Decommissioning Lessons Learned at Fuel Cycle Facilities

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Outline of Presentation

- Brief overview of Fuel Cycle Facilities Forum
- Current decommissioning issues of importance to fuel cycle facilities
- Lessons learned
- Recommendations

Overview of Fuel Cycle Facilities Forum

- Voluntary industry organization, established in 1987
- Represents Source Material and Special Nuclear Material licensees, including fuel processors and specialty metal refiners
- Primary focus on decommissioning
- Members represent sites/facilities that require special NRC consideration (*difficult* sites)
- Provides industry voice on decommissioning issues
- Provides feedback and recommendations to NRC staff regarding decommissioning experience and lessons learned at fuel cycle facilities

Issues of Importance to Fuel Cycle Facilities

1. Workshops, public meetings and tabletop exercises are effective means for sharing decommissioning experience, successes, lessons learned, problems encountered, and implementation issues
2. Primary nuclides of concern to fuel cycle facilities (Uranium and Thorium) frequently present challenges to cleanup:
    - both are found in nature
    - naturally-occurring levels may approach/exceed cleanup criteria

Issues of Importance to Fuel Cycle Facilities

3. Many decommissioning-like activities could/should be allowable under a facility's existing operating license and safety program
4. Greater *flexibility* is needed when addressing situations involving interim site cleanup, source term removal, and/or partial site release
5. *Additional disposal options* are needed for high-volume low-activity wastes, especially U and Th materials
6. Need to preserve the ability for a licensee to implement a *phased approach to decommissioning*

Issues of Importance to Fuel Cycle Facilities

7. Licensees need greater assurance of *finality* at all stages of the process
8. Need improved efficiency in the process for development, approval, and implementation of the Final Status Survey (FSS)
9. Need to address issues of *consistency among* and between State agencies and NRC-HQ and NRC Regions

Lessons Learned

1. *Meetings between NRC and FCFF have been productive and useful.*
   - Helps licensees and NRC understand the issues more fully by addressing issues from a different perspective
   - Meetings have facilitated effective dialogue and interaction, and have produced tangible results
   - Ongoing evidence these meetings and interactions have led to improvements in the decommissioning process
   - NRC has been open to licensee feedback on emerging rules and guidance, particularly in regard to *implementation issues*

Lessons Learned

2. Tabletop exercises are effective learning tools

- Must be properly structured, with specific end-point objectives
- Must have an effective, knowledgeable facilitator
- Must involve participants who are willing to get engaged in the discussion
- Should include “role-playing”, allowing participants to address hypothetical situations using realistic data, scenarios and constraints (e.g., financial, regulatory)
- Participants should be encouraged to forget existing paradigms and to think outside the box
- Keep the focus narrow

Lessons Learned

3. Development of subsurface DCGLs can enhance the process without compromising safety

- Subsurface DCGLs have been applied effectively by some licensees to achieve timely, cost-effective, compliant results
- Can be supported by realistic modeling scenarios
- Experience has shown this to be an effective enhancement to the decommissioning process

Lessons Learned

4. *Side by side FSS measurements are more effective than a Confirmatory Survey at the end of the decommissioning process*
   - Some licensees have experienced success with regular regulatory involvement during the FSS design and implementation processes
   - Helps prevent “surprises” at the end of a lengthy and complex process
   - Some licensees have shown that this approach can lead to cost savings, as well as improvements in the FSS process
   - Processes that require confirmatory surveys by ORISE at the conclusion of licensee cleanup often result in extended delays in completion of the process, including delays in backfill of open excavations
   - ORISE uses procedures and methods that are not always consistent with those of the licensee, causing unnecessary confusion, greater expenditure of resources, and further delays

Lessons Learned

5. Finality can be a moving target

- Some licensees have experienced reversals in release of portions of their site for no apparent reason
- Under the existing MOU with EPA, industry is left with a sense of uncertainty regarding the finality of any decommissioning completed under NRC jurisdiction; EPA can still re-open the site even with no evidence of a significant safety concern
- For at least one licensee, the exchange of correspondence between NRC and EPA has opened *other* regulatory and political concerns never intended by either agency
- The language of some notification and response letters has unintentionally suggested that there may be unresolved safety concerns when, in fact, there were none

Recommendations

1. Explore additional disposal alternatives for high-volume, low-activity bulk decommissioning wastes.
   - Waste disposal is typically the largest single cost component of decommissioning, and frequently licensees are left with only one commercial disposal alternative
   - Other viable disposal alternatives include:
     - RCRA Subtitle C landfills
     - Mill tailings impoundments
     - industrial waste landfills
     - return near-background bulk materials and soil to excavation cavities

Recommendations

2. Improve *flexibility* in addressing interim site cleanup, partial site remediation, source term removal, and partial site release
   - The *timeliness* requirements of Part 70 triggers certain actions by licensees for these areas, but these are typically treated as "decommissioning" activities instead of source reduction
   - Requirements normally applied to "decommissioning", as defined in Part 70, do not necessarily apply to these types of activities, especially if the license is not being terminated
   - Licensees should have more flexibility to conduct cleanup and source term removal under an existing operating license until such time as the area/site is to be decommissioned for license termination

Recommendations

3. Improve the *consistency* in applying decommissioning requirements, particularly among and between regulatory agencies and between licensees
   - inconsistencies in the decommissioning process among State agencies (Agreement and Non-Agreement), between States and the NRC, and within the NRC have led to confusion and delays in establishing consensus and in achieving finality
   - experience has shown that consensus (between licensees and affected regulatory bodies) is essential during the decommissioning planning process, and that *frequent and effective communication* throughout the process is crucial to success

Recommendations

4. Continue to work on the issue of *finality*

- When the NRC releases a site or portion of a site, licensees must have better confidence that their work is complete
- The current MOU between NRC/EPA has cast another long shadow over the issue of finality
- Absent a greater assurance that they can achieve finality, some licensees have considered delaying or slowing cleanup efforts to avoid unnecessary expenditure of resources and to avoid putting future resources at risk
- Industry feels that there is a strong possibility, perhaps even a *likelihood*, that a licensee may not achieve finality even though they have met all NRC criteria