

Annex D7

Thermal Oxidizer, Landfill
Gas Flare and Landfill Gas
Generator Stack Emission
Monitoring Results

Table D7.1 Thermal Oxidiser Stack Emission Monitoring Results

Parameters	Monitoring Results
NO ₂	1.34 gs ⁻¹
CO	<0.01 gs ⁻¹
SO ₂	<0.01 gs ⁻¹
Benzene	<2.0 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<1.4 x 10 ⁻⁴ gs ⁻¹
Exhaust gas velocity	11.3 ms ⁻¹

Table D7.2 Thermal Oxidiser Stack Continuous Monitoring Results

Date	Gas Combustion Temperature (°C)	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)
01 Mar 23	930	1233	
02 Mar 23	937	1239	
03 Mar 23	932	1230	
04 Mar 23	932	1239	
05 Mar 23	927	1230	
06 Mar 23	918	1214	
07 Mar 23	929	1237	
08 Mar 23	928	1231	
09 Mar 23	928	1233	
10 Mar 23	926	1233	
11 Mar 23	923	1233	
12 Mar 23	908	1222	
13 Mar 23	Under Maintenance		
14 Mar 23	Under Maintenance		
15 Mar 23	Under Maintenance		11.3
16 Mar 23	930	1232	
17 Mar 23	940	1235	
18 Mar 23	919	1188	
19 Mar 23	956	1240	
20 Mar 23	924	1213	
21 Mar 23	930	1212	
22 Mar 23	925	1209	
23 Mar 23	926	1215	
24 Mar 23	917	1212	
25 Mar 23	919	1213	
26 Mar 23	927	1212	
27 Mar 23	930	1207	
28 Mar 23	939	1212	
29 Mar 23	921	1211	
30 Mar 23	929	1218	
31 Mar 23	927	1216	
Average	928	1222	-
Min	908	1188	-
Max	956	1240	-

Notes:

(a) The exhaust gas velocity was calculated based on the cross-section area of the stack and the gas flow and combustion temperature data measured during the stack emission monitoring.

Table D7.3 Landfill Gas Flare Stack Emission Monitoring Results

Parameters	Monitoring Results (Flare 1 - F601)
NO ₂	0.02 gs ⁻¹
CO	<0.01 gs ⁻¹
SO ₂	<0.01 gs ⁻¹
Benzene	<9.5 x 10 ⁻⁵ gs ⁻¹
Vinyl chloride	<7.6 x 10 ⁻⁵ gs ⁻¹
Exhaust gas velocity	6.2 ms ⁻¹

Table D7.4 Landfill Gas Flare Stack Continuous Monitoring Results

Date	Gas Combustion Temperature (°C)	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
Flare 1 - F601				
01 Mar 23	923	1090		In Operation
02 Mar 23	954	1093		In Operation
03 Mar 23	880	1083		In Operation
04 Mar 23	958	1083		In Operation
05 Mar 23	980	1073		In Operation
06 Mar 23	915	1083		In Operation
07 Mar 23	934	1083		In Operation
08 Mar 23	940	1063		In Operation
09 Mar 23	-	-		Under Maintenance
10 Mar 23	910	1063		In Operation
11 Mar 23	920	1083		In Operation
12 Mar 23	940	1083		In Operation
13 Mar 23	960	1093		In Operation
14 Mar 23	980	1153	6.2	In Operation
15 Mar 23	920	1093		In Operation
16 Mar 23	990	1193		In Operation
17 Mar 23	990	1163		In Operation
18 Mar 23	970	1093		In Operation
19 Mar 23	940	1083		In Operation
20 Mar 23	950	1123		In Operation
21 Mar 23	900	1083		In Operation
22 Mar 23	880	1053		In Operation
23 Mar 23	870	1063		In Operation
24 Mar 23	890	1073		In Operation
25 Mar 23	940	1113		In Operation
26 Mar 23	950	1133		In Operation
27 Mar 23	960	1173		In Operation
28 Mar 23	930	1123		In Operation
29 Mar 23	950	1153		In Operation
30 Mar 23	970	1143		In Operation
31 Mar 23	900	1103		In Operation
Average	936	1103	-	
Min	870	1053	-	
Max	990	1193	-	
Flare 2 - F602				
01 Mar 23	990	1193		In Operation
02 Mar 23	905	1113		In Operation
03 Mar 23	930	1123		In Operation
04 Mar 23	910	1113		In Operation
05 Mar 23	900	1103		In Operation
06 Mar 23	910	1113		In Operation
07 Mar 23	920	1133		In Operation

Date	Gas Combustion Temperature (°C)	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
08 Mar 23	990	1193		In Operation
09 Mar 23	-	-		Under Maintenance
10 Mar 23	900	1103		In Operation
11 Mar 23	910	1113		In Operation
12 Mar 23	910	1123		In Operation
13 Mar 23	910	1103		In Operation
14 Mar 23	920	1133		In Operation
15 Mar 23	940	1143	6.2	In Operation
16 Mar 23	990	1193		In Operation
17 Mar 23	990	1203		In Operation
18 Mar 23	880	1113		In Operation
19 Mar 23	990	1183		In Operation
20 Mar 23	940	1163		In Operation
21 Mar 23	910	1143		In Operation
22 Mar 23	830	993		In Operation
23 Mar 23	910	1123		In Operation
24 Mar 23	930	1123		In Operation
25 Mar 23	940	1113		In Operation
26 Mar 23	950	1133		In Operation
27 Mar 23	990	1193		In Operation
28 Mar 23	950	1133		In Operation
29 Mar 23	930	1133		In Operation
30 Mar 23	870	1063		In Operation
31 Mar 23	860	1043		In Operation
Average	927	1128	-	
Min	830	993	-	
Max	990	1203	-	

Notes:

(a) The exhaust gas velocity was calculated based on the cross-section area of the stack and the gas flow and combustion temperature data measured during the stack emission monitoring.

Table D7.5 Landfill Gas Generator Stack Emission Monitoring Results

Parameters	Monitoring Results
NO ₂	0.079 gs ⁻¹
CO	0.942 gs ⁻¹
SO ₂	<0.001 gs ⁻¹
Benzene	9.7 × 10 ⁻⁵ gs ⁻¹
Vinyl chloride	<1.2 × 10 ⁻⁵ gs ⁻¹
Exhaust gas velocity	13.9 ms ⁻¹

(a) The Landfill Gas Generator was under maintenance in the reporting period.

Table D7.6 Landfill Gas Generator Stack Continuous Monitoring Results

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
ENGA			
01 Mar 23	871		In Operation
02 Mar 23	876		In Operation
03 Mar 23	873		In Operation
04 Mar 23	874		In Operation
05 Mar 23	875		In Operation
06 Mar 23	868		In Operation
07 Mar 23	877		In Operation
08 Mar 23	878		In Operation
09 Mar 23	879		In Operation
10 Mar 23	879		In Operation
11 Mar 23	881		In Operation
12 Mar 23	879		In Operation
13 Mar 23	875		In Operation
14 Mar 23	876	13.9	In Operation
15 Mar 23	877		In Operation
16 Mar 23	879		In Operation
17 Mar 23	-		Under Maintenance
18 Mar 23	-		Under Maintenance
19 Mar 23	-		Under Maintenance
20 Mar 23	874		In Operation
21 Mar 23	869		In Operation
22 Mar 23	869		In Operation
23 Mar 23	874		In Operation
24 Mar 23	875		In Operation
25 Mar 23	-		Under Maintenance
26 Mar 23	-		Under Maintenance
27 Mar 23	-		Under Maintenance
28 Mar 23	-		Under Maintenance
29 Mar 23	-		Under Maintenance
30 Mar 23	-		Under Maintenance
31 Mar 23	-		Under Maintenance
	Average 875	-	
	Min 868	-	
	Max 881	-	
ENGB			
01 Mar 23	-		Under Maintenance
02 Mar 23	-		Under Maintenance
03 Mar 23	-		Under Maintenance
04 Mar 23	-		Under Maintenance
05 Mar 23	-		Under Maintenance
06 Mar 23	-		Under Maintenance

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) ^(a)	Operation Status
07 Mar 23	-		Under Maintenance
08 Mar 23	-		Under Maintenance
09 Mar 23	-		Under Maintenance
10 Mar 23	-		Under Maintenance
11 Mar 23	-		Under Maintenance
12 Mar 23	-	13.9	Under Maintenance
13 Mar 23	-		Under Maintenance
14 Mar 23	-		Under Maintenance
15 Mar 23	-		Under Maintenance
16 Mar 23	-		Under Maintenance
17 Mar 23	867		In Operation
18 Mar 23	862		In Operation
19 Mar 23	863		In Operation
20 Mar 23	875		In Operation
21 Mar 23	-		Under Maintenance
22 Mar 23	-		Under Maintenance
23 Mar 23	-		Under Maintenance
24 Mar 23	870		In Operation
25 Mar 23	866		In Operation
26 Mar 23	864		In Operation
27 Mar 23	863		In Operation
28 Mar 23	859		In Operation
29 Mar 23	860		In Operation
30 Mar 23	859		In Operation
31 Mar 23	859		In Operation
Average	864	-	
Min	859	-	
Max	875	-	

Notes:

(a) The exhaust gas velocity was calculated based on the cross-section area of the stack and the gas flow and combustion temperature data measured during the stack emission monitoring.