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Dunbar Waste Services Limited Dunbar Energy Recovery Facility

Permit Variation

PPC/A/1032878 VAR01

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1 NON TECHNICAL SUMMARY OF DETERMINATION

SEPA received an application from Viridor Dunbar Waste Services Limited on 13 April 2022, to vary the conditions of their existing permit (PPC/A1032878) issued under the Pollution Prevention and Control (Scotland) Regulations 2012, to increase annual throughput capacity from 325,000 Tonnes per to 390,000 Tonnes per annum (TPH).

The increase will not result in any physical changes to the plant but is based on the incoming waste stream having a lower calorific value (CV) due to improved plastics recycling upstream. This fall in CV allows more waste to be processed within the thermal capacity of the furnace at a maximum continuous throughput of 105%. The increase is also due to increased plant availability allowing continuous operation over a year without annual shutdowns based on the plant performance. The proposal should reduce disposal to landfill whilst generating additional energy for export.

In determining this application SEPA issued a notice for further information in order to require additional modelling of emissions at the lower calorific values of waste expected, as well as assessing the impact of abnormal operations on emissions.

SEPA has ensured that all legislative requirements have been met, that due regard has been given to all applicable guidance, and that consideration has been given to issues raised during the consultation process.

Determination of the application has found no potential for significant pollution and the measures proposed by the Applicant have been determined to represent Best Available Techniques (BAT). Consequently, SEPA intends to impose the BAT emission limits to air to the permit from the BAT Conclusions for Waste Incineration as a condition of the increase in capacity to reflect the current plant performance and ensure emissions remain well controlled and are minimised in line with BAT.

This decision document and draft Variation Schedule have focussed on the specific aspects related to the variation application. Wider BATc issues are being dealt with concurrently via a separate project. SEPA are addressing the general requirements of the BATc document on a sector wide basis. SEPA will vary the permits accordingly later in 2023 involving a SEPA initiated variation prior to 3 December 2023 implementation date.

Glossary of terms

BAT	-	Best Available Techniques
CO	-	Coordinating Officer
ELV	-	Emission Limit Value

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2 EXTERNAL CONSULTATION AND SEPA'S RESPONSE

Is Public Consultation Required		
Advertisements Check:	Date	Compliance with advertising requirements
Edinburgh Gazette	6 July 2022	Yes
East Lothian Courier	7 July 2022	Yes
Officer checking advert:		
No. of responses received:	None	
Summary of responses and how they were taken into account during the determination		
Summary of responses withheld from the public register on request and how they were taken into account during the determination:		
Is PPC Statutory Consultation Required		
Food Standards Scotland (previously Food Standards Agency):	No objections	
Health Board: NHS Lothian- No objections but requested SEPA ensure the air modelling is validated and the emissions are effectively controlled using abatement and continuously monitored emissions including during malfunctions, breakdowns and abnormal operations before making a final determination. SEPA's determination has addressed the concerns and is satisfied the proposal will not impact air quality or human health. SEPA has tightened the emission limits in line with the BAT and updated conditions to ensure abnormal operations are managed in line with BAT so as to reduce the risk of impacting air quality and human health.		
Local Auth: East Lothian Council – No response		
Scottish Water: No response		
Health and Safety Executive: N/A Not a COMAH site		
NatureScot (previously Scottish Natural Heritage) (PPC Regs consultation): No response		
Discretionary Consultation – 5 local Community Councils – No responses		
Enhanced SEPA public consultation – N/A		
'Off-site' Consultation – N/A		
Transboundary Consultation – N/A		
Public Participation Consultation – Yes		
STATEMENT ON THE PUBLIC PARTICIPATION PROCESS The Pollution Prevention and Control (Public participation)(Scotland) Regulations 2005 requires that SEPA's draft determination of this application be placed on SEPA's website and public register and be subject to 28 days' public consultation. The dates between which this consultation took place, the number of representations received and SEPA's response to these are outlined below.		
Date SEPA notified applicant of draft determination		
Date draft determination placed on SEPA's Website		
Details of any other 'appropriate means' used to advertise the draft. Seek advice from the communication department		
Date public consultation on draft permit opened		

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Date public consultation on draft permit consultation closed	
Number of representations received to the consultation	
Date final determination placed on the SEPA's Website	
Summary of responses and how they were taken into account during the determination:	

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3 ADMINISTRATIVE DETERMINATIONS**Determination of the Schedule 1 activity**

No change

Determination of the stationary technical unit to be permitted:

Paragraph 1.1.3 b and d have been updated to reflect the increase in capacity

Determination of directly associated activities:

No Change

Determination of 'site boundary'

No change

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4 INTRODUCTION AND BACKGROUND

4.1 Historical Background to the activity and variation

This is an existing incineration installation for non-hazardous waste with subsequent electricity generation. The variation proposed is to permit an increase in waste throughput capacity by 65000 tonnes per annum (TPH). This is predicated on the incoming waste stream having a lower calorific value (CV) due to improved plastics recycling. This fall in CV allows more waste to be processed within the thermal capacity of the furnace. The increase in throughput is also due to increased plant availability allowing continuous operation over a year without annual shutdowns based on the plant performance. The proposal should reduce disposal to landfill whilst generating additional energy.

4.2 Description of activity

Application for substantial variation to increase annual throughput capacity from 325,000 Tonnes per annum (162,500 Tonnes per line) to 390,000 Tonnes per annum (195,000 Tonnes per line). This will also include an additional non-hazardous waste namely international catering waste under waste code 02 02 03.

Section 2 of the application sets out a description of the changes which is based on the plant performance allowing an increase in the thermal input of 5% per furnace. The increase in thermal capacity from 53.4 MW to 56.07 MW per furnace allows an increase in throughput of waste with a lower net calorific value (NCV) of 8.5 - 9 MJ/Kg. This increase in throughput to 105% of the maximum continuous rating (MCR) combined with an increase in annual operating hours from 8446 to 8760 allows an increase in waste capacity from 162,500 to 195,000 hrs per line. No physical changes to the plant are proposed with only the steam set point being increased from 18.15kg/s to 19.05Kg/s based on the increase in thermal capacity. Plant trials were conducted at the increased MCR to validate the plant performance at the new operating rate in 2019 using waste with a net calorific value of 11MJ/Kg.

SEPA required further evidence of the plant performance at the lower net calorific values at 105% MCR to verify the proposal and have imposed the new tighter BAT emission limits as part of the permission to increase throughput.

4.3 Guidance/directions issued to SEPA by the Scottish Ministers under Reg.60 or 61.

None.

4.4 Identification of important and sensitive receptors

No new receptors identified as part of the change.

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5 KEY ENVIRONMENTAL ISSUES

5.1 Summary of significant environmental impacts

No significant change in environmental impacts is predicted as a result of this change.

Sections 3 of the application cover the impacts on the environment and human health. The main pollution risk is from emissions to air in respect of human health and protected habitats. Modelling has been conducted to assess the impact on air quality and protected habitats as well as a separate assessment on human health. This indicates the increase in throughput will not significantly alter the emissions from the site due to the abatement plant providing effective control. The assessments indicate human health will continue to be protected as will sensitive habitats from acid and nutrient deposition.

5.2 Implications of the Variation on - Point Sources to Air

The application includes Air Quality Impact Assessment which includes an ecological assessment, and a Human Health Impact Assessment. Air Modelling was conducted to compare the predicted increased emissions under the increased throughput proposed with the original assessment conducted in 2014 at Variation 1. To allow a direct comparison, modelling predictions were assessed at identical human health and ecological receptors used in 2014. The model was run originally for the waste NCV of 10MJ/Kg based on the increased throughput (and thermal input) using the maximum emission rates (original emission limits - worst case with tighter limits to be imposed) with the plant operating every hour of the year (8760hrs) covering the worst case meteorological conditions based on 5 years data from 2016 to 2020.

SEPA required further modelling to be conducted using the lower net calorific values (9 and 8.5MJ/Kg) of waste proposed as these would have increased flow and emission rates based on the maximum throughput at 105% MCR and hence would present a worst case assessment. The maximum throughput at 105%MCR is 23.95tph per line at 8.5MJ/Kg at the increased thermal capacity of 56.07MW. The modelling has been run based on all year operation (8760 hours) even though 105% MCR over a year would exceed the annual capacity of 390,000 tonnes. The annual tonnage is based on burning waste with a NCV of 9 MJ/Kg at a rate of 22.26tph per line (just under 100% MCR) over a year at the increased thermal capacity limit. Consequently, the modelling is considered worst case in terms of emission rates.

The air modelling results predict that for all three NCV scenarios the emissions are insignificant, and all air quality standards and objectives will be met at the increased capacity. The assessments indicate human health will continue to be protected as will sensitive habitats from acid and nutrient deposition. The modelling has been based on conservative assumptions with a sensitivity check undertaken including a different model and met data. An assessment was also undertaken of abnormal operations and emissions were not predicted to have a significant effect on air quality over the short or long term.

5.3 Implications of the Variation on – Management

None - there are no physical changes to the plant and current arrangements and procedures for accepting and managing incoming waste will not change as a result of the proposal. Consequently, the existing procedures remain appropriate and the existing permit requirements continue to apply.

5.4 Implications of the Variation on - Raw Materials

There will be an increase in some materials such as mains water as well as activated carbon, lime, and ammonia to ensure emissions are fully abated. The dosing is automatically

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controlled and continuously monitored, and the existing storage facilities will remain unchanged. SEPA have required an improvement in the lime dosing system to deal with transient peaks in sulphur dioxide (SO₂) emissions as well as tightening the emission limit for SO₂ in line with BAT to ensure emissions stay well controlled.

The incineration of international catering waste (ICW) is to be permitted under this Variation. ICW refers to the waste generated from food and beverage services provided to passengers during international transportation, such as airline flights, cruise ships, trains, or long-distance buses. The waste can include food waste, packaging materials, leftover beverages, plastic cutlery and trays, napkins, and other disposables. The waste stream is non-hazardous. The management of international catering waste specifies that the use of ICW in biogas or composting plants is not permitted. This means that with the impending ban on landfill, incineration is one of a limited number of feasible options for managing this waste stream in the future.

5.5 Implications of the Variation on - Raw Materials Selection

No change

5.6 Implications of the Variation on - Waste Handling

There will be an increase in residues from flue gas treatment with a single additional waste collection per day expected. Otherwise, the existing control measures for storage and handling apply.

5.7 Implications of the Variation on – Energy

The energy efficiency of the plant is approximately 29% on a net CV basis. The increase in throughput will result in an increase in electricity production available for export and heat output due to the increased thermal rating. The plant has relatively good electrical export efficiency and complies with the BAT standard (20-35% gross) but correspondingly poor heat export efficiency (none). This is due to a lack of local heat demand. However, a heat use plan has been developed and various potential users identified. The indicative timetable for the programme for the construction of the heat network is for completion by June 2026 in line with SEPA's (heat network) guidelines. The maximum potential heat output is 17.85MWth, and if all the potential heat users were realised, then overall efficiency would be around 35%.

5.8 Implications of the Variation for – Noise

No significant change as no new or modified noise sources are being added. The original noise assessment assumed continuous operation which takes account of the plant operating an additional 13 days per year as a result of the increased throughput. The validation trials included noise monitoring which confirmed the original noise guarantees would be met. Steam venting is not expected to increase with the longer run time reducing plant startup and shutdowns. The increase in deliveries per day is not expected to be noticeable in terms of noise impact outwith the site boundary.

5.9 Implications of the Variation for – Monitoring

There will be no change in the monitoring regime currently in place. However, SEPA have updated the monitoring standards to be used in line with the BAT Conclusions and BAT limits.

5.10 Implications of the Variation for - Consideration of BAT

The proposal to increase the annual throughput capacity has been accepted on the basis the change in emissions to air will be negligible and have no impact. The emissions to air are

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effectively controlled through the flue gas treatment - abatement plant which is BAT. SEPA have imposed the new BAT limits and monitoring standards from the BAT Conclusions to ensure emissions remain well controlled.

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6 OTHER LEGISLATION CONSIDERED**Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994****Is there any possibility that the proposal will have any impact on site designated under the above legislation? No**

Justification: Modelling has been conducted to assess the impact on air quality and protected habitats. This predicts the increase in throughput will not significantly alter the emissions from the site due to the abatement plant providing effective control. The assessment indicates sensitive habitats will be protected from acid and nutrient deposition from plant emissions.

Screening distance(s) used – 15 Km**Officer:** DW

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7 ENVIRONMENTAL IMPACT ASSESSMENT AND COMAH

Guidance Notes – The PPC Regulations require that under certain circumstances SEPA take into consideration the information in any statutory Environmental Impact Assessment carried out as part of the planning process or a Safety Report produced under the Control of Major Accident Hazards Regulations.

How has any relevant information obtained or conclusion arrived at pursuant to Articles 5, 6 and 7 of Council Directive 85/337/EEC on the assessment of the effects certain public and private projects on the environment been taken into account? N/A to this application

How has any information contained within a safety report within the meaning of Regulation 7 (safety report) of the Control of Major Accident Hazards Regulations 1999 been taken into account? N/A to this application

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8 DETAILS OF PERMIT**Do you propose placing any non standard conditions in the Permit? Yes****Do you propose making changes to existing text, tables or diagrams within the permit? Yes****Outline of change and justification:**

Condition Number	Condition Text	Justification
1.1.3(b)	continuous multi-stage water cooled moving grate incinerators comprising primary and secondary combustion zones each capable of burning 195,000 tonnes per line per annum, with a total capacity of 390,000 tonnes per annum. The net thermal capacity of each incinerator furnace is 56.07 MW at a maximum continuous rating of 105%. The maximum hourly throughput per line is 23.95tph of waste in any 24 hour period. Each incinerator is fed from a waste feeding chute; and comprises a hydraulically driven feed grate; water-cooled combustion grate; primary air feed via the underside of the grates; secondary air feed above the grates via a distribution system; hoppers to collect bottom ash and two gas-oil fired auxiliary burners.	This amends the existing description to reflect the proposed change in annual throughput capacity based on increase in thermal capacity at 105% MCR at the lower waste NCV operating over a year.
1.1.3(d)	Two heat recovery lines feeding into one common electricity generation system, Each heat recovery line comprising: a waste heat recovery boiler integrated with the incinerator furnace and fitted with three vertical radiant passes and a fourth horizontal convective section including a superheater, evaporator and economiser bundles. The waste heat boiler produces superheated steam which is passed to a condensing steam turbine and generator (one common unit) capable of generating a total of 36 MW electrical (MW _e) and exporting either 33.72 MW electrical (MW _e) without heat export, or 30.25 MWe and up to 17.85 MWth of heat as low pressure steam or hot water;	As per above
4.2.1	The aggregate amount of the wastes specified in Condition 4.1.1 that may be incinerated in the Permitted Installation shall not exceed 390,000 tonnes in any calendar year, and shall not exceed a maximum of 23.95 Tonnes per hour (T/Hr) per line in any 24 hour period	As per above

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Condition Number	Condition Text	Justification
Table 4.1	Addition of new code 02 02 03 for incinerating international catering waste	This is a non-hazardous waste which is included within the additional throughput and will be handled as per existing controls. The management of international catering waste (ICW) specifies that the use of ICW in biogas or composting plants is not permitted. This means that with the impending ban on landfill, incineration is one of a limited number of feasible options for managing this waste stream in the future.
5.2.6	<p>An automatic system shall be provided, maintained, and tested to prevent waste feed to the incineration plant under the following situations:</p> <ul style="list-style-type: none"> a) at start up, until the temperature specified in Condition 5.1.1 c) has been reached; b) whenever the temperature specified in Condition 5.1.1 c) is no longer maintained; or c) whenever the Continuous Emissions Monitoring Systems (CEMS) required by Condition 6.1.3 show that the corresponding Emission Limit Value (ELV) is being exceeded due to a disturbance or failure of the abatement system 	Standard Conditions being added for consistency with sector.
5.3.1	<p>In the event of a Breakdown, the Operator shall reduce or close down operations, as soon as practicable until either</p> <ul style="list-style-type: none"> a) the operator has established that the breakdown has not caused a breach of a condition of this Permit; or b) operation in compliance with the Permit can be restored. 	Standard Conditions being updated as BAT in line with BAT Conclusions on Waste Incineration.
5.3.2	Without prejudice to Condition 5.2.1 g), in the event of Abnormal Operation, the Operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible and shall, under no circumstances, continue to incinerate waste for an uninterrupted period of more than four hours.	As above
5.3.3	In the event of any periods of Abnormal Operation the Operator shall record in writing and report to SEPA the information specified below:	As above

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Condition Number	Condition Text	Justification
	<ul style="list-style-type: none"> a) the time and date the period of Abnormal Operation began; b) the cause of the period of Abnormal Operation; c) justification of why the cause of the period of Abnormal Operation was unavoidable; d) the nature, timing and consequences of all work undertaken by the Operator for the purpose of bringing the period of Abnormal Operation to an end; e) the time and date the period of Abnormal Operation was brought to an end, and whether this was achieved by shutting down the co-incineration plant; f) the results of emission monitoring in comparison with Table 6.1a during the period of Abnormal Operation; and, g) whether the OTNOC Management Plan required by Condition 5.3.6 requires updating as a result of the period of Abnormal Operation. h) The cumulative duration of abnormal operation for the calendar year relative to the maximum allowable hours specified in Condition 5.3.4. 	
5.3.4	The cumulative duration of Abnormal Operation shall not exceed 60 hours per line in any one year. Where the maximum allowable hours are exceeded in any one year SEPA shall be notified without delay.	As above
5.3.5	In the event of a Breakdown or Abnormal Operation the ELVs for Emissions to Air in Table 6.1a in Schedule 6 shall apply.	As above and see also Table 6.1a below for ELVs
5.3.6	No later than 3 December 2023, the operator shall prepare, implement, maintain, and submit to SEPA an OTNOC Management Plan (the "OTNOC" Management Plan") setting out the steps to be taken by the Operator to reduce emissions to air and water during OTNOC. The OTNOC Management Plan shall include the following:	As above

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Condition Number	Condition Text	Justification
	<ul style="list-style-type: none"> a) a list of potential OTNOC scenarios, including failure of critical equipment and start up and shutdown periods when no waste is burned, their root causes and the potential consequences; b) details of appropriate design of relevant systems/ critical equipment identified in Condition 5.3.6 (a); c) details of the preventative maintenance plan for the relevant systems/ critical equipment identified in Condition 5.3.6 (a); d) the proposed techniques to reduce the frequency, duration and associated emissions to air, water and/ or soil from the occurrence of OTNOC; e) monitoring and recording of emissions caused by OTNOC and associated circumstances; f) periodic assessment of the overall emissions during OTNOC in terms of frequency of events, duration, amount of pollutants emitted and implementation of corrective actions; and g) details of how the OTNOC Management Plan is integrated into the EMS for the Permitted Installation. 	
5.3.7	At least every 2 years, or whenever there is a change which could have an impact on Emissions to air or water during OTNOC, the Operator shall review the OTNOC Management Plan required by Condition 5.3.6. Each review of this plan and any revisions shall be recorded and the revised OTNOC Management Plan shall be reported to SEPA.	As above
5.3.8	No later than 3 December 2023, the Operator shall submit a report to SEPA to confirm the proposals for monitoring of emissions to air during the OTNOC identified in the OTNOC Management Plan required under Condition 5.3.6 to meet the requirements of BAT 5 in the WI BATCs.	As above

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Condition Number	Condition Text	Justification
5.4.1	From 30 April 2024 the lime dosing system feeder's capacity shall be 900kg/h.	Upgrade to increase in capacity in lime dosing system to ensure sulphur dioxide emissions are controlled.
5.4.2	From 1 January 2024 carbon dioxide emissions to air shall be continuously monitored in accordance with Table 6.2.	Standard Condition to comply with BAT Conclusions for waste incineration.

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9 EMISSION LIMIT VALUES OR EQUIVALENT TECHNICAL PARAMETERS/ MEASURES

Are you are dealing with either a permit application, or a permit variation which would involve a review of existing ELVs or equivalent technical parameters? This is a permit variation for a substantial change to increase the annual throughput capacity including the addition of a new waste stream – non-hazardous international catering waste. Consequently, SEPA has imposed the BAT limits from the BAT Conclusions for Waste Incineration based on plant performance and to ensure emissions remain well controlled as well as updating the permit to ensure monitoring standards are in line with the BAT Conclusions.

The new BAT limits and monitoring standard changes are highlighted in green in the tables below:

Tables 6.1, 6.2. and 6.3 have been deleted and replaced as follows:

Table 6.1 Emissions to Air

	Emission point number / Location on Site Plan	Emission Point A1, Line 1 incinerator stack				Emission Point A2, Line 2 incinerator stack			
		Emission source				Emission source			
		Stack height/ diameter (m)				Stack height/ diameter (m)			
		NGR				NGR			
Monitoring details	Type of monitoring	C		SS		C		SS	
	Sampling location	In Stack		In Stack		In Stack		In Stack	
Limits for parameters from emission source	Basis of limit value	Daily average (mg/m ³)	100% of all half hourly averages (mg/m ³)	95% of all 10 minute averages (mg/m ³)	Average value over sample period (mg/m ³)	Daily average (mg/m ³)	100% of all half hourly averages (mg/m ³)	95% of all 10 minute averages (mg/m ³)	Average value over sample period (mg/m ³)
	Carbon monoxide	50	100	150	100	50	100	150	100
	Basis of limit value	Daily average (mg/m ³)	100% of all half hourly averages (mg/m ³)	97% of all half hourly averages (mg/m ³)	Average value over sample period (mg/m ³)	Daily average (mg/m ³)	100% of all half hourly averages (mg/m ³)	97% of all half hourly averages (mg/m ³)	Average value over sample period (mg/m ³)
	Total dust	5	30	10	30	5	30	10	30
	Gaseous and vaporous	10	20	10	20	10	20	10	20

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organic substances, expressed as total organic carbon								
Hydrogen chloride	8	60	10	60	8	60	10	60
Hydrogen fluoride	-	-	-	1	-	-	-	1
Sulphur dioxide	40	200	50	200	40	200	50	200
Nitrogen monoxide and nitrogen dioxide (expressed as NO ₂)	200(1)	400	200	200	200(1)	400	200	200
	180(2)				180(2)			
Cd and Tl and their compounds taken together, expressed as cadmium (Cd) and thallium (Tl)	-	-	-	0.02	-	-	-	0.02
Hg and its compounds as Hg	-	-	-	0.05 (1)	-	-	-	0.05 (1)
	-	-	-	0.02 (2)	-	-	-	0.02 (2)
Sb, As, Pb, Cr, Co, Cu, Mn, Ni, and V and their compounds taken together, expressed as a sum of the above metal species	-	-	-	0.3	-	-	-	0.3
Dioxins and furans (I-TEF)	-	-	-	0.1 ng I-TEQ/N m ³ (1)	-	-	-	0.1 ng I-TEQ/Nm ³ (1)
	-	-	-	0.06 ng I-TEQ/N m ³ (2)	-	-	-	0.06 ng I-TEQ/Nm ³ (2)
Smoke				Ringelmann Shade 1 to BS 2742:1969 (as				Ringelmann Shade 1 to BS 2742:1969 (as

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					amended)				amended)
	Visible plume	-	-	-	No persistent mist droplets or fume	-	-	-	No persistent mist droplets or fume
	Ammonia	10	20	-	20	10	20	-	20
	PM10	-	-	-	-	-	-	-	-
	PM2.5	-	-	-	-	-	-	-	-

Note 1 Until 23:59 on 2/12/2023

Note 2 From 00:00 on 3/12/2023

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**Table 6.2: Emissions to Air Continuous Monitoring Requirements
Required by Condition 6.1.2 and 6.1.3**

Parameter	Emission point number	Continuous (C)				
		Monitoring Standard	Sample frequency	Maximum 95% confidence interval at daily average limit value	Averaging period and time span for percentage limits	Default calibration method
Oxides of nitrogen as nitrogen dioxide	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	20%	Half hourly based on a calendar year	N/A
Total dust	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	30%	Half hourly based on a calendar year	N/A
Total organic carbon	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	30%	Half hourly based on a calendar year	N/A
Hydrogen chloride	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	40%	Half hourly based on a calendar year	N/A
Sulphur dioxide	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	20%	Half hourly based on a calendar year	N/A
Carbon monoxide	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	10%	10 minute and half hourly based on a rolling 24 hour period	N/A
Carbon Dioxide	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	10%	Daily average	N/A
Ammonia	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	N/A	Half hourly based on a calendar year	N/A
Oxygen	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample	N/A	N/A	N/A

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Parameter	Emission point number	Continuous (C)				
		Monitoring Standard	Sample frequency	Maximum 95% confidence interval at daily average limit value	Averaging period and time span for percentage limits	Default calibration method
			every 30 seconds			
Nitrous Oxide	A1 & A2	BS EN 14181 BS EN 15267-3	At least one sample every 30 seconds	N/A	Half hourly based on a calendar year	N/A
Temperature in secondary zone	A1 & A2	BS ISO 14146:1999	At least one sample every 30 seconds	N/A	N/A	N/A
Temperature of exhaust gas	A1 & A2	BS ISO 14146:1999	At least one sample every 30 seconds	N/A	N/A	N/A
Pressure of exhaust gas	A1 & A2	BS ISO 14146:1999	At least one sample every 30 seconds	N/A	N/A	N/A
Water vapour content of exhaust gas	A1 & A2	To be agreed in writing with SEPA	At least one sample every 30 seconds	N/A	N/A	N/A

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**Table 6.3: Emissions to Air Monitoring Spot Sampling Requirements Note 3
Required by Condition 6.1.3**

Parameter	Emission point number	Spot Sampling (SS)	Frequency	Operational mode
Oxides of nitrogen as nitrogen dioxide	A1 & A2	BS EN 14792	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR Note 1
Total dust	A1 & A2	BS EN 13284-1	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Total organic carbon	A1 & A2	BS EN 12619	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Hydrogen chloride	A1 & A2	BS EN 1911 - 1, 2 & 3	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Hydrogen fluoride	A1 & A2	CEN TS 17340	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Sulphur dioxide	A1 & A2	BS EN 14791	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Carbon monoxide	A1 & A2	BS EN 15058	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Ammonia	A1 & A2	BS ISO EN 21877	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Nitrous oxide	A1 & A2	BS EN 21258	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR

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Parameter	Emission point number	Spot Sampling (SS)	Frequency	Operational mode
Oxygen	A1 & A2	BS EN 14789 or ISO 12039	Twice per year	Under the most unfavourable operating conditions anticipated
Heavy metals Cd, Tl, Hg, Sb, As, Pb, Cr, Co, Cu, Mn, Ni, and V & compounds taken together	A1 & A2	BS EN 13211 for Hg BS EN 14385-1,2 & 3 for other metals	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Dioxins and furans	A1 & A2	BS EN 1948 – 4:2010	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Dioxin-like polychlorinated biphenyls	A1 & A2	BS EN 1948 - 1,2 & 3	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Poly-cyclic aromatic hydrocarbons	A1 & A2	BS ISO 11338 - 1 & 2	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Polybrominated dibenzodioxins and furans (PBDD/F)	A1 & A2	BS EN 1948 - 1,2 & 3 and EA MID for parts 1-3 EN 1948:2006	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR
Temperature exiting secondary combustion zone	A1 & A2	Thermocouple located near inner wall and after last injection of combustion gases	Twice per year	Under the most unfavourable operating conditions anticipated
Pressure of exhaust gas at sampling point	A1 & A2	BS EN 13284-1	Twice per year	Concurrent with substance sampling
Volumetric flow of exhaust gas	A1 & A2	BS EN 13284-1	Twice per year	Concurrent with total dust sampling
Temperature of exhaust gas at sampling point	A1 & A2	Calibrated thermocouple BS EN 13284-1	Twice per year	Concurrent with substance sampling
Water vapour content of exhaust gas Note 2	A1 & A2	BS EN 14790	Twice per year	Concurrent with substance sampling

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Parameter	Emission point number	Spot Sampling (SS)	Frequency	Operational mode
PM10 and PM2.5	A1 & A2	BS EN ISO 23210:2009 or equivalent	Twice per year	At a rate representative of normal operation and not less than 70% of MWLR

Notes:

1. MWLR = Maximum waste loading rate
2. not required if sample dried prior to analysis
3. other than dioxins/furans and dioxin – like PCBs, other periodic monitoring is to be completed in triplicate with compliance with the ELV based on the average of the triplicate samples

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**New Table 6.1a: Emissions to Air ELVs applicable to Abnormal Operation Note 1
(Condition 5.3.5 requirements) and Monitoring Requirements**

Emission Point	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 or A2 (See Condition 5.3.5)	Particulate matter	150 mg/Nm ³	100% ½ hour average	Continuous measurement	BS EN 14181 BS EN 15267-3
	TOC	20 mg/Nm ³	100% ½ hour average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Carbon monoxide	100 mg/Nm ³	100% ½ hour average	Continuous measurement	BS EN 14181 BS EN 15267-3

Notes:

- As defined in the Interpretation of Terms.

Note on BAT conclusions – the Waste Incineration BAT conclusions document was published in December 2019 (with a 4-year implementation period for existing sites).

This decision document and draft Variation Schedule have focussed on the specific aspects related to the variation application. Wider BATc issues are being dealt with concurrently via a separate project. SEPA are addressing the general requirements of the BATc document on a sector wide basis. SEPA will vary the permits accordingly.

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10 PEER REVIEW

Has the determination and draft permit been Peer Reviewed?

Name of Peer Reviewer and comments made: SM Spec 1 Waste & Industry Unit

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11 FINAL DETERMINATION

Issue of a Permit - Based on the information available at the time

Issue a Permit – Based on the information available at the time of the determination SEPA is satisfied that

- The applicant will be the person who will have control over the operation of the installation/mobile plant,
- The applicant will ensure that the installation/mobile plant is operated so as to comply with the conditions of the Permit,
- The applicant is a fit and proper person (specified waste management activities only),
- Planning permission for the activity is in force (specified waste management activities only),
- That the operator is in a position to use all appropriate preventative measures against pollution, in particular through the application of best available techniques.
- That no significant pollution should be caused.

Officer: DW

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12 REFERENCES AND GUIDANCE

Guidance Notes – Identify key references, guidance (BREF, UK Technical Guidance, etc) used in determination

Commission Implementing Decision (EU) 2019/2010 of 12 November 2018 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration, as published in the Official Journal of the European Union in 3 December 2019, these are known as the Best Available Techniques (BAT) Conclusions for Waste Incineration, or the WI BATCs

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