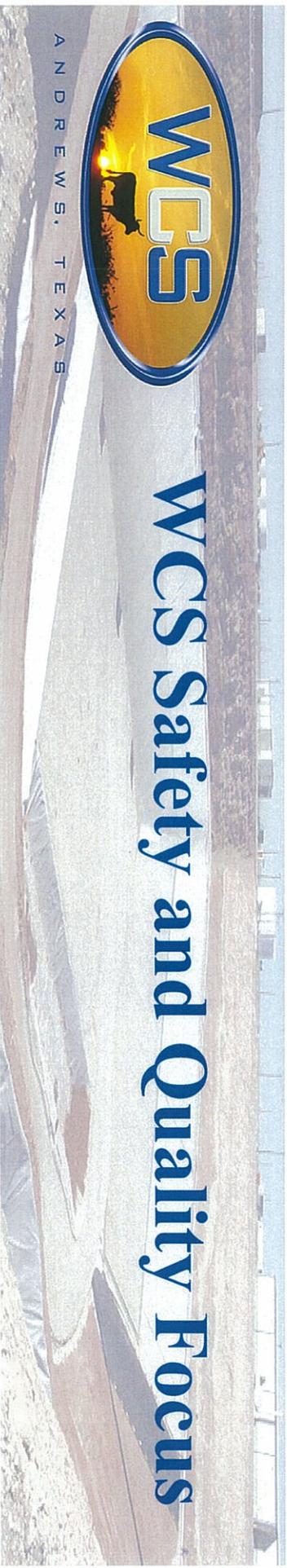


A N D R E W S , T E X A S

Update for New Mexico

July 2013



- WCS maintains strong, overarching commitment to safety and quality
- WCS worked over 6 years without a lost time accident. Included over 1.6 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 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**

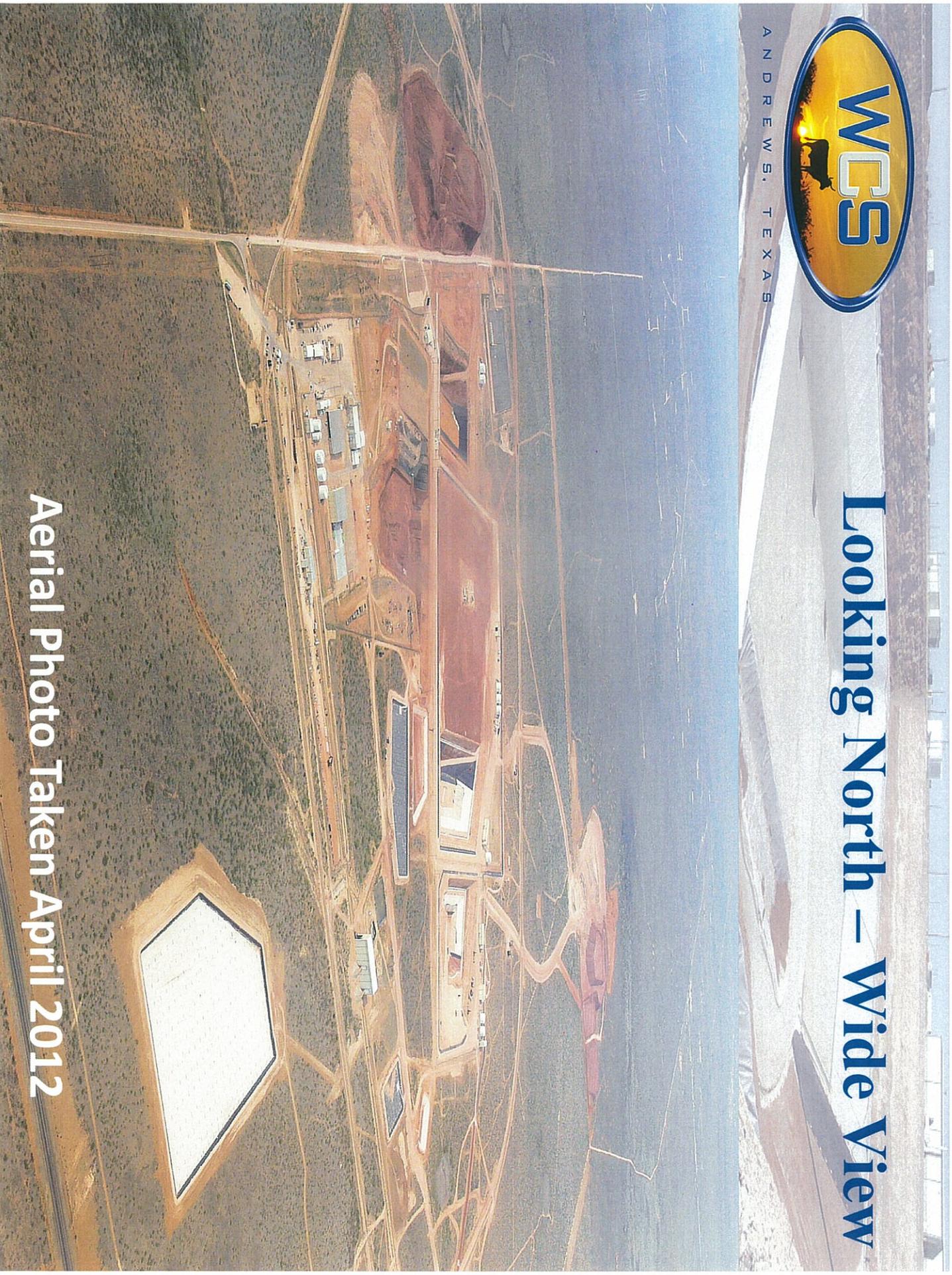
- Mixed LLRW (MLLW)
- RCRA/TSCA Waste

- Exemption to treat and store Special Nuclear Material (SNM) below certain concentration limits based on criticality – U.S. NRC in November 2001



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# Looking North – Wide View



Aerial Photo Taken April 2012



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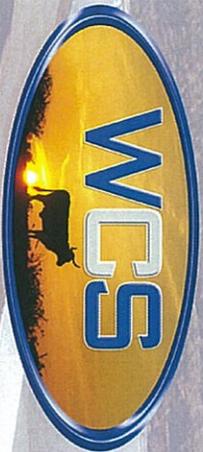
# Looking West – Close Up



Aerial Photo Taken January 2012

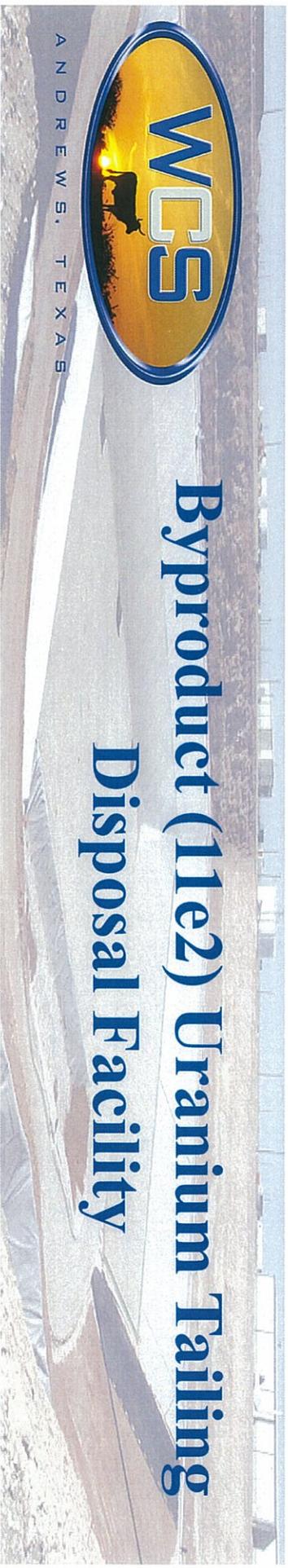


# License & Operations Status

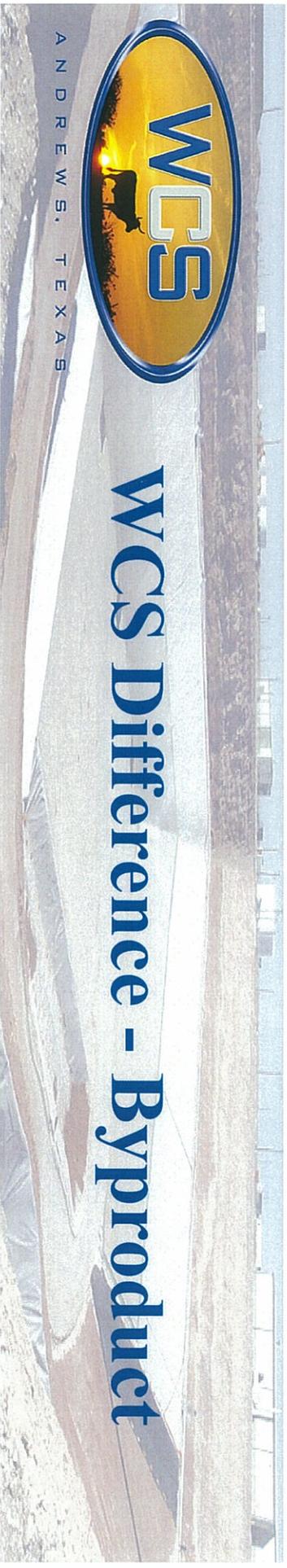


## Radioactive Waste Disposal License

- **LLRW and Mixed LLRW Disposal**
  - Final LLRW license received – September 2009
  - CWF - First LLW disposed – April 2012
  - FWF – First MLLW disposed – June 2013
    - FWF also has RCRA Permit and TSCA/CERCLA authorizations
- **Includes Federal and Compact Landfills**
  - DOE signed Agreement to take ownership of the Federal Landfill after post-closure
  - TCEQ has taken ownership of Texas Compact Landfill and WCS leases it back for operations



- **License received in 2007**
  - 30,000 cubic yards of Fernald Silo Material
- **Fernald Silo waste disposed in 2009**
  - 200,000+ cubic yards remain in current phase
  - Over 900,000 cubic yards remain in total
- **License amendment would be required to add a waste water treatment plant and take non-Fernald Silo waste**



**Class A,B&C Waste Disposal** – We are a one stop shop, providing disposal of a wide variety of radioactive waste.

**Safe and Secure** – The WCS disposal facility is the most robust disposal facility ever built.

- 100 foot cell depth with multi-layered cell design
- Cell final cover is 25-45 feet thick multi-layered to grade

**Real Transfer of Ownership** – Once the shipment has been received, the ownership of waste is transferred to WCS. At the end of operations, the Department of Energy takes title to the waste.

- Financial assurances in place with the State of Texas

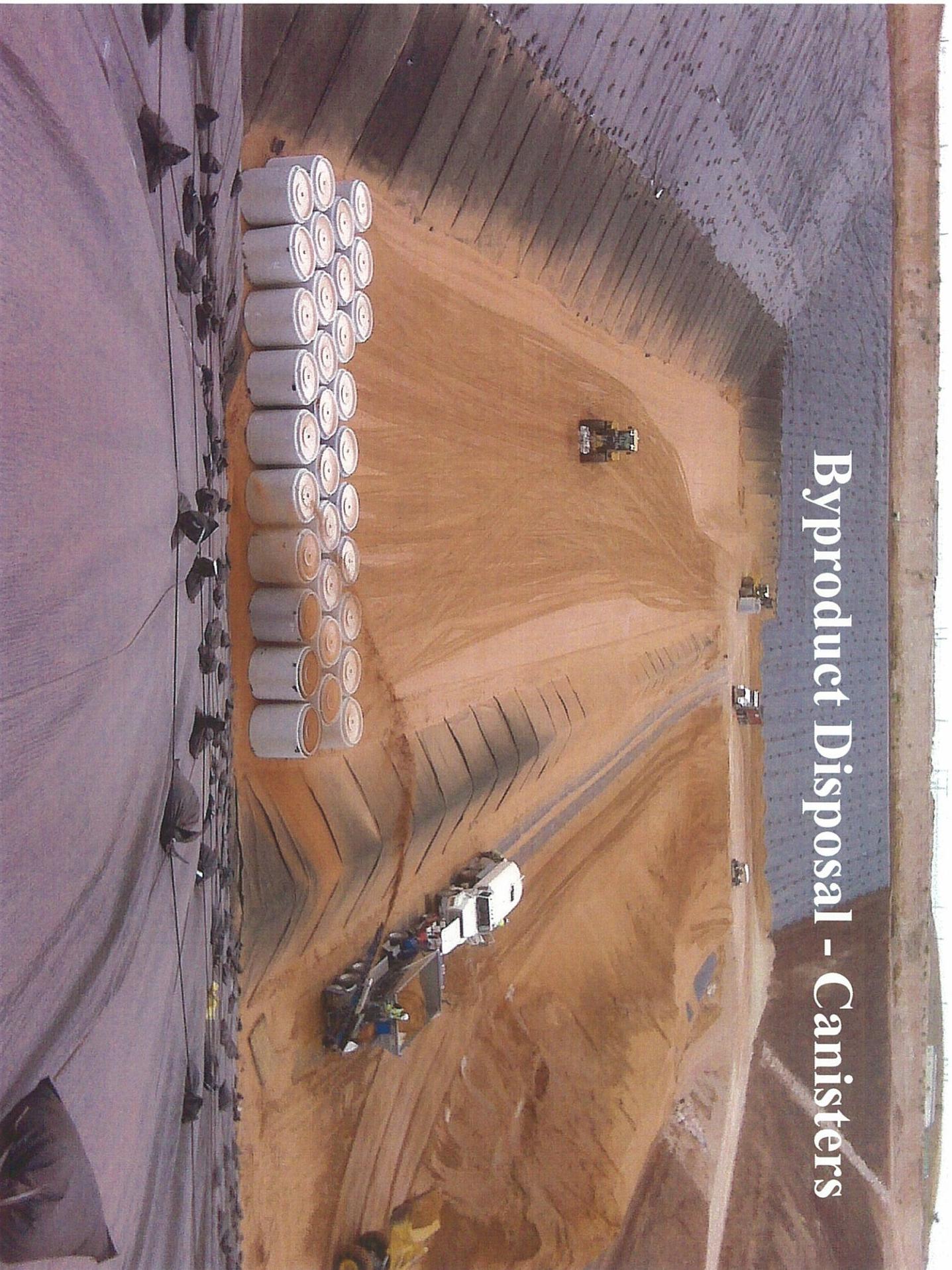


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# WCS Byproduct Landfill



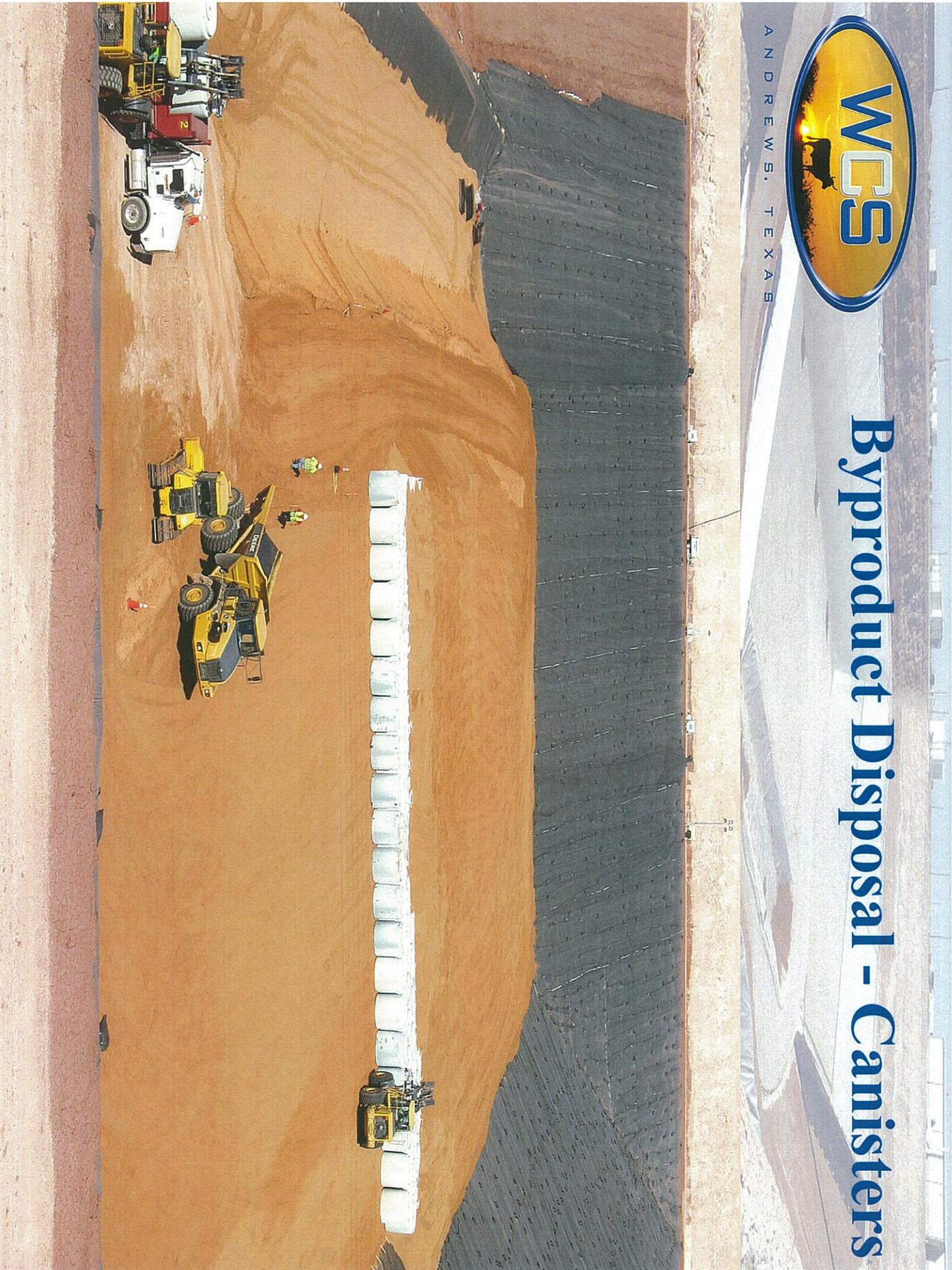
# Byproduct Disposal - Canisters





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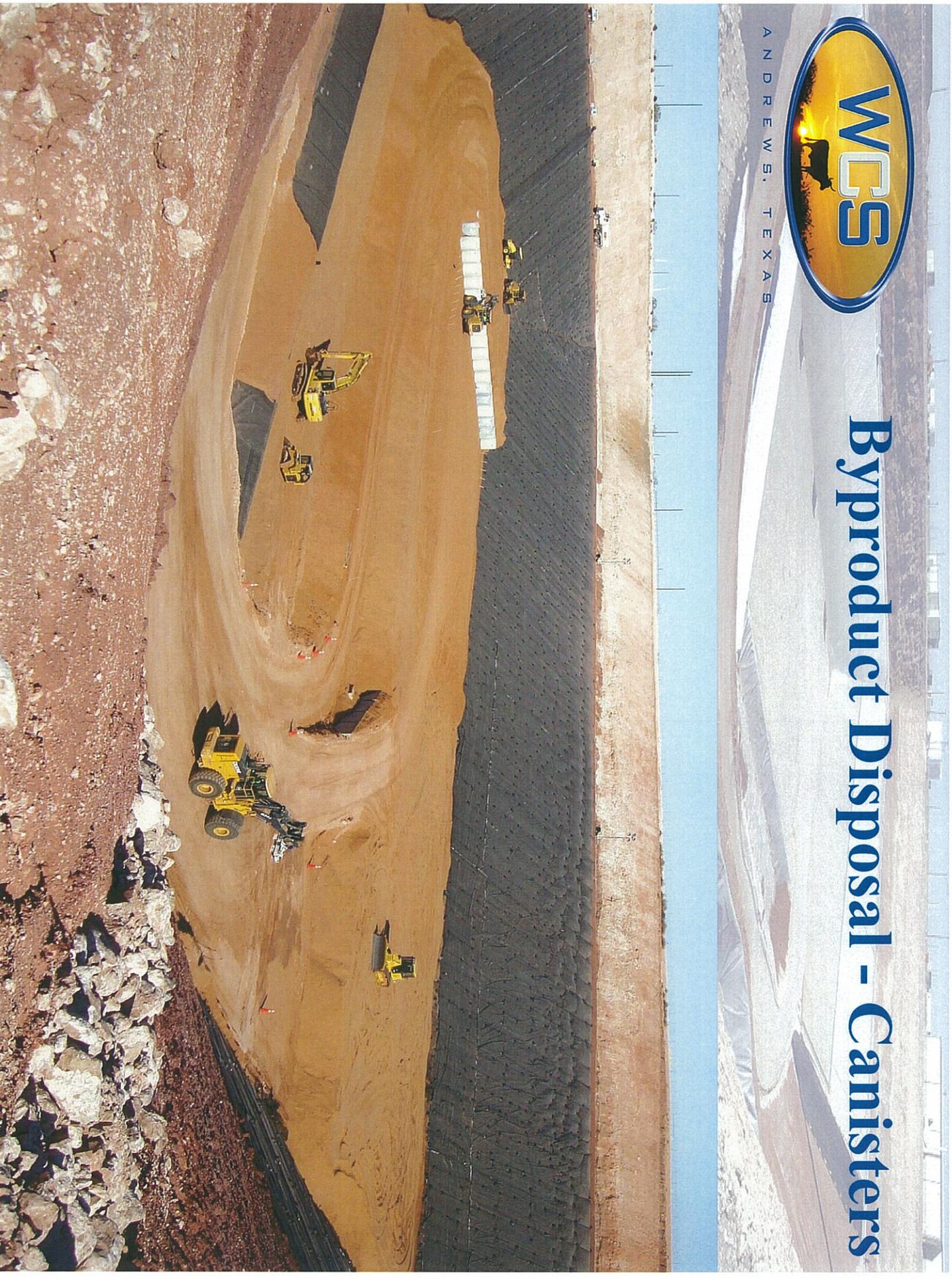
# Byproduct Disposal - Canisters





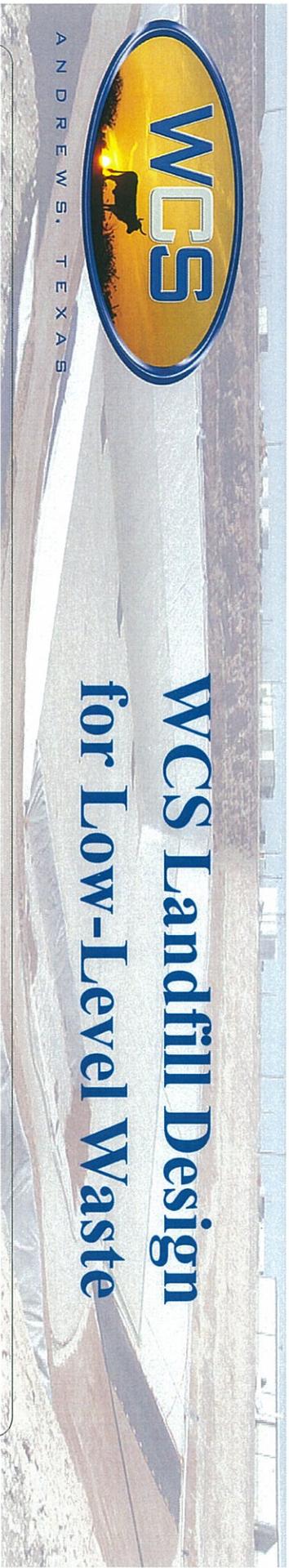
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# Byproduct Disposal - Canisters



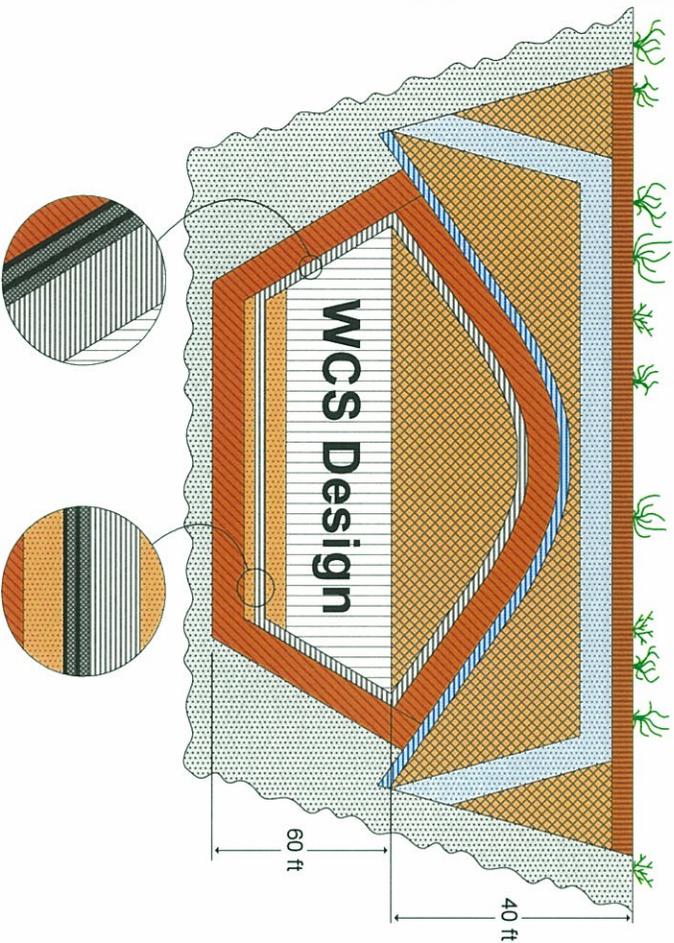


# WCS Design



## WCS Landfill Liner Design

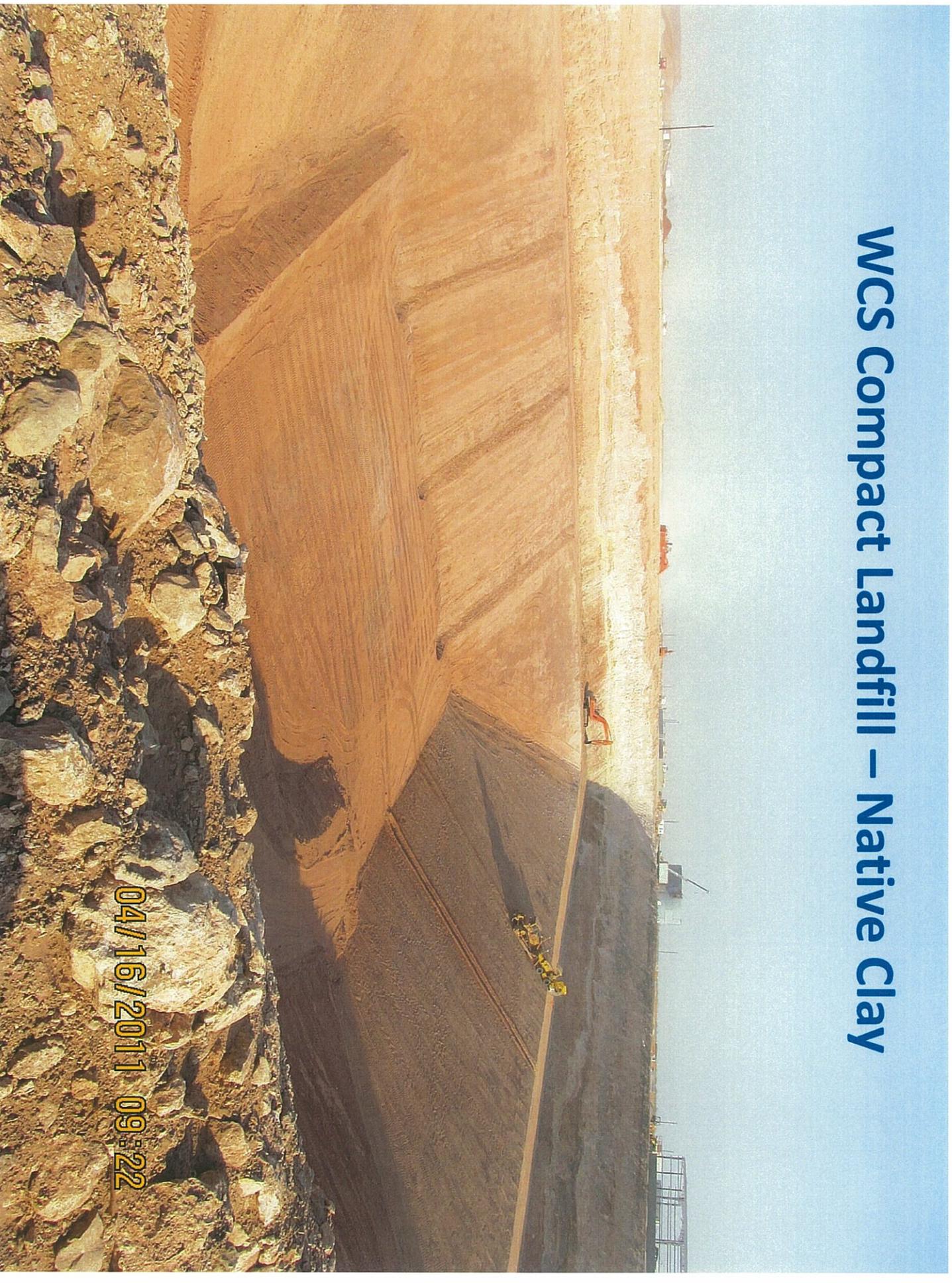
- Multi-layered cover system that is 25 – 45 feet thick
- Depth to waste is at least 25 feet below surface
- Natural red bed clay is less permeable to water than concrete



**Legend**

	Undisturbed Ground
	Clay Liner (10 <sup>-9</sup> cm/s H.C.)
	Clay Liner (10 <sup>-7</sup> 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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# Federal Waste Facility



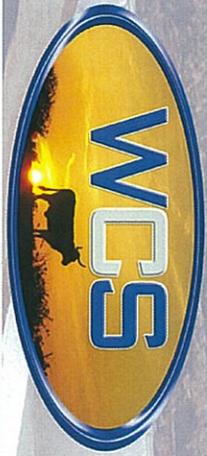
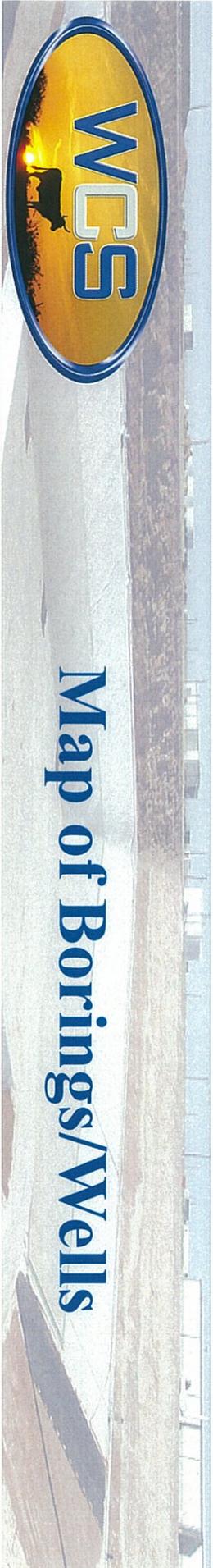


# WCS Site Characteristics

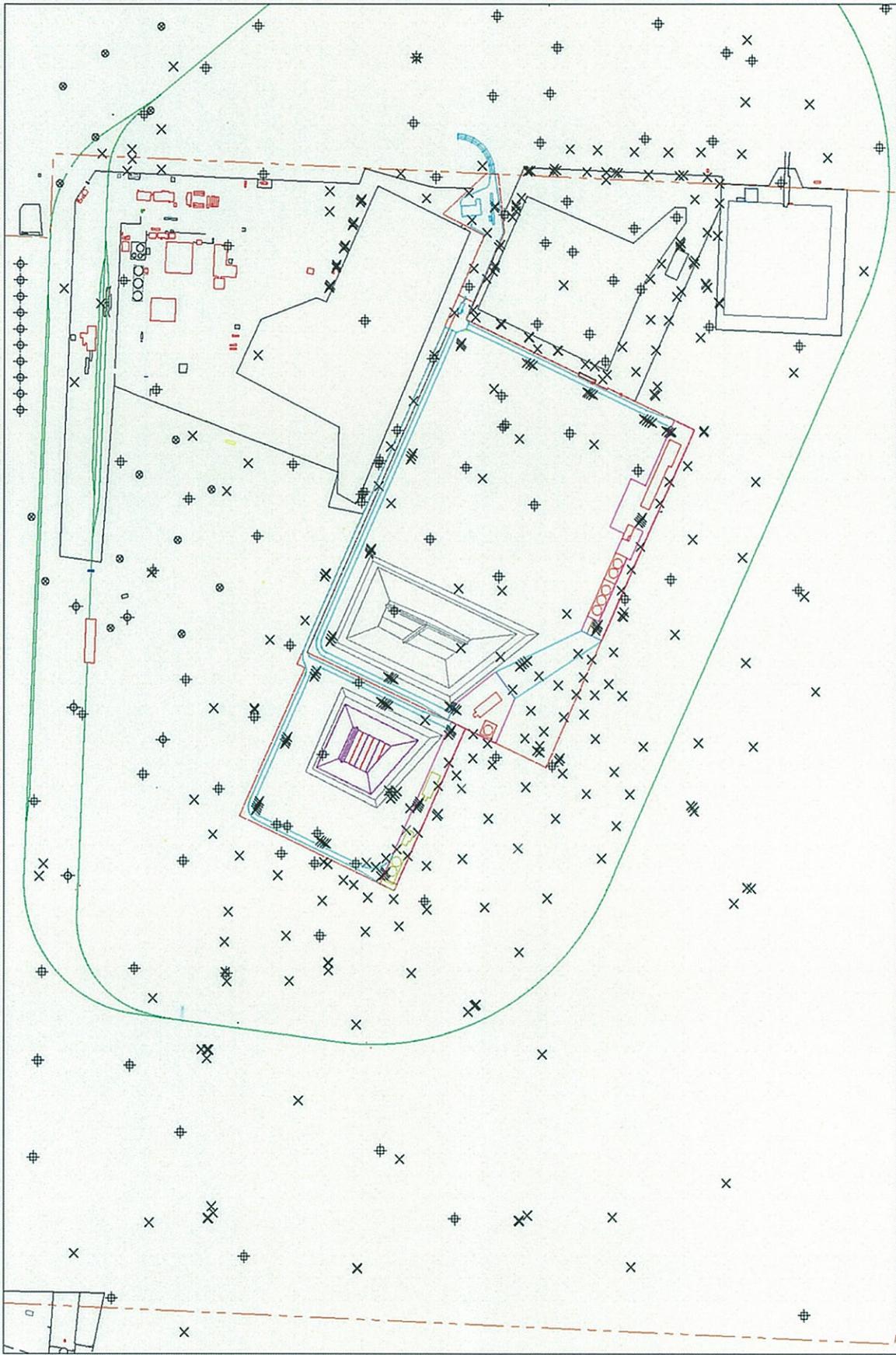


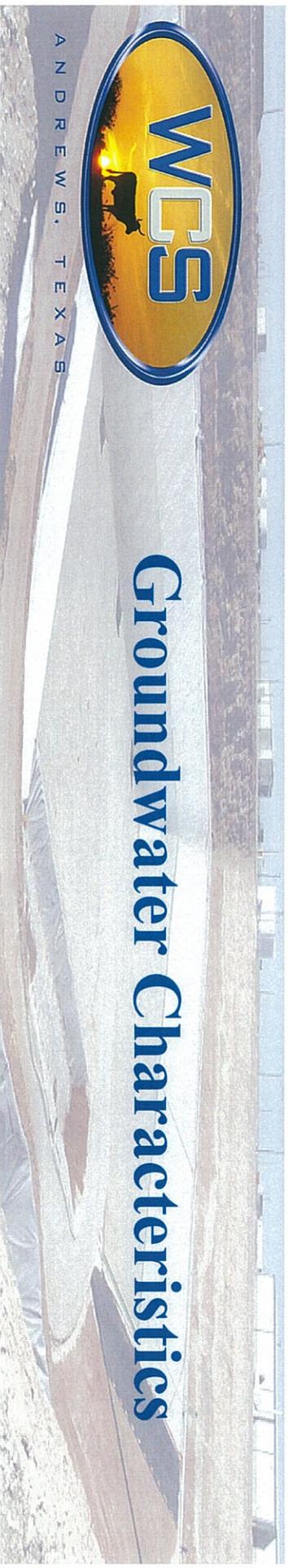
## Groundwater Monitoring

- 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



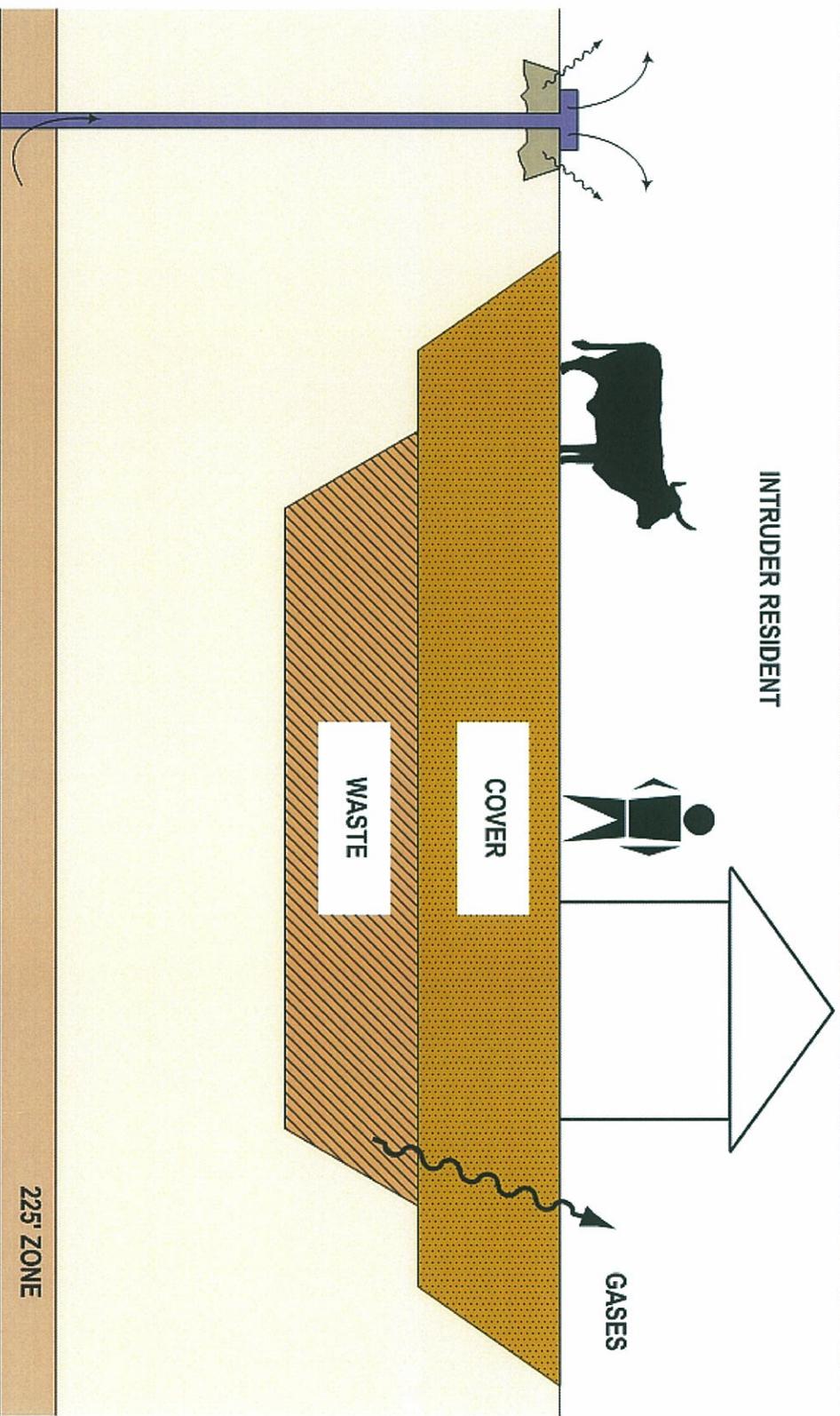


- WCS is not above or adjacent to any underground drinking water supply
- Texas State Water Development Board map confirms site characteristics
- Hydraulic conductivity of clay is  $1 \times 10^{-9}$  cm/sec and the 225-foot zone is  $1 \times 10^{-8}$  cm/sec
- Horizontal groundwater travel is 4 feet (1.3 meters) per 1,000 years
- Groundwater is ~16,000 years old



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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.