SANBORN HEAD

Remote Landfill Monitoring Using Landfill Gas Management Suite

BY: EVAN CISCELL, PE ON MARCH 30, 2022



Advances in control system technology have led to an increase in automation throughout the solid waste industry, and data collection can be achieved more cost-effectively than ever before. Providing personnel with real-time access to that data remains an ongoing challenge for many sites, especially with the increasing prevalence of remote work due to the COVID-19 pandemic. Using remote telemetry technology to upload data to the cloud, Landfill Gas Management Suite™ (LFGMS) provides the ability to not only monitor any data point in your control system in real-time from anywhere, but also create custom tools for data analysis, generate automated reports, and receive alarm notifications via text or email.



View of Sanborn Head's proprietary Landfill Gas Management Suite™ software that allows for remote monitoring of landfill gas collection and control systems while simplifying data management and reporting.

There is no need to replace existing control systems or data sources in order to take advantage of the capabilities of LFGMS™. A new Data Acquisition Server (DAS) can typically be connected to an existing control system with little or no modification to existing hardware required. If necessary to accommodate a remote installation location this connection can be made using radio, thereby saving the expense of installing cabling over long distances. Wireless communication also has the added benefit of eliminating susceptibility to damage due to excavation, which is an obvious concern at a landfill. The DAS records data received from the control system at 5-minute intervals and periodically uploads to the cloud via a cellular modem. If for any reason cellular service at the site is interrupted, the DAS continues to store data and uploads once the connection is restored.

SANBORN HEAD

Dashboard Features

A website is created with a dashboard designed to allow site personnel to access data in an intuitive and convenient manner. The dashboard features a site map showing the location and status of each device from which data is being collected. Typical monitoring parameters for a landfill might include landfill gas flows and system vacuum, flare temperature, energy production, leachate flows, and leachate sumps/tanks/lagoons levels. Charts can easily be created and customized to simultaneously view multiple parameters over desired time periods. Charts can be a useful tool for troubleshooting operational issues experienced at the site. For example, head levels and pump flow rates can be overlaid on a graph and the display window can be modified to focus on a period during which abnormal operation is suspected. For more details about the features of the LFGMS™ telemetry suite, see the presentation "Let Your Site Report to You," a Colorado Chapter of the Solid Waste Association of North America (SWANA) webinar (registration required).

Data Management and Reporting

The raw data uploaded from the site's control system can not only be downloaded in spreadsheet format from LFGMS™ but can also be used to populate automated reports, which are custom tailored to meet the needs of the client. If the site is required by the state or municipality to submit periodic reports such as leachate head on liner, landfill gas collection rates, landfill gas-to-energy facility electrical generation, etc., a previous report can be used to create a template which will be generated automatically by LFGMS™ and made available for download. Our Data Management and Visualization team often works with our clients to create custom data reporting options to address each site's specific needs. Having the data available on a website facilitates access by outside consultants as well as compliance and operations personnel.

During the initial setup of the client's dashboard, LFGMS™ can be configured to send alarm notifications to site personnel via text and/or email. Key personnel can be authorized to select and modify the parameters for which the alarm notifications should be sent, the threshold values associated with each alarm, and who should receive the notifications.

In a perfect world you would always have eyes on every piece of hardware at your site. LFGMS™ delivers the next best thing, providing access to data points in your control system 24 hours a day, 7 days a week, from any location.

Brief videos about LFGMS™ may be viewed at the links below:

- Mapping/graphing/data management
- Real-time telemetry

Interested parties can always send an email to lfgms@sanbornhead.com.