

**PSEG Site  
ESP Application  
Part 2, Site Safety Analysis Report**

CHAPTER 13  
CONDUCT OF OPERATIONS

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**CHAPTER 13**

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13.3 EMERGENCY PLAN

This section, in conjunction with Part 5, Emergency Plan, of the early site permit application (ESPA), describes emergency planning for the addition of a new plant at the PSEG Site. PSEG is submitting a complete and integrated emergency plan for approval by the U.S. Nuclear Regulatory Commission (NRC) in accordance with 10 CFR 52.17(b)(2)(ii). This section contains the information required by 10 CFR 52.17, *Contents of applications; technical information*, or provides a reference to Part 5 of the ESPA for additional information. The Emergency Plan complies with 10 CFR 50.47(b) and 10 CFR 50 Appendix E. The PSEG Site Emergency Plan is based on the existing Salem Generating Station (SGS) and Hope Creek Generating Station (HCGS) Emergency Plan.

PSEG has not selected a reactor technology to be built at the PSEG Site. Therefore, attachments to the Emergency Plan are developed to address information specific to the four (4) proposed technologies

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

The Emergency Plan will be revised following the selection of the reactor technology. At COL, PSEG will update the Emergency Plan to identify the specific monitoring capability for the radiological parameters identified in Regulatory Guide 1.97.

The demonstration of Emergency Plan performance cannot be completed until portions of the facility have been constructed. To support demonstration, Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) are included as an attachment to the Emergency Plan (Part 5) per 10 CFR 52.17(b)(3).

Certain aspects of the technology-specific Emergency Action Levels (EALs) required by 10 CFR 50.47(b)(4) and 10 CFR 50 Appendix E Section IV.B cannot be completed until actual as-built information is available, and the Technical Specifications are finalized. PSEG will adopt an EAL scheme using the guidance in the NRC approved version of NEI 99-01, Rev. 5 and NEI 07-01, Rev. 0 (for AP1000) at least 180 days prior to initial fuel load of the unit.

NUREG-0654/FEMA-REP-1, *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*, Revision 1, November 1980, Criterion II.B.5 and Table B-1 define augmentation times for the on-site emergency organization of 30 and 60 minutes upon declaration of an emergency. The existing Salem/Hope Creek Nuclear Generating Station's Emergency Plan describes an Emergency Response Organization (ERO) augmentation time of 90 minutes to augment the affected unit on-shift staff upon the declaration of an Alert or higher classification (Emergency Plan Section 3 Table 3-2). The existing on-shift staffing, as augmented by the capabilities for additions in 90 minutes, satisfies the staffing requirements of NUREG-0654, Table B-1. In the Safety Evaluation Report

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(SER) for the revision to the Emergency Plan that approved the on-shift ERO capabilities, as well as the 90 minute augmentation time capabilities, the NRC found that the ERO augmentation (response) time of 90 minutes meets the intent of the NRC-approved Emergency Plan, and continues to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50. The NRC Safety Evaluation Report is dated June 26, 2008 (Reference 13.3-1).

**13.3.1 PHYSICAL CHARACTERISTICS**

**13.3.1.1 Site Description**

The existing 734 acre PSEG property is located on the southern part of Artificial Island on the east bank of the Delaware River in Lower Alloways Creek Township, Salem County, New Jersey (NJ). PSEG is developing an agreement in principle with the U. S. Army Corps of Engineers (USACE) to acquire an additional 85 acres immediately to the north of HCGS. Therefore, with the land acquisition, the PSEG Site will be 819 acres. 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 combined license.

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 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.

The PSEG Site lies on the low coastal plain of New Jersey, surrounded by extensive marshlands and meadowlands. The Exclusion Area Boundary (EAB) is shown in Figure 1.2-3. The closest primary public road is NJ Highway 49, and vehicle access to the site is from Alloway Creek Neck Road.

There are no physical characteristics, unique to the PSEG Site, which pose a significant impediment to development of the Emergency Plan. An Evacuation Time Estimate (ETE) Report is provided in Part 5 of the ESPA. The road network is modeled in the ETE and is shown to be robust enough to handle the volume of traffic in the event of an emergency.

**13.3.1.2 Area Population**

The population for each Emergency Response Planning Area (ERPA) is provided in ESPA Part 5, Emergency Plan, Attachment 11, Table 3-1. Additional details are provided in the ETE. The ETE did not identify any impediments to the development of the Emergency Plan.

**13.3.2 EMERGENCY PLAN**

Part 5 of the ESPA contains the complete and integrated Emergency Plan.

**13.3.3 EMERGENCY PLANNING ZONES**

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The Emergency Planning Zones (EPZs) for the new plant at the PSEG Site are based on the requirements contained in 10 CFR 50 Appendix E. The plume exposure pathway EPZ for the PSEG Site is an area surrounding the plant within a radius of approximately 10 miles. The ingestion exposure pathway EPZ is an area surrounding the plant within a radius of approximately 50 miles. The existing EPZ for the Salem/Hope Creek Nuclear Generating Stations is used for the new plant. The center-point of the EPZ is located at Latitude 39° 27' 50.4" and Longitude 75° 32' 08.7". (Exact boundaries are determined in concurrence with state and county authorities). An illustration of the plume exposure pathway EPZ is provided in Part 5, Emergency Plan, Figure 1-3. The figure includes all areas approximately 10 miles from the PSEG Site, including portions of Salem and Cumberland counties in NJ and New Castle and Kent counties in DE.

#### 13.3.4 EVACUATION TIME ESTIMATES

An independent ETE study has been performed to provide estimates of the time required to evacuate resident and transient populations surrounding the PSEG Site for various times of the year under favorable and adverse conditions. The ETE for evacuation of the plume exposure EPZ is summarized in Part 5, Emergency Plan, Attachment 11 and detailed in the ETE report provided in Part 5.

#### 13.3.5 CONTACTS AND AGREEMENTS

Surrounding emergency response organizations currently support SGS and HCGS. The addition of a new facility does not change the number of organizations or their level of support. Letters of agreement reflecting contacts and arrangements made with local, State, Federal and other organizations with supporting emergency responsibilities are provided in Part 5, Emergency Plan, Attachment 2.

#### 13.3.6 REFERENCES

- 13.3-1 U. S. Nuclear Regulatory Commission, "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Emergency Plan Changes for Hope Creek Generating Station and Salem Nuclear Generating Station, Unit Nos. 1 and 2 Docket Nos. 50-354, 50-272 and 50-311," June 26, 2008 (ML081690552).

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### 13.6 INDUSTRIAL SECURITY

The area to be developed for the new plant at the PSEG Site is located to the north of HCGS. There will be a protected area encompassing the new plant. The physical protection of the new plant, as with the existing units, is based on:

- Controlling access to the PSEG Site and all units
- Screening plant personnel
- Monitoring security equipment
- Designing and arranging station features
- Obtaining assistance from local law enforcement personnel

Prior to taking possession of nuclear fuel at the new plant, a vehicle barrier system will be implemented at the appropriate stand-off distance.

The characteristics of the new plant footprint are such that the requirements of 10 CFR 73.55, *Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage*, are met. In addition, PSEG will conform to the applicable industry guidance in the following documents:

- NRC Regulatory Guide 4.7, *General Site Suitability Criteria for Nuclear Stations*, Revision 2, 1998
- NEI 03-12, *Template for Security Plan and Training and Qualification Plan*
- EA-03-086, *Revised Design Basis Threat Order*
- 10 CFR 52.17(a)(1)(x)

The PSEG Site is sufficiently large to provide adequate distances between structures and the probable location of the security boundaries. The layout of the PSEG Site is provided in Figure 1.2-3. The PSEG Site is bordered on the west and the south by the Delaware River. There is an approved comprehensive security plan in place for the SGS and HCGS that is in compliance with the post-9/11 NRC Orders. When PSEG proceeds with construction and operation of a new plant, the existing security boundary will be extended to include the new plant. The security plan and defensive strategy will be updated to incorporate the new plant and ensure that the above referenced security requirements are met.

In accordance with 10 CFR 100, *Reactor Site Criteria*, paragraph 21(f), PSEG will ensure that site characteristics are adequate to support security plans and measures. When a reactor technology selection is made and a combined license (COL) application is prepared, the specific design features to assure site security in compliance with 10 CFR 73.55, will be defined. Design features will assure that the existing security spatial distances for SGS and HCGS are met during construction and operation of the new plant. The new plant design will include physical barriers, access requirements, security monitoring equipment and methods to screen station operating personnel, communications, and testing and maintenance.

Based on review of nearby facilities, there are no potential hazards in the vicinity of the PSEG Site. Additional details on site hazards are provided in Section 2.2. The new plant is located at a sufficient distance from HCGS to meet the minimum requirements of Regulatory Guide 4.7,

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such that provisions for construction activities at the new plant ensure that the ability of SGS and HCGS to meet NRC security requirements is not adversely affected.

The PSEG Site is located in Lower Alloways Creek Township, NJ. A written letter of agreement with local law enforcement is currently in place to establish a single point of contact for law enforcement response to SGS and HCGS. In addition, arrangements are in place by a letter of agreement with the United States Coast Guard for the control of the Delaware River in the vicinity of SGS and HCGS. These agreements will be modified to include the new plant at the PSEG Site.