

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

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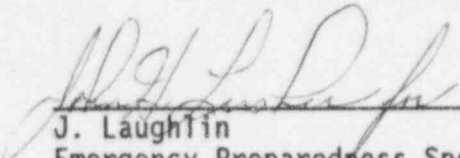
LICENSEE: PECO Energy
Wayne, Pennsylvania 19087-0195

FACILITY: Limerick Generating Station, Units 1&2

INSPECTION AT: Limerick and Coatesville, Pennsylvania

INSPECTION DATES: October 24-26, 1995

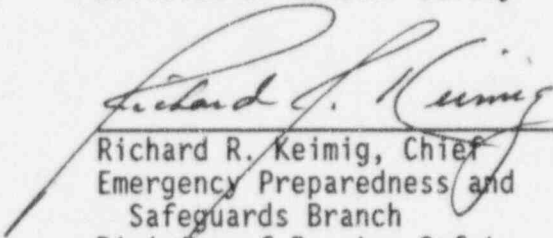
INSPECTORS: D. Silk, Senior Emergency Preparedness Specialist
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11-30-95
Date

APPROVED BY:



Richard R. Keimig, Chief
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Division of Reactor Safety

11-30-95
Date

Areas Inspected: An inspection of the licensee's performance in its biennial, full-participation emergency preparedness exercise was conducted. Activities in all emergency response facilities were observed. A review of licensee changes to several emergency response procedures was conducted.

Results: Implementation of the emergency plan during the exercise showed that adequate on-site protective measures can be taken in an emergency. An exercise strength was the formal repeatback communications demonstrated in the Simulator Control Room and Technical Support Center. No exercise weaknesses were identified. It was determined that there was no decrease in effectiveness of the emergency preparedness program due to licensee's procedure changes.

DETAILS

1.0 INDIVIDUALS CONTACTED

The following individuals attended the exit meeting at the Limerick Training Center on October 26, 1995.

1.1 Principal Licensee Employees

R. Alejnikov, Site EP, System Manager
C. Anders, ISEG Engineer
R. Bohner, EP Instructor
R. Boyce, Plant Manager, Limerick
R. Brown, Site EP Supervisor
J. Clymer, Engineer, EP
R. Faulkner, EP Analyst
D. Feters, Vice President, Station Support
M. Kaminski, Engineer, Radwaste
J. Karkoska, Supervisor, Nuclear Security
R. Kinard, Manager, EP
D. Lerch, EP Analyst
D. LeQuia, Director, Site Support
S. MacAinsh, Manager, Support Services
W. MacFarland, Vice President, Limerick
R. Mandik, Supervisor, Site Support, EP
A. Parducci, Site EP Analyst
G. Roach, Chemist, EP
E. Sproat, Director, Maintenance
G. Stewart, Engineer, Experience Assessment
J. Waddington, Coordinator Emergency Communications
K. Walsh, Manager, Site Engineering

1.2 NRC Employees

D. Barss, Emergency Preparedness Specialist
R. DePriest, Emergency Preparedness Specialist
T. Easlick, Resident Inspector, Limerick
L. Eckert, Radiation Specialist
J. Laughlin, Emergency Preparedness Specialist
N. McNamara, Emergency Preparedness Specialist
N. Perry, Senior Resident Inspector, Limerick
D. Silk, Senior Emergency Preparedness Specialist

The inspectors also interviewed other licensee personnel during the inspection.

2.0 OTHER EXERCISE PARTICIPANTS

The Commonwealth of Pennsylvania and the three-risk counties also participated in the exercise and were evaluated by the Federal Emergency Management Agency (FEMA), Region III office. A report of FEMA's observations will be issued by that agency in the future.

3.0 PURPOSE OF INSPECTION

The purpose of this inspection was to evaluate the licensee's performance during the biennial, full-participation emergency preparedness exercise conducted on October 24, 1995, from 3:00 p.m. to 9:30 p.m.

4.0 SCENARIO REVIEW

The licensee submitted the exercise objectives on July 24, 1995, and the scenario on August 24, 1995, for NRC review. After reviewing the scenario, the inspector discussed its contents with licensee representatives and concluded that it adequately tested the major portions of the emergency plan and emergency response procedures (ERPs) and also demonstrated an area previously identified by the NRC for further review.

The NRC evaluation team attended a licensee scenario briefing on October 24, 1995. The final scenario was discussed in depth, and licensee staff answered NRC questions concerning the scenario. The licensee 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.

5.0 ACTIVITIES OBSERVED

The NRC inspection team observed the activation and augmentation of the emergency response organization (ERO), activation of emergency response facilities (ERFs), and the actions of emergency response personnel. The following specific activities were observed:

1. Selection and use of control room procedures.
2. Detection, classification, and assessment of scenario events.
3. Direction and coordination of emergency response.
4. Notification of licensee personnel and off-site agencies.
5. Communications, information flow, and record keeping.
6. Assessment and projection of off-site radiological doses, and issuance of protective action recommendations.
7. Provisions for in-plant radiation protection.
8. Provisions for communicating information to the public.
9. Accident analysis and mitigation.
10. Licensee post-exercise critique.

6.0 CLASSIFICATION OF EXERCISE FINDINGS

Emergency preparedness exercise findings are classified as follows:

Exercise Strength: a strong positive indicator of the licensee's ability to cope with abnormal plant conditions and implement the emergency plan.

Exercise Weakness: performance that could have precluded effective implementation of the emergency plan in the area observed, but which does not preclude a finding of overall emergency response adequacy.

7.0 EXERCISE OBSERVATIONS

Activation and utilization of the ERO and ERFs was generally consistent with the emergency plan and ERPs. The inspectors noted the presence of the vice president, Limerick, and the Limerick plant manager in the ERFs during the exercise, which indicated senior plant management's attention to EP. Additionally, the licensee utilized several newly-qualified ERO members in key positions during the exercise, demonstrating emphasis on EP training.

7.1 Simulator Control Room (SCR)

The shift manager (SM) correctly classified the initial fire event as an Alert, based on the proximity of the fire to the Unit 1 emergency diesel generators. All event notifications and announcements were timely and properly made.

The SM and shift supervisor (SS) exercised excellent command and control throughout the scenario. They gave frequent staff briefings to ensure that the crew understood what events had occurred and the planned mitigation strategy to deal with each one. The SS directed mitigation efforts, which allowed the SM to handle communications between the SCR and the Technical Support Center (TSC). He also established response priorities for equipment failures, and utilized a white board to list those priorities. Communications between the SCR and TSC were strained, at times, due to difficulties with the SCR speakerphone, but that did not significantly affect overall response. The formal repeatback communications demonstrated by SCR and TSC responders was assessed as an exercise strength.

The SCR crew quickly recognized abnormal conditions and equipment failures, such as a Group I isolation, high drywell pressure and radiation levels, a failed residual heat removal pump, and an upscale narrow range reactor vessel level instrument failure. The responses to these equipment problems were prompt and effective. Overall, procedural usage was strong, including the implementation of transient response implementing procedures (TRIPs) and contingency procedures (T-200 series). The crew demonstrated good teamwork by thorough review of each event and excellent discussions of possible solutions. No weaknesses were observed in the SCR.

7.2 Technical Support Center (TSC)

The TSC was staffed and activated in a timely manner after the Alert declaration. Event classifications were correct and timely, and notifications to off-site officials were also timely.

The emergency director (ED) exhibited very good command and control. He conducted regular staff briefings, which were broadcast to the other ERFs to keep all responders updated on plant status. He also established work priorities and clearly communicated them to his staff. The TSC status boards were frequently updated by technically-knowledgeable personnel, who ensured the accuracy of the information. The inspectors observed the consistent use of formal repeatback communications, which ensured the accurate transmission of information among emergency responders (a noted strength in Section 7.1). This was particularly important for communications between the SCR and the TSC, because of the noted speakerphone difficulties.

Staff support to the ED was generally very good. The assistant ED was particularly effective in complementing ED command and control efforts. Technical support was provided by engineering personnel who were previously licensed operators.

There were no exercise weaknesses identified by the inspector in the TSC.

7.3 Operations Support Center (OSC)

The licensee staffed the OSC in a timely manner. The inspectors observed good internal communication in the OSC. The OSC director (OSCD) and health physics team leader (HPTL) worked well together and provided good pre-job briefings to the emergency work crews. The OSC communicator gave frequent and informative plant status briefings to OSC staff.

However, external communications with the other ERFs - as well as with field teams - were sometimes confusing and difficult to comprehend. The OSCD's speakerphone was often "breaking up," making it difficult to understand. Reception on the radio unit used to communicate with the field teams was often garbled. The plant page system could not be heard in the OSC due to facility noise level and low system volume. Further, the speakerphone, field team radio, and the OSCD telephone were all on the OSCD desk. This configuration caused confusion when all systems were in use at the same time. The licensee also noted this configuration problem and intended to take corrective actions.

The OSCD maintained adequate command and control in the OSC. However, the inspectors observed that the OSCD did not have a mechanism for prioritizing and tracking the emergency work crews. Also, it was not apparent, after an inspector review of the OSCD log and interviews with exercise controllers, that the prioritization and tracking of the emergency work crew tasks were completed. Accountability of individual OSC personnel was maintained by status board, but there was no team/priority tracking board in the OSC.

The inspectors observed that the TRIP-200 series procedures and their associated equipment were stored in individually marked boxes within a sealed locker in the OSC. This was a good practice that ensured complete sets and allowed rapid implementation of these procedures.

The inspectors also observed some instances of poor drillsmanship by participating players. For example, a player was informed by a controller that, while he was performing his assigned duties, he had become "contaminated." The player was told to report to the health physicist at the portal monitor before leaving the radiologically-controlled area. However, this player did not report that he was contaminated and continued with regular exercise activities. Also, the inspectors observed the licensee perform a simulation of the respirator rapid requalification procedure and simulation of respirator use, instead of actual respirator use, which was required by the scenario. Thus, Exercise Objective E3, which states, "Issue respiratory protection to emergency response personnel, as appropriate," was not met. The licensee acknowledged these issues.

Overall, the inspector determined that the licensee's performance in the OSC was generally satisfactory. No strengths or weaknesses were noted, but improvements in the areas of tracking/prioritization of work teams, external communications, and drillsmanship appear to be appropriate.

7.4 Emergency Operations Facility (EOF)

The EOF was activated 1 hour and 49 minutes after the declaration of the Alert and before the declaration of the site area emergency (SAE). The EOF is required to be activated one hour after the SAE declaration by licensee procedures.

The early activation of the EOF allowed the TSC to focus on plant concerns.

The emergency response manager (ERM) demonstrated adequate command and control over the EOF and overall response. His initial status briefing covered key points needed to inform personnel of existing conditions. He also promptly informed the EOF staff of changing event conditions. Adequate briefings were conducted to provide necessary information and ensure priorities were established and understood.

Approved procedures were available and utilized by responders in the EOF. However, the ERM Turnover/Briefing Form, ERP-C-1200-1, was not included with the consumable copies of Procedure ERP-C-1200, "Emergency Response Manager," located in the ERM's emergency kit. This form was obtained from a controlled copy of the procedure and copied for ERM use.

The key EOF responders maintained logs to record events and responses taken. Status boards were kept up-to-date and were utilized by responders to obtain information and track various parameters. The logistics support team did well in providing hard copies of status reports to key responders.

In the early part of the exercise, interaction between engineers and dose assessment staff was frequent. Later in the exercise, interaction was less frequent. The EOF engineers did not identify, nor were they informed of a reactor water clean-up (RWCU) pipe break in a timely manner. The field monitoring group leader assessed that the changes in the area radiation monitor reading(s) were consistent with an RWCU break shortly after the break occurred. However, this information, for some reason, was not promptly conveyed to the EOF engineers.

No particular strengths or weaknesses were noted in this area.

7.5 Emergency News Center (ENC)

The ENC personnel performed well during the exercise. They continually obtained and relayed accurate information to company officials. When the information was conflicting or confusing, the ENC staff sought and received clarification from other licensee sources. For example, they investigated whether the fire or the explosion came first and also the path of the radiological release.

The corporate spokesperson (CS) responsible for representing PECO Energy to the public, routinely briefed Pennsylvania officials first and then the media. The layout of the auditorium and the equipment used during the briefings was conducive to effective presentations. During both media briefings, he effectively utilized visual aids, such as schematic drawings and overhead projections, to explain plant conditions. His explanations were presented in a manner that was understandable by the public. Media and mock-media personnel asked good, probing questions following his briefings. During the second media briefing, the CS provided answers to questions for which he did not have answers during the first briefing.

The inspector reviewed the licensee's press releases and determined that they contained accurate, yet understandable information. Overall, the inspector assessed the ENC staff's performance as good. No particular strengths or weaknesses were noted.

8.0 AFTER-HOURS UNANNOUNCED CALL-OUT DRILL

On October 18, 1995, inspectors observed the licensee's out-of-sequence, after-hours, unannounced call-out drill that included a simulated Alert declaration, State, and local notifications, NRC notification, ERO call-out, and ERF activation with full staffing.

After the simulated Alert declaration, notifications were made by the on-shift clerk from the main control room. The shift clerk demonstrated a good familiarity with the applicable emergency response procedure and effectively implemented both the notifications and the ERO call-out within the time allotted.

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After the simulated Alert declaration, notifications were made by the on-shift clerk from the main control room. The shift clerk demonstrated a good familiarity with the applicable emergency response procedure and effectively implemented both the notifications and the ERO call-out within the time allotted.

The OSC was staffed and activated in 53 minutes, which was timely. With the exception of the security team leader and the dose assessment coordinator, the TSC was fully staffed in one hour and activated in 1 hour and 16 minutes. The EOF was fully staffed and activated in 1 hour and 41 minutes. Additionally, the EOF News Center was activated in 1 hour and 20 minutes.

The expectation of both the licensee and the NRC is that the TSC be activated within one hour of the Alert declaration. For this drill, that objective was not met. The licensee recognized this as an area for improvement and intended to review and correct the problem. The inspector informed the licensee that, since this drill did not include the simulation of a SAE, an EOF activation was not required. Therefore, the objective of EOF activation within one hour of the SAE was not tested. This was also noted by the licensee and was being investigated.

9.0 LICENSEE CORRECTIVE ACTIONS FOR PREVIOUSLY-IDENTIFIED ITEMS

(Closed) IFI 50-352, 353/93-19-02

During the previous exercise, an iodine air concentration of 1.6 E-5 microCi/cc was not evaluated to determine its validity or reconciled with the known source term and flow path. This level of iodine air concentration, if validated, should have led to consideration of potassium iodide (KI) for emergency workers on-site and off-site.

During this exercise, the initial radiological release had a radioiodine component and was properly assessed by the licensee's dose assessment staff. The use of KI was not formally discussed due to the relatively low iodine levels, but field team safety was considered. For example, shortly after field team data results indicated the presence of radioiodine, the DATL directed that field teams be kept out of the radiological plume unless absolutely necessary. This item is closed.

10.0 LICENSEE CRITIQUE

The NRC inspectors attended the licensee's exercise critique on October 26, 1995. Lead controllers summarized licensee observations for their areas of responsibility. The critique was appropriately self-critical and identified most items noted by the NRC. The NRC team assessed the critique to be good.

11.0 EXIT MEETING

Following the licensee's critique, the NRC team met with the licensee personnel denoted in Detail 1.0 to discuss the inspection findings. The licensee was informed that:

- Overall, the on-site response to the exercise scenario was very good.
- There was one exercise strength and no exercise weaknesses.

- The exercise objective to demonstrate the respirator rapid requalification procedure and respirator use was not met.
- During the after-hours unannounced call-out drill, the one-hour objective for TSC activation was not met, and the objective for EOF activation timeliness (i.e., one hour after SAE declaration) was not tested.
- One open item from the previous exercise was closed.

The licensee acknowledged the findings and indicated that they would evaluate them for appropriate corrective actions.

12.0 REVIEW OF EMERGENCY RESPONSE PROCEDURE CHANGES

A Regional in-office review of revisions to the emergency response procedures was completed. The list of the procedures and revisions that were reviewed are listed in Attachment 1. The inspector concluded that changes made were acceptable and did not decrease the effectiveness of the emergency preparedness program.

Attachment: List of Reviewed Emergency Response Procedure Changes

ATTACHMENT 1

LIST OF REVIEWED EMERGENCY RESPONSE PROCEDURE CHANGES

| Procedure Number | Procedure title | Revision Reviewed |
|------------------|--|-------------------|
| ERP-101 | Classification of Emergencies | 6 |
| ERP-110 | Emergency Notification | 14, 15 |
| ERP-230 | Operations Support Center (OSC) Director | 5 |
| ERP-300 | TSC/MCR Dose Assessment Team | 17 |
| ERP-500 | Security Team | 12 |
| ERP-600 | Health Physics Team | 10 |
| ERP-650 | Entry for Emergency Repair and Operations | 7 |
| ERP-700 | Technical Support Team | 11 |
| ERP-800 | Maintenance Team | 13 |