

Technical Visit to Bukit Tagar Sanitary Landfill

ELECTRICAL ENGINEERING TECHNICAL DIVISION

reported by



Dr Siow Chun Lim



Alex Looi Tink Huey

On 27 April, the IEM Electrical Engineering Technical Division (EETD), in collaboration with Environmental Engineering Technical Division, organised a technical visit to Bukit Tagar Sanitary Landfill (BTSL). The group of 12 departed from IEM at 7.30 a.m. and arrived at 9.00 a.m. There, they were welcomed by En. Fatimi, who gave an overview briefing on the sanitary landfill.

BTSL is developed by KUB-Berjaya Enviro and KUB-Berjaya Energy Sdn. Bhd. as a proper waste disposal site for wastes from Kuala Lumpur. It occupies 700 acres with another surrounding 1,000 acres acting as a buffer zone. According to En. Fatimi, BTSL has the capacity to process 3,500 tonnes of waste daily.

Ideally, the waste should reach the landfill within 17 hours due to high humidity which will cause rapid decomposition of the waste. Although there are about 150 landfills in the country, BTSL is one of only nine Level 4 sanitary landfills. A Level 4 sanitary landfill controls the impact of leachate on the ground water system by treating the leachate.

Conventional sanitary landfills separate and segregate the waste before this is dumped on the site for decomposition. However, at BTSL, the waste is directly disposed into the landfill and recovery of solid waste material takes place only after the organic waste has decomposed and is leached off as leachate.

First, the waste truck passes through the weighing scale. Then the waste is directly dumped onto



The gas engine units



Participants at the landfill cell



Interconnection to the Grid



The SCADA system to monitor the leachate treatment processes

the landfill cell and tipping operation commences. Next, the landfill cell is covered with HDPE sheets to prevent seepage of rainwater and finally, the biogas that is produced, will be used for power generation. Currently, a total of 6.4 MW power is generated using 4 gas engines and this is exported to the TNB grid through the Feed in Tariff programme.

BTSL targets to generate up to 10.4 MW when the construction of 2 additional gas engine units is completed in mid-2019. Excess methane gas will be flared to minimise environmental impact. As it is a Level 4 sanitary landfill, the

physical, biological and chemical treatment processes are actively monitored by using the SCADA system. With treatment capacity of 2,200m³, BTSL is the largest in the ASEAN region. The treated leachate will be sent to the reed beds consisting of phragmites plants to further improve the leachate quality by reducing the COD and BOD. This treated effluent will be discharged back to the adjacent 120 acres of forest and plantation in an alternate manner. The sludge, which is a by-product, is currently being researched for other possible applications. ■