Groundwater Transfer Review Summary Form

Transfer/PA # T- _13752_

GW Reviewer _Mitra Khadka/Travis Brown_ Date Review Completed: _11/20/2023_

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-13752 Applicant Name: Mark A. McKay

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

Reviewer(s): Mitra Khadka/Travis Brown Date of Review: 11/20/2023

Date Returned to WRSD: 11/20/2023

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: Applicant proposes to change an authorized From-POA (MARI 2803*) to a proposed To-POA (MARI 2799) for irrigation of 18.4 acres (maximum annual volume of 46 acre-feet per year) under **Certificate 51040** (Permit – G 6905). **Certificate 51040** authorizes irrigation of 74.3 acres total at a maximum rate of 0.93 cfs. The proportional rate of withdrawal from the proposed To-POA (MARI 2799) would be 0.23 cfs based on the acreage to be irrigated by the proposed To-POA. The remaining 55.9 acres of POU on **Certificate 51040** would be irrigated by the authorized From-POA (MARI 2803) at a maximum rate of 0.7 cfs. The proposed To-POA (MARI 2799) is currently authorized for irrigation of 224.3 acres and supplemental irrigation of 43.7 acres at a maximum rate of 1.26 cfs under **Certificate 76237**. Therefore, a combined total rate of 1.49 cfs from MARI 2799 is used for this review process.

   *Table 1 in application form and attached application map have well-log ID labeled as MARI 2800 for applicant's authorized From-POA. However, the provided well-log report has it MARI 2803 and it is an only authorized POA under **Certificate 51040**. So, I assume MARI 2803 to be an actual authorized From-POA.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
☒ Yes ☐ No Comments: Both the authorized From-POA (MARI 2803) and the proposed To-POA (MARI 2799) produce groundwater from sand and gravel deposits of the Willamette Aquifer. In this area, the aquifer is about 50 to 60 ft thick and is overlain by 100 to 120 ft thick low-permeability silt and clay layers of the Willamette Silt Unit (Conlon et al., 2005; Gannett and Caldwell, 1998).

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.): NA

4. 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: **Claim: GR 1283** (priority date 04/30/1954) is the nearest groundwater right holder, located ~1,720 ft northeast of the proposed To-POA (MARI 2799). MARI 2796 appears to be an authorized POA under **Claim: GR 1283.** MARI 2796 is ~1,790 ft northwest of the authorized From-POA (MARI 2803). A decrease in intervening distance will likely result in an increase in interference with the neighboring well MARI 2796.

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: MARI 2796 under **Claim: GR 1283** is senior to the subject right (**Certificate 51040)** and fully penetrates the Willamette Aquifer. Interference with MARI 2796 was quantitatively estimated using a Theis (1935) time-drawdown model for a confined aquifer. Hydraulic parameters used for the analysis were derived from regional data and studies (Pumping Test Reports; Conlon et al., 2005; Gannett and Caldwell, 1998). The analysis shows that the proposed To-POA (MARI 2799) will result in a maximum 40 ft drawdown in MARI 2796 after pumping throughout the irrigation season at the maximum combined rate of 1.49 cfs under the proposed change and Certificate 76237 (see attached Well Interference Analysis). Based on the aquifer bottom ~180 ft bls and SWL 13 ft bls (measured in nearby well MARI 3794 on 3/10/2023), available water column in MARI 2796 is estimated to be ~167 ft. Given the estimated available water column, it is anticipated that the proposed To-POA will not cause any injury to the neighboring groundwater right.

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: The nearest surface water source to the authorized From-POA (MARI 2803) and the proposed To-POA (MARI 2799) is Patterson Creek. The proposed To-POA is farther (~4,050 ft to the northwest) than the authorized From-POA (~3,330 ft to the northwest) from the Patterson Creek. An increase in distance will likely result in a decrease in interference with this surface water source.

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?

Provide context for minimal/significant impact: NA

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: NA
7. What conditions or other changes in the application are necessary to address any potential issues identified above: NA
8. Any additional comments:

References:

Application File: T-13752

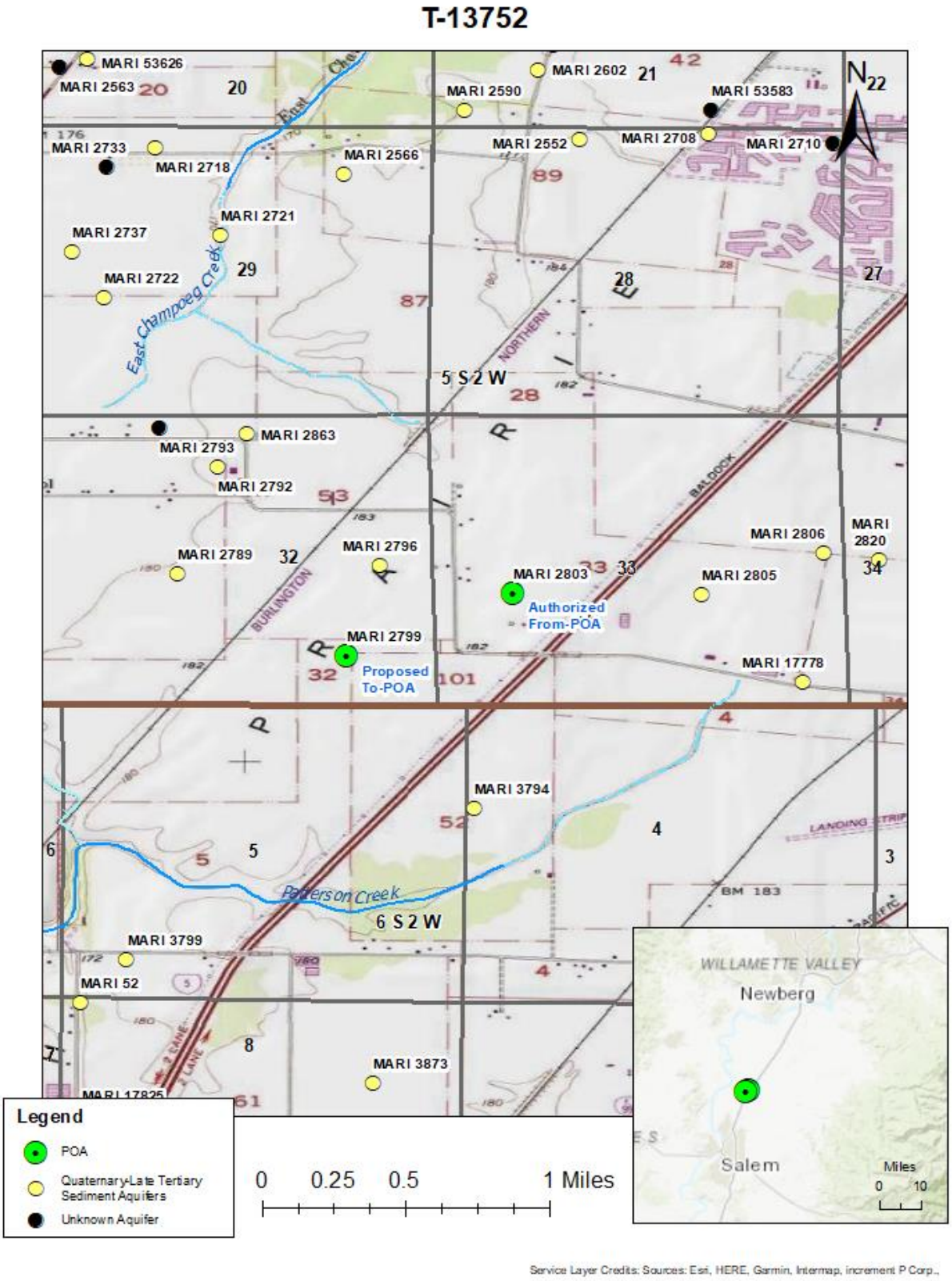
Conlon T.D., Wozniak, K.C., Woodcock, D., Herrera, N.B., Fisher, B.J., Morgan, D.S., Lee, K.K., and Hinkle, S.R., 2005, Ground-Water Hydrology of the Willamette Basin, Oregon: U.S. Geological Survey Scientific Investigations Report 2005–5168, 83 p.

Gannett, M.W. and Caldwell, R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington, Professional Paper 1424-A, 32 p: U. S. Geological Survey, Reston, VA.

Pumping Test Reports: MARI 2718, MARI 2753, MARI 2769, MARI 2789, MARI 3846.

Well-log Report: MARI 2803 and MARI 2799, MARI 2796.

Location Map



Well Interference Analysis

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		**245**		d	
Radial distance from pumped well:	r		**1720**		ft	**Q conversions**
Pumping rate	Q		**1.49**		cfs	668.71 gpm
Hydraulic conductivity	K	**36**	**100**	**160**	ft/day	1.49 cfs
Aquifer thickness	b		**50**		ft	89.40 cfm
Storativity	S_1		**0.003**			128,736.00 cfd
	S_2		**0.0003**			2.96 af/d
Transmissivity Conversions	T_f2pd	1800	5000	8000	ft2/day	
	T_ft2pm	1.25	3.47222222	5.55555556	ft2/min	Recalculate
	T_gpdpft	13464	37400	59840	gpd/ft