Transportation in Environmental Cleanup

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Office of Packaging and Transportation
Office of Environmental Management

Midwestern Radioactive Materials Transportation Committee Meeting
December 1, 2016
Discussion Topics

- Environmental Management Cleanup
  - Site Information
  - Waste Stream Information
  - Transportation Activities
- Off-Site Source Recovery
- Greater-Than-Class C (GTCC) Low-Level Radioactive Waste
- Reorganization of the Office of Environmental Management
  - New Structure
- Update on the Office of Packaging and Transportation
  - Mission
  - Core Values
  - Activities
Environmental Management Cleanup
DOE’s Unique Waste Management Mission

- Authority and responsibility for management of all DOE-generated waste under authority of the Atomic Energy Act, as amended
- Clear distinction between DOE and non-DOE waste in Low Level Waste Policy Amendments Act
EM is an operational federal program performing a wide variety of tasks to clean up the environmental legacy of the U.S. nuclear weapons complex:

- **PACKAGE**
- **STORAGE**
- **EXCAVATE**
- **BUILD & TREAT**
- **TRANSPORT**
- **DEMOLISH**
- **SAFEGUARD**
EM’s FY 2017 Budget Request - $6.119 Billion Total

- **Radioactive Tank Waste**: $2,410M / 40%
- **Facility D&D**: $887M / 14%
- **Site Services****: $732M / 12%
- **Special Nuclear Materials & Used Nuclear Fuel**: $873M / 14%
- **Transuranic & Solid Waste**: $773M / 13%
- **Soil & Groundwater**: $445M / 7%

**Includes Safeguards and Security**

**Includes Program Direction, Program Support, Mission Innovation and Technology, Post Closure Administration, Community and Regulatory Support, and $104M of GPP and Maintenance & Repair Activities.**
EM has reduced its footprint by 90% to less than 300 square miles
16 sites in 11 states with remaining cleanup activities
Separations Process Research Unit
• Paducah
  • Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)

• Portsmouth
  • X-326 process building
  • Record of Decision

• Depleted uranium hexafluoride (DUF6)
Oak Ridge

- Contact-handled Transuranic waste
- K-25 Demolition
- Mercury Cleanup
- CH-TRU processing activities
West Valley Demonstration Project

Shipment of large components to disposal site
EM Nuclear Materials and Spent Nuclear Fuel

- Idaho National Laboratory
- Oak Ridge, TN
- Richland, WA
- Savannah River Site, SC
## FY16 NNSS Disposal

<table>
<thead>
<tr>
<th>Generator Site</th>
<th>FY 2016 Volume (m³)</th>
<th>FY 2016 Shipments</th>
<th>FY 2016 Packages</th>
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<tbody>
<tr>
<td>AMWTP</td>
<td>1,166.97</td>
<td>59</td>
<td>275</td>
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<tr>
<td>Y-12</td>
<td>3,622.82</td>
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<td>1610</td>
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<tr>
<td>Idaho National Laboratory</td>
<td>1,196.87</td>
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<tr>
<td>LANL</td>
<td>1,364.20</td>
<td>41</td>
<td>260</td>
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<tr>
<td>Materials &amp; Energy Corporation Perma-Fix</td>
<td>4,067.70</td>
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<td>614</td>
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<tr>
<td>Oak Ridge Reservation</td>
<td>6,775.41</td>
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<td>1369</td>
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<tr>
<td>Portsmouth GDP</td>
<td>7,267.21</td>
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<td>2601</td>
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<td>Battelle Energy Alliance</td>
<td>900.37</td>
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<td>136</td>
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<tr>
<td>Navarro</td>
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<td>77</td>
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<td>LLNL</td>
<td>524.24</td>
<td>9</td>
<td>179</td>
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<tr>
<td>Nuclear Fuel Services</td>
<td>511.56</td>
<td>25</td>
<td>707</td>
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<tr>
<td>UT-Battelle /Oak Ridge NL</td>
<td>314.68</td>
<td>15</td>
<td>81</td>
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<tr>
<td>All Other Sites</td>
<td>1,229.06</td>
<td>77</td>
<td>458</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29,616.52</strong></td>
<td><strong>1154</strong></td>
<td><strong>8715</strong></td>
</tr>
</tbody>
</table>
Disposal Options

- DOE policy supports commercial disposition options.
- **EnergySolutions** (Clive, Utah)
  - Accepts 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
- **NNSS** -- Waste meeting the NNSS waste acceptance criteria
EM updates DOE-wide life-cycle LLW/MLLW forecasts annually with input from other Program Offices – National Nuclear Security Administration, Office of Science, Office of Nuclear Energy, and Naval Reactors.

This information is publicly available through Waste Information Management System (WIMS) maintained by the Florida International University, http://www.emwims.org/
FY15 DOE Shipments

DOE HAZMAT SHIPMENTS BY PROGRAM

Total shipments = 18642
Total number of Shipments = 16,897
## Historical EM Shipments

<table>
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<tr>
<th>Year</th>
<th>Shipments</th>
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<tr>
<td>2</td>
<td>24,393.00</td>
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<td>3</td>
<td>17,393.00</td>
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<tr>
<td>4</td>
<td>7,802.00</td>
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<td>5</td>
<td>8,604.00</td>
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<td>6</td>
<td>6,687.00</td>
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<tr>
<td>7</td>
<td>18,774.00</td>
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<tr>
<td>8</td>
<td>18,231.00</td>
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<tr>
<td>9</td>
<td>9,586.00</td>
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<tr>
<td>10</td>
<td>7,642.00</td>
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<tr>
<td>11</td>
<td>9,060.00</td>
</tr>
<tr>
<td>12</td>
<td>16,897.00</td>
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</tbody>
</table>

The bar chart above represents the historical EM shipments from 1 to 12 years.
Watch this space.
Off-Site Source Recovery
ORS Off-Site Source Recovery Program

Mission:
The Office of Radiological Security (ORS) removes to secure storage and disposes of disused radiological sealed sources that present a potential risk to national security, public health, and safety. Additionally, OSRP support ORS in the repatriation of US origin sources from International partner countries.
OSRP Background

- Formally started in 1999 at Los Alamos National Laboratory as part of DOE-Environmental Management
- Manages ten primary isotopes, including: Am-241, Cf-252, Cm-244, Co-60, Cs-137, Ir-192, Pu-238, Pu-239, Ra-226, and Sr-90
- Other sealed sources may be managed as needed.
- Now the program is managed within NNSA Global Material Security as part of Office of Radiological Security
- OSRP is operated out of several ORS supported National Laboratories.
• Although secure storage is a temporary measure, the longer sources remain disused or unwanted, the greater the chances increase that they will become unsecured or abandoned. Thus, permanent disposal is essential.

• To carry out its mission, ORS OSRP has the authority to acquire disused sealed sources.

• OSRP primarily recovers Am-241, Cs-137, Co-60, Pu-238, Pu-239:
  • Different Types of Recoveries – Transuranics, Low-activity (<4.8 TBq) beta/gamma sources without commercial disposal, High-activity beta gamma devices

• Additionally, ORS partners with the Conference of Radiation Control Program Directors (CRCPD) on the Source Collection and Threat Reduction (SCATR) project, which works with state regulators and licensees to round up sources with commercial disposal pathways.
Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste
• February 2016, DOE published the *Final Environmental Impact Statement for the Disposal of Greater-Than-Class C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste*
  • GTCC LLW has radionuclide concentrations that exceed 10 CFR Part 61 limits for Class C LLW.
  • GTCC LLW currently does not have a defined disposal path.
  • GTCC-like waste is DOE owned or generated LLW or TRU waste with characteristics similar to GTCC LLW, and with no identified disposal path.
  • Preferred alternative: land disposal at generic commercial facilities and/or WIPP Geologic Repository.
  • The Final EIS the potential to enable disposal of the entire GTCC LLW and GTCC-like waste inventory of approximately 12,000 cubic meters (m³).
  • Presently there is no preference among the three land disposal technologies (intermediate-depth borehole, enhanced near-surface trench, and above-grade vault) at generic commercial facilities.
• In accordance with the Energy Policy Act of 2005, before the Secretary of Energy makes a final decision on the disposal alternative(s) to be implemented, a Report to Congress must be submitted.
Status on GTCC LLW & GTCC-Like Waste Disposal Actions

The Report to Congress will:
- Describe alternatives under consideration
- Identify waste volume, concentration, and other relevant characteristics
- Identify the Federal and non-Federal options for disposal
- Describe actions to ensure safe disposal of identified radioactive wastes
- Describe projected costs
- Identify options for ensuring that the beneficiaries of the activities resulting from the generation of GTCC waste bear all reasonable costs of disposing of such wastes
- Identify statutory authority required for disposal of GTCC waste

Submit Report to Congress

Await Congressional Action

Issue Record of Decision
EM Reorganization
EM Organization

EM-1 Assistant Secretary
Monica Regalbuto

EM-2 Acting Principal Deputy Assistant Secretary
Susan Cange

EM-2.1 Chief of Staff
Betsy Connell

International Program
Correspondence Center

EM-4 Regulatory and Policy Affairs
Frank Marcinowski, APDAS

EM-4.1 Infrastructure and Disposition Policy
Barton Bambhart, Director
- 4.11 Infrastructure and D&D (Andy Sallaby)
- 4.12 Subsurface Closure (Kurt Gerdts)

EM-4.2 Waste and Materials Management
- 4.21 National TRU Program (Elizabeth Formash)
- 4.22 Waste Disposal (Doug Tonkay)
- 4.23 Nuclear Materials (Steve Schmitzer)
- 4.24 Packaging & Transportation (Joanne Lawrence)

EM-3 Field Operations
Stacy Charboneau, APDAS

EM-3.1 Safety, Security, and Quality Assurance
Jim Hatton, DAS
Greg Gossom, DAS
- 3.11 Field Operations Oversight/CNS
Greg Gossom, DAS
- 3.11.1 Safety Management (Ted Wyka)
- 3.11.2 Operational Safety (Terrance Tracey)
- 3.11.3 Standards and Quality Assurance (Robert Murray)
- 3.11.4 Safeguards, Security, and Emergency Preparedness (Timmy McMillan)

Field Operations
- Carlsbad
- Richland
- Idaho
- Savannah River Site
- Oak Ridge
- Office of River Protection
- Portsmouth & Paducah
- EM CRC Field Support
- Los Alamos
- Mox
- SNF
- ETEC
- WVDP
- NNSA EM Projects (WIPP, LNL, SNL)
- HQ Field Liaisons

EM-3.2 Technology Development
Rod Nimano, Director

EM-3.3 Chief Engineer
John Marra, Chief Engineer
- 3.31 Major Constructions and Modifications (Vacant)
- 3.32 Operations and Processes (Ken Picha, Acting)

EM-5 Corporate Services
Candice Trummel, APDAS

EM-5.1 Resource Management
Connie Flohr, DAS
Melody Bell, DAS
- 5.11 Budget and Planning (Connie Flohr, Acting)
- 5.111 Budget (Robin Osik, Acting)
- 5.112 Program Planning (Lois Jessup)
- 5.12 Information Systems (Jeanne Beard)
- 5.13 Workforce Management (Mary Ann Maloney)

EM-5.2 Acquisition & Project Management
Ralph Holland, DAS
Norbert Doyle, Acting DAS
- 5.21 Acquisition and Contract Management (Norbert Doyle)
- 5.22 Project Management (Vacant)

EM-5.3 Communications
Kristen Ellis, Acting Director
- 5.31 External Affairs (Kristen Ellis)
- 5.32 Communications Services (Melanie Holt)
Update on the Office of Packaging and Transportation
Our Mission

Our mission is to provide guidance, tools, and support for DOE programs and contractors in order to assure safe, compliant, reliable, and efficient transportation of the Department's hazardous and nonhazardous materials.
Core Values

- Safety
- Service
- Compliance
- Security
- Efficiency
OPT Programs and Activities

Packaging Certification
- Certificates of Compliance
- DOE Exemptions
- DOT Special Permits
- Quality Assurance
- RAMPAC

Outreach and Emergency Preparedness
- NTSF
- State Regional Groups
- Tribes
- TEPP
- Prospective Shipment Report
- Fact Sheets

Regulations & Standards Support
- Domestic Federal Agencies
- International Community
- Nongovernmental Organizations
- DOE Orders, Policy, Guidance

Transportation Risk Reduction
- Motor Carrier Evaluations
- Physical Protection
- Transportation Compliance Reviews
- Safety Metrics

Program & Site Support
- DOE/Contractor Interfaces
- TMC
- PMC
- EFCOG
- Tender Negotiations
- Automated Systems
Packaging Certification Portfolio

- Performs six major functions
- In FY-16, work-in-progress-20 packaging dockets
  - 20 dockets open at start of FY
  - 49 dockets closed
  - 46 new dockets opened
  - 9 QA dockets approved
- 17 dockets open at start of FY-17
National Transportation Stakeholders Forum

- National Transportation Stakeholders Forum (NTSF)
- Transportation Emergency Planning and Preparedness

### TEPP Training – FY2016

<table>
<thead>
<tr>
<th>Region</th>
<th>Classes</th>
<th>Students</th>
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<tbody>
<tr>
<td>West</td>
<td>67</td>
<td>716</td>
</tr>
<tr>
<td>South</td>
<td>145</td>
<td>1972</td>
</tr>
<tr>
<td>Midwest</td>
<td>4</td>
<td>59</td>
</tr>
<tr>
<td>Northeast</td>
<td>15</td>
<td>185</td>
</tr>
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</table>
Update on Order Revision

Department-wide responsibility for –

• Developing and maintaining three transportation Orders
  • 460.1D -- Packaging and Transportation Safety
  • 460.2B -- Departmental Materials Transportation and Packaging Management
  • DOE-HDBK-XXX-201X: “Freight Container Handbook”
Defence in Depth for P&T Activities

Transportation Risk Reduction

- Motor Carrier Evaluation Program (MCEP)
- Transportation Safety and Operations Compliance Assurance Program (TCAP)
Operational Tools and Assistance

- Packaging Management and Transportation Management Councils
- EFCOG
- Coordination & Communication Across the Complex
- Automated Tools
  - ATLAS
  - RADCALC
  - RADTRAN
  - WebTRAGIS

Program and Site Support
Summary

• Disposition of radioactive material and sources ultimately requires safe, secure, and compliant packaging and transport operations
• DOE maintains excellent performance record for safely, securely, and efficiently transporting materials
• DOE continues to support domestic and international safety and security efforts
Through partnership with regulators, tribes, stakeholders and industry, we have ability to further clean-up mission while mitigating impacts to environment and communities.
Contact for Additional Information

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Michael E. Wangler, Program Lead and NTSF Chair
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Washington, DC 20585
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Washington, DC 20585
Email: demitrous.blount@em.doe.gov
Additional Information
West Valley Melter Shipment Routing

- New York – Shipment Origin: Heavy haul from WVDP to Transload Facility (located in Western NY) then loaded onto rail cars.
- Pennsylvania*
- Ohio*
- Indiana*
- Illinois*
- Missouri*
- Arkansas*
- Texas*
- New Mexico*
- Texas* - Shipment Destination

*Via rail only.

Note: The list of states is subject-to-change since the Transportation Plan for the shipment has not be completed.
West Valley Melter Shipment Routing