

# ***EM Waste and Materials Disposition Update***

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EM Site Specific Advisory Board Chairs Meeting  
Oak Ridge, Tennessee  
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***EM Environmental Management***

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# *Outline for Discussion*

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- EM radioactive waste management priorities, budget, and policy overview
- Programmatic updates and challenges
  - LLW/MLLW disposition
  - TRU waste acceleration and progress
  - High level waste and used fuel management
  - GTCC EIS
  - Mercury management EIS

# DOE's Radioactive Waste Management Priorities

- Continue to manage waste inventories in a safe and compliant manner
- Address high risk waste in a cost-effective manner
- Maintain and optimize current disposal capability for future generations
- Develop future disposal capacity in a complex environment
- Promote the development of treatment and disposal alternatives in the commercial sector
- Review current policies and directives
- Provide needed oversight



# DOE Order 435.1, Radioactive Waste Management

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- DOE's waste management policy remains unchanged
  - DOE's *Waste Management Programmatic Environmental Impact Statement* and Records of Decision are still valid
- However, nearly a decade has passed since last major revision
- Update planned to address multiple purposes
  - Incorporate lessons learned
  - Institutionalize informal guidance documents
  - Address changes in relevant statutes, regulations, and standards
  - Account for advances in technology
  - Address new and emerging DOE needs
- Progress to date
  - Conducted Complex-Wide Reviews to assess waste management activities and to support the update
  - Reviewed all DOE/NNSA sites that manage radioactive waste
  - Identified 69 Best Practices and 134 Areas for Improvement
  - Drafted report (expected to be final in May 2010)
  - Initiated team workshops to update DOE O 435.1

# Summary of Complex-wide Review Results

## Distribution of the 203 Most Notable CWR Responses

Category	High Level Waste		TRU Waste		Low Level Waste	
	<u>BP</u>	<u>AI</u>	<u>BP</u>	<u>AI</u>	<u>BP</u>	<u>AI</u>
General		1	4	7	2	11
Generation	5	5	1	6	21	16
Treatment		3	1	3	5	3
Storage	2		3		5	3
WIR	2	10				
Closure	2	1				
Disposal		1	6	2	7	25
Crosscutting		8	1	6	2	23
FEM						
<b>Total</b>	<b>11</b>	<b>29</b>	<b>16</b>	<b>24</b>	<b>42</b>	<b>81</b>

BP – Best Practices

AI – Areas for Improvement

# Highlights on LLW/MLLW Disposition Efforts

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- *American Recovery and Reinvestment Act* providing needed funding for solid waste disposition, soil and groundwater remediation, and facility decontamination and decommissioning projects
  - Increased volumes of LLW/MLLW are expected in next few years
- Pending EM cleanup and operations contracts include significant waste management scope
- To ensure disposal plans are optimized, EM provided enhanced guidance to sites to ensure all disposal alternatives are evaluated

## Recent developments and changes...

- Toxic Substances Control Act Incinerator at Oak Ridge ceased operations last year and is in the midst of closure
  - DOE relying on commercial treatment alternatives
  - New complex-wide treatment contract(s) will soon be awarded
- Additional disposal alternatives are being sought
  - On site cells, NTS mixed waste cell, WCS federal disposal facility



# Highlights on LLW/MLLW Disposition Efforts

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- Continued use of onsite disposal at large cleanup sites
- Continued optimized operations of DOE disposal facilities, especially for those wastes that cannot be disposed at commercial facilities
  - Nevada Test Site (NTS) operates as regional LLW and MLLW disposal facility
  - New site-wide EIS underdevelopment, which will analyze continued use of NTS as regional disposal facility
- Current Mixed Waste Disposal Unit at NTS closes November 2010
  - Conditional approval from State of NV for new mixed waste disposal cell
  - Final permit approval will be contingent upon the regulator approving the final design drawings to be provided by the Nevada Site Office later this year.
  - Design and construction contract awarded
  - RCRA storage permit under development
- Waste Control Specialists (WCS) received final license approval for commercial (Compact limited) and Federal LLW disposal facilities
  - DOE entered into agreement with TCEQ regarding coordination on Fed Facility and provided WCS written commitment regarding future ownership



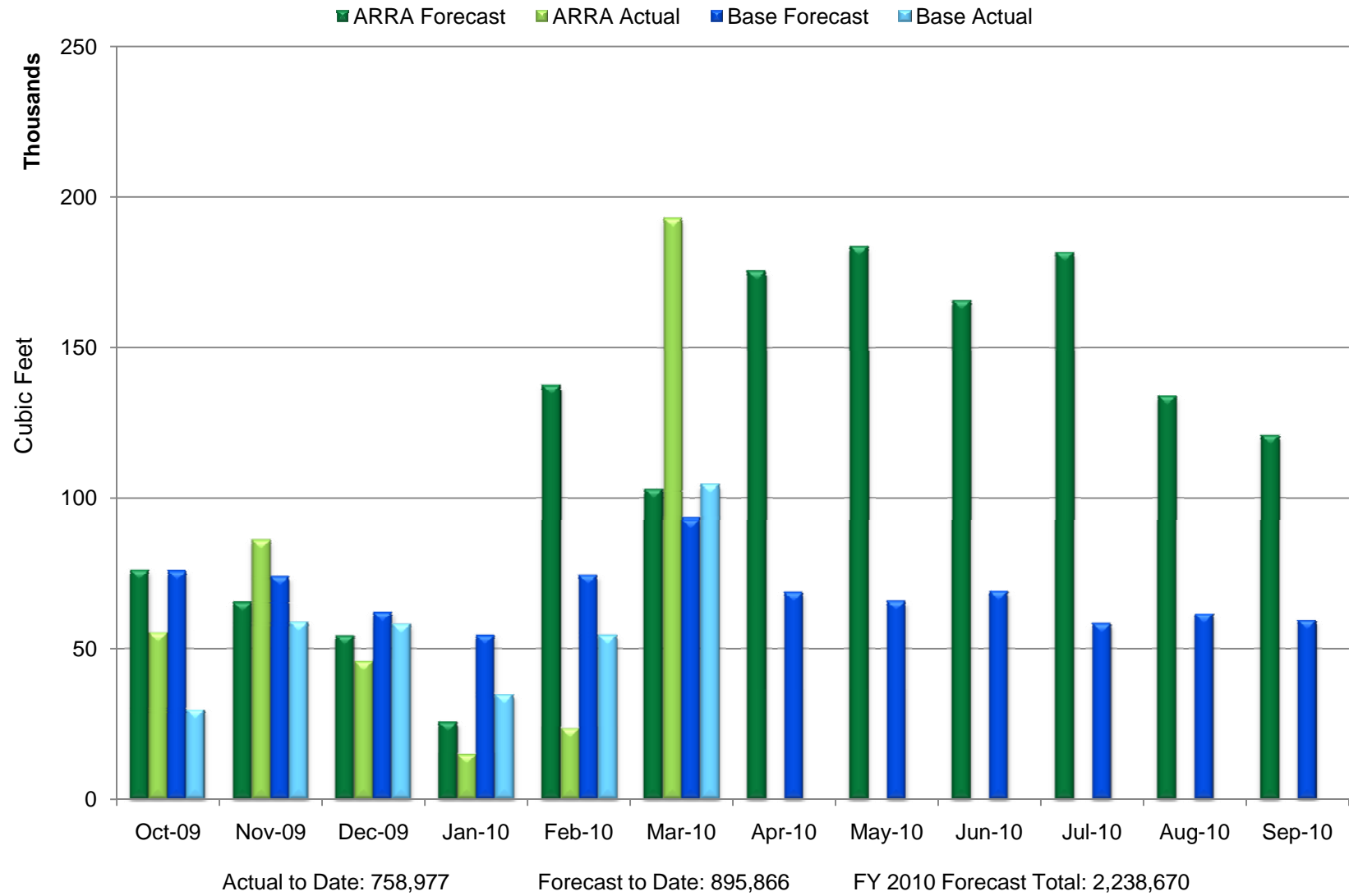
## DOE LLW/MLLW Challenges

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- Uncertainty in continuous availability of disposal capacity
  - Regulatory and policy changes have curtailed disposal of some depleted uranium streams
- Potential challenges and changes to DOE policies and strategies
- Problematic waste streams remain and will continue to be generated through additional facility D&D work
- Contemplated changes in NRC waste classification systems and waste related guidance documents
- Possible increased disposal demand to address disused sealed sources
- Inquiries from outside DOE for access to DOE low-level and mixed low-level waste facilities, due to changing circumstances and reduced commercial disposal access for Class B & C wastes



# NTS plays critical role and is performing well



## DOE LLW/MLLW Forecasts

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- DOE updates its life-cycle LLW/MLLW forecasts annually and makes this information publically available in the Waste Information Management System (WIMS)
- Annual updated recently completed – will be available in WIMS within a few weeks
- Nearly 4.7 million m<sup>3</sup> of LLW/MLLW will be generated FY2010-2015
  - Vast majority targeted to be disposed on site
  - DOE plans to continue use of Nevada Test Site and, as appropriate, commercial disposal
  - Some large volume TBD streams exist

**WIMS can be found at <http://wims.arc.fiu.edu/WIMS>**

# TRU Waste Disposition Update

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- Waste Isolation Pilot Plant (WIPP) Summary
  - Over 10 years of safe operations!
  - 66,680 m<sup>3</sup> of defense transuranic waste disposed with 8,432 shipments
- Remote-handled (RH) shipments summary
  - Over 344 RH shipments received to date from six RH-TRU sites
    - DOE Idaho site
    - Argonne National Laboratory
    - Oak Ridge National Laboratory
    - Los Alamos National Laboratory
    - Savannah River Site
    - General Electric Vallecitos Nuclear Center



Shipment numbers as of 4/25/10

## Highlights on TRU Waste Disposition

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- TRU waste processing and disposal efforts are being accelerated through the *American Recovery and Reinvestment Act*
  - Shipments from Hanford have resumed
- FY 2009 marked significant TRU shipping accomplishments
  - 953 total shipments completed (848 CH and 105 RH) -- a 20% increase over FY 2008 total shipments; remote-handled (RH) shipments increased over 150%
- FY 2010 shipping goals call for significant increase – to over 1300 shipments!
- Implementation of the inter-site shipping campaign began in December 2008 with shipment of legacy TRU from NTS to INL.
  - Intersite shipments from at least 5 sites planned in FY 10
- DOE in midst of regulatory renewals for WIPP
  - Compliance Recertification Application submitted to EPA in April 2009
  - Hazardous Waste Permit Renewal Application submitted to New Mexico in September 2009

## EM is attempting to significantly accelerate TRU Waste Shipments

FY 2010 - TRU Waste Shipment Goals

To WIPP, from:	Annual goal	
Schedule Comments (non- shipping periods)		
ANL (RH)	36	
GE-VNC (RH)	25	
INL (CH)	701	
INL (RH)	36	
LANL (CH)	112	
ORNL (CH)	74	
ORNL (RH)	71	
Hanford-RL (CH)	62	
SRS (CH)	97	
SRS (RH)	11	
SNL (RH)	6	
<b>Total CH</b>	<b>1046</b>	
<b>Total RH</b>	<b>185</b>	
Intersite, to AMWTP:	Annual goal	
GE-VNC (CH)	1	
Hanford-RL (CH)	69	
LBNL (CH)	0	
ANL (CH)	2	
LLNL (CH)	10	
SNL (CH)	3	
<b>Total Intersite</b>	<b>85</b>	
<b>TOTAL SHIPMENTS</b>	<b>1316</b>	

← Draft FY 2010 Shipping Goals

- Additionally, TRU Acceleration plan has been developed to optimize the national TRU program through FY 2015
  - Strives for average of 30 contact handled and 5 remote handled shipments each week
  - Integrates sites' plans – including Recovery Act projects
  - Identifies opportunities for further acceleration
  - Will inform development of FY 2012 budget request and outyear strategic planning



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## TRU Waste Disposition Challenges

- Achieve and sustain accelerated shipment rate
- Increase and maintain steady feed to the Central Characterization Project
- Difficult waste streams exist at most sites
  - “Easy” legacy has been disposed
- Regulatory, technical and project issues require TRU complex to adjust, in order to maintain shipping progress
  - Ex. Carbon tetrachloride limits impacted shipments from Idaho



## *DOE has revised its plans for the HLW repository....*

“The Administration has determined that **developing a repository at Yucca Mountain, Nevada is not a workable option** and has decided to terminate the Office of Civilian Radioactive Waste Management. The Nation needs a different solution for nuclear waste disposal.” - FY 2011 Budget Request

- o In 2010, the Department of Energy (DOE) will discontinue its application to the U.S. Nuclear Regulatory Commission for a license to construct a high-level waste geologic repository at Yucca Mountain
- o DOE will establish a Blue Ribbon Commission to inform the Administration as it develops a new strategy for nuclear waste management and disposal
- o The Office of Nuclear Energy will develop and execute a research and development program that will address critical scientific and technical issues associated with the long-term management and disposal of used nuclear fuel.
- o In Fiscal Year 2010, DOE will prepare the Yucca Mountain site for stewardship and remediation
- o The Administration remains committed to fulfilling its obligations under the Nuclear Waste Policy Act



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## *...but EM's HLW and spent fuel activities are on track*

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- EM will continue to safely store, retrieve, and treat/repackage HLW and spent fuel
- FY 2011 Request fully funds tank waste management and treatment activities across the complex
  - Hanford WTP (\$740M) to accelerate completion of design
  - SRS Salt Waste Processing Facility (\$288M) construction and pre-operations
  - Idaho Sodium Bearing Waste Treatment (\$6.5M) to complete construction activities
  - Tank waste retrievals at Hanford and Savannah River (\$95M) to meet regulatory commitments
- EM will assess technical needs and fund research and development to ensure continued safe, cost-effective operations, treatment, and extended storage
  - FY 2011 Request includes \$60M for Tank Waste Technologies
  - With goal to optimize tank waste disposition resulting in technology insertion points into the tank waste system that will yield significant cost savings and reduce the period of execution
- EM will support the Blue Ribbon Commission, as needed



# *Blue Ribbon Commission on America's Nuclear Future*

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- Blue Ribbon Commission established to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle, including all alternatives for the storage, processing and disposal of civilian and defense used nuclear fuel, high-level waste and materials derived from nuclear activities
  - o Will provide advice, evaluate alternatives and make recommendations for developing a safe, long-term solution to managing the Nation's used nuclear fuel and nuclear waste
  - o Comprised of 15 members with range of expertise and experience in nuclear issues – including scientists, industry representatives, and respected former elected officials
  - o Will produce an interim report within 18 months, and a final report within 24 months.
  - o Formal charter approved 1 March 2010
  - o First meeting held 25-26 March 2010

## Update on the GTCC LLW Disposal EIS

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- Alternatives for Greater-than-Class C (GTCC) waste are still being evaluated via an Environmental Impact Statement (EIS). The alternatives are:
  - Deep geologic disposal at WIPP
  - Enhanced near surface trench and vault disposal at Hanford, INL, LANL, NTS, OR, SRS, and WIPP Vicinity
  - Intermediate depth borehole disposal at the same enhanced near surface locations, as above, except SRS and OR.
- Analyzes approximately 12,000 m<sup>3</sup> of wastes requiring disposal over several decades
- Working with Tribal Nations to include their perspective in EIS
- Goal is to issue Draft EIS in Summer 2010 and Final EIS in 2011
  
- **Before issuing a Record of Decision, DOE must submit a Report to Congress on disposal alternatives and await Congressional action.**

For additional information on the GTCC EIS visit <http://www.gtcceis.anl.gov/>

# EM's Mercury Management Project

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- *The Mercury Export Ban Act of 2008* requires DOE to provide storage and long-term management of mercury (non-radioactive) generated in the U.S.
  - Draft EIS published in January
  - Sites analyzed in the EIS are Hanford (WA); INL (ID); Grand Junction (CO); Hawthorne (NV); SRS (SC); Andrews (TX); and Kansas City (MO)
  - WCS facility in Andrews, TX, is Preferred Alternative
  - <http://www.mercurystorageeis.com/>
- Critical Milestones
  - DOE Interim Guidance on operating the proposed mercury facility – 11/14/09
  - DOE published Draft EIS – 01/29/10
  - Final EIS, Record of Decision, and selection of mercury storage site(s) - Fall 2010
  - Mercury storage facility ready to accept mercury – 01/01/13
  - Ban on export of mercury from the U.S. effective – 01/01/13
  - DOE mercury storage facility operating under RCRA permit – 01/01/15
- Current Status
  - Public hearings held at nine locations ( 2/23/10 – 3/9/10)
  - Public comment period recently closed (1/20/10 – 3/30/10)
  - Comments are being evaluated and work continues toward Final EIS

## In Closing...

“An important part of a sound, comprehensive and long-term domestic nuclear energy strategy is a well-considered policy for managing used nuclear fuel and other aspects of the back end of the nuclear fuel cycle.”

Presidential Memorandum to Secretary Chu, 29 January 2010

- EM’s efforts directly support the nation’s energy goals by providing a reliable waste and materials disposition system
- EM has 20 years of progress and experience in safely managing radioactive wastes and nuclear materials and is well positioned for continued success
  - EM is working to accelerate foot print reduction and solid waste disposition, and is targeting technological advances to reduce life-cycle cost of tank waste and nuclear materials disposition
- A vigilant commitment to continued safety and progress and a productive investment in technology is needed for EM to maintain our momentum
- EM has a strong partnership with our regulators, stakeholders and industry, which must be maintained to support the DOE waste and materials disposition system and support EM cleanup goals