

# *Panel: Disposition of DOE Higher Activity Mixed Waste*

---

Christine Gelles  
Director, Office of Disposal Operations  
Office of Environmental Management



**EM** Environmental Management

safety ❖ performance ❖ cleanup ❖ closure



# *EM Risk-Based Priorities*

---

## **Highest Risk-Based Priorities**

- Minimum safety and essential services across EM cleanup sites
- Radioactive tank waste storage, treatment, and disposal (including technology development and deployment activities in support of high-level waste)
- Spent nuclear fuel storage, receipts and disposition
- Special nuclear material storage, processing, and disposition
- High priority groundwater remediation (selected Hanford, Paducah and Los Alamos plumes)
- **Solid waste (transuranic and mixed/low-level waste) treatment, storage, and disposal**

## **Lower Risk-Based Priorities**

- Soil and groundwater remediation
- Nuclear facility D&D
- Non-nuclear facility D&D



**EM** Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

context

2

# *Baseline Disposition Date – Life-cycle Forecasts*

---

- DOE has reinstated DOE-wide life-cycle waste forecasts
- Data requirements jointly developed by HQs and Field
  - Level of stream definition carefully targeted
- Intended to reflect approved baseline plans
- Used extensively for DOE strategic planning and to communicate with stakeholders and regulators
- Waste Information Management System
  - <http://wims.arc.fiu.edu/WIMS>
  - 3<sup>rd</sup> annual life-cycle underway – planned to post March 08
  - Development of disposition planning tools continues



# *EM's Disposition Tools*

---

- Baseline Disposition Data (BLDD) and WIMS
  - Disposition maps
  - Programmatic risk identification by waste stream
- Comprehensive waste summary for each site
  - Highlights critical activities and federal actions required to achieve final disposition
  - Identifies disposition issues
- Complex-wide disposition issue matrix
  - Top waste and material disposition issues requiring management attention
  - Near-term activities needed to work these issues

# Our planning tools identify “problematic” wastes

Site/Stream Name	Waste Type	Physical Form	Volume	> Class A	Status	Treatment	Disposition Facility
Kansas City Rad-S1	Low Level Waste	Debris Waste	3 m <sup>3</sup>	Yes	High programmatic risk	None	Area 5 LLW Disposal Unit (NTS) 3 m <sup>3</sup>
Kansas City HPLabWst	Low Level Waste	Organic Liquids	0 m <sup>3</sup>	Yes	Low programmatic risk	None	Commercial-5 0 m <sup>3</sup>
Kansas City Abs Alc	Mixed Low Level Waste	Organic Liquids	0.01 m <sup>3</sup>	Yes	Low programmatic risk	None	
Kansas City DU Scrap	Low Level Waste	Homogeneous Solids	0.2 m <sup>3</sup>	Yes	Medium programmatic risk	None	To Be Determined 0 m <sup>3</sup>

### Legend




















#### Status

- **High programmatic risk:** Disposition path to be determined, highly complex disposition path, or multiple impediments exist
- **Medium programmatic risk:** Disposition path identified, but complex; some impediments exist
- **Low programmatic risk:** Disposition path fully defined; no impediments
- S Indicates successor stream exists for current stream.

#### Treatment Codes

COMP — <span style="color: red;">●</span>	DECON — <span style="color: purple;">●</span>	INCIN — <span style="color: grey;">●</span>	MACRO — <span style="color: orange;">●</span>	MELT — <span style="color: blue;">●</span>
MULT — <span style="color: red;">●</span>	NEUTR — <span style="color: grey;">●</span>	NONE — <span style="color: green;">●</span>	OTHER — <span style="color: yellow;">●</span>	OTT — <span style="color: pink;">●</span>
SANIT — <span style="color: green;">●</span>	SORT — <span style="color: cyan;">●</span>	STABL — <span style="color: blue;">●</span>	TBD — <span style="color: orange;">●</span>	VTD — <span style="color: lightgreen;">●</span>

# Legend for LLW/MLLW Disposition Map

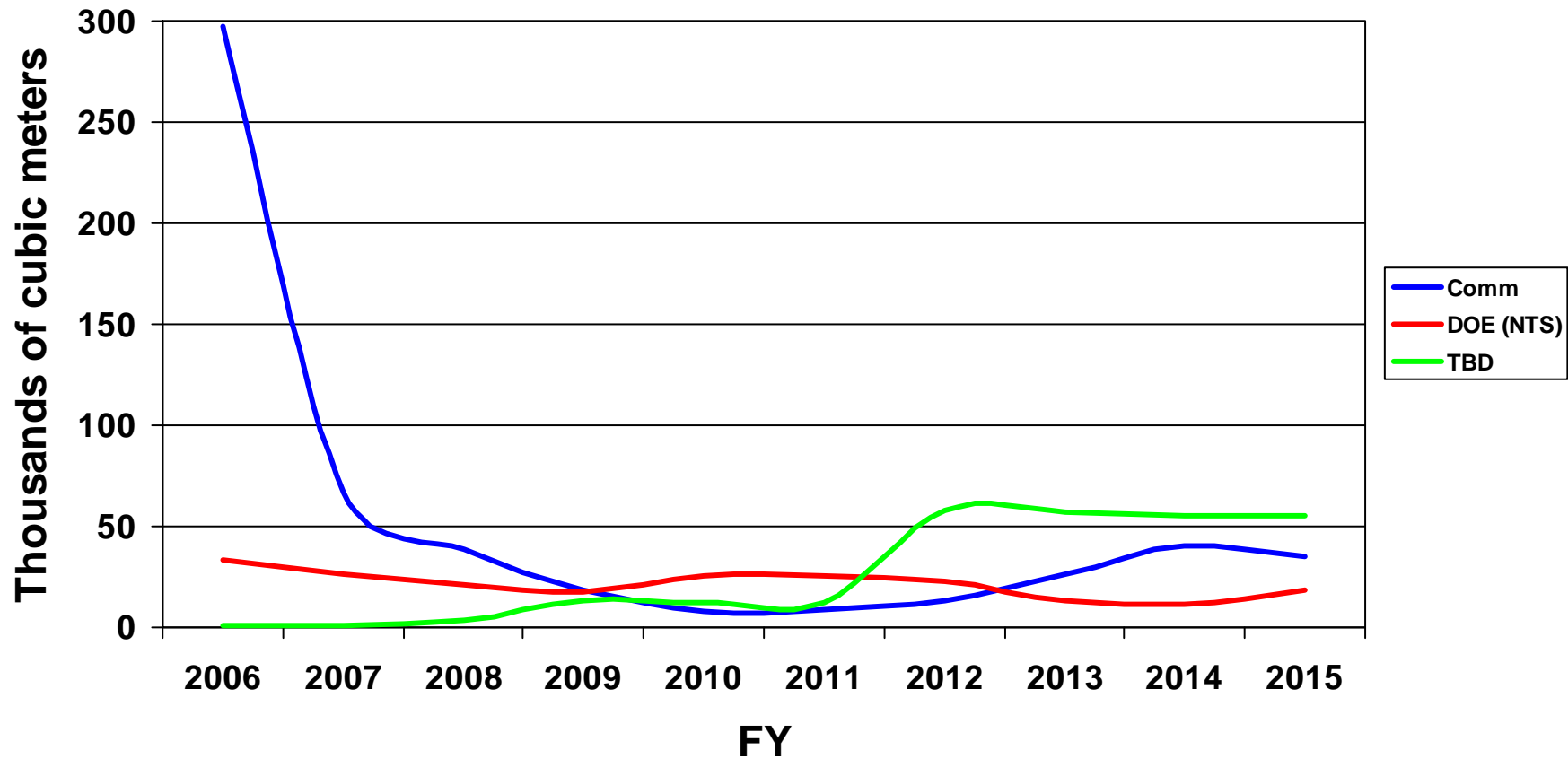
Legend				
<b>Status</b>				
	<b>High programmatic risk:</b> Disposition path to be determined, highly complex disposition path, or multiple impediments exist			
	<b>Medium programmatic risk:</b> Disposition path identified, but complex; some impediments exist			
	<b>Low programmatic risk:</b> Disposition path fully defined; no impediments			
	Indicates successor stream exists for current stream.			
<b>Treatment Codes</b>				
COMP 	DECON 	INCIN 	MACRO 	MELT 
MULT 	NEUTR 	NONE 	OTHER 	OTT 
SANIT 	SORT 	STABL 	TBD 	VTD 

Formal risk mitigation plans and disposition action plans will be developed for any stream with a yellow or red status flag.



# *Volumes of DOE waste requiring off-site disposal have declined significantly*

---



## *Specific LLW/MLLW waste challenges*

---

- Programmatic and technical issues continue to impede current disposal plans and threaten future plans
- Offsite LLW/MLLW shipments to Hanford remain suspended
- Limited opportunity exists at NTS for higher-activity MLLW disposal
- Development of new, on-site capabilities deterred by budget constraints, reduced volumes, legal and stakeholder issues
- Commercial alternatives do not yet exist for some wastes
- “Problematic waste streams” still exist... and new problems will arise
  - Facility D&D will identify more
  - Regulatory changes may occur
- Final disposition of Fernald Silo residues not yet achieved

# *What will the future hold?*

---

- Continued cleanup and future missions absolutely dependent on availability of treatment and disposal paths
- DOE will continue to strive for a stable, reliable system utilizing both Federal and commercial facilities
- Programmatic alternatives evaluation underway to address future shortfall in higher activity MLLW disposal
- Waste stream specific risk management plans will be identified for near term medium and high risk streams



*EM Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

# background slides



***E***  
***M*** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

## *Other LLW/MLLW programmatic activities*

---

- Updated guidance on conducting cost analysis to support LLW/MLLW disposition planning in Departmental review
- Developing business case on future ops of the TSCA Incinerator
- Early acquisition planning underway for DOE prime LLW/MLLW disposal and treatment contracts
- Development of more detailed, site-specific waste planning tools, to be integrated with EM's intensive out-year planning efforts
- “Complex-wide re-assessment” planned in 2008
  - To assess LLW/MLLW program maturity and identify issues



# *DOE Order 435.1, Radioactive Waste\* Management, Establishes Policy & Framework for Waste Disposition Activities*

---

- LLW/MLLW
  - If practical, disposal on the site where generated
  - If on-site disposal not available, at another DOE disposal Facility
  - At commercial disposal facilities if compliant, cost effective, and in the best interest of DOE
- TRU Waste
  - If defense, dispose at Waste Isolation Pilot Plant (WIPP)
  - If defense determination pending, safe storage awaiting future disposition
- HLW and SNF
  - Stabilization, immobilization/treatment if necessary, and safe interim site storage until geologic disposal is available

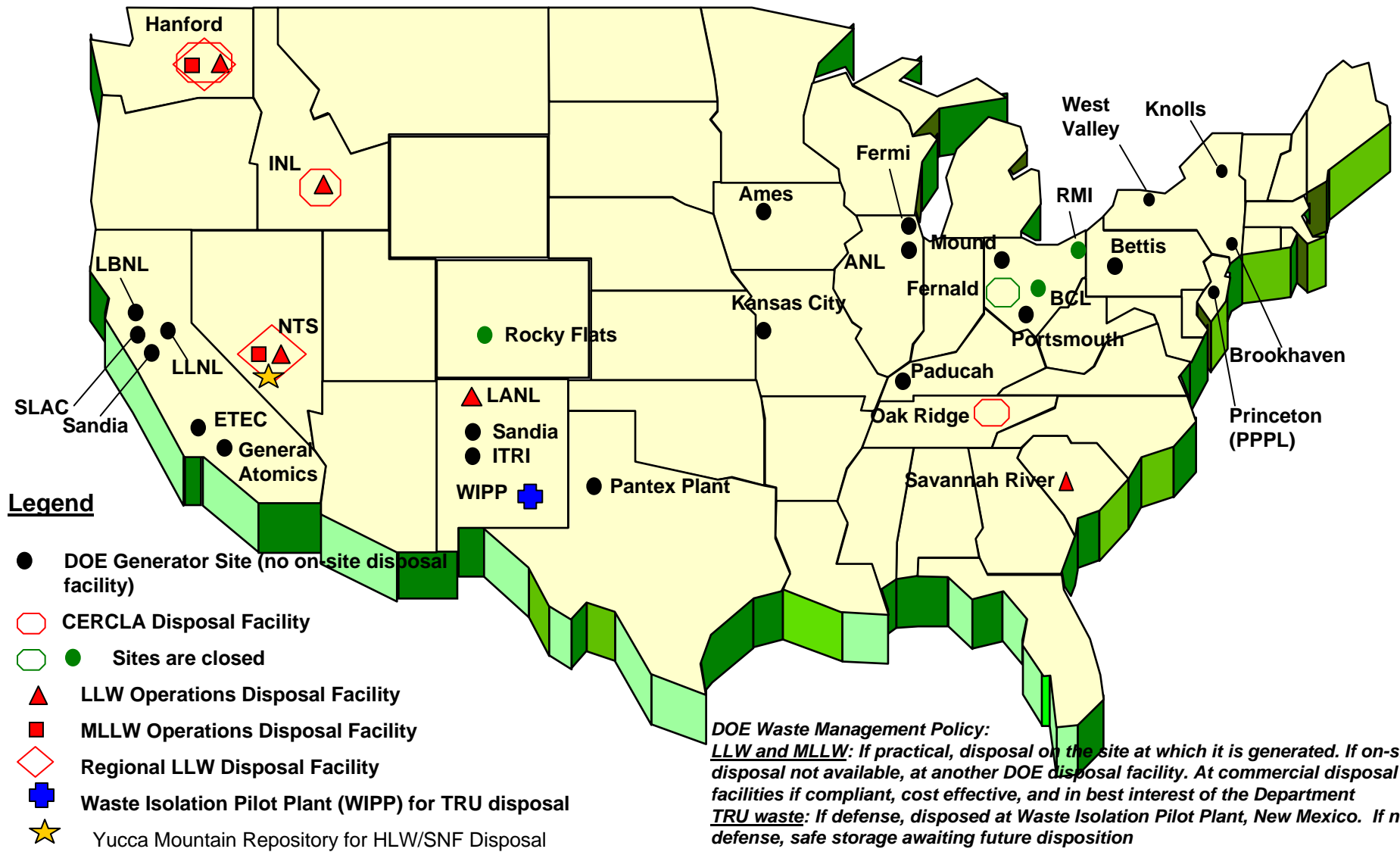
\* Other documents define plan for interim management of special nuclear materials (SNM); excess SNM disposal plans are integrated with waste plans



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

# DOE's Waste Disposal Complex



**DOE Waste Management Policy:**  
**LLW and MLLW:** If practical, disposal on the site at which it is generated. If on-site disposal not available, at another DOE disposal facility. At commercial disposal facilities if compliant, cost effective, and in best interest of the Department  
**TRU waste:** If defense, disposed at Waste Isolation Pilot Plant, New Mexico. If non-defense, safe storage awaiting future disposition  
**HLW and SNF:** Stabilization, if necessary, and safe storage until geologic disposal is available



**EM Environmental Management**

safety ❖ performance ❖ cleanup ❖ closure