

QUARTERLY PROGRESS REPORT NO. 9 Victoria ASR Demonstration Project

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From:
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ARCADIS Project No.:
25963002.0000

Subject:
Quarterly Progress Report for the Victoria ASR Demonstration Project (**Contract No. 1600011958**) for **October 1, 2018 through December 31, 2018**.

Introduction:

The Victoria Aquifer Storage and Recovery (ASR) Demonstration Project is being partially funded by the Texas Water Development Board (TWDB) under Rider 25 to HB 1 (General Appropriations Act) of the 84th Legislature. The “Project” generally consists of: permitting, designing, and constructing an ASR retrofit to an existing City of Victoria groundwater production well (Well No. 19); constructing a potable water pipeline for recharge and recovery purposes; conducting training and preparing an operation and maintenance (O&M) manual; cycle testing and assessment of the operational ASR well; and making presentations summarizing results. The Project Contractor is the Victoria County Groundwater Conservation District (the “Victoria County GCD”) and the primary Project Participant is the City of Victoria, Texas (the “City”). The Project consulting and engineering team consists of Arcadis U.S., Inc.; ASR Systems, LLC; and INTERA, Inc. (the “Arcadis Team”).

The purposes of this Quarterly Progress Report are to explain what work has been accomplished during the reporting period, and to describe any potential or anticipated challenges.

Work Completed:

Task 1: Project Management. During this reporting period the Arcadis Team continued with project management activities. Arcadis began work on the next quarterly invoice and progress report which will be reviewed and commented upon by the City of Victoria and the Victoria County GCD.

The Project participants also continued to hold monthly progress conference calls. The latest group call was held on December 20, 2018.

Task 2: Permitting. On April 28, 2017, the City received its authorization for a Class V Injection Well (Authorization No. 5X2500127). On July 17, 2017 the Arcadis Team received the letter of conditional approval for construction of the facilities from the TCEQ Plan Review Team.

Task 3: ASR Facilities Design. This task has been completed, with the exception of finalizing the as-built drawings.

Task 4: Retrofit of Well No. 19. On August 15, 2018 the City approved Weisinger making repairs to the well and the pump. Weisinger began work on the well on September 7, 2018. The proposed well repairs included: replenishing the gravel pack from 454 feet bgs to 409 feet bgs; plugging the well with gravel from 1,035 feet bgs to 830 feet bgs to cover and eliminate potential problem areas identified in the video; installing a 6-inch black steel liner and screen pipe base, with a swage from 6-inches to 14-inches to eliminate the pumping of sand between the liner and the casing; and installing a 14-inch blank liner to the surface with filter gravel in the annulus.

On Monday, October 29, 2018 Weisinger mobilized and delivered the 6-inch pipe and screens, and the 14-inch pipe to the jobsite. On October 30, Weisinger began installing the 6-inch pipe and screen sections into the well. On October 31 Weisinger completed installing the 6-inch pipe and began installing the 14-inch pipe in the well.

On December 10, 2018 Weisinger began re-installing the pump and pump column into the ASR well. On December 13, 2018 Weisinger re-installed the motor. On December 18, 2018, Mercer Construction began re-installing the building and the above-ground piping. See photos below.



Figure 1: Reinstalling Pump Column



Figure 2: Reinstalled Motor

Task 5: Potable Water Line Construction. Completed.

Task 6: Training and Preparation of O&M Manual. **Completed.**

Task 7: Cycle Testing and Assessment. The City began recharging with potable water from the distribution system on April 9, 2018. On April 9, 2018 the City began collecting water level and water quality data using the guidance provided in the *Start Up and Cycle Testing Operations Manual*.

On May 9, 2018 the City identified the problem with the well producing sand, and subsequently, engaged Weisinger Drilling to remove the pump, and investigate the reason for the production of sand. That work was begun on July 11, 2018. On July 20, 2018 Weisinger video logged the condition of the well. The video was reviewed by the City, ASR Systems and Weisinger. The responses are discussed above under Task 4.

By November 7, 2018 Weisinger had completed the well modifications discussed above under Task 4 and began installing the test pump. On November 13, 2018, Weisinger began the well development pump test under the direction of the City's representative, Lynn Short. At the beginning of the pump test, the static water level was at 44 feet bgs. The pump test began at a flow rate of 315 gpm. Weisinger slowly increased the flow rate over the course of two days to a final rate of 1,600 gpm, with the water level stable at 258 feet bgs, leaving 122 feet of water column above the pump. The produced water was clear with a minimal amount of sand produced and no gravel produced. The City collected water quality field samples during the pump test.

On December 20, the City used the newly-installed pump and motor to begin backflushing the ASR well piping. The 12-inch City potable water pipeline was also flushed. The City also collected bacteriological samples for analysis of water quality. Around January 3, 2019 the City plans to begin recharging the ASR well with potable water from the distribution system.

Task 8: Draft and Final Reports. The Arcadis team continues work on the sections of the draft report that can be completed to this stage in the Project.

Task 9: Presentations. No papers or presentations were completed in this quarter. In November 2018, Fred Blumberg submitted an abstract for an ASR presentation to the Capital Area Chapter of the TAWWA. If accepted, the presentation will be in February 2019.

Challenges Identified:

Task 7: Cycle Testing and Assessment.

No new challenges have been identified during this reporting period.