Southern States Energy Board
Joint Meeting of the Radioactive Materials Transportation Committee and the Transuranic Waste Transportation Working Group
November 27, 2012
WCS Safety and Quality Focus

• WCS maintains strong, overarching commitment to safety and quality
• WCS worked almost 5 years without a lost time accident. Included over 1 million safe work hours.
• WCS promotes a safety culture consistent with best nuclear utilities:
  – Trust-based organization
  – Open communication free from concerns over reprisal
  – All workers have right and obligation to report safety and quality concerns
  – Management practices conservative decision-making
WCS Services

WCS provides the most comprehensive, full service, and complete Radioactive and Hazardous Waste Services in the Nation.

Disposal
- Low-level radioactive waste (LLRW)/Mixed LLRW (MLLRW)
- RCRA/TSCA/CERCLA Regulated Waste (Hazardous waste)
- Texas Exempt Waste
- Byproduct Material

Storage
- Radioactive Waste, incl. GTCC LLRW, Transuranic Waste, Sealed Sources, and Byproduct Material
- RCRA/TSCA Waste

Treatment/Processing
- Mixed LLRW (MLLW)
- RCRA/TSCA Waste
- Exemption to treat and store Special Nuclear Material (SNM) below certain concentration limits based on criticality – U.S. NRC in November 2001 – No limit on disposal.
License & Operations Status
Radioactive Waste Disposal License

- LLRW and Mixed LLRW Disposal
  - Final LLRW license received — September 2009
  - CWF - First LLW disposed — April 2012
  - FWF – Ready for operations – September 2012
    - FWF also has RCRA Permit and TSCA authorization, CERCLA authorization pending
- Includes Federal and Compact Landfills
  - DOE signed Agreement to take ownership of the Federal Landfill post-closure
  - TCEQ has taken ownership of Texas Compact Landfill and WCS leases it back for operations
• TX Compact Waste Disposal Facility:
  – 2,310,000 cubic feet and 3,890,000 curies

• Federal Waste Disposal Facility:
  – 26,000,000 cubic feet and 5,600,000 curies total
  – 8,100,000 cubic feet and 5,500,000 curies of containerized Class A, Class B, and Class C

• License Term - 15-years with provision for 10-year renewals
Federal Waste Facility

Disposal Facility Basics

• The Federal Waste Facility (FWF) is designed, licensed, and constructed exclusively for federal waste disposal

• The FWF is a physically separate facility from the Compact Waste Facility (CWF) – no comingling of federal and commercial waste

• Both the FWF and CWF are licensed by the Texas Commission on Environmental Quality (TCEQ)
Disposal Facility Basics (cont’d)

• FWF Disposal Capacity - 26,000,000 cubic feet

• Accepts Class A, B, and C Low-Level Radioactive waste for disposal (as defined in both 10 CFR 61.55 and 30 TAC 336.362 Tables 1 & 2)

• Accepts Class A, B, and C Mixed LDR-compliant waste for disposal (excludes F020, F021, F022, F023, F026 and F027; Dioxins & Furans)

• Up to 100 nCi/g transuranic isotopes

• Disposal is just one aspect of WCS’ comprehensive waste services, including storage, treatment, and processing
Dewatering Alternative

• License amendment granted by the TCEQ provides an alternative process for addressing resin liner dewatering that includes:
  – Physical Stability as required by 10 CFR61
  – Capturing the water released internally due to resin degradation with super absorbents
  – Capturing the water potentially released externally due to resin degradation with mineral based absorbents lining the MCC
  – Void Space Elimination
Comparison of Designs
WCS Design
WCS Landfill Design

- Multi-layered cover system that is 25 – 45 feet thick
- Depth to waste is at least 25 feet below surface
- Natural red bed clay is less permeable to water than concrete
Federal Waste Facility
Modular Concrete Canisters (MCCs)

Cylindrical MCC  MCC Opened for Waste Placement  Rectangular MCC
## The WCS Advantage

**WCS Delivers on Stakeholder Expectations for 21\textsuperscript{st} Century RadWaste Disposal**

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<th>Conventional Methods</th>
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<td>![✓] Burial Trench</td>
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**The Texas Solution**

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Site Characteristics and Design of LLW Landfill
• Over 640 borings to determine geologic characteristics and confirm WCS is not over an aquifer

• Approximately 520 monitoring wells that are measured monthly, many of which are dry

• Over 260 monitoring wells are laboratory sampled on a quarterly basis, if there is enough water

• WCS installed 160+ borings by December 31, 2007, and that grew to over 640 borings today
• WCS is not above or adjacent to any underground drinking water supply
• Texas State Water Development Board map confirms site characteristics
• Hydraulic conductivity of clay is $1 \times 10^{-9}$ cm/sec and the 225-foot zone is $1 \times 10^{-8}$ cm/sec
• Horizontal groundwater travel is 4 feet (1.3 meters) per 1,000 years
• Groundwater is ~16,000 years old
Dose Modeling for Intruder Resident

Peak dose less than 10 mrem/yr at 36,000 years. Regulatory limit is 25 mrem/yr.
WCS Operations
8-120B Cask offloads included liners with dose rates up to 330 R/hr
Grappler Attachment Unloading Cask
Remote Grout Placement
Pumping Grout into an MCC
Placement of Full MCC into CWF
Transfers and Grouting
Irradiated Hardware Transfer System
Transportation
Transportation

- Waste generators are responsible for compliant packaging and transportation
- Texas approves transporter qualifications
- All radioactive material received at WCS for treatment or disposal is manifested as Class A, B, or C waste
- WCS receives *packaged* waste by truck or rail
• Contents: Resins & Filters
• Internal Volume: 160 ft³
• Shielding Limit: 500 R/Hr
• Capacity: 10 (55) gallon Drums
• Max Payload: 15,000 lbs
• SAR submitted 10/9/12
• 2 available in early 2013
WCS Performance

• A robust and superior disposal cell design dedicated to federally generated waste (no risk of comingling)

• A single destination, rail served, for wastes providing a comprehensive array of processing, treatment and disposal services

• Expert technical support to develop waste management strategies, and to facilitate waste characterization, profiling, and disposal
Waste Acceptance – How do I get there?

- Contract executed
- Generator certification complete
- Waste profile and importation submittal
- Waste profile and importation approval
- Shipment request submittal
- Shipment approval
Questions?

www.texassolution.com