

March 6, 2019

Mr. Justin Martin, P.E.  
Manager of Engineering and Operations  
City of Marco Island Water and Sewer Department  
50 Bald Eagle Drive  
Marco Island, FL 34145

**RE: Proposal to Provide Well Rehabilitation Oversight Services  
City of Marco Island RO Wellfield Improvements  
Marco Island, Florida**

Dear Mr. Martin:

Water Science Associates is pleased to present this proposal to provide hydrogeological services to the City of Marco Island Water and Sewer Department to oversee the rehabilitation of raw water production wells RO-17 and RO-18 in the City's RO wellfield. The 2018 evaluation of the City's wellfield performance data identified trends in salinity and capacity which indicated that rehabilitation efforts should be targeted at wells with low capacity and low salinity. Based on the evaluation, an initial program of targeted hydrochloric acid treatment and air development has been designed to treat wells RO-17 and RO-18 and bid specifications for implementation of the rehabilitation program have been prepared. Water Science Associates proposes to provide well remediation and testing oversight and reporting services to insure successful completion of the work described in the project specifications. The scope of services proposed includes coordination, supervision, and documentation of the project from the notice to proceed through the final acceptance of the work by the City and including a post-treatment evaluation report.

## **Task 1. Project Coordination**

Water Science Associates will coordinate with the City and the City's contractor to develop a logistical strategy so that the contractor can efficiently proceed with rehabilitation work in a manner that minimizes interference to the City's wellfield operations. Water Science will obtain the required submittals and notifications from the contractor and provide technical review to ensure that they are in accordance with the specifications. Water Science will also review the contractor's proposed schedule, wastewater disposal plans, subcontractor list, and other required preconstruction submittals and provide assurance to the City that the contractor's submittals meet the requirements of the bid specifications. Water Science will review contractor invoices and provide guidance to ensure that invoices agree with the work performed and meet the City's invoicing and payment requirements.

**Task 1 Lump Sum: \$ 3,500.00**

## **Task 2. Acidification Oversight**

Water Science will provide a Field Geologist to oversee the treatment and testing of the two wells. The anticipated duration for the rapid rate acidification including pre- and post-testing is five 8-hour days, or approximately 40 hours. The anticipated duration for the slow rate acidification including all pre- and post-testing is five 24-hour days or approximately 120 hours. We propose to be onsite during key steps of the investigation and treatment process which includes pre-treatment specific capacity testing, well flow suppression, pump removal, geophysical logging, acidification, and post treatment specific capacity testing. We estimate the average onsite hours of the Field Geologist to be about 30 hours for the fast rate acidification and 60 hours for the slow rate acidification. We will coordinate with the City and the selected drilling contractor to complete the treatment process in the most efficient way possible without disruptions to CITY's normal well operating schedule and/or well rotation.

**Task 2 Lump Sum: \$ 14,500.00**

### Task 3. Data Analysis and Report

Water Science Associates will provide pre- and post- acidification test analysis and prepare a final report that will include detailed description of work performed, methods used to analyze data, analysis results, and provide recommendations to the City for operation of improved wells. The report will have a summary of results and tabulations / plots showing before and after capacities of the treated wells. We will also review original well completion reports of the selected wells (if available) and provide a comparative analysis of post-treated specific capacity vs original specific capacity of the selected wells.

Task 3 Lump Sum: \$ 8,000.00

### Task 4. Meetings and Project Administration

Water Science Associates anticipates participating in up to 3 project team meetings including a pre-construction/pre-mobilization meeting, a progress meeting after completion of one well, and a post-treatment evaluation meeting once the work is complete and the results of the evaluation can be presented to the City.

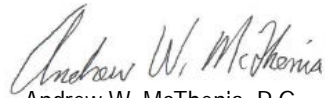
Task 4 Time and Materials: \$ 3,500.00

We appreciate the opportunity to provide a proposal for hydrogeologic services on your behalf. Should you have any questions or would like additional information, please do not hesitate to contact Kirk Martin or Andrew McThenia via phone or email.

Sincerely,



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