Overview of WCS’ Low-Level Radioactive Waste Disposal Site

For

National Conference of State Legislatures
Nuclear Legislative Workgroup Meeting

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President
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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 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
Aerial Photo Taken October 19, 2011
Grand Opening
November 10, 2011
WCS Equipment Show
WCS Equipment Show
Ribbon with Equipment
We’re Ready to Get to Work!
License & Construction Status
Radioactive Waste Disposal License

- LLRW and Mixed LLRW Disposal
  - WCS submitted application August 2004
  - License order granted January 2009
  - All conditions met for final license September 2009

- Includes Federal and Compact Landfills
  - DOE signed Agreement to take ownership of the Federal Landfill after post-closure
  - TCEQ took ownership of Texas Compact Landfill and WCS leases it back for LLRW disposal operations
Licensed LLRW Disposal Capacity

• 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
Construction Timeline

• Construction start – January 2011
• CWF construction complete!
  – CWF ready for operations – January 3, 2012
  – CWF construction & certification complete
• FWF construction complete – Dec/Jan
  – FWF ready for operations – Spring 2012
  – FWF 85% complete as of 12/1
## Item Remaining to Open Compact Facility

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<th>Task</th>
<th>Status?</th>
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<tr>
<td>Construction</td>
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<td>Certification Reports</td>
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Comparison of Designs
Barnwell Design
Clive Design
WCS Compact Landfill – Native Clay
• 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
Landfill Liner Comparison: WCS Design vs. Clive Design

Legend
- Undisturbed Ground
- Clay Liner (10^-9 cm/s H.C.)
- Clay Liner (10^-7 cm/s H.C.)
- Protective Soil/Sand
- Geosynthetic Liner
- Concrete Liner
- Low Level Waste
- Leveling Fill
- Biointrusion Layer
- Drainage Layer
- Evapotranspiration Layer

WCS Design

Clive Design

Larger Rock
Smaller Rock

40 ft
60 ft
12 ft
40 ft
6.5 ft
Site Characteristics and Design of LLW Landfill
Groundwater Monitoring

• Over 640 borings to determine geologic characteristics and confirm WCS is not over an aquifer
• Over 530 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+ wells by December 31, 2007, and that grew to over 640 wells today
Map of Borings/Wells
Groundwater Characteristics

- 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.
Texas Importation Legislation
Texas SB 1504 Notes re: Importation

• Generator of the waste must apply for an import agreement

• Importation is limited to 50,000 ft³ per year and 120,000 curies (220,000 curies the first year)
  – 30% of capacity lifetime limit

• Disposal capacity reports are required by December 2012
  – WCS estimates the Compact has over 1 million ft³ and 2 million curies of excess capacity

• Surcharge of 20% for imported LLW (30% total fee)

• Out-of-Compact generators must pay more than In-Compact

• SB 1605 required bylaws prior to import of nonparty compact LLW and staggered terms for the Texas Commissioners
Advantages of Importation

- Protection of the public and environment is enhanced as generators have a disposal solution
- Compact generators benefit from lower unit prices
- Importation would not limit volumes expected to be disposed of by Compact generators
- State of Texas and Andrews County will benefit economically from an increase in revenue
  - Texas also benefits from an additional 20% surcharge
  - Fiscal note of SB 1504 was $32 million
  - Funding of the Compact Commission in 2012 is from disposal fees
Questions?

www.texassolution.com