

July 13, 1981

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)
)
LONG ISLAND LIGHTING COMPANY) Docket No. 50-322
)
(Shoreham Nuclear Power Station,)
Unit 1))

LILCO MOTION FOR SUMMARY DISPOSITION
OF SOC CONTENTION 3

The Contention

By Board Order of March 5, 1980, SOC Contention 3 was
admitted as follows:

The recent revision 2 of Regulatory
Guide 1.97, "Instrumentation for
Light-Water-Cooled Nuclear Power Plants to
Assess Plant and Environs Conditions During
and Following an Accident" details the
needed devices and qualifications of
instruments, many of which are not presently
a part of the Shoreham design.

Material Facts as to Which There
is No Genuine Issue to Be Heard

1. Regulatory Guide 1.97, Revision 2 (Dec. 1980) defines both what must be done and when it must be done, in order to comply with the guide. See id. at 1.97-7 to -15.

2. Shoreham will meet the substantive and schedule requirements of this guide, except as noted in Table 1 of the attached McCaffrey Affidavit. As that table indicates:

- (a) Requirements 1, 3, 21, 24, 28 and 42 are subject to potential implementation delays, largely because of possible constraints on equipment availability; and
- (b) Requirements 5 and 18 for certain, and item 11 possibly, are the subject of exemption requests.

3. Thermocouples (item 2(b)(5) above) are covered by SOC Contention 8, which alleges in pertinent part: "[T]he Shoreham plant design does not have instrumentation to permit measurement of fuel clad temperature in the range experienced at TMI-2"

Argument

SOC Contention 3 claims that Regulatory Guide 1.97, Revision 2 "details the needed devices and qualifications of instruments, many of which are not presently a part of Shoreham's design." But as indicated in the attached McCaffrey Affidavit, Shoreham is being modified as necessary to meet the guide, with a few exceptions. Some of the necessary steps have

already been taken, some others will be completed by fuel load, and the rest by June 1983.

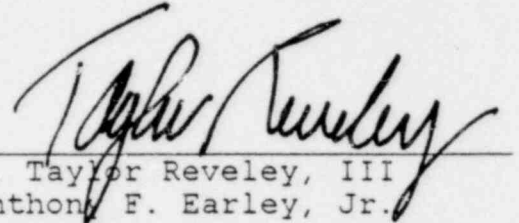
As to the exceptions, first, LILCO does not believe that thermocouples are necessary to satisfy the guide. It seems that SOC disagrees. SOC Contention 8, however, deals squarely and at length with the issue. Accordingly, to avoid redundancy and confusion, the question of thermocouples should be litigated once and for all in the context of Contention 8.

Second, it is not clear whether SOC is concerned about the other exceptions noted above. If it is, then further evidence may be needed as to one or more of them. Presumably, SOC's reply to this motion will indicate precisely its position on these exceptions.

For the reasons stated, LILCO requests that SOC Contention 3 be dismissed under § 2.749 for lack of "a genuine issue to be heard," except as regards (1) thermocouples, which should be removed to SOC Contention 8, and (2) other issue(s) regarding the exceptions described above if SOC raises a genuine issue about one or more of them in its reply to this motion.

Respectfully submitted

LONG ISLAND LIGHTING COMPANY

A handwritten signature in dark ink, appearing to read "W. Taylor Reveley, III". The signature is written in a cursive style with a horizontal line underneath it.

W. Taylor Reveley, III
Anthony F. Earley, Jr.

Hunton & Williams
P. O. Box 1535
707 East Main Street
Richmond, Virginia 23212

DATED: July 13, 1981

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In the Matter of)
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AFFIDAVIT OF BRIAN R. McCaffrey
REGARDING REGULATORY GUIDE 1.97, REVISION 2

Brian R. McCaffrey, being duly sworn, states as follows:

1. I am Manager of Project Engineering, Shoreham Nuclear Power Station, Long Island Lighting Company. A statement of my professional qualifications is attached to this affidavit.

2. Table 1 below summarizes what must be done at Shoreham to satisfy Regulatory Guide 1.97, Revision 2, and sets out the facts of Shoreham's compliance.

3. Table 2 below provides engineering detail elaborating upon Table 1's conclusions.

Brian R. McCaffrey
Manager of Project Engineering,
Shoreham Nuclear Power Station
LONG ISLAND LIGHTING COMPANY

July 13, 1981

TABLE 1
SNPS CONFORMANCE TO REGULATORY GUIDE 1.97, REVISION 2

<u>Reg. Guide 1.97, Rev. 2 Requirement (Measured Variable)</u> ^{1/}	<u>Required Implementation Date</u> ^{2/}	<u>Status of Compliance</u>
1. Neutron Flux	6/83	Required instrumentation already included in design. Additional upgrading of qualifications, power supplies and equipment required, scheduled for completion by 6/83, assuming the timely availability of necessary equipment and qualifications.
2. Control Rod Position	6/83	Complete.
3. Reactor Coolant System (RCS) Soluble Boron Concentration (Sample)	6/83	Additional instrumentation required, scheduled for completion by 6/83, assuming the timely availability of necessary equipment.
4. Coolant Level in Reactor	9/82	Required instrumentation already included in design. Additional qualification required for certain instrumentation. Also, certain power supplies require upgrading. Above are scheduled for completion by 9/82.
5. BWR Core Thermocouples	6/83	Exemption requested.
6. RCS Pressure	6/83	Required instrumentation already included in design. Qualification of certain transmitters and recorders required, scheduled for completion by 6/83.
7. Primary Containment Pressure (Drywell)	9/82	Required instrumentation already included in design. Qualification and expanded range required for certain recorders, scheduled for completion by 9/82.

^{1/} Some requirements appear more than once in the guide. They are listed below only once, however, in the order that they first appear in Table 1 of the guide.

^{2/} Assuming that Shoreham loads fuel by September 1982.

Reg. Guide 1.97, Rev. 2 Requirement (Measured Variable) <u>1/</u>	Required Implementation Date <u>2/</u>	<u>Status of Compliance</u>
8. Drywell Sump Level	9/82	Complete. Existing instrumentation adequate since the sumps are in secondary containment and are isolated on an accident signal.
9. Primary Containment Pressure (Suppression Chamber)	9/82	Required instrumentation already included in design. Qualification and expanded range required for recorders, scheduled for completion by 9/82.
10. Primary Containment Isolation Valve Position	6/83	Required switches and lights already included in design. Qualification of limit switches and lights required, scheduled for completion by 6/83.
11. Radioactivity Concentration or Radiation Level in Circulating Primary Coolant	6/83	Feasibility of compliance being studied. Not clear whether an exemption will be requested.
12. Analysis of Primary Coolant (Gamma Spectrum)	9/82	Additional instrumentation required in sampling system, scheduled for completion by 9/82.
13. Primary Containment Area Radiation	9/82	Required instrumentation already included in design. Qualification and expanded range required for certain equipment, scheduled for completion by 9/82.
14. Suppression Pool Water Level	9/82	Required instrumentation already included in design. Additional qualification required for certain transmitters and recorders. Also, relocation of taps required. Completion scheduled by 9/82.
15. Containment and Drywell Hydrogen Concentration	9/82 (expanded range) required by 6/83)	Required instrumentation already included in design. Additional qualification and expanded range required for recorder. Completion scheduled by 9/82 for qualification and 6/83 for expansion of range.

Reg. Guide 1.97, Rev. 2 Requirement (Measured Variable) <u>1/</u>	Required Implementation Date <u>2/</u>	<u>Status of Compliance</u>
16. Containment and Drywell Oxygen Concentration	9/82	Required instrumentation already included in design. Additional qualification required for re- corder, scheduled for completion by 6/83.
17. Containment Effluent Radio- activity - Noble Gases	9/82	Required instrumentation already included in design. Additional upgrading of qualifications and expanded range required, scheduled for completion by 9/82.
18. Radiation Exposure Rate (inside buildings or areas which are in direct contact with primary containment where penetrations and hatches are located)	6/83	Exemption requested.
19. Main Feedwater Flow	6/83	Complete.
20. Condensate Storage Tank Level	6/83	Complete.
21. Suppression Chamber Spray Flow	6/83	Additional instrumentation required, scheduled for com- pletion by 6/83, assuming the timely availability of necessary equipment.
22. Suppression Pool Water Temperature	6/83	Required instrumentation already included in design. Qualification of RTD's required. Existing range is adequate. Scheduled for com- pletion by 6/83.
23. Drywell Atmosphere Temperature	9/82	Qualified temperature elements required to supplement existing ones, scheduled for completion by 6/83.
24. Drywell Spray Flow	6/83	Additional instrumentation required, scheduled for completion by 6/83, assuming the timely availability of necessary equipment.

Reg. Guide 1.97, Rev. 2 Requirement (Measured Variable) ^{1/}	Required Implementation Date ^{2/}	<u>Status of Compliance</u>
25. Main Streamline Isolation Valves' Leakage Control System Pressure	6/83	Required instrumentation already included in design. Additional upgrade of qualifications re- quired, scheduled for completion by 6/83.
26. Primary System Safety Relief Valve Positions	9/82	Required instrumentation already included in design. Qualification of transmitter required, scheduled for completion by 9/82.
27. RCIC Flow HPCI Flow Core Spray System Flow RHR System Flow	6/83	Required instrumentation already included in design. Additional qualification of transmitter and indicator required, scheduled for completion by 6/83.
28. LPCI System Flow SLCS System Flow	6/83	Additional instrumentation required, scheduled for completion by 6/83, assuming the timely availability of necessary equipment.
29. SLCS Storage Tank Level	6/83	Required instrumentation already included in design. Additional upgrade required for qualifications, scheduled for completion by 6/83.
30. RHR Heat Exchanger Outlet Temperature	6/83	Required instrumentation already included in design. Additional qualifications required for thermo- couples and recorder, scheduled for completion by 6/83.
31. Cooling Water Flow to ESF System Components	6/83	Required instrumentation already included in design. Additional qualification required for trans- mitters and indicators, scheduled for completion by 6/83.
32. Cooling Water Temper- ature to ESF System Components	6/83	Required instrumentation already included in design. Additional qualification required for thermo- couples and recorder, scheduled for completion by 6/83.

Reg. Guide 1.97, Rev. 2 Requirement (Measured Variable) <u>1/</u>	Required Implementation Date <u>2/</u>	<u>Status of Compliance</u>
33. High Radioactivity Liquid Tank Level	6/83	Complete.
34. Emergency Ventilation Damper Position	6/83	Required switches already included in design. Additional upgrade of qualifications re- quired, scheduled for completion by 6/83.
35. Status of Standby Power and Other Energy Sources Important to Safety	6/83	Required indication already in- cluded in design. Additional upgrade of qualifications re- quired, scheduled for completion by 6/83.
36. Secondary Containment Area Radiation	6/83	Complete. Access to secondary containment is not required during accident conditions.
37. Sump Level in Spaces of Equipment Required for Safety	6/83	Required instrumentation already included in design. Additional upgrade of qualifications required, scheduled for completion by 6/83.
38. Effluent Radioactivity - Noble Gases, Station Vent	9/82	Required instrumentation already included in design. Additional upgrade of qualifications and power supply required, scheduled for 9/82.
39. Effluent Radioactivity, Halogens and Particu- lates (portable)	9/82	Complete.
40. Plant and Environs Radiation (portable)	6/83	High range survey equipment to be procured, scheduled for com- pletion by 6/83.
41. Plant and Environs Radioactivity	6/83	Portable equipment to be procured by 6/83.

Reg. Guide 1.97, Rev. 2 Requirement (Measured Variable) <u>1/</u>	Required Implementation Date <u>2/</u>	<u>Status of Compliance</u>
42. Post Accident Sampling	9/82 (Certain items required by 6/83)	New post-accident sampling system being implemented on schedule, assuming the timely availability of the necessary equipment.
43. Wind Direction	6/83	Complete.
44. Wind Speed	6/83	Complete.
45. Estimation of Atmospheric Stability	6/83	Complete.
46. Environs Radioactivity- Exposure Rate (contin- uous indication at fixed locations)	6/83	Equipment being provided, scheduled for completion by 6/83.
47. Environs Radioactivity - Radiohalogens and Particulates (portable)	6/83	Equipment being provided, scheduled for completion by 6/83.

TABLE 2

SHOREHAM ASSESSMENT TO REGULATORY GUIDE 1.97, REV. 2

Reg 1.97, Rev 2					SNPS-1	Present Compliance to Reg 1.97, Rev 2, Design Criteria*												Shoreham Impact	
Item	Measured Variable	Type	Qual	Range	Mark Nos.	Range	1A	1B	2	3	4A	4B	5A	5B	6	7	8	Changes Required to Comply Fully	Remarks
1	Control rod position	B	3	Full in or not Full in	NA	Full in-full out	NA	NA	NA	NA	Y	Y	Y	Y	Y	Y	NA	None	
2	Neutron flux	B,A	1	10 to 100% full power	1C51-XR802 (C51-R602)	10 ⁻¹ -10 ⁻⁴ C/S	N	N	N	N	N	N	N	N	Y	Y	N	Upgrade qualifications, power supplies and equipment	GE generic solution required
				(SRM,APRM)	C51-R600A-D	10 ⁻¹ -10 ⁻⁴	N	N	N	N	N	N	N	N	Y	N	N		
		A	1	Power range	1C51-XR803 A-D (C51-R603 A-D)	0-40%, 0-125%													
3	Coolant level in the reactor	B,A	1	Bottom of core support plate to centerline of main steam line	1B21-LR007	-150/0/+50 (203" to 403")	1	N	Y	2	Y	Y	Y	N	Y	Y	N	Qualified transmitters, recorders, and upgrade power supply for upper range	NUREG-0737, Item 11.P.2
					1B21-LI007	-150/0/+50 (203" to 403")	1	N	Y	2	Y	N	Y	N	Y	N	N		
					1B21-XR004 A,B	-150/0/+60 (367" to 577")	1	N	Y	2	Y	Y	Y	N	Y	Y	N		
					1B21-LI004 D	-150/0/+60 (367" to 577")	1	N	N	2	N	N	Y	N	Y	N	N		
					1C32-XR006	0-+60" to 0-180" to (517" to 577")	1	N	N	2	N	N	Y	N	Y	N	N		

LEGEND

* Column Designations

1A Seismic qualification per Reg Guide 1.100 for instrument loop

1B Seismic qualification per Reg Guide 1.100 for display instrument

2 Single failure criteria

3 Environmental qualification per Guide 1.89 (NUREG 0588)

4A Power source for instrument loop

4B Power source for display instrument

5A Quality assurance level for instrument loop

5B Quality assurance level for display instrument

6 Display type

8 Unique identification

NOTATION WITHIN TABLE:

Y-Yes

N-No

NA - Not applicable for this type of parameter

1-qualified to IEEE-344, 1971

2-qualified to IEEE-323, 1971

TABLE II.F.3-1 (CONT'D)

Reg 1.97, Rev 2					SNPS-1	Present Compliance to Reg 1.97, Rev 2, Design Criteria*												Shoreham Impact	
						697") 1C32-LI008 0-+60" to A,B,C (517" to 577") 1B21-LI005 0-400" (517" to 577") 1B21-LI004 -150 to +60 (367" to 577")	1	N	N	2	N	N	Y	N	Y	N	N		
4	RCS soluble boron conc (sample)	B	3	0 to	Not available on Shoreham													New instrumen- tation as part of post acci- dent sample system	
5	RCS pressure	B	1	15 psia to 1,500 psig	1B21-XR004 0-1,500 A,B psig	1	N	Y	2	Y	Y	Y	N	Y	Y	N	Qualified transmitters and recorder		
		A			1B21-PI004	1	N	N	2	Y	Y	Y	N	Y	N	N			
					IC32-P1003 0-1,200 psig	1	N	N	2	N	N	Y	N	Y	N	N			
		C	1	15 psia to 1,500 psig	IC32-XR004 850-1,050 psig	1	N	N	2	N	N	Y	N	Y	Y	N			
6	Main steam line isolation valves leakage control system pressure	D	2	0-15" H ₂ O 0-5 psid	IE32-PI031 30" Hg Vac- A-D 10 psig IE32-PI032 0-100 psig A-D IE32-PI033 0-100 psig IE32-PI034 30" Hg-10 psig IE32-PDI035 0-100" H ₂ O IE32-PDI038 0-100" H ₂ O												Upgrade qualifications		
7	SRV position	D	2	Closed not closed or 0 to 50 psig	1B21-PMU 0-100 501 psig	1	1	N	2	Y	Y	Y	Y	Y	Y	N	Qualified transmitter	NUREG-0737, Item II.D.3	
8	Primary contain- ment pressure	B C A	1	10 psia to 3 times design pressure	1Z93-PR 0-60 psig 501A,B 1Z93-PI140 12-17 psia	1	1	Y	2	Y	Y	Y	Y	Y	Y	N	Qualified recorder, expand range	NUREG-0737, Item II.F.1	

TABLE II.F.3-1 (CONT'D)

Reg 1.97, Rev 2			SNPS-1		Present Compliance to Reg 1.97, Rev 2, Design Criteria*													Shoreham Impact	
	(drywell)		0 to design																
8A	Primary Cont Press (Suppr chamber)	A B C	1	10 psia to 1293*PR 3 times 501A, B design pressure, 10 psia to design	0-60 psig	1	1	Y	2	Y	Y	Y	Y	Y	Y	Y	N	Qualified recorder	NUREG-0737, Item II.F.1
9	Drywell and wet-well hydrogen concentration	C A	1	0-30% 1T48*H ₂ R 114A,B	0-10%/ 0-20%	Y	1	Y	2	Y	Y	Y	Y	Y	Y	Y	N	Qualified recorder, expanded range	NUREG-0737, Item II.F.1. Expanded range of 0-30% is an additional requirement not specified in NUREG-0737.
10	Drywell and wet-well oxygen concentration	C	1	0-10% 1T48*O ₂ R 125A,B	0-10%/ 0-25%	Y	1	Y	2	Y	Y	Y	Y	Y	Y	Y	N	Qualified recorder	
11	Primary containment isolation valve position	B	1	Closed-not closed	Various	Closed-not closed	1	1	N	2	Y	Y	Y	Y	Y	Y	N	Qualified limit switches and lights	
12	Drywell atmosphere temperature	D	2	40°F to 440°F	1T47-TRS 030	50°F to 250°F	N	N	N	N	N	N	N	N	Y	Y	N	Addition of qualified temperature elements	New qualified temperature elements are being installed to comply with tech spec requirements
					1T47-TRS 020	50°F to 250°F	N	N	N	N	N	N	N	N	Y	Y	N		
					1T47-TRS 010	50°F to 250°F	N	N	N	N	N	N	N	N	Y	Y	N		
					1293-TI137	50°F to 150°F													

TABLE II.F.3-1 (CONT'D)

Reg 1.97, Rev 2				SNPS-1		Present Compliance to Reg 1.97, Rev 2, Design Criteria*										Shoreham Impact	
13	BWR core C,B thermo- couples	1	200°F to 2,300°F	Not pro- vided on Shoreham												Approximately 16 new thermo- couple loops	GZ generic solution required
14	Radio- activity concen- tration or radi- ation le- vel in circula- ting prima- ry coolant	C 1	1/2 tech spec limit to 100 times tech spec limit	Not pro- vided on Shoreham R/hr												Addition of gross activity monitor or a heavily shielded ionization chamber on the recirc line	Implementation of this parameter is on "Hold."
15	Analysis C of pri- mary coolant (gamma spectrum)	C 3	10 ⁻⁴ ci/gm to 10 ci/gm or TID- 14844 source term in coolant volume	Not pro- vided on Shoreham												Instrumentation in sampling system	
16	Primary E contain- C ment high range area radiation	E 3	1 to 10 ⁷ R/hr 1 to 10 ⁵ R/hr	1D21*RE085 A,B	10 to 10 ⁷ R/hr	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Qualification of equipment. Expand range	NUREG-0737, Item II.F.1
17	Second- E ary con- tainment area radiation	E 2	10 ⁻¹ to 10 ⁴ R/hr	Not pro- vided on Shoreham												New monitor	Not provided since access to secondary con- tainment not required

TABLE II.F.3-1 (CONT'D)

Reg 1.97, Rev 2				SNPS-1		Present Compliance to Reg 1.97, Rev 2, Design Criteria*												Shoreham Impact	
18	Drywell drain sumps level (identified and unidentified leakage)	C B	1	Bottom to top	1G11-LT209 0-48" 1G11-LT210 1G11-LR505 X		1	N	N	N	N	N	N	N	N	N	N	New qualified instrumentation	Existing instru- mentation is adequate since the sumps are in the secondary containment and isolated on an accident. The system has been designed in accordance with Regulatory Guide 1.45.
19	Contain- ment effluent radio- activity noble gases (incl RBSVS)	C E C	3 2 2	10 ⁻⁶ to 10 ⁻² Ci/cc 10 ⁻⁶ to 10 ⁵ Ci/cc 10 ⁻⁶ to 10 ³ Ci/cc	1D11*RE 021A,B 1D11*RE 022A,B	10 ⁻⁶ to 10 ⁵ Ci/cc												Upgrade quali- fications expand range	NUREG-0737, Item II.F.1
19A	RBSVS flow	E	2	0-110% flow	1T46*FR 004A,B													Upgrade qualifications	
20	Environs radio- activity exposure rate (continuous indications at fixed locations)	E		Per NUREG-0654 Section II.H.5a and 6B	Not pro- vided on Shoreham													Provide new monitoring stations	Not being pro- vided as system is currently under review
21	Main feed- water flow	D	3	0 to 110% design flow	1C32-FR020 1C32-FI 001A,B	0-12x10 ⁶ lb/hr 0-6x10 ⁶ lb/hr	NA	NA	NA	NA	Y	Y	Y	Y	Y	Y	NA	None	
22	Conden- sate storage tank level	D	3	Bottom to top	Input to plant computer	0 to 50°	NA	NA	NA	NA	Y	Y	Y	Y	Y	N	NA	None	

TABLE II.F.3-1 (CONT'D)

Reg 1.97, Rev 2				SNPS-1		Present Compliance to Reg 1.97, Rev 2, Design Criteria*												Shoreham Impact	
23	Drywell spray flow	D	2	0 to 110% design flow	Not pro- vided on Shoreham													New qualified instrumentation	GE generic solution required
23A	Suppr chamber spray flow		2	0 to 110% design flow	Not pro- vided on Shoreham													New qualified instrumentation	GE generic solution required
24	Drywell pressure	D	2	12 psia to 3 psig 0 to 110% design pressure	1293-PI140	12-17 psia	NA	NA	NA	2	Y	Y	N	N	Y	Y	N	Upgrade qualifications	
25	Suppres- sion pool water temp	D	2	30°F to 230°F	1293*TRS 500A,B (1 ft below NWL)	50°F to 250°F	NA	NA	NA	2	Y	Y	Y	Y		Y	NA	Qualified RTD's and recorder. Expand range.	Existing range adequately monitors this parameter
			A	1	1293*TRS 503A,B (2 ft below NWL)	50°F to 250°F	NA	NA	NA	2	Y	Y	Y	Y		Y	NA	Qualified RTD's and recorder. Expand range	
					1E41-TI152	50°F to 250°F	NA	NA	NA	2	Y	Y	Y	N		Y	NA		
26	Suppres- sion pool water	C	1	Bottom of ECCS suction line to 5' above NWL	1293*LR001 A,B	3' below NWL to 5' above NWL	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	NA	Qualified transmitters, recorders and relocation of taps	NUREG-0737, Item II.F.1
		D	2	Top of vent to top of weir well	1E41-LI013	1' below NWL to 2' above NWL (25'-6" to 28'-6")	1	N	N	2	N	N	Y	N	Y	N	N		
27	HPCI flow	D	2	0 to 110% design flow	1E41-FI003	0-5,000 gpm	NA	NA	NA	2	Y	Y	Y	N	Y	Y	NA	Qualified transmitter and indicator	
28	RCIC flow	D	2	0 to 110%	1E51-FI003	0-500 gpm	NA	NA	NA	2	Y	Y	Y	N	Y	Y	NA	Qualified transmitter and indicator	

TABLE II.F.3-1 (CONT'D)

Reg 1.97, Rev 2					SNPS-1	Present Compliance to Reg 1.97, Rev 2, Design Criteria*												Shoreham Impact
29	Core spray flow	D	2	0 to 110% design flow	1E21-FI002 A,B	0-5,000 gpm	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	NA	Qualified transmitters and indicators
30	RHR system flow	D	2	0 to 110% design flow	1E11*PR001	0-20,000 gpm	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	NA	Qualified transmitter and indicator
					1E11*FI001 A,B	0-20,000 gpm	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	NA	Qualified transmitter and indicator
31	LPCI system flow	D	2	0 to 110% design flow	Not provided on Shoreham												New instrumentation	GE generic solution required
32	RHR heat ex- changer outlet temp	D	2	32°F to 350°F	1E41-TR100 (1E11*TE 012A,B)	0-600°F	NA	NA	NA	2	Y	Y	Y	N	Y	Y	NA	Qualified thermocouples, recorder
33	Cooling water temp to ESF system components	D	2	32°F to 200°F	1E41-TR100 (1E11*TE 013A,B)	0-600°F	NA	NA	NA	2	Y	Y	Y	N	Y	Y	NA	Qualified thermocouples, recorder
34	Cooling water flow to ESF system components	D	2	0°F to 110°F design flow	1E11*FI100 6A,B (RHR HX)	0-12,000 gpm	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	NA	Qualified transmitters and indicators
					1P41*FI149 A,B (RHR HX)	0-12,000 gpm	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	NA	
35	SLCS storage tank	D	2	Bottom to top	1C41-LI001 A	0-5,000 gal	NA	NA	NA	NA	1	Y	N	N	Y	Y	NA	Upgrade qualifications
36	Sump level in spaces of equip- ment required for safety	A	1		1G11*LIS 645A,B	0-24"	1	1	Y	2	Y	Y	Y	Y	Y	Y	NA	Upgrade qualifications

TABLE II.F.3-1 (CONT'D)

Reg 1.97, Rev 2					SNPS-1	Present Compliance to Reg 1.97, Rev 2, Design Criteria*													Shoreham Impact	
37	SLCS flow	D	2	0 to 110% design flow	Not pro- vided on Shoreham														New instrumentation	GE generic solution required
38	High radio- activity liquid tank level	D	3	Top to bottom	1G11-LI026 A,B 1G11-LI005 A,B 1G11-LI027 A,B 1G11-LI169 A,B 1G11-LI175 A,B	0 to 39,000 gal	NA	NA	NA	NA	Y	Y	Y	Y	Y	Y	Y	NA	None	Indicators are located in radwaste control room
39	Emer- gency ventila- tion damper position	D	2	Open- closed status	Various	Open- closed	NA	NA	NA	2	-	Y	Y	Y	Y	Y	Y	NA	Upgrade qualifications	Only reactor building dampers and valves are included as this appears to be TMI concern, i.e., release of radio- active material from the plant
40	Status of standby power and other energy sources important to safety	D	2	Voltages currents pressures	Emer buses	Voltages and currents	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	Y	NA	Upgrade qualifications	Voltage and cur- rent indication is provided in the control room for 4,160 v and 480 v buses. Bat- tery voltages are indicated in the control room and battery amps are indicated at the DC switch- gear.
	(hydraulic, pneumatic)				1P50-PI116 A,B	0-150 psig	NA	NA	NA	2	Y	Y	Y	Y	Y	Y	Y	NA	Upgrade qualifications	
41	Radia- tion exposure rates	E	2	10 ⁻³ R/hr to 10 ⁻⁴ R/ hr	1D21-RE001 to 030 1D21-RE032 to 041	10 ⁻³ to 10 ⁻⁴ mr/hr	NA	NA	NA	N	N	N	N	N	N	Y	Y	NA	Repurchase and quality numerous arms with a 1,000 times normal	Not provided since access to secondary con- tainment not required

TABLE II.F.3-1 (CONT'D)

Req 1.97, Rev 2				SNPS-1		Present Compliance to Reg 1.97, Rev 2, Design Criteria*												Shoreham Impact		
42	Effluent E radio- activity noble gases sta vent	2	10 ⁻⁶ to 10 ⁻³ μ Ci/cc	1D11-RE042 1D11-RE069	10 ⁻⁶ to 10 ⁻² Ci/cc 10 ⁻² to 10 ⁻³ Ci/cc	NA	NA	NA	N	N	N	Y	Y	Y	Y	NA	Upgrade quali- fications and upgrade power supply to ups for ID11PNL-041	NUREG-0737 Item 11.F.1		
42A	Sta vent E flow rate	2	0 to 110% design flow	1D41-FT085 1D11-FT069													Upgrade qualifications			
43	Effluent E radio- activity halogens and partic- ulates (sampling)	3	10 ⁻³ to 10 ⁻² μ Ci/cc	1D11-PNL 041,055, 057 1D11-PNL 021,022	As deter- mined by LILCO laboratory equipment	NA	NA	NA	Y	Y	Y	Y	Y	Y	Y	NA	None	NUREG-0737, Item 11.F.1		
44	Environs E radio- activity radio- halogens and particu- lates (portable)	3	10 ⁻⁶ to 10 ⁻³ μ Ci/cc	Not pro- vided on Shoreham													Provide portable equipment			
45	Plant E and environs radia- tion (portable)	3	10 ⁻³ to 10 ⁻⁶ R/hr, photons, 10 ⁻³ to 10 ⁻⁶ R/hr betas and low energy photons	Not pro- vided on Shoreham													Purchase high range survey equipment			
46	Plant E and environs radio- activity (portable)	3	Multi- channel gamma-ray spectro- meter														None			

TABLE II.F.3-1 (CONT'D)

Req 1.97, Rev 2					SNPS-1	Present Compliance to Reg 1.97, Rev 2, Design Criteria*												Shoreham Impact	
47	Post accident sampling capability	E	3	As req'd	Not provided on Shoreham												New post accident, sample system	NUREG-0737, Item II.B.3. Boron, chloride and dissolved oxygen are additional requirements not specified in NUREG-0737.	
48	Wind direction	E	3	0-360°		0-540°	NA	NA	NA	NA	Y	Y	Y	Y	Y	Y	NA	None	
49	Wind speed	E	3	0-30 mps		0-100 mph	NA	NA	NA	NA	Y	Y	Y	Y	Y	Y	NA	None	
50	Estimation of atmospheric stability	E	3	-9° to 18°F 164 ft intervals		-10° to +20°F for 117° interval	NA	NA	NA	NA	Y	Y	Y	Y	Y	Y	NA	None	

BRIAN R. McCAFFREY
Manager, Project Engineering for
Shoreham Nuclear Power Station
Long Island Lighting Company

My name is Brian R. McCaffrey. My business address is Long Island Lighting Company, Shoreham Nuclear Power Station, P. O. Box 618, Wading River, New York. I am Manager, Project Engineering for the Shoreham Nuclear Power Station. As such I am responsible for the overall engineering and licensing of the Shoreham Station. In this capacity, my organization directs and approves the engineering efforts of the Architect Engineer and Nuclear Steam Supplier. This organization is also responsible for directing the activities leading to an Operating License from the NRC.

I graduated from the University of Notre Dame in 1967 with a Bachelor of Science Degree in Aerospace Engineering, and received a Master of Science Degree in Aerospace Engineering in 1972 from the Pennsylvania State University and a Master of Science Degree in Nuclear Engineering in 1978 from the Polytechnical Institute of New York. I have also completed a General Electric BWR Design Orientation Course in 1978.

My professional experience follows:

Since 1973, employed by Long Island Lighting Company. From January 1979 to April 1980 held the position of Project Engineer for the Shoreham Nuclear Project, and from April 1980 to June 1981 was Assistant Project Manager -- Engineering and Licensing. Responsibilities basically as set out above.

From October 1977 to December 1978 held the position of Senior Licensing Engineer for the Shoreham Nuclear Project. Responsible for the licensing activities leading to an Operating License.

From June 1975 to September 1977 held the position of Senior Engineer in the Power Engineering Department with responsibilities as Project Coordinator for gas turbine installations and Lead Mechanical Engineer for nuclear projects.

From January 1973 to May 1975 held the positions of Associate Engineer and Engineer in the Power Engineering Department involved with balance of plant engineering on both fossil and nuclear power stations.

From 1968-1972, employed by Grumman Aerospace Corporation. Primary responsibilities were in the areas of aircraft aerodynamics and flight test stability and control.

I am a member of the American Society of Mechanical Engineers and the Long Island Section of the American Nuclear Society, and I am a Registered Professional Engineer in the State of New York.