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Docket Nos. 50-275
and 50-323

Pacific Gas and Electric Company
ATTN: Mr. John C. Morrissey
Vice President & General Counsel
77 Beale Street
San Francisco, California 94106

bcc: ACRS (16)
NSIC
TIC

Gentlemen:

SUBJECT: PRESSURE VESSEL FRACTURE TOUGHNESS PROPERTIES
(DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2)

Our review of data received from reactor vessel material surveillance programs indicates that the materials used in the fabrication of older pressure vessels may have a wider variation in sensitivity to radiation damage than originally anticipated. In addition, some reactor vessels incorporate more than one heat of materials, including weld metals, in their beltline regions, but all of these heats may not be included in the reactor vessel material surveillance program.

Although our review of these data does not reveal a basis for concern regarding reactor vessel integrity over several years of operation, the information does indicate a need for the detailed review of the materials employed in reactor vessel construction (in light of this recent data) and a review of the specimens employed in the surveillance program to determine if the present specimens reasonably represent the limiting materials in the reactor vessel beltline region.

The staff has determined that additional information is required on materials in the beltline region of the reactor vessel(s) at your facility in order for us to complete our evaluation of the potential for developing marginal fracture toughness properties after a period of reactor operation and to assess the need for augmented material surveillance programs.

Accordingly, you are requested to provide a response to the information listed in the enclosure within 60 days of receipt of this letter.

OFFICE➢						
SURNAME➢						
DATE➢						

This request for generic information was approved by GAO under a blanket clearance number R0071. This clearance expires September 30, 1978.

Sincerely,

Original Signed by
John F. Stolz

John F. Stolz, Chief
Light Water Reactors Branch No. 1
Division of Project Management

Enclosure: Questionnaire

cc w/enclosure:
See next page

OFFICE	LWR 1	LWR 1				
SURNAME	DAllison/red	JStolz				
DATE	11/22/77	11/22/77				

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OFFICE➤						
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DATE➤						

ENCLOSURE

QUESTIONNAIRE FOR FRACTURE TOUGHNESS PROPERTIES OF OLDER REACTOR VESSELS

121.0 MATERIALS ENGINEERING BRANCH - MATERIALS INTEGRITY SECTION

121.1 Provide the purchase order date for your reactor vessel, identify the firm or firms with whom the purchase order was placed, the vessel fabricator, and applicable edition of the ASME Code requirement pursuant to 10 CFR Part 50.55a(c).

121.2 Identify each material (plate, and/or forging and weld metal) in the beltline region (as defined by paragraph II.H, Appendix G, 10 CFR Part 50) and provide a sketch showing the location of these materials in the reactor vessel. Provide the following information for each material:

(1) Chemical analyses; particularly those elements known to affect irradiation sensitivity and degrade the upper shelf fracture energy (Cu, P, and S).

(2) Unirradiated fracture toughness properties (T_{NDT}, RT_{NDT} and upper shelf fracture energy) as required by Appendix G, 10 CFR Part 50, identifying the limiting material in the reactor vessel beltline region.

(3) Estimate the maximum anticipated change in RT_{NDT} and upper shelf fracture energy as a function of the EOL fluence at the inner wall for the materials in the beltline region of the reactor vessel.

121.3 Describe the surveillance program for the reactor vessel(s), list the materials (plate, and/or forging and weld metal) and justify their selection. State any deviation from Appendices G and H, 10 CFR Part 50.