

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-352/88-09

Docket No. 50-352

License No. DPR-44

Priority ----

Category C

Licensee: Philadelphia Electric Company  
2301 Market Street  
Philadelphia, Pennsylvania 19101

Facility Name: Limerick Generating Station

Inspection At: Limerick, Pennsylvania

Inspection Conducted: April 5-7, 1988

Inspectors: C. Z. Gordon 4/13/88  
C. Z. Gordon, Team Leader, EPS, date  
FRSSB, DRSS

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FRSSB, DRSS

Inspection Summary: Inspection on April 5-7, 1988 (Report No. 50-352/88-09).

Areas Inspected: Routine announced emergency preparedness inspection and observation of the licensee's annual full participation emergency exercise performed on April 5, 1988. The inspection was performed by a team of six NRC Region I personnel.

Results: No violations were identified. Emergency response actions were adequate to provide protective measures for the health and safety of the public.

## DETAILS

### 1.0 Persons Contacted

The following licensee representatives attended the exit meeting held on April 7, 1988:

Allshouse, B. A., Superintendent, Administration  
Behr, K., Analyst, Emergency Preparedness  
Christinzano, M., Health Physicist  
Doering, J., Superintendent, Operations  
Eckman, L. P., Public Information Coordinator  
Engler, A. M., Engineer  
Fogarty, E. P., Manager, Nuclear Support  
Gallagher, R. R., Exercise Coordinator  
Gerhart, J. H., Physicist  
Harris, J., Supervisor, Stone & Webster Engineering Corporation (SWEC)  
King, J. H., Support Manager, LGS  
Larkin, F. J., Nuclear Security Specialist  
Leitch, G. M., Vice President, LGS  
Leonard, D. A., Project Engineer, SWEC  
McElwain, J. J., Supervisor, Technical Monitoring  
Micheal, E. J., Project Manager, SWEC  
Roache, M. J., Site Emergency Planning Coordinator  
Rombold, D. M., Physicist  
Supplee, P. L., Nuclear Security Analyst  
Tucker, J. J., Emergency Response Facility Coordinator  
Weigand, F., Director, Emergency Preparedness  
Yates, K., Emergency Communications Coordinator

The team observed and interviewed several licensee emergency response personnel, referees, and observers as they performed their assigned functions during the exercise.

### 2.0 Emergency Exercise

The Limerick full-participation exercise was conducted on April 5, 1988 from 5:00 p.m. to 11:30 p.m.

#### 2.1 Pre-exercise Activities

Prior to the emergency exercise, NRC Region I representatives held meetings and had telephone discussions with licensee representatives to discuss objectives, scope and content of the exercise scenario. As a result, changes were made in order to clarify certain objectives, revise certain portions of the scenario and ensure that the scenario provided the opportunity for the licensee

to demonstrate those areas previously identified by NRC as in need of corrective action.

NRC observers attended a licensee briefing on March 31, 1988, and participated in the discussion of emergency response actions expected during the various phases of the scenario. The licensee stated that controllers would intercede in exercise activities to prevent scenario deviation or disruption of normal plant operations.

The exercise scenario included the following events:

- Failure of feedwater control system;
- High reactor water level and flooding of HPCI and RCIC steam lines;
- RHR pump failure and rapid decrease in reactor level;
- Fire in condensate pump room;
- Declaration of Unusual Event, Alert, Site Emergency and General Emergency classifications;
- Release of radioactivity to the environment;
- Calculation of offsite dose consequences; and
- Recommendation of protective actions to Commonwealth officials.

The above events caused activation of the licensee's onsite and offsite emergency response facilities.

## 2.2 Activities Observed

During the conduct of the licensee's exercise, the 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 scenario events;
2. Direction and coordination of the emergency response;
3. Augmentation of the emergency organization and response facility activation;

4. Notification of licensee personnel and offsite agencies of pertinent plant status information;
5. Communications/information flow, and recordkeeping;
6. Assessment and projection of offsite radiological dose and consideration of protective actions;
7. Provisions for inplant radiation protection;
8. Performance of offsite and inplant radiological surveys;
9. Maintenance of site security and access control;
10. Performance of technical support, repair and corrective actions;
11. Assembly, accountability and evacuation of personnel;
12. Preparation of information for dissemination at the Emergency News Center; and
13. Performance of firefighting activities.

### 3.0 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.

#### 3.1 Exercise Strengths

The team also noted the following licensee actions that provided positive indication of their ability to cope with abnormal plant conditions:

- Good command and control was observed in the Control Room, TSC, and EOF by the shift crew, Emergency Director, and Response Manager. Briefings were frequent and kept staff informed and up to date on accident status.
- Offsite field teams conducted a thorough checkout of field kits, survey instruments, and communications equipment prior to departure.

- Documentation and recordkeeping was adequately maintained in each of the emergency response facilities.
- Dose Assessment personnel were effective in implementing the dose model and providing continuous updates on dose projections and release data.
- The new paging system and callout procedure has improved efficiency in communicating early accident information and response times of emergency response personnel.

### 3.2 Exercise Weaknesses

The NRC team identified the following areas where weaknesses were observed which could have degraded the response and should be evaluated by the licensee for corrective action. These items are tracked as Inspector Follow-up Items (IFI):

- Personnel were assigned and performed emergency duties for which their training and qualification did not appear adequate. Examples included: electrical repairs performed by maintenance personnel; PASS sampling performed by an inexperienced health physics technician; and the Fire and Damage Control team leader not adequately directing the fire response or listed as qualified in EP-291 (50-352/88-09-01).
- An erratic response to assembly and site evacuation messages was observed on the part of many site personnel since initial instructions and information provided via the public address system were not clear. As a result, the status of accountability was not readily determined (50-352/88-09-02). The licensee stated that assembly and evacuation procedures were undergoing revision.
- The Loss of Power Emergency Action Level (EAL) in EP-101 is ambiguous on what conditions must be met to declare an Unusual Event (50-352/88-09-03).
- Information provided to offsite authorities in the early stages of the event was cursory. Technical information given to the State was deficient and did not clearly define the EAL relating to emergency classifications (50-352/88-09-04).
- To initiate TSC setup and activities, an uncontrolled document was used in lieu of EP-201 "Activation of the TSC" (50-352/88-09-05).

- With no other large water source available, TSC staff did not consider the Standby Liquid Control System for core injection (50-352/88-09-06).
- Arrangements for obtaining vehicles, keys, and proper personnel led to an unusual delay in dispatching offsite field teams (50-352/88-09-07).
- Certain reactor information and plant radiation levels never were given to inplant teams due to breakdown in communications to the OSC from the control room and TSC (50-352/88-09-08).

#### 4.0 Licensee Actions on Previously Identified Items

- 4.1 The following items were identified during the previous inspections and remained open prior to the exercise. Based upon observations made by the NRC team during this exercise, these items were acceptably demonstrated and are closed. No recurring items were identified.

(CLOSED) 50-352/87-01-03: Message forms did not receive official notification from the Emergency Director.

(CLOSED) 50-352/87-01-04: Dose projections based upon worst case scenarios and degrading plant conditions not performed in the TSC.

(CLOSED) 50-352/87-01-05: Independent assessment results not coordinated between the TSC and EOF.

(CLOSED) 50-352/87-01-06: The Field Survey Display Map in the TSC was not used to identify locations or radiation readings reported by offsite field teams.

(CLOSED) 50-352/87-01-07: Press releases were delayed and did not contain information on prognosis of accident or status of offsite radioactive release.

#### 5.0 Licensee Critique

The NRC team attended the licensee's post-exercise critique on April 7, 1988, during which the key licensee referee discussed observations of the exercise. The licensee indicated these observations would be evaluated and appropriate corrective actions taken.

Specific improvement areas which were identified by the licensee related to: control room notifications and announcements; insufficient maintenance personnel in the OSC; poor information flow to and from the OSC; lack of interface with the State on recommending precautionary

evacuation: difficulty in use of PASS procedure; and improper authorization for use of KI to emergency workers.

#### 6.0 Exit Meeting

The NRC team met with the licensee representatives listed in Section 1 of this report at the end of the inspection. The team leader summarized the observations made during the exercise.

The licensee was informed that previously identified items were adequately addressed and no violations were found. Although there were areas identified for corrective action, 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 which would provide adequate protective measures for the health and safety of the public.

Licensee management acknowledged the findings and indicated that appropriate action would be taken regarding the identified open items.

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