

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	0.92 gs ⁻¹
CO	0.02 gs ⁻¹
SO ₂	<0.01 gs ⁻¹
Benzene	<1.0 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<7.0 x 10 ⁻⁵ gs ⁻¹
Exhaust gas velocity	5.8 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-Jul-23	938	1223	
2-Jul-23	916	1208	
3-Jul-23	944	1228	
4-Jul-23	902	1204	
5-Jul-23	919	1213	
6-Jul-23	929	1222	
7-Jul-23	933	1219	
8-Jul-23	896	1183	
9-Jul-23	910	1216	
10-Jul-23	905	1211	
11-Jul-23	951	1225	
12-Jul-23	950	1228	
13-Jul-23	941	1228	
14-Jul-23	932	1224	
15-Jul-23	935	1230	
16-Jul-23	914	1217	5.8
17-Jul-23	901	1213	
18-Jul-23	906	1208	
19-Jul-23	913	1209	
20-Jul-23	871	1194	
21-Jul-23		Under Maintenance	
22-Jul-23	926	1223	
23-Jul-23	915	1206	
24-Jul-23	886	1198	
25-Jul-23	929	1219	
26-Jul-23	925	1219	
27-Jul-23	948	1222	
28-Jul-23	926	1212	
29-Jul-23	959	1225	
30-Jul-23	934	1215	
31-Jul-23	912	1206	
Average	922	1215	-
Min	871	1183	-
Max	959	1230	-

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	0.04 gs ⁻¹
SO ₂	0.03 gs ⁻¹
Benzene	1.34 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<1.07 x 10 ⁻⁴ gs ⁻¹
Exhaust gas velocity	8.5 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-Jul-23	870	1117		In Operation
2-Jul-23	870	1093		In Operation
3-Jul-23	860	1113		In Operation
4-Jul-23	880	1113		In Operation
5-Jul-23	840	1083		In Operation
6-Jul-23	880	1143		In Operation
7-Jul-23	870	1123		In Operation
8-Jul-23	880	1113		In Operation
9-Jul-23	860	1063		In Operation
10-Jul-23	880	1043		In Operation
11-Jul-23	860	1043		In Operation
12-Jul-23	880	1053		In Operation
13-Jul-23	840	1023		In Operation
14-Jul-23	830	1043		In Operation
15-Jul-23	820	1053		In Operation
16-Jul-23	880	1113	8.5	In Operation
17-Jul-23	830	1043		In Operation
18-Jul-23	860	1033		In Operation
19-Jul-23	870	1053		In Operation
20-Jul-23	930	1063		In Operation
21-Jul-23	880	1053		In Operation
22-Jul-23	880	1053		In Operation
23-Jul-23	830	1023		In Operation
24-Jul-23	870	1033		In Operation
25-Jul-23	850	1053		In Operation
26-Jul-23	860	1003		In Operation
27-Jul-23	860	1093		In Operation
28-Jul-23	860	1093		In Operation
29-Jul-23	920	1153		In Operation
30-Jul-23	910	1033		In Operation
31-Jul-23	870	1103		In Operation
Average	867	1072	-	
Min	820	1003	-	
Max	930	1153	-	
Flare 2 - F602				
1-Jul-23	880	1143		In Operation
2-Jul-23	840	1043		In Operation
3-Jul-23	830	1053		In Operation
4-Jul-23	860	1083		In Operation
5-Jul-23	860	1063		In Operation
6-Jul-23	840	1083		In Operation
7-Jul-23	880	1073		In Operation

Date	Gas Combustion Temperature (°C)	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
8-Jul-23	860	1093		In Operation
9-Jul-23	400	-		Under Maintenance
10-Jul-23	880	1113		In Operation
11-Jul-23	860	1093		In Operation
12-Jul-23	880	1103		In Operation
13-Jul-23	850	1083		In Operation
14-Jul-23	830	1053		In Operation
15-Jul-23	850	1083	8.5	In Operation
16-Jul-23	860	1083		In Operation
17-Jul-23	830	1053		In Operation
18-Jul-23	840	1083		In Operation
19-Jul-23	900	1123		In Operation
20-Jul-23	870	1063		In Operation
21-Jul-23	870	1123		In Operation
22-Jul-23	840	1083		In Operation
23-Jul-23	830	1073		In Operation
24-Jul-23	830	1053		In Operation
25-Jul-23	860	1083		In Operation
26-Jul-23	840	1093		In Operation
27-Jul-23	830	1063		In Operation
28-Jul-23	870	1093		In Operation
29-Jul-23	840	1053		In Operation
30-Jul-23	150	-		Under Maintenance
31-Jul-23	850	1093		In Operation
Average	854	1082	-	
Min	830	1043	-	
Max	900	1143	-	

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	0.032 gs ⁻¹
CO	0.678 gs ⁻¹
SO ₂	<0.001 gs ⁻¹
Benzene	3.4 x 10 ⁻⁵ gs ⁻¹
Vinyl chloride	<8.9 x 10 ⁻⁶ gs ⁻¹
Exhaust gas velocity	10.6 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-Jul-23	847		In Operation
2-Jul-23	848		In Operation
3-Jul-23	847		In Operation
4-Jul-23	847		In Operation
5-Jul-23	847		In Operation
6-Jul-23	846		In Operation
7-Jul-23	875		In Operation
8-Jul-23	846		In Operation
9-Jul-23	847		In Operation
10-Jul-23	846		In Operation
11-Jul-23	847		In Operation
12-Jul-23	846		In Operation
13-Jul-23	847		In Operation
14-Jul-23	846		In Operation
15-Jul-23	847		In Operation
16-Jul-23	846	10.6	In Operation
17-Jul-23	849		In Operation
18-Jul-23	845		In Operation
19-Jul-23	850		In Operation
20-Jul-23	-		Under Maintenance
21-Jul-23	-		Under Maintenance
22-Jul-23	844		In Operation
23-Jul-23	845		In Operation
24-Jul-23	843		In Operation
25-Jul-23	843		In Operation
26-Jul-23	843		In Operation
27-Jul-23	845		In Operation
28-Jul-23	848		In Operation
29-Jul-23	844		In Operation
30-Jul-23	843		In Operation
31-Jul-23	843		In Operation
Average	847	-	
Min	843	-	
Max	875	-	
ENGB			
1-Jul-23	844		In Operation
2-Jul-23	844		In Operation
3-Jul-23	843		In Operation
4-Jul-23	843		In Operation
5-Jul-23	845		In Operation
6-Jul-23	843		In Operation

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) ^(a)	Operation Status
7-Jul-23	-		Under Maintenance
8-Jul-23	842		In Operation
9-Jul-23	843		In Operation
10-Jul-23	843		In Operation
11-Jul-23	843		In Operation
12-Jul-23	842		In Operation
13-Jul-23	843	10.6	In Operation
14-Jul-23	842		In Operation
15-Jul-23	844		In Operation
16-Jul-23	842		In Operation
17-Jul-23	844		In Operation
18-Jul-23	841		In Operation
19-Jul-23	845		In Operation
20-Jul-23	870		In Operation
21-Jul-23	872		In Operation
22-Jul-23	842		In Operation
23-Jul-23	843		In Operation
24-Jul-23	842		In Operation
25-Jul-23	842		In Operation
26-Jul-23	842		In Operation
27-Jul-23	843		In Operation
28-Jul-23	846		In Operation
29-Jul-23	843		In Operation
30-Jul-23	842		In Operation
31-Jul-23	841		In Operation
Average	845	-	
Min	841	-	
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.