NIRS

Nuclear Information and Resource Service

1424 16th St. NW, Suite 404, Washington, DC 20036; 202-328-0002; fax:202-462-2183; e-mail:nirsnet@igc.apc.org web:www.nirs.org

June 6, 1996

Greg Rudy, Acting Director
Office of Fissile Materials Disposition
U.S. Department of Energy
1000 Independence Avenue NW
Washington, DC 20585

Comment with regard to: Storage and Disposition of Weapons Usable Fissile Materials Draft Programmatic Environmental Impact Statement

Dear Mr. Rudy,

We are writing to supplement two other sets of comments to which Nuclear Information and Resource Service is a signatory. We would like to emphasize our support for the recall of the Draft Programmatic Environmental Statement on the grounds that it does not fairly or adequately assess all the options or impacts of the options given, and thus does not fulfill NEPA requirements. The purpose of these comments is to register areas that should be omitted and other areas that should be included in the revised Draft PEIS that considers the impact of mixed oxide fuel (MOX). 1/08.03.01

We wish to assert here that the MOX fuel option should be excluded from any consideration whatsoever. National nuclear policy should reflect the goals of the citizens of the United States. It is clear that the majority of American taxpayers do not support further nuclear development and do not support their tax dollars being used to subsidize an economically non-competitive, polluting, dangerous industry that is in part responsible for creating the very problem that the PEIS is designed to try and resolve. MOX fuel is not a "solution" to anything. 2/08.03.01

At a time when the national policy move towards deregulation and down-sizing should be allowing market forces for the first time to affect the profile of electric utility service, the creation of a MOX Fuel program would be a form of protectionism that would shield some utilities from some of the forces of competition. We are not necessarily advocating utility deregulation, but pointing out that this would constitute federal intervention on behalf of nuclear waste generators.

In addition, the "policy signal" sent to utilities would be a federally-approved open door for programs to extend MOX fuel use, including reprocessing, pyroprocessing, breeder type reactors and ultimately the need for a vastly expanded radioactive waste program to handle both so-called "low-level" and high-level wastes—not to mention the health consequences in increased medical 3/01.04.00

M-282

08 03 01 Comment Number 1

Comment noted.

08 03 01 Comment Number 2

The Department of Energy acknowledges the commentor's opposition to the Reactor Alternative using MOX fuel. Decisions on disposition of weapons-usable fissile materials will be made based upon environmental analyses, technical and economic studies, national policy considerations, and public input.

01 04 00 Comment Number 3

The specific purpose of DOE's PEIS effort is to evaluate alternatives for the disposition of surplus weapons-usable Pu that would render the Pu as inaccessible and unattractive for reuse in nuclear weapons as the much larger and growing quantity of Pu that exists in spent nuclear fuel from commercial power reactors. This condition is referred to as the Spent Fuel Standard. If an alternative using MOX fuel in reactors is selected, the surplus Pu would eventually be contained in spent fuel and, by definition, the Spent Fuel Standard would be achieved.

While the PEIS discusses the generation of spent fuel as an indirect result of potential disposition actions, reprocessing and extraction of Pu from that spent fuel is not being proposed, and is beyond the fundamental nonproliferation purpose of the disposition effort. The PEIS evaluates disposition of surplus weapons Pu through use in MOX fuel, but does not propose reprocessing of the spent fuel, breeder reactors, or other potential programs involving MOX fuel. Nor does the PEIS prejudice future decisions regarding the management or disposition of the spent fuel.

NUCLEAR INFORMATION AND RESOURCE SERVICE, WASHINGTON, DC, MARY OLSON
PAGE 2 OF 3

costs due to continued dispersal of hazardous agents in areas of population, food production and water sources. | 3/01.04.00 cont.

We call upon the Department to recognize that this set of eventualities has been again and again rejected by affected communities, national environmental and public interest organizations, and Congress. It is time that the Department invest its considerable expertise in figuring out how to devote more of its own budget to the development and deployment of non-nuclear energy options and the consideration of the non-reactor options for plutonium and other fissile materials. | 4/01.04.00

Without dropping our above stated contentions, we also note a number of specific problems in the Draft PEIS that makes it unsuitable even on its own, misguided terms.

The analysis must include the impact of the use of MOX fuel on implementation of the "Low-Level" Radioactive Waste Policy Act. Very specific projections of probable waste streams have been made for the projected disposal facilities, which could be drastically altered with MOX fuel use. The impact analysis must include an assessment of impact on groundwater since very persistent radionuclides are allowed in civilian shallow land burial and other relatively unconfined facilities. To what extent will use of MOX fuel add long-lived radionuclides and/or highly radioactive materials to commercial "low-level" waste sites? This should include a discussion of all sources of radiation affected by use of MOX fuel, including reprocessing, fuel fabrication, enrichment, and any other facilities. There should also be an assessment of the impact on the Department itself since the civilian "low-level" sites are to be ceded over to the Department after closure. Increases in the persistent radionuclide inventory could affect the liability issues associated with such sites, and issues such as the possibility of inadvertent criticality must be included. | 5/09.11.08 | 6/09.04.08 | 5/09.11.08 cont.

Similarly, it is imperative that the PEIS include a full analysis of the relative impacts of MOX fuel on all aspects of irradiated fuel management and disposition. This must include impacts of thermal loading on the fuel pool, dry cask storage, dry cask transport, and repository emplacement. In addition, all accident scenarios associated with fuel pools, cask loading and unloading, storage, transport and handling must be assessed for increased relative impacts, but also confounding factors that MOX fuel presents, particularly in the area of criticality and/or increased burn-up. (E.g. rate of hydrolysis of water moisture in an unevacuted dry cask and potential for hydrogen gas build-up and ignition.) | 7/06.01.08

The nature of a Programmatic Environmental Impact Statement is intended to encompass complex interlocking factors. A decision to supply existing utilities with a fuel source and subsidy has a number of economic and social consequences. As noted above, such a move by the Department is a "policy signal" to open the way for further nuclearization of the U.S. at a time when this is contrary to the will of the people. If this PEIS is going to include the option of MOX fuel, then there needs to be a full-blown, detailed assessment of the future impact on society from nuclear power expansion, particularly technologies using MOX fuel. | 8/06.01.08

Finally, with regard to the basis for assessing radiological impacts, the assessment given is inadequate. We reference a growing body of literature and data that substantiates that there is | 9/09.09.08

M-282

01 04 00 Comment Number 4

Comment noted.

09 11 08 Comment Number 5

The design of the MOX fuel fabrication facility is conceptual at this time and, therefore, estimates of LLW by radionuclide content and concentration would be speculative. The conceptual designs for the disposition facilities have, as part of their design, waste management facilities that would treat and package all waste generated into forms that enable long-term storage and/or disposal in accordance with RCRA and other applicable Federal and State regulations and DOE Orders. As the designs mature, process waste assessments, which include individual waste streams characterization, will be completed. All waste streams generated would be treated and packaged into a form that enables long-term storage and/or disposal.

09 04 08 Comment Number 6

The analyses presented in Chapter 4 include potential impacts to groundwater quality and groundwater availability.

06 01 08 Comment Number 7

Depending on the fuel design and reactor irradiation campaign selected, there could be differences between the behavior of the individual MOX fuel assemblies and the LEU fuel assemblies. If modifications to reactor systems are required, the modifications would be implemented as necessary to ensure comparable system performance between MOX fuel and LEU fuel.

Since issues such as accident scenarios associated with fuel pools, cask loading and unloading, and storage and transport are facility design-specific (for example, BWR or PWR, different capacity, different reactor suppliers), the discussions on such issues are beyond the scope of this PEIS. However, if this Reactor Alternative is selected, such issues will be analyzed in tiered NEPA documents, SARs, and other licensing documents.

radiological hazard and impact from low doses of radiation (*). We challenge the assertion that hormesis effects cannot be ruled out. Even if there is variability in human response to radiation exposure, it is completely inappropriate for a federal agency to support any policy that would selectively favor those individuals with a higher tolerance to radiation at the sacrifice of the rest of the population. It is absolutely required that radiological impact be assessed with regard to those who are most vulnerable in any population. Evidence of elevated effects of low-dose radiation lead us to challenge the assertion made in the draft PEIS that assuming a single point source at a specified number of feet is more conservative than doses from ongoing internal exposure. 9/09.09.08 cont.

We are calling upon you to be the leaders towards a sustainable future: avoid the long costly process of discovering too late that your "solution" only made the problem worse.

Sincerely,

Mary Olson
Nuclear Information & Resource Service
Radioactive Waste Project

* Partial list of references substantiating detrimental health effects from low doses of ionizing radiation. We submit these references and by association the text of these documents as part of our official comment of record.

BEIR V, Health Effects of Exposure to Low-Levels of Ionizing Radiation, National Academy Press, 1990.

Gardner, et al, 1990, "Results of Case-Control Study of Leukemia and Lymphoma Among Young People Near Sellafield Nuclear Plant in West Cumbria." BMJ, Vol 300, 17 February, 1990. 10/01.02.00

Gofman, John, 1990, "Radiation-Induced Cancer from Low-Dose Exposure: An Independent Analysis." C.N.R. Book Division, San Francisco.

Morris, M. and R. Knorr, 1990, "The Southeast Massachusetts Health Study 1978–1986." Report of the Massachusetts Department of Public Health, October 1990.

Wing, Stephen, et al, Mortality Among Workers at Oak Ridge National Laboratory." Journal of the American Medical Association, March 20, 1991–Vol. 265, No. 11 pp.1397-1402.

M-282

06 01 08 **Comment Number 8**

Comment noted.

09 09 08 **Comment Number 9**

The human health effects response to low-level radiation exposure is still disputed in the scientific community. The ICRP and NCRP, two widely respected and accepted scientific organizations, support using the linear-non-threshold approach for estimating human health risks for low-level radiation exposure. Some suggest that this estimation is too conservative while others believe that radiation effects would be greater at low-level radiation exposures. However, the ICRP and NCRP approach is the most widely used method to estimate the radiation health risk and has long been employed by regulatory agencies in the United States. It is appropriate to use this method in the PEIS.

01 02 00 **Comment Number 10**

Comment noted. The BEIR V and *Journal of the American Medical Association* references were used in preparing this PEIS. The commentors' other listed references were not considered because they were not specific to a particular site being considered for any alternative, nor generally recognized authoritative references like the BEIR V.