

Groundwater Transfer Review Summary Form

Transfer/PA # T- 13504

GW Reviewer J. Hackett Date Review Completed: September 21, 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-13504

Applicant Name: Port of Morrow

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

Reviewer(s): J. Hackett

Date of Review: September 21, 2020

Date Reviewed by GW Mgr. and Returned to WRSD: JTI 8/25/2020

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 application proposes adding two POAs to permit G-13765. Permit G-13765 currently authorizes MORR 50471 (Airport Well #1) and POA #2 (Not Drilled) for irrigation and municipal uses. T-13504 proposes replacing MORR 50471 with (Well #3/Not Drilled) and adding MORR 52462 (Well #5A).

Permit G-13765 includes the following condition: “***Under this permit, groundwater shall not be produced from the basalt source developed by Port of Morrow wells #1 and #4, identified in Department records as MORR 752 and MORR 1526.***”

Kennedy/Jenks Consultants addressed this condition in a 2005 hydrogeologic report for the Port of Morrow entitled “Hydrogeologic Evaluation of the Port of Morrow Well MORR 50471 (Airport Well)”. The report concluded that MORR 50471 produces from the same source as Port of Morrow wells #1 (MORR 752) and #4 (MORR 1526). Water-bearing zones in MORR 50471 were identified in 1) the base of Umatilla flow / top of Priest Rapids flow and 2) within interflow zones in the Frenchman Springs Member. Water-bearing zones occur in MORR 752 at the base of Priest Rapids flow / top of Frenchman Springs Member, and occur in MORR 1526 within interflow zones of the Frenchman Springs Member.

MORR 50471 was altered first in 1999 (alteration log MORR 50531) and again in 2009 (MORR 51712). Neither of these alterations had any effect on the source aquifer for the well. As a result, MORR 50471 still produces from the same source developed by Port of Morrow wells #1 (MORR 752) and #4 (MORR 1526).

2. Will the proposed POA develop the same aquifer (source) as the existing authorized POA?
 Yes No Comments: Permit G-13765 includes a condition that prohibits the authorized POAs from producing from the same aquifer as Port of Morrow (POM) wells #1 (MORR 752) and #4 (MORR 1526). POM wells #1 and #4 are open to water-bearing zones at the Umatilla / Priest Rapids interflow zone, the Priest Rapids / Frenchman Springs interflow zone, and other interflow zones within the Frenchman Springs Member. Frenchman Springs interflow zones in these wells are found in the upper 300' feet of the member and likely occur between flows of the Sentinel Gap Unit. To comply with the permit condition, the proposed POAs will have to produce from water-bearing zones below the Sentinel Gap interflow zones. These zones will likely occur between flows of the Sand Hollow Unit.

Proposed POA MORR 52462 (Well #5A) was drilled to a total depth of 1126 feet and is cased and sealed to 854 feet. The well is open to water-bearing zones that occur in interflow zones between flows of the Sand Hollow Unit from 976 to 1108 feet below land surface (bls).

Proposed construction information for Proposed POA Well #3 (Not Drilled) indicates the well will be drilled to a depth of 1125 feet and will be cased and sealed to 850 feet bls. The well will be open to water-bearing zones below a depth of 850 feet, and based on stratigraphic information from nearby well MORR 50471, will likely be required to produce from water-bearing zones below a depth of 950 feet to comply with the permit condition.

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: Proposed POA #5A/MORR 52462 is located approximately 7.5 miles east of the authorized POAs and about 1.5 miles west of wells in the Ordnance Deep Basalt Critical Groundwater Area (CGWA). While long-term water levels are not available for this well, it's most recent static water level elevation (March 2020) was coincident with wells in the Ordnance Deep Basalt CGWA and with POM Well #4 (MORR 1526) (see Figure 2). Although the water level in MORR 52462 is similar to nearby wells, it produces from a deep water-bearing zone not accessed by these other wells. Similar water levels suggests some hydraulic connection between shallower and deeper water-bearing zones, however, the efficiency is uncertain.
- 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: Based on a range of reasonable aquifer parameters, drawdown from MORR 52462 at a distance of 1.5 miles ranges from 2 to 12 feet after 365 days of pumping at the maximum permitted rate of 2226 gpm (see Figure 3). There are tens of feet of available head at nearby wells, indicating the increased interference will not prevent neighboring wells from accessing their water.

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 is limited hydraulic connection expected between the subject wells and nearby surface water. The fine-grained sediments and low-permeability CRBG flow interiors located between the water-bearing zones and surface water are expected to prevent efficient nearby hydraulic connection to surface water.
- 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: n/a Minimal Significant
- Stream: n/a 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: _____
8. Any additional comments: _____

Figure 2. Water Level elevations in nearby wells

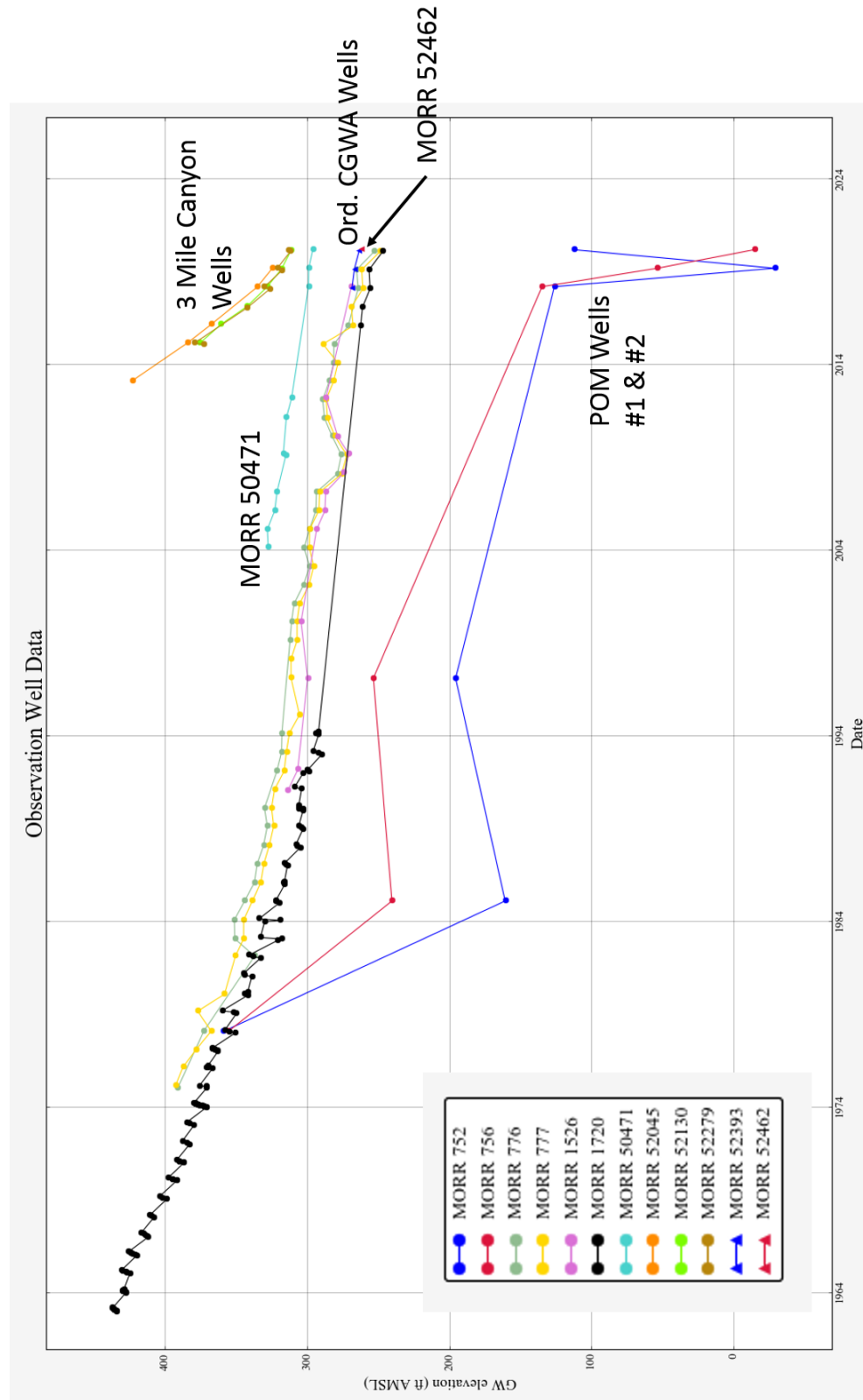
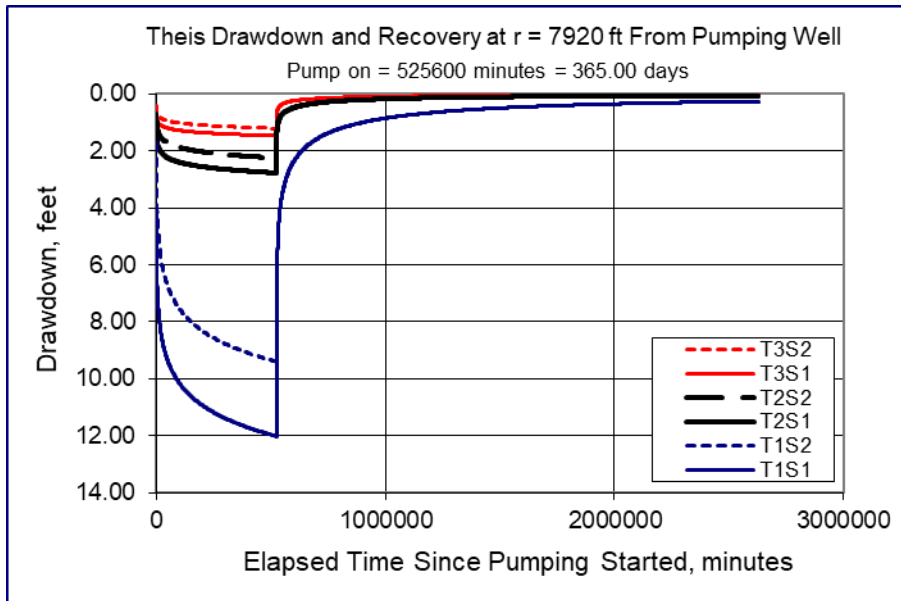


Figure 3. Distance drawdown estimates for the proposed change.



| Input Data: | Var Name | Scenario 1 | Scenario 2 | Scenario 3 | Units | |
|-----------------------------------|----------|------------|------------|------------|----------------------|----------------------|
| Total pumping time | t | | 365 | | d | |
| Radial distance from pumped well: | r | | 7920 | | ft | Q conversions |
| Pumping rate | Q | | 2226 | | gpm | 2,226.00 gpm |
| Hydraulic conductivity | K | 1000 | 5000 | 10000 | ft/day | 4.96 cfs |
| Aquifer thickness | b | | 30 | | ft | 297.59 cfm |
| Storativity | S_1 | | 0.00001 | | | 428,534.76 cfd |
| | S_2 | | 0.0001 | | | 9.84 af/d |
| Transmissivity Conversions | T_f2pd | 30000 | 150000 | 300000 | ft ² /day | Recalculate |
| | T_ft2pm | 20.8333333 | 104.166667 | 208.333333 | ft ² /min | |
| | T_gpdft | 224400 | 1122000 | 2244000 | gpd/ft | |