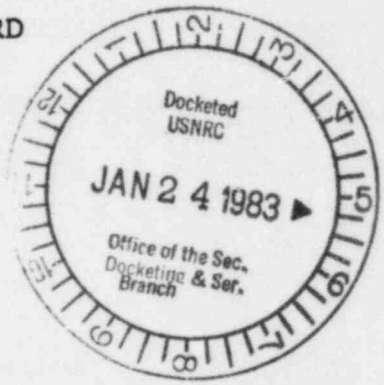
January 24, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Marshall E. Miller, Chairman
Gustave A. Linenberger, Jr.
Dr. Cadet H. Hand, Jr.



In the Matter of	)	
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, PROPOSED CONCLUSIONS OF LAW FOR THE LIMITED WORK AUTHORIZATION (LWA-1) PROCEEDING

Pursuant to 10 CFR §2.754(a), and in accordance with the Board's rulings of December 17, 1982 and January 4-5, 1983, Intervenors, Natural Resources Defense Council, Inc. and the Sierra Club, hereby submit their proposed conclusions of law for the limited work authorization (LWA-1) proceeding in the above-captioned case.

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Based upon the foregoing Findings of Fact, which are supported by reliable, probative and substantial evidence as required by the Administrative Procedure Act and the Commission's Rules of Practice, and upon consideration of the evidentiary record with respect to Contentions 1, 2, 3, 4, 5, 6, 7, 8, and 11, the Board should conclude, as a matter of law, the following:

Contentions 1(a), 3(b) and 3(d)

1. Staff and Applicants have not met fully their burden of proof with respect to Contentions 1(a), 3(b) and 3(d). They have not demonstrated with reasonable assurance that the CDA should be excluded from the DBA envelope for purposes of assessing the suitability of the CRBR site at the LWA-1 stage. Consequently, for purposes of assessing the suitability of the CRBR site under 10 CFR § 100.11, Applicants and Staff should assume that the CDA is a DBA.

2. Staff and Applicants have failed to provide reasonable assurance that their analyses of potential CRBR accident initiators, sequences and events are sufficiently comprehensive to assure that all CDAs should be outside the design basis envelope. Specifically, Staff and Applicants have failed to analyze sufficiently the reliability and associated failure rates of the major CRBR safety systems designed to prevent, terminate, and mitigate CRBR core disruptive accidents. Staff and Applicants have also failed to analyze sufficiently common mode

failures, human error, and potential systems interactions and how they can initiate, exacerbate, or interfere with the mitigation of core disruptive accidents. As a result, Staff and Applicants have not provided reasonable assurance that the proposed site is suitable for a reactor of the general size and type as the CRBR from the standpoint of radiological health, as required by 10 CFR § 50.10(e).

3. According to Staff's and Applicants' current best estimates, a CRBR core disruptive accident with an upper bound probability of approximately 10^{-5} per reactor year would most likely result in thyroid doses far exceeding the 10 CFR Part 100 dose guideline values. Thus, Staff and Applicants have failed to demonstrate that the CRBR is reasonably likely to meet or even approach Staff's CRBR safety objective, that there be no greater than one chance in a million (10^{-6}) per reactor year of a CRBR radioactive release with potential consequences greater than the 10 CFR Part 100 dose guidelines.

4. Staff and Applicants have failed to utilize all available information and review to date in determining whether the CDA should be within the design basis envelope, and have therefore not provided reasonable assurance that the proposed site is suitable location for a reactor of the general size and type proposed from the standpoint of radiological health, as required by 10 CFR § 50.10(e).

Contentions 2, 3(c) and 11(d)

5. The analyses of CDAs and their consequences by Applicants and Staff are inadequate for purposes of licensing the CRBR, performing the NEPA cost/benefit analysis, or demonstrating that the radiological source term for CRBR would result in potential hazards not exceeded by those from any accident considered credible, as required by 10 CFR §100.11(a), fn. 1.

6. Staff and Applicants have failed to demonstrate with sufficient assurance that an individual located at the boundary of the CRBR low population zone, who is exposed to the radioactive cloud resulting from postulated fission product and fuel release (during the entire period of its passage) would not receive a radiation dose in excess of the guideline values specified by Staff for use in CRBR LWA-1 review, as required under 10 CFR §100.11(a)(2).

7. Staff and Applicants have not provided reasonable assurance that their postulated fuel release fraction, or source term, bounds the releases from all credible accidents, as required by 10 CFR §100.11(a)(fn. 1).

8. Staff and Applicants did not use appropriately conservative assumptions in their site suitability analysis, as required by 10 CFR §100.2(b), in order to take into account the lack of experience with a reactor of the general size and type as the CRBR, which is novel in design and unproven as a prototype or pilot plant.

9. The dose guideline values selected by Staff for use in the site suitability review are inadequate to prevent serious injury to individuals offsite if an unlikely, but still credible, accident should occur, as required by 10 CFR Part 100.

10. Staff and Applicants have not demonstrated with reasonable assurance that the dose guideline values selected by Staff for use in the LWA-1 site suitability review are sufficiently conservative to take into account continuing uncertainty in plutonium dose and health effects models, as required by Commission precedent.

11. Staff and Applicants have failed to demonstrate that CRBR is reasonably likely to achieve a level of safety comparable to current generation light water reactor plants, according to all current criteria for evaluation.

12. According to Staff's best estimates, the reliability of the CRBR auxiliary feedwater system is no better than 10^{-4} per reactor year. This level of reliability is unacceptable in terms of public health and safety. Florida Power and Light Co. (St. Lucie, Unit No. 2), ALAB-435, 6 NRC 541, 543 (1977).

13. Staff and Applicants have not performed a sufficiently searching, in-depth analysis of the environmental risks of CRBR core disruptive accidents as required by NEPA. NEPA requires agencies to ensure that the environmental impact statement contains sufficient discussion of the relevant issues and opposing viewpoints to enable the decisionmaker to take a "hard

look" at environmental factors, and to make a reasoned decision. Kleppe v. Sierra Club, 427 U.S. 390, 410 n. 21 (1976); Izaak Walton League v. Marsh, 655 F.2d 346, 371 (D.C. Cir. 1981); Sierra Club v. Adams, 578 F.2d 389, 393-6 (D.C. Cir. 1978). The agency must explicate fully its course of inquiry, its analysis, and its reasoning. If an impact statement is too vague, too general, and too conclusionary, it cannot form a basis for responsible evaluation and criticism. Environmental Defense Fund v. Froehlke, 477 F.2d 1033 (8th Cir. 1972).

14. In light of all the deficiencies outlined above, Staff's ultimate cost/benefit balancing under NEPA is arbitrary and capricious.

Contention 5(b)

15. Staff and Applicants have failed to meet the requirements of the National Environmental Policy Act, 42 U.S.C. §§4231 et seq. ("NEPA") in that they have not adequately analyzed the environmental impacts upon the Y-12 plant, and upon national security, of CRBR core disruptive accidents, particularly with regard to:

a. consideration of radiological consequences from the full spectrum of potential CRBR core disruptive accidents;

b. consideration of the extent and implications of ground contamination; and

c. consideration of the likelihood of evacuation of Y-12 personnel in cases where potential exposure levels are below the Environmental Protection Agency Protective Guidelines.

16. Staff and Applicants have not performed a sufficiently searching, in-depth analysis of the impacts of CRBR accidents upon nearby facilities as required by NEPA. NEPA requires agencies to ensure that the environmental impact statement contains sufficient discussion of the relevant issues and opposing viewpoints to enable the decisionmaker to take a "hard look" at environmental factors, and to make a reasoned decision. Kleppe v. Sierra Club, 427 U.S. 390, 410 n. 21 (1976); Izaak Walton League v. Marsh, 655 F.2d 346, 371 (D.C. Cir. 1981); Sierra Club v. Adams, 578 F.2d 389, 393-6 (D.C. Cir. 1978). The agency must explicate fully its course of inquiry, its analysis, and its reasoning. If an impact statement is too vague, too general, and too conclusionary, it cannot form a basis for responsible evaluation and criticism. Environmental Defense Fund v. Froehlke, 477 F.2d 1033 (8th Cir. 1972).

17. In light of all the deficiencies outlined above, Staff's ultimate cost/benefit balancing under NEPA is arbitrary and capricious.

Contention 11(b) and 11(c)

18. Staff and Applicants have failed to comply with NEPA in their analyses of the somatic effects associated with CRBR routine releases, in that their analysis fails adequately to consider and discuss in the environmental impact statement the substantial uncertainties surrounding its cancer risk estimator, as evidenced by the range of expert opinion regarding the appropriate cancer risk estimator value. Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission, 685 F.2d 459 (D.C. Cir. 1982).

Contentions 6(b)(1) and 6(b)(3)

19. Staff and Applicants have failed to meet the requirements of the National Environmental Policy Act of 1969, 42 U.S.C. Sections 4321 et seq. ("NEPA") in that their analysis of the environmental impacts of the fuel cycle associated with the CRBR fails adequately to consider and discuss:

a. the potential impacts of reprocessing CRBR spent fuel at plants other than the proposed Developmental Reprocessing Plant; such as the Savannah River Plant, or the Hanford PUREX facility. Discussion of those alternatives, admitted by Applicants and Staff to be reasonably foreseeable ones, must be searching, rather than superficial. Environmental Defense Fund v. Tennessee Valley Authority, 371 F.Supp. 1004, aff'd 492 F.2d 466 (D. Tenn. 1973); Sierra Club v.Froehlke, 359 F.

Supp. 1289 (D. Tex. 1973). In its consideration of alternatives under NEPA, the agency must go beyond mere assertions and indicate its basis for them, so that an informed and adequately explained judgment is presented for review. Silva v. Lynn, 482 F.2d 1282, 1287 (1st Cir. 1973). Staff's obligation to consider the environmental impacts of alternative reprocessing facilities is not satisfied by absolute reliance on Applicants' assertions and commitments, without additional independent analysis. Sierra Club v. Alexander, 484 F. Supp. 455, aff'd 633 F. 2d 206 (N.D.N.Y. 1980);

b. uncertainties associated with radiological releases from the Development Reprocessing Plant, and with potential radiological releases from CRBR waste management activities. NEPA requires an agency to disclose environmental costs -- including uncertainties concerning such costs -- in a manner that proves to the public that the agency has properly considered the environmental costs of its action. National Resources Defense Council v. Nuclear Regulatory Commission, 685 F.2d 459 (D.C. Cir. 1982);

c. the radiological impacts of accidental releases from reprocessing plants, both to the whole body and to other organs.

20. Staff and Applicants have not performed a sufficiently searching, in-depth analysis of the environmental risks of the CRBR fuel cycle facilities as required by NEPA. NEPA requires agencies to ensure that the environmental impact statement contains sufficient discussion of the relevant issues and opposing viewpoints to enable the decisionmaker to take a "hard look" at environmental factors, and to make a reasoned decision. Kleppe v. Sierra Club, 427 U.S. 390, 410 n. 21 (1976); Izaak Walton League v. Marsh, 655 F.2d 346, 371 (D.C. Cir. 1981); Sierra Club v. Adams, 578 F.2d 389, 393-6 (D.C. Cir. 1978). The agency must explicate fully its course of inquiry, its analysis, and its reasoning. If an impact statement is too vague, too general, and too conclusionary, it cannot form a basis for responsible evaluation and criticism. Environmental Defense Fund v. Froehlke, 477 F.2d 1033 (8th Cir. 1972).

21. In light of all the deficiencies outlined above, Staff's ultimate cost/benefit balancing under NEPA is arbitrary and capricious.

Contentions 5(a) and 7(c)

22. The requirements of the National Environmental Policy Act of 1969, 42 U.S.C. §§4321 et seq. ("NEPA") and the Commission's rules concerning alternative siting analysis have not been met, in the following respects:

a. Staff's alternative siting analysis accorded varying weights to the various factors from one site to another. This "floating weight" or "judgment" style of comparison does not afford confidence that the objectivity of the comparative analysis is legally sufficient.

b. Staff's interpretation of NRC Regulatory Guide 4.7 -- that no consideration need be given to relative population densities for sites with densities below the 500 person per square mile trip level -- has no support in the Regulatory Guide itself or any other Commission rule or guidance. Quite the contrary, this view is flatly contradicted by the clear implications of the Reg. Guide and the Proposed Rule on Alternative Sites, FSFES Appendix K, which indicate that relative population densities below the 500/mi.^{2} trip level are significant and a valid basis for comparison.

c. Staff's position that substantial relative differences (up to a factor of 24) in overall radiological risks among sites (as measured by simultaneous consideration of population densities and atmospheric dispersion characteristics as a surrogate for radiological risk) can be considered insignificant because of its judgment that the absolute risk involved is sufficiently low, has no basis in law or Commission practice. There is no authority for the proposition that the alternative site analysis, which the Appeal Board has termed "the most important environmentally

related task the staff has," Florida Power and Light Co. (St. Lucie, Unit No. 2), ALAB-435, 6 NRC 541, 543 (1977); Boston Edison Co. (Pilgrim Nuclear Plant, Unit 2), ALAB-479, 7 NRC 774, 791 (1978), can be obviated with respect to radiological risk by a Staff finding that the risk is low.

d. Under the Commission's 1976 decision in this case, if any of the alternatives are "substantially better" than the Clinch River site considering environmental and institutional factors, this Board must reject the LWA-1 application for the proposed site. Similarly, if the analysis of alternative sites does not measure up to NEPA standards, the LWA-1 application currently in question must be denied. As the Appeal Board has stated, "Approval may not be given to an FES which treats in such a cavalier and misleading fashion one of the most important questions which NEPA requires to be considered." St. Lucie, supra, 3 NRC at 840; Pilgrim, supra, 7 NRC at 782.

e. Staff's alternative siting analysis does not satisfy the requirements of NEPA as a matter of law for the following reasons:

(1) Staff treats all population densities below 500/mi.^{2} as "comparable", when in fact there are substantial actual differences (up to a factor of 5).

(2) Staff terms as "similar" atmospheric dispersion values for the various sites which actually

differ by factors of 2 to 6.

(3) Staff treats as "insignificant" differences in overall accident dose consequences (radiological risk) of up to a factor of 24.

(4) Staff treats terrestrial impact advantages of alternative, already cleared and leveled sites as unimportant.

(5) Staff treats aquatic and water quality impact advantages of sites on larger rivers as unimportant.

Thus, Staff has systematically minimized or completely ignored any real advantages of the alternative sites, and maximized the importance of any disadvantages. Such an approach cannot constitute an alternative siting analysis sufficient to comply with NEPA.

23. Based on the Findings of Fact above, the Board should conclude, as a matter of law, that the Hartsville, Yellow Creek, Hanford, INEL, and Savannah River sites are all "substantially better" than the proposed Clinch River site considering all relevant environmental and institutional factors, and that the sought-after LWA-1 should not issue on that basis.

Contention 7(a) and 7(b)

24. The requirements of the National Environmental Policy Act of 1969, 42 U.S.C. §§4321 et seq. ("NEPA") and the Commission's rules concerning consideration of alternatives have not been met, in the following respects:

a. Litigation of the issue of whether CRBR will meet its programmatic objectives in a timely fashion was explicitly determined to be within the scope of this proceeding by the Commission's 1976 decision in this case. (CLI-76-13, 4 NRC 67, at 78, 92). Staff's failure to consider whether CRBR would meet its programmatic objectives in a timely fashion (as soon as possible) is in derogation of the Commission's 1976 decision.

b. Staff's treatment of the "timing objective" as primarily a means to exclude alternatives to the proposed action is an abuse of the timing factor which renders the consideration of alternatives in this proceeding a nullity.

c. The weight to be accorded to the various factors in any consideration of whether or not alternatives to CRBR are "substantially better" is not dictated by NEPA, Commission rules, or the Commission's 1976 decision in this case. "Whether an alternative is a reasonable one -- or whether it has been adequately considered -- is in the end a matter of sound judgment dependent on the facts and circumstances of each situation." Boston Edison Co. (Pilgrim Nuclear Plant,

Unit 2), ALAB-479, 7 NRC 774, 779 (1978), citing Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519 (1978). Based on the facts and circumstances in this case, the over-arching weight which Applicants and Staff have given the timing factor is an unwarranted distortion of the consideration of alternatives.

d. As a matter of law, a more complete and thorough steam generator testing program would be a "substantially better", less risky alternative than the presently planned program. Applicants' and Staff's rejection of that alternative on the basis of their emphasis on the timing factor is an inappropriate distortion of the consideration of alternatives.

e. As a matter of law, inclusion of a core catcher in the CRBR design would be a substantially better alternative than not including that design feature in light of the likelihood and consequences of core melt accidents at CRBR. Staff's assertion that a core catcher would not contribute much to the informational objectives because it would not be likely to be used is rejected, since design, construction, and testing of a core catcher would provide informational benefits.

f. As a matter of law, inclusion of a no-vent containment/confinement system in CRBR would be a substantially better alternative than the proposed action in

terms of reducing radiological consequences of accidents to the public.

g. As a matter of law, Staff's analysis of the economic feasibility objective is arbitrary and capricious, since Staff wrongly considers the actual cost of CRBR to be irrelevant to the question whether CRBR demonstrates the economic feasibility of LMFBR operation in a utility environment. Staff's test -- in which CRBR will have met its economic feasibility objective no matter how expensive -- is legally insufficient.

h. As a matter of law, Staff's analysis of technical performance and reliability objectives is insufficient. Staff's test -- in which CRBR would be found to have met those objectives by providing information even if the plant were a technical failure (i.e. steam generator explosions or highly energetic CDAs within the five-year demonstration period) is legally insufficient.

25. In its consideration of alternatives under NEPA, the agency must go beyond mere assertions and indicate its basis for them, so that an informed and adequately explained judgment is presented for review. Silva v. Lynn, 482 F.2d 1282, 1287 (1st Cir. 1973). The Staff's obligation to consider the environmental impacts of alternative design approaches is not satisfied by absolute reliance on Applicants' assertions and commitments,

without additional independent analysis. Sierra Club v. Alexander, 484 F. Supp. 455, aff'd 633 F. 2d 206 (N.D.N.Y. 1980);

Contentions 4 and 6(b)(4)

26. The requirements of the National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321 et seq. ("NEPA") have not been met, in the following respects:

a. Staff's analysis does not support a conclusion that safeguards risks at the CRBR and associated fuel cycle facilities are no greater than "comparable" licensed and unlicensed facilities, in particular because Staff failed adequately to examine risks throughout the CRBR fuel cycle.

b. Staff has failed independently to analyze the submissions of Applicants, in violation of NEPA's requirements. Greene County Planning Board v. Federal Power Commission, 455 F.2d 412 (2d Cir.), cert. denied, 409 U.S. 849 (1972); Sierra Club v. Alexander, 484 F. Supp. 455, 466-67 (N.D.N.Y.), aff'd 633 F.2d 206 (2d Cir., 1980).

c. Staff has failed to take into account all relevant costs in its cost/benefit balancing. See Sierra Club v. Froehlke, 359 F. Supp. 12889 (W.D. Tex. 1973); Chelsea Neighborhood Association v. U.S. Postal Service, 516 F.2d 378 (2d Cir. 1975); Boston Edison Co. (Pilgrim Nuclear Power Station, Unit 2), ALAB-632, 13 NRC 91 (1981); 10 CFR Section 51.52(c)(3).

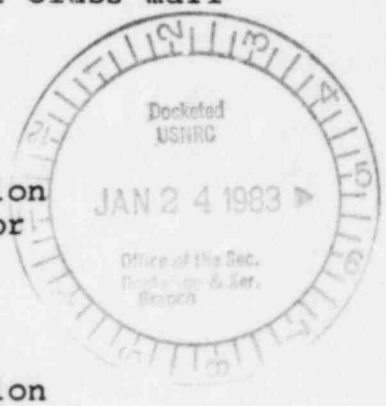
d. Staff's analysis of safeguards risks and consequences has consistently understated safeguards risks and overstated the effectiveness of safeguards programs and does not support a conclusion that safeguards risks and consequences for the CRBR and its supporting fuel cycle are reasonably low.

27. Staff and Applicants have not performed a sufficiently searching, in-depth analysis of the safeguards risks of the CRBR and its associated fuel cycle facilities as required by NEPA. NEPA requires agencies to ensure that the environmental impact statement contains sufficient discussion of the relevant issues and opposing viewpoints to enable the decisionmaker to take a "hard look" at environmental factors, and to make a reasoned decision. Kleppe v. Sierra Club, 427 U.S. 390, 410 n. 21 (1976); Izaak Walton League v. Marsh, 655 F.2d 346, 371 (D.C. Cir. 1981); Sierra Club v. Adams, 578 F.2d 389, 393-6 (D.C. Cir. 1978). The agency must explicate fully its course of inquiry, its analysis, and its reasoning. If an impact statement is too vague, too general, and too conclusionary, it cannot form a basis for responsible evaluation and criticism. Environmental Defense Fund v. Froehlke, 477 F.2d 1033 (8th Cir. 1972).

28. In light of all the deficiencies outlined above, Staff's ultimate cost/benefit balancing under NEPA is arbitrary and capricious.

CERTIFICATE OF SERVICE

I hereby certify that copies of INTERVENORS' PROPOSED FINDINGS OF FACT AND INTERVENORS' PROPOSED CONCLUSIONS OF LAW FOR THE LIMITED WORK AUTHORIZATION (LWA-1) PROCEEDING were served this 24th day of January 1983 by hand* and by first class mail upon:



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