



## Draft Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generation from DOE's Inventory of Depleted Uranium Hexafluoride

### Background

Depleted uranium hexafluoride (DUF<sub>6</sub>) results from the uranium enrichment process. The DUF<sub>6</sub> that remains after enrichment typically contains 0.2% to 0.4% uranium-235 and has been stored at the gaseous diffusion uranium enrichment facilities. DUF<sub>6</sub> is stored as a solid in steel cylinders that each hold approximately 9 to 12 metric tons (MT) of material. These cylinders are stacked two layers high in outdoor areas known as “yards.” As of February 2018, the inventory was approximately 523,524 MT of DUF<sub>6</sub> in 42,961 cylinders at Paducah, Kentucky and approximately 227,439 MT of DUF<sub>6</sub> in 19,009 cylinders at Portsmouth, Ohio. The DUF<sub>6</sub> must be converted into a more stable form for disposal. As the DUF<sub>6</sub> inventory is reduced, the DU oxide inventory at each site will increase. Based on the rate of conversion of DUF<sub>6</sub> to DU oxide, DOE estimates that conversion activities will be completed and the last DU oxide cylinders produced between 2044 and 2054 at Paducah and between 2032 and 2042 at Portsmouth.

### Scope

The scope of the DU Oxide SEIS includes an analysis of the potential impacts from three Action Alternatives and No Action Alternative. Under the Action Alternatives, DU Oxide would be transported to and disposed at one or more of three disposal facilities: (1) the DOE low-level radioactive waste (LLW) disposal facility at Nevada National Security Site (NNSS) in Nye County, Nevada; (2) the EnergySolutions LLC site near Clive, Utah; and (3) the Waste Control Specialists LLC (WCS) LLW disposal facility near Andrews, Texas.

In addition to the depleted uranium hexafluoride cylinders being converted to DU oxide cylinders, the action includes disposing of other LLW and mixed low-level radioactive waste (MLLW) (i.e. empty and heel cylinders, calcium fluoride (CaF<sub>2</sub>), and ancillary LLW and MLLW) generated during the conversion process.

### Alternatives Analyzed

#### *No Action Alternative:*

- DU oxide containers remain in storage at Paducah Site and Portsmouth Site.
- Empty and heel cylinders, CaF<sub>2</sub>, and ancillary LLW and MLLW are shipped to off-site disposal facilities.

#### *Disposal at NNSS:*

- Facility has truck access, but no rail access.
- DU oxide containers could be transported either entirely by truck from Paducah or Portsmouth or could travel by rail to an intermodal facility.
- Disposal capacity of up to 1,778,000 cubic yards (1,359,000 cubic meters) of LLW, and 148,000 cubic yards (113,000 cubic meters) of MLLW.

#### *Disposal at WCS:*

- Facility has rail and truck access.
- Licensed capacity of up to 963,000 cubic yards (736,000 cubic meters) of LLW and MLLW.
- Not analyzed because Action Alternative not available in 2004.

#### *Disposal at EnergySolutions:*

- Facility has rail and truck access.
- Disposal capacity of more than 8 million cubic yards (6.1 million cubic meters).



Typical DUF<sub>6</sub> Storage Cylinder (Source: ANL 2001, DU Oxide SEIS 2018)



DUF<sub>6</sub> Cylinder Storage Yard (Source: BWXT 2016, DU Oxide SEIS 2018)

To view complete document visit:

<https://www.energy.gov/em/disposition-uranium-oxide-conversion-depleted-uranium-hexafluoride>