SECTION 11

PROTECTIVE RESPONSE

1.0 Onsite Protective Response

The onsite protective response consists of warning, notification, assembly, accountability, and protective actions.

1.1 Onsite Warning

In the event of an emergency at the PSEG Site, methods are established for notifying personnel within the Protected Area (PA) and Owner-Controlled Area (OCA) for all emergency classifications.

The primary means of notification within the PA is the plant public address system and evacuation alarms, as described in Section 7.0 of this Plan. Announcements include the emergency classification and response actions to be taken by personnel onsite (such as ERO, non-ERO, contractor personnel, and visitors). Provisions are made to alert personnel in high noise areas and outbuildings within the PA, as applicable. PSEG maintains the ability to notify all individuals within the PA.

NOTE:

The Salem and Hope Creek Generating Stations currently employ an onsite siren system to notify workers outside of the PA of the need to evacuate. The PSEG Site will use the existing onsite siren system.

PSEG informs individuals located outside the PA, but inside the OCA, via an onsite warning system, which provides siren coverage of the habitable portions of the OCA. A siren signal is provided to all personnel in accordance with security procedures. Signs are in place to inform personnel in the OCA to evacuate if the OCA sirens sound. Other notification methods include public address system announcements and activities of the security force (e.g., vehicle-mounted public address systems). PSEG maintains the ability to notify all individuals within the OCA.

1.2 Assembly and Accountability

The sheltering of personnel is performed only for the specific area affected, or as determined necessary by the Emergency Coordinator (EC), for emergencies classified as Unusual Events. However, the EC has the option of initiating accountability if it is beneficial.

For emergencies classified as an Alert, Site Area Emergency or General Emergency, assembly/evacuation of onsite personnel and personnel accountability (optional at Alert) are performed and the initial personnel accountability is completed thirty minutes after the accountability message has been announced over the station page. Any personnel not accounted for within thirty minutes are paged and then called at home prior to initiating search and rescue. This accountability includes all personnel (site personnel, visitors or contractor personnel) who remain within the Protected Area. Essential PSEG personnel are

detained at accountability stations until the Shift Manager (SM)/Emergency Duty Officer (EDO) is assured that they can be released, sheltered, or evacuated. Non-essential personnel (PSEG and contractor) in the Protected Area are directed to exit the site and evacuate the OCA. Evacuation of non-essential personnel (PSEG personnel, contractor personnel or the general public) outside the Protected Area, but within the Owner Controlled Area (OCA), is accomplished through notification by either a site siren system or by the security force.

The accountability system is based in the security computer that maintains normal logs of personnel entering and exiting onsite (the Protected Area) and utilizes the photobadge issued to each person able to access the site. Upon initiation of Assembly, onsite personnel report to their assigned accountability stations. It should be noted that when Assembly is initiated, nonessential station personnel and contractors exit the Protected Area (conditions permitting) to reduce the number of personnel subject to the accountability process.

After accountability is initiated, personnel pass their photobadge through dedicated accountability card readers installed at the various accountability stations. The security computer then generates a report for the security supervisors that indicates the names of unaccounted-for personnel. The security supervisor informs the SM/EDO of the accountability results.

After it is determined which personnel have not been accounted for, actions are taken to locate the missing persons, including the use of search & rescue teams if appropriate.

Site protective actions during security related events are taken in accordance with station abnormal operating procedures that deal with “airborne threats” and “security events” and take priority ahead of the normal assembly/accountability process as outlined in NRC Bulletin 2005-02.

1.3 Protective Actions

Once personnel accountability has been performed, specific instructions on appropriate protective actions to be taken by station personnel are issued using a public address system. Warning of personnel in the OCA is accomplished through the combined use of the owner controlled area siren system and Security Force Members in vehicles.

The protective action options of sheltering and evacuation are combined with a consideration of the necessity for keeping specific technical or management personnel at the station for implementation of this Plan. The evacuation routes and transportation for nonessential onsite personnel are part of the evacuation study for the entire area around the PSEG Site, which is provided as Emergency Plan Attachment 11.

Evacuations are performed utilizing the site evacuation procedures, which provides guidance to the Emergency Coordinator function on actions required for site evacuation and guidance to the security force for their assistance in site evacuations.

The access road to the PSEG Site is currently the only route for evacuating the site. A proposed causeway may be available for use as an alternate route. Affected individuals evacuate the site via personal vehicles. Persons without transportation are identified and

provided transportation as necessary. Appropriate sheltering is available if circumstances preclude evacuation of personnel via the access road.

2.0 Personnel Monitoring and Decontamination

For emergencies classified as an Unusual Event or Alert, monitoring of personnel is restricted to those who have potentially been exposed to or in contact with radioactive materials. The initial monitoring and decontamination is performed onsite in the decontamination area at each control point or other suitable location within the controlled access areas of the station. Methods for personnel decontamination (skin) are described in Emergency Plan Implementing Procedures and in Table 12-2. If the skin cannot be decontaminated below the acceptable values, medical support personnel are consulted in accordance with Section 13 of this plan and applicable Radiation Protection Department instructions.

For emergencies classified as a Site Area Emergency or General Emergency the same general criteria for monitoring and decontamination are used as for the Unusual Event or Alert. Should an actual release of radioactive material occur, the source, wind direction, and survey results are used to determine if general monitoring of station personnel is required. If general monitoring of personnel is determined to be required, the monitoring and decontamination are performed in accordance with Emergency Plan Implementing Procedures. Once evacuated from the Owner Controlled Area, non-emergency workers that are PSEG employees, also known as non-essential personnel, are normally treated as the general public concerning decontamination processes. Monitoring of personnel or vehicles is performed by offsite officials at an appropriate reception center.

If thought appropriate by the emergency coordinator, personnel may be evacuated to or asked to report to the EOF, which serves as an offsite assembly area. The EOF has facilities for personnel monitoring and decontamination.

Individual respiratory protection, protective clothing and potassium iodine are available for onsite emergency response personnel.

3.0 Offsite Protective Response

The States of New Jersey and Delaware are using similar basis for recommending protective actions within the Plume Exposure Pathway. PSEG make recommendations to the States in case of a General Emergency. PSEG uses bases similar to those established by the States to make recommendations. Recommended action levels consistent with those indicated in both State Plans (and adopted from EPA-400-R-92-001) are being used as guidance in making a determination as to what protective actions, if any, should be recommended.

For projected TEDE + 4 Day Dose of 1 rem and Thyroid Commitment Dose Equivalent (CDE) of 5 rem (child or adult) the option exists to recommend seeking shelter or initiating evacuation (or a combination of two depending on distance and direction of plume). The decision is based primarily on a comparison of the projected plume travel time, evacuation time estimates, ambient meteorology, anticipated duration of release, and degree of protection afforded by local residential units. A list of representative shielding factors provided by typical structures against direct exposure to the plume is provided in Table 11-1. If an evacuation can be completed prior to the plume passing over the affected population, then an evacuation recommendation may be made, while considering other environmental

factors, in the case of a projected 1 rem TEDE + 4 Day Dose or 5 rem Thyroid CDE. A sheltering recommendation may be made, if a "puff" radiological release occurred and it was not expected that evacuation could be completed within the plume travel time.

3.1 Evacuation Time Estimate

The evacuation time estimate for the Plume Exposure Pathway EPZ is provided in Emergency Plan Attachment 11.

3.2 Population Distribution

The population distribution within ten miles of the PSEG Site is provided in Section 1.0 and Attachment 11 of this Plan..

TABLE 11-1
REPRESENTATIVE SHIELDING FACTORS FROM GAMMA CLOUD SOURCE

Structure Description	Shielding Factor (1)	Representative Range
Outside	1.0	-
Vehicles	1.0	-
Wood-frame house (2) (No Basement)	0.9	-
Wood-frame House (Basement)	0.6	0.1 to 0.7 (3)
Masonry House (No Basement)	0.6	0.4 to 0.7 (3)
Large Office or Industrial Building	0.2	0.1 to 0.3 (3, 4)

NOTES:

(1) The ratio of the dose received inside the structure to the dose that would be received outside the structure.

(2) A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.

(3) This range is mainly due to different wall materials and different geometry.

(4) The shielding factor depends on where the personnel are located within the building, such as in the basement or an inside room.

Source: SAND 77-1725 (Unlimited Release)