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**Update for Texas Compact
Commission – Vermont Meeting**

September 26, 2012



WCS Overview

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- Provides treatment, storage and disposal of hazardous and low-level radioactive waste
- Radioactive waste operations since 1998
- Entire site is ~15,000 acres (23 square miles)
- Permitted operations are all in Texas on about 300 acres
- WCS is license holder and operator of the Compact Waste Facility (CWF)
- State of Texas owns the CWF and takes title to the radioactive waste when disposed in the CWF



WCS

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Looking North – Wide View



Aerial Photo Taken April 2012



Looking West – Close Up

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Aerial Photo Taken January 2012

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License & Operations Status



Radioactive Waste Disposal License

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- **LLRW and Mixed LLRW Disposal**
 - **Final LLW license received – September 2009**
 - **CWF - First LLW disposed – April 2012**
 - **FWF – Ready for operations – September 2012**
- **Includes Federal and Compact Landfills**
 - **TCEQ has taken ownership of Texas Compact Landfill and WCS leases it back for operations**
 - **DOE signed Agreement to take ownership of the Federal Landfill after post-closure**



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Texas Compact Commission



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Texas LLRWD Compact Commission

- Texas Vermont Compact signed in 1993 and approved by U.S. Congress in 1998
- Texas LLRW Disposal Compact Commissioners appointed by Texas and Vermont governors in early 2009
 - New appointments in 2011 by both Vermont and Texas
- Compact Commission held their first meeting in Feb. 2009
- WCS will operate the Texas Compact disposal facility – first site licensed and opened under LLWPA



Importation Limitations

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- 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
- Commission has already approved applications for out-of-compact generators and brokers



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Site Characteristics and Design of LLW Landfill



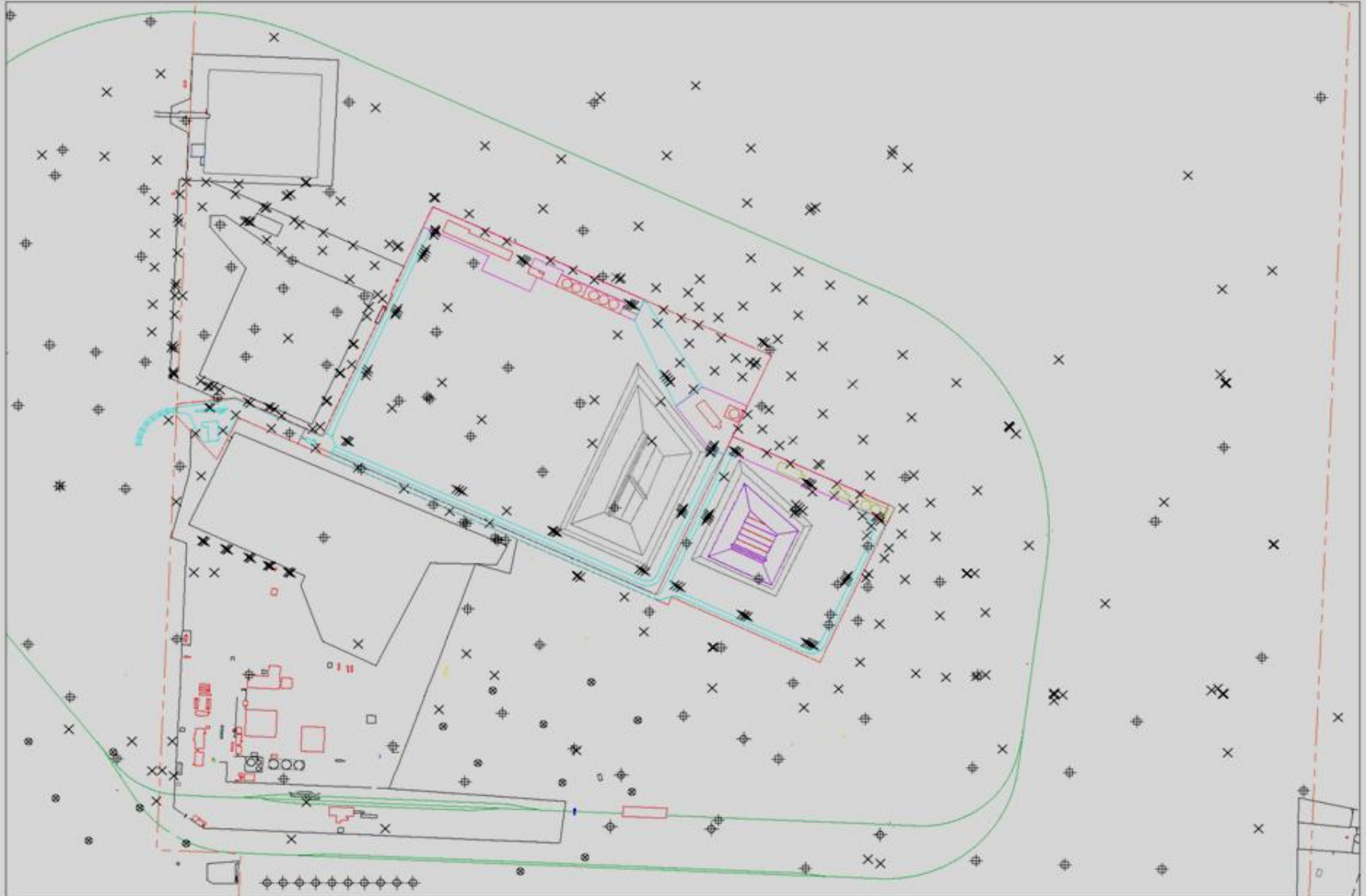
Groundwater Monitoring

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- 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



Map of Borings/Wells





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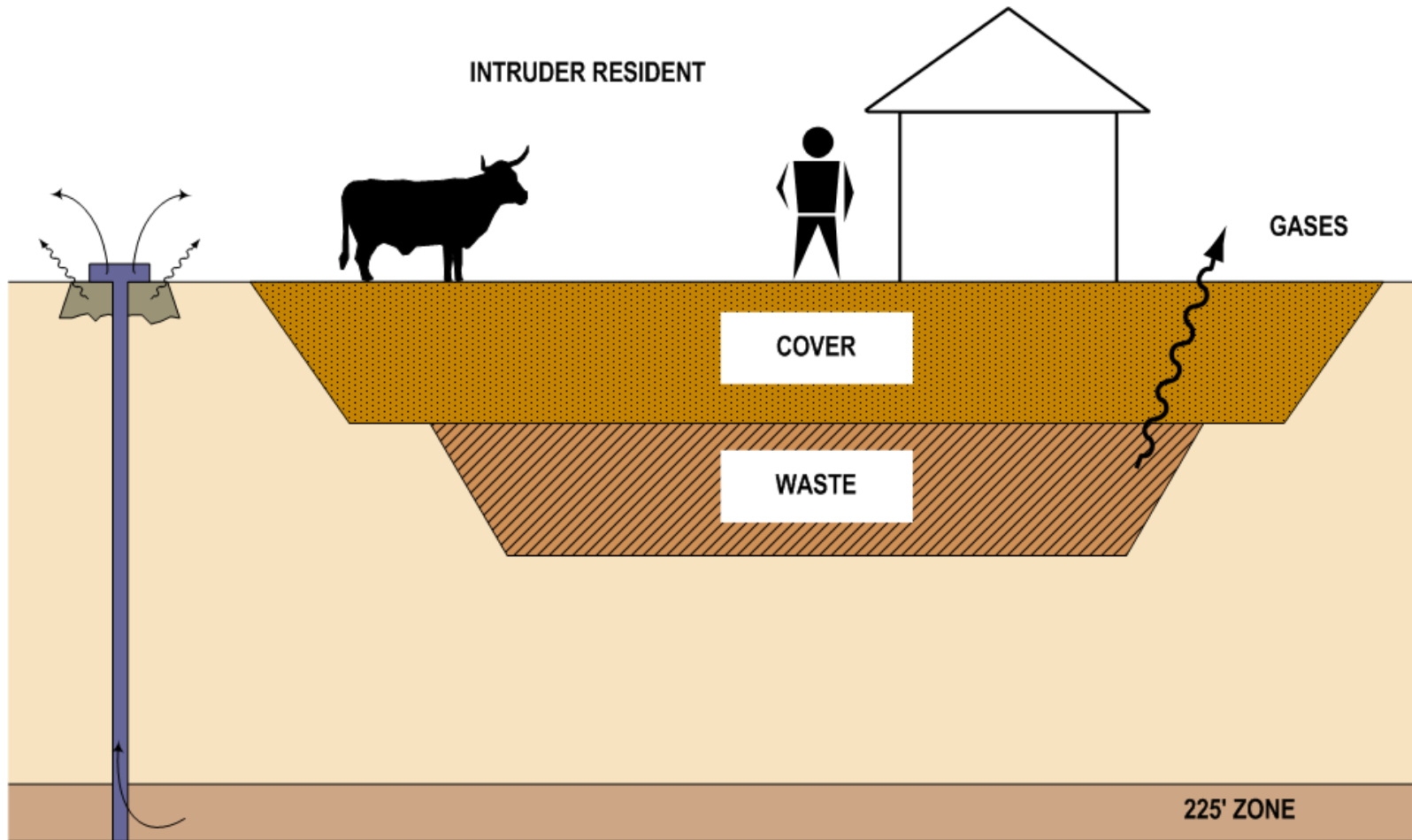
Groundwater Characteristics

- 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 1×10^{-9} cm/sec and the 225-foot zone is 1×10^{-8} cm/sec
- Horizontal groundwater travel is 4 feet (1.3 meters) per 1,000 years
- Groundwater is ~16,000 years old



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Dose Modeling for Intruder Resident



Peak dose less than 10 mrem/yr at 36,000 years. Regulatory limit is 25 mrem/yr.



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Landfill Designs



Barnwell Design

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Clive Design

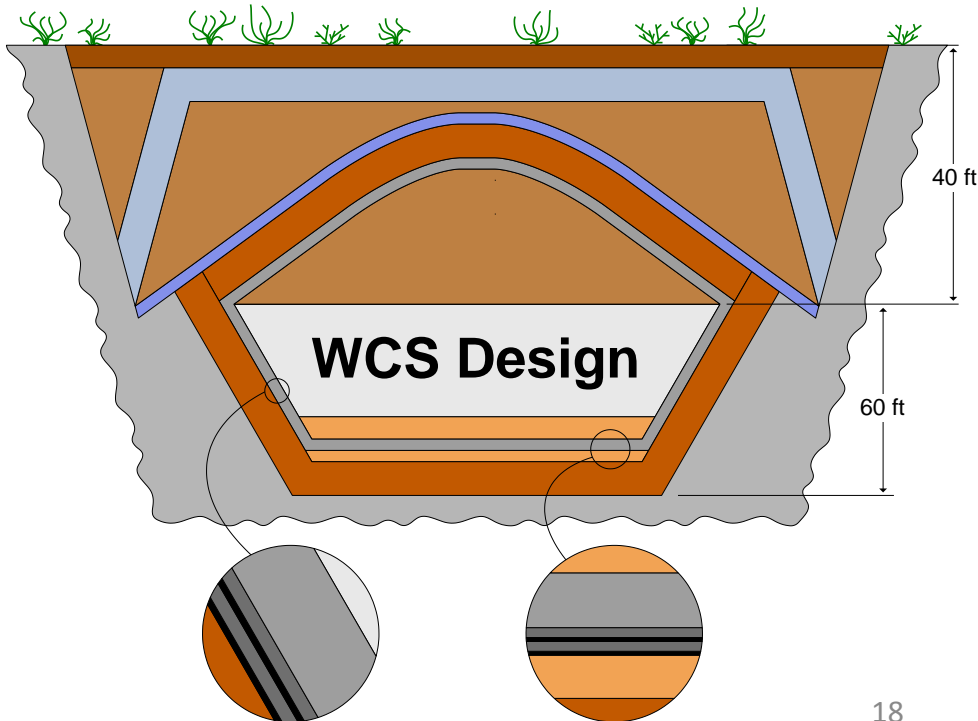




WCS Landfill Design

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WCS Landfill Liner 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

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 Compact Landfill – Native Clay



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WCS Design – Near Completion

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Federal Waste Facility



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First MCC





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- Receipt of first drum of LLW at Compact Waste Facility – April 2012
- Drum was placed in a Modular Concrete Canister (MCC)
- MCC's are on top of the liner system, including the one foot reinforced concrete liner





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WCS Operations



**8-120B Cask offloads included
liners with dose rates up to 330 R/hr**





Grapppler Attachment Unloading Cask



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Remote Grout Placement



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Pumping Grout into an MCC





Placement of Full MCC into CWF

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Irradiated Hardware Transfer System



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Questions?

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Report to Compact Commission



CWF Disposal Activity

- Disposed of 4,365 cubic feet and 20,634 curies as of 8/31/2012
 - Imported LLW was 4,354 cubic feet and 20,623 curies
- Curies are the most limiting factor for waste receipts
- Compact Commission approved 215,134 curies for large generators and has reserved 5,000 curies for small generators
 - Large demand for more curies from large generators
 - Demand has been met for small generators



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Class A LLW Disposal

- No Class A LLW has been disposed of as of 8/31/2012
- Most Class A LLW generated is Dry Active Waste (DAW)
 - Consists of clothing, rags, bags and other items that are typically compactable
- WCS is currently not economically viable as an option for in-compact nuclear utility generators based on their current market prices for similar services
 - WCS is evaluating options and services that will allow the CWF to be an option in the next few years