

U. S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report Nos. 50-352/89-20 & 50-353/89-29

Docket Nos. 50-352 & 50-353

License Nos. NPF-39 & CPPR-107

Licensee: Philadelphia Electric Company  
Post Office Box 7520  
Philadelphia, Pennsylvania 19101

Facility Name: Limerick Generating Station, Units 1 and 2

Inspection At: Sanatoga, Pennsylvania

Inspection Conducted: November 20-22, 1989

NRC Team Members:

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12/27/89  
date

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12/28/89  
date

Inspection Summary: Inspection on November 20-22, 1989  
(Report Nos. 50-352/89-20 and 50-353/89-29)

Areas Inspected: Routine announced emergency preparedness inspection and observation of the licensee's partial participation annual emergency preparedness exercise conducted on November 21, 1989.

Results: No violations were identified. The licensee's response actions for this exercise were adequate to provide protective measures for the health and safety of the public.

## DETAILS

### 1.0 Persons Contacted

The following licensee representatives and support personnel attended the exit meeting held on November 22, 1989.

- C. A. Adams, Director, Emergency Preparedness
- J. M. Armstrong, Assistant Superintendent, Operations
- S. F. Baker, Branch Head, Health Physics
- P. A. DiAndrea, Maintenance Engineer
- S. T. Dimauro, Senior Auditor, Nuclear Quality Assurance
- R. W. Dubiel, Superintendent, Plant Services
- E. P. Fogarty, Manager, Nuclear Support
- J. T. Forgheiser, Supervisor, Radiological Engineer
- R. H. Geiger, Emergency Communications
- R. Z. Kinard, Supervisor, Offsite Emergency Preparedness
- H. P. Langley, Jr., Analyst, Offsite Emergency Preparedness
- F. J. Larkin, Nuclear Security Specialist
- G. M. Leitch, Vice President, Limerick Generating Station
- M. J. McCormick, Plant Manager
- J. J. McElwain, Superintendent, Technical Monitoring
- M. P. Mezas, Facilities/Equipment Coordinator
- J. C. Nagle, Senior Engineer, Emergency Preparedness
- M. J. Roache, Corporate Emergency Preparedness
- R. I. Smith, Senior Auditor, Nuclear Quality Assurance
- E. F. Sproat, Manager, Nuclear Business Unit

During the conduct of the inspection, other licensee emergency response personnel were interviewed and observed.

### 2.0 Emergency Exercise

The Limerick partial-participation exercise was conducted by the licensee on November 21, 1989, from 8:00 a.m. until 2:30 p.m. Personnel from the Commonwealth of Pennsylvania participated at the EOF. No observation or evaluation was provided by the Federal Emergency Management Agency.

#### 2.1 Pre-exercise Activities

The exercise objectives, submitted to the NRC Region I on August 15, 1989 were reviewed and determined to adequately test the licensee's Emergency Plan. On September 21, 1989 the licensee submitted the complete scenario package for NRC review and evaluation. Region I representatives had telephone conversations and met with the licensee's emergency preparedness staff to discuss the scope and content of the scenario. As a result, minor revisions were made to the scenario and supporting data provided by the licensee. It was determined that the revised scenario would provide for adequate testing of major portions of the Emergency Plan Implementing Procedures (EPIP) and also provide 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 November 20, 1989 and participated in the discussion of emergency response actions expected during the scenario. Suggested NRC changes to the scenario were made by the licensee and were also discussed during the briefing. The licensee stated that certain emergency response activities would be simulated and indicated in the scenario that controllers would intercede in exercise activities to prevent scenario deviations or disruption of normal plant operations.

## 2.2 Exercise Scenario

The exercise scenario included the following events:

1. Fire in RHR pump structure;
2. Core Spray Injection Valve failure;
3. Increasing in-plant and drywell radiation levels;
4. Contaminated/injured victim in Condensate Pump Pit;
5. Rapid decrease in reactor water level and pressure;
6. Offsite release of radioactivity to the environment;
7. Declaration of Alert, Site Area Emergency, and General Emergency classifications; and
8. Recommendations of protective measures to offsite authorities.

## 2.2 Activities Observed

During the conduct of the licensee's exercise, NRC team members made detailed observations of the activation and augmentation of the emergency organization, 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 the 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 radiological dose and consideration of protective actions;

6. Provisions for in-plant radiation protection;
7. Performance of offsite and in-plant radiological surveys;
8. Maintenance of site security and access control;
9. Performance of technical support, repair and corrective actions;
10. Performance of firefighting activities;
11. Response to contaminated/injured individual;
12. Assembly and accountability of personnel;
13. Provisions for communicating information to the public; and
14. Post-exercise critique.

### 3.0 Classification of Exercise Findings

Emergency preparedness exercise findings are classified as follows:

#### Exercise Strengths

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

#### Exercise Weaknesses

An exercise weakness is a finding that the licensee's demonstrated level of preparedness could have precluded effective implementation of the Emergency Plan (in the event of an actual emergency in the area observed). Existence of an exercise weakness does not of itself indicate that overall response was inadequate to protect the health and safety of the public.

#### Areas for Improvement

An area for improvement is a finding which did not have a significant negative impact on overall performance during the exercise, but should be evaluated to determine whether corrective action could improve any programmatic or performance area.

#### 4.0 Exercise Observations

The NRC team noted that the licensee's activation and augmentation of the emergency organization, activation of the emergency response facilities, and use of the facilities were generally consistent with their emergency response plan and implementing procedures. The additional performance based training recently provided to emergency directors and other members of the organization has improved response efficiency. Accurate demonstrations of accident assessment, decisionmaking, and command and control were observed among key personnel, some of whom performed response roles for the first time.

##### Control Room

The following exercise strengths were identified.

1. Efficient use of Emergency Operation Procedures was exhibited by staff to provide conservative resolution to operational problems.
2. Classification of emergencies was in accordance with the Emergency Action Levels (EAL) and notifications to offsite authorities were promptly made.
3. Communications to the Technical Support Center and Emergency Operations Facility were efficient. Information flow and relevant data were transmitted to continuously keep personnel informed of changing accident conditions.

No exercise weaknesses were identified.

The following area for improvement was identified.

1. Although key response staff are assigned paging devices, initial notification calls are made individually, and immediate contact with each member is not assured. Also, other activities assigned to the control room communicator/shift clerk are not prioritized.

##### Technical Support Center (TSC)

The following strengths were identified.

1. TSC staff members demonstrated thorough knowledge of Emergency Preparedness Implementing Procedures and Transient Response Implementing Procedures and stayed ahead of existing accident conditions.
2. Good interface was observed between dose assessment staffs at the TSC and Emergency Operations Facility (EOF).
3. Classification of emergencies was in accordance with the EAL scheme.

No exercise weaknesses were identified.

The following area for improvement was identified.

1. Classification and activation procedures are not clear regarding what response actions should be taken on the unaffected unit while one unit is seriously affected.

#### Operations Support Center (OSC)

The following exercise strengths were identified.

1. Briefings provided to implant teams were detailed and corrective actions taken by teams closely followed procedures.
2. Facility changes made in the OSC allow emergency health physics and craft personnel response actions to be performed efficiently.

The following weakness was identified.

1. Several delays were encountered during response to the contaminated/injured individual which resulted in the victim not being removed from the site via ambulance for approximately one hour. Such delays had the potential to aggravate the serious injuries incurred by the victim (50-352/89-29-01 & 50-353/89-20-01).

The following area for improvement was identified.

1. Recordkeeping and status boards maintained within the OSC did not allow team tracking, personnel assignments, tasks at hand, time of dispatch and return, allowable dose, available dose, and status of offsite protective measures to be readily determined.

#### Emergency Operations Facility (EOF)

The following exercise strengths were identified.

1. Thorough evaluation of radiological dose assessment was demonstrated by EOF support staff. Transfer of responsibility from the EOF was clear and dose calculations were accurate.
2. Good coordination of response efforts was demonstrated among key EOF staff members.

No exercise weaknesses were identified.

The following area for improvement was identified.

1. Response actions associated with the EOF activation procedure such as obtaining facility keys, activating ventilation, and set up of dose assessment and Emergency Response Facility Display System (ERFDS) computers do not provide for an efficient facility activation.

## 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, all items identified during the previous emergency exercise (Inspection Report 50-352/88-09) were acceptably demonstrated and are closed:

- (CLOSED) 50-352/88-09-01: Training and qualifications of response personnel not adequate.
- (CLOSED) 50-352/88-09-02: Status of accountability not readily determined.
- (CLOSED) 50-352/88-09-03: Loss of Power Emergency Action Level in EP-101 ambiguous.
- (CLOSED) 50-352/88-09-04: Technical information provided to the State was deficient and cursory.
- (CLOSED) 50-352/88-09-05: Emergency Plan Procedure for activation of the TSC not used.
- (CLOSED) 50-352/88-09-06: Standby Liquid Control System not considered for core injection.
- (CLOSED) 50-352/88-09-07: Delays in dispatch of offsite field teams.
- (CLOSED) 50-352/88-09-08: Communication breakdowns between control room, OSC, and TSC.

## 6.0 NRC Critique

The NRC team attended the licensee's exercise critique on November 22, 1989 during which the licensee's lead controllers summarized observations from the exercise. The critique was thorough and identified deficient areas in need of corrective action. The licensee indicated that critique items would be tracked in their internal open item tracking system.

## 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 previously identified items were adequately addressed and that no violations were observed.

Although there was a 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 Emergency Plan 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.