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Buidheann Dìon Àrainneachd na h-Alba

Notice: Variation of Permit

This permit has been varied by the Scottish Environment Protection Agency (SEPA) in exercise of its powers under Regulation 46 of the Pollution Prevention and Control (Scotland) Regulations 2012 ("the Regulations"). The terms used in this notice, unless otherwise defined, have the same meaning as in the Regulations.

Permit Number:	PPC/A/1032878/CP01
Site address:	Dunbar Energy Recovery Facility, Oxwellmains Landfill, Dunbar, East Lothian EH42 1SW
Operator:	Viridor Dunbar Waste Services Limited
Variation Number:	VAR01
Effective Date of	28 July 2023
Details of Variation:	The permit is varied as specified in the Schedule attached.

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Schedule

The permit has been varied as follows:

1. In the Interpretation of Terms, new terms have been inserted as follows:

"Abnormal Operation", for the purposes of Schedule 5 of this Permit, means any technically unavoidable stoppages, disturbances or failures of the plant or measurement devices which results in, or may result in, any ELV specified in Table 6.1 in this Permit being exceeded;

"Breakdown" for the purposes of Schedule 5 of this Permit, means, a stoppage, disturbance or failure of any piece of plant or equipment which forms part of the incineration plant which may cause a breach of any condition of this Permit;

"Other Than Normal Operating Conditions" or "OTNOC" means the scenarios considered to represent OTNOC for the Permitted Installation, as identified in the OTNOC Management Plan required by Condition 5.3.6 and comprise:

a) abnormal operation; and

b) start-up and shut-down periods.

2. In Schedule 1, Conditions 1.1.3.(b) and (d) are deleted and replaced as follows:

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.

1.1.3(d) two heat recovery and electricity generation systems, one per 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 capable of generating a total of 36 MW electrical (MWe) and exporting either 33.72 MW electrical

(MW_e) without heat export, or 30.25 MW_e and up to 17.85 MWth of heat as low pressure steam or hot water;

3. In Schedule 4, Condition 4.2.1 is deleted and is replaced as follows:

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.

4. In Schedule 4 ANNEX 1, Table 4.1 a new row has been inserted as follows:

Table 4.1: Permitted Waste Types

Required by Condition 4.1.1.

EWC index number (6 figure code)	Description
02 02 03	International Catering Waste

5. In Schedule 5 the following condition has been inserted:

5.2.6 An automatic system shall be provided, maintained, and tested to prevent waste feed to the incineration plant under the following situations:

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.

6. In Schedule 5 the Abnormal Operating Conditions at Condition 5.3 have been deleted and replaced with the following conditions:

5.3 Abnormal Operation, Breakdowns and Other Than Normal Operating Conditions (OTNOC)

5.3.1 In the event of a Breakdown, the Operator shall reduce or close down operations, as soon as practicable until either:

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.

5.3.2 Without prejudice to Condition 5.2.6(c), 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.

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:

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.

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.

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:

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 two 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.

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.

7. In Schedule 5, the Upgrading Requirements at Condition 5.4.1 has been deleted and replaced with the following new conditions 5.4.1 and 5.4.2 added:

5.4.1 From 30 April 2024 the lime dosing system feeder's capacity shall be 900kg/h.

5.4.2 From 1 January 2024 carbon dioxide emissions to air shall be continuously monitored in accordance with Table 6.2.

8. In Schedule 6 ANNEX 1, Tables 6.1, 6.2. and 6.3 have been deleted and replaced as follows:

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Table 6.1: Emissions to Air

Required by Condition 6.1.1

Monitoring details	**Emission point number / Location on Site Plan**	Emission Point A1, Line 1 incinerator stack				Emission Point A2, Line 2 incinerator stack			
	Emission source	Line 1 incinerator				Line 2 incinerator			
	Stack height/ diameter (m)	80/1.79				80/1.79			
	NGR	371188.5, 676084				371188.5, 676084			
	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 organic substances, expressed as total organic carbon	10	20	10	20	10	20	10	20
	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) 180(2)	400	200	200	200(1) 180 (2)	400	200	200
	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) 0.02 (2)	-	-	-	0.05 (1) 0.02 (2)

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	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/Nm^3 (1)	-	-	-	0.1 ng I-TEQ/Nm^3 (1)
					0.06 ng I-TEQ/Nm^3 (2)				0.06 ng I-TEQ/Nm^3 (2)
	Smoke				Ringelmann Shade 1 to BS 2742:1969 (as amended)				Ringelmann Shade 1 to BS 2742:1969 (as amended
	Visible plume	-	-	-	No persistent mist droplets or fume	-	-	-	No persistent mist droplets or fume
	Ammonia	10	20	-	20	10	20	-	20
	PM_{10}	-	-	-	-	-	-	-	-
	$PM_{2.5}$	-	-	-	-	-	-	-	-

Note 1 Until 23:59 on 2/12/2023
Note 2 From 00:00 on 3/12/2023

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 S 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 every 30 seconds	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**
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

Required by Condition 6.1.3

Parameter	Emission point number	Spot Sampling (SS) Standard	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
Oxygen	A1 & A2	BS EN 14789 or ISO 12039	twice per Year	Under the most unfavourable operating conditions anticipated

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Parameter	Emission point number	Spot Sampling (SS) Standard	Frequency	Operational mode
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 7A2	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
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

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9. In Schedule 6 ANNEX 1, Table 6.1a has been inserted as follows:

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:

1. As defined in the Interpretation of Terms.