

Deactivation and Decommissioning: Is Technology Development and Insertion Needed?

Yvette Collazo
Director, Office of D&D and Facility
Engineering
US DOE Office of Environmental
Management



EM *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

EM D&D Cost Center (2007 – 2042)

- Total Life Cycle Cost of EM D&D Projects is estimated at \$20 Billion
- Remaining Life Cycle Scope for the EM Program
 - Over 300 Nuclear Facilities
 - Almost 500 Radioactive Facilities
 - Almost 2000 Industrial Facilities
- New scope associated with the Oak Ridge Integrated Facility Disposition Program (IFDP) and other recently identified DOE excess facilities are in addition to the above numbers and represent hundreds of new facilities to D&D



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

The Bottom Line

- EM's D&D scope is:
 - Significant,
 - Costly,
 - Drawn out in time, and
 - Growing
- A new paradigm of doing business that includes new approaches and technologies must be initiated if this scope is to be accomplished more efficiently



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

EM's Technology Development Program

- Since 1990 significant financial investment and technical success has been accomplished.
- Various approaches have been tried, each with pros and cons.
- However, fairly consistently, the identification of technology needs, development, and insertion specifically to D&D has lagged.



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

Situation Analysis: Why has D&D Lagged?

- Overarching Barriers:
 - The common, but frequently erroneous belief/behavior that D&D is “not rocket science” short-circuits out of the box thinking
 - Unlike treatment of high level waste, D&D could and can be accomplished with current approaches and technologies (it could however be accomplished “better” [safer, cheaper, quicker] with appropriate innovative technologies)
 - At early project phases, focus is on the “big picture” and not “details”; during later phases, focus is on implementation (field work), and technology development/insertion does not fit into schedule and baseline



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

Situation Analysis: Why has D&D Lagged?

- Overarching Barriers:
 - The comfort factor associated with doing the “same thing, the same way as always” (but expecting a different outcome?)
 - Lack of early integration between “ability to insert” technology and “ability to insert” technology (e.g., ensuring compatibility with existing safety basis) impacts “ability to insert” technology



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

Situation Analysis: Why has D&D Lagged?

- Programmatic Barriers:
 - Disconnect between HQ planners and the right field personnel (Feds and Contractors) in identifying needs, developing technologies, and implementing solutions (external view has been of a “solution searching for a problem)
 - Ineffective mechanisms to match site needs with technologies at the right time
 - Ineffective incentives and risk sharing



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

What Are We Doing?

- Pursuing new/modified programmatic approaches along numerous parallel and complementary paths:
 1. Planning workshop with DOE, contractor and external groups to determine need for, and as indicated develop new model for (a) needs identification, (b) just in time development, (c) assimilation with baseline, and (d) integration with other project requirements (e.g., safety basis)
 2. Developing Multi Year Program Plan that defines currently known needs and path forward to developing solutions
 3. Implementing near term development through EM's 2008 technology "Tool Box" effort



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

What Are We Doing?

- Pursuing new programmatic approaches along numerous parallel and complementary paths:
 4. As appropriate incorporating the findings of the National Academy of Science study on technology needs across the complex.
 5. Establishing better coordination with external organizations (e.g., EPA, DoD/DARPA, DHS) to exchange ideas and lessons learned and take advantage of already developed innovative technologies that could be applied to D&D projects.
 6. Evaluating the incorporation of innovative technologies as contractual elements to address risks and incentives



EM *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

What Are We Doing?

- Building a Program that in coordination with the right organizational entities and people will:
 - Drive to bring innovation to D&D projects;
 - Encourage and share in the risks associated with new/innovative approaches;
 - Promote and reward “out-of-the-box thinking”
 - Challenge the status quo (its always been done this way)



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov

In A Nutshell

- EM must take advantage of the tremendous progress being made in various technologies including but not limited to:
 - Robotics/Remote Technologies
 - Computer Enhanced Visualization
 - Characterization
- Failure to do so will jeopardize the conduct of D&D given the significantly increasing scope coupled with the anticipated decrease in available budget



EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

www.em.doe.gov