

SHA TIN WATER TREATMENT WORKS (ENGLISH) Leaflet

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SHA TIN Water Treatment Works is the largest water treatment works in Hong Kong in terms of daily output capacity. It provides treated water supplies to Sha Tin, Central Kowloon and part of Hong Kong Island. It was first commissioned in May 1964 with a treated water output of 364,000 cubic metres per day. It was then extended in stages and the nominal capacity has become 1,227,000 cubic metres per day since 1983.

Water Treatment ProcessDiagram

(Words in the diagram)

Raw Water

Powered Activated Carbon (PAC)

Alum

Lime

Chlorine

Polyelectrolyte

Fluoride

Mixing Chamber

Raw Water Inlet Channel

Clarifier

Filter

Clear Water Tank

Treated Water Pumping Station

To Distribution System

Sludge

Supernatant

Pump

Washwater Recovery Tank

Sludge Balance Tank

Sludge Pumping Station

Sludge Thickening Tank

Supernatant Sump Tank

Pump

Sludge Sump Tank
Sludge Pump
To Sha Tin Sewage Treatment Works

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1. Raw Water

The raw water treated by the Sha Tin Water Treatment Works comes from five different sources:

- Dongjiang water from Guangdong
- High Island Reservoir
- Plover Cove Reservoir
- Lower Shing Mun Reservoir
- Various catchment intakes

2. Mixing

The raw water is dosed at the inlet of the mixing chamber with the following chemicals:

Hydrated Lime – to pre-condition the raw water prior to addition of alum

Chlorine – to suppress the proliferation of algae

Alum – to coagulate impurities

Powered Activated Carbon (PAC) – to remove tastes and odours when required

Polyelectrolyte – to assist the coagulation and flocculation of impurities

3. Flocculation and Sedimentation

After mixing, the water is passed to the clarifiers where coagulation and flocculation of the impurities in the water will occur. With the aid of the dissolved alum, the impurities in the water will coagulate into large particles which settle as sludge. The sludge is collected and conveyed to sludge thickening tanks for further treatment.

4. Rapid Gravity Filtration

Settled water from the clarifiers flows to the constant rate rapid gravity dual media (sand/anthracite) filters for removal of the more finely divided suspensions (floc particles). Periodically the filter beds are cleaned by backwashing with compressed air and then water.

5. Clear Water Tanks

Chlorine and lime are dosed into the filtered water in the contact tanks to disinfect and control the alkalinity of the final treated water. Fluoride is also dosed for dental protection. The treated water is then stored in the clear water tank.

6. Pumping Facilities

There are two pumping stations with a total of 13 pumps in the Sha Tin Water Treatment Works. The installed pumping capacity is 1,568,000 cubic metres per day. Treated water stored in the clear water tank is pumped to service reservoirs in Sha Tin and Lion Rock service reservoirs group in Kowloon for distribution to consumers.

7. Environmentally-friendly Facilities

To reduce water loss, the washwater is collected in the recovery tanks for re-pumping to the inlet for recycling. Sludge produced in the clarifiers is thickened by four circular gravity thickeners with polyelectrolyte as the coagulant. Thickened sludge is conveyed by two sludge pipes to Sha Tin Sewage Treatment Works for further treatment prior to disposal.

Water Quality Control

The quality of water is closely monitored by means of chemical, bacteriological and biological examinations of water samples taken from treatment works and throughout the supply system to ensure compliance with the Guidelines for Drinking-water Quality recommended by the World Health Organization.

SHA TIN Water Treatment Works Layout Plan

(Picture of the layout plan)

Administration Building & Control Room

Main Entrance

Sludge Thickening Tanks

Laboratory

Filter Beds

Accelerators

Raw Water Inlet Channel

Treated Water Pumping Stations

Washwater Recovery Tanks

Filter Beds

Clarifiers

Chemical House

水務署 Water Supplies Department

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