

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-272/90-18
50-311/90-18
50-354/90-12

Docket Nos. 50-272
50-311
50-354

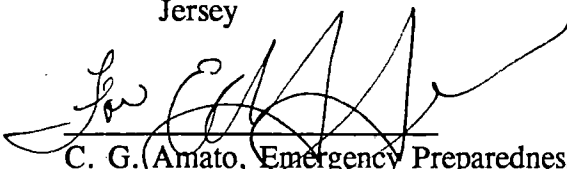
License Nos. DPR-70
DPR-75
NPF-57

Licensee: Public Service Electric and Gas
P. O. Box 236
Hancocks Bridge, New Jersey 08038-4800

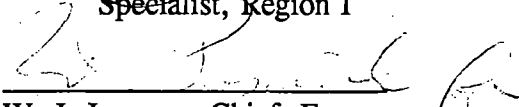
Facility Name: Artificial Island (Hope Creek and Salem Generating Stations)

Inspection Dates: June 25-29, 1990

Inspection At: Elk Township, Lower Alloways Creek Township and Salem, New Jersey

Inspector: 
C. G. Amato, Emergency Preparedness
Specialist, Region I

8/1/90
date

Approved: 
W. J. Lazarus, Chief, Emergency
Preparedness Section, Division
of Radiation Safety and Safeguards

8-1-90
date

Inspection Summary: Inspection on June 25-29, 1990 (Combined Inspection Report Nos. 50-272/90-18, 50-311/90-18, and 50-354/90-12)

Areas Inspected: Announced, routine, safety inspection of the licensee's emergency preparedness program.

Results: No violations, deviations or unresolved items were identified.

DETAILS

1.0 Persons Contacted

The following Public Service Electric and Gas Company staff personnel were contacted.

- * C. Banner, Administrator, On-Site Emergency Preparedness, Emergency Preparedness Department
- * K. Bell, Public Information Representative, Nuclear Public Information Department
- S. Collon, Principal Staff Engineer, Telecommunications and Planning
- * T. DiGuisseppi, Emergency Preparedness Department Manager
- C. Fenton, Quality Assurance Engineer, Quality Assurance Audits and Programs
- W. Gott, Principal Nuclear Training Supervisor, Nuclear Training Center
- * J. Hagen, General Manager, Hope Creek Operations
- R. Hovey, Operations Manager, Hope Creek
- * S. LaBruna, Vice President, Nuclear Operations
- J. Lloyd, Principal Nuclear Training Supervisor, Nuclear Training Center
- * H. Lowe, Senior Engineer, Quality Assurance Audits and Programs
- L. Miller, General Manager, Salem Operations
- S. Miltenberger, Vice President and Chief Nuclear Officer
- C. Munzenmaier, General Manager, Nuclear Services
- P. Moeller, Manager of Site Protection
- * W. O'Malley, Operating Engineer, Hope Creek Station Operations
- R. Savage, Quality Assurance Engineer, Quality Assurance Audits and Programs
- F. Safin, Senior Staff Engineer, Nuclear Fuels Group
- J. Schaeffer, Supervisor, Facilities and Equipment, Emergency Preparedness Department
- J. Scott, Supervisor, Probability Risk Assessment, Nuclear Engineering Sciences
- * J. Serwan, Senior Nuclear Shift Supervisor, Salem Station Operations
- * D. Smith, Licensing and Regulations
- M. Vitale, Supervisor, Document Distribution
- * W. Weckstein, Senior Staff Engineer, Emergency Preparedness Department
- M. Zeigler, Principal Staff Engineer, Telecommunications and Planning

- * Denotes personnel who attended the exit meeting. The inspectors also interviewed other licensee personnel.

2.0 Emergency Plan and Implementing Procedures

- 2.1 The Emergency Preparedness Department is responsible for the development, review, and maintenance of the Artificial Island Emergency Plan and Implementing Procedures. Section 17 of the Emergency Plan specifies Emergency Plan Administration. Distribution is the responsibility of the Document Distribution Group. The Nuclear Administrative Procedures Manual delineates distribution and control procedures for the Emergency Plan and Implementing Procedure changes. The inspector reviewed the documents and checked licensee actions against procedures. Plans and Implementing Procedures were developed, reviewed, distributed and maintained in accordance with these procedures.

Based on the above review, this portion of the licensee's emergency preparedness program is acceptable.

3.0 Emergency Response Facilities (ERFs) and Emergency News Center (ENC)

- 3.1 The inspector determined that the ERFs were maintained in a state of readiness. Instrumentation was functional and within the calibration period. Communication systems tested included the NRC Emergency Notification System, and the Health Physics Network. Notification calls were made and verification received using current procedures. All tested equipment worked properly. Rapid facsimile machines are also available which can transmit simultaneously to multiple terminals and electronically verify transmission receipt.
- 3.2 The present Emergency News Center (ENC) is an undedicated facility in Salem City, New Jersey approximately 8 miles from the site. The currently designated back-up ENC in Elk Township and a possible replacement facility in Woodstown were inspected. There are no areas dedicated for this use at either site nor is supporting equipment available. Access can be controlled and truck bays would be used for press briefings. In the event the Salem ENC has to be relocated, supporting equipment would be transferred to the back-up ENC. ENC relocation procedures have been developed but have not been used in drills. Licensee personnel estimated relocation can be effected in 45 minutes.
- 3.3 The licensee is committed to maintaining the primary ENC within Salem City (located inside the ten mile Emergency Planning Zone (EPZ)). In order to provide dedicated space and a larger facility, the existing Salem ENC will be replaced by one located within the proposed Greater Salem Community Center. The licensee will have 6000 dedicated square feet for ENC working space and the gymnasium will be available for press briefings.

- 3.4 Plans to develop a New Jersey State News Center which would support Artificial Island and Oyster Creek are pending further project review by the State of New Jersey.

Based on the above findings, this portion of the licensee's emergency preparedness program is acceptable.

4.0 Organization and Management Control

- 4.1 Development and maintenance of the emergency preparedness program is the responsibility of the Emergency Preparedness Department. Section 17 of the Emergency Plan lists the functions of the Emergency Preparedness Department and identifies 18 activity areas including off-site interface. The inspector reviewed these documents and evaluated the program against them and NRC requirements.
- 4.2 Management review and control involves five levels of management. The licensee manages by objective and keep track of emergency preparedness activities through staff meetings and one-on-one meetings, resolving audit findings if needed, maintaining emergency response organization qualifications, reviewing scenarios and changes to the Emergency Plan and Procedures, participation in drills and exercises and interface with State and County officials. A Work Order Tracking system is also in use. Results of call-in tests, the need to reschedule emergency preparedness training, and staff play during drills and exercises are three indicators used to evaluate the emergency preparedness program. Managers communicate the importance of emergency preparedness by their actions and words. They participate in drills and exercises, and attend emergency preparedness training classes. During drills they stress the importance of emergency preparedness. Managers stated that drills and exercises help build a team spirit and consider them a tool to good staff attitudes, morale and competency. All interviewed expressed satisfaction with the emergency preparedness program and the associated training program.
- 4.3 The Emergency Preparedness Department Section staff numbers fourteen. This number includes two administrative personnel and two professionals assigned full time to emergency preparedness training. The incumbent Emergency Preparedness Department manager assumed this duty ten months ago. Department activities were maintained and the Department continues to improve the Plan and Procedures. Examples of improvement activities are development of site Emergency Action Levels (EALs) for natural phenomena and security events, a single Event Classification Guide for both sites, and a simplified EAL description for use in the initial contact message sent to the States. The staff has been relatively stable and the discipline mix is adequate to meet the demands placed on the Department. A strong operations basis is evident with five staff members having an operations background. The Senior

Reactor Operator rotation program continues, which allows a Senior Reactor Operator to learn and provide operational experience to the program. The first operator rotation has taken place and the next one is due within six months.

- 4.4 A number of personnel changes have taken place since the last routine inspection. The General Manager to whom the Emergency Preparedness Department manager reports assumed this position last June, 1990. He has a strong fossil fuel plant background with some nuclear experience. He will be trained for an Emergency Response Organization position. The recently appointed Administrator for Off-Site Planning was a Radiation Protection Supervisor with emergency preparedness experience and was active in local government. Two qualified trainers have been transferred from the Nuclear Training Center to Emergency Preparedness to support emergency preparedness training. One is a professional Health Physicist with an extensive emergency preparedness background. The other trainer is a former Salem Equipment Operator and a former Hope Creek Senior Reactor Operator.

Based on the above review, this portion of the licensee's emergency preparedness program is acceptable.

5.0 Training

- 5.1 Emergency Preparedness Training responsibility has been transferred from the Nuclear Training Center to the Emergency Preparedness Department. Training is scheduled throughout the year and is current. Over 1200 personnel are qualified for an Emergency Response Organization (ERO) position. At least three are qualified for every key ERO managerial and decision making position. NRC Post TMI Action Plan (NUREG-0737) requirements for the staffing of Emergency Response Facilities are met.
- 5.2 Weekly, on-the-job training has resumed with one mini training drill scheduled each week for each site. In addition, nine day-long drills are scheduled. These include the annual exercise, Health Physics drill and medical drills. A dedicated emergency preparedness training center is now functional. Job task analysis of ERO positions will be done. Engineers assigned to the Technical Support Center and Emergency Operations Facility are given an overview of Emergency Plan Implementing Procedures and Core Damage Assessment Procedures. If they have taken the Systems Engineering Course they have been exposed to Emergency Operating Procedures. Severe accident analysis training is not yet given.
- 5.3 Medical training for support hospitals personnel was given by a consultant. Although not required to do so, the licensee invited ambulance company personnel from ambulance corps within the ten mile Emergency Planning Zone (EPZ) to attend this instruction. The licensee maintains a full-time Artificial

Island Fire Department. All members maintain New Jersey certification as Emergency Medical Technicians. Training of EPZ emergency workers is the responsibility of the States which have sent letters to the Federal Emergency Management Agency attesting to this training.

- 5.4 Reactor operators receive classroom and simulator training in emergency preparedness including classification, notification and development of Protective Action Recommendations. The Emergency Preparedness Department personnel provide classroom training. Staff of the Nuclear Training Center gives the simulator portion of this training. To provide realism, the licensee has installed a replica, in each simulator room, of emergency communications equipment. This equipment may be switched to instructor hand sets or to the States communication centers. Beginning in 1990, all drills and exercises will be run from the simulator.
- 5.5 The effectiveness of this training program was demonstrated by response to actual conditions requiring classification and a strong annual exercise performance. During the exercise, event classification was timely and correct, core cooling status was correctly assessed, and containment failure and an interfacing system loss of coolant accident (Event V) were identified. Control room staffs responded to twelve actual conditions requiring classification. A review of records indicated classification was correct and notifications were made to the States within the fifteen minutes as required by regulations.

Based on the above review and observations, this portion of the licensee's emergency preparedness program is acceptable.

6.0 Independent Audits/Reviews

- 6.1 The 50.54(t) and Technical Specification (TS) audit/reviews were conducted independently by two different groups of the Quality Assurance Department. One group addressed the TS requirement and the other concentrated on the requirements of 10 CFR 50.54(t). Quality Assurance procedures traceable to the requirements of Appendix B to 10 CFR 50 were followed. Auditors were independent of the Emergency Preparedness Department, an audit check list was developed, entrance and exit meetings were held and audit findings were issued in report form. Eight emergency preparedness activities were studied, some with as many as 20 items listed for evaluation. The audits identified no deficiencies. The licensee/State interface was reviewed to determine adequacy and it was found to be adequate. This Section of the review was offered to the States.

Based on the above, this portion of the licensee's emergency preparedness program is acceptable.

7.0 Notification and Communications

- 7.1 The Public Alerting system consists of 71 sirens located in Delaware and New Jersey. Each State tests the sirens daily but at different times. Sirens are activated by a radio signal restricted to this use (different frequencies are used for Delaware and New Jersey). In addition to the daily tests, the FEMA biweekly, quarterly and biannual tests are also done. Siren availability was 99.5%.
- 7.2 In the event a siren malfunctions, the appropriate State notifies the licensee who institutes corrective action. Sirens are activated at central stations located in each State consisting of a key control and a personal computer with software to test and activate sirens. There are two independent and redundant systems in each central station equipped with back-up power supplies.
- 7.3 The sirens are backed-up by route alerting. Tone Alert Radios have been issued to institutions. Procedures are in place to notify the Emergency Broadcast System in the event there is an inadvertent siren sounding. Water surfaces are cleared at the ALERT using marine alerting procedures. These are implemented by the Delaware Marine Police, the U.S. Coast Guard and the Army Corp of Engineers (Chesapeake and Delaware Canal control).
- 7.4 Communication to and from Artificial Island relies on five systems plus N.J. State Police radios, Delaware's National Alert Warning System and NRC's Emergency Notification System (ENS). The five systems are based on three different modalities: microwave; fiber optics; and buried cable. Public Service operates a fiber optics line and microwaves to their Corporate Headquarters 130 miles distant. New Jersey Bell operates the cable system and a fiber optics and microwave system. Power is provided at different locations by commercial sources backed up by batteries and emergency generators. Due to the circuitry, a system will fail only if it is disrupted at two locations on Artificial Island.
- 7.5 On May 11, 1990, the Salem ENS phones failed due to loss of power. NRC Bulletin 80-15 stated one action applicable to be taken by licensees is the connection of the station ENS power source to a safeguard bus backed up by batteries and an inverter or equally reliable power source. The licensee replied within the required time and stated a Design Change Request had been issued to install lines for uninterruptible power. A lighting inverter is the ENS power source into which ENS is plugged. The inverter takes power from a 125 VDC bus and emergency power from a 230 V vital bus which is backed up by an emergency diesel electric generator. The ENS connection was never hard wired or tagged. This connection was plugged into an incorrect power source which failed (a lighting transformer). It will now be hard wired. The licensee detected the failure and used a back-up emergency communication system to

make a one hour report to the NRC. Since emergency communication capability was available and used and in view of the corrective action, UNR 50-272/90-13-01 is closed.

- 7.6 Emergency Response Organization (ERO) personnel are called-in during off-normal hours by a pager system. All three ERO team members are called. When a team member responds by calling in, he or she is asked if they are fit for duty and to estimate their time of arrival. If they state they are not fit for duty, they are told to stand-by at home. Two teams are fully staffed and come in. One team goes to their assigned duty stations and the other is held at the Nuclear Training Center. The estimated times of arrival are used to determine if response time is satisfactory. A response of 79% for the three teams was determined for 1989 call-in tests. A small group of in plant specialist are not ERO members. If needed, they would be called in by phone. A procedure for this has been developed. The licensee's Help Desk at their Newark, New Jersey headquarters would make the calls. Phone numbers are checked quarterly. This system has not been tested by the licensee.

Based on the above review and findings, this portion of the licensee's emergency preparedness program is acceptable.

8.0 Public Information and Off-Site Activities

- 8.1 Telephone book inserts appear in three directories. They should appear in four directories (one telephone company failed to insert them). This company is now mailing out inserts to it's subscribers to correct their mistake. About 42,000 brochures in the form of calendars were mailed to Emergency Planning Zone residents, motels, offices, institutions and businesses. There are two sets of calendars, one for Delaware and the other for New Jersey. A mass media briefing was held and a briefing packet prepared for attendees. The licensee maintains an on-going interface with State, County and local governments. About 100 meetings at all levels were held last year. Letters of Agreement for off-site responders to support the licensee in the event of an accident are current. Emergency Action Levels were called to the attention of cognizant off-site officials. The licensee prepared a video tape to instruct Emergency Planning Zone Emergency Workers assigned to Decontamination Stations. About 900 workers were trained using this tape. Emergency Preparedness material appears regularly in a licensee paper, The Island Paper, which is distributed off-site. A Radiological Information for Farmers brochure has been prepared and distributed. The licensee has also updated the Special Needs data base and given this to the States and Counties.

Based on the above, this portion of the licensee's emergency preparedness program is acceptable.

9.0 Response to Actual Condition Requiring Notification

- 9.1 The licensee staff at both stations responded to 12 situations over the last 15 months requiring classification (see section 5.5 of this Inspection Report). Two of these situations merit additional discussion. On November 21, 1989, Hope Creek declared an Unusual Event due to low intake water level. Salem did not do so although Salem was advised of this action per procedure in the Event Classification Guide. The set point for this action at Salem is lower than that for Hope Creek. The inspector reviewed pertinent records and inspected the intake structures. The low water level bases is not the same for the stations. Salem's is based on Sandy Hook data (Sandy Hook is about 140 miles northeast of the site) and Hope Creek's is based on a projected low water level. The design levels are 76 feet. The water level sensors at each station are based on different principles and are placed at different locations. Salem's is within the intake structure and Hope Creek's is external to the intake structure. The licensee did not maintain calibration of the sensors at either station. At the time of this inspection they were calibrated. In addition, based on recent and limited observation, the licensee concluded there is a tidal time delay between the site's intake structures. This difference may be due to tidal action, wind velocity and persistence and the site river shoreline configuration. A recurrence of this problem will be prevented when the licensee places in effect Artificial Island values as opposed to site specific values to trigger natural event based Unusual Events. The licensee's corrective actions will be reviewed in a future inspection.
- 9.2 A marsh fire beneath one of the transmission lines caused an arc over and voltage instability which tripped Hope Creek. An Unusual event was declared. Salem was notified and then Salem declared an Unusual Event (UE). The Event Classification Guide was followed correctly and a common classification action taken.

10.0 Exit Meeting

An exit meeting was held with licensee personnel identified in Section 1 of this report on June 29, 1990. The inspector presented the results of the inspection and advised the licensee that no violations or deviations were identified. Licensee management acknowledged these findings and indicated they would evaluate them and take appropriate corrective action regarding the items identified.