

U. S. NUCLEAR REGULATORY COMMISSION  
REGION I

License/Docket/Report No.: DPR-70/50-272/94-15  
DPR-75/50-311/94-15  
NPF-57/50-354/94-14

Licensee: Public Service Electric and Gas Company (PSE&G)

Facility Name: Salem and Hope Creek Nuclear Generating Station

Inspection At: Hancocks Bridge, New Jersey

Inspection Period: July 11 - 14, 1994

Inspectors:

  
D. Silk, Senior Emergency Preparedness Specialist  
J. Lusher, Emergency Preparedness Specialist

Approved By:

  
R. Keimig, Chief  
Emergency Preparedness Section  
Division of Radiation Safety and Safeguards

**Areas Inspected:** Emergency Preparedness (EP) readiness, including: procedure changes; emergency response facilities (ERFs) and equipment, instrumentation, and supplies; organization and management control; emergency response organization (ERO) training; independent audits; and the licensee's corrective action program pertaining to EP items.

**Results:** The program and state of readiness were determined to be very good. Procedure changes were acceptable. The ERFs were found to be well equipped. The experienced EP organization remained relatively stable. ERO staffing was three to four deep. The EP training program was well implemented. Audits were satisfactory. Corrective actions pertaining to EP have been acceptable and have been generally timely. No safety concerns or violations of regulatory requirements were identified.

## DETAILS

### 1.0 Personnel Contacted

#### PSE&G

- +\* T. DiGuisseppi, Emergency Preparedness Manager
- \* C. Florentz, Government Affairs Liaison
- \* S. LaBruna, Vice President Nuclear Engineering
- \* R. Malone, Senior Staff Engineer, Licensing
- +\* P. Moeller, Site Protection Manager
- \* B. O'Malley, Hope Creek Operations Manager
- +\* L. Reiter, Process Improvement Director
- +\* R. Savage, Quality Assurance Audits
- \* J. Trejo, Radiation Protection / Chemistry Services Manager

Other licensee personnel were also interviewed during the inspection.

#### Nuclear Regulatory Commission

- + J. Laughlin, Resident Inspector
  - \* R. Keimig, Chief, Emergency Preparedness Section, Region I
  - +\* J. Lusher, Emergency Preparedness Specialist
- + Denotes attendance at the July 11, 1994 Entrance Meeting.  
\* Denotes attendance at the July 14, 1994 Exit Meeting.

### 2.0 Emergency Plan and Implementing Procedures

The inspectors reviewed the licensee's 10CFR 50.54(q) evaluation process. That regulation (10CFR 50.54(q)) pertains to Plan changes and their impact on the effectiveness of the Plan. The licensee performs a 10CFR50.54(q) evaluation of its plan and implementing procedure changes that consists of one question: Is the review necessary or not? No criteria are provided. The licensee was aware that the key issue was how the change impacted the effectiveness of the Plan. The NRC did not find any instances where changes decreased the effectiveness of the Plan. However, the NRC recommended that a more thorough review of Plan changes be performed. The licensee stated its intent to do a more thorough review and formal documentation of its 50.54(q) evaluations in the future.

As a result of the April 1993 EP program inspection in which operating crews experienced difficulty using various procedures during simulator scenarios, the licensee made changes to those procedures. The Emergency Action Level (EAL) regarding containment boundary was amplified to provide specific criteria. Also, a radiologically based protective action recommendation (PAR) flow chart was developed and

incorporated into various procedures. The inspectors determined that these changes were enhancements.

The licensee made changes to their EALs regarding Technical Specification (TS) required shutdowns as a result of a December 1993 event. The wording of the EALs pertaining to TS required shutdown was changed to more accurately reflect the intent of those EALs. The inspectors determined that these changes were acceptable.

The inspectors noted during the review of recent procedure changes that a potential discrepancy exists with the EAL for radiological releases that meet General Emergency (GE) thresholds. This discrepancy exists in Part H. of Section 7 of both the Salem and Hope Creek ECGs. These sections list one of the thresholds for declaring a GE based on a radiological release producing a whole body dose rate at the Minimum Exclusion Area (MEA) of greater than or equal to 1 R/hr or a committed thyroid dose rate of greater than or equal to 5 R/hr. If a radiological release produces dose rates less than the 1 R/hr and 5 R/hr respectively and the release duration was greater than one hour, then the integrated doses would exceed the EPA-400 (Manual of Protective Action Guides and Protective Actions for Nuclear Incidents) limits of 1 R and 5 R respectively which are threshold values for initiating an evacuation of the general public. But if the dose rates are less than the EAL criteria, no GE would be declared. Therefore, a condition could exist requiring an evacuation but no GE would be declared.

The inspector questioned the licensee about this discrepancy. The licensee stated that integrated dose was accounted for on the second page of the Station Status Checklist that is transmitted to offsite agencies in the event of an emergency declaration. That document reports four-day integrated doses for offsite protective action purposes. The inspector, however, remained concerned that such information, without the significance of a GE declaration to draw attention to it, or without a PAR to accompany it, would not be assimilated by offsite agencies to initiate a timely evacuation. The licensee stated an intention to have its technical staff review the EAL with respect to the requirements of EPA-400 and the protective actions involved in that document. The inspector acknowledged that the EAL as written in the Salem and Hope Creek ECGs is a verbatim copy of the guidance contained in NUREG-0654/FEMA-REP-1 (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants). The EAL is not, however, in agreement with the more recent guidance contained in EPA-400. The inspectors recognized that for a release to occur, the fission product boundaries must have failed. There are EALs for these boundaries. Fission product boundary failures would trigger a GE declaration prior to a dose rate EAL. A PAR based on plant conditions or dose projection would accompany the GE declaration. Therefore, provisions exist for the general public to be protected despite the inconsistency in the dose rate EAL.

The inspectors concluded that this area was being effectively implemented.

### 3.0 Emergency Facilities, Equipment, Instrumentation, and Supplies

The inspectors performed audits of equipment and procedures that were located in emergency lockers in the Operations Support Center (OSC), the Technical Support Center (TSC), the Main Control Point (at Salem), the Emergency Vehicle Lockers, the Emergency News Center (ENC), and the Emergency Operations Facility (EOF). The inspectors observed that equipment specified on the inventory checklists was present and accounted for in all of the Emergency Response Facilities (ERFs). During the April 1993 EP program inspection, it was observed that portable respirators were found to be located away from designated lockers inside the radiation control area of Hope Creek. During this inspection, the inspectors noted that respirators are now stored in their designated lockers. The survey instruments were within the calibration requirements and all supplies were available. The inspectors noted only minor equipment issues, such as, two weak flashlights, a corroded battery in a dosimeter charger, and misplaced keys for the Radiation Protection lockers in the EOF. The licensee immediately addressed the equipment issues and returned the locker keys to their proper location while placing a second set of keys in the EOF as a backup. The NRC noted that the Salem TSC radiation monitor had been returned to service after being inoperable for over 18 months (See Section 8.1).

The inspectors reviewed the records of the quarterly inventory surveillances for 1993 and the first two quarter of 1994 for the Salem OSC, TSC, Main Control Point, and the Emergency Vehicle Locker. The surveillances were completed at the designated frequency and any discrepancies noted during the surveillances were promptly addressed and corrected.

Within the equipment lockers were the current checklists for equipment designated for those lockers. The checklists were in the lockers to assist in setting up the facilities when they are activated and for post-event or post-exercise inventory checks.

The inspectors reviewed the ERFs' ventilation system surveillances. At the EOF, only functional tests of the system were being performed. There had been no tests performed to measure the efficiency of the High Efficiency Particulate Air (HEPA) filter. The purpose of the HEPA filter is to minimize the intrusion of radioactive particulate into the EOF. Even with the status of the HEPA filter uncertain, the occupants of the EOF would be warned of the presence of radiation because the licensee does have radiation monitors in the EOF and thus, could take appropriate protective action. On July 20, 1994, the licensee performed a test on EOF ventilation system and found the HEPA filter to be 99.9% efficient, as required. The licensee will continue to conduct an efficiency test on a regular basis.

A new information tool is being used by the Emergency Response Organization (ERO). The Document Management System allows users to electronically access current station procedures and system drawings and have them printed as they are needed. This system

ensures that current documents are available to the ERO staff and eliminates keeping and updating controlled hard copies in the ERFs.

The inspectors reviewed the public notification system (sirens) surveillances. The siren availability average was found to be 99%. The required availability average is 90%. The inspectors determined that the licensee public notification system was well maintained.

The ENC was found to have the capability to monitor information from the major networks and wire services. The ENC was sufficiently sized to accommodate large numbers of reporters. Also, the ENC has the ability to monitor its own spokespersons on closed circuit TV while addressing the media and can immediately notify them and/or the media if incorrect information is presented.

Overall, the ERFs were being maintained in a state of readiness.

#### **4.0 Organization and Management Control**

The inspectors interviewed the Director of Process Improvement, the Salem Operations Manager, the Hope Creek General Manager, the Nuclear Support and Services General Manager, the Vice President of Nuclear Engineering, the Vice President of Nuclear Operations, and the Emergency Preparedness Manager. All personnel interviewed were members of the ERO. Two of the persons interviewed were emergency coordinators during the April 7, 1994, Alert at the Salem Unit 1 Generating Station. Both individuals expressed that the training, drills, and exercises prepared them well to respond to the event. All of the persons interviewed were actively involved with the EP program. They also indicated that the EP group exerted significant effort to maintain good relations with the offsite officials, the ERO personnel, and the Operations Department.

The ERO was being maintained at a level of three or four deep in all positions. The licensee has A, B, C Teams in the ERO with an X Team in reserve. Teams A, B, and C carry pagers. The X Team members are fully qualified but do not carry pagers.

Following the inspection, the licensee laid off numerous employees. In a telephone interview with the EP manager, he stated that laid-off employees who held ERO positions were replaced on the ERO by X Team members. The licensee actions regarding ERO staffing demonstrated good oversight of the program.

The EP organization remained fairly stable since the last inspection. Currently, it has two vacant positions; one is being eliminated and the other is being filled by a contractor. Essentially, the EP organization staff has one member less than in the past. However, the inspectors found no evidence of negative impact caused by this staff reduction.

There were no safety concerns or discrepancies in this area.

#### 4.1 Offsite Interface

The inspectors interviewed two local officials to evaluate the effectiveness of the licensee's interface and support. The Salem County's Deputy Coordinator and Delaware Emergency Management Agency's Acting Deputy Director were asked about items in The Code of Federal Regulations that pertained to offsite interfaces by the licensee. With regard to public information, emergency response training, annual EAL training, resolution of Federal Emergency Management Agency (FEMA) findings from exercises, and communications, these individuals stated that the licensee's staff was very responsive and supportive. When asked about the April 7, 1994 precautionary Alert declaration, neither official expressed any reservations about how the event was handled. Both were understanding of the licensee's situation on that day regarding the implementation of a conservative approach to the Alert declaration. Overall, these individuals indicated that they had excellent working relationships with the licensee.

The inspectors noted that neither of these officials remembered having seen the part of the annual 10CFR50.54(t) audit report that contains Quality Assurance's evaluation of the effectiveness of the licensee's offsite interface. The inspectors checked licensee records and found that the report had been sent to the offices of both States. In order to ensure a more thorough distribution of the report, the licensee committed to send copies of the report to the surrounding counties as well as to the States.

During an April 1993 inspection, the NRC reviewed the Memoranda of Understanding (MOUs) with New Jersey and Delaware and noted a lack of specificity regarding the expected level of response from the states. During this inspection, the NRC reviewed the letters sent annually to offsite agencies (state and local) for renewal of the MOUs. The letters asked these agencies to specify in the MOUs or to reference the appropriate sections from their emergency response plans that contains the details regarding their response efforts. Since the offsite agencies (not the licensee) write the MOUs, the inspectors determined that the licensee's request was an acceptable response to the issue noted in the 1993 inspection.

The inspectors also reviewed the lesson plans for the EAL training offered to offsite local officials. The lesson plans were the same that the licensee uses for their ERO manager training. This training was offered to the officials not only to meet NRC's regulation but to assist the officials in understanding the perspective of the licensee's ERO management during an emergency. The lesson plans were determined to be sufficient in scope and depth to meet the regulations.

In addition, the inspectors reviewed the emergency preparedness information that is distributed to the public via calendars, pamphlets, and telephone book inserts. The information provided met the NRC requirements of 10CFR50.47(b)(7) and Section 8, Public Information, of the Plan. The licensee also invites the media to attend training, tours, and exercises to familiarize them with the site and emergency preparedness items.

No safety concerns or discrepancies were identified in this area.

## 5.0 EP Training

The inspectors observed the Management Responsibilities Class and reviewed the lesson plans and associated handouts. The information was well presented by the instructor and the interrelations of Salem and Hope Creek procedures were thoroughly discussed. Also, the PARs procedure was well covered. Additionally, the inspectors reviewed the lesson plan for Overview/Operational Support Center/Onsite Radiation Protection/Dose Assessment. The lesson plan was thorough and technically correct.

The inspectors were given a demonstration of the new updated Meteorological Information Data Acquisition System (MIDAS) that was converted from a VAX-based computer to personal computers. The system was user-friendly and provided all of the necessary information needed to perform dose projections. Additionally, the system had inputs from the meteorological towers and all of the radiation monitors.

During an April 1993 inspection, the NRC found that data entry errors had been made in the data base for ERO personnel. When an individual takes the annual retraining, three grades can be recorded: "F" if the individual fails the test; "P" if the individual passes the test after attending the associated course; or "T" if the individual passes the test without attending the course ("test-out"). The errors that were found previously pertained to four individuals who were graded as "P" instead of "T." The ERO personnel cannot "test-out" two years in a row and must attend a course at least every other year. The significance of mistakenly entering a "P" instead of a "T" is that these individuals could "test-out" two years in a row. During this inspection, the NRC discussed this matter with the EP trainer. The trainer stated that to "test-out" successfully individuals must score 80% versus 70% for someone attending the course and the test. Also, the trainer stated that each test contains at least 30% different/new questions. Therefore, if a "P" grade is entered instead of a "T," the overall significance of this error is small because the individual demonstrated a higher knowledge level regarding his/her EP responsibilities. The inspector also questioned the possibility of entering a "P" or "T" into the data base instead of an "F." The licensee stated that potential was minimal since a very small percentage (2 - 3%) of individuals fail their EP tests with the majority being individuals filling clerical positions. But because failures are rare, the trainer who enters those grades into the data base already has an heightened awareness of the failures and, therefore, would be unlikely to improperly enter the scores. Also, immediately following each test, individuals are informed of their scores and have the opportunity to followup on questions/topics that were missed on the test. Thus, if an individual fails, he/she is informed and must reschedule the course in the near future. Therefore, if the trainer entered a "P," the trainee's subsequent reschedule and/or retake would alert the trainer to an data entry error. Because there is always human interface, the possibility for error always exists. However, based upon the high standard for "test-outs," the low percentage of failures, and the individual's responsibility

to reschedule a failed test, the inspectors consider the licensee's system to be satisfactory for ensuring that only qualified individuals are in the ERO.

No safety concerns or discrepancies were identified in this area.

## 6.0 Independent Audits/Reviews

The inspectors reviewed 10 CFR 50.54(t) annual Audit Reports NQS-93-0456 (1993) and NQS-94-030 (1994). The audits had no findings, recommendations or observations. The audits concluded that the offsite interface was being effectively implemented. It appeared that only the offsite interface was evaluated, and after talking to the lead auditor, the inspectors were informed that other audits were performed throughout the year and were shown the results of those audits. The inspectors considered the conduct of audits throughout the year to be good. The inspectors stated that the 10CFR50.54(t) audits should review and summarize the activities from other audits performed during the year. Additionally, the inspectors indicated that it would be a good practice to include someone on the audit team with EP expertise from outside of the licensee's EP organization.

The inspectors reviewed the critiques for two Unusual Events (UE) declared at Hope Creek for contaminated/injured person events that occurred earlier in 1994. The critiques were thorough and self-critical. The licensee identified both positive and negative aspects of their response efforts. Negative items were tracked for corrective action. The critique for the April 7, 1994 Salem Alert was not completed and could not be reviewed during this inspection.

The inspectors reviewed the 1993 and 1994 Licensee Event Reports (LERs) for Salem and Hope Creek to determine if any emergency classification declaration was missed by the licensee. The inspectors noted that a December 1993 TS-required shutdown of one of the Salem Units due to an inoperable diesel generator appeared to have met the criteria for a UE under the current EAL. However, upon further investigation, the inspectors learned that at the time of the shutdown, the EAL was worded differently. It read as follows: "Unit shutdown is initiated as a result of **exceeding** (emphasis added) any of the following T/S Action Statements: T/S LCO 3.8.1.1." The TS allowed 72 hours to repair the diesel generator. Since the diesel was not going to be repaired within that time, a decision was made to shut down. The operators reasoned that, since they were not exceeding the 72-hour action statement limit, there was no need to declare a UE. The operators had been trained on the intent of the EAL which was to declare a UE if a shutdown is performed to **comply** (emphasis added) with a TS action statement. However, prior to this event, the wording of the EAL had not been closely scrutinized. Therefore, when the diesel generator situation arose, the wording appeared contrary to the intended meaning. The licensee promptly addressed the wording issue regarding this EAL and those similar to it. The EAL now reads: "Shutdown initiated to **comply** with

Technical Specification Action Statement: T/S LCO 3.8.1.1." The inspectors had no other comments regarding the review of the LERs.

The inspectors concluded that this area was being effectively implemented.

## **7.0 Effectiveness of Licensee Controls**

The licensee's tracking system was reviewed by the inspectors. The oldest item was from 1992 and its resolution was scheduled before the end of 1994. Several items existed from 1993. None of the outstanding items were of immediate significance. The number and age of the items in the tracking system indicate that the licensee has been aggressively implementing corrective action for identified issues.

The licensee followed and corrected items being tracked by the NRC as well as items that were mentioned in NRC reports that were not sufficiently significant to receive a tracking number; for example, the procedures problems and lack of specificity of the MOUs as stated previously in this report in Sections 2.0 and 4.1, respectively. This demonstrates that the licensee is taking corrective action beyond that which would be minimally expected.

The licensee was generally quick to respond to problems or concerns. The licensee was quick to change the EALs related to TS-required shutdowns following the December 1993 issue regarding the TS for an inoperable diesel generator. The licensee quickly proceduralized and performed EOF HEPA filter efficiency testing as a result of NRC comments. The licensee responded quickly to the minor equipment issues observed by the NRC during the audits of the ERFs. However, the TSC radiation monitor was out of service for over 18 months before it was returned to service during the week before this NRC inspection. The inspectors concluded that in general, the licensee was responsive to identified issues.

The inspectors found that the licensee also has an effective system to prompt the EP staff to perform various surveillances or tasks. During the inspection, the licensee added several tasks to the system in response to NRC comments.

No safety concerns or discrepancies were identified in this area.

## **8.0 Review of Open Items**

### **8.1 (CLOSED) IFI 50-272,311/93-12-01, 50-354/93-08-01:**

During the June 23, 1993 partial participation exercise, the inspectors noted that the TSC Heating Ventilation and Air Conditioning (HVAC) radiation monitor was removed from service for calibration/repair. The attached information tags did not specify the monitor's status nor were TSC personnel cognizant of its condition.

During this inspection, the inspectors determined that Radiation Monitor 1R51 had been out of service since 1992. The inspectors reviewed the work order which documented that the monitor had been returned to service a week prior to this inspection. The reason for the monitor being initially removed from service was because it had been alarming with normally occurring background radiation. Following lengthy delays in acquiring the necessary components to repair the unit, the monitor was channel checked and now no longer alarms under normal background radiation conditions. This item is closed.

## 8.2 (CLOSED) URI 50-272,311/93-13-01, 50-354/93-09-01:

During the December 1992 loss of overhead annunciator system in the Salem Unit 2 Control Room, plant conditions existed for an Alert declaration prior to recognition and restoration of the annunciators, but no emergency classification or declaration was made, nor were timely notifications made to the States or the NRC. Non-declaration of terminated emergencies did not appear to meet NRC and FEMA guidance contained in the "Class Description" sections of Appendix 1 to NUREG-0654/FEMA-REP-1, which refers to events that are in progress or have occurred. The licensee indicated that non-declaration of a terminated emergency was appropriate because declaration of an Alert condition or higher requires a staff augmentation response.

The inspectors reviewed the latest changes to the emergency plan Emergency Classification Guide to verify that the licensee incorporated a change to ensure that the NRC is notified of emergency events that exceed an EAL, but was not recognized by the shift crew at the time of the event. A new EAL was added to Section 17, "Public Interest," Section D, that requires the licensee to make a 10 CFR 50.72(b), one-hour report. This action was acceptable to the NRC and item is closed.

## 9.0 Listing of Document Change Reviews

The inspectors reviewed recent changes to the Artificial Island Emergency Plan and the Hope Creek and Salem Event Classification Guides (ECGs) to determine if these changes decreased the effectiveness of the Emergency Plan. The inspectors reviewed the revisions of the Plan and portions of the Classification Guides that are listed below.

Plan Section Number	ECG Section or Attachment Number	Revision
2	-	2
4	-	2
6	-	1
11	-	2
17	-	3
1	-	1
16	-	4
3	-	5
9	-	3

Plan Section Number	ECG Section or Attachment Number	Revision
-	Salem Att. 17	4
-	Salem Sect. 10	4
-	Salem Att. 16	5
-	Salem Att. 23	3
-	Salem Sect. i	2
-	Salem Sect. 1	5
-	Salem Sect. 8	3
-	Salem Sect. 9	2
-	Salem Sect. 12	4
-	Salem Sect. 15	2
-	Salem Sect. 17	6
-	Salem Sect. 18	9
-	Salem Att. 9	16
-	Salem Sect. 6	1
-	Salem Sect. 7	4
-	Salem Att. 8	12
-	Salem Att. 1	13
-	Salem Att. 2	7
-	Salem Att. 3	7
-	Salem Att. 4	6
-	Hope Creek Att. 17	4
-	Hope Creek Sect. 10	4
-	Hope Creek Att. 16	5
-	Hope Creek Att. 23	2
-	Hope Creek Sect. i	2
-	Hope Creek Sect. 1	5
-	Hope Creek Sect. 8	3
-	Hope Creek Sect. 9	3
-	Hope Creek Sect. 12	4
-	Hope Creek Sect. 14	3
-	Hope Creek Sect. 15	3
-	Hope Creek Sect. 17	5
-	Hope Creek Sect. 18	10
-	Hope Creek Sect. 7	5
-	Hope Creek Att. 1	12
-	Hope Creek Att. 2	7
-	Hope Creek Att. 3	7
-	Hope Creek Att. 4	6
-	Hope Creek Att. 8	13

## 10.0 Exit Meeting

The inspectors met with the licensee personnel identified in Section 1.0 at the conclusion of the inspection to discuss the inspection scope and findings. The inspectors highlighted the items in Sections 2.0 through 8.0 and provided a summary evaluation of the EP program. The inspectors also reiterated the commitments made by the licensee during the week that included enhancing the 10CFR50.54(q) review performed for Plan/procedure changes, performing HEPA filter efficiency tests for the EOF ventilation, utilizing outside EP experienced personnel for the 10CFR50.54(t) audits, and sending copies of the portion of the 10CFR50.54(t) reports pertaining to offsite interfaces directly to the local county offices. The licensee acknowledged the findings and commitments as stated by the inspectors.