



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

EM Complex Waste Management Update

Frank Marcinowski

Deputy Assistant Secretary for Waste Management
Office of Environmental Management

December 2013

Discussion Outline

- Waste Management Accomplishments and Priorities
- National TRU Program Update
- LLW/MLLW Disposal Update
- Other Programmatic Updates

- **WIPP:** Emplaced 5,065 cubic meters of TRU with 89 percent of shipments departed from TRU waste sites as planned
- **Los Alamos:** Met Framework Agreement goal for FY 13 ahead of schedule, disposing of over 1,800 cubic meters of legacy managed TRU waste
- **Oak Ridge:** Partnered with regulators to develop strategy for mercury cleanup efforts; continued TRU processing
- **SRS:** Completed remediation of all legacy TRU wastes; continued shipments to WIPP
- **Idaho:** Improved operations at the Advanced Mixed Waste Project; repurposed an existing facility for processing of sludge wastes; continued repackaging and shipment of remote handled TRU waste. Shipped 4,454 cubic meters of legacy managed TRU waste, including 2,139 cubic meters of TRU waste to WIPP

- **Portsmouth:** Reached full production rate of the DUF6 Conversion facility
- **Paducah:** 50,000 cubic feet of PCB debris from C-340 disposed offsite
- **Moab:** Shipped 695,071 tons of uranium residual radioactive material for disposal
- **WVDP:** Demolished Building 01-14 removing 34,000 cubic feet of LLW; initiated interim storage pad for HLW relocation
- **SPRU:** Completed construction of enclosures and ventilation systems; began sludge waste processing
- **Nevada:** Disposed 1.099 million cubic feet of LLW/MLLW (82 percent of FY 13 goal)
- **River Protection:** Developed and issued a Hanford Tank Waste Retrieval, Treatment and Disposition Framework
- **Richland:** Continued onsite disposal at ERDF to support site cleanup activities

- **Idaho:** Start treatment of sodium bearing waste; continue CH and RH TRU projects; continue excavation of buried TRU waste;
- **Los Alamos:** Complete 3706 Campaign; work toward other Framework Agreement milestones
- **Carlsbad:** Continue optimized TRU program: LANL, INL, OR and SRS
- **Oak Ridge:** Resumption of TRU waste certification and shipments to WIPP
- **Office of River Protection:** Continue to work with State and regulators on Framework implementation
- **Portsmouth/Paducah:** Continue operation of DUF6 Conversion Plants; Issue Records of Decision regarding on-site disposal facilities
- **Savannah River:** Complete certification of legacy TRU waste and continue shipments; process and disposition non-MOXable plutonium
- **West Valley:** Disposition 3 large components (vitrification melter and two large associated vessels); continue prep for HLW relocation

Legacy TRU Waste Removed from 22 of 30 Sites

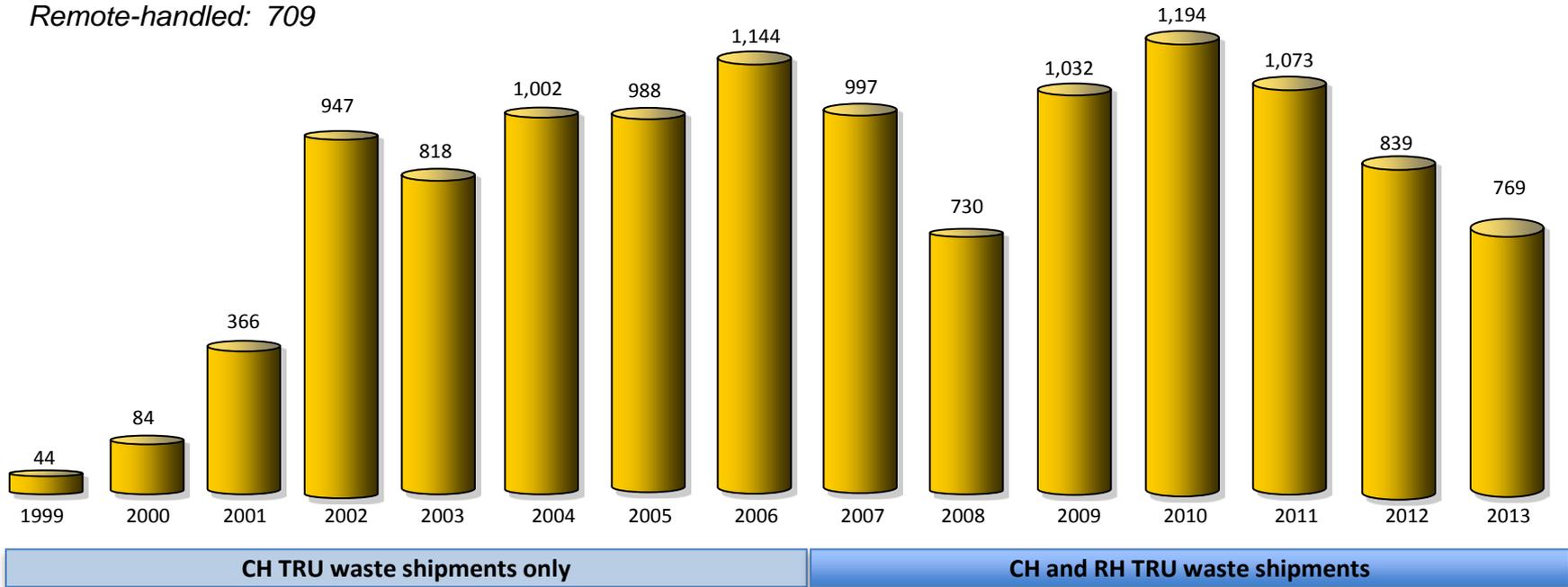


History of Shipments to WIPP

**Shipments received
at WIPP as of September 29, 2013: 11,664**

**89,104 cubic meters during
14 years of safe operations**

Contact-handled: 10,955
Remote-handled: 709



Total Shipments Received by Calendar Year
(Including intersite shipments)

WIPP Safety and Regulatory Compliance are Paramount

- Stellar safety record

- Excellent worker safety
- Star of Excellence for Voluntary Protection Program
- Decades of national recognition for mine rescue teams
- Highest level of recognition for environmental excellence from State of New Mexico



- Key Regulators

- **DOE** - self regulation for nuclear safety and radioactive waste management
- **U.S. Environmental Protection Agency** – Certification to Radioactive Waste Disposal Standards
- **New Mexico Environmental Department** – Hazardous Waste Facility Permit
- **U.S. Nuclear Regulatory Commission** – waste package certification

NNSS Accomplishments

- Continued soil and groundwater remediation activities -- including characterization and monitoring of underground nuclear test contamination, cleanup of above-ground industrial sites and surface soil contamination
- Continued to serve an important cleanup mission as regional disposal facility for DOE LLW/MLLW:
 - DOE sites forecasted disposal in FY 13 Forecast of 1,338,000 cubic feet, but actual disposal was 1,099,000 cubic feet (82%)
 - DOE sites are initially forecasting over 1.4 million cubic feet in FY 14



Status of Disposal at Nevada National Security Site in FY 2013 & 2014 (cubic feet disposed)

Generator Site	FY 2013 Forecast	FY 2013 Actual	FY 2014 Forecast
Portsmouth GDP (OH)	490,000	228,000	440,000
Oak Ridge Reservation (TN)	214,000	150,000	247,000
Oak Ridge NNSA/Y-12 (TN)	144,000	186,000	142,000
Los Alamos National Lab (NM)	103,000	99,000	251,000
Idaho Site (ID)	103,000	99,000	93,000
Livermore Nat'l Lab (CA)	78,000	80,000	23,000
Paducah GDP (KY)	21,000	11,000	56,000
NNSA/Nuclear Fuel Services (TN)	74,000	88,000	70,000
Onsite NNS (NV)	35,000	10,000	23,000
Savannah River (SC)	25,000	17,000	9,000
West Valley (NY)	6,000	43,000	4,000
All other sites	<u>45,000</u>	<u>88,000</u>	<u>65,000</u>
Total	1,338,000	1,099,000	1,423,000

DOE Use of Commercial Disposal Options

- DOE policy supports consideration of commercial disposition options in addition to DOE options, when compliant, cost effective, and in the best interest of the U.S. government
- **EnergySolutions (Clive, Utah)**
 - Accept Class A LLW and MLLW; 11e(2); NORM
 - Offers rail access, onsite treatment, and favorable bulk waste handling and disposal
- **Waste Control Specialists LLC (Andrews County, Texas)**
 - Multiple disposal facilities/licenses
 - Hazardous/exempt; 11e(2); NORM
 - Texas Compact Class A, B and C LLW – non-DOE waste
 - Federal Waste Facility Class A, B, and C LLW/MLLW – DOE waste
 - Offers onsite rail access, onsite treatment and storage capabilities

- EnergySolutions' Clive facility continues to provide a key role in disposition of DOE generated LLW and MLLW
- Most DOE sites are certified waste generators
- Direct railcar access to Clive site allows DOE sites to ship direct or transload from truck at a nearby site
- WVDP disposed building 01-14 debris -- 34,000 cubic ft LLW
- Idaho/AMWTP disposed over 20,000 cubic ft MLLW
- Paducah disposed 50,000 cubic ft PCB debris

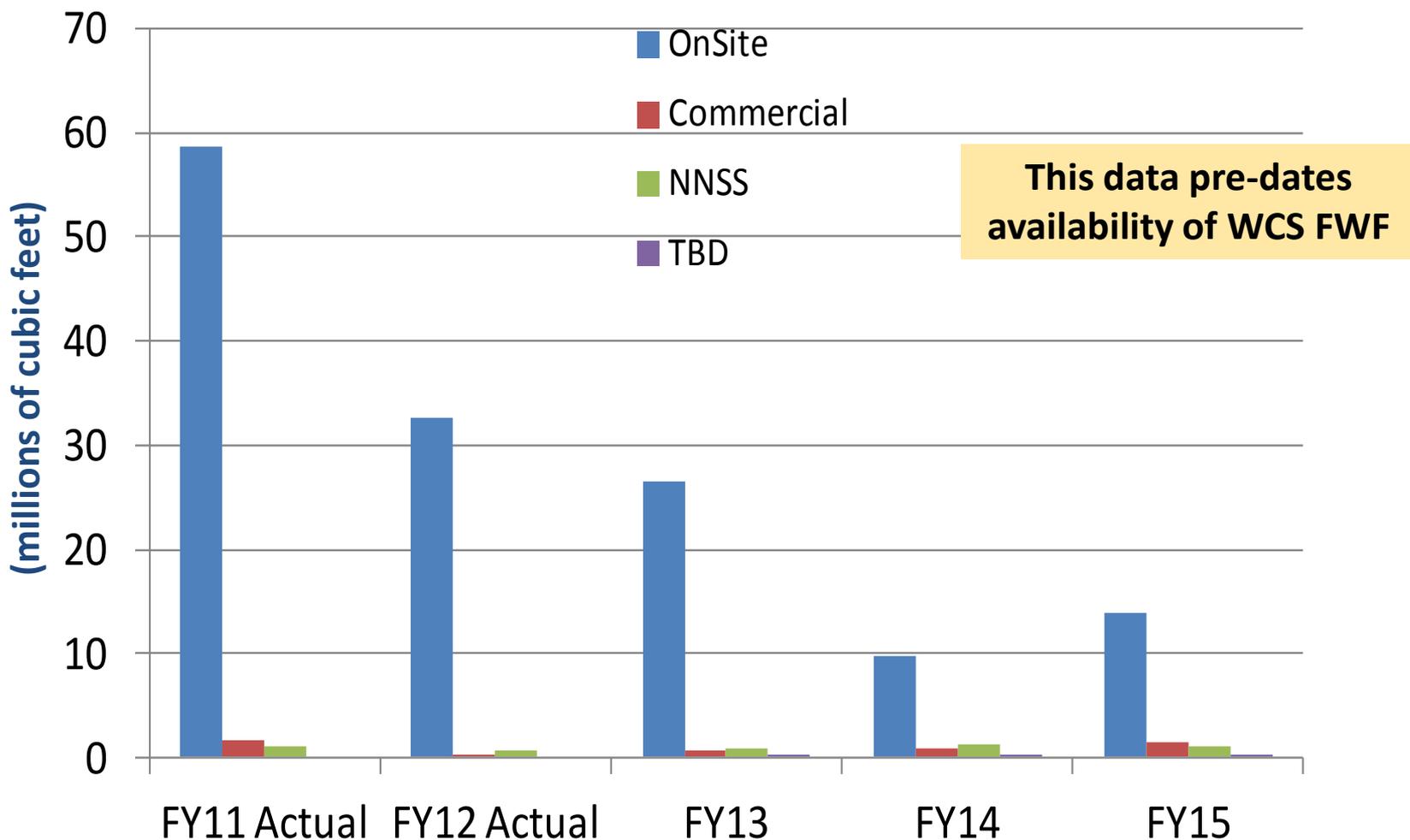


- WCS's Federal Waste Facility (FWF) provides an important, additional disposal alternative for DOE LLW and MLLW
- LANL sent first shipment to the new WCS FWF – shipped over 1,100 cubic yards
 - WCS option has contributed to our successful 3706 campaign for the wastes that were determined to not be TRU
- SPRU processed tank sludge liners are being shipped
- Nine DOE sites have approved programs to ship to WCS, and two more are in process



- DOE updates its life-cycle LLW/MLLW forecasts annually. EM coordinates collection of DOE-wide data with other Program Offices – NNSA, SC, NE, and Naval Reactors
- This information publically available in the Waste Information Management System (WIMS) maintained by the Florida International University (FIU)
- FY 2013 forecasts are currently available at <http://www.emvims.org/>
- This data set reflects approved program baselines as late CY 12.
- FY 2014 data must be considered as preliminary, because the development of the FY 2014 Budget Request was delayed until early CY 13
- At the time this data set was updated, WCS Federal Facility had not yet begun operations

Complex-wide LLW/MLLW Disposal Forecasts Continue Downward Trend



- Greater Than Class C (GTCC) LLW
 - Anticipate releasing final EIS in 2014, followed by submission of the required Report to Congress and will await Congressional direction

- Mercury Storage EIS
 - Mercury Export Ban Act (MEBA) banned export of elemental mercury as of Jan. 1, 2013. MEBA requires DOE to site and operate storage facility for mercury generated in US.
 - *Supplemental Environmental Impact Statement for Long Term Management and Storage of Elemental Mercury* evaluated additional locations near WIPP for storage facility (September 2013)
 - No change in Preferred Alternative (WCS site, Andrews, TX)
 - DOE has received seven notifications from private facilities that can store Hg as allowed under MEBA until DOE ready to receive mercury

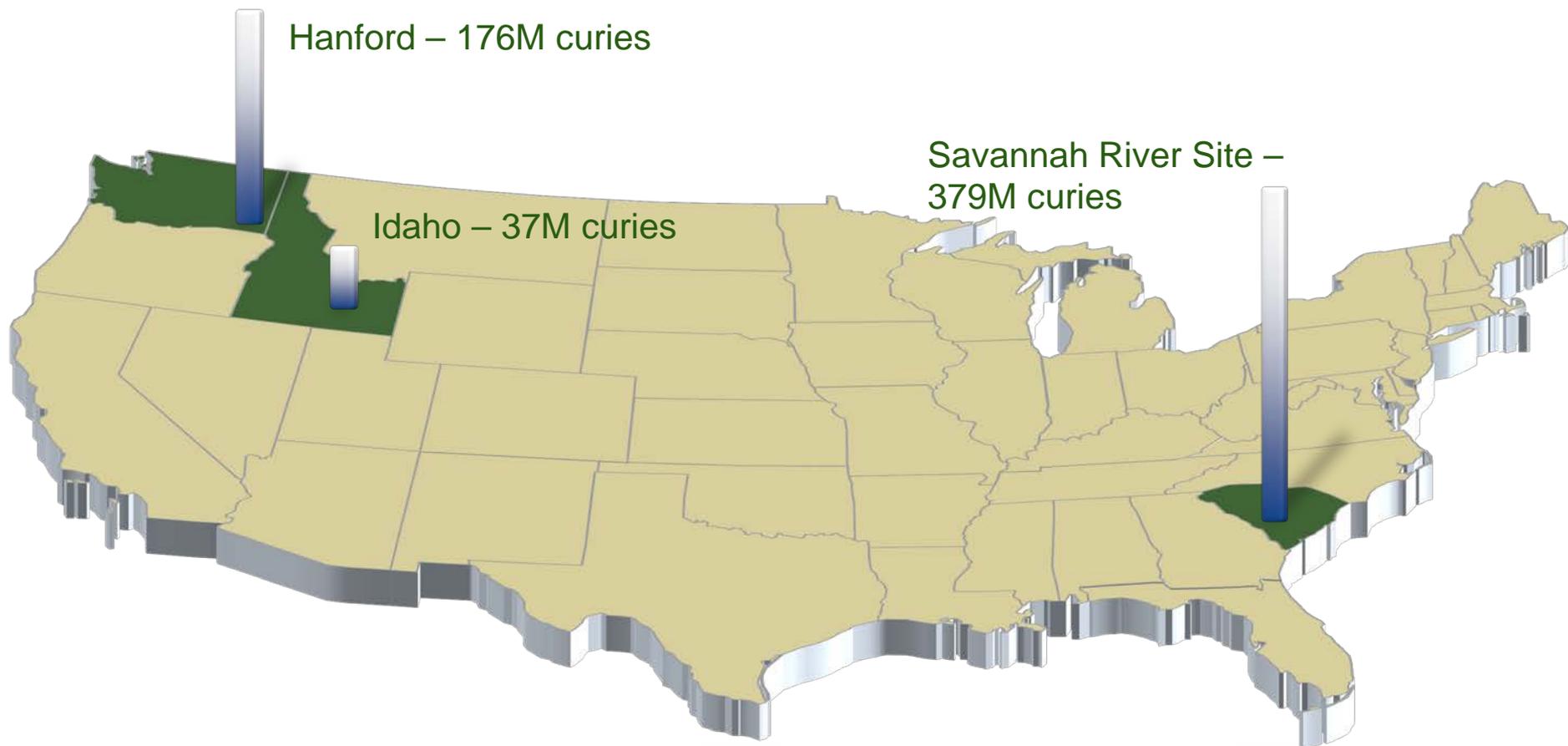
Other Programmatic Updates (continued)

- DOE continues to closely monitor ongoing regulatory changes by the NRC – including the 10 CFR Part 61 LLW Site Specific Analysis Rulemaking
 - DOE provided comments on the preliminary proposed rule language and regulatory analysis
- The Advisory Committee on Reactor Safeguards – Radiation Protection and Nuclear Materials Subcommittee has requested DOE participate in a workshop on DOE’s LLW waste management policy and approach to performance assessment and period of compliance

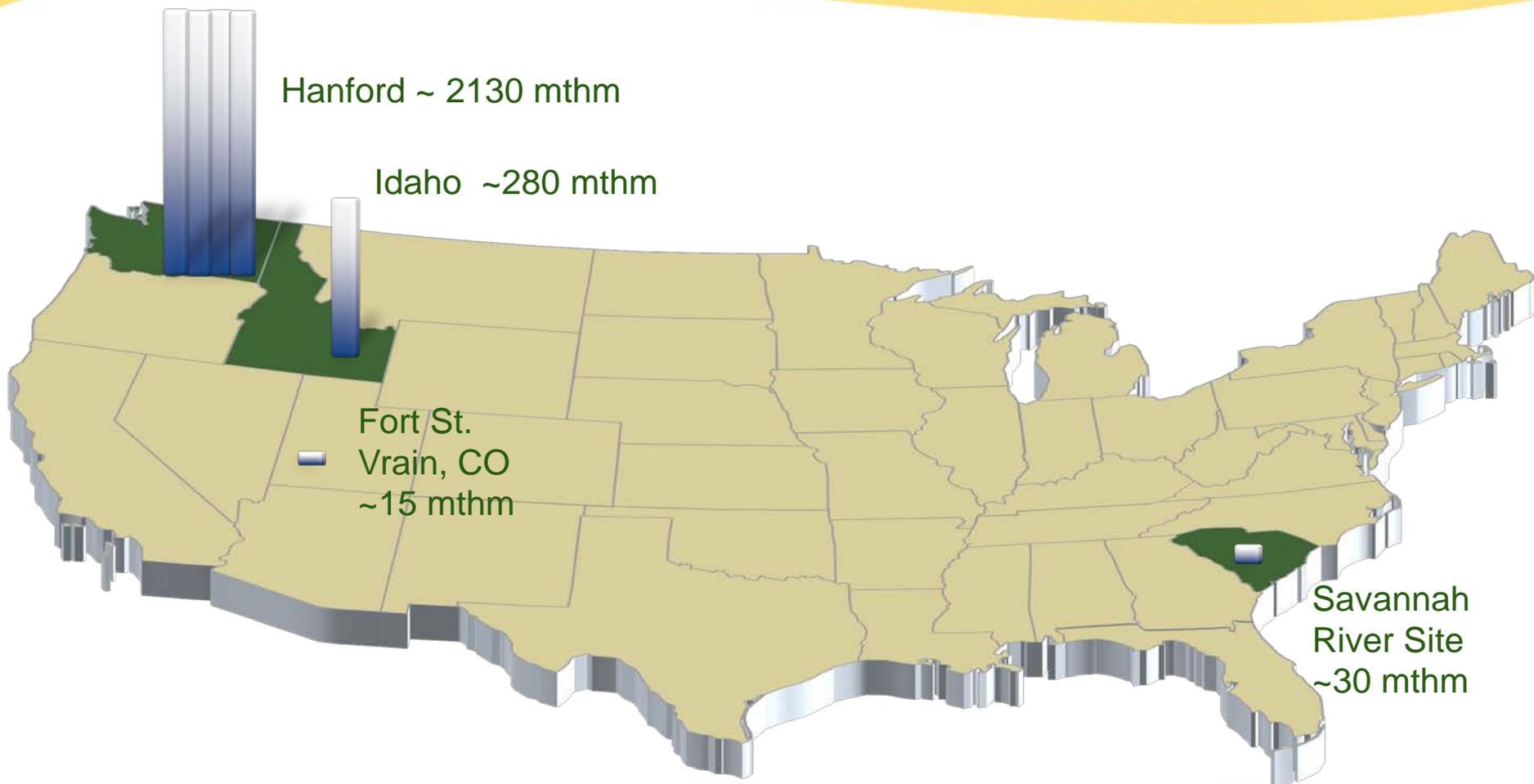
DOE Order 435.1, Radioactive Waste Management

- Proposed updates to Order 435.1 and associated guides are being reviewed by DOE General Counsel
- Major Proposed Changes
 - Consolidation of duplicate requirements into General Requirements
 - Addressing waste consolidation (blending) as a positive, even necessary, action
 - Alignment of 435.1 Waste Incidental to Reprocessing (WIR) evaluation with 3116 waste determination process
 - Increased description of requirement for WIR Citation determination
 - Development of Technical Standard capturing all requirements and authorities associated with authorizing LLW disposal facilities operations
- Next Steps:
 - Release for 60 day public review and comment period (mid-Winter) and hold two webinars for public meetings during comment period
 - Response to public comments (late Spring/early Summer)
 - Formal review and approval by DOE (Summer/Fall)

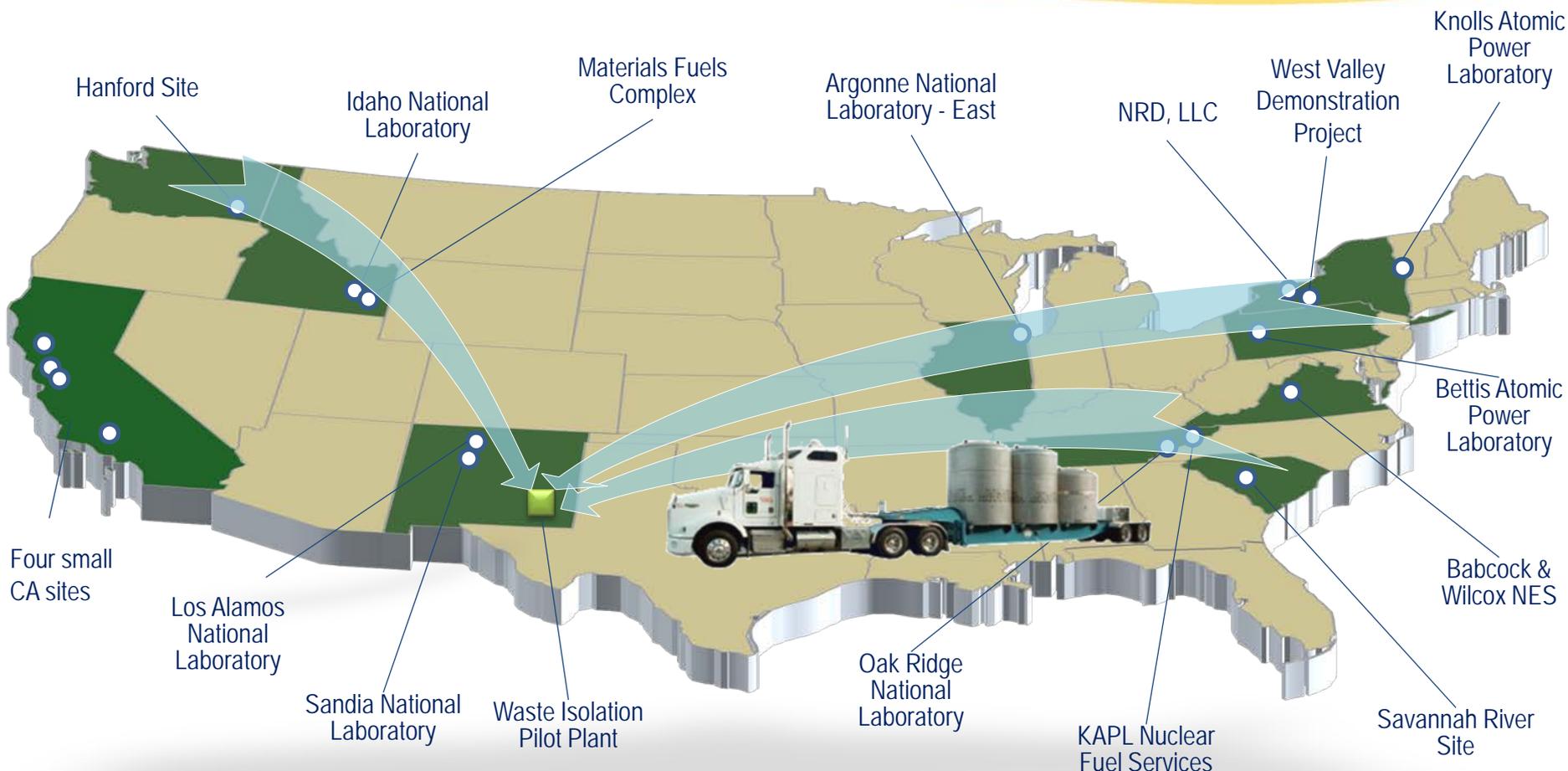
- EM continues to work with the Office of Nuclear Energy and the Secretary's senior advisors on matters related to the Department's action in response to the Blue Ribbon Commission on America's Nuclear Future
 - As Secretary Moniz reported (in his testimony) to the Senate Energy and Natural Resources Committee, DOE has initiated studies to evaluate whether defense and commercial wastes should be "commingled" in a single repository
- DOE's NNSA continues its efforts to complete NEPA analyses on release of clean metals from radiological areas



DOE SNF Sites



DOE TRU Waste Sites



Shipments
11,689

Safe Loaded Miles
13,968,591

Total disposed to date
89,360 m³

As of October 27, 2013

LLW/MLLW Disposition Complex



EM Disposition Summaries

Hanford: ERDF, Mixed waste trenches; LLW burial ground; IDF (future)

- **LLW:** On site, including remediation wastes
- **MLLW:** On site (most); commercial (small volume sent offsite for treatment)
- **TRU:** WIPP
- **HLW & SNF:** TBD
- **SNM:** Plutonium shipped to other sites (complete)

SRS: E-Area facilities; saltstone vaults

- **LLW:** On site (most); some NNSS and commercial
- **MLLW:** NNSS and commercial
- **TRU:** WIPP
- **HLW & SNF:** TBD
- **SNM:** downblended Pu to WIPP; other Pu planned for MOX

EM Disposition Summaries

Idaho: ICDF; RH vaults

- **LLW:** Remediation wastes on site ICDF; on site CH vaults (past); RH on site RH vaults; NNSS and commercial
 - **MLLW:** NNSS and commercial; remediation wastes may remain onsite
 - **TRU:** WIPP
 - **HLW & SNF:** TBD
 - **SNM:** EM owned shipped to other sites (complete)
- ★ AMWTP receives offsite TRU from select sites for processing and/or certification prior to shipment to WIPP (1 yr schedule limit)

EM Disposition Summaries

LANL: Area G disposal facility

- **LLW:** NNS and commercial; some NNSA LLW on site
- **MLLW:** NNS and commercial
- **TRU:** WIPP

NNS: Area 5 (active); Area 3 (standby)

- **LLW:** onsite
- **MLLW:** onsite
- **TRU:** WIPP (some via AMWTP) – complete
- ★ **NNS** selected and operates as regional disposal for LLW/MLLW

EM Disposition Summaries

Oak Ridge: EMWF ; new CERCLA cell (future)

- **LLW:** Onsite - remediation only; NNSS and commercial
- **MLLW:** Onsite - remediation only; NNSS and commercial
- **TRU:** WIPP
- **DUF6 cylinders:** Portsmouth (complete)

Portsmouth: On site CERCLA cell under evaluation

- **LLW:** NNSS and commercial
- **MLLW:** NNSS and commercial
- **DUF6 conversion product:** TBD – NNSS and commercial options anticipated

Paducah: On site CERCLA cell under evaluation

- **LLW:** NNS and commercial
- **MLLW:** NNS and commercial
- **DUF6 conversion product:** TBD – NNS and commercial options anticipated

West Valley:

- **LLW:** NNS and commercial
 - **LLW WIR components:** WCS
- **MLLW:** NNS and commercial
- **TRU:** TBD, pending GTCC LLW EIS and Congressional decision
- **HLW:** NY owned; on site storage pending repository
- **SNF:** Idaho (complete)

MOAB

- **Uranium tailings:** Crescent Junction disposal cell

Small Sites:

- If **CH TRU:** AMWTP and WIPP
- If **RH TRU:** WIPP
- **LLW:** commercial and NNSS
- **MLLW:** commercial and NNSS

- In these budget constrained times, it is more important than ever that DOE – and more broadly, the US -- optimize its waste management system to ensure environmental cleanup can continue
 - Continued integration and flexibility are critical
 - Political and social influences are increasing
 - Financial and economic factors present real constraints
 - Pending and contemplated regulatory changes will also have impact
- The Path Forward....
 - Continue close consultation with and among stakeholders
 - Ensure plans are risk informed
 - Continue to encourage innovation and identification of new disposition options