Memo Report

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Response to Request for Information Notice

1.1 This note sets out the additional information requested by Calderdale Council in their Request for Information Notice dated 27th March 2024 for the Small Waste Incineration Plant (SWIP) at Calder Valley Skip Hire (CVSH) (EP Permit application ref: S13/006).

1.2 Table 1 sets out the additional information requested by the council and our response.

Table 1: Summary of Additional Information

Information to be supplied to council	Response
1. Confirm that the modelled dimensions and associated stack parameters including height, diameter and efflux velocity match the actual installed stack.	The applicant has confirmed that the built stack diameter and heights is 0.4 m and 12 m respectively. This matches what was modelled in the air quality assessment. The efflux velocity (m/s) is calculated from the stack diameter (m) and the volumetric flow (m^3/s). These were agreed with the technology provider, inciner8, in 2018. Whilst it is not the case, if the stack diameter was smaller, the efflux velocity would be higher which would increase the momentum of the efflux air. This would increase the height of the plume and therefore increase dispersion.
2. Additional information on the inputs for Ammonia, PCDs and Polyaromatic Hydrocarbons should be clarified as to whether the later version of the BAT reference document would lead to any changes in assumptions around modelling in the applicant's air quality consultant's opinion.	The BAT conclusions do not apply to the development and the SWIP will meet the emission limits set out in the permit.
3. The assessment has used an ambient concentration of Benzene but has not specified where this is from. It is assumed that this data has come from the 2001 background maps available on UK-Air but this must be confirmed.	The data has come from the Defra 2001 background map.
4. The additional assessment has only completed sensitivity test modelling using NWP for NO_2 concentrations, though the previous assessment work has identified	The sensitivity test using NWP data was not requested by the council or by either of the inspectors and has only been volunteered on behalf of the applicant to provide even more assurance that the impacts are not significant.

risks from multiple different pollutants. Further assessment of Arsenic in this sensitivity test would give greater confidence that the assessment of other pollutants of risk is aligned with the findings of the additional assessment of NO_2.	The sensitivity test using NWP meteorological data focussed on NO_2 as this was the pollutant of most concern throughout the planning appeal (see paragraph 28 of the Appeal Decisions dated 4 February 2020) and the council's position in this respect did not change during the permitting appeal. Nevertheless, the maximum predicted concentrations across the modelled grid for the rest of the pollutants are summarised in the following section. For ease of comparison, in each of the Tables set out below, the maximum PC from Table 5.3 of the 2019 Additional Air Quality Assessment (using meteorological data) is presented in the fourth column. The results using NWP data are not materially different. As was the case in the 2019 assessment, the effects are considered to be not significant.

Scenario 1: Short-Term IED Emission Limit Values

1.3 Table 2 summarises the maximum predicted Process Contribution (PC) to ground-level concentrations for all relevant pollutants with short-term emission limit values set out in the IED. The resulting Predicted Environmental Concentrations (PECs) have been calculated by adding the PC to the background Ambient Concentration (AC). The maximum PC and PEC for all points over the modelled grid are shown. The PEC for each pollutant has then compared with the relevant Environmental Assessment Levels (EALs). Where the PC is considered potentially significant, the PEC has been considered.

Scenario 2: Long-Term IED Emission Limit Values

1.4 Table 3 summarises the PCs and the resulting PECs for all pollutants assuming that the proposed development is operating at long-term emission limit values.

Table 2 Predicted Maximum Process Contribution at Short-Term Emission Limit Values – Results Across the Modelled Grid

Pollutant	Averaging Period	EAL ($\mu g.m^{-3}$)	Max PC from Table 5.3 of 2019 Assessment ($\mu g.m^{-3}$)	Max PC ($\mu g.m^{-3}$)	Max PC as % of EAL	Criteria (%)	AC ($\mu g.m^{-3}$)	PEC ($\mu g.m^{-3}$)	Is PC Potentially Significant?	Is PEC Potentially Significant?
HCl	1 hour (maximum)	750	132.0	52.1	7	10	-	-	No	-
HF	1 hour (maximum)	160	8.8	3.5	2	10	-	-	No	-
SO_2	15 minute (99.90th percentile)	266	66.6	76.7	29	10	8.9	85.6	Yes	No
	1 hour (99.73th percentile)	350	53.5	58.2	17	10	8.9	67.1	Yes	No
	24 hour (99.18th percentile)	125	25.2	26.7	21	10	8.9	35.6	Yes	No
PM_{10}	24 hour (90.41st percentile)	50	2.6	2.8	6	10	-	-	No	-
CO	8 hour (maximum daily running)	10000	220.1	27.0	0	10	-	-	No	-

*The short-term AC is double the long-term AC.

Table 3 Predicted Maximum Process Contributions ($\mu g.m^{-3}$) at Long-Term Emission Limit Values – Results Across the Modelled Grid

Pollutant	Averaging Period	EAL ($\mu g.m^{-3}$)	Max PC from Table 5.4 of 2019 Assessment ($\mu g.m^{-3}$)	Max PC ($\mu g.m^{-3}$)	Max PC as % of EAL	Criteria (%)	AC ($\mu g.m^{-3}$)	PEC ($\mu g.m^{-3}$)	Is PC Potentially Significant?	Is PEC Potentially Significant?	EPUK/IAQM Impact Descriptor*
PM_{10}	24 hour (90.41st percentile)	50	0.9	0.9	2	10	25.0	25.9	No	-	-
	24 hour (annual mean)	40	0.3	0.3	1	1	25.0	25.3	No	-	Negligible
$PM_{2.5}$	24 hour (annual mean)	25	0.3	0.3	1	1	13.0	13.3	No	-	Negligible
HCl	1 hour (maximum)	750	22.0	8.7	1	10	-	-	No	-	-
HF	1 hour (maximum)	160	2.2	0.9	1	10	-	-	No	-	-

SO_2	15 minute (99.90th percentile)	266	16.7	19.2	7	10	-	-	No	-	-
	1 hour (99.73th percentile)	350	13.4	14.6	4	10	-	-	No	-	-
	24 hour (99.18th percentile)	125	6.3	6.7	5	10	-	-	No	-	-
	1 hour (annual mean)	50	1.1	1.4	3	1	4.4	5.8	Yes	No	-
CO	8 hour (maximum daily running)	10,000	110.0	13.5	0	10	-	-	No	-	-
Cd	1 hour (annual mean)	0.005	1.11E-03	1.37E-03	27	1	1.59E-04	0.00153	Yes	No	-
Tl	1 hour (maximum)	30	0.11	0.04	0	10	-	-	No	-	-
	1 hour (annual mean)	1	1.11E-03	1.37E-03	0	1	-	-	No	-	-
Hg	1 hour (maximum)	7.5	0.11	0.04	1	10	-	-	No	-	-
	1 hour (annual mean)	0.25	1.11E-03	1.37E-03	1	1	-	-	No	-	-
Sb	1 hour (maximum)	150	1.10	0.43	0	10	-	-	No	-	-
	1 hour (annual mean)	5	0.01	0.01	0	1	-	-	No	-	-
As	1 hour (annual mean)	0.003	0.01	0.01	457	1	7.13E-04	0.01443	Yes	Yes	-
Cr	1 hour (maximum)	150	1.10	0.43	0	10	-	-	No	-	-
	1 hour (annual mean)	5	0.01	0.01	0	1	-	-	No	-	-
Co	1 hour (maximum)	6	1.10	0.43	7	10	-	-	Yes	-	-
	1 hour (annual mean)	0.2	0.01	0.01	7	1	1.77E-04	0.01390	Yes	No	-
Cu	1 hour (maximum)	200	1.10	0.43	0	10	-	-	No	-	-
	1 hour (annual mean)	10	0.01	0.01	0	1	-	-	No	-	-

Pb	1 hour (annual mean)	0.25	0.01	0.01	5	1	8.76E-03	0.02248	Yes	No	-
Mn	1 hour (maximum)	1500	1.10	0.43	0	10	-	-	No	-	-
	1 hour (annual mean)	0.15	0.01	0.01	9	1	3.27E-02	0.04647	Yes	No	-
Ni	1 hour (annual mean)	0.02	0.01	0.01	69	1	2.22E-03	0.01594	Yes	No	-
V	1 hour (maximum)	5	1.10	0.43	9	10	-	-	Yes	-	-
	1 hour (annual mean)	1	0.01	0.01	1	1	-	-	No	-	-
Dioxins & Furans	1 hour (annual mean)	-	2.21E-09	2.74E-09		1	-	-	-	-	-
PAHs	1 hour (annual mean)	0.00025	2.21E-05	2.74E-05	11.0	1	2.24E-04	2.46E-04	Yes	No	-
PCB	1 hour (annual mean)	0.2	1.11E-04	1.37E-04	0	1	-	-	No	-	-

* For assessing the impacts of long-term PM_{10} and $PM_{2.5}$, the Environmental Protection UK (EPUK)/ Institute of Air Quality Management (IAQM) Land-Use Planning & Development Control: Planning For Air Quality document has been used.

1.5 The results presented in Table 2 show that the predicted PC is below 10% of the relevant EAL for HF, PM_{10}, and CO and the impacts are screened out as being insignificant. For 1-hour HCl, 1-hour SO_2, and 15-minute and 24-hour SO_2, the PC exceeds 10% of the EAL but the PEC is below 100% of the EAL and the impacts are therefore not considered significant. This analysis is essentially the same as set out in paragraph 5.9 of the 2019 Additional Air Quality Assessment (based on meteorological data) which was accepted by the council, resulting in the council confirming at the Planning Inquiry that NO_2 was the only pollutant of concern.

1.6 The results presented in Table 3 show that the predicted PC is below 10% of the relevant short-term EAL and below 1% of the long-term EAL or the PEC is below 100% for all pollutants with the exception of As (arsenic). This conclusion is the same as in paragraph 5.10 of the 2019 Additional Air Quality Assessment (based on meteorological data).

1.7 For As, the predicted PC is more than 1% of the EAL and the PEC is above the EAL. These predictions are based on the assumption that arsenic comprises the total of the group 3 metals emissions. In reality, the IED emission limit applies to all nine of the group 3 metals. The Environment Agency's '*Releases from waste incinerators – Guidance on assessing group 3 metal stack emissions from incinerators'* version 4 (undated), provides a summary of 34 measured values for each metal recorded at 18 municipal waste and waste wood co-incinerators between 2007 and 2015. For As, the measured concentration varies from 0.04% to 5% of the IED emission concentration limit. This conclusion is the same as in paragraph 5.11 of the 2019 Additional Air Quality Assessment (based on meteorological data).

1.8 Table 4 shows the predicted PC if the emission limit is assumed to apply equally to each of the nine group 3 metals, i.e. the PC for As has been divided by 9 (11% of the IED emission concentration limit). In this case, the predicted PC remains more than 1% above the EAL; however, the PEC for As is below the EAL. Compared with the Environment Agency findings, use of 11% can be considered highly conservative. At long-term emission limits, the As impacts are therefore not considered significant. This analysis is essentially the same as set out in paragraph 5.12 of the 2019 Additional Air Quality Assessment (based on meteorological data) which was accepted by the council, resulting in the council confirming at the Planning Inquiry that NO_2 was the only pollutant of concern.

Table 4 Maximum Predicted Environmental Concentrations (µg.m^{-3}) at Long-Term Emission Limit Values – Arsenic

Pollutant	Averaging Period	EAL (µg.m^{-3})	Max PC from Table 5.4 of 2019 Assessment (µg.m^{-3})	Max PC (µg.m^{-3})	Max PC as % of EAL	Criteria (%)	AC (µg.m^{-3})	PEC (µg.m^{-3})	Is PC Potentially Significant?	Is PEC Potentially Significant?
As	1 hour (annual mean)	0.003	0.00123	0.00152	51	1	0.0007	0.0022	Yes	No