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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
Salt Water Cooling Emergency Discharge Valves
Licensing Bases
San Onofre Nuclear Generating Station
Units 2 and 3

- References: 1) NRC Inspection Report Nos. 50-361/93-27 and 50-362/93-27,
dated November 24, 1993, for San Onofre Units 2 and 3.
- 2) Letter from Mr. Kenneth P. Baskin (SCE) to the Director,
Office of Enforcement (NRC), "Reply to a Notice of Violation
and Notice of Deviation," dated September 2, 1988.

This letter provides the licensing basis for the Saltwater Cooling (SWC) System emergency discharge line for San Onofre Units 2 and 3. This letter is a response to NRC Followup Item 50-361,362/93-27-07 from Reference 1.

Background

During an announced team inspection during September and October, 1993, the NRC raised the concern that the SWC system emergency discharge isolation valves HV6494 and HV6496 cannot be credited to be available from the control room following a Design Basis Event because they are powered from non-1E power sources. Therefore, following loss of normal, non-Seismic Category I (SC I), SWC discharge path through the circulating water discharge piping to the ocean as a result of a Design Basis Earthquake (DBE), there would be no available path for SWC discharge until the emergency discharge valves could be opened manually at 30 minutes after the DBE. The inspector questioned "whether a delay of 30 minutes was technically appropriate for assumed combinations of conditions." (Reference 1)

During the inspection the design and licensing bases of the SWC system were discussed. It was pointed out that the licensing basis of the SWC system included an analysis "which showed that the normal non-Seismic Category I discharge path for salt water cooling flow would not be fully blocked and a flow path sufficient for salt water cooling flow would remain" following a Seismic event (Reference 1).

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The NRC's concerns about whether the emergency discharge valves should be powered from Class 1E sources was not adequately resolved during the inspection. Therefore, Edison volunteered to provide a letter describing the licensing basis for the SWC system discharge (Reference 1).

Original Licensing Bases

The main purpose of the SWC System Emergency Beach Discharge line is to provide a SWC system discharge that could be used when the discharge conduit of one unit is dewatered or drained for maintenance. The emergency discharge line is also available should the normal SWC system outfall become blocked, although the emergency line is not specifically credited in any accident analysis.

The original Final Safety Analysis Report (FSAR) including all amendments, stated in section 9.2.1.1.A, "Saltwater Cooling System Design Bases," that "cooling water flows may return to the ultimate heat sink (Pacific Ocean) through a discharge line common to the component cooling water heat exchangers during normal operation or through an emergency discharge line, common to Units 2 and 3." No specific mention of the purpose of the emergency discharge line was made.

As part of the FSAR Question and Response (Q&R) process the NRC questioned the seismic qualification of the SWC system normal intake and outfall structures. The NRC noted in Question 010.32 that the normal outfall conduit structures are not SC I. Edison's response noted that "the discharge conduit is a SC II structure, although the design of the pipe segments is generally identical to that for the SC I intake pipe segments." The response also referenced an evaluation prepared by Woodward-Clyde consultants, which stated that the potential for complete blockage of the discharge pipe due to seismic effects is not a credible event. The evaluation describes the response of the system to the effects of partial blockage by sand entrainment.

This evaluation stated that with the minimum flow of 0.15 ft/s through the pipe due to operation of the SWC pumps only (assuming the circulating water pumps are not operating) some sand would begin to settle and block the discharge line. However, should sand begin to restrict the flow path in the pipe, the resulting flow velocity would increase to an eroding velocity, thereby clearing the pipe. It was therefore concluded in Q&R 010.32 that, "sand inflow is thus a self-healing mechanism and will have no effect on the discharge of the saltwater cooling system."

Following the Q&R phase of FSAR review the NRC concluded in section 9.2.3 of the NUREG 0712, Safety Evaluation Report (SER), "Ultimate Heat Sink," that the design of the ultimate heat sink, which includes the SWC system intake and outfall conduit structures, "meets the guidelines in Regulatory Guide 1.27...and is acceptable."

Revision 0 of the Updated Final Safety Analysis Report (UFSAR), section 9.2.1, "Saltwater Cooling System," stated that, "An emergency discharge line, common to Units 2 and 3, is provided in the event of blockage of the normal discharge line." This sentence is consistent with SER section 9.2.1, which states that

the emergency discharge line is provided as a backup to the normal outfall. Because blockage of the normal discharge line is not assumed for seismic events (according to the response to Q&R 010.032), the intent of this sentence was to clarify that the emergency path is provided as a defense-in-depth measure for blockage due to any cause. There is no restriction relating this statement to blockage of the normal outfall due to seismic effects only.

1988 Notice of Violation

Discussions relevant to the need to provide Class 1E power to the SWC system emergency discharge valves appear in Edison's response to a Notice of Violation (NOV) dated September 2, 1988 (Reference 2). In this NOV response it was stated that the SWC emergency discharge isolation valves were being added to the Inservice Test program. The reason for this was stated as follows:

"This determination is based on the requirement for the valves to be manually opened following a seismic event that disables the normal salt water cooling system discharge path from the component cooling water heat exchangers."

The belief that the SWC emergency discharge isolation valves were required following a seismic event was based on a misinterpretation of the UFSAR statement that the emergency discharge line is provided "in the event of blockage of the normal discharge line." While the emergency discharge line is available during post-DBE conditions via manual operation of the isolation valves, it is not required to be OPERABLE as it is not credited in any DBE recovery analyses. Therefore, the determination that these valves are "Code Class 3, Category B, active valves," was based on a misinterpretation of the licensing basis of the SWC system. Accordingly, these valves may be returned to their original designation as Code Class 3, Category B, passive valves.

Therefore, Edison will revise the UFSAR to clarify the requirements of the emergency discharge line. In addition, Edison is considering removal of these valves from the IST program since inclusion of the valves in the program does not appear to be required. Inclusion of the valves in the IST program does, however, create some confusion as to their status, and entails some additional expense, therefore, removal may be appropriate. Should Edison decide to retain the valves in the IST program, notes will be added to clarify the status of the valves.

Conclusions

The SWC system emergency discharge line is not credited in the DBE recovery analyses as a seismic backup to the normal outfall line. Edison has performed analyses which demonstrate that the normal outfall will remain operable following a DBE. These analyses were accepted by the NRC in the San Onofre Units 2 and 3 SER. The emergency discharge valves HV6494 and HV6496 are not credited for DBE response and thus do not require a 1E power source.

The purpose of the SWC system emergency discharge line is to support SWC system operation should the normal outfall become unavailable for any reason. This includes maintenance on the discharge conduit or gate wells, as well as

any scenario beyond the design basis that involves blockage of the normal outfall line, whether or not the blockage is due to seismic effects. Although the normal SWC system outfall is SC II, evaluations have concluded that it will not fail as a SWCS discharge path as a result of a DBE. Therefore, the current system as designed and licensed is acceptable.

If you have any questions regarding this, please let me know.

Sincerely,

Halton C. Marsh

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