

Table 15.1 Main Stack Emission, Physical Properties

Parameters	
Stack height	60 metres
Exit diameter	1.2 metres
Exit velocity	20 m s ⁻¹
Flue gas emission temperature	125 °C
Actual volumetric flow rate (Am ³ s ⁻¹)	82,800 Am ³ hr ⁻¹ = 23.0 Am ³ s ⁻¹
Standardised volumetric flow rate (Nm ³ s ⁻¹) ^(a)	56,085 Nm ³ hr ⁻¹ = 16.1 Nm ³ s ⁻¹

(a) Corrected for: temperature; 273K; pressure; 101.3kPa (1 atmosphere); dry; 11% v/v O₂

Table 15.2 shows the pollutants to be considered in the assessment together with emission concentrations and emission rates. The emission concentrations in Table 15.2 indicate upper limits of the likely emissions during normal operations. Routine emissions will on average be lower than those stated.

Table 15.2 Pollutants Emitted from the Main Stack

Pollutant	Concentration (mg Sm ⁻³) ^(a)	Emission Rate (g s ⁻¹)	Emission Rate (tonne year ⁻¹)
Oxides of nitrogen (NO _x as NO ₂)	200	3.23	102
Sulphur dioxide (SO ₂)	50	0.81	25
Particulate matter	10	0.16	5.1
Carbon monoxide	50	0.81	25
Hydrogen chloride (HCl)	10	0.16	5.1
Hydrogen fluoride (HF)	1	0.016	0.51
Total VOCs (as carbon)	10	0.16	5.1
Metals			
- Group 1-Cd + Tl ^(b)	0.05	0.00081	0.025
- Group 2-Hg ^(b)	0.05	0.00081	0.025
- Group 3 ^(b)	0.5	0.0081	0.25
Dioxins and furans (I-TEQ)	0.1 ng Sm ⁻³	0.00161 µg s ⁻¹	0.051 g year ⁻¹

(a) Corrected for: Temperature; 273 K; Pressure; 101.3 kPa (1 atmosphere); dry; 11% v/v O₂.
 (b) Groups 1-3 are terms used here for convenience, they reflect regulatory groups of metals. Group 1 metals are cadmium (Cd) and thallium (Tl), mercury (Hg) is in Group 2 and Group 3 metals include nickel (Ni), arsenic (As), lead (Pb), chromium (Cr), copper (Cu), manganese (Mn), Cobalt (Co), antimony (Sb), tin (Sn) and vanadium (V).

The issue of odour is discussed in Section 6. The odours emitted from the waste storage bunker are drawn in with the combustion air and destroyed. No emissions of odour are predicted during normal operation.

15.3 EMISSIONS TO SURFACE WATER

No potentially contaminated water will be released to surface water. Uncontaminated rain water will be passed through a 3-stage interceptor prior to being discharged to Petty's Brook.