

PROGRESS REPORT
FOR PERIOD ENDING JUNE 11, 2019

PROJECT: Development and maintenance of a computer model to simulate groundwater flow and saltwater encroachment in the Baton Rouge Sands, Louisiana.

COOPERATING AGENCIES: Capital Area Ground Water Conservation Commission, Louisiana Department of Transportation and Development, City of Baton Rouge and Parish of East Baton Rouge

PROJECT CHIEFS: Max Lindaman and Chuck Heywood

PERIOD OF PROJECT: Oct. 2012 to Sept. 2022

PROBLEM: Large water withdrawals from aquifers in East Baton Rouge Parish have resulted in northward encroachment of saltwater across the Baton Rouge fault toward the public and industrial supply wells. Groundwater flow and solute transport models are needed for the Baton Rouge sands to simulate the effects of past, current, and a variety of possible future pumping scenarios and provide a tool to evaluate possible management alternatives.

OBJECTIVE: To develop a computer model that can be used as a tool to simulate past, current, and possible future conditions in Baton Rouge area sands.

PROGRESS AND SIGNIFICANT FINDINGS:

1. Analyzed residual (observed minus simulated water levels) distributions in the “400-ft,” “600-ft,” “800-ft,” and “1,000-ft” sands to identify and alleviate model errors.
2. Adjusted groundwater flow and transport-model parameters to fit simulated chloride concentrations to concentrations measured in the “600-ft” and “1,000-ft” sands since 1947.
3. Constructed a SEAWAT model to test if refined vertical discretization might improve simulation of density effects on saltwater stratification in the “600-ft sand” sand.

PLANS FOR NEXT QUARTER:

1. Begin writing report documenting simulation of flow and transport in the “400-ft,” “600-ft,” “800-ft,” and “1,000-ft” sands.
2. Finalize calibration of simulated chloride concentrations to historic chloride measurements in the “600-ft” and “1,000-ft” sands.
3. Identify cooperator concerns in the “400-ft,” “600-ft,” “800-ft,” and “1,000-ft” sands, consider water-management alternatives amenable to groundwater model analysis, and formulate future scenarios to evaluate the possible alternatives.

PROBLEMS/CONCERNS:

Publication of the report “Simulation of Groundwater Flow and Chloride Transport in the “1,500-Foot”, “2,400-Foot”, and “2,800-Foot” Sands of the Baton Rouge Area, Louisiana” has been delayed.