LILCO
LONG ISLAND LIGHTING COMPANY
SHOREHAM NUCLEAR POWER STATION
P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

May 16, 1979

SNRC-241

Richard C. Hand, Esq.
Reilly and Like
200 West Babylon Street
Babylon, N. Y. 11702

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LOCAL PDR

Mr. Marc W. Goldsmith
Energy Research Group, Inc.
400-1 Totten Pond Road
Waltham, Mass. 02154

Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Gentlemen:

As you know, representatives from LILCO, Stone & Webster, General Electric, and the NRC Staff met with you on May 2, 1979 to resolve or narrow the contentions addressed in LILCO's first two sets of summary disposition motions, dated December 18, 1978 and February 5, 1979 and additional contentions addressed by certain Staff interrogatories. During that meeting you asked several questions that either required consultation with personnel who were not present, or you requested copies of documents that were not available at the meeting. The responses to your questions are enclosed.

I understand that the next meeting will be held at the Shoreham construction site Project Office on June 6, 1979, and that the purpose of the meeting will be to complete action on the above contentions, prepare a stipulation concerning them, and move on to the following SC contentions: 5a(i-xx), 5b(i-iii), 5c(iii & iv), 11a(i-iii), and 12a(iii & v-vii).

Very truly yours,

J. P. Novarro

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J. P. Novarro,
Project Manager
Shoreham Nuclear Power Station

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cc: Members of the Board
All Parties

JPM/cl

LILCO RESPONSES TO SC/ERG QUESTIONS AND REQUESTS FOR ADDITIONAL INFORMATION FROM MAY 2, 1979 MEETING

General

Q.1 Provide Shoreham's operational QA manual.

A.1 A copy of the Shoreham Operating QA Manual is herewith forwarded to ERG.

Q.2 Provide a copy of the Shoreham Fire Hazards Analysis Report.

A.1 The Shoreham Fire Hazards Analysis Report was forwarded to ERG on May 3, 1979.

SC Contentions Addressed In First Set of Summary Disposition Motions

7a(vi)

Q.1 Provide engineering drawings of the spent fuel pool rack embedments and the associated fuel rack mounting pads.

A.1 Engineering drawings of the spent fuel storage rack floor embedments and the associated fuel storage rack mounting pads are herewith forwarded to ERG.

Q.2 Provide photographs of the spent fuel rack base plates.

A.2 Photographs of the spent fuel storage rack base plates are herewith forwarded to ERG.

Q.3 What is the maximum rate of leakage to the spent fuel pool leakage collection system before some corrective action must be taken? What action will be taken to locate the source of leakage and correct it?

A.3 The leakage collection system is a means to detect and collect any leakage through the liner seam welds and the welds in the spent fuel storage rack embedments. Because these welds are thoroughly tested during fabrication and installation, they are not anticipated to leak. The probability of these welds leaking is so small that most other plants do not have leakage collection systems for their spent fuel pools.

There are a total of 13 leak test zones: four (4) each for the spent fuel pool, the reactor head cavity, and the dryer and separator storage pool, as well as one for the spent fuel storage rack embedments in the spent fuel pool. Each test zone is piped to a separate test station.

If leakage were to occur, the corrective action would depend on the severity of the leakage. The action would be either an intensified monitoring program or a program to locate and repair the leak. To locate the leak, probably compressed air would be introduced into the leakage collection system for the appropriate zone. The compressed air will pass through the leak and appear as bubbles in the spent fuel pool water, thus indicating the location of the leak. Then, depending on the location of the leak, a variety of techniques could be used to repair the leak.

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SC Contentions Addressed in Second
Set of Summary Disposition Motions

20a(i)-(ii)

Q.1 Provide a copy of the S&W radiological waste treatment systems maintainability study. Explain the general context of the study and provide representative examples of the general modifications made to improve plant maintainability.

A.1 A copy of the radwaste building portion of the Shoreham Maintainability Study is herewith forwarded to ERG. This study discussed, in general terms, how the maintainability of equipment could be improved and the potential radiation dose levels decreased. As a result of this study, many pipes and valves were relocated and other design modifications were implemented to improve plant maintainability and to reduce occupational exposure. For example:

1. Relocation of pip[illegible] in the anion, cation, and regeneration r[illegible] storage tank area to allow for accessi[illegible]y to pumps and the ultrasonic resin clean[illegible].

2. Major revisions of piping and valves in the radwaste filter demineralizer area to allow for accessibility to valves with a minimum of exposure to plant personnel.

3. Addition of platforms and relocation of air operated valves in the waste collector, floor drain, and discharge waste sample tank area.

4. Relocation of non-radioactive equipment and addition of shield walls to reduce maintenance exposure for the solidification system.

5. Open areas were established for walkways, as well as for equipment access, removal, and laydown.

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Q.2 Provide a summary and/or minutes of meetings between LILCO and S&W regarding industrial experience and Shoreham design considerations for ALARA and maintainability of radiological waste solidification systems.

A.2 The following are provided herewith to ERG in response to this request:

1. Notes of Conference Nos. 690 and 708
2. SNPS-2036E letter dated 8/11/76
3. S&W letter to ATCOR dated 11/16/76
4. LIL-11124 letter dated 8/04/77
5. LIL-13993 letter dated 2/26/79
6. SNPS-2881E letter dated 3/22/79

Q.3 Provide any Commonwealth Edison documentation on the Dresden Unit 1 decontamination that could be useful to Shoreham. Do these documents suggest that changes should be made at Shoreham, and if so, are they being made?

A.3 There are very substantial differences in the design concepts of the Dresden Unit 1 Nuclear Generating Station as compared to Shoreham. Therefore, it is doubtful that the Dresden Unit 1 decontamination experience will be applicable to Shoreham. At this time, LILCO is attempting to obtain documentation regarding the Dresden decontamination. If, after reviewing this documentation, LILCO has determined that it is relevant to Shoreham, LILCO will supply a copy to ERG.

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SC Contentions Based on Certain Staff Interrogatories

6a(i)

Q.1 Will LILCO monitor the results of LaSalle's future feedwater nozzle inspection?

A.1 Yes, LILCO will monitor, through G.E. and NRC reports, the results of inspections of feedwater nozzles at plants, such as LaSalle, with nozzle designs similar to Shorehams.

Q.2 Will G.E. make available for inspection at the next informal summary disposition meeting a copy of G.E. report NEDE-21480, BWR Feedwater Nozzle/Sparger Interim Program Report, dated February, 1977?

A.2 Yes, a copy of the above requested report will be available for ERG's perusal at the next informal summary disposition meeting, currently scheduled for June 6, 1979.

8a(i)-(ii)

Q.1 Provide a copy of EPRI report NP-309SY, Human Factors Review of Nuclear Power Plant Control Room Design, dated November, 1976.

A.1 The requested report is presently out of print. However, arrangements were made with the EPRI report center on May 3, 1979 to forward a copy of the summary directly to ERG. In a telephone conversation between M. Goldsmith (ERG) and J. Morin (LILCO) on May 4, 1979, Mr. Goldsmith agreed to use S&W's copy of the full report on a loan basis. S&W's copy was forwarded to ERG on May 4, 1979.

Q.2 Provide G.E. internal design specifications for control room panels.

A.2 The G.E. internal design specifications for control room panels are herewith forwarded to ERG.

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Q.3 What criteria were used by LILCO in customizing the Shoreham control panels?

A.3 During the years 1970 and 1971, LILCO worked with both General Electric and Stone & Webster to develop the Main Control Room NSSS and Balance of Plant Control Board layouts. In order to enhance the arrangement of the control panels and to establish a philosophy consistent with those presently in use at other LILCO power stations, members of the LILCO Electric Production Department visited other nuclear power stations including Oyster Creek, Vermont Yankee, and Dresden to look at their main control room panels and to learn how those panels could be improved. As a result, LILCO established certain criteria for the design of Shoreham's control panels. These criteria included the following:

1. The general arrangement of the control panels would be functionally similar to the General Electric simulator located in Morris, Illinois to facilitate the transfer of operator training experience to Shoreham's control panels.

2. Mimics for the systems would be presented on the control panels.

3. The mimics would be color-coded to distinguish between the various systems.

4. The size of the mimic presentations would be selected to distinguish main process lines from auxiliary flow paths.

5. Process controllers would be included in the system mimic and indicators showing the parameters affected would be in close proximity to the associated controllers to create cohesive functional groups.

6. The maximum height of the upper row of gauges would be approximately 5'4" above floor level and the maximum height of the recorders would be 4'4" above floor level. This would enhance the ability to read and maintain the meters and recorders.

7. The control panel annunciators would be functionally grouped with their corresponding systems.

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8. Certain annunciators would be color-coded to distinguish the more important functions; for example, RPS scram or ECCS Inop alarms would be color-coded red and ECCS system degradation alarms would be color-coded yellow.

9. The systems would be separated by a space in the panel or a vertical line to distinguish individual systems.

10. Control switches for motor operated valves would be color-coded to indicate whether they were throttleable or non-throttleable type valves.

11. The range switches for the intermediate range monitors would be color-coded to correspond to the recorder pens they were associated with to aid the operator in range switching during reactor heatups and shutdowns.

12. Both sound powered phones and plant intercom system phones would be provided along the length of the control panels to enhance operator communications with support personnel in the plant.

13. The operator's desk would be positioned in front of and facing the reactor board portion of the main control panel.

14. Flat-faced gauges were selected to reduce a glare problem which had been experienced as a result of the use of curved-faced gauges.

15. The Control Room will be carpeted to keep the general area noise level to a minimum.

16. Computer output peripherals were integrated into the control board to give additional flexibility to the operator in the information available to him. The peripheral devices incorporated included CRT's, computer trend recorders, and computer digital displays.

17. Annunciator panel alarms were given different tone signals to assist the operator in identifying the area of the control board from which the alarm was originating.

18. A consistent philosophy on the use of indicating lights was established, and implemented within the control board presentation, i.e., red - running, open; green - stop, closed, etc.

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Q.4 Provide a representative sample of control panel mimics (drawings and photographs).

A.4 A representative specification drawing and control room photographs that illustrate typical control panel mimics, controls, and monitors are herewith forwarded to ERG.

Q.5 Provide a description of operator training and requalification program.

A.5 The Shoreham Training Program and Retraining Program are discussed in detail in Shoreham FSAR §§ 13.2.1 and 13.2.2, respectively.

13a(ii),(v)

Q.1 What were Shoreham's earlier water chemistry limits? What are Shoreham's current water chemistry limits?

A.1 The early and current water quality requirements are provided in the following table:

Reactor Water:	Parameter	Early Maximum Limits	Current Maximum Limits
Normal operation Reactor pressurized	Conductivity	1.0 umhos/cm	≤1.0 umhos/cm
	Chlorides	0.2 ppm max.	≤0.2 ppm max.
	pH	5.6 - 8.6	5.6 - 8.6
Short duration Reactor pressurized	Max. conductivity	10 umhos/cm	10 umhos/cm
	Max. time above 1 umho/yr.	2 weeks/yr.	2 weeks/yr.
	Max. chloride	1.0 ppm	0.5 ppm
	Max. time above 0.2 ppm	2 wk/yr.	2 wk/yr.
Reactor Depressurized	Conductivity	10 umhos/cm	10 umhos/cm
	Chloride	0.5 ppm	0.5 ppm
	pH	6.0 - 8.5	5.3 - 8.6

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13a(ii),(v) (Con't.)

Feedwater:	Parameter	Early Maximum Limits	Current Maximum Limits
During normal full Power operation	Conductivity	< 0.1 umho/cm	≤ 0.1 umho/cm
	Chlorides	~1.ppb	< 2 ppb
	pH	6.5 - 7.5	6.5 - 7.5
	Metallic	<30 ppb	≤15 ppb
	Impurity	<2 ppb copper	≤2 ppb
	O_2	<0.14 ppm	20 - 200 ppb
During initial startup	Metallic	<100 ppb average	<50 ppb
1st 500 hours	Impurity	<500 ppb peak	~100 ppb peak

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