

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	0.17 gs ⁻¹
CO	0.03 gs ⁻¹
SO ₂	0.79 gs ⁻¹
Benzene	<2.0 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<1.2 x 10 ⁻⁴ gs ⁻¹
Exhaust gas velocity	10.5 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)
1 Oct 23	909	1204	
2 Oct 23	900	1203	
3 Oct 23	909	1207	
4 Oct 23	943	1209	
5 Oct 23	924	1207	
6 Oct 23	924	1203	
7 Oct 23	924	1199	
8 Oct 23	926	1197	
9 Oct 23	926	1194	
10 Oct 23	926	1196	
11 Oct 23	927	1209	
12 Oct 23	926	1210	
13 Oct 23	926	1206	
14 Oct 23	927	1204	
15 Oct 23	925	1202	
16 Oct 23	923	1197	10.5
17 Oct 23	926	1195	
18 Oct 23	924	1197	
19 Oct 23	923	1200	
20 Oct 23	924	1200	
21 Oct 23	925	1199	
22 Oct 23	925	1200	
23 Oct 23	926	1202	
24 Oct 23	928	1201	
25 Oct 23	927	1203	
26 Oct 23		Under Maintenance	
27 Oct 23		Under Maintenance	
28 Oct 23		Under Maintenance	
29 Oct 23	925	1192	
30 Oct 23	924	1197	
31 Oct 23	925	1200	
Average	924	1201	-
Min	900	1192	-
Max	943	1210	-

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	0.38 gs ⁻¹
SO ₂	<0.01 gs ⁻¹
Benzene	<3.03 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<7.9 x 10 ⁻⁵ gs ⁻¹
Exhaust gas velocity	5.8 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				
1 Oct 23	824	1041		In Operation
2 Oct 23	827	1063		In Operation
3 Oct 23	830	1067		In Operation
4 Oct 23	832	1070		In Operation
5 Oct 23	834	1073		In Operation
6 Oct 23	836	1076		In Operation
7 Oct 23	838	1079		In Operation
8 Oct 23	840	1083		In Operation
9 Oct 23	843	1087		In Operation
10 Oct 23	845	1091		In Operation
11 Oct 23	848	1095		In Operation
12 Oct 23	852	1100		In Operation
13 Oct 23	856	1107		In Operation
14 Oct 23	860	1113		In Operation
15 Oct 23	868	1102	5.8	In Operation
16 Oct 23	860	1125		In Operation
17 Oct 23	861	1113		In Operation
18 Oct 23	859	1124		In Operation
19 Oct 23	857	1116		In Operation
20 Oct 23	868	1100		In Operation
21 Oct 23	854	1115		In Operation
22 Oct 23	864	1013		In Operation
23 Oct 23	868	1112		In Operation
24 Oct 23	850	1109		In Operation
25 Oct 23	854	1086		In Operation
26 Oct 23	850	1106		In Operation
27 Oct 23	833	1075		In Operation
28 Oct 23	959	1199		In Operation
29 Oct 23	837	1093		In Operation
30 Oct 23	857	1120		In Operation
31 Oct 23	848	1116		In Operation
Average	852	1096	-	
Min	824	1013	-	
Max	959	1199	-	
Flare 2 - F602				
1 Oct 23	936	1061		In Operation
2 Oct 23	845	1089		In Operation
3 Oct 23	899	1120		In Operation
4 Oct 23	908	1115		In Operation
5 Oct 23	913	1117		In Operation
6 Oct 23	917	1122		In Operation

Date	Gas Combustion Temperature (°C)	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
7 Oct 23	913	1137		In Operation
8 Oct 23	894	1116		In Operation
9 Oct 23	921	1140		In Operation
10 Oct 23	920	1150		In Operation
11 Oct 23	923	1152		In Operation
12 Oct 23	909	1140		In Operation
13 Oct 23	921	1143		In Operation
14 Oct 23	914	1159		In Operation
15 Oct 23	904	1123	5.8	In Operation
16 Oct 23	935	1060		In Operation
17 Oct 23	842	1086		In Operation
18 Oct 23	900	1121		In Operation
19 Oct 23	911	1118		In Operation
20 Oct 23	912	1116		In Operation
21 Oct 23	914	1119		In Operation
22 Oct 23	914	1138		In Operation
23 Oct 23	897	1119		In Operation
24 Oct 23	920	1139		In Operation
25 Oct 23	917	1147		In Operation
26 Oct 23	924	1153		In Operation
27 Oct 23	912	1143		In Operation
28 Oct 23	920	1142		In Operation
29 Oct 23	911	1156		In Operation
30 Oct 23	905	1124		In Operation
31 Oct 23	903	1112		In Operation
Average	909	1125	-	
Min	842	1060	-	
Max	936	1159	-	

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	0.06 gs ⁻¹
CO	1.08 gs ⁻¹
SO ₂	<0.001 gs ⁻¹
Benzene	4.0 x 10 ⁻⁵ gs ⁻¹
Vinyl chloride	<1.06 x 10 ⁻⁵ gs ⁻¹
Exhaust gas velocity	11.6 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			
1 Oct 23	843		In Operation
2 Oct 23	843		In Operation
3 Oct 23	844		In Operation
4 Oct 23	841		In Operation
5 Oct 23	841		In Operation
6 Oct 23	840		In Operation
7 Oct 23	837		In Operation
8 Oct 23	841		In Operation
9 Oct 23	-		Under Maintenance
10 Oct 23	-		Under Maintenance
11 Oct 23	-		Under Maintenance
12 Oct 23	-		Under Maintenance
13 Oct 23	-		Under Maintenance
14 Oct 23	-		Under Maintenance
15 Oct 23	-		Under Maintenance
16 Oct 23	-	11.6	Under Maintenance
17 Oct 23	-		Under Maintenance
18 Oct 23	-		Under Maintenance
19 Oct 23	843		In Operation
20 Oct 23	841		In Operation
21 Oct 23	842		In Operation
22 Oct 23	838		In Operation
23 Oct 23	875		In Operation
24 Oct 23	877		In Operation
25 Oct 23	879		In Operation
26 Oct 23	879		In Operation
27 Oct 23	879		In Operation
28 Oct 23	879		In Operation
29 Oct 23	879		In Operation
30 Oct 23	880		In Operation
31 Oct 23	882		In Operation
	Average 857	-	
	Min 837	-	
	Max 882	-	
ENGB			
1 Oct 23	840		In Operation
2 Oct 23	840		In Operation
3 Oct 23	842		In Operation
4 Oct 23	839		In Operation

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
5 Oct 23	838		In Operation
6 Oct 23	838		In Operation
7 Oct 23	836		In Operation
8 Oct 23	840		In Operation
9 Oct 23	866		In Operation
10 Oct 23	854		In Operation
11 Oct 23	864		In Operation
12 Oct 23	864		In Operation
13 Oct 23	863		In Operation
14 Oct 23	866		In Operation
15 Oct 23	867		In Operation
16 Oct 23	867	11.6	In Operation
17 Oct 23	868		In Operation
18 Oct 23	872		In Operation
19 Oct 23	844		In Operation
20 Oct 23	843		In Operation
21 Oct 23	870		In Operation
22 Oct 23	840		In Operation
23 Oct 23	-		Under Maintenance
24 Oct 23	-		Under Maintenance
25 Oct 23	-		Under Maintenance
26 Oct 23	-		Under Maintenance
27 Oct 23	-		Under Maintenance
28 Oct 23	-		Under Maintenance
29 Oct 23	-		Under Maintenance
30 Oct 23	-		Under Maintenance
31 Oct 23	-		Under Maintenance
Average	853	-	
Min	836	-	
Max	872	-	

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.