

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

CHAPTER 1  
INTRODUCTION

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**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

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**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 <sub>2.5</sub>	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
RSA	relevant service area

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**ACRONYMS AND ABBREVIATIONS (CONTINUED)**

<u>Acronym</u>	<u>Definition</u>
RTO	Regional Transmission Organization
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

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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.

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**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 Interconnection, LLC (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 in 2009 identified that an additional 7900 MWe (Section 8.4) of baseload capacity would be required to meet the energy needs forecasted for 2021 (Reference 1.1-1). The projected 2021 need for baseload generation in NJ, based on the 2012 PJM load forecast, is projected to be in excess of 7300 MWe. This reduced need for baseload generation reflects the suppressed demand growth stemming from the 2008-2009 recession. Given that the expected need for baseload power in NJ is still substantial despite the effects of the recession, the conclusions reached by the initial 2009 need for power analysis that serve as the documented basis for the purpose and need of this project are still valid and applicable to NJ's energy landscape. Therefore, discussions regarding the results of the initial need for power analysis are maintained throughout the Environmental Report. Based on the above projected shortfall in baseload generation, 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 to help meet this shortfall.

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.



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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.

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## 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.

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### 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.

During the development of the ESP application, PSEG completed a conceptual evaluation of transmission requirements associated with the addition of generation at the PSEG Site. This evaluation included the PJM Regional Transmission Expansion Plan, existing operational limits at HCGS and SGS, and other PJM transmission planning inputs. PJM routinely performs analyses of the regional transmission system and forecasts appropriate upgrades to the system as part of its long term planning cycle. These evaluations are not specific to the addition of new generation at the PSEG Site.

PSEG's conceptual evaluation indicates that a new off-site transmission line may be needed to accommodate new generation at the PSEG Site to ensure transient stability of the transmission system. The need for a new transmission line is dependent upon a range of factors including the specific reactor technology selected and the progress of regional transmission upgrade projects as part of PJM's regional planning efforts. Since the completion of this conceptual evaluation,

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PJM, as an example of their continuing assessment of system reliability, recently determined that additional grid improvements are necessary to address voltage and stability constraints in the region of Artificial Island. In response, PJM has solicited proposals from both regulated and non-regulated (merchant) transmission providers for system enhancements to address these constraints. PJM's determination of the need for this transmission system upgrade is independent of PSEG's interest in new nuclear generation and is not predicated on the construction of a new nuclear facility at the PSEG Site. Therefore, any transmission project mandated by PJM, including a new off-site transmission line, is considered to be reasonably foreseeable and is considered to be an action that is independent from the potential development of the PSEG Site. Similarly, since these PJM-sponsored grid improvements serve to enhance power delivery throughout the region, they inherently possess independent utility. Although PJM has not formally assessed the scope and structure of this future transmission upgrade, PSEG has accordingly identified the potential impacts of a new off-site transmission line whose technical attributes best meet PJM's goal of resolving these regional constraints.

Section 3.7, *Power Transmission System*, provides additional details on the existing PJM transmission system. Information pertaining to alternative off-site transmission system corridors considered by PSEG is presented in Subsection 9.4.3. Of the two potential transmission corridors presented in Subsection 9.4.3, the West Macro-Corridor to the Peach Bottom substation is considered to be the most effective route to address the regional voltage and stability constraints that PJM is attempting to resolve. Therefore, PSEG has used the characteristics of the West Macro-Corridor to evaluate the potential impacts of a new transmission line as representative of the regional transmission upgrade project currently being pursued by PJM. These potential impacts are addressed as part of the cumulative effects assessment provided in Section 10.5.

#### 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.

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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](http://factfinder.census.gov/servlet/SAFFPopulation?_event=ChangeGeoContext&geo_id=1), accessed May 8, 2009.

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### 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

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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<sub>2.5</sub>) 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,

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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.



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

<b>Agency</b>	<b>Authority</b>	<b>Requirement</b>	<b>Activity Covered</b>
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

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

<b>Agency</b>	<b>Authority</b>	<b>Requirement</b>	<b>Activity Covered</b>
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

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

<b>Agency</b>	<b>Authority</b>	<b>Requirement</b>	<b>Activity Covered</b>
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

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Authorizations Required for Preconstruction, Construction, and Operation Activities<sup>(a)</sup>**

<b>Agency</b>	<b>Authority</b>	<b>Requirement</b>	<b>Activity Covered</b>
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

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

<b>Agency</b>	<b>Authority</b>	<b>Requirement</b>	<b>Activity Covered</b>
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 <sup>(b)</sup>	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

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

<b>Agency</b>	<b>Authority</b>	<b>Requirement</b>	<b>Activity Covered</b>
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.

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**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.

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

<b>No.</b>	<b>Regulatory Requirement (10 CFR)<sup>(a)</sup></b>	<b>Responsive Environmental Report Section</b>
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



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

<b>No.</b>	<b>Regulatory Requirement (10 CFR)<sup>(a)</sup></b>	<b>Responsive Environmental Report Section</b>
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