

Energy*Solutions* **Disposal Update**

March 9, 2010

Jeffrey Ginsburg
Director, Technical Services



Topics

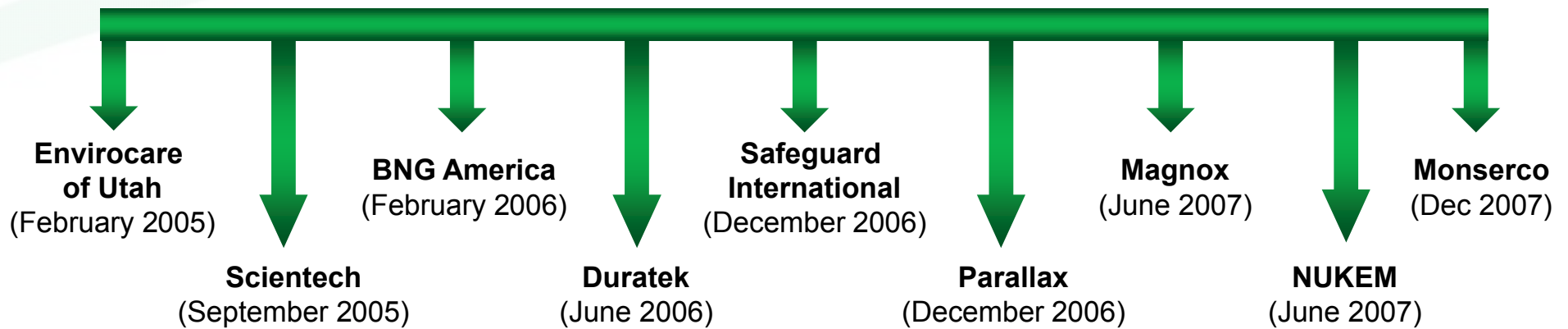
Will be addressed:

- EnergySolutions growth
- Clive receipt volumes
- Bulk waste facility capabilities and waste profiling
- Mixed waste treatment capabilities
- Containerized waste facility
- Large components
- Bear Creek transfer operations

Will not be addressed:

- Steve Creamer's resignation
- Depleted Uranium acceptance
- International waste receipt
- ResinSolutions and blending issues

History of Growth (so far)

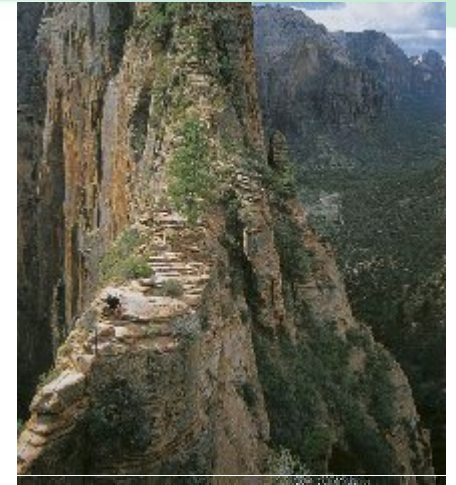


Utah Attractions

ENERGYSOLUTIONS



snowbird 



PARK CITY MOUNTAIN RESORT



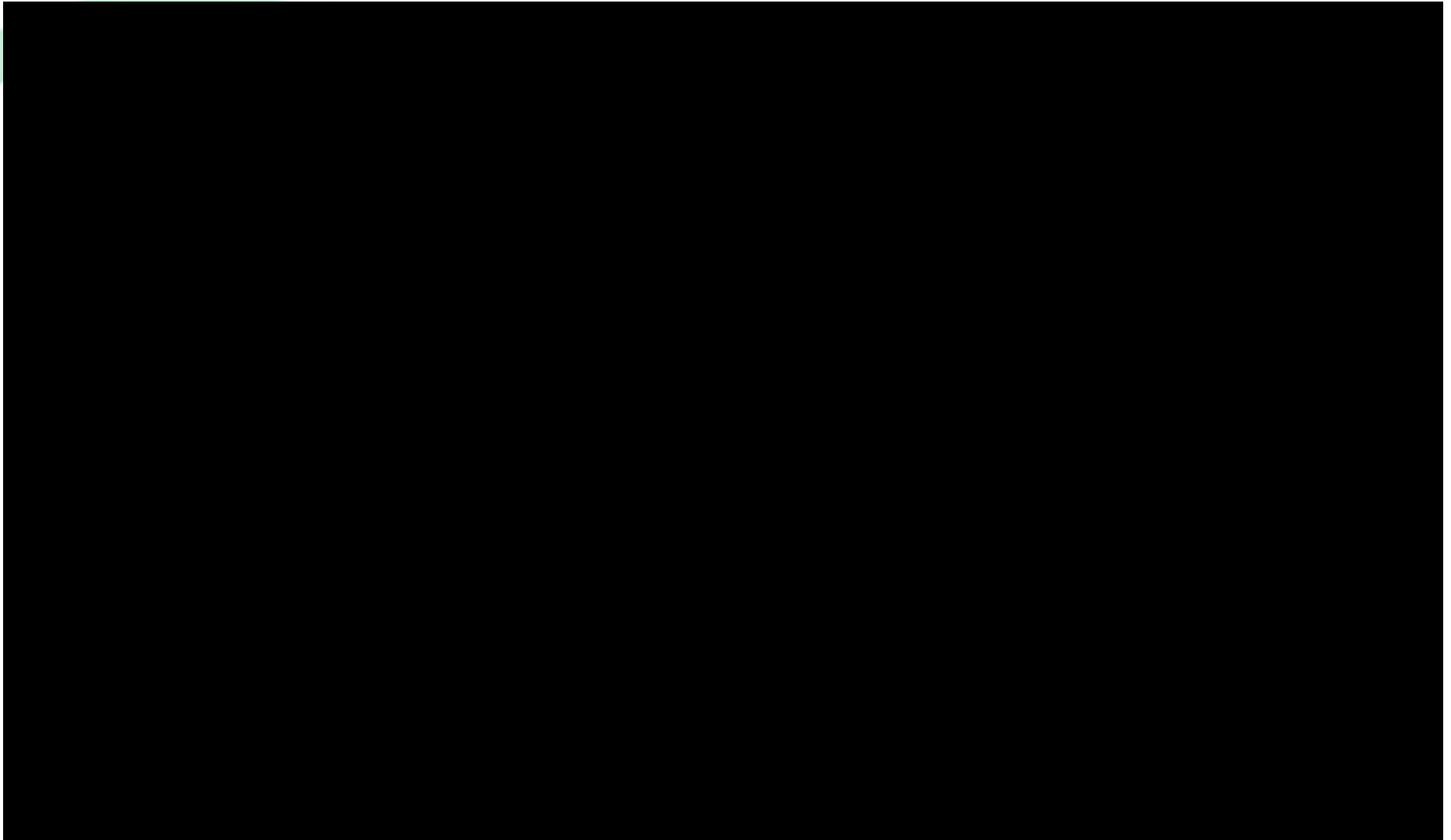
Solitude MOUNTAIN RESORT



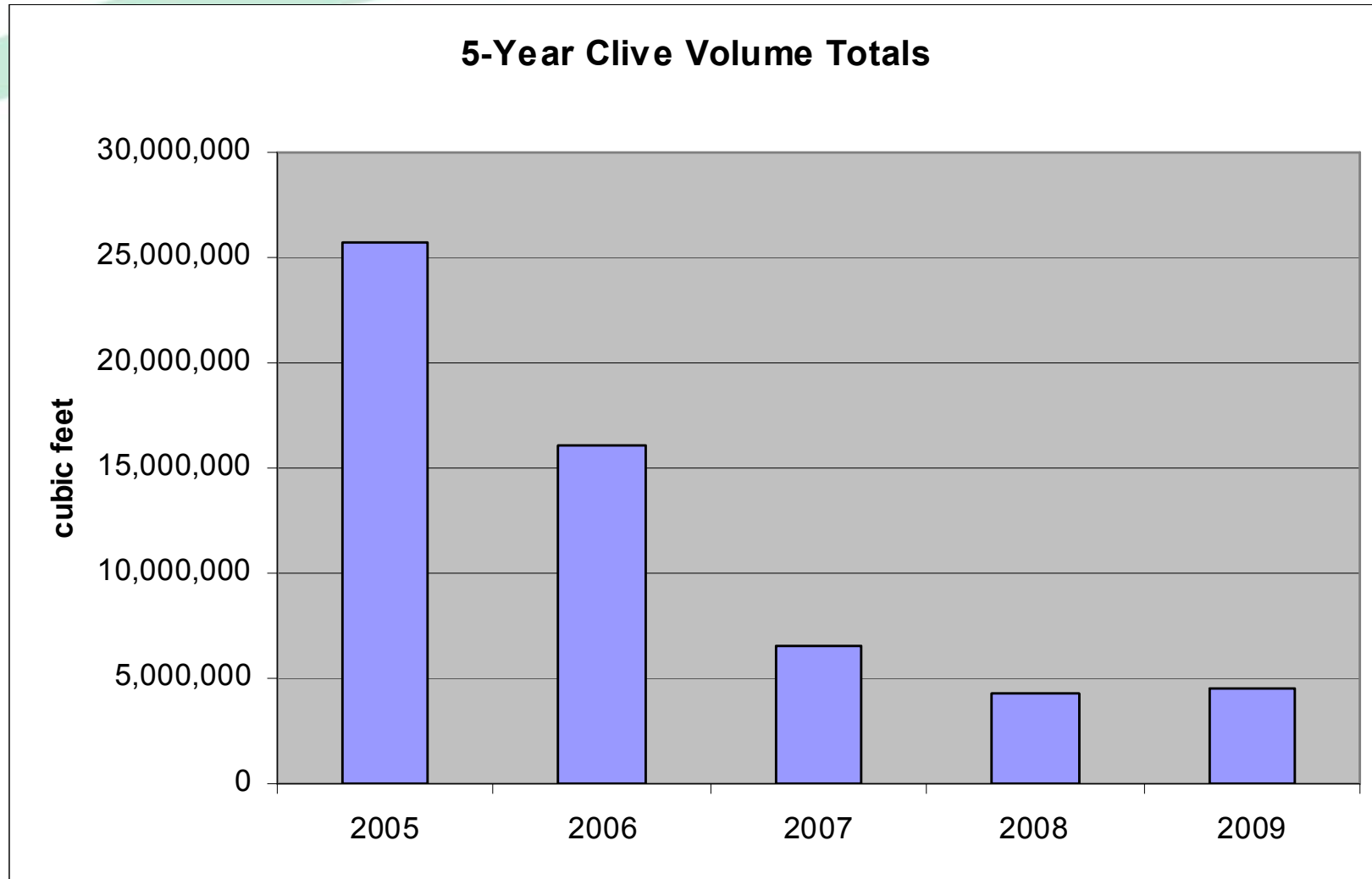
70 YEARS
ALTA
1938-2008



I-80 West, Exit 49



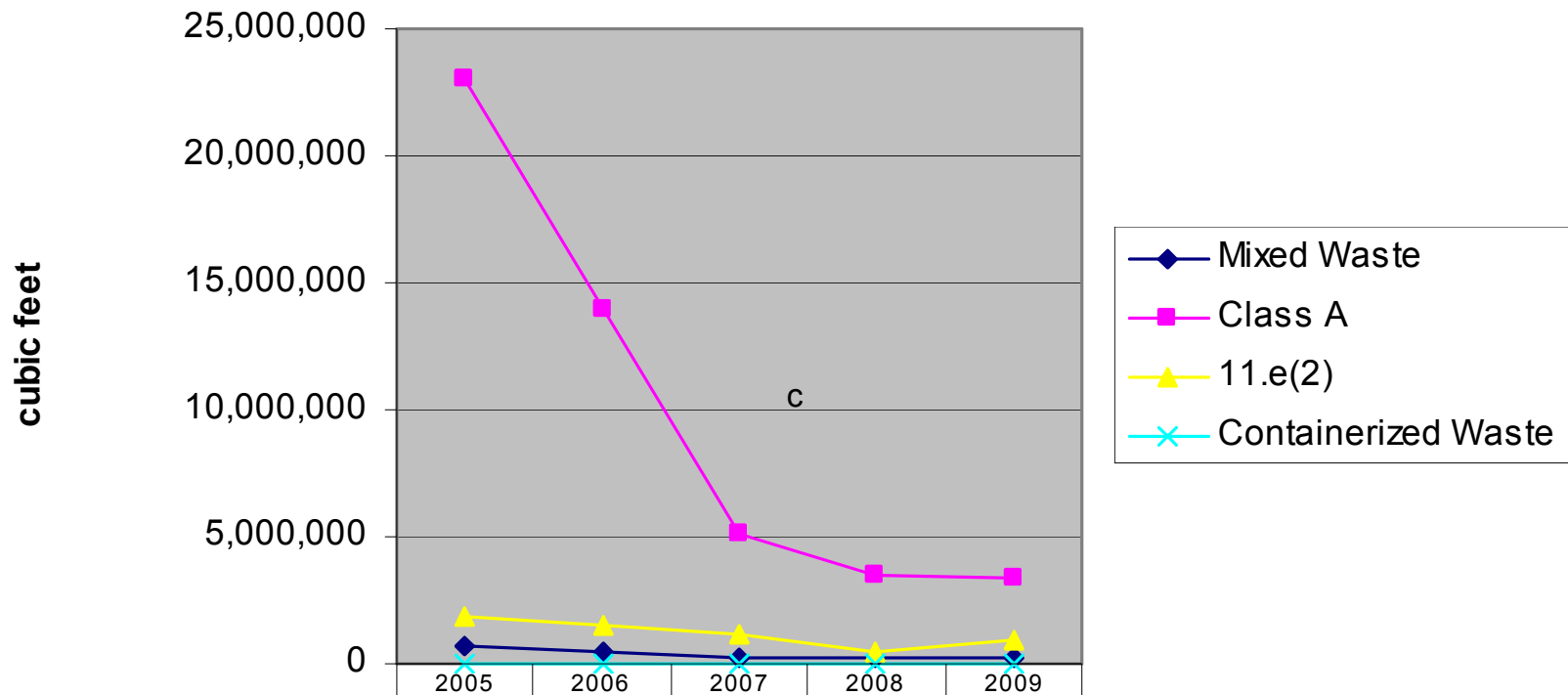
EnergySolutions Clive Receipt Volumes 2005 through 2009



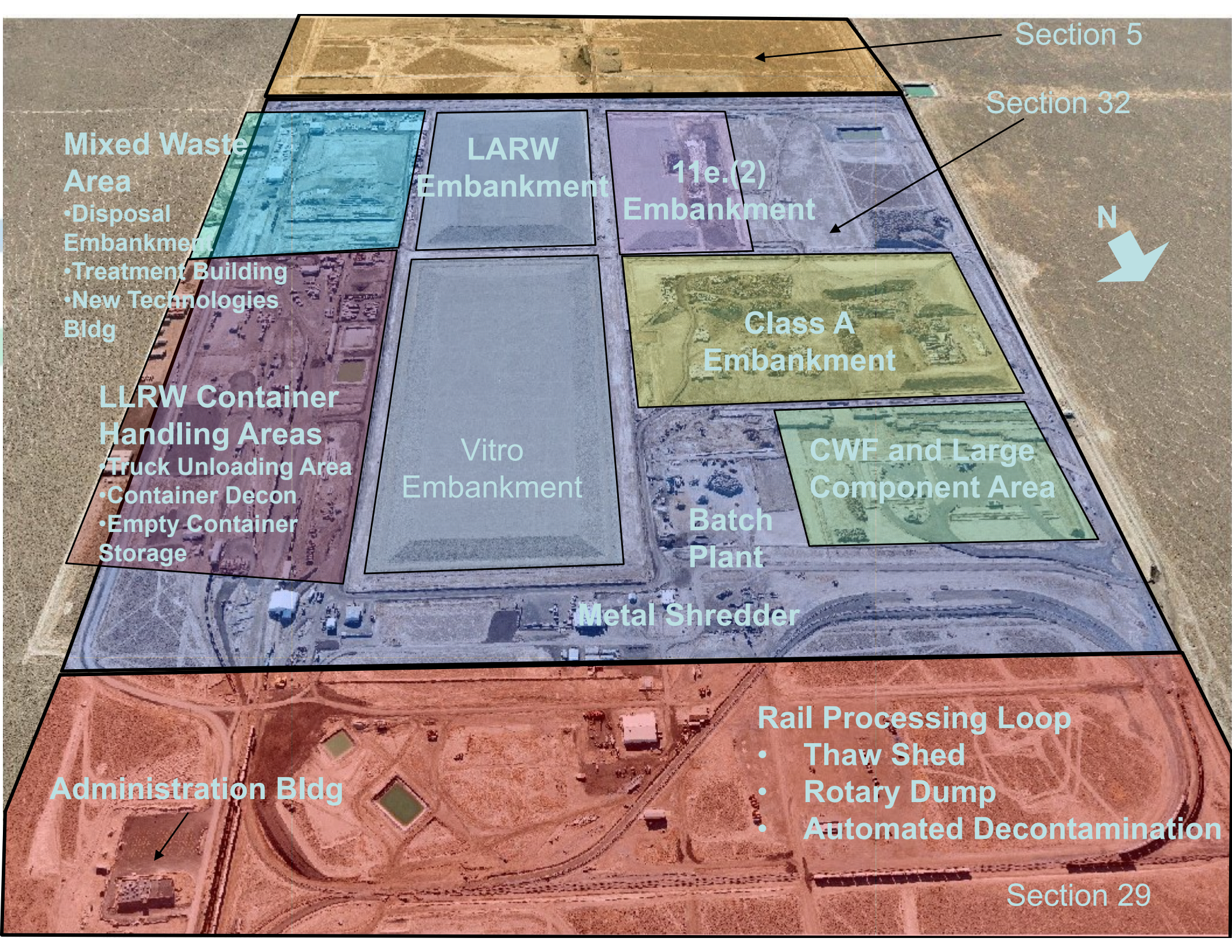
EnergySolutions Clive Receipt Volumes by Disposal Cell 2005 through 2009



Disposal Cell Volume



◆ Mixed Waste	726,224	507,853	248,039	284,209	247,407
■ Class A	22,993,296	14,005,383	5,088,939	3,445,975	3,341,999
▲ 11.e(2)	1,910,075	1,485,756	1,121,526	505,697	908,035
✕ Containerized Waste	32,130	32,384	28,356	35,485	47,770



Section 5

Section 32



Mixed Waste Area

- Disposal Embankment
- Treatment Building
- New Technologies Bldg

LARW Embankment

11e.(2) Embankment

Class A Embankment

LLRW Container Handling Areas

- Truck Unloading Area
- Container Decon
- Empty Container Storage

Vitro Embankment

CWF and Large Component Area

Batch Plant

Metal Shredder

Administration Bldg

Rail Processing Loop

- Thaw Shed
- Rotary Dump
- Automated Decontamination

Section 29

Clive Disposal Capacity



Remaining Clive Section 32 Capacity
LLRW - ~144 Million ft³ MLLW - ~9.3 Million ft³

Bulk Waste Acceptance Capabilities



Class A LLRW and NORM

- Soil, resin, filters, operational waste, debris, large components

Mixed Waste

- Direct Disposal and Treatment/Disposal

Mixed Waste Treatment

- Stabilization, oxidation, macroencapsulation, deactivation, thermal desorption, amalgamation, solidification

PCB Waste

- Drained and undrained transformers, drained and undrained large capacitors, small capacitors, ballasts, remediation waste, bulk product waste


11e.(2) Byproduct Material

UCNI and Export Controlled Waste

Other hazardous substances (e.g., asbestos, beryllium)

Waste Profiling Process

- **Waste Characterization**
 - Radiological, chemical, and physical properties determine pricing and how treatment/disposition path
- **Waste Profile Submittal**
- **Preshipment Samples (Treatability or Solidification Studies)**
 - ~5 gallon study sample, requires NRC 540/541
- **EnergySolutions Review and Approval**
 - Reviewed by environmental compliance, radiological engineering, and operations
 - Typical review/approval cycle is 1-2 weeks
- **Signed Disposal Contract or Delivery Order**
- **Notice to Transport Issued**



EX-1800
Revision 3

NOTICE TO TRANSPORT

EnergySolutions has reviewed the Radiative Waste Profile Record and supporting documentation for the waste stream identified below. Based on our review of the information and certifications provided, EnergySolutions hereby gives notice that the following waste may be scheduled for transport and delivery to the EnergySolutions Disposal Facility.

Generator Name: _____ Uranium Access Permit Number: _____

Waste Stream ID: _____ Waste Profile Record Link: _____

Waste Stream Name: _____

Waste Type: HCLM LLRW RCRA Treated LLRW (1)(2)
 MW Treated MW MW Needing Treatment
 PCB/PCB PCB/MW PCB/PCB Needing Treatment

Waste Form: Solid Liquid

Waste will require treatment or solidification at EnergySolutions Treatment Facility: Yes No
(Yes indicates treatment facility in Division of the Uniform LLRW License for Part 540. One of the "Part 540 Waste Facility" in Division of the Uniform LLRW License, Part 540.)

Disposal Facility Location (Bulk Waste Facility): Other LLRW Mixed Waste (1)(2)

Signature: _____ Date: _____

NOTICE: Transport and delivery of the material are to be done in accordance with a signed Transport Agreement, applicable federal regulations, and EnergySolutions' Radiative Material License and applicable permits. For LLRW and Mixed LLRW, generators must classify the waste in accordance with Utah Administrative Code R312-10-1008. The waste must also meet the ALERA criteria as specified in the Bulk Waste Disposal and Treatment Facilities Waste Acceptance Criteria as amended, unless otherwise approved in writing by EnergySolutions. Upon arrival at the facility, the shipment will be made subject to normal equipment procedures and may be accepted or rejected by EnergySolutions for management at the facility based on the results of these inspections. EnergySolutions will accept conforming waste shipped by the generator in accordance with applicable licenses, permits, and a waste disposal agreement. To generators of mixed waste (radioactive/hazardous), notice is hereby provided that EnergySolutions possesses a RCRA permit for the treatment, storage and disposal of mixed waste. Hazardous waste manifests and LDs notices and certifications must accompany mixed waste shipments.

More information at Utah is now EnergySolutions

Page 1 of 1

Waste Acceptance Documents

All documents available online at www.energysolutions.com
(under Customer Portal tab)

**Radioactive Material License
#UT 2300249
Amendment 6
(01/25/13 expiration)**

Containerized Waste Facility – Waste Acceptance Criteria, Rev 6 (Class A LLRW, > 200 mR/hr pkgs)

Bulk Waste Disposal and Treatment Facilities – Waste Acceptance Criteria, Rev 7 (Class A LLRW, < 200 mR/hr pkgs)

LICENSE AMENDMENT

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF RADIATION CONTROL
RADIOACTIVE MATERIAL LICENSE

Permittee to Utah Code Annotated, Title 19, Chapter 5 and the Radiation Control Rules, Utah Administrative Code (UAC) R310, and in reliance on statements and representations heretofore made by the Licensee designated below, a license is hereby issued authorizing the Licensee to manufacture, receive, possess, and use the radioactive material designated below, and to use radioactive material for the purposes and at the places designated below. This license is subject to all applicable rules, and makes no use or benefit is effected and to all conditions specified herein.

1. Licensee:	2. License Number: UT 2300249
1. Name: Energy Solutions, LLC (licensee)	1. Jurisdiction: UT
2. Address: 631 West 300 South Suite 200 Salt Lake City, UT 84101	4. Expiration Date: 1. October 23, 2012 (Class A LLRW Basis) 2. License Category: 6-a

<p>4. Radioactive Material (element and use intended)</p> <p>4. Any Radioactive Material including Special Nuclear Material, as defined in Title 19, Chapter 5, Subchapter 1.</p>	<p>5. Chemical and/or physical form (element and use intended)</p> <p>5. None.</p> <p>6. Manufacturing Conditions 4 (Authorized Use), 15 (Restrictions and Waste Requirements), and 16 (Maximum Radionuclide Specific Activity) are typically in gas, liquid, solid, or contained solid or slurry. These manufacturing conditions do not include spent or used waste including but not limited to: radiologically contaminated paper, piping, rods, pipes, metal cans, wood, bricks, rocks, dredge tailings, slag, ash, or personal protective equipment (PPE). The licensee is the acclimation and consent to approval (UAC) Consent.</p>	<p>8. Maximum Radionuclide Specific Activity of material (to be located at any point in time)</p> <p>8. 23,000 Ci/m³</p> <p>9. Specific Activity of Class A LLRW (Ci/m³)</p>
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ENERGYSOLUTIONS
Containerized Waste Facility
Waste Acceptance Criteria
Revision 6

Corporate Office
401 West 300 South, Suite 200
Salt Lake City, UT 84101
Phone: (801) 643-2000
Fax: (801) 677-7315

Containerized Waste Facility
300 Lake St., East 40
Cedar, UT 84005
Phone: (801) 646-2010
Fax: (801) 415-5667

**Bulk Waste Disposal and Treatment Facilities
Waste Acceptance Criteria**
Revision 7

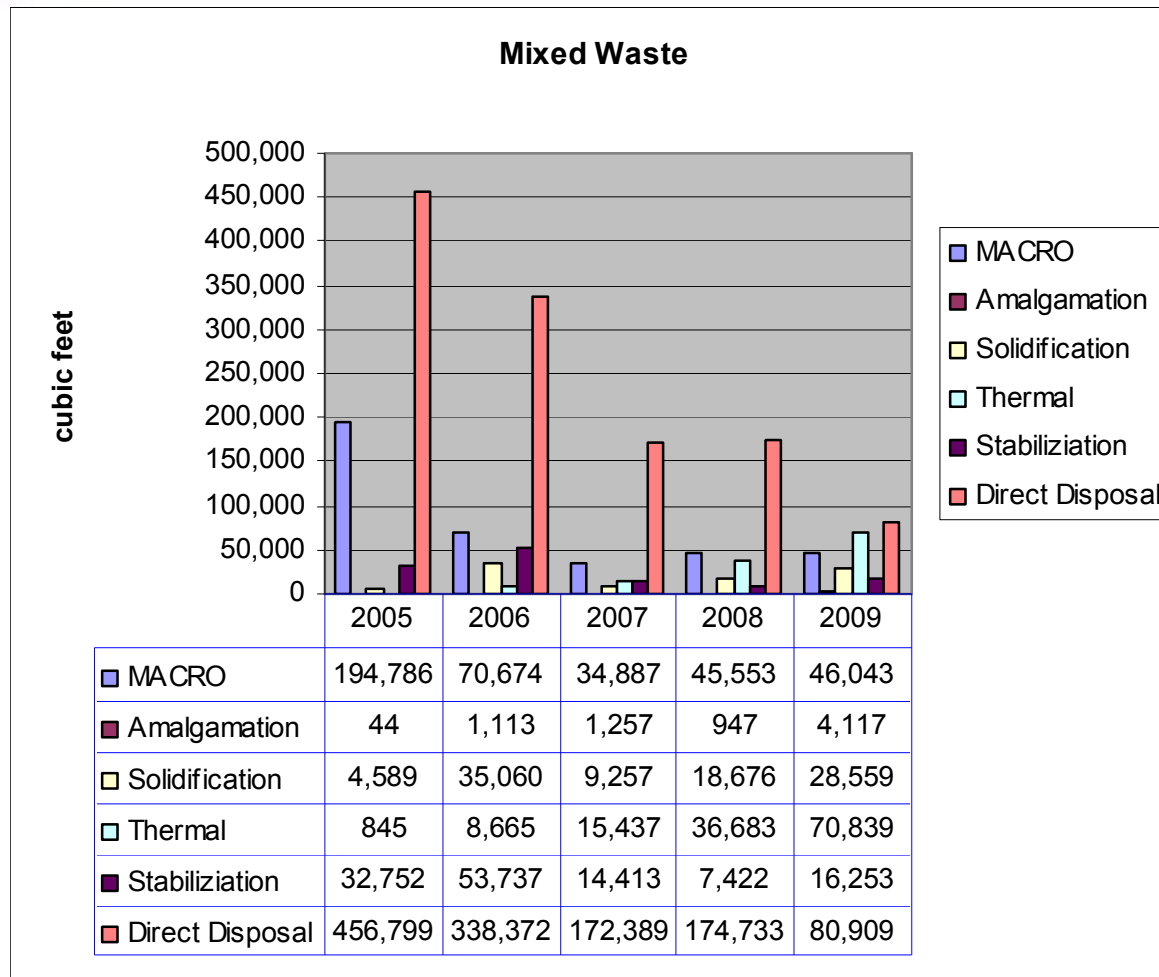
(Includes Class A LLRW, Mixed Waste, and 11e/210 Disposal Enhancements)

Class A LLRW Expansion	VITRO	Roll & Unloading Facilities
CLASS A LLRW		
Future Disposal Expansion	11e.(2)	LARW
		MW

Corporate Office
401 West 300 South, Suite 200
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Mixed Waste Treatment and Disposal



Mixed Waste Treatment Capabilities

Macroencapsulation

- 40 CFR 268.45, Alternate RCRA Debris Treatment Standard

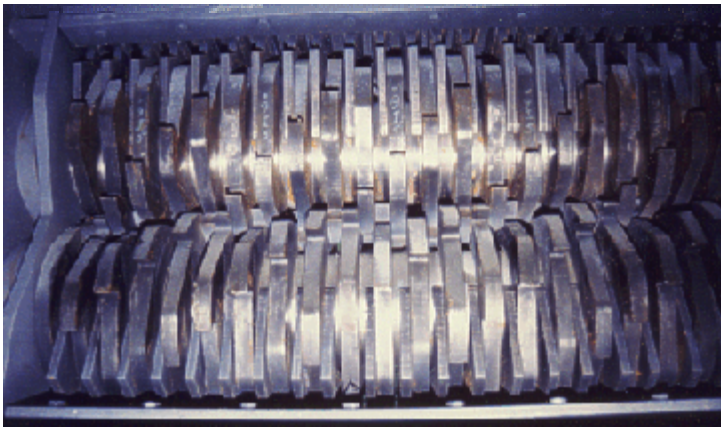
Clive facility macro vaults:



Mixed Waste Treatment Capabilities

Stabilization and Chemical Oxidation

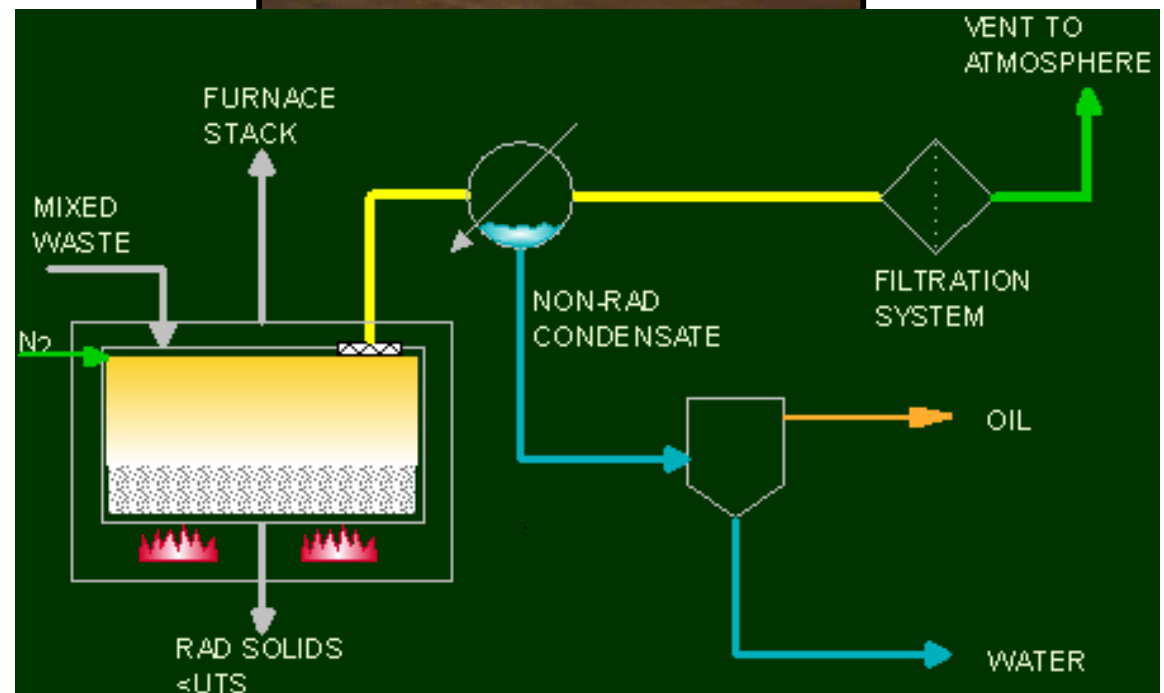
- Achieve 40 CFR 268.48 Universal Treatment Standards to allow land disposal
- Waste is shredded, and blended with reagent in 4 cubic yard Ross industrial mixer
- All waste streams received for stabilization and oxidation require Treatability Study



Mixed Waste Treatment Capabilities

• Vacuum-Assisted Thermal Desorption (VTD)

- Separation of organics for further treatment; operate up to 1200 degrees F
- EPA-approved for CMBST code treatment
- Upcoming (3/29) EPA demonstration to treat PCBs @ 100%, currently approved to treat shredded capacitors @ ~250,000 ppm
- Free release of condensate for commercial incineration
- Operating under interim status (final approval expected within 60 days)
- VTD residue stabilized for LDR disposal



Mixed Waste Treatment Capabilities

Mercury Treatment

- Low Subcategory (<260 ppm): stabilization to meet concentration-based treatment standard of 0.025 mg/L TCLP
- High Subcategory (>260 ppm): Utah DSHW-granted site specific Treatment variance (0.20 mg/L TCLP)
- Elemental Mercury: amalgamation to achieve 0.20 mg/L TCLP
- D009 debris: macroencapsulation.

Liquid Solidification

- Can accept up to 100% aqueous or non-aqueous liquids
- Real-time processing of up to 20,000 gallons per day
- Solidification and/or treatability study required
- Non-aqueous liquid profiles require State approval

Containerized Waste Facility

- Located within the footprint of the Class A disposal embankment
- Receipt of high dose Class A waste (>200 mR/hr pkg, >500 mR/hr accessible waste surfaces)
- Waste is not removed from disposal container; no receipt sampling verification
- Mixed and PCB waste no allowed
- Waste profiled and accepted through Generator Certification Program
- SNM receipt mass-based (versus concentration-based in Bulk Waste Facility)
- Resin dewatering solidification agents must be approved by Utah DRC
- Waste shipments exceeding 16,000 Ci or contact dose rates exceeding 400 R/hr require advance approval



Large Components

- Large component shipments must have approved Transportation Plan
- Waste characterization/classification methods must be provided
- Dose assessment – personnel and fence line
- Engineering drawings/specifications, weights, volumes, void, photographs



Transfer Station Operations

- Commodity DAW and Metals “Commercially Certified” for Clive disposal replacing Incineration and Compaction
- Customer Benefit:
 - Speed of processing/disposition (less than 45 day average to disposal)
 - Reduced Price under “Easy Ship” Service Line
- Transfer Station Commissioned September 2006
 - 40’ long 12’ high Container Pit Installed in Metals Building



Sealed Source Acceptance

Bear Creek

- Incineration: 1 uCi/cc incinerable encapsulation
- Metal Melt: <25 uCi for alpha emitters, <250 uCi for beta/gamma emitters. Sources must be 2-D electroplated.



Clive

- Condition 16.A. of RML prohibits acceptance.
- With Barnwell closure, may consider ammendment to accept Class A sources compliant with NRC BTP for Encapsulation.



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