

4/30/82

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )

UNITED STATES DEPARTMENT OF ENERGY )  
PROJECT MANAGEMENT CORPORATION )  
TENNESSEE VALLEY AUTHORITY )

Docket No. 50-537

(Clinch River Breeder Reactor )  
Plant) )

NRC STAFF'S UPDATED ANSWERS TO NATURAL RESOURCES  
DEFENSE COUNCIL, INC., AND THE SIERRA CLUB  
FOURTEENTH SET OF INTERROGATOIRES TO  
NUCLEAR REGULATORY COMMISSION

Pursuant to the Licensing Board's Prehearing Conference Order of February 11, 1982, the Nuclear Regulatory Commission Staff (Staff) hereby updates its December 6, 1976 response to Intervenor's Natural Resources Defense Council, Inc. and the Sierra Club Fourteenth Set of Interrogatories to the Nuclear Regulatory Commission filed on August 27, 1976. Attached hereto are the Staff's answers to NRDC's and the Sierra Club's interrogatories, together with the affidavits of Mr. Allen, Mr. Swift and Mr. Morris who prepared the answers.<sup>1/</sup>

On March 4, 1982, the parties in this proceeding developed a Protocol for Discovery. NRDC has requested that answers to interrogatory questions be provided in six parts. The following six parts are:

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<sup>1/</sup> The affidavits of Mr. Allen, Mr. Swift and Mr. Morris are unsigned. However, a copy of their signed and notarized affidavits will be filed shortly.

- A) Provide the direct answer to the question.
- B) Identify all documents and studies, and the particular parts thereof, relied upon by the Staff, now or in the past, which serve as the basis for the answer. In lieu thereof, at Staff's option, a copy of such document and study may be attached to the answer.
- C) Identify principal documents and studies, and the particular parts thereof, specifically examined but not cited in (b). In lieu thereof, at Staff'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 Staff employee(s) or consultant(s) who provided the answer to the question.
- E) Explain whether the Staff is presently engaged in or intend to engage in any further, ongoing research program which may affect the Staff's answer. This answer need be provided only in cases where the Staff intends to rely upon ongoing research not included in Section 1.5 of the PSAR at the LWA or construction permit hearing on the CRBR. Failure to provide such an answer means that the Staff does not intend to rely upon the existence of any such research at the LWA or construction permit hearing on the CRBR.
- F) Identify the expert(s), if any, which the Staff intends 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 the Staff has in fact identified the expert(s) in question or determined that no expert will testify, as long as such answer provides reasonable notice to Intervenor.

For all the responses to interrogatories in this set the following are the answers to the requested parts in the Protocol for Discovery.

- B) All documents and studies, and the particular parts thereof, relied upon by the Staff now or in the past which serve as the basis for the answer are mentioned in the direct answer to the question unless otherwise noted.
- C) There were no principal documents and studies specifically examined but not cited in (b) unless otherwise noted.

- D) The name, title and affiliation of the Staff employee(s) or consultant(s) who provided the answer to the question are available in the affidavits.
- E) The Staff is not presently engaged in nor intends to engage in any further, on-going research program which may affect Staff's answer unless otherwise noted.
- F) At this time, the Staff has not determined who will testify on the subject matter questioned. Reasonable notice will be given to all parties after the Staff has made this determination. At that time, a statement of professional qualifications will be provided for each witness.

Respectfully submitted,

*Daniel F. Swanson*

Daniel T. Swanson  
Counsel for NRC Staff

Dated at Bethesda, Maryland  
this 30th day of April, 1982

NRC STAFF'S ANSWERS TO NRDC'S  
AND THE SIERRA CLUB'S INTERROGATORIES

The NRC Staff has determined that previous responses to Interrogatories #I.(1-4); #II.(1 through 2); #III.(1-3); #V(1, 2, 3),; #VI(1);

II. On page 3 of the Reliability Meeting Summary the following appears and is attributed to Dr. Ian Wall:

As human errors, test and maintenance activities and common mode failures are major contributors to system unavailability, and these are difficult if not impossible to accurately quantify, attainment of the goals cannot be demonstrated by analysis. Neither can they be demonstrated by test because of the nature of the equipment and such rare events would require an unrealistic amount of time to test.

With respect to this statement, please answer the following questions:

3. Is it possible to quantify the probability of deliberate human acts such as sabotage?

- a) It is possible that the probability of a deliberate act of sabotage is as large as  $10^{-4}$ ,  $10^{-3}$  or  $10^{-2}$  per year?
- b) It is possible that a deliberate act could produce a CDA and/or a situation wherein 10 C.F.R. §100 criteria could be exceeded?
- c) If deliberate acts such as sabotage were considered as accident initiating events, would it not be possible to include design and operational features that could significantly reduce the residual risk of and from such acts?
  - i. Are such acts being considered with respect to the CRBR and if not, why not?
  - ii. If the answer to (i) above is yes, explain in detail those specific design and operational features that have been included for this purpose.

Response

A) (a) Both the Unclassified Summary of Sandia Laboratory Report SAND-0069 (a copy of this summary was provided to NRDC with the Staff's July 15, 1976, responses to the eighth set of NRDC interrogatories to the NRC Staff.) with which the Staff concurs, and WASH-1400 (Section 1.9 of main report and Section 16 of Appendix XI) indicate that reliable methods for predicting deliberate human acts, such as sabotage, have not been developed. The Lewis Panel, in its Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission NUREG/CR-0400, also characterized this viewpoint as proper. We recognize that attempts at radiological sabotage may possibly be that frequent, and therefore, have promulgated regulations in 10 C.F.R. Part 73 requiring the design of safeguards systems to protect against acts of radiological sabotage.

With regard to the possibility that a deliberate act could produce a CDA and/or a situation wherein 10 C.F.R. §100 criteria could be exceeded, refer to our response to Section III of the Eighth Set of Interrogatories to the Staff.

Design features to protect against accidents and design safeguards systems features do in fact reduce the risk of and from deliberate acts of such as sabotage. It is expected that such acts will be considered in finalizing the design of the CRBR; whatever features are chosen for the safeguards, the design will be required to meet the requirements of 10 C.F.R Part 73.

B) Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission, (H. W. Lewis, Chairman), NUREG/CR-0400, September 1978.

IV. If one of the design features specified in III.2(a) above is not a core catcher, precisely how was it excluded as a design feature?

Interrogatory 1

In answering this, please consider all of the above interrogatories (I, II and III) and indicate how unlikely are the circumstances that would require a core catcher.

Response

A) The Staff has not stated that a core catcher will not be included as a design feature. The Staff will require that the CRBRP design include those features necessary to assure that unacceptable consequences do not result from a core melt accident. Whether or not the design includes a core catcher as such, it may contain some of the features of a core catcher. This issue will be considered in the safety review and the resolution will be discussed in the SER.



BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Docket No. 50-537

## My Commission expires:

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

|                                      |   |                   |
|--------------------------------------|---|-------------------|
| In the Matter of                     | ) |                   |
|                                      | ) |                   |
| UNITED STATES DEPARTMENT OF ENERGY   | ) | Docket No. 50-537 |
| PROJECT MANAGEMENT CORPORATION       | ) |                   |
| TENNESSEE VALLEY AUTHORITY           | ) |                   |
|                                      | ) |                   |
| (Clinch River Breeder Reactor Plant) | ) |                   |

AFFIDAVIT OF JERRY J. SWIFT

I, Jerry J. Swift, being duly sworn, state as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Reactor Engineer, Clinch River Breeder Reactor Program Office, Office of Nuclear Reactor Regulation.
2. I am duly authorized to participate in answering Interrogatories #3 of Section II; #1 through #3 of Section V, #1 of Section VI and #1 of Section VII of the 14th Set and I hereby certify that the answers given are true to the best of my knowledge.

\_\_\_\_\_  
Jerry J. Swift

Subscribed and sworn to before me  
this        day of April, 1982.

\_\_\_\_\_  
Notary Public

My Commission expires:



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

UNITED STATES DEPARTMENT OF ENERGY  
PROJECT MANAGEMENT CORPORATION  
TENNESSEE VALLEY AUTHORITY

(Clinch River Breeder Reactor Plant)

Docket No. 50-537

AFFIDAVIT OF CARDIS L. ALLEN

I, Cardis L. Allen, being duly sworn, state as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Reactor Engineer, Clinch River Breeder Reactor Program Office, Office of Nuclear Reactor Regulation.
2. I am duly authorized to participate in answering Interrogatories #4 of Section I, #1 and #2 of Section II, #1 and #2 of Section III, #1 of Section VIII and #1 through #5 of Section IX of the 14th Set and I hereby certify that the answers given are true to the best of my knowledge.

\_\_\_\_\_  
Cardis L. Allen

Subscribed and sworn to before me  
this        day of April, 1982.

\_\_\_\_\_  
Notary Public

My Commission expires: