

WM '08 Fixed Base Processor

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environmental services



What Capacity Do We Really Need?

- Resources for Treatment of High Activity MW:
 - TSCA Incinerator (set to close in 2009)
 - Advanced MW Facility (primarily for ID TRU Waste)
 - Oak Ridge TRU Processing Facility (primarily for OR TRU waste)
 - Commercial Processors (? Excess Capacity)
- Resources for Disposal of High Activity MW:
 - NTS (MW Cell to close Dec. 2010)
 - ? Commercial Disposal Facilities (typically limited to Class A)
 - Hanford for future MW?

Current Challenges from Perma-Fix's Perspective

- 10 – 100 nCi/g alpha wastes (sludges & debris)
- High Special Nuclear Material Wastes
- High Activity Mixed Wastes
- PCBs
- “Special” Mixed Wastes (e.g., problematic solvent wastes, pyroforics, etc.)

Perma-Fix MW Treatment Facilities



<100 nCi/g Alpha Waste Options

- Perma-Fix can receive and treat <100 nCi/g wastes at each of our 4 mixed waste treatment facilities;
- Majority of this waste is debris, and is treated for disposal at NTS:
 - Macroencapsulation
 - Stainless Steel Containers
 - Supercompaction and Grouting
 - Solvent extraction



High Special Nuclear Material MW

- Perma-Fix operates a portion of our M&EC Facility (South Bay) designed to receive and treat high SNM mixed wastes;
- NDA and gram tracking is important between process enclosures in order to comply with Safety Basis;
- Vault-Type Room enclosure for secure storage of flammable/ignitable classified materials.



High Activity Mixed Wastes

- Our Perma-Fix Northwest Facility routinely handles & treats high activity waste MW from the Hanford Tank Operations Project;
- Use remote cutting and handling equipment and shielding for contamination control and minimization of employee exposure
- High Activity labpacks have also been dispositioned typically using our DSSI Combustion Facility.



PCB Wastes

- Perma-Fix/M&EC is authorized to desorb PCB solids resulting in a PCB liquid requiring combustion;
- Perma-Fix/DSSI pursuing PCB permit for thermal destruction of liquid PCBs (expect Spring 2008) – to support or replace TSCAI.



"Special Mixed Wastes"

- PUREX (Pu/U Extraction)
Solvents used to separate fission products presents unique challenge:
 - Chemical (e.g., TBP, PCBs, n-Butyl alcohol)
 - Radiological (Pu, Am)
- Variety of treatment systems needed to handle all constituents
 - Stabilization/Solidification
 - Organic Treatment
- Disposal at NTS



“Special Mixed Wastes” Continued

- DU and Th Chips due to their pyroforic nature have been a treatment challenge;
- No longer an “orphan” due to safe treatment options – primarily stabilization.



Uranium Chip Treatment

Perma-Fix NTS Certified

- Perma-Fix's M&EC facility obtained NTS certification in April 2006;
- Approved treatment processes:
 - Macroencapsulation
 - Debris Wash
 - Volume Reduction
 - Stabilization
 - Thermal Separation
 - Amalgamation
- We are committed to using this important resource for disposal.



Summary

- We have successfully treated a large number of orphan waste streams and reduced legacy volumes around the DOE complex – commercial capacity appears to be sufficient;
- We are enhancing existing technologies to address more problematic high activity wastes and classified materials – typically low volume;
- We obtained NTS certification to disposition these wastes – time is running out on MW cell;
- We are finalizing our PCB combustion permit - supplement or replace DOE's TSCA Incinerator.