

## CASE STUDY

# Sepura ATEX radios at Shell Pulau Bukom



## Introduction

Shell's Pulau Bukom Manufacturing Site is an integrated oil and petrochemicals site with manufacturing facilities for fuels, lubricant based oils and speciality chemicals, located off Singapore. Based on an island 5.5 km southwest of Singapore, it forms part of a group of islands that have been identified by the Singapore government for petrochemical industrial manufacturing.

Bukom is Shell's largest wholly-owned refinery globally with a crude distillation capacity of around 500,000 barrels per day; it is Shell's largest petrochemical production and export centre in the Asia Pacific region. Sepura successfully implemented a new TETRA system on the island, with an employee based permanently on the site for maintenance and repairs.

## The Challenge

As an island off the shore of Singapore, Shell wanted to replace their existing analogue network to improve security, coverage and connectivity.

The solution had to provide:

- A new network with improved coverage and capacity
- Improved audio quality
- Provide a secure mode of communication for user
- Provide Intrinsically Safe hand portables to the site workers
- Up to 2000 devices/terminals for use across the network
- Maintenance management and service support of the network for 10 years
- Integration to critical applications

Being located to the south of Sentosa, the site required careful planning and regular visits to ensure any challenges were quickly solved. The island covers 243 hectares and as a major oil and petrochemical site the challenges were abundant.

As with any petrochemical site, the island consists of a lot of metal structures, which was one of the key challenges to face the implementation of a new network. Metal is often a barrier to radio communication, frequently blocking or interfering with signals, so this challenge needed careful planning to overcome. The hazardous materials present on site are numerous, namely crude oil/fuel, offering a number of health and safety hazards to overcome during implementation. As an island with such importance to the oil and petrochemical industry, access to the site is heavily restricted; meaning

site visits, planning and construction of the new network also needed careful consideration.

## The Solution

Sepura implemented a TETRA based solution for the site, covering the entire island as well as the ferry terminal and remote docking bouy. Sepura's Intrinsically Safe hand portable radios were implemented to ensure worker safety with the chosen model being the reduced keypad STP8X100. Vehicles and offices on site were setup with SRG3900 mobile and desktop radios.

To further enhance worker safety, Sepura's STP8X100 gave the addition of a dedicated emergency button for quick responses in an emergency. To better support the Movement Control Room (MCR) which manage the loading/ unloading of products from ships, the Sepura radios are integrated to the instrumentation system to provide quick pump trip function so that those on the in control of loading the large ships could trigger a pump trip using their radio in case of emergency.

Since communication is a critical component in Bukom, Sepura have a dedicated team of local engineers to provide 24/7 all year round to support the TETRA radio system.

Preventive maintenance is carried out quarterly to ensure that system health is maintained by pre-emptively arresting issues before it happen.

Shell have contracted Sepura to deliver a multi-year managed service to ensure the safety and efficiency of the site and associated operations.



Find out more about the products used in this case study, or find a partner now to discuss your two-way radio requirements.

“The success of this project and long term partnership with Shell proves our ability to provide our customers with the best possible TETRA solution to meet their needs, working closely with them to meet their requirements. We have delivered unrivalled TETRA coverage with the robust, reliable and secure TETRA radios both hand portable and mobile. The new network has delivered safety, efficiency and future capabilities to Shell and we look forward to developing their system further.”

TERENCE LEDGER – SALES AND MARKETING DIRECTOR, SEPURA



## The Shell Site in Numbers

**2 base stations**

**5 desktop radios**

**80 fixed radios**

**1,000 hand-portable  
ATEX certified radios**

**7,500 average number  
of calls per day**



“Working closely with the Shell stakeholders and building rapport with user’s focal points was the key success factor to ensure that the delivery could proceed. In the maintenance phase, these relationships help provide a smooth transition process from the old to the new system, helping to ensure that issues and concerns are raised to the maintenance team for remediation as soon as possible.”

PETER TAN – PROJECT MANAGER, SEPURA