

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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In the Matter of )  
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UNITED STATES DEPARTMENT OF ENERGY )  
PROJECT MANAGEMENT CORPORATION )  
TENNESSEE VALLEY AUTHORITY )

Docket No. 50-537

(Clinch River Breeder Reactor Plant) )  
\_\_\_\_\_ )

INTERVENORS, NATURAL RESOURCES DEFENSE  
COUNCIL, INC. AND THE SIERRA CLUB,  
PETITION FOR INVESTIGATION

Pursuant to 42 U.S.C. § 2232 and § 2236, 10 CFR §§2.206 and 50.100, and in recognition of the Commission's inherent supervisory authority, Intervenor Natural Resources Defense Council, Inc. and the Sierra Club (henceforth "NRDC" or "Intervenors") hereby petition the Commission to institute an investigation of Applicants Project Management Corporation, Department of Energy and Tennessee Valley Authority (the "Applicants") in order to determine whether these Applicants are fit to hold an NRC license for the Clinch River Breeder Reactor Plant ("CRBR").

I. Introduction

NRDC has uncovered two internal documents of Applicants<sup>1/</sup> indicating a concerted effort to conceal crucial safety

<sup>1/</sup> These documents were recently obtained by NRDC in the course of discovery for the CRBR licensing proceeding.

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information in a manner that calls into question the character of the CRBR Applicants. In addition, the Applicants' deliberate omissions call into question the fundamental reliability of the information which the Commission is using to assess the safety, environmental impact, and site suitability of the CRBR.

We believe it imperative that the Commission itself initiate and oversee an immediate investigation by the Staff into the implications of these documents. The Applicants are now importuning the Commission for the third time to circumvent the NRC licensing process to allow Applicants to begin work at Clinch River before the safety and site suitability issues have been resolved. If, as these documents indicate, the Applicants are systematically purging the technical record of mention of uncertainty and inadequacies in their safety analyses, they do not meet the character requirements of the Atomic Energy Act, and thus are not fit to hold an NRC license or obtain an exemption pursuant to 10 CFR § 50.12. Intervenors submit that an immediate investigation by the Commission is necessary before it permits any CRBR site work or construction to begin.

## II. The Facts and Bases for NRDC's Petition

The first document uncovered by NRDC, which displays a proposal by CRBR personnel to cover up damaging weaknesses in the Applicants' safety analysis, is a memorandum from

W. R. Rhyme, Chief of the Licensing Branch, to Anthony R. Buhl, Assistant Director for Public Safety, entitled "NRC TLTM Letter" (April 6, 1977) (Attachment "A").

This letter concerns the Applicants' proposed features, or "margins," to accomodate core melt accidents at the Clinch River plant. The acronym "TLTM" refers to "third level thermal margins," reflecting the fact that the Applicants consider CRBR core melt accidents to be incredible. Under Applicants' interpretation, such accidents need not be considered as "Class 8" accidents and included in the "design basis"<sup>2/</sup> of the plant, which would require additional safety margins. The Rhyme memorandum demonstrates how the chief licensing officer proposed to convince NRC that core melt accidents are not credible.

The memo reads in part:

I believe that we should take a firm stand now to prevent or at least minimize turning TLTM evaluations into a class 8 event. [3/]  
I recommend:

. . . .

2. That we not answer a single question explicitly! Rather, we update the scenario in the TLTM report where we agree that there are inconsistencies, inadequacies, etc., i.e., document unreal scenarios in the report only. However, we should not report sensitivity studies or other information just because NRC asked for it. Planned R&D should be adequately described in the report. [emphasis added]

<sup>2/</sup> The question of which accidents should be within the CRBR design basis is a major area of dispute in the CRBR licensing proceeding.

<sup>3/</sup> The Applicants' strategy was apparently successful. Core melts are not now within the CRBR design basis.

Despite this rather shocking attempt by the CRBR Chief of Licensing deliberately to omit crucial evidence concerning inadequacies and inconsistencies in its core melt safety analysis, NRDC has been unable to unearth any attempt by the Applicants to correct the situation. To the contrary, a second memorandum, written a month later by the CRBR chief engineering officer, proposes that the same policy of distortion and omission be applied to the Applicants' analysis of severe nuclear explosions in the CRBR.<sup>4/</sup>

This memorandum from the chief engineering officer of the Clinch River project<sup>5/</sup> to the Chief of the division responsible for planning, development, coordinating and executing policies and plans in the areas of public safety, environmental affairs, nuclear safeguards, licensing, and reliability<sup>6/</sup> concerns a report numbered ANL/RAS 77-15 prepared by Argonne National Laboratories. The Argonne report

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4/ Memorandum from Donald R. Riley, Assistant Director for Engineering, CRBRP Project, to Anthony R. Buhl, Assistant Director for Public Safety, CRBRP Project, "Review of ANL/RAS 77-15, SAS-3D REPORT, May 27, 1977 (Attachment "A").

5/ The Engineering Division, headed during the pertinent time by the author of this memo, is responsible for management of the design, engineering, and fabrication of systems, processes, equipment, and facilities, including quality, cost estimates, schedule, and research and development activities. CRBR PSAR, 1.4-5 (Am. 66, March 1982).

6/ Id.

in question is one of the fundamental underpinnings of the CRBR accident analysis. It constitutes the principal technical documentation for the validity of the computer code (SAS-3D) used to calculate the occurrence potential, accident progressions, and nuclear explosive potential of the CRBR core.<sup>7/</sup> The Riley memorandum calls unambiguously for the systematic deletion from the Argonne report of "negative" information that would presumably interfere with the licensing of the facility. For example:

General Comments

1. The subject report is not acceptable because the information is presented in a very negative manner, particularly Chapter 2. The overall conclusion derived from Chapter 2 is that significant uncertainty exists in the Project's knowledge of all the major phenomenon which contribute to the initiation phase of a loss-of-flow (LOF) accident for an end-of-equilibrium cycle (EOC) core. The report should not only present to NRC our current understanding of the LOF/EOC accident and the basis for this knowledge, but also the results and descriptions of the SAS-3D analysis. This report should be written in a straightforward, positive manner.

2. Any reference in this report to the need for additional work either experimental or analytical should be deleted. This type of information is not appropriate for transmittal to NRC.

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<sup>7/</sup> See CRBRP-3, Hypothetical Core Disruptive Accident Consideration in CRBRP, Vol. 1, Energetics and Structural Margin Beyond the Design Base, 2 Jan. 1979, Rev. 3, Aug. 1981 and 4 March 1982; see in particular pp. 1-4 and C-3.

Specific Comments

Chapter 9 - This chapter which presents the conclusions should be completely rewritten. Not only does this chapter support Chapter 2, i.e., the Project does not understand the LOF/EOC event, but it also presents to NRC a list of additional experiments which should be performed, see comments G1 and G2.

Recommendation

The critical chapters 1, 2, 7, 8 and 9 should be rewritten to a) present a positive, real assessment of the LOF HCDA, b) delete any reference to additional analytically [sic] or experimental work and c) incorporate the preceding comments. Until this is accomplished, Engineering does not recommend transmittal of this report to NRC.

Memorandum, pp. 1-2, 4 (emphasis added).

Although the memorandum was written in 1977, the Argonne Report is still the primary documentation of the validity of the SAS-3D code.<sup>8/</sup> Even were the underlying technical issue not a major one as it is in this case, the fact that an Applicant (or its highest technical management personnel) would direct that NRC be kept purposely ignorant of the limitations of its safety analyses should disqualify that Applicant from holding an NRC license.

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<sup>8/</sup> It is relied upon in the latest pertinent licensing documents (a) General Electric Co., "AN ASSESSMENT OF HCDA ENERGETICS IN THE CRBRP HETEROGENEOUS REACTOR CORE," CRBRP-GEFR-00523, Dec. 1981, p. 1-3, Chapter 3 and Appendix A; (b) US DOE, CRBRP-3, supra n. 7; US DOE, "Final Environmental Impact Statement, Liquid Metal Fast Breeder Reactor Program (Supplement to ERDA 1535, Dec. 1975)", DOE/EIS-0085-FS, May 1982, pp. 132, 145.

These memoranda at the highest levels of the CRBR project portray an organization so determined to obtain a license on its own terms (that is, without including major fast breeder accidents within the design basis) that it will distort the basic scientific analyses by excising the mention of uncertainty and inadequacy.<sup>9/</sup> Such behavior simply cannot be tolerated by NRC, which has no choice but to rely on Applicants to perform and report the fundamental technical work necessary to support an application. Reliance on the work of Applicants is even more pronounced in the case of the CRBR, which presents exceedingly difficult technical questions of first impression to the agency. In its consideration of the potential for explosion and core melt in the CRBR, NRC cannot look to a history of licensing experience, nor can it duplicate the work done by the Applicants. The agency has little choice but to accept much of the Applicants' work.<sup>10/</sup>

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<sup>9/</sup> The Recommendations by the Engineering Division of the CRBRP Project Office also raise serious questions regarding the independent scientific integrity of the Argonne National Laboratory, particularly its Reactor Analysis and Safety Division. While it appears that Argonne adopted some of the recommendations of the CRBRP Project Office, e.g., elimination of any reference to the need for additional experimental or analytical work, NRDC is unable at this time to determine the full extent of the CRBRP Project's influence on the final SAS-3D report. Despite our discovery request, the Applicants have not provided NRDC with the earlier review draft of the final report, i.e. Reference 3 of the Riley memorandum.

<sup>10/</sup> The adequacy of the SAS-3D computer code developed at Argonne has international implications as well. This code was used as the basis for licensing at least one foreign breeder reactor in addition to the CRBR.

III. Applicable Law

NRC has had occasion to consider the effect of the omission of material information by those subject to its jurisdiction. In Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2) LBP-75-54, 2 NRC 498 (1975), the holders of a construction permit failed to inform NRC of the opinion of geology experts that the site contained a geologic fault. Upon an order for the company to show cause why its construction permits should not be suspended or revoked for making material false statements, the Board found that the pertinent section of the Atomic Energy Act, §186<sup>11/</sup> (42 U.S.C. §2236), prohibits the omission of material information in addition to the affirmative submission of false information. The Board held as follows:

... In view of the Act's direct mandate with regard to the public health and safety an applicant or a licensee is accountable for an omission of material facts which are important to a health or safety review. The Commission in turn, has the responsibility under the Act to protect the public health and safety.... It has clearly and forcefully stated its need for truthful and accurate information in order to discharge its responsibilities for the public health and safety: ... nothing less than candor is sufficient.

. . . .

Section 186 must be read as contemplating [that] a material false statement results if, in the light of all the circumstances, an applicant or licensee fails to make a timely disclosure of information which is important for purposes of the safety review of its submission.

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<sup>11/</sup> See also 10 CFR §50.100.

2 NRC at 507-508 (citations omitted).

There can be little doubt that references to the need for additional experimental or analytical work to support the CRBR accident analysis and sensitivity studies of the conclusions reached by the Applicants are "important to a health and safety review" of the CRBR. Nor can it be said that the memoranda discovered by NRDC display the "candor" minimally required of an applicant for an NRC license.

In affirming the Licensing Board's holding that the omission of material information constitutes a "material false statement," the Commission reiterated the overriding importance of full disclosure by Applicants:

While the legislative history of the Atomic Energy Act does not directly address whether omissions may be treated as statements, the language and history of the Act make clear that the Commission's primary duty is to protect the public health and safety. Moreover, full disclosure by Applicants and licensees of all relevant data is vital if the Commission is to fulfill that duty.

. . . .

We think ... that "material false statement" may appropriately be read to insure that the Commission has access to true and full information so that it can perform its job.

Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2) CLI-76-22, 4 NRC 480, 488, 489 (1976), aff'd, Virginia Electric and Power Co. v. NRC, 571 F.2d 1289 (1978).

The character of an applicant is explicitly made a criterion for issuance of NRC licenses by Section 182(a) of the Atomic Energy Act, 42 U.S.C. §2232. Candor, truthfulness, and reliability are certainly aspects of character which are directly relevant to an applicant's responsibility safely to design, construct and operate a nuclear power plant. The importance of accurate and complete information could hardly be more important than it is in the context of nuclear regulation. As stated by the Commission in Petition for Emergency and Remedial Action, CLI-78-6, 7 NRC 400, 418 (1978):

Because NRC is dependent upon information from licensees, the Commission is particularly concerned that at first apparently inaccurate information was forthcoming from the licensee and subsequently complete information was delayed well beyond the requested date for response.

. . . .

In order to fulfill its regulatory obligations, NRC is dependent upon all of its licensees for accurate and timely information. Since licensees are directly in control of plant design, construction, operation, and maintenance, they are the first line of defense to ensure the safety of the public. NRC's role is one primarily of review and audit of licensee activities, recognizing that limited resources preclude 100% inspection.

Our inspection system is not designed to and cannot assume such tasks [to provide full inspection of construction activities]. Rather, we require that licensees themselves develop

and implement reliable quality assurance programs which can assume the major burden of inspection. Consumers Power Company (Midland Plant, Units 1 & 2), CLI-74-3, 7 AEC 7, 11 (1974).

We require instead a regime in which applicants and licensees have every incentive to scrutinize their internal procedures to be as sure as they possibly can that all submissions to this Commission are accurate.

Under the Federal Communications Act, which also requires a finding of good character on the part of applicants, the Federal Communications Commission may refuse to renew a license where there has been a failure to follow regulations, misrepresentations, or lack of candor by a licensee or one of its agents in dealing with the Commission. F.C.C. v. WOKO, Inc., 329 U.S. 223 (1946). Because the agency must depend upon the representations made to it by its applicants, the fact of concealment is often more significant than the facts concealed. Leflore Broadcasting Company v. F.C.C., 636 F.2d 454, 461 (D.C. Cir. 1980), quoting F.C.C. v. WOKO, Inc., 329 U.S. at 227.<sup>12/</sup>

NRC Staff made all these points about the importance of applicant honesty and candor in the South Texas Project case. NRC Staff Memorandum on Standards for Evaluating Managerial

<sup>12/</sup> In the F.C.C. cases, the false representations and concealment have been held to make issuance of a license contrary to the public interest even if they have been made by agents for their own purposes rather than in furtherance of the licensee's interest. F.C.C. v. WOKO, Inc., *supra*; WADECO, Inc. v. F.C.C., 628 F.2d 122 (D.C. Cir. 1980).

Competence and Corporate Character, Houston Lighting and Power Company, et al. (South Texas Project, Units 1 & 2) Docket Nos. 50-498, 50-499, May 6, 1981. As the Staff concluded after discussing several F.C.C. cases:

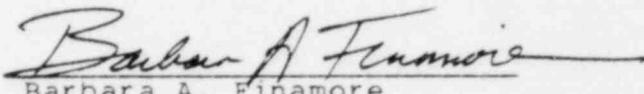
[I]n the regulation of the nuclear industry, the NRC is dependent upon the applicant to provide thorough and accurate information, the fact any information would be concealed is far more significant than the specific nature of the facts concealed.

IV. Conclusion

For all the reasons stated above, Intervenors hereby petition the Commission to initiate and oversee an immediate investigation into the implications of the above-cited documents for the character of the Applicants for the Clinch River Breeder Reactor. We request that the Commission postpone its consideration of Applicants' recently submitted third exemption request under 10 CFR §50.12 until completion of this investigation.

Respectfully submitted,

  
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Attorneys for Intervenors  
Natural Resources Defense  
Council, Inc.  
and the Sierra Club

Dated: July 14, 1982  
Washington, D.C.

File: 05.04

April 6, 1977

Anthony R. Buhl, Assistant Director for Public Safety

NRC TLTM LETTER

I believe that we should take a firm stand now to prevent or at least minimize turning TLTM evaluations into a class 8 event. I recommend:

1. That we re-emphasize that TLTM features are in the design base and give their description, design criteria, initiation sequences, etc., in the PSAR, i.e., document real hardware in the PSAR.
2. That we not answer a single question explicitly! Rather, we update the scenario in the TLTM report where we agree that there are inconsistencies, inadequacies, etc., i.e., document unreal scenarios in the report only. However, we should not report sensitivity studies or other information just because NRC asked for it. Planned R&D should be adequately described in the report.
3. We should object officially to the NRC class 8 approach and the blackmail implied.
4. We should not unconditionally commit to the 24 hour criteria. There is some legal precedent in that the DC Court of Appeals refused to review a petition that the AEC consideration of class 9 accidents was inadequate at the Shoreham Plant.

Whatever approach is decided, I believe that it should be decided quickly at the Riley/Buhl/Caffey level.

ORIGINAL SIGNED BY:  
WILLIAM R. RHYNE

W. R. Rhyne, Chief  
Licensing Branch

PS:L:77:426

cc: D. B. Howard  
J. R. Portland  
A. H. Hansen

OFFICE →	Licensing			
SURNAME →	W. R. Rhyne/dt			
DATE →	4/8/77			



UNITED STATES  
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

CLINCH RIVER BREEDER REACTOR PLANT PROJECT OFFICE  
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OAK RIDGE, TENNESSEE 37830 File No. 10.08.03

km/4-5-2

MAY 27 1977

Anthony R. Buhl, Assistant Director for Public Safety

REVIEW OF ANL/RAS 77-15, SAS-3D REPORT

- References:
- 1) Memo PS:SE:77-556, A. R. Buhl to D. R. Riley, "Review Of ANL/RAS-77-15," dated May 18, 1977.
  - 2) Memo PS:SE:77-478, A. R. Buhl to D. R. Riley, et al, "Review Of ANL SAS-3D Report," dated April 18, 1977.
  - 3) W. R. Bohl, et al, "An Analysis Of The Unprotected Loss-of-Flow Accident In The Clinch River Breeder Reactor With An End-of-Equilibrium - Cycle Core," ANL/RAS 77-15 Draft, dated May 1977.
  - 4) W. R. Bohl, et al, "An Analysis of Transient Undercooling and Transient Overpower Accidents Without Scram in the Clinch River Breeder Reactor", ANL/RAS 75-29, dated July 1975.

This memorandum satisfies commitment EN0200PS assigned in Reference (1) which replaced commitment EN0195PS assigned in Reference (2).

Engineering has reviewed the subject document, see Reference (3), as requested in References (1) and (2), and provided verbal comments to PSD (Gilbert) on May 23, 1977. This memorandum transmits these comments for your information:

General Comments

1. The subject report is not acceptable because the information is presented in a very negative manner, particularly Chapter 2. The overall conclusion derived from Chapter 2 is that significant uncertainty exists in the Project's knowledge of all the major phenomenon which contribute to the initiation phase of a loss-of-flow (LOF) accident

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for an end-of-equilibrium cycle (EOC) core. The report should not only present to NRC our current understanding of the LOF/EOC accident and the basis for this knowledge, but also the results and descriptions of the SAS-3D analysis. This report should be written in a straightforward, positive manner.

2. Any reference in this report to the need for additional work either experimental or analytical should be deleted. This type of information is not appropriate for transmittal to NRC.
3. All acronyms should be defined the first time they are used.
4. The Project Office should only receive those documents for review which contain the appropriate tables and figures, and numbered pages.

#### Specific Comments

1. Chapter 1 - The beginning of this chapter should include a discussion of the basis for analyzing only the LOF/EOC accident versus the other accidents described in Reference (4), e. g., transient-over-power (TOP) accidents and the LOF beginning-of-cycle (BOC) accident.
2. Chapter 2.1 - Delete the second paragraph, it detracts from the chapter.
3. Figure 2.2 - The last question on the logic flow is vague. This should be replaced with specifics or deleted.
4. Chapter 2.1 - On the second page, the report states, "The question of initial fuel dispersal still has significant uncertainties associated with it and must be left as a major branch point in the analysis". A brief description of the experimental results which show fuel dispersion should be provided at this point.

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5. Chapter 2.1 - On the fifth page, the concept of "sodium removal rate" from positive-void-worth region is presented. This concept is not discussed in this report, therefore, this reference to the rate should be deleted or the appropriate discussion included.
6. Chapter 2.3 - On the second page, Henry's experiment using argon has been used as justification for the Fauske slosh scenario. A brief description of the results of Henry's experiment should be provided.
7. Chapter 2.4.1.4 - The conclusions drawn from the TREAT tests described in this section were based on engineering speculation, e.g. the phenomenon of fuel dispersal by fission gas is highly uncertain. This report should not speculate on the results - either the test information is useful or it is unacceptable.
8. Chapter 2.4.1 - In the second paragraph of the first page, a set of four "relevant technical issues" are defined. These issues were not addressed, in the report and, therefore, should be deleted from the report.
9. Figure 2.10 - There is no obvious trend on this figure, the only obvious fact is the material becomes brittle at high temperatures. The text should be more specific.
10. Table 7.4 - The energy expansion volume of  $2.1 \times 10^7$  cc should be related to a CRBRP design feature.
11. Chapter 8 - This chapter does not contribute anything to the report, therefore, it should be combined with Chapter 2, as appropriate, or deleted.
12. Chapter 8.1 item (a) - The last two sentences of this item which refer to the need for additional experimental work should be deleted, see General Comment #4.
13. Chapter 8.2 item (c) - Delete, or reword on a positive note. It appears certain that this effect must tend to mitigate consequences rather than exacerbate them. The 33 channel vs 10 channel results prove this case.
14. Chapter 8.2, item (e) - Delete the last sentence.

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15. Chapter 8.2 item (f) - Delete this section. The report is based on the reference core design and should not speculate on any other designs i.e., AFMS.
16. Chapter 9 - This chapter which presents the conclusions should be completely rewritten. Not only does this chapter support Chapter 2, i.e., the Project does not understand the LOF/EOC event, but it also presents to NRC a list of additional experiments which should be performed, see comments G1 and G2.

Recommendation

The critical chapters 1, 2, 7, 8 and 9 should be rewritten to a) present a positive, real assessment of the LOF HCDA, b) delete any reference to additional analytically or experimental work and c) incorporate the preceding comments. Until this is accomplished, Engineering does not recommend transmittal of this report to NRC.

If there are any questions, please contact Mr. S. Brown of my staff.

*Ed Wright, for*  
Donald R. Riley, Assistant Director  
for Engineering  
CRBRP Project

EN:R:77-220

CERTIFICATE OF SERVICE

I hereby certify that copies of INTERVENORS, NATURAL RESOURCES DEFENSE COUNCIL, INC., AND THE SIERRA CLUB, PETITION FOR INVESTIGATION were delivered by hand this 14th day of July 1982 to:

The Honorable Nunzio J. Palladino  
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Washington, D.C. 20555

The Honorable James K. Asselstine  
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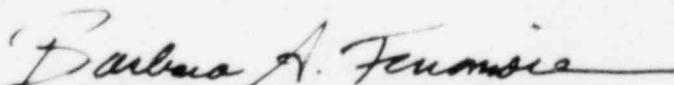
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