

Monthly Letter Progress Report #4– July 2016
Study of Brackish Aquifers in Texas – Gulf Coast Aquifer
TWDB Contract No. 1600011947

Submitted to:

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1.0 Budget and Expenses

This report summarizes the project costs for a billing period from 6/01/2016 to 6/30/2016. The total invoice is \$79,284.14. The total expenditures to date are \$288,206.65. 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.

Table 1. Planned and Incurred Expenses by Task Progress by Tasks

TASK	DESCRIPTION	Budget	Invoices			Remaining Budget
			Current	Previous	Total	
1	Project Management	\$22,740.00	\$0.00	\$5,764.23	\$5,764.23	\$16,975.77
2	Delineate Fresh, Brackish, and Saline Groundwater	\$196,650.00	\$39,994.37	\$142,414.53	\$182,408.90	\$14,241.10
3	Quantify Groundwater Volumes	\$52,430.00	\$7,476.33	\$26,890.74	\$34,367.07	\$18,062.93
4	Delineate Brackish Groundwater Zones	\$93,160.00	\$20,149.96	\$20,952.34	\$41,102.30	\$52,057.70
5	Stakeholder Communications	\$11,815.00	\$5,130.22	\$201.45	\$5,331.67	\$6,483.33
6	Determine GW Brackish Groundwater Over 30-year and 50-year Periods	\$92,690.00	\$6,533.26	\$12,699.22	\$19,232.48	\$73,457.52
7	Reporting and Deliverables	\$30,515.00	\$0.00	\$0.00	\$0.00	\$30,515.00
Total		\$500,000.00	\$79,284.14	\$208,922.51	\$288,206.65	\$211,793.35

Progress on task is reported through July 25, 2016.

2.0 Tasks Update

Task 1 Project Management

Finalized contract with Corolla.

Met with the TWDB staff on July 7 to discuss comments project progress including application of the Ro-TDS method, developing salinity zones, and modeling potential production areas.

Met with TWDB staff on July 15 to discuss database deliverables.

Met with Justin Sutherland of Corolla to discuss deliverable for the draft final report.

Task 2 Delineate Fresh, Brackish, and Saline Groundwater

We have entered the logs used for developing the Ro-total dissolved solids (TDS) into the TWDB database deliverable. For each log, we have recorded the sand pick location and the formation resistivity associated with the sand interval. All tiffs and the raster for the logs that were used to develop the Ro-TDS graph have been entered into the TWDB database deliverable.

We have developed appropriate coefficients to convert “calculated” TDS using the Ro-TDS method to “measured” TDS values so that we can develop our salinity zones for the Texas Gulf Coast Aquifer based on “measured” TDS values.

We have completed sand percentage and sand thickness maps for all of the formations. The sand maps were developed using only results from our picks of sands and clays from this project.

Task 3 Quantify Groundwater Volumes

We have uploaded sand picks and estimated TDS concentrations into the volume calculator and have successfully calculated volumes of fresh, slightly saline, moderately saline, very saline, and brine groundwater. To help estimate these volumes, we used control points in the most up dip regions and regions along the shoreline. These control points are based on sand and clay profiles from approximately 80 drillers logs. We have estimated elevations for the base of freshwater from 80 control points that have measured TDS concentrations in water wells. The driller log information has been entered in the TWDB database deliverable.

Task 4 Delineate Groundwater Brackish Zones

We have integrated results from the Ro-TDS and the Rwa method to develop interim base of TDS concentrations of 1,000 mg/L, 3,000 mg/L; 10,000 mg/L; and 35,000 mg/L. We are developing the surfaces by making computer picks of surfaces on approximately 600 logs and then visually checking each computer pick and adjusting them based on personal judgement. We have interim surfaces for the base of freshwater and the moderately saline surfaces. The surfaces are being checked by plotting results along vertical cross-sections and by visualizing the surfaces in ArcGIS.

Task 5 Stakeholder Communications

No work performed.

Task 6 Determine Volume of GW Brackish over 30-year and 50-year Periods

We have identified at least two potential production areas (PPA) for each of the five cross sections that we are modeling. The five cross-sections are #2, #8, #16, #19, and #22. At each production area, we are simulating groundwater pumping from three well fields. For a given PPA, the three wellfields have the same center location but different in the number of wells and the total pumping rate. The currently total pumping rates we are simulating for 30 years and 50 years for each PPA is 3 AFY, 10, AFY and 15 AFY.

We currently have 14 PPAs located on the five cross-sections. Since each PPA has three well fields and three pumping scenarios, the total number of pumping scenarios is 42. The well fields pump the Goliad, Lagarto, Oakville, and Catahoula formations.

3.0 Planned Activities for the Next Month

Task 1 Project Management

Continue coordination with the TWDB and our subcontractors.

Task 2 Delineate Fresh, Brackish, and Saline Groundwater

Complete the documentation database deliverables.

Task 3 Quantify Groundwater Volumes

Perform final calculation of groundwater volumes for different water quality categories.

Task 4 Delineate Potential Production Areas

Complete the modeling of pumping from the PPAs over 30-year and 50-year periods.

Task 5 Stakeholder Communications

No work planned.

Task 6 Determine Volume of GW Brackish over 30-year and 50-year Periods

Finalize the technical methodology report and draft sections of the final report.

Task 7 Reporting and Deliverables

In coordination with the TWDB, we developed a draft outline for the final report and are working to complete the report this week.

4.0 Problems/Issues and Actions Required/Taken

The development of the salinity zones has been more difficult than anticipated. We plan to finalize the surfaces later this week but the development of these surfaces has delay completion of the draft final report and the revised methods report. We are on track to submit all deliverables by close of business on August 1, 2016.