



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

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

JOHN D. LEONARD, JR.
VICE PRESIDENT - NUCLEAR OPERATIONS

OCT 08 1986

SNRC-1283

Dr. Thomas E. Murley
Regional Administrator
U.S. Nuclear Regulatory Commission
Region I 631 Park Avenue
King of Prussia, PA 19406

I.E. Bulletin 85-03
Motor Operated Valve Common Mode Failures During
Plant Transients Due to Improper Switch Settings
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Dear Dr. Murley:

The Boiling Water Reactor Owner's Group (BWROG) has completed its task of developing a generic position for meeting the requirements of the subject Bulletin. Attachment 1 is a copy of the BWROG Report NEDC-31322 entitled "BWR Owner's Group Report on the Operational Design Basis of Selected Safety-Related Motor-Operated Valves". This report contains a methodology for calculating specific valve maximum expected differential pressures in response to action item (a) of the subject bulletin. Also presented in the Report is a methodology and basis for identifying the scope of systems and valves to which the subject Bulletin pertains, along with generic justifications for exempting certain valves from readiness testing. LILCO has utilized the BWROG methodology to calculate maximum expected differential pressures for each valve identified in the scope. In some cases as identified in Table 1 of Attachment 2 the BWROG methodology was found to result in higher maximum expected differential pressures than was utilized in the Shoreham design bases. These cases are subject to continuing engineering review by LILCO, and we expect an operability determination to be completed within 60 days.

Attachment 2 contains the specific information required to be submitted at this time by action items a through d of the subject Bulletin.

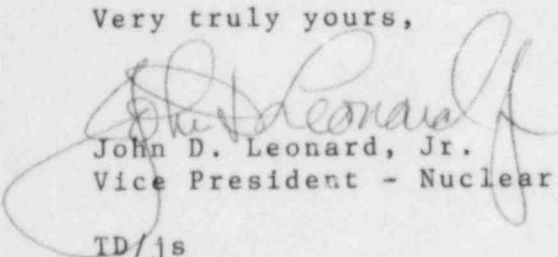
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It is our intent to use a dynamic testing program to comply with the requirement of item (c) of the subject bulletin. We plan on completing our test program by the end of the third quarter of 1987 and submitting a written report as required by item (f) of the bulletin within 60 days of completing our test program.

Should you or your staff require additional information, please contact my office.

Very truly yours,



John D. Leonard, Jr.

Vice President - Nuclear Operations

TD/js

cc: R. Lo

J.A. Berry

AFFIDAVIT

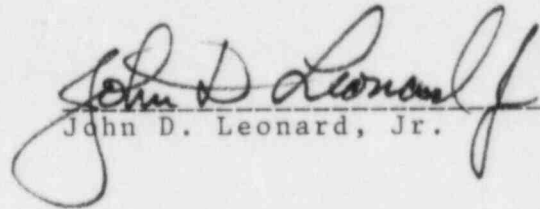
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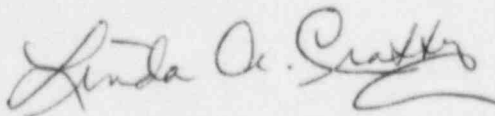
COUNTY OF SUFFOLK)

I, JOHN D. LEONARD, JR., being duly sworn, depose and say that I am the Vice President - Nuclear Operations for the Long Island Lighting Company. I am authorized on the part of said Company to sign and file with the U.S. Nuclear Regulatory Commission the enclosed letter (SNRC-1283) for the Shoreham Nuclear Power Station. This response was prepared under my supervision and direction; and the statements contained therein are true and correct to the best of my knowledge, information and belief.


John D. Leonard, Jr.

Sworn to before me this
8th day of October 1986

LINDA A. CRATTY
NOTARY PUBLIC, State of New York
No. 4816267
Qualified in Suffolk County
Commission Expires March 30, 1988



ATTACHMENT # 2

- a. Review and document the design basis for the operation of each valve. This documentation should include the maximum differential pressure expected during both opening and closing the valve for both normal and abnormal events to the extent that these valve operations and events are included in the existing, approved design basis, (i.e., the design basis documented in pertinent licensee submittals such as FSAR analyses and fully-approved operating and emergency procedures, etc.). When determining the maximum differential pressure, those single equipment failures and inadvertent equipment operations (such as inadvertent valve closures or openings) that are within the plant design basis should be assumed.

Response

Attachment 1 provides the BWROG design basis for the operation of each valve and contains the documented methodology used to calculate the maximum expected differential pressures that will be used when complying with the testing requirements of item (c) of the subject bulletin.

Table 1(enclosed) lists the valves installed at Shoreham which are within the scope of the subject bulletin and contains the maximum differential pressure expected during abnormal events as computed using the generic BWROG methodology. These valves, which are installed in the High Pressure Coolant Injection and Reactor Core Isolation Cooling systems do not perform an active safety function during normal operating conditions, therefore in accordance with section 3.2 of Attachment 1, no maximum differential pressure was calculated for normal events.

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Table 1

VALVE ID	Limitorque Valve Operator	Valve Functions	Design Differential Pressure	BWROG ABNORMAL EVENTS MAXIMUM DIFFERENTIAL PRESSURE		NOTES
				OPENING(3)	CLOSING	
1E41*MOV035 14"-900# Gate	SMB-3-100	HPCI PP DISCH	1140	1150	1170	2
1E41*MOV036 4"-900# Globe	SMB-00-10	Min Flow Bypass To Supp Pool	1200	1400	1385	2
1E41*MOV031 16"-150# Gate	SMB-0-25	HPCI Pump Suct Cond TK	35	----	28	
1E41*MOV032 16"-150# Gate	SMB-0-25	HPCI Pump Suct Supp Pool	35	98	36	2
1E41*MOV037 8"-900# Globe	SMB-1-25	HPCI Pump Disch Cond TK	1475	----	1385	
1E41*MOV038 10"-900# Gate	SMB-1-40	HPCI Disch Cond TK	1475	----	1385	
1E41*MOV034 14"-900# Gate	SMB-2-60	HPCI Pump Disch	1140	1150	----	2
1E41*MOV039 2"-1500# Globe	SMB-000-5	HPCI Lube Oil Cooler	850	46	55	
1E41*MOV043 10"-900# Gate	SMB-1-60	HPCI Steam To Turb	1135	1130	----	
1E41*MOV041 10"-900 Gate	SME-3-80	HPCI Steam To Turb	1135	1130	1130	1

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Table 1

VALVE ID	Limitorque Valve Operator	Valve Functions	Design Differential Pressure	BWROG ABNORMAL EVENTS MAXIMUM DIFFERENTIAL PRESSURE		NOTES
				OPENING(3)	CLOSING	
1E41*MOV042 10"-900# Gate	SMB-1-60	HPCI Steam To Turb	1135	1130	1130	1
1E41*MOV047 1"-1500# Globe	SMB-000-2	1E41*MOV041 Bypass	1050	----	1130	2
1E41*MOV048 1"-1500# Globe	SMB-000-2	1E41*MOV042 Bypass	1140	----	1130	
1E41*MOV044 18"-150# Gate	SMB-0-15	Turb Exh to Supp Pool	52	----	35	
1E41*MOV049 2"-600# Globe	SMB-000-2	HPCI Turb Exh Vac Break	52	----	61	2
1E51*MOV035 6"-900# Gate	SMB-00-25	RCIC Pump Disch	1300	1235	1160	
1E51*MOV036 2"-1500# Globe	SMB-000-5	Min Flow Bypass To Supp Pool	1280	1340	1340	2
1E51*MOV031 6"-150# Gate	SMB-00-5	RCIC Pump Suct Cond TK	130	----	28	
1E51*MOV032 6"-150# Gate	SMB-00-5	RCIC Pump Suct Supp Pool	130	148	36	2
1E51*MOV037 4"-900# Gate	SMB-00-10	RCIC Pump Disch To Cond Tk	1215	----	1260	2
1E51*MOV034 4"-900# Gate	SMB-00-10	RCIC Pump Disch	1300	1180	----	

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VALVE ID	Limitorque Valve Operator	Valve Functions	Design Differential Pressure	BWROG ABNORMAL EVENTS		NOTES
				MAXIMUM DIFFERENTIAL PRESSURE OPENING(3)	CLOSING	
1E51*MOV038 2"-1500# Globe	SMB-000-5	RCIC Lube Oil Cooler	1300	1340	41	2
1E51*MOV046 2"-600# Globe	SMB-000-2	Vac Pump Disch To Supp Pool	60	----	35	
1E51*MOV043 3"-900# Gate	SMB-00-7.5	RCIC Steam To Turb	1135	1130	1130	
1E51*MOV041 3"-900 # Gate	SMB-00-10	RCIC Steam to Turb	1135	1130	1130	1
1E51*MOV042 3"-900# Gate	SMB-00-7.5	RCIC Steam to Turb	1135	1130	1130	1
1E51*MOV047 1"-1500# Globe	SMB-000-2	1E51*MOV041 Bypass	1050	----	1130	2
1E51*MOV048 1"-1500# Globe	SMB-000-2	1E51*MOV042 Bypass	1140	----	1130	

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Table 1

VALVE ID	Limitorque Valve Operator	Valve Functions	Design Differential Pressure	BWROG A*NORMAL EVENTS MAXIMUM DIFFERENTIAL PRESSURE		NOTES
				OPENING(3)	CLOSING	
1E51*MCV045 8"-150# Gate	SMB-000-5	RCIC Turb Exh	10	0	35	2
1E51*MOV049 1.5"-600# Globe	SMB-000-2	RCIC Turb Exh Vac Break	60	----	61	2

- (1) Documentation was submitted via SNRC-1185 dated 6/28/85 to Mr. H.R. Denton to demonstrate valve would perform isolation function due to line break.
- (2) Calculated maximum differential pressure using BWROG methodology results in a higher differential pressure than that utilized in the Shoreham design bases.
- (3) The torque switch is nonfunctional in the opening direction as it is permanently shorted out of the circuit.

- b. Using the results from item a above, establish the correct switch settings. This shall include a program to review and revise, as necessary, the methods for selecting and setting all switches (i.e., torque, torque bypass, position limit, overload) for each valve operation (opening and closing).

If the licensee determines that a valve is inoperable, the licensee shall also make an appropriate justification for continued operation in accordance with the applicable technical specification.

Response

LILCO will review the original engineering methodology that was utilized to establish existing torque switch settings at Shoreham. This methodology consists of the steps necessary to convert design basis differential pressures to torque values and finally to switch settings. Since the factory test results provided in SNRC-1185 proved successful, LILCO has no reason to doubt the validity of this methodology.

Next, we will compare each differential pressure calculated in item (a) above to the original design value on the valve data sheets. For those cases where the maximum expected differential pressure calculated in (a) above exceed the value on the valve data sheets, a torque switch setting will be determined. This new value will then be compared to the maximum allowable switch setting to confirm the adequacy of the original design. If it is determined that any design is not acceptable, then the valve will be declared inoperable and the applicable limiting conditions for operation will be enforced, or we will make an appropriate justification for continued operation in accordance with the applicable technical specification. If it is determined that some design ranges are not acceptable, they will be changed, and switch setting will be adjusted as required.

It is important to note that, for valves listed in Table 1, the torque switch is nonfunctional in the opening direction as it is permanently shorted out of the circuit. Therefore, torque bypass switch settings are not provided because they are not relevant at Shoreham.

The open limit switch setting will be confirmed or adjusted, during our test program. The limit switch will be adjusted if needed, in accordance with existing plant procedure SP46.009.01.

For valves with an active safety function during abnormal events, the thermal overload is bypassed in the direction of travel needed to perform its' safety function.

- c. Individual valve settings shall be changed, as appropriate, to those established in item b, above. Whether the valve setting is changed or not, the valve will be demonstrated to be operable by testing the valve at the maximum differential pressure determined in item a above with the exception that testing motor-operated valves under conditions simulating a break in the line containing the valve is not required. Otherwise, justification should be provided for any cases where testing with the maximum differential pressure cannot practicably be performed. This justification should include the alternative to maximum differential pressure testing which will be used to verify the correct settings.

Note: This bulletin is not intended to establish a requirement for valve testing for the condition simulating a break in the line containing the valve. However, to the extent that such valve operation is relied upon in the design basis, a break in the line containing the valve should be considered in the analyses prescribed in items a and b above. The resulting switch settings for pipe break conditions should be verified, to the extent practical, by the same methods that would be used to verify other settings (if any) that are not tested at the maximum differential pressure.

Each valve shall be stroke tested, to the extent practical, to verify that the setting defined in item b above have been properly implemented even if testing with differential pressure can not be performed.

Response

We will establish a program to determine the acceptability of existing switch settings based on the results of item b, allowing for adjustments as required. It is our position that there is an acceptable range in which the torque or limit switch may be set as opposed to a single correct switch setting.

It is our intent to verify the adequacy of these switch settings by stroke testing the valves under dynamic conditions (based on item a results) to the extent practical, using an existing plant procedure.

- d. Prepare or revise procedures to ensure that correct switch settings are determined and maintained throughout the life of the plant. Ensure that applicable industry recommendations are considered in the preparation of these procedures.

Response

We will review our existing plant procedure SP46.009.01 to confirm that it contains adequate steps to ensure that the proper switch settings are established and maintained throughout the life of the plant. While performing this review applicable industry recommendations will be considered and referenced as appropriate.