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EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards project pressure & temp transient analysis results in plant Areas GE/GW of auxiliary bldg resulting from main stream line break in Area GW. Calculations & results reflect current as-built conditions.

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April 13, 1983

Mr. D. G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: Docket No. 50-275, OL-DPR-76
Diablo Canyon Unit No. 1
Pressure and Temperature Data
for Pipe Break Outside Containment

Dear Mr. Eisenhut:

Pursuant to PGandE's letter dated March 22, 1983, enclosed are the Diablo Canyon Project pressure and temperature transient analysis results in areas GE/GW of the auxiliary building resulting from a main steam line break in area GW. As described in Enclosure 1, the information responds to the NRC letter dated January 19, 1983. It is our understanding that this information will be used by the NRC to determine temperature and pressure profiles for comparison with IDVP results.

The blowdown input data is for dry steam and was furnished by Westinghouse Electric Corporation. The calculations and results reflect the current plant as-built conditions. We are currently evaluating these results to determine any impact on the plant.

Very truly yours,

Douglas A. Oglesby

for Philip A. Crane, Jr.

B001

Enclosure

cc: Service List (w/o enc.)

Enclosure 1

This submittal contains the following four attachments:

1. Summary - Discussion
2. Pressure and Temperature Curves and Tables for Area GE/GW
3. CHTG Calculation No. 15320-2203-0
4. FLUD Code Description

The following table correlates the attachments with the requested NRC information:

NRC January 19, 1983, Letter Request	Date Previously Submitted	Location in this Submittal (Attachment No.)
1. With respect to the pipe to be broken:		
a. type of fluid (water or steam)	2/25/83	3
b. temperature	2/25/83	3
c. pressure	2/25/83	3
d. source of the fluid	2/25/83	3
e. flow rate (or assumed flow rate) as a function of time	2/25 and 3/4/83	3
f. enthalpy as a function of time	2/25 and 3/4/83	3

NRC January 19, 1983, Letter Request	Date Previously Submitted	Location in this Submittal (Attachment No.)
2. With respect to the compartments being analyzed:		
a. number of compartments analyzed	2/25/83	3 (Notes 3 and 4)
b. for each compartment:		
(1) initial temperature	2/25/83	3
(2) initial pressure	2/25/83	3
(3) initial humidity	2/25/83	3
(4) Floor area including floor space taken by equipment (square feet)	2/4 and 2/25/83	3 (Notes 3 and 4)
(5) number of vents and vent areas (square feet) for each vent	2/4 and 2/25/83	3 (Notes 3 and 4)
(6) compartment wall height (feet)	2/4/83	3 (Note 3)
c. simple compartment and interconnection diagram	2/4 and 2/25/83	2 (Notes 3 and 4)
3. All assumptions used, including but not limited to:		
a. orifice coefficient	2/25/83	3 (Note 4)
b. fluid expansion factor	2/25/83	3 (Note 4)
c. heat transfer coefficient for heat through the walls	2/25/83	3 (Note 4)

NRC January 19, 1983, Letter Request	Date Previously Submitted	Location in this Submittal (Attachment No.)
4. Results of Diablo Canyon Project analysis:		
a. temperature versus time curve (peak temperature specified)	-	2
b. pressure versus time curve (peak pressure specified)	-	2
c. humidity versus time curve (Peak humidity specified)	-	Note 2
5. FSAR references to above information as appropriate.	2/25/83	Note 5

Notes:

1. Attachment 2 is a summary of Attachment 3. Therefore, information contained in Attachment 2 is also provided in Attachment 3.
2. Humidity is 100%
3. Basic reference data were previously submitted in Calculation Nos. M-222 and M-287.
4. This information supercedes previously submitted information due to a change in modelling.
5. The correct FSAR references are Section 3.6.4 and Appendix 3.6.

ATTACHMENT 1

SUMMARY - DISCUSSION

Main Steam Line Break Pressure and Temperature Transient Analysis (without water entrainment) in Area GE/GW of the Auxiliary Building

The Diablo Canyon Project has completed the auxiliary building area GE/GW pressure and temperature transient analysis. The Bechtel computer code FLUD 6 was used to predict the pressure and temperature transients. There were 8 cases considered; 17, 18, 19, 20, 33, 34, 35, and 36 from Westinghouse blowdown data. Cases 17, 18, 19, and 20 were main steam line split breaks with power levels at 102%, 70%, 30% and 0% respectively. Cases 33, 34, 35, and 36 were main steam line double-ended ruptures with power levels at 102%, 70%, 30% and 0% respectively. The worst compartment peak temperatures were generated by split break cases, while the worst compartment peak pressures were generated by double-ended rupture cases.

The computer model was based on PGandE equipment location drawings and was confirmed by an as-built walkdown. In order to avoid flow oscillations between the north pipeway and the south pipeway, the split break model was modified by combining the north pipeway and the south pipeway into one pipeway compartment. The effect of this modification on compartment temperature was negligible. Please note that only compartment temperatures were of concern for split break cases.

The results for all cases, i.e. the tables of peak pressure and temperature, the pressure and temperature curves for each compartment, and the maximum and minimum pressures and temperatures, are extracted from Calculation No. 2203, Rev.0, and included in Attachment 2. Attachment 3 contains a complete copy of Calculation No. 2203, Rev.0.

The FLUD 6 Code Description is included as Attachment 4.