

EnergySolutions Treatment Capabilities

Presented by Paul Larsen

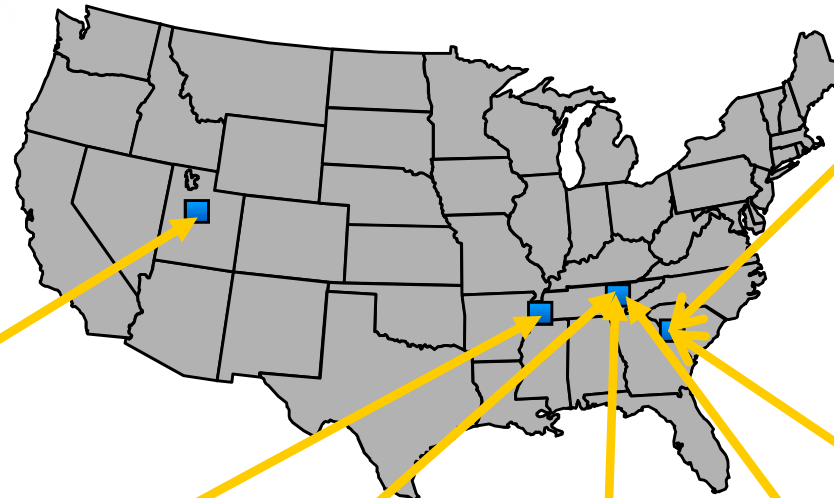
March 2010



Facilities



- ❖ Six (6) Licensed Operations Facilities
- ❖ Two (2) Disposal Facilities
- ❖ Logistics Operations



Clive Disposal

Clive, UT

Chem-Nuclear Disposal

Barnwell, SC

Barnwell Processing

Barnwell, SC

Memphis Operations

Memphis, TN

Gallaher Road Operations

Kingston, TN

Bear Creek Operations

Oak Ridge, TN

Manufacturing Sciences

Oak Ridge, TN

Clive Disposal



- ❖ Class A Low-level Waste Disposal
- ❖ Mixed Low-level Waste Treatment
- ❖ Mixed Low-level Waste Disposal



Clive Disposal

Mixed Waste: Treatment and Disposal

- ❖ Stabilization
- ❖ Solidification
- ❖ Vacuum Thermal Desorption (VTD)
- ❖ Macroencapsulation



New Treatment Capabilities at Clive



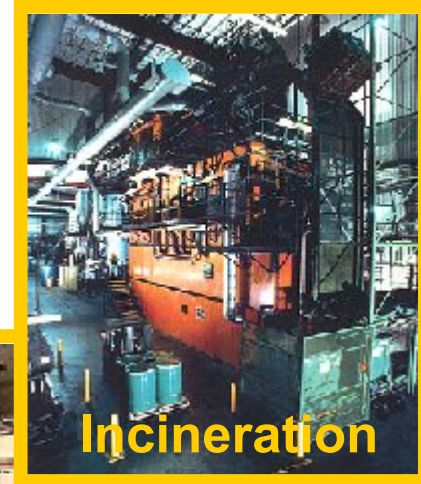
- VTD Permanent Permit to operate at Clive – EPA Reg. 8 Approval 9/16/09
- Approval to shred PCB Large Capacitors (and other waste contaminated with PCBs)
- Approval to drain and flush PCB Transformers
- Aqueous incidental PCB liquids may be solidified and disposed
 - EPA Region 8 Coordinated Approval Jan 28, 2010 (for above three items)
- Now may receive air and water reactive wastes (previously restricted)



Bear Creek Operations



- ❖ Incineration
 - Two (2) Commercial Low-level Radioactive Units
 - Solids, Liquids, Oils, and Sludges
- ❖ Compaction
 - Largest LLW Compactor in U.S.
- ❖ Metal Melt Furnace
 - Produce 10,000 Kg Shield Blocks for High Energy Physics Labs
- ❖ RCRA Part B Mixed Waste Permit
- ❖ Eastern U.S. transfer station/ waste preparation for Clive Disposal



Lead Casting/Recycling

- ❖ Outlet for contaminated lead recycling
- ❖ Products for sale to the nuclear industry:
 - DOT Type A Packages
 - Process Shields for Liners
 - Specialty Shields for Accelerators
 - Transfer Bells



Specialty Services



- ❖ NTS Waste Certification Program
- ❖ Final Resin Dewatering and Solidification
- ❖ High Rad CW Water/Sludge Drying
- ❖ Source Solidification
- ❖ Repackaging Services



RCRA Permit TNHW-129



- ❖ RCRA Temporary Authorization (TA) Permit TNHW-129 approved in April '08
 - First Mixed Waste shipment received on May 22, 2008
- ❖ TA currently includes two categories of mixed waste
 - Macroencapsulation of up to 4,800 cuft of radioactive elemental lead and hazardous debris per day
 - Sorting and Segregation of waste up to 4,800 cubic feet per day
- ❖ Current Projects
 - D008 Debris sorting/transload – Macro at Clive
 - Alpha LLW Debris –Macro to NTS



RCRA Permit TNHW-129



Under Permit Review: Treatment Technologies Include:

- ❖ Amalgamation
- ❖ Chemical Reduction
- ❖ Deactivation
- ❖ Neutralization
- ❖ Stabilization
- ❖ Carbon adsorption
- ❖ Chemical or electrolytic oxidation
- ❖ Chemical precipitation
- ❖ Debris washing

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Backup Slides

March 2010



Incineration

- ❖ Capacity: 1600 lbs/hr each
- ❖ Processing: Solids, Oils, Sludges and Liquids
- ❖ Incineration Licensing:
 - Ash attribution model decouples generator ID after incineration
 - Authorization to “burn/recycle” gases and radioactive sources and standards



Metals Recycling



- ❖ Shield Block Contract with KEK, Japan
- ❖ Capacity: >10M lbs per year
- ❖ Processing: Carbon, Stainless other soft metals less than 2% by mass
- ❖ Products (Beneficial Reuse: All products back to nuclear industry):
 - Irradiated hardware storage canister
 - Security barriers

