3706
TRANSURANIC WASTE CAMPAIGN
Path to Success

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LA-UR 14-21156
The Catalyst: Las Conchas Fire

- More than 150,000 acres burned in 2011
- Came to within 3.5 miles of TRU waste storage at LANL’s Area G
- Heightened public concern and media attention on TRU waste
- New Mexico Governor Susana Martinez requested accelerated removal of above ground TRU waste from LANL
- DOE/NNSA and New Mexico Environment Department agree above ground TRU waste removal is highest environmental priority at LANL
Framework Agreement

Agreement between New Mexico Environment Department and DOE/NNSA for:

- Complete removal of 3,706 cubic meters of non-cemented above-grade by June 30, 2014

- Removal of all newly-generated TRU waste received at Area G during FY12 and FY13 by December 31, 2014

- Development of a schedule that includes pacing milestones for disposition of below-grade TRU requiring retrieval at Area G by December 31, 2012 (submitted December 10, 2012)

- Complete removal of above-grade cemented legacy TRU waste in an efficient and effective manner
Campaign Inventory

- Total of 4,495 containers
- Total volume of 3,706 m³
- Total activity of 41,085 PE-Ci

Number of Containers
- Boxes & SWBs (462)
- Drums (4,033)

Volume of Container Types
- Drums (905 m³)
- Boxes & SWBs (2,801 m³)

Activity of Container Types
- Boxes & SWBs (6,352 PE-Ci)
- Drums (34,733 PE-Ci)
Our Mission

“Clearing the Deck” of TRU waste during FYs 2012, 2013 and 2014

- 3,706 cubic meters of legacy waste
- 4,495 containers
- Ship 41,085 cumulative plutonium-239 equivalent curies of MAR off site

3,706 goal vs. progress thru 2/2/2014
Status of 3,706 Campaign

MAR, Total 3,706 Campaign
(Cumulative Goal 41,085 PE-Ci)

Volume, Total 3,706 Campaign
(Cumulative Goal 3,706 m³)

Status on 2/2/2014

Remediation Planned 3% 3% 3% 6%
In Characterization 7%
In Certification 4%
Approved in WDS 3%
Removed/Shipped 2%

85% 84%
Key Factors in Achieving High Performance

- Strong focus on safety and compliance
- Organizational changes to establish sub-projects for critical campaign elements and to integrate facility operations
- Development of integrated and detailed project management schedule
- Collaboration with stakeholders
Key Factors in Achieving High Performance

- Upgraded remediation, characterization and shipping capabilities
- Extended work shifts for remediation
- Constant attention to potential issues and progress
- Constant communication with all organizations involved
- Innovative approaches to waste processing
LANL 3706 Waste Disposition Project
Lessons Learned and Innovations

Inventory Driven Management
Planning, Execution and Measurement

LANL TRU Campaign Volume Removed

<table>
<thead>
<tr>
<th></th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
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UNCLASSIFIED
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Inventory Driven Management
Planning, Execution and Measurement

Planning - Defining Project Scope
- Scope defined based on specific inventory
- Stakeholder agreement on scope
- Transparent communications on scope
- Plan with a vision of the end

<table>
<thead>
<tr>
<th>3,706 Campaign Inventory (Oct. 1, 2011)</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td># Containers</td>
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<tr>
<td>Drums</td>
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<td>Oversize Containers</td>
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<td>SWBs</td>
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<td>TOTALS</td>
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Using Inventory-Driven Management for Planning, Execution and Measurement

**Planning for Execution**

- Simple inventory process steps established
- Organizational structure adjusted to align with process steps
- Waste organized into inventories with similar disposition paths – Solution Packages
- Container management database organized by Solution Package and process steps
- Schedule developed based on processing waste through process steps
- Waste disposition output based on processing schedule

**Total 3,706 Campaign**

- **77%** Needs Remediation
- **7%** In Characterization
- **8%** In Certification
- **2%** Certified in WDS
- **7%** Removed/Shipped

**Total 3,706 Campaign**

- **8%** Needs Remediation
- **2%** In Characterization
- **4%** In Certification
- **2%** Certified in WDS
- **84%** Removed/Shipped
Inventory Driven Management
Planning, Execution and Measurement

Execution – Commit to the Plan

- Critical path identified – open container remediation
- Solution Packages logically ordered to minimize remediation facility downtime
- Waste physically organized in storage based on planned processing
- Facility modifications, safety basis changes and readiness needs identified early and planned early
- Actual waste processing rates compared to planned processing rates for feedback loop
- Risk management – redundant crane Installed for loading shipments
Inventory Driven Management
Planning, Execution and Measurement

Measurement – Metrics of Value

- Actuals vs. planned
- Continuous validation of key assumptions
- Identification and understanding the leading indicators
- Transparent communication of good and bad news – soon and often
Inventory Driven Management
Planning, Execution and Measurement

Lessons Learned

- **Waste container processing is not an exact science**
  - Plan for the unknowns and plan to adjust
  - Value of pre-screen NDA and NDE vs historical data
  - Legacy data is never 100%

- **Integrated planning with teaming partners**
  - Teamwork between LANL, CCP, LASO and CBFO best ever

- **Communication of waste processes to those that are experts in other fields. Enabling advocates**
  - Community leaders
  - Elected officials
  - Neighboring pueblos
  - Regulators

- **Empowering the workforce**
  - Significant contributions and innovative solutions made by individuals working outside their comfort zone.

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<thead>
<tr>
<th>Waste Category</th>
<th>Solution Packages</th>
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<tr>
<td>AG Any Solid Group</td>
<td>3,700 Goal Misc. Solids</td>
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<td>AG Any Waste Group</td>
<td>FY11 NNG AG Any Waste Group No Issues</td>
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<tr>
<td>AG Cement Cans</td>
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<td>AG Debris Boxes</td>
<td>Corrugated Metal Boxes 4x4x6</td>
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<td></td>
<td>Boxes &lt; 8.2 m³</td>
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<tr>
<td></td>
<td>AG Boxes 412 &lt;8.2 m³</td>
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<tr>
<td></td>
<td>Haz Cat 3 Boxes 412 &gt; 3.4 to &lt; 8.2 m³</td>
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<td>Haz Cat 3 Boxes 412 &lt; 3.4 m³</td>
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<td>Metal Boxes &gt; 4x4x6</td>
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<td>Rad Boxes &lt; 3.4 m³</td>
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<td>AG No Waste Stream Suspect TRU</td>
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<td>AG No Waste Stream Unvented</td>
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Inventory Driven Management
Planning, Execution and Measurement

Innovations

- Solution package concept
- Measurement of waste disposition using parent container volume
- Database management of waste container lineage
- Use of Six Sigma modeling to validate processing strategy and key assumptions
- Processing of low MAR TRU inventory while demonstrating readiness to process higher MAR TRU inventory
- Use of DOE-STD-1027 supplemental guidance on HAZ Cat 2 vs HAZ Cat 3 processing for 425.1D readiness determination
- Use of Surface Contaminated Object rules to allow decon of waste items to less than TRU
- Process difficult waste early and throughout campaign
- Contracting LLW disposal through federal IDIQ
3706
TRANSURANIC WASTE CAMPAIGN

New Mexicans working together to meet a national environmental challenge