RIZZO Associates completed an evaluation of potential locations throughout the United Arab Emirates (UAE) using multiple siting criteria (including seismic activity, availability of water, environmental impacts, and population density criteria) along with a mathematical ranking model to identify appropriate locations for the siting of Nuclear Power Plants (NPP).

RIZZO performed Site Characterization for two of the highest ranked sites. These sites pose difficult working conditions including remote locations and weather extremes.

Site Characterization activities included the following:

- **Field Investigation:** Onshore boring program – more than 100 borings to support and develop Generation III designs of 1,000 to 1,600 Megawatt (MWe) rating. The investigation provided geotechnical and geohydrological information to the potential Technology Vendors to allow them to identify and mitigate ground risks; offshore boring program; onshore and offshore geophysics and geotechnical measurements; oceanographic bathymetric survey; and laboratory program per United States Nuclear Regulatory Commission (USNRC) Regulatory Guide (RG) 1.138.

- **Data Collection:** Monitoring well networks and ongoing (monthly) measurements; water quality sampling – groundwater and seawater; sediment and soil quality sampling; robust baseline marine and terrestrial baseline surveys (seasonal).

- **2.1 Geography and Demography:** Describing the location and boundaries of the Site, the Site exclusion area, and the distribution of the population within 80 kilometers (km) of the Site, including projections for the duration of the Operating License.

- **2.2 Nearby Industrial, Transportation, and Military Facilities:** Describing the nature of relevant facilities within 8 km of the Site, descriptions of the potentially hazardous materials stored or transported, and an evaluation of potential accidents at the facilities, including air transport.

- **2.3 Meteorology:** Describing the regional, local, and on-site meteorological conditions including several years of on-site meteorological data collection (i.e., meteorological tower, 10 meter (m) and 60 m instrumentation). RIZZO also performed peak wind analysis for the Site.

- **2.4 Hydrologic Engineering:** Describing the local surface water and groundwater hydrology, including normal and extreme conditions; extensive field studies including the installation of surface water and groundwater monitoring systems, data collection, and modeling; coastal flooding analysis (i.e. tsunami, storm surge, winds); wind-wave effects; wave runup analysis; and evaluating dispersion of radioactive materials through surface and groundwater. These results of these analyses provided hazard data and projections as input to the determination of a safe and conservative site grade elevation.
2.5 Geology, Seismology, and Geotechnical: Investigations were conducted to describe the site geological setting and perform a detailed evaluation of the seismic conditions, including a Probabilistic Seismic Hazard Analysis (PSHA), which potentially affect the design of foundations and structures. An extensive field work program (borings, geophysical testing, and laboratory testing) and analysis was required to support siting of the plant and its related safety structures and components.

Strategic Environmental Assessment/Environmental Impact Assessment (EIA): Oceanography studies were conducted (i.e., effluent and thermal dispersion and recirculation) and completed in accordance with the USNRC, UAE, and EIA preparation requirements. Complete baseline studies of the terrestrial environment were completed, including seasonal surveys. RIZZO is supporting the Emirates Nuclear Energy Commission (ENEC) in a Phase 4 continuing study. RIZZO has been supporting the Client to answer questions and Requests for Additional Information (RAI) from the regulatory agencies.

All work was completed in accordance with RIZZO’s Quality Assurance (QA) Program in compliance with 10 CFR 50, Appendix B and ASME NQA-1-1994. The Program was audited and approved by many Clients.