



PECO NUCLEAR

A Unit of PECO Energy

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10CFR50.73

November 24, 1999
Docket Nos. 50-352
50-353
License No. NPF-39
NPF-85

U.S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555

SUBJECT: Licensee Event Report
Limerick Generating Station - Units 1 & 2

This LER reports a condition prohibited by Technical Specifications that was also outside the design basis of the plant. During receipt of Shoreham irradiated fuel assemblies in 1993 and 1994, the fuel shipping cask was lifted from the rail car without Refueling Area Secondary Containment Integrity established. In addition, redundant rigging was not used for one portion of the cask lift activity, contrary to UFSAR requirements.

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| Reference: | Docket No. 50-352/353 |
| Report Number: | 1-99-014 |
| Revision Number: | 00 |
| Event Date: | April 8, 1993 |
| Discovery Date: | November 1, 1999 |
| Report Date: | November 24, 1999 |
| Facility: | Limerick Generating Station P.O. Box 2300, Sanatoga, PA 19464 |

This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B) and 10CFR50.73(a)(2)(ii).

Very truly yours,

cc: H. J. Miller, Administrator Region I, USNRC
A. L. Burritt, USNRC Senior Resident Inspector, LGS

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| NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION (6-1998) | APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001 Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection. |
| LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block) | |

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|--|---|---------------------------|
| FACILITY NAME (1) Limerick Generating Station, Units 1 and 2 | DOCKET NUMBER (2) 05000352/05000353 | PAGE (3) 1 OF 3 |
|--|---|---------------------------|

TITLE (4)
Fuel Shipping Cask Lifted from Rail Car Without Refueling Area Secondary Containment Integrity Established

| EVENT DATE (5) | | | LER NUMBER (6) | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|----------------|-----|------|----------------|-------------------|-----------------|-----------------|-----|------|-------------------------------|---------------|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 04 | 08 | 1993 | 1999 | -- 014 | -- 00 | 11 | 24 | 1999 | | 05000 |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |

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|---------------------------|-----|--|--|-------------------|-------------------------------------|------------------|--|---|--|--|
| OPERATING MODE (9) | 1 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) | | | | | | | | |
| | | 20.2201(b) | | 20.2203(a)(2)(v) | <input checked="" type="checkbox"/> | 50.73(a)(2)(i) | | 50.73(a)(2)(viii) | | |
| POWER LEVEL (10) | 100 | 20.2203(a)(1) | | 20.2203(a)(3)(i) | <input checked="" type="checkbox"/> | 50.73(a)(2)(ii) | | 50.73(a)(2)(x) | | |
| | | 20.2203(a)(2)(i) | | 20.2203(a)(3)(ii) | | 50.73(a)(2)(iii) | | 73.71 | | |
| | | 20.2203(a)(2)(ii) | | 20.2203(a)(4) | | 50.73(a)(2)(iv) | | OTHER | | |
| | | 20.2203(a)(2)(iii) | | 50.36(c)(1) | | 50.73(a)(2)(v) | | Specify in Abstract below or in NRC Form 366A | | |
| | | 20.2203(a)(2)(iv) | | 50.36(c)(2) | | 50.73(a)(2)(vii) | | | | |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|--|---|
| NAME K. P. Bersticker, Manager - Experience Assessment | TELEPHONE NUMBER (Include Area Code) (610) 718-3400 |
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX |
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| SUPPLEMENTAL REPORT EXPECTED (14) | | | | EXPECTED SUBMISSION DATE (15) | | |
| <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE). | <input checked="" type="checkbox"/> NO | | | | | |

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On November 1, 1999, an event investigation due to current spent fuel shipping activities determined that previous receipt and handling of 33 Shoreham irradiated fuel casks was not in conformance with the plant design bases and Technical Specifications (TS). During receipt of Shoreham irradiated fuel assemblies in 1993 and 1994, the fuel shipping casks were handled without secondary containment integrity established. In addition, a portion of the fuel shipping cask handling activity was performed without redundant rigging, contrary to the requirements specified in the plant Updated Final Safety Analysis Report (UFSAR).

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| | 05000 | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | 2 OF |
| Limerick Generating Station Units 1 and 2 | -352/-353 | 1999 | 014 | 00 | 3 |

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Background

At the time of the event, Unit 1 was in Operational Condition (OPCON) 1 (Power Operation) at 100% power level. Unit 2 was in Operational Condition (OPCON) 1 (Power Operation) at 100% power level. There were no systems, structures, or components out of service that contributed to this event.

Issue Description

On June 25, 1999, the Plant Operations Review Committee (PORC) reviewed a 10CFR50.59 determination for procedure M-053-006, NLI-1/2 Spent Fuel Shipping Cask Preparation and Loading, that proposed handling a fuel shipping cask without single failure proof rigging. PORC determined further clarity was needed in regard to acceptability of the proposed non-single failure proof lift and recommended the 10CFR50.59 determination be expanded to a safety evaluation. During the event investigation following the PORC meeting, it was discovered that receipt of Shoreham irradiated fuel assemblies in 1993 and 1994 was not performed in conformance with plant TS or plant design bases.

During receipt of Shoreham fuel, Refueling Area Secondary Containment Integrity was not established as required by TS. The approved procedure for this activity did not require establishing Refueling Area Secondary Containment Integrity. The 10CFR50.59 determination for this procedure incorrectly took credit for spent fuel shipping cask integrity in lieu of secondary containment integrity.

In addition, the spent fuel shipping cask valve box covers were removed from the casks prior to upending to the vertical position and lifting them from the railway car. The removal of these safety related valve box covers placed the cask in a less secure configuration than the "transportation ready" configuration that was analyzed by the vendor in accordance with 10CFR71(reference IN 99-15).

Personnel involved assumed that since the CSAR called for the valve covers to be removed that the cask was still in a condition to provide its own containment. The site procedure provided the option of closing the railway bay door following the movement of the railway car into the railroad bay. However, this option was not implemented.

Further, the LGS design basis assumed that all cask handling would be performed with redundant lifting devices, thereby precluding a cask drop accident. The short lift of the cask to upend from the horizontal to the vertical position on the rear of the railway car is believed to have been performed relying solely on engagement of the lift device with two cask lifting trunnions. The CSAR for the IF-300 shipping cask indicates that during the lift to the vertical position with an assumed load of 3 times the weight of the cask applied to 2 trunnions, that the safety factor of the trunnion to material yield strength is 1.18.

Therefore, the lift in part was not performed with redundant lifting devices. This is contrary to statements in the 50.59 review. The current LGS UFSAR acknowledges acceptability of meeting single failure proof criteria through higher safety factors.

Lifting the loaded fuel cask without establishing plant secondary containment represents a violation of TS 3.6.5.1.2., Refueling Area Secondary Containment Integrity. Additionally, failure to employ a redundant rigging in upending the cask represents an lift outside the plant design basis.

This 30-day follow-up report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(ii) and 10CFR50.73(a)(2)(i)(B).

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| Limerick Generating Station Units 1 and 2 | -352/-353 | 1999 | 014 | 00 | 3 |

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Cause of the Event

The cause of the event was a deficient approved procedure in the movement of Shoreham irradiated fuel that did not require establishment of secondary containment. The 50.59 determination that supported this procedure incorrectly determined that secondary containment was not required while handling the loaded spent fuel cask. Further, the procedure permitted a portion of the lift to be performed without using redundant rigging, contrary to the 50.59 determination.

Consequences of the Event

There were no actual consequences of this event. No release of radioactive material to the environment occurred nor was the cask or fuel damaged in any way. The potential consequences of this event were also minimal. The Shoreham fuel was "burned" for a very short period of time at low power. Therefore, fission product accumulation was very small. Had the cask been dropped during the upending process, the damage to the cask and fuel would likely have been minimal. The drop height would have been a small fraction of the cask safety analysis drop height (30 ft) and no safety related equipment was present in the airlock.

Corrective Actions Completed

Site specific procedure (GP-9 III) has been revised to require Refueling Area Secondary Integrity be operable when handling a loaded cask inside Refueling Area Secondary Containment.

Site specific procedure (M-053-006) has been changed to require single failure proof rigging in all phases of cask lifting activities.

Site specific procedure (ON-111) has been revised such that should secondary containment be lost, cask lifting activity will be suspended.

Since this event occurred, several enhancements to the 10CFR50.59 program have been implemented. Procedures LR-C-13 & LR-CG-13 (10CFR50.59 Reviews) have been issued to provide guidance to reviewers. A training qualification has been established for reviewers. Training sessions have also been provided.

Corrective Actions Planned

The common procedure (A-C-190) will be revised to clearly require the establishment of secondary containment and single failure proof lifts for fuel casks in the Refueling Area by March 31, 2000.

Previous Similar Occurrences

There were no previous similar occurrences of handling irradiated fuel without Refueling Area Secondary Containment established or spent fuel cask lifts without redundant rigging.

Refer to IN 99-15 for similar industry events.