EM U.S. Department of Energy
Office Of Environmental Management

High Level Waste System Integrated Project Team

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Office of Engineering and Technology

High Level Waste Corporate Board

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Introduction

- Challenges and Priorities
- High Level Waste Strategic Initiative Results
- High Level Waste System Integrated Project Team Plans

This document is intended for planning and analysis purposes, assuming a continuing constrained budget environment. Every effort will be made to comply with all applicable environmental and legal obligations, while also assuring that essential functions necessary to protect human health, the environment and national security are maintained.

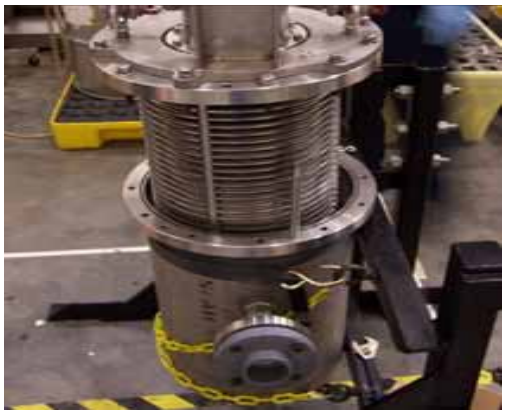
Significant Tank Waste Cleanup Challenges Lie Ahead

Retrieving 88 million gallons of liquid radioactive waste

Safely storing it in 230 underground tanks

Solidifying it for safe disposal

Maintaining a stable and skilled workforce



Developing and deploying new technologies

EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

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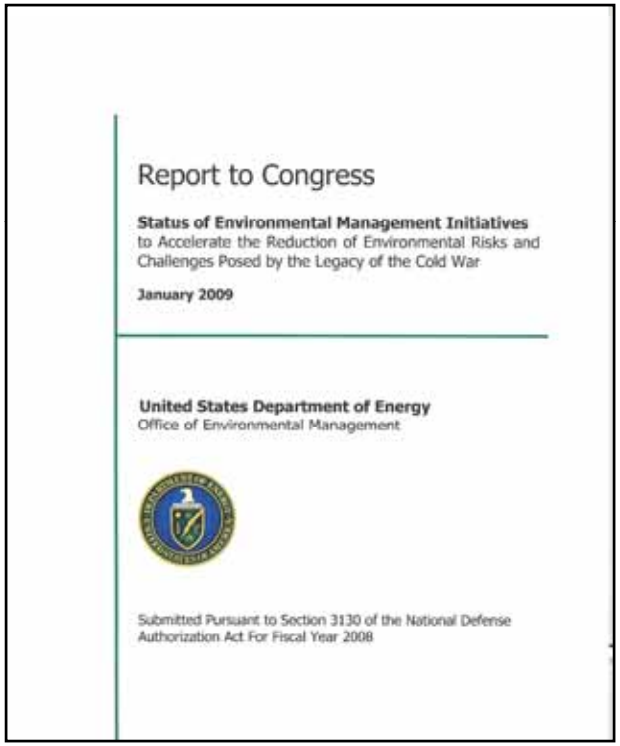
Report to Congress – Status of EM Initiatives to Reduce Risk



Report to Congress

Status of Environmental Management Initiatives
to Accelerate the Reduction of Environmental Risks and Challenges Posed by the Legacy of the Cold War

January 2009

United States Department of Energy
Office of Environmental Management

Submitted Pursuant to Section 3130 of the National Defense Authorization Act For Fiscal Year 2008

- Tank waste is most significant ES&H threat in DOE
- Tank Waste is Largest Cost Element in EM Budget
- Strategy, Progress, and Challenges for HLW and Engineering and Technology Identified

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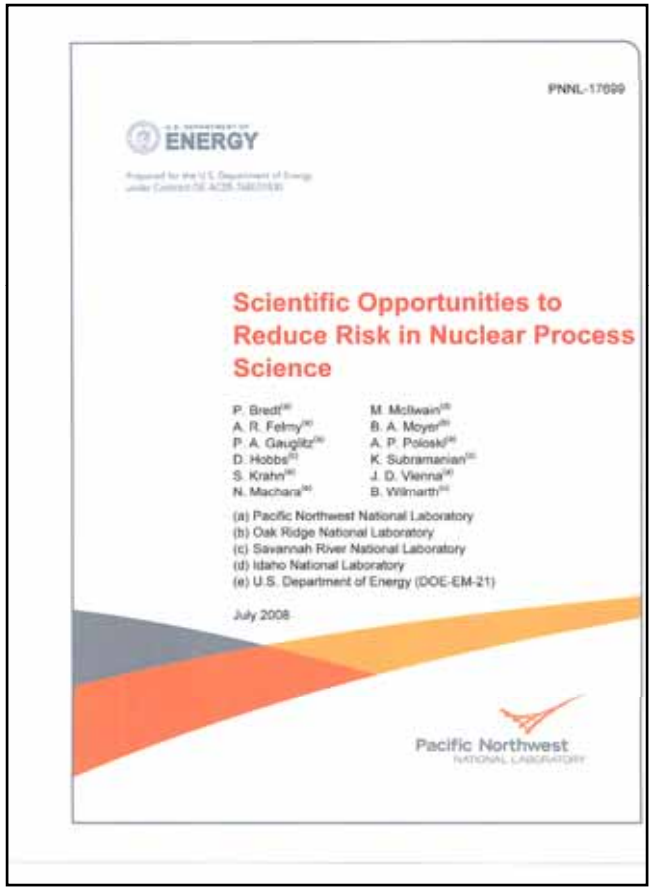
Current HLW Strategy

- Retrieve tank waste to maximum extent possible
- Treat the waste onsite
- Close waste tanks according to compliance agreements
- Conduct engineering and applied research to resolve unique cleanup challenges
- Dispose treated low-activity waste onsite
- Dispose high level waste in offsite repository

Science and Discovery: A DOE Priority

- *Invest in Science to Achieve Transformational Discoveries*
- Search for solutions that will have significant impact
- Take risks for breakthrough results
- Determine when innovative technology will be demonstrated and deployed
- Coordinate work across DOE, across the government, and globally

Scientific Opportunities to Reduce Risk



- Fundamental Science Enables Transformational Solutions
- Long-Term Investments Needed
- Linked to Engineering and Technology Roadmap Strategic Initiatives

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High Level Waste Strategic Planning Initiative

- Goal - Develop new approaches for completing the High Level Waste Mission

- Focus
  - High Level Waste Program Building Blocks
  - Progress during the next Four to Eight years
  - Life-Cycle Cost Savings

- Product – Analysis of Options for High Level Waste Program and Recommended Approach

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High Level Waste Program Building Blocks

- Minimum Safe Operations
- Construction of Major Waste Processing Facilities
- Retrieval
- Processing
- Closure
- Policy

ANALYSIS

- Built 20 Cases
- Utilized Decision Analysis Tool
- Developed Cost Estimates

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Results – A New Approach for HLW Program

Pursue these HLW System Attributes that are not in the Current Baseline:

- Optimized Processing
  - Waste loading & melt rate improvements possible
  - Improved/additional separations
- Risk-Informed Retrieval
  - Bulk retrieval eliminates most risk (80-90% waste)
  - Minimal additional risk reduction for 99% retrieval
- Risk-Informed Area Closure
  - Retrieval by tank farm reduces surveillance & maintenance
  - Can reduce footprint
- Optimized Strategy Needed – Attributes not Independent
- Life-Cycle Cost Savings of $4-8 Billion

HLW System Integrated Project Team Scope

- Develop HLW System Strategic Model
- Develop Optimized HLW System Strategy using model to analyze new approach
- Identify Transformational Research and Technology
- Develop Cost Estimates with Goal to save more than $1 Billion in Life-Cycle Costs

HLW System IPT Structure

- IPT Leads – Steve Schneider & Jay Rhoderick
- Team Members from DOE, National Labs, Academia, Contractors
  - Will Meet with Stakeholders
- Subteams
  - Model Development and Integration
  - Optimized Strategy
  - Regulatory and Stakeholder
  - Cost Estimating

HLW System IPT Key Activities

- Model Development and Integration
  - Develop HLW System Strategic Model
  - Test Model using Optimized Site Strategies
  - Integrate Strategies, as needed
  - Identify R&D Needed for Successful Strategies
  - Identify Transformational Technologies
- Optimized Strategy
  - Document Current HLW Strategy
  - Develop Hanford Optimized Strategy
  - Develop Savannah River Optimized Strategy
  - Prepare Technical Justification for Strategies
  - Provide input to Model Development

HLW IPT Key Activities - continued

- Regulatory and Stakeholder
  - List Current Compliance Commitments
  - Prepare Win-Win Regulatory Strategy
  - Prepare Communication Plan
  - Meet with Stakeholders
- Cost Estimating
  - Develop Cost Estimates
- Develop IPT Report

Next Steps for HLW System IPT

- Issue EM-1 Memo and Charter for IPT
- Finalize Team Membership
- Complete IPT Scope of Work
  - Working Model and Feasibility Report by 9/30/09
  - Final Model and Final Report by 12/31/09