



March 22, 2021

Jennifer Woody, RG
Hydrogeologist
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301

Dear Jen:

On behalf of the City of Prineville (City), please find enclosed a request for a minor modification of the City's Aquifer Storage and Recovery (ASR) Limited License #026. As part of the modification request packet, we have included:

- 1) OWRD Application for Modification of ASR Limited License form;
- 2) summary of the requested minor modifications memorandum (including a new ASR LL Map); and
- 3) a check in the amount of \$575 for the Modification of ASR LL fee.

If you have any questions regarding the enclosed modification request, please call me at (971) 200-8519. Please copy both me and the applicant on any correspondence regarding this request.

Sincerely,
GSI Water Solutions, Inc.

A handwritten signature in blue ink that reads "Bruce Brody-Heine".

Bruce Brody-Heine, RG, CWRE
Principal Hydrogeologist

Enclosures

ASR Limited License No. 026



OREGON
WATER
RESOURCES
DEPARTMENT

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

Applicant: City of Prineville; Attn: Eric Klann
Mailing Address: 387 NE 3rd Street, Prineville, OR, 97754
Phone and Email: 541.447.5627 eklann@cityofprineville.com

Authorized Agent: GSI Water Solutions, Inc. - Bruce Brody-Heine
Mailing Address: 147 SW Shevlin Hixon Drive, Suite 201, Bend Oregon, 97702
Phone and email: 971.200.8519 bbheine@gsiws.com

Per OAR 690-350-020(5)(f), an ASR LL may be modified upon written request from the licensee. Please consult the current ASR LL and provide as attachments the following:

- Request for minor adjustments to the ASR LL authorization
- ASR LL Modification 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

Signature of Applicant  Date 3/19/2021

Title City Eng



Modification Request - ASR Limited License #026

City of Prineville

To: Jennifer Woody, Oregon Water Resources Department

From: Bruce Brody-Heine, GSI Water Solutions, Inc.
Eric Klann, City of Prineville

Date: March 8, 2021

RE: City of Prineville – Modification Request for ASR LL #026

The City of Prineville (City) was issued Aquifer Storage and Recovery (ASR) Limited License (LL) #026 on April 24, 2019 authorizing the storage of up to 870 million gallons per year in the Airport Area Aquifer in the Deschutes Formation located adjacent to the City. The LL authorizes the recharge of up to 1,100 gallons per minute of source water in up to 5 ASR wells. The source water is from City wells located in the Crooked River Valley/Ochoco Creek Basin. The ASR LL #026 is attached.

This minor modification request to the City's ASR LL #026 updates the location and number of source water wells, and modifies the location of two of the 5 authorized ASR recharge wells. All of these changes are reflected in the updated ASR LL #26 Map attached to this document.

Modifications to Source Water Wells

All proposed modifications to the ASR source wells, including new and replacement wells, involve wells that are completed in the same aquifer as the currently authorized source water wells.

Additional Source Well

Certificate 22839/T-13176- **Yancey 2 (CROO 54711)**: Located 613 feet North and 1730 feet West from SE corner of Section 31, T14S, R16E W.M.

The original well had a sanding problem develop and a replacement well was drilled approximately 25- 50 feet from the original well. The Original Yancey Well was retrofitted and is still used as a backup source. The City would like both wells to be listed as a source on the ASR LL.

Correction to the Location Description for Source Well

Certificate 22839 - **Yancey 1 (CROO 5018)**: 1070 feet North ~~1370 feet East~~ and 55 degrees and 0 minutes East from S ¼ corner, Section 31, T14S, R16E W.M.

Replacing Source Well

~~Certificate 86337 - Lamanta (CROO 1540): South 58 Degrees 13 Minutes East, 1447 Feet From NW Corner, Section 31, T14S, R16E W.M.~~

Certificate 94818 - **Lamanta 2 (CROO 54871)**: Located 765 feet South and 1240 feet East from SE corner of Section 31, T14S, R16E W.M.

The original well failed and was replaced with a new well located approximately 30-feet from the original well and the original well was abandoned. The City requests the location of the new well be listed as a source on the ASR LL.

Remove the Following Wells as Source Wells

Please remove the following 4 wells from the list of source wells. The City of Prineville’s Transfer Application that included these 4 wells has been withdrawn resulting in these four wells not being listed on any City water rights.

~~New Ochoce Heights Well/ Not Yet Drilled: 1677 Feet North and 680 Feet East From SW Corner Section 32, T14S/R16E, W.M.~~

~~Industrial Park Well/Not Yet Drilled: 298 Feet North and 1908 Feet West From NW Corner Section 31, T14S/R16E, W.M.~~

~~Stryker Park Well/Not Yet Drilled: 277 Feet South and 812 Feet East From SW Corner Section 32, T15S/R16E, W.M.~~

~~Juniper Well/Not Yet Drilled: 97 Feet North and 2493 Feet East From SW Corner Section 32, T14S/R16E, W.M.~~

Update the Location and City’s Well Numbering of the Following Source Well in Wellfield

Since the issuance of the City’s ASR LL #026 in 2019 the City has installed 17 wells within their wellfield (permitted under G-18154). In addition, the City has added 6 additional wells to the wellfield. A Permit Amendment application, T-13621, has been submitted to update the original permit with the actual well location now they have been drilled.

The following table, extracted from the ASR LL #026 document, presents the updated locations and updated City Well Names to the ASR source wells, and adds the 6 additional wells that were drilled as part of the wellfield. These proposed changes are the same as those in the Permit Amendment application T-13621. The City requests that OWRD replace the original list of wellfield wells in the original ASR LL with the revised list of wellfield source wells presented below. *(blue text is updated well information; green text is new wells)*

Up to 25 wells/Permit G-18154	Wells located within Section 8, T15S, R16E, W.M. : POD 1/CROO 54593/ Well 3: 422 FEET SOUTH AND 400 FEET EAST FROM NW CORNER POD 2/CROO 54587/ Well 4: 471 FEET SOUTH AND 406 FEET EAST FROM NW CORNER POD 3/CROO 54592/ Well 8: 585 FEET SOUTH AND 793 FEET EAST FROM NW CORNER POD 4/CROO 54785/ Well 6: 540 FEET SOUTH AND 435 FEET EAST FROM NW CORNER POD 5/S-2: 561 FEET SOUTH AND 466 FEET EAST FROM NW CORNER POD 6/CROO 54792/ WELL 7: 590 FEET SOUTH AND 510 FEET EAST FROM THE NW CORNER POD 7/S-3: 621 FEET SOUTH AND 564 FEET EAST FROM NW CORNER POD 8/CROO 54834/ WELL 9: 660 FEET SOUTH AND 590 FEET EAST FROM THE NW CORNER POD 9/S-4: 694 FEET SOUTH AND 654 FEET EAST FROM NW CORNER
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POD 10/CROO 54832/ WELL 10: 725 FEET SOUTH AND 670 FEET EAST FROM THE NW CORNER

POD 11/S-5: 789 FEET SOUTH AND 731 FEET EAST FROM NW CORNER

POD 12/CROO 54833/ WELL 11: 825 FEET SOUTH AND 735 FEET EAST FROM THE NW CORNER

POD 13/CROO 54828/ WELL 12: 875 FEET SOUTH AND 755 FEET EAST FROM THE NW CORNER

POD 14/CROO 54830/ WELL 13: 920 FEET SOUTH AND 775 FEET EAST FROM THE NW CORNER

POD 15/CROO 54827/ WELL 14: 970 FEET SOUTH AND 800 FEET EAST FROM THE NW CORNER

POD 16/CROO 54831/ WELL 15: 1,020 FEET SOUTH AND 790 FEET EAST FROM THE NW CORNER

POD 17/S-8: 1116 FEET SOUTH AND 808 FEET EAST FROM NW CORNER

POD 18/CROO 54829/ WELL 16: 1,130 FEET SOUTH AND 800 FEET EAST FROM THE NW CORNER

POD 19/S-9: 1232 FEET SOUTH AND 800 FEET EAST FROM NW CORNER

POD 20/CROO 54810/ WELL 17: 1,240 FEET SOUTH AND 815 FEET EAST FROM THE NW CORNER

POD 21/S-10: 1320 FEET SOUTH AND 869 FEET EAST FROM NW CORNER

POD 22/CROO 54789/ WELL 18: 1,325 FEET SOUTH AND 865 FEET EAST FROM THE NW CORNER

POD 23/S-11: 1420 FEET SOUTH AND 896 FEET EAST FROM NW CORNER

POD 24/CROO 54869/ WELL 19: 1,425 FEET SOUTH AND 890 FEET EAST FROM THE NW CORNER

POD 25/CROO 54734/ WELL 21: 1,460 FEET SOUTH AND 920 FEET EAST FROM THE NW CORNER

CROO 54589/WELL 2: 370 FEET SOUTH AND 396 FEET EAST FROM THE NW CORNER

CROO 54750/WELL 22: 1,535 FEET SOUTH AND 940 FEET EAST FROM THE NW CORNER

CROO 54588/WELL 24: 510 FEET SOUTH AND 1,330 FEET EAST FROM THE NW CORNER

L-136756/WELL 25: 485 FEET SOUTH AND 1,620 FEET EAST FROM THE NW CORNER

CROO 53215/WELL 26: 105 FEET SOUTH AND 1,080 FEET EAST FROM THE NW CORNER

WELL 27: 170 FEET SOUTH AND 1,500 FEET EAST FROM THE NW CORNER

Modifications to Authorized ASR Well Location

The installation of the Hanger Observation well (CROO 54887) and other recent exploratory drilling in the Airport Area Plateau by the City has provided additional insight into the geology in the area as well as the location of the ancestral channel aquifer zone. Based on this recent geologic information the City would like to modify the authorized locations for ASR Wells 2 and 3. The City proposing to locate these two approximately 2000 and 2700 feet, respectively, from the original locations, which will locate them off of the airport property and flight lines as well. The proposed new locations for these two ASR wells is shown on the attached figure and are described below.

Modified ASR Well Locations

ASR Well 2: Located 1320 feet North and 2690 feet West from the SE corner of Section 11, Township 15 South, Range 15 East (W.M.)

ASR Well 3: Located 1580 feet North and 2340 feet West from the SE corner of Section 11, Township 15 South, Range 15 East (W.M.)

Thank you for considering the City of Prineville's minor modifications to the ASR Limited License #026 as describe above. If you have any questions do not hesitate to contact Bruce Brody-Heine at 971.200.8519 or Eric Klann at (541) 447-2357.

Limited License Map

ASR Limited License Map

February 2021

City of Prineville

POD LOCATION DESCRIPTIONS

PROPOSED ASR WELL AND FUTURE WELL SITES

Heliport Production Well: Located 1070 feet North and 1710 feet East from the SW corner of Section 11, Township 15 North, Range 15 East (W.M.)

Future ASR Well 2: Located 1320 feet North and 2690 feet West from the SE corner of Section 11, Township 15 South, Range 15 East (W.M.)

Future ASR Well 3: Located 1580 feet North and 2340 feet West from the SE corner of Section 11, Township 15 South, Range 15 East (W.M.)

Future ASR Well 4: Located 1141 feet South and 83 feet East from the NW corner of Section 11, Township 15 South, Range 15 East (W.M.)

Future ASR Well 5: Located 442 feet North and 86 feet West from the SE corner of Section 3, Township 15 South, Range 15 East (W.M.)

ASR SOURCE WATER POINTS OF DIVERSION

CROO 184 (Stadium Well): Located 2122 feet North and 461 feet West from the SE corner of Section 5, Township 15 South, Range 16 East (W.M.)

CROO 2083 (Stearns #2): Located 1810.2 feet South and 1151.5 feet East from the N 1/4 corner of Section 4, Township 15 South, Range 16 East (W.M.)

CROO 3132 (Barney): Located 1315 feet South and 1370 feet East from the N 1/4 corner of Section 4, Township 15 South, Range 16 East (W.M.)

CROO 50181 (Yancey): Located 1070 feet North 55 degrees and 0 minutes East from the 1/4 section corner south line of Section 31, Township 14 South, Range 16 East (W.M.)

CROO 54711 (Yancey 2): Located 613 feet North and 1730 feet West from the SE corner Section 31, Township 14 South, Range 16 East (W.M.)

CROO 54871 (Lamonta 2): Located 765 feet South and 1240 feet East from the NW corner of Section 31, Township 14 South, Range 16 East (W.M.)

CROO 2121 (4th Street Deep): Located 375 feet North and 370 feet East from the W 1/4 corner of Section 5, Township 15 South, Range 16 East (W.M.)

2 (CROO 54589): Located 370 feet South and 396 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

3 (CROO 54593): Located 422 feet South and 400 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

4 (CROO 54587): Located 471 feet South and 406 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

5 (CROO 54785): Located 540 feet South and 435 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

6 (CROO 54792): Located 590 feet South and 510 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

7 (CROO 54792): Located 590 feet South and 510 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

8 (CROO 54592): Located 585 feet South and 793 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

9 (CROO 54834): Located 680 feet South and 590 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

10 (CROO 54832): Located 725 feet South and 670 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

11 (CROO 54833): Located 825 feet South and 735 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

12 (CROO 54829): Located 875 feet South and 755 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

13 (CROO 54830): Located 920 feet South and 775 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

14 (CROO 54827): Located 970 feet South and 800 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

15 (CROO 54831): Located 1,020 feet South and 790 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

16 (CROO 54829): Located 1,130 feet South and 800 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

17 (CROO 54810): Located 1,240 feet South and 815 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

18 (CROO 54789): Located 1,325 feet South and 865 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

19 (CROO 54869): Located 1,425 feet South and 890 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

21 (CROO 54734): Located 1,460 feet South and 920 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

22 (CROO 54750): Located 1,535 feet South and 940 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

24 (CROO 54588): Located 510 feet South and 1,330 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

25: Located 485 feet South and 1,620 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

26 (CROO 53215): Located 105 feet South and 1,080 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

27: Located 170 feet South and 1,500 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-2: Located 561 feet South and 466 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-3: Located 621 feet South and 564 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-4: Located 694 feet South and 654 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-6: Located 789 feet South and 731 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-8: Located 1116 feet South and 808 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-9: Located 1232 feet South and 800 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-10: Located 1320 feet South and 869 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

S-11: Located 1420 feet South and 896 feet East from the NW corner of Section 8, Township 15 South, Range 16 East (W.M.)

ASR OBSERVATION WELLS

Airport Well 2: Located 1165 feet North and 1990 feet East from the SW corner of Section 11, Township 15 South, Range 15 East (W.M.)

Millican Well (Airport Well 3): Located 55 feet North and 3000 feet East from the SW corner of Section 11, Township 15 South, Range 15 East (W.M.)

CROO 53965 (Heliport Observation Well): Located 1238 feet North and 1506 feet East from the SW corner of Section 11, Township 15 South, Range 15 East (W.M.)

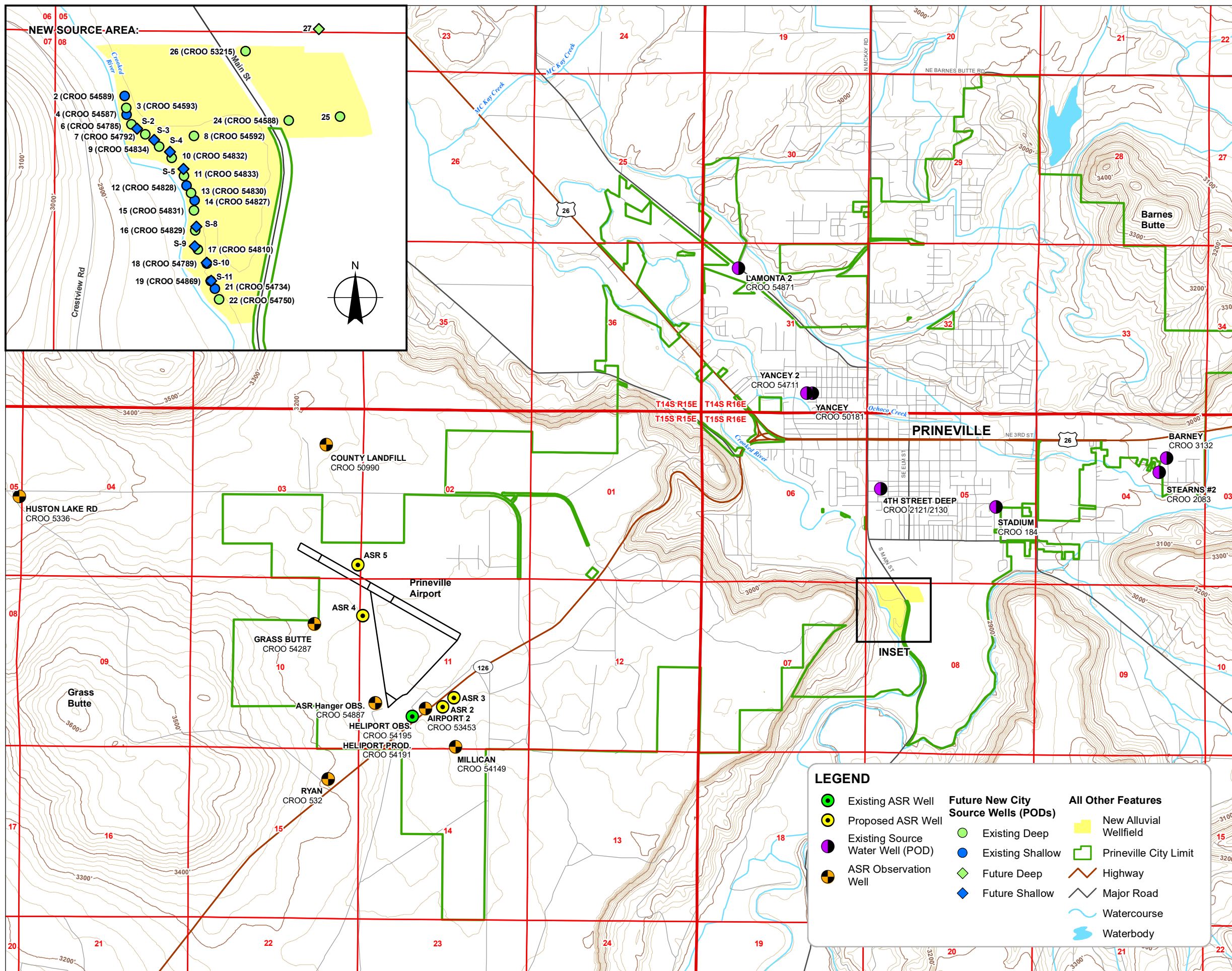
ASR Hanger Observation Well: Located 1404 feet North and 506 feet East from the SW corner of Section 11, Township 15 South, Range 15 East (W.M.)

CROO 532 (Ryan Well): Located 895 feet South and 952 feet West from the SW corner of Section 11, Township 15 South, Range 15 East (W.M.)

CROO 53361 (Houston Lake Rd): Located 183 feet South and 77 feet West from the W 1/4 corner of Section 4, Township 15 South, Range 15 East (W.M.)

CROO 54287 (Grass Butte Well): Located 1472 feet South and 1493.15 feet West from the NE corner of Section 10, Township 15 South, Range 15 East (W.M.)

CROO 50990 (County Landfill Well): Located 1067 feet South and 1161 feet West from the NW corner of Section 3, Township 15 South, Range 15 East (W.M.)



ATTACHMENT

City of Prineville ASR Limited License #026

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

In the Matter of Aquifer Storage and Recovery)
(ASR) Limited License Application #026,)
CROOK 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. OAR 690-350-0010 describes general provisions for ASR under Oregon law.

BACKGROUND

On October 16, 2018, the Water Resources Department (Department) received an application for ASR Limited License #026 from the City of Prineville. The Department determined the application was incomplete on December 4, 2018. The application was resubmitted on December 21, 2018 and determined complete on January 18, 2019.

FINDINGS OF FACT

1. On October 16, 2018, the City of Prineville submitted an application for ASR Limited License #026. After re-submission, the Department determined it was complete on January 18, 2019.
2. The Department provided public notice of the application in the Department's weekly public notice on January 22, 2019. A 30-day comment period followed.
3. The Department sought comments and recommendations from the Oregon Department of Environmental Quality (DEQ) and the Oregon Health Authority's Drinking Water Services (OHA) related to water quality standards. Comments were received from DEQ and OHA supporting the issuance of ASR LL #026, and the license is conditioned accordingly.
4. The Department reviewed the groundwater information included with the application and found it met the application requirements as described in OAR 690-350-0020(3).
5. The Department reviewed the ASR application and testing plan. The authorization of ASR LL #026 is conditioned accordingly.
6. The Department evaluated the application and comments and determined:
 - a. The proposed ASR testing will not impair or be detrimental to the public interest;
 - b. The proposed ASR testing will produce information that will adequately describe the water quality and quantity response in the aquifer and at nearby wells and springs due to ASR activities; and
 - c. The proposed testing will not expand the use under an existing water right.

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.

7. The Department evaluated the application and comments and determined that the proposed use is consistent with ORS 537.534 and OAR 690-350-0020.

CONCLUSIONS OF LAW

The request to issue ASR Limited License #026 to allow ASR testing 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 #026 shall be valid for five years from issuance of this Final Order, pursuant to ORS 537.534 and OAR 690-350-0020(5).

Except as modified by other provisions of this license, the licensee is authorized to pursue the project schedule, monitoring, and other features noted in the accepted ASR testing plan. The plan may be modified and approved pursuant to condition (3)(A). The project schedule in the ASR testing plan may be reasonably adjusted by the licensee to reflect the license issuance date or other delays. Features of the testing plan are provided in the application documents entitled:

GSI Water Solutions, Inc. (October 2018). Prineville Airport Area Aquifer Storage and Recovery (ASR) Limited License Application and Pilot Test Work Plan.

GSI Water Solutions, Inc. (December 21, 2018). Response to Completeness Review of ASR LL #026 Application: City of Prineville.

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
- Well hydraulics at the ASR wells

The licensee may divert up to 3,000 gallons per minute (gpm) from wells in the Ochoco Creek Basin. The diversion rate shall not exceed the total diversion rate authorized for each source.

Source/ Certificate	Point of Diversion
One well/ Certificate 86337	CROO 1540/ Lamonta: SOUTH 58 DEGREES 13 MINUTES EAST, 1447 FEET FROM NW CORNER, SECTION 31, T14S/R16E, W.M.
One well/ Certificate 22839	CROO 50181/Yancey: 1070 FEET NORTH, 1370 FEET EAST AND 55 DEGREES AND 0 MINUTES EAST FROM S¼ CORNER, SECTION 31, T14S/R16E, W.M.

Two wells/ Certificate 83993	CROO 3132/Barney Well: 1315 FEET SOUTH AND 1370 FEET EAST FROM N ¼ CORNER, SECTION 4, T15S/R16E, W.M. CROO 2083/Stearns #2: 1810.2 FEET SOUTH AND 1151.5 FEET EAST FROM N ¼ CORNER, SECTION 4, T15S/R16E, W.M.
One well/ Certificate 87714	CROO 184/Stadium Well: 2122 FEET NORTH AND 461 FEET WEST FROM SE CORNER, SECTION 5, T15S/R16E, W.M.
One well/ Certificate 86889	CROO 2121: 375 FEET NORTH AND 370 FEET EAST FROM W ¼ CORNER, SECTION 5, T15S/R16E, W.M.
Up to 25 wells/Permit G-18154	Wells located within Section 8, T15S/R16E, W.M. : CROO 54593/D-1: 422 FEET SOUTH AND 400 FEET EAST FROM NW CORNER CROO 54587/S-1: 471 FEET SOUTH AND 406 FEET EAST FROM NW CORNER CROO 54592/D-2: 585 FEET SOUTH AND 793 FEET EAST FROM NW CORNER POD 4/D-3: 516 FEET SOUTH AND 438 FEET EAST FROM NW CORNER POD 5/S-2: 561 FEET SOUTH AND 466 FEET EAST FROM NW CORNER POD 6/D-4: 601 FEET SOUTH AND 509 FEET EAST FROM NW CORNER POD 7/S-3: 621 FEET SOUTH AND 564 FEET EAST FROM NW CORNER POD 8/D-5: 657 FEET SOUTH AND 611 FEET EAST FROM NW CORNER POD 9/S-4: 694 FEET SOUTH AND 654 FEET EAST FROM NW CORNER POD 10/D-6: 717 FEET SOUTH AND 700 FEET EAST FROM NW CORNER POD 11/S-5: 789 FEET SOUTH AND 731 FEET EAST FROM NW CORNER POD 12/D-7: 840 FEET SOUTH AND 759 FEET EAST FROM NW CORNER POD 13/S-6: 888 FEET SOUTH AND 784 FEET EAST FROM NW CORNER POD 14/D-8: 952 FEET SOUTH AND 799 FEET EAST FROM NW CORNER POD 15/S-7: 1004 FEET SOUTH AND 809 FEET EAST FROM NW CORNER POD 16/D-9: 1061 FEET SOUTH AND 815 FEET EAST FROM NW CORNER POD 17/S-8: 1116 FEET SOUTH AND 808 FEET EAST FROM NW CORNER POD 18/D-10: 1179 FEET SOUTH AND 796 FEET EAST FROM NW CORNER POD 19/S-9: 1232 FEET SOUTH AND 800 FEET EAST FROM NW CORNER

Up to 25 wells/Permit G-18154	<p>POD 20/D-11: 1267 FEET SOUTH AND 836 FEET EAST FROM NW CORNER</p> <p>POD 21/S-10: 1320 FEET SOUTH AND 869 FEET EAST FROM NW CORNER</p> <p>POD 22/D-12: 1372 FEET SOUTH AND 879 FEET EAST FROM NW CORNER</p> <p>POD 23/S-11: 1420 FEET SOUTH AND 896 FEET EAST FROM NW CORNER</p> <p>POD 24/D-13: 1479 FEET SOUTH AND 909 FEET EAST FROM NW CORNER</p> <p>POD 25/S-12: 1527 FEET SOUTH AND 949 FEET EAST FROM NW CORNER</p>
Certificate 86558/T-13030	<p>CROO 1577/Ochoco Heights Well 1: 1711 FEET NORTH AND 650 FEET EAST FROM SE CORNER SECTION 32, T14S/R16E, W.M.</p> <p>The following 4 proposed POAs are pending approval of T-13030: NEW OCHOCO HEIGHTS WELL/ NOT YET DRILLED: 1677 FEET NORTH AND 680 FEET EAST FROM SW CORNER SECTION 32, T14S/R16E, W.M.</p> <p>INDUSTRIAL PARK WELL/NOT YET DRILLED: 298 FEET NORTH AND 1908 FEET WEST FROM NW CORNER SECTION 31, T14S/R15E, W.M.</p> <p>STRYKER PARK WELL/NOT YET DRILLED: 277 FEET SOUTH AND 812 FEET EAST FROM SW CORNER SECTION 32, T15S/R16E, W.M.</p> <p>JUNIPER WELL/NOT YET DRILLED: 97 FEET NORTH AND 2493 FEET EAST FROM SW CORNER SECTION 32, T14S/R16E, W.M.</p>

The licensee may store up to 870 million gallons in an aquifer within the Deschutes Formation. With the approval of individual ASR well testing plans, up to five wells may be authorized. The maximum injection rate is 1,100 gallons per minute (gpm) per well. The maximum recovery rate is 1,400 gpm per well at the same five wells. The maximum storage duration is five years under this license.

Five ASR wells may be authorized at the following locations:

Well Name	Well Log ID	Well Location
ASR 1-Heliport Production Well	CROO 54191	1070 FEET NORTH AND 1710 FEET EAST FROM THE SW CORNER OF SECTION 11, T15S/R15E
ASR 2	(not yet drilled)	1691 FEET NORTH AND 462 FEET EAST FROM THE SW CORNER OF SECTION 11, T15S/R15E
ASR 3	(not yet drilled)	2569 FEET NORTH AND 327 FEET EAST FROM THE SW CORNER OF SECTION 11, T15S/R15E
ASR 4	(not yet drilled)	1141 FEET SOUTH AND 83 FEET EAST FROM THE NW CORNER OF SECTION 11, T15S/R15E

Well Name	Well Log ID	Well Location
ASR 5	(not yet drilled)	442 FEET NORTH AND 86 FEET WEST FROM THE SE CORNER OF SECTION 3, T15S/R15E

The ASR testing project shall be operated according to the following conditions, pursuant to OAR 690-350-0020(5). Failure to comply with any of the provisions of this license may result in action including, but not limited to, revocation of the license.

- 1) **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 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.
- 2) **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.
- 3) **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 license for any of the following reasons:
 - (i) to reflect changes in Oregon Health Authority Drinking Water Services (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 448.273) or OAR 340-40 (ORS 468B.165);
 - (iii) to address a written request from the applicant for minor adjustments to the authorization in the license.
 - (B) The Director may revoke, suspend or modify the ASR 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 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 license.
- 4) **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 retains the priority date and protection of the source water rights.

- 5) **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.
- 6) **Detailed Testing Plans.** The licensee shall submit a detailed testing plan for each injection well as the project develops. The plan shall include, but is not limited to, water quality and water level monitoring activities, precise well locations and well construction information. The plan shall be sealed and signed by a professional(s), registered or allowed under Oregon law, to practice geology. The licensee shall obtain the Department's approval of a detailed plan before injection testing at any well may begin. The Department may approve, condition or reject a plan. As the project installs new ASR wells, the Department will evaluate the water level monitoring plan's adequacy to describe the project's impact to the aquifer. If the Department determines the monitoring network is insufficient at that time, identification or installation of a dedicated observation well of similar depth and construction to the ASR well(s) will be required before approval of further testing.
- 7) **Well Construction.** Injection and recovery wells shall be continuously cased and continuously sealed into a competent layer directly above the target aquifer. The wells shall meet applicable well construction standards (e.g., OAR 690-200 and OAR 690-210). Following well drilling to total depth, the wells shall be thoroughly developed to remove cuttings and drilling fluids. The licensee or their agent shall consult with a Department Hydrogeologist and the Department's Well Construction and Compliance Section before well completion to obtain approval of the proposed final casing and seal depth. The wells shall be designed to limit the irretrievable loss of injected water to unsaturated zones.
- 8) **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 provide a split of the cuttings to the Department.
- 9) **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 from the Department and attach it to the well.
- 10) **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 according 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; and,
- (E) If during the course of ASR testing, a constituent regulated under OAR 333-61-030 (ORS 448.131 and 448.273) or OAR 340-40 (ORS 468B.165) is detected above the 50 percent level prescribed in condition (10)(B), the licensee shall immediately stop injection activities upon receipt of lab data and notify the Department within five days. Injection may recommence after constituent levels return to acceptable levels pursuant to (B) or (C) of this condition.
- 11) **Water Quality Monitoring.** The licensee shall sample and analyze injection, receiving and recovered water as described in the currently approved testing plan.
- 12) **Water Level Monitoring.**
- (A) The licensee shall monitor water levels in wells in the manner described in the currently approved testing plan.
- (C) Transducer data shall be verified with quarterly manual measurements if an e-tape can be lowered past obstructions to the water level. In the event a pump is pulled, or in the case of a newly drilled project well, the well shall be equipped with an unobstructed, dedicated measuring tube pursuant to Figure 200-5 in OAR 690-200.
- 13) **Recovery.** The amount of stored water available for recovery is based on the following factors:
- (A) Available stored water is determined on a well-by-well basis.
- (B) The following two-step accounting method applies to each annual cycle:
- (i.) The licensee may recover up to 95 percent of the quantity injected during the same water year.
- (ii.) At the end of each water year, 95 percent of the storage account balance is carried over to the next year. The storage account balance consists of the sum of water not recovered within the water year and water carried over from previous testing cycles.
- (D) Any water withdrawn from an ASR well identified in this 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 groundwater, thereby requiring separate or additional authorization. At no time does this license authorize withdrawal of more water than was credited by injection.
- (C) The availability of stored water is a running account that is subject to determination at any time.
- 14) **Use of Recovered Water.** The licensee shall use recovered water for the purposes described in the appropriate source water authorization.
- 15) **Annual Reporting.**
- (A) Except as otherwise noted, the licensee shall provide the Department a written report of the results of ASR testing for the previous water year by February 15th. The first report shall be due in 2020 and include results from water year 2019. Annual reports shall be sealed and signed by a professional(s) registered or allowed, under Oregon law, to practice geology. The report shall:

- Include the data collected during the water year
- Analyze those data to show the ASR project impacts on the aquifer
- Evaluate loss of stored ASR water and natural water by virtue of ASR activities
- Indicate the testing and development progress made under the terms of the license
- Account for the injection of stored water, withdrawals of stored and natural water, and the storage account balance at the ASR well(s)

(B) The licensee shall provide the following to the Department:

- (i) 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.
- (ii) 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.
- (iii) 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).
- (iv) Notification in the annual report of any changes in well construction.
- (v) 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) **Protection for Existing Users.** In the event of conflicts with existing appropriators, the licensee shall conduct all testing 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.

17) **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.

18) **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.

19) **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.

20) **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 and conditions of the license.

Dated at Salem, Oregon on April 24, 2019.



Dwight French
Water Rights Services Division Administrator
for Thomas M. Byler, Director
Water Resources Department

This order was produced by Jen Woody. If you have questions about the Department or any of its programs please contact our Customer Service Group at 503-986-0801 or 503-986-0810. 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.