



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
ENVIRONMENTAL
MANAGEMENT

Department of Energy (DOE) Office of Environmental Management (EM)

DOE/EM Waste Management Update
Low Level Radioactive Waste Forum

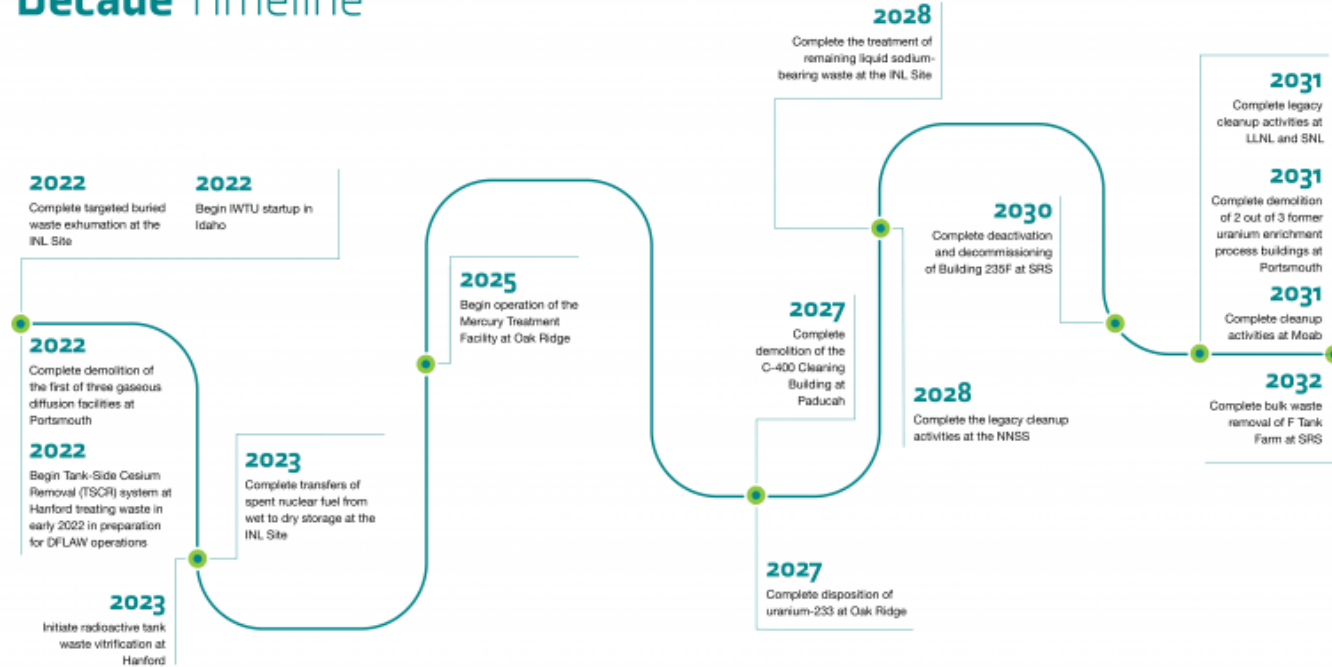
March 2023
Charleston, SC

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DOE/EM Strategic Planning includes Waste Management

1. **EM Program Plan**, outlining a decision roadmap the cleanup program will use as a guide over the next two decades (released September 22, 2022)
2. **EM Strategic Vision: 2022–2032** (updated in late 2021)
3. **CY 2023 Mission Priorities**

Decade Timeline



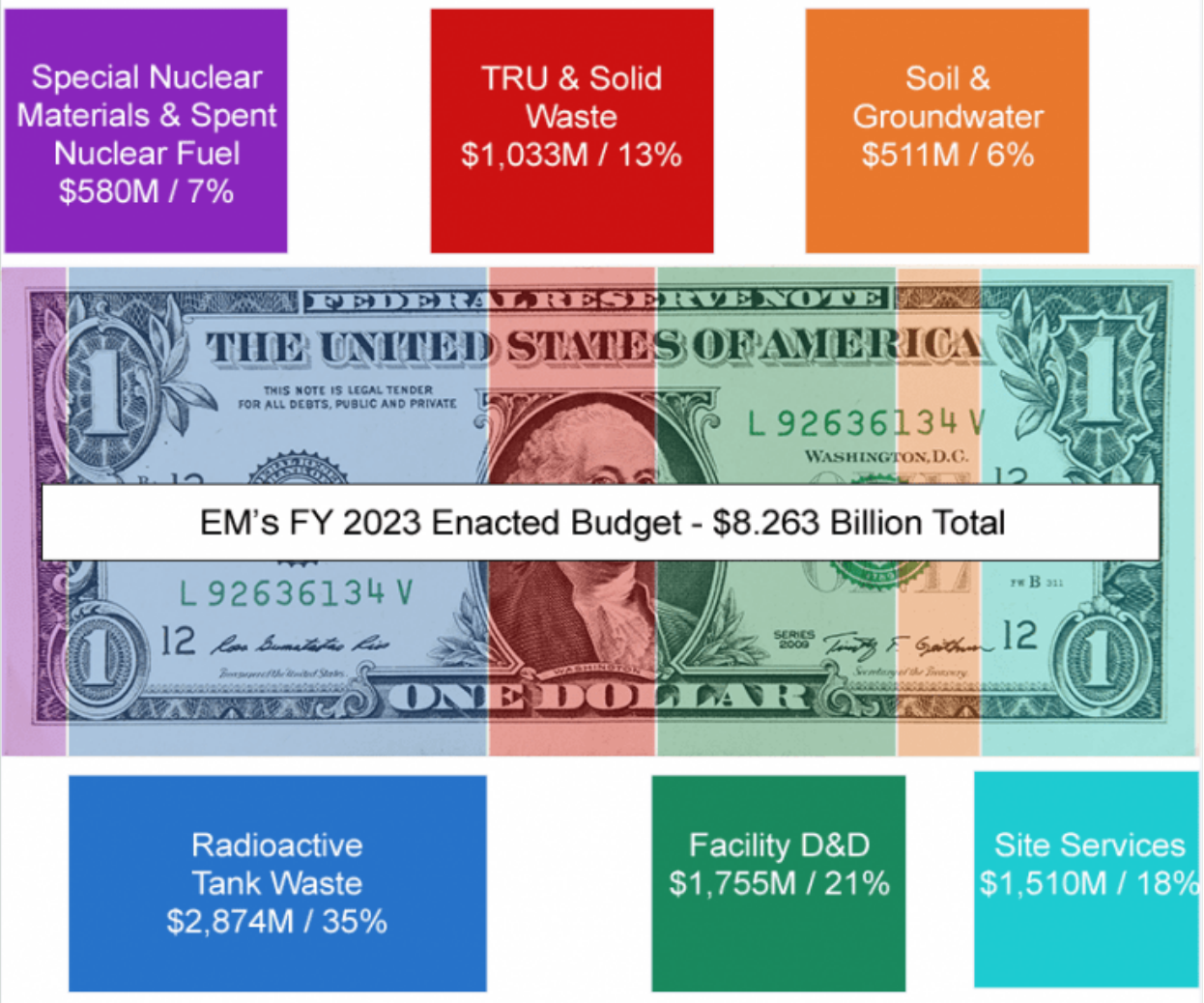
2022

2032

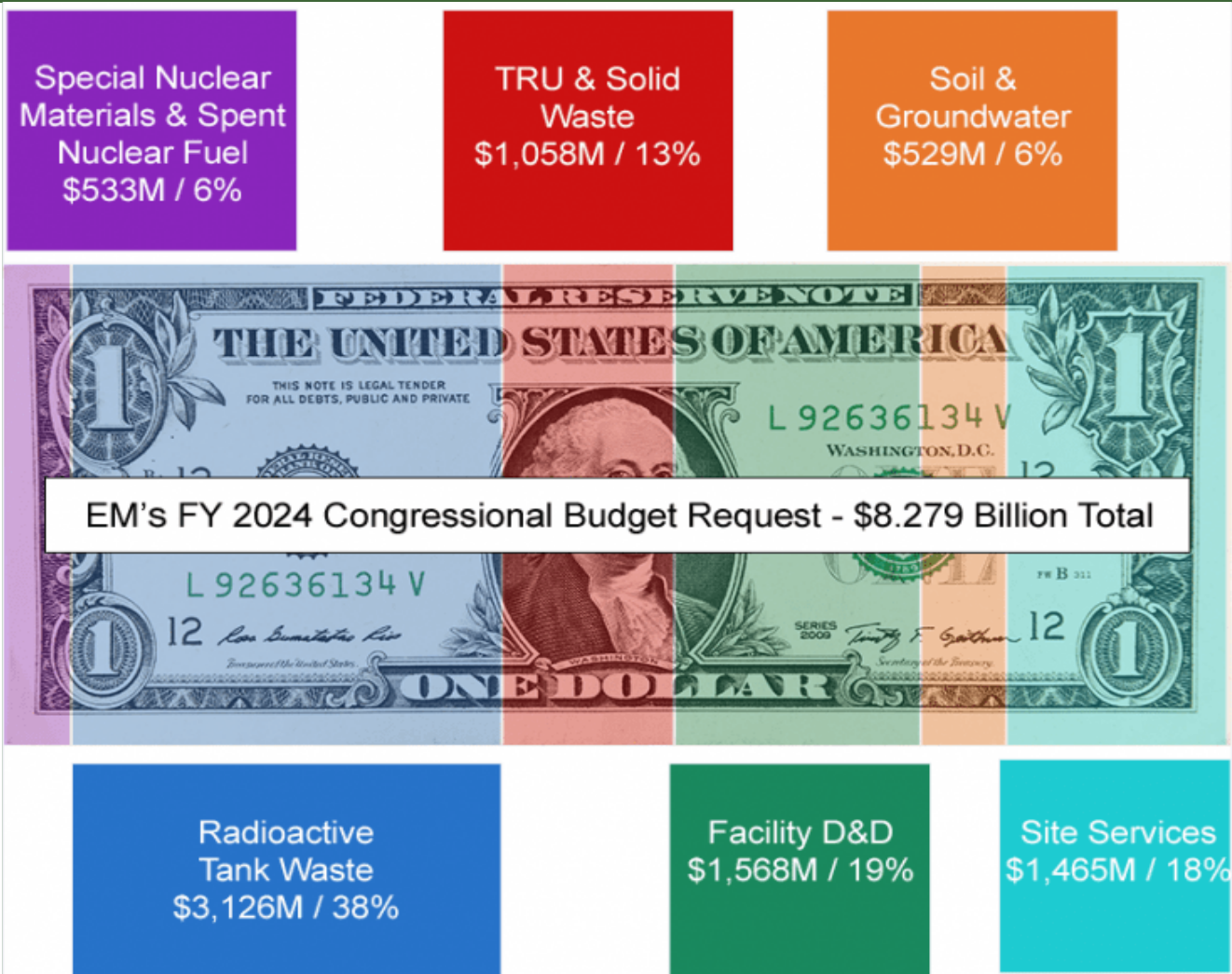
Checkout the [Office of Environmental Management | Department of Energy](#) website at:

<https://www.energy.gov/em/office-environmental-management>

Budget News FY 2023



Budget News FY 2024 Requested



EM CY23 Mission Priorities

PRIORITY #1: ACHIEVE SIGNIFICANT CONSTRUCTION MILESTONES

- Begin commissioning of Waste Isolation Pilot Plant (WIPP) Safety Significant Confinement Ventilation System
- Complete sinking Utility Shaft at WIPP to 2150-foot level
- Initiate melter 2 heat up at the Waste Treatment Plant at Hanford
- Complete construction of Savannah River Site (SRS) Saltstone Disposal Unit 8
- Complete steel structure for the Advanced Manufacturing Collaborative at SRS

PRIORITY #2: EXECUTE KEY CLEANUP PROJECTS

- Complete 400 transuranic waste shipments at WIPP while ensuring there is no backlog of shipments from Los Alamos
- Initiate retrieval of Los Alamos drums from Waste Control Specialists
- Issue Final Environmental Assessment for disposal of contaminated process equipment at SRS
- Pretreat at least 800,000 gallons cumulatively of tank waste at Hanford
- Treat 2 billion gallons of groundwater at Hanford
- Complete processing of 100 sodium-bearing waste containers at IWTU at Idaho
- Complete all spent nuclear fuel transfers from wet to dry storage at Idaho
- Complete removal of a cumulative 14M tons of material from the Moab Site
- Begin early site preparation construction-start for the Oak Ridge On-site Waste Disposal Facility
- Complete removal of 1M pounds of hazardous refrigerant at Paducah
- Dispose of 9,000 tons of Main Plant Process Building demolition waste at West Valley

EM CY23 Mission Priorities

PRIORITY #3: REDUCE THE EM FOOTPRINT

- Complete demolition of four buildings at Test Cell C at the Nevada National Security Site
- Complete Old Town Demolition Phase VI Project at Lawrence Berkeley National Laboratory
- Initiate demolition of Building B251 at Lawrence Livermore National Laboratory
- Complete above-ground demolition of the Q-Complex buildings at Knolls Atomic Power Laboratory
- Complete demolition of the Low Intensity Test Reactor at Oak Ridge

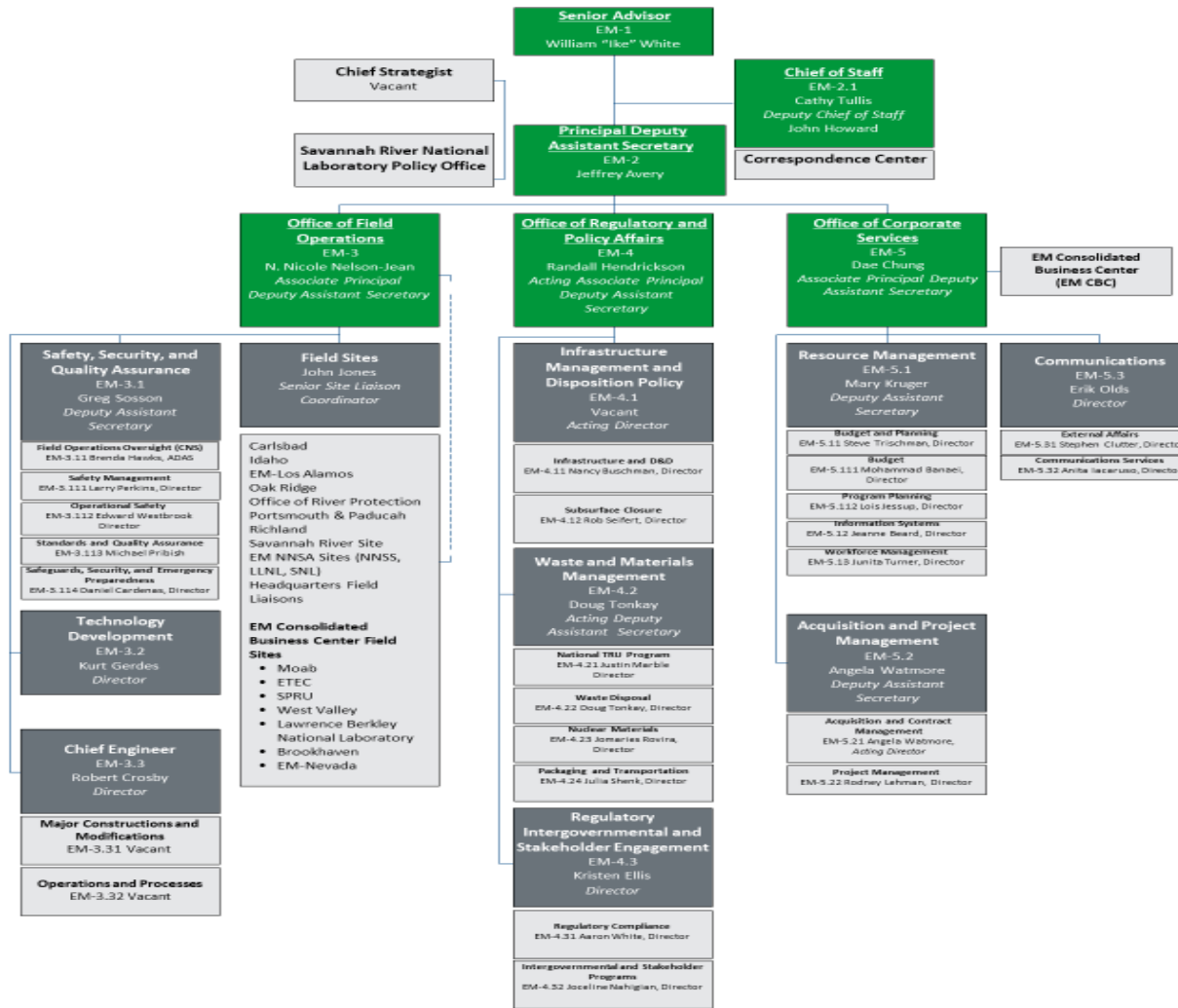
PRIORITY #4: AWARD CONTRACTS THAT ENABLE ACCELERATED PROGRESS

- Award Hanford Integrated Tank Disposition Contract
- Award Portsmouth D&D Contract
- Award Portsmouth Paducah Project Office Operations & Site Mission Support Contract
- Award Small Business Nationwide Deactivation Decommissioning & Removal Contract

PRIORITY #5: DRIVE INNOVATION AND SUSTAINABILITY AND IMPROVE PERFORMANCE

- Meet 5% small business goal
- Award \$20M in competitive grants to Minority Serving Institutions
- Implement life-cycle alternatives analyses for two sites
- Complete 11 of 12 sites DHS Continuous Diagnostics and Mitigation software asset management projects
- Order at least 150 electric vehicles to support EM-wide fleet goals

Who's Who

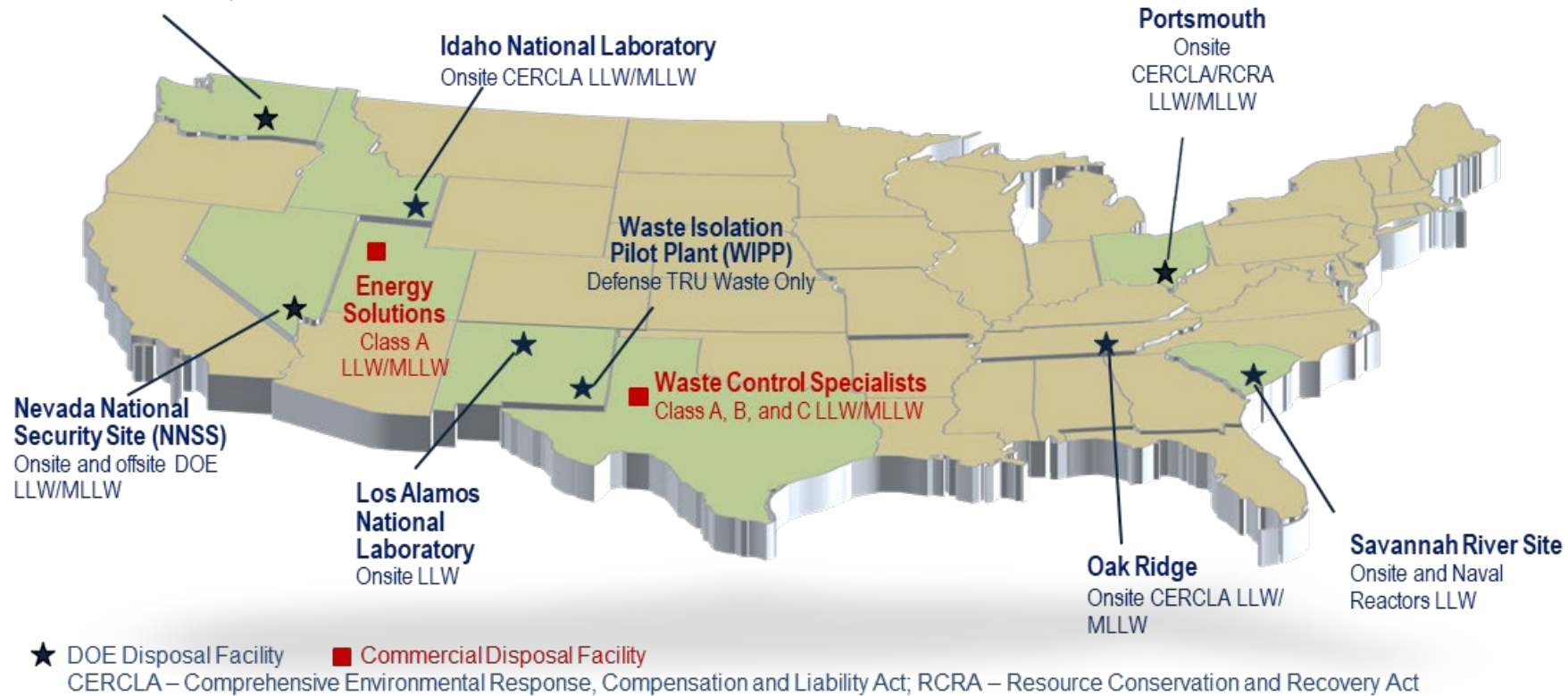


Operating DOE & Commercial LLW Disposal Facilities Used by DOE

Hanford Site

- Onsite LLW/MLLW and Naval Reactors LLW
- Integrated Disposal Facility awaiting commissioning (onsite vitrified low-activity waste and LLW)

- All waste is disposed in accordance with each waste disposal facility's WAC.
- Each waste disposal site is licensed to dispose of specific waste types (see map below for examples).



Waste Disposal Considerations

- DOE's Radioactive Waste Management Manual (M435.1-1) has the current "tiered" policy on treatment, storage, and disposal:

DOE waste shall be treated, stored, and in the case of low-level waste, disposed of at the site where the waste is generated, if practical, or at another DOE facility. If DOE capabilities are not practical or cost effective, exemptions may be approved to allow use of non-DOE facilities for the storage, treatment, or disposal of DOE radioactive waste ...

- Waste disposal is always fully protective of worker and public health and the environment and in compliance with applicable Federal, state, and local requirements, with necessary permit(s), license(s), and approval(s) for the specific waste.
- Sufficient LLW/MLLW disposal capacity exists at DOE and commercial facilities to support the EM cleanup mission.

DOE Order 435.1 Update

- DOE Order 435.1, Radioactive Waste Management, and its Manual (M435.1-1) contains DOE's internal requirements to ensure DOE radioactive waste is managed in a manner that is protective of worker and public health and safety, and the environment
- DOE has updates to the Order well underway and is reconstituting the Guide
- These updates incorporate lessons learned from more than 20 years of implementation and administrative changes
- DOE is committed to providing opportunities for stakeholders to provide feedback and stay informed about DOE's update effort

High-Level Radioactive Waste (HLW) Interpretation

- The HLW interpretation is a tool in the “waste management policy toolbox” that, when implemented, allows DOE to dispose of defense reprocessing waste in accordance with its radiological characteristics and not by source or where it came from
- Current efforts focused on completion of National Environmental Policy Act Analysis of 2nd Waste Stream, i.e., Draft Environmental Assessment for the Commercial Disposal of Savannah River Site Contaminated Process Equipment (DOE/EA-2154), issued December 21, 2021, for 45-day public comment ending February 4, 2022
- DOE is proceeding deliberately with proactive stakeholder engagement throughout the HLW interpretation process
- A Final EA is being developed after consideration of public comments on the draft EA
- This will be followed by either a Finding of No Significant Impact (FONSI) or a determination to prepare an Environmental Impact Statement. If a FONSI, a technical evaluation and waste determination will also be issued and made available on the EM HLW interpretation website.

GTCC LLW Disposal Status

- New Development (April 2022) – NRC Commission approved the staff’s recommendation to:
 - issue new proposed rule that consolidates/integrates criteria for licensing the disposal of GTCC waste and 10 CFR Part 61, “Low-Level Radioactive Waste Disposal,” rulemaking activities, and
 - provide for Agreement State licensing of those GTCC waste streams that meet the regulatory requirements for near-surface disposal and do not present a hazard such that the NRC should retain disposal authority.
 - NRC Draft Regulatory Basis (July 2019):
 - “...the NRC staff found that a majority of GTCC waste are both potentially suitable for near-surface disposal and could be regulated by an Agreement state.”
 - DOE continues to monitor NRC developments and the Energy Policy Act of 2005 requirement to “await action by Congress.”

Depleted Uranium (DU)

- A 2020 DOE Record of Decision based upon the Final DU Oxide Supplemental Environmental Impact Statement regarding disposition at one or more of the disposal sites evaluated
- DOE can ship to selected commercial site(s) if the facility is authorized/licensed to receive DU oxide in addition to DOE's Nevada National Security Site (NNS) in Nye County, Nevada. Specifically two commercial sites are:
 - EnergySolutions near Clive, Utah (not licensed yet)
 - Waste Control Specialists LLC (WCS) near Andrews, Texas WCS Federal Waste Facility (licensed)
- Disposal timing is dependent on appropriations; funding was received in fiscal year (FY) 2022 to initiate infrastructure upgrades needed to achieve lifecycle shipping rates and complete a limited shipping campaign
- In FY 2022, the project recertified 40 gondola railcars (20 at each site) for near-term shipments, with each railcar capable of shipping six oxide cylinders
- Shipments of 10 rail cars to WCS from both Paducah and Portsmouth facilities as a "special train" is funded for FY 2023 (20 railcars in total) and another may happen.

PFAS Update March 14 2023

MARCH 14, 2023

FACT SHEET: Biden-Harris Administration Takes New Action to Protect Communities from PFAS Pollution

EPA Announces First-Ever National Standard to Address PFAS in Drinking Water

- First-Ever National Standard to Combat PFAS in Drinking Water
Today the Environmental Protection Agency (EPA) [proposed the first-ever national standard](#) to address per- and polyfluoroalkyl substances (PFAS) contamination in drinking water.
- Closing Critical Research Gaps in PFAS Detection, Disposal, Health Effects and PFAS-alternatives. The Department of Energy (DOE) focused research on using molecular probes for rapid detection, separation, and quantification of PFAS in water. DoD, DOE and EPA continued concerted work on safe and effective PFAS destruction technologies.
- Bolstering Community Engagement and Information Sharing: EPA, DOE, and DoD continue to share PFAS information and action updates via dedicated PFAS websites.

DOE PFAS UPDATE 2023

- The DOE policy “[Addressing PFAS at the Department of Energy](#)” guiding DOE efforts to mitigate risk associated with PFAS use, storage/disposal, and reporting of releases at DOE sites.
- The [PFAS Strategic Roadmap: DOE’s Commitments to Action 2022-2025](#), which outlines goals, objectives and specific actions the Department of Energy is taking to address risk from PFAS.
- The [Initial Assessment of Per- and Polyfluoroalkyl Substances at Department of Energy Sites](#). This report summarizes the results of a preliminary evaluation of known historic or current PFAS uses, PFAS occurrence in the environment, and regulatory and stakeholder interactions at DOE program sites.
- The Department is leveraging the expertise of its National Laboratories and other partnerships to enhance PFAS research, guided through the development of an [Initial DOE PFAS Research Plan](#). This initial research plan identifies five PFAS research and development topics, inventories ongoing DOE research efforts and identifies potential research needs.

DOE PFAS UPDATE

DOE Actions: Timeline



LLW/MLLW Data (MIMS and WIMS)

Manifest Information Management System (MIMS)

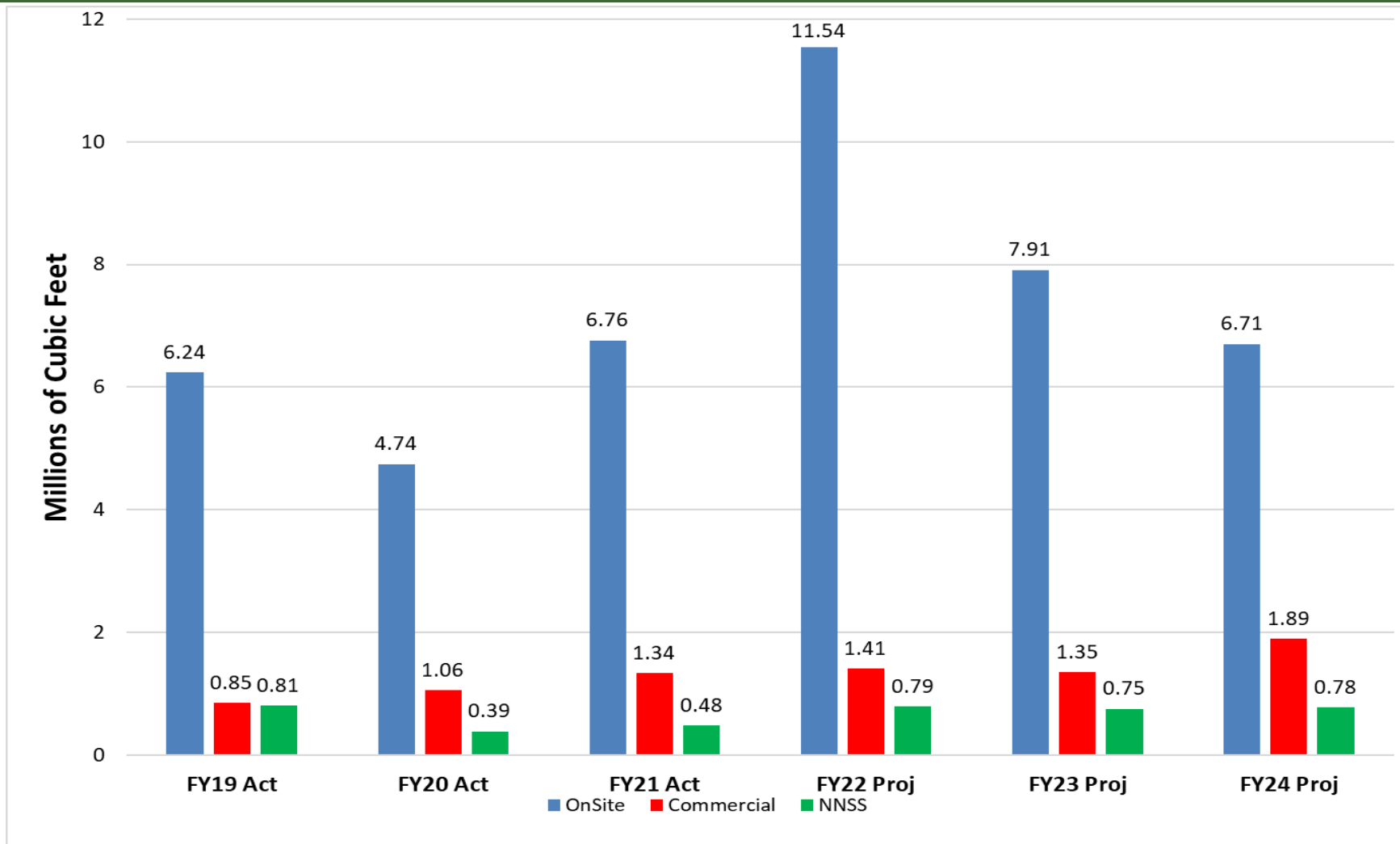
- MIMS is the public source for manifest data of non-DOE LLW shipped to commercial disposal facilities to meet the provisions in 42 U.S.C. 2021g(a).
- States/compacts are the primary stakeholders
- Data is available for currently operating commercial LLW disposal facilities
 - Barnwell (Atlantic Compact), EnergySolutions of Utah, Richland (Northwest Compact/Rocky Mountain Compact), and Waste Control Specialists (Texas Compact).
- Includes calendar year 2022 data from the 4 commercial facilities.
- Visit MIMS at: [MIMS \(doe.gov\)](https://mims.doe.gov)

LLW/MLLW Data (MIMS and WIMS)

Waste Information Management System (WIMS)

- WIMS is developed to provide DOE and stakeholders with the tools necessary to easily visualize, understand, and manage the vast volumes, categories, and problems of forecasted waste streams.
- WIMS meets this need by providing a user-friendly online system to gather, organize, and present waste forecast data from DOE sites. This system provides a method for identification of waste forecast disposal volumes, waste classification, disposition pathways, and potential barriers to final disposition.
- Includes DOE planned LLW/MLLW treatment/disposal forecast
- Annually updated and website maintained by Florida International University
- Out-year data reflects uncertainty due to site funding adjustments, federal budget process, DOE priorities.
- Visit WIMS at: [WIMS - Waste Information Management System \(emwims.org\)](http://emwims.org)

DOE Complex-wide LLW/Mixed Low-Level Waste (MLLW) Disposal Volume* by Disposal Location



Latest on Justice40

EM Efforts under the Justice40 Initiative

The Justice40 Initiative is a requirement of Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad* and provides recommendations on how certain Federal investments might be made toward a goal that 40% of the overall benefits of such investments flow to disadvantaged communities.

- The focus of EM's environmental cleanup work under the Justice40 Initiative is soil and groundwater remediation.
- EM-Los Alamos (EM-LA) is one of five U.S. Department of Energy Pilot Programs under the Justice40 Initiative.
- EM interacts with stakeholders on the Justice40 Initiative through presentations, conference calls, in-person and virtual meetings, and workshops.

Latest on Justice40

EM Minority Serving Institutions Partnership Program (EM MSIPP)

EM MSIPP addresses the need for building and maintaining a well-trained, technically skilled, and diverse workforce by promoting the education and development of the next generation in critical science, engineering, technology, and math (STEM) disciplines.

Existing Programs

- Competitive Research Awards
- Internships
- Savannah River Environmental Sciences Field Station

Expanded Programs

- Technology, Curriculum, and Professional Development Program
- EM/MSIs Shared Interest Research Partnership Program
- Postdoctoral Fellows Program
- Graduate Fellowship Program



Thank you for your Attention

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