

April 15, 1988

Docket No. 50-322

Mr. John D. Leonard, Jr.  
Vice President-Nuclear Operations  
Long Island Lighting Co.  
Shoreham Nuclear Power Station  
P.O. Box 618, North Country Road  
Wading River, NY 11792

Dear Mr. Leonard:

SUBJECT: PROCEDURES GENERATION PACKAGE

RE: SHOREHAM NUCLEAR POWER STATION

In your letter of March 12, 1987 you submitted the Shoreham Nuclear Power Station Procedures Generation Package (PGP). This submittal was made to fulfill the requirement in Operating License NPF-36, Attachment I, item 4a. The NRC staff and its consultants at the Battelle Pacific Northwest Laboratories found that additional information is necessary in order to complete this PGP review.

Enclosed is the NRC staff's request for additional information (RAI). LILCO's responses, to this RAI, should be provided within ninety days from receipt of this letter.

Sincerely,

Stewart W. Brown, Project Manager  
Project Directorate I-2  
Division of Reactor Projects I/II

Enclosure:  
AS stated

cc: See next page

DISTRIBUTION

Docket File

PDI-2 Reading  
NRC PDR/LPDR  
SVarga/BBoger  
MO'Brien  
SBrown/GRivenbark  
OGC-WF  
EJordan/JPartlow  
ACRS (10)

PDI-2/PM  
SBrown:tr  
4/15/88

PDI-2/D  
WButler  
4/15/88

8804220031 880415  
PDR ADOCK 05000322  
PDR



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Docket No. 50-322

APR 15 1988

Mr. John D. Leonard, Jr.  
Vice President-Nuclear Operations  
Long Island Lighting Co.  
Shoreham Nuclear Power Station  
P.O. Box 618, North Country Road  
Wading River, NY 11792

Dear Mr. Leonard:

SUBJECT: PROCEDURES GENERATION PACKAGE

RE: SHOREHAM NUCLEAR POWER STATION

In your letter of March 12, 1987 you submitted the Shoreham Nuclear Power Station Procedures Generation Package (PGP). This submittal was made to fulfill the requirement in Operating License NPF-36, Attachment I, item 4a. The NRC staff and its consultants at the Battelle Pacific Northwest Laboratories found that additional information is necessary in order to complete this PGP review.

Enclosed is the NRC staff's request for additional information (RAI). LILCO's responses, to this RAI, should be provided within ninety days from receipt of this letter.

Sincerely,

A handwritten signature in cursive script that reads "Stewart W. Brown".

Stewart W. Brown, Project Manager  
Project Directorate I-2  
Division of Reactor Projects 1/II

Enclosure:  
As stated

cc: See next page

Mr. John D. Leonard, Jr.  
Long Island Lighting Company

Shoreham Nuclear Power Station  
(list 1)

cc:

Stephen R. Latham, Esq.  
John F. Shea, III, Esq.  
Twomey, Latham & Shea  
Attorneys at Law  
Post Office Box 398  
33 West Second Street  
Riverhead, New York 11901

Alan S. Rosenthal, Esq., Chairman  
Atomic Safety & Licensing Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

W. Taylor Reveley, III, Esq.  
Hunton & Williams  
Post Office Box 1535  
707 East Main Street  
Richmond, Virginia 23212

Howard A. Wilber  
Atomic Safety & Licensing Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Atomic Safety & Licensing Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Atomic Safety & Licensing Appeal Board  
Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Gary J. Edles, Esq.  
Atomic Safety & Licensing Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Richard M. Kessel  
Chairman & Executive Director  
New York State Consumer Protection Board  
Room 1725  
250 Broadway  
New York, New York 10007

Jonathan D. Feinberg, Esq.  
New York State Department  
of Public Service  
Three Empire State Plaza  
Albany, New York 12223

Gerald C. Crotty, Esq.  
Ben Wiles, Esq.  
Counsel to the Governor  
Executive Chamber  
State Capitol  
Albany, New York 12224

Herbert H. Brown, Esq.  
Lawrence Coe Lanpher, Esq.  
Karla J. Letsche, Esq.  
Kirkpatrick & Lockhart  
South Lobby - 9th Floor  
1800 M Street, N.W.  
Washington, D.C. 20036-5891

Dr. Monroe Schneider  
North Shore Committee  
Post Office Box 231  
Wading River, New York 11792

Fabian G. Palomino, Esq.  
Special Counsel to the Governor  
Executive Chamber - State Capitol  
Albany, New York 12224

Anthony F. Earley, Jr., Esq.  
General Counsel  
Long Island Lighting Company  
175 East Old County Road  
Hicksville, New York 11801

Mr. Lawrence Britt  
Shoreham Nuclear Power Station  
Post Office Box 618  
Wading River, New York 11792

Martin Bradley Ashare, Esq.  
Suffolk County Attorney  
H. Lee Dennison Building  
Veteran's Memorial Highway  
Hauppauge, New York 11788

Resident Inspector  
Shoreham NPS  
U.S. Nuclear Regulatory Commission  
Post Office Box B  
Rocky Point, New York 11778

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, Pennsylvania 19406

ENCLOSURE

LONG ISLAND LIGHTING COMPANY  
SHOREHAM NUCLEAR POWER STATION  
REQUEST FOR ADDITIONAL INFORMATION  
PGP REVIEW  
OPERATING REACTORS  
MARCH 1988

## REQUEST FOR ADDITIONAL INFORMATION

### PROCEDURES GENERATION PACKAGE

### SHOREHAM NUCLEAR POWER PLANT

#### 1. INTRODUCTION

Following the Three Mile Island (TMI) accident, the Office of Nuclear Reactor Regulation developed the "TMI Action Plan" (NUREG-0660 and NUREG-0737) which required licensees of operating reactors to reanalyze transients and accidents and to upgrade emergency operating procedures (EOPs) (Item I.C.1). The plan also required the NRC staff to develop a long-term plan that integrated and expanded efforts in the writing, reviewing, and monitoring of plant procedures (Item I.C.9). NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures," represents the NRC staff's long-term program for upgrading EOPs, and describes the use of a "Procedures Generation Package" (PGP) to prepare EOPs. Submittal of the PGP was made a requirement by Generic Letter 82-33, "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability." The generic letter requires each licensee to submit to the NRC a PGP which includes:

- (i) Plant-specific technical guidelines
- (ii) A writer's guide
- (iii) A description of the program to be used for the validation of EOPs
- (iv) A description of the training program for the upgraded EOPs.

This report describes the review of the Long Island Lighting Company (LILCO) response to the generic letter related to development and implementation of EOPs (Section 7 of Generic Letter 82-33) for the Shoreham Nuclear Power Station (SNPS).

Our review was conducted to determine the adequacy of the LILCO program for preparing and implementing upgraded EOPs for SNPS. This review was based on NUREG-0800 (formerly NUREG-75/087), Subsection 13.5.2, Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants. Section 2 of this report briefly discusses the LILCO submittal, the NRC staff review, and the acceptability of the submittal. Section 3 contains the conclusions of this review.

As indicated in the following sections, our review determined that the procedure generation program for SNPS has several items that must be satisfactorily addressed before the PGP is acceptable. LILCO should address these items in a revision to the PGP, or provide justification for why such revision is not necessary. The revision should be submitted in accordance with a schedule determined by the NRC's licensing project manager. Our review of the LILCO response to these items will be included in a subsequent safety evaluation report (SER). The revision of the PGP, and subsequently of the EOPs, should not impact the schedule for the use

of the EOPs. The revision should be made in accordance with Section 3, Conclusions, of this report, the SNPS administrative procedures, and 10 CFR 50.59.

## 2. EVALUATION AND FINDINGS

In a letter dated March 12, 1987 from John D. Leonard Jr. (LILCO) to the NRC, LILCO submitted its PGP for SNPS. The PGP contained the following sections:

- Plant Specific Technical Guidelines
- Writers Guide for EOPs
- EOP Verification & Validation Program
- EOP Training Program

The NRC staff review of the SNPS PGP is documented in the following subsections.

### A. Plant-Specific Technical Guidelines (P-STG)

The plant-specific technical guidelines section of the PGP was reviewed to determine if it addressed the objectives stated in NUREG-0899 and was in conformance to the review criteria of NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, Section 13.5.2, Operating and Maintenance Procedures dated July 1985. This review identified the following items which should be addressed by the licensee:

1. The licensee should describe how operator information and control needs will be derived and used to specify instrumentation and control requirements. The P-STG should be based on the identification of plant systems and functions and, be supported by an analysis of operator tasks to identify operator information and control requirements. This description may be in the PGP, or in the Detailed Control Room Design (DCRDR) Program Plan. If the licensee addresses this item as part of the DCRDR, the licensee should state this (cross-reference) in the P-STG portion of the PGP.
2. The licensee should submit all deviations from the Owners Group's Generic Technical Guidelines that are potentially safety significant (e.g., related to systems, functions, or methods), with justification for each deviation. Examples of deviations may be found in SRP Section 13.5.2.

### B. Writer's Guide

The writer's guide was reviewed to determine if it described acceptable methods for accomplishing the objectives stated in NUREG-0899. The SNPS writer's guide provides information on EOP flowchart procedure preparation, textual procedure preparation and mechanics of style. SNPS intends to have a set of textual procedures with flowchart procedures as appendices. Our review of the SNPS writer's

guide identified the following concerns with respect to the flowchart preparation guidance:

1. Notes and cautions provide operators with important supplemental information concerning specific steps or sequences of steps in the EOPs. The information on cautions and notes in Figure 1-3 and in Section 1.4.10 should be expanded and revised with regard to the following:
  - a. Figure 1-3 implies that the same symbol is used for both a caution and a note. Because caution statements provide information used to prevent actions by control room operators that could injure personnel or endanger public health or safety, it is important that they be distinguished from notes, which provide less critical information. Further, in Section 1.4.10 the symbol is used only for a caution and no symbol is designated for a note. This format discrepancy should be clarified; and some emphasis technique, such as a different symbol, should be used to distinguish cautions from notes to alert control room personnel to their more critical nature.
  - b. Section 1.4.10b describes the format and placement of the caution symbol but not for the note. This section should be expanded to include the format and the placement of a note symbol.
  - c. The writer's guide does not describe the format of the cautions and notes to be placed at the bottom of the flowchart or the numbering scheme to be used for each note and each caution. The writer's guide should be revised to specify the format for cautions and notes at the bottom of the flowcharts, how cautions and notes are to be numbered, and the emphasis techniques to be used.
  - d. Section 1.4.10 states that it is acceptable to express conditional actions in a note or caution. Notes are intended to provide supplemental information and cautions are intended to attract attention to essential or critical information in procedures; neither is intended to include any instructions, directions, or operator actions. The writer's guide should be revised to indicate that actions of any kind are not acceptable in notes and cautions.
2. Conditional and logic statements should be used in EOPs to describe a set of conditions or a sequence of actions. Because of their importance and complexity, it is important to provide explicit guidance for their use. The guidance provided in Sections 1.5.5 and 1.5.6 should be revised with regard to the following:

- a. The terms WHILE and BEFORE are not considered logic terms and are not in NUREG-0899. Statements can be worded to avoid the use of WHILE and BEFORE as pseudo-logic terms. The writer's guide should be revised to eliminate their use as logic terms.
  - b. Section 1.5.5c describes the use of the logic term OR. The logic term OR can be used in an inclusive sense and an exclusive sense. This section should be revised to provide instructions for formatting logic statements that include OR used in either sense, and when to use or not to use either.
  - c. Section 1.5.11 states that logic terms are to be underlined for emphasis. It also allows other words to be underlined for emphasis. Logic terms should be uniquely emphasized so that they stand out in the text and are easy for operators to recognize. The writer's guide should be revised to exclude any other words to be underlined for emphasis.
3. Section 1.5.7c discusses referencing and branching. It should state that the procedure title, and where applicable the entire step number, be included in a reference or branch; e.g., GO TO SP 29.023.05 "TITLE", STEP WP-3.
  4. Instructions should be written for the various types of action steps that an operator may take to cope with different plant situations.
    - a. The writer's guide should define the following types of action steps: (1) steps that verify an action; and (2) steps which are performed continuously or periodically.
    - b. The writer's guide should define, describe the format of and provide examples of (1) steps for which a number of alternative actions are equally acceptable; (2) steps which diagnose a situation; and (3) steps which are time-dependent.
  5. Procedure writers should be given sufficient information to produce procedures that are correctly and consistently formatted. In order to ensure consistency throughout EOPs, instructions and examples in the writer's guide should be revised as follows:
    - a. The writer's guide does state the size of the type for wording on the flowcharts, but not the size of the symbols used, line width, and arrow size. The writer's guide should specify the size of symbols, line width, arrow size and any other aspect of the flowchart that would affect readability.
    - b. Because of the complexity of flowcharts, it is recommended that an example of a properly formatted flowchart be included in the writer's guide.

6. Section 1.5.10 provides guidance with respect to the verbs to use in the action steps. The number of verbs listed however is limited and there may be other acceptable verbs the writers will want to use. The writer's guide should provide an inclusive list of acceptable and defined verbs available for use by the writers.
7. Because operators will use EOPs in stressful conditions and under time constraints, the procedures must be easily accessible to operators and should be accurate and current at all times. The guidance provided in the PGP should address the following:
  - a. The location of the flowcharts in the control room for easy and quick access by the operators.
  - b. The method by which the EOPs are easily distinguishable from other plant procedure.
8. To minimize confusion, delay, and errors in execution of EOP steps, the following concerns should be addressed in the writer's guide:
  - a. Action steps should be structured to be consistent with the roles and responsibilities of the operators.
  - b. Action steps should be structured to enable the control room supervisor to follow staff actions and monitor plant status.
9. Section 1.4.2 of the writer's guide discusses the review and approval of the EOP flowcharts. This section should state who (by title) is authorized to review and approve the flowcharts. This information should also be indicated on the flowchart signature block.
10. Section 1.4.13, "Text Procedure Step Numbering Scheme" applies to text preparation and therefore should be moved from the flowchart section to the text preparation section of the writer's guide.

Our review of the SNPS writer's guide identified the following concerns with respect to the text procedure preparation guidance:

11. Section 1.7.5 discusses the emphasis and placement of cautions and the definition and placement of notes, and states that notes should not contain instructions. However, there are other aspects of notes and cautions which need to be addressed.
  - a. The writer's guide should provide a definition of cautions, state that they must be complete on a page and do not contain instructions.

- b. The writer's guide should describe how notes are emphasized (differently than cautions) and state that notes are complete on a page.
  - c. Examples of notes and cautions which are consistent with the text should be provided.
  - d. The writer's guide states that cautions are placed adjacent to the step they refer to and notes should be placed as close as possible. However, both notes and cautions should be placed directly above the step they refer to, so they can be read before the step is read.
12. Logic statements are used in EOPs to describe a set of conditions or sequence of actions. Because of their importance and complexity, it is important to provide explicit guidance for their use. Section 1.7.4 of the writer's guide addresses certain aspects of logic statements including the use of the words IF, WHEN, THEN, IF NOT, and AND; the use of a list format and the exclusion of AND and OR in the same action. Examples are also provided. However, there are other aspects of logic statements which need to be addressed.
- a. The writer's guide should discuss the use of AND and OR as logic terms versus conjunctions, and how logic terms are to be emphasized. See NUREG-0899, Section 5.6.10 and Appendix B for further guidance.
  - b. The examples provided in Figure 1-13 are not consistent with the text. For example, the GOOD statements do not contain the word THEN and the logic terms used are not emphasized as they are in the text. Examples of all types of logic statements, and those to avoid, should be provided in the writer's guide and they should be consistent with the guidance in the text.
13. The writer's guide should state that vague verbs such as rapidly or slowly should be avoided, and should provide an inclusive list of verbs to be used in the EOPs.
14. During the execution of EOPs it is often necessary to refer operators to other procedures or sections of procedures. Such referencing and branching can be disruptive and cause unnecessary delays. To minimize disruptions and delays the writer's guide needs to address referencing and branching.
- a. The writer's guide should include a statement of commitment to minimize referencing and branching by providing criteria to be used when deciding if the steps should be included in the text or cross-referenced.

- b. The content and format of the reference/branch statement including step number, procedure/section title and number, and a consistent conventions such as GO TO and REFER TO, should be specified.
  - c. Examples of referencing and branching formats that are consistent with the text should be provided.
  - d. Some method such as tabbing for easily identifying sections or subsections in the EOP should be specified.
15. The proper use of emphasis techniques makes the procedures easier to understand. The writer's guide needs to be revised to describe how various types of emphasis techniques such as capitalization, boxes, etc., are to be used.
16. The writer's guide needs to include guidance for writing the various types of action steps that an operator may take to cope with different plant situations. The writer's guide should address the definition and format of the following types of action steps and should provide examples consistent with the text: verification steps, equally acceptable steps, recurrent steps, time-dependent steps, concurrent steps, and diagnostic steps. See NUREG-0899, Section 5.7 for further information.
17. Information should be presented so that interruption in the flow of information in an EOP is minimized.
- a. Action steps should be presented completely on one page.
  - b. Procedures and sections of a procedures should begin on a new page.
  - c. A simple method for accessing attachments or appendices should be provided. Examples consistent with the text should be included.
18. It is important that a consistent method of section heading and step numbering be used throughout EOPs. The manner in which the text is organized and divided should be evident through the use of headings and a numbering system so that operators can keep track of where they are in the procedure and know how to move easily and quickly to other parts of the procedure. The writer's guide does provide a list of headings and state that a SNPS station procedure is used for section numbering, but it should also address the following:
- a. The methods of pagination should be specified. The total number of pages should be included in the pagination.
  - b. Step and section numbering, as applied to the dual column procedure format, should be specified. If an existing station procedure is referenced, a copy of the station procedure should be provided to the NRC.

- c. Examples of the above topics, including section numbering, should be provided consistent with the text.
19. An inclusive list of acronyms and abbreviations and their definitions should be provided in the writer's guide so that they are used consistently by both procedure preparers and operators.
  20. Figures and tables assist operators to make decisions and to locate information. Section 1.7.7 discusses the identification of figures and tables, but should also address their other aspects.
    - a. The criteria for deciding when to use a figure or table should be provided.
    - b. The location of figures and tables within the EOP should be specified.
  21. It is important that the operators know where to find all of the instrumentation and controls that are referenced in the EOPs. The writer's guide should discuss the criteria for determining when the location of instruments and controls should be specified in the EOP, the format for this location information and should provide an example consistent with the text.
  22. Consistent, well-organized and well-labeled EOPs increase the ease with which operators understand and use the procedures. Section 1.7.1 of the writer's guide discusses procedure organization and lists the major section headings and general content of each. However, the writer's guide should address the following:
    - a. A cover page should be used and the identifying information on this page should be identified.
    - b. The format of entry conditions should be specified.
- See NUREG-0899, Section 5.4 for further information.
23. So that operators are always certain that they are using the correct procedure, the procedure should include identifying information in a consistent place on each page. The writer's guide should require that every page contain a block of information consistently placed on each page. This information should include a brief title or unique number, and revision number and/or date.
  24. The writer's guide should discuss the use of placekeeping aids (checkoffs) for all steps and substeps not just for steps with multiple objects as stated in paragraph 1.7.3e. Placekeeping aids can assist operators in keeping track of their positions within a procedure. These aids are of particular importance when performing steps or procedures concurrently, and in situations where the operator's attention is diverted.

25. The writer's guide should address the use of punctuation, capitalization, margins, line spacing, units of measure, numerals, tolerances, and how titles/nomenclature of instruments and controls are to be referred to. See NUREG-0899, Sections 5.5.2 and 5.6.3-5.6.8 for further information.
26. The PGP should address the issues of accessibility of procedures, their unique identification, and quality of reproduction as the procedures must be easily accessible and readable to operators and should be uniquely identified to distinguish them from other plant procedures.
27. To minimize confusion, delay, and errors in the execution of EOP steps, the following issues should be addressed by the writer's guide:
  - a. Action steps should be structured so that they can be executed by the minimum control room staffing required by the Technical Specifications.
  - b. Action steps should be structured to be consistent with the roles and responsibilities of operators.
  - c. Action steps should be structured to minimize the physical interference of personnel in the control room (where technical guidelines permit).
  - d. Action steps should be structured to avoid unintentional duplication of tasks.
  - e. Action steps should be structured to enable the control room supervisor to follow staff actions and monitor plant status.

See NUREG-0899, Section 5.8 for further information.

With adequate resolution of the above items, the SNPS writer's guide should accomplish the objectives stated in NUREG-0899 and should provide adequate guidance for translating the technical guidelines into EOPs that will be usable, accurate, complete, readable, convenient to use and acceptable to control room operators. The NRC staff will confirm that LILCO adequately addresses these items and will report its review in a subsequent SER.

#### C. Verification and Validation Program

The description of the verification and validation program was reviewed to determine if it described acceptable methods for accomplishing the objectives stated in NUREG-0899. The SNPS verification and validation descriptions consist of a set of objectives and the process to achieve these objectives. The PGP gives as objectives for the verification and validation process:

- The EOPs are technically correct.
- The EOPs are written correctly.
- The language and level of information presented in the EOPs is compatible with the minimum number, qualification, training and experience of the operating staff.
- There is a correspondence between the control room/plant hardware and the EOP.
- The EOPs are usable: i.e., they can be understood and followed without confusion, delays and errors.
- That there is a high level of assurance that the procedures will work: i.e., the procedures guide the operator in mitigating transients and accidents.

Our review of the SNPS verification and validation program description identified the following concerns:

1. The verification and validation programs should specify that, at a minimum, plant operators, subject matter experts, procedure writers, and human factors experts will be involved in verification and validation. Although the PGP states that independent reviewers and operating crews will be used, the use of a wider variety of verifiers and validators will help to ensure that all aspects of EOPs are completely and accurately verified and validated. The verification and validation program should also specify their roles and responsibilities.
2. The validation program should include the criteria for the selection of scenarios that will be used to exercise EOPs. This criteria should ensure that the full set of EOPs are validated to their fullest extent and should ensure that a wide variety of scenarios, including multiple (simultaneous and sequential) failures are included. The validation program should also contain a commitment to apply these criteria in developing scenarios for validation of EOP revisions.
3. The validation program description states that the SNPS simulator will be used for the validation process. The description should state the method to be used to validate those parts of the EOPs where the simulator does not react like the plant or cannot be run on the simulator.
4. The PGP should specifically address the manner in which feedback from the validation and verification process will be used to address the accuracy, readability, completeness, and usability of the EOPs. While a few of these points are noted on pages 9 and 10 of the validation plan, they should be specifically addressed in the verification and validation program descriptions.

5. The verification and validation program should include the criteria or method that will be used to determine the need to reverify or revalidate any changes to the EOPs, resulting from either verification and validation programs or from subsequent EOP revisions.
6. The EOPs will require a certain number of operators to carry out the various activities and steps as specified. The validation program should clearly indicate that the EOPs will be exercised during simulator exercises or control room walk-throughs with the minimum control room staff required by SNPS Technical Specifications.
7. Particular attention should be paid during the validation program to deviations from and additions to the generic technical guidelines that are of safety significance. These validation steps can be accomplished separately or as part of the validation program. The PGP should discuss how the deviations from and additions to the generic guidelines are to be validated.
8. The verification and validation program descriptions refer to the use of documentation such as checklists, discrepancy forms, completion forms, and validation documentation. These checklists, forms, records, etc., should be included in the PGP.

With adequate resolution of the above items, the SNPS verification and validation program should accomplish the objectives stated in NUREG-0899 and should provide assurance that the EOPs adequately incorporate the guidance of the writer's guide and the technical guidelines and will guide the operator in mitigating emergency conditions. The NRC staff will confirm that LILCO adequately addresses these items and will report its review in a subsequent SER.

#### D. Training Program

The description of the operator training program on the SNPS upgraded EOPs was reviewed to determine if it described acceptable methods for accomplishing the objectives stated in NUREG-0899. The EOP training program consists of classroom instruction, simulator exercises, and simulator control room walkthroughs. The overall training goals are:

- to enable the operators to understand the structure of the EOPs including the flowcharted version of the EOPs.
- to enable the operators to understand the technical bases of the EOPs.
- to enable the operators to have a working knowledge of the technical content of the EOPs.
- to enable the operators to use the EOPs under operational conditions.

Our review of the SNPS training program description for EOPs identified the following concerns:

1. It is crucial that all operators be trained on all aspects of each EOP so that they are prepared to execute each EOP to its fullest extent. Each training approach, classroom and simulator, should cover all aspects of each procedure to the fullest extent possible. The EOP training program description should be modified accordingly.
2. The PGP states that the SNPS simulator will be used for training. The EOP training program description should address the following:
  - a. Indicate the use of the simulator using SNPS Technical Specification minimum control room staffing.
  - b. Indicate the use of a wide variety of scenarios, including multiple (simultaneous and sequential) failures, to fully exercise (to the extent possible) the EOPs on the simulator and thus expose the operators to a wide variety of EOP uses.
3. The training program description should be expanded to include a discussion of the method to be used to train operators in areas where the simulator does not react like the plant and in parts of the EOPs that cannot be run on the simulator. These areas would include differences between the simulator and the control room.
4. The training program should include a statement of commitment to train all operators on all EOPs, including revised EOPs, prior to implementing the EOPs in the control room.
5. The training program should describe the method for evaluating all operators after classroom and simulator training, and for appropriate follow-up training in any deficient areas.

With adequate resolution of the above items, the SNPS training program should accomplish the objectives stated in NUREG-0899 and should result in appropriate training for the SNPS operators on the upgraded EOPs. The NRC staff will confirm that LILCO adequately addresses these items and will report its review in a subsequent SER.

### 3. CONCLUSIONS

Based on our review, we conclude that, the PGP submitted by Long Island Lighting Company for Shoreham Nuclear Power Station in a letter from J. D. Leonard, Jr., to the NRC, dated March 12, 1987, to adequately address the requirements stated in Generic Letter 82-33 (Supplement 1 to NUREG-0737) and provide acceptable methods for accomplishing the objectives stated in NUREG-0899 in accordance with the guidance provided in the Standard Review Plan (NUREG-0800, Section 13.5.2), should be revised to address the items described in Section 2 of this RAI. The PGP should be resubmitted with a sample of at least one Emergency Operating Procedure and its associated documentation (e.g., step deviation document, verification and validation documents). This sample procedure will not be reviewed for approval, but rather will be used as an indication of how the PGP is being applied to EOP preparation.

This evaluation was performed with the assistance of Battelle Pacific Northwest Laboratories' personnel.