

Groundwater Transfer Review Summary Form

Transfer/PA # T- 14552

GW Reviewer Dennis Orlowski Date Review Completed: December 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 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-14552

Applicant Name: Hans Nelson and Sons Nursery, Inc.

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

Reviewer(s): Dennis Orlowski

Date of Review: December 20, 2024

Date Reviewed by GW Mgr. and Returned to WRSD: December 20, 2024

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 proposed transfer relates to certificate 50467, which authorizes the use of groundwater from a single POA (CLAC 980 ("POA-1")) to irrigate 14.2 acres (max. rate 0.11 cfs, ~50 gpm) in Clackamas County, approximately 3 miles southeast of Damascus.

This application proposes to add two APOA for certificate 50467:

- **"POA-2" (to be drilled)**
- **"POA-3" (to be drilled)**

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
☒ Yes ☐ No Comments: Authorized POA CLAC 980 is 157 feet deep and obtains groundwater from water-bearing sand and gravel deposits. The two proposed APOA wells are planned to be no more than approximately 225 feet deep, a depth which should also ensure they develop the same source aquifer as the existing authorized POA.

Incidentally, in this portion of the Portland Basin, these sedimentary deposits, at this depth range, have been mapped by the USGS as the Troutdale Gravel Aquifer (TGA). OWRD has equated the TGA to the "Shallow Troutdale Aquifer" in the Sandy-Boring Groundwater Limited Area (GWLA), which encompasses this area. Normally, within this GWLA only exempt groundwater uses are permitted from the Shallow Troutdale Aquifer (OAR 690-502-0170). However, both the 1977 application date and 1982 issuance date for certificate 50467 preceded the October 4, 1991 date on which the Sandy-Boring GWLA rules were implemented; consequently, the GWLA exempt use limitation does not apply to this particular water right.

3. a) Is the existing authorized POA subject to a water level decline condition?
☐ Yes ☒ No Comments: Certificate 50467 does not contain provisions related to either the setting of a reference level or decline conditions.

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: _____

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.): N/A
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: Relative to the existing authorized POA CLAC 980, the proposed location for POA-3 is about 150-250 feet nearer to several wells to the northeast: CLAC 989, CLAC 72727, CLAC 54193. Thus it is likely that this proposed change will result in an increase in interference with those and other similar nearby wells.

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: To evaluate the potential additional interference with CLAC 989, a Theis (1935) drawdown analysis was completed. Aquifer parameters used for the analysis were derived from regional data and studies (Pumping Test Reports; Freeze and Cherry, 1979; McFarland and Morgan, 1996; Swanson et al., 1993). To provide a conservative analysis, it was assumed that both authorized POA CLAC 980 (POA-1) and proposed POA-3 would be independently pumped non-stop at the maximum authorized rate under certificate 50467 (0.11 cfs, ~50 gpm) up to the associated duty, which would be accomplished in about 160 days.

Results of the Theis comparative analysis indicate that additional interference with CLAC 989 would likely range from only about 1 to 4 feet based on these conservative pumping scenarios. This estimated low range of additional interference in nearby wells should ensure continued normal use of those wells; thus it is not likely that the proposed use will result in CLAC 989 or another similar groundwater right from 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 nearest surface water source is a tributary to Johnson Creek located approximately 1600-1700 feet west-northwest of the application POA. However, this reach is not perennial and thus not subject to this analysis. Furthermore, relative to CLAC 980 (POA-1) the proposed location for POA-3 is only about 130 feet nearer to this intermittent stream course, and thus its proposed use would not be expected to cause any increase in additional interference even if the stream were a perennial reach.
- 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: _____ ☐ Minimal ☐ Significant
- Stream: _____ ☐ Minimal ☐ Significant
- Provide context for minimal/significant impact: N/A
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: **The maximum depths for proposed POA-2 and POA-3 should be no deeper than the proposed 225 feet to ensure they obtain groundwater from the same source as the authorized POA, CLAC 980 (POA-1).** Local geologic mapping (Swanson and others, 1993) indicates that the top of the regional Confining Unit 1 (CU1) is likely just below the planned bottoms of the proposed APOA wells. CU1 separates the Shallow Troutdale Aquifer (Troutdale Gravel Aquifer) from the Deep Troutdale Aquifer (TSA); therefore, as long as the proposed APOA are completed above CU1 then they will obtain groundwater from the same source as authorized CLAC 980, i.e., the Shallow Troutdale Aquifer (TGA).
9. Any additional comments: None

References

Water rights documents: application T-14552; certificate 50467; groundwater technical reviews for applications T-12121, T-12697, GT-12948.

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

McFarland, W.D., and Morgan, D.S., 1996, Description of the Ground-Water Flow System in the Portland Basin, Oregon and Washington, Water Supply Paper 2470-A, 58 p: U. S. Geological Survey, Reston, VA.

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.

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, American Geophysical Union Transactions, vol. 16, p. 519-524.

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

United States Geological Survey, 2017, *Sandy quadrangle*, Oregon [map], 1:24,000, 7.5 minute topographic series, U.S. Department of the Interior, Reston, VA.

Legend

- Quaternary-Late Tertiary Sediment Aquifers
- Quaternary-Late Tertiary Volcanic and Volcanioclastic Rock Aquifers
- Late Tertiary Basalt Aquifers
- Unknown
- gw_working_location_or...

Restricted areas

Status

- Limited
- Classified
- Critical
- Withdrawn
- Groundwater Mitigation

Map Labels: CLAC 67474, CLAC 78218, CLAC 975, Proposed APOA ("POA-3" - TBD), Proposed APOA ("POA-2" - TBD), CLAC 1015, CLAC 991, CLAC 980, Authorized POA (CLAC 980 - "POA-1"), CLAC 971, SANDY, Sandy-Boring, CLAC 1006, CLAC 69062, 73952, 476, 53336, 71657, CLAC 67180, CLAC 965, CLAC 62439, 69764, BM 549, BM 553, 32, AC 75887, CLAC 72727, CLAC 989, CLAC 54193, CLAC 18449, CLAC 992, CLAC 973, CLAC 57896, CLAC 62702, CLAC 1005, CLAC 54905, CLAC 78639, 78639, 73455, 78689.

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Scale: 0 to 5,200 Feet

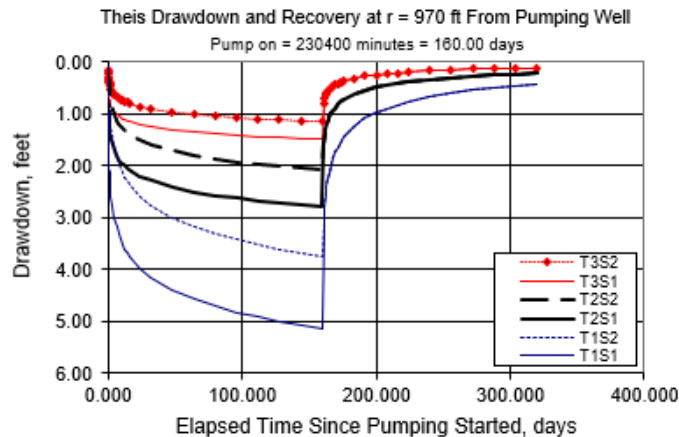
Theis Drawdown Analysis – Authorized POA CLAC 980 to CLAC 989

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 30, 2014

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		160		d	
Radial distance from pumped well:	r		970.00		ft	Q conversions
Pumping rate	Q		0.110		cfs	49.37 gpm
Hydraulic conductivity	K	25.000	50.000	100.000	ft/day	0.11 cfs
Aquifer thickness	b		50		ft	6.60 cfm
Storativity	S_1		0.00010			9,504.00 cfd
	S_2		0.00100			0.22 at/d
Transmissivity Conversions	T_ft2pd	1,250	2,500	5,000	ft2/day	
	T_ft2pm	0.8681	1.7361	3.4722	ft2/min	
	T_gpdpt	9,350	18,700	37,400	gpd/ft	
Recalculate						Use the Recalculate button if recalculation is set to manual

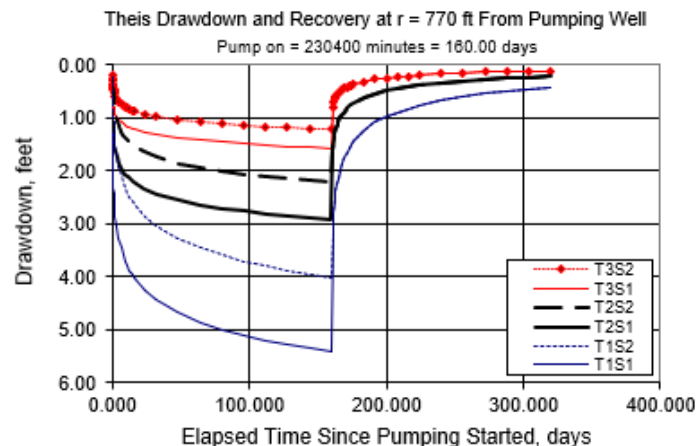
**Theis Drawdown Analysis – Proposed APOA POA-3 to CLAC 989**

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 30, 2014

Input Data:	Var Name	Scenario 1	Scenario 2	Scenario 3	Units	
Total pumping time	t		160		d	
Radial distance from pumped well:	r		770.00		ft	Q conversions
Pumping rate	Q		0.110		cfs	49.37 gpm
Hydraulic conductivity	K	25.000	50.000	100.000	ft/day	0.11 cfs
Aquifer thickness	b		50		ft	6.60 cfm
Storativity	S_1		0.00010			9,504.00 cfd
	S_2		0.00100			0.22 at/d
Transmissivity Conversions	T_ft2pd	1,250	2,500	5,000	ft2/day	
	T_ft2pm	0.8681	1.7361	3.4722	ft2/min	
	T_gpdpt	9,350	18,700	37,400	gpd/ft	
Recalculate						Use the Recalculate button if recalculation is set to manual



Hydrograph, Area Wells