NUCLEAR REGULATORY COMMISSION

PUBLIC COMMISSION MEETING

In the Matter of:

DISCUSSION AND VOTE ON DOE EXEMPTION REQUEST

(PUBLIC MEETING)

DATE: August 5, 1982 PAGES: 1 thru 27

AT: Washington, D.C.

ALDERSON REPORTING

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

DISCUSSION AND VOTE ON DOE EXEMPTION REQUEST

PUBLIC MEETING

Nuclear Regulatory Commission
Room 1130
1717 H Street, N. W.
Washington, D. C.

Thursday, August 5, 1982

The Commission convened, pursuant to notice, at 2:10 p.m.

BEFORE:

NUNZIO PALLADINO, Chairman of the Commission
JOHN AHEARNE, Commissioner
THOMAS ROBERTS, Commissioner
JAMES ASSELSTINE, Commissioner

STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

J. HOYLE
L. BICKWIT
A. KENNEKY
S. TRUBATCH

* * *

P R O C E E D I N G S

CHAIRMAN PALLADINO: Good afternoon, ladies and gentlemen.

This meeting is to discuss and vote on the request for an extension under 10 CFR 50.12 for the Clinch River Breeder Reactor Project to commence site preparation activities.

The request was filed on July 1, 1982, by the Department of Energy on behalf of Project Management Corporation and the Tennessee Valley Authority who are the applicants for the Clinch River Breeder Project.

Commissioner Gilinsky's absence today is unintended. He planned to return from travel in the Far East to participate in the discussion and decision. However, he was unable to make plane connections and will not return until this evening.

With respect to the extension request, the Commission requested public comments and heard from the principal participants on July 29th, 1982. We also received supplemental papers from DOE, NRDC and the Sierra Club earlier this week.

In addition to the exemption request, two procedural matters are pending before the Commission which relate to the exemption. On July 9th, 1982, the NRDC and Sierra Club filed a motion for summary

dismissal of the exemption and a request for an adjudicatory hearing. On July 14, 1982, they filed a petition for investigation which requested that we look into whether or not information has been withheld from NRC by DOE's predecessor, the Energy Research and Development Administration. NRDC and the Sierra Club maintain that the exemption proceeding should be suspended pending the result of such investigation.

Before moving to the merits of the exemption request, I suggest we take up the two procedural matters.

Unless Commissioners feel otherwise, I would like to turn to the General Counsel to describe the procedural issues and the proposed Commission orders to deal with them.

MR. BICKWIT: Thank you, Mr. Chairman.

The first matter is the petition for investigation. My understanding is that all four Commissioners have agreed to the order recommended by this office which states essentially that the information which we have reviewed leads to the conclusion that the intervenors' petition for investigation must be denied.

As explained more fully in the order, neither of the letters which are the asserted bases for intervenors' allegations when examined in the totality

of the relevant circumstances in the view of this office and, as I understand supported by the Commission, supports the allegations.

I would like to ask you to affirm your votes on that order.

CHAIRMAN PALLADINO: That we are supporting your order to deny ---

MR. BICKWIT: To deny the intervenors' petition for investigation.

CHAIRMAN PALLADINO: Aye.

COMMISSIONER AHEARNE: Aye.

COMMISSIONER ROBERTS: Aye.

COMMISSIONER ASSELSTINE: Aye.

MR. BICKWIT: The second matter is the intervenor's motion for summary denial which in essence made two points. The first was that this proceeding was barred by res judicata, and the second that an adjudicatory hearing would have to be conducted prior to the granting of an exemption for site preparation work and for the limited safety related work that is contained in the application.

With regard to the res judicata matter, my understanding is that all Commissioners are together on the proposition that res judicata does not bar this proceeding.

Commissioner Ahearne has made some suggested changes to the order as originally proposed by this office. I think the major change is one that makes clear that the Commission could apply the doctrine of res judicata in this case, but as a discretionary matter needn't and has chosen not to in this case.

If I am correct on the Commissioners being together on that matter, I will move on to the remainder of the motion for summary denial.

Am I correct in that?

CHAIRMAN PALLADINO: Is there any disagreement on General Counsel's statement?

COMMISSIONER ASSELSTINE: No.

COMMISSIONER ROBERTS: (Nodding negatively.)

COMMISSIONER AHEARNE: (Nodding negatively.)

MR. BICKWIT: Now on the second portion of the motion for summary denial which involves the viewpoint that an adjudicatory hearing is necessary prior to the granting of an exemption, both for site related work and for safety related work, with regard to site related work I sense a general agreement among the Commission that the motion should be denied.

COMMISSIONER AHEARNE: Len, I guess one thing I should point out is that in those changes I had proposed, I was somewhat concerned that we were taking a

position that might put us in opposition to a recent position we took in San Onofre, and I just wanted to be sure that that was not the case.

CHAIRMAN PALLADINO: You mean in the early part?

COMMISSIONER AHEARNE: Yes.

MR. BICKWIT: I am sure the Commission would support you.

COMMISSIONER AHEARNE: Yes, I am sure they would, but I wanted to make clear for the record that that was there.

MR. BICKWIT: With regard to the safety related portion of the motion for summary denial, Commissioner Roberts has proposed some language which would in essence moot that portion of the motion. It would, as I understand it, deny the exemption for safety related work without reaching the procedural questions.

Now, I understand there is a modification to that language, and at this point I think only you, Mr. Chairman, have that modification. So why don't you read that and make sure it is acceptable to the Commission. I understand it is, but I want to make sure.

CHAIRMAN PALLADINO: I am reading what I think is essentially the last paragraph.

COMMISSIONER AHEARNE: Now is this a

modification to Jim's modification.

CHAIRMAN PALLADINO: A very modest modification to Jim's modification.

COMMISSIONER AHEARNE: All right.

CHAIRMAN PALLADINO: With one exception, DOE's exemption request does not involve any safety related construction activities. The exception is the request for permission to construct emergency plant service water pipine that is part of the safety related emergency plant service water system.

The Commission believes as a matter of policy for the Clinch River Breeder Reactor project that safety related activities should not be permitted prior to the completion of an adjudicatory hearing in the case of the Clinch River Breeder Reactor Project. Perhaps that was a little redundant.

For this reason the Commission denies this portion of DOE's exemption request.

COMMISSIONER AHEARNE: Am I correct that the changes in that second to the last sentence where Commissioner Asselstine had said "The Commission believes as a policy matter that safety related activities should not be permitted," and what you have modified it to is "believes as a matter of policy for the CRBRP"?

CHAIRMAN PALLADINO: Right, that was the assertion.

MR. BICKWIT: That, as I read it, moots that portion of the motion for summary denial.

Commissioner Asselstine has also indicated that he would deny the safety related portion of the exemption on procedural grounds which, translated with respect to the motion for summary denial, means that he would grant that portion of the motion for summary denial which relates to the safety related portion of the exemption request.

The Commission having disposed of the safety related portion of the request and the motion for summary denial with respect to the environmental portion of the summary request having been denied, you now reach the question of the merits of the application for the exemption with respect to the environmental activities.

CHAIRMAN PALLADINO: I am not sure we have voted on that.

COMMISSIONER ASSELSTINE: That is right.

COMMISSIONER AHEARNE: That is what I thought.

CHAIRMAN PALLADINO: Could we vote on that.

MR. BICKWIT: Would you vote on my assumptions being correct.

(Laughter.)

COMMISSIONER AHEARNE: Could I step back one. Commissioner Roberts had also made modifications to your proposed order, namely, on pages 7, 8, 9 and 10 which I would agree with.

MR. BICKWIT: Those are acceptable to us and we would recommend those changes.

COMMISSIONER ROBERTS: What about the other Commissioners?

CHAIRMAN PALLADINO: I would agree with those also.

COMMISSIONER AHEARNE: Yes.

COMMISSIONER ASSELSTINE: Yes.

COMMISSIONER AHEARNE: So we have got the first part, this part and then the issue is the last part, and I would agree with the modification that you have just mentioned.

COMMISSIONER ROBERTS: I would also.

CHAIRMAN PALLADINO: Yes.

COMMISSIONER ASSELSTINE: Aye.

CHAIRMAN PALLADINO: Okay, now your assumption is correct.

MR. BICKWIT: My assumption being correct, you have reached the merits of the environmental related application for an exemption and I think I will turn the meeting back to the Chairman on this.

CHAIRMAN PALLADINO: Well, with regard to treating the exemption request itself, we could proceed in a variety of ways.

Let me make a suggestion and see if there is a consensus. First, I would ask the Commissioner if they have any points they wish to discuss or any statements they would like to make before voting. I would also then entertain further discussion, and when the Commission is ready I would ask for a vote on the exemption request itself.

Is this an acceptable way to proceed?

COMMISSIONER ASSELSTINE: Yes.

COMMISSIONER ROBERTS: (Nodding affirmatively.)

COMMISSIONER AHEARNE: (Nodding affirmatively.)

CHAIRMAN PALLADINO: Are there points that Commissioners would like to discuss?

(No response.)

CHAIRMAN PALLADINO: All right. Then I would propose Commissioners making any statements they wish prior to voting. I might begin with mine as a privilege of the Chair.

(Laughter.)

CHAIRMAN PALLADINO: I believe that DOE has made a good case for an exemption under 10 CFR 50.12, and I would therefore grant this request to commence site preparation activities. I arrive at this conclusion because I believe that the criteria under 50.12 are satisfied in this case. The information and analysis which we have received on the public record from the participants and the Commission offices demonstrate that: one, the site preparation activities will not have a significant adverse impact on the environment of the CRBR site; two, the impacts of site preparation can be redressed, and the site returned to a condition suitable for future use; three, the site preparation activities do not foreclose future alternatives, including the use of the site for other purposes; and four, delay would not be in the public interest.

In my judgment, the public interest favors the exemption because the delay engendered by not granting it would frustrate the Congressional purpose for the completion of the CRBR in a timely and expeditious manner. Without an exemption, DOE cannot commence site preparation until after a favorable LWA-1 decision, and this fact would likely mean at least a nine-month delay and possibly longer in site clearing.

DOE has adequately demonstrated that given the present state of completion, the CRBR design and equipment procurement, a delay in commencement of the site preparation will lead to a delay in completing the project.

I am also persuaded by DOE's recent submittal of August 2nd, 1982, which points out other very real and important benefits that will accrue to the LMFBR base program and large development program by a nine to twelve-month earlier start on CRBR.

One important benefit is the guidance that will be provided by the results of experience with CRBR. My own experience confirms that early engineering knowledge gained in testing of plants like CRBR can avoid blind alleys in the development of a large project and save considerable time.

As stated in the DOE report, "In view of the size of this program," meaning the LMFBR program, "acceleration of the experience from CRBRP and the application of this experience to redirect the program toward a finite set of specific problems rather than a broad range of potential problems will enable the base program to reap substantial benefits in terms of reduced costs and duration and increased efficiency and effectiveness."

Another benefit as we pursue the CRBR is the fact that it can contribute to the retention and effective utilization of the team of experts needed to pursue an LMFBR program. Delays tend to lead to loss of key individuals to more stable and dynamic opportunities, and the experience cited by DOE confirms the reality of this point.

In summary, I believe that granting the exemption is in the public interest. The criteria for the exemption are satisfied, and completion and operation of CRBR has already been determined by Congress to be in the public interest. The Congressional intent for expeditious completion of this project is furthered. The R&D purpose and benefits of the project for the nation will occur sooner, and the hardships and uncertainties created by unnecessary delay of the project are minimized.

I will turn next to Commissioner Ahearne.

COMMISSIONER AHEARNE: All right. I am voting against it. Little has changed from the previous submissions and the Commission rejections. This is the third time we will have addressed this this year. Therefore, most of the discussion in the March opinion that I wrote is pertinent, and I won't review it.

The summary is, the 50.12 exemption request is

a very rare event. It is so rare that it has only been used once since the limmited work authorization rule went into effect in 1974, and that particular case had circumstances which were substantially different, entirely different than the one we have in front of us now. I conclude the public interest is the dominant issue.

DOE in front of us argued three grounds for us to find the public interest weighed in their favor, international, information transfer, and cost. With regard to the international arguments, although the written submissions implied that there were specifics in the testimony before us last week, there were no such specifics. Even the State Department did not come out explicitly for the exemption in a letter which I found markedly neutral and only strongly supportive of participating actively in domestic programs.

Regarding the information transfer, it is their strongest argument, yet their weakest. It is their strongest in the supplemental submission for the first time I found in the three waiver exemption request cases, for the first time the DOE did provide specifics, and they linked very tightly the CRBR and the fast flux test facility, the FFTF, and showed extensively how the CRBR had benefitted from the FFTF.

As an aside, I find it quite ironic that they are able to demonstrate that because the CRBR was delayed they were able to get such benefit from the FFTF.

(General laughter.)

COMMISSIONER AHEARNE: However, it is the weakest because that required me to turn to look at the large development plan, the LDP, and it is there where I found that there was a very tenuous link. If the information link is to the LDP, then we have to look at that, but in testimony before us, the DOE described both a very tenuous linkage and an uncertain schedule, a schedule whose start time is uncertain by years, and if the GAO is right, perhaps by decades.

On cost, the DOE supported its previous costing, affirming that we should use the submissions they made in January and February. Therefore, the concerns I expressed in my March opinion remain. The DOE estimate range from $28 million to $218 million as the cost of a one-year delay. I believe they ended up -- I would conclude, because they didn't say it explicitly, but I believe they ended up about $30 million as the estimate. Is that a substantial amount? Obviously, yes. Of course it is, even though the DOE in its submission describes $82 million as a relatively small investment.

But the DOE cannot settle on a cost. The NRC wouldn't tolerate such from a normal license applicant, and to prove licensability, that is how we should treat DOE, as a normal license applicant. Therefore, we now have a hearing about to start. The hearing is going to be on just those actions which DOE asks us to grant a waiver of the hearing. I believe they failed to make their case in the international area, they failed to make their case in the schedule or on the cost, and therefore I vote to deny, and I would have a more complete dissenting opinion to the Commission order, and my opinion is now being typed.

CHAIRMAN PALLADINO: Commissioner Roberts?

COMMISSIONER ROBERTS: I would vote to grant the Department of Energy's request for an exemption. Section 50.12, which provides applicants with the opportunity to request an exemption, is a regluatory requirement. It establishes an alternative procedure by which an applicant may pursue licensing approval.

Simply put, there are two routes to pursuing licensing approval. One is the traditional route, and the other involves fulfillment of certain criteria in order to support grant of an exemption. Every finding required by the Atomic Energy Act and the National Environmental Policy Act will be made regardless of

whether DOE chooses the traditional route or the exemption route.

Section 50.12 sets out the criteria which must be met in order to permit the granting of an exemption. I conclude that DOE has made the showings necessary to satisfy each of the four criteria. More importantly, I conclude that the grant of an exemption is in the public interest due to the early receipt of research and development knowledge which would flow from early operation of this reactor. NRDC has not shown why later receipt of this research and development knowledge is in the public interest. Thus, I would approve the request.

CHAIRMAN PALLADINO: Thank you. Commissioner Asselstine?

COMMISSIONER ASSELSTINE: Mr. Chairman, I would vote to grant the exemption request in this case. I circulated earlier today a detailed statement to each of you outlining my conclusions on the issues that I see in the exemption request. I don't mean to rehearse in detail all of those reasons here. I thought I would touch very briefly on the more preliminary issues, and the focus in on the public interest factors. Like Commissioner Ahearne, I agree that the public interest factors are the most significant elements of our decision today.

With respect to the 50.12 exemption request, the first issue I saw is whether the issuance of an exemption in this case is prohibited by law. I concluded that it was not prohibited either by any restrictions on the use of Section 50.12 as it would apply to the Clinch River Breeder Reactor Project or in terms of any violation of NEPA. Specifically, I conclude that the National Environmental Policy Act is not violated by our action in granting the exemption request.

The second issue I saw in this proceeding is whether the applicant for the exemption must demonstrate that there are exigent circumstances that justify a grant of the exemption request as a precondition to Commission consideration of the four factors enumerated in 10 CFR Section 50.12. I concluded that the applicant must indeed make that kind of a showing. In this case, I concluded that the applicant has demonstrated exigent circumstances. Those exigent circumstances as I see them are the hardship as a result of further delays on the order of six to twelve months, given the already advanced stage of CRBR development that has resulted from the previous four-year delay, in combination with the Congressional policy in favor of expeditious completion of the Clinch River Breeder Reactor project

and of minimizing the unrecoverable costs of delay in completing the project.

On the basis of those two showings, I am satisfied that we have received sufficient showing on exigent circumstances. That leads me to the four factors that are enumerated in Section 50.12.

With respect to the first factor, whether there exist significant adverse impacts on the environment, I conclude that DOE has identified the likely impacts of the proposed site preparation activities, and I conclude, as did DOE and the NRC staff, that these impacts are not likely to be significant.

With respect to the issue of redress of any adverse environmental impact from conduct of the proposed activities, I conclude that DOE has made a sufficient showing that the site can be restored to an acceptable environmental condition if necessary.

With respect to the issue of whether conduct of the proposed activities would foreclose subsequent adoption of alternatives, I believe that the Natural Resources Defense Council makes a valid point, that the expenditure of $80 million for site preparation activities might foreclose other alternatives, including especially the alternative of abandonment to some

degree. I believe that this is a factor that should be considered. However, I also believe that the extent of any foreclosure of alternatives is limited, given the small cost of site preparation activities when compared to the total cost of the project.

For myself, I would give very little weight to the site preparation work in making our later NEPA judgments on alternatives.

Mr. Chairman, the final factor, and the most significant one, I believe, are the public interest considerations. I reject the NRDC's argument that the only public interest factor that can justify issuance of an exemption is electric power need. Where, as here, the project has purposes other than the generation of electricty, I believe that other related benefits of avoiding delay are valid public interest factors.

However, I also reject DOE's argument that we must give conclusive weight to national policies in favor of expeditious completion of the CRBRP without any particularized showing of the benefits that would be achieved by eliminating the specific delay period in question. On the period of delay, I am satisfied that the six to twelve-month period proposed by DOE is reasonable, taking into account the Board's decision recently in favor of a bifurcated hearing approach for

the limited work authorization one proceeding.

DOE in this case, then, I believe, must therefore show benefits that will result from avoiding a six to twelve-month delay in project construction. In that regard, I believe that DOE has made a sufficient showing of three benefits that are likely to result from accelerating construction by six to twelve months.

First, informational benefits that will result in improvements in the LMFBR base research and development program and in the large developmental plan. Second, other programmatic coordination benefits for the base R&D program and the LDP, and three, cost savings for the Clinch River Breeder Reactor Project.

With respect to information benefits, I believe that DOE has shown, both on the basis of past experience with FFTF and on the basis of the relationship between the CRBRP and the base program and the LDT that acceleration of construction by six to twelve months will likely result in significant informational benefits.

With respect to programmatic coordination benefits, I find DOE's showing persuasive on the benefits of maintaining and using effectively the cadre of technical people for completing the Clinch River Breeder Reactor Project and continuing other elements of

the LMFBR program, the benefits of establishing a cooperative agreement with industry on the LDP and the benefits of establishing international cooperative agreements on LMFBR development.

With respect to cost savings, I believe there are considerable uncertainties regarding the precise amount of the cost savings, but I do believe that DOE has made a case for some cost savings by accelerating project completion by six to twelve months. I do not find persuasive DOE's arguments that grant of the exemption will have a positive impact on the development of an international safeguards system, the achievement of an effective non-proliferation policy, or the revitalization of the U.S. leadership role and influence in nuclear technology.

With respect to the first public interest factor identified by NRDC, I disagree that policies underlying NEPA are a valid factor, because I find that issuance of the exemption does not violate NEPA. On the second factor, I agree with NRDC that there is at least some damage to the integrity of the licensing process in the grant of the exemption. This is because an exemption is an extraordinary departure from the normal licensing process. However, I am not persuaded by NRDC's argument that this is a particularly serious

problem in this case, given the project's objective of demonstrating licensability.

For me, the licensability objective has two basic purposes: first, the establishment of licensing standards for a reactor of this type and the conduct of the NRC licensing review of these issues, and second, the conduct of a licensing hearing to resolve issues on whether the applicable licensing standards have been met in this case.

I do not find that these objectives will be altered materially by the issuance of the exemption.

A final public interest factor for me is the precedential significance of this exemption for future cases. Although I find that there is some precedent for future exemptions, I believe this is limited by the special circumstances of this case and by our earlier action in stating that as a policy matter for this project, the Commission will not approve safety related activities prior to the completion of an adjudicatory hearing.

On balance, Mr. Chairman, I conclude that the positive public interest factors in this case outweigh the negative public interest factors and the negative environmental impact redressability and foreclosure of alternative factors that I have mentioned. Although the

question is a close one, I conclude that the balance favors granting the exemption.

CHAIRMAN PALLADINO: All right. Thank you.

Are there any other points of discussion that the Commissioners wish to take up?

(No response.)

CHAIRMAN PALLADINO: Well, having heard the statements, let me pose the question so that we can vote. The question as I phrase it, and if you think it should be rephrased, I will be happy to entertain suggestions, should the Department of Energy be issued an exemption under Section 50.12 for the Clinch River Breeder Reactor Project to conduct the non-safety related site preparation activities identified in its July 1, 1982, request?

MR. BICKWIT: I would like to clarify that.

CHAIRMAN PALLADINO: All right.

MR. BICKWIT: What I believe the Commission is voting on is the authorization of the issuance of an exemption.

CHAIRMAN PALLADINO: All right.

MR. BICKWIT: Needless to say, we do not have an order drafted which would in fact issue it, and I think it would be preferable if the exemption not in fact be issued until we had an order expressing the

Commission's judgment.

CHAIRMAN PALLADINO: So we are asking the Commission to vote whether it will authorize the preparation of an order for exemption. All right.

COMMISSIONER AHEARNE: I think you will want to also go on to say that the order ought to be able to put out without coming back to a vote, because --

MR. BICKWIT: I think that is understood.

CHAIRMAN PALLADINO: Well, let's make it clear so the record will be straight. The proposition is that the Commission authorizes preparation of an order, the issuance of an order of an exemption under Section 50.12 for the Clinch River Breeder Reactor Project to conduct the non-safety related site preparation activities identified in its July 1, 1982, request.

All those in favor of granting the -- or authorizing the issuance of a --

MR. BICKWIT: The order which grants exemption.

CHAIRMAN PALLADINO: All those in favor of authorizing the order which grants the exemption, please indicate by raising your hand.

COMMISSIONER ROBERTS: (Indicating.)

COMMISSIONER ASSELSTINE: (Indicating.)

CHAIRMAN PALLADINO: (Indicating.)

Those opposed?

COMMISSIONER AHEARNE: (Indicating.)

CHAIRMAN PALLADINO: Okay. Well, now, that settles that point, but I do think we need to address a little further preparation of the order. You are going to proceed to prepare that order. When do you think we might get such an order?

MR. BICKWIT: I think it could be done by mid-day Tuesday. I had anticipated that question.

(General laughter.)

CHAIRMAN PALLADINO: Will you be here?

COMMISSIONER ASSELSTINE: Yes, I will be here.

CHAIRMAN PALLADINO: I think I return that afternoon.

COMMISSIONER AHEARNE: My dissenting opinion will be ready this afternoon, so you can just attach it.

MR. BICKWIT: We have a harder task.

(General laughter.)

COMMISSIONER AHEARNE: Yes, you do. That is true.

CHAIRMAN PALLADINO: We will have to work out procedures whereby Commissioner Roberts and Commissioner Gilinsky can have their input, but perhaps their staffs can be in touch with them by telephone and settle any questions over the phone.

COMMISSIONER ASSELTINE: I must say it is a

pleasure. I do not have to write a dissent in this case.

(General laughter.)

CHAIRMAN PALLADINO: Well, let's see. To summarize our actions today, we voted to authorize the issuance of an order for the exemption to conduct non-safety related site preparation activities and to deny the DOE request for safety related activities. Secondly, we voted to deny the NRDC Sierra Club petition for investigation, and third, to deny the NRDC Sierra Club motion for summary dismissal and request for adjudicatory hearing.

Are there any other matters that should come before us on this topic?

(No response.)

CHAIRMAN PALLADINO: All right. Thank you all, and we will stand adjourned.

(Whereupon, the Commission was adjourned.)

NUCLEAR REGULATORY COMMISSION

This is to certify that the attached proceedings before the

PUBLIC COMMISSION MEETING

In the matter of: DISCUSSION AND VOTE ON DOE EXEMPTION REQUEST

Date of Proceeding: August 5, 1982

Docket Number:

Place of Proceeding: Washington, D.C.

were held as herein appears, and that this is the original transcript thereof for the file of the Commission.

Mary C. Simons

Official Reporter (Typed)

Mary C Simons

Official Reporter (Signature)

Department of Energy
Washington, D.C. 20585

AUG 2 1982

Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Clinch River Breeder Reactor Plant Docket No. 50-537 (Section 50.12 Request)

Dear Sir:

Enclosed for filing with the Commission are Applicants' Supplemental Responses to Commission Questions, dated August 2, 1982.

Please note that the copies of the Responses filed with the Commissioners and NRDC yesterday omitted a portion of the text of the technical expertise discussion on page 12, and that this copy includes the complete text of this discussion.

Respectfully submitted,

for Leon Silverstrom
Assistant General Counsel
for International Development
and Defense Programs

To OGC for Appropriate Action.
D&SB Dist.: C/R.
C/R Dist.: Chm, Cmrs, PE, PA, SECY, RIDS (PDR).
LCH

Dupe DR 8208040219

Department of Energy
Washington, D.C. 20545

AUG 0 2 1982

The Honorable Nunzio J. Palladino
Chairman
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable James K. Asselstine
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable Victor Gilinsky
Commissioner
Nuclear Regulatory Commission
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The Honorable John F. Ahearne
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable Thomas F. Roberts
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Clinch River Breeder Reactor Plant Docket No. 50-537
(Section 50.12 Request)

Gentlemen:

The Department of Energy, on behalf of its coapplicants, Project Management Corporation and the Tennessee Valley Authority, hereby files their supplemental responses to the Commission regarding their July 1, 1982, request under 10 C.F.R. Section 50.12.

Sincerely,

Gordon L. Chipman, Jr., Acting
Deputy Assistant Secretary
for Breeder Reactor Programs
Office of Nuclear Energy

Enclosure

cc w/Enclosure:
Distribution List

dupe PDR 8208040224

Applicants' Supplemental Responses to Commission Questions

Introduction

This is in reponse to Commissioner Asselstine's inquiry on July 29, 1982, regarding specific examples which will illustrate the benefits of transference of experience from CRBRP construction to the LMFBR Base Program and Large Developmental Plant (LDP). This response will demonstrate the very real and important benefits which will accrue to the Base Program and LDP by a 9-12 month earlier start in the CRBRP construction activities and earlier operation of the facility.

The U.S. LMFBR development program is a complex and broadly based effort to develop LMFBR technology to the point where the risks associated with proceeding with commercialization are acceptable for further development by the private sector. This effort has been underway for many years and a significant amount of work remains to be completed.

The base technology effort is directed toward research and development in specific technological areas and the use of demonstration facilities of ever-increasing size. The maximum effect of this program would be achieved if all elements of the base R&D program and demonstration facility construction and

operation could be fully coordinated in their timing.

Adjustments are continually made in the pace and scope of the various elements of this program in order to optimize the program benefits through maximum coordination of its various elements. Since it would have been both impractical and unsound to terminate the LMFBR base program during the 5-year delay of Clinch River caused by the last Administration, the program has instead proceeded on a sound basis and produced a great deal of useful information. However, had Clinch River proceeded without interruption, it would have provided significant benefits to the base R&D program and the program would have been more effective.

Clinch River has benefited in some respects through the advances made in FFTF experience and base program developments. However, in a complex technology development program, it is the synchronization of projects and R&D development that produces the best results. The program plan originally envisioned in the early 1970's was structured with a goal of such optimization. The long delay in the Clinch River project has put the program seriously out of synchronization and has removed the flexibility that normally exists in adjusting program element schedules to optimize results. Consequently, the base program and LDP are proceeding without all the benefits that could have been achieved from Clinch River. Any improvement in the schedule for construction, testing, and operation of CRBRP will be of direct benefit to these other elements of our program.

General Considerations

There are several major phases in a large technical project such as an LMFBR: design, component manufacturing, construction, preoperational checkout and testing, and normal operation. In the design phase, there are several stages of progression: preconceptual, conceptual, preliminary, and then final design. At the preconceptual stage, major design objectives are

established such as power output, thermal conditions, and major plant configurations. Once these decisions are made, the conceptual design is initiated in which more design decisions are reached at the system, subsystem and component level, and where initial constraints are established on interface relationships between components within a system, and between systems in the overall plant. The conceptual design effort is an iterative process which is intended to establish the general design configuration which meets the major design objectives. Preliminary design adds additional detail, defines interface relationships and constraints, and firmly establishes detailed design requirements for buildings, foundations, systems, and components. The preliminary design phase is generally several years in duration and is also iterative in nature. It results in the configuration upon which the final design, analysis, procurement, and construction activities are based.

The nature of engineering is to take all available knowledge and apply it to solving the problem at hand. Potential available solutions are constrained by the nature and degree of design change a particular solution will cause to interfacing systems and components. As the design of systems and components progresses, the degree of difficulty and cost in making a design change increases. The design process described above can, therefore, be characterized as a process in which the difficulty and cost associated with resolution of any given problem increases as the design process is pursued. Consequently, the earlier in the design process that knowledge is available to apply to the engineering task at hand, the less constrained the engineer is in reaching a solution, and the engineer is better able to reach a solution with minimum changes to the interfacing designs and to the overall cost.

This general discussion is applicable to <u>all</u> engineering effort, whether constructing a five-story building or a complex technical project like a space shuttle. However, the more developmental

the nature of the activity, the more crucial the availability of relevant information becomes to the overall success of the effort. This is particularly true for the LMFBR development program which is establishing a new technology and advancing this technology in major steps by demonstration projects.

As noted during the oral presentation to the Commission, specific technical benefits to the Base Program and LDP efforts resulting from advancing the CRBRP schedule by 9-12 months can be demonstrated. We can speak about future benefits to the Base Program and LDP with confidence on the basis of significant experience. These future benefits can be demonstrated by showing the historical experience in constructing and operating FFTF and how the flow of information from that facility did benefit the CRBRP and Base Program R&D efforts, and how those benefits were schedule related.

FFTF Information Transference to CRBRP

CRBRP has a well established and disciplined program for incorporating the experience gained through FFTF construction and operation into the CRBRP design. A CRBRP project representative was on site at FFTF throughout construction, startup and initial operation. Frequent reports were and continue to be provided to the CRBRP Project. Important experiences are identified, recorded and assigned to a CRBRP Project organization which has the responsibility to factor the experience into the design if appropriate, document the implementation, and provide a written description of what was done. This program of experience transfer has been extremely important, and a similar program for transfer of experience from CRBRP to LDP is planned and will be implemented so that as information becomes available from CRBRP, it will be directly transferred to LDP.

Attachment "A" provides specific discussion of representative examples where FFTF experience was beneficially applied in the

design of CRBRP. Attachment "B" provides a subject listing of some additional instances where FFTF experience was transferred to the CRBRP design. These FFTF experiences came at different stages in the construction and operation of FFTF, and were fed back to the CRBRP design at different stages of the design process. The important points to note are:

a. Many of the experiences from FFTF were available at a sufficiently early time so that CRBRP could effectively utilize the information in the conceptual and preliminary design phases.

b. The Project was more constrained in the application of experience which was not available until the late preliminary and final design stages, increasing the difficulty of realizing the benefits of this experience and increasing costs due to design modifications on CRBRP.

Our experience shows that the earlier the information becomes available, the more beneficial its effect is on the future design and the program as a whole. The CRBRP will provide a similar pattern of information transference to the Base Program and LDP and if the 50.12 request is granted, the resulting acceleration of information transference will provide substantial improvement to the benefits to the Base Program and LDP.

Base Program Benefits

A demonstration project experience often impacts the technology development effort and follow-on demonstration projects in unanticipated ways. In addition, there are many anticipated benefits to be transferred from any given project. For the results of these development programs to be effectively utilized in the design effort for a follow-on plant, they must be initiated very early and before the need is specifically identified on a future project. For example, FFTF identified the

need to do development testing on the insertion and removal of thermocouples through a conduit system in order to replace thermocouples which are located inside the reactor. This long term base program R&D development program was started before the CRBRP Project identified the specific need for the information, yet the results were available to enable basic conceptual configuration decisions on CRBRP to be made with confidence. A similar example is the development testing on filtered vent systems based on CRBRP experience which provides information to enable LDP to make basic configuraton decisions with confidence.

The FFTF development, design, construction, and initial operation has provided the necessary experience and verification to permit redirection of the base program R&D activities. Examples of this are:

- Pipe welding technology and equipment has been developed through a long-term R&D effort through the Oak Ridge and Idaho National Laboratories. This technology was proof-tested in the construction of FFTF. As a result, the program has been concluded. The timing of program completion was directly impacted by the FFTF schedule.

- Preoperational testing and initial operation of FFTF show successful completion of work in several areas of the Components Program. The last efforts in the areas of pipe, valves, insulation, and sodium leak detection were closed out in 1982. Stretchout of the FFTF schedule would have extended these programs.

- Timely operation of FFTF provided operational verification of a workable fuel system for LMFBR's (including CRBRP). As a result of the successful early performance of FFTF, we have achieved confidence that the reference fuel system will perform as predicted. The predicted performance of the reference LMFBR fuel, absorber and core component systems has

been verified through the early operating stage. In addition to benefiting CRBRP engineering and licensing, the verification of the reference oxide fuel system will enable reduced emphasis on alternative fuel development areas and carrying them as product improvement efforts. For example, we reduced the previously high priority carbide fuel development program to a cooperative product improvement effort with the Swiss government. Likewise, efforts with improved alloys have been redirected to achieving extended core life and improvements in fuel handling and core restraint strategies of benefit to CRBRP and subsequent projects.

- o The base R&D program has had a long-standing effort to develop and verify thermal-hydraulic performance codes, e.g. COBRA and TEMPEST. The DOE/NRC safety assessment of FFTF, and subsequent verification through operation of FFTF, has directly benefited the licensing of CRBRP and allowed DOE support of this code development effort for TEMPEST to be terminated. A delay in the schedule of FFTF would have extended this effort and delayed the licensing benefits to CRBRP.

- o Natural circulation testing on FFTF provided reactor system level information needed for verification of natural circulation analysis codes developed at HEDL, WARD and BNL and used on LMFBRs. This verification is of direct benefit to CRBRP licensing and safety analyses and has aided the base program in confidently redirecting its efforts toward solution of specific problems in smaller test facilities. Delay in obtaining this information would have significantly reduced these benefits. Because this information is available now to support the NRC safety and licensing review of CRBRP, substantial reductions in licensing uncertainties have been realized by CRBRP and the NRC.

- o FFTF operational testing verified the methods and techniques developed for analyzing the radiological shield design. These methods have been developed as part of a long-term effort at Oak Ridge National Laboratory and WARD. Verification of this work through FFTF experience has enabled redirection of this work toward support of the LDP specific configurations.

- o FFTF provided a demonstration of the available high temperature structural design methodology including use of design methods and criteria, computer codes, and materials properties data. this experience provided focus to the Materials and Structures Program and directly contributed to improvements in the ASME Code Case for elevated temperature components. Thus, the timing of the development of this technology was directly affected by the FFTF schedule.

In our July 29, 1982 oral presentation, we pointed out that there are significant benefits to the LMFBR base program that would accrue from the grant of the 50.12 request and a CRBRP project schedule savings of 9-12 months. Based upon our experience with FFTF, information obtained from the construction, preoperational testing, and operation of the CRBRP will be integrated into the base program as it becomes available and will serve to redirect the effort. Since the Government's role in LMFBR development effort is aimed at bringing the technology to the point of economic viability, a 9-12 months acceleration of CRBRP experience by grant of the 50.12 request should result in improved program direction, in an overall foreshortening of the duration of the Government's role in the program, and in a significant budgetary savings. It should be kept in mind that the LMFBR base program is currently funded at over $300 million per year. In view of the size of this program, acceleration of the experience from CRBRP and the application of this experience to redirect the program toward a finite set of specific problems, rather than a broad range of potential problems, will enable the

Base Program to reap substantial benefits in terms of reduced cost and duration, and increased efficiency and effectiveness.

Some specific examples of where earlier CRBRP operation is expected to benefit the base program include:

- Natural circulation testing earlier on Clinch river means improved code predictions for industrial use.

- Permits evaluations of margins in calculational codes to be conducted earlier thereby allowing uncertainty reduction in the code calculations. This results in cost reduction to any follow-on plants to which the codes are applied.

- Identifies unanticipated system interactions which can feed follow-on designs to avoid such problems (eg. covergas pressure equalization.)

- Earlier verification of performance of new (secondary control rods, heterogeneous cores, etc.) components and design features. Formally establishes the next leaping off point for future breeder designs and permits subsequent designs to proceed with more confidence.

- Because heterogeneous LMFBR cores have not operated except in ZPPR at low power, and because heterogeneous cores are deemed highly attractive by U.S. industry, it is exyremely important to demonstrate fuel burnup, thermal hydraulic, kinetics, and reactivity control characteristics of heterogeneous cores at the earliest feasible date. The early operational procedents with CRBR will be invaluable to guide future design and developments. The core design methodology, when it is confirmed for CRBR, can be used with greater confidence on larger systems.

The adequacy of system design interactions is an experimental

question and cannot be totally confirmed until operation of the first-of-a-kind plant.

The shield design methodology also will be completely validated for CRBR when Clinch River goes into operation. CRBR will thus test this methodology which has significant implications to achieving economical LMFBR shield design in future reactors.

- Demonstrates the automated remotely operated fuel fabrication and processing system (SAF Line) for producing large quantities of Pu-bearing fuel. Advantage is that industry can sooner capitalize on this technology and scale up to large through-put commercial fuel fabrication plant.

- Accelerate testing of internal blankets and fueled low swelling alloys.

- Earlier demonstration of long-life cores.

- Enables early identification of areas where improvements can be made in constructibility, operability, maintainability for industrial plants.

- Flush out real operational problems and at same time show that anticipated or perceived problems are "unreal" or do not actually exist.

- Enables earliest demonstration of optimum manning levels, training, and procedures for safe and efficient power producing operations.

- Early operation of CRBRP will provide needed feedback to the base component program as follows:

  Confirmation of critical technology embodied in both CRBRP

and base program component development such as material selections, fabrication process requirements, NDE requirements, etc.

Identification of unanticipated component and system problems that may require further substantive development efforts to support industrialization of the breeder.

Confirmation of critical assumptions and plans concerning component repair, maintenance, and operability which influence the design of future systems and components.

Provide a reasonable period of endurance data and operating experience in advance of commitments for an industrial plant to identify potential problems which occur after significant operating periods and which must be corrected in future plants.

Finally, and perhaps most important, earlier industrialization is possible, which results in reduced Federal and industrial research and development outlays (reduced stretchout of costly programs) and earlier return on the Federal and industrial investment.

Technical Expertise

An essential element in assuring the success of the LDP is the effective transfer of expert technical staff from one task or project to another. As noted in the July 29, 1982 oral presentation, the benefits accruing from the effective transfer of expert staff include an avoidance of technical risks and potential cost and schedule impacts involved in not recognizing and incorporating experience from past projects at an early stage of design. The benefits of building and maintaining a cadre of experienced technical staff has been recognized as a key element of success in the French LMFBR program.

The process of moving an engineered project from concept to realization progresses through a series of events, many overlapping.. These steps consist of design, component manufacturing, construction, preoperational checkout startup testing, and operation. To a large extent, many of the same technical experts are involved in successive steps. For example, system and component designers fulfill important roles during the procurement, fabricaton, installation and startup stages in addition to the design stage. When project delays are incurred, various combinations of schedule related impacts occur. These impacts cause gaps in the progression between successive steps; e.g. design may be completed, with a delay imposed before procurement; design and procurement may be completed with a delay imposed before fabrication, etc. Each of these techniques employed to minimize the overall impact of a delay tends to interrupt the orderly flow of work and the utilization of the original combination of experts throughout the duration of the effort required on given systems or components. These delays also tend to represent times when key individuals become disheartened with events and leave projects for more stable or dynamic opportunities. Not only do these personnel losses impact the specific project, but they also generally result in a loss to the particular segment of the industry. For example, prior to the delay imposed on CRBRP by the last administration, Westinghouse (the prime design contractor for CRBRP) was led by a Project manager and a Technical director, each of whom who had also served in positions of high responsibility for FFTF. These gentlemen and their vast LMFBR expertise have been lost to CRBRP and the LMFBR program. Many other examples exist as well. Granting the 50.12 request and accelerating CRBRP will enhance the LMFBR program's ability to maintain the cadre of expert technical staff on CRBRP and provide for an orderly transfer to LDP so they may effectively apply their vast knowledge.

CRBRP Information Transference to LDP

CRBRP has already provided significant design and component testing input to the LDP. Frequent technical exchange meetings are held between the two projects to communicate design and analysis methodology and results. Development programs carried out by CRBRP, such as those for the secondary control rod system, the sodium pump, and the steam generator, are already of direct use in the LDP conceptual design. As the LDP design progresses beyond the pre-conceptual and conceptual stage however, LDP will require input from experience on CRBRP construction and operation at the earliest possible date in order to make most beneficial use of that experience in the LDP design.

If the 50.12 request is granted by the Commission, the Project will be able to start site preparation activities in August 1982. This action, coupled with the issuance of an LWA I and II by about August 1983, will allow for the start of limited safety related facility construction activities to proceed following site preparation. The CP is currently scheduled for issuance by June 1984 which would allow for continued construction without interruption, with the start of above-grade construction and installation of components to begin in the mid 1984 time frame. This timing will provide CRBRP experience when the LDP preliminary design effort is planned to begin. Of course, favorable action on the Section 50.12 request will, as was stated on July 29, produce a stimulus to the establishment of definitive arrangements for the LDP and help assure that this industry and international cooperative effort is successful.

Attachments "A" and "B" describe the specific benefits which were associated with the timely application of FFTF construction experience to CRBRP. Similarly, the acceleration of the construction experience from CRBRP will allow for factoring that experience directly into the conceptual and preliminary design effort for LDP. Given that significant design progress is always made in the first year of a project's preliminary design, a delay

in transfer of CRBRP experience to LDP by 9-12 months represents a very significant loss in potential benefits. For example, on the current CRBRP construction schedule, assuming 50.12 approval, the installation of leak tight cell liners and pouring of concrete for these cells will occur from mid 1983 thru 1984. Confirmation of this construction technique is anticipated, but any problems encountered will be lessons learned for LDP at a stage in the LDP design which will allow for conceptual design changes to be made without major cost impact. Major components and systems such as the sodium storage tanks, sodium water reaction product separator tanks, and heat transport system piping and equipment will be installed beginning in mid 1984. Much of the experience learned from FFTF and incorporated into CRBRP will be confirmed during this time period. As with FFTF, much can also be learned for the first time from these particular construction activities, and much of the experience gained from these construction activities will be available late in the LDP conceptual design and at the start of the preliminary design beginning in late 1984, if the 50.12 request is granted. On the other hand, if the Commission does not grant the 50.12 request, more of the CRBRP experience will be out of phase with the LDP, increasing the cost and difficulty of incorporating this experience into the LDP design, and reducing the ability to maximize the beneficial use of this information.

Conclusion

In conclusion, very real and important technical benefits will accrue to the LDP and the Base Program by the Commissions' approval of the 50.12 request and subsequent initiation of site preparation activities. The resulting acceleration in the CRBRP construction schedule will advance the Department's program initiatives. Approval of the 50.12 request is essential to realize the full potential of experience from CRBRP, and to provide direction, needs, and priorities to the Base Program development work based on actual CRBRP experience to effectively

incorporate that experience into the LDP and the Base program.

FFTF Information Transference to CRBRP

Introduction

The examples discussed below identify the tangible, real benefits of providing construction, acceptance test, start-up, and operating experience from one plant to the follow-on plant, and provide some insight into the magnitude of some of the difficulties encountered during the design and development of a first of a kind plant.

The quantified impact of the various individual problems cited below on the overall FFTF plant cost and schedule cannot readily be assessed. Often several problems were being resolved concurrently on FFTF and the cost and schedule impact of an individual item was not separately accumulated. The amount of advance planning needed to minimize plant schedule impact varied from several man-days to many man-weeks or man-months depending on the difficulty of the problem or the number of physical locations where corrective measures were required.

While these examples in themselves cannot be individually assigned a plant cost or schedule value, in total, they represent many millions of dollars and many man-years of engineering and construction effort. These experiences, when considered by the CRBRP project, result in substantial savings that will be realized in large cost and schedule avoidances during all phases of the project.

Containment Arrangements

FFTF construction provided invaluable information regarding the

arrangement of LMFBR systems in the reactor containment building. Design engineers were able to see, first hand, the construction and maintenance advantages and disadvantages of various system arrangements. This was especially true of the auxiliary liquid metal, inert gas, and nitrogen cooling systems that are unique to liquid metal cooled reactors. As a result, the CRBRP containment has been arranged with spacing, separation, and juxtaposing of equipment to enhance constructibility and maintainability while still meeting essential safety and performance requirements.

Improved plant arrangement enhances plant operations and will substantially reduce the cost of plant maintenance over the plant lifetime by an estimated several million dollars. Improved plant arrangement has the potential for reduced crew size by arrangement of work stations so that one plant operator can monitor more equipment without loss of effectiveness, i.e., a more efficient utilization of plant operators.

Much of this plant arrangement information from FFTF was available to the CRBRP designers during the late conceptual and early preliminary design phases, allowing for maximum benefit of the information and minimizing the design changes required. Had the information been delayed one year, very significant and costly design changes would have occurred to redo design layouts and arrangements of the plant's major systems because this type of information establishes the philosophy of the configuration.

Reactor Vessel Access

FFTF design experience showed that the area above the reactor vessel and immediately surrounding the vessel, known as the reactor head access area, can easily become overcrowded. This is due to the use of this small area for access to the inside of the reactor vessel for refueling purposes as well as location of control rod systems and instrumentation. CRBRP engineers, having

the advantage of the experience and information gained from FFTF, have expended considerable effort throughout the CRBRP design process to assure effective use of space in this area of the plant. The CRBRP designers made a full scale mock-up of the head access area conceptual design and utilized it extensively throughout the CRBRP design process to assure the design will efficiently support all necessary operations. This resulted in the direct translation of experience from FFTF to the conceptual, preliminary and final design of CRBRP, thus effecting savings during the construction phase and ultimately in plant maintenance and operation. If the FFTF had been delayed such that the people who had gained the experience on FFTF had not been available to the CRBRP during the design phase, then the design of the CRBRP reactor head access area would not have been able tc benifically apply this experience in an efficient way.

Cell Liner Construction

Many of the plant rooms (cells) in an LMFBR are required to be leakproof to liquids and gases. To achieve this, the interior surfaces (walls, ceiling, and floor) are lined on the inside with carbon steel plates welded together. During the early phase of FFTF construction, those cells were constructed in a conventional manner using wood forms for the concrete walls and floors and then lining the inner surfaces with the carbon steel plates, welding their seams in place. Early in the FFTF construction, it was realized that, by first welding the steel plates together to form the cell walls, the liners could be used instead of the wood forms for concrete placement, resulting in a substantial saving in time and construction cost.

This technique has become the basic construction method for CRBRP and will also be employed on the LDP. This experience is typical of the high value placed on early construction experience to a follow-on plant. The information was available to CRBRP in the 1975 time frame when preliminary design of these cell liners was

being initiated. Because of the early availability of this information, the cell liner design was based upon the central theme of modularization of panels and preassembly to ease construction. A one year delay to CRBRP in receiving this information would have meant completely redoing all of that design work due to the fundamental role the information plays in establishing the design philosophy of lined cells.

Leak Tight Cells (Rooms)

Construction and preoperational testing at FFTF revealed a need to enhance the construction methods for leak tight cells. More effort than originally planned was required to assure leak tightness. This extended the total time to complete this testing. Obtaining plant conditions to perform the tests while minimizing overall plant schedular delay was a major consideration for FFTF. When plant conditions were suitable, overtime effort was applied to minimize the test periods. CRBRP engineers worked in close cooperation with FFTF engineers to explore and utilize improved designs and construction methods. The CRBRP design now allows for modularized prefabrication of leak tight wall panels to improve constructibility. In addition, early construction tests will be performed on CRBRP to identify any remaining problems, assuring early, effective correction action. It is anticipated that this will result in a substantial cost avoidance for CRBRP, as well as avoiding delays at a point in the plant start-up sequence that is very difficult to rearranged without extending the total plant startup schedule.

Polar Crane Use

FFTF experienced many instances where availability of the polar crane inside the containment building caused many equipment installation efforts to be on the critical path. Further, some instances of inadequate coverage by the polar crane were determined. For example, the polar crane cannot provide a direct

vertical lift of some peripheral hatch plugs. Special off-set or counterbalanced handling fixtures to accommodate this condition were necessary at FFTF, adding to the complexity of and time to perform the operation. In addition, minimal provision for load testing the polar crane was provided.

Because of this experience, CRBRP recognized quite early that, particularly during the Acceptance Test Phase, potential existed for lack of polar crane availability to cause delay to critical path efforts. To minimize potential for this to occur, CRBRP has made provision in the design of hatch plugs and hatch seals for the use of various jib cranes and other lifting devices to relieve the polar crane of many lifts of less than ten tons. The segmented design of plugs (which on FFTF were single heavy lifts) allows the use of smaller temporary and/or permanent lifting devices and, thus, relieves the work load that would otherwise be assigned to the polar crane. A delay of one year in the receipt of this information by the CRBRP designers, under normal progression of design, would have substantially increased the cost to redesign these plugs and hatches.

Optimization of polar crane coverage has occurred through judicious placement of plugs and hatches and has been verified as adequate through the use of the CRBRP model.

A method for load testing of the CRBRP polar crane has been provided in the design. This method makes allowance for use of in-containment cribbing to hold test loads, verification of floor load capability for placement of test loads, and assurance that the test may be performed without interference caused by in-containment equipment and the containment walls.

Seismic III Over I

FFTF experienced situations where the physical location of installed piping and cable trays indicated many instances of

Seismic III equipment installed over Seismic I equipment. Seismic category I equipment is designed and supported to maintain its required functional characteristics after experiencing major earthquake loads. Seismic category III equipment is not plant safety related and need not be designed or supported to maintain its function after experiencing major earthquake loads.

After essentially completing the installation of most components in the cells, it was noted that some non-safety related category III equipment was installed over safety related category I equipment. The potential failure of this category III equipment in its as installed arrangement and possibly causing damage to category I equipment resulted in a major program on FFTF to upgrade many component supports, some relocaton of equipment, or the protection of category I components to avoid the potential for major earthquake damage to this equipment.

CRBRP and FFTF engineers exchanged considerable information as a result of this experience. The CRBRP plant design was reviewed by representatives of both projects, including detailed study of the CRBRP plant scale model. The results of this detailed review indicated similar potential concerns for CRBRP. These were resolved by upgrading supports, relocation of some components, and change of pipe routing and cable tray arrangements in the CRBRP design.

This problem was identified on FFTF after much of the plant equipment had been installed, requiring an extensive field rework program which extended over a one-year period. The resulting guidance to CRBRP came at a time when the preliminary design was partially complete, resulting in the need to redo many drawings, support designs, equipment locations and pipe and cable tray routings. Had this information been apparent to CRBRP at the beginning of the preliminary design phase, there would have been minimal need to redo already completed work.

Maintenance Access to Equipment

The FFTF plant arrangement has congested areas which make difficult the prompt and expeditious performance of plant inspection and maintenance.

Some of the same engineers worked on CRBRP during the conceptual design stage. FFTF maintenance access provisions were reviewed. In particular, FFTF experience with equipment installation and removal, access and maintenance frequencies, and handling and rigging problems were examined. CRBRP capitalized on this FFTF experience by performing during the conceptual design phase a plant model review of planned equipment installation and removal paths, floor loadings, rigging equipment and manpower requirements, and individual component maintenance requirements (including maintenance frequencies). The removal studies identified at least one removal path for each piece of equipment, and at least one removal method addressing live floor loadings, installed and temporary rigging equipment needs, and equipment weights and configuration. This will result in substantial savings in maintenance costs which will be realized over the full life of the CRBRP. If the information had been delayed by one year, the conceptual plant arrangements for CRBRP, would have already been fixed, requiring design work with the attendant significant cost to make those design changes.

Shielded Door and Hatch Design

FFTF experienced various problems relating to the design of their shielded doors and hatches which provide access to the leak tight cells (both inerted and air filled) for inspection, maintenance and testing. These included items such as testability of door and hatch seals, handling characteristics, and schedule impact due to lack of separation of sealing and shielding functions of some hatches and plugs. It was evident that improvements in

shielded closure designs which considered frequency of access, As Low As Reasonably Achievable (ALARA) radiation exposure cost impact, and cell environment should be reviewed by CRBRP.

As a result of this FFTF experience a Shielded Door and Hatch Study was performed during the door and hatch conceptual design phase on CRBRP. This study addressed various shielded door and closure types such as labyrinth, plug, steel hinged door, removable panels, and horizontal sliding doors, and also addressed items such as capital and operating costs, in cell maintenance frequencies, and ALARA exposure costs for each cell and closure type. Identification of this problem at FFTF during the CRBRP conceptual design phase allowed for time to perform the study and incorporate the results with minimal need to change established CRBRP design features.

The final selection of shielded closures on CRBRP represents a mixture of the various types available. Their individual applications are expected to provide significant improvements in the areas of handling, testability, ALARA and plant capital costs. Had the FFTF experience not been available in the conceptual design phase of CRBRP, considerable rework would have been required during the preliminary design phase with attendant cost and schedule impacts. The lack of an improved design would have increased plant operational costs in terms of manpower required during maintenance periods, increased radiation exposures and decreased plant availability.

Closure Head Installation

Final installation acceptance of the FFTF closure head to main support structure was delayed by rework associated with alignment and galling of keyway and key shims. Although the CRBRP closure head does not use this feature, the experience was beneficial to the CRBRP ex-vessel storage tank (EVST) design which incorporated an improved design of seismic keys.

This experience was provided in sufficient time to allow for the incorporation of this information into the preliminary design of the EVST with minimal design and cost impact.

Insulated Pipe Clamp Design

Heat transport system pipe clamps at FFTF used individual pieces of maramet blocks for load bearing insulation between the steel pipe clamp and the pipes themselves. Some difficulty in installation (need to hold these pieces in place until clamp was tightened and the need to use steel wool under the blocks for shimming) lead to a revised CRBRP insulated clamp design. The CRBRP design uses encapsulated blocks and insulation retaining pins as well as an improved insulating material which will avoid the need for shimming materials and will enhance installation. This could potentially reduce the installation crew size, which would have substantial impact on construction costs since several thousand pipe clamps are used on liquid metal high temperature systems.

The feedback concerning this FFTF installation difficulty was available to the CRBRP designer in sufficient time to incorporate features to ease the installation process for CRBRP without major design changes to the pipe clamp insulation design. A one year delay would have significantly increased the cost of changing the design.

Damage to Heaters

In the design of an LMFBR, trace heaters are used on sodium piping to provide the ability to keep the sodium well above its freezing temperature of about 208 degrees F. FFTF experienced problems in heater damage during the construction and plant startup phase and continues to have heater damage due to the heater ends penetrating outward from the insulation around the

pipes. It is necessary, as one of the last procedures in the FFTF final cell checkout program, to have the electricians assure that all trace heater connections have not been damaged as a result of personnel working in the cell.

Because this information was made available to the CRBRP designers during the conceptual design stage of the trace heating system, the designer was able to resolve this concern by designing the heater ends to be buried under the pipe insulation to prevent damage during construction. This was done as part of the initial configuration definition phase on the CRBRP trace heating system and did not have a cost impact. Again, a one year delay would have caused a redesign effort, with the attendent cost impacts.

Heating of Standpipe Bubbler Line

One of the FFTF primary pumps experienced sodium flooding which caused the pump shaft to become distorted. This required pump removal for repair. The flooding was in part caused by sodium blockage of a portion of the cover gas equalization line of an idle pump. The equalization line is intended to provide uniformity of argon cover gas pressure above the sodium in the reactor vessel and all three primary pumps. The pump shaft distortion was diagnosed as having been caused by the unsymmetrical rise of sodium in the annulus around the shaft. In CRBRP, the analogous line (the standpipe bubbler line) was initially not trace heated, but trace heating was added to preclude sodium from condensing there and creating a gas line blockage. Operating procedures for the CRBRP pumps were changed to minimize the time that the pony motors will be turned off, to prevent unsymmetrical sodium flooding and the resulting effects of non-uniform heating of the pump shaft.

On FFTF this problem resulted in change out of the primary pump, refurbishment of the distorted pump shaft, engineering evaluation

and incorporation of corrective measures. The indirect costs of FFTF unavailability for a period of a few weeks is also a major consideration and a large potential cost. CRBRP has benefited from this experience. This operational feedback from FFTF has enabled the CRBRP design to be upgraded with minimal cost, even though the information became available late in the CRBRP design process. This is because of the relative simplicity of the design change involved.

Operational Experience

FFTF operation and preoperational testing is providing reliability data and experience important for system design and safety assessment. Information is useful in CRBRP licensing, design verification, and performance prediction. This is particularly true in the areas of thermal/hydraulic performance of the core, major component design and maintenance. Of particular importance is the ability to review the CRBRP design in light of experience bearing on accessibility for maintenance, repair, modification, or replacement. Likewise, this operating experience enables value judgements on the relative importance of operating parameters to the operators bearing directly on man-machine interface and reliable reactor operations. FFTF schedule slippage would have delayed availability of information and reduced its usefulness to CRBRP design and licensing efforts.

ATTACHMENT B

FFTF EXPERIENCES APPLIED TO CRBRP

Introduction

Attachment A discussed in detail some of the examples where experience on FFTF was applied to CRBRP. There are literally hundreds of such examples. Below is an abbreviated subject listing of many more examples, each of which resulted in knowledge being transferred to the CRBRP Project.

- Improved gas venting capability during sodium fill of outer radial shield sleeves.
- Closure head main support structure key shims galling.
- Galling of lifting adaptor for Outer Core Restraint Module.
- Attachment bolts galled in the threads in the thermal liner and the locking caps.
- Insufficient clamping force on flexible thermocouple guide tube.
- Rigging and handling fixture improvements for reactor vessel.
- Improved alignment of locking tabs on the main support structure bearing pads with leveling nut.

- Seal between thermal liner and baffle liner interface seal assemblies.
- Inner core restraint modules interference with mounting brackets.
- Lack of Radial Shield holddown seat chamfers.
- Eliminated reactor center island heating and cooling piping vibration due to flow-induced vibration.
- Improved chamfers, lead-angles, and radii for assembly and disassembly of the IHX shell, thermal liner, and tube bundle.
- Head area access improvements for installation of equipment.
- Installation improvement techniques associated with the outer core restraint modules.
- Complications associated with three in-vessel handling machines.
- Reduced construction costs by using cell liners as concrete forms in construction.
- High density concrete used due to small containment vessel size.
- Construction blockouts necessary due to late design resolution.

- Expense of curved walls
- Use of concrete additives to improve cost of construction and workability of concrete.
- Saving by not using temporary pipe hangers.
- Improved definition of equipment storage and installation requirements.
- Automatic pipe welding improvements.
- Optimizing pipe spool sizes.
- Need for on-site construction storage.
- Late design of heating and ventilating systems impacted duct design, routing, and installation.
- Polar crane size considerations.
- Reactor vessel support system improvement.
- Reactor vessel support ledge thermal problems.
- Cost reductions by site fabrication of piping spools.
- Increased attention to increases in plant cable requirements.
- Preparation of construction guidelines to benefit from FFTF construction lessons.
- Costs savings from use of permanent wiring for

construction power and lights.

- o Development of early installation rigging requirements to improve construction sequences.
- o Potential prefabrication of cells, walls, and floors.
- o Use of head area mockup.
- o Welding clearances.
- o Use of approved thread lubricants for sodium service.
- o Use of lead-in chamfers to facilitate installation of conoseal assemblies.
- o IVHM studs housing holes interference.
- o Design provisions for purging/flushing of piping systems.
- o Overly stringent electrical installation specs.
- o Protection of O-ring sealing surfaces during shipping/storage.
- o Valve operation and adjustment difficulties due to location.
- o Protruding features of simulated core assemblies.
- o Need for efficient field change notice system established.

- Head access area shielding components interference.
- Head mounted components purge and buffer lines damage potential.
- Improved polar crane, gantry crane service location.
- Segmented maintenance cask gate interference with electrical cabinets.
- Need established for remote removal capability of primary cold trap assemblies.
- improved instructions for describing engagement of electrical nuts on terminal studs.
- Requirements for banding insulation to piping and components upgraded.
- Insulation support design improved with respect to component thermal expansion and vertical insulation support.
- Air rights considerations for periscope installation.
- Air rights considerations for installation of maintenance equipment.
- Trace heating and insulation space in penetrations between cells.
- On-head component modifications to account for thermal movement.

- Components versus piping installation sequence.
- Task force cell by cell review of seismic III over I considerations.
- Sizing of sodium tank car heating system.
- Division and scheduling of post turnover changes.
- Nelson stud plates installation.
- Piping removal to accommodate cell leak test completion.
- Construction labeling of piping, duct work, and flow direction.
- Rail stops design improvements.
- Cell hatch and plug improvement to reduce liner leakage.
- Sodium piping fill techniques.
- Monorail length for movement of heavy material.
- Electrical cross-talk at containment penetrations.
- Need for supplementary cranes.
- Cell HVAC capacity restrained by size of embedded piping.
- Need for oil trap in pump cover gas system.
- Sodium unloading station improvements.

- Concrete and steel paint and sealers improvements.
- Storage practices improved.
- Prefabricated insulation module interference.
- Handling procedures for reactor vessel inlet and outlet pipe and guard pipe placement.
- Use of computer indexes to maintain control and proper identity of components during construction, startup testing, and operation.
- Additional trace heating and insulation requirements.
- Closure head lift fixture design improvements.
- Location of inlet and outlet cell cooling ducts to enhance mixing.
- Hanger and pipe supports revisions.
- Piping blowdown features and methods for cleanliness improvement.

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSIONERS

In the Matter of UNITED STATES DEPARTMENT OF ENERGY PROJECT MANAGEMENT CORPORATION TENNESSEE VALLEY AUTHORITY (Clinch River Breeder Reactor Plant)	Docket No. 50-537 (Section 50.12 Request)

CERTIFICATE OF SERVICE

Service has been effected on this date by personal delivery or first-class mail to the following:

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Chairman
Nuclear Regulatory Commission
Washington, D. C. 20555

* The Honorable Victor Gilinsky
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DATED: August 3, 1982

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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, 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, Intervenors 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[1/] indicating a concerted effort to conceal crucial safety

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

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"[2/] 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]

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

3/ 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.[4/]

This memorandum from the chief engineering officer of the Clinch River project[5/] 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[6/] concerns a report numbered ANL/RAS 77-15 prepared by Argonne National Laboratories. The Argonne report

---

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.[7/] 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.

7/ 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 shoudl 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 commments. 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.[8/] 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.

8/ 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.[9/] 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.[10/]

9/ 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.

10/ 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[11/] (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.

11/ 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 227.12/

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 Mangerial

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

B-11-01-B7-075

ATTACHMENT A

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 9 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. Penland
A. H. Hansen

OFFICE ➡			Licensing			
SURNAME ➡			WRRhyne/dt			
DATE ➡			4/6/77			

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B-01-23-00-162 ATTACHMENT B RESPONSE DOCUMENT

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

CLINCH RIVER BREEDER REACTOR PLANT PROJECT OFFICE
P. O. BOX U
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

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.

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 defeined. 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 2.1×10^7 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.

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.

E Wright, for

Donald R. Riley, Assistant Director
for Engineering
CRBRP Project

EN:R:77-220

THE SECRETARY OF ENERGY
WASHINGTON, D.C. 20585

July 1, 1982

2674

The Honorable Nunzio J. Palladino
Chairman
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable James K. Asselstine
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable Victor Gilinsky
Commissioner
Nuclear Regulatory Commission
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The Honorable John F. Ahearne
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable Thomas F. Roberts
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Clinch River Breeder Reactor Plant
Docket No. 50-537 (Section 50.12 Request)

Gentlemen:

The Department of Energy (DOE), for itself and on behalf of Project Management Corporation and the Tennessee Valley Authority, hereby requests authorization from the Nuclear Regulatory Commission (NRC), under 10 C.F.R. Section 50.12, to conduct site preparation activities for the Clinch River Breeder Reactor Plant (CRBRP) project. DOE seeks prompt NRC approval to conduct site clearing, grading, excavation, and construction of temporary support and certain service facilities at the Clinch River site.

The enclosed Site Preparation Activities Report (SPAR) describes the specific activities proposed, and provides the detailed technical justification and support for this request. A Memorandum in Support of Request for Authorization to Conduct Site Preparation Activities, which provides the detailed legal justification and support for this request, is being filed separately by the applicants.

In filing this request, there is no intent to abrogate the NRC licensing process. Approval of this request in accordance with NRC's established Section 50.12 procedures would allow site preparation activities to commence, while at the same time assuring full consideration of all relevant environmental issues, and preserving all elements of NRC's environmental, safety, and hearing processes. In addition, grant of this request will advance established national policies in favor of expeditious project completion.

dupe PDR 8207020198

To OGC for Appropriate Act.
Orig. to Docket. C/R Dist:
Chairman, Cmrs, SECY, OCA.
DSS Dist: OGC RF RA EDO

This request implements Congressional policy in regard to the CRBRP. The project has been continually authorized and funded by the Congress for more than a decade. More recently, the Conference Report for the Omnibus Budget Reconciliation Act of 1981 reaffirmed the intent of the Congress that the CRBRP project is an essential step in the development of the LMFBR and that the project must be constructed in a timely and expeditious manner.

This request furthers the Administration's policy in regard to the LMFBR technology demonstration program and the CRBRP project. The President's October 8, 1981, nuclear energy policy statement established this Administration's definitive policy on the LMFBR program and CRBRP project as follows:

> "I am directing that government agencies proceed with the demonstration of breeder reactor technology, including completion of the Clinch River Breeder Reactor. This is essential to ensure our preparedness for longer-term nuclear power needs."

This request reflects Department policy in regard to CRBRP. DOE is committed to the programmatic timing of CRBRP--as expeditiously as possible.

These established Congressional, Presidential, and Department policies in favor of expeditious project completion are further buttressed by the substantial informational benefits which will be derived from grant of the request. Most importantly, acceleration of the CRBRP schedule by 6 to 12 months will:

- Support the timely completion of the LMFBR base technology program, the Large Developmental Plant, and the LMFBR Fuel Cycle program, and enhance the prospects for success in those programs.

- Support the achievement of the Administration's nonproliferation policy objectives, and enhance the prospects for a U. S. leadership position in nuclear technology.

While acceleration of the CRBRP schedule will yield primary benefits in terms of information, as indicated in the Department's letter of February 25, 1982, it will also yield substantial monetary cost savings to the taxpayer. From any of three perspectives--appropriations, financial, or economic--these cost savings will accrue at the rate of no less than $28 million per year. Moreover, as shown by the February 25 letter, since the project is funded and its costs are estimated in year of expenditure dollars, from the perspective of Congress and the taxpayer, inflationary cost increases are real and should be avoided. Continued delay in the project can only serve to jeopardize its prospects for success, without any offsetting benefit to the public interest.

An appropriate balance of the four Section 50.12 factors weighs heavily in favor of the request. The SPAR presents a strong affirmative case on the first three Section 50.12 factors. The NRC's 1977 FES concludes that the environmental effects of site preparation would not be significant.

Any impacts that may occur are redressable, and grant of the request will not foreclose any reasonable alternatives. For these reasons, grant of the request will be entirely consistent with NRC's primary responsibility to protect the public health and safety and the environment. At the same time, grant of the request will yield substantial programmatic benefits and advance the Department's ability to carry out its primary responsibilities for energy research and development and policy. In this regard, the Commission which by statute does not have programmatic or developmental responsibility should afford the Department substantial deference regarding public interest considerations and, on balance, grant this request.

Sincerely,

W. Kenneth Davis
Acting Secretary

THE SECRETARY OF ENERGY
WASHINGTON, D.C. 20585

July 1, 1982

2154

The Honorable Nunzio J. Palladino
Chairman
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable James K. Asselstine
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable Victor Gilinsky
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

The Honorable John F. Ahearne
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dupe PDR 8207020198

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Chairman, Cmrs, SECY, OCA.
PSS Dist: OGC RF RA EDO

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Sincerely,

W. Kenneth Davis
Acting Secretary

Natural Resources Defense Council, Inc.

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August 3, 1982

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

The Honorable James K. Asselstine
Commissioner
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Washington, D.C. 20555

The Honorable Victor Gilinsky
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The Honorable John F. Ahearne
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Washington, D.C. 20555

The Honorable Thomas F. Roberts
Commissioner
Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Clinch River Breeder Reactor Plant
Docket No. 50-537 (Section 50.12 Request)

Gentlemen:

Applicants' latest submission sets forth the unexceptional proposition that, all things being equal, it is better to have information now then later. But the benefits Applicants foresee are mainly in the long term, deriving largely from CRBR operation sometime in the 1990s. Further, given the overall uncertainties with respect to whether the LDP will be built at all, there is no particular magic to any timing sequence for information transfer in the midterm.

In any event, at best what Applicants hope for is a modest increase in program efficiency. This scarcely constitutes emergency and exigent circumstances of the sort that would justify extraordinary relief from the NRC licensing process.

Nor is it true that timely relief from the CRBR Licensing Board is impossible or highly unlikely because of uncertainties in the LWA hearing schedule. During a conference with counsel held yesterday,

To OGC for Appropriate Action.
D&SB Dist.: C/R.
C/R Dist.: Chm, Cmrs, PE, PA, SECY, RIDS (PDR).

e: 17 ERIE DRIVE · NATICK, MA. 01760 · 617 655-2656
Public Lands Institute: 1720 RACE STREET · DENVER, CO. 80206 · 303 377-9740

Dupe PDR 8208050352

the Licensing Board ruled that LWA hearings will commence in three weeks, on August 23 as previously scheduled. The Board will take evidence at that time on all site suitability issues, and will consider all environmental issues shortly after the final impact statement supplement is published on November 1, 1982.

Respectfully submitted,

Eldon V. C. Greenberg (BAF)

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* Atomic Safety & Licensing Board Panel
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Andrew Jackson Building, Suite 1007
Nashville, Tennessee 32219

*/ Denotes hand delivery

Before the
UNITED STATES
NUCLEAR REGULATORY COMMISSION
Washington, D.C. 20555

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

MOTION FOR SUMMARY DENIAL OF APPLICANTS' SECTION 50.12 REQUEST; OR ALTERNATIVELY, REQUEST FOR ADJUDICATORY HEARING

Intervenors, Natural Resources Defense Council, Inc. and the Sierra Club (the "Intervenors"), respectfully move for summary denial of the application, filed July 1, 1982, by the Department of Energy, Project Management Corporation and the Tennessee Valley Authority (the "Applicants"), for authorization under 10 C.F.R. §50.12 to conduct site preparation activities, on the grounds that such application is barred by principles of administrative finality and res judicata. Alternatively, if the Commission should determine to consider this application, Intervenors request an adjudicatory hearing, on the grounds that such a hearing is mandated both a matter of statutory law and administrative precedent. The bases for Intervenors' motion

and request are more fully set forth in the attached memorandum of points and authorities.

Respectfully submitted,

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

Dated: Washington, D.C.
July 9, 1982

12/81

TRANSMITTAL TO: ☑ Document Control Desk, 016 Phillips

ADVANCED COPY TO: ☐ The Public Document Room

DATE: 8/6/82

From: SECY OPS Branch

cc: OPS File
C&R (Natalie)

Attached are copies of a Commission meeting transcript/s/ and related meeting document/s/. They are being forwarded for entry on the Daily Accession List and placement in the Public Document Room. No other distribution is requested or required. Existing DCS identification numbers are listed on the individual documents wherever known.

Meeting Title: Disc. + Vote on DOE Exemption Request

MEETING DATE: 8/5/82 Open ✓ Closed ___

ITEM DESCRIPTION:	Copies Advanced To PDR:	DCS COPIES: (1 of each Checked) Original Document	May be Dup*	Duplicate Copy*
1. transcript	1	1	___	___
2. Petition for Investigation Docket No. 50-537	1	___	1	___
3. Letter dated 7/1/82 fr DOE	1	___	1	___
4. Letter dated 8/3/82 fr. NRDC	1	___	1	___
5. Letter fr DOE to NRC dated 8/2/82	1		1	
6. Motion for Summary Denial of Applicants' 50.12 Request	1	___	1	___

*Verify if in DCS, and change to "PDR available."

(PDR is advanced one of each document, two of each SECY paper.)