

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report: 50-293/91-28

License: DPR-35

Licensee: Boston Edison Company
RFD #1, Rocky Hill Road
Plymouth, Massachusetts 02360

Facility Name: Pilgrim Station

Inspection Dates: December 11-16, 1991

Inspection At: Plymouth, Massachusetts

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1/16/92
date

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Areas Inspected: Announced emergency preparedness (EP) inspection, and observation of the licensee's December 12, 1991 full-participation annual emergency preparedness exercise.

Results: The licensee demonstrated the ability to implement their emergency plan in a manner which would protect public health and safety. No violations or exercise weaknesses were identified. Failure of a health physicist to don exercise-required protective clothing was identified as a concern. Several areas for improvement were identified.

DETAILS

1.0 Persons Contacted

The following licensee representatives attended the exit meeting held on December 13, 1991.

R. Anderson, Vice President, Nuclear Operations
M. Brosee, Program Manager, Management Services
W. Clancy, Deputy Plant Manager
G. Davis, Sr. Vice President Nuclear
B. Gallant, Technical Training Supervisor
S. Hook, Emergency Preparedness Section Manager
T. Kelley, Sr. Emergency Planner-Corporate and Public Information
D. Landahl, Emergency Preparedness Division Manager
D. Long, Sr. Systems Engineer
J. Merlino, Emergency Preparedness Exercise Coordinator
D. Pierce, Deputy Maintenance Section Manager
E. Robinsc.a, Nuclear Information Division Manager
W. Rothert, Director, Nuclear Administration
L. Schmeling, Emergency Plant Manager
T. Sowdon, Chief Radiological Scientist
J. Spangler, Emergency Preparedness Division Manager
R. Varley, Emergency Preparedness Department Manager

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

2.0 Emergency Exercise

The Pilgrim full-participation exercise was conducted on December 12, 1991, from 7:00 a.m. to 3:45 p.m. Response personnel from the Commonwealth of Massachusetts participated and were evaluated by the Federal Emergency Management Agency (FEMA).

2.1 Pre-exercise Activities

The exercise objectives were submitted to the NRC on September 6, 1991 and, after review by Region I staff, determined to be adequate to test major elements of the Pilgrim Emergency Plan.

The complete scenario package was submitted on October 7, 1991 for NRC review and evaluation. Region I representatives had telephone conversations with the licensee's emergency preparedness staff to resolve comments on the scope and content of the exercise scenario. The subsequently 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 11, 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. Main Steam Isolation Valve failure to close;
2. High pressure coolant injection turbine trip on overspeed;
Failure of main turbine bypass valve;
3. Increase in drywell temperature and pressure;
5. Depressurization of reactor pressure vessel and loss of Reactor Building Closed Cooling Water (RBCCW);
6. Severe damage to reactor fuel;
7. Declaration of an Unusual Event, an Alert, a Site Area Emergency, and a General Emergency;
8. Radiological release to the atmosphere through the main stack;
9. Release termination, plant stabilization, and recovery.

2.3 Activities Observed

During the exercise, NRC team members made observations of the notification 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. Accident analysis and litigation;
9. Provisions for communicating information to the public;
10. 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, in the area observed, effective Emergency Plan implementation in an actual emergency. An exercise weakness is not, of itself, an overall response inadequacy, 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 exercise performance. 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 Pilgrim Emergency Plan and Implementing Procedures.

4.1 Control Room

Good teamwork among shift members was exhibited and control room personnel demonstrated the ability to quickly recognize degrading plant conditions. Expected emergency response actions were properly demonstrated in key functional areas.

The following exercise strength was identified:

A close working relationship for assessing degraded events from a broad perspective was clearly demonstrated among all shift members.

No exercise weaknesses were identified.

The following areas for improvement were identified:

- A thorough evaluation was not performed of the offgas levels and combustion potential from the auxiliary offgas recombiner (AOG).
- After the Unusual Event was declared and prior to activation of emergency response facilities, additional personnel were not immediately available to carry out in-plant assignments made by the Nuclear Operations Supervisor (NOS).
- Staging the control room portion of the exercise inside the NOS's office, away from the panel and display area, detracted from the realism and operational response of the shift crew. To allow operators to carry out their functions more realistically during exercises, licensee staff indicated that the simulator, when completed, is expected to be used for exercises.

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. Good TSC staff initiatives included considering alternate modes of decay heat removal, restoration of the Reactor Building Closed Cooling Water System, and appropriate use of the Residual Heat Removal system.

No exercise strengths or weaknesses were identified.

The following areas for improvement were identified.

- Direction given to engineering and support staff in assignment and prioritization of TSC tasks, duties, and responsibilities was informal.
- Trending of some key plant systems was difficult to follow due to the manner in which scenario data and information were presented. At times, water flow levels, offsite power availability, and the non-operating emergency diesel generator's status were not easily determined.
- While there was no adverse impact on the exercise, there was no apparent use of the designated computer in conjunction with EP-IP-330, "Core Damage," to support assessment of core and fuel damage.

4.3 Operations Support Center

The inspectors observed that response activities in the Operations Support Center (OSC) were performed efficiently and that proper radiological condition evaluations, exposure control, emergency equipment use, and in-plant repair team briefings/debriefings were clearly demonstrated.

No exercise strengths or weaknesses were identified.

The NRC team identified the following concern associated with OSC performance:

- The health physics member of the team assigned to perform high pressure coolant injection pump repairs, on his own initiative, did not follow instructions from OSC management or prescribed by the radiation work permit regarding donning of protective clothing for contamination control. This was found to be an isolated occurrence

contamination control. This was found to be an isolated occurrence which, in an actual emergency of the type simulated, could have resulted in contamination of the individual but would not have precluded effective emergency plan implementation in this area (IFI 50-293/91-28-01).

The following area for improvement was identified:

- Although in-plant teams were effective in investigating the start-up transformer and diesel fire pump, team dispatch was slow. Since dispatch of a repair team was identified as an area for improvement during the previous exercise, improving the overall coordination process for in-plant teams may be appropriate.

4.4 Emergency Operations Facility

Actions demonstrated by personnel in the Emergency Operations Facility (EOF) were generally well coordinated by the Emergency Director and support staff.

The following areas were identified as exercise strengths:

- Performance by key members of EOF support groups was very effective. This included response actions in engineering and technical assessment, radiation protection, dose assessment, and administration.
- Review of expected protective actions, recommendations (PARs) and related information with offsite impact was continuously discussed with Massachusetts staff who were present within the EOF.

There were no exercise weaknesses identified.

The following areas for improvement were identified:

- After the General Emergency was classified, a minor delay occurred in issuing PARs to State and local authorities due to the staffs' concentration on extraneous dose assessment information.
- Updated information from the State was not maintained on status of implemented PARs, Emergency Broadcast System (EBS) messages, or siren activation.
- No procedure was available for organizing evacuation of the Media Center if extreme radiological conditions exist.

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 No. 50-293/90-14), with the exception of in-plant team coordination, 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 licensee-identified deficient areas in need of corrective action. These included several matters identified by the NRC. The licensee indicated that critique items would be tracked and resolved.

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. There was a concern about following contamination control requirements, and several areas for improvement were identified. Overall, the NRC team concluded that, within the scope and limitations of the scenario, the licensee's performance demonstrated that they could implement their Emergency Plan and Implementing Procedure 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.