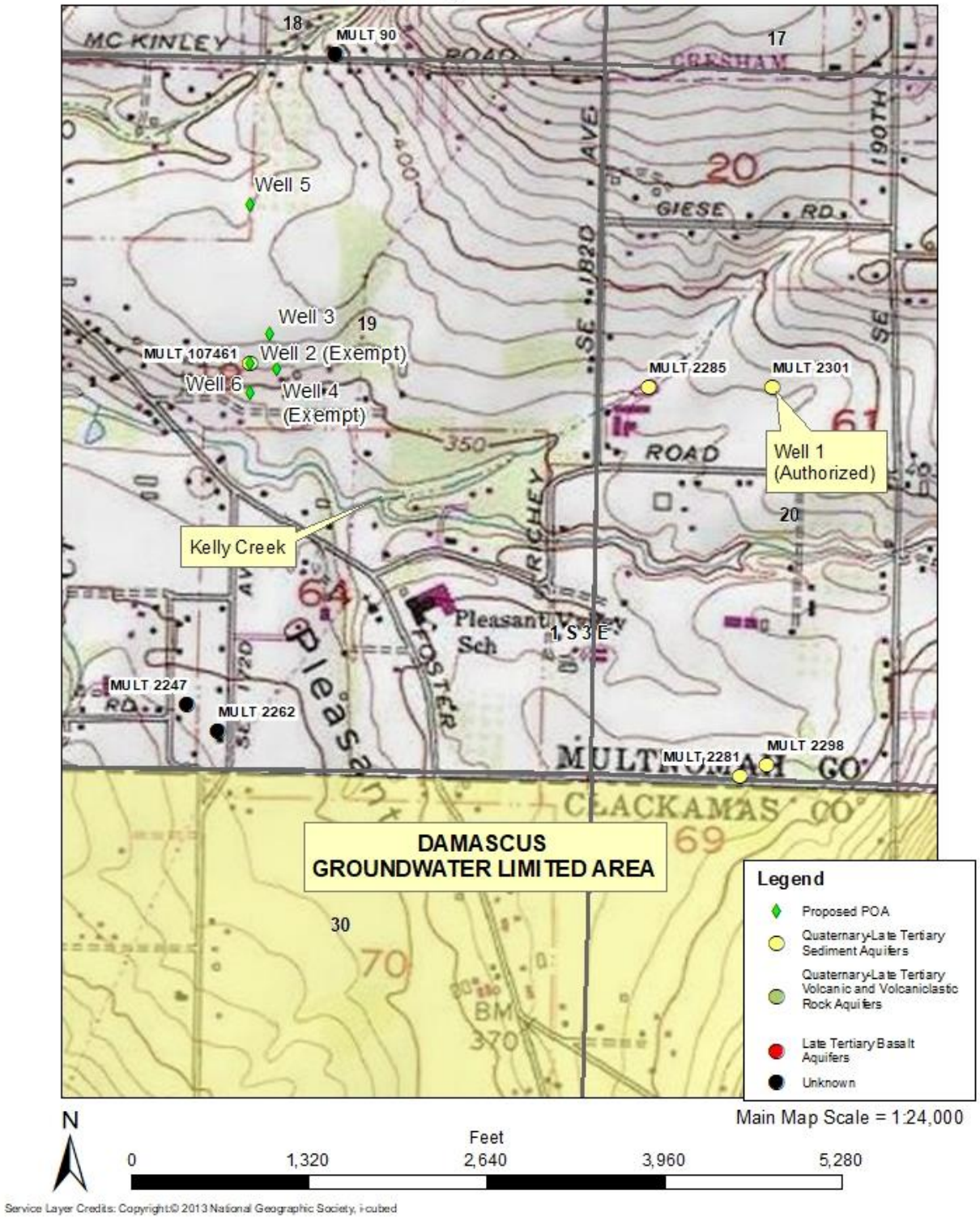
Hunt, B., 2003, Unsteady stream depletion when pumping from semiconfined aquifer: Journal of Hydrologic Engineering, January/February, Vol 8, p. 12-19.

Oregon Lidar Consortium (OLC), 2016, OLC metro 2014 lidar project, Oregon Department of Geology & Mineral Industries, Portland, OR, November 30.

Swanson, R. D., McFarland, W. D., Gonthier, J. B., and Wilkinson, J. M., 1993, A description of hydrogeologic units in the Portland Basin, Oregon and Washington, Water-Resources Investigations Report 90-4196, 56 p.: U. S. Geological Survey, Reston, VA.

United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

Application T-14369 Karam
T1S, R3E, Section 19 / 20



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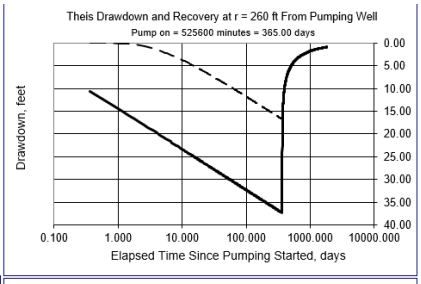
Modeled Interference: Proposed Well 3 to MULT 107461

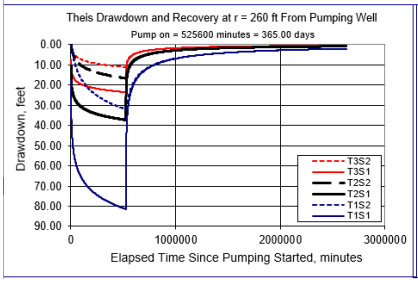
Theis Time-Drawdown Worksheet v.5.00

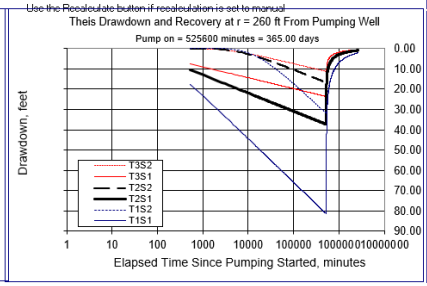
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.
Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

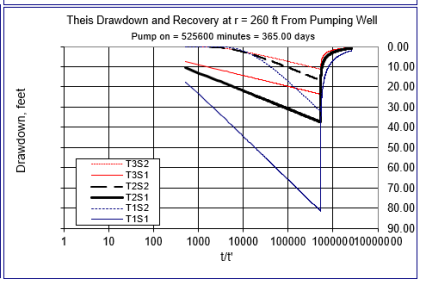
Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		260		ft	Q conversions
Pumping rate	Q		0.68		cfs	305.18 gpm
Hydraulic conductivity	K	2.5	6	10	ft/day	0.68 cfs
Aquifer thickness	b		200		ft	40.80 cfm
Storativity	S_1		0.001			58,752.00 cfd
	S_2		0.2			1.35 af/d
Transmissivity Conversions	T_f2pd	500	1200	2000	ft2/day	
	T_ft2pm	0.3472222	0.8333333	1.3888889	ft2/min	Recalculate
	T_gpdpft	3740	8976	14960	gpd/ft	

Use the Recalculate button if recalculation is set to manual









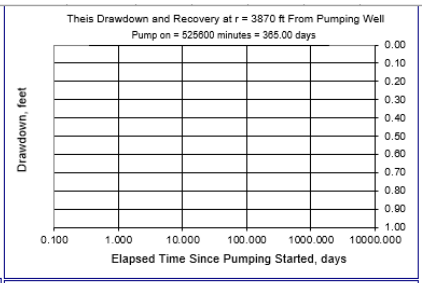
Interference: Authorized Well 1 (MULT 2301) to MULT 107461

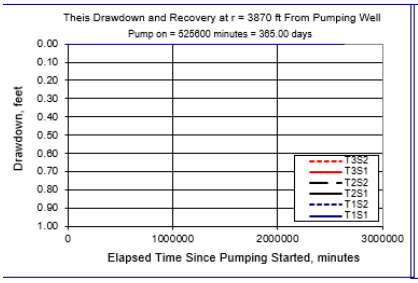
Theis Time-Drawdown Worksheet v.5.00

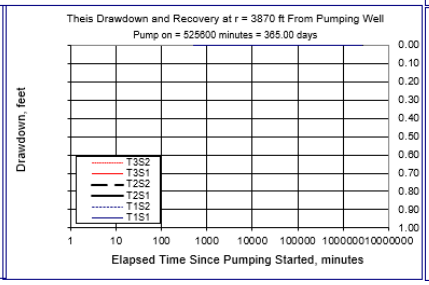
Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance, r, from a pumping well for 3 different T values and radial distance, r, from a pumping well for 3 different T values and 2 different S values.
Written by Karl C. Wozniak September 1992. Last modified December 17, 2019

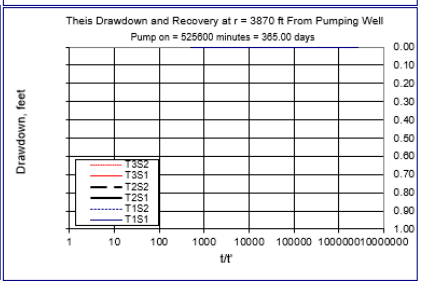
Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		365		d	
Radial distance from pumped well:	r		3870		ft	Q conversions
Pumping rate	Q		0.68		cfs	305.18 gpm
Hydraulic conductivity	K	2.5	6	10	ft/day	0.68 cfs
Aquifer thickness	b		200		ft	40.80 cfm
Storativity	S_1		0.001			58,752.00 cfd
	S_2		0.2			1.35 af/d
Transmissivity Conversions	T_f2pd	500	1200	2000	ft2/day	
	T_ft2pm	0.3472222	0.8333333	1.3888889	ft2/min	Recalculate
	T_gpdpft	3740	8976	14960	gpd/ft	

Use the Recalculate button if recalculation is set to manual









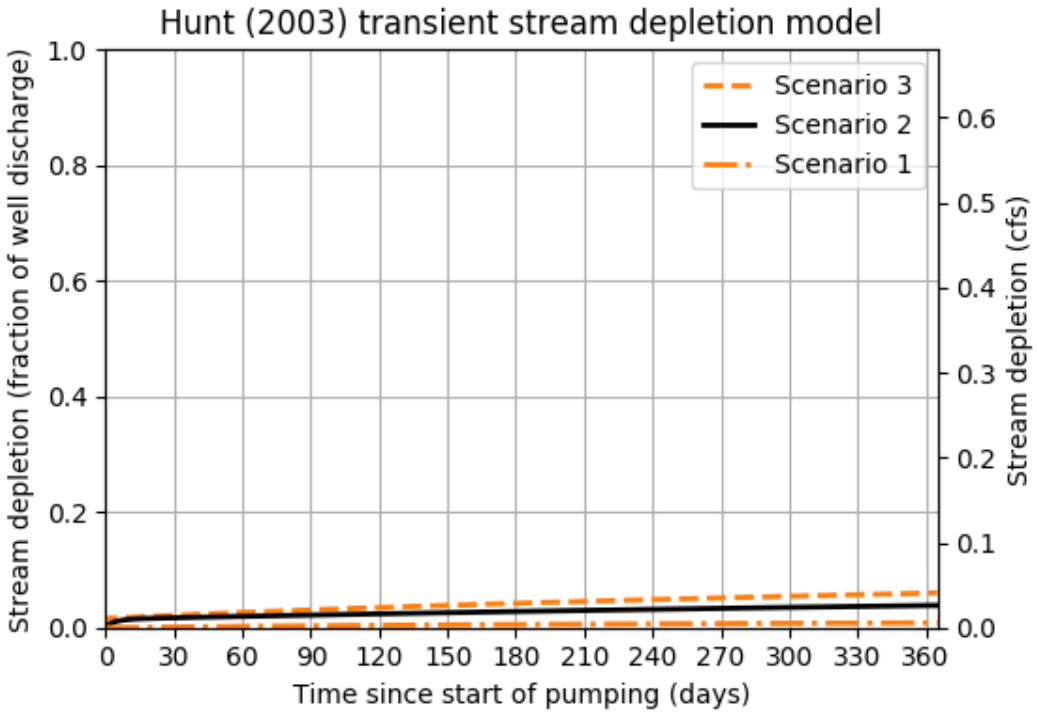
Modeled Stream Depletion: Proposed Well 6 to Kelly Creek

Application type:	T
Application number:	14369
Well number:	6
Stream Number:	1
Pumping rate (cfs):	0.68
Pumping duration (days):	365.0
Pumping start month number (3=March)	1.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	350.0	350.0	350.0	ft
Aquifer transmissivity	T	500.0	1200.0	2000.0	ft2/day
Aquifer storativity	S	0.2	0.01	0.001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	30.0	30.0	30.0	ft
Aquitard thickness below stream	babs	15	15	15	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	20.0	20.0	20.0	ft

Stream depletion for Scenario 2:

Days	1	31	62	92	122	153	183	213	244	274	304	335
Depletion (%)	0	2	2	2	2	3	3	3	3	3	4	4
Depletion (cfs)	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03



Modeled Stream Depletion: Authorized Well 1 (MULT 2301) to Kelly Creek

Application type:	T
Application number:	14369
Well number:	1
Stream Number:	1
Pumping rate (cfs):	0.68
Pumping duration (days):	365.0
Pumping start month number (3=March)	1.0

Parameter	Symbol	Scenario 1	Scenario 2	Scenario 3	Units
Distance from well to stream	a	1160.0	1160.0	1160.0	ft
Aquifer transmissivity	T	500.0	1200.0	2000.0	ft2/day
Aquifer storativity	S	0.2	0.01	0.001	-
Aquitard vertical hydraulic conductivity	Kva	0.01	0.05	0.1	ft/day
Aquitard saturated thickness	ba	30.0	30.0	30.0	ft
Aquitard thickness below stream	babs	15	15	15	ft
Aquitard specific yield	Sya	0.2	0.2	0.2	-
Stream width	ws	20.0	20.0	20.0	ft

Stream depletion for Scenario 2:

Days	1	31	62	92	122	153	183	213	244	274	304	335	36
Depletion (%)	0	1	1	1	1	1	1	2	2	2	2	2	2
Depletion (cfs)	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0