

# Groundwater Transfer Review Summary Form

Transfer/PA # T- 13839

GW Reviewer J. Hackett Date Review Completed: April 5, 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 does not 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-13839 Re-Review

Applicant Name: John & Janna Vanden Brink

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

Reviewer(s): J. Hackett

Date of Review: April 5, 2023

Date Reviewed by GW Mgr. and Returned to WRSD: JTI 5/15/23

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 application proposes changes to water right certificates 48296 and 89128. Specifically, the application proposes a change in POA to certificate 48296 and proposes adding a POA to certificate 89128.

**Note: Previous review of this application found several well construction deficiencies with authorized and proposed POAs. Applicant proposes sealing the authorized POA on certificate 89128 (MORR 51114) to 205 feet below land surface (bls) to eliminate commingling in the well. This re-review evaluates that proposal in addition to proposed changes addressed in the previous review.**

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?  
 Yes     No    Comments: Certificate 48296: The authorized POA under certificate 48296 is MORR 1735 (MORR 38 alteration log, MORR 37 deepening log). MORR 1735 is 1140 feet deep and produces from multiple water-bearing zones (WBZs) in the Grande Ronde Basalt Formation of the Columbia River Basalt Group (CRBG).

Certificate 89128: The authorized POA under certificate 89128 is MORR 51114. MORR 51114 is 460 feet deep and produces from multiple WBZs in the Grande Ronde Formation of the CRBG.

The proposed POA/APOA on both certificates is MORR 52027. MORR 52027 is 1393 feet deep and also produces from multiple WBZs in the Grande Ronde Formation of the CRBG.

While all three wells produce from various WBZs in the CRBG aquifer system, several of these WBZs were naturally isolated before well construction practices connected them. A discussion of aquifer determination is presented below in item 3a.

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

Yes     No The Grande Ronde Basalt Formation of the CRBG is locally several thousand feet thick and consists of more than 100 individual basalt flows. Within the CRBG, most water occurs in confined aquifers that occupy thin rubble zones (interflow zones) at the contacts between lava flows. The interiors of the basalt flows generally have low porosity and permeability and act as confining beds. This geometry generally produces a stack of thin aquifers (interflow zones) separated by thick confining beds (flow interiors). The low permeability of the basalt flow interiors probably limits the natural vertical connection between overlying aquifers. When naturally isolated aquifers are connected through well construction practices, water flows out of the higher pressure aquifer into the lower pressure aquifer. The result is equivalent to continuously pumping a well in the higher pressure aquifer.

Evidence suggests there are at least two primary aquifers present locally in the Grande Ronde Formation. A third, low-yielding aquifer is also present in MORR 51114. The primary aquifers are referred to as the “upper” and “lower” aquifers in this review. Evidence of these aquifers was provided in a 2016 borehole flowmeter log survey of MORR 52027 conducted by OWRD Groundwater Section staff. During that survey staff found cross-borehole flow in MORR 52027. Specifically, water entered the well from the lower aquifer (1225-1393 feet bls) and exited through the upper aquifer (670-800 feet bls). Cross-borehole flow (up or down) indicates the well is open to multiple aquifers with separate hydraulic heads. Subsequent to the flowmeter log, the well was reconstructed to seal off the upper aquifer (see alteration log MORR 52439). Prior to reconstruction the static water level (swl) in MORR 52027 was approximately 600 feet bls (1175 feet amsl); after the upper aquifer was sealed off, the swl rose to 500 feet bls (1275 feet amsl).

The presence of multiple WBZs with different water levels (hydraulic heads) on driller’s log for MORR 51114 indicates that it commingles aquifers. The water level in the WBZ found from 90 to 95 feet below land surface (low-yield aquifer) was 31 feet, while the water level in the lower two WBZs found from 210 to 250 and 430 to 450 feet below land surface was 173 feet (both lower WBZs are likely part of the local upper aquifer). The higher head in the low-yield aquifer indicates water cascades from the low-yield aquifer to the upper aquifer. As currently constructed MORR 51114 does not meet current well construction standards. This well can eliminate commingling if it is cased and sealed from land surface to a depth of 205 feet.

**Applicant proposes sealing MORR 51114 to 205’ bls to eliminate commingling of multiple aquifers and bring the well in compliance with current well construction standards. This proposal will bring the well into compliance and eliminate commingling. After the work is completed, MORR 51114 will be open to a single aquifer, locally known as the upper aquifer.**

Although multiple WBZs with different hydraulic heads were not noted on the driller’s log, MORR 1735 likely commingles multiples aquifers also. Prior to reconstruction of MORR 52027, swl elevations and trends in all three wells were very similar (see attached hydrograph). Similar water level heads and trends suggests the wells are open to several of the same WBZs and produce (at least partially) from the same aquifer(s). After the upper aquifer was sealed off in MORR 52027, the water level in the well rose about 100 feet. Water levels in MORR 1735 and MORR 51114 did not rise and actually continue to decline. It is likely that MORR 1735 is still open to both primary aquifers, and water is moving through the borehole similarly to MORR 52027 before it was reconstructed. It is also likely MORR 1735 is acting as a conduit connecting lower aquifer water to MORR 51114 (see attached well construction and lithology diagram).

Summary: 1). If MORR 51114 (authorized POA on certificate 89128) is sealed to 205’ as proposed, it will produce from a single aquifer, the upper primary aquifer; 2) MORR 1735 (authorized POA on certificate 48296) is open to both the upper and lower primary aquifers; and 3) MORR 52027 is open to only the lower primary aquifer. The proposed POA on certificate 89128 (MORR 52027) does not produce from the same aquifer as the authorized POA (MORR 51114). The proposed POA on certificate 48296 (MORR 52027) produces partially from the same aquifer as the authorized POA (MORR 1735).

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.): It is difficult to quantify the portion of each water right supplied by the upper and lower aquifers. The borehole flowmeter log identified a flow rate of 3 gpm from the lower aquifer to the upper aquifer in MORR 52027. The survey was done under non-pumping conditions, and results are likely to vary if completed during pumping. Results will also vary from well to well.

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: \_\_\_\_\_

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: \_\_\_\_\_

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: \_\_\_\_\_

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: \_\_\_\_\_

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: \_\_\_\_\_

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

- 1) Previous Review: MORR 51114 does not produce from the same source as MORR 52027. MORR 52027 produces from the lower primary aquifer, while MORR 51114 produces from the upper primary aquifer. As a result, this portion of the transfer application (certificate 89128) should not be approved.

**Current Review: Proposal to seal MORR 51114 to 205' bls will eliminate commingling but will not result in the well producing from the same source as proposed POA MORR 52027. Conclusion from previous review does not change. This portion of the transfer application (certificate 89128) should not be approved.**

- 2) Previous Review: MORR 51114 needs to be reconstructed to meet current well construction standards. As currently constructed, the well is open to at least two aquifers with distinct hydraulic heads. To meet well construction standards the well must be continuously cased and sealed from land surface to a depth of 205 feet.

Note: MORR 51114 is also an authorized POA on permit G-17360. A condition listed on the permit requires the well to be cased and sealed to a depth of 205 feet. If MORR 51114 is not reconstructed, a water right certificate will not likely be issued.

**Current Review: If sealed as proposed, MORR 51114 will no longer commingle aquifers and will be in compliance with current well construction standards.**

**Note: MORR 51114 is also an authorized POA on permit G-17360. A condition listed on the permit requires the well to be cased and sealed to a depth of 205 feet. If MORR 51114 is not reconstructed, a water right certificate will not likely be issued.**

- 3) Previous Review: MORR 1735 is open to both the upper and lower primary aquifers. In order to produce from the same source as the proposed APOA, the well should seal off the upper primary aquifer. This will require MORR 1735 be cased and sealed to a minimum depth of 510 feet blsd.

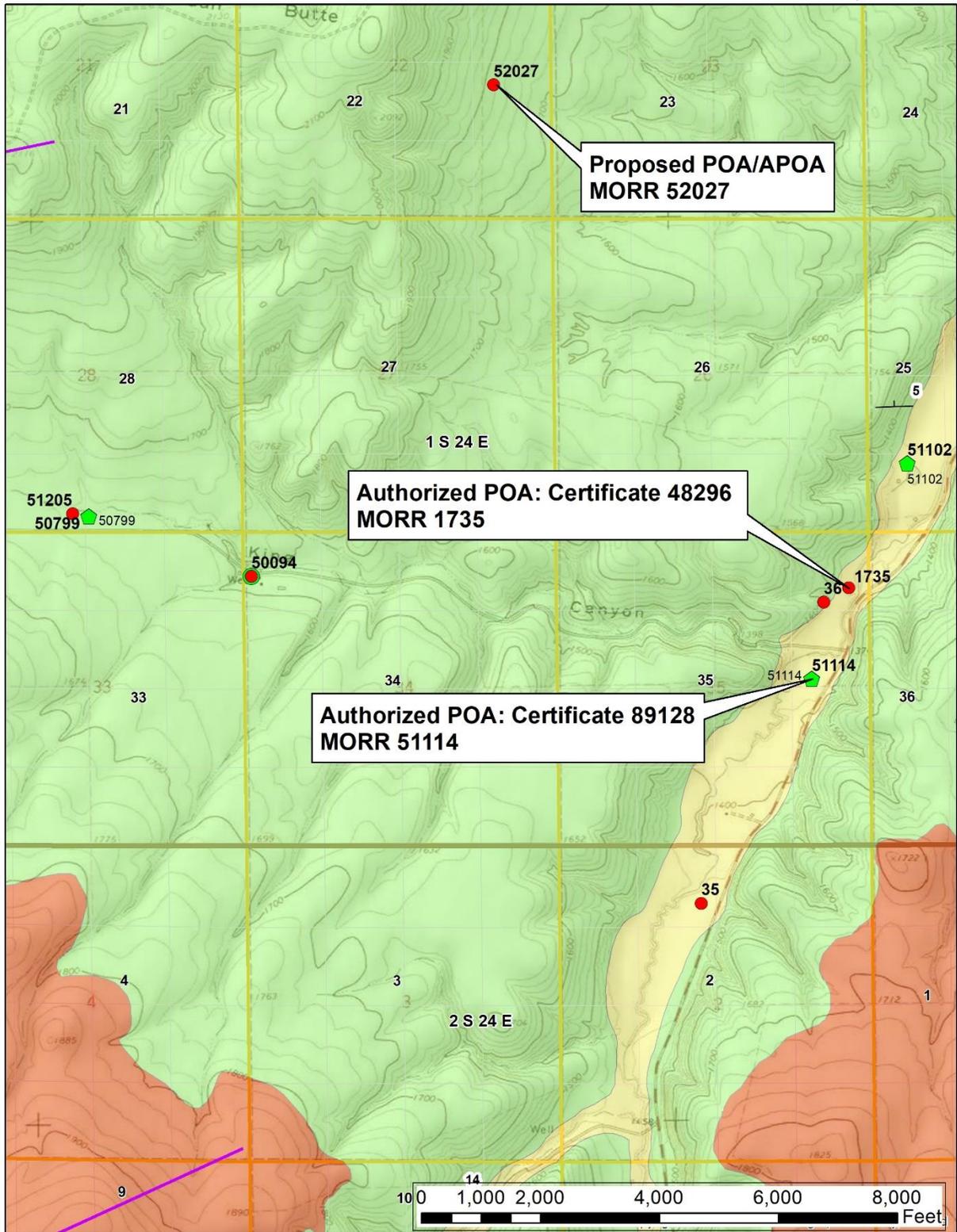
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8. Any additional comments: \_\_\_\_\_

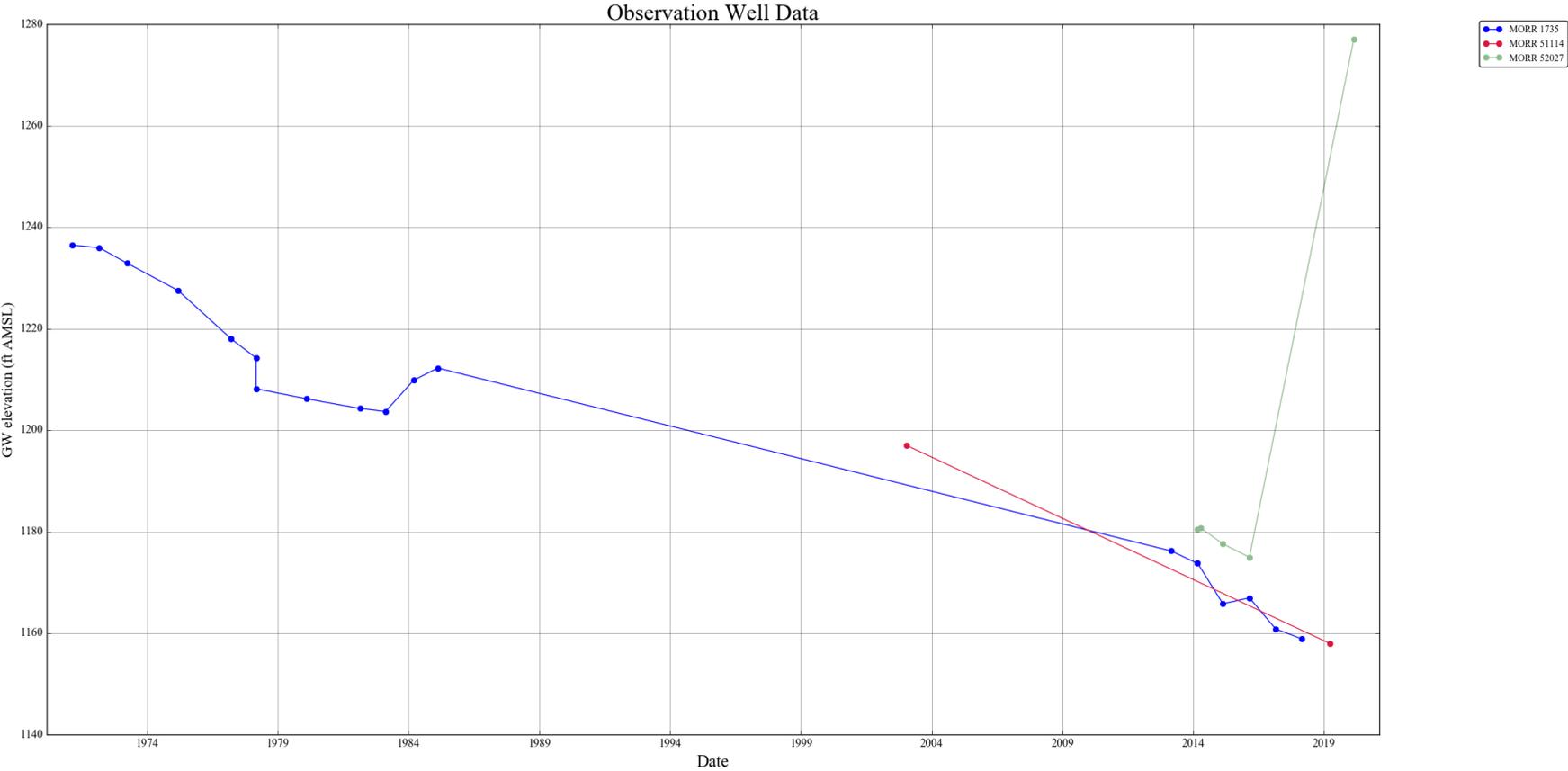
Well Location Map

T-13839, Vanden Brink

1:24,000 scale



# Water Levels in Applicant's Wells





## Well Information Table

Well Logid	Owner Well	Land Surface Elevation (feet above mean sea level)	Open Borehole Elevations (feet above mean sea level)	Water-bearing zones elevations in open borehole (feet above mean sea level)
MORR 1735	Authorized POA Certificate 48296	1360	1341-220	1214-1165, 1086-1065, 1018-1011, 865-855, 630-610, 525-485, 442-425, 290-240
MORR 51114	Authorized POA Certificate 89128	1370	1344-910	1280-1275, 1160-1120, 940-920
MORR 52027	Proposed POA/APOA	1780	960-387	910-895, 855-830, 523-510, 495-483