

**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 (CH_4)
 - 35-45% Carbon Dioxide (CO_2)
 - 0-10% Balance Gas (primarily N_2 , O_2)
- 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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Renovar Baton Rouge Case Study

Equipment Foundation



Renovar Baton Rouge Case Study

Equipment Installed



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Renovar Baton Rouge Case Study

Equipment Installed



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Renovar Baton Rouge Case Study *Completed Installation*



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Renovar Baton Rouge Case Study

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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