

**PSEG Site
ESP Application
Part 3, Environmental Report**

CHAPTER 1
INTRODUCTION

TABLE OF CONTENTS

| <u>Section</u> | <u>Title</u> | <u>Page</u> |
|----------------|--|-------------|
| 1.0 | INTRODUCTION | 1.0-1 |
| 1.1 | PROPOSED ACTION..... | 1.1-1 |
| 1.1.1 | PURPOSE AND NEED | 1.1-1 |
| 1.1.2 | REFERENCES | 1.1-2 |
| 1.2 | THE PROPOSED PROJECT | 1.2-1 |
| 1.2.1 | THE APPLICANTS AND OWNERS..... | 1.2-1 |
| 1.2.2 | SITE LOCATION..... | 1.2-1 |
| 1.2.3 | REACTOR INFORMATION | 1.2-2 |
| 1.2.4 | COOLING SYSTEM INFORMATION | 1.2-2 |
| 1.2.5 | TRANSMISSION SYSTEM INFORMATION..... | 1.2-2 |
| 1.2.6 | PREAPPLICATION PUBLIC INVOLVEMENT | 1.2-3 |
| 1.2.7 | CONSTRUCTION START DATE | 1.2-3 |
| 1.2.8 | REFERENCES | 1.2-3 |
| 1.3 | STATUS OF REVIEWS, APPROVALS, AND CONSULTATIONS | 1.3-1 |
| 1.3.1 | ESP ISSUANCE | 1.3-1 |
| 1.3.2 | PRECONSTRUCTION, CONSTRUCTION, AND OPERATION ACTIVITIES... | 1.3-3 |
| 1.4 | METHODOLOGY | 1.4-1 |

**PSEG Site
ESP Application
Part 3, Environmental Report**

LIST OF TABLES

| <u>Number</u> | <u>Title</u> |
|---------------|---|
| 1.3-1 | Consultations Required for Early Site Permit |
| 1.3-2 | Authorizations Required for Preconstruction, Construction, and Operation Activities |
| 1.4-1 | Environmental Report Responses to Early Site Permit Regulatory Requirements |

**PSEG Site
ESP Application
Part 3, Environmental Report**

LIST OF FIGURES

| <u>Number</u> | <u>Title</u> |
|---------------|---------------|
| 1.0-1 | Site Location |

**PSEG Site
ESP Application
Part 3, Environmental Report**

ACRONYMS AND ABBREVIATIONS

| <u>Acronym</u> | <u>Definition</u> |
|----------------|--|
| ABWR | Advanced Boiling Water Reactor |
| ac. | acre |
| AP1000 | Advanced Passive 1000 |
| CAFRA | Coastal Area Facility Review Act |
| CDF | confined disposal facility |
| CFR | Code of Federal Regulations |
| COL | combined license |
| DCR | Discharge Cleanup and Removal |
| DNREC | Delaware Department of Natural Resources and Environmental Control |
| DPCC | Discharge Prevention, Containment, and Countermeasure |
| DRBC | Delaware River Basin Commission |
| EAB | Exclusion Area Boundary |
| ER | Environmental Report |
| ESP | early site permit |
| FRP | Facility Response Plan |
| GWh | gigawatt hour(s) |
| HCGS | Hope Creek Generating Station |

**PSEG Site
ESP Application
Part 3, Environmental Report**

ACRONYMS AND ABBREVIATIONS (CONTINUED)

| <u>Acronym</u> | <u>Definition</u> |
|-------------------|--|
| kV | kilovolt(s) |
| mi. | miles |
| MW | megawatt |
| MWe | megawatts electric |
| MWt | megawatts thermal |
| NJAC | New Jersey Administrative Code |
| NJDEP | New Jersey Department of Environmental Protection |
| NJPDES | New Jersey Pollutant Discharge Elimination System |
| NJSA | New Jersey Statutes Annotated |
| NMFS | National Marine Fisheries Service |
| NRC | U.S. Nuclear Regulatory Commission |
| PM _{2.5} | particulate matter less than or equal to 2.5 microns in diameter |
| PJM | PJM Interconnection, LLC |
| PPE | plant parameter envelope |
| PSEG | PSEG Power, LLC and PSEG Nuclear, LLC |
| RCRA | Resource Conservation and Recovery Act |
| RTEP | Regional Transmission Expansion Plan |

**PSEG Site
ESP Application
Part 3, Environmental Report**

ACRONYMS AND ABBREVIATIONS (CONTINUED)

| <u>Acronym</u> | <u>Definition</u> |
|----------------|---|
| SESC | Soil Erosion and Sediment Control Act |
| SGS | Salem Generating Station |
| SPCC | Spill Prevention, Control and Countermeasures |
| SSAR | Site Safety Analysis Report |
| SWPPP | Storm Water Pollution Prevention Plan |
| USACE | U.S. Army Corps of Engineers |
| US-APWR | U.S. Advanced Pressurized Water Reactor |
| USC | United States Code |
| USCG | U.S. Coast Guard |
| USEPA | U.S. Environmental Protection Agency |
| U.S. EPR | U.S. Evolutionary Power Reactor |
| USFWS | U.S. Fish and Wildlife Service |
| yr | year |

**PSEG Site
ESP Application
Part 3, Environmental Report**

**CHAPTER 1
INTRODUCTION**

1.0 INTRODUCTION

In accordance with the provisions of 10 CFR 52, *Licenses, Certifications, and Approvals for Nuclear Power Plants*, and supporting guidance, PSEG Power, LLC and PSEG Nuclear, LLC (PSEG) have developed an application to the U.S. Nuclear Regulatory Commission (NRC) for an early site permit (ESP). The NRC issuing an ESP represents its approval of a site or sites for one or more nuclear power units. This is separate from the filing of a combined license (COL) application for such a facility. The PSEG ESP application is for a new nuclear electric generating plant located adjacent to the existing Hope Creek Generating Station (HCGS) and Salem Generating Station, Units 1 and 2 (SGS) in Lower Alloways Creek Township, Salem County, New Jersey (NJ). The site location is depicted in Figure 1.0-1. In accordance with NRC regulations, PSEG has prepared this Environmental Report (ER), as part of its ESP application analyzing the impacts to the local and regional environment from construction, operation, and decommissioning of one or two additional nuclear power units at this site (PSEG Site). The NRC uses this ER to fulfill the National Environmental Policy Act requirement to consider the environmental impacts that could result from the construction and operation of one or two new nuclear power units at the PSEG Site.

**PSEG Site
ESP Application
Part 3, Environmental Report**

1.1 PROPOSED ACTION

The proposed federal action is issuance of an ESP to PSEG for the PSEG Site for one or two additional nuclear power units, under the provisions of 10 CFR Part 52, that would be operated as a merchant plant to supply baseload electrical power to the State of New Jersey (NJ). A specific reactor technology has not yet been selected. However, the design characteristics of four reactor technologies under consideration were used to establish a plant parameter envelope (PPE) (Site Safety Analysis Report [SSAR] Section 1.3). While issuance of the ESP does not authorize construction and operation of any new nuclear power units, this ER analyzes the environmental impacts that could result from the construction and operation of one or two new nuclear power units at the PSEG Site. These impacts are analyzed to determine if the site is suitable for the addition of the new nuclear plant, and whether there is an alternative site that is environmentally preferable to the proposed site.

1.1.1 PURPOSE AND NEED

An analysis of the need for power, based on annual PJM resource and load forecast data, is provided in Chapter 8. The relevant service area (RSA) for the new plant is the State of NJ which is part of the Eastern Mid Atlantic Zone of PJM, the Regional Transmission Organization (RTO) for the area. As the RTO, PJM is responsible for the reliable supply of bulk electricity within the region. Analysis of PJM data indicates that an additional 7900 MWe (Section 8.4) of baseload capacity is required to meet the energy needs forecasted for 2021 (Reference 1.1-1). Based on this PJM projected electrical requirement, PSEG is considering additional generation capacity at the proposed site to partially meet this need. The HCGS and SGS units supplied 3365 MWe of baseload capacity to this area in 2008 (Reference 1.1-2). An additional nuclear plant of up to approximately 2200 MWe net capacity at the proposed site could meet up to 28 percent of the projected baseload need of 7900 MWe. PSEG is submitting this ESP application to preserve the option of constructing a new nuclear power plant at the PSEG Site for up to approximately 2200 MWe.

The NRC established the licensing process used by PSEG in 10 CFR 52, Subpart C, *Combined Licenses*. This provision allows entities to apply for a COL that is, a combined construction permit and operating license for a nuclear power facility. A COL authorizes construction and operation of the facility. As described in 10 CFR 52, Subpart A, *Early Site Permits*, the NRC's issuance of an ESP allows an applicant to reserve a reactor site for up to 20 years (yr) prior to obtaining a COL.

The ESP process addresses and resolves site safety, environmental protection, and emergency preparedness issues. ESP licensing issues are resolved with finality during the ESP review process and are not reexamined in any subsequent licensing action involving the permitted site, absent any information meeting certain standards established by the NRC.

**PSEG Site
ESP Application
Part 3, Environmental Report**

An application for a COL can reference an ESP issued under 10 CFR 52. In general, if the COL application references an ESP, the application need not contain certain information or analyses submitted to the NRC in connection with the ESP. Instead, the COL application must contain the following:

- Information and analyses otherwise required
- Information sufficient to demonstrate that the facility falls within the site characteristics and design parameters specified in the ESP
- Information to resolve any other significant environmental issue(s) not considered in any previous proceeding on the site or design

In accordance with NRC regulations, PSEG is submitting this ESP application to preserve the option of constructing a new nuclear power plant at the PSEG Site for up to approximately 2200 MWe.

1.1.2 REFERENCES

- 1.1-1 PJM Interconnection, LLC, "2009 Load Forecast Report," PJM Capacity Adequacy Planning Department, 2009.
- 1.1-2 PJM Interconnection, LLC, "PJM Reliability Pricing Model (RPM) Resource Model for 2008-2009," updated November 12, 2007.

**PSEG Site
ESP Application
Part 3, Environmental Report**

1.2 THE PROPOSED PROJECT

This section provides a brief summary of project information. Subsequent chapters, particularly Chapter 3, *Plant Description*, provide more detail.

1.2.1 THE APPLICANTS AND OWNERS

The Applicants are PSEG Power, LLC and PSEG Nuclear, LLC.

PSEG Power, LLC is a Delaware (DE) limited liability company, which is wholly owned by Public Service Enterprise Group Incorporated, a corporation formed under the laws of NJ. It is anticipated that PSEG Power, LLC will be the owner of any new plant based on the ESP requested by this application.

PSEG Nuclear, LLC is a DE limited liability company formed to own and operate nuclear generating stations and is a wholly owned subsidiary of PSEG Power, LLC. PSEG Nuclear, LLC is the owner and licensed operator of the HCGS and the partial owner and licensed operator of the SGS. These existing nuclear generating stations are located on the PSEG Site, which is the subject of this ESP application. It is anticipated that PSEG Nuclear, LLC will be the licensed operator of the new plant at the PSEG Site.

1.2.2 SITE LOCATION

The proposed site is located on the southern part of Artificial Island on the east bank of the Delaware River in Lower Alloways Creek Township, Salem County, NJ. The site is 15 miles (mi.) south of the Delaware Memorial Bridge, 18 mi. south of Wilmington, DE, 30 mi. southwest of Philadelphia, Pennsylvania (PA), and 7-1/2 mi. southwest of Salem, NJ. The municipalities of Salem and Pennsville (12 mi. north of the site) are the nearest sizable municipalities in NJ with 2007 estimated populations of 5678 and 13,363, respectively. Middletown (10 mi. due west of the site) and New Castle (13 mi. north of the site) are the nearest sizable municipalities in DE with 2007 estimated populations of 11,153 and 4973, respectively (Reference 1.2-1). The proposed new plant footprint is north of the existing HCGS. Most of the new plant area lies within the current 734 acres (ac.) property boundary.

PSEG is developing an agreement in principle with the U.S. Army Corps of Engineers (USACE) to acquire an additional 85 ac. immediately to the north of the HCGS. Therefore, with the land acquisition, the entire PSEG Site will encompass 819 ac. The specific timing of land acquisition is not currently known and is subject to further PSEG and USACE actions. However, the agreement in principle with the USACE will serve to establish the basis for eventual land acquisition and Exclusion Area Boundary (EAB) control, necessary to support the issuance of a future COL. Subsequent to the agreement in principle with the USACE, PSEG will develop a lease agreement for the USACE Confined Disposal Facility (CDF) land to the north of the PSEG Site, depicted on the Site Utilization Plan (Figure 3.1-2) for the concrete batch plant and temporary construction/laydown use. At the completion of construction, the leased land will be returned to the USACE, subject to any required long-term EAB control conditions.

**PSEG Site
ESP Application
Part 3, Environmental Report**

1.2.3 REACTOR INFORMATION

PSEG has not yet selected a specific reactor technology. Four different technologies are under consideration including:

- Advanced Passive 1000 (AP1000)
- U.S. Evolutionary Power Reactor (U.S. EPR)
- Advanced Boiling Water Reactor (ABWR)
- U.S. Advanced Pressurized Water Reactor (US-APWR)

This ESP application uses a PPE approach that encompasses all four reactor technologies (SSAR Section 1.3). The ESP analyzes the environmental impacts of the four reactor technologies using either one unit (U.S. EPR, ABWR, or US-APWR) or two units (AP1000) at the PSEG Site. Since a specific reactor technology has not been selected, the environmental impact analyses are based on reactor bounding conditions derived from detailed reactor information supplied by the vendors. The total bounding PPE value for the new plant is 6830 gross megawatts thermal (MWt) (SSAR Table 1.3-1 Item 17.3) and 2200 MWe net. Section 3.2, Reactor Power Conversion System, provides additional information on these reactor technologies.

1.2.4 COOLING SYSTEM INFORMATION

The new plant uses a recirculating (closed-cycle) cooling water system that includes natural draft, mechanical, or fan-assisted natural draft cooling towers. A new shoreline intake structure supplies makeup water from the Delaware River to the new plant. A new discharge structure conveys cooling tower blowdown to the Delaware River in conformance with New Jersey Pollutant Discharge Elimination System (NJPDES) permit requirements. Section 3.4, Cooling System, provides additional detail on the intake, discharge, and cooling tower components of the plant cooling system.

1.2.5 TRANSMISSION SYSTEM INFORMATION

The existing HCGS and SGS site is interconnected with the regional power grid via four 500 kilovolt (kV) transmission lines extending from the existing nuclear units to the Red Lion substation in DE, and to the New Freedom substation in NJ.

PSEG has completed a conceptual evaluation of transmission requirements associated with the addition of generation at the PSEG Site. This evaluation included the current PJM Regional Transmission Expansion Plan (RTEP) and other PJM transmission planning inputs. PJM analyses evaluate the regional transmission system configuration and projects in the planning cycle. These evaluations are not specific to the addition of new generation at the PSEG Site.

A new off-site transmission line may be needed to enhance overall transmission system stability, dependent upon other transmission projects in the PJM queue at the time PSEG submits a PJM application. The need for off-site transmission is dependent on a range of factors including the specific reactor technology selected, as well as regional planning efforts by PJM that are external to PSEG.

**PSEG Site
ESP Application
Part 3, Environmental Report**

Section 3.7, *Power Transmission System*, provides additional details on the transmission system. Information pertaining to alternative off-site transmission system corridors is presented in Subsection 9.4.3.

1.2.6 PREAPPLICATION PUBLIC INVOLVEMENT

The NRC held a public outreach meeting on May 6, 2010 in Salem County, NJ. The purpose of the meeting was to provide information to the public on the ESP review process for the proposed site and opportunities for public involvement in that process. The meeting included a discussion of NRC perspectives, roles, and responsibilities with regard to the proposed site. An informal open house format was used, allowing the public the opportunity to speak directly with the NRC staff. The meeting included staff presentations on the regulatory framework for the ESP review process and a question-and-answer session. NRC staff also discussed upcoming opportunities for further public involvement during the application review process.

At PSEG's request, the NRC conducted two Category 1 public meetings during the preapplication period to discuss with PSEG staff approaches to address various regulatory requirements applicable to this application. Both meetings were held at the NRC headquarters in Rockville, Maryland.

1.2.7 CONSTRUCTION START DATE

The ESP does not constitute a decision or approval to build new units. However, the projected construction start date is 2016. NRC regulations 10 CFR 50.10, *License Required; Limited Work Authorization*, and 10 CFR 52.25, *Extent of Activities Permitted*, allow site preparation preconstruction activities. If PSEG decides to initiate site preparation activities, it is estimated that such site preparation activities would take 12 to 36 months to complete, prior to the start of NRC regulated construction activities. PSEG does not plan to request a limited work authorization as part of this submittal. Furthermore, if PSEG decides to submit a COL application and the NRC grants a COL, it is estimated that new plant construction would occur over an additional 5-yr to 7-yr period.

1.2.8 REFERENCES

- 1.2-1 U.S. Census Bureau, 2008, American FactFinder, 2007 Population Estimates.
http://factfinder.census.gov/servlet/SAFFPopulation?_event=ChangeGeoContext&geo_id=1, accessed May 8, 2009.

**PSEG Site
ESP Application
Part 3, Environmental Report**

1.3 STATUS OF REVIEWS, APPROVALS, AND CONSULTATIONS

PSEG informed regulatory stakeholders of their intention to submit this ESP application for the new plant, to prepare the required ER, and to coordinate and consult with these agencies as appropriate. Agencies contacted include, but are not limited to:

- State of New Jersey Department of Environmental Protection (NJDEP)
- State of Delaware Department of Natural Resources and Environmental Control (DNREC)
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)
- U.S. Coast Guard (USCG)
- U.S. Environmental Protection Agency (USEPA)
- Delaware River Basin Commission (DRBC)

Tables 1.3-1 and 1.3-2 identify the following information related to consultations for the ESP and authorizations related to support of construction and operation activities:

- Jurisdictional agency
- Authority, law, or regulation that dictates the requirement
- Name of the required authorization
- Description of the activities covered by authorization

License and permit numbers, as well as expiration dates of existing licenses and permits are not included in Table 1.3-2 as they are not applicable at the ESP licensing phase.

The authorizations from federal, state, and local authorities for construction and operation are not yet necessary because an ESP is limited to establishing the acceptability of the PSEG Site for future development. PSEG is filing an application for a coastal consistency determination from the State of New Jersey concurrent with this ESP application. PSEG does not anticipate securing any other authorizations for construction of the new plant during the ESP stage. PSEG will apply for and receive any required authorizations prior to initiating preconstruction, construction, and operational activities. The following subsections describe the activities to be authorized.

1.3.1 ESP ISSUANCE

The following statutes summarize the agency consultations necessary for the ESP. Table 1.3-1 lists these required consultations.

Endangered Species Act

The Endangered Species Act requires federal agencies to ensure that agency action is not likely to jeopardize any species listed or proposed for listing as endangered or threatened. Depending on the action involved, the Act requires consultation with the USFWS regarding the effects on non-marine species, the NMFS for marine species, or both. There are both freshwater and

**PSEG Site
ESP Application
Part 3, Environmental Report**

marine species at the proposed site, therefore, the NRC consults with both USFWS and NMFS. As a matter of policy, the NRC consults with the NJDEP Division of Fish and Wildlife and DNREC regarding protected species.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act provides for the protection of the bald eagle and golden eagle from harassment, taking, and possession. The 1972 amendments increased penalties for violating provisions of the Act. Bald eagles have been observed foraging near the proposed site, therefore, the NRC consults with USFWS on this issue to ensure that no adverse impacts to bald eagles occur as a result of the proposed project. As a matter of policy, the NRC consults with the NJDEP Division of Fish and Wildlife and DNREC regarding protected species.

National Historic Preservation Act

The National Historic Preservation Act requires federal agencies, which have the authority to issue licenses, to take into account the effect on historic properties. The Advisory Committee on Historic Preservation has an opportunity to comment, prior to license issuance. The Advisory Committee regulations allow an agreement with any State Historic Preservation Officer to substitute state review for committee review (35 CFR 800.7). Accordingly, the NRC consults with the New Jersey Historic Preservation Office and the Delaware State Historic Preservation Office.

Coastal Zone Management Act

The Coastal Zone Management Act requires an applicant for a federal license or permit to certify to the licensing agency that the proposed activity is consistent with the state's federally approved coastal zone management program. Portions of the proposed site are located within NJ's coastal zone, and consultation with NJDEP's Division of Land Use Management is necessary.

Clean Air Act

The Clean Air Act imposes regulatory requirements on federally licensed projects where construction and operation may have an impact on state and regional air quality. The proposed site lies within an ozone non-attainment area (Salem County, NJ) and is adjacent to a particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}) non-attainment area (New Castle County, DE). The NRC consults with the NJDEP Division of Air Quality and potentially DNREC Division of Air and Waste Management on these non-attainment issues.

Clean Water Act / Rivers and Harbors Act

The Clean Water Act requires that federal agencies consider the potential impacts to jurisdictional "waters of the United States." Section 401 of this Act regulates the issuance of a Water Quality Certification, Section 402 regulates point source and non-point source discharges under the National Pollutant Discharge Elimination System, and Section 404 regulates the placement of fill in waters of the United States. The USACE regulates dredge and fill activities in navigable waters pursuant to Section 10 of the Rivers and Harbors Act. As a matter of policy,

**PSEG Site
ESP Application
Part 3, Environmental Report**

the NRC consults with the USACE and NJDEP regarding potential impacts to waters of the United States.

1.3.2 PRECONSTRUCTION, CONSTRUCTION, AND OPERATION ACTIVITIES

Permits and authorizations for future construction and operation of a new plant will be obtained in accordance with applicable statutes and regulations. Applications for these authorizations will be developed after a reactor technology has been selected and detailed design is initiated. Table 1.3-2 lists authorizations that are anticipated for preconstruction, construction, and plant operation.

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.3-1
Consultations Required for Early Site Permit**

| Agency | Authority | Requirement | Activity Covered |
|--|--|--|---|
| U.S. Fish and Wildlife Service | Endangered Species Act , 16 USC 1536 | Consultation regarding potential to adversely impact protected non-marine species | Concurrence with no adverse impact or consultation on appropriate mitigation measures |
| | Bald and Golden Eagle Protection Act, 16 USC 668-668c | Consultation regarding potential to adversely impact bald eagles | Concurrence with no adverse impact or consultation on appropriate mitigation measures |
| National Marine Fisheries Service | Endangered Species Act, 16 USC 1536 | Consultation regarding potential to adversely impact protected marine species | Concurrence with no adverse impact or consultation on appropriate mitigation measures |
| NJDEP – Fish and Wildlife | New Jersey Endangered Species Conservation Act, New Jersey Statutes Annotated (NJSA) 23:2A et seq. | Consultation regarding potential to adversely impact protected species | Concurrence with no adverse impact or consultation on appropriate mitigation measures |
| New Jersey Historic Preservation Office | National Historic Preservation Act, 16 USC 470 et seq. | Consultation regarding potential to adversely impact historic resources | Confirm that site construction and operation activities would not affect protected historic resources or would be mitigated if unavoidable |
| NJDEP – Division of Land Use Regulation | Coastal Zone Management Act, 16 USC 1451-1464 | Certificate of consistency with established coastal zone management plan | Concurrence with certification that site construction and operation activities are consistent with established coastal zone management plan |
| NJDEP – Division of Air Quality | Clean Air Act, USC 42 et seq. | Consultation regarding potential adverse impacts to ozone standards | Concurrence with no adverse impact or consultation on appropriate mitigation measures |
| Delaware Office of Historic Preservation | National Historic Preservation Act, 16 USC 470 et seq. | Consultation regarding potential to adverse impacts to historic resources | Confirm that site construction and operation activities would not affect protected historic resources or would be mitigated if unavoidable |
| U.S. Army Corps of Engineers | Federal Clean Water Act, 33 CFR 330 Rivers and Harbors Act, 33 USC 403 | Consultation regarding potential to adverse impacts to waters of the United States | Concurrence with no adverse impact or consultation on appropriate mitigation measures |

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.3-2 (Sheet 1 of 5)
Authorizations Required for Preconstruction, Construction, and Operation Activities^(a)**

| Agency | Authority | Requirement | Activity Covered |
|--------------------------------------|--|--|---|
| U.S. Nuclear Regulatory Commission | Atomic Energy and Energy Reorganization Acts 10 CFR 52 Subpart C or 10 CFR 50.10(e)(1) | ESP and COL or Limited Work Authorization, in addition to applicable By-Product License, Source Material License, and Special Nuclear Material License | Site Licensing, including safety-related construction activities and operation of a nuclear power facility |
| Federal Aviation Administration | Federal Aviation Act 49 USC 1501; 14 CFR 77 | Construction Notice | Notice of erection of structures greater than 200 feet high that potentially may impact air navigation |
| U.S. Department of Transportation | Hazardous Material Transportation Act 40 CFR 107 Subpart G | Certificate of Registration | Transportation of hazardous materials |
| U.S. Army Corps of Engineers | Federal Clean Water Act 33 CFR 330 | Section 404 Permit | Disturbance, crossing or filling-in of wetland areas or navigable waters from site (barge slip modification, maintenance dredging, intake/discharge structures, and proposed causeway construction) |
| | Rivers and Harbors Act 33 USC 403 | Section 10 Permit | Construction and maintenance of intake, discharge and barge structures in navigable waters of Delaware River |
| U.S. Coast Guard | Ports and Waterways Safety Act 33 USC 1221, et seq. | Private Aids to Navigation Permit | Construction of discharge pipeline in navigable waters of the Delaware River |
| | Rivers and Harbors Act 33 USC 401 | Section 9 Permit | Construction of bridge over navigable waterway (Alloway Creek) |
| U.S. Environmental Protection Agency | Resource Conservation and Recovery Act (RCRA), Section 3010 | Acknowledgement of Notification of Hazardous Waste Activity | Hazardous Waste Generation |
| | USEPA Facility Response Plan (FRP) (40 CFR 9 and 112), and the USEPA Hazardous Waste Contingency Plan | Facility Response Plan Approval | Spill/Discharge Response Program |
| | Spill Prevention, Control and Countermeasures (SPCC) rule (40 CFR 112), Appendix F, Sections 1.2.1 and 1.2.2 | SPCC Plan | Spill/Discharge Prevention Plan |

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.3-2 (Sheet 2 of 5)
Authorizations Required for Preconstruction, Construction, and Operation Activities^(a)**

| Agency | Authority | Requirement | Activity Covered |
|---|---|---|--|
| U.S. Fish and Wildlife Service | Migratory Bird Treaty Act 16 USC 703 et seq. | Federal Depredation Permit | Potential impacts to protected species or their nests for construction of the proposed causeway and potential off-site transmission line |
| | Endangered Species Act Section 7 (16 USC 1536) | Incidental Take Permit | Possession and disposition of potential impinged or stranded species (turtles, shortnose sturgeon) |
| Delaware River Basin Commission | Delaware River Basin Compact, Section 3.8; Resolution No. 71-4 | Water Withdrawal Docket | Additional Delaware River water required for cooling purposes |
| | | Water Withdrawal Docket | Additional groundwater required for a new plant and existing permit modifications |
| | | Water Use Contract | A water use contract may be required for the new plant |
| | | Approval of Wells | New wells required for the new plant |
| | | Oxygen Demand Wasteload Allocations | Allocation for First Stage Oxygen Demand discharge to Delaware Estuary |
| | Delaware River Basin Compact, Section 3.8 | Industrial Waste Treatment Facility | Waste treatment required for a new plant |
| Salem County Soil Conservation District | Soil Erosion and Sediment Control (SESC) Act SESC Act, Chapter 251 NJAC 2:90 | Soil Erosion and Sediment Control Plan Approval | Soil Erosion and Sediment Control Plan approval required for earth disturbance greater than 5000 square feet |
| Lower Alloways Creek Township | Code of Lower Alloways Creek Township, Chapter 156 (Land Development), Section 5.07B2 | Site Plan Approval | Planning Board and/or Zoning Board of Adjustment approval of the development of the site in compliance with township ordinances |
| | | Construction Permits | Construction of the new plant facilities in compliance with township ordinances |
| Salem County | Salem County Planning Board | Site Plan Approval | Construction of the new plant facilities in compliance with county ordinances if county facilities or drainage are impacted |

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.3-2 (Sheet 3 of 5)
Authorizations Required for Preconstruction, Construction, and Operation Activities^(a)**

| Agency | Authority | Requirement | Activity Covered |
|--|--|---|--|
| New Jersey Department of Community Affairs | New Jersey State Uniform Construction Code Act, NJAC 5:23 | Construction Permits | Construction of the new plant facilities in compliance with State of New Jersey construction codes |
| New Jersey Department of Environmental Protection | Federal Clean Water Act (33 USC 1251 et seq.), NJSA Water Pollution Control Act 58:10A et seq. and NJAC 7:14A et seq. | NJPDES Permit for storm water discharges associated with construction activities greater than 5 ac. | Construction/operation of storm water control measures (detention basins, etc.) |
| | | NJPDES Permit for Dewatering Activities | Construction dewatering |
| | | Section 401 Certification, NJPDES Permit | Compliance with federal and state water quality standards, discharges to waters of the state due to construction of the new plant, proposed causeway, switchyards, and on-site and potential off-site transmission lines |
| | Sewage Infrastructure Improvement Act NJAC 7:14A-22 | Treatment Works Approval | Construction and operation of a treatment system for construction dewatering |
| | | Treatment Works Approval | Modification and operation of an existing permanent treatment system for plant wastewater |
| | Water Quality Management Planning, NJAC 7:15 | Water Quality Management Plan Amendment | New discharges or expansion of existing discharges require an amendment |
| | Federal Clean Water Act (33 USC 1251 et seq.), NJSA Water Pollution Control Act 58:10A et seq. and NJAC 7:14A et seq. | NJPDES Permit for plant operation activities | Cooling water, service water, and runoff discharge from plant operations |

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.3-2 (Sheet 4 of 5)
Authorizations Required for Preconstruction, Construction, and Operation Activities^(a)**

| Agency | Authority | Requirement | Activity Covered |
|---|--|---|--|
| New Jersey Department of Environmental Protection, cont. | Water Supply Management Act, NJSA 58:1A-1 et seq. | Temporary Dewatering Permit | Required for construction dewatering where dewatering rate exceeds 100,000 gallons per day for 31 consecutive days in a year |
| | | Well Drilling Permit | For construction dewatering wells, permanent water supply wells and closure of abandoned wells |
| | | Water Allocation Permit | Current permit requires modification to allow additional groundwater use for new plant |
| | Coastal Area Facility Review Act (CAFRA), NJSA 13:19-1, 13:9B-1 and 13:1D-1 | CAFRA Permit ^(b) | Property required for construction of the new plant is in NJ coastal zone |
| | | | Portions of the new plant site, proposed causeway, switchyards, and on-site and potential off-site transmission lines may be located in freshwater wetlands and transitional areas |
| | Flood Hazard Area Control Act, NJSA 58:16A-50 et seq. | Flood Hazard Control Permit | Construction within a flood hazard area (100-yr floodplain) |
| | New Jersey Freshwater Wetlands Protection Act, NJAC 7:7A | Freshwater Wetland Permit | Portions of the new plant site, proposed causeway, switchyards, and on-site and potential off-site transmission lines may be located in freshwater wetlands and transitional areas |
| | New Jersey Wetlands Act, NJSA 13:9A | Coastal Wetlands Permit | Portions of new plant site, proposed causeway, and on-site and potential off-site transmission lines constructed in areas designated as coastal wetlands |
| | Waterfront Development Act, NJSA 12:5-1, 13:19-1, 13:9B-1 and 13:1D-1 | Waterfront Development Permit | Required for any activity occurring below mean high water line (dredging/construction) |
| | Tidelands Act NJSA 12:3 | Grant, Lease or License | Portions of new plant site, proposed causeway, or on-site and potential off-site transmission lines may be constructed in lands subject to tidelands claims |
| | Solid Waste Management Act, NJSA 13:1 E-1 | Beneficial Use Certificate of Authority | Re-use of excavated materials |

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.3-2 (Sheet 5 of 5)
Authorizations Required for Preconstruction, Construction, and Operation Activities^(a)**

| Agency | Authority | Requirement | Activity Covered |
|---|---|---|--|
| New Jersey Department of Environmental Protection, cont. | Federal Clean Air Act, 42 USC 7401 | Title V Operating Permit; Prevention of Significant Deterioration Preconstruction Permit | Discharge of air pollutants from cooling tower(s), emergency generators, auxiliary boiler(s), and ancillary equipment |
| | NJAC, Title 7, Chapter 1E (NJAC 7:1E-1 et seq.) | Discharge Prevention, Containment, and Countermeasure (DPCC) Plan and Discharge Cleanup and Removal (DCR) Plan | DPCC/DCR Program: DPCC Plan, DCR Plan, SPCC Plan, Hazardous Waste Contingency Plan, and Storm Water Pollution Prevention Plan (SWPPP) |
| South Carolina Department of Health and Environmental Control – Division of Waste Management | South Carolina Radioactive Waste Transportation and Disposal Act, (Act No. 429) | South Carolina Radioactive Waste Transport Permit | Transportation of radioactive waste into the State of South Carolina |
| State of Tennessee Department of Environment and Conservation Division of Radiological Health | Tennessee Department of Environment and Conservation, Rule 1200-2-10.32 | Tennessee Radioactive Waste License- for-Delivery | Transportation of radioactive waste into the State of Tennessee |

- a) None of the authorizations will be applied for at the time of the ESP application, except the New Jersey Coastal Consistency Determination, which was filed concurrently with the submittal of the ESP.
- b) Includes State Planning Commission action to modify State Plan to modify the Heavy Industry-Transportation-Utility Node based on revised PSEG Site boundary.

**PSEG Site
ESP Application
Part 3, Environmental Report**

1.4 METHODOLOGY

NRC regulation 10 CFR 52.17(a)(2), *Contents of Applications; Technical Information*, specifies the ER contents for an ESP application. Regulatory Guide 4.2, *Preparation of Environmental Reports for Nuclear Power Stations*, Revision 2, July 1976, provides guidance to applicants preparing ERs for nuclear power stations. NUREG-1555, *Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan*, Revision 0, 1999, provides guidance to the NRC staff when conducting environmental reviews of applications related to nuclear power plants.

In preparing this ER, PSEG chose to use NUREG-1555 for guidance in establishing the format and content of its ER and Regulatory Guide 4.2 for guidance on the preparation of the ER. PSEG provides additional information, as appropriate, based on lessons learned, and NRC requests for additional information for the Clinton, Grand Gulf, North Anna and Vogtle ESP applications and recent COL applications. Table 1.4-1 lists regulatory requirements and where in the ER each requirement is addressed.

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.4-1 (Sheet 1 of 2)
Environmental Report Responses to Early Site Permit Regulatory Requirements**

| No. | Regulatory Requirement (10 CFR)^(a) | Responsive Environmental Report Section |
|------------|---|---|
| 1 | 51.45(a), Signed original | Transmittal letter |
| 2 | 51.45(b), Description of proposed action | Chapter 3, Plant Description |
| 3 | 51.45(b), Statement of purpose of proposed action | Subsection 1.1.1, Purpose and Need |
| 4 | 51.45(b), Description of environment affected by proposed action | Chapter 2, Environmental Description |
| 5 | 51.45(b)(1) and 51.50(b), Environmental impact of proposed action | Chapter 4, Environmental Impacts of Construction; Chapter 5, Environmental Impacts of Station Operation; Chapter 7, Environmental Impact of Postulated Accidents Involving Radioactive Materials; and Chapter 10, Environmental Consequences of the Proposed Action |
| 6 | 51.45(b)(2), Unavoidable adverse impacts | Section 10.1, Unavoidable Adverse Environmental Impacts |
| 7 | 51.45(b)(3), Alternatives to proposed action | Chapter 9, Alternatives to the Proposed Action |
| 8 | 51.45(b)(4), Relationship between short-term use and long-term productivity | Section 10.3, Relationship Between Short-Term Uses and Long-Term Productivity of the Human Environment |
| 9 | 51.45(b)(5), Irreversible and irretrievable commitments of resources | Section 10.2, Irreversible and Irretrievable Commitments of Resources |
| 10 | 51.45(c) and 51.50(b), Comparison of environmental effects of proposed action and alternatives | Chapter 4, Environmental Impacts of Construction; Chapter 5, Environmental Impacts of Station Operation; Chapter 7, Environmental Impact of Postulated Accidents Involving Radioactive Materials; Chapter 10, Environmental Consequences of the Proposed Action; and Chapter 9, Alternatives to the Proposed Action |
| 11 | 51.45(c), Description of impacts of the preconstruction activities | Chapter 4, Environmental Impacts of Construction |
| 12 | 51.45(c), Alternatives for reducing or avoiding adverse environmental impacts | Section 4.6, Measures and Controls to Limit Adverse Impacts During Construction; and Section 5.10, Measures and Controls to Limit Adverse Impacts During Operation |
| 13 | 51.45(c), Economic, technical, and other benefits and costs of proposed action and alternatives | Section 10.4, Benefit-Cost Balance |
| 14 | 51.45(d), Federal permits and other entitlements and status of compliance | Section 1.3, Status of Reviews, Approvals, and Consultations |
| 15 | 51.45(d), Compliance with federal and other environmental quality standards and requirements | Section 1.3, Status of Reviews, Approvals, and Consultations |
| 16 | 51.45(d) and 51.50(b), Compliance for alternatives | Section 9.2, Energy Alternatives; and Section 9.3, Alternative Sites |
| 17 | 51.45(e), Adverse information | Section 10.1, Unavoidable Adverse Environmental Impacts |
| 18 | 51.50(a), 51.50(b) and 51.51(a), Uranium fuel cycle | Section 5.7, Uranium Fuel Cycle Impacts |

**PSEG Site
ESP Application
Part 3, Environmental Report**

**Table 1.4-1 (Sheet 2 of 2)
Environmental Report Responses to Early Site Permit Regulatory Requirements**

| No. | Regulatory Requirement (10 CFR)^(a) | Responsive Environmental Report Section |
|------------|--|--|
| 19 | 51.50(a) and 51.52, Fuel and waste transportation | Section 3.8, Transportation of Radioactive Materials; Transportation of Radioactive Materials; and Section 7.4, Transportation Accidents |
| 20 | 51.50(a) and 51.50(b), Reporting and record keeping procedures | Chapter 6, Environmental Measurements and Monitoring Programs |
| 21 | 51.50(a) and 51.50(b), Conditions and monitoring | Chapter 6, Environmental Measurements and Monitoring Programs |

a) 10 CFR 51.45, 10 CFR 51.50, 10 CFR 51.51, and 10 CFR 51.52