LONG ISLAND LIGHTING COMPANY
SHOREHAM NUCLEAR POWER STATION
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April 20, 1982

SNRC-691

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

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

Dear Mr. Denton:

Enclosed herewith please find sixty (60) copies of our responses to NRC requests 223.93 through 223.98, which were contained in NRC letter dated February 11, 1982 from Mr. A. Schwencer to Mr. M. S. Pollock.

Please be advised that these responses will be incorporated into a future amendment to the FSAR.

If you have any additional questions please do not hesitate to contact my office.

Very truly yours,

J. L. Smith

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

CC:mp

Enclosure

cc: J. Higgins
All Parties (w/enclosure)

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Request 223.93

In Table 1 of SNRC-638, assuming a single failure of the SRV valves at the RSP, credit is being taken for the RCIC system to reduce reactor pressure. Verification should be provided that the RCIC turbine steamflow is sufficient to reduce reactor pressure to achieve cold shutdown. The time to reach cold shutdown should be provided.

Response

In the event of an SRV control failure at the RSP, RCIC would operate manually or automatically to control RPV water level and maintain the reactor in the hot shutdown condition. Pressure in the reactor would cycle between various high and low limits according to RCIC operation and the automatic SRV actuations. The RPV could be maintained in this mode for as long as required from the RSP. If no other operator actions are performed, the RPV pressure would not drop sufficiently in the short term to allow cold shutdown operation. Decay heat steam production would exceed the rate of steam extracted due to RCIC turbine operation for many days. However, there are various operator actions which could be utilized to depressurize the RPV and achieve cold shutdown. As an example, the SRVs could be operated manually from the relay room although no credit was originally taken for accessibility to this area for this event. The time to reach cold shutdown using this method would be on the order of an hour. A second example would involve a manual RCIC lineup in the test mode to the CST depressurizing the RPV via turbine operation. This shutdown method would take on the order of 10 days to reach cold shutdown. Thus the plant could be maintained at hot shutdown from the RSP and brought to cold shutdown via various operator actions.

Request 223.94:

In Table 1 of SNRC-538, assuming a single failure of the Reactor Building Closed Loop Cooling Water System (RBCLCW), credit is being taken for the LPCI system to achieve cold shutdown. Does this mean that the B loop of the RBCLCW will be used for LPCI operation? If so, how is the transfer of control made, where are the B loop controls, and does this require continuous local operation?

Response:

A single failure of the RBCLCW system would prevent the use of the normal RHR flowpath whenever fluid temperatures exceed 212 F. However, a circulation path using suppression pool water could be established through the RHR heat exchanger using the "B" RHR pump on the RSP in the LPCI mode. Flow would return to the suppression pool from the RPV via the RSP controlled SRVs. The RHR pump can operate in this mode without any RBCLCW cooling. Continuous local operation would not be required.

Request 223.95:

In Table 1 of SNRC-638, assuming a single failure of the Reactor Recirculating System, credit is taken for long term cooling using the LPCI system of the RHR system. Explain the conflict between this statement and note 3 in Table 1 that states that the Reactor Recirculating System is required to prevent short cycling the core during RHR cooling for cold shutdown. Also, it is not apparent to the staff why the Reactor Recirculating System is included in Table 1 since the capability of remote shutdown must be provided even with the assumption of a loss of offsite power.

Response:

A single failure of the recirculating system would reduce the effectiveness of the normal RHR system since the recirculation system discharge valve would remain open and interfere with the correct flow path, even though some cooling would result. However, if the LPCI system were employed as stated in the response to Request 223.94, the recirculation system valve would not be required and cold shutdown could be effected from the remote shutdown panel.

Request 223.96:

In SNRC-638, the applicant stated that assuming a single failure, the plant can be brought to hot shutdown without leaving the RSP. Explain the discrepancy between this statement and the information presented in SNRC-638 Table 2 which indicates that Reactor water level and Reactor Pressure indications are at locations other than the RSP.

Response:

The loss of reactor water level indication on the RSP will not prevent hot shutdown from being attained since HPCI would operate automatically to maintain RPV level with SRV mechanical operation as required. RPV level is desirable only when going to cold shutdown conditions. Level indication outside the RSP would be utilized for verification only and would not be required for maintaining hot shutdown conditions.

Request 223.97:

In Table 2 of SNRC-688, explain why an alternate indication for Reactor Pressure (1C61-PI006) is not required and why Reactor temperature indication is not needed during the 275 to 212 shutdown phase where the reactor pressure gauge is inaccurate.

Response:

A single failure of pressure indicator 1C61PI006 at the RSP would not prevent hot shutdown from being attained from the panel. Either RCIC manual operation or HPCI automatic operation will maintain RPV level as required, with the SRVs being operated as necessary to reduce RPV pressure until the normal RHR mode is initiated to achieve cold shutdown. The shutdown cooling valves would not operate until the RPV pressure permissive has been satisfied. Following hot shutdown operations the RPV pressure could be verified by a local pressure indicator in the secondary containment.

In a similar manner, the initiation and continued use of RHR in the shutdown cooling mode would proceed without the requirement for RPV temperature monitoring. Initiation of the system is constrained by pressure interlocks (and remote indicator verification if required) and can operate continuously without controlling or cycling operations. The actuation of the RHR head spray during this mode maintains saturated conditions in the upper RPV regions.

Request 223.98:

Explain the discrepancy between statements in the emergency procedures for shutdown from outside the control room which indicate that ESF functions are lost during a transfer of control and the statement in SNRC-638 that ESF systems not controlled from the RSP, which have automatic features, will function as designed.

Response:

It is not clear from the request, as to where the discrepancy exists. Assuming that the reviewer is referring to Emergency Procedure 29.022-01 Rev. 0, page 10, item 6.3 and SNRC-638 item 3, there definitely is no discrepancy.

Procedure number 29.022.01 Rev. 0 dated 12/5/78 titled "Shutdown from Outside Control Room" page 10 item 6.3 states "Trip functions and interlocks are by-passed on systems that are operated from the remote shutdown panel when the remote transfer switches are placed in Emerg." The full statement in SNRC-638 item 3 is "Automatic actuation of ESF systems is not required while the plant is attaining, or maintained in hot shutdown. Once the operator takes control of the systems on the RSP the auto-actuation circuits for these systems will be disabled. However, other ESF systems not controlled from the RSP which have automatic features will function automatically, as required, even after the operator has transferred control to the RSP."

For those systems which are transferred to the remote shutdown panel, "Trip functions and interlocks" are bypassed. Therefore any automatic operation is prevented once the transfer is completed to the remote shutdown panel. This does not contradict the statement in SNRC-638 which is referring to those systems NOT transferred to the Remote Shutdown Panel. Those other systems (such as RHRS) will function automatically as designed.