Louisiana 2005
Performance Contracting Conference

City of Baton Rouge
Renewable Energy Center/Deltech
Landfill Gas-to-Energy Project

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New Orleans, LA
July 28, 2005
Renovar Presentation

- General LFG Information
- Keys to a Successful Project
- Baton Rouge Case Study
- Contracting Possibilities
Basic Facts about LFG

- Produced from the anaerobic decomposition of municipal solid waste (MSW)

Composition
- 40-60% Methane (CH₄)
- 35-45% Carbon Dioxide (CO₂)
- 0-10% Balance Gas (primarily N₂, O₂)

Other Characteristics
- Water saturated
- 420 – 580 Btu/SCF Gross Heating Value
LFG Utilization

Primary Uses
- Electric Generation
- Medium Btu (Direct use)
- High Btu (Processed to Natural Gas)

R&D Efforts
- Fuel Cells
- Vehicle Fuel
Successful LFGTE Project (recipe)

**Landfill Characteristics**
- 1-3 million tons or greater of waste in place
- 25 inches or greater of rainfall annually
- 700 scfm or greater of LFG production

**Market Characteristics**
- Energy end user within 5 miles
- No significant pipeline ROW issues
- Stable energy consumption
Renovar Baton Rouge Project

- Landfill
  - Renewable Energy Center (closed) – formerly known as Devil’s Swamp Landfill
  - Owned by City of Baton Rouge
  - GCCS Operated by Shaw Group – Emcon/OWT

- Equipment
  - 1000 scfm capacity
  - Packaged/maintained by Toromont Process
  - Integrated Control/MCC
  - Remote computer access
Renovar Baton Rouge Project

- Pipeline
  - About 1000 feet long
  - 6-inch diameter, SDR 11, HDPE
  - Pigging capability

- End user
  - Deltech Corporation
  - Chemical Manufacturing Plant
  - Steam boiler fuel
Renovar Baton Rouge Case Study

Landfill Flare
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Flare and End User
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*Equipment Fabrication*
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Equipment Foundation
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*Equipment Installed*
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Equipment Installed
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Completed Installation
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*Project Partners*
Renovar Baton Rouge Case Study

Project Schedule

- Submit initial proposal to City: Oct 2001
- GCCS system in operation: Aug 2003
- Gas rights received from City: Jan 2004
- Market contract executed (Deltech): May 2004
- ROW / Permits obtained: May – Nov 2004
- Equipment design / fabrication: May – Oct 2004
- Plant / Pipeline construction: Sep – Nov 2004
- First LFG Sales: Dec 2004
Contracting Possibilities

- **Pre-Construction**
  - Engineering
  - Permitting
  - Survey/ROW

- **Construction**
  - Site work
  - Electrical
  - Pipeline construction
  - PLC/software
  - Skid manufacturing

- **Operations**
  - Well field operations
  - Plant operations
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