



Department of Energy

Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

December 1, 2022

Mr. Rick Shean, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Subject: Transmittal of the Waste Isolation Pilot Plant 2022 Waste Minimization Report,
Hazardous Waste Facility Permit Number: NM4890139088-TSDF

Dear Mr. Shean:

The purpose of this letter is to provide you with the Waste Isolation Pilot Plant 2022 Waste Minimization Report, as required by the Hazardous Waste Facility Permit, Part 2, Section 2.4.

We certify under penalty of law that this document and all attachments were prepared under our direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

If you have any questions, please contact Mr. Michael Gerle at (575) 988-5372.

Sincerely,

Signatures on File

Reinhard Knerr
Manager
Carlsbad Field Office

Sean Dunagan
President and Project Manager
Nuclear Waste Partnership LLC

Enclosure

cc: w/enclosure

R. Maestas, NMED *ED

D. Biswell, NMED ED

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*ED denotes electronic distribution

Waste Isolation Pilot Plant 2022 Waste Minimization Report

A waste minimization program is in place at the Waste Isolation Pilot Plant (WIPP) facility. The goal of this program is to reduce the volume and toxicity of hazardous and mixed wastes generated at the facility. The purpose of this report is to demonstrate compliance with the WIPP Hazardous Waste Facility Permit (Permit) Part 2, Section 2.4 which states:

The Permittees shall implement and maintain a waste minimization program to reduce the volume and toxicity of hazardous and mixed wastes generated at the facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.73(b)(9)). The waste minimization program shall include proposed, practicable methods of treatment and storage currently available to the Permittees to minimize the present and future threat to human health and the environment. The waste minimization program shall include the following items:

- 1. Written policies or statements that outline goals, objectives, and methods for source reduction and recycling of hazardous and mixed waste at the facility;*
- 2. Employee training or incentive programs designed to identify and implement source reduction and recycling opportunities for all hazardous and mixed wastes;*
- 3. Source reduction or recycling measures implemented in the last five years or planned for the next federal fiscal year;*
- 4. Estimated dollar amounts of capital expenditures and operating costs devoted to source reduction and recycling of hazardous and mixed waste;*
- 5. Factors which have prevented implementation of source reduction or recycling;*
- 6. Summary of additional waste minimization efforts that could be implemented at the facility that analyzes the potential for reducing the quantity and toxicity of each waste stream through production process changes, production reformulations, recycling, and all other appropriate means including an assessment of the technical feasibility, cost, and potential waste reduction for each option;*
- 7. Flow charts and/or tables summarizing all hazardous and mixed waste streams produced by the facility by quantity, type, building or area, and program; and*
- 8. Demonstration of the need to use those processes which produce a particular hazardous or mixed waste due to a lack of alternative processes, available technology, or available alternative processes that would produce less volume or less toxic waste.*

The Permittees shall submit to the Secretary a report regarding progress made in the waste minimization program in the previous year. The report shall address items 1 – 8 above, shall show changes from the previous report, and shall be submitted annually by December 1 for the year ending the previous September 30th.

This report was prepared by the Permittees (the U.S. Department of Energy [DOE] - Carlsbad Field Office [CBFO] and the Nuclear Waste Partnership LLC [NWP]) in accordance with Permit Part 2, Section 2.4. This report describes how the Permittees addressed items 1-8 during Fiscal Year 2022 (October 1, 2021, through September 30, 2022). This report describes any changes made since the previous report.

1. *Written policies or statements that outline goals, objectives, and methods for source reduction and recycling of hazardous and mixed waste at the facility.*

The *WIPP Environmental Policy Statement*, EA02EC14-1-0, establishes the Permittees' strategic level environmental objectives. This policy formally communicates standards that ensure that facility personnel practice environmental protection as a core business principle. This commitment is documented by the implementation of the *Environmental Management System (EMS)*, WP 02-EC.14, made evident through the International Organization for Standardization (ISO) 14001:2015 certification. Certification to the ISO 14001:2015 standard is verified through an independent third party auditing body. Continued certification to the ISO standard embeds continuous improvement into WIPP facility operations, specifically through the EMS program that requires improvements related to waste minimization and recycling.

The Permittees are committed to “...continually plan, perform, assess, and improve the environmental performance of the WIPP.” The *WIPP Environmental Policy Statement* (EA02EC14-1-0) was reviewed and updated as of July 1, 2020. The *Environmental Management System* (WP 02-EC.14) was reviewed and updated as of July 1, 2020. The facility's ISO 14001:2015 certification remains in conformance as confirmed through the September 2021 external recertification audit conducted by 3rd party registrar Advanced Waste Management Systems. Nuclear Waste Partnership, LLC (NWP) and all aspects of WIPP operations and activities conducted by NWP at the WIPP site and in Carlsbad, New Mexico support facilities has been ISO 14001:2015 recertified to May 28, 2024.

The Permittees continue to communicate and educate site personnel regarding the data required for accurate reporting under the waste minimization programs. These actions are implemented through EMS core support programs including the *WIPP Sustainable Procurement Plan* (WP 02-EC.07) and the *WIPP Pollution Prevention (P2) Program Plan* (WP 02-EC.11). These core program plans implement standards that outline, define, and support the waste minimization strategy stated in Executive Order (EO) 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*, and those required by the DOE Orders 436.1, *Departmental Sustainability*, and 436.1-1, *Federal Sustainable Print Management*. Core program components are captured and reported through the EMS.

Additional waste minimization methods specific to hazardous and mixed wastes are described in the *WIPP Low-Level and Mixed Low-Level Waste Management Plan* (WP 02-RC.05) and the *WIPP Hazardous and Universal Waste Management Plan* (WP 02-RC.01).

2. *Employee training or incentive programs designed to identify and implement source reduction and recycling opportunities for all hazardous and mixed wastes.*

Every WIPP employee receives General Employee Training. This includes content communicating general awareness of the Permittees' EMS program, the waste management and recycling expectations, site pollution prevention strategy, facility waste minimization strategy, and sustainability expectations. Employees involved in universal or special site generated waste management and/or low-level waste handling activities receive additional training to ensure that

they are qualified to perform their assigned tasks. The majority of these training courses contain elements in which waste minimization, source reduction, and recycling strategies are included. In addition, managers and supervisors receive training, as applicable to their positions, which includes a review of the P2 program.

Both the Hazardous Waste Overview (HWO) and Hazardous Waste Facility Permit (HWFP) Technical Training courses include practical information concerning the methods for reducing the amount of hazardous wastes generated at the site. This includes the procurement and use of less hazardous chemicals/materials, opportunities for recycling, reuse, and reducing the quantities purchased.

During FY22, the primary focus has been on sustainable acquisition, and continued one on one training with individuals as necessary covering the requirements for the proper handling and disposition of recyclable materials.

In FY22, the WIPP EMS Awareness Training e-learning module (ENV-100) was updated. The overarching objective is to provide general knowledge regarding the EMS and how it affects work at the WIPP facility. The training course provides a general working knowledge of ISO 14001:2015, Pollution Prevention, Waste Minimization, current Executive Orders, DOE Order 436.1, and the WIPP Hazardous Waste Facility Permit. The ENV-100 course is required for existing Management and Operating Contractor (MOC) personnel and new hires. The course is a biennial requirement for all WIPP personnel. The course is available online on the Technical Training web site.

In previous years, the P2 program implemented a single stream recycling method. This required more due diligence for WIPP staff in placing the proper material in the correct recycle container. During this reporting period, the campaign continued, reinforced by many site wide emails and flyers encouraging participation and proper use of single stream recycling bins and associated recycling centers.

Earth Day 2022 was not hindered by COVID-19 restrictions; however, it was combined with an Employee Safety Zone campaign. Articles were distributed daily for the month of April via emails promoting Earth Day concepts: Safety, Environmental Sustainability, Energy Conservation, and Pollution Prevention. As with previous years, a site wide clean-up was conducted, old equipment and office supplies were excessed, filling a box truck, of which some would later be donated to a schools or other DOE approved recipients. The incentive gift giving for Earth Day was changed to a participation contest. 50 of 160 participants of the Earth Day Pollution Prevention Survey (20 questions on Pollution Prevention) were randomly picked and given a prize. The average number of employees through the WIPP project was 1050, of those only 160 participants completed the survey. This was an inadequate number of responses to gain actual knowledge based site percentages. Although, 98 percent of those 160 respondents are aware of what is recyclable at WIPP. Future surveys will be issued and increased participation is expected. The focus will continue to be, reinforcing environmental and sustainable purchasing, waste reduction, recycling and reuse or repurposing (the 3R's: Reduce, Reuse & Recycle).

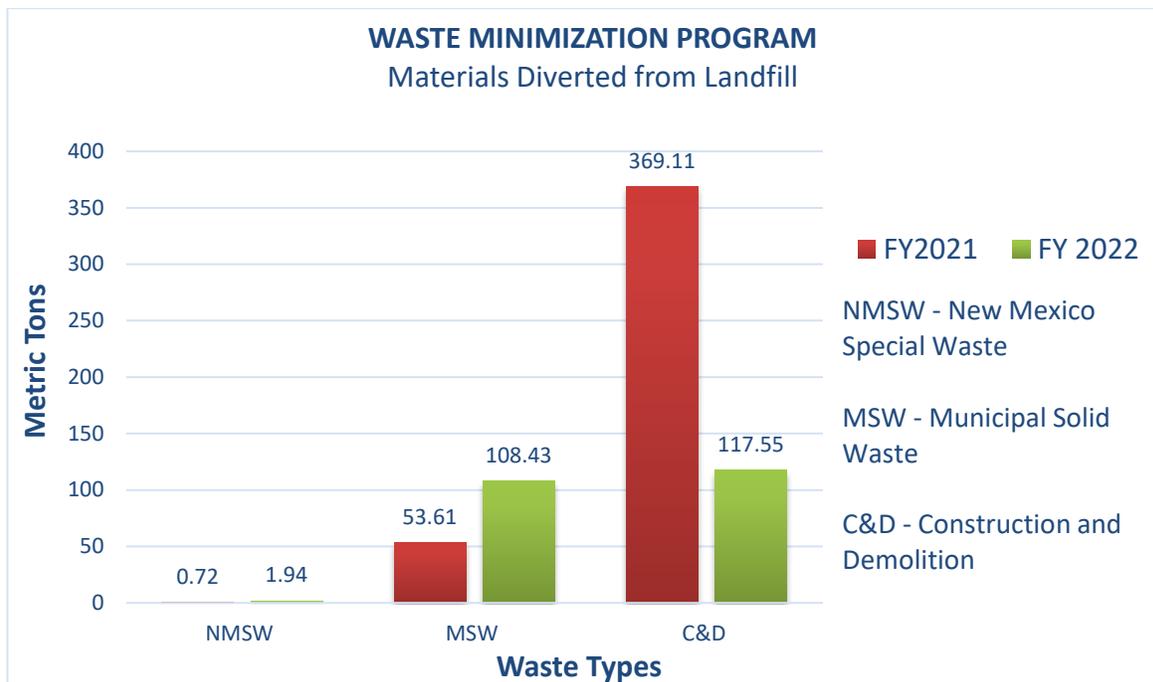
3. *Source reduction or recycling measures implemented in the last five years or planned for the next federal fiscal year.*

The Permittees maintain an active recycling/reuse program and strive to continually improve performance in this area and are vigilant in exploring new recycling venues. Future plans include reaching out to the commercial industry about recycling more materials. Over the past five years, the Permittees recycling/reuse program at the WIPP facility has encompassed the following materials:

- Aluminum Cans
- Antifreeze
- Asphalt/Concrete
- Batteries (e.g., NiCad, Lithium, Alkaline, Lead Acid)
- Cardboard
- Circuit Boards
- Electrical Ballasts
- Electronics
- Office Equipment
- Ink/Toner cartridges
- Lamps/Lighting Fixtures
- Mixed Metals
- Paper
- # 1 PET Plastic
- Tires/Rubber
- Wood Pallets
- Used Oil and Oil Filters
- Hard Hats & Safety Wear

In FY22, the WIPP facility diverted 227 metric tons of waste materials from New Mexico landfills. As compared to the previous FY 2021 of 423 metric tons. This decrease was due to FY 2021 the C&D waste, mixed metal was 369 metric tons compared to the 118 metric tons in FY 2022. The construction projects exceeded building material scrap metal from across the WIPP site; this included the Site Significant Containment Ventilation System (SSCVS) and new Utility Shaft projects. Universal Waste is included in the diverted Municipal Solid Waste totals.

The following graph shows the category of wastes diverted from landfill in 2022 as compared to 2021.



4. *Estimated dollar amounts of capital expenditures and operating costs devoted to source reduction and recycling of hazardous and mixed waste.*

The Permittees' FY22 budget for promoting and implementing P2 and waste minimization was \$208,000. This funding allocation was used for staffing compensation, environmental awareness, and implementation programs of the WIPP EMS and Waste Minimization Program.

As in previous years, significant focus was placed on continuous improvement, reaching out to employees, clean recycling, and sustainable procurement methods.

5. *Factors which have prevented implementation of source reduction or recycling.*

The facility EMS program continues to be supported by the Environmental Management System Steering Committee (EMSSC). The committee, administered by senior level management, reports directly to executive management. The committee's base responsibility is to ensure support and funding to the EMS and its supporting programs, including P2 and waste minimization as required by the ISO standard. This EMS program with EMSSC involvement is to elevate EMS, P2 and the sustainability program improvements from the top down.

There are standard factors that prevent the implementation of the Permittees' waste minimization program. Major recyclers still have not yet increased material types, thereby restricting the definition of what is considered clean and recyclable through the WIPP P2 program. Through increased awareness campaigns to educate staff of the recycling requirements and sustainable acquisition, ensures that WIPP facility will continue to maintain a viable recycling program. Certain radiologically contaminated personal protective equipment (PPE) and other materials that are not recycled are disposed of through a facility permitted for radiological waste disposal.

During FY22, the Environmental Management System supported improvements specific to education and communication related to project environmental targets and P2 program strategy. Workers' continued response to this education and communication is evident by their participation in the waste minimization and recycling programs. The goal of reducing toxicity and the volume of hazardous waste generated at the WIPP facility remains in place. Waste streams that have the potential to generate hazardous waste are reviewed regularly to ensure minimization of hazardous constituents while incorporating waste reduction, recycling, and reuse whenever possible.

6. *Summary of additional waste minimization efforts that could be implemented at the facility that analyzes the potential for reducing the quantity and toxicity of each waste stream through production process changes, production reformulations, recycling, and all other appropriate means including an assessment of the technical feasibility, cost, and potential waste reduction for each option.*

In FY20, the Site Environmental Compliance (SEC) group integrated two processes that assisted in meeting our goal of reducing the amount and toxicity of hazardous materials used at the WIPP site, and therefore reducing the potential for hazardous waste generation. These processes have continued through Fiscal Year 2022 and are effective methods of sustainable education and accountability.

- a) SEC continues to review Approval/Variance Request forms and their associated Safety Data Sheets related to subcontract work at the WIPP site. This allows the opportunity to screen chemicals associated with a project for replacement with suitable less-hazardous chemicals (i.e. paints,

- lubricants, cleaning supplies etc.).
- b) SEC continues to review Environmental Compliance Review forms to ensure P2 and hazardous waste considerations are accounted for prior to any new project work, alterations, etc., are being undertaken at the WIPP site.
7. *Flow charts and/or tables summarizing all hazardous and mixed waste streams produced by the facility by quantity, type, building or area, and program.*

The following two tables summarize the type and amount of hazardous waste, and radioactive waste generated by the Permittees between October 1, 2021 and September 30, 2022. The following table shows the category of wastes as comparing to 2022 to 2021.

Hazardous Waste Generated	Area/Program	FY 2021 Metric Tons	FY 2022 Metric Tons
Hazardous Waste			
Flammable or Ignitable, Corrosive, Reactive, and/or Toxic (Spent Hilti Cartridges, Contaminated Brine, Off-Spec and Expired Materials, Gasoline & Diesel Fuel)	Emergency Response / Maintenance	6.15	19.85
Total Hazardous Waste		6.15	19.85

Radioactive Waste Generated	Area/Program	FY 2021	FY 2022
Mixed Low-Level Waste			
Lead Acid & Lithium Ion Batteries from UG, PIDs	Recovery Activities	0	2.47
Low-Level Waste			
HEPAs, PIDs, UG Vehicle Oil, Brine Water, Sealant, Roof Bolts, Tires, Rims & PPE	UG Maintenance	23.99	30.80
Total Radioactive and Mixed Waste		23.99	33.27

8. *Demonstration of the need to use those processes which produce a particular hazardous or mixed waste due to a lack of alternative processes, available technology, or available alternative processes that would produce less volume or less toxic waste.*

Processes required for successful operations at the WIPP facility, contributing to the generation of site hazardous, mixed low-level and low-level radioactive waste as noted in the table above, are managed and implemented through the waste minimization program. Ongoing efforts to review programs, work packages, and procurement acquisition to reduce the generation of hazardous waste continues. The program, as implemented, currently and effectively serves to protect human health and the environment. Program awareness enhancements such as those that replace petroleum based products and equipment with bio-based products, electric and battery operated equipment that replace fossil fuel engines, clean operating air compressors, and alternative power generation sources such as solar and wind are examples of improvements being evaluated and implemented at the WIPP site for waste reduction as part of EMS oversight.

This report will be placed on the Information Repository in accordance with Permit Part 1, Section 1.14.2.