**RIZZO Associates (RIZZO)** performed plant layouts for the Russian AES-2006 1200 MWe design for the Akkuyu Site. RIZZO also performed site characterization for a SAR Chapter 2 per Turkish (TAEK) and IAEA requirements. The Scope of Work (SOW) provides site specific information to reduce the risk of key unknowns in the design process.

Primary outputs of the site investigation are:

- Design site layouts including cooling water conveyances;
- Determination of the site grade;
- Determination of the bounding Safe Shutdown Earthquake (SSE);
- Identification of foundation conditions;
- Determination of possible foundation methods for key structures and determination of a proposed excavation approach;
- Review and use of a significant body of existing site characterization work by others; and
- Provide a description of the site addressing the requirements of PSAR Chapter 2, Site Characterization, sufficient to obtain a License to Construct from the Turkish Regulatory Authority (TAEK).

Site characterization activities include the following:

- **Field Investigation**: Onshore boring program to support the AES-2006 design. The investigation will provide geotechnical and geo-hydrological information to identify and mitigate ground risks; onshore geophysics and geotechnical measurements; and laboratory program per USNRC RG 1.138.

- **Data Collection**: Monitoring well networks and measurements.

- **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 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.

- **2.3 Meteorology**: Describing the regional and local meteorological conditions along with both long and short term atmospheric dispersion estimates. RIZZO also performed peak wind and tornado wind analyses.
• **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; evaluating dispersion of radioactive materials through surface and groundwater; and evaluating potential flood hazards due to failure of upstream dams. The results of these analyses provide hazard data and projections as input to the determination of a safe and conservative site grade elevation.

• **2.5 Geology, Seismology, and Geotechnical:** Describing the site geological setting and performing an evaluation of the seismic conditions, including PSHA, potentially affecting the design of foundations and structures. A screening level field work program (borings, geophysical testing, and laboratory testing) and analysis was performed to support evaluation of the ground risk regarding this site for the plant and its related safety structures – containment and safeguard buildings, power supply, and essential cooling.

This SOW is being performed as the first stage leading to an anticipated second stage, which is a complete Site Characterization program when the technology layout is finalized. Work was performed in accordance with RIZZO's Quality Assurance Program in compliance with 10CFR 50, Appendix B and ASME NQA-1-2008 (and the NQA-1a-2009 Addenda). The Program has been audited and approved by many Clients.

**RIZZO Contract Value:** $6,102,312  
**RIZZO Project Number:** 11-4545