

Groundwater Transfer Review Summary Form

Transfer/PA # T- 13434

GW Reviewer Darrick E. Boschmann Date Review Completed: 06/15/2020

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-13434

Applicant Name: Big Hill LLC

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

Reviewer(s): Darrick E. Boschmann

Date of Review: 06/15/2020

Date Reviewed by GW Mgr. and Returned to WRSD: JTI 6/24/2020

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 permit amendment is related to permit G-16780, which authorizes groundwater pumping from one well (POD 1 = not drilled**) for primary irrigation of 160.0 acres in the Virginia Valley portion of the Malheur administrative basin, which is part of the Harney hydrographic basin. The following changes are sought:

1. Add 1 APOA (HARN 52480*).

2. Change the authorized POD to HARN 51566***

*Note that water use has been reported under this permit for unauthorized well HARN 52480 since 2011; and the OWRD Water Use Reporting program has incorrectly correlated HARN 52480 to authorized POD 1 under this permit.

**Note that the permit amendment application Table 1 lists 6" livestock well HARN 51566 as authorized POD 1 under this permit; however HARN 51566 was completed 5/1/2009, and was not listed as the proposed well on the 6/4/2009 water right application; but was used as an example for well construction for the undrilled proposed well. Therefore, HARN 51566 cannot be, and is not, the authorized well under this permit

***For the purposes of this review it is assumed the applicant proposes to change authorized POD 1 to HARN 51566 and add HARN 52480 as an APOA.

†Note: the metes and bounds provided on the application map for unauthorized well HARN 51566 are **exactly** the same metes and bounds provided on the original water right application for undrilled proposed POD 1 under permit G-16780. This reviewer finds the provided location unlikely to be accurate given that this well **was not** the proposed well under the water right application for permit G-16780. However, as no better location information is available for this well, the location provided is used. If it is found that the actual true location of HARN 51566 differs from that provided in this permit amendment application the findings of this review may no longer apply.

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?

☒ Yes ☐ No Comments: Available data indicates a predominantly volcanic/volcaniclastic unit occurs beneath a predominantly basin fill sediment unit. Reports for the Malheur Lake Basin indicate groundwater occurs in both the basin fill and underlying volcanic rocks. The groundwater is likely hydraulically connected, making a single groundwater system occurring in different geologic units. Leonard (1970) found that near the edges of the valley there is likely good interconnection between individual water-bearing beds in the valley fill and those in the adjacent and underlying tertiary rocks.

In general, groundwater in the Harney Basin flows from several upland recharge areas to a common discharge area near Malheur and Harney Lakes, with some apparent discharge to the Malheur Basin through one or more areas along the eastern margin. While the rocks and sediments making up the aquifer system in the Harney Basin do constitute a single groundwater flow system, sub-watersheds within the basin contribute recharge to different parts of the system depending on groundwater flow-paths from recharge to discharge areas. In general, within these sub-watersheds water within the aquifer system is sourced from a common recharge area, and can therefore be considered a single source.

Based on available geologic mapping and formation descriptions on the wells logs the proposed wells are likely developing groundwater from the Voltage Basalt and/or the underlying and adjacent older volcanic rocks. Given the very high yield reported for HARN 52480 it is more likely that these wells are producing from the Voltage Basalt.

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: _____

The proposed APOA HARN 52480 is located ~1,800 feet northeast of the currently authorized POD location. This will result in an incremental increase in interference with existing wells to the north and east.

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 proposed APOA HARN 52480 is located ~1,800 feet from POD 1 under certificate 94289 (HARN 50791) and ~1,700 feet from POD 2 under certificate 94289 (HARN 50792); this is ~1,800 and ~980 feet closer, respectively, than the distance to those wells from the currently authorized POD location.

The potential increase in drawdown for these two wells was calculated using the Theis equation (see attachments). The values used for the calculation are conservative and appropriate until better values become available. The calculation used an intermediate storage coefficient (0.001). The transmissivity used in the calculation (28,000 ft²/day) is the median value of T estimates available for the Voltage Basalt. At the pro-rated pumping rate of the full duty over the full irrigation season (0.99 cfs), the results show a total drawdown of ~2 feet at the closest well; which should be within the capacity of the nearby wells. Note that the actual *increase* in interference over that already authorized from POD 1 is calculated to be less than this.

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: There are no perennial surface water sources in the vicinity of the existing or proposed wells.

- 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

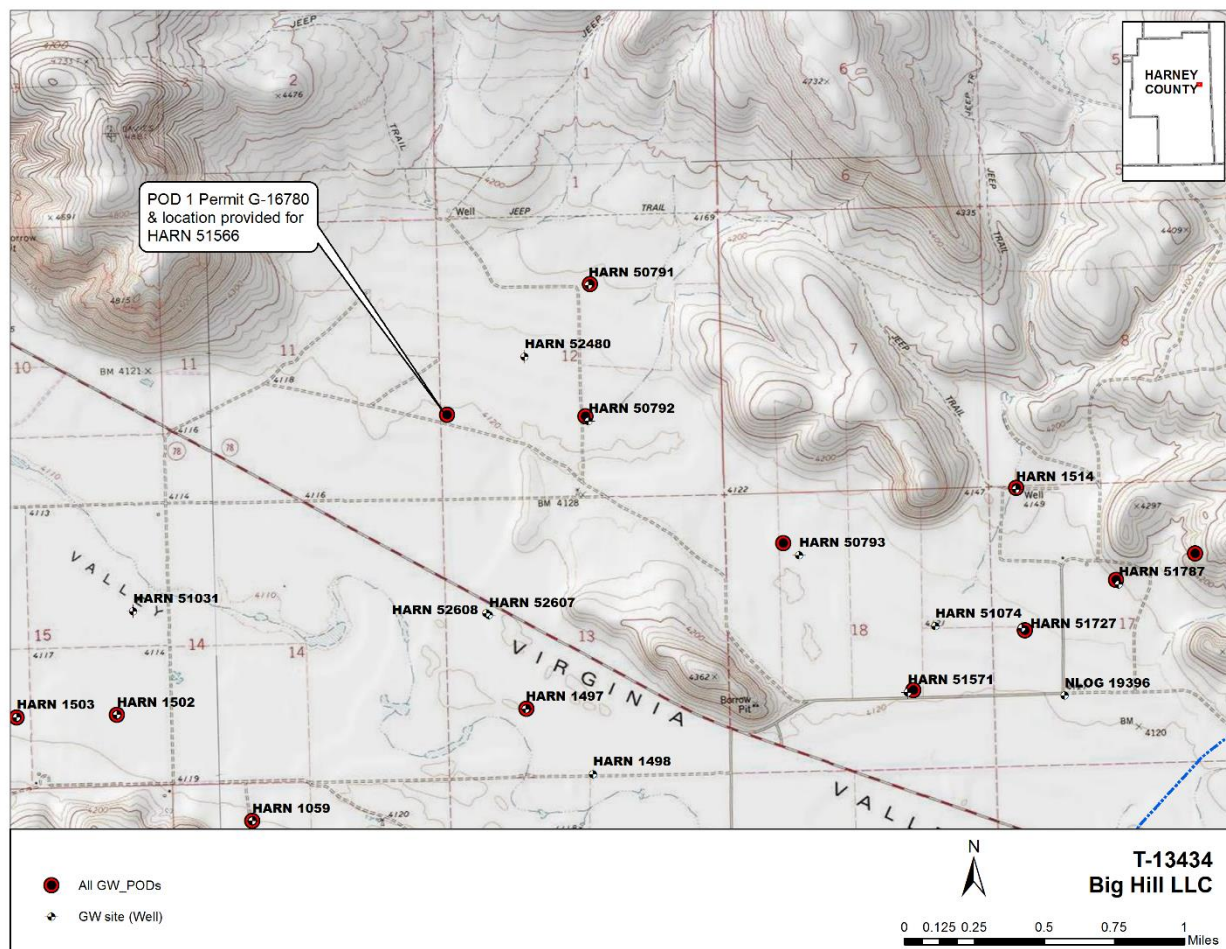
Provide context for minimal/significant impact: _____

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: none.

8. Any additional comments: See comments in section 1 above.



Theis Time-Drawdown Worksheet v3.00

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		245		d
Radial distance from pumped well:	r		1700.00		ft
Pumping rate	Q		1.0		cfs
Hydraulic conductivity	K	280	280	280	ft/day
Aquifer thickness	b		100		ft
Storativity	S_1		0.00100		
	S_2		0.00100		
Transmissivity Conversions	T ft ² /pd	28,000	28,000	28,000	ft ² /day
	T ft ² /pm	19.4444	19.4444	19.4444	ft ² /min
	T gpd/ft	209,440	209,440	209,440	gpd/ft

Recalculate Use the Recalculate button if recalculation is set to manual

