

CASE STUDY - NovaGerar Landfill Gas to Energy Project

Overview

The objective of the NovaGerar Landfill Gas to Energy Project in Nova Iguaçu - Rio de Janeiro, Brazil is to explore the landfill gas (LFG) collection and utilization activities of the landfills managed by S.A. Paulista. This involves investing in a gas collection system, leachate drainage system and a modular electricity generation plant at each landfill site (with expected final total capacity of 12 MW), as well as a generator compound at each site. Generators will not be online in the initial phases of the project so excess LFG, and all gas collected during periods when electricity is not produced, will be flared. The project was initially expected to reduce 670,133 tCO_{2e} per year over the crediting period.

Challenges

The NovaGerar project sites, Adrianopolis and Marambaia, were both encompassed in the same CDM project. Due to this, both project sites follow the same monitoring and reporting methodology, AM0003 version 1. NovaGerar was faced with implementing a monitoring system that would work efficiently at both project site locations while fulfilling the requirements of the CDM methodology.

The AM0003 version 1 monitoring methodology is based on direct measurement of the amount of LFG captured and destroyed at the gas destruction facilities (i.e. gas flaring station and electric generation facility). For NovaGerar, this meant that they must measure and record methane composition, gas flow rate, gas temperature, and system static pressure in a fashion that was accurate, secure, maintainable, cost effective, and practical for daily operations.

Solution

To help meet the all the requirements of this project, NovaGerar turned to LANDTEC and The LANDTEC System. Accuracy and auditability is a must for monitoring a CDM project of this nature so from the point of gas collection to gas destruction, the best of breed equipment has been implemented. The ACCU-FLO Wellhead with built-in flow measurement device was selected to work directly with the GEM™2000 portable gas analyzer. The field technicians were trained in proper use, calibration, and maintenance of the GEM™2000 and ACCU-FLO wellheads to ensure accurate readings. All 101 active gas extraction wells are configured with the ACCU-FLO wellheads. The other critical measurement point of the extraction system is at the flare station facility.

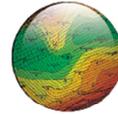
LANDTEC, in cooperation with John Zink Company, provided the skid mounted Automated Extraction Monitoring System (AEMS) to meet the requirements of the monitoring methodology. This fulfilled the requirement for continuous methane, continuous flow, continuous pressure, and continuous gas temperature monitoring. In addition, the AEMS is connected to the flare process equipment via standard analog signals (i.e. 4-20mA, discrete,



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and thermocouple) to collected vital operational data in addition to the required flare operating temperature. The AEMS automatically calibrates itself to certified known gas levels. This calibration history is recorded for report auditing purposes.

Data from all monitoring systems is transmitted wirelessly via secure internet connection to The LANDTEC System Software web based suite of applications and analysis tools. Before any users view data online, each data point undergoes a rigorous data validation process to ensure data integrity. Once all measure values are validated for accuracy and data integrity, calculated values such as CERs are generated and stored. From any computer with an internet connection, stakeholders and operators can view critical operational data quickly from the LFG Pro Dashboard. The Dashboard includes color coded concentration maps of the gas extraction wellfield, 24 hour operational snapshot graph, current production data of each AEMS unit including AEMS calibration records, 12 month CERe summary, and key users of the project with contact information. Drill-down capabilities are available from the dashboard components as well as field device configuration from the online system tools. Reports used for wellfield tuning and optimization are also available.

Results

The NovaGerar Landfill project is successfully meeting all monitoring requirements of the AM0003 version 1 methodology. The project was the first landfill project registered with the UN and now has a total of 148,833 CERs issued over the first two (2) annual crediting periods and another 82,606 CERs awaiting issuance request in the third crediting period. With full anticipation of having the third period CERs issued this put the project at a total of 231,439 CERs issued within 3 years. The ability for the project to pass the audit process quickly and efficiently is largely contributed to the accurate, reliable, and easy to maintain monitoring components selected for the NovaGerar Landfill Gas to Energy project. The amount of clear, auditable data that is always readily available for project users and auditors make for a fast smooth auditing process. The project participants look forward to several more years of successful CER generation.

More Information

If you would like more information on this project, similar projects, or solutions implemented, please contact info@landtecna.com.

You can also call: U.S. +1 (800) 821-0496 OR Brazil +55 (11) 5181-6591



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