[6450-01-P]

DEPARTMENT OF ENERGY

Record of Decision for Disposition of Depleted Uranium Oxide Conversion Product Generated from Department of Energy's Inventory of Depleted Uranium Hexafluoride

AGENCY: Office of Environmental Management, U.S. Department of Energy.

ACTION: Record of decision.

SUMMARY: The U.S. Department of Energy's (DOE) Office of Environmental Management (EM) is announcing its decision to implement its Preferred Alternative, as documented in the *Final Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride* (DOE/EIS–0359-S1; DOE/EIS–0360-S1) (Final DU Oxide SEIS). Specifically, DOE has decided to disposition depleted uranium (DU) oxide at one or more of the disposal sites evaluated in the Final DU Oxide SEIS: the Energy*Solutions* low-level radioactive waste (LLW) disposal facility near Clive, Utah; the Waste Control Specialists LLC (WCS) LLW disposal facility near Andrews, Texas; and the Nevada National Security Site (NNSS) LLW disposal facility in Nye County, Nevada. DOE will only ship to the selected commercial site(s) if the facility is authorized to receive DU oxide. DOE considered the potential environmental impacts of the No Action Alternative and the Action Alternatives; each alternative's ability to meet DOE's purpose and need; direct, indirect, and cumulative impacts of each alternative; and public comments on the Final DU Oxide SEIS. This ROD has been prepared in accordance with the regulations of the Council on Environmental Quality) for

implementing the National Environmental Policy Act of 1969 (NEPA) and DOE's NEPA Implementing Procedures.

ADDRESSES: This ROD, the Final DU Oxide SEIS on which it is based, and related information are available at *http://www.energy.gov/em/disposition-uranium-oxide-conversion-depleted-uranium-hexafluoride* and on the DOE NEPA website at: *www.energy.gov/nepa.* These may also be found at Public Reading Rooms and Libraries detailed in the Notice of Availability of the Final DU Oxide SEIS.

FOR FURTHER INFORMATION CONTACT: For further information about the Final DU Oxide SEIS, please contact Ms. Julia Donkin, Office of Waste Disposal, by email at *DUF6_NEPA@em.doe.gov* or by telephone 202-586-5000. For information on DOE's NEPA process, please contact Mr. William Ostrum, EM NEPA Compliance Officer, Office of Regulatory Compliance, U.S. Department of Energy, 1000 Independence Avenue SW, EM-4.31, Washington, DC 20585; or email at *William.Ostrum@hq.doe.gov*.

SUPPLEMENTARY INFORMATION:

Background

DOE prepared the *Final Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride* (DOE/EIS–0359-S1; DOE/EIS–0360-S1) (Final DU Oxide SEIS) in accordance with the NEPA (42 U.S.C. 4321 et seq.), the

Council on Environmental Quality's NEPA regulations (40 CFR parts 1500-1508), and DOE's NEPA Implementing Procedures (10 CFR part 1021).

On June 18, 2004, the DOE issued environmental impact statements for the construction and operation of facilities to convert depleted uranium hexafluoride (DUF_6) to DU oxide at DOE's Paducah Site in Kentucky and Portsmouth Site in Ohio (69 FR 34161). Both the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky Site* (DOE/EIS-0359) and the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site* (DOE/EIS-0360) (collectively, the "2004 EISs") were prepared to evaluate and implement DOE's DUF_6 long-term management program.

On July 27, 2004, RODs were published for the 2004 Final EISs (69 FR 44654; 69 FR 44649). In the RODs, DOE decided that it would build facilities at both the Paducah site and the Portsmouth site and convert DOE's inventory of DUF_6 to DU oxide. DOE did not include decisions with respect to specific disposal location(s) for DU oxide, but instead informed the public it would make the decisions later, and additional supplemental NEPA analysis would be provided for review and comment.

DOE announced its intent to prepare an SEIS on August 26, 2016 (81 FR 58921). On September 7, 2016, DOE issued a correction to the Federal Register notice 81 FR 58921 (81 FR 61674) to correct an error regarding the agency that granted the amendment to the WCS facility near Andrews, Texas, to allow disposal of depleted uranium. DOE prepared the Draft DU Oxide SEIS and distributed it to stakeholders and

interested parties. Following the U.S. Environmental Protection Agency Notice of Availability of the Draft DU Oxide SEIS (83 FR 67282; December 28, 2018), DOE invited the public to comment on the Draft DU Oxide SEIS and conducted public hearings. In response to requests, DOE extended the public comment period an additional 21 days (84 FR 1716). After considering comments received on the Draft DU Oxide SEIS, DOE prepared a Final DU Oxide SEIS and on April 24, 2020, EPA issued a Notice of Availability for that document (85 FR 23022).

Purpose and Need for Agency Action in the Final DU Oxide SEIS

The purpose and need for this action in the Final DU Oxide SEIS is to dispose of DU oxide resulting from converting DOE's DUF_6 inventory to a more stable chemical form and to dispose of other LLW and mixed LLW (MLLW) (i.e., empty and heel cylinders, calcium fluoride, ancillary LLW and MLLW) generated during the conversion process at the DOE DUF_6 conversion facilities at the Paducah and Portsmouth sites. If a beneficial use cannot be found for the DU oxide, DOE may need to dispose of all or a portion of the inventory. This need follows directly from the decisions presented in the 2004 RODs for the 2004 Final EISs, in which DOE deferred any decision related to the transportation and disposition of DU oxide at off-site disposal facilities.

Proposed Action in the Final DU Oxide SEIS

DOE's Proposed Action in the Final DU Oxide SEIS is to transport and dispose of DU oxide and other LLW and MLLW generated during the conversion process at the Paducah and Portsmouth sites to a LLW disposal facility. To implement the Proposed

Action, DOE identified three Action Alternatives. Under the Action Alternatives, if a beneficial use cannot be found, DU oxide would be transported to and disposed of at one or more of three disposal facilities: (1) the Energy*Solutions* LLW disposal facility near Clive, Utah; (2) the WCS LLW disposal facility near Andrews, Texas; and (3) the NNSS LLW disposal facility in Nye County, Nevada. Approximately 46,150 cylinders (or 41,016 bulk bags and 46,150 empty cylinders) of DU oxide would be shipped from Paducah and 22,850 cylinders (or 18,142 bulk bags and 22,850 empty cylinders) of DU oxide would be shipped from the Portsmouth site over the life of the project. Under the No Action Alternative, the DU oxide cylinders would remain in storage at the Paducah and Portsmouth sites and would not be transported to a disposal facility. As decided in the RODs for the 2004 EISs, excess empty and heel cylinders, calcium fluoride and ancillary LLW and MLLW would be transported and disposed of under all the evaluated alternatives, including the No Action Alternative.

Additionally, under the USEC Privatization Act (42 U.S.C. 2297h-11), DOE is required to accept LLW and MLLW from a uranium enrichment facility licensed by the U.S. Nuclear Regulatory Commission. If requested by the generator, DOE must accept the DU once it is determined to be LLW. Under the USEC Privatization Act, the licensee must reimburse DOE for its costs to disposition the LLW and MLLW (including DU). At the present time, there are no plans or proposals for DOE to convert additional DUF_6 and dispose of additional DU oxide cylinders, beyond the current inventory for which it has responsibility. In anticipation of the potential future receipt of commercial DUF_6, DOE has estimated the impacts from management of 150,000 metric tons (165,000 tons; approximately 12,500 cylinders) of commercial DUF_6 as a reasonably foreseeable future

action for cumulative impacts that would take place after the management of DOE DU oxide.

Alternatives Analyzed in the Final DU Oxide SEIS

No Action Alternative. Under the No Action Alternative, DU oxide containers would not be transported for disposal. Instead, DU oxide containers would be stored indefinitely at the Paducah and Portsmouth sites where the DU oxide is produced. Storage was analyzed for a 100 year period, although storage could extend beyond that 100 year period. Annual impacts beyond 100 years would be similar to those expected during the 100-year period of analysis.

Action Alternatives. Under the Action Alternatives, if a beneficial use cannot be found, DU oxide would be transported and disposed of at one or more of the disposal facilities identified as Energy*Solutions*, WCS, and NNSS. The Final DU Oxide SEIS conservatively assumes that under the Action Alternatives, DU oxide in cylinders and drums would be stored for up to 76 years at the Paducah site and 47 years at the Portsmouth site. Bulk bags are not appropriate for long-term storage, and therefore, would not be used for long-term storage of DU oxide under the No Action Alternative. All activities at the Paducah and Portsmouth sites would remain the same under these Action Alternatives, except for the destination of the DU oxide container shipments. The containers in which the DU oxide is placed (cylinders, bulk bags, or drums) would be used as the transportation package and disposal container, and would be shipped in compliance with U.S. Department of Transportation requirements and meet disposal site waste acceptance criteria. Damaged DU oxide containers would be repaired, replaced, or

placed in an overpack enclosure that would provide protection to safely handle, transport and dispose of the container.

Preferred Alternative. As noted in the Final DU Oxide SEIS, DOE's Preferred Alternative is to dispose of DU oxide at one or more of the disposal sites (Energy*Solutions*, WCS, and/or NNSS), understanding that any disposal location(s) must have a current license or authorization to dispose of DU oxide at the time shipping to a location is initiated. While DOE's Preferred Alternative as announced in the Final DU Oxide SEIS, is one or a combination of the Action Alternatives over the No Action Alternative, DOE does not have a preference among the Action Alternatives. Any decision related to the Proposed Action may also depend on competitive procurement practices necessary to contract for the transportation and disposal of the DU oxide.

Potential Environmental Impacts

The impact areas analyzed in the Final DU Oxide SEIS include: site infrastructure; climate, air quality, and noise; geology and soils; water resources; biotic resources; public and occupational health and safety (during normal operations, accidents, and transportation); socioeconomics; waste management; land use and aesthetics; cultural resources; and environmental justice. DOE evaluated potential environmental impacts at a level of detail commensurate with their importance. The Final DU Oxide SEIS does not reevaluate the impacts of storage of DUF_6 cylinders, conversion of DUF_6 to DU oxide, or the management and disposition of hydrogen fluoride. These activities were evaluated in the 2004 EISs and decisions were announced in ROD 69 FR 44654 and ROD 69 FR 44649.

Potential impacts of the No Action Alternative and Action Alternative are discussed in Chapter 4 of the Final DU Oxide SEIS. Based on the analysis in the Final DU Oxide SEIS, annual impacts on site infrastructure; air quality, climate change, and noise; geology and soils; water resources; biotic resources; socioeconomics; land use and aesthetics; cultural resources; and environmental justice would be negligible to minor and similar for the No Action Alternative and Action Alternatives. Annual potential impacts to public and occupational health and safety (during normal operations and accidents) resulting from storage of DU oxide at the Portsmouth and Paducah sites would be similar for the No Action Alternative and Action Alternatives. However, under the Action Alternatives, DU oxide containers would be stored for up to 76 years at Paducah and up to 47 years at the Portsmouth site, resulting in lower total potential storage impacts than the No Action Alternative. The No Action Alternative assumed for analytical purposes that containers would be stored for 100 years.

Annual population dose from hypothetical cylinder breaches at the Paducah site was estimated to be 0.01 person-rem and at the Portsmouth site 0.002 person-rem. Thus, the No Action Alternative would result in zero latent cancer fatalities (LCF) among the exposed population, but relatively higher total exposure and calculated LCFs ($6x10^{-4}$ LCF at Paducah and $1x10^{-4}$ LCF at the Portsmouth site) due to a longer storage period than that of the Action Alternatives ($5x10^{-4}$ LCF at the Paducah site and $6x10^{-5}$ LCF at the Portsmouth site). Similarly, the maximally exposed individual member of the public, and a cylinder yard worker, would receive the same annual dose from storage of cylinders under the No Action or Action Alternatives, but a lower total dose from the Action Alternatives due to the reduced storage time.

Additional worker exposure would result from all Action Alternatives from the handling of the DU oxide drums and cylinders (or bulk bags and empty cylinders) and empty and heel cylinders during loading operations at the Paducah and Portsmouth sites in preparation for shipment to the waste disposal site. Worker exposure from loading containers would result in zero LCFs for all Action Alternatives and options. All potential worker and public doses would be well below regulatory limits for radiation exposure.

Waste disposal volumes would not be expected to exceed the capacities of the Energy*Solutions*, WCS, or NNSS disposal facilities. For purposes of analysis and to bound the impacts under each Action Alternative, it was assumed that all wastes would be disposed of at each disposal site (i.e., Energy*Solutions*, WCS, or NNSS). In practice, waste could be disposed of at more than one disposal site.

While all three Action Alternatives would result in lower overall potential public and occupational health impacts at the Portsmouth and Paducah sites compared to the No Action Alternative, the Action Alternatives would result in increased impacts from the handling and transportation of DU oxide to each disposal location. The Final DU Oxide SEIS analyzed transportation options for each Action Alternative, including transportation by truck or train and in cylinders or bulk bags. None of the Action Alternatives or shipment options resulted in an expected radiologic fatality (i.e., a calculated LCF of one or greater) among the potentially exposed population or crew. Calculated population LCFs for the Action Alternatives ranged from 0.4 population LCFs expected from truck transportation of DU oxide in cylinders to Energy*Solutions* or NNSS

to 0.06 from train transportation of bulk bags to Energy*Solutions* or WCS. Calculated population LCFs were higher for the NNSS alternative because of the greater distance to the disposal site. Calculated population LCFs were higher for truck than train transportation, and higher for transportation in cylinders than in bulk bags. This is primarily due to the difference in total mileage necessary for each option and the potentially exposed populations along truck and rail routes. Calculated crew LCFs for the Action Alternatives ranged from 0.2 crew LCFs for transportation to NNSS in cylinders via truck, to 0.04 crew LCFs for transportation to WCS in bulk bags via train. Calculated crew LCFs were higher for NNSS than for the other Action Alternatives because of the greater distance to the disposal site. Calculated crew LCFs were higher for truck than train transportation, and higher for transportation in cylinders than in bulk bags. This is primarily due to the difference in total mileage necessary for each option and the potentially exposed crew along truck and rail routes.

All the Action Alternatives could result in non-radiologic fatalities as a result of traffic accidents, ranging from one expected traffic fatality for train transportation of bulk bags to any of the disposal sites to 11 traffic fatalities for truck transport of cylinders to Energy*Solutions* or NNSS. Calculated traffic fatalities were similar across the Action Alternatives for a given transportation mode and container option. Calculated traffic fatalities were higher for truck transportation than train, and higher for transportation in cylinders than in bulk bags. This is primarily due to the difference in total mileage necessary for each option.

The No Action Alternative would result in lower potential LCFs from transportation to crew and the population, and lower potential traffic fatalities because it would not result in the transportation of DU oxide to a disposal site during the period of analysis. However, because the No Action Alternative defers a disposition decision, it is likely that at some future time the containers of DU oxide may be transported off site for disposal or some undetermined future use. The impacts of transportation and disposal of DU oxide would likely be similar to the potential impacts described for the Action Alternatives.

Environmentally Preferable Alternative

The No Action Alternative would be the Environmentally Preferable Alternative. Under the No Action Alternative, transportation and disposal would not occur, and the DU oxide containers would remain in storage at the Paducah and Portsmouth sites, resulting in less impacts from container handling and transportation than under the Action Alternatives. However, the No Action Alternative defers a disposition decision for the DU oxide containers. Because the No Action Alternative defers a disposition decision, it is likely that at some future time the containers of DU oxide would be transported off-site for disposal or some undetermined future use. The impacts of transportation and disposal of DU oxide would likely be similar to the potential impacts described for the Action Alternatives.

Comments Received on Draft DU Oxide SEIS

DOE received 24 comment documents which contained 115 comments. All comments were considered in preparing the Final DU Oxide SEIS. DOE did not receive any comments after the close of the comment period. Topics of comments received during the public comment period on the Draft DU Oxide SEIS are presented in Appendix E, of the Final DU Oxide SEIS. DOE has considered comments received on the Draft DU Oxide SEIS and finds that they do not present "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" within the meaning of 40 CFR 1502.9(c) and 10 CFR 1021.314(a) and therefore do not require preparation of a supplement analysis or a supplemental EIS.

Decision

DOE has decided to implement its Preferred Alternative as described in the Final DU Oxide SEIS. DOE's Preferred Alternative is to dispose of DU oxide, if a beneficial use cannot be found, at one or more of the disposal sites: (1) the Energy*Solutions* LLW disposal facility near Clive, Utah; (2) the WCS LLW disposal facility near Andrews, Texas; and (3) the NNSS LLW disposal facility in Nye County, Nevada. DOE will only ship to the selected commercial site(s) if the facility is authorized to receive DU oxide. In making its decision, DOE considered several factors especially the potential environmental impacts of the No Action Alternative and the Action Alternatives; each alternative's ability to meet DOE's purpose and need; direct, indirect, and cumulative impacts of each alternative; and public comments on the Final

DU Oxide SEIS. Based on the analysis in the Final DU Oxide SEIS, all disposal locations identified and analyzed are suitable for transportation and disposal of DU oxide, if a beneficial use cannot be found. Impacts to human health and the human environment would be similar for all three sites. The No Action Alternative would not meet the purpose and need for agency action and would only defer a final decision on the ultimate disposition of the DU oxide. In addition, under the No Action Alternative, it is likely that at some future time the containers of DU oxide would be transported off-site for disposal or some undetermined future use, if a use is identified. DOE acknowledges additional commercial DUF_6 was analyzed in the DU Oxide SEIS as a reasonably foreseeable future action contributing to cumulative impacts, which is not part of this decision.

Mitigation

The Proposed Action would include all practical means to avoid or minimize environmental harm, including following standard practices such as Best Management Practices for minimizing impacts on environmental resources. The alternatives evaluated are not expected to produce impacts that would require mitigation. Therefore, a Mitigation Action Plan is not required.

Signing Authority

This document of the Department of Energy (DOE) was signed on June 1, 2020, by William I. White, Senior Advisor for Environmental Management to the Under Secretary for Science, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes

only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC on June 2, 2020.

Treena V. Garrett,

Federal Register Liaison Officer,

U.S. Department of Energy.

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