Biogas Producer Increases Extraction Efficiency and Decreases Carbon Footprint and Risks of Traditional Landfill Systems using Movicon.NExT™ Platform

RESULTS

- Increased biogas production by up to 32%, enhancing customer revenue.
- Reduction in carbon footprint by 7,800 tonnes, protecting the community and environment.
- Help protect personnel by allowing remote operation.

"Movicon for supervisory control and data acquisition in biogas collection activities was simple and easy to use as well as being versatile in applications."

Marco Antonini
Co-founder and CEO
Zero3

APPLICATION

Biogas collection and emissions reduction of landfills.

CUSTOMER

Landfill owner operator in Italy and Zero3, a biogas stabilizer manufacturer.

CHALLENGE

The atmospheric emissions caused by leaks of biogas produced in a landfill in Italy directly impacted the area's air quality. In addition to causing a foul smell, the gases emitted were methane (CH_4) and carbon dioxide (CO_2), which increased the potential of fires and explosion, asphyxiation and poisoning, and phytotoxicity, as well as the synergy of all these effects. The result was a significant threat to both personnel and operators at the landfill as well as the community. On top of the negative impact of these risks, the landfill owner/operator was also not realizing the positive revenue benefits of biogas extraction and collection.

SOLUTION

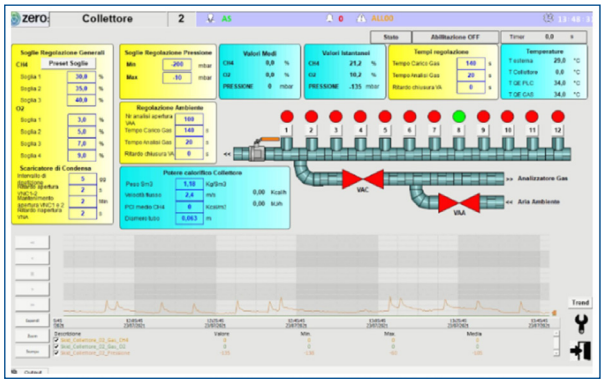
The landfill owner turned to Zero3, an Italian clean energy company that provides solutions for biogas extraction employing gas stabilizers. Zero3, in turn, used Emerson's Movicon SCADA to implement the control interface for the biogas collection system on the landfill, including PLCs that run autonomous programs to control gas stabilizers. One of the key requirements for control solutions

in any landfill automation is scalability, as the system and landfill both expand as more control modules are added for additional wells dug.

Movicon SCADA from Emerson was selected for its modularity, scalability, interoperability and easy-to-program display and functionalities. The data is shown in an intuitive display and has an easy-to-use visualization system. Employing Microsoft SQL server to store field data, the Movicon SCADA system enables real-time interaction with the site's gas stabilizer machines, allowing remote control, with a latency time of only 0.05 msec.

These intuitive displays, along with web HMI functionality and the Movicon SCADA alarm dispatcher, which permits real-time response to alarms, allows smooth site operations with very limited personnel. Since the implementation of gas stabilizers eliminates the need for manual operation on the biogas valves, the system provides for remote operation in real time continuously and automatically, allowing collection efficiency to be maximized. This optimization of capitation significantly reduces the greenhouse gases and increases energy production.

Data collected from the field is used for targeted interventions and predictive maintenance. Any reduction in throughput is also detected rapidly and corrective action can be taken to ensure higher site efficiency. Better visibility via intuitive graphics, web HMIs on mobile devices, and immediate alarm dispatches all work together to provide a site with high visibility, high control and immediate redressal. This has tremendous impact not only on biogas production but also on personnel safety in a potentially hazardous environment.



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