

## The Hong Kong Sludge Treatment Plant (HKSTP)-A Sustainable Waste-to-Energy Approach Project

### Visit Highlights:

This visit aims to introduce the background of the project commissioned by Environmental Protection Department (EPD) for the Design, Build, and Operation of the HKSTP.

### The Project Team (Contract signed 27 Oct 2010)

- Owner: Environmental Protection Department
- Employer's Representative(ER): Jacobs China Ltd
- Main Contractor/Operator: Veolia Environmental Services
- Independent Consultant(IC): Mott MacDonald
- Design & Construction Contractor: Veolia Water, Leighton, John Holland
- Capital Works Value: HK\$ 5 Billion

### Project Background

Sewage generated from daily lives is treated in Sewage Treatment Works (STW). Treated effluent is discharged to nearby water bodies. Sludge generated from sewage treatment is disposed of at landfills. (NOT SUITABLE!) As a result, HKSAR has invested heavily in upgrading waste water treatment plants over the past two decades. In view of the anticipated significant increase in sludge generation, EPD wishes to implement a more effective disposal method and has chosen incineration technology. Contract was signed on 27 Oct 2010 to design and construction of a sludge treatment facility to incinerate the sludge produced at Hong Kong's 11 sewage treatment works with a capacity of 2,000 tonnes of wet sludge per day. The foul wet sludge that would otherwise be dumped in the landfill will be reduced to ash and residues by the incineration plant, a reduction of about 90% by mass.

### Project Challenges

To design, build and operate a state-of-the-art plant which is concurrently:

- A sludge treatment facility
- A power plant
- A desalination plant
- A wastewater treatment plant
- A community for leisure & an Environmental Education Centre(EEC)

Fast track construction program

Management of ~2,500 workers & engineering staff during the construction

### Proven State-Of-the-Art Technology

A fluidized bed thermal treatment system is used as the core process where sludge is thermally destructed. Steam that is generated from this process would then be transformed into electricity to power the operation of the entire plant, and surplus electricity would be generated

and fed back into the CLP Power electricity grid. An advanced flue gas treatment unit has been taken into consideration and put in place to ensure that the air quality meets the most stringent standards. As a complete sustainable closed loop system, the facility has also catered for its own water supply and sewage treatment plants.

#### Award Winning Architectural & Landscape Design

The wave-form and streamlined design of the main building will reflect and integrate the seaview in front and ridge lines at the back; so that the plant will blend well with the surrounding scenery. This will become a unique landmark in the Tuen Mun District.



