

## QUARTERLY PROGRESS REPORT NO. 6 Victoria ASR Demonstration Project

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From:  
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Date:  
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ARCADIS Project No.:  
25963002.0000

Subject:  
Quarterly Progress Report for the Victoria ASR Demonstration Project (**Contract No. 1600011958**) for **January 1, 2018 through March 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 84<sup>th</sup> 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.



Figure 1: Existing Well 19 Pumphouse and Piping

## 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 March 15, 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. During this reporting period the Team addressed any questions from the two contractors working on the Project.

Task 4: Retrofit of Well No. 19. On September 14, 2017 Weisinger Inc. conducted the first video logging of Well 19. The video showed extensive corrosion to the mild steel casing and the mild steel pipe base supporting the stainless-steel well screen, with what appeared to be integrity loss near 586 feet bgs. The Arcadis Team with input from Weisinger and the City developed a modified rehabilitation approach that included aggressive treatment with 15 percent hydrochloric acid and an acid enhancer. On December 22, 2017, the well rehabilitation had been completed. A second video logging was completed on January 9, 2018.

The second video showed that the well rehabilitation improved the condition of the well, but primarily in the upper two of the seven screen intervals. Of the original 270 feet of well screen in Well 19, about 82 feet (30 percent) was effectively rehabilitated. The Arcadis Team recommended to the City that the well has been rehabilitated to a satisfactory condition so that the remainder of the work can be completed.

During a conference call on January 18, 2018, both contractors (Weisinger and Mercer) reported that all materials are on hand for completion of the remaining construction work. Weisinger completed installation of the pump and welding the flange on the top of the casing pipe during the week of January 22, 2018. Weisinger began installing the new motor on March 26, 2018. See photo to right.



Mercer Construction began work on the ASR above-ground piping and facilities in early February 2018. Despite some continual light rain, Mercer made reasonable progress. Most of the work was completed by the week of March 12, 2018. See photo below.



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. Following its review of the second video log, the Arcadis Team completed drafting the training program and the *Start Up and Cycle Testing Operations Manual*. The *Manual* was sent to the City for its review, and the City provided its comments on March 8, 2018. A follow up conference call was held on March 22, 2018. The Arcadis Team is in the process of revising the *Manual* to address the comments.

The training program for the City is currently scheduled for May 8, 2018.

Task 7: Cycle Testing and Assessment. Following the rehabilitation of Well 19, the Arcadis team began developing the approach to be used for well development and cycle testing. Additional information will be provided to the City during the field portion of the training program on April 13, 2018.

Task 8: Draft and Final Reports. No work has been completed on this task in this reporting period.

Task 9: Presentations. In September 2017 Fred Blumberg submitted an abstract for a presentation on the ASR demonstration projects to *Texas Water 2018*. On December 15, 2017, Mr. Blumberg was notified that the abstract had been approved. The presentation will be given by members of the project team on April 26, 2018.

On February 22, 2018 Fred Blumberg gave a presentation on the status of the Project to the Capital Area sections of the American Water Works Association and the Water Environment Federation.

### **Challenges Identified:**

Task 4: Retrofit of Well No. 19. The first video of Well 19 conducted in September 2017 showed extensive corrosion to the mild steel casing and the mild steel pipe base supporting the stainless-steel well screen, with what appeared to be integrity loss near 586 feet bgs. Therefore, the project team (including Weisinger, Inc., the City and the Arcadis Team) collaborated and developed a modified approach to cleaning and rehabilitating the well, as discussed in the previous Progress Report. That work was completed in December 2017, followed by a second video log on January 9, 2018.

Task 7: Cycle Testing and Assessment. Based on the review of the video and the results of the modified rehabilitation approach, the expected ASR recharge rate will likely be lower than anticipated. In addition, the static water level in Well 19 is significantly higher than anticipated during the feasibility study based on the City's data at the time. Since the work on Well 19 began, the static water level has ranged from 30 feet bgs to 22 feet bgs, which is higher than anticipated the 100 feet bgs. Therefore, the recharge rate will likely be lower than the 800 gallons per minute (gpm) estimated during the feasibility study. The recharge rate may be in a range of approximately 350 gpm to 550 gpm. With a lower recharge rate, less water than anticipated will be put into storage during the demonstration period.