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Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555

SUBJECT: Limerick Generating Station, Units 1 and 2
Response to An Apparent Violation in Inspection Report Nos. 50-352, 353/97-06

Attached is PECO Energy Company's response to the apparent violation for Limerick Generating Station (LGS), Units 1 and 2, that was contained in your letter dated August 13, 1997. The apparent violation concerns the failure to ensure that certain equipment required to assure fire safe shutdown capability was adequately pre-staged for use in the event of a fire. The reasons for the apparent violation, the corrective actions taken, and the corrective actions to avoid future noncompliance are described in LGS Licensee Event Report (LER) 1-96-015; NRC Integrated Inspection Report Nos.: (1) 50-352/96-06 and 50-353/96-06, (2) 50-352/97-01 and 50-353/97-01, and (3) 50-352/97-06 and 50-353/97-06; and the attached response.

A discussion of the identification, prompt and comprehensive corrective actions, and safety significance of the apparent violations is provided below.

All of the issues identified were the result of non-willful errors.

Identification

The issues were self identified by the Nuclear Engineering Division (NED) Fire Safe Shutdown (FSSD) Program Manager while performing an inventory of all of the emergency lighting required to support safe shutdown of LGS in the event of a fire. This inventory was conducted as part of a voluntary design reconstitution/ verification effort that was part of an overall Thermo-Lag reduction project, and was intended to verify the existing plant design prior to recommending changes for Thermo-Lag reduction. This review required an in-depth knowledge of the LGS FSSD design, including the potential for dual-unit shutdown, and previously analyzed inter-unit dependencies credited in the fire scenario. The identified issues were appropriately reported to the NRC in LGS LER 1-96-015.

Corrective Actions

Corrective actions were prompt and thorough as described in the previously docketed correspondence described above and the attached response.

Safety Significance

If a fire had occurred, the operators carry hand-held radios and portable lights were available for use in the plant. One of the two required jumper cables was pre-staged and could have been used on either unit as needed until a second jumper could be fabricated. The jumper cable is only needed to transition to cold shutdown, and is not required to achieve hot shutdown. The materials necessary to make the second jumper were available at the site. In the absence of specific procedural guidance and training to activate the Emergency Fire Dispatch Center (EFDC) in a fire scenario, operations staff would have mustered at the Operations Support Center (OSC) in a fire event. Sensitivity studies were performed which concluded that the increased travel time to and from the OSC would not adversely impact the capability to perform the required manual actions in a postulated fire scenario.

The emergency response capability, including the use of the Emergency Operating procedures and the Emergency Plan procedures, would have provided the operators a success path to safely shutdown the plant in the event a fire had occurred. Therefore, the missing equipment would have had minimal impact on the plant's ability to reach the cold shutdown condition in the event of a fire.

If you have any questions or require additional information, please contact us.

Very truly yours,

Attachment

cc: H. J. Miller, Administrator, Region I, USNRC w/attachment
N. S. Perry, USNRC Senior Resident Inspector, LGS "

COMMONWEALTH OF PENNSYLVANIA :

: SS

COUNTY OF MONTGOMERY :

W. G. MacFarland, being first duly sworn, desposes and says:

That he is Vice President of PECO Energy Company; that he has read the attached Response to an Apparent Violation for Limerick Generating Station, Units 1 and 2, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

Walter G. MacFarland

Vice President

Subscribed and sworn to
before me this 12th day
of September 1997.

Sharon J. Adams

Notary Public

Notarial Seal
Sharon J. Adams, Notary Public
Limerick Twp., Montgomery County
My Commission Expires Aug. 31, 1998
Member, Pennsylvania Association of Notaries

Response to An Apparent Violation

Restatement of the Apparent Violation

On July 16, 1996, a walkdown of specific equipment installed at Limerick Generating Station (LGS) to mitigate design basis fire events was performed by the Nuclear Engineering Division (NED) Fire Safe Shutdown (FSSD) Program Manager (PM), along with station Fire Protection personnel. This walkdown identified several deficiencies in the implementation of the Fire Safe Shutdown Program as described below.

1. A 150 foot electrical jumper cable was missing from the Unit 2 static inverter room. This jumper cable would be used to provide an alternate electrical power source to re-energize the controls for the automatic depressurization system valves for depressurization control for the reactor during shutdown following a fire in the Remote Shutdown Panel room. The use of this jumper is a repair necessary to support the transition from Hot Shutdown to Cold Shutdown.

2. Emergency lighting was missing in a room which required post-fire activities to be performed. In January 1995, revisions were made to Special Event (SE) procedures SE-8-2 and SE-8-4 related to fire safe shutdown to provide simpler pathways for operators to install the electrical jumper cable described above. However, the new pathways (the Unit 2 static inverter room and the access stairway immediately outside the room) were found not to be illuminated by 8-hour emergency lighting.

3. Communications equipment (microphone) that was to be pre-staged at the Emergency Fire Dispatch Center (EFDC) was missing. The EFDC is a muster location provided to coordinate non-control room operator actions in the event of a fire. The EFDC is provided with a "hardened" radio system, designed to maintain radio contact with the Main Control Room and the Remote Shutdown Panel for 72 hours following a fire. Prior to March 1995, this facility also served as the Operations Support Center (OSC) in the LGS Emergency Plan. At that time, a modification relocated the OSC and required the EFDC to be maintained in the old OSC location. This modification retained the 72 hour radio communication capability in the EFDC, although the appropriate microphone was missing. In addition, administrative actions necessary to maintain the required equipment for the EFDC were not implemented, procedure revisions necessary to use the EFDC in a fire event were not performed, and subsequent operator training was not provided.

The failure to maintain this equipment was determined to be a violation of LGS Facility Operating License Condition 2.C.(3), which requires implementing and maintaining in effect all provisions of the approved Fire Protection Program as described in the Updated Final Safety Analysis Report (UFSAR).

Reasons for the Apparent Violation

These deficiencies, although identified at the same time, were the result of several different causes, some dating from original Unit 2 start-up (jumper cable & lighting), and the other from a recent modification. A common cause of the described conditions was a lack of clear ownership and accountability for the contents and technical accuracy of the fire safe shutdown procedures. Personnel knowledgeable in the details of the fire safe shutdown analysis were not sufficiently involved in the changes that resulted in the deficiencies. Specifics are described below.

The cause of the missing second cable was inadequate procedures. Prior to the start-up of Unit 2, an engineering review of the operator actions needed for safe shutdown was performed and procedure revisions were implemented. However, due to the lack of clarity in SE-8-2 and SE-8-4, station personnel did not recognize that two (2) cables may be necessary to perform a dual unit shutdown in the event of a fire in the Remote Shutdown Panel room.

The cause of the lack of specific battery powered lighting units for the revised pathway was personnel error. There was an inadequate review of the proposed revision to the SE procedures. The reviewers did not take into account the lighting requirements when establishing the revised jumper cable pathway.

The cause for the failure to proceduralize the operation and maintenance of the EFDC during relocation of the OSC was personnel error. The members of the modification team responsible for the OSC relocation recognized the need to establish the EFDC and requirements were included in the modification documents. However, the actions to proceduralize the implementation of the EFDC were not assigned for action and not pursued.

A contributing factor to the above discrepancies was an inadequate periodic inventory procedure. Pre-staged equipment for support of fire safe shutdown is routinely verified by a periodic inventory procedure. However, the procedure failed to include these components for verification.

Corrective Actions Taken and Results Achieved

The following immediate corrective actions were implemented.

- An engineering review of the fire safe shutdown analysis was performed to determine the equipment and procedures required to be available in the EFDC.
- A second 150 foot electrical jumper cable was fabricated and located in the Unit 2 static inverter room.
- Procedures SE-8-2 and SE-8-4 were revised to clearly indicate the use of two (2) jumper cables.
- Procedures SE-8 and SE-12 were revised to direct use of the EFDC in a fire event.
- The radio microphone was replaced and copies of the necessary SE procedures were securely installed in the EFDC.
- Signs were posted on the door to the EFDC to identify the facility and on the locked cabinet inside the EFDC containing the radio microphone.
- It was verified that the operators carry hand-held radios and have access to high intensity portable lights (staged at several locations throughout the plant). Interim guidance was provided to Operations personnel via a Shift Night Order (SNO) entry reinforcing the expectation that all operators carry hand-held radios and high intensity portable lights in a fire event. The SNO entry was read at the shift turnover meetings.
- A Non-Conformance Report (NCR) was generated to determine the permanent corrective actions for providing battery powered lights for the jumper cable pathway and for recommending if additional permanent equipment for the EFDC is required.

The following additional corrective actions have been completed.

- Emergency Response Procedure ERP-230 has been revised to instruct the activation of the EFDC in the event of a fire.

- As a result of the NCR, all emergency lighting required to support Unit 1 and Unit 2 safe shutdown has been verified as being installed and properly surveilled. A design document has been developed which tabulates the location, function, and basis for all of the 8-hour emergency lights installed for FSSD.

- Equipment needed to implement all of the FSSD procedures has been inventoried and verified to be complete. The FSSD semiannual inventory surveillance procedure has been revised to ensure that all equipment required to support the FSSD procedures is properly maintained.

- Modification team members associated with the OSC relocation have been counseled.

Corrective Actions to Avoid Future Noncompliance

The Operations Support Branch has been assigned the overall responsibility for managing the content and technical accuracy of all of the Special Event procedures including the Fire Safe Shutdown procedures. An individual knowledgeable in the details of the LGS fire safe shutdown analysis will be involved in reviewing proposed changes when appropriate.

Extensive changes in the modification process have been implemented since the development of the OSC relocation modification. These changes are considered sufficient to address the modification process aspects of the deficient modification.

Date When Full Compliance was Achieved

Full compliance was achieved on July 26, 1996, when the immediate corrective actions described above were implemented. These immediate corrective actions re-established the minimum operator capability and knowledge necessary to correct the noted deficiencies.