

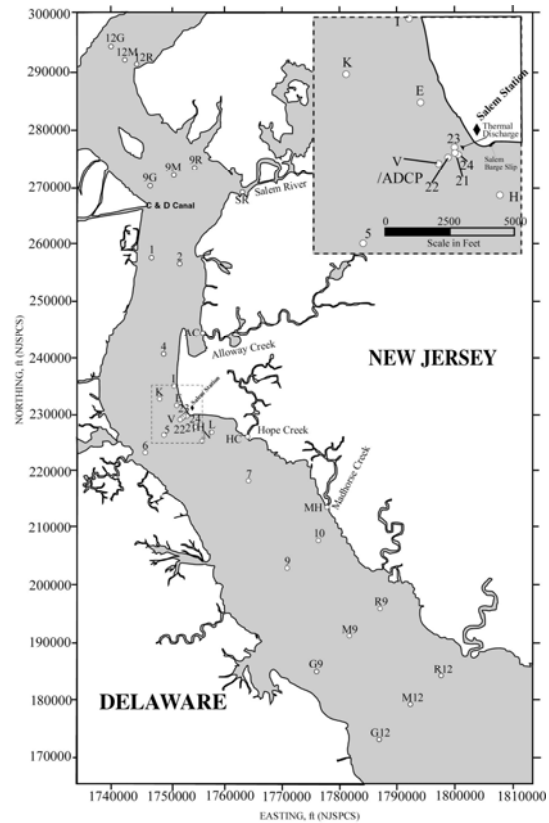
316(a) for the Salem Generating Station

Project Characteristics:

- *Thermal Plume Monitoring*
- *Hydrothermal Modeling*
- *Environmental Permitting for Nuclear Facility*
- *Biothermal Assessment*
- *Coordinating Scientific and Legal Rationales*

The Public Service Electric and Gas Company (PSE&G) contracted with the Woods Hole Group to complete the 316(a) Demonstration for the Salem Generating Station (SGS). The SGS is a once through cooled, nuclear powered electric generating station located on Delaware Bay in Salem, New Jersey. Its cooling water system withdraws water from the Delaware Bay to cool the station, then returns the water to the Bay at an elevated temperature. The 316(a) Demonstration was required to obtain a variance from environmental regulations governing the characteristics of the thermal plume. The scope of work completed by the Woods Hole Group to support the 316(a) Demonstration included field data collection, computer modeling, extensive technical writing, and cooperative teaming with the project team including scientists, managers, and attorneys. The Woods Hole Group's role was particularly challenging because PSE&G contracted with the WHG at a late stage in the permit application process, after a need was identified to provide leadership and bolster to the existing team. Despite the need to complete approximately two years of work in one year's time, the project was completed cooperatively, accurately, and on schedule. PSE&G has since been praised by the New Jersey Department of Environmental Protection for its responsiveness and completeness with regard to the 316(a) Demonstration.

The technical aspects of the project were particularly demanding as well. The thermal monitoring program involved the installation and maintenance of several moorings within the bay that measured water temperature at various locations. The computer modeling was sophisticated, and was designed to simulate water temperature in the bay, with and without the effects of the nuclear station. Model results were evaluated statistically to simulate the maximum extent of the thermal plume under reasonably worst-case conditions.



The results of the thermal modeling were used in a biothermal assessment, whereby the effects of the thermal plume on the organisms inhabiting the bay were determined. These scientific aspects then were synthesized with a legal opinion to make conclusions regarding the consistency of the station with environmental regulations. The conclusion stands that the SGS supports the protection and propagation of the balanced indigenous community in the bay, and that a variance from the 316(a) regulations should be granted for the station.