

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-322/84-48

Docket No. 50-322

License No. NPF-19 Priority -- Category C

Licensee: Long Island Lighting Company  
P. O. Box 618  
Wading River, New York 11792

Facility Name: Shoreham Nuclear Power Station

Inspection At: Shoreham, New York

Inspection Conducted: December 10-21, 1984

Inspectors:

S. Kucharski

S. Kucharski, Reactor Engineer

N. Blumberg

N. Blumberg, Lead Reactor Engineer

Approved by:

L. Bettenhausen

L. Bettenhausen, Chief, Test Program Branch, DRS

3/18/85  
date

3/18/85  
date

3/18/85  
date

Inspection Summary:

Inspection on December 10-21, 1984 (Inspection Report No. 50-322/84-48)

Areas Inspected: A routine unannounced inspection of licensee action on previous inspection findings, actions to preclude potential loss of all AC power during startup testing, compliance with Technical Specifications applicable to initial fuel loading, pre-fuel load operations, and QA/QC interfaces. The inspection involved 100 inspector hours onsite by two region-based NRC inspectors.

Results: One violation was identified and is detailed in paragraph 5.3. This paragraph contains safeguards information.

## DETAILS

### 1. Persons Contacted

#### Licensee Representatives, Contractors and Consultants

- \* J. Alexander, Reactor Engineer - LILCO
- D. Bouchie, Lead Startup Test Director & Analysis (STD&A) - General Electric (GE)
- \* L. Brilt, Manager, Nuclear Licensing - LILCO
- \* W. Burnett, Compliance Engineer - IMPELL Consultant
- \* J. Devlin, Security Administrative Supervisor - LILCO
- \* R. Grunseich, Supervisor, Nuclear Licensing - LILCO
- \* R. Loper, Operations Staff Manager - LILCO
- \* J. Morin, Manager, Nuclear Services - LILCO
- \* A. Muller, Division Manager, Quality Control - LILCO
- \* R. Reen, Site Security Supervisor - LILCO
- \* G. Rhoads, Compliance Engineer - IMPELL Consultant
- J. Riley, Operations Manager - G.E.
- J. Scalice, Operations Manager - LILCO
- \* J. Smith, Manager, Nuclear Operations Support Dept. - LILCO
- W. Steiger, Jr., Plant Manager - LILCO
- J. Wynne, Operational Compliance - LILCO

#### USNRC

- \* P. Eselgroth, Senior Resident Inspector

The inspector interviewed other licensee personnel including reactor operators, refueling bridge operators, security personnel, health physics personnel and quality control inspectors.

\* denotes those present at exit interview conducted on December 21, 1984

### 2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (50-322/84-47-01): STP-12, "APRM Calibration", paragraph 6.2, did not meet guidelines of Regulatory 1.68, Appendix C, which state that prior to ascending to the next test level, the high flux trips are to be set no greater than 20% beyond the power of the next test level. The inspector reviewed STP-12 and verified that the procedure was revised so that the APRM neutron flux upscale trip setpoints for each test level have been reduced to conform to the guidelines of R.G. 1.68. This item is closed.

### 3. Licensee Actions Regarding IE Information Notice No. 84-76, "Loss of All AC Power"

IEN 84-76 was issued on October 19, 1984 and concerned an incident at Susquehanna Steam Electric Station Unit 2 in which all A/C power was lost for eleven minutes while performing an initial startup test "Loss of Tur-

bine Generator and Offsite Power". Since Shoreham Nuclear Power Station will perform a similar test during its startup test program, the inspector performed a review to determine what actions, if any, the licensee had taken to assure a similar incident would not occur at Shoreham.

The inspector reviewed a licensee internal memorandum addressing IEN 84-76 which stated the following:

- STP-31, "Loss of Turbine-Generator and Offsite Power", does not require any abnormal electrical lineup or racking out of any breakers prior to initiation.
- There are no knife switches located in the main feeder breaker cubicles. The emergency bus program is powered through fuses rather than knife switches. These fuses are located in the Service Water Pump Breaker Cubicles rather than in the main feeder breaker cubicles.
- The emergency bus program fuses are clearly labeled with a distinctive metal label that is different from other fuse labels. Also, there is a similar, but much larger label on the outside of each Service Water Pump Breaker cubicle that warns the operator that the fuses are inside.

The inspector independently verified that the emergency bus program fuses are located in the Service Water Pump cubicles and are clearly and distinctively labeled as noted above. It would be unlikely for the confusion in labeling to happen at Shoreham as happened at Susquehanna. The inspector also reviewed STP-31 and confirmed that there are no abnormal electrical lineups (other than causing all offsite power to be lost) or racking out of any breakers to perform the procedure.

The inspector reviewed drawings ESK-5R2217, 5R2218, and 5R2219 and alarm response procedures (ARP's) 0300, 0301, and 0302 and determined that the removal of the DC power fuses will cause annunciators to alarm in the Control Room. Additionally, inspector visually verified that these alarms are in the Control Room.

The IEN 84-76 stated that the causes of the loss of AC power event were:

- Operator error;
- Inadequate operator training;
- Imprecise procedures;
- Ineffective independent verification; and
- Inadequate implementation of corrective actions for previously identified problems.

The inspector reviewed each area with licensee representatives and determined the following:

- Operator Error - The proper labeling of fuses and their location in a separate cubicle minimizes the chances of operator error. Also, the annunciators in the Control Room would notify the operators should the DC Control power fuses be incorrectly pulled.
- Inadequate operator training - The inspector reviewed training procedure "Guidelines for Operation and Use of 4KV Circuit Breakers at S.N.P.S.". This procedure detailed instructions for racking breakers in and out. Licensee representatives stated that all plant operators were given demonstrations on proper breaker operation and in turn had to demonstrate proper operation as part of their training.
- Imprecise procedures: Licensee representatives stated that there were no formally issued operating procedures for breaker operations.
- Ineffective independent verification - The inspector reviewed station procedures 12.011.01, "Station Equipment Clearance Permits" and 12.035.01, "Control of Lifted Leads and jumpers". Both procedures extensively discuss use of independent verification and recommend but do not require that the independent verification be separate from the original verification. The inspector held discussions with several plant operators who stated that their verbal instructions were never to perform an independent verification concurrently with the original verification.
- Inadequate corrective action for a similar previously identified problem. This item is not applicable to Shoreham as there has not been a similar previous incident at Shoreham.

IEN 84-76 also discussed the fact that the Emergency Diesel Generators at Susquehanna were unable to supply AC power to the emergency buses during this incident. However, the cause(s) of this problem was not discussed in IEN 84-76. SNPS will ultimately have six (three TDI and three Colt) safety related emergency diesel generators. Because of past problems, these diesel generators will have been comprehensively tested by the time power operation takes place. Although not yet developed, the licensee will have established a logic for use of the six EDG's. Hence, the concurrent loss of all six EDG's appears to be unlikely.

Based on the above review, the inspector determined that an event similar to that which happened at Susquehanna would be much less likely to occur at Shoreham Nuclear Power Station.

#### 4. Technical Specification Review

The inspector reviewed the station procedures listed below to determine if the surveillance requirements of Technical Specifications (T.S.) Section 4/9 - "Refueling Operations" and 4/10 - "Special Test Exceptions" had been

incorporated into station surveillance test procedures. All of T.S. sections 4/9 and 4/10 were reviewed:

- SP 22.008.01, Operational Surveillance, Revision 4, November 30, 1984
- SP 24.608.01, Refueling Interlock Test, Revision Test, Revision 4, April 30, 1984
- SP 24.601.01, S.R.M. Functional (Back Panel) Test, Revision 4, May 23, 1984
- SP 34.001.02, Refueling Platform, Main Grapple, Aux Hoists Operability Testing and Inspection Revision 5, December 12, 1984
- SP 54.001.0 , Shutdown Margin Check, Revision 5, November 21, 1984

#### 4.1 Findings

Two surveillance requirements, 4.9.2.d which requires the verification that the shorting link have been removed within 8 hours and at least once per shift during the time any control rod is withdrawn or shutdown margin demonstration, and 4.9.3.a.2 which requires the verification that all control rods are inserted within 2 hours prior to the withdrawal of one control rod under the control of the reactor mode switch refuel position one-rod-out interlock, were not incorporated in SP 22.008.01, "Operational Surveillances". Subsequently, the licensee revised the procedure to incorporate the omitted surveillances. The inspector had no further questions concerning this item.

### 5. Pre-Fuel Load Operations

#### 5.1 Pre-Fuel Load Witnessing

The following pre-fuel load activities were witnessed by the NRC inspector:

- The unloading and loading of the reactor core neutron sources
- Assembly of a Fuel Loading Chamber
- The reorientation of a double blade guide
- Verification of fuel support pieces for proper orientation
- Health Physics controls with the above activities
- Quality Assurance interfaces with the above activities

#### 5.2 Test Observations

On December 12, 1984, during the loading of the sources, the licensee had problems releasing the source from the source tool. After the licensee's investigation into the matter, it was discovered that the tolerances between the source and the tool were too close and hydraulic lock would form during the operation. The licensee performed two alterations to the tool and continued on with the source loading with no further problems.

5.3 Findings

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6. QA/QC Interfaces

The inspector observed that there was quality control (QC) inspector coverage for all shifts during the pre-fuel load activities. QC inspectors were performing surveillances of the neutron source handling using prepared QC check lists. They were also reviewing various other procedures to make sure all the required signatures were there before commencing various activities.

The NRC inspector reviewed the QC checklists and held discussions with QC inspectors concerning their responsibilities.

No violation or deficiencies were identified.

7. Management Meetings

Licensee management was informed of the scope and purpose of the inspection on December 10, 1984. The findings of the inspection were periodically discussed with licensee representatives during the course of the inspection. An exit interview was conducted on December 21, 1984 (see paragraph 1 for attendees) at which time the findings of the inspection were presented.

At no time during this inspection was written material provided to the licensee by the inspectors.