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United States Government **Department of Energy**

memorandum

Carlsbad Field Office
Carlsbad, New Mexico 88221

DATE: January 16, 2019

REPLY TO ATTN OF: CBFO:OOM:GB:LM:19-0001:UFC 1100.00

SUBJECT: Tracking and Reporting the Defense-Related Transuranic Waste Volume Against the Waste Isolation Pilot Plant Land Withdrawal Act Total Capacity Limit for Defense-Related Transuranic Waste

TO: Office of National TRU Program and Office of Environmental Protection Division

This memorandum establishes a policy for the U.S. Department of Energy, Carlsbad Field Office (CBFO) expectations for implementing a tracking and reporting method for the Waste Isolation Pilot Plant (WIPP) defense-related transuranic (TRU) waste capacity limit stipulated in Section 7(a)(3) of the WIPP Land Withdrawal Act (LWA) of 1992 (Public Law 102-579, and as amended by Public Law 104-201, H.R. 3230, 104th Congress). The CBFO has the responsibility to manage TRU waste by identifying, evaluating, and tracking the volume of TRU waste under its control and jurisdiction to ensure the total capacity limit for TRU waste stipulated in the WIPP LWA (i.e., 6.2 million cubic feet of defense-related TRU waste) is not surpassed. With this policy, CBFO is establishing the approach for tracking and reporting the TRU waste volume against the WIPP LWA total capacity limit for TRU waste.

If you have any questions, please contact me at (575) 234-7300.

for

Todd Shrader, Manager
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Attachment

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U.S. DEPARTMENT OF ENERGY, CARLSBAD FIELD OFFICE POLICY

IMPLEMENTATION OF A TRACKING METHODOLOGY TO ENSURE COMPLIANCE WITH THE TOTAL CAPACITY LIMIT FOR TRANSURANIC WASTE IN PUBLIC LAW 102-579, THE WASTE ISOLATION PILOT PLANT LAND WITHDRAWAL ACT, AS AMENDED BY PUBLIC LAW 104-201 (H.R. 3230, 104TH CONGRESS)

January 2019

PURPOSE AND SCOPE

This Policy establishes the Department of Energy (DOE), Carlsbad Field Office (CBFO) expectations for implementing a tracking and reporting method for the transuranic (TRU) waste limits on "total capacity of WIPP" stipulated in Section 7(a)(3) of the Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act (LWA) of 1992 (Public Law 102-579, and as amended by Public Law 104-201, H.R. 3230, 104th Congress). The tracked volume will be referred to as the "Land Withdrawal Act TRU Waste Volume" (LWA TRU Waste Volume) and will be used to determine when the DOE has reached the statutory total capacity limit of TRU waste of 6.2 million cubic feet.

This Policy will also ensure that DOE/CBFO maintains a program that tracks the LWA TRU Waste Volume.

AUTHORITY

Tracking the LWA TRU Waste Volume is an important function and responsibility of the DOE/CBFO. The DOE was given the authority by Congress to manage nuclear waste (e.g., TRU waste) under its control and jurisdiction by the Department of Energy Organization Act (Public Law 95-91).

In particular, Section 203(a)(8)(G) gives the DOE the authority to establish rules and regulations to implement the mandate.[1] Included within the scope of this authority is the determination of the appropriate methodology for tracking and recording the LWA TRU Waste Volume for the WIPP LWA total capacity limit of TRU waste as part of the Section 203 mandate.

The major laws, regulations, Orders, National Environmental Policy Act (NEPA), and guidance shaping DOE's responsibility for implementing the tracking the LWA TRU Waste Volume for comparison to the WIPP LWA total capacity limit for TRU waste include but are not limited to the following:

- The Atomic Energy Act of 1954 (as amended), 42 USC 2011 *et seq.*
- the Waste Isolation Pilot Plant Land Withdrawal Act of 1992 (Public Law 102-579);

[1]DOE Organization Act of 1977, Section 203(a)(8)(G) states; *(G) the promulgation of such rules and regulations to implement the authority described in this paragraph, except that nothing in this section shall be construed as granting to the Department regulatory functions presently within the Nuclear Regulatory Commission, or any additional functions than those already conferred by law.*

- the U.S. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164)
- the U.S. Department of Energy Organization Act of 1977 (Public Law 95-91)
- the Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement, DOE/EIS-0026-S-2, September 1997
- DOE O 435.1, Radioactive Waste Management
- DOE M 435.1-1, Radioactive Waste Management Manual
- DOE G 435.1-1, IMPLEMENTATION GUIDE for use with DOE M 435.1
- 40 CFR 194, Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance With the 40 CFR Part 191 Disposal Regulations

The DOE Order 435.1 and accompanying DOE Manual 435.1-1 contain requirements and responsibilities for the Field Manager (DOE Manual 435.1-1, Chapter I - General Requirements and Responsibilities, Section 2. Responsibilities, F. Field Element Managers) directly related to TRU mixed radioactive waste (DOE Manual 435.1-1, Chapter III – Transuranic Waste Requirements) and also delineates responsibilities for radioactive waste management decision-making at the complex-wide and Field Element levels. The responsibilities of the CBFO Field Manager authorized by Order 435.1 and accompanying Manual include but are not limited to the following:

- developing, documenting, implementing, and maintaining a Site-Wide Radioactive Waste Management Program
- developing, review, approval, and implementation of the radioactive waste acceptance requirements
- establishing a waste characterization program which collects data on TRU waste physical and chemical characteristics, volume, weight of containers and content (e.g. radionuclides)

Details on the specific steps related to the data collection, data quality and quality assurance requirements for the tracking methodology for ensuring compliance with the TRU waste volume capacity limit in the LWA are included in the implementation.

ORIGINATION OF THE TRANSURANIC WASTE WIPP TOTAL CAPACITY LIMIT

Following an extensive site selection process, the federal government, in the mid-1970s, selected a location in Eddy County, New Mexico for the WIPP facility. In December 1979, the DOE was authorized by the *U.S. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980* (Public Law 96-164) to provide a research and development facility for demonstrating the safe, permanent disposal of TRU wastes from national defense activities and programs of the United States exempted from U.S. Nuclear Regulatory Commission (NRC) regulations.

In preparing the 1980 Final Environmental Impact Statement (FEIS), DOE performed an inventory evaluation to determine the quantity of TRU waste that would be expected to be disposed in the WIPP facility. The TRU waste volume estimate was generated by the sites

engaged in weapons production or in storage/disposal of weapons-related waste in the late 1970's to early 1980. The 1980 FEIS, page 1-5 states:

> *"Over its 25-year operating life, the WIPP could receive about 6.2 million cubic feet of contact-handled [CH] TRU waste and as much as 250,000 cubic feet of remotely handled [RH] TRU waste. This would account for all of the TRU waste currently held in interim storage in Idaho, two-thirds of that expected to be generated at all DOE facilities between now and 1990, and all of that expected to be produced from 1990 through 2003."*

The limiting quantity of TRU waste, based on late 1970s to early 1980 TRU waste estimates, for the WIPP repository was established in the 1981 Record of Decision (ROD) for the WIPP Project (46 Federal Register – 9162, dated January 23, 1981).

A total capacity limit for TRU waste was subsequently stipulated in the WIPP LWA of 1992 (Public Law 102-579 as amended by Public Law 104-201). This capacity limit did not include the separate 250,000 cubic feet established in the 1981 ROD for RH TRU waste. This resulted in a combined volume (CH TRU and RH TRU) of 6.2 million cubic feet (175,564 cubic meters).

POLICY

The DOE/CBFO, Office of the National TRU Program will track and report the LWA TRU Waste Volume with regard to TRU waste disposed at the WIPP facility. This is to ensure compliance with the statutory total capacity limit for TRU waste in Section 7(a)(3) of the LWA. With this policy, CBFO is establishing the approach for tracking and reporting the TRU waste volume against the WIPP LWA total capacity limit for TRU waste.

The DOE/CBFO has the responsibility to manage TRU waste by identifying, evaluating, and tracking the volume of TRU waste under its control and jurisdiction to ensure the total capacity limit for TRU waste stipulated in the WIPP LWA is not surpassed. Tracking and reporting the LWA TRU Waste Volume disposed at the WIPP facility incorporates the following:

- The stated mission of the WIPP facility is to isolate and dispose of defense-related TRU waste in a manner that protects public health and the environment.
- The volume specified in the 1980 FEIS assumes containers are filled[2]. This means that the design of the WIPP facility was based on the volume of waste the DOE anticipated removing from the generator sites and emplacing in the WIPP underground.
- The volume of TRU waste for the WIPP repository was established in the 1981 ROD for the WIPP Project (46 Federal Register – 9162, dated January 23, 1981).
- The TRU waste total capacity limit for TRU waste was subsequently stipulated in Section 7(a)(3) of the WIPP Land Withdrawal Act of 1992 (Pub. L. 102-579 as amended by Public Law 104-201). This resulted in a combined volume (CH TRU and RH TRU) of 6.2 million cubic feet (175,564 cubic meters).
- The LWA TRU Waste Volume is defined as follows:

[2] The volume specified in the 1980 FEIS assumes containers are filled. Consistent with the number of containers versus volume shipped in the 1980 FEIS transportation discussion using Tables 6-2, 6-3, and 6-4.

The "Land Withdrawal Act TRU Waste Volume" is the volume of TRU waste that is tracked and reported by the DOE pursuant to the WIPP Land Withdrawal Act total capacity limit of 6.2 million ft^3 (175,564 m^3) (Pub. L. 102-579, as amended).

- The method for tracking and reporting LWA TRU Waste Volume will distinguish between two categories of waste containers being disposed of in the WIPP facility: Those that are overpacked and those that are not overpacked (i.e., direct loaded). The DOE will consider the volume of TRU waste to be the gross internal volume of the innermost disposal container or the Pipe Overpack Component (POC) as the LWA TRU Waste Volume for overpacked containers. The volume of TRU waste in containers that are direct-loaded will be tracked as the LWA TRU Waste Volume according to the disposal container gross internal volume. The volumes to be used in reporting the LWA TRU Waste Volume for disposal containers and POCs will be programed into the Waste Data System (WDS). Also included in Attachment 1 are the disposal container volumes to be used for WIPP Permit required reporting. The table in Attachment 1 illustrates these volumes.
- This methodology will be applied retroactively for overpacked containers already emplaced in the WIPP facility.
- The LWA TRU Waste Volume will be reported annually to the CBFO manager and will be made available to the general public through a link on the WIPP Project Website at www.wipp.energy.gov. This link will be updated at least monthly.
- The LWA TRU Waste Volume tracking and reporting method required by this Policy:
    - better reflects the volume of TRU waste DOE anticipated for disposal at the WIPP facility during the NEPA decision making processes,
    - provides a better planning basis for future waste generation and disposal during the lifetime of the WIPP Project, and
    - mitigates controversies associated with jurisdiction for tracking and reporting against the WIPP LWA total capacity limit for TRU waste.
- The LWA TRU Waste Volume will be reported to the NMED for inclusion into Permit Part 4, Table 4.1.1 as part of documenting closure of a hazardous waste disposal unit.

DOE will uphold this Policy in order to assure the efficient use of the WIPP Project resources for future generations in a spirit of stewardship to the extent feasible given the DOE WIPP Project mission and mandates. To do this, DOE will implement management accountability for compliance with Federal statutes, Executive orders, treaties, DOE Orders, and implementation guidance. The DOE also ensures that DOE contractors are obligated to implement DOE programs and projects in a manner that is consistent with this Policy and that reflects this commitment in site management contracts.

RESPONSIBILITIES

The DOE/CBFO Manager will assume primary responsibility for implementing this Policy. Accordingly, the DOE/CBFO Manager will ensure the following:

a. TRU waste characterization data, including volume of containers and overpacked containers, are collected and entered into the WDS according to the appropriate technical and quality assurance requirements.

b. The DOE/CBFO Office of the National TRU Program will assume primary responsibility for developing and maintaining a procedure to track and report the LWA TRU Waste Volume and compare it to the WIPP LWA total capacity limit for TRU waste to assure maximum use of the WIPP repository while completing the mission. Tracking information will be reported on the WIPP Project Website as public information.

c. The DOE/CBFO Office of the National TRU Program will evaluate and determine if an update to the WDS database or additional WDS reporting capabilities are required to reflect the LWA TRU Waste Volume relative to the WIPP LWA total capacity limit for TRU waste and the separate tracking of the disposal container volume against the WIPP Hazardous Waste Facility Permit.

d. The DOE/CBFO Office of Environmental Protection Division will provide formal notification of the LWA TRU Waste Volume to the NMED for inclusion into Permit Part 4, Table 4.1.1 as part of documenting closure of a hazardous waste disposal unit.

REFERENCES

DOE Order 435.1, Change 1, *Radioactive Waste Management*, January 9, 2007, U.S. Department of Energy, Washington, DC.

DOE Manual 435.1, *Radioactive Waste Management Manual*

DOE Guide 435.1-1, *Implementation Guide for use with DOE M 435.1-1*

DOE, 1980. *Final Environmental Impact Statement, Waste Isolation Pilot Plant*, DOE/EIS-0026, U.S. Department of Energy, October.

DOE, 1981. *Waste Isolation Pilot Plant, Record of Decision*, 46 Federal Register 9162, January 23, 1981

DOE, 1990. *Final Supplement Environmental Impact Statement, Waste Isolation Pilot Plant*, DOE/EIS-0026-FS, U.S. Department of Energy, 1990.

DOE, 1997. *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement*, DOE/EIS-0026-S-2, U.S. Department of Energy, September 1997.

DOE, 2011. 10 CFR Part 1021, *National Environmental Policy Act Implementing Procedures*, U.S. Department Energy.

U.S. Congress, 1954, Atomic Energy Act (as amended through Public Law 114-92).

U.S. Congress, 1977. *U.S. Department of Energy Organization Act of 1977* (Public Law 95-91).

U.S. Congress, 1979. *U.S. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980*, Public Law 96-164, December 29.

U.S. Congress, 1992. *Waste Isolation Pilot Plant Land Withdrawal Act of 1992*, Public Law 102-579.

U.S. Congress, 1996. *Waste Isolation Pilot Plant Land Withdrawal Act Amendments*, Public Law 104-201.

DOE/WIPP 02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (current revision), U.S. Department of Energy, Carlsbad Field Office, Carlsbad, NM.

WIPP Hazardous Waste Facility Permit Number NM4890139088-TSDF, December 2018

Attachment 1

AUTHORIZED CONTAINER PER WIPP WASTE ACCEPTANCE CRITERIA	LWA TRU WASTE VOLUME (m^3)	PERMIT CONTAINER VOLUME (m^3)
55-gallon drum DL	0.21	0.21
85-gallon drum DL	0.32	0.32
85-gallon drum OP with 55-gallon drum	0.21	0.32
100-gallon drum DL	0.38	0.38
Shielded Container DL	0.11	0.21
Standard Waste Box DL	1.88	1.88
Standard Waste Box OP with 4 55-gallon drums	0.84	1.88
Standard Waste Box OP with 3 85-gallon drums	0.96	1.88
Standard Waste Box OP with 2 100-gallon drums	0.76	1.88
Ten-Drum Overpack DL	4.5	4.5
Ten-Drum Overpack OP with 10 55-gallon drums	2.10	4.5
Ten-Drum Overpack OP with 6 85-gallon drums	1.92	4.5
Ten-Drum Overpack OP with Standard Waste Box	1.88	4.5
12-in Standard Pipe Overpack Container (POC)	0.0488	0.21
Type S100 POC	0.00163	0.21
Type S200-A POC	0.00691	0.21
Type S200-B POC	0.0137	0.21
Type S300 POC	0.00269	0.21
Criticality Control Overpack	0.0128	0.21
Standard Large Box 2	7.39	7.39
RH Removable Lid Canister (DL)	0.89	0.89
RH Removable Lid Canister OP with 3 55-gallon drums	0.63	0.89
NS15 Neutron Shielded Canister	0.195	0.89
NS30 Neutron Shielded Canister	0.351	0.89
DL = Direct loaded container OP = Overpack container		