

# Landfill Site Overview

## City of Denton Landfill



1984 – 1998

# City of Denton Landfill



- Owned and operated by the City of Denton
- Opened in 1984 under permit 1590
- 32 acre original pre-subtitle D site



1998 – present

# City of Denton Landfill



- Expanded to 252 acres in 1998
- 152 acre waste footprint, 14Mcy
- 30 year life expectancy in 1998
- 20 groundwater monitoring wells
- 24 gas monitoring wells

February 2008

# Gas Extraction System

- 2007 – SCS Engineers designed the landfill gas collection system
- \$1.2M system installed by Shaw Environmental

The system consists of:

- 52 vertical wells
- 20 lateral wells



June 2008

# Flare Station

- Methane destruction
- Monitoring equipment
  - Gas analyzer
  - Flow metering







December 2008

# LFG-to-Energy Generating Station

- CAT engine 3520
- 1.6 megawatt generator
- DTE Biomass Energy

**DTE Energy**<sup>®</sup>



*DTE Biomass Energy*





# **Enhanced Leachate Recirculation (ELR) Landfill**



**Increased gas generation rate will allow  
for increased electric production on site**

January 2009

# Enhanced Leachate Recirculation (Texas' Term for Low Moisture “Bioreactor”)

- Faster stabilization of organic waste
- Increased rate of gas generation
- $\leq 50,000$  gallons/day (avg.)  
Liquid injected into the waste pack



# Public/Private Partnership for LFG-to-Energy

- Request for Proposals (RFP) process
  - Open for any possible types of LFG utilization
    - Electricity production
    - Steam production
    - Direct gas sales, etc.
- Negotiated an Agreement with DTE Biomass Energy
- 20 year term and renewal terms
- Buy-out options at various points in time or the occurrence of certain events.
- Specify a date for plant start-up and full capacity production and the ability of terminate the contract if exceeded

# Parties Responsibilities

- **City will:**
  - Provide DTE with exclusive rights to LFG
  - Provide a site for the facility
  - Pay for the capital cost of the LFG Collection system, extraction wells, & Flare Station
- **DTE will:**
  - Provide the capital to build the generating station, monitor, manage and repair the gas collection system
  - Pay the City a 12.5% royalty of gross power sales

# Financing Options

- Owner may finance all or part of the project with tax exempt bonds
- Owner may wish to provide no capital funding and require the vendor to cover all costs
- Other variations can be developed through and RFP process

# Permitting

- Ensure that your agreement covers each parties responsibilities for permitting
  - TCEQ's Air permit
  - TCEQ's MSW permit
- And all other required permits (Stormwater, building, etc.)

# **Beneficial Use of Landfill Gas**

**Questions?**

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**City of Denton, Texas**

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