Waste Disposition on the Hanford Plateau Remediation Contract

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management
Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

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Presented to: Contractors Transportation Management Association
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CHPRC Waste Management Team

- CHPRC — Waste & Fuels Management
- Cavanagh Services — Transportation/Shippers
CHPRC Waste Management Staffing Issues

- Total ARRA Scope will require over 400 professionals and 150 bargaining unit personnel to support the CHPRC.
- Normal attrition and work-scope already strains resource capacity of Waste Management professionals.
- Shippers, Waste Management representatives, Engineers and support functions are in high demand.
- Issues include salaries, relocation expenses, “retreads”, experience.
Waste Specific Staff Needs Support ARRA

- Total ≈ 100
  - 12 Radcon
  - 12 Program Support
  - 8 Shipping Support
  - 7 Safety/QA
  - 15 Infrastructure Support
Waste and Fuels Management Project Work Scope
Treatment, Storage, Disposal, and Transportation Services

**Transuranic Waste**
- 5,300 m³ of RSW
- 17,800 m³ of CH-TRU
- 4,100 m³ of RH-TRU

**Low-Level and Mixed Low-Level Waste**
- 12,000,000 tons of LLW
- 13,700 m³ of CH-MLLW
- 1,200 m³ of RH-MLLW

**Liquid Waste**
- 270 mGal of waste water/yr
- 240 mGal of non-radioactive waste/yr
- 30 mGal LLW/MLLW

**Capsules and Fuel**
- Cs/Sr capsules
- K Basin spent fuel
- KOP sludge
- Found fuel
- Slightly irradiated fuel

**Non-Radioactive Debris and Hazardous Waste**
- 90 tons of debris
- 1,200 drums of hazardous waste

**Waste and Fuels Generators**

**Waste and Fuels Disposal**

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Plateau Remediation Company
Retrievably Stored Waste Management Logic

- **RSW**
  - **5.300 m³**
  - **Yes**
  - **TRU(M)**
  - **850 m³**
  - **MLLW**

- **Yes**
  - Retrieve the waste using existing capabilities
  - **TRU(M)**
  - **850 m³**
  - **MLLW**

- **No**
  - **1.700 m³**
  - **Yes**
  - Mobile Hot Cell capability (retrieve, sort, and package waste that is WIPP certifiable)
  - **TRU(M)**
  - **230 m³**

- **No**
  - **23 m³**
  - **Yes**
  - Next Generation Retrieval capability for degraded containers and RH waste (retrieve, sort, and package waste that is WIPP certifiable)
  - **TRU(M)**
  - **2,400 m³**
  - **MLLW**

- **3.600 m³**

- **Existing Capability**

- **Future Capability**
Low Level Waste Management Logic

- **6.500,000 m³** LLW

- Yes
- **Is the waste characterized and packaged compliantly?**
- No
- **Is the waste disposal ready?**
- No
- **Process waste commercialized?**
- Yes
- **Process waste at T Plant**
- No
- **Can the waste be processed in T Plant? (e.g., empty TRU drums)?**
- Yes
- **3,500 m³**
- New large container and RH capability
- No
- **Can the waste be processed commercially?**
- Yes
- **Process waste commercially**
- No
- **30 m³**

- **5,000,000 m³** (through 2018)
- **1,500,000 m³** (after 2018)

- Yes
- **Is the waste CERCLA?**
- No

- **ERDF**
- **MWDT or IDF**
Container Shipments (to Date)

- 223 Box Shipments
- 446 Drum Shipments
- 24 Unique Shipments
  - 3 DSWC Shipments (FFTF)
  - 233S SWB (T Plant)
  - 66 m³ Box (CWC)
  - 2 IP2 Glovebox (PFP)
  - Transformer (FFTF)
  - Large box Rail Shipment (CWC)
  - IXC & Sand Filter Monoliths (KBC)
Offsite TSDs Shipped To

- **PESI (DSSI)** – Oak Ridge, TN., Incinerator for destroying organic (liquids) hazardous constituents. Recently permitted to treat TSCA wastes.
- **M&EC** - Oak Ridge, TN., Vacuum thermal absorption for destroying organic (solids) hazardous constituents.
- **EnergySolutions** - Clive, UT., Non-thermal treatment including macroencapsulation. Limited to NRC Class A Waste.
- **PFNW** - Richland, WA., Macro, Volume Reduction, Stabilization and Neutralization of MLLW and LLW.
CASE EXAMPLES
66m³ Box

- Waste Generated on 9/25/95
- Contains two (complete) portable air exhauuster units used to ventilate underground storage tanks.
- Stored from 9/29/95 to 2/24/09 due to a lack of a readily identifiable treatment path for oversize containers and limited funding.
- Disposition Options
  - Offsite cut, segregate, grout, and return to Hanford for onsite disposal.
    - Limitations: Physical acceptance and cost.
  - In-Trench Macroencapsulation at MW Trench or ERDF.
    - Limitation: Disposition of potential non conforming items (if any were noted).
  - Offsite shipment for bulk macroencapsulation & disposal (process utilized).
    - Advantage: Meets Off-site acceptance criteria and most cost effective process.
66m³ Box Photos

66 m³ Box Movement (Lifting Limitations Due to Lighting)

66 m³ Box Movement (Lifting Limitations Due to Lighting)

66 m³ Box Staged for Loading

66m³ Box Arrival @ TSD

66 m³ Box Placement

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M&EC
Materials & Energy Corporation
A subsidiary of Bechtel Infrastructure Services

CH2M HILL
Plateau Remediation Company
K-Basin Clarifier

- 100KW basin water clarifier
- “Overpacked” into IP-1 steel box (2.9 m x 3.2 m x 6.2 m)
- Gross weight - 6600 kg
- Internally shielded to meet Hanford Site dose rate limits
- Shipped via Hanford Risk-Based Transportation Safety Document as package not DOT compliant
- Transported from 100KW to Hanford Site Central Waste Complex; awaiting identification of a disposition path.
K-Basin Clarifier Box Photos

Loaded Clarifier Box

Off-Loading and Receipt inspection

Shielding Used to Control Dose
Disposition of Additional Wastes

KBC Sand Filter and IXC Monoliths (KBC to ERDF)
Concrete TRU Box From 4C Burial Grounds to CWC
Low Level Legacy Waste Shipment From W5 to PFNW
Activated Metals Shipped From FFTF TO ERDF (Within Disposal Solid Waste Cask)
Backlog Soil Drums Staged Shipment to ERDF