E²G’s former International Business Unit (IBU) performed an RBI study on a cryogenic, double-walled ethylene tank located at the Qatar Chemical Company (Q-Chem). The facility is in Mesaieed, Qatar. Q-Chem is a JV with Chevron-Phillips Chemicals. The study was performed to determine whether a 10-year inspection on the tank could be deferred.

A mathematical model and related API RBI workaround was developed for determining the probability of failure for the tank’s double-walled geometry. E²G was able to show the tank’s out-of-service inspection, planned for 2014, could be deferred until 2022. This is significant since out-of-service inspections of cryogenic tanks cannot only interrupt operations but can create safety and structural concerns with warming and gas-freeing the tank for inspection. Additionally, we reviewed the mechanical integrity program for the tank and recommended several upgrades to their program to reduce risk for the tank, including formal visual external inspections conducted on at least a five-year interval, UT inspection of the tank’s outer shell at API 653 intervals, monitoring the cathodic protection system every 2 months, continuous monitoring of the tank’s foundation heater system, review of the tank’s pressure relief systems, and measurement and evaluation of tank settlement.

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