

## Appendix 7.7: Predicted Concentrations at BAT Conclusions Emissions Levels

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### BAT Conclusions

7.7.1 The plant would be designed and operated in accordance with the ‘*Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusion, under Directive 2010/75/EU of the European Parliament and of the Council for waste incineration*’, hereafter referred to as ‘BAT conclusions’. The BAT conclusions establish emission levels associated with best available techniques (BAT-AELs) and are provided in Table 10.7.1.

**Table 10.7.1: BAT-Associated Emission Levels (BAT-AELs)**

Pollutant	BAT-AELs (mg.Nm <sup>3</sup> )
Particles	5
Hydrogen chloride (HCl)	6
Hydrogen fluoride (HF)	1
Sulphur dioxide (SO <sub>2</sub> )	30
Nitrogen oxides (NO <sub>x</sub> )	120
Carbon monoxide (CO)	50
Group 1 metals <sup>(a)</sup>	0.02 (d)
Group 2 metals <sup>(b)</sup>	0.02 (d)
Group 3 metals <sup>(c)</sup>	0.3 (d)
Dioxins and furans	0.00000004 (e)
PCBs	0.00000006 (d)
PAHs	0.003 (d)
Ammonia	10

All concentrations are referenced to temperature 273 K, pressure 101.3 kPa, 11% oxygen, dry gas.

(a) Cadmium (Cd) and thallium (Tl).

(b) Mercury (Hg).

(c) Antimony (Sb), arsenic (As), lead (Pb), chromium (Cr), cobalt (Co), copper (Cu), manganese (Mn), nickel (Ni), and vanadium (V).

(d) All average values over a sample period of a minimum of 30 minutes and a maximum of 8 hours.

(e) Average values over a sample period of a minimum of 6 hours and a maximum of 8 hours. The emission limit value refers to the total concentration of dioxins and furans calculated using the concept of toxic equivalence (TEQ).

### Assessment of Operational Effects

7.7.2 For each of the five years of meteorological data (2011 to 2015), the maximum predicted ground-level concentration using the BAT-AELs across the modelled domain has been derived for each substance and is reported below.

7.7.3 Table 10.7.2 summarises the PCs and the resulting PECs for all pollutants.

**Table 10.7.2: Maximum Process Contributions and Predicted Environmental Concentrations ( $\mu\text{g.m}^{-3}$ ) at BAT-AELs**

Pollutant	Averaging Period	EAL ( $\mu\text{g.m}^{-3}$ )	Max PC ( $\mu\text{g.m}^{-3}$ )	Max PC as % of EAL	Criteria (%)	AC ( $\mu\text{g.m}^{-3}$ )	PEC ( $\mu\text{g.m}^{-3}$ )	PC is Potentially Significant?	PEC is Potentially Significant?
PM <sub>10</sub>	24 hour (90.41st percentile)	50	0.1	0	10	24.0	24.1	No	-
	24 hour (annual mean)	40	0.02	0	1	24.0	24.0	No	-
PM <sub>2.5</sub>	24 hour (annual mean)	25	0.02	0	1	11.0	11.0	No	-
HCl	1 hour (maximum)	750	0.8	0	10	0.4	1.1	No	-
HF	1 hour (maximum)	160	0.1	0	10	2.5	2.6	No	-
SO <sub>2</sub>	15 minute (99.90th percentile)	266	2.9	1	10	3.1	6.0	No	-
	1 hour (99.73th percentile)	350	2.3	1	10	3.1	5.4	No	-
	24 hour (99.18th percentile)	125	0.7	1	10	3.1	3.9	No	-
	1 hour (annual mean)	50	0.1	0	1	1.6	1.7	No	-
NO <sub>2</sub>	1 hour (99.79th percentile)	200	3.5	2	10	23.8	27.3	No	-
	1 hour (annual mean)	40	0.3	1	1	11.9	12.2	No	-
CO	8 hour (maximum daily running)	10,000	4.6	0	10	500.0	504.6	No	-
Cd	1 hour (annual mean)	0.005	0.0001	2	10	0.00025	0.00033	No	-
Tl	1 hour (maximum)	30	0.0026	0	10	-	-	No	-
	1 hour (annual mean)	1	0.0001	0	1	-	-	No	-
Hg	1 hour (maximum)	7.5	0.0026	0	10	0.00247	0.00504	No	-
	1 hour (annual mean)	0.25	0.0001	0	1	0.00247	0.00255	No	-
Sb	1 hour (maximum)	150	0.0385	0	10	-	-	No	-
	1 hour (annual mean)	5	0.0012	0	1	-	-	No	-
As	1 hour (annual mean)	0.003	0.0012	40	1	0.00099	0.00219	Yes	No
Cr	1 hour (maximum)	150	0.0385	0	10	0.00430	0.04278	No	-
	1 hour (annual mean)	5	0.0012	0	1	0.00430	0.00550	No	-
Co	1 hour (maximum)	6	0.0385	1	10	0.00012	0.03860	No	-
	1 hour (annual mean)	0.2	0.0012	1	1	0.00012	0.00132	No	-
Cu	1 hour (maximum)	200	0.0385	0	10	0.01553	0.05401	No	-
	1 hour (annual mean)	10	0.0012	0	1	0.01553	0.01673	No	-
Pb	1 hour (annual mean)	0.25	0.0012	0	1	0.01124	0.01244	No	-
Mn	1 hour (maximum)	1500	0.0385	0	10	0.00569	0.04417	No	-
	1 hour (annual mean)	0.15	0.0012	1	1	0.00569	0.00689	No	-
Ni	1 hour (annual mean)	0.02	0.0012	6	1	0.00088	0.00208	Yes	No
V	1 hour (maximum)	5	0.0385	1	10	0.00100	0.03948	No	-
	1 hour (annual mean)	1	0.0012	0	1	0.00100	0.00220	No	-
Dioxins & Furans	1 hour (annual mean)	-	1.60E-10		1	2.67E-08	2.69E-08	-	-
PAHs	1 hour (annual mean)	2.50E-04	1.20E-05	5	1	2.30E-04	2.40E-04	Yes	No

Pollutant	Averaging Period	EAL ( $\mu\text{g}\cdot\text{m}^{-3}$ )	Max PC ( $\mu\text{g}\cdot\text{m}^{-3}$ )	Max PC as % of EAL	Criteria (%)	AC ( $\mu\text{g}\cdot\text{m}^{-3}$ )	PEC ( $\mu\text{g}\cdot\text{m}^{-3}$ )	PC is Potentially Significant?	PEC is Potentially Significant?
PCB	1 hour (annual mean)	0.2	2.39E-10	0	1	6.44E-05	6.44E-05	No	-

7.7.4 The PC is below 1% of 10% of the EAL at all pollutants except As, Ni and PAHs. When the PC is added to the AC, the resulting PEC is below the relevant EAL. On that basis, the impacts are therefore not considered significant.