

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	0.28 gs ⁻¹
CO	<0.01 gs ⁻¹
SO ₂	0.07 gs ⁻¹
Benzene	<1.0 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<1.0 x 10 ⁻⁴ gs ⁻¹
Non-Methane Organic Carbons	<0.002 gs ⁻¹
Ammonia	0.0423 gs ⁻¹
Exhaust gas velocity	6.8 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-Nov-22	906	1125	
2-Nov-22	977	1270	
3-Nov-22	928	1200	
4-Nov-22	967	1266	
5-Nov-22	967	1254	
6-Nov-22	952	1236	
7-Nov-22	967	1250	
8-Nov-22	955	1240	
9-Nov-22	962	1247	
10-Nov-22	964	1251	
11-Nov-22	943	1232	
12-Nov-22	954	1241	
13-Nov-22	960	1246	
14-Nov-22	950	1236	
15-Nov-22	952	1239	
16-Nov-22	953	1240	6.8
17-Nov-22	957	1238	
18-Nov-22	933	1208	
19-Nov-22	945	1223	
20-Nov-22	964	1247	
21-Nov-22	938	1202	
22-Nov-22	939	1216	
23-Nov-22	923	1203	
24-Nov-22	925	1190	
25-Nov-22	930	1195	
26-Nov-22	910	1174	
27-Nov-22	953	1243	
28-Nov-22	950	1222	
29-Nov-22	935	1204	
30-Nov-22	928	1184	
Average	946	1224	-
Min	906	1125	-
Max	977	1270	-

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	1.27 gs ⁻¹
Benzene	<1.22 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<9.8 x 10 ⁻⁵ gs ⁻¹
Non-Methane Organic Carbons	<0.002 gs ⁻¹
Exhaust gas velocity	8.9 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 Nov 22	890	1050		In Operation
2 Nov 22	865	1068		In Operation
3 Nov 22	871	1030		In Operation
4 Nov 22	859	1063		In Operation
5 Nov 22	870	1079		In Operation
6 Nov 22	860	1063		In Operation
7 Nov 22	845	1073		In Operation
8 Nov 22	850	1073		In Operation
9 Nov 22	835	1053		In Operation
10 Nov 22	830	1063		In Operation
11 Nov 22	860	1033		In Operation
12 Nov 22	860	1063		In Operation
13 Nov 22	830	1063		In Operation
14 Nov 22	830	1053		In Operation
15 Nov 22	860	1043	8.9	In Operation
16 Nov 22	860	1073		In Operation
17 Nov 22	850	1073		In Operation
18 Nov 22	870	1063		In Operation
19 Nov 22	840	1033		In Operation
20 Nov 22	850	1093		In Operation
21 Nov 22	850	1053		In Operation
22 Nov 22	850	1073		In Operation
23 Nov 22	-	-		Under Maintenance
24 Nov 22	-	-		Under Maintenance
25 Nov 22	890	1083		In Operation
26 Nov 22	820	1073		In Operation
27 Nov 22	880	1083		In Operation
28 Nov 22	870	1093		In Operation
29 Nov 22	880	1073		In Operation
30 Nov 22	850	1053		In Operation
Average	856	1064	-	
Min	820	1030	-	
Max	890	1093	-	
Flare 2 - F602				
1 Nov 22	840	1061		In Operation
2 Nov 22	890	1049		In Operation
3 Nov 22	880	1073		In Operation
4 Nov 22	890	1053		In Operation
5 Nov 22	850	1113		In Operation
6 Nov 22	850	1123		In Operation
7 Nov 22	890	1073		In Operation

Date	Gas Combustion Temperature (°C)	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
8 Nov 22	860	1083		In Operation
9 Nov 22	850	1123		In Operation
10 Nov 22	840	1073		In Operation
11 Nov 22	860	1063		In Operation
12 Nov 22	870	1083		In Operation
13 Nov 22	870	1053		In Operation
14 Nov 22	840	1093		In Operation
15 Nov 22	820	1088	8.9	In Operation
16 Nov 22	870	1073		In Operation
17 Nov 22	880	1053		In Operation
18 Nov 22	870	1093		In Operation
19 Nov 22	830	1113		In Operation
20 Nov 22	820	1083		In Operation
21 Nov 22	850	1073		In Operation
22 Nov 22	840	1063		In Operation
23 Nov 22	830	1093		In Operation
24 Nov 22	860	1083		In Operation
25 Nov 22	850	1073		In Operation
26 Nov 22	820	1083		In Operation
27 Nov 22	850	1063		In Operation
28 Nov 22	880	1063		In Operation
29 Nov 22	830	1043		In Operation
30 Nov 22	830	1093		In Operation
Average	854	1077	-	
Min	820	1033	-	
Max	890	1123	-	

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	0.01 gs ⁻¹
CO	0.429 gs ⁻¹
SO ₂	<0.001 gs ⁻¹
Benzene	<1.6 x 10 ⁻⁵ gs ⁻¹
Vinyl chloride	<1.28 x 10 ⁻⁵ gs ⁻¹
Non-Methane Organic Carbons	<3.0 x 10 ⁻⁴ gs ⁻¹
Exhaust gas velocity	11.6 ms ⁻¹

Table D7.6 Landfill Gas Generator Stack Continuous Monitoring Results

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status (Landfill Gas Generator in Operation)
01-Nov-22	-		Under Maintenance
02-Nov-22	-		Under Maintenance
03-Nov-22	-		Under Maintenance
04-Nov-22	-		Under Maintenance
05-Nov-22	-		Under Maintenance
06-Nov-22	-		Under Maintenance
07-Nov-22	-		Under Maintenance
08-Nov-22	-		Under Maintenance
09-Nov-22	-		Under Maintenance
10-Nov-22	-		Under Maintenance
11-Nov-22	-		Under Maintenance
12-Nov-22	893		In Operation (ENGA)
13-Nov-22	892		In Operation (ENGA)
14-Nov-22	892		In Operation (ENGA)
15-Nov-22	890	11.6	In Operation (ENGA)
16-Nov-22	895		In Operation (ENGA)
17-Nov-22	896		In Operation (ENGA)
18-Nov-22	903		In Operation (ENGA)
19-Nov-22	916		In Operation (ENGA)
20-Nov-22	906		In Operation (ENGA)
21-Nov-22	907		In Operation (ENGA)
22-Nov-22	955		In Operation (ENGA)
23-Nov-22	-		Under Maintenance
24-Nov-22	-		Under Maintenance
25-Nov-22	-		Under Maintenance
26-Nov-22	-		Under Maintenance
27-Nov-22	-		Under Maintenance
28-Nov-22	-		Under Maintenance
29-Nov-22	-		Under Maintenance
30-Nov-22	-		Under Maintenance
Average	904	-	
Min	890	-	
Max	955	-	
01-Nov-22	883		In Operation (ENGB)
02-Nov-22	882		In Operation (ENGB)
03-Nov-22	893		In Operation (ENGB)
04-Nov-22	892		In Operation (ENGB)
05-Nov-22	892		In Operation (ENGB)
06-Nov-22	898		In Operation (ENGB)
07-Nov-22	910		In Operation (ENGB)
08-Nov-22	910		In Operation (ENGB)
09-Nov-22	903		In Operation (ENGB)

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status (Landfill Gas Generator in Operation)
10-Nov-22	917		In Operation (ENGB)
11-Nov-22	915		In Operation (ENGB)
12-Nov-22	907	11.6	In Operation (ENGB)
13-Nov-22	893		In Operation (ENGB)
14-Nov-22	890		In Operation (ENGB)
15-Nov-22	892		In Operation (ENGB)
16-Nov-22	890		In Operation (ENGB)
17-Nov-22	886		In Operation (ENGB)
18-Nov-22	893		In Operation (ENGB)
19-Nov-22	897		In Operation (ENGB)
20-Nov-22	880		In Operation (ENGB)
21-Nov-22	880		In Operation (ENGB)
22-Nov-22	914		In Operation (ENGB)
23-Nov-22	908		In Operation (ENGB)
24-Nov-22	909		In Operation (ENGB)
25-Nov-22	910		In Operation (ENGB)
26-Nov-22	896		In Operation (ENGB)
27-Nov-22	904		In Operation (ENGB)
28-Nov-22	901		In Operation (ENGB)
29-Nov-22	-		Under Maintenance
30-Nov-22	-		Under Maintenance
Average	898	-	
Min	880	-	
Max	917	-	

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.