PROGRESS REPORT
FOR PERIOD ENDING NOVEMBER 30, 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. The report, "Simulation of Groundwater Flow and Chloride Transport in the "1,500-Foot" Sand, "2,400-Foot" Sand, and "2,800-Foot" Sand of the Baton Rouge Area, Louisiana," was formatted for printing, and minor corrections to figures were incorporated into the pre-print proof.
2. Historical groundwater withdrawals from the "400-ft" sand and the upland terrace, Gonzales - New Orleans, and upper Ponchatoula aquifers were compiled or estimated and incorporated into the model. Reported or estimated groundwater withdrawals for 2017-18 also were compiled and incorporated into the latest MODFLOW model, which focuses on simulating conditions in the "400-ft," "600-ft," "800-ft," and "1,000-ft" sands. The model now includes over 27,000 annual withdrawal rates specified for about 970 wells during the period 1940–2018.

PLANS FOR NEXT QUARTER:

1. Compile water-level and chloride-concentration for 2017-18 and in corporate those data into calibration datasets for the model.
2. Rerun PEST calibration of the latest MODFLOW model to evaluate effect of 2017 and 2018 specified withdrawals.
3. Continue documentation of the model to simulate flow and transport in the "400-ft," "600-ft," "800-ft," and "1,000-ft" sands.
4. Discuss and identify 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 hypothetical scenarios to evaluate the possible management alternatives.

PROBLEMS/CONCERNS:

None.