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REGION I

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Licensee: PECO Energy

Facility: Limerick Generating Station

Dates: September 14 - 27, 1999*

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- The critique and exit meeting were delayed seven working days due to inclement weather from Hurricane Floyd, as well as, unavailability of some NRC and licensee person to attend until September 27, 1999.

EXECUTIVE SUMMARY

Limerick Generating Station
Full-Participation Emergency Preparedness Exercise Evaluation
September 14, 1999
Inspection Report Numbers 50-352;353/99-06

The NRC team determined that the overall performance of the emergency response organization (ERO) demonstrated, with reasonable assurance, that onsite emergency plans were adequate and that the licensee was capable of implementing them. Simulated events were accurately diagnosed, emergency declarations were timely and accurate, offsite agencies were notified in a timely manner and protective action recommendations were appropriate.

There was a communication problem between the emergency facilities when the Emergency Preparedness Display System (EPDS) displayed an erroneous reactor vessel water level. This led some ERO staff to miscalculate the time to core uncover by greater than 30 minutes. Although, there were some key ERO personnel that were aware of the correct water level and made decisions accordingly, the information was not properly communicated nor noticed by all ERO staff in both the Technical Support Center and Emergency Operations Facility which caused confusion when core uncover occurred sooner than expected. The licensee also identified this issue and was investigating the problem to preclude its recurrence and ensure that other problems do not exist with the EPDS.

The critique process was well implemented. Post-exercise facility debriefs were candid. At the formal critique, the licensee staff identified numerous issues, in addition to those identified by the NRC. The most significant issues identified were prioritized for prompt corrective action. Overall, the critique was balanced with positive and negative findings and was appropriately self-critical.

Report Details

P4 Staff Knowledge and Performance

a. Exercise Evaluation Scope (82301)

During this exercise, the inspectors observed and evaluated the licensee's biennial full-participation exercise in the simulator control room (SCR), the technical support center (TSC), the operations support center (OSC), and the emergency operations facility (EOF). The inspectors assessed the ERO's recognition of abnormal plant conditions, classification of emergency conditions, notification of offsite agencies, development of protective action recommendations (PARs), command and control, communications, utilization of repair and field monitoring teams, and the overall implementation of the emergency plan. In addition, the inspectors observed the post-exercise critique to evaluate the licensee's self-assessment of the exercise.

b. Observation and Findings

b.1 SCR

The SCR operators were attentive to the control boards and alarms and were quick to identify abnormal conditions. As required by the emergency plan, the Shift Manager (SM) became the emergency director (ED) at the unusual event level and initiated actions for the activation of the emergency response facilities (ERFs) at the alert level. All personnel demonstrated good communications and teamwork in the SCR, consistently using repeat-backs, and verifying information and questioning erroneous data. State, county and federal notifications were made in a timely manner.

b.2 TSC

The TSC was activated approximately 40 minutes after the SM directed station personnel to report to their respective ERF. After being briefed by the SM/ED as to the events and the current status of the plant, the plant manager assumed the duties and responsibilities of the ED and the SM returned to the operation and oversight of the plant.

Most personnel in the TSC were knowledgeable of their assigned functions and performed well. However, not all personnel in the TSC were attentive to the ED during the periodic briefings as many remained on the telephone or continued with side discussions. In addition, the ED's briefings were of minimal content and there was no discussion of priorities or strategies as reflected on the status board in the room. No significant consequences resulted from this method or quality of relaying information.

A communication problem was noted in that an open telephone link between the various ERFs caused background noise and appeared to be disruptive in the TSC.

The inspectors noted that twice during discussions between the SCR and the ERFs, the SM stated that the reactor water level indicated on the EPDS was not consistent with other indications of water level in the SCR. Indicated level was reading higher (less conservative from top of active fuel (TAF)) than actual level. Despite the SM's

communications that EPDS was indicating a higher level than actual, neither the ED in the TSC, nor the EOF staff aggressively questioned the discrepancy or took immediate action to determine the correct reactor water level.

Further, at 6:38 p.m., during a second telephone call with the NRC, the ED reported that reactor water level was -79" and that it was estimated the level would not drop to the TAF until 7:45 pm. (Actual level was approximately -120" at that time.) The inspector questioned an exercise controller regarding the correct water level. ERO personnel determined eventually that the EPDS indication was wrong due to the low level in the reactor causing problems with the averaging program. Correct level determination was made in time so that the ED properly recognized the criteria for a general emergency (GE) classification at 7:19 p.m., which was earlier than predicted. The GE classification (i.e., water level dropping to TAF) was correctly made.

Licensee controllers observed the discrepancy between the EPDS and the correct SCR level indication and promptly initiated an investigation to determine potential applicability to the actual plant computer and for other plant parameters. This issue was entered into the licensee's corrective action program (PEP I0010265) for further review.

b.3 OSC

The OSC did not meet the time requirement to activate (one hour) as stated in the emergency plan due to the unexpected time needed to complete the poll of the offsite sirens. However, the OSC Director (OSCD) noted that the OSC staff was in place within 30 minutes of the Alert and made the decision to dispatch work teams prior to officially activating. Activation was delayed because the sirens could not be polled in accordance with the activation procedures. The licensee had just recently changed their siren system and will be reviewing the siren procedure and their method for polling to ensure the OSC can timely activate. Work crews were effectively briefed before departure, tracked, and debriefed upon return. The health physics group effectively tracked OSC habitability, updated plant radiation levels every 15 minutes and maintained effective accountability of personnel.

Some minor communication problems were observed in the OSC. On two occasions, the OSC had to disconnect with the TSC so a link could be re-established with the EOF causing five minute blank intervals. The OSCD did not hear the announcement of the site area emergency (SAE) due to radio noise and multiple telephone conversations in the OSC. Consequently, he did not know that the SAE had been declared until informed by the OSC communicator about 10 minutes later. Overall, the OSC staff implemented their procedures to perform the intended function.

b.4 EOF

Activation of the facility was timely. The emergency response manager (ERM) demonstrated good command and control of the EOF and kept the EOF staff apprized of changing conditions.

The EOF staff continuously tracked plant conditions; however when the engineering staff realized a discrepancy in the reactor level value, they did not communicate it to the ERM's staff. The ERM's staff was functioning upon the predictions of reactor water level based upon the erroneous EPDS data trend. Therefore, there was confusion among the ERM's staff when the ED unexpectedly escalated to a GE. The staff was rushed to complete the paperwork associated with formulating a PAR and making the appropriate offsite notifications.

The ERM's initial briefing to the Commonwealth and the NRC was lengthy, mostly, due to making introductions and discussing logistics of exercise play. Also, there were several contributing factors that slowed the licensee in communicating the PAR to the Commonwealth of Pennsylvania. Since the GE was unexpected due to the erroneous EPDS data, the dose assessment team leader (DATL) was not officially informed that a GE had been declared, delaying his paperwork for the PAR. The ERM had very little time to inform the NRC about the PAR prior to contacting the Commonwealth. When the licensee was ready to present the PAR, there was some initial confusion on how the Commonwealth was to receive the information. When it was resolved that the PAR was to be communicated to the Commonwealth in Harrisburg, no telephone link had been previously established and had to be made. Despite the delays, the PAR was correct and delivered to the Commonwealth approximately one minute after the 15 minute time requirement.

b.5 Dose Assessment

In the dose assessment area, the staff promptly established operations and assumed control of this function from the TSC. From the EOF, field teams were dispatched, tracked, and moved according to changing plant conditions. The dose assessment staff at the EOF demonstrated proficiency in the use of computers for dose projection and performed some "what if" calculations.

However, group members did not aggressively support the DATL as evidenced by their awaiting directions from the DATL in such areas as looking at other possible release pathways and utilizing the offsite sample data for making dose projections. Also, the inspectors noted that communications among the group regarding changes in plant parameters and meteorological conditions were not readily shared with the DATL. Overall, the dose assessment group implemented their procedures to perform the intended function.

b.6 Licensee Exercise Critique

Immediately following the exercise, the licensee began its critique process with players providing debriefs at each of the facilities. Players were candid discussing both positive and negative comments regarding player and equipment performance. Licensee controllers then compiled their observations and findings and presented them at the formal critique on September 27, 1999. The PECO critique independently identified all areas observed in the inspection. Overall, the critique was thorough and self-critical.

c. Overall Exercise Conclusions

Based on the results of this inspection, the NRC team determined that the overall performance of the ERO demonstrated, with reasonable assurance, that onsite emergency plans were adequate and that the licensee was capable of implementing them. Simulated events were accurately diagnosed, emergency declarations were timely and accurate, offsite agencies were notified in a timely manner and the PARs were appropriate.

There was a communication problem between the emergency facilities when the EPDS displayed an erroneous reactor vessel water level. This led some ERO staff to miscalculate the time to core uncover by greater than 30 minutes. Although, there were some key ERO personnel that were aware of the correct water level and made decisions accordingly, the information was not properly communicated nor noticed by all ERO staff in both the TSC and EOF which caused confusion when core uncover occurred sooner than expected. The licensee also identified this issue and is investigating the problem to preclude its recurrence and ensure that other problems do not exist with the EPDS.

The critique process was well implemented. Post-exercise facility debriefs were candid. At the formal critique, the licensee identified a number of issues, in addition to those identified by the NRC. The most significant issues identified were prioritized for prompt corrective action. Overall, the critique was balanced with positive and negative findings and was appropriately self-critical.

P8 Miscellaneous EP Issues

P8.1 Scenario Preparation and Exercise Control

An in-office review of the exercise objectives and scenario was conducted by the inspectors prior to the exercise. The scenario was adequate to support the demonstration of the stated objectives and satisfactorily exercised a significant portion of the emergency response capabilities.

The simulated radiological conditions in the exercise scenario would have resulted in the evacuation of the OSC but this was not realized by the licensee during scenario development. Furthermore, an OSC controller provided this radiological data to the players without question. Overall, no significant consequences resulted from these oversights.

V. Management Meetings

X1 Exit Meeting

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on September 27, 1999. The licensee acknowledged the inspectors' findings.

INSPECTION PROCEDURES USED

82301: Evaluation of Exercises for Power Reactors

82302: Review of Exercise Objectives and Scenarios for Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

DATL	Dose Assessment Team Leader
ED	Emergency Director
EOF	Emergency Operations Facility
EPDS	Emergency Preparedness Display System
ERF	Emergency Response Facility
ERM	Emergency Response Manager
ERO	Emergency Response Organization
GE	General Emergency
OSC	Operations Support Center
OSCD	Operations Support Center Director
PAR	Protective Action Recommendation
SAE	Site Area Emergency
SCR	Simulator Control Room
SM	Shift Manager
TAF	Top of Active Fuel
TSC	Technical Support Center