Use Landfill Gas from the Cerro Colorado Landfill

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PURPOSE

• Direct Use of the landfill gas (LFG) from Cerro Colorado Landfill LFG Collection and Control System for heating domestic water at Bernalillo County’s Metropolitan Detention Center (MDC).
• Public Partnership between the City of Albuquerque and Bernalillo County.
• Substitute natural gas for LFG (methane) to heat water used for showers, kitchen, laundry.
FUNDING

• US EPA Climate Communities Grant Fund

• City of Albuquerque

• Bernalillo County

Original GCCS

• The pre-system treatment of the landfill gas consisted of:
  – LFG Specialties 2100 cubic feet per minute (cfm) Utility Flare
  – Two blowers to create a vacuum of the wellfield
  – Approximately 50 extraction wells with more added during construction (separate project)
  – GCCS operating at approximately 350 - 400 cfm and methane concentration of 39% - 42%
Major Components of LFG to Energy

- 12 inch HDPE SDR 17 pipe transmission line.
- Transmission line was approximately 2 miles long.
- Seller’s Boiler located at MDC.
- A 450 cfm LFG dehydration compression system at the landfill to compress/chill the gas to eliminate/minimize LFG condensation.
- An automated flow valve at the LFG flare system’s blower to divert LFG to MDC.
LFG Dehydration Compressor

- Cooler
- Chiller
- Condensate knockout tank
- Control Panel with data recorder
- Automated valve on the landfill’s flare system to control flow to the Seller’s boiler
- Holding tank for glycol
Before Addition of LFG Boiler

- MDC utilized two boilers to heat water for laundry, kitchen, and showers.
- MDC’s boiler are: 1.5 mmBTU/hr
- Each of the MDC boilers serviced 3,800 gallon holding tanks which heated water to 140°F in the domestic tank and 160°F in laundry tank.
- The LFG boiler was placed “in front” of the MDC’s boilers to act as a pre-treatment boiler.
LFG BOILER MAJOR COMPONENTS

- Seller’s Boiler – 3.05 mmBtu/hr
- Heat Exchanger
Future (?)

- Supply LFG to Space Heaters at MDC
- Use LFG to make Electricity using an engine