December 5, 2001

MEMORANDUM TO: File

FROM: Jack N. Donohew, Senior Project Manager, Section 2 **/RA/**
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: CLARIFICATION OF LICENSE AMENDMENT REQUEST RELATED TO PEAK CONTAINMENT PRESSURES FOR SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3 (TAC NOS. MB2845 AND MB2846)

The attached e-mail provides responses to questions sent to Southern California Edison Company (the licensee). The questions are to clarify the information provided in the license amendment request (LAR) application dated August 24, 2001, to decrease the calculated peak containment internal pressure for the design basis loss-of-coolant accident and main steam line break from 55.1 to 45.9 psig and 56.6 to 56.5 psig, respectively, in Section 5.5.2.15, "Containment Leakage Rate Testing Program," of the Technical Specifications (TSs). The new values are recalculations of the containment internal pressure.

Docket Nos. 50-361 and 50-362

Attachment: E-mail Dated November 16, 2001

December 5, 2001

MEMORANDUM TO: File

FROM: Jack N. Donohew, Senior Project Manager, Section 2 **/RA/**
Project Directorate IV
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Docket Nos. 50-361 and 50-362

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DOCUMENT NAME: C:\Program Files\Adobe\Acrobat 4.0\PDF Output\MemoToDocketFile-2.songs.wpd
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E-MAIL DATED NOVEMBER 21, 2001

From: <rainsbjl@songs.sce.com>
To: <JND@nrc.gov>
Date: 11/16/01 6:37PM
Subject: Questions for the revised peak containment pressures amendment request (PCN-528)

Jack,

Attached is a WP file with responses to the 5 questions you asked regarding the containment pressure amendment, PCN 528. If you have any further questions let me know.

Jack

(See attached file: Pcn528qa.wpd)

CC: <rainsbjl@songs.sce.com>

QUESTIONS ON THE APPLICATION

1. Is incorporating the main steam backflow into containment through inter-connected steam piping supplying the auxiliary feedwater pump an addition to the analysis for the MSLB re-calculation, not previously included?

   Response:

   No. Main steam backflow into containment through interconnections in the steam supply piping to the turbine-driven auxiliary feedwater pump was originally evaluated in 1992, as part of a plant modification (MMP 2 & 3 6869.00SM) to add small bore piping bypass lines around check valves in the steam supply lines to the AFW pump turbine. The evaluation was incorporated into the existing containment main steam line break P-T response analyses of record at that time.

2. In Section 5.1 (third paragraph) of the attachment to the application, it is stated that the new analysis for the MSLB uses (1) updated passive (structural) heat sink data and (2) transient containment spray flow modeling not previously used in the analysis. These two were not stated for the recalculation for the LOCA in the section. Were these not included for the LOCA?

   Response:

   The updated passive heat sink data and transient containment spray flow modeling used for the MSLB reanalysis were also used for the LOCA reanalysis.

3. Was the peak containment pressure recalculation for the design basis LOCA also for 102% of the 3390 MWt? Did the results for the LOCA also incorporate the applicable instrument total loop uncertainties? These were listed for the MSLB re-calculation in Section 5.1, but not for the LOCA re-calculation.

   Response:

   The containment pressure reanalysis for the design basis LOCA is based on an initial core power level of 3458 MWt (102% of 3390 MWt). Applicable instrument total loop uncertainties were also included in the LOCA calculations.

4. Does the new LOCA and MSLB mass and energy release data from the nuclear steam supply system (NSSS) vendor come from the approved reduction in the minimum cold leg temperature of the reactor coolant system in Amendments 149 and 141 for SONGS, Units 2 and 3, respectively?

   Response:

   The mass and energy release data from the NSSS vendor was generated as a part of their activity to provide input to, and support for, the amendment submittal to secure approval for the reduction in minimum reactor cold leg temperature. Their analyses demonstrated that operation at the minimum Tcold would provide less limiting mass and energy releases than would operation at the maximum value of Tcold. High Tcold values maximize LOCA break flow enthalpy and sensible heat inventory in both the RCS

and steam generators. High Tcold values also maximize primary-to-secondary heat transfer rates for the MSLB event. Therefore, the new mass and energy release data provided by the NSSS vendor uses the maximum value of Tcold still permitted by the amended Technical Specifications.

5. What calculation is for the updated passive (structural) heat sink data based upon? What was the updated calculation based on?

Response:

The updated containment passive heat sink model is developed in SCE calculation N-4080-027, Rev. 1, "Containment P-T Analysis for Design Basis MSLB." The model incorporates an updated inventory of civil-structural materials, electrical and mechanical commodities, cold exposed piping and piping supports contained in the following two SCE calculations:

> C-257-01.06.01, Rev. 2, including CCN 3, "Containment Shell Analysis - Containment Passive Heat Sink," issued 8-30-99.
>
> M-DSC-362, Revision 0, "Piping and Pipe Supports Surface Area Calculation," issued 9-25-98.

Both heat sink inventory calculations incorporate reviews of current as-built plant design drawings and documentation including electrical and instrumentation computer data bases. The revised Civil calculation has been expanded to include plant structural additions and address a number of heat sink commodities evaluated and included at the plant licensing stage, but for which previous supporting calculations could not be located. The Civil calculation also now includes a section on electrical and instrumentation commodities supplied by the Engineering Electrical & Controls discipline. The piping and pipe supports heat sink calculation was created to provide applicable values for these cold steel components for which previous supporting calculations could not be located.

The recalculation of the passive heat sinks showed little change in the steel-lined concrete containment building envelope or major concrete internal structures. However, the re-analysis did identify substantial increases in electrical and instrumentation commodities and in cold, bare piping, pipe supports and embeds. The increases are presumed due to plant modifications since plant licensing coupled with a more thorough review of the as-built plant design documentation. In addition, it was discovered that the exposed surface area of steel structural members in containment had been understated by a factor of 2 in the previous containment peak pressure analyses (but not for 10 CFR Part 50 Appendix K minimum pressure analyses). The net effect of the recalculation of the passive heat sinks was to increase the exposed surface area in containment by about 114,000 ft^2. The tabulation below summarizes the most significant changes:

Major Sources of Area Increase	Area Increase (ft^2)
Modeling of Exposed Structural Steel	43,700

Electrical & Instrumentation Commodities	36,000
Cold Bare Piping & Supports/Embeds & SIT Corrections	18,500
Other (i.e. modeling elevated floor slab decking convolutions, added gratings & ladders, misc scaffolding storage racks, boxes and enclosures, etc.)	15,600