



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

July 31, 1981

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



NRC-608

SHOREHAM NUCLEAR POWER STATION - UNIT I
Docket No. 50-322

Dear Mr. Denton:

Enclosed herewith are sixty (60) copies of LILCO responses to specific NRC concerns which were previously identified as requiring additional information to complete NRC review. Attachment A provides a list of the specific responses included.

If you require additional information or clarification, please do not hesitate to contact this office.

Very truly yours,

B.R. McCaffrey
Manager, Project Engineering
Shoreham Nuclear Power Station

JPM/mh

Enclosures

cc: J. Higgins

INFORMATION SERVICES

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NRC-608, dated 7/31/81

ATTACHMENT A

Additional information is provided for the following items.

- 1) NUREG-0737, item II.E.4.2 and SER OI 35 - Containment Isolation Dependability
- 2) SER OI 43 - Loss of safety function after reset
- 3) NUREG-0737, item II.K.3.27 - Provide Common Reference Level for Vessel Level Instrumentation
- 4) NUREG-0737, item III.D.1.1 - Primary Coolant Sources Outside the Containment
- 5) NUREG-0737, item I.A.1.3 - Shift Manning
 - item I.A.2.3 - Administration of Training Programs
 - item I.C.2 - Shift and Relief Turnover Procedures
 - item I.C.3 - Shift Supervisor Responsibility
 - item I.C.4 - Control Room Access
 - item I.C.5 - Procedures for Feedback of Operating Experience to Plant Staff
 - item I.C.6 - Procedures for Verification of Correct Performance of Operating Activities
- 6) NUREG-0737, item II.B.3 - Post Accident Sampling
- 7) NUREG-0737, item II.B.7 - Hydrogen Control
- 8) SER OI 59 - Control of Heavy Loads
- 9) NUREG-0737, item I.A.1.1 - Shift Technical Advisor

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SNPS-1 FSAR

II.E.4.2 CONTAINMENT ISOLATION DEPENDABILITY

The circuitry for reactor vessel sample valves (penetration X-30; valve numbers 1B31*AOV081 and 082) will be modified such that reset of isolation signals will not cause the valves to reposition (open) automatically. Although they will open upon reset of the isolation signal, the RHR Heat Exchanger Sample Valves are not containment isolation valves. Circuitry modifications are, therefore, not required for these valves.

Clarification to SER Open Item No. 43 - ESF Reset Controls

Preoperational startup testing will be performed that will confirm proper functioning of equipment (in accordance with design requirements) when control systems are reset.

7/31/81

Clarification for Item II.K.3.27 - Additional Information, Common Reference Level for Vessel Level Instrumentation

LILCO previously committed to providing a common water level reference by modifying the two fuel zone instrument indications to reflect the same reference zero (the bottom of the dryer skirt) as the other nine water level indications. The following additional information is provided regarding that modification.

Presently the two instruments, one fuel zone water level indicator and one fuel zone water level recorder, have a range of +50 to -150 with reference points at 50, 0, -50, -100, and -150.

The instrument face plates will be modified to indicate a common water level reference range using scale values graduated in accordance with standard human factors requirements of "1, 2, or 5".

This is consistent with the other water level indications which provide the following indications:

- (a) Shutdown Range: 0 to +400 in increments of 100 inches.
- (b) Narrow Range: 0 to +60 in increments of 10 inches.
- (c) Wide Range: +60 to -150 with reference points at +60, +50, 0, -50, -100, and -150.

SUPPLEMENT TO LILCO RESPONSE TO ITEM III.D.1.1 REV. 1

1. The following systems are not included in the Shoreham leakage reduction and control program for the reasons indicated:

Feedwater, Main Steam Lines and Drains, Recirc Pump Seal Water - systems are non-safety related and will be isolated and not operating under accident conditions.

Scram Discharge Volume - system is normally drained and empty; insert and withdrawal lines will be visually inspected for leakage during inservice hydrostatic testing of the reactor pressure vessel.
2. To quantitatively measure leakage of water, the leakage will be collected in a measuring device and timed to determine GPM leak rate. Implementing procedures will establish criteria for initiation of leak rate quantification.
3. HPCI and RCIC will be qualitatively inspected for steam leakage as indicated by signs of leakage, such as rust, piping discoloration of the floor or components under the component being observed, or visual observation of leaking saturated steam.
4. Lines associated with the Post Accident Monitoring System that contain water will be leak checked as described in Paragraph 2 above. Those lines containing gas will be checked by liquid soap bubble testing.
5. LILCO review of the specific design/construction concerns associated with I&E Circular 79-21 has determined that Shoreham as presently designed and constructed, provides adequate protection against unplanned radioactive releases. Only one minor improvement was recommended as a result of the review, that was the addition of gasketing on two personnel doors in the radwaste building. This recommendation will be implemented.

I.A.1.3 Shift Manning

NRC Position

Assure that the necessary number and availability of personnel to man the operations shifts have been designated by the licensee. Administrative procedures should be written to govern the movement of key individuals about the plant to assure that qualified individuals are readily available in the event of an abnormal or emergency situation. This should consider the recommendations on overtime in NUREC-0578. Provisions should be made for an aide to the shift supervisor to assure that, over the long term, the shift supervisor is free of routine administrative duties.

At any time a licensed nuclear unit is being operated in Modes 1-4 for a pressurized water reactor (power operation, startup, hot standby or hot shutdown, respectively) or in Modes 1-3 for a boiling water reactor (power operation, startup, or hot shutdown, respectively), the minimum shift crew shall include two licensed senior reactor operators, one of whom shall be designated as the shift supervisor, two licensed reactor operators, and two unlicensed auxiliary operators. For a multi-unit station, depending upon the station configuration, shift staffing may be adjusted to allow credit for licensed senior reactor operators and licensed reactor operators to serve as relief operators on more than one unit; however, these individuals must be properly licensed on each such unit. At all other times, for a unit loaded with fuel, the minimum shift crew shall include one shift supervisor who shall be a licensed senior reactor operator, one licensed reactor operator, and one unlicensed auxiliary operator.

Adjunct requirements to the shift staffing criteria stated above are as follows:

- (1) A shift supervisor with a senior reactor operator's license, who is also a member of the station supervisory staff, shall be onsite at all times when at least one unit is loaded with fuel.
- (2) A licensed senior reactor operator shall, at all times, be in the control room from which a reactor is being operated. The shift supervisor may from time to time act as relief operator for the licensed senior reactor operator assigned to the control room.
- (3) For any station with more than one reactor containing fuel, the number of licensed senior reactor operators onsite shall, at all times, be at least one more than the number of control rooms from which the reactors are being operated.
- (4) In addition to the licensed senior reactor operators specified in (1), (2), and (3) above, for each reactor containing fuel, a licensed reactor operator shall be in the control room at all times.
- (5) In addition to the operators specified in (1), (2), (3) and (4) above, for each control room from which a reactor is being operated, an additional licensed reactor operator shall be onsite at all times and available to serve as relief operator for that control room. As noted above, this individual may serve as relief

operator for each unit being operated from that control room, provided he holds a current license for each unit.

- (6) Auxiliary (non-licensed) operators shall be properly qualified to support the unit to which assigned.
- (7) In addition to the staffing requirements stated above, shift crew assignments during periods of core alterations shall include a licensed senior reactor operator to directly supervise the core alterations. This licensed senior reactor operator may have fuel handling duties but shall not have other concurrent operational duties.

Licensees of operating plants and applicants for operating licensees shall include in their administrative procedures (required by license conditions) provisions governing required shift staffing and movement of key individuals about the plant. These provisions are required to assure that qualified plant personnel to man the operational shifts are readily available in the event of an abnormal or emergency situation.

These administrative procedures shall also set forth a policy, the objective of which is to operate the plant with the required staff and develop working schedules such that use of overtime is avoided, to the extent practicable, for the plant staff who perform safety-related functions (e.g., senior reactor operators, reactor operators, health physicists, auxiliary operators, instrumentation and control technicians, and key maintenance personnel).

IE Circular No. 80-02, "Nuclear Power Plant Staff Work Hours," dated February 1, 1980, discusses the concern of overtime work for members of the plant staff who perform safety-related functions.

We recognize that there are diverse opinions on the amount of overtime that would be considered permissible and that there is a lack of hard data on the effects of overtime beyond the generally recognized normal 8-hour working day, the effects of shift rotation, and other factors. We have initiated studies in this area. Until a firmer basis is developed on working hours, the administrative procedures shall include as an interim measure the following guidance, which generally follows that of IE Circular No. 80-02.

In the event that overtime must be used (excluding extended periods of shutdown for refueling, major maintenance, or major plant modifications), the following overtime restrictions should be followed:

- (1) An individual should not be permitted to work more than 12 hours straight (not including shift turnover time).
- (2) There should be a break of at least 12 hours (which can include shift turnover time) between all work periods.
- (3) An individual should not work more than 72 hours in any 7-day period.
- (4) An individual should not be required to work more than 14 consecutive days without having 2 consecutive days off.

However, recognizing that circumstances may arise requiring deviation from the above restrictions, such deviation shall be authorized by the plant manager or his deputy or higher levels of management in accordance with published procedures and with appropriate documentation of the cause. If a reactor operator or senior reactor operator has been working more than 12 hours during periods of extended shutdown (e.g., at duties away from the control board), such individuals shall not be assigned shift duty in the control room without at least a 12-hour break preceding such an assignment. We encourage the development of a staffing policy that would permit the licensed reactor operators and senior reactor operators to be periodically relieved of primary duties at the control board, such that periods of duty at the board do not exceed about 4 hours at a time. If a reactor operator is required to work in excess of 8 continuous hours, he shall be periodically relieved of primary duties at the control board, such that periods of duty at the board do not exceed about 4 hours at a time.

The guidelines on overtime do not apply to the shift technical advisor provided he or she is provided sleeping accommodations and a 10-minute availability is assured.

Operating license applicants shall complete these administrative procedures before fuel loading. Development and implementation of the administrative procedures at operating plants will be reviewed by the Office of Inspection and Enforcement beginning 90 days after July 31, 1981.

LILCO Position

The Shoreham Station Procedure entitled "Shift Operations," will be revised prior to fuel loading in order to implement the following:

1. When in Operational Conditions 1-3, the shift complement shall at a minimum consist of the following personnel:
 - a. 1 Watch Engineer (SRO)
 - b. 1 Watch Supervisor (SRO)
 - c. 1 Nuclear Station Operator (RO)
 - d. 1 Nuclear Assistant Station Operator (RO)
 - e. 2 Equipment Operators (non-licensed but trained and qualified operators)
2. When in Operational Conditions 4 or 5 and whenever the Reactor is loaded with fuel, the shift complement shall at a minimum consist of the following personnel:
 - a. 1 Watch Engineer (SRO)
 - b. 1 Nuclear Station Operator (RO) or
1 Nuclear Assistant Station Operator (RO)
 - c. 1 Equipment Operator (non-licensed)

3. During periods of core alterations, a licensed senior reactor operator (may be a refuel operation restricted licensed senior reactor operator) shall be stationed on the refuel floor to directly supervise all core alterations. This senior reactor operator shall have no other concurrent operational duties but may have fuel handling duties.
4. In Operational Conditions 1-3, the Watch Supervisor shall be stationed in the control room. The Watch Engineer may temporarily relieve the Watch Supervisor in the control room for short periods such that a licensed senior reactor operator is always in the control room assuming the control room command function whenever in Operational Conditions 1-3.
5. Whenever the reactor is loaded with fuel, a Nuclear Station Operator shall be stationed in the control room (when in Operational Conditions 4 or 5, and the Reactor loaded with fuel, a Nuclear Assistant Station Operator may be substituted for the Nuclear Station Operator and when in Operational Conditions 1-3, the Nuclear Assistant Station Operator may temporarily relieve the Nuclear Station Operator for short periods so that a licensed reactor operator is always in the control room whenever the Reactor is loaded with fuel). This requirement is in addition to the requirement for a licensed senior reactor operator when in Operational Conditions 1-3.
6. The shift schedule shall conform to the guidelines provided in the Shoreham Station Procedure entitled "Station Operations - Overtime Selection" as it applies to the scheduling and use of overtime.
7. The movement in the plant by members of the shift complement shall be such that they may be easily and rapidly informed and/or contacted and dispatched by the control room operators in the event an emergency situation arises in order to assure that qualified plant personnel to man operational shifts are readily available.

The Shoreham Station Procedure entitled "Station Operations - Overtime Selection," will be revised prior to fuel loading in order to implement the following:

1. For those plant personnel who perform safety-related functions (e.g., senior reactor operators, health physicists, equipment operators, instrumentation and control technicians, and key maintenance personnel), the routine use of overtime shall be avoided to the extent practical.
2. In the event overtime must be used (excluding extended periods of shutdown for refueling, major maintenance, or plant modifications), the following overtime restrictions should be followed:
 - a. An individual should not be permitted to work more than 12 hours straight (not including shift turnover time).
 - b. There should be a break of at least 12 hours (which includes shift turnover time) between all work periods.
 - c. An individual should not work more than 72 hours in any 7-day period.

- d. An individual should not be required to work more than 14 consecutive days without having 2 consecutive days off.
3. Deviations from the above overtime restrictions shall be authorized by the Plant Manager or his assigned deputy in the Plant Manager's absence. The cause of the required deviation to these overtime restrictions shall be documented.

The Equipment Operators (Shorehams Auxiliary Operators) are trained and qualified as outlined in the Shoreham Station Procedure entitled "Station Operator Training and Qualification Program." Since the Shoreham Nuclear Power Station contains only one unit and since no other units are operated by LLCO, the requirement that Auxiliary (non-licensed) operators be properly qualified to support the unit to which assigned is not a problem at Shoreham.

Upon completion of the above revisions, the Shoreham Nuclear Power Station will be in complete compliance with this Task Action Item.

I.C.2 Shift and Relief Turnover Procedures

NRC Position

The licensees shall review and revise as necessary the plant procedure for shift and relief turnover to assure the following:

1. A checklist shall be provided for the oncoming and offgoing control room operators and the oncoming shift supervisor to complete and sign. The following items, as a minimum, shall be included in the checklist:
 - a. Assurance that critical plant parameters are within allowable limits (parameters and allowable limits shall be listed on the checklist).
 - b. Assurance of the availability and proper alignment of all systems essential to the prevention and mitigation of operational transients and accidents by a check of the control console (what to check and criteria for acceptable status shall be included on the checklist).
 - c. Identification of systems and components that are in a degraded mode of operation permitted by the Technical Specifications. For such systems and components, the length of time in the degraded mode shall be compared with the Technical Specifications action statement (this shall be recorded as a separate entry on the checklist).
2. Checklists or logs shall be provided for completion by the offgoing and oncoming auxiliary operators and technicians. Such checklists or logs shall include any equipment under maintenance of test that by themselves could degrade a system critical to the prevention and mitigation of operational transients and accidents or initiate an operational transients (what to check and criteria for acceptable status shall be included on the checklist); and
3. A system shall be established to evaluate the effectiveness of the shift and relief turnover procedure (for example, periodic independent verification of system alignments).

LILCO Position

The Shoreham Station Procedure entitled "Shift Operations," will be revised prior to fuel loading in order to implement the following:

1. The oncoming and offgoing control room operators and the oncoming Watch Engineer (Shoreham's Shift Supervisor) shall, prior to relieving their respective watches, complete and sign a checklist which will include, as a minimum, the following items:

- a. Assurance that critical plant parameters are within allowable limits (parameters and allowable limits shall be listed on the checklist).
 - b. Assurance of the availability and proper alignment of all systems essential to the prevention and mitigation of operational transients and accidents by a check of the control console (what to check and criteria for acceptable status shall be included on the checklist).
 - c. Identification of systems and components that are in a degraded mode of operation permitted by the Technical Specifications. For such system and components, the length of time in the degraded mode shall be compared with the Technical Specifications action statement (this shall be recorded as a separate entry on the checklist).
2. Offgoing and oncoming Equipment Operators (Shoreham's Auxiliary Operators) and technicians shall, prior to relieving their respective watches, complete and sign a checklist which will include any equipment under maintenance or test that by themselves could degrade a system critical to the prevention and mitigation of operational transients and accidents or initiate an operational transient (what to check and criteria for acceptable status shall be included on the checklist).
 3. Periodic independent verification of the information turned over via the above checklists shall be performed so that the effectiveness of the shift and relief turnover procedure can be evaluated. Deficiencies discovered during this verification shall be identified and submitted to the Operating Engineer for review.

Completion of the above revisions will make the Shoreham Nuclear Power Station be in complete compliance with the Task Action Item.

I.C.3 Shift Supervisor Responsibilities

NRC Position

In letters of September 13 and 27, October 10 and 30, and November 9, 1979, NRC required licensees and applicants to review and revise as necessary plant procedures and directives to assure that the duties, responsibilities, and authority were properly defined to establish a definite line of command and clear delineation of the command and decision authority of the supervisor in the control room relative to other plant management personnel. These letters also emphasized the primary management responsibility of the shift supervisor for safe operation of the plant. Training programs for shift supervisors were required to emphasize and reinforce the responsibility for safe operation and management function of the shift supervisor to assure safe operation of the plant.

LILCO Position

This Task Action Item is included in Item I.A.1.2, Shift Supervisor Administrative Duties and Item I.C.4, Control Room Access.

* I.C.4 Control Room AccessNRC Position

The licensee shall make provisions for limiting access to the control room to those individuals responsible for the direct operation of the nuclear power plant (e.g., operations supervisor, shift supervisor, and control room operators), to technical advisors who may be requested or required to support the operation, and to predesignated NRC personnel. Provisions shall include the following:

1. Develop and implement an administrative procedure that establishes the authority and responsibility of the person in charge of the control room to limit access.
2. Develop and implement procedures that establish a clear line of authority and responsibility in the control room in the event of an emergency. The line of succession for the person in charge of the control room shall be established and limited to persons possessing a current senior reactor operator's license. The plan shall clearly define the lines of communication and authority for plant management personnel not in direct command of operations, including those who report to stations outside of the control room.

LILCO Position

The Shoreham Station Procedure entitled "Main Control Room - Conduct of Personnel," will be revised prior to fuel loading in order to implement the following:

1. No personnel, except those whose normally assigned functions or specific assignments that require access, shall enter the control room without prior approval of the Watch Engineer. The Watch Engineer shall have the authority and responsibility to limit access to the control room as required to ensure that a professional atmosphere is always maintained and that the number of personnel in the control room at any one time does not hinder the safe operation of the plant. This authority may be delegated to the Watch Supervisor (SRO) when in Operational Conditions 1-3 or to the Nuclear Station Operator (RO) when in any other Operational Condition, if the Watch Engineer is absent from the Control Room. Efforts by all other plant management personnel to limit access to the control room shall be made through the Watch Engineer or the person who has been delegated this authority and responsibility.
2. The Watch Engineer shall normally be the individual who is in possession of the control room command function. This function may be delegated to the Watch Supervisor when in Operational Conditions 1-3 or to the Nuclear Station Operator when in any other Operational Condition, if the Watch Engineer is absent from the Control Room. During all abnormal and emergency situations, the Watch Engineer shall be in possession of the

control room command function or shall be immediately contacted so he can assume the control command room function if he was absent from the control room at the onset of the abnormal or emergency situation. The only individuals who may relieve the Watch Engineer under any circumstances is an individual in possession of a current senior reactor operators license and should only be accomplished after an adequate turnover is performed. Furthermore, the Watch Engineer should not be relieved of the command control room function during abnormal, emergency or operational situations until the plant is placed in a safe and/or stable condition.

3. At all times, efforts by any member of the plant staff to direct activities which affect the safe operation of the plant shall be accomplished through the individual in possession of the control room command function.
4. When the Watch Engineer delegates the control room command function, the person to who this function has been delegated shall keep the Watch Engineer fully informed of plant status and operations such that he can easily and rapidly assume the control room command function in the event that an abnormal or emergency situation arises.

Completion of the above revisions will make the Shoreham Nuclear Power Station in complete compliance with this Task Action Item.

I.C.5 Procedures for Feedback of Operating Experience to Plant Staff

NRC Position

In accordance with Task Action Plan I.C.5, Procedures for Feedback of Operating Experience to Plant Staff (NUREG-0660), each applicant for an operating license shall prepare procedures to assure that operating information pertinent to plant safety originating both within and outside the utility organization is continually supplied to operators and other personnel and is incorporated into training and retraining programs. These procedures shall:

- (1) Clearly identify organizational responsibilities for review of operating experience, the feedback of pertinent information to operators and other personnel, and the incorporation of such information into training and retraining programs;
- (2) Identify the administrative and technical review steps necessary in translating recommendations by the operating experience assessment group into plant actions (e.g., changes to procedures; operating orders);
- (3) Identify the recipients of various categories of information from operating experience (i.e., supervisory personnel, shift technical advisors, operators, maintenance personnel, health physics technicians) or otherwise provide means through which such information can be readily related to the job functions of the recipients;
- (4) Provide means to assure that affected personnel become aware of and understand information of sufficient importance that should not wait for emphasis through routine training and retraining programs;
- (5) Assure that plant personnel do not routinely receive extraneous and unimportant information on operating experience in such volume that it would obscure priority information or otherwise detract from overall job performance and proficiency;
- (6) Provide suitable checks to assure that conflicting or contradictory information is not conveyed to operators and other personnel until resolution is reached; and,
- (7) Provide periodic internal audit to assure that the feedback program functions effectively at all levels.

Each utility shall carry out an operating experience assessment function that will involve utility personnel having collective competence in all areas important to plant safety. In connection with this assessment function, it is important that

procedures exist to assure that important information on operating experience originating both within and outside the organization is continually provided to operators and other personnel, and that it is incorporated into plant operating procedures and training and retraining programs.

Those involved in the assessment of operating experience will review information from a variety of sources. These include operating information from the licensee's own plant(s), publications such as IE Bulletins, Circulars, and Notices, and pertinent NRC or industrial assessments of operating experience. In some cases, information may be of sufficient importance that it must be dealt with promptly (through instructions, changes to operating and emergency procedures, issuance of special changes to operating and emergency procedures, issuance of special precautions, etc.) and must be handled in such a manner to assure that operations management personnel would be directly involved in the process. In many other cases, however, important information will become available which would be brought to the attention of operators and other personnel for their general information to assure continued safe plant operation. Since the total volume of information handled by the assessment group may be large, it is important that assurance be provided that high-priority matters are dealt with promptly and that discrimination is used in the feedback of other information so that personnel are not deluged with unimportant and extraneous information to the detriment of their overall proficiency. It is important, also, that technical review be conducted to preclude premature dissemination of conflicting or contradictory information.

LILCO Position

The procedures for the feedback of operating experience and other important information to the appropriate Shoreham personnel are outlined below

- (1) a. The Shoreham Station Procedure entitled Review of Operations Committee (ROC) establishes the duties and functions of ROC which include review of Shoreham operating experience. The committee includes the Plant Manager as Chairman, the Chief Operating Engineer and Chief Technical Engineer as Vice-chairmen, and the various Section Heads as regular members. ROC advises the Plant Manager on all matters related to past, present and future operation and all matters related to public safety. The Review of Operating Committee is an essential part of the plant review program. A continuing effort is performed by the Review of Operations Committee to direct and monitor plant operation, and to plan future activities.
- b. Procedures will be written to establish an Independent Safety Engineering Group (ISEG) in response to the requirements of NUREG 0737 Item I.B.1.2. Major responsibilities of this group will be the review of the operating experiences of Shoreham as well as those of other stations of similar design, and the examination of appropriate plant operating characteristics and industry and NRC issuances. The ISEG will be composed of a Chairman and five dedicated multi-disciplined personnel. The Chairman shall report directly to the Manager, Nuclear Operations Support and shall transmit formal analyses and recommendations to him for presentation to appropriate corporate management.
- c. The Shoreham Station Procedure entitled "Required Reading List" establishes the Plant Manager, the Chief Engineers, and the Section Heads as the organizational personnel responsible for identifying pertinent information for feedback to operators and other personnel.

Shoreham procedures will give the ISEG the authority to recommend for inclusion in the feedback to operators and other personnel any pertinent information or significant operating experience selected from the material it has reviewed.
- d. Shoreham Station Procedure entitled "Training Responsibilities" makes the Training Supervisor responsible for coordinating the preparation and revision of training programs and lesson plans.

Section Heads provide recommendations and other input information to the Training Supervisor for the updating of training programs in their section's area of responsibility. At such time they would recommend revision to incorporate the most recent operating experience or other important information into the lesson plans.

- (2) Shoreham procedures which are being written to govern the activity of the ISEG will establish the following review cycle. The ISEG will perform safety assessments of appropriate NRC issuances, vendor technical correspondence, Shoreham LER's and operating experience, and appropriately related INPO/NSAC reports. Based on their reviews, ISEG may make recommendations for appropriate action to the Manager, Nuclear Operations Support. He will then send those recommendations which are the responsibility of the plant staff to the Shoreham Plant Manager.

The Shoreham Station Procedure entitled "Technical Correspondence and Bulletins" provides a controlled documented technical review and disposition cycle for all important documents received at Shoreham. The procedure assures that appropriate recommended actions are taken. The procedure will be modified to include ISEG recommendations among the items tracked in this fashion.

- (3) The Shoreham Station Procedure entitled "Required Reading List" identifies the groups which may receive the various categories of information from operating experience via the required reading list.
- (4) The Shoreham Station Procedure entitled "Required Reading List" allows for alternate methods such as supervisor lectures, staff meetings, section meetings or preplanned lectures for the expeditious propagation of certain information requiring the special attention of station personnel.
- (5) The Plant Manager, the Chief Engineers and the Section Heads are responsible for limiting the materials they submit for inclusion on the Required Reading List to essential information only. The Training Supervisor, who administers the circulation of Required Reading Lists in accordance with the Shoreham Station Procedure of the same title, serves as a further check to assure that plant personnel do not routinely receive extraneous and unimportant information on operating experience.

Review of operating experience and other information by the ISEG will serve to separate out extraneous material before it reaches the plant in the form of ISEG recommendations. In addition, the material received by ISEG from the INPO/NSAC Significant Event

Evaluation and Information Network is initially screened by INPO and NSAC.

- (6) The Plant Manager, the Chief Engineers, and the Section Heads are responsible for assuring that the material they submit for inclusion on the Required Reading List does not include conflicting or contradictory information. The Training Supervisor, who administers the circulation of the Required Reading List in accordance with the Shoreham Station Procedure of the same title, serves as a further check to prevent the conveyance of conflicting or contradictory information.

The ISEG will note any contradictory or conflicting information in the material they review and will thereby prevent its conveyance to operators or other personnel. INPO and NSAC are taking special measures to avoid the dissemination of conflicting or contradictory information via their issuances, thus all material received by ISEG from INPO/NSAC will have already been screened once.

- (7) Shoreham procedures being written to govern the activities of the ISEG will provide for ISEG evaluation of the Shoreham feedback program.

The Training Supervisor or Section Heads may elect to include examination questions covering material from the operating experience feedback process that has been incorporated into the Shoreham training program. This would provide an additional quantitative measure of the effectiveness of the feedback cycle.

I.C.6 Procedures for Verification of Correct Performance of Operating ActivitiesNRC Position

It is required (from NUREG-0660) that licensees' procedures be reviewed and revised, as necessary to assure that an effective system of verifying the correct performance of operating activities is provided as a means of reducing human errors and improving the quality of normal operations. This will reduce the frequency of occurrence of situations that could result in or contribute to accidents. Such a verification system may include automatic system status monitoring, human verification of operations, and maintenance activities independent of the people performing the activity (see NUREG-0585, Recommendation 5) or both.

Implementation of automatic status monitoring if required will reduce the extent of human verification of operations and maintenance activities but will not eliminate the need for such verification in all instances. The procedures adopted by the licensees may consist of two phases - one before and one after installation of automatic status monitoring equipment, if required, in accordance with item I.D.3 of NUREG-0660.

An acceptable program for verification of operating activities is described below.

The American Nuclear Society has prepared a draft revision to ANSI Standard N18.7-1972 (ANS 3.2) "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants." A second proposed revision to Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," which is to be issued for public comment in the near future, will endorse the latest draft revision to ANS 3.2 subject to the following supplemental provisions:

- (1) Applicability of the guidance of Section 5.2.6 should be extended to cover surveillance testing in addition to maintenance.
- (2) In lieu of any designated senior reactor operator (SRO), the authority to release systems and equipment for maintenance or surveillance testing or return-to-service may be delegated to an on-shift SRO, provided provisions are made to ensure that the shift supervisor is kept fully informed of system status.
- (3) Except in cases of significant radiation exposure, a second qualified person should verify correct implementation of equipment control measures such as tagging of equipment.
- (4) Equipment control procedures should include assurance that control-room operators are informed of changes in equipment status and the effects of such changes.
- (5) For the return-to-service of equipment important to safety, a second qualified operator should verify proper systems alignment unless functional testing can be performed without compromising plant safety, and can prove that all equipment, valves, and switches involved in the activity are correctly aligned.

NOTE: A licensed operator possessing knowledge of the systems involved and the relationship of the systems to plant safety would be a "qualified" person. The staff is investigating the level of qualification necessary for other operators to perform these functions.

For plants that have or will have automatic system status monitoring as discussed in Task Action Plan item I.D.3, NUREG-0660, the extent of human verification of operations and maintenance activities will be reduced. However, the need for such verification will not be eliminated in all instances.

LILCO Position

The Shoreham Station Procedures which govern equipment control measures, maintenance and surveillance activities will be revised prior to fuel loading in order to implement the following:

Control measures such as locking or tagging to secure and identify equipment in a controlled status shall be required. Control room tagouts shall be designed and installed to prevent obstruction of other instruments, controls, or indicating lights.

The status of inspections and tests performed upon individual items on the nuclear power plant shall be indicated by the use of markings such as stamps, tags, labels, routing cards, or other suitable means. Suitable means include identification numbers which are traceable to records of the status of inspections and tests. Items which have not satisfactorily passed required inspections and tests shall be identified where necessary to preclude inadvertent bypassing of such inspections and tests. In cases where required documentary evidence is not available, the associated equipment or materials must be considered nonconforming. Until suitable documentary evidence is available to show the equipment or material is in conformance, affected systems shall be considered to be inoperable and reliance shall not be placed on such systems to fulfill their intended safety functions.

Permission to release plant systems or equipment for maintenance, surveillance tests, or return-to-service shall be granted by the on-duty Watch Engineer. This authority may be delegated to the on-duty Watch Supervisor provided the Watch Engineer is kept fully informed of system status. Prior to granting permission, such operating personnel shall verify that the equipment or system can be released, determine what functional testing of redundant systems is required prior to and during the out-of-service period. Granting of such permission shall be documented. Attention shall be given to the potentially degraded degree of protection when one subsystem of a redundant safety system has been removed for maintenance or surveillance testing.

In addition to the requirements of the Technical Specifications, additional conditions to be considered in preparing equipment for maintenance or surveillance testing include, for example: shutdown margin, method of emergency core cooling; establishment of a path for decay heat removal; temperature and pressure of the system: valves between work and hazardous material; venting, draining and flushing; entry into closed vessels; hazardous atmospheres; handling hazardous materials; and electrical hazards. When entry into a closed system is required, control measures shall be established to prevent entry of extraneous material and to assure that foreign material is removed before the system is reclosed.

After permission has been granted to remove a system from service, it shall be made safe to work on. Measures shall provide for protection of equipment and workers. Equipment and systems in a controlled status shall be clearly identified, at a minimum, at any location where the equipment can be operated. When a safety-related system is removed from service, independent verification shall be provided to the extent necessary to assure that the proper system was removed. This may be accomplished by checking appropriate equipment and controls, or by indirect means such as observation of indicators and status lights. This requirement may be waived if the only way of accomplishing it would result in significant radiation exposure. The Control Room operators and the Watch Engineer shall be informed of changes in equipment status and the effects of such changes.

Temporary modifications, such as temporary bypass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings, shall be controlled by approved procedures which shall include a requirement for independent verification by either a second person or by a functional test which conclusively proves the proper installation or removal of the temporary modification. A log shall be maintained of the current status of such temporary modifications.

When equipment is ready to be returned to service, operating personnel shall place the equipment in operation and verify and document its functional acceptability. Attention shall be given to restoration of normal conditions, such as removal of jumpers or signals used in maintenance or testing or such as returning valves, breakers or switches to proper start-up or operating positions from "test" or "manual" positions, and assuring that all alarms which are indicative of inoperative status are extinguished. For safety-related equipment, proper alignment shall be independently verified by a second qualified person before the equipment is returned to service unless all equipment, valves, and switches involved in the activity can be proven to be in their correct alignment by functional testing without adversely affecting the safety of the plant. A second exception is where such verification would result in significant radiation exposure. The person who performs the verification of correct implementation of equipment control measures or proper alignment prior to returning equipment to service shall be qualified to perform such tasks for the particular system involved, and shall possess operating knowledge of the particular system involved and its relationship to plant safety. This qualification shall consist of training, verification and documentation to ensure that this person does possess operating knowledge of the particular system involved and its relationship to plant safety.

When placed into service, equipment should receive additional surveillance during the run-in period. Final acceptance of equipment which is returned to service shall be made by the on-duty Watch Engineer.

The above revisions will make the Shoreham Nuclear Power Station in complete compliance with this Task Action Item.

I.A.2.3 Administration of Training Program

NRC Position

Pending accreditation of training institutions, licensees and applicants for operating licenses will assure that training center and facility instructors who teach systems, integrated responses, transient, and simulator courses demonstrate senior reactor operator (SRO) qualifications and be enrolled in appropriate requalification programs.

This is a short term position. In the future, accreditation of training institutions will include review of the procedure for certification of instructors. The certification of instructors may, or may not, include successful completion of an SRO examination.

The purpose of the examination is to provide NRC with reasonable assurance during the interim period, that instructors are technically competent.

The requirement is directed to permanent members of training staff who teach the subjects enumerated above, including members of other organizations who routinely conduct training at the facility. There is no intention to require guest lecturers who are experts in particular subjects (reactor theory, instrumentation, thermodynamics, health physics, chemistry, etc.) to successfully complete an SRO examination. Nor is it intended to require a system expert, such as the instrument and control supervisor teaching the control rod drive system, to sit for an SRO examination.

LILCO Position

It is LILCO's position that permanent members of the training staff who teach systems, integrated responses, or transients be qualified or certified to teach in the appropriate subject area.

The qualification or certification of permanent members of the training staff may be accomplished by either of the following:

1. Successful completion of an SRO certification examination on an appropriate simulator; or
2. Successful completion of an NRC SRO examination.

LILCO does not intend to require either guest lecturers who are experts in particular subjects (reactor theory, instrumentation, thermodynamics, health physics, chemistry, etc.) to successfully

complete an NRC SRO examination; or system experts, such as an instrument and control supervisor teaching the control rod drive system to successfully complete an NRC SRO examination.

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II.B.3 POST-ACCIDENT SAMPLING (Additional Information)

- 1) Chloride, pH, and boron analyses are performed by electrode analysis with vendor assurance and documentation that the associated instrumentation will meet the appropriate environmental qualification for radiation field reliability. Procedures will be developed prior to fuel load upon receipt of the vendor supplied equipment and instructions.
- 2) Mutually acceptable procedures for off-site chemical analyses will be developed by Lilco and the selected laboratory.

II.B.7 HYDROGEN CONTROL (ADDITIONAL INFORMATION)

1. The hydrogen recombiners will function with an inerted containment.
2. The recombiners will recombine 3 SCFM of oxygen with 6 SCFM of hydrogen.
3. Generation of oxygen results only from the radiolytic decomposition of water. The rate varies with temperature and location (drywell, wetwell).

The quantities (rates) are determined from Fig. 3.1 (attached) of Draft 4 of proposed standard ANSI-N-275, ANS 56.1 June 1976, "Containment Hydrogen Control".

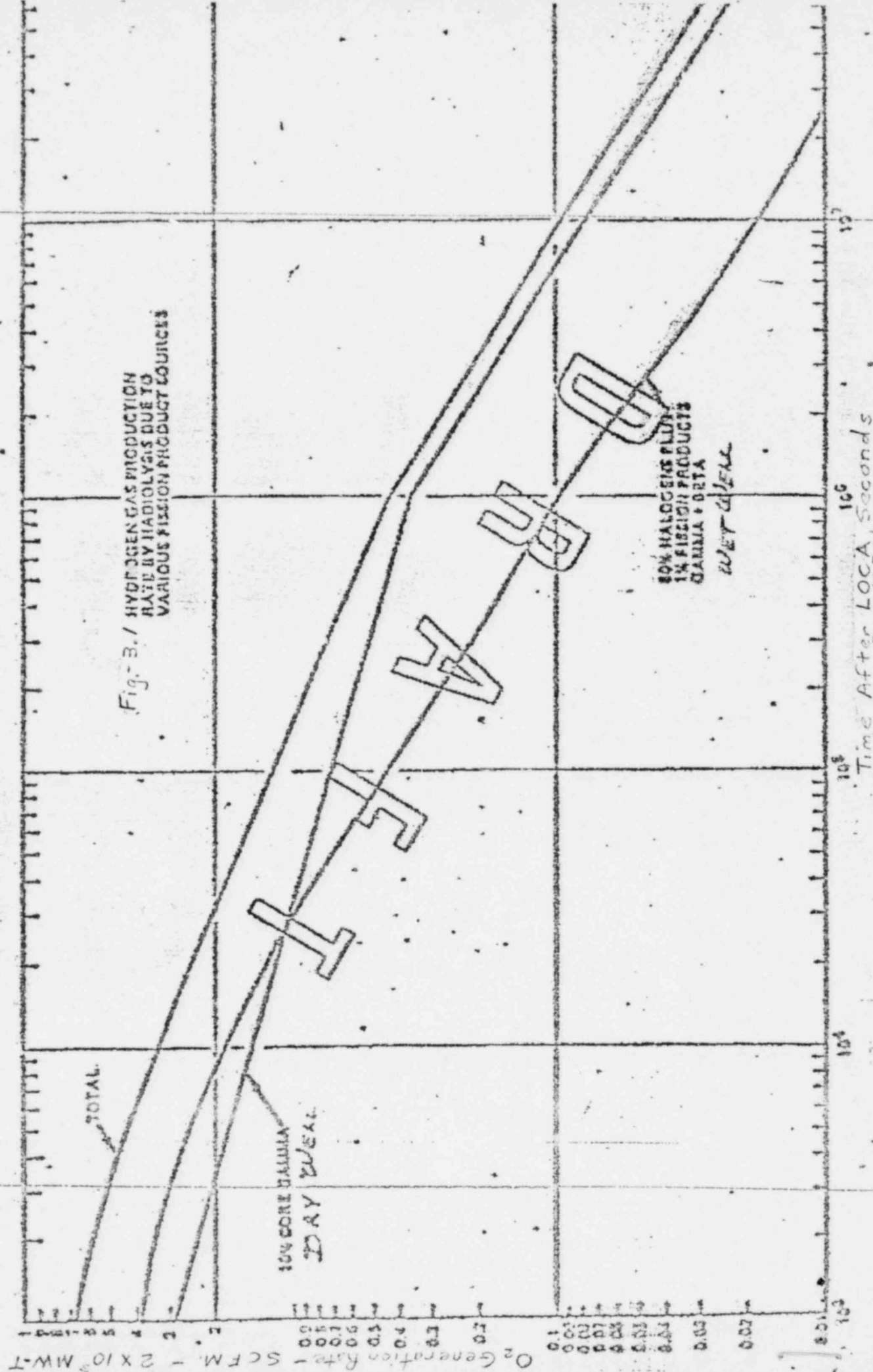


Fig-3.1 HYDROGEN GAS PRODUCTION RATE BY RADIOLYSIS DUE TO VARIOUS FISSION PRODUCT SOURCES

Time After LOCA, Seconds

SNPS-1 FSAR

Item No. 59 - LILCO Response to Staff Position Regarding Interim Actions
for Control of Heavy Loads

The following requirements will be implemented at Shoreham prior to the placement of new fuel assemblies in the Reactor Building:

- 1) Safe load paths will be defined in accordance with the guidelines set forth in Section 5.1.1 (1) of NUREG-0612 with the exception that floor markings will be limited to "where practical" due to the inherent radial and polar pathways traveled by the polar crane.
- 2) Procedures will be developed and implemented per the guidelines set forth in Section 5.1.1 (2) of NUREG-0612.
- 3) Crane operators will be trained, qualified and conduct themselves per the guidelines set forth in Section 5.1.1 (3) of NUREG-0612.
- 4) Cranes will be inspected, tested, and maintained in accordance with the guidelines set forth in Section 5.1.1 (6) of NUREG-0612.
- 5) In addition to the above, special attention will be given to procedures, equipment, and personnel for the handling of heavy loads over the core. This special review will include: a review of procedures for the movement of the load; a periodic visual inspection of load bearing components of cranes, slings, and special lifting devices to identify flaws or deficiencies that could lead to failure of the component; as appropriate, repair and replacement of defective components; and verification that the crane operators have been properly trained and are familiar with specific procedures used in handling these loads.

SNPS-1 FSAR

Clarification to Item I.A.1.1 - Shift Technical Advisor

INPO STANDARD		LILCO TRAINING PROGRAM				TOTAL EQUIV.
TOPIC	HOURS	OST	EQUIV. HOURS	SIMULATOR	EQUIV. HOURS	TRAINING HOURS
(Note) C. Admin Controls	80		42		8*	50*
(Note) D. Gen Op Proced	30		3		36*	3 *
E. Transient Analy	30				60*	60*
F. Simulator						
Classroom	50				100	160
Cont Room	50				60	

* Redundant reporting of simulator training program as listed in item F.

Note: Additional experience hours in administrative controls and general operating procedures are a natural and obvious occurrence through on the job training which the STA's will receive during the period beginning with the completion of the formal training program and ending with plant operation.

7/31/81