

Ixom Port Kembla has a number of systems in place to ensure sustainable operation, protection of the environment and protection of people. Below is a brief description of how each of these systems operates.

## Wastewater Treatment Plant

The site operates a comprehensive wastewater treatment system which takes all liquid process waste generated on site. All liquid waste generated on the site is discharged via the sites single licensed discharge point described as LDP4 in the site's EPA licence.

### Wastewater Treatment Plant Process

1. Wastewater generated in process areas is collected and pumped to the treatment plant for processing.
2. In the treatment plant the wastewater is clarified and filtered to remove colour and particulate material, producing a clean, clear wastewater stream
3. This clean wastewater is then held in a storage tank where it may be partially reused in the process or pumped to the final stage of treatment for discharge
4. Before the wastewater is transferred to a batch tank in which a further stage of automatic pH monitoring and adjustment is made as required.
5. The discharge tank also continuously has instrumentation to measure the total suspended solids (TSS) of the wastewater, to ensure it is within range of the site licence.
6. When the system registers the wastewater in this tank as within the licensed parameters the tank discharge valve is opened to allow the wastewater to be discharged via the site's only liquid discharge point, LDP4.
7. The pH, TSS, flow rate and volume are monitored throughout each discharge. The monitoring results are recorded every time the system discharges and are reported on this website as required to the EPA.

## Tank Farm and Tanker Loading/Unloading Bunds

The term 'bund' is used to describe the secondary containment systems used to contain any liquid that may be collected around storage tanks, plant areas and tanker loading areas and prevent this liquid from entering unloading systems for this purpose.

### Key Points about Bunds

- The bunds used at Port Kembla are designed to meet regulatory requirements and can hold at least 110% of the capacity of the largest tank inside them. This means that if the entire contents of a full tank were to be spilled, all of this liquid would be contained by the bunded area, and nothing would be lost to the environment
- The bunds are designed to be able to hold the chemical product stored in the tanks which are housed within them. At Ixom Port Kembla this is predominantly sulphuric acid and in most cases the bunds are constructed from concrete which can contain the acid, if spilled, and is strong enough to hold the required volume. In some special cases, such as dilute acid storage, the tank bunds are lined with a specialised acid resistant coating material to protect the concrete itself from acid attack
- In the case of operational and tanker loading/unloading areas similar bunds are in place to stop any spilled chemical reaching the environment - by stopping it from escaping from plant areas and flowing into water ways and/or preventing the chemical being absorbed by the soil beneath or surrounding the operational area.

- For tanker loading/unloading operations the bunds are constructed from concrete and lined with a special coating, so they are resistant to the product (sulphuric acid) at various concentrations and resistant to mechanical wear produced by road tankers driving in and out. In addition, the capacity of the bunds in these applications is such that they can contain more than the entire volume of the largest tanker which may be loaded inside it. This means that, in the unlikely event that a tanker was to completely fail, all the contents of the tanker would be contained by the bunded area thereby preventing any chemical from escaping into the environment
- All rainwater collected inside the bunded areas is collected, tested for pH and pH adjusted (if required) to ensure it is the range 6.5<pH</pH to 8.5
- Any chemical spill collected in these bunds is recovered by pump out and treated through the onsite wastewater treatment plant or recycled on site
- All rainfall and any spilled chemical material collected inside the process plant bunded areas is collected and treated prior to discharge via the sites licensed discharge point, LDP4.

## General Environmental & Safety Systems

In addition to the specific dedicated systems previously mentioned, the site operates in compliance with all regulatory standards and legislative requirements.

- Processes are designed, and risk assessed to ensure they are fit for purpose, the risks associated with operating such processes are well understood and appropriate controls are in place to ensure those risks are properly managed
- All systems in the site's operations which are in place to protect people and the environment operate as fail-safe systems. This means that in the event of an emergency such as a power or compressed air loss, such systems will default to a state that ensures the system is safe. For example, a valve which is designed to discharge wastewater would, when discharging, be held open using power or air. If the system shut down unexpectedly because the power or air systems were lost, the valve will safely spring closed.
- Maintenance systems are in place and administered by suitably trained and skilled personnel to ensure all plant systems, including safety systems, are appropriately maintained, and tested.
- Plant operations personnel are all fully qualified and trained to carry out their duties in plant operations as well as to respond in the event of an emergency.
- All critical parameters on the operational plants are continuously monitored, recorded, and alarmed to alert operations personnel to any variation from normal plant operating set points. These processes are controlled by computerised control systems which are designed specifically for the duty.