

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

U.S. DEPARTMENT OF ENERGY  
PROJECT MANAGEMENT CORPORATION  
TENNESSEE VALLEY AUTHORITY

(Clinch River Breeder Reactor Plant)

Docket No. 50-537

NRC STAFF SECOND SET OF CONSTRUCTION PERMIT  
INTERROGATORIES AND REQUESTS FOR ADMISSIONS  
TO NATURAL RESOURCES DEFENSE COUNCIL, INC. AND THE  
SIERRA CLUB CONCERNING CONTENTIONS 1 AND 3 (HCDAs)

In accordance with the Board's Construction Permit Scheduling Order of March 29, 1983, the NRC Staff ("Staff") hereby submits to Intervenor Natural Resources Defense Council, Inc. and the Sierra Club (hereafter jointly referred to as "NRDC") the following interrogatories and requests for admissions.

INTERROGATORIES

Pursuant to 10 C.F.R. § 2.740(b), the NRC Staff requests NRDC, et al. to respond to the following interrogatories in writing and under oath. For each interrogatory, provide the following answer, in accordance with the terms of the parties' March 4, 1982 "Protocol For Discovery":

- a) Provide the direct answer to the question.
- b) Identify all documents and studies, and the particular parts thereof, relied upon by NRDC, now or in the past, which serve as the basis for the answer. In lieu thereof, at NRDC's option, a copy of such document and study may be attached to the answer.

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- c) Identify principal documents and studies, and the particular parts thereof, specifically examined but not cited in (b). In lieu thereof, at NRDC's option, a copy of each such document and study may be attached to the answer.
- d) Identify by name, title and affiliation the primary NRDC employee(s) or consultant(s) who provided the answer to the question, indicating the qualifications of that person to answer the question.
- e) Explain whether NRDC, et al. are presently engaged in or intend to engage in any further, on-going research program which may affect its answer. Failure to provide such an answer means that NRDC, et al. do not intend to rely upon the existence of any such research at the construction permit hearing on the CRBR.
- f) Identify the expert(s), if any, which NRDC, et al. intend to have testify on the subject matter questioned, and state the qualifications of each such expert. This answer may be provided for each separate question or for a group of related questions. This answer need not be provided until NRDC et al. have in fact identified the expert(s) in question or determined that no expert will testify, as long as such answer provides reasonable notice to the Staff.

General Interrogatory

- 1) Intervenors' response to Interrogatories # 1(a)-1, 1(a)-2, 1(b)-2, 3(b)-7, 3(b)-8, 3(b)-9, 3(b)-10, 3(b)-11, 3(c)-8, 3(c)-9, 3(c)-10, 3(d)-3 and 3(d)-4 of the NRC Staff First Set of Construction Permit Interrogatories and Requests for Admissions, dated April 8, 1983, stated that these interrogatories could not be answered at this time because Intervenors have not completed their review of the SER. When will Intervenors complete their review of the SER? At that time, please answer the above-listed interrogatories.

Contention 1(b)

- 1(b)-1 Clarify Intervenors' response to Interrogatory 1(b)-3 of the NRC Staff First Set of Construction Permit Interrogatories by listing and describing specific methodologies which exemplify the "Scientific method."
- 1(b)-2 Intervenors' response to Interrogatory 1(b)-15 of the NRC Staff First Set of Construction Permit Interrogatories stated that Intervenors were unable to find their March 12, 1982 letter and, therefore, unable to respond. That letter is attached to this discovery request. Please answer Interrogatory 1(b)-15.
- 1(b)-3 What particular features of the CRBR design form the basis of Intervenors' answer to Interrogatory 1(b)-13 of NRC Staff First Set of Construction Permit Interrogatories?

Contention 3(b)

- 3(b)-1 Describe what would, in NRDC's judgment, constitute a sufficiently comprehensive analysis of potential accident initiators, sequences and events to ensure enveloping the DBA spectrum for CRBR?
- 3(b)-2 List and describe in detail the "potential common mode system failures" which Intervenors believe require a "comprehensive PRA and common course failure mode and effects analysis" to be performed, in order to demonstrate that CDAs are not credible,

as noted in Intervenor's response to Interrogatory 3(b)-7 of the Staff's First Set of Construction Permit Interrogatories.

3(b)-3 Do Intervenor's believe it is not possible to demonstrate that CDAs are not credible, as implied in Intervenor's response to Interrogatory 3(b)-7 of the Staff's First Set of Construction Permit Interrogatories?

3(b)-4 Define "common course failure mode and effects analyses", as used in Intervenor's response to Interrogatory 3(b)-7 of the Staff's First Set of Construction Permit Interrogatories.

Contention 3(c)

3(c)-1 Are sodium-concrete interactions associated with core meltdown (following loss of core geometry) the only sodium-concrete interactions which Intervenor's assert in Contention 3(c) have not been adequately analyzed by the Staff? If not, please list all sodium-concrete interactions, together with the mechanisms and or sequence of events by which these interactions will occur, which Intervenor's contend have not been adequately analyzed by the Staff.



ADMISSIONS

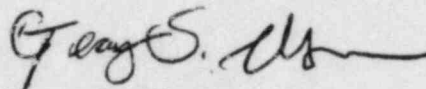
Intervenors' response to Admissions 2, 11, 12, 25, 32, 33, 34, 35, and 40 of the NRC Staff First Set of CP Interrogatories and Requests for Admissions, dated 4.8/83, stated that these admissions could not be answered because Intervenors have not completed their review of the SER. In some cases (Admissions 32, 33, 34, 35 and 40) the answer was to be provided as part of the CP testimony. Intervenors are requested to commit to providing answers to these Admissions by May 10, 1983, which is the closing date for discovery as set by the Board in its Construction Permit Scheduling Order.

- 1) A probabilistic risk assessment "PRA" is a "scientifically validated procedure", as that term is defined by Intervenors in their April 22, 1983 response to Interrogatory 1(a)-9 of the Staff's First Set of Construction Permit Interrogatories.
- 2) The CRBR PRA, as described in PSAR Appendix J and SER Appendix D, is a "scientifically validated procedure," as that term is defined by Intervenors in their April 22, 1983 response to Interrogatory 1(a)-9 of the Staff's First Set of Construction Permit Interrogatories.
- 3) Completion of a PRA for CRBR prior to issuance of the construction permit is not the only acceptable way of ensuring that the PRA results are factored into the design.

- 4) The Staff's requirement (as stated in the CRBR-SER Appendix C and D) that the CRBR reliability assessment and PRA must be completed on a time scale which permits impacting the CRBR design, will ensure that the results of the CRBR reliability assessment and PRA are factored into the design.
- 5) "Irreversible physical movement of fuel and/or fuel cladding," as that term is used by Intervenors in their response to Interrogatory 3(c)-3 of the NRC Staff's First Set of Construction Permit Interrogatories, does not include permanent cladding strain in the CRBR fuel cladding due to the occurrence of the CRBR design basis accidents listed in Section 15 of the CRBR SER, NUREG-0968.
- 6) The potential for occurrence of human error at CRBR is roughly comparable to that at LWRs.
- 7) Comprehensive probabilistic risk assessment can demonstrate that CDAs are not credible for CRBR.
- 8) The Reactor Safety Study, WASH-1400, was based on two plants, Surry Unit 1 and Peach Bottom Unit 2, which were starting or about to start operation at the time the study was performed.
- 9) Probabilistic risk assessments can be utilized in the ongoing design and development of nuclear power plant systems, including those for CRBR.

- 10) It has not been the industry practice to complete the design of nuclear power plant systems before construction is initiated for the nuclear power plant.
  
- 11) The Staff does not require that nuclear power plant systems be completely designed prior to issuance of a construction permit for that plant.
  
- 12) It is feasible to make improvements in CRBR plant systems prior to the completion of construction of CRBR.

Respectfully submitted,



Geary S. Mizuno  
Counsel for NRC Staff

Dated at Bethesda, Maryland  
this 26th day of April, 1983

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Dear Messrs. Swanson, Edgar and Silverstrom:

According to the Board's Prehearing Conference Order of February 11, 1982, the parties must file with the Board by March 19, 1982 pleadings addressing areas of discovery upon which no agreement can be reached. On March 1, 1982, during a meeting of the parties, Intervenors presented Staff and Applicants with two documents, enclosed herein, outlining some areas on which Intervenors propose to conduct discovery. These documents are:

- 1) Proposed Areas of Discovery for New Contentions  
 (Draft, March 1, 1982);
- 2) New Information Relevant to Intervenors' Contentions  
 (relates to admitted contentions).



To date, Intervenors have received no response from Staff or Applicants regarding agreement or disagreement with these proposed areas of discovery. We would appreciate an immediate response from both parties so that the Board's pleading deadline of March 19, 1982 can be met.

Sincerely,

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DRAFT  
March 1, 1982

PROPOSED AREAS OF DISCOVERY FOR NEW CONTENTIONS

16. a) Details of Staff's and Applicants' analyses of the radiological source term, both as described in the 1977 Site Suitability report and any current or proposed changes.  
b) Details of Staff's and Applicants' proposed method(s) for circulating guideline values for radiation doses.
17. a) Details of Applicants' proposed baseline monitoring program.  
b) Details of any recent data or proposed studies by DOE or others concerning radioactivity levels in the Clinch River or its sediment.
18. a) Details of DOE plans to obtain adequate fuel for the CRBR through reprocessing, purchase of plutonium from foreign countries, construction of new production facilities or other methods.  
b) Details of DOE policy regarding program priorities in obtaining needed plutonium.
19. a) Details of Applicants' proposed quality assurance program.  
b) Details of Staff review of Applicants' QA program.
20. a) Details of Applicants' proposed emergency planning program.  
b) Details of Staff review of Applicants' proposed emergency planning program.
21. a) Details of Staffs' proposed requirements for mitigating CRBR accident risks through certain features and design changes.

New Information Relevant to  
Intervenors' Contentions

1. Contention 10(g) - relates to analysis of alternative sites which may have more favorable environmental and safety features. The Commission has held that siting alternatives are relevant to this proceeding in order to determine whether substantially better alternatives are likely to be available to meet the program's informational goals. New information includes:
  - a. New meteorological data related to CRBR proposed site (see Amendments XI to ER, Section 2.6 and letters dated November 20 and November 30, 1981 from Paul S. Check to John R. Longnecker.)
  - b. Office of Nuclear Reactor Regulation, NRC, Report of the Siting Policy Task Force (NUREG-0625) (Aug. 1979) sets forth recommendations of a number of changes to current NRC policy on nuclear power reactor siting, including:
    1. renewal of present policy of permitting plant design features to compensate for unfavorable site characterization in favor of emphasizing site isolation, and
    2. use of selective siting to reduce the risks associated with accidents beyond the design basis (Class 9).
  - c. Proposed revision of NRC reactor siting criteria (45 Fed. Reg. 50350, July 29, 1980) (Advance Notice of Proposed Rulemaking).
  - d. Proposed rule regarding the review of alternative sites under NEPA (45 Fed. Reg. 24168, April 9, 1980).
  - e. Notice of Intent to Prepare an Environmental Impact Statement for Revision of the Regulations Governing the Siting of Nuclear Power Plants (45 Fed. Reg. 79820, December 2, 1980).
  - f. NRC, A Comparison of Site Evaluation Methods (NUREG/CR-1684) (July 1981)



c. Continued.

See U.S. Nuclear Regulatory Commission, NRC Action Plan Developed as a Result of the TMI-2 Accident (NUREG-0660) (Aug. 1980); U.S. Nuclear Regulatory Commission, Identification of New Unresolved Safety Issues Relating to Nuclear Power Plants (NUREG-0705) (March 1981);

See also Letter, dated January 27, 1982, from Richard Shikiar, Director, Social Change Study Center, to Dr. Thomas Cochran, NRDC (discussing presentation of Harold Denton, Office of Nuclear Reactor Regulation, NRC, at Peer Advisory Panel meeting concerning qualifications of nuclear power plant operators).

d. Discussion on pp. 120-121 of DOE's draft supplement impact statement on the LMFBR program describing research and testing programs that have occurred since 1975 (particularly reports listed on footnotes 1 and 4 on p. 141 of draft).

e. New Commission studies on appropriate safety goals; e.g.:

- (i) U.S. Nuclear Regulatory Commission, Workshop on Frameworks for Developing a Safety Goal (NUREG/CP-0018) (June 1981);
- (ii) U.S. Nuclear Regulatory Commission, Toward a Safety Goal: Discussion of Preliminary Policy Considerations (NUREG-0764) (March 1981);
- (iii) U.S. Nuclear Regulatory Commission, An Approach to Quantitative Safety Goals For Nuclear Power Plants (NUREG-0739) (October 1980).

3. Contention 3 - relates to Applicants' failure to establish that the consequences of core disruptive accidents are adequately described in the PSAR. New information includes:

a. Applicants have modified the computer codes used to simulate accidents to determine their potential and

4. Contentions 7 and 8 - Health Effects from Plutonium Exposure:

- a. New report: National Academy of Science. The Effects On Populations of Exposure to Low Levels of Ionizing Radiation (National Academy Press 1980) (BEIR Report)
- b. Reassessment of the magnitude and effects of neutron dosages at Hiroshima. (See, e.g., W.E. Lowe and E. Mendelsohn, "Revised Dose Estimates at Hiroshima and Nagasaki" (UCRL 85446 preprint, 1 October 1980), available from Lawrence Livermore National Laboratory).
- c. Three years of new results from ongoing beagle experiments (see, e.g., Pacific Northwest Laboratory, Richland, Wash., Annual Report for 1979 to the DOE Assistant Secretary for Environment (February 1980), and Cross, Palmer, Filipy, Dagle, and Stuart, "Carcinogenic Effects of Radon Daughters, Uranium Ore Dust and Cigarette Smoke in Beagle Dogs." (Pacific Northwest Laboratory, Richland, Wash., April 24, 1981)).
- d. John W. Gofman, Radiation and Human Health (Sierra Club Books, San Francisco 1981) (1000 p.)
- e. NRC revisions to Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations Will be as Low as is Reasonably Achievable." (NRC Office of Standards Development) (Rev. 2, March 1977).
- f. Changes in Applicants Radiation Protection Program (see PSAR Section 12, Amendments 40, 44, 45, 49 and 52).
- g. New Regulatory Guides related to radiation protection, listed in letter, dated January 13, 1982 from Paul S. Check to John R. Longnecker.

5. Contention 4 - relates to Applicants' analysis of accident possibilities of greater consequence than the design base accident, such as accidents associated with sodium-concrete interactions and core catcher failure.  
New information:

7. Contention 5 - relates to the health and safety consequences of acts of sabotage, terrorism or theft directed against the CRBR or supporting facilities. New information:
- a. Changes in Applicants' safeguards program (see pp. 145-172 in DOE's draft supplemental LMFBR impact statement).
  - b. New NRC regulations on physical security (10 CFR §73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage).
  - c. Department of Energy, Nuclear Proliferation and Civilian Nuclear Power: Report of the Nonproliferation Alternative Systems Assessment Programs (DOE/NE-0001/7) (June 1980).
  - d. Proposed NRC rules concerning material control and accountability requirements for licensees possessing special nuclear materials (46 Fed. Reg. 45144 (September 10, 1981)) (advance notice of proposed rulemaking).
  - e. Several recent GAO reports concerning safeguards and physical security.
    - (i) "Security at Nuclear Powerplants--At Best, Inadequate" (4/7/77)
    - (ii) Unclassified summary of a classified report entitled, "Commercial Nuclear Fuel Facilities Need Better Security" (5/2/77)
    - (iii) Letter to Chairman, John Dingell, U.S. House of Representatives, Re: unaccounted for nuclear material (5/5/78)
    - (iv) Unclassified summary of a classified report entitled, "States of Physical Security Improvements to ERDA Special Nuclear Material Facilities" (9/8/77)

- b. EPA is preparing rules that would permit ocean dumping of low-level radioactive wastes. (see "Agency May Alter Atom Waste Policy," New York Times, January 15, 1982).
  - c. The Navy has issued a Notice of Intent to Prepare an Environmental Impact Statement on its plan to dispose of retired nuclear submarines in the ocean. 47 Fed. Reg. 2451 (January 14, 1982).
9. Contention 15 - relates to Applicant's designation of the quantitative vibratory ground motion design basis for the facility:
- a. New geologic and seismic information. See letter, dated October 26, 1981 from Paul S. Check to John R. Longnecker.
  - b. Incident at Diablo Canyon raises into question the acceptability of the NRC Staff's quality assurance program. See Remarks of Nunzio J. Palladino, Chairman, U.S. Nuclear Regulatory Commission at the Atomic Industrial Forum Annual Conference 1981 (San Francisco, CA, December 1, 1981).
10. Contention 6 - relates to meteorology of CRBR and alternative sites:
- a. Applicants have developed new meteorological data. See ER Section 2.6, Amendment XI, letter, dated November 30, 1981 from Paul S. Check to John R. Longnecker.





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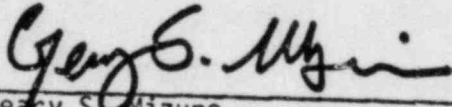
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