

# Landfill Gas Services

**CEC provides comprehensive Landfill Gas services addressing the variable composition and unpredictability of gas production inherent in landfill gas management.**

Management of landfill gas (LFG) is one of the key environmental compliance challenges facing solid waste landfill facilities today. With the rate of production affected by waste composition and landfill geometry, and influenced by the microbial populations and the biological ecosystems within it, LFG creates challenges and opportunities for landfill operators. CEC provides:

## LFG ENGINEERING SERVICES

- Landfill gas collection and control systems (GCCS) master planning, permitting and development
- Design of GCCS expansions, permitting, specifications
- Customized LFG generation and recovery modeling
- Odor evaluation and hydrogen sulfide generation modeling
- LFG piping system design and analysis
- LFG system engineering evaluations and field analysis

## AIR PERMITTING AND COMPLIANCE SERVICES

- State air permit preparation and management, including major sources, PSD and NSR related to landfill expansions, flare systems and energy recovery projects
- Federal Title V program permitting, compliance and reporting services
- Clean Air Act (CAA) NSPS and NESHAPS program management, including applicability review, testing, compliance and reporting
- Federal and state greenhouse gas compliance, data management and reporting
- LFG system monitoring and operations data management and reporting
- Air modeling to landfill area sources and point sources using AERMOD and other EPA-approved models
- Specialized stack and source emissions testing

## TECHNICAL FIELD SERVICES

- Routine operations and maintenance (O&M) of landfill leachate collection systems (LCS) and GCCS
- Operation of pump systems, including gas well pump systems, leachate pumps, pumping stations and storage (including controls, electric and heating systems)
- GCCS data management
- GCCS diagnostics, troubleshooting and specialized field evaluations, including camera inspections
- LFG monitoring, including odor surveys, surface emissions, gas migration probe and structure monitoring
- LFG testing programs, including sampling and analysis
- Specialized electrical control system diagnostics and repair services for flare systems, blower systems and other electronic controls
- Installation and calibration of meters and data acquisition systems





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## **SPECIALIZED CONSTRUCTION SERVICES**

CEC has a full suite of equipment to handle

GCCS extraction well and piping repairs, including butt fusion (up to twelve inches) and electrofusion welding. CEC also has the capabilities to perform extrusion welding repairs to geomembrane liners and caps and routinely performs:

- Reconstruction and/or repair of LCS and GCCS components, including header and lateral pipelines force mains, well-head assemblies, raising wells, etc.
- LFG well drilling, installation and oversight Installation of horizontal collection trenches
- Installation of LFG system headers, laterals and condensate management components
- Installation of blower/flare stations
- Installation and maintenance of gas well dewatering systems

## **LFG RENEWABLE ENERGY**

CEC provides renewable energy project feasibility analysis, including LFG modeling and financial pro forma analysis, and facility design and operations services. For project developers, services include solicitation, evaluation and selection of development proposals, as well as engineering due diligence related to renewable energy project development acquisition and financing.