



Britannia Landfill Gas to Energy Project

Mississauga, ON

Britannia Sanitary Landfill Site, which is owned by the Region of Peel, is located in Mississauga, Ontario. The landfill, which was established in 1980 and closed in 2002, received over 10 million tonnes of waste.



Britannia Landfill Gas Compression and Electrical Generation Facility

The Region of Peel wanted to reduce greenhouse gas emissions at the landfill and find a beneficial use for the landfill gas through utilization. As an added challenge to the project, the City of Mississauga operates the BraeBen Golf Course on the finished surface of the landfill. IGRS provided the Region of Peel with a solution that addressed all of the challenges of this project with a proposal to utilize the landfill gas for the generation of electricity.



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The wellfield is designed to avoid the fairways of the golf course while maximizing the collection of landfill gas. Wells are strategically located in the driving range and along cart-paths as well as the perimeter of the fairways. The system which includes approximately 45 wells, is designed to collect approximately 2,500 cubic feet per minute (4250 m³/hr) of landfill gas.



Drilling landfill gas wells in the closed Britannia Sanitary Landfill Site (BraeBen Golf Course)



Engine/generator sets at the Britannia Landfill Gas Compression and Electrical Generation Facility

The electricity generation plant is located off-site from the landfill so that it has no impact on the golf course. Gas is delivered to the plant through an 800 m dedicated pipeline.

The plant comprises a gas processing plant with two two-stage RoFlo compressors and gas drying equipment and a generation plant that includes three Cooper Superior reciprocating engines with a total generation capacity of 5.5 MW of power.

The electricity generated by the plant is termed “green” energy since it doesn’t rely on fossil fuels. In fact, not only does this project displace traditional sources of electricity, it also ensures the destruction of 250,000 tonnes of CO₂e (carbon dioxide equivalent) annually through the combustion of landfill gas, which would otherwise vent to the environment.



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