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USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

86 OCT 21 P3:14

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of)	
)	
PACIFIC GAS AND ELECTRIC)	Docket Nos. 50-275 OLA
COMPANY)	50-323 OLA
(Diablo Canyon Nuclear Power Plant)	(Spent Fuel Pool)
Units 1 and 2))	

NRC STAFF SECOND SET OF INTERROGATORIES
AND REQUEST FOR DOCUMENTS FROM
THE SIERRA CLUB, SANTA LUCIA CHAPTER

The NRC staff hereby requests that the Sierra Club, Santa Lucia Chapter (Sierra Club) pursuant to 10 C.F.R. §§ 2.740b and 2.741, answer separately and fully, in writing under oath or affirmation, the following interrogatories and produce or make available for inspection and copying, all documentary material identified in responses to interrogatories below. Each response to the interrogatories below shall be under oath or affirmation of the individual(s) who contributed thereto. For all references requested in these interrogatories, identify them by author, title, date of publication and publisher if the reference is published, and if it is not published, identify the document by the author, title, the date it was written, the qualifications of the author relevant to this proceeding, and where a copy of the document may be obtained.

Sierra Club Contention

I(A) It is the contention of the Sierra Club, Santa Lucia Chapter (Sierra Club), that the report submitted to the Nuclear Regulatory Commission (NRC) entitled Reracking Spent Fuels Pools Diablo Canyon, Units 1 and 2 and other communications between Pacific Gas and Electric

Company (PG&E) and the NRC which are available to the public on the same subject (the Reports) fail to contain certain relevant data necessary for independent verification of the claims made in the Reports regarding consistency of the proposed reracking with the protection of the public health and safety, and the environment.

In particular, the reports fail to contain data regarding:

- 3) the expected velocity and displacement of the spent fuel pools (pools) as a function of time in three dimensions during the postulated Hosgri earthquake (PHE);
- 4) the expected maximum velocity and displacement of the racks obtained from the computer modeling of rack behavior during the PHE;

I(B) It is the contention of the Sierra Club that the Reports fail to include consideration of certain relevant conditions, phenomena and alternatives necessary for independent verification of claims made in the Reports regarding consistency of the proposed reracking with public health and safety, and the environment, and with federal law.

In particular, the Reports fail to consider:

- 2) the resonant behavior of the spent fuel assemblies in the racks in response to the PHE and the consequences of such behavior;
- 7) alternative on-site storage facilities including:
 - (i) construction of new or additional storage facilities and/or;
 - (ii) acquisition of modular or mobile spent nuclear fuel storage equipment, including spent nuclear fuel storage casks;
- 8) the use of anchors, braces, or other structural members to prevent rack motion and subsequent damage during the PHE;
- 9) the use of "boraflex" neutron absorbing material for all spent fuel racks.

II. It is the contention of the Sierra Club that the proposed reracking is inconsistent with the protection of the public health and safety, and the environment, for reasons which include the following:

- (A) during the PHE, collisions between the racks and the pool walls are expected to occur resulting in:
- (1) impact forces on the racks significantly larger than those estimated in the reports;
 - (2) impact forces on the racks significantly larger than those expected to damage the racks;
 - (3) significant permanent deformation and other damage to the racks and pool walls;
 - (4) reduction of the spacings between fuel assemblies;
 - (5) increase in the nuclear criticality coefficient $k(\text{eff})$ above 0.95;
 - (6) release of large quantities of heat and radiation;
 - (7) radioactive contamination of the nuclear power plant and its employees above the levels permitted by federal regulations;
 - (8) radioactive contamination of the environment in the vicinity of the nuclear power plant above the levels permitted by federal regulations; and
 - (9) radioactive contamination of humans and other living things in the vicinity of the nuclear power plant above the levels permitted by federal regulations.
- (B) during the PHE, collisions between groups of racks with each other and/or with the pool walls are expected to occur with results similar to those described in II(A) above.

Interrogatories

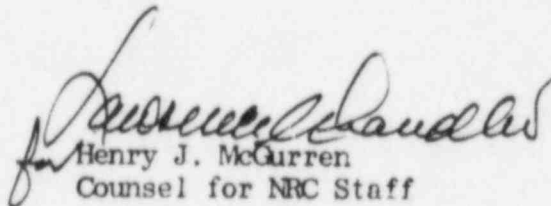
- 2-1a. Identify what person or persons you now rely upon to substantiate in whole or in part your position on Contentions I and II.
- b. Provide the addresses and education and professional qualifications of any persons named in your response to a. above.
- c. Identify which of the above persons or any other person you may call as witnesses on these contentions.

- 2-2. Provide summaries of the views, positions or proposed testimony on Contentions I and II of all persons named in response to Interrogatory 2-1, that you intend to present as witnesses during this proceeding.
- 2-3. State the specific bases and references to any documents upon which the persons named in response to Interrogatory No. 2-1 rely to substantiate their views regarding Contentions I and II.
- 2-4. With regard to Contentions I and II, identify all documentary or other material that you intend to use during this proceeding to support these contentions and that you may offer as exhibits on these contentions or refer to during your cross-examination of witnesses presented by the Licensee and/or the NRC staff.
- 2-5. With regard to Contention II(A)(6), identify the specific source and cause of the "large quantities of heat and radiation".
- 2-6. Provide a detailed description including the assumptions you used for the analyses based on the THM model referred to in your report entitled "Technical Details of the Proposed High Density Reracking at Diablo Canyon the Seismic Problem", dated October 3, 1986 (hereinafter the "Report").
- 2-7. Provide the values of all the parameters used in the COLL 4050 computer program for each run of the THM model. Indicate any logic change to the computer program for each run.
- 2-8. With regard to impact forces between rack and wall as reported on page 13 and depicted in Figures 1, 2 and 3 of your Report, what are the impact forces between the fuel assembly and cell wall as a function of time.
- 2-9. Describe the phenomenon of "double impact" depicted in Figures 2 and 3 of your Report noting in particular the relationship of the forces and positions of the rack to wall and the fuel assembly to rack over the entire time period depicted in Figures 2 and 3 (0 through 150 milliseconds).
- 2-10. Describe your analysis and the basis thereof which predicts maximum speed for a free rack to be of the order of 24 in/sec.
- 2-11. For the analyses identified in Interrogatory 2-6 for which you used the PHE as input motion, what portion of

the PHE time history record and in which direction of the earthquake motion were used?

- 2-12. With respect to the statements made in the third paragraph of page 12 of the Report:
- a. Describe how the convergence of the THM model was checked. Was the check performed for the non-linear seismic response?
 - b. Provide the justifications for bench marking the THM analysis against an analytical solution assuming a rigid rack, zero friction, and constant acceleration, when the true behavior of the racks involves elastically and non-elastically connected rack components, non-linear frictional elements and non-constant randomly varying accelerations.
- 2-13. Although the Introduction, which precedes the Report, indicates that Dr. Ferguson is solely responsible for the contents of the Report, it is clear that the analysis involved the efforts of other persons. The Report states for example, "our work" (page 13); "[w]e see" (page 14); "our impression" (page 17; "[w]e have argued" (page 20). Identify the person or persons you relied upon or who contributed in any way to the Report itself or the analyses described in the Report, indicating for each person identified his or her professional qualifications and position regarding Contentions I and II, and whether or not you may call such person as a witness in this proceeding.

Respectfully submitted,


Henry J. McGurran
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 20th day of October, 1986

RELATED CORRESPONDENCE

DOCKETED
USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

'86 OCT 21 P3:16

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of)
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COMPANY)
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(Diablo Canyon Nuclear Power Plant)
Units 1 and 2)

Docket Nos. 50-275 OLA
50-323 OLA
(Spent Fuel Pool)

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF SECOND SET OF INTERROGATORIES AND REQUEST FOR DOCUMENTS FROM CONSUMERS ORGANIZED FOR DEFENSE OF ENVIRONMENTAL SAFETY REGARDING CONTENTION 14", "NRC STAFF SECOND SET OF INTERROGATORIES AND REQUEST FOR DOCUMENTS FROM SAN LUIS OBISPO MOTHERS FOR PEACE", and "NRC STAFF SECOND SET OF INTERROGATORIES AND REQUEST FOR DOCUMENTS FROM THE SIERRA CLUB, SANTA LUCIA CHAPTER" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or as indicated by an asterisk through deposit in the Nuclear Regulatory Commission's internal mail system, this 20th day of October, 1986:

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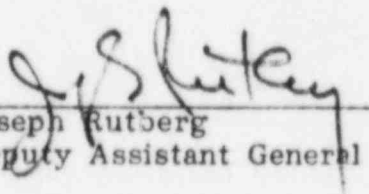
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