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## SITA ISLE OF MAN

### 2008 ENVIRONMENTAL NOTIFICATIONS

#### Carbon monoxide and volatile organic compounds emissions: five incidents

Emissions of carbon monoxide (CO) and volatile organic compounds (VOCs) rise when there is incomplete combustion. These losses of combustion control were mostly caused by problems with equipment.

- At start-up of the plant, the small amount of waste on the grate can affect combustion control. This is a difficulty common to EfW plants, which can result in high carbon monoxide levels for a short period, until control is established.
- On one occasion the deslagger was blocked by non-conforming waste, affecting combustion control. The deslagger is a water-filled chute with a hydraulic ram that removes the bottom ash from the furnace. Bottom ash falls into the chute and the ram pushes the bottom ash onto a conveyor system. Spot checks on incoming waste were increased to detect non-conforming waste and prevent it entering the waste pit.
- A prolonged crane failure left only a small amount of waste on the furnace grate, affecting combustion control. Waste loading resumed as soon as the crane was repaired.
- The plant protection system caused a plant shutdown, resulting in incomplete combustion of some waste in the furnace. While automatic cutoffs affect combustion control, the system is an important safety feature.
- A large delivery of tyres was not sufficiently mixed with the other, mostly municipal, waste in the pit after shredding. The higher calorific value of the tyre waste caused a rapid increase in furnace temperature and carbon monoxide increased.

#### Sulphur dioxide and hydrogen chloride emissions: eight incidents

- A series of daily sulphur dioxide exceedances were caused by high levels of raw sulphur dioxide in the flue gas. The extent of this problem was much reduced from its 2007 level due to the introduction of an improved procedure for mixing waste in the pit in September 2007.
- A large quantity of plastic frames was insufficiently mixed with other waste in the pit. Plastic has a relatively high chloride content, which is converted to hydrogen chloride in the furnace.
- Too much aeration during a quick-lime delivery caused problems with mixing batches of the lime milk used to neutralise sulphur dioxide and hydrogen chloride.



- An emergency shutdown of the plant occurred due to a steam leak from the steam drum pressure valve.
- The hydrogen chloride analyser on the secondary incinerator was giving false hydrogen chloride readings and had to be recalibrated.
- A fault occurred on the lime milk pump, stopping lime milk flow.
- A build-up of APCR in the spray absorber affected the efficiency of acid gas neutralisation. It occurred due to a fault on the level detection system, which has been repaired.
- Water built up in the analyser lines on the secondary incinerator causing false high hydrogen chloride readings.

#### Various emissions: four incidents

- Emissions of smoke were released from a fire in the waste pit. This was contained by the pit's firefighting system. The fire occurred deep under a mound of waste, causing it to re-ignite when the waste was mixed. An additional firefighting system, with water cannons at a lower level, will be installed to quench such fires more quickly. All water was contained within the pit and dispersed through the incineration process.
- There was a daily exceedance for oxides of nitrogen on the primary incinerator. This was investigated, but the cause is unknown.
- A high pH discharge to river occurred when the plant's recycled water tank overflowed. This was due to a large volume of water being released during 'blow-down' of the steam drum, when new water is introduced to maintain the purity of the steam within the turbine. A new continuous blowdown valve was fitted giving better control over the water flow.
- Water built up in the analyser lines on the secondary incinerator, causing false high readings for oxides of nitrogen.