

## Groundwater Transfer Review Summary Form

Transfer/PA # T- 12919 (RA)

GW Reviewer DENNIS ORLOWSKI

Date Review Completed: 6/27/2018

### Summary of Enlargement (Same Source) Review:

The proposed transfer fails to keep the original place of use from receiving water from the same source.

### 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.

### Summary of Well Construction Assessment:

The proposed POA does not have a well log.

The proposed POA does not appear to meet current well construction standards. Route through Well Construction and Compliance Section.

*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-12919

Applicant Name: John Bierly

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

Reviewer(s): Dennis Orłowski

Date of Review: 6/27/2018

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 \_\_\_\_\_

1. Basic description of the changes proposed in this transfer: This proposed GR modification pertains to **GR-2954**, which is for irrigation of 75.8 acres (Mar 1-Oct 31) using a single authorized POA, WASH 12375. WASH 12375 is not associated with any other non-exempt water rights.

This application proposes the following changes to GR-2954:

- Change in POU
- Change in POA (a proposed well yet to be drilled).

**NOTE:** the locations of the POU, authorized POA, and proposed POA are all within the Cooper Mountain-Bull Mountain Critical Groundwater Area (CGWA). Within this CGWA there are groundwater use restrictions and other considerations that may be pertinent to this application, discussed in later sections of this review.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?  
 Yes     No    Comments: The authorized POA, WASH 12375, and the vast majority of wells within the CGWA all obtain groundwater from the Columbia River Basalt Group (CRBG) aquifer system. The target depth for the proposed POA is 400 feet and will thus also obtain groundwater from the CRBG aquifer system.

The order establishing the CGWA (Special Order Volume 24, pp. 370-412, dated May 17, 1974) stipulates that "...all water contained in the ground water reservoir composed of the basalt aquifers within the critical area..." is to be managed as a single groundwater source.

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.): \_\_\_\_\_

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: Compared to the authorized POA location (WASH 12735), the proposed POA location is nearer to multiple existing groundwater users. The nearest of these appear to be wells associated with the following groundwater irrigation rights originally included ("grandfathered") with establishment of the CGWA in 1974:

- Certificate 73414/application G-2641 (WASH 4308)
- Certificate 79625/application G-3794 (well log id unknown)
- Certificate 79626/application G-2641 (well log id unknown)

The authorized POA locations for these groundwater rights are ~1500-1800 feet due west of the proposed POA location. There are also several domestic wells ~1700-2400 feet south of the proposed location. Pumping from the proposed POA location at the maximum allowed rate of use will likely result in increased interference of these other groundwater rights.

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: The CRBG aquifer system in this area is generally strongly confined with low storativity. With these aquifer conditions a pumping cone of depression is typically laterally extensive but vertically shallow. For instance, assuming a transmissivity of 20,000 ft<sup>2</sup>/day, storativity of 0.0001, and a maximum pro-rated pumping rate of 180 gpm (24/7 through irrigation season), the estimated interference drawdown in another well 1500 feet away is likely only 1-2 feet. Therefore, it is unlikely that pumping the maximum allowed rate of use from the proposed POA location will adversely impact other nearby groundwater rights.

Furthermore, extensive municipal ASR activity in the CGWA over the past 18-20 years has led to increases in aquifer heads, in some instances causing flowing artesian conditions in some domestic wells which required wellhead modifications. Aquifer recharge due to ASR injection is evident from generally-increasing groundwater levels beginning around 2000-2001 (see attached hydrographs). Because groundwater levels in nearby wells are now typically about 20-60 ft bgs, with well depths on the order of 200-500 ft, there appears to be sufficient available drawdown in these wells to mitigate potential interference from this proposed change.

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 low vertical permeability typical of Columbia River Basalt flows is likely to preclude any effective hydraulic connection between local streams and production water-bearing zones in the basalt aquifer system.

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

- **Existing authorized POA (WASH 12375): 7N, Annual Measurements, Medium Water-Use Reporting requirements.**

This application is requesting a new POA, and not an APOA, for GR-2954. Therefore, if this transfer is approved, pumping of WASH 12375 for irrigation use will no longer be permissible under the provisions of the Cooper Mountain-Bull Mountain CGWA order.

However, within the CGWA new exempt uses of groundwater obtained from the basalt aquifer are permissible if the well is associated with a parcel of 10 acres or more. Thus, because WASH 12375 is located on a parcel greater than 10 acres (tax lot 2S2010000100, approximately 56 acres), continued use of WASH 12375 would be permissible, but for only exempt uses, for instance, domestic use for the residence located on the parcel.

To ensure that potential continued use of WASH 12375 complies with these CGWA restrictions, the 7N (annual measurements) and medium water-use reporting conditions for that well are recommended as transfer conditions.

- **Proposed POA: 7I, Willamette Basin Basalt Groundwater Condition**

Condition 7I (Willamette Basin basalt groundwater condition) is recommended for use of the proposed POA.

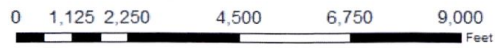
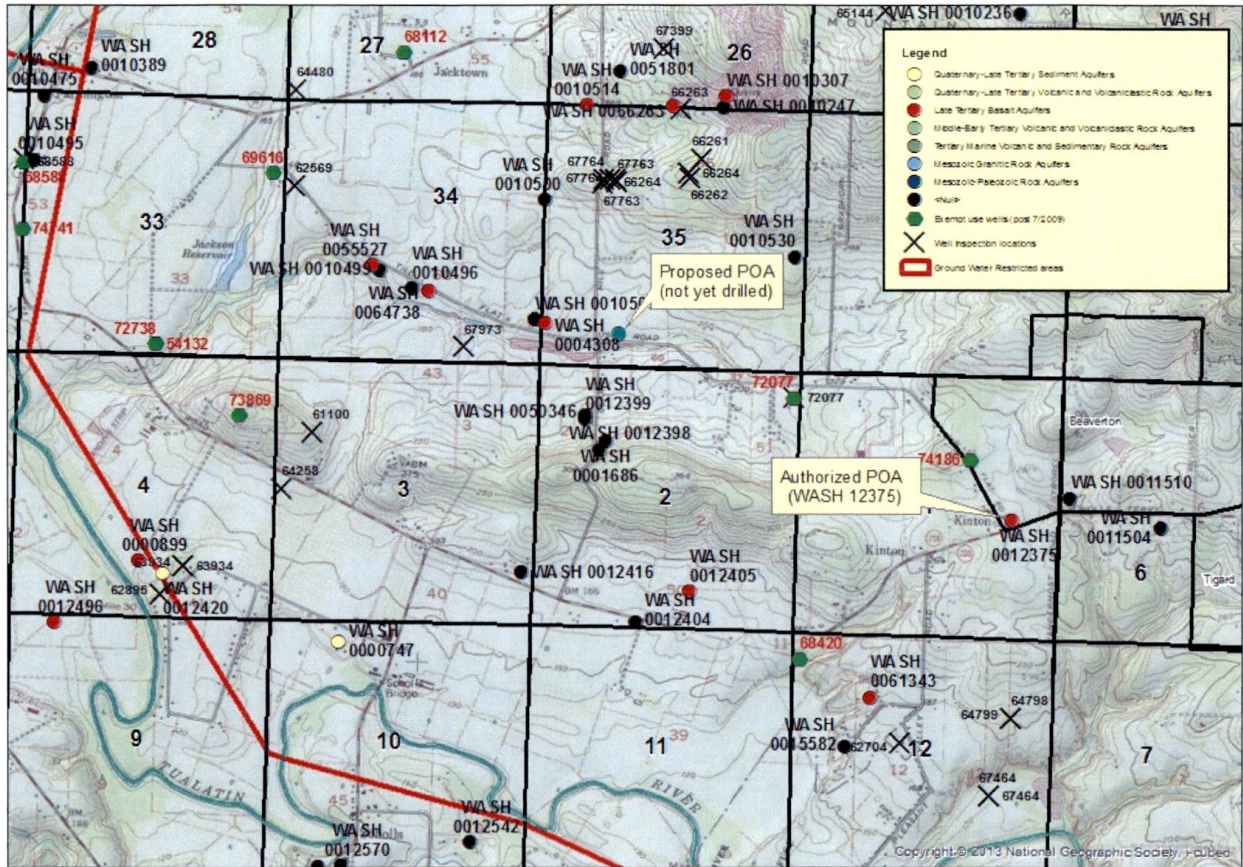
- **Proposed POA: Special wellhead completion requirement (OAR 690-210-0155)**

ASR injection activities in this CGWA have caused flowing artesian conditions in several domestic wells which required retroactive wellhead modifications to those wells. Although flowing artesian conditions might not currently exist at the proposed POA location, such conditions could arise in the future. Consequently, it is recommended that the new well and wellhead be constructed to accommodate flowing artesian conditions as detailed in OAR 690-210-0155.

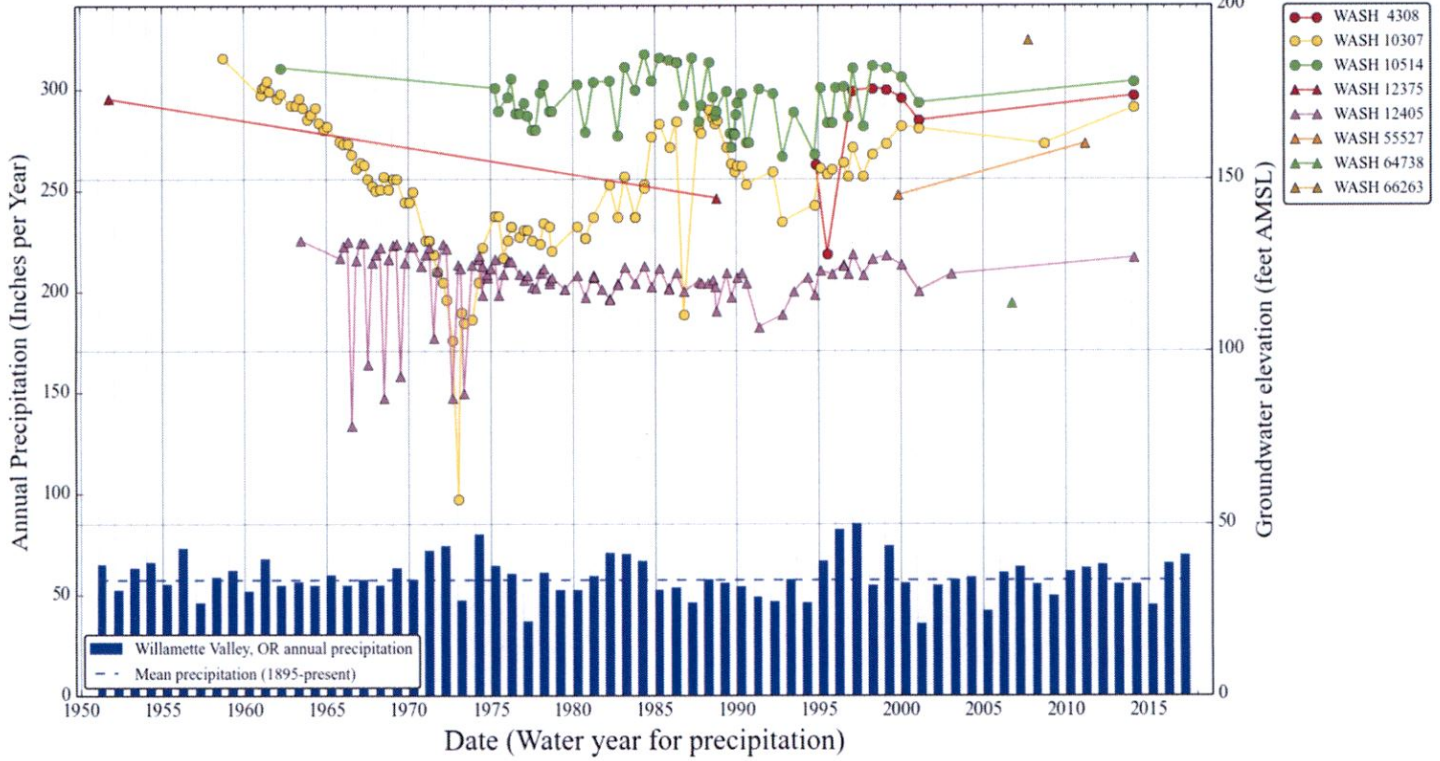
7. Any additional comments:

Groundwater right transfers are not addressed in the order establishing the Cooper Mountain-Bull Mountain CGWA. However, several transfers have been approved for the CGWA, including T-10990, T-8768, and T-11898.

T-12919 Bierly (GR Modification)



### Observation Well Data



### Observation Well Data

