

Geological Characterization Study

Oil Storage Terminal Grand Bahama Island, Bahamas

GeoView, Inc. performed a geophysical investigation across a 65-acre area where construction of bulk oil storage tanks was proposed. The purpose of the investigation was to evaluate the condition of the underlying limestone. Of primary concern was the presence of localized areas of weathered limestone or other karst-related features (e.g., voids or fractures) that might create weak zones within the limestone rock.



The investigation was conducted using Electromagnetics (EM) and Electrical Resistivity Imaging (ERI). The EM method was conducted using an EM-31 and an EM-34. This evaluated conditions from 5 to an approximate depth of 45 feet below land surface. The ERI method evaluated conditions to 90 feet below land surface. The EM survey was conducted across the entire project area, while the ERI survey was conducted only across areas where suspect areas were identified by the EM survey. The purpose of the EM survey was to map the lateral extent of weathered/weakened

limestone rock. The purpose of the ERI survey was to confirm the EM results and provide the vertical extent (depth) of the weakened rock.

An excellent correlation between the EM and ERI survey results was obtained. Results from the surveys showed the presence of multiple areas of increased conductivity and it is suspected these highly conductive zones are associated within localized areas of preferential limestone weathering and fracturing.

The ERI survey also identified an area of highly resistive material in the northeastern portion of the survey area. This area is suspected to have a highly resistive limestone, i.e., with minimal weathering, which will allow for an excellent foundation and provide for a possible upsizing of the tanks in this area.

