

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT No. 50-322/^{26/2/92}~~91-03~~91-06
LICENSE No. NPF-82
LICENSEE: Long Island Lighting Company (through February 29, 1992)
P.O. Box 618, North Country Road
Wading River, New York 11792

Long Island Power Authority (starting March 1, 1992)
P.O. Box 628, North Country Road
Wading River, New York 11792

FACILITY NAME: Shoreham Nuclear Power Station

DATES: October 6, 1991 - March 28, 1992

INSPECTOR: B. Norris, Project Inspector (Shoreham)
B. Korona, Reactor Engineer (Intern)

INSPECTOR: B. Norris Apr 13, 1992
B. S. Norris Date
Project Inspector (Shoreham)

APPROVED BY: L. T. Doerflein 4/16/92
L. T. Doerflein, Chief Date
Reactor Projects Section 2B

AREAS INSPECTED:

On-site and in-office inspection by Region I staff, consisting of facility tours, system layup review, housekeeping, radiological controls, surveillance and maintenance activities, licensed operator requalification program, physical plant security, pre-decommissioning activities, license transfer, and review of various licensee reports.

EXECUTIVE SUMMARY

FACILITY STATUS

On February 29, 1992, the NRC issued an order approving the transfer of the license to LIPA, the Order was effective immediately. Two conditions of the Order are that the license will revert back to LILCo if LIPA ceases to exist or is otherwise found to be unqualified to hold the license; and that LILCo must retain and maintain adequate capability and qualification to take over the license promptly, if necessary. LIPA and LILCo have submitted a Joint Contingency Plan describing the methodology to ensure a safe, smooth and orderly transfer of the Shoreham license from LIPA to LILCo, if required. The Contingency Plan is under review by the NRC's Office of Nuclear Reactor Regulation.

SURVEILLANCE AND MAINTENANCE

The inspector reviewed work in progress and/or the documentation associated with the bore sampling of the reactor vessel and shield wall, the segmentation and removal of the biological shield blocks and drywell head, the removal of the control rod drives and the thermal sleeves, decontamination activities, removal of interferences in the reactor building, and a channel functional test of the fire detection detectors. No deficiencies were identified.

QUALITY CONTROL

During the review of the maintenance packages associated with the segmentation and lifting of the shield blocks, the inspector identified that the Quality Control Pre-Inspection Checklist portion of the Maintenance Work Request Traveler Inspection Pre-Plan had not been completed. The inspector considered the occurrence to be an isolated case that met the requirements of 10 CFR 2, Appendix C, Section V.A, for a Non-Cited Violation.

RADIOLOGICAL CONTROLS

The ALARA program results for 1991 were reviewed and found to have met and exceeded the goal established by LILCo. The goal for the year was 1000 millirem, the actual exposure received by station personnel was 470 millirem. The program continues to focus on plant activities that have a potential for personnel exposure, with an emphasis on pre-decommissioning work. Radiation survey sheets and area postings are clearly displayed.

SECURITY

A revised Security Plan for Shoreham was implemented on February 17, 1992. The new plan reduced the protected area to the refueling floor only.

EXECUTIVE SUMMARY (cont.)

HOUSEKEEPING

The inspector noted that the cleanliness of the plant, especially the on-going work areas, was much improved. Systems and locations were well marked, areas were well lit, and maintenance materials were in order. Where required, fire watches were posted and the fire watch tour sheets were appropriately completed.

PACIFIC NUCLEAR PRESENTATION OF FUEL OPTIONS

The inspector attended a presentation on the Pacific Nuclear NUHOMS method of spent fuel storage and transportation. Pacific Nuclear recommended to the licensee the IF-300 cask with a 17B canister. The NUHOMS method utilizes a helium-filled canister with internal supports and channels for fuel bundles. The fuel bundles are transferred from the spent fuel pool to an on site Interim Spent Fuel Storage Installation (ISFSI). The NUHOMS method has been used at two other sites, H. B. Robinson and Oconee. The major difference in the suggested design for the Shoreham station is the use of prefabricated bunkers vice the construction of the bunkers on site. With this new modification, the bunkers become mobile, allowing transportation to another location. Pacific Nuclear estimated that the project would take close to five years to complete.

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DETAILS

1.0 FACILITY STATUS

The Shoreham Nuclear Power Station was shut down in 1989, due to an agreement between the State of New York and the Long Island Lighting Company (LILCo), the original owner and operator of Shoreham. The maximum power attained prior to the agreement was 5% reactor power, with a total core history of 2 megawatt (MW) days. The reactor is defueled with the fuel in the spent fuel pool, and all non-essential systems are in a layup condition. Many of the larger pumps and motor operated valves have been removed for possible salvage. The facility is maintained in a manner consistent with license requirements.

In June 1991, a Possession Only License (POL) was issued to LILCo; the POL became effective on July 19, 1991. By the POL, Shoreham was prohibited from operating the facility at any power level; but Shoreham was allowed to conduct activities (such as decontamination, component disassembly, and interference removal) which would not preclude any decommissioning options or substantially affect the cost of decommissioning.

LILCo and the Long Island Power Authority (LIPA) jointly submitted to the NRC a request for the Shoreham license to be transferred from LILCo to LIPA. Subsequent to that request, on February 29, 1992, the NRC issued an order approving the transfer of the license to LIPA; the Order was effective immediately. Two conditions of the Order are that the license will revert back to LILCo if LIPA ceases to exist or is otherwise found to be unqualified to hold the license; and that LILCo must retain and maintain adequate capability and qualification to take over the license promptly, if necessary. On March 27, 1992, LIPA and LILCo submitted a Joint Contingency Plan describing the methodology to ensure a safe, smooth and orderly transfer of the Shoreham license from LIPA to LILCo, if required. The Plan details: (1) the immediate actions that would be taken at the time it is determined that transfer to LILCo is required, (2) the means by which LILCo will maintain adequate capability and qualifications to implement the immediate actions, and (3) the actions that have been or will be taken by LILCo and LIPA to facilitate the prompt implementation of the immediate actions. The Contingency Plan is under review by the NRC's Office of Nuclear Reactor Regulation (NRR).

2.0 SURVEILLANCE AND MAINTENANCE (37700, 42700, 62703, 71707)¹

The inspector reviewed work in progress and/or the documentation associated with the bore sampling of the reactor vessel and shield wall, the segmentation and removal of the biological shield blocks and drywell head, the removal of the control rod drives and the thermal sleeves, decontamination activities, removal of interferences in the reactor building, and a channel functional test of the fire detection detectors. The documentation reviewed is included as part of Attachment 1.

¹ The inspection procedure from NRC Manual Chapter 2515 that the inspectors used as guidance is parenthetically listed for each report section.

During the review of the Shoreham Decommissioning Plan by the NRC Office of Nuclear Material Safety and Safeguards, a concern was identified regarding the lifting of the segmented shield blocks over the spent fuel pool. The inspector reviewed the procedures associated with the crane operations on the refueling floor, and the training records of the crane operators. It was determined that no physical or electronic interlocks prevent the loads from being moved over the spent fuel pool. However, adequate administrative controls already exist to minimize the possibility of any loads being positioned over the spent fuel pool: (1) loads are only lifted high enough to clear guard rails, and (2) safe load paths are designated by Engineering via Station Modification Packages. The work was controlled in accordance with the administrative procedures associated with the Maintenance Work Request (MWR) process. The work packages were at the job sites. The inspector concluded the activities were well planned, all maintenance work was done in accordance with approved procedures, and other departments (e.g.: Quality Control (QC), Health Physics (HP), etc.) were usually involved, as appropriate. However, there was an instance where the QC inspector did not complete all of the appropriate checklists prior to work commencing; see Section 3.0 for details.

3.0 QUALITY CONTROL

On January 15, 1992, during the review of the MWRs associated with the segmentation of the shield blocks and the subsequent lifting of the segmented pieces (MWR 91-1475 and MWR 91-1476, respectively), the inspector identified that the Quality Control (QC) Pre-Inspection Checklist portion of the MWR Traveler Inspection Pre-Plan for MWR 91-1745 had not been completed. The inspector reviewed the checklist to determine if any immediate personal safety or significant radiological concerns existed.

The inspector discussed the condition with the responsible QC inspector, and was told that he had been late in arriving at the work site. Further discussions with QC management identified that the QC inspector was relatively new to Shoreham; however, they agreed that the Checklist should have been completed prior to work being allowed to commence. The next day, the Quality Assurance department issued a Deficiency Report (LDR 92-004) to document the condition, and track the issue to resolution.

Based on the low safety significance, the corrective action taken by the facility, and the isolated occurrence, the inspector determined that this violation met the requirements of 10 CFR 2, Appendix C, Section V.A, for a Non-Cited Violation.

4.0 RADIOLOGICAL CONTROLS (86750)

During tours of the facility, observation of maintenance activities, and interviews with plant staff, the inspector verified that personnel involved in radioactive work were attentive to minimizing occupational exposure.

The ALARA (as low as reasonably achievable) program results for 1991 were reviewed and found to have met and exceeded the goal established by LILCO. The goal for the year was

1000 millirem, the actual exposure received by station personnel was 470 millirem. The program continues to focus on plant activities that have a potential for personnel exposure, with an emphasis on pre-decommissioning work. Radiation survey sheets and area postings are clearly displayed.

The inspector reviewed the preliminary results of the reactor vessel and shield wall bore sampling. The sampling consisted of fifteen two-inch holes bored through the shield wall and the reactor vessel. The purpose of the sampling was to confirm LILCo's initial estimate of activation levels prior to the start of decommission. The results substantiated the earlier estimates.

5.0 SECURITY

A revised Security Plan for Shoreham was implemented on February 17, 1992. The new plan reduced the protected area to the refueling floor only. The inspector reviewed the implementation of the new requirements and found them acceptable.

6.0 HOUSEKEEPING

During most plant walk-throughs of the reactor and turbine buildings, radioactive waste facility, and other support areas, the inspector observed that the housekeeping and material condition of the plant were generally good. The inspector noted that the cleanliness of the on-going work areas was much improved. Systems and locations were well marked, areas were well lit, and maintenance materials were in order. Where required, fire watches were posted and the fire watch tour sheets were appropriately completed.

7.0 PACIFIC NUCLEAR PRESENTATION OF FUEL OPTIONS

On March 25, 1992, the inspector attended a presentation on the Pacific Nuclear NUHOMS method of spent fuel storage and transportation. Pacific Nuclear recommended to the licensee the IF-300 cask with a 17B canister.

The NUHOMS method utilizes a helium-filled canister with internal supports and channels for fuel bundles. The canister is placed inside of a transportation cask and lowered into the spent fuel pool. The fuel bundles are loaded into the canister under water. When the canister is filled, it is removed from the water, drained, dried, and decontaminated. The cask is then transported to the Interim Spent Fuel Storage Installation (ISFSI). The canisters are transferred, using a horizontal ram arrangement, from the transportation cask to prefabricated concrete bunkers. The bunker is then sealed with concrete slab.

The NUHOMS method has been used at two other sites, H. B. Robinson and Oconee. The major difference in the suggested design for the Shoreham station is the use of prefabricated bunkers vice the construction of the bunkers on site. With this new modification, the bunkers

become mobile, allowing transportation to another location. Pacific Nuclear estimated that Shoreham would need 33 canisters and storage bunkers.

The current 10 CFR 71 certification for the NUHOMS IF-300 cask will have to be amended for the 17B canister, since a different canister was used in the past. Because it could be ten years before these modules are moved, the licensee will also need a license which would allow the transport of the canisters at a later date without further NRC review.

Pacific Nuclear estimates that the total time required for NRC licensing, cask recertification, construction of the canisters and the ISFSI, and the actual movement of the fuel could take almost five years. This is one of several options being considered by Shoreham for disposal of the fuel.

8.0 REVIEW OF PERIODIC AND SPECIAL REPORTS (90713)

The documents listed in Attachment 1 were reviewed to verify that the information was technically adequate, submitted in a timely manner, and satisfied the appropriate reporting requirements, as required. No problems were observed in this area.

9.0 MANAGEMENT MEETINGS (30702, 94702)

9.1 Daily Management Meetings

The inspector attended the morning and afternoon management meetings. The meetings were conducted in a professional manner and involved key plant staff members. Equipment status was reviewed, planned surveillance and maintenance activities were discussed, and significant events and meetings were announced. These meetings provide the opportunity to floor issues of importance, monitor progress, and resolve any logistic problems that arise. Senior management was interested in all aspects of site activities and continues to express the concept to the first line supervisors of attention to detail.

With the issuance of the Possession Only License, the LIPA Resident Manager and some of his staff started to attend the daily meetings and became more involved in understanding the day-to-day routine of Shoreham. This involvement should help to facilitate a smooth transition of the license to LIPA.

9.2 Exit Meeting

The issues within this report were discussed with licensee management throughout the inspection period. A verbal summary was provided by Mr. B. Norris to Mr. L. Calone, LILCo Plant Manager, and Mr. L. Hill, LIPA Resident Manager, at a meeting on March 25, 1992, at the Shoreham site. Region I review of this report and discussions with licensee representatives, determined that this report does not contain any proprietary information or safeguards information subject to 10 CFR 2.790 restrictions.

9.3 Additional NRC Inspections this Period

<u>Date</u>	<u>Subject</u>	<u>Report No.</u>	<u>Inspector</u>
February 20, 1992	Physical Security	50-322/92-02	D. Limroth
February 21, 1992	Effluent Controls Program & Radiological Environmental Monitoring Program	50-322/92-01	J. Kottan

LIST OF ATTACHMENTS

Attachment 1 Documents Reviewed

Attachment 1

Documents Reviewed

ATTACHMENT 1

DOCUMENTS REVIEWED

LILCO NED SAFETY EVALUATION REPORTS

91-020	91-021	91-022	91-023	91-025	91-026
91-027	91-028	91-029	91-030	91-031	92-002

LILCO NED SAFETY EVALUATION CHECKLISTS

91-011-019	91-011-033	91-011-034	91-011-037	91-011-042	91-011-044
91-011-045	91-011-046	91-011-047	91-011-048	91-011-049	91-011-050
91-011-052	91-011-053	91-011-054	91-011-056	91-011-057	91-011-060
91-011-062	91-011-063	91-011-064	91-011-067	91-011-067	91-011-068
91-011-070	91-011-072	91-011-073	91-011-074		

STONE & WEBSTER SAFETY EVALUATIONS

90-034	90-038	91-003	91-009	91-014	92-002
92-003	92-004	92-005			

LILCO DEFICIENCY REPORTS

Open:

91-051	91-052	91-053	91-054	92-001	92-002
92-003	92-004	92-005	92-007	92-008	92-009
92-010	92-012				

Closed:

89-020	89-070	89-147	89-173	89-205	89-209B
89-213	90-002	90-034	90-061	90-086	90-095
90-096	90-100	90-101	90-104	90-105	90-106
90-109	90-110	90-113	90-114	90-116	90-118
90-119	90-120	90-122	90-123	90-125	90-126
90-127	90-128	91-001	91-003	91-004	91-005
91-008	91-009	91-010	91-011	91-012	91-013
91-014	91-015	91-016	91-017	91-018	91-019
91-020	91-021	91-022	91-023	91-024	91-025
91-027	91-028	91-029	91-031	91-032	91-033
91-034	91-035	91-036	91-039	91-041	91-045
91-046	91-048	91-049	91-050	91-052	91-054

LIPA DEFICIENCY REPORTS

Open:

92X001 92X002

LILCO PROCEDURES

- QAP(DSAR)-10.6, Rev 0, "Review of Maintenance Work Requests"
- SP-12X011.01, Rev 1, "Station Equipment Clearance Permits"
- SP-31.001.01, Rev 13, "Training and Qualification of LILCO Maintenance Personnel"
- SP-32.002.01, Rev 10, "Reactor Building Crane Operations and Preventive Maintenance"
- SP-32.704.05, Rev 3, "Spent Fuel Pool Jib Cranes - Inspection and Operation"
- SP-32.704.08, Rev 11, "Refueling Platform, Auxiliary Hoists, and Fuel Grapple Operation"
- SP-34.001.01, Rev 12, "Reactor Building Crane Hoist, Sling and Cable Operability Test"
- SP-34.001.02, Rev 12, "Refueling Platform: Main Grapple and Auxiliary Hoists: Surveillance Operability Tests, Load Cell Calibration and Preventative Maintenance Inspections"
- SP-35.001.01, Rev 10, "Handling of Heavy Loads with Reactor Building Polar Crane 1T31-CRN-002"
- SP-29X001.01, Rev 1, "Acts of Nature, Emergency Procedure"
- SP-29X002.02, Rev 1, "Abnormal Radiation Release (Liquid), Emergency Procedure"
- SP-29X009.01, Rev 1, "Fuel Handling Accident, Emergency Procedure"
- SP-29X015.01, Rev 0, "Loss of Off-Site Power, Emergency Procedure"
- SP-29X015.02, Rev 0, "Loss of All AC Power, Emergency Procedure"
- TP-23X621.03, Rev 1, "Reactor Pressure Vessel Fill, Filtering, Level Monitoring, Draining, and Restoration Procedure"

OTHER REPORTS

- Safeguards Event Log for 7/1-9/30/91, dated October 29, 1991
- Safeguards Event Log for 10/1-12/31/91, dated January 28, 1992
- LIPA's License Transfer Readiness Self-Assessment (October 1991)
- LIPA's Decommissioning Readiness Self-Assessment (March 1992)
- Nuclear Review Board Meeting notes for December 17, 1991
- Preliminary Results of the Reactor Pressure Vessel and Shield Wall Borings (dated December 6, 1991)
- Training Records of Crane Operators
- Semi-Annual Radiation Effluent Release Report (dated February 27, 1992)
- Annual Man-Rem Report (dated February 27, 1992)
- Fitness-for-Duty Program Performance for July-December, 1991 (dated February 28, 1992)
- Joint LILCO/LIPA Contingency Plan Required by NRC Order Approving Transfer of License