



● WIRELESS REMOTE MONITORING SYSTEM IMPROVES LANDFILL OPERATIONS

SEMINOLE ROAD LANDFILL, DEKALB COUNTY, GEORGIA

DeKalb County, in metropolitan Atlanta, is Georgia's second largest county, serving a community of over 700,000 residents and 8,000 businesses. The DeKalb County Sanitation Division services this community and manages over 750,000 tons of waste per year including municipal solid waste, yard debris, and construction and demolition waste. Seminole Road Landfill, the county's solid waste disposal facility, is a 1,150-acre landfill with Subtitle D lined units, non-Subtitle D unlined units, and closed units. The facility includes groundwater and methane monitoring systems and an active landfill gas collection and control system (GCCS).



WESTON's wireless remote monitoring system upgraded flare station capabilities, and provided real-time data capture and alarm notification.

The GCCS was installed in 2000 under a Title V Permit issued by the Georgia Environmental Protection Division. Federal Title V regulations require that landfills of a certain size and age operate their GCCS continuously and record specific environmental control data. To maintain continuous GCCS operations and monitor the control systems, several flare station mechanical and electrical systems parameters are checked and recorded. From 2000 to early 2004, this task was performed daily by an operator who inspected the flare station and recorded the data. During this time, the operator was notified of a shut down via an automatic telephone dialer system, which provided little detail as to the shutdown's cause. Frequent shutdowns required someone to perform the arduous and expensive task of visiting the facility, diagnosing the cause of the failure, and restarting the system.

Project Highlights

- WESTON's wireless remote monitoring system saved time and money by increasing reliability and decreasing shutdowns by nearly 300%.
- The WESTON-developed system reduced the potential for surface emissions releases, off-site migration of methane, and groundwater contamination.
- This wireless monitoring system serves as a model for technology-based enhancements and increased environmental compliance.

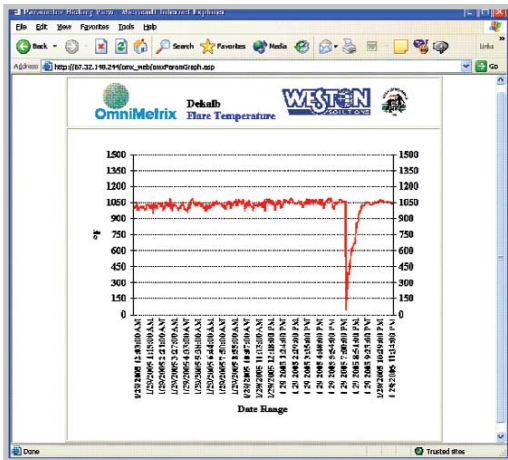
Innovative Technology-Based Solutions

Weston Solutions, Inc. (WESTON®)—a leader in applying innovative technology-based solutions to fit our strategic clients' needs—has developed wireless remote monitoring and communication systems to replace traditional, paper-based monitoring of environmental and meteorological data. At the Seminole Road Landfill, WESTON installed a wireless remote monitoring system to upgrade the existing flare station's capabilities and shutdown/prevention procedures. This system provides real-time monitoring, data capture, and alarm notification of 23 critical operational parameters, including:

- Flare temperature
- Gas temperature, quality, and flow from the wellfield
- Vacuum and discharger pressure
- Level of condensate in the knockout pot
- Blower amperages
- Three-phase power voltage

Unlike traditional monitoring systems that are hardwired to power and connected to telephone systems, this remote wireless monitoring system has a backup battery and remains on during power interruptions and telephone-line malfunctions, decreasing system downtime.

Today, flare station data are displayed and stored on a secure, password-protected Web site in real time. During a shutdown, the system identifies the cause and notifies flare operators instantly via e-mail and cell phone text messaging. The enhanced wireless remote monitoring system also provides instant notification when any of the measured parameters deviate outside a normal or alarm value, providing a proactive approach to maintaining the GCCS's continuous operation.



The flare station now operates more consistently, without dramatic fluctuations in parameters, allowing for streamlined wellfield balancing and optimized landfill gas quality.

New System Success

Since inception, Seminole's flare station operators have been alerted to numerous conditions that could have resulted in a temporary or long-term flare station shutdown, migration of methane, or violation of Title V. Thanks to the new system, repairs were quickly implemented to prevent a shutdown.

The Seminole Road Landfill Flare Station now operates more consistently, without dramatic fluctuations in flare station parameters, allowing for streamlined wellfield balancing and optimized landfill gas quality. Methane concentration increased from values in the 45% range to consistently around 55%. Oxygen values,

previously between 3% and 5%, decreased to less than 0.5%. This enhances the Btu value and consistency of landfill gas available for a proposed gas-to-energy project. The number of malfunctions that cause a flare station shutdown has been reduced by nearly 300%.

In turn, the volume of landfill gas flared has increased from 1.3 to 1.7 million cubic feet per day, reducing the potential for surface emissions releases, off-site migration of methane, and groundwater contamination. Using the remote wireless monitoring system drastically reduces the flare station's operation and maintenance costs, while increasing environmental regulatory compliance.

Wireless Remote Monitoring System Features

- Continuous monitoring and data capture
- Instant automated text messaging with alarm notification via cell phones and e-mail
- Real-time tracking and display of remote data via the Web
- Spatial, tabular, and graphic data display
- Historical data archiving for analysis and reporting

Wireless Remote Monitoring System Benefits at Seminole Road Landfill

- Decreased manpower costs by eliminating the need for personnel on-site 24/7
- Increased operational efficiency by automating data collection, analysis, and reporting
- Reduced operation and maintenance costs
- Increased environmental regulatory compliance
- Improved flare station reliability, with fewer system malfunctions and shutdowns
- Higher quality data
- Enhanced decisionmaking and troubleshooting through real-time access to data 24/7 via the Web