

QUARTERLY PROGRESS REPORT NO. 8
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 **July 1, 2018 through September 30, 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.

In July the Arcadis Team decided that the scheduled internal calls could be held monthly, with special calls as needed to address specific topics. The Project participants also continued to hold monthly progress conference calls. The latest group call was held on September 19, 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. Both the Weisinger and Mercer construction contracts have been completed with regard to the retrofit of Well No. 19. Because of the sand-production problem identified on May 9, 2018, Weisinger was engaged by the City to pull the pump and determine if there had been any damage. Weisinger began work on this investigation effort on July 11, 2018. Weisinger pulled the motor and disassembled the pump; and sounded the well to the bottom, finding little sand. The pump screen was found to have been damaged.

On July 20, 2018 Weisinger took a video of the well. Based on the video, it is suspected that gravel pack and formation material was pumped from the well out of the lap between the 10-inch liner and the 18-inch casing. The City requested proposals from Weisinger to make necessary repairs to the well and the pump. Those proposals were provided to the City on August 9 and 15, 2018.

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 well repairs included: replenishing the gravel pack from 454 feet bgs to 409 feet bgs; plugging the well with gravel from 1035 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.

Weisinger found the pump to be in reusable condition. Two 10-foot sections of column pipe were in poor condition and had to be replaced. The rubber inserts in the spider bearings were also damaged by sand and were replaced. The following pump parts were also replaced: pump bowl shaft; bowl bearings; suction case bearing; bowl wear rings; mechanical seal; and suction strainer. Weisinger also balanced the impellers.

As of the date of this progress report, the City is waiting on Weisinger to complete installation of the new liner.

Task 5: Potable Water Line Construction. The City has completed construction of the 12-inch potable water pipeline and the 2-inch trickle feed pipeline.

Task 6: Training and Preparation of O&M Manual. The training program for the City was conducted by Tom Morris of ASR Systems on May 8, 2018.

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.

Task 8: Draft and Final Reports. The Arcadis team continues work on the draft report.

Task 9: Presentations. No papers or presentations were completed in this quarter.

Challenges Identified:

Task 7: Cycle Testing and Assessment.

As discussed above, the City began recovering stored water on May 9, 2018 but stopped recovery because the well was producing sand. The City engaged Weisinger Drilling to determine if the sand damaged the pump and to investigate the cause of the sand problem. Weisinger began its investigation on July 11, 2018. The results of that investigation and the remedial action taken by the City are discussed above.

A summary of additional project costs incurred during this period is provided on the following page.