

PAK KONG WATER TREATMENT WORKS (ENG) Leaflet

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Pak Kong Water Treatment Works provides a treated water supply to Tseung Kwan O, Sai Kung, East Kowloon and the northern part of Hong Kong Island. It was first commissioned in 1989 with a capacity of 273,000 cubic metres per day. It was then extended in 1992 to increase the total capacity to 800,000 cubic metres per day.

The Water Treatment Process Diagram

(Words in the diagram)

Raw Water

Powered Activated Carbon (PAC)

Alum

Hydrated Lime

Chlorine

Polyelectrolyte

Fluoride

Inlet Works

Clarifier

Filter

Contact Tank and Treated Water Reservoir

Treated Water Pumping Station

Distribution Systems

Supernatant

Sludge

Sludge Pumping Station

Washwater Recovery Tank

Sludge Thickening Tank

Filter Press

Sludge Disposal

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1. Raw Water

The raw water treated by the Pak Kong Water Treatment Works comes from three different sources, including High Island Reservoir, Plover Cove Reservoir and the catchment areas scattering around the water treatment works.

2. Mixing

The raw water is dosed as necessary at the inlet works 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 occur. With the aid of the dissolved alum, the impurities in the water coagulate into large particles which settle as sludge. The sludge is collected and conveyed to sludge thickening tanks for further treatment before disposal.

4. 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) carried over from the clarifiers. Periodically the filter beds are cleaned by backwashing with compressed air and then water.

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5. Treated Water Reservoir

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 stored in the treated water reservoir before conveying to service reservoirs in Kowloon East and Sai Kung for distribution to consumers.

6. Pumping Facilities

The pumping station in Pak Kong Water Treatment Works has nine pumps with an installed pumping capacity of 884,000 m³/day.

7. Environmental-friendly Facilities

Environmental protection measures are taken to reduce waste. The washwater is collected in the recovery tanks for settlement before being repumped to the inlet for recycling. Sludge produced in the water treatment works is thickened by three circular sludge thickening tanks using polyelectrolyte as coagulant. Thickened sludge is compressed by membrane type filter presses into cakes for disposal at landfill sites.

8. Water Quality Control

The quality of water is closely monitored by laboratories with chemical, bacteriological and biological examinations of water samples taken to ensure compliance with the Guidelines for Drinking-water Quality recommended by the World Health Organization, and to ensure a safe and wholesome potable supply.

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PAK KONG WATER TREATMENT WORKS LAYOUT PLAN

(Picture of the layout plan)

Sludge Thickening Tanks

Chemical House

Pumping Station

Treated Water Reservoir

Contact Tanks

Laboratory

Clarifiers

Administration Building

Filters

水務署 Water Supplies Department

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