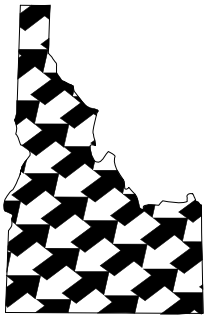

Citizens Advisory Board
Idaho National Engineering and Environmental Laboratory

PROPOSED PRODUCTION OF PLUTONIUM-238 FOR USE IN ADVANCED RADIOISOTOPE POWER SYSTEMS FOR FUTURE SPACE MISSIONS ENVIRONMENTAL IMPACT STATEMENT

INTRODUCTION

The Idaho National Engineering and Environmental Laboratory (INEEL) Citizens Advisory Board (CAB) reviewed the Notice of Intent for the Proposed Production of Plutonium-238 for Use in Advanced Radioisotope Power Systems for Future Space Missions (Pu-238) Environmental Impact Statement (EIS).

We noted that it appears that INEEL is a viable option for the irradiation of the neptunium targets as the Advanced Test Reactor (ATR) is already operational, large enough to support expected needs, and can accommodate the additional work without detriment to other customers.

RECOMMENDATION

The INEEL CAB submits the following recommendations during the scoping period for the Pu-238 EIS.

1. **The INEEL CAB recommends that the U.S. Department of Energy reconsider its decision to separate the Pu-238 EIS from the EIS addressing assembly of radioisotope thermoelectric generator units.**

The INEEL CAB questions the rationale for separating the Pu-238 EIS from the "Transfer of Heat Source/Radioisotope Thermoelectric Generator Assembly and Test Operations" (RTG EIS). The materials provided during the scoping periods for the two EISs do not provide a clear statement of the U.S. Department of Energy's (DOE) rationale for separating the two apparently related decisions.

The decision to separate the two EISs imposes an additional burden on stakeholders. DOE expects interested parties to prepare two separate sets of scoping comments for submittal during overlapping scoping periods and attend two separate scoping meetings within a very short time frame.

Separating the two EISs also imposes an extra burden on the DOE budget—at the taxpayers' expense—as the approach requires two complete sets of documentation and two full teams of people involved in collecting data, analyzing the data, evaluating alternatives, and writing.

Consideration of the two sets of decisions in isolation disallows reasonable comparisons of the process as it is presently configured with other configuration options that might be more efficient, effective, or cost-effective with lower overall impacts on the environment. We also feel the "big picture" is lost by separating these two decisions. One result of such a fragmented approach to decision making is that DOE may require duplicated storage capacity at the sites involved as well as excessive transportation of interim products around the country. Further, it makes consideration of an optimal configuration for the entire process close to impossible.

Most importantly, we wonder if the decision to separate the two doesn't jeopardize DOE's compliance with the National Environmental Policy Act (NEPA) for "segmentation" as the actions that will be supported by the documentation are inextricably linked. If challenged in court, DOE will have to demonstrate why separation of the two documents does not constitute segmentation.

The INEEL CAB recommends that the DOE reconsider its decision to separate the two documents. If the Department decides to continue its current approach, both EISs must offer a clear and sound rationale for the decision that can withstand public scrutiny.

2. **The INEEL CAB recommends that DOE proceed with the Pu 238 EIS on schedule independent of other NEPA evaluations.**

We note that at least one other decision-making process will impact the outcomes of the Pu-238 EIS: the decision regarding future tritium production at the Fast Flux Test Facility at Hanford. As we understand it, that facility will only be feasible as an alternative for irradiation of the neptunium-237 targets if it has another mission that would allow it to operate in a cost-effective manner.

3. **The INEEL CAB recommends that the EIS provide bounding estimates of the size, frequency, and number of expected shipments of fabricated neptunium-237 targets coming into Idaho and the size, frequency, and number of expected shipments of irradiated targets leaving Idaho on an annual basis.**

Transportation and interim storage are some of the concerns held by stakeholders regarding DOE's proposed action. The Pu-238 EIS must therefore include bounding estimates of the size, frequency, and number of expected shipments of fabricated neptunium-237 targets coming into Idaho and the size, frequency, and number of expected shipments of irradiated targets leaving Idaho on an annual basis. Those estimates will allow sound estimates of the duration of time that INEEL would store neptunium-237 targets before placement in the ATR for irradiation as well as for the duration that the irradiated targets would be stored before they are shipped elsewhere after irradiation. Expected schedules will be needed to accurately assess the adequacy of storage capacity and all impacts related to storage.

Sound estimates of the size, frequency, and number of shipments into and out of the site will be necessary to develop a full understanding of the transportation impacts as well.

4. **The INEEL CAB recommends that DOE evaluate the impacts of alternatives involving several locations versus single site options.**

The "Notice of Intent" for the Pu-238 EIS does not specify the alternatives that will be considered in the EIS. There appears to be a complex set of operations at several locations. As there are two options for target fabrication, three options for irradiation, and two options for extraction of plutonium, we note that there are 12 conceivable combinations will involve intermediate transportation, storage operations, implementation challenges, and increased costs. We believe INEEL might be a viable option for the other two steps addressed in this EIS (fabrication of targets and the extraction of plutonium-238) as well. Three single site options should also be considered.

5. **The INEEL CAB recommends that the Pu-238 EIS provide sound estimates of the quantity of waste and hazardous materials to be produced and address all impacts of waste and hazardous materials management, including disposal.**

The "Notice of Intent" for the Pu-238 EIS provided no estimate of the quantity and/or type of waste and hazardous materials that would result. Further, the "Notice of Intent" included a preliminary listing of impacts that DOE plans to evaluate in its analysis of the alternatives. The list does not include the impacts of disposal, however. Based on DOE's difficulty in opening disposal sites, we questioned the apparent oversight. The Pu-238 EIS must fully disclose all impacts from disposal of all waste and hazardous materials that will result from implementation of the proposed action.

6. **The INEEL CAB recommends that the EIS provide an enhanced analysis of the duration of the future need for plutonium-238 and use that time frame to support the analysis of impacts under the various alternatives.**

The "Notice of Intent" for the Pu-238 EIS offers no explanation of the expected time frame for the proposed action. Clearly the analysis of impacts will require reasonable estimates of how long the various steps will continue. Consultation with the ultimate customer for plutonium-238, the National Aeronautics and Space Administration, will enhance DOE's understanding of the ongoing need for the product. Such estimates will support enhanced analysis of the impacts that would occur over the entire time that DOE will conduct the processes addressed in the EIS.

7. **The INEEL CAB recommends that DOE evaluate the impacts on other ATR customers.**

DOE-ID expects that implementation would not have any negative impacts on other customers (including schedules, costs, etc.) at ATR. The Pu-238 EIS should evaluate any impacts to ensure implementation would be achieved with minimum impacts.