The Federal Energy Regulatory Commission (FERC) has initiated a program to implement Potential Failure Modes Analyses (PFMA) for hydroelectric projects subject to the Part 12D Inspection process. The PFMA is a new component of the Dam Safety Inspection process. The intent is to develop potential failure modes for the Project and qualitatively assess each to determine its relative impact on dam safety. RIZZO performed the PFMA study and Part 12D Inspection for the Abbeville Hydroelectric Project. It was the first PFMA completed for this project. Therefore, additional effort was spent on this task so that all failure modes are clearly identified and evaluated. Results of this PFMA study will be used to ensure that future Dam Safety Inspections are more focused on those failure modes that have a significant impact on the overall safety of the Project. The work included collection and review of all relevant background information and preparation of a Support Technical Information Document, site inspection of the facilities, participation in the PFMA brainstorm session and preparation of the PFMA Report. RIZZO also performed geological investigation of the spillway foundation and the Part 12D site inspection with subsequent report.

RIZZO began the Project with a thorough review of all available project data, including monitoring and instrument readings, project records, construction activities, inspection reports, project drawings, studies, and analyses. Based on the review of the project documents, appropriate information was summarized and incorporated into the Support Technical Information Document (STID). The next step was a two day site inspection and participation in the PFMA brainstorm session. During the site inspection prior to the PFMA study, voids and open joints were observed in the bedrock foundation.
downstream of the spillway structure. The PFMA team recommended involving an engineering geologist to evaluate the bedrock foundation. RIZZO geologist inspected the spillway channel, mapped geological features and documented the foundation conditions. The evaluation also included rock mass quality analysis and evaluation of degree and rate of weathering. Following the PFMA session RIZZO performed the independent consultant’s Part 12D inspection. During the inspection particular attention was placed on features identified during the PFMA as having higher credibility of potential failure. The team developed risk reduction measures and a Performance Monitoring Program (PMP) for those failure modes.