

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-219/87-11

Docket No. 50-219

License No. DPR-16 Priority -- Category C

Licensee: GPU Nuclear Corporation

P. O. Box 388

Forked River, New Jersey 08731-0388

Facility Name: Oyster Creek Nuclear Generating Station

Inspection At: Forked River, New Jersey

Inspection Conducted: May 11-14, 1987

Inspectors:

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C. G. Amato, Team Leader
EPS, EP&RPB

June 8, 1987
date

E. F. Fox
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June 19, 1987
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- C. R. van Neil, NRC Headquarters
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- W. H. Bateman, SRI, Oyster Creek
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June 19, 1987
date

Inspection Summary: Inspection on May 11-14, 1987 (Report No. 50-219/87-11)

Areas Inspected: Routine, announced, emergency preparedness inspection of the licensee's FEMA observed, full participation, Emergency Exercise conducted on May 12, 1987; follow-up inspection with respect to unresolved item 50-219/87-05-01; and review of Revisions to Oyster Creek Implementing Procedures and Lesson Plans.

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Results: No violations, deviations or unresolved items were identified. Six of eleven exercise related outstanding items were closed and eight were opened. The licensee's emergency actions for this exercise scenario were adequate to provide protective measures for the health and safety of the public.

DETAILS

1.0 Persons Contacted

- J. Barton, Deputy Director, Oyster Creek
- *J. Bontempo, Sr. Emergency Planner
- *R. Barrett, Startup and Test Manager
- *T. Blount, Lead Emergency Planner
- R. Davidson, Manager, Special Program Training
- P. Dix, Supervisor, Technical Support
- *R. T. Ewart, Lt. Oyster Creek Security
- *V. Foglia, Manager, Plant Material Surveillance Program
- *G. Giangi, Corporate Manager, Emergency Preparedness, GPUNC
- *M. Heller, Oyster Creek Licensing
- J. Boyd Leavitt, Deputy Director, Radiological Controls
- *M. Littleton, Manager, Radiological Engineering
- *D. Mac Farlane, Manager Quality Assurance Audit, Oyster Creek
- *B. Mingst, Senior Emergency Planner
- *M. Mollo, Manager, Radiation Programs
- *S. Polon, Manager, Public Information
- *J. Rogers, Site Licensing, Oyster Creek
- *E. Scheyder, Director, Maintenance, Construction, Facilities
- *M. Slobodien, Deputy Director, Radiological Controls
- *J. Solakienicz, Manager, Quality Assurance Engineering & Systems
- *J. L. Sullivan, Director, Oyster Creek Operations
- *R. L. Sullivan, Manager, Emergency Preparedness Oyster Creek
- *I. Wazzan, Emergency Planner
- *J. Williams, Manager, Special Training

In addition, the inspectors interviewed and observed the actions of other licensee emergency response personnel.

* Denotes those who attended the exit meeting.

2.0 Emergency Exercise

The Oyster Creek Nuclear Generating Station exercise was conducted on May 12, 1987 from 3:30 p.m. to 11:06 p.m.

a. Pre-Exercise Activities

The exercise objectives submitted to NRC Region I on January 23, 1987, were reviewed and determined to adequately test the licensee's Emergency Plan. On March 25, 1987, the licensee submitted the complete scenario package for NRC review and evaluation. Region I representatives had telephone conversations with the licensee's emergency preparedness staff to discuss the scope and content of the scenario. As a result, revisions were made to the scenario which

allowed adequate testing of the major portions of the Corporate Emergency Plan (PLN), Administrative Procedures (ADM) and Implementing Procedures (IMP) and also provided the opportunity for licensee personnel to demonstrate those areas previously identified by the NRC as in need of corrective action.

NRC observers attended a licensee briefing on May 12, 1987. Suggested NRC changes to the scenario were made by the licensee in the areas of contingency messages, pressure data, turbine building activity, minimum sample valve and survey/sampling data. These changes were also discussed during the briefing. The licensee stated that certain emergency response activities would be simulated and that controllers would intercede in exercise activities to prevent scenario deviations or disruption of normal plant operations.

The exercise scenario included the following events:

- Reactor Coolant System water activity near Technical Specifications limits.
- Small and large break loss-of-coolant accidents.
- Station fire in a safety system.
- Fire within the protected area requiring off-site assistance
- Accountability
- Site evacuation and activation of the Remote Assembly Area.
- Core damage
- Failure of drywell isolation valve
- Release of radioactive material to the environment
- Wind shift

b. Activities Observed

During the conduct of the licensee's exercise, NRC team members made detailed observations of the activation and augmentation of the Initial Emergency Response Organization (IERO), Emergency Support Organization (ESO) and Priority Team, activation of five Emergency Response Facilities (ERFs) and actions of emergency response personnel during operation of the ERFs. The following activities were observed:

1. Recognition of initiating conditions, correlation of these with Emergency Action Levels (EALs), selection of Emergency Operation Procedures (EOPs), and notification to offsite authorities.
2. Activation and staffing of ERFs.
3. Communication between and within ERFs.
4. Assessment of accident conditions including use of barrier breach analysis per IE IN 83-28.
5. Calculation of dose, dose commitment and ground deposition, use of field team data and data provided by five N.J. State off-site monitoring stations (pressurized ion chambers (PICs)).
6. Formation of Protective Action Recommendations (PARs).
7. Support of New Jersey's Bureau of Nuclear Engineering Staff located at the licensee's Emergency Operations Facility (EOF).
8. In-plant and off-site radiological surveys.
9. Recognition of the need for and approval of on-site Emergency Worker dose limits.
10. Performance of technical support, repair and corrective action.
11. Assembly and accountability of site personnel.
12. Evacuation of a limited number of site personnel to the Remote Assembly Area (RAA).
13. Security and radiation control support of the Forked River Fire Department when on site.
14. Transfer and control during a turn-over briefing between the Emergency Director and Emergency Support Director.
15. Use of the Forked River Site paging system
16. Preparation of a second shift Watch Schedule in the EOF

3.0 Exercise Observations

The NRC Team noted that the licensee's activation and augmentation of the Initial Emergency Response Organization (IERO) Emergency Support Organization (ESO) and Priority Teams (PTs), activation of the Emergency Response Facilities (ERFs) and use of these facilities were generally consistent

with the GPU Nuclear Corporation Emergency Plan and Oyster Creek Implementing and Administrative Procedures. The Team also noted the following actions of the licensee's Emergency Response Organization (ERO) that were indicative of their ability to cope with abnormal plant conditions.

- Operations Support Center (OSC) working environment was very good and proper use was made of available equipment.
- The OSC Coordinator demonstrated positive control and was well supported by the OSC staff.
- Radiation Control support of the on-site fire brigade and offsite Fire Department was timely and effective.
- The OSC staff showed initiative, anticipated situations and took early preparatory actions. The OSC Coordinator and staff recognized the need to connect the fire water supply to the core spray system by opening the fire water supply valve. Innovative thinking was demonstrated in developing procedures to repair the inoperative valve. Actual use was made of self contained breathing apparatus (SCBAs) and protective clothing including wet suits.
- Accountability was completed in 19 minutes.
- Tracking of OSC team member doses was done correctly. However, dispatch of some teams was delayed while team member lifetime doses were determined from records.
- Twenty-four (24) OSC teams were formed and 20 were dispatched.
- Security cleared the Forked River Fire Department for access to the protected area in approximately one minute.
- The Emergency Support Director (ESD) in the Emergency Operations Facility (EOF) regularly updated EOF staff and held frequent meeting with EOF managers and the New Jersey Senior Radiological Assessment Officer (SRAO) at the EOF.
- The ESD was well supported by the Environmental Assessment Coordinator (EAC) and Technical Support Group at the EOF. The ESD requested briefings, asked cogent questions, assigned and prioritized work.
- Press releases which originate at the EOF were timely, accurate and understandable by the general public.
- Status boards were regularly updated in the EOF and use of continuously manned phones offset the temporary loss of the FAX system and subsequent delay in data transmissions.

- The Environmental Assessment Command Center (EACC) co-located within the EOF was functional within 45 minutes of activation (the EOF is 19 miles north of the Oyster Creek site).
- The EACC staff projected doses prior to any release.
- Once a release began the EACC and staff identified plume direction and calculated maximum dose equivalents and dose commitment equivalents as well as the distances at which EPA Protective Action Guides would be exceeded for the given exposure and inhalation time. Dose projections were updated as required. Good interaction with the Technical Support Group at the EOF was maintained resulting in identification of plant status and trends and their impact on offsite projected dose.
- Areas to be evacuated or sheltered were correctly identified and the potential for wind shift and forecast of weather conditions were factored into deliberations.
- A reentry and recovery meeting was held following a three day time acceleration. There was a comprehensive review of on and offsite conditions. The need for outside support was considered as well as licensee support of offsite activities.
- Offsite field team data was correlated with projected doses calculated using source term data; offsite pressurized ion chamber data was also available.

The NRC identified the following areas which need to be evaluated by the licensee for corrective action (the licensee conducted an adequate self critique of the exercise which also identified some of these areas). These items will be evaluated during subsequent Emergency Preparedness inspections.

- Programming of the Basic Principles Trainer did not account for all possible player actions. This resulted in delay, uncertainty and technical information errors.
- The Emergency Director (ED) spent an inordinate amount of time in analyzing data and did not concentrate on how to recover the core. This was apparently attributable to scenario inconsistencies. (50-219/87-11-01)
- The Fire Brigade almost sprayed water on an electric pump before checking to determine if it was energized. (50-219/87-11-02)
- A technician was uncertain as to the correct orientation of the Radioactive Gas Effluent Monitoring System (RAGEMS) iodine cartridge.

- Drawings of valves V-20-12 and V-20-82 were not immediately available. Eventually V-20-12 was located but the V-20-82 drawing was not found either in the TSC or Parsippany Technical Function Center. (50-219/87-11-03)
- There was confusion in the EOF interpretation of differences between off-gas monitor and stack readings.
- At times there were marked differences between field team data and calculated results due to use of default values by the computer program. (50-219/87-11-04)
- The ESD noted and applied barrier breach analysis correctly but did not declare a General Emergency until containment breach was certain. This delayed an evacuation recommendation. The Evacuation Time Estimates were not considered. (50-219/87-11-05)
- The EACC deployed a field team down-wind along a line beneath a low dose rate plume. The teams collect a 25 cubic foot air sample (this volume appears excessive). Redeployment was not directed thereby losing an opportunity to minimize field team dose. (50-219/87-11-06)
- The Rad Control phone line and EACC data transmission line interfered with each other - a real world problem.
- A delay was encountered when a radiological technician could not locate and correctly boot-up dose calculation computer software. A factor of 1000 difference in dose equivalent values between the scenario and a calculation was never explained. (50-219/87-11-07)
- Data upon which clad and core damage estimates could be based was reported and no damage estimates made (see Exhibit 8 to 6430 IMP-1300.33). Correlation with containment high range monitor readings was not possible since correlation curves are not included in 6430 IMP-1300.33. (50-219/87-11-08)

4.0 Licensee Action on Previously Identified Items

Based upon discussions with licensee representatives, observations of the exercise, review of records and press releases, and questioning of the security staff the following items were not repeated and are closed.

- (Closed) IFI (50-219/86-02-02). Control room was advised of Pass operation.
- (Closed) IFI (50-219/86-07-03). OSC teams were not dispatched without authorization.
- (Closed) IFI (50-219/86-07-07). The Fire Brigade was accompanied by radiological control personnel.

- (Closed) IFI (50-219/86-07-08). The Radioactive Work Permit (RWP) was identified and prior arrangements were in place.
- (Closed) IFI (50-219/86-07-09). Contamination control techniques with one minor lapse were demonstrated.
- (Closed) IFI (50-219/86-07-10). Technical information dissemination at the EOF was adequate and PARs were formulated during meetings with the N.J. State SRAD.
- (Closed) IFI (50-219/86-07-11). Press releases were timely, accurate, and understandable.
- (Closed) UNR (50-219/87-05-01). The inspectors interviewed personnel, reviewed pertinent, modified procedures and a lesson plan. The revisions stressed mandatory response if a pager activates with a Source 5 code and clarified call-out procedures. These changes have been included in a revised lesson plan.

The inspectors concluded it appears adequate steps have been taken to prevent a recurrence. On this basis, this item is resolved.

5.0 Licensee Critique

The NRC team attended the licensee's post exercise critique on May 13, 1986 during which licensee controllers presented and discussed their observations of the exercise. Their critique was adequate. Licensee participants highlighted areas for improvement which the licensee indicated would be evaluated and appropriate actions taken.

6.0 Exit Meeting and NRC Critique

Following the licensee's self critique, the NRC team members met and evaluated the licensee's critique. The NRC team met with the licensee's representatives listed in Section 1 of this report. The NRC Regional Team Leader summarized observations made during the exercise.

The licensee was informed no violations were identified; and some previously identified items were adequately addressed. Although there are areas identified for corrective action, the NRC team determined that within the scope and limitations of the scenario, the licensee's performance demonstrated they could implement their Emergency Plan and Emergency Plan Implementing Procedures in a manner that would adequately provide protective measures for the health and safety of the public.

Licensee management acknowledged the findings and indicated they would evaluate them and take appropriate action regarding the items identified for corrective action.

At no time during this inspection did the inspectors provide any written information to the licensee.