Scottish Environment Protection Agency
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/W/0020037
Site address:	DSM, Drakemyre, Dalry, Ayrshire, KA24 5JJ
Operator:	DSM Nutritional Products (UK) Ltd 04031360 Delves Road, Heanor Gate, Heanor, Derbyshire, DE75 7SG
Variation Number:	VAR01
Effective Date of Variation:	<<Enter effective date – DD/MM/YYYY>>
Date of Issue:	TBC
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 Contents Page '5.6 Temporary Boiler Systems' is deleted.

2. In the Contents Page '8 CONDITIONS APPLYING TO THE PRODUCTION OF OCTABASE HYDROCHLORIDE' , '8.1 Scope', '8.2 Reviews' are deleted.

3. In the Contents Page, new terms are added, as follows:

'8 CONDITIONS APPLYING TO THE PRODUCTION OF BOVAER ANIMAL FEED ADDITIVE

8.1 Scope
8.2 Process Design, Operation and Maintenance
8.3 Interlocks, Control Systems and Alarms
8.4 Air Emission Conditions and Limits
8.5 Commissioning of Bovaer Process
8.6 Emergency Generator
8.7 Water Polluting Substances'

4. In the Interpretation of Terms, new terms have been added, as follows:

"Medium Combustion Plant" means a combustion plant with a rated thermal input equal or greater than 1 megawatt but less than 50 megawatts.

"operating hours" means the time, expressed in hours, during which a medium combustion plant is operating and discharging emissions into the air, excluding start-up and shut-down periods.

"limited operating hours plant" means any Medium Combustion Plant whose operating hours are limited in accordance with Articles 6(3) and Articles 6(8) of Directive (EU) 2015/2193.

"Bovaer Off Gas & Liquid Treatment Unit" means a sequential abatement system to treat off gas streams and waste liquid solvent from the Bovaer manufacturing process.

"CEMS" means Continuous Emission Monitoring System;

"Oxides of Nitrogen" means nitric oxide and nitrogen dioxide, expressed as nitrogen oxide (NO2

"Gas oil" means:

(a) Any petroleum-derived liquid fuel falling within CN codes 2710 19 25, 2710 19 29, 2710 19 47, 2710 19 48, 2710 20 17 or 2710 20 19; or

(b) Any petroleum-derived liquid fuel of which less than 65% by volume (including loses) distils at 250oC and of which at least 85% by volume (including loses) distils at 350oC by the ASTM D86 method.

"rated thermal input" means the rate at which fuel can be burned at the maximum continuous rating of the appliance multiplied by the net calorific value of the fuel and expressed as megawatts thermal.

"fuel" means any solid, liquid or gaseous combustible material.

"CO" means Carbon Monoxide.

"ELV" means Emission Limit Value.

"HCl" means Hydrogen Chloride.

"HF" means Hydrogen Fluoride.

"SO_2" means Sulphur Dioxide;

"TVOC" means Total Volatile Organic Compounds.

"Heavy Metals"

5. In the Interpretation of Terms, the term "Octabase" has been deleted:

6. In Schedule 1, condition 1.1.4.2 is deleted and replaced by new condition 1.1.4.2,

1.1.4.2 A building housing a gas turbine system with a linked waste heat boiler (referred to as LCP 39 with a net thermal input of 104 MWth burning natural gas only) and;

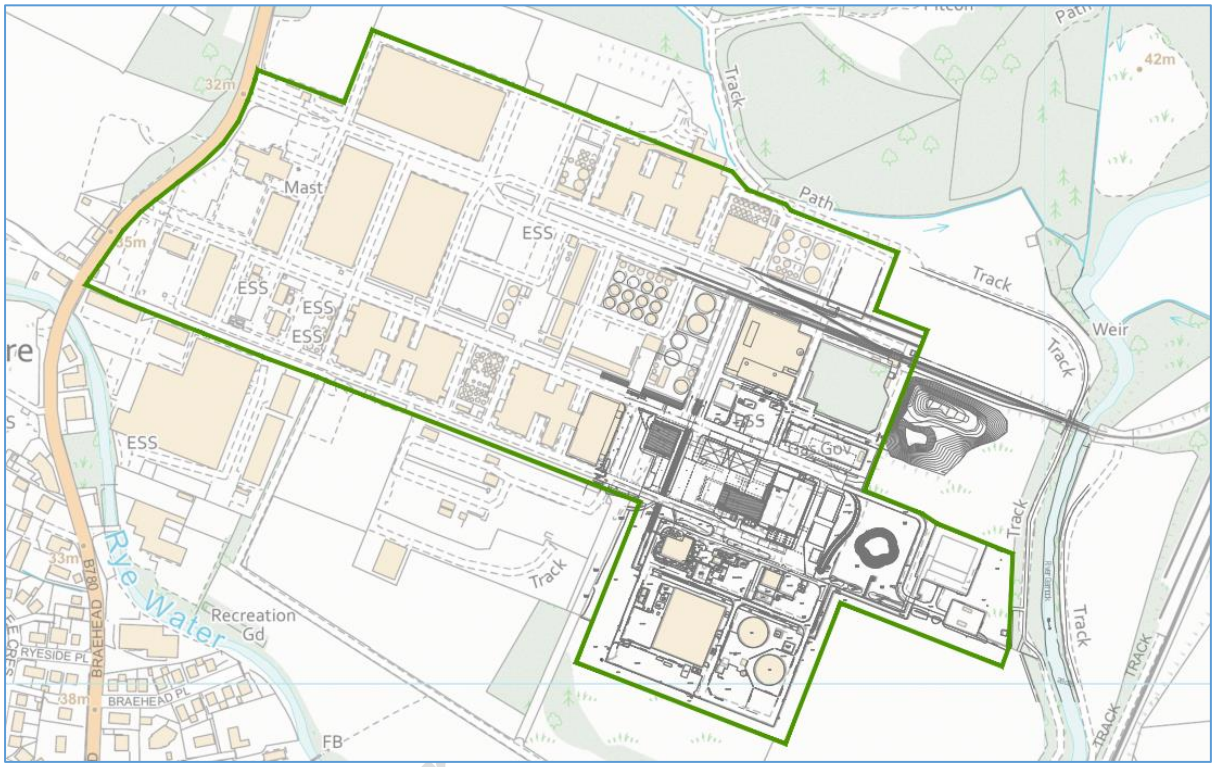
7. In Schedule 1, conditions 1.1.4.3 and 1.1.4.4 are added:

1.1.4.3 Off-gas & Liquid treatment consisting of a caustic scrubber, thermal oxidiser, series of three wet scrubbers and a selective catalytic reduction unit and continuous emission monitoring systems (CEMS) for flue gas emissions.

1.1.4.4 One diesel fired Himosia HSW-550 T5 Generator with a rated thermal input of 1.12 MWth ("Bovaer Emergency Generator");

8. In Schedule 1, the SITE PLAN is deleted and replaced with a new SITE PLAN, as follows.

SITE PLAN



9. In Schedule 2, Conditions 2.2.5 and 2.2.6 are inserted:

2.2.5 The Operator shall keep the following records relating to the operation of any Medium Combustion Plant, as described in Paragraph 1.1.4.3 :

(a) the type and quantity of fuel used;
(b) the operating hours;
(c) any information relating to any incident involving a Medium Combustion Plant;
(d) all monitoring results as required in Table 2.1, and;

2.2.6 The records required by Condition 2.2.5 shall be kept for a minimum of six years

10. In Schedule 2, Table 2.1, the following rows have been deleted:

Summary of information to be reported	Condition	Date within period/frequency to be reported	Date first report due
Review of alternative solvent	8.2.1	Single Report	31 December 2007

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11. In Schedule 2, Table 2.1, the following rows have been inserted:

Summary of information to be reported	Condition	Date within period/frequency to be reported	Date first report due
Limited operating hours MCP - Air Emissions monitoring results	2.2.5 & 8.4.3	Every 500 operating hours or at least every 5 years	Within 8 weeks of monitoring being undertaken, by 31 December 2025
Noise and Vibration Management Plan	3.9.2	At least once every 4 years	By 01 January 2026
Bovaer post Commissioning Noise and vibration assessment	3.9.3.1	At least once every 4 years	Within 6 months of Bovaer process commissioning
Emissions to Air Sampling - Bovaer	8.4.3	Every 6 months	Within 3 months of Bovaer process commissioning
Installation air mass emissions reporting	8.4.5	By the end of January of each year in respect of the previous year	By 31 January 2026
Air Polluting Substances -The Assessment of the need for continuous monitoring	8.4.7	One off report	Within 2 months of the completion of the first 12 months quarterly monitoring required by permit condition 8.4.3
Bovaer Commissioning ELVs Report	8.5.2	One off report	As specified by condition 8.5.2
Thermal oxidiser combustion conditions.	8.5.3	One off report	Prior to the commissioning of the process.
Bovaer Monthly Commissioning Report	8.5.5	As required	As required

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Summary of information to be reported	Condition	Date within period/frequency to be reported	Date first report due
Bovaer Final Commissioning Report	8.5.8	One off report	Withing one month of completion of process commissioning
Bovaer Emergency Generator periodic monitoring	8.6.3	As required	Within 2 months of the date of monitoring.
Water Polluting Substances -The Assessment of the need for the monitoring.	8.7.2	One off report	Within 2 months of the completion of the first 12 months monitoring required by permit condition 8.7.1
Emissions monitoring data	8.7.3	By the 30 January April, July, and October of each year	As required.

12. In Schedule 3, conditions 3.9.2 and 3.9.3 are inserted.

3.9.2 The Operator shall develop, implement, and maintain a noise and vibration management plan ("the Noise and Vibration Management Plan") in line with BAT. Following each assessment required by Condition 3.9.1 the Operator shall review the Noise and Vibration Management Plan.

3.9.3 The Operator shall undertake an appropriate assessment of broadband and tonal noise in line with BS 4142 requirements at noise sensitive receptors during the operation of the Permitted Activities within six months of the completion of commissioning of the Bovaer production process.

3.9.3.1 A copy of the assessments and any recommendations must be reported to SEPA within two months from the date the monitoring was completed.

3.9.3.2 Where the assessment identifies adverse impact, then the Operator submission must outline what additional BAT measures will be implemented to reduce the assessed impact.

13. In Schedule 5, Section 5.1 condition 5.1.1, condition 5.1.2 and condition 5.2.1 and in Schedule A conditions A4.1.3 and A4.1.4 are amended by replacement of all the occurrences of the text "Table 5.1A or Table 5.1B" by the text "Table 5.1".

14. In Schedule 5, Section 5.2 condition 5.2.5 is deleted.

15. In Schedule 5, Section 5.3 conditions 5.3.8.2 and 5.3.8.3 are deleted.

16. In ANNEX to Schedule 5, Table 5.1A and Table 5.1B are deleted and replaced with new Table 5.1 'Emissions to Air ELVs - Combustion Appliance'

Table 5.1 Emissions to Air ELVs - Combustion Appliance

Source of Emission	**Emission point number**	**A1**	**A2**		
	Emission source	Gas Turbine Dump Stack	LCP 39 Gas Turbine and Boiler 3 Stack		
	Stack height / diameter (m)	20 / 2.5	45 / 2.5		
	NGR	NS 29750 50280	NS 29720 50290		
	Fuel / Operational Mode	Gas Firing	Gas Firing	Gas Firing	Gas Firing
			Gas Turbine Operating in Isolation	Boiler 3 Operating in Isolation	Boiler 3 & Gas Turbine Operating in Combination
Limit Values	**NOx mg/Nm^3**	N/A	75 Note 1	100	75 Note 1
	SO_2 mg/Nm^3	N/A	N/A	35	N/A
	Particulate Matter mg/Nm^3	N/A	N/A	5	N/A
	CO mg/Nm^3	N/A	100 Note 1	100	100 Note 1
	Visible Emissions (Ringlemann Number) Below MSUL	1	1	1	1
	Above MSUL	1	1	1	1

N/A = no limit is set, "mg/Nm^3" refers to the concentration of pollutant emitted in milligrams per cubic meter of flue gas expressed at the specified reference conditions (Table 5.3).

Note 1 ELVs apply above 70% load. For the period from start up (MSUL as defined in Condition 5.3.1) to 70% load and from 70% load to shut down (MSDL as defined in Condition 5.3.1) for the Gas Turbine & Boiler 3 Operating in

Combination an ELV of 130 mg/Nm^3 for carbon monoxide applies, for the Gas Turbine Operating in isolation an ELV of 100 mg/Nm^3 for carbon monoxide also applies.

17. In ANNEX to Schedule 5, Table 5.2 Emissions to Air Monitoring Requirements, columns 4 and 5 ‘A3 (NEI Boiler Plant)’ are deleted.

18. In ANNEX to Schedule 5, Table 5.3 Reference Conditions, row 3 ‘emission point A3’ is deleted.

19. In ANNEX to Schedule 5, Section 5.6 ‘Temporary Boiler Systems’ is deleted and all conditions there in and Tables 5.7 -5.10 inclusive.

20. In ANNEX to Schedule 5, Table 5.5 Start up and shutdown thresholds, row 8 ‘conventional water tube boilers’ is deleted.

21. In Schedule 8 CONDITIONS APPLYING TO THE PRODUCTION OF OCTABASE HYDROCHLORIDE is deleted and all conditions and figures there in are deleted and replaced by new Schedule 8 as follows:

SCHEDULE 8 CONDITIONS APPLYING TO THE PRODUCTION OF BOVAER ANIMAL FEED ADDITIVE.

8.1 Scope

8.1.1 The Operator shall produce Bovaer animal feed additive only via the route described in Figure 8.1

8.2 Process Design, Operation and Maintenance

8.2.1 The Bovaer Animal Feed Additive process shall not operate unless the Bovaer Off Gas & Liquid Treatment Unit is operational.

8.2.2 The Bovaer Off Gas & Liquid Treatment Unit shall operate only via the route described in Figure 8.2.

8.2.3 The Bovaer Off Gas & Liquid Treatment Unit shall be designed, operated and maintained such that:

a) the temperature of the flue gases exiting the thermal oxidiser is maintained at not less than 1100^{o}C;

b) the gas residence time in the the thermal oxidiser is not less than 2 seconds, even under the most unfavourable operating conditions anticipated;

c) no waste shall be fed to the incineration plant unless the temperature in the thermal oxidiser has reached 1100^{o}C; and,

d) an oxygen concentration of not less than 6% v/v (epressed in terms of dry gas) is maintained in the flue gasses existing the permitted emisison point Table 8.1.

8.2.4 The thermal oxidsiser shall be equipped with at least 1 natural gas burner for start-up, shutdown and for maintaining combustion gas temperature.

8.2.5 During start up or shut-down or when the temperature of the combustion gas falls below the minimum temperature required by Condition 8.2.2 a) the auxiliary burner(s) shall not be fed with fuels which can cause higher emissions than those resulting from the burning of low sulphur gas oil to BS 2869 part 2, liquefied gas or natural gas.

8.3 Interlocks, Control Systems and Alarms

8.3.1 The natural gas burner specified in Condition 8.2.4 shall automatically control the temperature of combustion gases, after the last injection of combustion air, exiting from the thermal oxidiser falling below the temperature specified in Condition 8.2.2 a) when waste is being burned.

8.3.2 An automatic system shall be provided, maintained and tested to prevent waste liquid feed or process gases feed to the thermal oxidiser under the following situations:

a) at start up, until the temperature specified in Condition 8.2.2 a) has been reached;

b) whenever the temperature specified in Condition 8.2.2 a) is no longer maintained; or

c) whenever the Continuous Emissions Monitoring Systems (CEMS) required by Condition 8.4.3 show that the corresponding ELV is being exceeded due to a disturbance or failure of the abatement system.

8.3.3 Controls and interlocks shall be provided, maintained and tested to ensure that, as soon as practicable, no waste liquid or process gases can be fed to the thermal oxidiser if:

a) there is a failure or low speed alarm from both duty and standby fans supplying combustion air to the thermal oxidiser fails at the appropriate rate;

b) there is a failure or low speed alarm from both duty and standby induced draught fans not operating at the appropriate rate;

c) there is a stoppage, disturbance or failure of an abatement device that may result in any ELV specified in this permit being exceeded;

d) there is a loss of electrical power to the incineration process, or to any of its safety systems;

e) the temperature monitoring required by Condition 8.4.3 is not taking place;

f) subject to condition 8.3.5, any of the continuous monitoring devices required by Condition 8.4.3 show that the corresponding ELV is being exceeded;

8.3.4 In the event the continuous monitoring required by Condition 8.4.3 is not taking place, the Operator shall;

a) immediately cease to incinerate liquid waste and;

b) shall restore normal operation of the failed equipment, or replace the failed equipment as rapidly as possible and;

c) under no circumstances, continue to incinerate process gases for an uninterrupted period of more than four hours.

8.3.5 In the event that any of the continuous monitoring devices required by Condition 8.4.3 show that the corresponding ELV is being exceeded, the operator shall;

a) immediately cease to incinerate liquid waste and;

b) shall restore compliance with the corresponding ELV as rapidly as possible and;

c) under no circumstances, continue to incinerate process gases for an uninterrupted period of more than four hours.

8.4 Air Emission Conditions and Limits

8.4.1 All emissions to air specified in Table 8.1 during normal operation, other than steam or water vapour, shall be colourless and free from persistent mist, fume and droplets.

8.4.2 The Emissions to air specified in Table 8.1 shall be permitted only from the emission location specified in that Table and shall not exceed the emission limit value specified in that Table.

8.4.3 The Operator shall carry out and report to SEPA continuous (C) monitoring and periodic monitoring (SS) of emissions of the parameters specified in Table 8.1, Table 8.5 and Table 8.6 at the sampling location specified in that table and subject to the requirement for monitoring specified in Table 8.2, Table 8.5 and Table 8.6. For each result, the report shall include the operational mode of the Permitted Installation at the time of monitoring, any deviations from methods specified in Table 8.2, Table 8.5 and Table 8.6 and the associated confidence interval.

8.4.4 For any parameter specified in Table 8.1, all results of monitoring carried out under condition 8.4.3 shall be corrected to the reference conditions as specified in Table 8.3. The results of all tests and data used to correct the monitoring results to the reference condition specified in this condition shall be recorded.

8.4.5 The Operator shall record and report the mass emission results for the parameters of the emissions specified in Table 8.4 using the method agreed in writing with SEPA (as summarised in Table 8.4). This information shall be reported in a format agreed in writing with SEPA.

8.4.6 Information used to estimate mass emissions in compliance with Condition 8.4.5 shall be recorded for each estimate.

8.4.7 The operator shall provide a report to SEPA within 2 months of the completion of the first 12 months quarterly monitoring required by permit condition 8.4.3. The report shall summarise all monitoring data provided by permit condition 8.4.3 and provide assessment of whether continuous monitoring is required for monitoring emissions to air of SO_x TVOC, PM, HF and Heavy Metals.

8.4.8 Any percentage-based ELV specified in Table 8.2 shall be based on the averaging period and time span specified in Table 8.2, where the percentage is the percentage of averaging periods within the time span that must not exceed the percentage-based ELV. Compliance with the ELVs specified in Table 8.2 shall be assessed as described in Conditions 0 to 6.3.9 and Conditions 6.4.1 to 6.4.7.

8.5 Commissioning of Bovaer Process

8.5.1 At least three months, or such period as otherwise agreed in writing with SEPA, prior to the Commencement of Commissioning, the Operator shall notify SEPA in writing of a Commissioning Plan to include the following:

a) details of the work to be carried out including each test required by Condition 8.5.4.

b) the proposed dates on which the said work or test shall be started and completed; and

c) the criteria for determining when the Commissioning has ceased.

8.5.2 No later than three months, or such period as otherwise agreed in writing with SEPA prior to the Commencement of Commissioning, the Operator shall provide SEPA with a report containing the details of proposals for any temporary Emission Limit Values (ELVs) for emissions to air and water to apply

during Commissioning ("Bovaer Commissioning ELVs"). The report shall include the following information:

a) for each separate stage of commissioning where a Commissioning ELV is proposed:

   (i) identification of the specific stage of Commissioning and an explanation of what this involves;

   (ii) the proposed ELV. This should include a lower ELV requiring action, and a higher ELV requiring a notification to SEPA and incinerator shut-

down, and a justification and air quality impact assessment for those ELVs.

b) proposals for notification of non-compliance with any of the Commissioning ELVs; and,

c) how compliance with the ELVs in Table 8.1 in Schedule 8 of the Permit shall be achieved in the shortest possible time.

8.5.3 Prior to Commissioning the Operator shall submit a written report to SEPA. The report shall demonstrate the following:

a) that the thermal oxidiser design combustion conditions comply with the minimum temperature and residence time requirements as defined in Condition 8.2.3 (a) and Condition 8.2.3 (b) respectively;

b) the minimum oxygen level required to ensure adequate combustion;

8.5.4 When carrying out any Commissioning the Operator shall carry out tests to:

a) demonstrate that the Permitted Installation can be operated in compliance with the conditions of this Permit;

b) demonstrate that, the combustion zone temperature and the thermal oxidiser residence time are consistent with the requirements of Condition 8.2.3 (a) and (b) respectively under the most unfavourable operating conditions anticipated in accordance with the report submitted under Condition 8.5.3;

c) demonstrate the operation of the controls and interlocks installed to ensure compliance with Conditions 8.3.1 to 8.3.3 inclusive;

d) confirm compliance with the ELVs specified in Table 8.1 and any Commissioning ELVs proposed under Condition 8.5.2 and agreed in writing with SEPA;

e) demonstrate the 95% confidence levels of the CEMS comply with the criteria specified in paragraph 1.3 of Part 6, Annex VI of IED

f) demonstrate compliance with Quality Assurance Level (QAL) 1, 2 & 3 as specified in British Standard BS EN 14181 for continuous emissions monitoring systems (CEMS).

8.5.5 For the period of any Commissioning the Operator shall submit a monthly report containing a summary of:

a) the Commissioning undertaken during the preceding month, the phase of Commissioning this relates to and any associated Commissioning ELVs agreed in writing with SEPA.

b) an update of the Commissioning Plan required by Condition 8.5.1;

c) details of all tests carried out under Condition 8.4.3 during the preceding month;

d) the results of any such tests received during the preceding month;

e) the justification for any delays from the dates notified under Condition 8.5.1 (b).

8.5.6 Notwithstanding any other condition in this Permit, should any test required by Condition 8.5.4 indicate that the conditions of this Permit have not or cannot be complied with; the Operator shall cease carrying on that part of Commissioning which is the subject of the test, until either:

a) SEPA has given written permission for said part of the Commissioning to continue; or

(i) The Operator has proposed in writing to SEPA remedial action to ensure compliance with the conditions of this Permit;

(ii) those actions have been agreed with SEPA in writing; and

(iii) those actions have been implemented.

8.5.7 Where Condition 2.4.4 applies, the Operator shall notify SEPA within 24 hours. Said notification shall include the following information:

a) Time and date that Commissioning was ceased;

b) Identification of the reason why Commissioning was ceased;

c) Proposals to restore compliance with the Permit.

8.5.8 Within one month of Cessation of Commissioning, the Operator shall prepare and submit to SEPA a written report which demonstrates that all of the conditions of the permit can be complied with in full.

8.6 Emergency Generator

8.6.1 The Bovaer Emergency Generator combustion plant, as defined in Paragraph 1.1.4.4 shall not be operated for more than 500 operating hours per year (as a rolling average over a period of five years).

8.6.2 The Operator shall undertake all reasonable steps to ensure periods of start-up and shut-down of Medium Combustion Plant are kept as short as possible.

8.6.3 The Operator shall carry out and report to SEPA periodic monitoring (SS) of emissions of the parameters specified in Table 8.1 and Table 8.6 at the sampling location specified in that table and subject to the requirement for monitoring specified in Table 8.6.

8.6.4 For any parameter specified in Table 8.6, all results of monitoring carried out under condition 8.6.3 shall be corrected to the reference conditions as specified in Table 8.3. The results of all tests and data used to correct the monitoring results to the reference condition specified in this condition shall be recorded.

8.7 Water Polluting Substances

8.7.1 Measurement and/or sampling of the emissions in Table 8.7 shall be carried out by the Operator at the sampling locations specified in that Table subject to the requirements for monitoring specified in Table 8.7.

8.7.2 The operator shall provide a report to SEPA within two months of the completion of the first 12 months monitoring required by permit condition 8.7.1. The report shall summarise all monitoring data provided by permit condition 8.7.1 and provide justification for the need or otherwise to continue monitoring effluent emissions at the frequency listed in Table 8.7.

8.7.3 The date, time and results of all samples and measurements carried out in compliance with Condition 8.7.1 shall be recorded and reported to SEPA.

Table 8.1: Emissions to Air ELV's – Bovaer

Source of Emission	**Emission point number**	A5	A6
	Emission source	Bovaer Off Gas & Liquid Treatment Unit	Bovaer Emergency Generator
	Stack height/ diameter (m)	36.0m / 0.25m	4.6m / 0.16m
	Location on Site Plan	-	-
	NGR	229805, 650171	229748, 650197
Monitoring Details	**Type of Monitoring**	SS / C	SS
	Sampling Location	In stack	In stack
	Fuel Type	Natural Gas	Diesel
Emission Limit Values mg/Nm^3	**Oxides of Nitrogen (as NO_2) mg/Nm^3**	200	-
	Carbon Monoxide mg/Nm^3	-	-
	Sulphur Dioxide mg/Nm^3	-	-
	Total Volatile Organic Compounds	20	-
	Dichloromethane	1	-
	Gaseous Chlorides HCl	10	-
	Chlorine Cl_2	2	-
	Ammonia NH_3	40	-

Emission Limit Values ng I-TEQ/Nm3	**Dioxins & Furans**	0.05	-

Table 8.2 Emissions to Air Monitoring Requirements – Bovaer

Emission Point Number (s)	Parameter	Emission Limit Value (including unit)	Reference Period	Monitoring Frequency Spot Sampling (SS) Continuous (C)	Monitoring standard or method
A5	Oxides of Nitrogen (as NO_2)	200 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months	BS EN 14792
		200 mg/Nm^3	Daily Average	Continuous Measurement	BS EN 14181 BS EN 15267 - 3
		200 mg/Nm^3	97% ½ hour		

Table 8.2 Emissions to Air Monitoring Requirements – Bovaer cont/

Emission Point Number (s)	Parameter	Emission Limit Value (including unit)	Reference Period	Monitoring Frequency Spot Sampling (SS) Continuous (C)	Monitoring standard or method
A5	Oxygen (O_2)	None Set	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months	EN 14789
		None Set	Daily Average	Continuous Measurement	BS EN 15267-3

Emission Point Number (s)	Parameter	Emission Limit Value (including unit)	Reference Period	Monitoring Frequency Spot Sampling (SS) Continuous (C)	Monitoring standard or method
A5	Carbon Monoxide (CO)	None Set	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months	BS EN 15058
		None Set	Daily Average	Continuous Measurement	BS EN 14181 BS EN 15267 - 3
			97% ½ hour		
A5	Total Volatile Organic Compounds (TVOC)	20 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	EN 13649
		10 mg/Nm^3	Daily Average	Continuous Measurement * See Note1	BS EN 14181 BS EN 15267 - 3
		10 mg/Nm^3	97% ½ hour		

Emission Point Number (s)	Parameter	Emission Limit Value (including unit)	Reference Period	Monitoring Frequency Spot Sampling (SS) Continuous (C)	Monitoring standard or method
A5	Dichloromethane (DCM)	1 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	CEN TS 17021 or EN 14791
A5	Gaseous Chlorides (HCl) –	10 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	BS EN 1911

Emission Point Number (s)	Parameter	Emission Limit Value (including unit)	Reference Period	Monitoring Frequency Spot Sampling (SS) Continuous (C)	Monitoring standard or method
A5	Chlorine (elemental) (Cl_2)	2 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	USEPA method 26/26A or CEN/TS 17337
A5	Ammonia (NH_3)	40 mg/Nm^3	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	BS EN ISO 21877
A5	Dioxins & Furans (D&F)	0.05 ng I-TEQ/Nm3	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	EN 1948

Emission Point Number (s)	Parameter	Emission Limit Value (including unit)	Reference Period	Monitoring Frequency Spot Sampling (SS) Continuous (C)	Monitoring standard or method
A5	Heavy Metals (Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	None Set	Average value of three consecutive measurements of at least 30 minutes each	Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	BS EN 14385
A5	Particulate Matter	None Set		Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	EN 13284-1
A5	HF	None Set		Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	CEN TS 17340

Emission Point Number (s)	Parameter	Emission Limit Value (including unit)	Reference Period	Monitoring Frequency Spot Sampling (SS) Continuous (C)	Monitoring standard or method
A5	Sulphur Dioxide (SO_x)	None Set		Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	BS EN 14791
A5	Volumetric Flow (m^3/hour)	None Set		Periodic Measurement Once every quarter for the first 12 months of operation and then once every 6 months.	BS16911-2

*Note 1: No continuous measurement requirement for the first 12 months of operation or as agreed in writing with SEPA.

Table 8.3 Reference Conditions - Bovaer

Emission Point Number	Parameter	Reference Condition
A5	SOx, NOx, CO, VOCs, NH3, DCM, Cl, HCl, Temperature, Water Content, Oxygen	Temperature: 237.15K, Moisture Content: Dry. No correction for the Oxygen level
A6	CO	Temperature: 237.15K, Moisture Content: Dry, Oxygen 15%.

Table 8.4 Mass Emissions to Air - Bovaer

Parameter	Emission Point	Method (Summary)	Mass Emissions Results to be recorded as.
Oxides of Nitrogen (as NO_2)	A5	Estimate based on monitored emissions	Kg of Nitrogen Dioxide
Carbon Monoxide (CO)	A5		Kg of Carbon Monoxide
Sulphur Dioxide (SO_x)	A5		Kg of Sulphur Dioxide
Total Volatile Organic Compounds (TVOC)	A5		Kg of Volatile Organic Compounds
Dichloromethane (DCM)	A5		Kg of DCM
Hydrochloric Acid (HCl) – gaseous chlorides	A5		Kg of HCl
Chlorine (Cl_2)	A5		Kg of Chlorine
Ammonia (NH_3)	A5		Kg of Ammonia

Table 8.5 Process Monitoring Requirements - Bovaer

Location or description of point of measurement	Parameter	Units	Monitoring frequency	Monitoring standard or method
Thermal Oxidiser Discharge Duct	Combustion Air Temperature	^{o}C and K	Continuous	BS 16911-2
			Periodic Measurement - Quarterly for first year then once every 6 months	BS EN 16911-1
Thermal Oxidiser Discharge Duct	Exhaust gas Oxygen Content	% dry gas	Continuous	BS EN 14181 BS EN 15267-3
			Periodic Measurement - Quarterly for first year then once every 6 months	BS EN 14789

Table 8.6 Emergency Generator Monitoring Requirements - Bovaer

Parameter	Standard/ Method	Emission Point Number (s)	Monitoring Frequency	Operating mode
Carbon Monoxide (CO	BS EN 15058	A6	At least at least every 1500h of operation or once every 5 years	Operating under stable conditions at a representative even load and not undergoing start-up or shutdown.

Table 8.7 Water Polluting Substances Monitoring Requirements - Bovaer

Emission Point / Location	Parameter	Monitoring frequency	Monitoring device type	Monitoring standard or method
S1 & Waste water effluent from the Off Gas and Liquid Treatment Unit.	pH,	Continuous or 24 hour proportional sample	Instantaneous analyser	Latest standard from "Monitoring discharges to water: environmental permitting" guidance documents published by EA at www.gov.uk or as otherwise agreed in writing with SEPA.
	Temperature	Continuous	Instantaneous analyser	
	Flow	Continuous	Flow meter	
S1 & Waste water effluent from the Off Gas and Liquid Treatment Unit.	Total suspended solids	Daily	Flow proportional composite sample over 24 hours or spot grab sample	BS EN 872
S1 & Waste water effluent from the Off Gas and Liquid Treatment Unit.	Mercury and its compounds as Hg	Monthly	Flow proportional composite sample over 24 hours or spot grab sample	BS EN ISO 12846 or BS EN ISO 17852
S1 & Waste water effluent from the Off Gas and Liquid Treatment Unit.	Cadmium and its compounds as Cd	Monthly	Flow proportional composite sample over 24 hours or spot grab sample	BS EN ISO 15586 or BS EN ISO 17294-2.
	Thallium and its compounds as Tl			

Emission Point / Location	Parameter	Monitoring frequency	Monitoring device type	Monitoring standard or method
	Antimony and its compounds as Sb			
	Arsenic and its compounds as As			
	Lead and its compounds as Pb			
	Chromium and its compounds as Cr			
	Copper and its compounds as Cu			
	Molybednum and its compounds as Mo			
	Nickel and its compounds as Ni			
	Zinc and its compounds as Zn			
S1 & Waste water effluent from the Off Gas and Liquid Treatment Unit.	dioxins and furans	Quarterly	Flow proportional composite sample over 24 hours or spot grab sample	Latest standard from “Monitoring discharges to water: environmental permitting” or as otherwise agreed in writing with SEPA.

Figure 8.1 - Bovaer

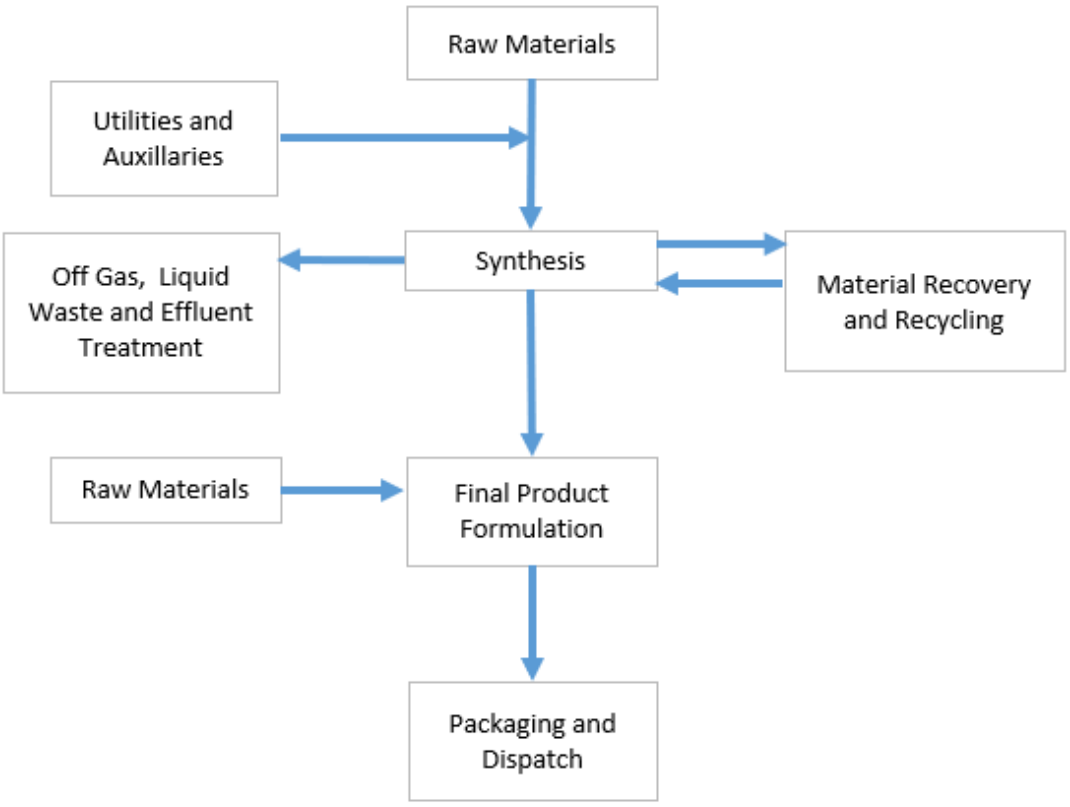
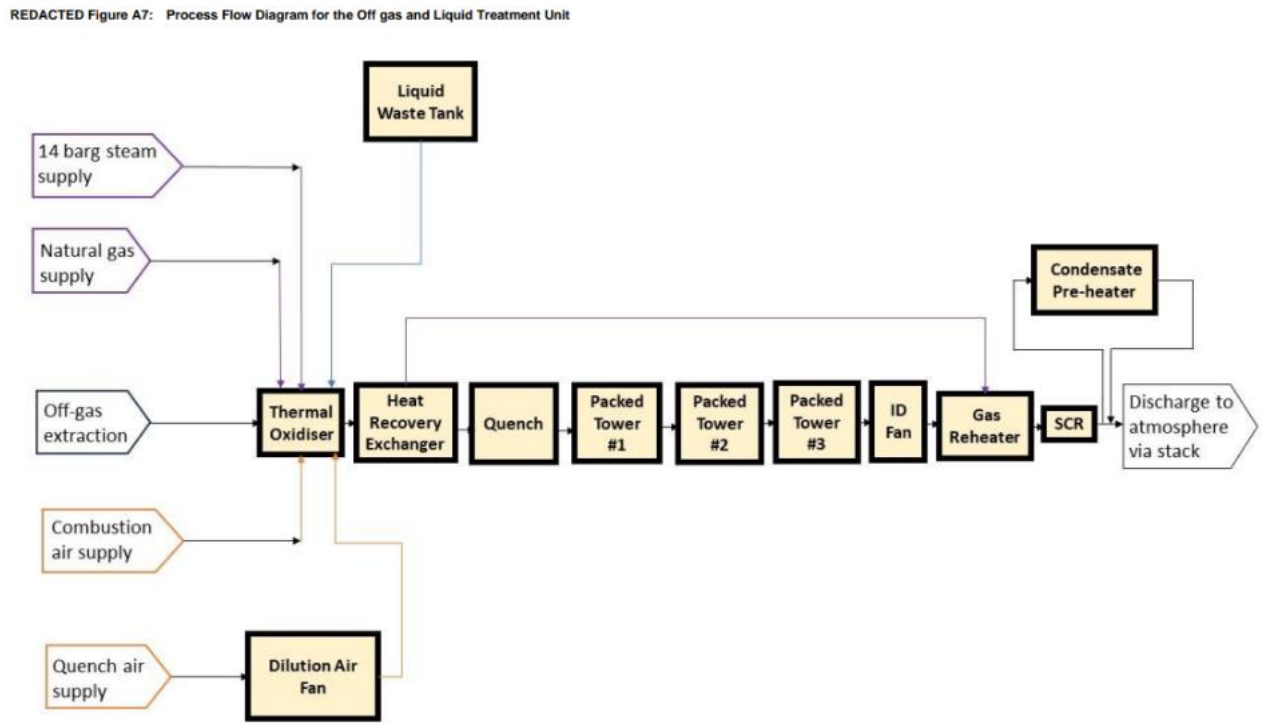


Figure 8.2 – Off Gas & Liquid Treatment Unit



22. New Schedule B: CONDITIONS APPLYING TO THE MONITORING AND DATA HANDLING REQUIREMENTS FOR WASTE INCINERATION PLANT FOR EMISSIONS TO AIR has been added.

SCHEDULE B: CONDITIONS APPLYING TO THE MONITORING AND DATA HANDLING REQUIREMENTS FOR WASTE INCINERATION PLANT FOR EMISSIONS TO AIR.

B1. Monitoring Requirements and Standards

B1.1.1 The device, or devices, employed for the continuous monitoring of any substance listed in Table 8.2 shall have a 95% confidence interval that, for a single measured result, does not exceed the relevant percentage of the ELV specified in Annex VI Part 6 Section 1.3 of IED or as otherwise agreed with SEPA.

B1.1.2 Continuous Emissions Monitoring Systems (CEMS) shall be certified in accordance with BS EN 15267-3 and QAL1 of BS EN 14181.

B1.1.3 All new CEMS shall have certification as required by Condition B1.1.2 and have a certified range which is not greater than 1.5 times the daily ELV, or as otherwise agreed in writing with SEPA.

B1.1.4 In compliance with BS EN 14181, all CEMS employed for monitoring of any substance listed in Table 8.2 shall:

a) be calibrated at least every five years by parallel measurements in compliance with the QAL 2 requirements of BS EN 14181; or

b) where no CEN standard is available (and only in that circumstance): be calibrated using the relevant default calibration method given in Table 8.2.

B1.1.5 At least once every 12 months, the Operator shall undertake an appropriate series of tests on all CEMS in compliance with the Annual Surveillance Test (AST) requirements of BS EN 14181.

B1.1.6 The tests required by Conditions B1.1.4 and B1.1.5 shall demonstrate the satisfactory operation of the CEMS and confirm that the relevant CEMS for each substance specified in Table 8.2 complies with the relevant confidence levels referred to in Condition B1.1.1.

B1.1.7 Where new calibration factors are established for any parameter during a QAL 2 test, the relevant CEMS shall be updated with those new calibration factors as soon as the QAL 2 Test report has been received and accepted by the Operator, and without unreasonable delay. The Operator shall record and report to SEPA the date and time of implementation of any new calibration factor to the CEMS, or where this has been delayed the reason for this, within 10 working days of receipt of the QAL 2 report by the Operator.

B1.1.8 The results of the QAL2 Test referred to in Condition B1.1.4 and the AST referred to in Condition B1.1.5 shall be recorded and reported, in writing, to SEPA.

B1.1.9 The Operator shall, in compliance with QAL3 of BS EN 14181, have a documented procedure describing the regular checks and maintenance of the CEMS. The procedure shall describe the requirements for:

a) measuring zero and span values (“zero and span checks”);

b) plotting these values by use of control charts; and

c) using the control charts to determine whether the CEMS has gone outwith control chart tolerance limits as specified in BS EN 15267-3, and whether this is caused by a random or systematic error.

B1.1.10 The Operator shall record all maintenance and calibration work carried out on any CEMS required by Conditions B1.1.4 to B1.1.9. If any calibration work identifies an under or over estimation of any emissions greater than the confidence level referred to in Condition B1.1.1 for that parameter listed in Table 8.2, and/or a failure of the QAL2 or AST, this fact shall be notified to SEPA by first class post or email by the next working day after the identification.

B1.1.11 Reporting of calibration work carried out on the CEMS shall be carried out in accordance with the requirements of the standards specified in BS EN ISO/IEC 17025 unless otherwise agreed in writing with SEPA.

B1.1.12 The technique employed for the periodic monitoring of any substance listed in Table 8.2 shall be:

a) the current CEN standard; or

b) where no CEN standard is available (and only in that circumstance): the default method for that substance as appropriate; or

c) alternative methods may be used provided the Operator can demonstrate equivalence to the relevant CEN standard by using CEN/TS 14793.

B1.1.13 Monitoring personnel, equipment and organisations shall have a quality system accredited to BS EN ISO/IEC 17025 and laboratory analysis shall be carried out by an organisation accredited to ISO/IEC 17025 unless otherwise agreed in writing with SEPA.

B2 Data Handling and Reporting - Continuous Emissions Monitoring

B2.1.1 The measured value of each concentration or parameter required to be continuously monitored by Condition 8.4.3 shall be electronically recorded as required by Table 8.2 and the time and date of each recorded measured value shall be recorded. The collection of recorded measured values of any concentration or parameter shall be referred to as the 'measured value data set' for that concentration or parameter.

B2.1.2 The measured value data sets for concentrations of each continuously monitored substance other than oxygen (or moisture, if sample is not taken on dry basis), shall be electronically filtered on a real time basis as specified in Condition B2.1.3 and for air emissions, corrected on a real time basis as specified in Condition B2.1.4, in order to produce reported value data sets.

B2.1.3 Each reported value data set shall:

a) exclude measured values recorded during any zero, span and calibration checks on the instrument which gave rise to the values;

b) exclude measured values recorded during the start-up and shut-down periods during which no waste was being incinerated; and

c) exclude measured values recorded during the failure of monitoring equipment or other equipment that could affect the accuracy of the measurement of the concentration of those substances.

B2.1.4 Each measured value for concentrations of those continuously monitored substances listed in Table 8.2, other than oxygen, which is included within a reported value data set shall:

a) have the relevant confidence interval specified in Condition B1.1.1 subtracted on a real time basis, with a minimum value of zero after subtracting the confidence interval;

b) be corrected on a real time basis to the reference conditions specified in Condition 8.4.3 using the contemporaneously recorded temperature, pressure, and oxygen concentration; and

c) be based on the most recent calibration functions following a QAL 2 calibration exercise as required under Condition B1.1.7.

B2.1.5 Subject to Conditions B2.1.6 and B2.1.8, the reported value data sets for concentrations of those continuously monitored substances listed in Table 8.2, other than oxygen and carbon monoxide, shall be divided into discrete and consecutive 30 minute subsets (commencing each hour and half hour) and similar 24 hour subsets (commencing at 00h00 each day), and the average concentration of the respective substance for each such subset shall be calculated and recorded within one minute of the subset becoming complete.

B2.1.6 To obtain the daily average reported value data set for any substance as required in Condition B2.1.5:

a) no more than five 30 minute average reported value data sets in any day shall be excluded, as required by Condition B2.1.3 a) and 0 c), due to a malfunction or maintenance of the continuous monitoring system;

b) all 30 minute and 10 minute average values recorded during periods of Abnormal Operation shall be excluded from the daily average reported value data set; and;

c) no more than ten daily average reported value data sets shall be excluded per year due to malfunction or maintenance of the continuous monitoring system.

B2.1.7 With reference to Conditions B2.1.5, 0 and B2.1.8 the circumstances under which a data set may still be valid due to a malfunction or maintenance of the continuous monitoring system, even though a part of the data set is invalid, are detailed in Table B1.

B2.1.8 The reported value data set for the concentration of carbon monoxide shall be divided into discrete and consecutive 10 minute subsets (commencing at 0, 10, 20, 30, 40 and 50 minutes past each hour) and similar discrete 30 minute subsets (commencing each hour and half hour) based on a rolling 24 hour period, and 24 hour subsets (commencing at 00h00 each day), and the average concentration of carbon monoxide for each such subset shall be calculated and recorded within one minute of the subset becoming complete. All half hourly average values and 10 minute average values recorded during periods of Abnormal Operation shall be excluded from the daily average reported value data set.

B2.1.9 The Operator shall submit a quarterly report containing, as a minimum, the following:

a) daily average reported value data sets measured and calculated in accordance with Conditions B2.1.1 to B2.1.8, as appropriate;

b) for emissions to air, maximum half-hourly average reported value data sets calculated in accordance with Conditions B2.1.5 or B2.1.8 for each day;

c) for emissions to air, for each reporting period, the percentage of half hourly average reported value data sets calculated in accordance with Conditions B2.1.5 or B2.1.8 that exceed the ELV in column 3 of Table 8.2;

d) graphical representations of the data required by Conditions B2.1.9 a), b) and c);

e) any reported value data set that exceeds the relevant percentage compliance level for that substance;

f) the number of hours the incineration plant was operated during each week covered by the report.

Table B1: Exceptions to Condition B2.1.7

Required by conditions B2.1.5, B2.1.6, B2.1.7 & B2.1.8

Time Average Basis	Invalidation Threshold
Daily Average (24 hours) based on 30 minute averages	More than five invalid 30 minute averages where the 30 minute averages are based on less than 20 minutes of data for each calendar day period where the plant is operational for all 24 hours
30 Minute average	Invalid average = A 30 minute average based on less than 40 data points (or 20 minutes of relevant data captured at acquisition rates of less than once every 30 seconds)
10 Minute average	Less than 14 data points (or less than 7 minutes of relevant data captured at acquisition rates of less than once every 30 seconds)