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APR 04 2016

SALEM, OR

March 28, 2016

Jen Woody
Hydrogeologist
Oregon Water Resources Department
158 12th Street NE
Salem Oregon 97310

Subject: Request for a 5-Year renewal for Aquifer Storage and Recovery Limited License #005

Dear Jen:

On behalf of the City of Tigard (City), this letter requests a 5-year renewal of Aquifer Storage and Recovery (ASR) Limited License (LL) #005. The current ASR LL, authorizing ASR testing at five wells in the Columbia River Basalt Group (CRBG) aquifer, will expire on December 14, 2016. The City has two operational ASR wells: ASR 1 located on Canterbury Lane east of Bull Mountain and ASR 2 located on Bull Mountain Road at the western end of Bull Mountain (Figure 1). The City drilled a third ASR well, ASR 3, in 2007 that is located about 1,450 feet west of ASR 2. It is anticipated that ASR 3 will be brought on-line for service by 2020.

The original points of diversion (POD) listed on the ASR LL #005 are the Bull Run River and Tualatin River. The Department recently approved a modification of ASR LL #005 that added an additional POD, the Lake Oswego-Tigard Partnership Water treatment plant, for use of the Clackamas River as an additional source of water for ASR.

As part of its current testing program, the City continues to monitor the response of the basalt aquifer to ASR activities. The ongoing monitoring and testing are key to helping the City define additional areas to explore for ASR expansion. Besides developing ASR 3 by 2020, the City may also be interested in developing one or more additional ASR sites within their service area. Through the renewal of the ASR LL, the City would be able to better define the full extent of its ASR program, before applying for a full-scale ASR operational permit. The City requests a renewal of ASR LL #005 so that it can continue to explore the feasibility of expanding its ASR program in the Cooper Mountain-Bull Mountain area. Specifically, the City has not finalized the total number of proposed ASR wells that it would like to develop, and the exact locations of future wells are not established.

We understand that certain criteria must be met in order to grant a renewal of the ASR LL; a discussion of those points is provided below.

Compliance with the Terms and Conditions of the Current Limited License

Several terms and conditions are defined in ASR LL #005, such as groundwater level monitoring and water quality sampling. The City has complied with the terms of the ASR LL and has worked in good faith to report ASR pilot testing data to the Oregon Water Resources Department (Department) on a

regular basis. The City has never received a notice from the Department that it is out of compliance with the terms of the license. Specifically, the following has been completed to comply with the terms and conditions of the license:

Condition 1 – License Renewal

This letter requests a renewal.

Condition 2 – Notice Prior to Injection and Recovery

The City has notified the Watermaster in writing of ASR operations (injection and recovery activities) for each year of pilot testing under the ASR LL.

Condition 3 – Record of Use

The City has kept record of the injection and recovery volumes and has reported the data to the Department in the year-end reports (Condition 14).

Condition 4 – Modification/Revocation

Any proposed modifications to the ASR LL have been submitted to the Department in writing.

Condition 5 – Priority/Protection

The City understands that the ASR LL does not receive a priority date like a water right.

Condition 6 – Compliance with Other Laws

The City has complied with local, state, and federal permits and laws where applicable with regard to injecting acceptable water into the aquifer and pumping to waste. The City completed an Oregon Department of Environmental Quality (ODEQ) Underground Injection Control (UIC) permit before injection activities took place at each of the existing ASR wells.

Condition 7 – Detailed Testing Plans

The Department received an ASR work plan prior to pilot testing at each ASR well, and it has received addenda and/or revised work plans that outlined changes to the monitoring plans.

Condition 8 – Water Quality Conditions and Limits

Injected water has met all state and federal drinking water standards, with no exceedence of regulatory screening levels.

Condition 9 – Water Quality Sampling

The City continues to collect water quality samples in compliance with the Department-approved ASR work plans for each ASR well and continues to ensure that the water delivered to its customers meets or exceeds all federal and state drinking water standards.

Condition 10 – Water Level Monitoring

The City has monitored the hydraulic response in the regional aquifer to ASR activities in compliance with the Department-approved ASR work plans for each ASR well. Changes in the wells used for water level monitoring have been made from time-to-time (new points added and others dropped

based on data trends), and the Department has been notified of the changes via addenda and/or revised work plans.

Condition 11 – Well Construction

The injection and recovery wells are open to a single aquifer in the Columbia River Basalt group and meet applicable state well construction standards.

Condition 12 – Cuttings

Cuttings were collected at minimum 10-foot intervals and at major formation changes for new project wells. Split samples of washed cuttings were provided to the Department.

Condition 13 – Recovery

The City has recovered up to 95 percent of the stored volume each year. However, the City has appropriated native groundwater using its existing water rights, as needed, after the ASR account has been depleted and/or simultaneously with ASR stored water withdrawals. Yearly reports to the Department have documented the volumes of recovered water - both ASR stored water and native groundwater.

Condition 14 – Annual Reporting

Yearly ASR reports have been submitted to the Department since the start of ASR pilot testing.

Condition 15 – Special Reporting Condition

All hydrogeologic data collected and reports developed have been provided to the Department, including submission of digital water level data for all ASR wells and other wells measured in conjunction with the City's ASR program.

Condition 16 – Well Tag Condition for Licensee Wells

All wells have been assigned a Department Well Identification Number (Well ID Number). A tag showing the Well ID Number is permanently attached to each well and is used as reference in any correspondence regarding the well, including reports of water use, level or pump test data.

Condition 17 – Protection for Existing Users

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

Condition 18 – Use of Recovered Water

The recovered water has been put to beneficial municipal use as described in the water rights used to provide injection source water.

Condition 19 – Additional Conditions on an Informal Basis

The Department has not suggested additional conditions to the ASR LL since its issue date.

Condition 20 – Publicity

The City has kept the public informed of the ASR program through its annual Consumer Confidence Reports and through other presentations, publications and community meetings. In addition, the City has posted information about its ASR program on the City's official Web site.

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Condition 21 – Other Measures

No adverse effects have been observed, such as new seeps or landslide activation since the start of ASR. The City has worked with several property owners to abandon wells no longer in use that were completed in the basalt aquifer hosting the City's ASR system. Overall, the City continues to monitor for adverse effects resulting from ASR activities based on the approach and monitoring outlined in the approved ASR work plans.

Condition 22 – Carryover Storage

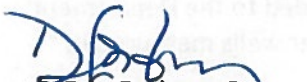
A running account of the volume of recovered ASR water has been submitted to the Department yearly.

Thank you for considering this request and please do not hesitate to call us at 503 239-8799 if you have questions.

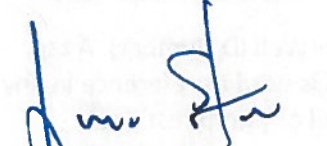
Regards,



Ted Ressler, RG, CWRE
Senior Hydrogeologist



DeEtta Fosbury, RG
Project Hydrogeologist



Larry Eaton, RG
Principal Hydrogeologist

Cc John Goodrich, Jennifer Joe, and Aaron Beattie — City of Tigard




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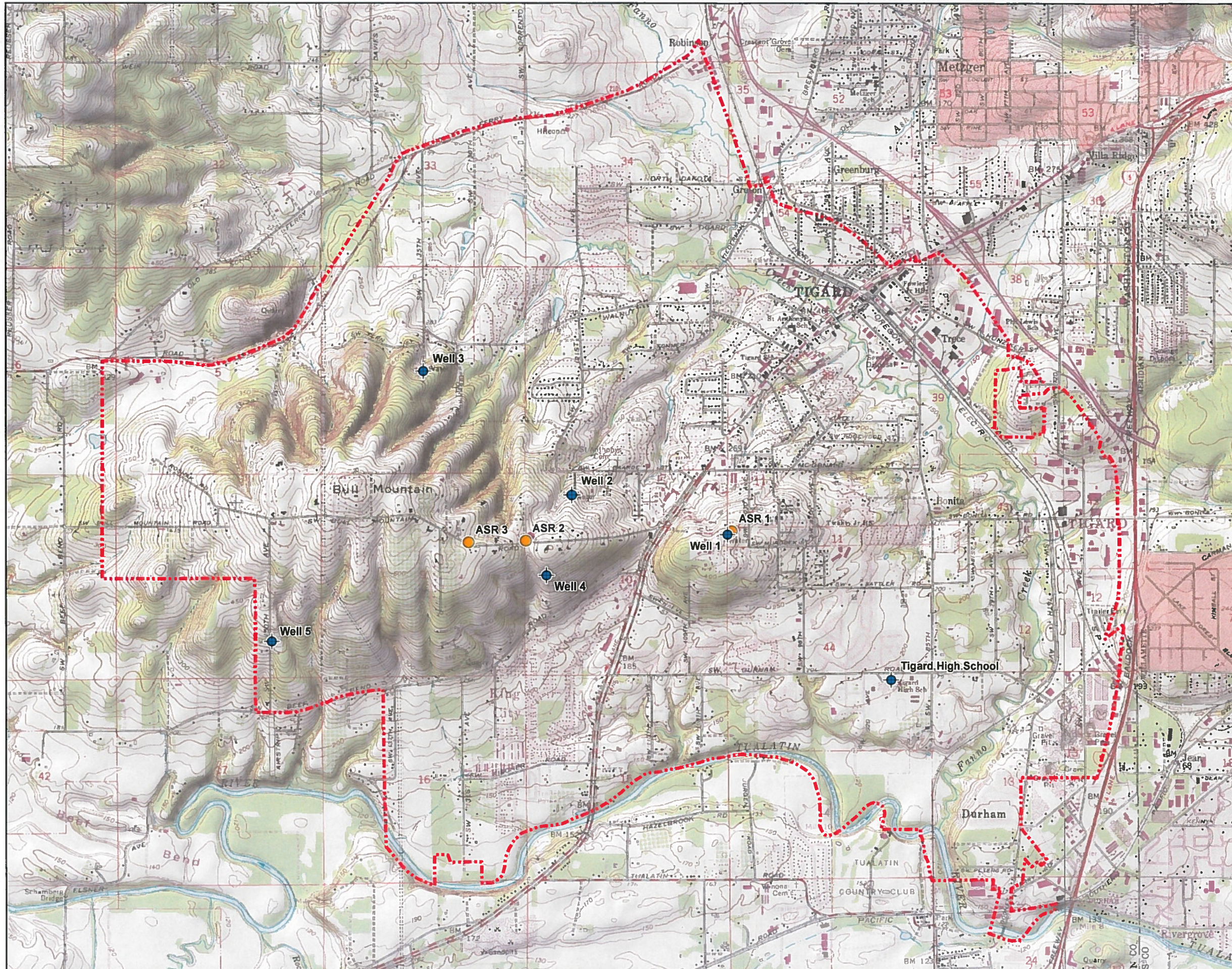
APR 14 2018

10:30 AM

FIGURE 1
Existing ASR Network
 City of Tigard

LEGEND

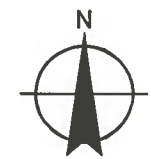
-  City of Tigard ASR Well
-  ASR Observation Well
-  City of Tigard Water Service Area Boundary



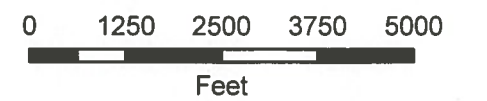
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Scale
 1:30,000



MAP NOTES:

Projection: Universal Transverse Mercator,
 Zone 10 North
 Datum: North American Datum of 1983
 Date: February 16, 2010
 Data Sources: City of Tigard, USGS

