Shatin Sewage Treatment Works

Shatin Sewage Treatment Works (Shatin STW) is the largest secondary sewage treatment works in Hong Kong. It occupies 28 hectares of land and serves a population of 600,000 in Shatin and Ma On Shan Districts, which produces 250,000 m³ of sewage per day. Shatin STW was commissioned in 1982. The treatment capacity was 100,000 m³ per day and was later increased to 200,000 m³ per day in 1986. To reduce the discharge of nutrient into the Tolo Harbour, nutrient removal facilities were installed in the aeration tanks in 1991, which as a result reduced the treatment capacity to 150,000 m³ per day. To meet the continuous population growth in Shatin and Ma On Shan, the STW commenced the Stage III Extension in 2001 and part of the works were commissioned in 2005. The treatment capacity of the STW will be increased to 340,000 m³ per day after completion of the remaining works. In order to further improve the effluent quality, an ultraviolet disinfection system will be added in the STW in 2010.

The STW has an information centre which serves to enhance the communication with the public, students and professionals from both local and overseas institutions on sewage treatment in Hong Kong.

經處理的排放水重要參數
Key Parameters of Treated Effluent

<table>
<thead>
<tr>
<th>重要參數 (Key Parameters)</th>
<th>排放標準 (Discharge Standards)</th>
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<tbody>
<tr>
<td>設計流量 (Design Flow)</td>
<td>每日340,000立方米 (m³/day)</td>
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<tr>
<td>原生懸浮固體 (Total Suspended Solids)</td>
<td>≤30毫克/升 (mg/L)</td>
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<tr>
<td>五天生化需氧量 (5-day Biological Oxygen Demand)</td>
<td>≤20毫克/升 (mg/L)</td>
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<tr>
<td>氨氮 (Ammonia-Nitrogen)</td>
<td>≤5毫克/升 (mg/L)</td>
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<tr>
<td>硫氮 (Total Nitrogen)</td>
<td>≤20毫克/升 (mg/L)</td>
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</table>

Our Vision

To provide world-class wastewater and stormwater drainage services enabling the sustainable development of Hong Kong.
Screening and Degritting
Sewage arriving at the Inlet Works is preliminarily treated by mechanical bar screens to remove solids exceeding 6 mm. After screening, the sewage is directed to aerated grit channels for grit removal.

Primary Sedimentation
In primary sedimentation tanks, about 50% of the suspended solids in the preliminarily treated sewage are settled out and removed as primary sludge by sludge scraping mechanisms.

Secondary (Biological) Treatment
In aeration tanks, compressed air is fed continuously to provide oxygen essential to sustain the growth of micro-organisms (activated sludge), which will assimilate pollutants in the sewage. The retention time is about 9 hours.

Final Sedimentation
Treated sewage and activated sludge are separated in the final sedimentation tanks. A controlled portion of the activated sludge is fed back to the aeration tank to maintain adequate micro-organism population for biological treatment. The remaining portion (named as Surplus Activated Sludge, SAS) is thickened to reduce volume before treatment in the sludge digesters.

Biogas, containing methane, is produced during the anaerobic digestion. It is used in the two dual fuel generators to produce electricity and heat for plant operation. Each generator has a capacity of 1,100 kW, which is equivalent to the power consumption of 44,000 numbers of 25W lamp.

To act proactively in an environmental manner and to provide a better service to the nearby residents, an odour management system with deodourizing facilities has been put into operation.

With the Stage III Extension, more planting has been provided in the STW.