

Reference Description Changi

World's largest Drying Plant for Sewage Sludge in Changi, Singapore



Overview Changi Water Reclamation Plant

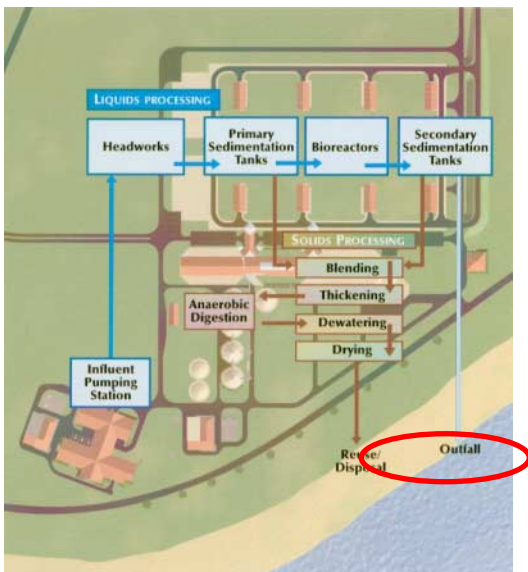
In 2001, PUB (Public Utilities Board of Singapore) started building the DTSS (Deep Tunnel Sewerage System) to cater to Singapore's increasing population and expanding economy.

The Changi Water Reclamation Plant is the cornerstone of the first phase of the DTSS System. Sited on 34 hectares of reclaimed land, the plant features a state-of-the-art, compact and covered used water treatment facility designed to treat 800,000 cubic metres of used water per day. Its capacity can ultimately be tripled to handle 2,400,000 cubic metres per day.

It provides a high standard of treatment to used water before it is discharged through the deep sea outfalls.



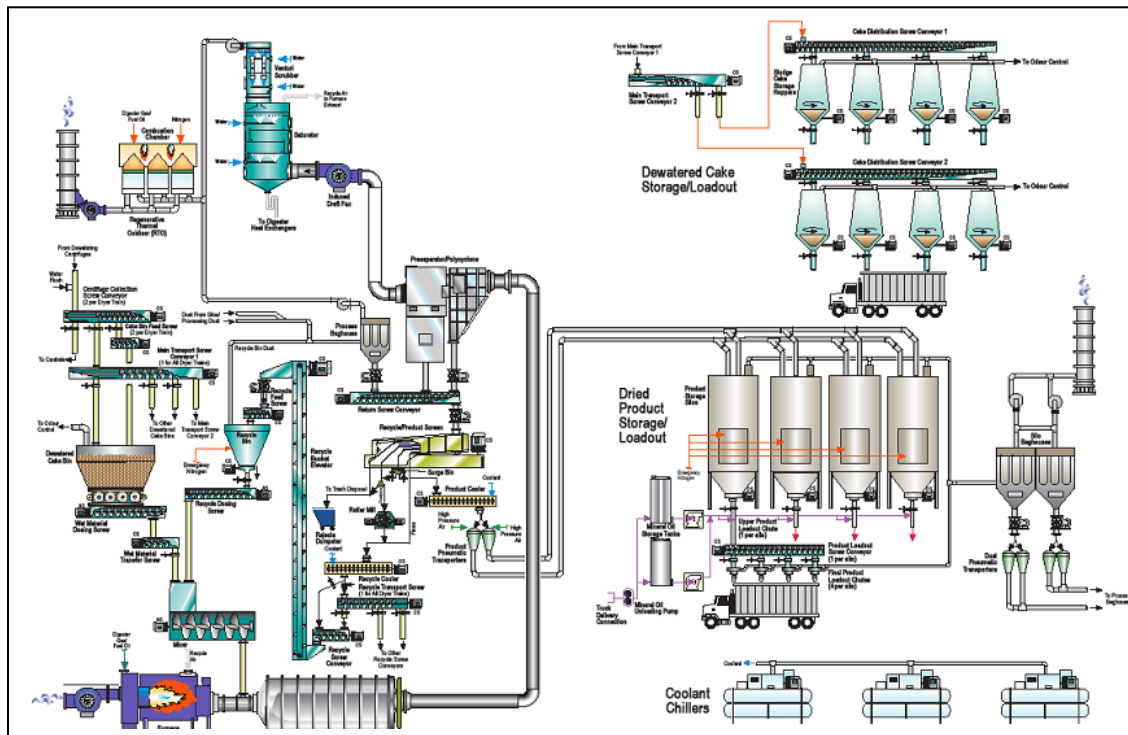
The Changi Water Reclamation Plant treats used water by effectively removing the solids and nutrients that are present in the used water. After treatment, the water is safe to be returned to the environment or channeled to NEWater factories for further processing. Treatment of the used water is split into **liquids and solids processes**.



Dryer building

Overview Drum drying plant

The drum drying plant, consisting of five lines of DDS 110 is part of the solids processes and comprises the currently largest drying plant worldwide, each line evaporating max. 11.200 kg H₂O/hr.



Dewatered sludge from the Dewatering Centrifuges is sent to the Andritz Drum Dryers. Biogas created in the digestion process is used for the dryers, making them self-sufficient in thermal energy. The use of dryers further remove moisture from the sludge and the result is a product that is greatly reduced in bulk and is easy to handle.



Scope of Supply

The Scope of Supply for the Sludge Drying plant has been splitted between the Main Contractor (SempCorp, Singapore) and Andritz. Order value for Andritz has been approx. 38 Mio. EUR. The Contract was signed in December 2001.

Each line comprises

- ✓ Dryer feed system
- ✓ Dryer thermal system (Dual fuel burner)
- ✓ Dry Solids Separation and Classification
- ✓ Product Cooling and Conveyance
- ✓ Dust Control System
- ✓ Product Handling and Storage
- ✓ Explosion Suppression System
- ✓ Automation System (Profibus)
- ✓ Regenerative Thermal Oxidation for Odour Control

Plant specification: (4 lines in operation / 1 duty)

Design throughput:	60,64 t/hr
Wet sludge dry substance min:	25 %
Wet sludge dry substance max:	28 % DS
Water evaporation capacity nominal per line:	11.200 kg/h
Installed lines:	5
Operation time:	8.000 h/a
Dry granulate production:	15,16 t/hr

Process data per line

Sludge throughput per line:	15.160 kg/h
Energy supply:	Diesel & Digester Gas
Thermal energy consumption:	< 3600 kJ/kg equivalent to 1.810 Nm ³ /hr digester gas
Granulate dry substance content:	94 +/- 2% DS
Granulate temperature (final product):	32°C
Granulate size (mm):	1 – 4 mm

General Data

Project Period:	2002-2008
Substantial Completion (TO):	August 2008