



Case Study

Green Valley Landfill Gas Feasibility Study

Background

Located in Hong Kong, Green Valley Landfill is a 10,000 tpd facility accepting direct haul and transfer waste from areas throughout Hong Kong. The quantity of landfill gas (LFG) being generated raised the question of whether the gas could be used for electrical generation and process requirements at the site, as well as the production of Town Gas. The potential project offered economic and environmental benefits to the landfill and surrounding areas.

DEI Scope of Work

DEI was hired to evaluate the feasibility of a Town Gas production facility at Green Valley Landfill including forecasting the quantity that could be generated and utilized for beneficial purposes.

DEI Tasks

DEI was responsible for the following tasks:

- Development of a detailed generation model to determine availability of landfill gas over time at the landfill
- Development of a conceptual plant design and cost estimate based on available information on landfill gas availability
- Development of a computerized process simulation and budgetary cost quotations from equipment suppliers
- Conducting an engineering and economic analysis of the relative values of LFG for the production of Town Gas feed and fuel for electrical generation
- Estimating operating costs using similar facilities in Hong Kong and around the world
- Providing an analysis for a proposed joint venture model between Green Valley Landfill and Hong Kong and China Gas Co., Ltd

Results

- Using this feasibility study and conceptual design as a base, the project moved forward under a joint venture arrangement between Veolia (the landfill owner) and Hong Kong China Gas. The system has been constructed and DEI was a member of that project team.