

SEWAGE INDUSTRY

Jan 3, 2024

INDAH WATER KONSORTIUM (IWK)

OVERVIEW

Indah Water Konsortium, a company owned by Minister of Finance Incorporated, is Malaysia's national sewerage company which has been entrusted with the tasks of developing and maintaining a modern and efficient sewerage system for all Malaysians.

In 1994, the Federal Government awarded the company the concession for nationwide sewerage service which prior to that, was under the responsibility of local authorities. Indah Water is now well-positioned to undertake the vital task of ensuring that Malaysians today and in the future will be able to enjoy a clean and healthy environment through a proper and well-maintained sewerage system.

Control pumps, receive data

SKADA → MCC → Inverters → Pumps

Think of MCC as a connection between inverters and SKADA, where SKADA manage pumps indirectly via inverters. Inverters can control when water can flow in pumps and what pressure (speed) of water should be, add microbes for SBR phase, and remove oil.

SKADA ← MCC ← Inverters ← Pumps

Inverters may also collect data on pressure of water in screeners or pumps using sensors. Info is sent to MCC then SKADA for them to take actions based on the data they receive. If there's faulty in any pump/screener the inverters will send data to SKADA via MCC while emitting red light in control room.

Material management

BIOGAS SPHERE

IWK has a sphere like biogas holders in order to store biogas that's produced from the organic waste. These holders maintain gas pressure, enabling continuous use as a renewable energy source to IWK

WASTE STORAGE

Scheduled waste storage involves accumulating specific types of waste, such as hair and rubbish, in a designated storage area temporarily. This waste is then collected by another company specializing in waste management for proper disposal or treatment.



TECHNOLOGY ADVANCES OF IWK —

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1) Screening

When wastewater enters the system, it goes through a screening process. Large objects like sticks, rags, and plastics are removed. This is typically done using screens that physically filter out these materials. Animals like toads and turtles are usually saved in this process.

2) SBR (Sequencing Batch Reactor)

This system involves aerating wastewater while using microorganisms to break down organic matter (typically sand). This process duration is usually around 2 hours.

3) Oil and surface particles removal

Oils and other particles at the top layer are then removed by implementing various methods such as skimming off the surface to remove floating oils.

4) Surface water harvest

Once harvested, the top surface water is then directed to the tertiary treatment building, where numerous techniques, such as filtration or disinfection, are employed to extract any remaining polished suspended solids, ensuring the water meets the desired quality standards for consumption or environmental discharge.



REFLECTIONS OF VISIT

The industrial visit has given us the chance to observe and learn the on-site work of a wastewater treatment plant. It has given us a broad perspective on the system flow used in the plant. This visit has given us the opportunity to learn and ascertain of the insider system of a wastewater industry and how software engineers are involved.



Mahmoud Ali Balawee - A22MJ3006
Jomana Mahmoud - A22MJ3005
Asha Shanmugam - A22MJ8019
Jayotshna Sengeny - A22MJ8015