



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	1.03 gs ⁻¹
CO	0.02 gs ⁻¹
SO ₂	<0.01 gs ⁻¹
Benzene	<2.0 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<1.1 x 10 ⁻⁴ gs ⁻¹
Non-Methane Organic Carbons	<0.002 gs ⁻¹
Ammonia	0.0278 gs ⁻¹
Exhaust gas velocity	8.5 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 Nov 24	901	1195	8.5
2 Nov 24	899	1194	
3 Nov 24	902	1196	
4 Nov 24	903	1199	
5 Nov 24	908	1201	
6 Nov 24	915	1196	
7 Nov 24	896	1194	
8 Nov 24	905	1194	
9 Nov 24	899	1194	
10 Nov 24	901	1195	
11 Nov 24	899	1188	
12 Nov 24	904	1197	
13 Nov 24	900	1197	
14 Nov 24	902	1200	
15 Nov 24	899	1200	
16 Nov 24	902	1201	
17 Nov 24	901	1200	
18 Nov 24	900	1198	
19 Nov 24	897	1191	
20 Nov 24	900	1191	
21 Nov 24	901	1192	
22 Nov 24	900	1192	
23 Nov 24	900	1192	
24 Nov 24	901	1192	
25 Nov 24	899	1192	
26 Nov 24	900	1190	
27 Nov 24	903	1188	
28 Nov 24	897	1183	
29 Nov 24	902	1179	
30 Nov 24	901	1182	
Average	901	1193	-
Min	896	1179	-
Max	915	1201	-

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
NO ₂	0.07 gs ⁻¹
CO	1.95 gs ⁻¹
SO ₂	<0.01 gs ⁻¹
Benzene	<1.39 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<1.1 x 10 ⁻⁴ gs ⁻¹
Non-Methane Organic Carbons	0.01 gs ⁻¹
Exhaust gas velocity	8.2 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				
1 Nov 24	829	1085	8.2	In Operation
2 Nov 24	860	1114		In Operation
3 Nov 24	847	1105		In Operation
4 Nov 24	849	1102		In Operation
5 Nov 24	862	1116		In Operation
6 Nov 24	871	1129		In Operation
7 Nov 24	846	1101		In Operation
8 Nov 24	859	1112		In Operation
9 Nov 24	880	1134		In Operation
10 Nov 24	837	1093		In Operation
11 Nov 24	858	1116		In Operation
12 Nov 24	866	1123		In Operation
13 Nov 24	880	1137		In Operation
14 Nov 24	825	1083		In Operation
15 Nov 24	833	1087		In Operation
16 Nov 24	828	1086		In Operation
17 Nov 24	857	1111		In Operation
18 Nov 24	845	1098		In Operation
19 Nov 24	849	1107		In Operation
20 Nov 24	859	1116		In Operation
21 Nov 24	863	1120		In Operation
22 Nov 24	881	1135		In Operation
23 Nov 24	844	1098		In Operation
24 Nov 24	861	1119		In Operation
25 Nov 24	878	1133		In Operation
26 Nov 24	838	1092		In Operation
27 Nov 24	859	1115		In Operation
28 Nov 24	866	1124		In Operation
29 Nov 24	878	1136		In Operation
30 Nov 24	824	1081		In Operation
Average	854	1110	-	
Min	824	1081	-	
Max	881	1137	-	

Date	Gas Combustion Temperature (°C)	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) (a)	Operation Status
Flare 2 – F602				
1 Nov 24	862	1115	8.2	In Operation
2 Nov 24	871	1119		In Operation
3 Nov 24	873	1129		In Operation
4 Nov 24	887	1145		In Operation
5 Nov 24	874	1117		In Operation
6 Nov 24	885	1130		In Operation
7 Nov 24	864	1117		In Operation
8 Nov 24	904	1159		In Operation
9 Nov 24	893	1151		In Operation
10 Nov 24	858	1116		In Operation
11 Nov 24	908	1162		In Operation
12 Nov 24	905	1158		In Operation
13 Nov 24	887	1143		In Operation
14 Nov 24	881	1139		In Operation
15 Nov 24	924	1179		In Operation
16 Nov 24	862	1120		In Operation
17 Nov 24	862	1115		In Operation
18 Nov 24	872	1128		In Operation
19 Nov 24	890	1144		In Operation
20 Nov 24	865	1120		In Operation
21 Nov 24	882	1135		In Operation
22 Nov 24	903	1157		In Operation
23 Nov 24	892	1150		In Operation
24 Nov 24	880	1133		In Operation
25 Nov 24	908	1164		In Operation
26 Nov 24	904	1157		In Operation
27 Nov 24	887	1145		In Operation
28 Nov 24	881	1135		In Operation
29 Nov 24	922	1177		In Operation
30 Nov 24	863	1117		In Operation
Average	885	1139	-	
Min	858	1115	-	
Max	924	1179	-	

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	0.093 gs ⁻¹
CO	1.013 gs ⁻¹
SO ₂	<0.001 gs ⁻¹
Benzene	1.11 x 10 ⁻⁴ gs ⁻¹
Vinyl chloride	<1.11 x 10 ⁻⁵ gs ⁻¹
Non-Methane Organic Carbons	0.0056 gs ⁻¹
Exhaust gas velocity	11.7 ms ⁻¹

TABLE D7.6 LANDFILL GAS GENERATOR STACK CONTINUOUS MONITORING RESULTS

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) ^(a)	Operation Status
ENGA			
1 Nov 24	876	11.7	In Operation
2 Nov 24	880		In Operation
3 Nov 24	882		In Operation
4 Nov 24	883		In Operation
5 Nov 24	-		Under Maintenance
6 Nov 24	-		Under Maintenance
7 Nov 24	-		Under Maintenance
8 Nov 24	-		Under Maintenance
9 Nov 24	-		Under Maintenance
10 Nov 24	-		Under Maintenance
11 Nov 24	-		Under Maintenance
12 Nov 24	-		Under Maintenance
13 Nov 24	-		Under Maintenance
14 Nov 24	-		Under Maintenance
15 Nov 24	-		Under Maintenance
16 Nov 24	-		Under Maintenance
17 Nov 24	-		Under Maintenance
18 Nov 24	-		Under Maintenance
19 Nov 24	-		Under Maintenance
20 Nov 24	-		Under Maintenance
21 Nov 24	-		Under Maintenance
22 Nov 24	-		Under Maintenance
23 Nov 24	-		Under Maintenance
24 Nov 24	-		Under Maintenance
25 Nov 24	-		Under Maintenance
26 Nov 24	-		Under Maintenance
27 Nov 24	-		Under Maintenance
28 Nov 24	-		Under Maintenance
29 Nov 24	-		Under Maintenance
30 Nov 24	-		Under Maintenance
Average	880	-	
Min	876	-	
Max	883	-	

Date	Exhaust Temperature (K)	Exhaust Gas Velocity (ms ⁻¹) ^(a)	Operation Status
ENGB			
1 Nov 24	-	11.7	Under Maintenance
2 Nov 24	-		Under Maintenance
3 Nov 24	-		Under Maintenance
4 Nov 24	870		In Operation
5 Nov 24	871		In Operation
6 Nov 24	869		In Operation
7 Nov 24	868		In Operation
8 Nov 24	871		In Operation
9 Nov 24	871		In Operation
10 Nov 24	872		In Operation
11 Nov 24	871		In Operation
12 Nov 24	872		In Operation
13 Nov 24	874		In Operation
14 Nov 24	875		In Operation
15 Nov 24	876		In Operation
16 Nov 24	875		In Operation
17 Nov 24	876		In Operation
18 Nov 24	874		In Operation
19 Nov 24	872		In Operation
20 Nov 24	871		In Operation
21 Nov 24	875		In Operation
22 Nov 24	879		In Operation
23 Nov 24	890		In Operation
24 Nov 24	898		In Operation
25 Nov 24	901		In Operation
26 Nov 24	895		In Operation
27 Nov 24	896		In Operation
28 Nov 24	-		Under Maintenance
29 Nov 24	860		In Operation
30 Nov 24	863		In Operation
Average	876	-	
Min	860	-	
Max	901	-	

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.