

**BEFORE THE WATER RESOURCES DEPARTMENT
OF THE STATE OF OREGON**

In the Matter of Aquifer Storage and Recovery)
(ASR) Limited License Application #019,)
Washington County

FINAL ORDER
APPROVING ASR TESTING

AUTHORITY

Oregon Revised Statute (ORS) 537.534 and Oregon Administrative Rule (OAR) 690-350-0020 establish the process by which an application for ASR testing under an ASR limited license may be submitted and approved. Oregon Administrative Rule (OAR) 690-350-0010 describes general provisions for ASR under Oregon law.

BACKGROUND

On January 20, 2011, the Department received application for ASR Limited License # 019 from the Joint Water Commission. The Department determined the application was incomplete on MARCH 4, 2011. The application was resubmitted on APRIL 4, 2011 and determined complete on MAY 18, 2011.

FINDINGS OF FACT

1. On April 4, 2011, the Joint Water Commission submitted a request for ASR Limited License #019. The Department determined it was complete on MAY 18, 2011.
2. The Department provided public notice of the application in the Department's weekly public notice on MAY 24, 2011. A 30-day comment period followed.
3. The Department received no adverse comments related to the possible issuance of an ASR limited license.
4. The Department sought comments and recommendations from Oregon Department of Environmental Quality and Oregon Health Authority Drinking Water Program related to the possible issuance. Comments were received from Oregon Department of Environmental Quality and Oregon Health Authority Drinking Water Program supporting the issuance of ASR LL #019.
5. The Department's Groundwater Section determined the testing and monitoring plan included with the application is not sufficient for ASR testing. The authorization of ASR LL #019 is conditioned to satisfactorily address issues raised in those comments.
6. The Department evaluated the application and comments and determined the proposed issuance is consistent with ORS 537.534 and OAR 690-350-0020.

APPEAL RIGHTS

This is an order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60-day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080, you may petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

CONCLUSIONS OF LAW

The request to issue ASR Limited License #019 for five years is consistent with the requirements of ORS 537.534 and OAR 690-350-0020.

ORDER

Now, THEREFORE, it is ORDERED, ASR Limited License #019 shall be valid through the fifth anniversary of issuance, pursuant to ORS 537.534 and OAR 690-350-0020(5).

Except as modified by other provisions of this limited license, the licensee is authorized to pursue the project schedule, monitoring, and other features noted in the ASR pilot test work plan dated January 2011. That plan may be amended and approved pursuant to condition (4)(A)(iii). The project schedule in the ASR test plan may be reasonably adjusted by the licensee to reflect the license issuance date or other delays. Features of that ASR testing plan are provided in the application document entitled:

Joint Water Commission Aquifer Storage and Recovery
Limited License Application and Pilot Test Work Plan
January 2011 and April 4, 2011 amendment
Prepared by GSI Water Solutions, Inc.

The features of ASR testing must provide data and analysis that address the following: the appropriate target storage volume; loss of stored ASR water and natural water by virtue of ASR activities; water quality changes due to ASR activities; well construction sufficiency for ASR purposes; water level response in the ASR wells, aquifer, springs and nearby wells; accounting of ASR inputs, withdrawals, and storage; water quality testing needs; and well hydraulics at the ASR wells.

The licensee may divert up to a total of 8,100 gallons per minute (gpm) from Sain Creek, the Tualatin River, Scoggins Creek and the Bull Run River, tributaries of Scoggins Creek, the Willamette River, the Tualatin River and the Sandy River, respectively. These diversions use authorization of Certificates 81026, 81027 from Sain Creek; Certificates 67891, 85913 and 85914 from the Tualatin River; Permit S-50879 from Scoggins Creek; and ORS 538.420 from the Bull Run River.

The points of diversion are located as follows: on Sain Creek at T1S, R5W, Section 14 SW 1/4 SW 1/4, on Scoggins Creek at T1S, R4W, Section 20 NE 1/4 NE 1/4, on the Tualatin River at T1S, R3W, Section 8 SW 1/4 SW 1/4, and T1S, R5W, Section 20 SE 1/4 SE 1/4, on the Bull Run River at T1S, R5E, Section 26 SE 1/4 SE 1/4.

The licensee may store up to 2.1 billion gallons (6,445 acre feet) in a basalt aquifer. With the authorization of individual ASR well test plans, up to 14 wells are potentially authorized. The maximum injection rate is 1,500 gpm at each well. The maximum recovery rate is 28,000 gpm of stored water through the same 14 wells, being up to 2,000 gpm at each well. The maximum storage duration is the five year duration of this limited license.

Proposed wells will be located as follows:

<i>Well Name</i>	<i>Well Location</i>
ASR A	1,390 feet North, 2,500 feet West from the SE corner of Section 18, T1S/R1W
ASR B	1,220 feet South, 885 feet East from the NW corner of Section 20, T1S/R1W
ASR C	1,870 feet North, 990 feet East from the SW corner of Section 30, T1S/R1W
ASR D	1,500 feet North, 705 feet East from the SW corner of Section 30, T1S/R1W
ASR E	1,530 feet North, 2,415 feet East from the SW corner of Section 30, T1S/R1W
ASR F	1,950 feet North, 790 feet West from the SE corner of Section 25, T1S/R2W
ASR G	2,265 feet South, 1,310 feet West from the NE corner of Section 25, T1S/R2W
ASR H	1,320 feet South, 1,770 feet West from the NE corner of Section 25, T1S/R2W
ASR I	850 feet North, 1,260 feet West from the SE corner of Section 25, T1S/R2W
ASR J	210 feet North, 2,380 feet West from the SE corner of Section 30, T1S/R1W
ASR K	80 feet South, 1,550 feet East from the NW corner of Section 32, T1S/R1W
ASR L	1,250 feet North, 1,295 feet West from the SE corner of Section 32, T1S/R1W
ASR M	400 feet South, 2,150 feet West from the NE corner of Section 28, T1S/R1W
ASR N	470 feet South, 1,060 feet East from the NW corner of Section 28, T1S/R1W

Other Conditions:

- 1) **License Renewal.** The limited license may be renewed if the licensee demonstrates to the Director's satisfaction that further testing is necessary and that the licensee complied with the terms of the limited license.
- 2) **Notice Prior to Injection and Recovery.** The licensee shall give notice, in writing, to the watermaster not less than 15 days in advance of either initiating any injection under the limited license or recovering stored water. The injection notice shall include the limited license number, the location of the injection source water diversion, the quantity of water to be diverted from that source, the time of injection, and the place of injection. The recovery notice shall include the limited license number, the location of the recovery well(s), the time of recovery, and the quantity of water to be recovered.
- 3) **Record of Use.** The licensee shall maintain a record of injection and recovery, including the total number of hours and times of injection and recovery, and the total metered quantity injected and recovered. The record of use may be reviewed by Department staff upon request.
- 4) **Modification/Revocation.** The Department shall notify the licensee in writing and allow the licensee to respond when considering the following actions:
 - (A) The Director may modify the ASR limited license for any of the following reasons:
 - (i) to reflect changes in Oregon Health Authority Drinking Water Program (OHA) and Oregon Department of Environmental Quality (DEQ) water quality or treatment standards;
 - (ii) to address needed technological changes as requested by DEQ or OHA to minimize constituents regulated under OAR 333-61-030 (ORS 448.131 and .273) or OAR 340-40 (ORS 468B.165);

(iii) upon written request from the applicant for minor adjustments to the authorization in the limited license.

(B) The Director may revoke, suspend or modify the ASR limited license for any of the following reasons:

(i) to prevent or mitigate injury to other water rights, instream water rights, minimum perennial streamflows or aquifer water quality;

(ii) to address any other unintended, injurious effects of the ASR activity; or

(iii) failure to maintain compliance with all conditions of this limited license.

(C) The Department may offer an additional public comment opportunity consistent with the notice and comment provisions of OAR 690-350-020 prior to modifying the limited license.

- 5) **Priority/Protection.** This limited license does not receive a priority date, and is not protected under ORS 540.045.
- 6) **Compliance with Other Laws.** The injection of acceptable water into the aquifer as well as its storage and recovery under this limited license shall comply with all applicable local, state or federal laws. This shall include, but not be limited to, compliance with the Oregon Department of Environmental Quality's Underground Injection Control registration program as authorized under the Safe Drinking Water Act (40 CFR 144.26). Also, all pilot test discharges to waterways must be covered by a DEQ National Pollution Discharge Elimination System (NPDES) permit.
- 7) **Detailed Testing Plans.** The licensee shall submit a detailed plan of testing for each injection well as the project develops. The plan shall include precise well location and construction data, in addition to other testing features. The licensee shall obtain Departmental approval of a detailed plan before injection testing at a well may begin. The Department may approve, condition, or reject a plan.
- 8) **Water Level Monitoring.** The licensee shall submit a detailed water level monitoring plan for testing at each injection well. The licensee shall obtain Departmental approval of a detailed plan before injection testing at a well may begin. If observation wells do not adequately describe the project's impact to the aquifer, the Department may require dedicated observation wells. The Department may approve, condition, or reject a plan.
- 9) **Well Construction.** Injection and recovery wells shall be open to a single aquifer in the Columbia River Basalt Group and shall meet applicable well construction standards (e.g., OAR 690-200 and OAR 690-210). Following well completion, the wells shall be thoroughly developed to remove cuttings and drilling fluids. A video log of the wells shall be collected to demonstrate to the satisfaction of the Department that each well is open only to a single aquifer. Additional data that help characterize the water-bearing zone characteristics, including water quality and temperature, may also be provided to the Department. The wells shall be designed to limit the irretrievable loss of injected water to unsaturated zones.
- 10) **Cuttings.** During drilling of new project wells, the licensee shall collect cuttings at a minimum of 10-foot intervals and at major formation changes. The licensee shall describe and analyze them to the degree necessary to determine the formation, member and flow unit within the Columbia River Basalt of the water bearing zone, and provide a split of the washed cuttings to the Department.

11) Water Quality Conditions and Limits.

- (A) The licensee shall minimize, to the extent technically feasible, practical and cost-effective, the concentration of constituents in the injection source water that are not naturally present in the aquifer;
- (B) Except as otherwise provided in (C) of this condition, if the injection source water contains constituents regulated under OAR 333-61-030 (ORS 448.131 and 448.273) or OAR 340-40 (ORS 468B.165) that are detected at greater than 50 percent of the established levels (MCLs or MMLs in the cited rules), the licensee shall employ technically feasible, practical and cost-effective methods to minimize concentrations of such constituents in the injection source water;
- (C) Constituents that have a secondary contaminant level or constituents that are associated with disinfection of the injection source water may be injected into the aquifer up to the standards established under OAR 333-61-030 (ORS 448.131 and 448.273);
- (D) The Department may, based upon valid scientific data, further limit certain constituents in the injection source water if the Department finds that those constituents will interfere with or pose a threat to the maintenance of the water resources of the state for present or future beneficial uses;
- (E) If during the course of ASR testing, a constituent which is regulated under OAR 333-61-030 (ORS 448.131 and 448.273) or OAR 340-40 (ORS 468B.165) is detected above the 50% level prescribed in condition (8)(B) or the 100% level prescribed in condition (8)(C), the licensee shall stop injection activities immediately upon receipt of lab data and notify the Department within five days.

12) Water Quality Sampling.

- (A) Injection Water. The licensee shall sample and analyze injection water as described in the pilot test work plan dated January 2011 and the amendment dated April 4, 2011.
- (B) Receiving Aquifer Water. The licensee shall sample and analyze receiving aquifer water as described in the pilot test work plan dated January 2011 and the amendment dated April 4, 2011.
- (C) Withdrawal of Stored Water. The licensee shall sample and analyze water withdrawn from storage as described in the pilot test work plan dated January 2011 and the amendment dated April 4, 2011.

13) Recovery. The availability of stored water for recovery is based on the following factors:

- (A) Available stored water is determined on a well-by-well basis. The licensee may recover up to 95% of the quantity injected under this limited license during the water year that the water was injected. After that water year, the availability of stored water shall be further diminished each water year such that the licensee may only recover up to 95% of any water year-to-water year storage carryover. For example, water year 2011 lasts from October 1, 2010 through September 30, 2011. Data collected by the licensee may be useful in consideration of modifications to this recovery provision under the limited license.
- (B) Any water withdrawn from an ASR well identified in this limited license shall first be debited against the quantity available in the aquifer by virtue of ASR storage. When the ASR storage

is depleted at an ASR well, any water withdrawn from an ASR well shall be considered a draft of natural ground water, requiring separate or additional authorization. This limited license does not authorize withdrawal of more water than was available from injection.

(C) The availability of stored water is a running account that is subject to determination at any time.

14) Annual Reporting.

(A) Except as otherwise noted, the licensee shall provide the Department a written report of the results of ASR testing for each water year by February 15th of the following water year. The first report shall be due in 2013 and include results from water year 2011 and 2012. The report shall detail the several kinds of data collected during the water year (including the water quality results in condition 12, in a DEQ specified format), analyze those data to show the ASR project impacts on the aquifer, analyze for loss, indicate the testing/development progress made under the terms of the limited license, and account for the injection of stored water, withdrawals of stored and natural water, and the new-year carryover storage at each well.

(B) As pertinent, annual reporting shall include the formatting and additional information cited in Condition 15 below.

15) Special Reporting Condition. The licensee shall provide the following information to the Department:

(A) Submission of any and all hydrogeologic data collected and reports developed for the project, including but not limited to cuttings analysis, video logs, geophysical logs, aquifer tests and step tests.

(B) Submission of digital water level data for all ASR wells and any other wells measured in conjunction with the project (in a Department-specified format), including annual report data.

(C) Submission of annual reports with locations and elevations for all project wells (actual locations of built wells and proposed locations for proposed wells) and locations and elevations for all non-project wells that have been used for collecting water levels or other data pertinent to the project (in a Department-specified format).

(D) Notification in the annual report of any changes in well construction to the ASR limited license file.

(E) Associating all project well data with the Department Well Identification Number (Well ID Number), the Department Well Log ID, if available, and the project Well Name.

16) Well Tag Condition for Licensee Wells. Prior to testing, the licensee shall ensure that their wells have been assigned a Department Well Identification Number (Well ID Number). A tag showing the Well ID Number shall be permanently attached to each well. If a well does not have a Well ID Number, the licensee shall apply for one from the Department and attach it to the well. The Well ID Number shall be used as a reference in any correspondence regarding the well, including any reports of water use, water level, or pump test data.

17) Protection for Existing Users. In the event of conflicts with existing appropriators, the licensee shall conduct all testing so as to mitigate the injurious effects. In addition, the licensee shall

cooperate with the efforts of the Department to protect existing water rights and the water quality of existing users that rely upon the receiving aquifer and the injection source water.

- 18) **Use of Recovered Water.** The licensee shall use any recovered water for the use allowed in the diversion authorization. Specifically, the licensee shall use any recovered water for the purposes described in the appropriate diversion authorization.
- 19) **Additional Conditions on an Informal Basis.** The Department may suggest additional conditions to the licensee. Provided that those conditions are agreed to and undertaken by the licensee, the Department may forego formal changes to this license. This informal process does not extend to condition reductions. These additional conditions may be part of any license renewal or permit.
- 20) **Publicity.** The licensee shall maintain a public information program about the ASR project, which may include press releases, neighborhood meetings, brochures, or other activities. This program shall include information on potential project impacts and how to report possible impacts to the licensee. If such reports are received, the licensee shall share these reports with the Department within five days of receipt.
- 21) **Other Measures.** The licensee shall take additional measures, as appropriate, to address ASR-related issues such as landslide activation, seepage, streamflow increases, interference with nearby wells, aquifer storage limitations, and water quality protection. Further, the licensee shall notify the Department upon resolution of such issues. The licensee shall resolve these issues prior to submittal of an ASR permit application.
- 22) **Carryover Storage.** At the end of testing under this limited license, the licensee shall provide an accounting to the Department of the residual stored water based on the methods of determination given in this license. The Department shall consider this residual for carryover to a permanent ASR permit based on information which discloses the aquifer's ability to retain stored water.

Dated at Salem, Oregon on September 27, 2011.



E., Timothy Wallin, Water Rights Program Manager
for Phillip C. Ward, Director

This order was produced by Jen Woody. If you have other questions about the Department or any of its programs please contact our Customer Service Group at 503-986-0801. Address all other correspondence to: Groundwater Section, Oregon Water Resources Department, 725 Summer St NE, Suite A, Salem OR 97301-1266, Fax: 503-986-0902.

Mailing List

Scheduled Mailing Date:

Application:

ASR Limited License #019

Original mailed to Applicant:

**Joint Water Commission
c/o Kevin Hanway
150 E. Main Street, Suite 300
Hillsboro, OR 97123**

Copies Mailed
by: _____ (STAFF)
on: _____ (DATE)

Copies sent to WRD:

1. Darrell Hedin, Watermaster District 18
1. Bill Ferber, Region Manager
2. File

Copies sent to other interested persons (CWRE, Agent, Commenter, etc.):

1. Tom Pattee, Oregon Health Authority Drinking Water Program
2. Jack Arendt, Oregon Department of Environmental Quality
3. David Cole, Oregon Department of Environmental Quality
4. Larry Eaton, GSI Water Solutions, Inc.
5. Niki Iverson, City of Hillsboro