U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos.:	**50-272/91-27, 50-311/91-27, and 50-354/91-20**
Docket Nos.:	**50-272, 50-311, and 50-354**
License Nos.:	**DPR-70, DPR-75, and NPF-57**
Licensee:	**Public Service Electric and Gas Company** **P. O. Box 236** **Hancocks Bridge, New Jersey 08038-4800**
Facility Name:	**Artificial Island (Hope Creek and Salem Generating Stations)**
Inspection Dates:	**December 4-6, 1991**
Inspection At:	**Lower Alloways Creek Township and Salem, New Jersey**

Inspectors: Craig Z. Gordon 12/30/91

C. Z. Gordon, Senior Emergency Preparedness Specialist, DRSS — date

E. C. McCabe, Chief, Emergency Preparedness Section
T. Johnson, Senior Resident Inspector
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Approved: Craig Conlon 12/31/91

E. C. McCabe, Chief, Emergency Preparedness Section, FRS&SB, DRSS — date

Areas Inspected: Announced emergency preparedness (EP) inspection and observation of the licensee's partial-participation annual emergency preparedness exercise conducted on December 5, 1991.

Results: Licensee emergency response organization personnel demonstrated the ability to implement their emergency plan in a manner which would protect the health and safety of the public. No violations were identified.

DETAILS

1.0 Persons Contacted

The following licensee representatives attended the exit meeting held on December 6, 1991.

C. Banner, Administrator, On-Site Emergency Preparedness
J. Clancy, Radiation Protection/Chemistry Manager, Hope Creek
T. DiGuiseppi, Emergency Preparedness Manager
S. Funsten, Maintenance Manager, Hope Creek
D. Godlewski, Administrator, Off-Site Emergency Preparedness
J. Hagan, General Manager, Hope Creek Operations
E. Hoffman, Nuclear Fire Protection Supervisor
S. Jones, Senior Staff Engineer, Emergency Preparedness
S. LaBruna, Vice President, Nuclear Operations
S. Miltenberger, Vice President and Chief Nuclear Officer
C. Munzenmaier, General Manager, Nuclear Services
L. Reiter, General Manager, Quality Assurance/Nuclear Safety Review
J. Schaffer, Nuclear Emergency Facilities Supervisor
W. Weckstein, Senior Staff Engineer, Emergency Preparedness

During the inspection, other licensee personnel were interviewed and observed in the performance of emergency response duties.

2.0 Emergency Exercise

The Artificial Island partial-participation exercise was conducted on December 5, 1991, from 8:30 a.m. to 3:00 p.m. Response personnel from the States of Delaware and New Jersey participated but were not evaluated by the Federal Emergency Management Agency (FEMA).

2.1 Pre-exercise Activities

The exercise objectives were submitted to NRC's Document Control Desk on September 6, 1991 and after review by Region I staff, determined to be adequate to test major elements of the Artificial Island Emergency Plan. However, review of the objectives identified specific information about expected licensee actions during the exercise. For example, instead of stating that events would be classified in accordance with established emergency action levels, objective B.1 precisely indicated that the classifications of Alert, Site Area Emergency, and General Emergency would be demonstrated. Objective F.6 indicated that Operations Support Center (OSC) teams would specifically demonstrate response to fire events and a medical emergency. There are concerns that in providing such

information to personnel heightens their awareness and anticipation of scenario events, thereby reducing spontaneity in the response process.

The inspectors contacted licensee EP personnel to discuss concerns over the content and method of submission for objectives. The licensee was informed that in order not to compromise exercise confidentiality, objectives should be presented in general terms without reference to scenario information or events and submitted directly to NRC Region I under limited distribution. For future exercises, licensee EP staff stated that revision to the process of development and submittal of objectives would be considered. This area will be followed up prior to the full-participation exercise scheduled for October 1992 (50-272/91-27-01, 50-311/91-27-01, and 50-354/91-20-01).

The complete scenario package was submitted on October 9, 1991 for NRC review and evaluation. Region I representatives had telephone conversations with the licensee's emergency preparedness staff to discuss the comments on scope and content of the exercise scenario. As a result, revisions were made to the scenario and provided to NRC under separate cover. The revised scenario allowed adequate testing of the major portions of the Emergency Plan and Implementing Procedures.

NRC exercise observers attended a licensee briefing on December 4, 1991. Suggested NRC changes to the scenario made by the licensee were discussed during the briefing. The scenario controllers stated that certain emergency response activities would be simulated and that controllers would intercede in exercise activities to prevent deviations from the scenario and to ensure that normal plant operations were not disrupted.

2.2 Exercise Scenario

The exercise scenario included the following events:

1. B Service Water Pump tagged out for impeller replacement;

2. Trip of the A reactor recirculation pump;

3. Loss of secondary condensate pump and runback of reactor recirculation pump;

4. Closure of Main Steam Isolation Valves on high radiation levels;

5. Declaration of an Alert, Site Area, and General Emergency;

6. Packing gland leak from instrument volume drain valve;

7. Loss of the B loop of service water;

8. HPCI battery damage from falling scaffolding;

9. Clogging of the service water strainers causing loss of service water cooling;

10. Medical emergency at the service water intake structure;

11. Core spray loop instrument line rupture and steam release;

12. Radiological release to the atmosphere through the Filtration Recirculation and Ventilation System; and

13. Release termination, plant stabilization, and recovery of accident conditions.

2.3 Activities Observed

During the conduct of the exercise, NRC team members made observations of the activation and augmentation of the Emergency Response Organization (ERO), activation of emergency response facilities, and actions of emergency response personnel during the operation of the emergency response facilities. The following activities were observed:

1. Detection, classification, and assessment of scenario events;

2. Direction and coordination of the emergency response;

3. Notification of licensee personnel and offsite agencies;

4. Communications, information flow, and record keeping;

5. Assessment and projection of offsite radiological dose, consideration of protective actions, and recommendation of protective actions to state officials;

6. Maintenance of site security and access control;

7. Performance of technical support, repairs and corrective actions;

8. Accountability of personnel;

9. Accident analysis and mitigation;

10. Provisions for communicating information to the public;

11. Medical emergency with contaminated/injured individual; and

12. Critique of the exercise.

3.0 Classification of Exercise Findings

Emergency preparedness exercise findings are classified as follows:

Exercise Strengths

Exercise strengths provide strong positive indication of the licensee's ability to cope with abnormal plant conditions and implement the Emergency Plan.

Exercise Weaknesses

An exercise weakness is a matter that could preclude effective Emergency Plan implementation in an actual emergency. An exercise weakness is not, of itself, an overall response adequacy, but does require correction under 10 CFR 50, Appendix E, Section IV.F.5.

Areas for Improvement

An area for improvement is an area which did not have a significant negative impact on the licensee's ability to implement the emergency plan implementing procedures and response was adequate. However, it should be evaluated by the licensee to determine if corrective action could improve performance.

4.0 Exercise Observations

The inspectors observed the licensee's emergency response actions during the exercise as noted below for each emergency response facility. The NRC team noted that the licensee's activation and augmentation of the emergency organization, activation of emergency response facilities, and use of the facilities were generally consistent with the Artificial Island Emergency Plan and Implementing Procedures.

4.1 Control Room

Control room personnel demonstrated the ability to quickly recognize degrading plant conditions and exhibited good teamwork among shift members. Expected emergency response actions were correctly demonstrated in key functional areas. These included direction and control, notifications to offsite authorities, communications, and classification of the Alert.

No exercise strengths or weaknesses were identified.

The following area for improvement was identified:

- Briefings on decisions made and status of activities occurring at other response facilities (OSC, Emergency Operations Facility) were not provided to shift staff.

4.2 Technical Support Center

Observations of Technical Support Center (TSC) personnel indicated that both management and support staff properly addressed safety and mitigation of plant events. Direction and control within the TSC allowed engineering evaluations and technical assessments to be effectively performed.

The following exercise strength was identified:

- Response actions taken to identify the source of the water leak, assess its impact, and propose methods of depressurization were sound and thorough.

The following exercise weakness was identified:

- Senior TSC staff were observed to encounter difficulty in using Section 4 of the Event Classification Guide (ECG), Loss of Decay Heat Removal, when evaluating loss of the ultimate heat sink due to loss of service water. The emergency action levels (EAL) in this section of the ECG are presented in a format which may prevent timely emergency classification due to the need for an evaluation of EALs and related conditions in proper sequence (via if/and/or logic statements). As a result, conditions requiring the Site Area Emergency classification were clearly evident, but the emergency was not immediately classified since certain Section 4 statements were not satisfied. The licensee should review the ECG to ensure

emergency classification would not be delayed when appropriate conditions are met. (50-272/91-27-02; 50-311/91-27-02; and 50-354/91-20-02).

The following areas for improvement were identified:

- After the scram was initiated, information was not given to the Engineering Analysis Group as to reasons why it occurred or whether the scram was automatic or manual.

- Following the Alert and MSIV closure, information provided to offsite authorities in the notification checklist was not accurate in that containment isolation was indicated, but other containment valves remained open.

- An Abnormal Operating Procedure (AOP) for total loss of service water was not available.

- Clarification is needed on the operations procedure for shutting down the emergency diesel generator (OP-SO.KJ-001) when running unloaded in the presence of a LOCA signal.

4.3 Operations Support Center

The inspectors observed that response activities in the Operations Support Center were performed efficiently and that proper evaluation of radiological conditions, exposure control, use of emergency equipment, and briefing/debriefing of inplant repair teams were clearly demonstrated.

No exercise strengths or exercise weaknesses were identified.

The following area for improvement was identified:

- A sufficient number of teams were appropriately assigned to perform corrective actions as situations arose. However, it was not clear that OSC staff were aware of priority assignments.

4.4 Emergency Operations Facility

Actions demonstrated by personnel in the Emergency Operations Facility (EOF) were generally well coordinated by the Emergency Response Manager (ERM). This included responses by members of each support group in the areas of engineering and technical assessment, radiation protection, administration, and public information.

The following area was identified as an exercise strength:

- Performance by communications and dose assessment staff in the EOF was very effective so that information flow to offsite support groups was timely and without interference.

There were no exercise weaknesses identified.

The following areas for improvement were identified:

- After a protective action recommendation (PAR) was determined by the ERM, briefings and coordination with New Jersey representatives who were present in the EOF about the PAR were limited. Little feedback was obtained from the State concerning their opinion about the PAR, whether or not they agreed with it, or if any additional offsite information was available which could possibly affect the PAR.

- It was not clear if a list of eligible volunteers who were able to receive excess radiation exposure was prepared and available in the early stages of the emergency. During the general emergency, authorized individuals needed to perform inplant assignments in areas where high radiation exposures were expected were not readily obtained.

5.0 Licensee Action on Previously Identified Items

Based upon discussions with licensee representatives, examination of procedures and records, and observations made by the NRC team during the exercise, items identified during the previous annual emergency exercise (Inspection Report Nos. 50-272/90-82; 50-311/90-82; and 50-354/90-80) were acceptably demonstrated and not repeated.

6.0 Licensee Critique

The NRC exercise observation team attended the licensee's December 6, 1991 post-exercise critique at which the licensee's observations were presented by the lead facility controllers. The presentation was documented in a draft report and provided to critique attendees. The critique was thorough and documented deficient areas in need of corrective action. The licensee indicated that critique items would be tracked and resolved by various methods.

7.0 Exit Meeting

Following the licensee's self-critique, the NRC team met with the licensee representatives listed in Section 1 of this report. Team observations made during the exercise were summarized.

The licensee was informed that no violations were observed. Although there was an exercise weakness and areas identified for improvement, the NRC team determined that within the scope and limitations of the scenario, the licensee's performance demonstrated that they could implement their Emergency Plan and Implementing Procedures in a manner that would provide adequate protective measures for the health and safety of the public. Licensee management acknowledged the findings and indicated that they would evaluate and take appropriate action regarding the items identified for corrective action.