

# Groundwater Transfer Review Summary Form

Transfer/PA # T- 14523

GW Reviewer Dennis Orlowski Date Review Completed: March 21, 2025

## 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.

**Based on the most recently available water-level measurements from 4/10/2024, two existing authorized POA, MULT 3476 and MULT 67819, have exceeded the 15-ft total decline condition stipulated in permit G-15196. These exceedances are discussed in detail in several sections of this review.**

## 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-14523

Applicant Name: Sester Farms Inc.

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

Reviewer(s): Dennis Orlowski

Date of Review: March 21, 2025

Date Reviewed by GW Mgr. and Returned to WRSD: March 21, 2025

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: Proposed transfer relates to permit G-15196 which authorizes year-round nursery use on 300.35 acres using groundwater from three authorized POA: MULT 3476 ("Well 1"), MULT 67819 ("Well 3") and a well not-yet-drilled ("Well 2"). The maximum cumulative pumping rate for permit G-15196 is 4.01 cfs (~1800 gpm), with no more than 0.67 cfs from MULT 3476, 1.67 cfs from not-yet drilled Well 2, and 1.67 cfs from MULT 67819.

MULT 3476 ("Well 1") is also an authorized POA for three additional groundwater rights:

- Certificate 84946: nursery use 80.0 acres, maximum rate 0.67 cfs, year-round
- Permit G-15196: nursery use 300.35 acres, maximum rate 0.67 cfs, year-round
- Permit G-16568: primary irrigation 54.6 acres, maximum rate 0.68 cfs, 3/1 to 10/31

MULT 67819 ("Well 3") is also an authorized POA for two additional groundwater rights:

- Permit G-15196: nursery use 300.35 acres, maximum rate 0.67 cfs, year-round
- Permit G-16568: primary irrigation 54.6 acres, maximum rate 0.68 cfs, 3/1 to 10/31

**This application T-14523 proposes the following changes to permit G-15196:**

- 1) Change POU for 117.1 acres.**
- 2) Change location of one existing authorized POA ("Well 2").**
- 3) Add four APOA to include one existing well (MULT 140397, "Moller Well 2") and three locations for wells not-yet-drilled ("Wells 4, 5, 6").**

In addition to the other existing water rights listed previously, both MULT 3476 and MULT 67819 are also part of several applications currently in-process at OWRD, including:

- Application T-13852: MULT 3476 and MULT 67819 are authorized POA for permit G-15758; transfer application proposes changing a 34.5 acre portion of the POU and changing POA for the same 34.5 acres.
- Application T-14260: both MULT 3476 and MULT 67819 (in addition to a third well to-be-drilled) are proposed as APOA for certificates 28123 and 32336.
- Application T-14278: both MULT 3476 and MULT 67819 (in addition to MULT 140397) are proposed as APOA for certificate 60741.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?  
☒ Yes    ☐ No    Comments: The authorized POA and proposed APOA wells range in total depth from 433 to 620 feet, and all obtain groundwater primarily from confined water-bearing sand and gravel deposits.

Head differences in area wells, including authorized POA wells MULT 3476 and MULT 67819, suggest that some of these wells *might* be completed in discretely-different alluvial aquifers (see attached hydrograph). In much of the Portland Basin the USGS has identified several alluvial aquifer systems: the uppermost "Troutdale Gravel Aquifer" (TGA), the intermediate "Troutdale Sandstone Aquifer" (TSA), and the deepest "Sand and Gravel Aquifer" (SGA). In most areas Confining Unit 1 (CU1) separates the TGA from the TSA, and Confining Unit 2 (CU2) separates the TSA from the SGA; these separations are most pronounced in more central portions of the Portland Basin nearer to the Columbia River, but are also generally present in the POA/POU area. Underlying these alluvial deposits is bedrock comprised of basalt of the Columbia River Basalt Group (CRBG) (Swanson and others, 1993; McFarland and Morgan, 1996).

However, due to several factors specific to this application area, it is not certain if the deeper alluvial deposits correspond to either a single alluvial system or multiple discrete aquifers. First, the existence of any potential contacts between aquifers and confining units is not clear from the stratigraphic information presented on well logs associated with this application (e.g., MULT 140397, MULT 67819, MULT 3476). Second, the ability to distinguish between discrete alluvial aquifers in this area using head data is complicated because of the highly-variable open intervals of the wells from which that data are obtained (also, for this review applicable static water levels were not available for proposed APOA MULT 140397 (completed 8/2/2023), further complicating this analysis). Finally, the potential presence of local faults might isolate/compartimentalize the aquifer; though not formally mapped, a distinct northwest-southeast trending surface lineation between MULT 67819 and CLAC 57578 (and MULT 3476) – marked by the orientation of North Fork Beaver Creek in this area - could represent a fault zone that might account for the relatively-large head differences seen in this group of wells.

**Despite these complications, it is assumed that the proposed APOA develop/will develop the same alluvial aquifer source as the existing authorized POA,** and that this source is generally considered to be the same as the “Deep Troutdale” aquifer designation used for the nearby Sandy-Boring Groundwater Limited Area (the Deep Troutdale aquifer consists of the TSA and other water-bearing units below CU1). It is notable that despite the fact that authorized POAs MULT 67819 and MULT 3476 exhibit relatively-large head differences, both wells are authorized for this application’s permit G-15196 (and permit G-16568) for which a distinction between potentially different aquifers was *not* made; in those cases it was concluded that both wells obtain groundwater from the “Deep Troutdale” aquifer.

3. a) Is the existing authorized POA subject to a water level decline condition?

☒ Yes    ☐ No

Comments: This application’s permit G-15196 contains three decline conditions common to groundwater rights in the Sandy Basin: (1) average water level decline of three or more feet per year for five consecutive years; or (2) a total water level decline of fifteen or more feet; or (3) a hydraulic interference decline of fifteen or more feet in any neighboring well providing water for senior exempt uses or wells covered by prior rights.

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:

Note: reference levels for authorized POA MULT 3476 and MULT 67819 were established in the extension review for permit G-15196 completed by OWRD on February 7, 2024. Also, see attached hydrographs for both MULT 3476 and MULT 67819.

- MULT 3476 reference level: 199.00 ft bls (thus 15-ft decline trigger level = 214.00 ft bls)
- **MULT 3476 4/10/2024 level: 220.5 ft bls = > 15-ft decline condition exceeded**
- MULT 67819 reference level: 317.00.00 ft bls (thus 15-ft decline trigger level = 332.00 ft bls)
- **MULT 67819 4/10/2024 level: 384.10 ft bls = > 15-ft decline condition exceeded**

4. a) Is there more than one source developed under the right (e.g., basalt and alluvium)?

☐ Yes    ☒ No

Comments: All POA and proposed APOA wells obtain, or will obtain, groundwater from the Deep Troutdale aquifer system.

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: The nearest known groundwater right potentially affected by the proposed use is MULT 139288, a domestic use well located north of the proposed “Well 6” location. Relative to the authorized POA “Well 2” location (TBD), the proposed APOA “Well 6” location is approximately 2400 feet nearer to MULT 139288; consequently, the proposed use is likely to result in an increase in interference in MULT 139288 (see attached cross-section).

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 MULT 139288, a Theis (1935) drawdown analysis was completed. Aquifer parameters used for the analysis were derived from regional data and studies (Pumping Test Reports for MULT 2533, MULT 3476; McFarland and Morgan, 1996; Swanson et al., 1993).

To provide a conservative analysis, it was assumed that authorized POA "Well 2" would be pumped non-stop at the maximum authorized rate under permit G-15196 (1.67 cfs, ~750 gpm), which would effectively be limited by the 2.5 af/acre duty for in-ground nursery plants, at about 226 days. Pumping at the proposed APOA "Well 6" location was also simulated to be pumping non-stop at 1.67 cfs for the same total duration.

Results of the Theis comparative analysis indicate that additional interference with MULT 139288 could range from about 10 to 15 feet based on these conservative pumping scenarios. This relatively low additional drawdown should not prevent MULT 139288 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: Note: the authorized POA and proposed APOA are located within or very near the boundaries of the Sandy River Scenic Waterway.

The Troutdale Formation, which includes the Deep Troutdale aquifer, crops out along the walls of the Sandy River valley at varying distances, directions and elevations relative to the authorized POA and proposed APOA sites. Numerous small creeks and springs originate from or flow over the Troutdale Formation where it outcrops in this area (USGS, 2014; McFarland and Morgan, 1996); the locations for proposed "Well 5" and "Well 6", as well as that for authorized POA "Well 2" (TBD), are relatively nearest to these small creeks, most of which are unnamed tributaries to the Sandy River.

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: Unnamed tribs. to Sandy River ☒ Minimal ☐ Significant

Stream: \_\_\_\_\_ ☐ Minimal ☐ Significant

Provide context for minimal/significant impact: Based on groundwater levels in the Deep Troutdale aquifer at and near the authorized POA and proposed APOAs (i.e., water levels at roughly elevations ~200-300 ft msl), the nearest likely points of connection with unnamed tributaries to the Sandy River are approximately 2500-4500 feet away from the POAs. While both the "Well 5" and "Well 6" locations are nearer to these connection points compared to authorized "Well 2", the change in interference is not expected to be measurably greater than pumping at the authorized "Well 2" location.

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: None
9. Any additional comments: The following water right applications recently submitted to OWRD are also related to this T-14523 application, in that both MULT 3476 and MULT 67819 are either authorized POA or proposed APOA on those applications, as noted below:
- T-13852: both are authorized POA (in addition to two other POA not-yet-drilled).
  - T-14260: both are proposed APOA (in addition to another POA not-yet-drilled).
  - T-14278: both are proposed APOA (in addition to MULT 140397).

**The finding in this application T-14523 review (and previous others) that both MULT 3476 and MULT 67819 have exceeded the 15-ft decline condition stipulated in permit G-15196 needs to be considered by TACS when evaluating all of these related applications.**

## References

Water rights documents: application T-14523; permit G-15196; groundwater technical reviews for applications T-13852, T-14260, T-14278, G-18865.

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.

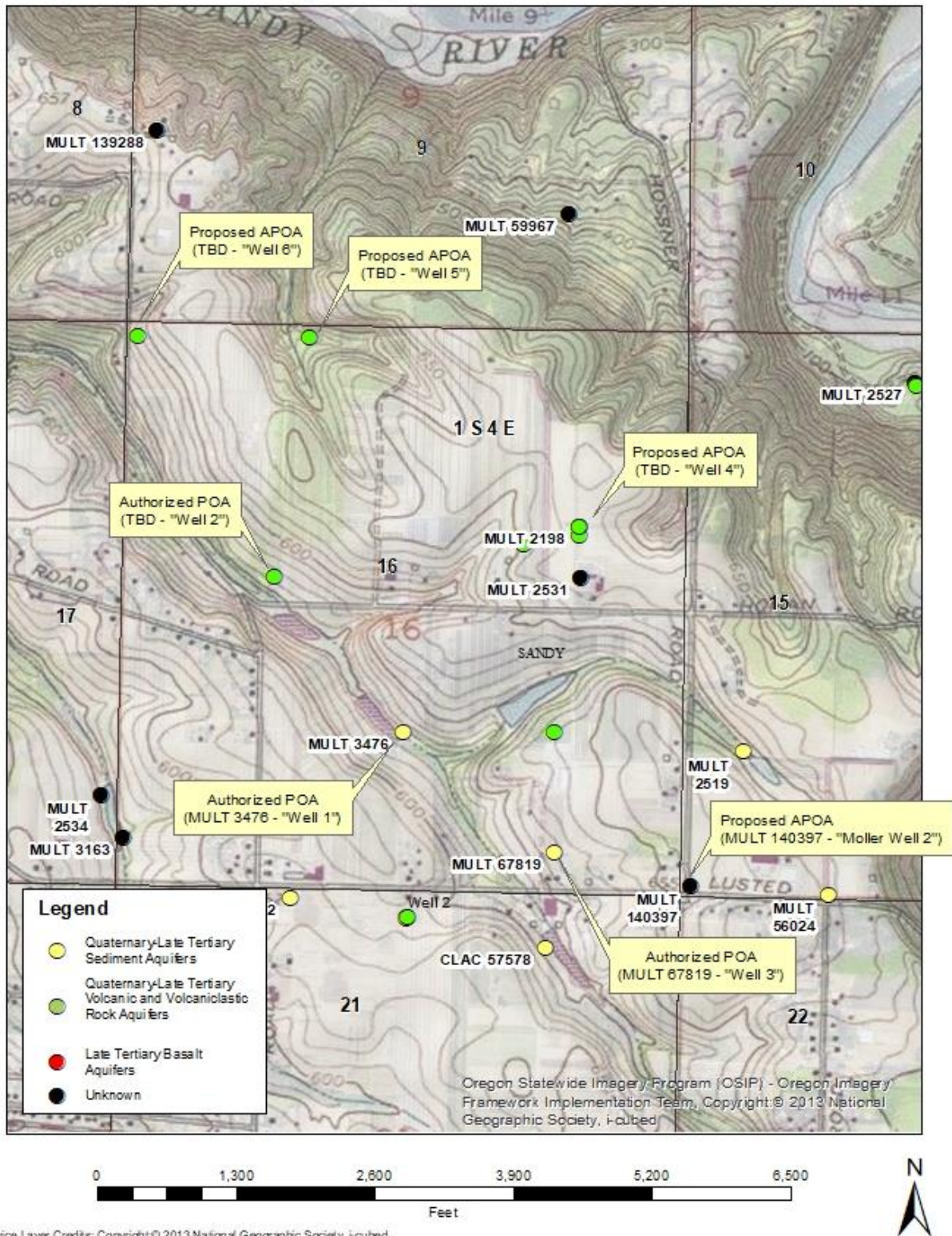
Theis, C.V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, American Geophysical Union Transactions, vol. 16, p. 519-524.

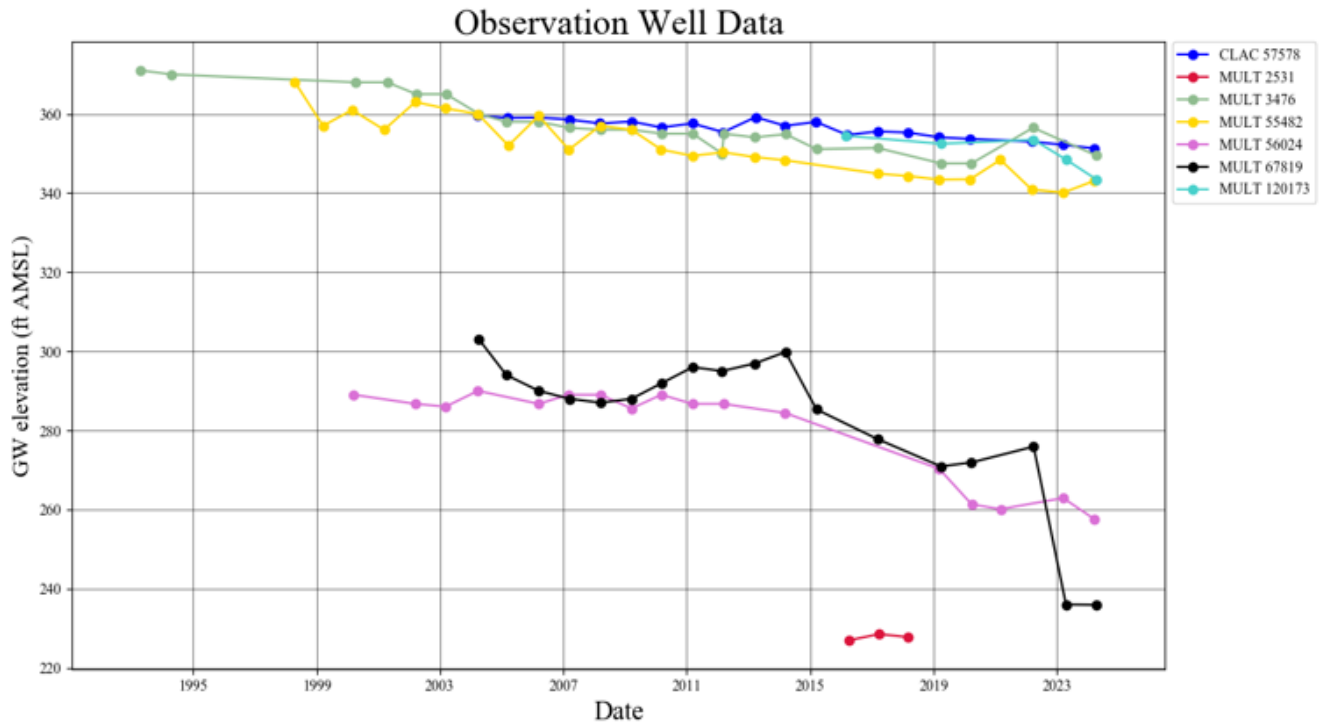
United States Geological Survey, 2014, National Hydrography Dataset (NHD), 1:24,000, U. S. Department of the Interior, Reston, VA.

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.

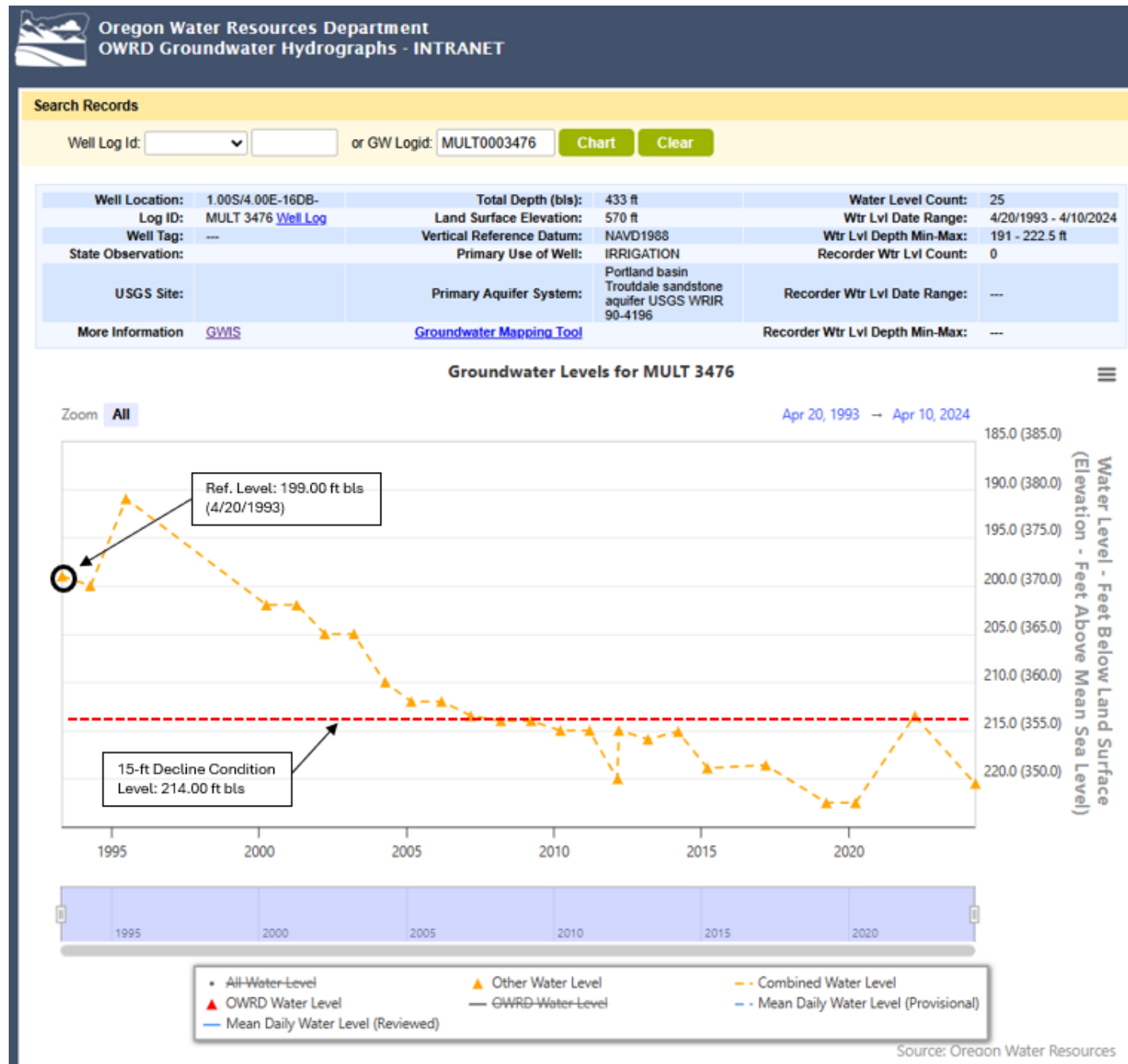


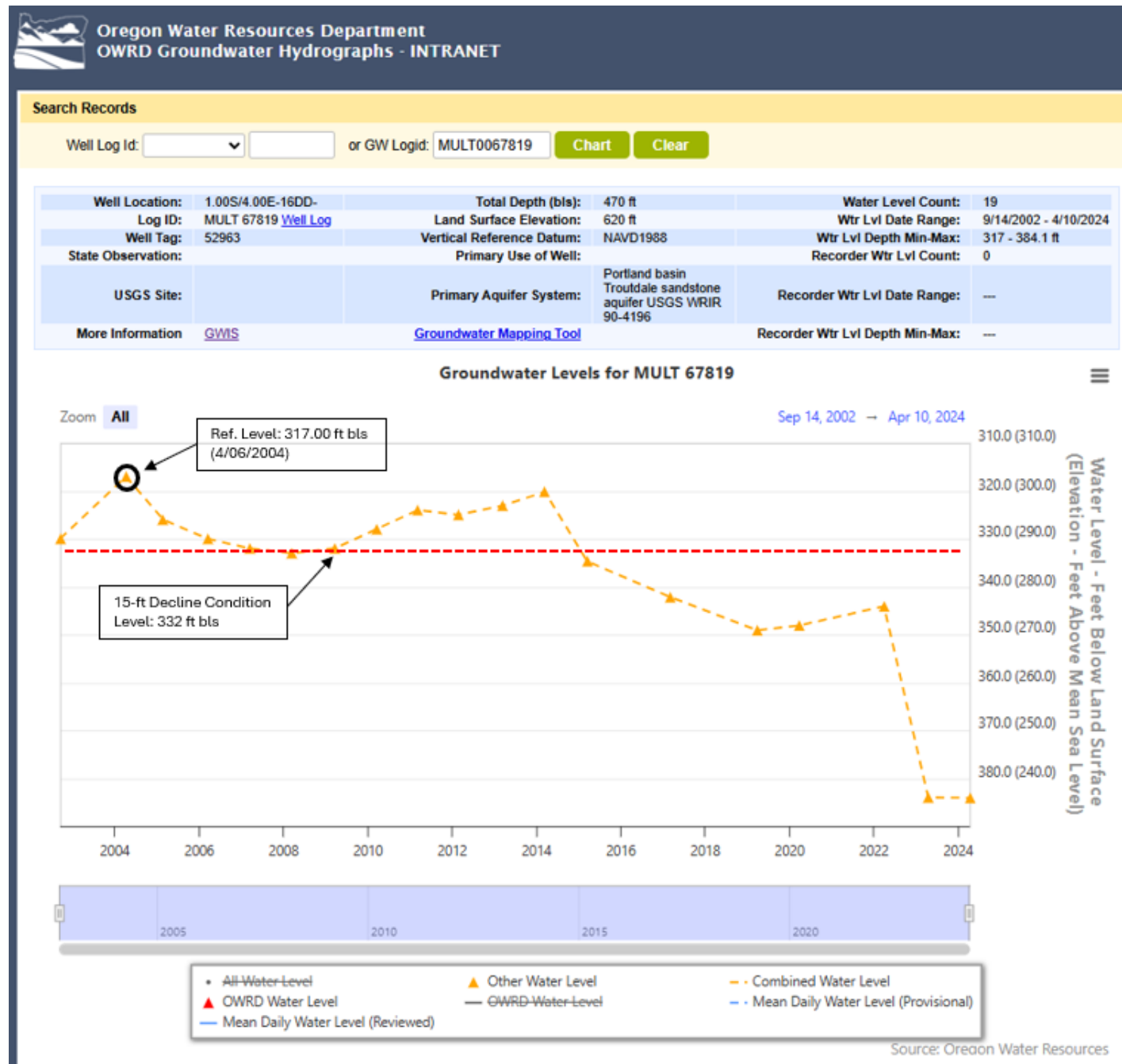
# **Application T-14523, Sester Farms, Inc.** **T1S, R4E, Sections 15 and 16**

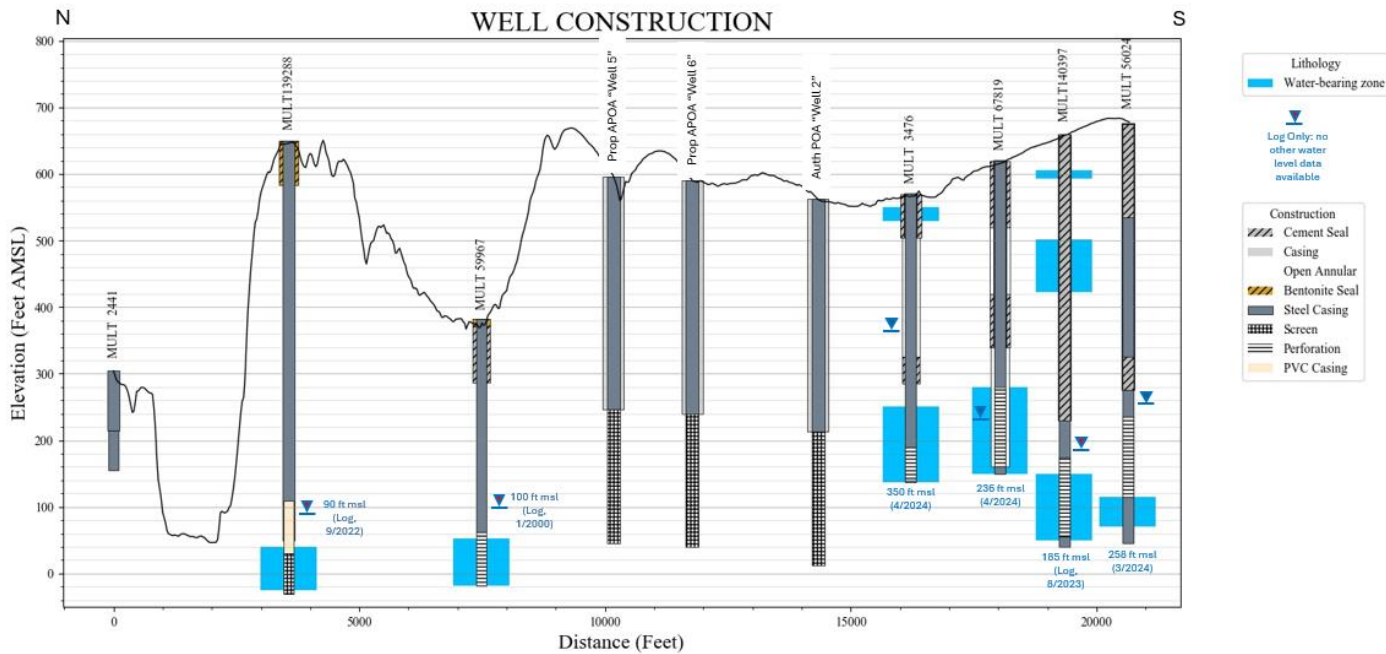


**Hydrograph – area wells**



**Hydrograph – Authorized POA MULT 3476 (“Well 1”)**

**Hydrograph – Authorized POA MULT 67819 (“Well 3”)**

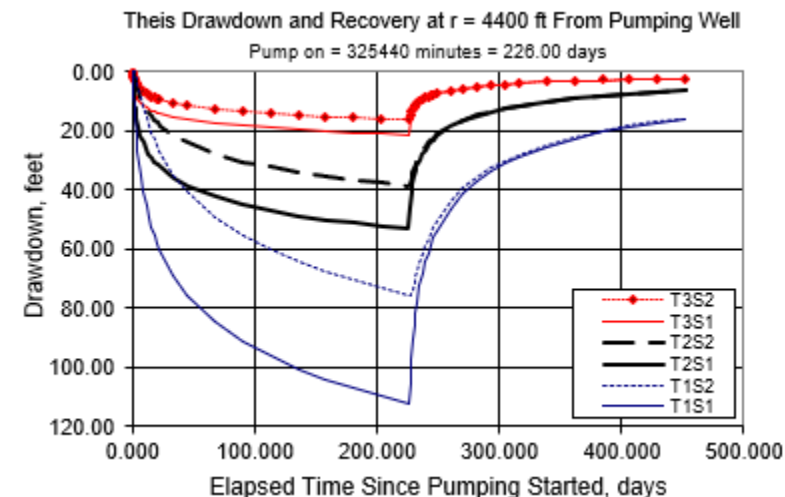
**Cross-section, relevant wells/POA locations (oriented roughly north-south)****Theis Drawdown Analysis – Authorized POA “Well 2” (TBD) to MULT 139288****Theis Time-Drawdown Worksheet** v.3.00

Calculates Theis nonequilibrium drawdown and recovery at any arbitrary radial distance,  $r$ , from a pumping well for 3 different 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		226		d	
Radial distance from pumped well:	r		4400.00		ft	<b>Q conversions</b>
Pumping rate	Q		1.670		cfs	749.50 gpm
Hydraulic conductivity	K	10.000	25.000	75.000	ft/day	1.67 cfs
Aquifer thickness	b		50		ft	100.20 cfm
Storativity	S_1		0.00010			144,288.00 cfd
	S_2		0.00050			3.31 af/d
Transmissivity Conversions	T_ft2pd	500	1,250	3,750	ft2/day	
	T_ft2pm	0.3472	0.8681	2.6042	ft2/min	
	T_gpdpt	3,740	9,350	28,050	gpd/ft	

**Recalculate** Use the Recalculate button if recalculation is set to manual



**Theis Drawdown Analysis – Proposed APOA “Well 5” (TBD) to MULT 139288****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 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		226		d	
Radial distance from pumped well:	r		2000.00		ft	Q conversions
Pumping rate	Q		1.670		cfs	749.50 gpm
Hydraulic conductivity	K	10.000	25.000	75.000	ft/day	1.67 cfs
Aquifer thickness	b		50		ft	100.20 cfm
Storativity	S_1		0.00010			144,288.00 cfd
	S_2		0.00050			3.31 af/d
Transmissivity Conversions	T_ft2pd	500	1,250	3,750	ft2/day	
	T_ft2pm	0.3472	0.8681	2.6042	ft2/min	
	T_gpdpt	3,740	9,350	28,050	gpd/ft	

**Recalculate**

Use the Recalculate button if recalculation is set to manual

