Monthly Letter Progress Report #5 - July & August 2016
Study of Brackish Aquifers in Texas – Project No. 3 – Rustler Aquifer
TWDB Contract No. 1600011949

Submitted to
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711

Prepared by:

INTERA
GEOSCIENCE & ENGINEERING SOLUTIONS

INTERA Inc.
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512/425-2000

October 12, 2016
Study of Brackish Aquifers in Texas – Project No. 3 –
Rustler Aquifer
TWDB Contract No. 1600011949

1.0 Budget and Expenses

This report summarizes the project costs for the billing period of July and August 2016. The total billed expenses through August 2016 are $200,000. A budget breakdown by tasks is provided in Table 1. A copy of the progress report has been sent to TWDB contracts department along with the monthly invoice. At this date the contract is complete with all deliverables delivered on time and there is no budget remaining.

<table>
<thead>
<tr>
<th>TASK</th>
<th>DESCRIPTION</th>
<th>Budget</th>
<th>Invoices</th>
<th>Remaining Budget</th>
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<tbody>
<tr>
<td>1</td>
<td>Project Management</td>
<td>$ 5,234.75</td>
<td>$ 231</td>
<td>$ 3,418</td>
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<tr>
<td>2</td>
<td>Delineate Vertical &amp; Horizontal Extent of Fresh, Brackish &amp; Saline Groundwater</td>
<td>$ 80,687.86</td>
<td>$ 25,928</td>
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<td>3</td>
<td>Quantify Volume of Fresh, Brackish &amp; Saline Groundwater</td>
<td>$ 24,678.93</td>
<td>$ 11,367</td>
<td>$ 13,360</td>
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<td>4</td>
<td>Delineate Potential Production Areas</td>
<td>$ 22,531.76</td>
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<td>5</td>
<td>Determine Availability</td>
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<td>$ 13,355</td>
<td>$ 14,187</td>
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<tr>
<td>6</td>
<td>Final Report, Documentation &amp; Technology Transfer</td>
<td>$ 40,780.36</td>
<td>$ 24,514</td>
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<tr>
<td>Total</td>
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<td>$ 200,000</td>
<td>$ 85,015</td>
<td>$ 114,985</td>
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Table 1. Project Budget Versus Expenses

2.0 Progress on Tasks

This report summarizes activities on project tasks for July and August of 2016 and is the fifth and final contract progress report.

Task 1 Project Management

INTERA Project Management in the months of July and August activities were focused on delivery of the Draft and Final reports for the Study of Brackish Aquifers in Texas, Project No. 3: Rustler Aquifer, TWDB Contract 1600011949.
On August 9th INTERA participated in and presented at a Stakeholder Meeting held for the HB-30 Projects at the TWDB.

**Task 2 Delineate Vertical and Horizontal Extent of Brackish and Saline Groundwater**

Work on Task 2 was essentially complete prior to July. However, Dr. Carlos Torres-Verdin and his group at the University of Texas submitted their invoice in August. There work covered by the invoice was related to development of the Draft Techniques Report (Subtask 2.2) and the detailed analysis of geophysical logs at key wells and the development of porosity estimates for all key wells with porosity logs (Subtask 2.6).

**Task 3 Quantify Volume of Fresh, Brackish and Saline Groundwater**

In July INTERA completed the development of the tool to calculate volume of saline and fresh groundwater within the Magenta dolomite, the Culebra dolomite, and the Los Medanos limestone. INTERA worked with the TWDB to make sure that the code computed the desired output in a format desired by the TWDB. Volume tables were all calculated and checked for reporting.

**Task 4 Delineate Potential Production Areas**

**Task 4.1 - Refine Hydrostructural Model and Transmissivity Estimates**

Through the process of development of fresh and saline groundwater volumes, significant effort was expended to get the aquifer structure (thickness) in a self-consistent format. This required many iterations because of the complexity of structure within the aquifer. This work was completed in July.

**Task 4.2 – Map Hydrogeologic Barriers**

No additional progress was made on this task.

**Task 4.3 – Identify Protected Areas**

No additional work was performed under this task in July or August.

**Task 4.4 – Identify Potential Production Areas**

No additional work was performed in defining Potential Production Areas (PPAs) in July or August. These were defined by the stakeholder meeting held in Fort Stockton on June 16th.

**Task 4.5 – Potential Production Area Meeting with TWDB**

No additional work was performed under this task in July or August.

**Task 5 Determine Availability of Brackish Groundwater in Potential Production Areas**

Preliminary ideas regarding well fields and the method for modeling well fields were developed in June. On June 22nd INTERA had the first of meetings with TWDB BRACS staff to review our ideas regarding well fields and to present a preliminary modeling approach as well as preliminary results. INTERA received feedback on our approach and a follow-up meeting was planned and held on July 13th 2016. All availability modeling of the five Potential Production Areas was completed in July.
Task 6 Final Report, Documentation and Technology Transfer

INTERA Project Management in the months of July and August activities were focused on delivery of the Draft and Final reports for the Study of Brackish Aquifers in Texas, Project No. 3: Rustler Aquifer, TWDB Contract 1600011949. The Draft Report was delivered on time 8 AM of the first business morning after July 31st. INTERA responded to comments in August and the Final Report was delivered on time September 1st.

3.0 Planned Activities for the Next Month

The contract is complete.
# HUB Subcontracting Plan (HSP)

## Prime Contractor Progress Assessment Report

This form must be completed and submitted to the contracting agency each month to document compliance with your HSP.

**Contract/Requisition Number:** 1600011949  
**Date of Award:** 1/6/2016  
**Object Code:** (Agency Use Only)

**Contracting Agency/University Name:** Texas Water Development Board

**Contractor (Company) Name:** INTERA Incorporated  
**State of Texas VID #:** 1743010638-9000

**Point of Contact:** Kris Spencer  
**Phone #:** 512-425-2044

**Reporting (Month) Period:** July - August 2016  
**Total Amount Paid this Reporting Period to:** $85,015.41

## Report HUB and Non-HUB subcontractor information

<table>
<thead>
<tr>
<th>Subcontractor's Name</th>
<th>Subcontractor's VID or HUB Certificate Number</th>
<th>Total Contract $ Ammount from HSP with Subcontractor</th>
<th>Total $ Amount Paid This Reporting Period to Subcontractor</th>
<th>Total Contract $ Amount Paid to Date to Subcontractor</th>
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<td>Jack Sharp</td>
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**TOTALS:** $58,000.00 $31,794.58 $52,830.03

*Note: HUB certification status can be verified on-line at: [http://www2.cpa.state.tx.us/cmbl/hubonly.html](http://www2.cpa.state.tx.us/cmbl/hubonly.html)*

**Signature:** Kris Spencer  
**Title:** AE/HUBSpens  
**Date:**

Rev. 10/07