AGENCY: U.S. Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1319, to assess environmental impacts associated with the disposition of surplus Hanford Site uranium. DOE has identified 1,866 metric tons of uranium (MTU) on the Hanford Site as surplus. As of late calendar year 1999, the predominant amount of approximately 1,700 MTU [1,866 MTU minus 140 MTU (135 MTU of contaminated fuel and 5 MTU of miscellaneous scrap)] was considered to have a positive market value and, as such, an asset to DOE. Acquisition interest in the 1,700 MTU of material previously was expressed by both foreign-owned and domestic commercial organizations. In January 2000, after a uranium market analysis workshop with commercial brokers, customers, and processors of uranium, it was determined that there is no foreseeable demand for the 825 MTU of uranium finished and unfinished fuel. Therefore, the inventory of uranium considered to have a readily-identifiable positive market value has been reduced from the aforementioned 1,700 MTU to approximately 900 MTU.

DOE needs to relocate approximately 900 MTU of saleable uranium materials to DOE's Portsmouth site near Portsmouth, Ohio for future beneficial use, and to provide onsite management of the remaining materials (consisting of approximately 140 MTU which may be designated for burial, and approximately 825 MTU of remaining materials which will be managed in interim consolidated storage in the 200 Area) pending final disposition decisions.

Based on the analysis in the EA, and considering public comments, DOE has determined that the proposed action is not a major federal action significantly affecting the quality of the human environment within the meaning of the *National Environmental Policy Act of 1969* (NEPA), 42 U.S.C. 4321, et seq. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

ADDRESSES AND FURTHER INFORMATION: Single copies of the EA and further information about the proposed action are available from:

U.S. Department of Energy
Richland Operations Office
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For further information regarding the DOE NEPA process, contact:

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PURPOSE AND NEED: DOE needs to (1) relocate potentially saleable Hanford Site surplus unirradiated uranium (UU) to the DOE's Portsmouth Site near Portsmouth, Ohio, for future beneficial use and (2) provide onsite management of Hanford Site surplus uranium that is not considered readily saleable. The management of excess uranium on the Hanford Site supports a *Hanford Federal Facility Agreement and Consent Order* Milestone MX-92-06-T01 related to "complete commercial disposition and/or the acquisition of new facilities, modification of existing facilities, and/or modification of planned facilities necessary for storage, treatment/processing, and disposal/disposition of all Hanford Site UU," and U.S. Department of Energy, Richland Operations Office (DOE-RL) deactivation and mortgage reduction goals.

BACKGROUND: Uranium materials, in various forms and enrichment (enrichment is based on the isotopic uranium-235 content) were fabricated into fuel for use in the Hanford Site production reactors and were byproducts from reprocessing plants. Uranium on the Hanford Site includes normal uranium, depleted uranium, and low-enriched uranium. Ongoing evaluations to date have enabled DOE to identify surplus Hanford Site uranium materials that are readily saleable. Those uranium materials, in various forms, include: uranium metal billets (metallic uranium that has been formed mechanically into hollow cylindrical shapes); uranium trioxide (UO_3) powder (low-enriched UO_3 powder stored in 187 T-hoppers (40 empty and 147 full); uranium dioxide (UO_2) (UO_2 inventory on the Hanford Site consists of depleted and normal uranium pellets, powder, and fuel pins containing UO_2 pellets).

Presently, ongoing evaluations have not identified a positive market value for some uranium materials on the Hanford Site. As a management contingency, DOE would consider onsite disposition of these materials as low-level waste. These materials include: unirradiated fuel assemblies (various types of assemblies are characterized by the uranium-235 enrichment of the inner and outer fuel element and the fuel length. There are both finished and unfinished fuel assemblies, and there are some finished fuel assemblies that were loaded into N Reactor, but never irradiated. These assemblies are radiologically contaminated with low levels of surface beta/gamma contamination [150 to 5,000 disintegrations per minute]); UO_3 and UO_2 powder; and miscellaneous uranium materials (e.g., scrap from earlier fuel fabrication activities).

PROPOSED ACTION: DOE is proposing to transport approximately 900 MTU (approximately 2,000,000 pounds) of uranium materials currently stored on the Hanford Site to the Portsmouth Site for consolidated storage. These materials are considered potentially saleable by DOE. The shipments of the uranium materials would be categorized appropriately, per DOT specifications, for radioactive materials. Transport of the uranium materials could be conducted by truck and/or rail.

The materials would be transferred, as necessary, to appropriate DOT containers. It is expected that uranium billets might be shipped in their current configuration (i.e., wooden shipping containers), or might be repackaged to the extent required by DOT regulations.

The appropriate shipping containers (including T-hoppers) would be secured on a truck trailer (and/or railcar) and radiologically surveyed by trained personnel using prescribed equipment and methods before release. The methods include provisions for carrier compliance with federal and state regulations for transport of radioactive materials. The methods would ensure compliance with standards, specifications, and regulations, including DOT guidelines. Carrier security requirements would be met. A licensed commercial carrier would be retained.

Once at the Portsmouth Site, the containers of uranium materials would be offloaded and stored at an appropriate location expected to be X-744G. The Hanford Site uranium materials would be stored in a transportation-ready configuration, not precluding future determination(s). Any necessary modifications to the Portsmouth facilities would be expected to be minor; e.g., resurfacing asphalt pads, erecting tent covering/enclosure, painting, utility modifications, and radiation monitors. No transport containers would be returned to the Hanford Site for reuse.

The proposed action includes interim storage of the Hanford Site uranium materials pending disposition. Approximately 825 MTU of unirradiated fuel would be transported from the present location to the Hanford Site 200 Areas for consolidated storage pending final disposition. Candidate storage locations would include modified (as appropriate) existing facilities or a new interim storage structure in previously disturbed areas. Activities would be typical of those associated with the siting, construction, and operation of small-scale support buildings and support structures (including prefabricated buildings). Any necessary modifications to an existing Hanford Site facility would be expected to be minor (e.g., resurfacing asphalt pads, erecting tent covering/enclosure, painting, utility modifications, and radiation monitors). These types of activities are conducted routinely on the Hanford Site.

The proposed action includes onsite disposal of surplus Hanford Site uranium. Uranium materials (140 MTU, consisting of 135 MTU of contaminated fuel and 5 MTU of miscellaneous scrap) that might be designated as waste would be appropriately packaged and transported from the present location to the 200 Areas Low-Level Burial Grounds for disposal. It is expected that potential modifications to existing facilities would be

consistent with the ongoing disposal mission and at the burial grounds. After removal of the entire inventory of uranium materials from the existing storage facilities on the Hanford Site, electrical services to those facilities would be reduced to minimize maintenance costs while maintaining appropriate safety margins. End-point criteria would be developed supporting surveillance and maintenance activities. The facilities would remain locked until decommissioned or transferred to a new owner. The temporary equipment would be decontaminated, if necessary, and reused or excessed as appropriate.

ALTERNATIVES CONSIDERED: The EA discussed a variety of alternatives as well as the No-Action Alternative.

No-Action Alternative. Under the No-Action Alternative, the Hanford Site uranium materials would remain in the existing, onsite storage configurations. This alternative would result in continued surveillance and maintenance with the attendant costs for safeguards, security, and utility assessments.

Alternatives. Alternatives addressed in the EA included: alternative interim offsite storage locations for saleable Hanford Site uranium; disposal of the entire Hanford Site surplus uranium inventory; and alternative transportation modes. As discussed in the EA, these alternatives do not support the purpose and need in an economically and timely manner.

ENVIRONMENTAL IMPACTS: Routine activities associated with packaging, transport, storage, and/or disposal of surplus Hanford Site uranium would not result in any significant environmental impacts.

The low level of radioactivity associated with the uranium materials makes the risks associated with the handling and transportation of the uranium materials small. There would be low radiation exposure associated with packaging the uranium materials. A toxicological hazard exists because of the potential for an accidental release of the material in particulate form to the environment. However, the uranium materials currently are packaged appropriately for the respective forms [e.g., billets (large, solid metal masses stored in wooden boxes) or uranium oxide powder (stored in T-hoppers)]. These storage configurations would not release particulates readily. Any trace amounts (in parts per million) of chemical impurities which may be present would be inconsequential when compared to the quantity of uranium.

The potential for release of uranium during packaging and loading/offloading exists. Most of the potential radiological exposure would be expected for the workers involved in the proposed packaging. The maximum expected whole body total dose for an estimated workforce of 5 workers (for any particular type of surplus material) would be a small fraction of the average annual exposure to radiation by Hanford Site/Portsmouth personnel from ongoing activities at these sites. No public exposure to radiation above that currently experienced from routine Hanford Site operations is anticipated as a result

of these actions. No toxicological exposure to workers or the general public is expected to occur as a result of routine handling of the uranium materials, either during packaging, loading, or offloading activities. The materials would be handled in a manner consistent with packaging and transportation of radioactive solid materials.

The total dose to truck crews (workers) would amount to 0.08 person-rem for shipments of uranium billets from the Hanford Site to Portsmouth, Ohio. Transport of uranium oxide powder by truck would result in 0.37 person-rem to workers (transport via rail would provide a reduction in dose to workers to 0.09 person-rem). Total public doses were calculated to be 0.09 person-rem (billets), 0.35 person-rem (uranium oxide via truck transport), and 0.43 person-rem (uranium oxide via rail). The public doses would result predominantly from exposures received during stops enroute. There were no excess LCFs predicted. Circumstances that could affect the selected route (e.g., road closures, detours, unanticipated inclement weather) are not expected to result in increased risk to the worker or public during transportation of the uranium materials.

It would be expected that potential impacts associated with consolidated onsite storage of unirradiated fuel would be similar to those impacts present today. As discussed in Section 5.1.1, potential worker exposure during loading/offloading operations would be low. Once in consolidated storage, minimal radiological exposure would be expected due to any necessary surveillance activities (which are conducted for the material in its current storage configuration). No public exposure to radiation above that currently experienced from routine Hanford Site operations would be anticipated as a result of this action.

Disposal of up to 140 MTU of uranium materials is considered, and would be conducted in existing facilities in the 200 Areas of the Hanford Site. Such disposal would result in less than 400 cubic meters (14,000 cubic feet) of waste, and would not be expected to substantially increase impacts from Hanford Site waste disposal operations.

Accident consequences have been considered for the proposed action. Postulated accidents associated with the repackaging of the uranium materials on the Hanford Site have been considered, and are believed to be bounded by those potential events associated with transportation accidents. The maximum credible accident associated with the shipping container was analyzed for the shipment of Hanford Site surplus materials to Portsmouth, Ohio. The accident consisted of a collision, which engulfs the entire shipment of uranium material in a fire, thus providing the maximum radiological release to the public (and was presented as the bounding consequence scenario). Should an accident involving uranium materials during shipment occur, a release of material could occur only if the transport packaging were to become breached.

The results indicate that the total calculated dose from a maximum credible accident during continental United States (overland truck) uranium billet shipments to Portsmouth, Ohio, conservatively was estimated to be 0.10 person-rem. This equates to 0.00005 latent cancer fatalities (LCFs). Similarly, the total risk for uranium oxide powder (accident scenario) was 0.03 person-rem (0.00002 LCFs) via rail and 0.06 person-rem

(0.0003 LCFs) via truck. Toxicological consequences from an incident during transport also were evaluated, and are small.

Accidents associated with proposed offsite storage, onsite interim storage, and onsite disposal were addressed in the EA, and are bounded by the aforementioned transportation accident consequences.

DETERMINATION: Based on the analysis in the EA, and after considering the public comments received, I conclude that the proposed disposition of surplus Hanford Site uranium materials does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS for the proposed action is not required.

Issued at Richland, Washington, this 15th day of June, 2000.

Original signed by
Keith A. Klein, Manager
Richland Operations Office