Implementing Long-Term Stewardship: A National Challenge

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“Long-Term Performance Monitoring of Metals and Radionuclides in the Subsurface: Strategies, Tools and Case Studies”
Long-Term Stewardship

- **Stewardship** is a process aimed at protecting human health and environmental quality at sites that have been cleaned up **but** show residual contamination (hazardous or radioactive).
Long-Term Institutional Management

- An integrated, complementary system comprising:
  1. contaminant reduction,
  2. contaminant isolation, and
  3. stewardship.

LTIM I (NRC, 2000)
A National Challenge

- DOD sites
- DOE sites
- DOI sites
- EPA (CERCLA and RCRA sites)
- NASA sites
- Sites under States, municipalities, and Tribes’ responsibility
A Considerable Body of Work on LTS

- National Research Council
  >20 reports related to LTS (LTIM I&II; NRC, 2003)
- DOE reports and sponsored studies
- DOE Long-Term Stewardship Roadmap
- EPA reports and sponsored studies
- Other reports (site-specific advisory boards, ELI, RFF, CRESP, ICMA, JIEE, NEPI, NAPA, etc.)
Main Findings from LTIM I and II Reports (NRC 2002, 2003)

• Contaminant reduction permitting unrestricted access is sometimes infeasible
• Engineered barriers have limited lives
• Institutional controls will eventually fail
• Unclear what combination of contaminant reduction+contaminant isolation+stewardship is necessary.
• Planning for stewardship needs to begin during the cleanup phase.
March 16, 2004:

Workshop by THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

- Objectives of the workshop:
  - Is there a need for advice on LTS on a national scale?
  - Federal agencies (DOE, EPA, DOD, DOI), Colorado, and ORSSAB issues
  - Technical issues related to LTS
Main Thoughts from the Workshop…

- Do not re-invent the wheel on LTS
- Adopt a national, multi-institutional perspective (federal agencies, States, municipalities, interested and affected parties)
- Consider common elements and differences among sites
- Finding sponsors is a challenge
Suggested Ideas

• What are the scientific and technical criteria to decide when to transition from cleanup to stewardship?
  – What are the issues to consider?
  – Rigid or flexible decision-making process?
  – What information is needed before a decision can be made?
  – What are the tools to obtain that information? Are they available?
Suggested ideas (cont.)

- Emphasize key technical issues:
  - Failure analysis:
    - How can potential failure modes of remedies and institutional controls be studied?
    - What does “failure” mean for public health?
    - How can failure be factored into cleanup and closure decisions?
Suggested ideas (cont.)

– Use of science and technology:
  • How to use S&T to understand, control, and manage contaminated sites?
  • How to use S&T to inform the communities and other stakeholders around them?
  • How will R&D over the next decade(s) affect LTS at sites being closed now?
Next steps…

• Congressionally mandated study?
• Negotiate statement of task with interested parties (multiple agencies)
• Raise funds to begin study…