



Citizens Advisory Board
Idaho National Engineering and Environmental Laboratory

**Draft Programmatic Environmental Impact Statement
for Accomplishing Expanded Civilian Nuclear Energy Research
and Development and Isotope Production Missions in the United States,
Including the Role of the Fast Flux Test Facility**

The Department of Energy (DOE) recently issued the Draft Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility (NI PEIS). A public comment period on the document ended on September 18, 2000. The Idaho National Engineering and Environmental Laboratory Citizens Advisory Board (INEEL CAB) requested an extension in the public comment period to allow for development of a consensus recommendation in support of DOE's decision-making for this significant decision. We are told that the comment period would not be extended although we still have received no formal response to our request. Because we believe this decision is of importance, we elected to proceed with development of this recommendation.

ADEQUACY UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) requires federal agencies contemplating actions that may result in significant environmental impacts to prepare environmental documentation. Environmental documentation written to comply with NEPA should document the purpose and need for federal action, present an array of reasonable alternatives including a "No Action Alternative," and present all environmental impacts that would result from each reasonable alternative. In addition, the federal agency must conduct public participation activities in support of development of its environmental documentation. **The INEEL CAB recommends that DOE make every effort to meet the goals of NEPA and prepare an Environmental Impact Statement that can withstand judicial review.**

To date, the INEEL CAB has submitted comments twice to support preparation of this document. Our consensus Recommendation #51, dated November 18, 1998 submitted comments during scoping for the "Proposed Production of Plutonium-238 for Use in Advanced Radioisotope Power Systems for Future Space Missions Environmental Impact Statement" which was subsequently merged with this PEIS. We also reached consensus on Recommendation #65, which submitted comments during scoping for the NI PEIS. We could not find evidence that some of our earlier comments had been incorporated into the Draft NI PEIS. NEPA requires scoping as a process by which the public participates in the framing of the environmental documentation. If DOE makes no effort to respond to comments during scoping, how can the agency demonstrate that its public participation program is adequate? **The INEEL CAB recommends that DOE make every effort to respond to all public comments, ensuring that the public's efforts are not wasted.**

The document states that it does not address any needs beyond DOE's Office of Nuclear Energy, Science, and Technology. It makes no sense to exclude other Department needs. Further, it was explained to the INEEL CAB that this PEIS is an "incremental EIS" that addresses only additional impacts attributable specifically to the actions described. NEPA requires consideration and public disclosure of the cumulative effects of all related actions during decision making. **The INEEL CAB recommends DOE make every effort to consider all impacts of related decisions to ensure full compliance with NEPA and avoid vulnerability to challenges of segmented decision-making.**

PURPOSE AND NEED FOR FEDERAL ACTION

There appear to be four separate objectives that form the basis of DOE's assertion that federal action is needed:

1. To expand the civilian nuclear research capacity and infrastructure.
2. To ensure a supply of medical isotopes to support medical needs,
3. To ensure a supply of isotopes to support various research and development (R&D) initiatives, and
4. To ensure an adequate supply of Plutonium-238 to support NASA's needs.

However, the INEEL CAB concludes that the document does not adequately substantiate the purpose and need for taking action within each of those four objectives. Explanations of current and existing capability and capacity leave the reader with the impression that some or all of the objectives could be achieved through continued operation of existing facilities. For example, it appears that: 1) R&D isotope production could be met through continued operation of the Advanced Test Reactor (ATR), High Flux Isotope Reactor (HFIR), and commercial light water reactors, 2) continued purchases of medical isotopes from Canadian sources could fulfill requirements for medical isotopes, and 3) the U.S. could continue to purchase Plutonium-238 from the Russians. In addition, this analysis is critical to assess the No Action Alternative.

In order to remedy the current inadequate substantiation of the purpose and need for federal action, the INEEL CAB recommends that the NI EIS:

- **Provide a clear justification for expansion of civilian nuclear research capacity and infrastructure—based on an assessment of deficiencies in current capacity and infrastructure—and demonstrate how that need has been verified.**
- **Include a full explanation of all current and viable sources of each desired material (medical isotopes, R&D isotopes, and Plutonium-238) and the capacity of each of those sources.**
- **Include clear estimates of the projected demand for and projected shortfall of each desired material over a specified timeframe. Clearly stated assumptions should form the basis for all projections.**
- **Demonstrate how each estimate of projected demands, shortfalls, and timeframes has been independently verified.**

A solid explanation of the purpose and need for action is necessary for adequate public review of environmental documentation. Further, sound estimates of need are required to: 1) establish design and operational requirements for facilities, 2) estimate the impacts that would result from construction and operation of facilities, and 3) assess whether existing facilities can be used or new facilities will be required.

ALTERNATIVES CONSIDERED

The document presents a mind-boggling array of alternatives. Unfortunately, it is unclear how these alternatives address DOE's four apparent objectives under its purpose and need for action. It appears that some of the alternatives only address a portion of the four objectives. We understand that the No Action

Alternative inadequately addresses the four objectives, but question why other alternatives were considered if they do not meet all four of the objectives. **The INEEL CAB recommends that DOE more clearly demonstrate how each alternative considered in the NI PEIS would address the four apparent objectives. Alternatively, DOE should explain which of the four apparent objectives would be achieved through implementation of each of the alternatives, and which would not.**

We understand that Neptunium-237 would have no use under the No Action Alternative because no domestic Plutonium-238 production capability would be established. The description of that alternative fails to explain how and where the Neptunium would be treated and disposed, however, and no impacts are described that would be attributable to its management. **The INEEL CAB recommends that DOE explicitly discuss how Neptunium-237 would be dispositioned under the description of the No Action Alternative and that the NI PEIS include all impacts associated with its disposition.**

In addition, it is not clear why the alternatives described were considered and other apparently viable alternatives were not. For example, it seems that one reasonable alternative would be to use HFIR and ATR to produce medical and R&D isotopes and continue current reliance on Russian sources for Plutonium-238. Another possibility would be to use HFIR and ATR to produce Plutonium-238 and R&D isotopes and to rely on Canadian sources for medical isotopes. ATR and HFIR are fully operational; why not use them for production of isotopes? **The INEEL CAB recommends that DOE provide clear explanations for why the alternatives analyzed in the NI PEIS were considered and others were not.**

Further, the Draft NI PEIS does not offer an adequate explanation of why the alternatives used for the purposes of estimating bounding impacts were chosen (over other alternatives). Neither does it explain how DOE is certain that those alternatives are most appropriate for bounding the possible impacts that would result from the final selected actions. For example, the options under Alternative 2 do not appear to bound an option that would use ATR, HFIR, and a commercial light water reactor for irradiation of targets. It was not possible for us to reconstruct the bounding impacts as described using the information presented in the Draft NI PEIS. NEPA documentation should be written in a manner that can be understood by the public. **The INEEL CAB recommends that DOE provide clear explanations for how the alternatives used for the bounding impact analysis in the NI PEIS were selected and how those bounding impacts were calculated.**

Finally, some details regarding the various alternatives appear to be missing from the descriptions of those alternatives. For example, what coolant would be used in a new reactor? The waste stream does not include High-Level Waste (HLW), which is inconsistent with our understanding of the processes that will be involved. If HLW will not be produced, there should be an explanation as to how it will be avoided. The document should also describe how spent nuclear fuel would be handled under each alternative. The options available for disposal of the waste streams are determined by the waste classification, and citizens are keenly concerned about DOE's ability to dispose of any waste generated. The description of each alternative should include an explanation of the quantity of each waste that would be generated along with an explanation of how each will be handled and dispositioned. **The INEEL CAB recommends that DOE offer fuller explanations of the alternatives considered in the NI PEIS to ensure that readers can fully understand how each would be implemented and how it would impact the environment.**

PREFERRED ALTERNATIVE

In addition to failing to clearly explain the four basic objectives and how each alternative would address each of those objectives, the Draft NI PEIS offers no relative ranking of the four objectives. The members of the INEEL CAB could not discern whether expansion of R&D capacity was more or less important than the production objectives. In addition, it is not clear which of the production missions is most critical. Because of the appearance that some of the alternatives fail to achieve some of the

objectives, we are forced to surmise that DOE does not expect to achieve all four. A clear explanation of the relative importance of the four objectives would greatly enhance the readers' ability to understand how DOE will select its preferred alternative. The absence of such discussion prevents meaningful comment on the part of the public regarding the selection of a preferred alternative. **The INEEL CAB recommends that DOE offer a clear explanation of the relative importance of the four objectives in the NI PEIS to support public comment on the preferred alternative. Alternatively, DOE should dismiss all alternatives that fail to meet all four objectives.**

For example, Alternative 5, involving permanent deactivation of Fast Flux Test Facility (FFTF), would not allow achievement of the four objectives. As such, it does not appear to be an alternative of equal intent to the others presented. The No Action Alternative similarly would not support achievement of the four objectives; but inclusion of a No Action Alternative is required under NEPA. **The INEEL CAB recommends that NEPA environmental documentation for permanent deactivation of the FFTF should follow issuance of the Record of Decision for the NI PEIS if in fact restart of FFTF is not selected as the preferred alternative.**

The alternatives discussed in the Draft NI PEIS identify both continued reliance on Canadian sources of medical isotopes and continued reliance on Russian sources of Plutonium-238. Because both options are included in this NEPA document, we assume that DOE considers them "reasonable" alternatives under NEPA. The text implies that DOE is unwilling to rely on Canadian sources of medical isotopes, but we do not understand why continued reliance on Russian sources of Plutonium-238 was not similarly dismissed. **The INEEL CAB recommends that DOE clearly explain in the NI PEIS why continued reliance on Russian sources of Plutonium-238 is acceptable, yet similar reliance on Canadian sources of medical isotopes is not.**

Another issue that should be considered in the selection of a preferred alternative relates to consistency with current nonproliferation policy. It appears that FFTF is a good option based on capability, productivity, and possibly cost. However, we are concerned that the use of highly enriched uranium as a source may violate non-proliferation policy and agreements with international governments. **The INEEL CAB recommends that DOE provide a clear explanation in the NI PEIS of how highly enriched uranium could be used without violation of nonproliferation policy. We further recommend that DOE consider impacts on non-proliferation policy in the selection of its preferred alternative.**

Another issue that should be considered during the selection of the preferred alternative relates to transportation impacts. **The INEEL CAB recommends that DOE make every effort to select a preferred alternative that will minimize transportation, if at all possible. For example, if FFTF is selected, all four missions should be performed at Hanford in order to minimize transportation. Similarly, if DOE chooses to select an existing commercial light water reactor, then HFIR should be chosen to support other objectives, thereby minimizing transportation.**

COST CONSIDERATIONS

The INEEL CAB also reviewed the Cost Analysis Report that was written to support the decision-makers consideration of the Draft NI PEIS. It was released too late to be of much use to the public during the public comment period on the Draft NI PEIS. It was well written and understandable, despite some apparent holes. It provided cost estimates for the various alternatives considered in the Draft NI PEIS.

We understood from the Draft NI PEIS that all of the alternatives except Alternative 5 would leave FFTF in standby. However, the cost estimates for all of the alternatives except Alternative 1, the No Action Alternative include \$281 million for deactivation of the FFTF. In comparison, restart of the FFTF would require only \$341 million. We conclude that this apparent oversight makes FFTF restart look more favorable as it is only \$60 million more than deactivation of the facility. **The INEEL CAB recommends**

that DOE frame the alternatives considered in the NI PEIS in a manner that would maintain FFTF in standby mode for all alternatives except Alternative 5 to allow consistent comparisons.

We appreciated Figure S-1 on page S-4 of the Cost Analysis Report. It allowed the reader to make meaningful comparisons among the alternatives. **The INEEL CAB recommends that DOE add similar tables to the Draft NI PEIS to support public review.**

If Neptunium-237 would not be used under the No Action Alternative, the costs associated with its disposition should be included in the cost estimates. **The INEEL CAB recommends that the cost estimate for the No Action Alternative be revised to include all costs associated with disposition (including both treatment and disposal) of the Neptunium-237.**

CONCLUSION

For all of the reasons stated above, the INEEL CAB finds the Draft NI PEIS to be inadequate. We conclude that DOE's analysis to date fails to provide sufficient analysis to support rational decision-making. The analysis is not presented in a clear, understandable manner. The document is simply too flawed for meaningful public review.

We understand there is a great rush to issue a Record of Decision before the current administration leaves office. While there may be some political, cost, or even technical advantages to this approach and schedule, this decision is too important to proceed without consideration of all relevant facts and alternatives. The goal of NEPA must not be thwarted.

The INEEL CAB recommends that the NI PEIS be completely re-written to address the current deficiencies and reissued as a revised draft PEIS for another round of public review and comment. DOE should add missing information, develop a solid approach to evaluating and comparing the alternatives, and enhance its analysis to support comparison among the myriad alternatives. The second draft should 1) substantiate the purpose and need for action, 2) clearly state the Department's objectives, 3) describe multiple, comparable alternatives that would meet those objectives, 4) describe all impacts that would result from the comparable alternatives, and 5) evaluate the alternatives using consistent criteria. The public should be afforded an opportunity to review a revised draft NI PEIS that is not severely flawed in order to participate in a meaningful manner in DOE's decision-making process, as intended under NEPA.