Reducing Risks and Uncertainties to Environmental Management Projects

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Introduction

- Progress made in EM cleanup mission with completion at Fernald and Rocky Flats; more expected over next few years
- Nevertheless challenges for continuing completions across complex needs to address major uncertainties and risks; some large and unique efforts needing untested technologies
- Life cycle costs increases and schedule delays might arise from performance issues, technical and regulatory issues, emerging scope from programmatic risks, litigation, and other factors

Strategic Planning for Engineering and Technology Activities

- Office of Engineering and Technology has a lead role in supporting EM projects by reducing technical barriers and uncertainties
- Strategic planning and approach
  - Selected critical, high-risk, high-payoff projects
  - Technical workshops and exchanges
  - External Technical Reviews
- Continue close collaboration with national laboratories and universities for innovative technologies and technical exchanges

Developing a Technology Roadmap to Address Technology Risks and Strategies

- "The Department of Energy (DOE) Strategic Plan is our roadmap to address the energy, environmental, and nuclear security challenges before us. The heart of our plan is founded on innovation through science-driven development of new technologies."
- Congressional Appropriations directed DOE to prepare an EM technology roadmap
  - **Identifies technology risks**
  - **Strategic initiatives to address risks and expected outcomes when implemented**

Developing a Technology Roadmap to Address Technology Risks/Strategies (cont.)

- National Academy of Science report also recommended a targeted, aggressive, collaborative research program to develop and deploy needed innovative technologies.
- A technology forum held in October 2006 identified significant needs in the areas of Tank Waste Processing, Groundwater and Soils Remediation, and Deactivation and Decommissioning which form the basis for strategic initiatives.

Technology Roadmap Status

- Collected risks and uncertainties across DOE complex.
- Strategic initiatives address risks by showing benefits/outcomes of investing in technologies.
- Draft coordinated with Federal staff and senior management.
- Concurrence within DOE and OMB for late March submittal to Congress.

Reducing Risks from Technology Demonstrations and Deployments

- EM has been demonstrating and deploying innovative technologies to support its cleanup mission by cost-effective or enabling technologies.
- Non-Destructive Examination/Assay technology at Savannah River will allow for the certification of large container TRU waste to be disposed at WIPP while avoiding worker exposure from opening, characterizing and repackaging; this will result in savings of hundreds of millions of dollars.

Reducing Risks from Technology Demonstrations and Deployments (cont.)

- Advanced Remediation Technologies procurement has awarded twelve technologies for Phase I activities; downselect to Phase II demonstration and deployment efforts for technologies providing the greatest benefit to the Department's cleanup mission.

External Technical Reviews as a Valuable Tool to Resolve Risks and Uncertainties

- **High degree of concern for EM projects prompted the use of External Technical Reviews.**
  - **Waste Treatment Plant (WTP) at Hanford**
  - **Tank 48 at Savannah River Site (SRS)**
  - **Demonstration Bulk Vitrification System (DBVS) at Hanford**
  - **Salt Waste Processing Facility at SRS**
  - **Groundwater and Soils Remediation at Hanford and Paducah**
- **Important to organize engineering and scientific expertise through a structured review process to address difficult technical problems or resolving project management issues.**

Recent External Technical Reviews Summary Results

- WTP at Hanford report issued 3/17/06; examined issues related to current flowsheet, identified one issue that could prevent plant operation (line plugging).
- Tank 48 at SRS report issued 8/10/06; assessed the viability of preferred path forward in disposition of tetraphenylborate, confirmed steam reforming as preferred technology.
- DBVS at Hanford report issued 9/28/06; reviewed status of DBVS program in meeting program objectives, no fatal flaws identified.
- SWPF at SRS report issued on 11/22/06; focused on determination if design was technicaly sufficient to support development of baseline cost and schedule, found that project ready for CD-2 review.
- Remediation systems at Hanford for ZP-1 Operable Unit; evaluation of existing remedial systems will support Feasibility Study for Record of Decision to be provided 5/31/07.

Proposed Future
External Technical Reviews (ETR)

- ETRs being considered for FY 2007
  - Plutonium Disposition Plans at SRS
  - Calcine Disposition Project Alternatives at ID
  - High Flux Beam Reactor D&D at BNL
  - West Valley Demonstration Project D&D
  - GDP D&D Project at Portsmouth
  - Groundwater monitoring at Paducah
  - Groundwater monitoring at Hanford

Path Forward

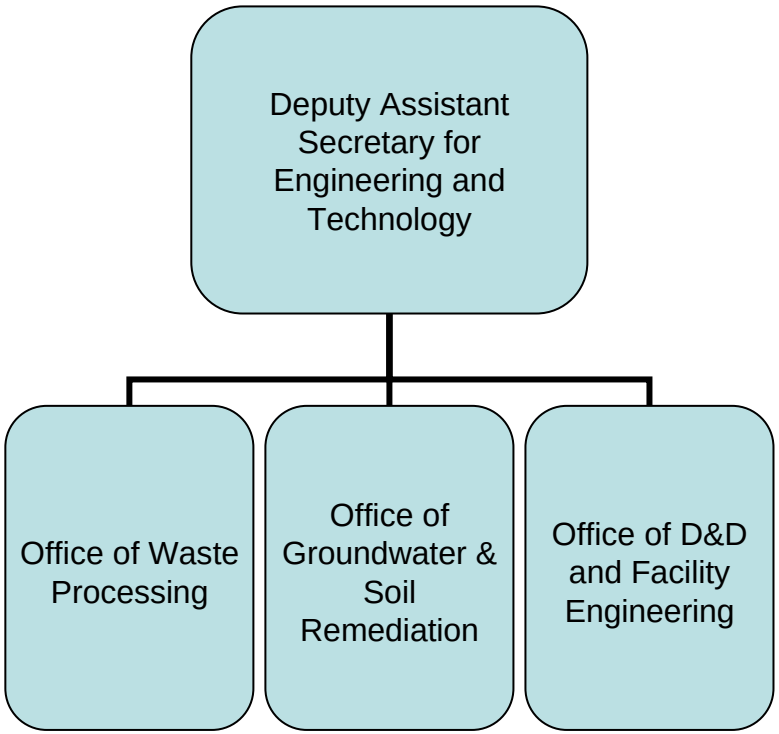
- Incorporate Lessons Learned and Response Plans into EM projects.
- Identify common issues and concerns for technical exchange workshops.
- Communicate with Federal Project Directors to lay out ETRs to support EM Projects Critical Decisions.
- Establish a procedures manual to guide future ETRs.

Conclusion

- External Technical Reviews (ETR) have been organized and implemented to reduce uncertainties for EM projects across DOE complex; proven useful in supporting critical project management decisions.
- Strong endorsement by Assistant Secretary Rispoli to have ETRs as mainstay to reduce risks and improve operations and safety.
- Need to identify major risks using project's risk management plans to help resolve technical uncertainties.

BACKUP CHARTS

EM Office of Engineering and Technology



Established to Reduce Technical Risk and Uncertainty in the EM Program

Functions

- Develop policy and guidance
- Assess projects and programs through technical reviews and oversight
- Provide technical assistance and support to the field and other Headquarters offices
- Manage the EM Technology, Development and Deployment Program

Project Management Activities

- Elevate level of attention on engineering and technology issues.
- Future ETRs can support Critical Decisions.
  - Tailored Review Process
  - Consistent with DOE M. 413.3-1 (Chapter 9.5)
  - HQ will review charter, statement of work, experts, lines of inquiry

Office of Waste Processing Strategic Approach