



MEMORANDUM

Request for a 5-Year Renewal of ASR Limited License #020 for Madison Ranches

To: Jen Woody, RG, Oregon Water Resources Department
From: Robyn Cook, RG, CWRE, GSI Water Solutions, Inc.
Bruce Brody-Heine, RG, CWRE, GSI Water Solutions, Inc.
CC: Jake Madison, Madison Ranches
Date: September 29, 2022

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Madison Ranches Inc. (Madison) requests a 5-year renewal of Aquifer Storage and Recovery (ASR) limited license #020, which will expire on March 23, 2023. We understand that certain criteria must be met to grant a renewal of the limited license as outlined under Condition 1, License Renewal, in ASR limited license #020. A discussion of the key points pertinent to Condition 1 is provided below.

Reason for Renewal

Madison requests a renewal of ASR limited license #020 so that it may continue to monitor the dynamic response of the basalt aquifer to ASR activities and work toward permitting its ASR program. To date, Madison's ASR program has been successful, and no adverse impacts to the aquifer resource have been identified as a result of ASR activities. The ongoing monitoring and testing are key to helping Madison optimize long-term ASR operations.

In addition to ASR, Madison conducts artificial groundwater recharge (AR) using source water from Butter Creek when certain flow criteria are met, authorized from 2016 to 2021 by limited license #1628. Madison Ranches has obtained annual limited licenses which authorize AR recovery at the collector well. ASR injection, AR, and AR recovery operations occur during the same general season, between December and May, when sufficient flows are available in Butter Creek. The source water for ASR is alluvial groundwater from the collector well, and Madison's alluvial groundwater rights authorize pumping rates up to 925 gallons per minute (gpm). The limited license for AR recovery allows for pumping rates in excess of 925 gpm when AR water is available for recovery, and maximizing the collector well pumping rate and the ASR injection rate is essential for storing sufficient water during the limited recharge season for use in late summer when other irrigation sources are depleted.

Although Madison intends to pursue a permit for the existing ASR system, the ability to inject source water at rates greater than 925 gpm is critical to the success of the ASR project. Therefore, Madison will first pursue a permit for AR to ensure that high injection rates will be available for the ASR project. Renewal of limited license #020 will allow Madison to continue ASR testing and operations until an AR permit application can be prepared and hopefully obtained to provide sufficient source water for a full-scale ASR operational permit. Because the operation, testing, and licensing of Madison's AR and ASR projects are fundamentally interdependent, Madison has received authorization from the Oregon Water Resources Department (Department) to submit combined annual reporting for the three limited licenses.

Compliance with Terms and Conditions of the Current Limited License

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Several terms and conditions are defined in ASR limited license #020, such as groundwater monitoring, surface water monitoring, water quality sampling, and rate limits for injection and pumping. Madison has complied with the terms of the limited license, and has worked in good faith to report ASR pilot testing data to the Department regularly.

Each condition outlined in ASR limited license #020 is listed below with specific details that demonstrate Madison's compliance with the conditions:

- 1) **License Renewal.** *The 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 license.*
 - This letter requests a renewal of ASR limited license #020 in order to extend the license for five more years.
 - The reasons that further testing is necessary are discussed above, under "Reason for Renewal." Madison's compliance with the terms of the license is documented in this section.
- 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 license or the recovering stored water. The injection notice shall include the 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 license number, the location of the recovery well(s), the time of recovery, and the quantity of water to be recovered.*
 - Madison has notified the Watermaster in writing each year before initiating injection and recovery.
- 3) **Record of Use.** *The licensee shall maintain a record of injection and recovery, including the total number of hours of injection and recovery and the total metered quantity injected and recovered. The record of use may be reviewed by Department staff upon request. The Licensee shall track this information on a form available from the Department.*
 - Madison has kept records of the injection and recovery volumes and has reported the data to the Department in the ASR annual reports. Madison submits digital copies of all electronically recorded water level and pumping rate data to the Department as part of the annual reports.
- 4) **Modification/Revocation.** *The Department shall notify the licensee in writing and allow the licensee to respond when considering [modifying or revoking the ASR limited license].*
 - Madison understands the Department will provide written notice of any changes that may be made to the ASR limited license. Any requests by Madison to modify the limited license have been reviewed and approved by the Department.
- 5) **Priority/Protection.** *This license does not receive a priority date and is not protected under ORS 540.045. The diversion of water for this ASR testing under the authority of Certificates 75107, 83692, and 83693; T-11414, and any current LL for AR Recovery Testing retain the priority dates and protections of those water rights.*
 - Madison understands that the limited license does not receive a priority date like a water right.
- 6) **Compliance with Other Laws.** *The injection of acceptable water into the aquifer as well as its storage and recovery under this 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.*

- Madison has complied with all federal, state, and local permits with regard to injection of water into the aquifer and pumping to waste.

7) **Water Quality Conditions and Limits.**

- In the five years since the limited license was issued, the injection source water quality has met all state and federal drinking water standards and has not exceeded regulatory criteria for ASR, with the exception of total coliform bacteria detected in two groundwater samples (one receiving water and one recovered water) and one source water sample (Cycle 15; 2019)

8) **Water Quality Monitoring.** *The licensee shall sample and analyze water quality in the manner described in the current, approved ASR work plan.*

- Water quality samples were collected during each of the five years since the limited license was issued, and these results were submitted to OWRD. Madison has developed a tracking table to ensure that future water quality sampling will be performed in the manner approved by OWRD in 2018 and any subsequent modifications.

9) **Nitrate Monitoring Program.**

- Madison has installed and subsequently replaced and upgraded its digital continuous nitrate analyzer to monitor nitrate concentrations in the source water. The analyzer has been field-calibrated in accordance with manufacturer's instructions and serviced twice per year by the manufacturer. Source water nitrate measurements have not exceeded the 9.5 mg/L limit set forth in limited license #020.

10) **Water Level Monitoring.**

- Madison monitors the water level response in the regional aquifer to ASR activities in compliance with the approved monitoring plan.
- Electrical problems with the ASR well pump, and subsequent supply chain issues related to the global COVID-19 pandemic, lead to this instrument being offline from April 2021 through May 2022.
- The Department has taken over State observation well monitoring during the monitoring events, as requested by Madison.

11) **Recovery.**

- Madison has recovered no more than 98 percent of the stored volume each year since 2007. As required by this condition, water withdrawn from the ASR well is first debited against the quantity available by virtue of ASR storage before being considered a draft of natural groundwater. Annual reports submitted to OWRD document the total volumes of water injected, recovered, and remaining in the aquifer.
- A second ASR well has not been installed.

12) **Reporting.**

- A report including each year of ASR pilot testing was submitted to OWRD and includes all required data related to water quality and water level monitoring.

13) **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.*

- No injuries to existing groundwater users have been reported since the start of ASR activities.

- 14) **Use of Recovered Water.** *The licensee shall use any recovered water for the purposes described in the appropriate diversion authorization.*
- The recovered water has been put to beneficial irrigation use as described in the water rights for injection source water.
- 15) **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.*
- OWRD has not suggested additional conditions to the limited license since its issue date.
- 16) **Access.** *The licensee shall allow reasonable access to ASR facilities to the watermaster and other state officials with an oversight role in this ASR project.*
- Madison has and will continue to grant access to ASR facilities to Department staff that request it.
- 17) **Other Measures.** *The licensee shall take additional measures, as appropriate, to address ASR-related issues such as landslide activation, seepage, streamflow increases, interferences 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.*
- No adverse effects have been observed, such as new seeps or landslide activation, since the start of ASR. Overall, Madison continues to monitor for adverse effects resulting from ASR activities based on the approach and monitoring outlined in the approved ASR work plans.
- 18) **Carryover Storage.** *At the end of testing under this 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.*
- A running account of the volume of residual stored water has been submitted to the Department as part of the ASR annual reports.
- 19) **Detailed Testing Plans.** *The Licensee shall submit a detailed testing plan for each injection well as the project develops. The plan shall include precise well location and construction data, water quality testing plans, and other testing features. The licensee shall obtain Departments approval of a detailed plan before injection testing at a well may begin. The Department may approve, condition, or reject a plan.*
- Madison has submitted to OWRD testing plans for the ASR program before the start of pilot testing, and addenda outlining proposed changes to the approved testing plans. Prior to injecting at a new ASR well, Madison will provide an updated testing plan.
- 20) **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 only open 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.*
- All well logs for the only ASR well (UMAT 1166/5430/55174) have been submitted to OWRD, and OWRD has approved the use of the well for ASR operations.

21) **Cuttings.** *During drilling of new project wells, the licensee shall collect cuttings at a minimum of 10-foot intervals and at major formation changes. A professional(s) registered or allowed, under Oregon law, to practice geology 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.*

- No new ASR wells have been drilled since the limited license was issued. If Madison decides to construct a new well and receives approval from the Department to do so, cuttings from the well will be submitted to the Department.

22) **Special Reporting Condition.**

- Annual reports have included all applicable information required under this condition.

23) **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 the well. If a well does not have a Well ID Number, the licensee shall apply for one form 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.*

- Well ID Numbers associated with Madison's ASR operations are included in annual reports submitted to the Department.

Closing

Thank you for considering this request for a five-year renewal of ASR limited license #020. The fee of \$575 for renewal and modification of a limited license for ASR testing purposes is attached. Please contact Robyn Cook at (971) 200-8505 with any questions.

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ASR Limited License No. 20



OREGON
WATER
RESOURCES
DEPARTMENT

APPLICATION FOR RENEWAL OF
AQUIFER STORAGE AND RECOVERY (ASR) LIMITED LICENSE

Applicant: Madison Ranches Inc.
Mailing Address: 29299 Madison Road, Echo, Oregon 97826
541-376-8107; Jake@MadisonRanches.com

Authorized Agent: GSI Water Solutions, Inc.; Robyn Cook
Mailing Address: 55 SW Yamhill St., Ste. 300, Portland, Oregon 97204
Phone and email: (971)200-8505; rcook@gsiws.com

Phone and Email:

Per OAR 690-350-020(5)(c), an ASR LL may be renewed upon request from the licensee if the applicant demonstrates to the Department's satisfaction that further testing is necessary and that the licensee complied with the terms of the current ASR LL. The applicant may also request modifications to an ASR LL at the time of renewal. Please consult the current ASR LL and provide as attachments the following:

- Explanation of why further testing is necessary
- Summary of compliance with ASR LL
- Request for changes, as needed
- ASR LL Renewal Fee. Consult current fee schedule at:
<http://www.oregon.gov/owrd/pages/pubs/forms.aspx#fees>
- Submit one hard copy in person or by mail to: Oregon Water Resources Department, 725 Summer St NE, Suite A, Salem, OR 97301
- Submit a digital copy to: Jennifer.L.Woody@oregon.gov
- Questions? Contact Jen Woody, OWRD Hydrogeologist, at 503-986-0855

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Signature of Applicant


Title President

Date 9-28-22