

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-322/85-38

Docket No. 50-322

License No. NPF-39 Priority - Category C

Licensee: Long Island Lighting Company

P. O. Box 618

Shoreham Nuclear Power Station

Wading River, New York 11792

Facility Name: Shoreham Nuclear Power Station

Inspection At: Wading River, New York

Inspection Conducted: October 21 - 25, 1985

Inspector: W. J. Paschiak  
R. L. Nimitz, Senior Radiation Specialist

11/20/85  
date

Approved by: W. J. Paschiak  
W. J. Paschiak, Chief, BWR  
Radiation Safety Section

11/20/85  
date

Inspection Summary: Inspection on October 21 - 25, 1985 (Report Number 50-322/85-38)

Areas Inspected: Routine unannounced radiological controls inspection of the following: previous findings; start-up survey program; preop and start-up testing of the off-gas system; high radiation area controls; radiological controls during source change out. The inspection involved 30 inspection hours on site by one region-based inspector.

Results: No violations were identified.

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## DETAILS OF INSPECTION

### 1.0 Individuals Contacted

#### 1.1 Long Island Lighting Company

- \*P. Pizzariello, Maintenance Engineer
- \*W. Steiger, Plant Manager
- \*B. R. McCaffrey, Assistant to V.P. Nuclear
- \*M. Villaran, Compliance Engineer
- \*R. W. Grunseich, Operations Compliance Engineer
- \*K. K. Taylor, Section Head, Radiological Assessment
- \*G. J. Gisonda, Supervisor Nuclear Licensing
- \*R. J. Petriek, Radiochemistry Engineer
- \*J. F. Alexander, Reactor Engineer
- \*J. H. Schmitt, Radiological Control Division Manager
- \*N. J. DiMascio, Health Physics Engineer

#### 1.2 Contractors

- \*D. R. Pucket, Jr., Emergency Planning, Impell
- \*B. P. M. Kobel, Nuclear Licensing, Impell
- \*J. Riley, GE Operations Manager, GE
- \*D. Bouchie, GE Lead Std & A Engineer, GE
- \*A. D. Himle, PATP Test Coordinator, GE

#### 1.3 Nuclear Regulatory Commission

- \*J. A. Berry, Senior Resident Inspector
- E. L. Conner, Project Engineer

\*Denotes those individuals attending the exit meeting on October 25, 1985.

The inspector also contacted other licensee or contractor personnel.

### 2.0 Purpose of Inspection

The purpose of this routine, unannounced radiological controls inspection was to examine the following:

- Licensee action on previous findings
- Start-up Survey Program
- Preoperational and Start-up Testing of the Off-gas System
- High Radiation Area Controls
- Routine Radiological Controls during Source Change Out

### 3.0 Licensee Action on Previous Findings

#### 3.1 (Open) Follow-up Item (50-322/83-19-04)

Licensee to determine if drywell atmosphere particulate sampling systems and effluent particulate and iodine sampling systems are capable of collecting representative samples. The licensee completed a comprehensive evaluation of the capability of the drywell particulate monitor to collect representative samples. The licensee found that approximately 20% of the particles were being lost during sample collection. The licensee had been using a particle loss value of 49% and stated that they will change applicable procedures to reflect a 20% loss. The licensee plans to perform another particle loss test after operation. Regarding representative sampling for particulate and iodine radioactivity in effluents, the licensee has initiated modifications to provide for simultaneous sampling of effluent to verify capability of installed monitors. The test will be performed during start-up and power operation. This matter remains open.

#### 3.2 (Closed) Follow-up Item (50-322/84-43-05)

Licensee to establish a Radioactive Waste System Operator Retraining Program. This matter was reviewed during Inspection 50-322/85-26. At that time, a new Follow-up Item (50-322/85-26-02) was established to provide for following of licensee progress in the area. This matter is closed for administrative purposes. (See Item 3.3)

#### 3.3 (Open) Follow-up Item (50-322/85-20-01)

Licensee to establish a Radioactive Waste System Operator Retraining Program. The licensee is currently in the process of establishing a defined retraining program. The licensee anticipates establishment of the program by December 31, 1985. This matter remains open.

NOTE: The following items are associated with a Special Inspection of the licensee's Post Accident Sampling and Monitoring capabilities. The majority of the items contain sub-parts. If it was determined that additional action was needed to satisfactorily address a particular sub-part of an item, the item was considered open pending further NRC review.

#### 3.3 (Open) Follow-up Item (50-322/85-04-01) Sub-Part A (Open)

##### Finding

Evaluate and establish appropriate sample system purge times to ensure a representative reactor coolant sample. Place such purge times in appropriate procedures.

### Inspector Evaluation

The licensee evaluated the sample line lengths and inside diameter cross sectional areas. The licensee selected a value of 3 line length of sample line as an acceptable purge volume. Appropriate time duration was calculated to obtain the 3 line volume purge for the longest sample. This time (9 minutes) is used for all lines using normal sample cooling. The licensee reduced this to 6 minutes when emergency back-up cooling is used. This corresponds to 2 line lengths and is acceptable. The following matter remains open:

- Provide verification that sample pump collects at 1 gpm.

### Sub-Part B (Closed)

#### Finding

Evaluate and modify the system and applicable procedures to provide for acceptable reactor coolant dissolved gas quantification.

### Inspector Evaluation

The licensee modified the sampling system arrangement to eliminate the system "dead leg" and the feed and bleed operation. Appropriate procedures have been revised to include changes necessitated by the modification. The adequacy of the modification was tested with argone/methane mixtures. The system provides proper quantification. A trapped volume method is used for dilution.

### Sub-Part C (Closed)

#### Finding

Revise reactor coolant sample collection procedures to ensure samples of relatively low dose rates can be collected consistent with sample dose rate limits specified in procedures.

### Inspector Evaluation

The licensee revised procedures to provide for collection of samples whose radiation exposure dose rate exceeds the background dose rate by a specific increment ( $<0.5$  mR/hr). Shield design reviews by the inspector indicate dose rates in the area of the detector would be low. Consequently the licensee could use installed equipment to dilute samples to low enough dose rates for direct analysis. The licensee has the capability to perform laboratory work on samples at  $<20$  R/hr.



3.4 (Open) Follow-up Item (50-293/85-04-02)Finding

Evaluate adequacy of reactor coolant sample cooling water sources. Provide backup water sources as needed.

Inspector Evaluation

The licensee evaluated the amount of cooling water which would be needed to collect PASS samples for 30 days. Additional water supplies were determined to be needed. The licensee is currently installing an emergency cooling system to cool PASS samples. The system (3 tanks at 600 gallon total volume) is mounted above the sample station to provide gravity feed and a pressure head. The following matters remain open. These matters should be addressed prior to exceeding 5% power.

- Complete installation of cooling water modification.
- Provide some means to periodically verify that the tanks are full of water and/or an alarm function to notify personnel of trouble with this important cooling water source.

3.5 (Closed) Follow-up Item (50-322/85-04-03)Finding

Provide procedure guidance for collection of undiluted reactor coolant samples for onsite laboratory analysis.

Inspector Evaluation

The licensee established a procedure to collect, dilute, and analyze samples with dose rates <20 R/hr (EPIP 2-9). For samples with dose rates greater than 20 R/hr, the licensee has provided for offsite laboratory analysis.

3.6 (Closed) Follow-up Item (50-322/85-04-04)Finding

Establish and approve procedures for transporting highly radioactive samples to the off-site analysis facility.

Inspector Evaluation

The licensee has established procedures for transporting highly

radioactive samples to an offsite analysis facility (EPIP 3-7, EPIP 2-26). Procedure adequacy will be reviewed during a subsequent inspection (50-322/85-38-09).

3.7 (Closed) Follow-up Item (50-322/85-04-05)

Sub-Part A (Closed)

Finding

Evaluate and establish appropriate sample system purge times to ensure representative atmosphere samples. The purge times have not been determined.

Inspector Evaluation

The licensee has reviewed the length and sizes of lines used to collect samples from Primary Containment. Using sample flow rate, the licensee has selected a conservative purge time. The time has been incorporated into applicable procedures (EPIP 2-11).

Sub-Part B (Closed)

Finding

Evaluate and modify the PASS system to ensure acceptable primary containment atmosphere sample dilution. During the dilution process, it is not clear that samples will be properly evaluated for dilution. The sample is recirculated during dilution; however, it is not clear that all portions of the sample are recirculated.

Inspector Evaluation

The licensee modified the system to eliminate a "dead leg" and ensure acceptable containment atmosphere sample dilution. Proper recirculation can now occur. Procedures have been revised to show the new flow path.

3.8 (Open) Follow-Up Item (50-322/85-04-06)

Subpart A (Open)

Finding

After the chloride analyzer system modifications are complete, the on-line analyzer should be tested to demonstrate its ability to perform chloride analysis within the specified accuracy.

### Inspector Evaluation

The licensee performed a comprehensive evaluation of the capabilities of the Dionex Ion Chromatograph to perform chloride analysis. The licensee performed chloride analysis using the Standard Test Matrix provided by the NRC's Office of Nuclear Reactor Regulation. The chromatograph was able to analyze chloride concentrations within applicable limits except in the presence of significant quantities of nitrates. The licensee installed separator columns to remove nitrates. However, analyses error was 25% as compared to an allowable value of 10%. The licensee plans to submit to NRR a request for waiver of the 10% limit because among other matters he does not anticipate high nitrates (>250 ppm) in reactor coolant.

### Sub-Part B (Closed)

#### Finding

A cover should be placed over the plastic tubing components of the ion chromatograph to prevent damage to them.

### Inspector Evaluation

The licensee installed a plastic shield to protect and prevent damage to the tubing.

### Sub-Part C (Closed)

#### Finding

The PASS procedures should quantitatively state action level criteria (i.e., eliminate such terms as several hundred psi).

### Inspector Evaluation

The licensee performed a thorough review of PASS procedures to provide for clear action level criteria. Inspector review of selected procedures did not identify any examples of unclear acceptance criteria.

## 3.9 (Closed) Follow-up Item (50-322/85-04-07)

### Sub-Part A (Closed)

#### Finding

The boron/pH analyzer should be tested to determine its response to a multi-acid/base mixture which includes the elements in the Standard Test Matrix. Also, the ability of the system to meet the analysis acceptance criteria commitment should be demonstrated.

Inspector Evaluation

The licensee tested the boron/pH analyser with the multi-acid/base Standard Test Matrix. The boron/pH analyser was found to provide analyses results within applicable acceptance criteria.

Sub-Part B (Closed)Finding

The reagent and solution containers should be clearly identified.

Inspector Evaluation

The licensee labelled the reagent and solution containers. This was verified by inspector observation.

3.10 (Closed) Follow-up Item (50-322/85-04-08)Finding

The capability for the on-line analysis of pH should be demonstrated. The commitment to measure concentrations to within an accuracy of  $\pm 0.01$  pH units should be reassessed.

Inspector Evaluation

The licensee successfully demonstrated the capability to perform on-line analysis of pH. The licensee's capability meets NRC acceptance criteria. The licensee has initiated action to administratively change the committed accuracy specified in his Final Safety Analysis Report.

3.11 (Open) Follow-up Item (50-322/85-04-09)Sub-Part A (Open)Finding

When the plant becomes operational and sufficient activity has built up in the coolant, appropriate tests should be conducted to demonstrate the capability of the system to obtain representative samples, based on a comparison of isotopic analysis of normal and PASS samples. The accuracy of the analysis should also be stated.

Inspector Evaluation

The licensee plans to have this activity performed between 5 and 20% power.



Sub-Part B (Closed)Finding

Provisions should be made in the procedure to protect the Ge-Li detector from contamination.

Inspector Evaluation

The licensee has revised procedures (EPIP 2-9, 2-11) to provide for bagging of samples to be analyzed. Also, provisions have been made to use bottled air to purge the detector.

Sub-Part C (Closed)Finding

Nitrogen should be used to purge the Ge(Li) detector shield under accident conditions.

Inspector Evaluation

The licensee has made provisions to purge the detector shield with compressed air. The licensee elected not to use nitrogen because of the possibility of dumping excess nitrogen to the PASS Panel Area and possibly creating an uninhabitable atmosphere.

3.12 (Open) Follow-up Item (50-322/85-04-10)Sub-Part A (Closed)Finding

Evaluate the acceptability of using station supplied breathing air.

Inspector Evaluation

The licensee has evaluated the acceptability of using station supplied breathing air. During an accident, the breathing air may become contaminated. The licensee will use self-contained breathing apparatus for initial entry into the PASS sample area if airborne radioactivity is anticipated to be present. Local air sampling will be performed to determine the need for continued use of SCBAs. The normal station supplied breathing air will be sampled and analyzed prior to use. The licensee has included this general guidance in procedures (EPIP - 2-9, 2-11). SCBAs are available for emergency use.

Sub-Part B (Closed)Finding

Perform a "time and motion" study for collection of undiluted reactor coolant samples to ensure the personnel dose acceptance criteria of General Design Criterion 19 are met.

Inspector Evaluation

The licensee performed a time and motion study for collection, transport and analyses of an undiluted reactor coolant sample (Sample dose rate <20 R/hr). Each step of the process was timed and an appropriate dose was assigned based on the expected radiological condition. Personnel dose equivalent were within GDC-19 and 10 CFR 20 limits.

Sub-Part C (Open)Finding

Tag all appropriate valves in the PASS facility.

Inspector Evaluation

The licensee divided by procedure the entire PASS facility into sectional areas. The valves located in each sectioned area were identified as to their location and expected normal position (valve check-off list). Procedure No. SP 73.040.02 was established to identify manual valve line-up. Valve #AOVOBO was found not to exist on P and IDs. P and IDs were revised accordingly. The inspector performed an independent review of selected valve positions and compared them to the check-off lists. No discrepancies were identified. The following matter was identified and brought to the licensee's attention for review:

- The air-operated valve (AOV) rack behind the PASS panel appeared to be labelled non-uniformly, some AOVs were labelled while others were not. The licensee was unable to explain the apparent non-uniform labeling. The licensee should review this matter and resolve it.

Sub-Part D (Open )Finding

Ensure the installed oxygen analyzer can withstand full reactor coolant system pressure. No documentation was provided to demonstrate that the actual installed system would withstand RCS pressure (@ 1100 psi).

### Inspector Evaluation

The licensee provided documentation which indicated that the analyzer (Orbisphere) was tested to 4300 psi. The analyzer maintained its integrity. The analyzer continued to provide acceptable results to 2300 psi.

The licensee subsequently (November 13, 1985) received information that the vendor only recommended a maximum operating pressure of 300 psi. The licensee should review and resolve this matter prior to start-up. Also, the 10 CFR Part 21 reporting requirements should be reviewed for applicability.

### Sub-Part E (Closed)

#### Finding

Approve calibration procedures for the installed PASS radiation monitors.

### Inspector Evaluation

The applicable procedures for calibration of the installed PASS radiation monitors were approved by the licensee. The monitors have been calibrated in accordance with approved procedures.

### Sub-Part F (Closed)

#### Finding

Consider movement of the heat trace temperature indicator to the operating floor elevation of the PASS Facility. During accident conditions, technicians in breathing apparatus may need to climb a circular stairway to obtain temperature readouts. Also, during the sample collection drill, the technicians could not locate the indicator.

### Inspector Evaluation

The licensee elected not to move the heat trace indicator to the operating floor. The licensee clearly identified the location of the indicator in applicable procedures. Also the licensee performed a test where by an individual, fully suited in breathing apparatus, ascended the stairway to the detector and subsequently descended. The individual successfully navigated the stairway.

### Sub-Part G (Closed)

#### Finding

Clarify valve position guidance in Procedure EPIP 2-11. During a sample collection, "Realign" was misinterpreted as leave in original position. This resulted in a sample being unintentionally flushed from the sample system.

Inspector Evaluation

The licensee reviewed and revised applicable procedures to eliminate "realign". Clear direction relative to valve position was included in applicable procedures. Inspector review of selected procedures did not identify any unacceptable/unclear terminology relative to valve position guidance.

Sub-Part H (Closed)Finding

Evaluate the need for use of respiratory protection equipment during the disconnecting of pressurized samples from the system. Respirators were not required during the disconnection.

Inspector Evaluation

The licensee evaluated the need to use respiratory protection equipment. The licensee indicated respirators would not be required because: 1) the sample lines are flushed with water and; 2) any airborne activity would be readily indicated on the PASS airborne radioactivity monitor. The inspector noted that the sample cubicle is not ventilated and as a result airborne activity would not be readily identified in the PASS airborne activity monitor. Also, high concentrations of liquid radioactive material would be passed through the sample leg. As a result, the inspector indicated it would be reasonable to perform air sampling during initial sample collection to determine if respirators were or were not required to be worn.

Licensee representatives indicated the need to collect air samples during initial sample collection to determine if respirators are needed would be included in the Technical Support Center briefing checklist.

Sub-Part I (Closed)Finding

Correct the incorrect reference in Procedure EPIP 2-11, paragraph 5.4.4.16. The paragraph refers to the wrong paragraph number for further guidance.

Inspector Evaluation

The licensee revised the procedure (EP-2-11) which included the wrong reference. The process associated with this step (feed and bleed) was eliminated. A walk-through of the procedure was conducted to identify any other examples of incorrect procedures step reference. None were found.



Sub-Part J (Closed)Finding

Complete labeling of all readouts and monitors on the PASS panel. A significant number of readouts were not labeled on the panel.

Inspector Evaluation

The licensee labelled all readouts and monitors on the PASS panel. Inspector review of labeling did not identify any non-labeled readouts or monitors on the PASS panel.

Sub-Part K (Open)Finding

Establish several operating/sample collection procedures for the PASS Facility. The current operation/sampling is controlled by one procedure of 150 pages. The use of this single procedure is cumbersome and difficult, as evidenced by observation of licensee technicians attempting to use it. The use of the procedure was further complicated by incorrect references contained therein (see above).

Inspector Evaluation

The licensee revised the PASS procedure to provide for each operating/sampling collection sequence to be included as a separate attachment to the main body of the sampling procedure. Generic steps are included in the main body with specific steps included in the appropriate attachment. The following matter was identified:

- The attachments did not provide a clear reference back to the main body of the procedure. This matter should be reviewed and resolved.

Sub-Part L (Closed)Finding

Clarify the sample analyses to be performed by Brookhaven National Laboratory (BNL) and make provision for periodical updating of the agreement for these analyses.

Inspector Evaluation

The licensee confirmed the support to be provided and clarified (to the extent practicable) and the sample analyses to be performed by BNL. This support is confirmed annually in accordance with the licensee's Emergency Plan.

Sub-Part M (Open)Finding

Establish a designated area for storage of PASS samples.

Inspector Evaluation

The licensee established a designated location for storage of PASS samples to be shipped off-site. The following was identified:

- Shielding was not present at the PASS offsite sample storage location.
- No apparent provisions had been made for storage of PASS and effluent samples analyzed in the laboratory. A designated location should be established for these samples for: 1) minimization of dose to personnel and, 2) ease of retrievability at a later date (as necessary).

The licensee should review these matters and resolve them.

Sub-Part N (Closed)Finding

Review of the training of technicians in use of portable-oxygen detectors. The technician using the detector to determine habitability of the PASS Facility was uncertain of the appropriate percent oxygen limit for normal, unassisted breathing.

Inspector Evaluation

The licensee provided appropriate training of technicians in the use of portable oxygen detectors.

3.13 (Open) Follow-up Item (50-322/85-04-11)Sub-Part A (Closed)Finding

The Operating and the EPIP procedures for the RE-126 and RE-134 effluent monitors differ relative to their guidance for changing out filters. One procedure says valve out the sample pump, whereas the other procedure says to manually shut off the pump.

Inspector Evaluation

The licensee identified the appropriate operation to change out filters and revised applicable procedures (SP 73.631.03, EP-2-7) to be consistent.

Sub-Part B (Closed)Finding

Complete onsite flow calibration of sample flow paths. Flow calibration should be implemented for the 650 cm<sup>3</sup>/min sample paths of RM-126 and RM-134.

Inspector Evaluation

The licensee calibrated the channels in April and May 1985. Appropriate procedures were used (SP 74.631.04).

Sub-Part C (Open)Finding

Consider use of computer assisted/generated decay corrections for Modcomp software in order to accurately quantify the source term. Currently, no decay correction is applied to the nuclide library used by the Modcomp software. Modification of the library to allow for radioactive decay will reduce the analytical error. The correction could be made by hand via incorporation of a gamma spectra. This would be time consuming and prone to errors.

Inspector Evaluation

The licensee is upgrading/modifying sampling systems to meet certain Environmental Qualification requirements. Concurrently, the licensee is upgrading his computer software to address this item. The licensee anticipate completion of all work by November 30, 1985.

## 3.14 (Open) Follow-up Item (50-322/85-04-12)

Sub-Part A (Open)Finding

Establish and implement procedures for analysis of highly radioactive effluent samples. Currently, no procedures have been established for analysis of such samples.

Inspector Evaluation

The licensee has not established acceptable procedures to quantify initial and total releases of radioactive effluent during post accident situation. The licensee's methodology only assesses quantities of material released following collection of a sample sometime after initial releases. This matter should be resolved prior to exceeding 5% reactor power.

Sub-Part B (Open)Finding

Perform a "time and motion" study, as necessary, to ensure the personnel dose guidance specified in 10 CFR 50, Appendix A, General Design Criteria 19, would be met during effluent sample, collection, transport, handling, and analysis. The time and motion study should use source term guidance specified in NUREG-0737.

Inspector Evaluation

The licensee performed a time and motion study. However, the licensee did not use the source term recommended in Regulatory Guide 1.97 (i.e. 100  $\mu\text{Ci/cc}$  particulates and 100  $\mu\text{Ci/cc}$  Iodines). The licensee used a total particulate and iodine source term of 100  $\mu\text{Ci/cc}$  for his study. This matter should be addressed prior to exceeding 5% reactor power.

Sub-Part C (Closed)Finding

Replace the inoperable detector for Channel C of Rm-126. Establish surveillance procedures (as necessary) to ensure prompt replacement of inoperable detectors.

Inspector Evaluation

The licensee replaced the inoperable detector. Also a procedure (SP 24.666.01) is in place and provides for source checking of the high range monitors. Repair orders will be initiated when an operable detector is identified.

3.15 (Open) Follow-up Item (50-322/85-04-13)Finding

Install environmentally qualified high range detector assemblies by November 30, 1985.



Inspector Evaluation

The licensee is currently implementing a modification (MOD #85-045) to address this matter.

3.16 (Open) Follow-up Item (50-322/85-04-14)Finding

Review the adequacy of calibration of battery powered air samplers (RADECO H809-). These samplers are flow calibrated with charcoal cartridges in place. However, during accident situations, silver zeolite cartridges may be used. The flow calibration may not be valid when the zeolite cartridges are used.

Inspector Evaluation

The licensee is currently addressing this matter.

3.17 (Closed) Follow-up Item (50-322/85-04-15)Finding

Environmental Qualification Package did not provide sufficient information to show that different models of a solenoid valve used for PASS, were qualified per similarity analysis. The similarity analyses was not contained in the EQ files.

Inspector Evaluation

The licensee subsequently obtained the similarity analysis, revised Comment 1 of EQREFTR-SI554-2-01 to show location of the analyses and included the analyses in the EQ file.

3.18 (Open) Follow-up Item (50-322/85-04-16)Finding

Licensees had not implemented the calibration and loop check program for the PASS instrumentation. The program had been put on hold for the PASS until the PASS was needed for exceeding 5% reactor power.

Inspector Evaluation

The licensee completed all loop checks and calibration by July 5, 1985. This item remains open pending NRC determination that the PASS instrumentation has been included in the calibration and loop check program.

3.19 (Closed) Follow-up Item (50-322/85-04-17)

Finding

Numerous instruments were identified that did not have calibration stickers on them.

Inspector Evaluation

The licensee modified procedure SP 41.002.01 to eliminate the need for stickers.

3.20 (Closed) Follow-up Item (50-322/85-04-18)

Finding

The Maintenance Program for the PASS was not implemented.

Inspector Evaluation

The licensee has an established Maintenance Program. However, the licensee had not implemented the program for PASS because the PASS wasn't needed until exceeding 5% power. The status of the maintenance for the PASS has been changed to Priority 1 and is fully implemented.

3.21 (Open) Follow-up Item (50-322/85-04-19)

Sub-Part A (Open)

Finding

The core damage procedure should be finalized before completion of the first refueling outage. An evaluation should be conducted to assure that all necessary input data is available and in the proper format.

Inspector Evaluation

The licensee is currently developing the core damage assessment procedure. Completion is scheduled for prior to start-up after first refueling outage.

Sub-Part B (Closed)

Finding

Obtain documented approval from NRR which allows the licensee to solely use in-line hydrogen analysis methodology to satisfy the requirements of NUREG-0737, II B.3. (Clarification Paragraph 2).

### Inspector Evaluation

The licensee submitted a request to NRR to obtain approval to solely use in-line hydrogen monitors to satisfy Item II B.3. The request was approved. (August 29, 1985 Letter, Butler (NRC) to Leonard (LILCO))

### 3.22 (Open) Follow-up Item (50-322/85-04-20)

#### Finding

Licensee to provide training of personnel in PASS.

#### Inspector Evaluation

The licensee has established a training program for applicable personnel in PASS. The program includes both hands on and classroom training. The total course duration is 24 hours. The training includes routine operations, PASS malfunction and radiological consequences. The program is not fully implemented.

### 4.0 Start-Up Survey Program

The inspector reviewed the licensee's Start-up Survey Program with respect to criteria contained in the following:

- Final Safety Analysis Report, section 14.1.4.8.2, "Radiation Measurements Start-up Test".
- 10 CFR 20, "Standards for Protection Against Radiation".
- STP 2, Revision 2, "Radiation Measurements".
- ANSI/ANS - 6.3.1, 1980, "Program for Testing Radiation Shields in Light Water Reactors",
- ANSI-N323, 1978, "Radiation Protection Instrumentation Test and Calibration",
- Regulatory Guide 1.68, November 1978 "Preoperational and Start-up Test Program for Water-Cooled Power Reactors (LWR)".

The purpose of the review was to determine the following:

- Appropriate procedures were in place and were being used.
- Tests were performed on schedule.
- Test results were properly reviewed.

- Appropriate radiation survey instrumentation was used and was properly calibrated.
- Personnel performing surveys were provided proper personnel dosimetry.
- Personnel dosimetry provided was properly calibrated and used.

The evaluation of the licensee's performance in this area was based on discussion with personnel, review of survey data, review of radiation work, permits, and review of other documentation.

Within the scope of this review, no violations or unacceptable practices were identified. Time limitations prevented the inspector from fully reviewing calibration/use of personnel monitoring duties. This area will be reviewed during a subsequent inspection. (50-322/85-38-01)

One item requiring licensee attention was identified:

- The Start-up test summary provided for ROC review incorrectly summarized the test exceptions. The licensee plans to correct the summary following performance of the next series of Start-up surveys.

#### 5.0 Preoperational and Start-up Testing of the Off-Gas System

The inspector reviewed the licensee's preoperational and start-up testing of the Off-gas system. The review was with respect to criteria contained in the following:

- Final Safety Analysis, Section 14.1.3.7.9, "Gaseous Radwaste System Preoperational Test"
- Drawings FM-16 A, B, C, "Off-Gas System"
- Drawings MFSK-16 A, B, C, "Off-Gas System"
- Procedure PT 714.001, "Radwaste Off-Gas System"
- Regulatory Guide 1.68, November 1978, "Preoperational and Start-up Test Program for Water-Cooled Power Reactors (LWR)"
- ANSI/ANS 55.4, 1979, "American National Standard for Gaseous Radioactive Waste Processing System for Light Water Reactor Plants"

The purpose of this review was to determine the following:

- the installed system is as described in the FSAR and P&IDs.
- procedures were established and implemented for system tests.
- results were properly reviewed and approved.



The evaluation of the licensee's performance in the area was based on: inspector walk-down of the system, review of documentation, and discussion with personnel. Within the scope of this review, no violations or unacceptable practices were identified.

The following matter remains open (50-322/85-38-02)

- Start-up testing of the off-gas system. The licensee has not commenced start-up testing of the off-gas system.

#### 6.0 High Radiation Area Controls

The inspector reviewed the adequacy and effectiveness of the licensee's High Radiation area controls. The review was with respect to criteria contained in Technical Specifications and applicable procedures.

The purpose of this review was to determine the following:

- were High Radiation Areas present
- were present High Radiation Areas properly posted, barricaded and locked if required
- were access controls established and adequate

The evaluation of the licensee's performance was based on discussion with personnel, review of documents, observation during tours by the inspector.

No violations were identified.

The following matter requiring licensee attention was identified:

- Procedures for high radiation area (HRA) key controls need upgrading. For example the procedures did not indicate/describe/provide for: individuals authorized to issue HRA keys; individuals authorized to receive HRA keys, key control, and key accountability.

Licensee representatives indicated procedures would be upgraded prior to Start-up. (50-322/85-38-13)

- Procedures for Access to/maintenance of Traversing Incore Probes need upgrading. For example procedures did not provide clear guidance for: access control for manual operation; access control during running/withdrawal during normal operations, and access to sub6 pile room.

Licensee's representative indicated procedures would be upgraded prior to December 31, 1985. (50-322/85-38-04)

- Procedures for Access control to the Drywell during fuel movement need upgrading. For example procedures did not address; clearing of upper drywell of personnel (e.g. operations personnel notification of HP personnel that fuel would be moved; HP verification that upper drywell was clear of personnel; HP notification of operations personnel that upper drywell is clear of personnel; access control for access to areas above bio-shield.

Licensee representatives indicated procedures would be upgraded prior to December 31, 1985. (50-322/85-38-05)

#### 7.0 Routine Radiological Controls

The inspector reviewed the implementation, adequacy, and effectiveness of radiological controls implemented for the incore start-up source change out. The review was with respect to applicable Technical Specifications and procedures. The following matters were reviewed.

- preparation and planning
- posting, barricading and access control (as appropriate)
- implementation of procedural requirements for source change-out.
- use of RWPs
- selection, qualification and training of radiological controls personnel providing responsible radiological oversight
- contamination controls
- performance of proper radiological surveys

The evaluation of the licensee's performance in this area was based on: discussions with personnel; inspector observations; of on-going work; and review of documentation.

No violations were identified. The following matters needing licensee attention were identified.

- No guidance was in place to ensure proper placement of personnel monitoring devices when the potential for skin exposures existed. TLDs were observed being worn inside and outside of protective clothing. Some high beta radiation fields were identified. (50-322/85-38-06)
- No apparent provisions were in place to minimize exposure to the lens of the eye (as appropriate) (e.g. use of goggles or glasses) (50-388/85-38-07)

- No effective program was in place to ensure appropriate radiological controls personnel were notified of safety significant new procedures or procedure changes and were cognizant of these new procedures or changes prior to the individuals implementing tasks associated with the procedures. (50-322/85-38-08)
- Licensee personnel performing source change were observed to be using a handwritten procedure for preparing the source change out tool for use. Inspector review of the licensee's master administrative procedure for performing procedure changes indicated the procedures did not provide guidance as to when procedure changes/revisions were to be made. This matter was brought to the NRC Senior Resident Inspectors' attention for review.

8. Exit Meeting

The inspector met with personnel denoted in Section 1 of the report at the conclusion of the inspection on October 25, 1985. The inspector summarized the purpose, scope, and findings of the inspection.

No written material was provided to the licensee.