



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

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

April 16, 1982

SNRC-692

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

Control Room Design Review
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322



Dear Mr. Denton:

Findings have been documented in Supplement Numbers 1 and 2 to Shoreham's Safety Evaluation Report (SER) concerning the Control Room Design Review (SER Issue 57, Item I.D.1). Supplement No. 1 to the SER (SSER No. 1, September, 1981) contained a listing (Appendix C) of those findings (Priority 1 and 2) which required the implementation of corrective measures by LILCO prior to Fuel Load.

In addition, the NRC Staff has determined that LILCO's corrective measures for five of these findings required further review. These findings are identified in SSER No. 2 (February, 1982) and relate to the location of the security console, the controls and annunciators for the safety relief valves (3 findings) and the use of flashing yellow "-99.9" on the process computer CRT display to indicate an unknown analog value (point out of scan). LILCO's reevaluation, corrective actions, and a schedule for implementing these actions is provided for each of these findings as follows:

A. Secondary Alarm Station (SAS - Security Console)

NRC concerns are based on physical, audible and visual interference both to security personnel and control room operators. These concerns are alleviated by the following:

1. Physical - a) The SAS shall be manned by a single member of the Security force on a 24 hr/day - 7 day/week basis. The duties and functions of this officer are restricted to the SAS console and do not require his leaving his stationed position at the console.

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- b) The security officer is not required by procedure or alarm response action to leave the SAS panel or utilize other control consoles. The only other security person who may require access to the security console is a single security supervisor, and a separate headset will be provided for this unlikely event.
 - c) As shown in Figure 7, the SAS is located near the MXP panel (4' clearance). This panel is utilized primarily for certain "support system" controls and indication. Emergency operating procedures do not require the use of the MXP panel. During upset conditions the panel might be utilized by operating personnel for verification of support system response only. A specific task action analysis will be performed during the long term control room design review to further assure that physical interference does not exist between operations personnel and the SAS.
2. Audible - By fuel load, design changes will have been made such that the security person at the SAS will be equipped with a headset for communication with other security personnel. This should eliminate any conversational source of auditory interference with control room personnel. In addition, output levels of audible alarms on the SAS are adjustable and will be set to an acceptable level prior to plant operation so as to be essentially audible only to the security person.
3. Visual - The MXP panel is utilized for certain "support system" controls and indication. It is not necessary nor designed to be viewed from the operator's desk. Visual interference of the SAS should not, therefore, be a concern.

LILCO believes that, based on the reevaluation and design changes described above, the possibility of any physical, visual, or auditory interference between the SAS or its operator on control room operations has been eliminated, and sufficient justification exists for the SAS to remain in the control room. Further review of the present SAS location will be accomplished during LILCO's long term control room design review which will be done in accordance

with the guidelines set forth in NUREG 0700. It is anticipated that this review will be completed within approximately one year after requirements have been finalized by the NRC.

B. Safety Relief Valves - Controls and Annunciators

The NRC concerns involve primarily the separation of indicators and annunciators from the SRV control switches. This involved three areas as follows:

1. Location of Rosemount Pressure Indicators for Safety Relief Valve (SRV) tailpipe pressure relative to SRV Controls - The Rosemount pressure indicator/LED devices provide direct indication of SRV position, as required by NUREG-0737 Item II.D.1. Their prime function is indication of a Stuck Open Relief Valve (SORV). In such an event, an annunciator (Alarm No. 1337, "Safety or Relief Valve Leakage"), located directly above the SRV control panel would activate as would the red LED on the face of the pressure indicator corresponding to the SRV that is stuck open. This red LED can be observed by the operator from the SRV controls. It is not necessary for the operator to read the indicator to discern that a specific relief valve is open. The operator has the capability to cycle the stuck open relief valve via the SRV controls while viewing the pressure indicator LED to determine if valve closure has occurred. (See photographs Nos. 1 and 2). No action is required at the pressure indicator station. The controls and pressure indicators are located in relative proximity and their separation does not constitute a safety concern. The main control board configuration is such that the proximity of the SRV controls to the pressure indicator station has already been maximized. This can be seen by comparing photograph No. 3, which shows the back of the pressure indicator/LED assembly with photographs Nos. 4 and 5 which are typical internal layouts of the panels between the pressure indicator/LED assembly and the SRV controls. Photograph No. 6 shows the back of the panel housing the SRV controls.
2. SRV Temperature Indicator/Recorder - This recorder is utilized to facilitate detection of a leaking (as opposed to open SRV). Upon temperature in the SRV tail pipe reaching a preset value, the annunciator (Alarm No. 1337 "Safety or Relief Valve Leakage"), located directly above

the SRV control panel, will activate. This annunciator is the same annunciator that is triggered by high SRV discharge line pressure. Lack of indication on the Rosemount pressure indicators described in 1 above indicates a leaking SRV, and obviates the need for immediate operator response. Since the information provided by this recorder is not required for immediate action and to avoid congestion of non-essential information on the main control board, this recorder has been located on a back panel. This is consistent with the NRC Staff conclusion in SSER No. 1 that the temperature indicator is for backup indication only.

3. Annunciators on Boards G & H - Although these alarms are presently labeled "SRV Air System Degraded" and "SRV Air Header Trouble", they are not directly related to SRV function. The SRVs can be pneumatically operated and these alarms are for the pneumatic "support systems" consisting of N₂ gas piping and associated equipment. The alarm response procedure for SRV Air System Degraded is provided as Attachment 1. As can be seen, there is absolutely no need to approach and/or manipulate SRV controls on Panel 1H11*PNL-602 during response to this ARP. The alarm response procedure for SRV air header trouble is being rewritten to reflect an inerted containment and is not available. As with the previous ARP, there will be absolutely no need for the operator to approach and/or manipulate SRV controls in response to this alarm. Although relocation of these annunciators is not required, LILCO will re-title these windows to eliminate any possibility of confusion and/or association with the actual SRV system.

These findings will also be further addressed in our long term control room design review.

C. Use of Flashing Yellow "-99.9"

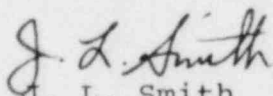
A flashing yellow "-99.9" appears on the process computer CRT to indicate an unknown analog value for a particular parameter. LILCO has re-examined this finding and will replace "-99.9" with "*****" to accomplish this function. It was determined that "*****" was more desirable than "?????", due to the possibility of mistaking a "?" for a "7" or a "9".

April 16, 1982
SNRC-692
Page 5

LILCO is proceeding with the modifications committed to in this letter, and all such modifications are scheduled to be completed prior to fuel load. LILCO feels that these modifications, in combination with the commitment for a long term control room design review, provide acceptable solutions to the staff findings on the SAS, the SRV controls, and the process computer CRT display, thus serving to reduce to sufficiently low levels the potential for operator error leading to serious consequences as a result of human factors considerations in the control room.

Please advise if you have any questions or require additional information.

Very truly yours,



J. L. Smith
Manager, Special Projects
Shoreham Nuclear Power Station

RWG:mp

cc: J. Higgins (w/attachments)
All parties "

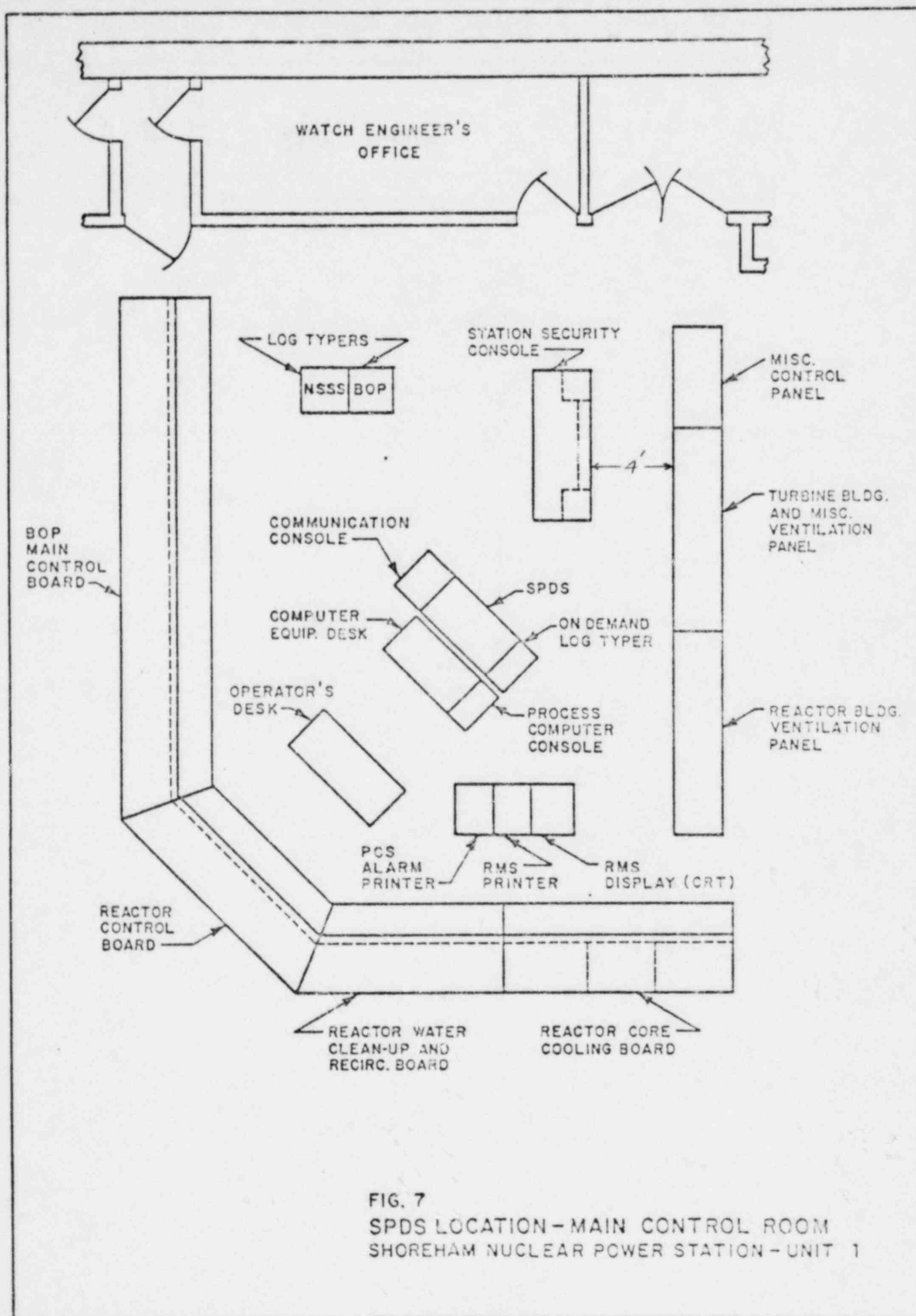


FIG. 7
SPDS LOCATION—MAIN CONTROL ROOM
SHOREHAM NUCLEAR POWER STATION—UNIT 1

Submitted: _____
Approved: _____
(Plant Manager)
Effective Date: _____
Revision: A

ARP 0239
(Window Number)
1 H11-MCB-01
(Panel Number)
209G/1-2 2-1
(Panel Sub-Section)

SRV AIR SYSTEM A DEGRADED

Instr. No. 49X relay from Set Point: Trip DE ENERGIZED
*MOV's-103, 113, 105, 114 Reset ENERGIZED

POSSIBLE CAUSE

1. Low voltage or no voltage to any of the *MOV's-103, 105, 113, 114

2. *MOV-103, 105, 113, 114, motor thermal overload tripped

IMMEDIATE ACTION

1.1 check MOV breaker position

2.1 attempt to reset thermal overload using reset pushbutton at motor controller

SUBSEQUENT ACTION

- 1.1 if breaker is tripping submit Maintenance Work Request
- 2.1 if overloads are tripping submit Maintenance Work Request
- 3.1 if system is in a degraded mode refer to TECHNICAL SPECIFICATIONS for operability requirements

REFERENCES

SP23.117-01
LSK-12-1
ESK-10ANB39
ESK-6P5014
ESK-6P5013
ESK-6P5016
ESK-6P5020

DRAFT

Attachment 1
4/16/82