



U.S. DEPARTMENT OF  
**ENERGY**

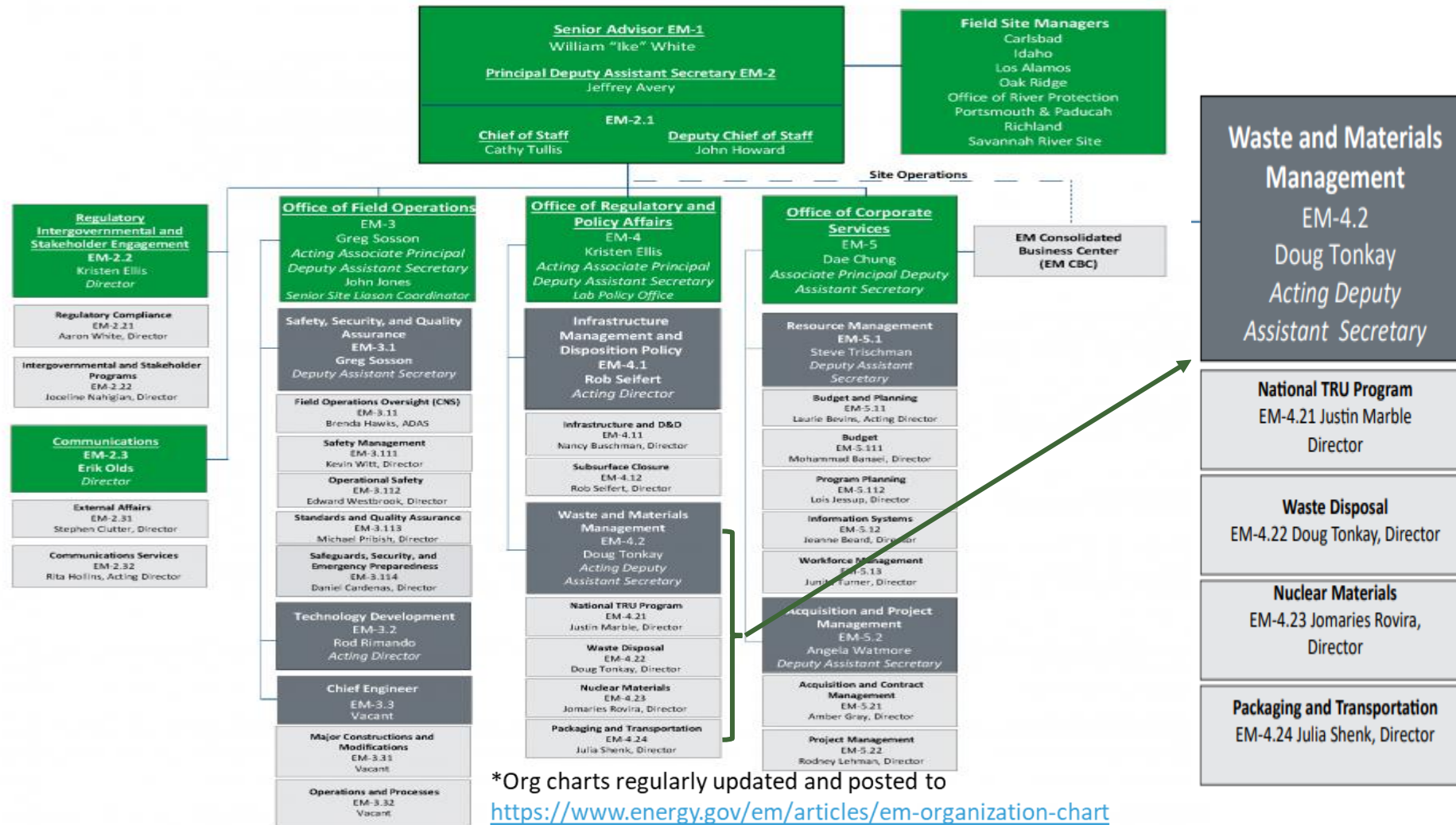
OFFICE OF  
ENVIRONMENTAL  
MANAGEMENT

# DOE/EM Waste Management Update Low Level Radioactive Waste Forum

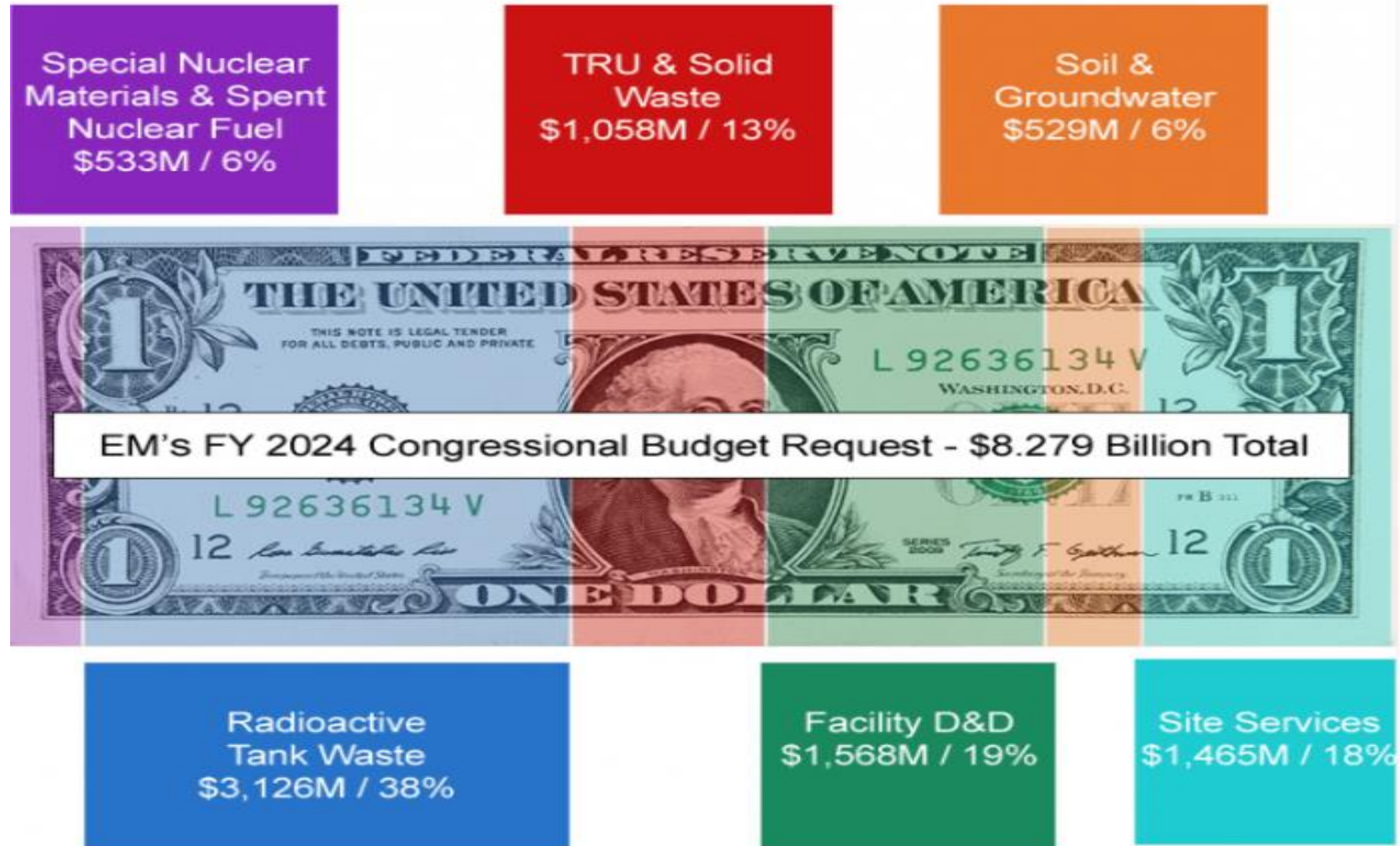
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Douglas Tonkay  
Director  
Office of Waste Disposal  
October 3-4, 2023

# EM Organization Chart (July 26, 2023)



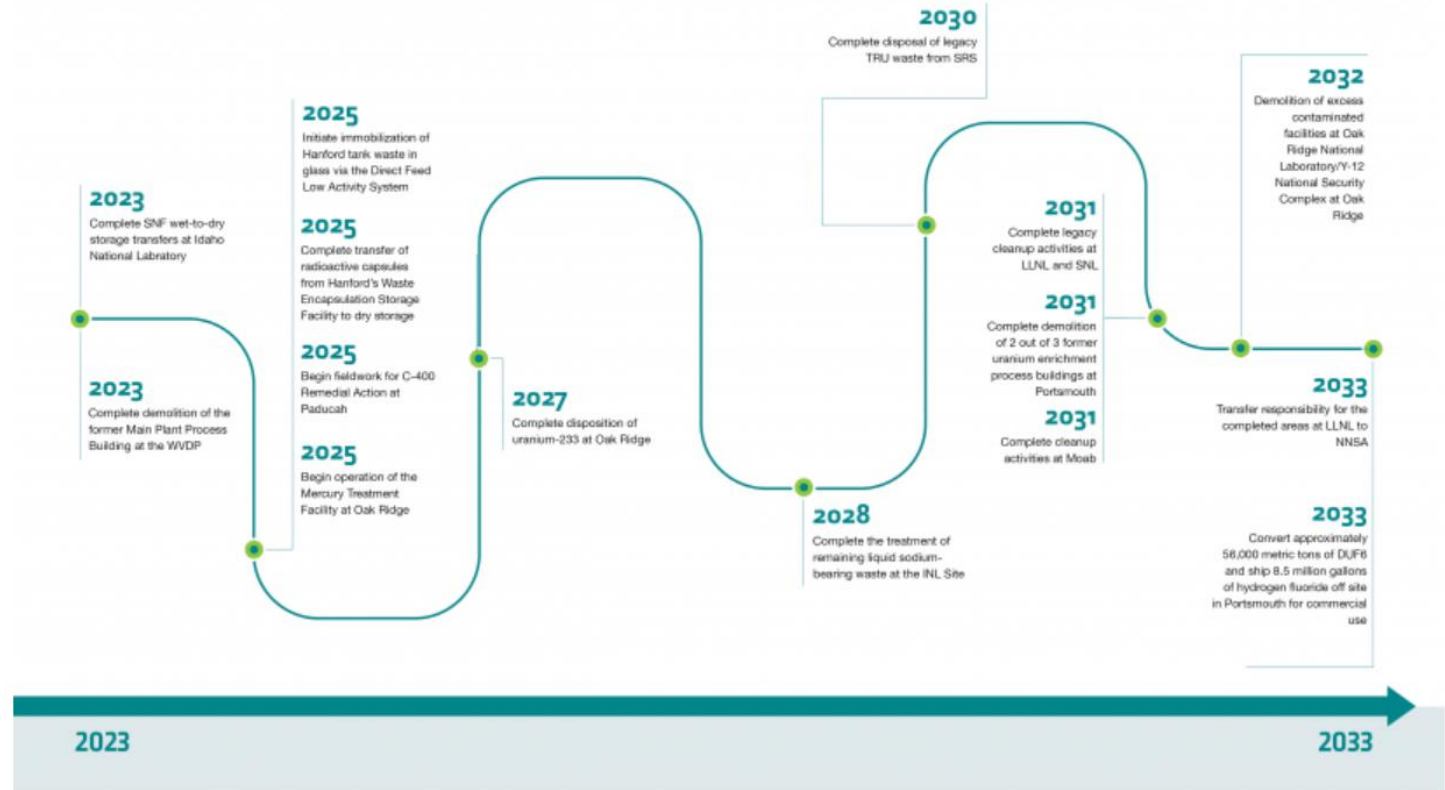
# Budget Request FY 2024



# 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
2. **EM Strategic Vision: 2023–2033** (May 2023)
3. **CY 2023 Mission Priorities**

## Decade Timeline



For more information, visit

[Annual Priorities, Strategic Vision, and Program Plan | Department of Energy website at: https://www.energy.gov/em/office-environmental-management](https://www.energy.gov/em/office-environmental-management)

# Significant Progress Continues

*“While our mission is rooted in the environmental legacy of the past, we are also focused on possibilities for the future. We are looking to the future of EM and our communities.”*

Ike White, EM Senior Advisor

National Clean Up Workshop September 2023

- EM’s successes this year highlight significant construction milestones, key cleanup projects, or activities that reduce the EM Footprint around the DOE Complex.
- Safety is our highest priority!

# EM CY2023 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 CY2023 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

# Hanford

- Commissioning continues of the Waste Treatment Plant's heat up the first of two vitrification melters in the Direct-Feed Low-Activity Waste Facility
  - Loss of power test completed
  - Water tests completed
  - Melter 1 heatup completed (2100<sup>0</sup> F)
  - Melter 2 heatup in progress



Next steps: melter heatup, cold commissioning, hot commissioning, and operations!



# Idaho – Integrated Waste Treatment Unit



Hot operations began in April 2023, treating sodium-bearing radioactive liquid waste. So far more than 68,000 gallons of waste treated (8% complete)

# Waste Isolation Pilot Plant – New Shaft



# Oak Ridge – EM Disposal Facility Groundbreaking



# High-Level Radioactive Waste (HLW) Interpretation

- The HLW interpretation is a tool in the “waste management policy toolbox” that, where implemented, allows DOE to dispose of defense reprocessing waste in accordance with its radiological characteristics and not by source or where it came from, i.e., some reprocessing wastes may be classified as not HLW (non-HLW)
- Since adopting the policy, DOE has implemented the application of the HLW interpretation
  - The first waste stream analyzed was a small volume of SRS Defense Waste Processing Facility (DWPF) recycled wastewater treated and disposed in September 2020.
  - The second waste stream decision was announced on July 18, 2023, to dispose of SRS contaminated process equipment at WCS. The waste includes a drill string, glass pumps, and replacement glass bubblers related to DWPF operations until facility’s end of life. Environmental analysis shows that the proposed action would have no significant impact to human health and the environment and does not constitute a major federal action in the context of NEPA.
  - The drill string is planned to be shipped late in CY2023.
- EM-HQ continues to actively search for candidate waste streams to apply the HLW Interpretation to advance DOE clean-up mission.
- For more information, please see the website at <https://www.energy.gov/em/high-level-radioactive-waste-hlw-interpretation>

# Savannah River Site (SRS) – Completion of Saltstone Disposal Unit 8



# Greater than Class C (GTCC) LLW Disposal Status

- GTCC LLW remains in storage at generators' facilities.
- DOE continues to monitor the Nuclear Regulatory Commission (NRC) regulatory developments, and the Energy Policy Act of 2005 requirement to “await action by Congress.”
- DOE staff have taken advantage of NRC's latest 2023 informative presentations on potential changes to Part 61 low-level waste disposal regulations to integrate criteria for licensing the near-surface disposal of GTCC LLW and depleted uranium.
- We are continuing to discuss with NRC staff our views on the information presented and look forward to an opportunity to review the draft rule and guidance.

# 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:
  - EnergySolutions near Clive, Utah (licensing application in process)
  - Waste Control Specialists LLC (WCS) Federal Waste Facility (licensed)
- Multiple shipments by rail in 2023 with first shipment from Portsmouth site and additional shipments from Paducah site



# Portsmouth & Paducah – Uranium Oxide Shipments for Disposal





# NNSS – D&D of Test Cell C Facility



EM crews begin demolition of Building 3220 at Test Cell C at the Nevada National Security Sites in late June.



An overhead view of Test Cell C Facility on the second day of Building 3220 demolition.

# West Valley Demonstration Project D&D Main Plant Process Building



# DOE PFAS Update 2023

- **“Addressing PFAS at the Department of Energy”**: Memorandum issued by Deputy Secretary guiding DOE efforts to mitigate risk associated with PFAS use, storage/disposal, and reporting of releases at DOE sites.
- **PFAS Strategic Roadmap: DOE’s Commitments to Action 2022-2025**: Outlines goals, objectives and specific actions DOE is taking to address risk from PFAS.
- **Initial Assessment of Per- and Polyfluoroalkyl Substances at Department of Energy Sites**: 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.
- **Initial DOE PFAS Research Plan**: Leverages expertise of DOE National Laboratories and other partnerships to enhance PFAS research, identify 5 research and development topics, inventory ongoing DOE research efforts, and identify potential research needs.

## Recent Updates:

- **PFAS Sampling Guidance**: Published August 2023, presents a framework for investigating PFAS at DOE sites and facilities and describes methods for sampling and analyzing environmental conditions to help identify the nature and extent of contamination, PFAS concentrations in source zones, and the extent and impact of PFAS migration from those zones.

# DOE PFAS Updates

Resources can be found at [energy.gov/PFAS](https://energy.gov/PFAS)

## DOE Actions: Timeline



\*DOE will complete its *PFAS Storage and Disposal Guidance* following EPA update of its *Interim Guidance on Destroying and Disposing of Certain PFAS and PFAS-Containing Materials*, as EPA recommendations are incorporated into DOE's internal procedures.

# Waste Disposal Considerations

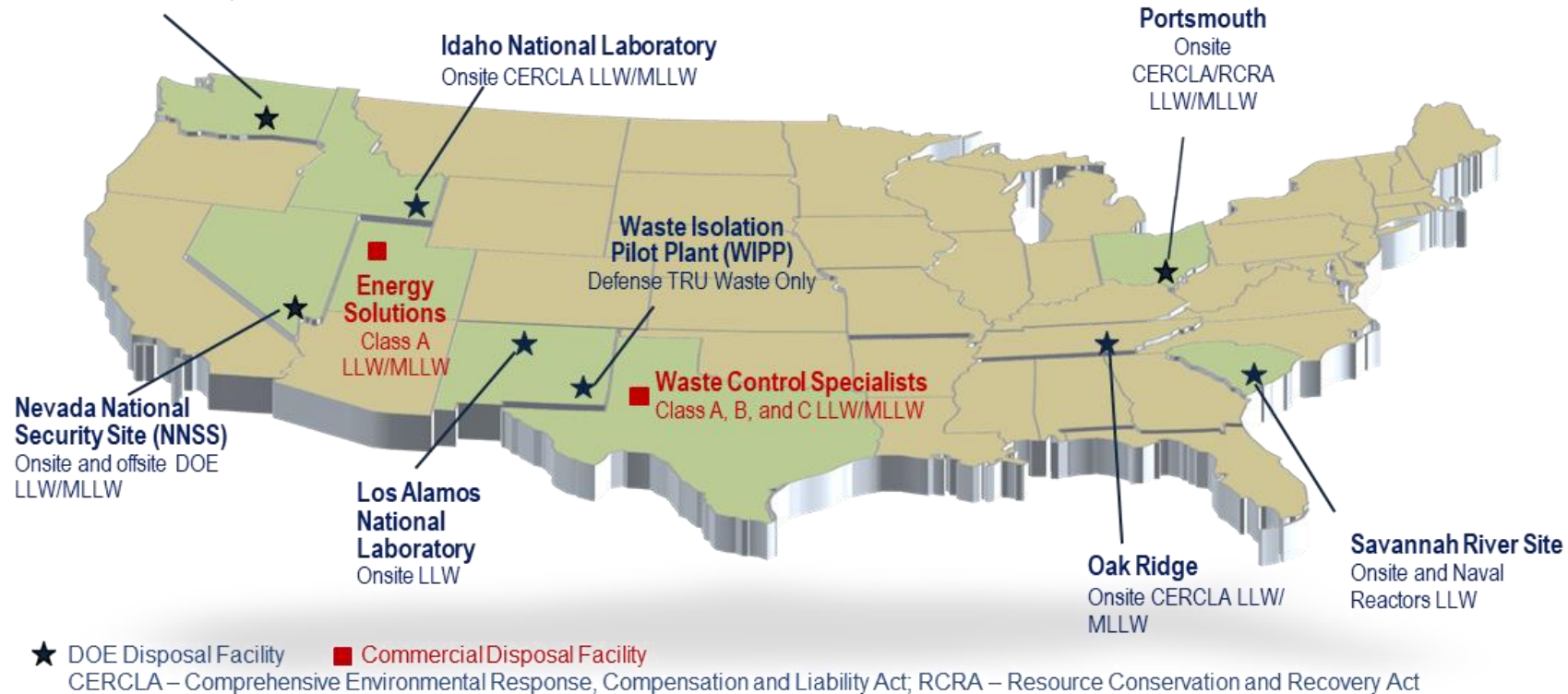
- DOE's Radioactive Waste Management Manual found in 435.1-1 has a “tiered” policy on treatment, storage, and disposal:
  - *DOE waste shall be treated, stored, and in the case of low-level waste, disposed of at the site where the waste is generated, if practical, or at another DOE facility. If DOE capabilities 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.

# 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).



# DOE LLW/MLLW Data

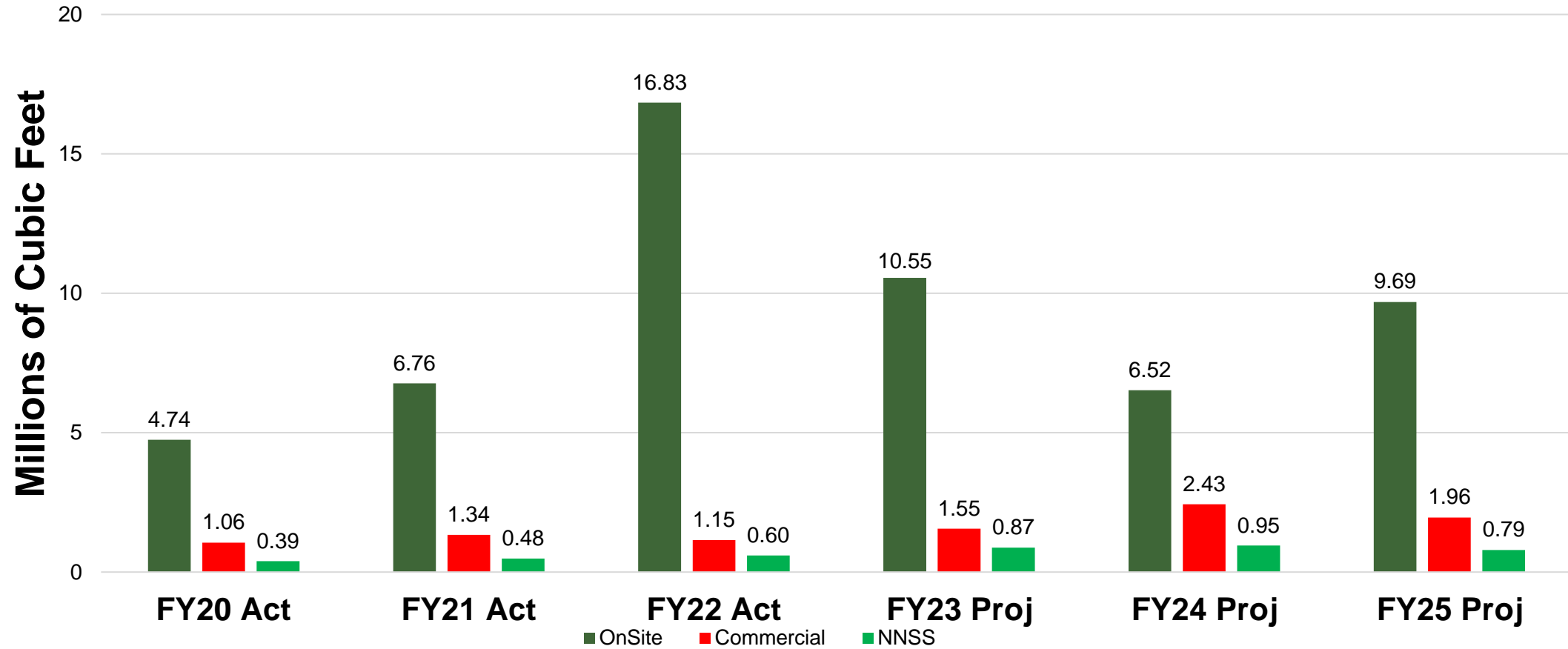
## Waste Information Management System (WIMS)

- WIMS is developed to provide stakeholders with the tools necessary to easily visualize, and understand current and future waste volumes, categories, and problems of forecasted waste streams.
- WIMS meets this need by providing a user-friendly online system to 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 LLW/MLLW treatment/disposal forecast from all DOE sites, not just EM sites.
- 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: [Waste Information Management System \(emwims.org\)](http://emwims.org)

# DOE Complex-wide LLW/MLLW Disposal Volume by Disposal Location

(Does not include waste labeled “unknown” or “other”, and “NNSS” represents waste generated outside of Nevada that was disposed at NNSS)





# Commercial LLW Disposal Manifest Data

## 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, EnergySolutions, US Ecology, and Waste Control Specialists
- Currently updated with CY 2022 data. Next update will be January of 2024 (update with CY 2023 data)

Visit MIMS at: [mims.doe.gov](https://mims.doe.gov)

**Thank you for your Attention**

Questions?