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

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SNRC-1233

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

Emergency Response Capability
Regulatory Guide 1.97, Rev. 2
Shoreham Nuclear Power Station
Docket No. 50-322

Reference: 1. Letter from J. L. Smith (LILCO) to H. R. Denton (NRC), dated April 14, 1983 (SNRC-863)
2. Letter from J. D. Leonard (LILCO) to H. R. Denton (NRC), dated October 23, 1985 (SNRC-1209)

Dear Mr. Denton:

The enclosure to this letter provides LILCO's justification for taking exception to certain locational and environmental qualification attributes that are prescribed in Regulatory Guide 1.97, Rev. 2 for the instruments that monitor the following variables:

Item No. (from Ref. 2)	Variable
D-13	RCIC (Reactor Core Isolation Cooling) Flow
D-14	HPCI (High Pressure Coolant Injection) Flow
D-16	LPCI (Low Pressure Coolant Injection) Flow
D-17	SLCS (Standby Liquid Control System) Flow
D-18	SLCS Storage Tank Level

Currently there is no need to take exception to the prescriptive environmental qualification attributes of those instruments that measure RCIC, HPCI and LPCI flow as these are environmentally qualified. Therefore, LILCO's exception request as contained in

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Reference (1), as it applies to these variables, is moot and hereby withdrawn. However, our exception requests concerning the need for and environmental qualification of instrumentation to monitor SLCS flow and storage tank level is still in effect.

This submittal is intended to fulfill our commitment contained in the Reference 2 letter and to thereby place previously presented documentation prepared by the BWROG on the Shoreham docket.

Should you or members of your staff have any questions, please do not hesitate to call my office.

Very truly yours,

John D. Leonard, Jr.
Vice President - Nuclear Operations

GJG:ck

Enclosure

cc: J. A. Berry

Enclosure to SNRC-1233

VARIABLES D 13-D 17

D13: RCIC Flow
D14: HPCI Flow
D16: LPCI System Flow
D17: SLCS Flow

ISSUE

Regulatory Guide (R.G.) 1.97 specifies flow measurements of the following systems: reactor core isolation cooling (RCIC) (variable D13), high-pressure coolant injection (HPCI) (variable D14), low-pressure coolant injection (LPCI) (variable D16), and standby liquid control (SLC) (variable D17). The purpose of these measurements is to monitor the operation of individual systems important to safety. Instrumentation for measuring these variables is designated by R.G. 1.97, Rev. 2 as Category 2; the range is specified as 0 to 110 percent of design flow. The variables are related to flow into the reactor pressure vessel (RPV).

DISCUSSION

The RCIC and HPCI systems each have one branch line (the test line) downstream of the flow-measuring element. The test line is provided with a motor-operated valve that is normally closed (two valves in series in the case of the HPCI). Effectively, Shoreham also has two valves in series for RCIC, since the RCIC test line connects into the HPCI test line upstream of the second HPCI valve (1E41*MOV38). Further, the valve in the test line closes automatically when the emergency system is actuated, thereby ensuring the indicated flow is not being diverted by the test line. Proper valve position can be verified by a direct indication of valve position.

Although the LPCI has several branch lines located downstream of each flow-measuring element, each of those lines is normally closed. Proper valve position can be verified by a direct indication of valve position.

For all of the above systems, there are valid primary indicators other than flow measurement to verify the performance of the emergency system; for example, vessel water level.

The SLC system is manually initiated. Flow-measuring devices were not provided for this system. The pump discharge header pressure, which is indicated in the control room, will indicate SLC pump operation. Besides the discharge header pressure observation, the operator can verify the proper functioning of the SLCS by monitoring the following:

1. The decrease in the level of the boric acid storage tank
2. The reactivity change in the reactor as measured by neutron flux
3. The motor contactor indicating lights (or motor current)
4. Squib valve continuity indicating lights

The use of these indications is believed to be a valid alternative to SLCS flow indication.

CONCLUSION

The flow-measurement schemes for the RCIC, HPCI, and LPCI are adequate in that they meet the intent of RG 1.97. Monitoring the SLCS can be adequately done by measuring variables other than the flow.

Furthermore, the Shoreham Atomic Safety and Licensing Board reached essentially the same conclusion in their Partial Initial Decision LBP-83-57, dated September 21, 1983 (see Opinion and Findings of Fact concerning item H., "Post Accident Monitoring", pp. 125-129 and 416-436) and the Appeal Board affirmed the substantive conclusion of the Licensing Board's decision in ALAB-788 (see pp. 105-108).

VARIABLE D18

D18: SLCS Storage Tank Level

ISSUE

Regulatory Guide (R.G.)1.97 lists standby liquid control system (SLCS) storage tank level as a Type D variable with Category 2 design and qualification criteria.

DISCUSSION

The symptomatic Emergency Procedure Guidelines (EPG), Revision 3, as presently approved do consider Anticipated Transients Without Scram (ATWS) conditions. The EPG committee of the BWR Owners Group developed a reactivity control guideline in which procedures are described for raising the reactor water level based on the amount of boron injected into the vessel, as indicated by the SLC tank level. Additionally, the operator must trip the SLC pumps before a low SLC tank level is reached, thereby preventing damage to the pumps that would render them useless for future injections during the scenario.

Regarding the instrumentation category requirement for variable D18, RG 1.97 indicates that it is a key variable in monitoring SLC system operation. Regulatory Guide 1.97 also states that in general, key Type D variables should be designed and qualified to Category 2 requirements.

In applying these requirements of the Regulatory Guide to this instrumentation, the following are noted:

1. The current design basis for the SLCS assumes a need for an alternative method of reactivity control without a concurrent loss-of-coolant accident or high energy line break. The environment in which the SLCS instrumentation must work is therefore a "mild" environment for qualification purposes.

2. The current design basis for the SLCS recognizes that the system has an importance to safety that is less than the importance to safety of the reactor protection system and the engineered safeguards systems. Therefore, in accordance with the graded approach to quality assurance specified in RG 1.97, and on the substance of NRC Generic Letter 85-06, it is unnecessary to apply a full quality assurance program to this instrumentation.

CONCLUSION

Based on the graded approach to safety provided by Regulatory Guide 1.97, Rev. 2, this variable is more appropriately considered a Category 3 variable. Therefore, SLCS storage tank level instrumentation should meet Category 3 design and qualification criteria.