[6450-01-P]

DEPARTMENT OF ENERGY

National Nuclear Security Administration

Amended Record of Decision for the Installation and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio Site

AGENCY: National Nuclear Security Administration, Department of Energy.

ACTION: Amended record of decision.

SUMMARY: The Department of Energy (DOE)/National Nuclear Security Administration (NNSA) is announcing this amendment to the July 2004 Record of Decision (ROD) for the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site* (FEIS) (DOE/EIS-0360). In this amended ROD, DOE/NNSA is announcing its decision to implement its preferred alternative for the construction and operation of a depleted uranium hexafluoride (DUF_6) conversion facility at the Portsmouth, Ohio, a DOE Office of Environmental Management (EM) site. This amended ROD addresses DOE/NNSA's intent to construct and operate a fourth process line within the conversion facility, as previously analyzed in the aforementioned FEIS.

FOR FURTHER INFORMATION CONTACT: For further information on the addition of the fourth processing line, please contact Ms. Casey Deering, Director, Office of Secondary Stage Production Modernization, Office of Defense Programs, National Nuclear Security Administration, telephone (202) 586-6075; or by email to *casey.deering@nnsa.doe.gov*.

For information on NNSA's NEPA process, please contact Mr. John Weckerle, NEPA Compliance Officer, National Nuclear Security Administration, Office of General Counsel, Telephone (505) 845-6026; or by email to *john.weckerle@nnsa.doe.gov*. This Amended Record of Decision is available on the internet at *http://energy.gov/nepa*.

SUPPLEMENTARY INFORMATION:

Background

In June 2004, DOE issued the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site (FEIS) (DOE/EIS–0360).* In the 2004 FEIS, DOE analyzed the potential environmental impacts from the construction, operation, maintenance, and decontamination and decommissioning (D&D) of the proposed depleted uranium hexafluoride (DUF_6) conversion facility at three alternative locations within the Portsmouth site. DOE reviewed transportation of cylinders (DUF_6, normal and enriched UF_6, and empty) stored at the East Tennessee Technology Park (ETTP) near Oak Ridge, Tennessee, to Portsmouth; construction of a new cylinder storage yard at Portsmouth (if required) for the ETTP cylinders; transportation of depleted uranium conversion products and waste materials to a disposal facility; transportation and sale of the aqueous hydrogen fluoride (HF) produced as a conversion co-product; and neutralization of aqueous HF to calcium fluoride (CaF_2) and its sale or disposal in the event that the aqueous HF product is not sold. An option of shipping the ETTP cylinders to the Paducah, Kentucky, site was also considered, as was an option of expanding operations by increasing throughput (through efficiency improvements or by adding a fourth conversion line) or by extending the period of operation. The EIS analyzed the No Action Alternative and three alternative locations within the plant, all of which utilized the same proposed equipment and processes. Location A, the

preferred Alternative, was located in the west-central portion of the site; Location B was located in the southwestern portion of the site, and Location C was located in the southeastern portion of the site. A similar EIS was issued concurrently for construction and operation of a DUF_6 conversion facility at DOE EM's Paducah site (DOE/EIS–0359). In the July 27, 2004, ROD (69 FR 44649), DOE chose Alternative Location A and announced its decision to install three of the four processing lines analyzed in the EIS at Portsmouth.

DOE/NNSA now announces its decision to add the fourth processing line analyzed in the 2004 EIS. The process alteration to add the fourth process line is in response to the government's need to meet high purity depleted uranium (HPDU) demand to execute DOE/NNSA mission requirements. Neither commercial nor Y-12 capabilities exist to convert DUF_6 to DUF_4 to support depleted uranium metal production. This line will use utility equipment and materials identical to those currently in operation. The process will be altered slightly to produce DUF_4 that will be provided to a commercial vendor for additional processing.

The United States has produced DUF_6 since the early 1950s as part of the process of enriching natural uranium for both civilian and military applications. The EM sites at Portsmouth and Paducah are currently charged with converting approximately 70,000 DUF_6 cylinders into an impure oxide (UO_x) for disposition as waste or for reuse. The Portsmouth site currently has three process lines in place for this conversion with space designed into the process building to accept a fourth line. This space is the proposed location to accept the additional equipment items and provide the DUF_6 conversion to DUF_4.

The Portsmouth DUF_6 Conversion Facility was commissioned to process the DUF_6 stored in cylinders into a more stable chemical form (UO_x). Current DUF_6 cylinder inventory at Portsmouth is ~19,000 cylinders with ~18 years of processing needed to complete DUF_6 to UO_x

conversion. Portsmouth has three operable process lines to accomplish this mission; each line is capable of processing approximately one standard 48" cylinder per 24-hour workday.

The Portsmouth DUF_6 Conversion Facility and its infrastructure were designed and constructed to support four process lines, however only three lines were installed. The physical configuration of the building has already been satisfactorily evaluated in the FEIS to support a fourth process line with respect to seismic design criteria and natural phenomenon hazards. There is adequate space to support an additional process line with respect to the following equipment, utilities and support systems: electrical power, sanitary water, process water, cooling water, hydrogen, nitrogen, potassium hydroxide, hydrofluoric acid handling, cylinder movement, material handling, instrument air, fire suppression, heating, ventilation, and air conditioning (HVAC), decontamination, emission controls, waste handling, and environmental monitoring. This utility equipment is identical to equipment currently in operation at the facility. The Portsmouth DUF_6 Conversion Facility meets the DOE criteria for a Hazard Category 3 Nuclear Facility.

Currently the facility reacts the DUF_6 with H_2 (hydrogen) and H_2O (steam) to produce the UO_x. This reaction generates hydrogen fluoride (HF) as a production/conversion co-product in molar proportion to the reaction. Potassium Hydroxide (KOH) is used in an off gas scrubber to neutralize the HF vapor which is not collected for resale. As decided in the ROD, the aqueous HF produced during conversion will be sold for use, as appropriate. If necessary, CaF_2 (Calcium Fluoride) will be produced and dispositioned.

Amended Decision

DOE/NNSA is amending DOE's previous decision (69 FR 44649). DOE/NNSA will install the fourth conversion line and will slightly alter the process when reacting the DUF_6. Typically, as

stated above, the DUF_6 is reacted with H_2 and H_2O (steam) to produce the UO_x. The altered process will still react DUF_6 with H_2 but will omit the H_2O (steam) from the initial part of the conversion process. The N_2 will still be used as an inert motive force gas and the off gas will still be scrubbed with KOH. At the end of the process, H_2O (steam) will then be used, but only to dilute the generated HF to the desired concentration (molarity). The HF will still be stored in tanks to be sold for use, or converted to CaF_2, as described above. The resulting product, DUF_4, will be provided to a commercial vendor for additional processing. This operation avoids having to provide for subsequent disposition of the UO_x and provides a strategic commodity that can be used in NNSA programs.

Basis for Decision

Implementing this decision supports DOE's continuing need to convert its inventory of DUF_6 to a more stable chemical form for use or disposal, as defined in the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Portsmouth, Ohio, Site (FEIS) (DOE/EIS–0360).* In this instance, the use will be the production of DUF_4 that can be provided to a commercial vendor for later conversion into metallic depleted uranium for government use. The current proposal does not represent a substantive change to operations, activities, and associated impacts assessed in DOE/EIS-0360. Any applicable updates related to the International Building Code and life safety codes will be incorporated into the NNSA Conversion Project new equipment design. The proposed conversion to DUF_4 would reduce the UO_x quantity that would need to be dispositioned at a commercial facility (sold, re-used, or disposed of as waste), as a quantity of DUF_6 would be converted to DUF_4 and HF instead of oxide. Processes and equipment used for this purpose would be similar or identical to those associated with current conversion activities. The total

amount of DU planned for transport would remain unchanged from quantities evaluated in the 2004 EIS; however, the form of a small percentage of the transported material would change. Radiological impacts from handling/transportation between the two material forms are comparable. In the event of a container or equipment breach, a release of DUF_4 would result in reduced hazards in comparison to that of depleted uranium oxide because DUF_4 would be slightly less prone to becoming airborne.

In addition, the planned transportation destinations for oxide involve greater distances than the proposed destination options for DUF_4. Finally, less HF will be generated during the conversion to DUF_4 as compared to the conversion to oxide material.

Signed in Washington, DC, this 23rd day of December 2019, for the United States Department of Energy.

Lisa E. Gordon-Hagerty,

Under Secretary for Nuclear Security,

National Nuclear Security Administration.

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