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7 June 2021

Subject: Suitable Fuel Types for TNG Eastern Creek EfW Facility

Dear Mr Salon

We have reviewed the following proposed fuel types for the TNG Eastern Creek facility, which we received from MRA (28 May 2021, Version 7), which is recommending the following contracted and eligible feedstocks:

Table 1: Selected Fuel Mix (MRA, 28 May 2021, Version 7)

Table 6: Selected Fuel Mix

Waste Stream	% Composition	Tonnes (based on Input)	CVraw (kJ/kg)
Stream 1 - Bingo C&D Network	37%	203,507	9,088
Stream 2 - Bingo C&D Genesis (MPC1 and future MPC2)	54%	279,693	13,778
Stream 3 – Inert C&I (BINGO & SWS)	9%	69,300	10,056
Total Feedstock Mix	**100%**	**552,500**	**11,584**

All fuel types have a calorific value which is between the minimum and maximum calorific value of 8,500 kJ/kg to 16,485 kJ/kg of the HZI combustion diagram (shown below).

The Feedstock Mix has a calorific value of 11,584 kJ/kg at a waste throughput of 34.5 t/h.

This Combined Feedstock is located slightly below the LPN/Design point (blue point in the diagram shown below) and comfortably inside the allowable “Range of continuous operation”.

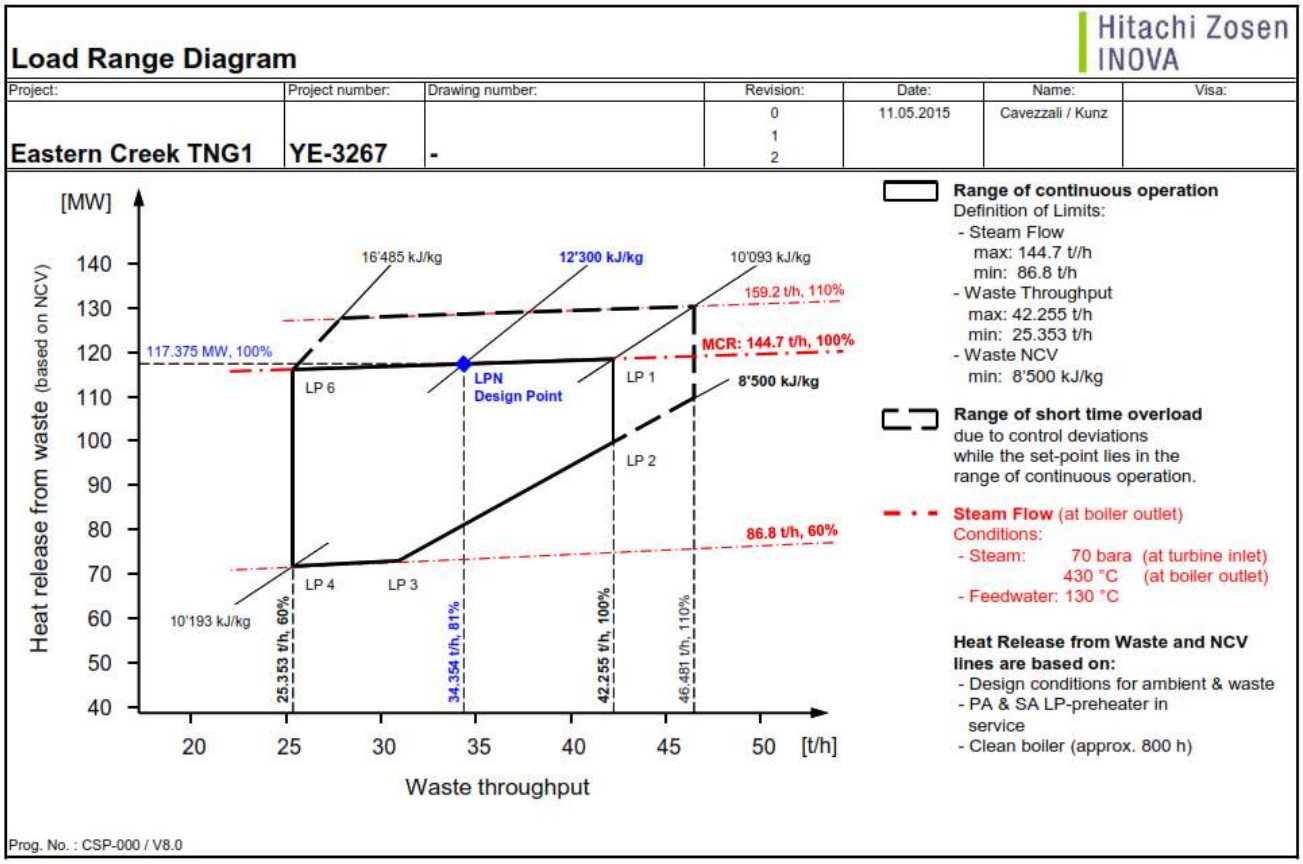

Figure 1: HZI Combustion Diagram for Eastern Creek TNG1

Hence, HZI can confirm that all fuel types are suitable for our plant design, either on their own, in combination thereof, or the particular composition shown above.

This fuel type flexibility is the essence of the HZI Energy from Waste design, which can handle various compositions cognisant that waste constantly changes.

We can give these guarantees as we have gained demonstrated experiences with more than 700 delivered EfW projects.

We confirm that all those plants have:

- Differing waste inputs subject to the originating industry sector and pre-treatment;
- Each plant has variations, and if ever the exact design fuel composition is burned, then it will be only momentarily as waste constantly varies over time even if coming from the same source;
- Our robust combustion and flue gas treatment technology are Best Available Technology (BAT). This is confirmed as they have permitted, contracted, delivered, and tested in operation as BAT; and
- All clients can safely operate the HZI designed EfW plants under the constantly varying waste characteristics and below the specified emission limits.

We suggest the HZI Ferrybridge Multifuel FM1 facility as a reference site, which has the following Plant Description and Design (excerpt from the Annual Report 2019; also attached):

Table 2: Ferrybridge FM1 Plant Description and Design (excerpt):

Annual Performance Report 2019 Ferrybridge Multifuel 1

Plant Description and Design
Ferrybridge Multifuel 1 is designed for the disposal of waste with energy recovery in an incineration plant and is permitted under Section 5.1 A(1)(b) the incineration of non-hazardous waste in an incineration plant with a capacity exceeding 3 tonnes per hour. The installation is located on land adjacent to the Ferrybridge Power Station site, close to the A1(M). It lies 1km northwest of the village of Ferrybridge, 2km northwest of Knottingley, 1.9km southeast of Ferry Fryston, and 3km northeast of Pontefract, at grid reference SE 4726 2500. The facility has a throughput limit of 725,000 tonnes per year of waste which can include refuse derived fuel, waste wood and commercial and industrial waste. The facility consists of two combustion lines and generates approximately 80 MWe of electricity, of which approximately 73 MWe is exported. Moving grate technology is used for burning the waste material. The furnace design ensures that a temperature of at least 850 degrees celcius for a period of at least two seconds is achieved in the combustion chamber. Auxillary burners firing a low sulphur gas oil are automatically triggered by online process monitoring equipment are used to ensure the temperature does not fall below 850 degrees celcius. Hot gases from the furnace pass in a boiler. Steam raised in the boiler is passed to a turbine to generate electricity for export to the National Grid.

The Permitted Waste Types (Permit Number EPR/SP3239FU, signed 30/11/2012, were issued by Environment Agency (England and Wales) and summarised by high-level waste description (full permit as attachment):

Table 3: Ferrybridge Permitted Waste Types (excerpt)

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels

Raw materials and fuel description	Specification
Fuel Oil	< 0.1% sulphur content

Table S2.2 Permitted waste types and quantities for incineration plant

Maximum quantity	Maximum total throughput = 675,000 tonnes per annum
Waste code	**Description**
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING.**
02 01	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	Plant-tissue waste
02 01 04	Waste plastics (except packaging)
02 01 07	Wastes from forestry
02 02	**Wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 03	Materials unsuitable for human consumption or processing
02 05	**Wastes from the dairy products industry**
02 05 01	Materials unsuitable for human consumption or processing
02 06	**Wastes from the baking and confectionary industry**
02 06 01	Materials unsuitable for human consumption or processing
02 07	**Wastes from the production of alcoholic and non alcoholic beverages**
02 07 01	Wastes from washing, cleaning and mechanical reduction of raw materials
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 01	Waste bark and cork
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
04	**WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES**
04 02	**wastes from the textile industry**
04 02 15	Wastes from finishing other than those mentioned in 04 02 14
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 09	textile packaging

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Table S2.2 Permitted waste types and quantities for incineration plant

Maximum quantity	Maximum total throughput = 675,000 tonnes per annum
Waste code	**Description**
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**Wastes not otherwise specified in the list**
16 01	**End of life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end of life vehicles and vehicles maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	End-of-life tyres
16 01 19	Plastic
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 03	plastic
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 38	Wood other than those mentioned in 20 01 37
20 01 39	Plastics

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We note that the original permit had a maximum total throughput of 675,000 tpa, increasing to 725,000 tpa as of 2019.

The following Waste Types were treated from 2016 to 2019:

Table 4: Ferrybridge FM1 Permitted Waste Types (excerpt from Annual Returns)

2.2 Permitted Waste Types

Ferrybridge is permitted to take a large number of groups of wastes, as defined by their EWC code. "20" codes, which correspond to Municipal Wastes which have not been processed are not accepted at the facility. The below table corresponds to the wastes currently being accepted at the facility, and is by no means exhaustive of the types of wastes which can be accepted.

EWC Code	Description
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

The cited “EWC Code and Description” are defined in the List of Wastes (CELEX_02000D0532-20150601_EN_TXT.pdf, available from CL2000D0532EN0020010.0001.3bi_cp 1..1 (europa.eu). The EWC Code 19 12 with all its sub-categories contains:

19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	Glass
19 12 06*	wood containing hazardous substances
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	Textiles
19 12 09	minerals (for example sand, stones)
19 12 10	combustible waste (refuse derived fuel)
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

The annual waste returns of Ferrybridge (as for all other incineration facilities) are attached for the years 2016 to 2019. The waste quantities were extracted for each year by EWC Code and summarised as follows:

EWC Code	EWC Description	Waste Input 2016 [tpa]	Waste Input 2017 [tpa]	Waste Input 2018 [tpa]	Waste Input 2019 [tpa]	Waste Input 2016-2019 [tpa]	Waste Input 2016-2019 [%]
19 12 10	combustible waste (refuse derived fuel)	468'224	487'851	497'967	581'980	2'036'022	81%
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	99'679	133'490	149'087	84'433	466'688	19%
19 12	**19 12 wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified)**	**567'902**	**621'341**	**647'054**	**666'412**	**2'502'710**	**100%**

(compare Attachment “20210603 Ferrybrige FM1 Waste” for details)

This means that Ferrybridge FM1 is actively burning the following waste codes:

- Code 19 12 10 combustible waste (refuse derived fuel)
- Code 19 12 12 other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

We note that the Stream 1, proposed for the TNG Eastern Creek EfW falls under the EWC category 19 12 12 which is:

- other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

We note that the Streams 2 and 3, proposed for the TNG Eastern Creek EfW falls under the EWC category 19 12 12 if separated in the MPC1. With the inclusion of MPC2, the material will go through a quality improvements by the removal of PVC. This improvement step means that it is then falling under the EWC category 19 12 10

- combustible waste (refuse derived fuel)

We are now comparing the waste streams of the reference facility Ferrybridge FM1 with the proposed TNG Streams 1, 2, and 3:

EWC Code	EWC Description	Ferrybridge FM1 Waste Input 2016-2019 [%]	TNG Streams	TNG Streams [tpa]	Waste Input 2016- 2019 [%]
19 12 10	combustible waste (refuse derived fuel)	**81%**	Stream 2 Stream 3	together 348,493	**together 63%**
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	**19%**	Stream 1	203,507	**37%**
19 12	**19 12 wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified)**	**100%**		**552,000**	**100%**

As per above, we have shown that the waste types burnt in Ferrybrige FM1 are qualitatively identical to the proposed Streams 1, 2, and 3 for TNG as per the EWC (European Waste Code).

There is a slight quantitative difference in the percentages between the waste types, e.g.

- 63% for TNG versus 81% for FM1
- 37% for TNG versus 19% for FM1

These differences are irrelevant as FM1 could burn 100% of either waste type on its own, which is also fully guaranteed by HZI as the technology provider.

Hence, the proposed TNG Streams 1, 2, and 3 are “like for like” with the waste burnt between 2016 and 2019.

We note that the proposed TNG Eastern Creek EfW project is a of the same design in size and technology as Ferrybridge FM1.

We conclude that the proposed TNG Eastern Creek EfW project is “like for like” with the operational Ferrybridge FM1 operation as per the NSW EPA Energy from Waste Policy.

The suggested removal of shredder floc from the TNG waste streams means that the average waste input will have a lower concentration in chlorine, sulphur, and heavy metals. HZI confirms the performance and the guarantees of the proposed TNG Eastern Creek projects with this change.

We also confirm that the TNG Eastern Creek project papers and in particular the Project Definition Brief (Ramboll, Sep 2017) is still valid in the absence of shredder floc.

In 2019, Europe shifted its strict emissions limits from the Industrial Emissions Directive (2010/75/EU) to the BREF (2019/2010/EU). HZI can confirm that the TNG Eastern Creek project in the absence of shredder floc will achieve the Upper BREF limits.

Recently, the NSW EPA updated the NSW EPA NSW Energy from Waste Policy (June 2021) with even stricter air emission limits. HZI confirms that the TNG Eastern Creek EfW project in the absence of shredder floc will achieve the lower emission values of the updated policy. Hence, the TNG Eastern Creek EfW project adopts international best practice standards and controls to protect human health and the environment in line with the goals of the NSW EPA NSW Energy from Waste Policy (June 2021).

If requested, I would be pleased to provide further evidence or information on the above matters.

Kind regards

Hitachi Zosen Inova Australia Pty Ltd

Dr. Marc Stammbach

Managing Director

Attachments:

- Ferrybridge MFE Ltd Permit SP3239FU (pdf)
- Ferrybridge FM1 Wastes (pdf)
- Ferrybridge MFE Ltd 2016 Annual Report (pdf)
- Ferrybridge MFE Ltd 2017 Annual Report (pdf)
- Ferrybridge MFE Ltd 2018 Annual Report (pdf)
- Ferrybridge MFE Ltd 2019 Annual Report (pdf)

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Ferrybridge MFE Limited

Ferrybridge Multifuel Facility
Ferrybridge Power Station
Knottingley
West Yorkshire.

Permit number

EPR/SP3239FU

Ferrybridge Multifuel Facility
Permit Number EPR/SP3239FU

Introductory note

This introductory note does not form a part of the permit

This permit controls the operation of an installation, whose purpose is the disposal of waste with energy recovery in an incineration plant. The relevant listed activity is Section 5.1 Part A(1)(c) The incineration of non-hazardous waste in an incineration plant with a capacity of 1 tonne or more per hour. The permit implements, primarily, the requirement of the EU Directives on Integrated Pollution Prevention and Control and Waste Incineration.

The main features of the permit are as follows. The installation is located on land adjacent to the Ferrybridge Power Station Site, close to the A1 (M). It lies 1km north-west of the village of Ferrybridge, 2km north-west of Knottingley, 1.9km south-east of Ferry Fryston, and 3 km northeast of Pontefract. Grid reference SE 447335, 424995.

The facility has a throughput limit of 675,000 tonnes per annum of waste including refuse derived fuel, waste wood and commercial and industrial waste. The installation will generate approximately 76MWe of electricity, of which approximately 69MWe will be exported. Waste is delivered to the facility by both road and rail.

The installation covers the entire facility including two combustion lines, waste reception, waste storage, water use, drainage, flue gas and air supply systems, boilers, facilities for the treatment of exhaust gases, on-site facilities for treatment and storage of residues and water recycling, stacks, devices and systems for controlling incineration operations, recording and monitoring conditions.

Moving grate technology is used for burning the waste material. The furnace design ensures that a temperature of at least 850°C for a period of at least two seconds is achieved in the combustion chamber. To ensure that the temperature does not fall below 850°C, auxiliary burners firing a fuel of low sulphur gas oil is automatically triggered by online process monitoring equipment.

Hot gases from the furnace pass into a boiler. Steam raised in the boiler is passed to a turbine to generate electricity, for export to the National Grid.

Combustion gases are cleaned before they are released to atmosphere. There are four components to the gas cleaning, abatement technique:

- Selective Non-Catalytic Reduction (SNCR), involving the injection of ammonia into the combustion chamber above the flame, provides for the abatement of nitrogen oxides;
- dry lime reagent, injected to neutralise acid gas compounds;
- activated carbon, injected to absorb mercury, dioxins and furans;
- bag filtration to remove fine particulates. The residues of the bag filters are collected and directed to a residues silo.

Cleaned flue gases exiting the abatement system of each of the incinerator lines are discharged through a 100m tall stack. Each line has its own flue within a common windshield.

All plant areas are surfaced to the appropriate standards for the activities within those areas. All liquid tanks and drums, whose emissions to water or land could cause pollution, are contained in adequate bunding constructed in line with industry best practice standards and sized to contain 110% of the tank contents. Materials used for surfacing of process areas and bunds are resistant to the materials they may come into contact with.

There are no discharges to controlled waters apart from uncontaminated surface water run-off from roads, vehicle parking areas, roofs of buildings, other hardstanding and landscaped areas which are discharged to Fryston Beck via two discharge points. All waste waters from on-site processes will be reused within the installation.

Odour problems are not expected from the facility. Any potential odours from storage of the waste materials are extracted from the storage bunker and used as combustion air within the furnace, thereby destroying any potentially odorous compounds.

The main solid residues produced by the facility are bottom ash and air pollution control (APC) residues. Bottom ash will be transferred off-site to a suitably licensed waste treatment facility. APC residues are hazardous waste and will be sent off site to an appropriate licenced facility for disposal.

The status log of the permit sets out the permitting history, including any changes to the permit reference number

Status Log of the permit		
Detail	**Date**	**Comments**
Application EPR/SP3239FU/A001	Duly made 26/03/2012	
Additional Information in response to Schedule 5 Notice Received	20/07/2012 & 25/07/2012	
Additional information received	03/05/2012	
	30/07/2012	
	17/08/2012	
	07/09/2012	
	14/09/2012	
	19/10/2012	
Permit EPR/SP3239FU/A001 determined	30/11/2012	

End of Introductory Note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
EPR/SP3239FU

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Ferrybridge MFE Limited ("the operator"),

whose registered office is

55 Vastern Road
Reading
Berkshire
RG1 8BU

company registration number **07712297**

to operate an installation at

Ferrybridge Multifuel Facility
Ferrybridge Power Station
Knottingley
West Yorkshire.

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Anne Nightingale	30/11/2012

Anne Nightingale

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy recovery and efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.2.2 The operator shall provide and maintain steam and/or hot water pass-outs such that opportunities for the further use of waste heat may be capitalised upon should they become practicable.

1.2.3 The operator shall review the practicability of Combined Heat and Power (CHP) implementation at least every 2 years. The results shall be reported to the Agency within 2 months of each review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 or the Waste Framework Directive; and

(c) where waste disposal is necessary, this is undertaken in a manner which minimised its impact on the environment.

1.4.2 review and record at least every four years whether changes to those measures should be made; and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.1.2 Waste authorised by this permit in condition 2.3.3 shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

(b) If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.2; and

(b) it conforms to the description in the documentation supplied by the producer or holder; and

(c) if having been separately collected for recycling, it is contaminated and otherwise destined for landfill.

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.3.6 Waste fuel shall not be charged, or shall cease to be charged, if:

(a) the combustion chamber temperature is below, or falls below, 850^{o}C; or

(b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded; or

(c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than under WID abnormal operating conditions ; or

(d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under WID abnormal operating conditions.

2.3.7 The operator shall have at least one auxiliary burner in each line at start up or shut down or whenever the operating temperature falls below that specified in condition 2.3.6, as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.6 is maintained in the combustion chamber, such burner(s) may be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.

2.3.8 The operator shall record the beginning and end of each period of “WID abnormal operation”.

2.3.9 During a period of “WID abnormal operation”, the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.3.10 Where, during “WID abnormal operation”, any of the following situations arise, the operator shall, as soon as is practicable, cease the burning of waste until normal operation can be restored:

(a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;

(b) the cumulative duration of “WID abnormal operation” periods over 1 calendar year exceeds 60 hours on an incineration line;

(c) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 (a) due to disturbances or failures of the abatement systems;

2.3.11 The operator shall interpret the end of the period of “WID abnormal operation” as the earliest of the following:

(a) when the failed equipment is repaired and brought back into normal operation;

(b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;

(c) when a period of four hours has elapsed from the start of the “WID abnormal operation”;

(d) when, in any calendar year, an aggregated period of 60 hours “WID abnormal operation” has been reached for a given incineration line.

2.3.12 Bottom ash and APC residues shall not be mixed.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2 except in "WID abnormal operation", when there shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1(a) and S3.2.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.4. Additional samples shall be taken and tested and appropriate action taken, whenever:

(a) disposal or recovery routes change; or

(b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Monitoring

3.3.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.1(a) and S3.2;

(b) process monitoring specified in table S3.3;

(c) residue quality in table S3.4.

3.3.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.3.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.3.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

3.3.4 The provisions for monitoring shall meet the requirements of BS EN 15259. Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1(a), S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.3.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;

(a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages:

- Carbon monoxide 10%
- Sulphur dioxide 20%
- Oxides of nitrogen (NO & NO_2 expressed as NO_2) 20%
- Particulate matter 30%
- Total organic carbon (TOC) 30%
- Hydrogen chloride 40%

(b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.3.5 (a);

(c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average or 10-minute average shall in any case be considered valid if measurements are available for a minimum of 20 minutes or 7 minutes during the half-hour or 10-minute period respectively. The number of half-hourly or 10-minute averages so validated shall not exceed 5 or 15 respectively per day;

(d) daily average values shall be determined as the average of all the valid half-hourly average or 10-minute average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average*)* or 15 10-minute average values in any day have been determined not to be valid;

(e) no more than ten daily average values per year shall be determined not to be valid.

3.4 Odour

3.4.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Noise and vibration

3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.5.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 Report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production /treatment data set out in schedule 4 table S4.2;

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule; and

(d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Article 12(2) of the Waste Incineration Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the WID.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 The Environment Agency shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in the permit; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Waste Incineration Plant Schedules

Schedule 1 - Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
S5.1 A1 (c)	The incineration of non-hazardous waste in a 2 stream incineration plant with a capacity of 1 tonne per hour or more.	From receipt of waste to emission of exhaust gas and transfer off-site of waste arising. Waste types and quantities as specified in Table S2.2 of this permit.
Directly Associated Activities		
Electricity Generation	Generation of electrical power using a steam turbine from energy recovered from the flue gases.	
Standby electrical generators	For providing emergency electrical power to the plant in the event of supply interruption.	

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/SP3239FU	Operating techniques described in the Supporting Information: Section 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10 and 3.	26/03/2012
Responses to Schedule 5 Notice issued on 22/06/2012	Response to Questions: 2 (Energy Efficiency); 4 (Discharge to Surface Water); 5 (Fugitive Emissions); 6, 7 & 8 (Odour); 9 & 10 (Monitoring); 11 (Acid Gas Abatement); 12, 13, 14 & 15 (Raw Materials); 16 & 17 (Fuel Charging); 18 & 19 (Boiler Design); 22 (Subsurface storage).	20/07/2012 & 25/07/2012
Additional information	All Parts - Clarification on use of low NOx burners and dosing method for activated carbon and acid gas reagent.	30/07/2012
Additional information	All Parts – Additional information relating to Noise	14/09/2012
Additional information	All Parts – Additional information on waste acceptance; and surface water drainage plans.	19/10/2012

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System and the progress made in the accreditation of the system by an external body or if appropriate submit a schedule by which the EMS will be subject to accreditation.	Within 12 months of the date on which waste is first burnt.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC2	The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A1 and A2, identifying the fractions within the PM_{10}, $PM_{2.5}$ and $PM_{1.0}$ ranges. The proposal shall include a timetable for approval by the Environment Agency to carry out such tests and produce a report on the results. On receipt of written agreement by the Environment Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Environment Agency a report on the results.	Within 6 months of the completion of commissioning.
IC3	The Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.	Within 4 months of the completion of commissioning.
IC4	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the furnace whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency.	Within 4 months of the completion of commissioning.
IC5	The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of the flue gas abatement systems. The report shall provide details of: (i) combustion settings and the operation of the Selective Non Catalytic Reduction (SNCR) system to minimise oxides of nitrogen (NO_x) emissions within the emission limit values described in this permit with the minimisation of ammonia and nitrous oxide emissions. This shall include an assessment of the level of NO_x and N_2O emissions that can be achieved under optimum operating conditions. (ii) the optimisation (including dosing rates of lime and activated carbon) for the control of acid gases, mercury and dioxins and furans.	Within 4 months of the completion of commissioning.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC6	The Operator shall submit a written summary report to the Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning. Full summary evidence compliance report to be submitted within 18 months of commissioning.
IC7	The Operator shall carry out a review of the noise impact of the installation at sensitive receptors, once the plant is fully operational in its first year of operation. The scope of the review shall be agreed with the Environment Agency and shall compare the actual noise emissions from the installation and their impact with those predicted in the report submitted in response to Pre-Operational condition PO8. The review shall include appropriate measurements to verify any modelling work undertaken and establish whether any of the noise emissions have a tonal quality (both during daytime and night-time operation) likely to give rise to nuisance or complaint. A report on the review shall be provided to the Environment Agency.	Within 12 months of the date in which waste is first burnt.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO1	Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Section 1 of How to comply with your environmental permit – Getting the basics right. The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.
PO2	Prior to the commencement of commissioning, the Operator shall send a report to the Environment Agency which will contain a comprehensive review of the options available for utilising the heat generated by the waste incineration process in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of waste heat and shall provide a timetable for their implementation.
PO3	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of incinerator bottom ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO4	Prior to the commencement of commissioning; the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO5	Prior to the commencement of commissioning, the Operator shall submit a written report to the Agency detailing the waste acceptance procedure to be used at the site. The waste acceptance procedure shall include the process and systems by which wastes unsuitable for incineration at the site will be controlled. The procedure shall be implemented in accordance with the written approval from the Agency.
PO6	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency a drawing showing the location of the surface water drainage, foul drainage and process water drainage. The drawing shall also show the location of the retention basins, penstock valves, oil/petrol interceptors, and final discharge point into the Fryston Beck.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
P07	Unless otherwise agreed in writing by the Agency, the Operator shall submit by 31st March 2013 a written report to the Environment Agency for approval containing an assessment of the risk to groundwater from the fuel bunker, ash bunker and recycled water pit. The assessment shall include, but not be limited to: o Details of the location, design, structure and materials of construction (including permeability to water and resistance to chemical attack) of the fuel bunker, ash bunker and recycled water pit, as well as construction methods. This shall include calculation of the depth of the base of each structure below ground level and depth of surrounding groundwater levels. o Clear identification of the nature of potential polluting liquids that will be present within the structures, including estimates of the likely concentrations of pollutants (supported by chemical analysis) and likely volumes of the liquids that will be present during normal operations, and at maximum capacity. The subsequent level of liquid in relation to the surrounding groundwater regime should be calculated. o Assessment of the likely risk of pollutants contained within the structures being released into the surrounding groundwater. This should consider all risks which could result in loss of containment, including accidental damage and long term degradation. o Assessment of the potential impact on groundwater quality and the quality of water bodies that are in hydraulic continuity in the event of an uncontrolled release of the liquids stored within the structures. o Proposals for further mitigation measures as deemed necessary by the assessment. o Proposals for any groundwater monitoring identified as deemed necessary by the assessment together with associated groundwater action plans. The Operator shall construct the structures in accordance with the Agency's written approval and undertake any measures approved in writing by the Agency to the time scales included in the approval.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
P08	Prior to commencement of commissioning, the Operator shall submit to the Environment Agency for approval a report in writing that assesses the potential of noise generated at the installation to cause an unacceptable impact at the surrounding receptors. The report should include the following: ▪ Confirmation of the relevant receptors. ▪ A list of activities that are a significant source of noise. ▪ Noise modelling to assess the potential of the site activities to cause a noise nuisance at off site receptors. Concurrent activities should be considered. The assessment shall be undertaken in accordance with the procedures given in BS4142: 1997 (Rating industrial noise affecting mixed residential and industrial areas) and BS7445: 2003 (Description and measurement of environmental noise) unless otherwise agreed with the Agency. ▪ Details of noise management measures to include those already described, together with details of further measures as deemed necessary by the noise assessment. Including justification for the choice of further measures based on costs and benefits. ▪ Details of any monitoring identified as necessary for any receptor, together with associated noise action plans. The operator shall undertake any measures approved in writing by the Agency to the timescales indicated in the approval.
PO9	After completion of the furnace design and at least three calendar months before any furnace operation; the operator shall submit a written report to the Agency of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by the Waste Incineration Directive.

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Fuel Oil	< 0.1% sulphur content

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	Maximum total throughput = 675,000 tonnes per annum
Waste code	**Description**
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING.**
02 01	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	Plant-tissue waste
02 01 04	Waste plastics (except packaging)
02 01 07	Wastes from forestry
02 02	**Wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 03	Materials unsuitable for human consumption or processing
02 05	**Wastes from the dairy products industry**
02 05 01	Materials unsuitable for human consumption or processing
02 06	**Wastes from the baking and confectionary industry**
02 06 01	Materials unsuitable for human consumption or processing
02 07	**Wastes from the production of alcoholic and non alcoholic beverages**
02 07 01	Wastes from washing, cleaning and mechanical reduction of raw materials
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 01	Waste bark and cork
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
04	**WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES**
04 02	**wastes from the textile industry**
04 02 15	Wastes from finishing other than those mentioned in 04 02 14
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 09	textile packaging

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	Maximum total throughput = 675,000 tonnes per annum
Waste code	**Description**
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**Wastes not otherwise specified in the list**
16 01	**End of life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end of life vehicles and vehicles maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	End-of-life tyres
16 01 19	Plastic
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 03	plastic
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 38	Wood other than those mentioned in 20 01 37
20 01 39	Plastics

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1 & A2 as shown on drawing 1053-032 (rev A4) dated 19/10/2012	Particulate matter	Main stack	30 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Particulate matter		10 mg/m^3	daily average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Total Organic Carbon (TOC)		20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Total Organic Carbon (TOC)		10 mg/m^3	daily average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Hydrogen chloride		60 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Hydrogen chloride		10 mg/m^3	daily average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Hydrogen fluoride		2 mg/m^3	periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual	BS ISO 15713
	Carbon monoxide		100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Carbon monoxide		50 mg/m^3	daily average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Sulphur dioxide		200 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Sulphur dioxide		50 mg/m^3	daily average	Continuous measurement	BS EN 14181

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
	Oxides of nitrogen (NO and NO_2 expressed as NO_2)		400 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Oxides of nitrogen (NO and NO_2 expressed as NO_2)		200 mg/m^3	daily average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Cadmium & thallium and their compounds (total)		0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
	Mercury and its compounds		0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)		0.5 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
	Ammonia (NH_3)		No limit set	daily average	Continuous measurement	BS EN 14181 BS EN 15267-3
	Nitrous oxide (N_2O)		No limit set	periodic over minimum 1-hour period	For periodic measurement, quarterly in the first year of operation, then bi-annual	BS EN ISO 21258
	Dioxins / furans (I-TEQ)		0.1 ng/m^3	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxins / furans (WHO-TEQ Humans / Mammals)		No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxins / furans (WHO-TEQ Fish)		No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
	Dioxins / furans (WHO-TEQ Birds)		No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)		No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
	Dioxin-like PCBs (WHO-TEQ Fish)		No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
	Dioxin-like PCBs (WHO-TEQ Birds)		No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.		No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2.
A3 & A4 Exhaust emission from standby generators as shown on drawing 1053-032 (rev A4) dated 19/10/2012	No parameters set	Exhaust emissions from Standby generators	No limit set	-	-	-

Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1 & A2 as shown on drawing 1053-032 (rev A4) dated 19/10/2012	Particulate matter	Main stack	150 mg/m^3	½-hr average	Continuous measurement	BS EN 15267-3 during abatement plant failure
	Total Organic Carbon (TOC)		20 mg/m^3	½-hr average	Continuous measurement	BS EN 15267-3 during abatement plant failure
	Carbon monoxide		100 mg/m^3	½-hr average	Continuous measurement	BS EN 15267-3 during abatement plant failure

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 and W2 – discharge point to Fryston Beck as shown on drawing 1053-032 (rev A4) dated 19/10/2012	No parameters set	Uncontaminated surface water	None Set	-	-	-

Table S3.3 Process monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Location close to the Combustion Chamber inner wall or as identified and justified in Application.	Temperature (° C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 & A2 as shown on drawing 1053-032 (rev A4) dated 19/10/2012	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	
	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.

Table S3.4 Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method ***	**Other specifications**
Bottom Ash	TOC	<3%	Monthly in the first year of operation. Then Quarterly	Environment Agency ash sampling protocol.	
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.		Monthly in the first year of operation. Then Quarterly	Sampling and analysis as per Environment Agency ash sampling protocol.	
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Sampling and analysis as per Environment Agency ash sampling protocol.	
APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.		Monthly in the first year of operation. Then Quarterly	Sampling and analysis as per Environment Agency ash sampling protocol.	
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Sampling and analysis as per Environment Agency ash sampling protocol.	

* Or other equivalent standard as agreed in writing with the Environment Agency.

Schedule 4 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.3.1	A1, A2	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
TOC Parameters as required by condition 3.3.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.3.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.3.1	Bottom Ash	Before use of a new disposal or recycling route	
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.3.1	APC Residues	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.3.1	APC Residues	Before use of a new disposal or recycling route	
Functioning and monitoring of the incineration plant as required by condition 4.2.2		Annually	1 Jan

Table S4.2: Annual production/treatment	
Parameter	**Units**
Total Municipal Waste and RDF Incinerated	tonnes
Total Commercial Waste Incinerated	tonnes
Electrical energy produced	KWhrs
Electrical energy exported	KWhrs
Electrical energy used on installation	KWhrs
Waste heat utilised by the installation	KWhrs
Waste heat exported from the installation	KWhrs

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Electrical energy exported, imported and used at the installation	Quarterly	KWhrs / tonne of waste incinerated
Fuel oil consumption	Quarterly	Kgs / tonne of waste incinerated
Mass of Bottom Ash produced	Quarterly	Kgs / tonne of waste incinerated
Mass of APC residues produced	Quarterly	Kgs / tonne of waste incinerated
Mass of Other solid residues produced	Quarterly	Kgs / tonne of waste incinerated
Ammonia consumption	Quarterly	Kgs / tonne of waste incinerated
Activated Carbon consumption	Quarterly	Kgs / tonne of waste incinerated
Lime consumption	Quarterly	Kgs / tonne of waste incinerated
Water consumption	Quarterly	m^3 / tonne of waste incinerated
Periods of WID abnormal operation	Quarterly	Number of occasions and cumulative hours for current calendar year for each line.

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Form air 1-8 or other form as agreed in writing by the Environment Agency	30/11/2012
Residues	Form residues1 or other form as agreed in writing by the Environment Agency	30/11/2012
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	30/11/2012
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	30/11/2012

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	**EPR/SP3239FU**
Name of operator	**Ferrybridge MFE Limited**
Location of Facility	**Ferrybridge Energy from Waste Facility**
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Ferrybridge MFE Limited

Schedule 6 - Interpretation

"abatement equipment" means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

"accident" means an accident that may result in pollution.

"APC residues" means air pollution control residues

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"bi-annual" means twice per year with at least five months between tests;

"bottom ash" means ash falling through the grate and transported by the grate

"CEM" Continuous emission monitor

"CEN" means Commité Européen de Normalisation

"daily average" for releases of substances to air means the average of valid half-hourly averages over a calendar day

"*dioxin and furans*" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

"disposal" means any of the operations provided for in Annex IIA to Directive 2008/98/EC of the Waste Frameword Directive.

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit**.**.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"hazardous property" has the meaning given in Schedule 3 of the Hazardous Waste (England and Wales) Regulations 2005 No.894 and the Hazardous Waste (Wales) Regulations 2005 No. 1806 (W.138).

"incineration line" means all of the incineration equipment related to a common discharge to air location.

"ISO" means International Standards Organisation.

"LOI" means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"PAH" means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

"PCB" means *Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in the table below.*

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"quarterly" for reporting/sampling means after/during each 3 month period, January to March; April to June; July to September and October to December and, when sampling, with at least 2 months between each sampling date.

"recovery" means any of the operations provided for in Annex IIB to Directive 2008/98/EC of the Waste Framework Directive.

"*shut down"* is any period where the plant is being returned to a non-operational state as described in the application or agreed in writing with the Environment Agency.

"start up" is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste has been fed to the plant in sufficient quantity to cover the grate and to initiate steady-state conditions.

"TOC" means *Total Organic Carbon.* In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC.

"Waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England)Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

"Waste Incineration Directive" means Directive 2000/76/EC on the incineration of waste (O.J. L 332, 28.12.2000)

"WFD" means Waste Framework Directive (Directive 2008/98/EC of the European Parliament and Council).

"WID abnormal operation" means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices other than continuous emission monitors for releases to air of particulates, TOC and/or CO during which the concentrations in the discharges into air and the purified waste water of the regulated substances may exceed the normal emission limit values.

"year" means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

(a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or

(b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

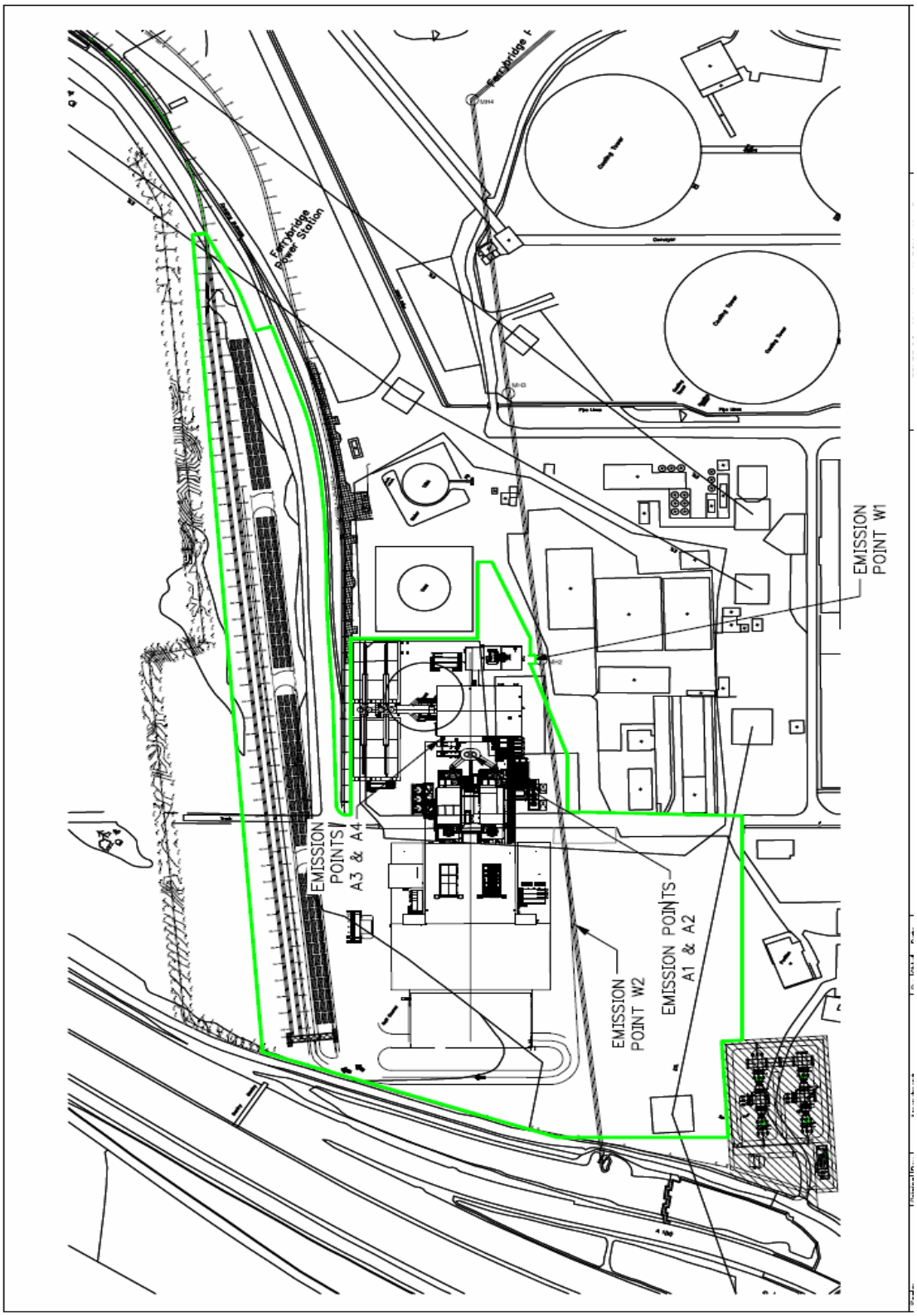
(c) in relation to gases from incineration and co-incineration plants other than those burning waste oil, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 11% dry.

For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

TEF schemes for dioxins and furans				
Congener	***I-TEF***	***WHO-TEF***		
	1990	**2005**	**1997/8**	
		Humans / Mammals	***Fish***	***Birds***
Dioxins				
2,3,7,8-TCDD	*1*	*1*	*1*	*1*
1,2,3,7,8-PeCDD	*0.5*	*1*	*1*	*1*
1,2,3,4,7,8-HxCDD	*0.1*	*0.1*	*0.5*	*0.05*
1,2,3,6,7,8-HxCDD	*0.1*	*0.1*	*0.01*	*0.01*
1,2,3,7,8,9-HxCDD	*0.1*	*0.1*	*0.01*	*0.1*
1,2,3,4,6,7,8-HpCDD	*0.01*	*0.01*	*0.001*	*<0.001*
OCDD	*0.001*	*0.0003*	*-*	*-*
Furans				
2,3,7,8-TCDF	*0.1*	*0.1*	*0.05*	*1*
1,2,3,7,8-PeCDF	*0.05*	*0.03*	*0.05*	*0.1*
2,3,4,7,8-PeCDF	*0.5*	*0.3*	*0.5*	*1*
1,2,3,4,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,7,8,9-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
2,3,4,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,4,6,7,8_HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
1,2,3,4,7,8,9-HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
OCDF	*0.001*	*0.0003*	*0.0001*	*0.0001*

TEF schemes for dioxin-like PCBs			
Congener	***WHO-TEF***		
	2005	**1997/8**	
	Humans / mammals	***Fish***	***Birds***
Non-ortho PCBs			
3,4,4',5-TCB (81)	*0.0001*	*0.0005*	*0.1*
3,3',4,4'-TCB (77)	*0.0003*	*0.0001*	*0.05*
3,3',4,4',5 - PeCB (126)	*0.1*	*0.005*	*0.1*
3,3',4,4',5,5'-HxCB(169)	*0.03*	*0.00005*	*0.001*
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	*0.00003*	*<0.000005*	*0.0001*
2,3,4,4',5-PeCB (114)	*0.00003*	*<0.000005*	*0.0001*
2,3',4,4',5-PeCB (118)	*0.00003*	*<0.000005*	*0.00001*
2',3,4,4',5-PeCB (123)	*0.00003*	*<0.000005*	*0.00001*
2,3,3',4,4',5-HxCB (156)	*0.00003*	*<0.000005*	*0.0001*
2,3,3',4,4',5'-HxCB (157)	*0.00003*	*<0.000005*	*0.0001*
2,3',4,4',5,5'-HxCB (167)	*0.00003*	*<0.000005*	*0.00001*
2,3,3',4,4',5,5'-HpCB (189)	*0.00003*	*<0.000005*	*0.00001*

Schedule 7 - Site plan



END OF PERMIT

Waste Summary of FM1 from 2016 to 2019

Use of this data

This data is provided under a conditional licence that can be found at:
https://www.gov.uk/government/publications/environment-agency-conditional-licence/environment-agency-conditional-licence

Permit Reference	Operator	Site Name	Site Address	Former Planning Region	Former Planning Sub Region	Waste Planning Authority	District
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield

EWC Code	EWC Description	Waste Input 2016 [tpa]	Waste Input 2017 [tpa]	Waste Input 2018 [tpa]	Waste Input 2019 [tpa]	Waste Input 2016 to 2019 [tpa]	Waste Input 2016 to 2019 [%]
19 12 10	combustible waste (refuse derived fuel)	468'224	487'851	497'967	581'980	2'036'022	81%
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	99'679	133'490	149'087	84'433	466'688	19%
19 12	**19 12 wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified)**	**567'902**	**621'341**	**647'054**	**666'412**	**2'502'710**	**100%**

Several other European Waste Codes (EWC):

19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITU-TIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS)**
19 05 03	off-specification compost
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

Incinerator Waste Returns 2016

Caveats

Incineration facilities were previously permitted under the requirements of the IPPC Directive and were not required to submit waste returns.
Some facilities have had their permits updated and had the permit condition added, but some facilities have not.
The data provided below is from those facilities who are required to provide waste returns**but does not include those who are not required.**
Total tonnage incinerated is a consistent requirement for ALL incineration facilities and this is published for 2017 on the Waste Management for England 2017 page on gov.uk.
However there are other differences between these 2 datasets including that waste returns cover ALL waste accepted by a site, not just the tonnage incinerated.
THESE CAVEATS SHOULD BE TAKEN INTO CONSIDERATION WHEN USING THIS DATA.

Use of this data

Permit Reference	Operator	Site Name	Site Address	Former Planning Region	Former Planning Sub Region	Waste Planning Authority	District	Grid Reference	Site Category	Site Type	EWC Code	EWC Description	Waste Origin	Tonnes	Sub-Totals
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Bradford	3'736.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Calderdale	5'092.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Cheshire	67'450.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Derby	2'403.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	East Riding of Yorkshire	45'799.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Fife	19'353.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Gedling	16'935.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Havering	3'155.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Kirklees	42'522.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Leicestershire	34'707.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Newham	1'261.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Rotherham	135'754.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Sheffield	46'418.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Stockton-on-Tees	777.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Trafford	21'542.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191210	combustible waste (refuse derived fuel)	Wrexham	21'313.9	468'223.8
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Carlisle	13'558.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Leeds	2'921.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Wakefield	51'670.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Incineration	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Wigan	31'527.8	99'678.6
													Total	567'902.4	567'902.4

Incinerator Waste Returns 2017

Caveats

Incineration facilities were previously permitted under the requirements of the IPPC Directive and were not required to submit waste returns.
Some facilities have had their permits updated and had the permit condition added, but some facilities have not.
The data provided below is from those facilities who are required to provide waste returns **but does not include those who are not required.**
Total tonnage incinerated is a consistent requirement for ALL incineration facilities and this is published for 2017 on the Waste Management for England 2017 page on gov.uk.
However there are other differences between these 2 datasets including that waste returns cover ALL waste accepted by a site, not just the tonnage incinerated.
THESE CAVEATS SHOULD BE TAKEN INTO CONSIDERATION WHEN USING THIS DATA.

Use of this data

Permit Reference	Operator	Site Name	Site Address	Former Planning Region	Former Planning Sub Region	Waste Planning Authority	District	Grid Reference	Site Category	Site Type	EWC Code	EWC Description	Waste Origin	Tonnes	Sub-Totals
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Birmingham	1'252.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Bradford	9'476.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Calderdale	-	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Cheshire	63'273.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Derby	8'656.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	East Lothian	15'400.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	East Riding of Yorkshire	49'686.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Fife	11'479.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Gedling	4'864.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Havering	2'421.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Kirklees	31'645.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Leicestershire	33'024.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Manchester	9'871.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Middlesbrough	5'772.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Newham	8'143.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	North Tyneside	6'406.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Nottingham	9'401.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Rotherham	120'256.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Sheffield	43'388.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	South Tyneside	11'833.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Stockton-on-Tees	-	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Trafford	17'398.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Wrexham	22'761.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	York	1'434.6	487'850.9
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Carlisle	2'740.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Leeds	20'739.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Wakefield	64'867.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Wigan	45'142.6	133'490.4
													Total	621'341.3	621'341.3

Incinerator Waste Returns 2018

Caveats

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Some facilities have had their permits updated and had the permit condition added, but some facilities have not.
The data provided below is from those facilities who are required to provide waste returns **but does not include those who are not required.**
Total tonnage incinerated is a consistent requirement for ALL incineration facilities and this is published for 2017 on the Waste Management for England 2017 page on gov.uk.
However there are other differences between these 2 datasets including that waste returns cover ALL waste accepted by a site, not just the tonnage incinerated.
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Use of this data

This data is provided under a conditional licence that can be found at:
https://www.gov.uk/government/publications/environment-agency-conditional-licence/environment-agency-conditional-licence

Permit Reference	Operator	Site Name	Site Address	Former Planning Region	Former Planning Sub Region	Waste Planning Authority	District	Grid Reference	Site Category	Site Type	EWC Code	EWC Description	Waste Origin	Tonnes	Sub-Totals
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Barrow-in-Furness	86.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Birmingham	3'042.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Blackburn with Darwen	9'568.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Bradford	3'036.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Cheshire	62'961.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Derby	6'821.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	East Lothian	8'438.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	East Riding of Yorkshire	46'236.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Kirklees	1'907.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Leicestershire	51'663.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Manchester	5'842.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Middlesbrough	7'634.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	North Lincolnshire	4'458.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	North Tyneside	1'589.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Northumberland	2'510.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Nottingham	6'037.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Preston	3'052.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Rotherham	133'481.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Sheffield	38'541.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	South Tyneside	41'255.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Trafford	16'370.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	Wrexham	23'007.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191210	combustible waste (refuse derived fuel)	York	20'423.7	497'967.4
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Leeds	30'638.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Nottingham	13'043.7	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Wakefield	66'847.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge M F E Ltd, Kirkhaw Lane, Knottingley, Wakefield, WF11 8DX,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4726 2500	Incineration	Municipal Waste Incinerator	191212	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11	Wigan	38'556.4	149'086.5
													Total	647'053.9	647'053.9

Incinerator Waste Returns 2019

Caveats

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Some facilities have had their permits updated and had the permit condition added, but some facilities have not.
The data provided below is from those facilities who are required to provide waste returns **but does not include those who are not required.**
Total tonnage incinerated is a consistent requirement for ALL incineration facilities and this is published for 2017 on the Waste Management for England 2017 page on gov.uk.
However there are other differences between these 2 datasets including that waste returns cover ALL waste accepted by a site, not just the tonnage incinerated.
THESE CAVEATS SHOULD BE TAKEN INTO CONSIDERATION WHEN USING THIS DATA.

Use of this data

Permit Reference	Operator	Site Name	Site Address	Former Planning Region	Former Planning Sub Region	Waste Planning Authority	District	Grid Reference	Site Category	Site Type	EWC Code	EWC Description	Waste Origin	Tonnes	Sub-Totals
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Selby	50.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Sheffield	39'555.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Wakefield	48'829.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Manchester	1'883.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Cheshire	29'279.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Derby	416.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Kirklees	7'871.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Wigan	37'127.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	South Tyneside	38'974.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Bolton	246.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Middlesbrough	2'554.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Birmingham	4'599.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Trafford	15'242.5	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Bristol, City of	2'007.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	East Riding of Yorkshire	46'608.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Cheshire West and Chester	29'168.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Ashfield	215.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Amber Valley	793.2	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Rotherham	137'301.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Kingston upon Hull, City of	205.6	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Blackburn with Darwen	20'247.9	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Preston	554.1	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Wrexham	21'721.4	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Northumberland	72.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	York	19'132.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	North Lincolnshire	17'156.8	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Gedling	1'031.3	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Leicester	15'847.0	
SP3239FU	Ferrybridge MFE Limited	Ferrybridge Multifuel Plant EPR/SP3239FU	Ferrybridge 'C' Power Station, Stranglands Lane, PO Box 39, Ferrybridge, West Yorkshire, WF11 8SQ,	Yorks & Humber	West Yorkshire	Wakefield	Wakefield	SE 4750 2472	Incineration	Municipal Waste Incinerator	19 12 10	combustible waste (refuse derived fuel)	Leicestershire	31'716.3	

Ferrybridge MFE Ltd
EPR/SP3239FU
Annual Report 2016

1.0 Introduction

This document represents the Annual Performance Report for Ferrybridge MFE Ltd (FM1) and has been submitted in compliance with Chapter IV Article 62 of the Industrial Emissions Directive (IED):

'*The operator shall supply the competent authority, on request, with data enabling the competent authority to vrify the compliance with the following:- (a) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.'*

2.0 Facility Information

Plant Operator	Ferrybridge MFE Ltd
Name of Plant	Ferrybridge MFE Ltd
EPR Permit Number	EPR/SP3239FU
Plant Address	Kirkhaw Lane Knottingley West Yorkshire WF11 8DX
Telephone No	01977 636 700

Ferrybridge MFE Ltd is the first Energy From Waste (EfW) plant to be built for and operated by Multifuel Energy Ltd (MEL) a joint venture between SSE Plc and Wheelabrator Technologies Inc. The plant burns Waste Derived Fuels (WDF) supplied under long term fuel contracts with a range of waste recycling businesses. Much of this is processed from local council waste streams. The energy produced by the combustion of WDF is converted to steam, which is then fed to a steam tubine generator set. The electricity produced is exported to the National Grid. The plant is designed to achieve a high efficiency and achieves benchmark figures for the industry. The steam turbine is designed with interstage steam pass out to enable future installation of CHP should capacity market considerations be enabled.

The Plant was commissioned by HZI throughout the first half of 2015 and was handed over for commercial operation on 25th July 2015, although constuction activities continued for several months beyond this date. 2016 marked the first full running year for the plant. Due to a failure in the system during Grid Code Compliance Testing on April 26th 2016, the turbine was taken out of service for major repair. The turbine returned to service on 12th October 2016 after final Grid Code Compliance Tests and has performed very well since then. During this period, the plant ran with a suspended R1 status.

2.1 Technical Details of the Plant:-

- Maximum permitted waste throughput – 675,000 tonnes per annum
- Storage capacity – at least 10,000 tonnes
- Number of tipping bays – 11
- Number of boilers – 2

- Steam output per boiler – 145.2 t/hr at 430 °C and 70.0 Bara (turbine inlet)
- Maximum generating capacity – 85 MW gross (generator terminals)
- Flue gas treatment – exhaust gas recirculation, furnace spray quenching, ammonia injection (SNCR), powder activated carbon, HZI semi-dry lime reactor, bag filters and final discharge to 2 x 100m stacks.

Ferrybridge MFE Ltd is regulated by the Environment Agency and has developed management systems to comply with:-

- ISO 14001:2004
- OHAS 18001:2007

and is working towards formal accreditation to the above standards.

2.2 Permitted Waste Types

Ferrybridge is permitted to take a large number of groups of wastes, as defined by their EWC code. "20" codes, which correspond to Municipal Wastes which have not been processed are not accepted at the facility. The below table corresponds to the wastes currently being accepted at the facility, and is by no means exhaustive of the types of wastes which can be accepted.

EWC Code	Description
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

3.0 OPERATIONAL INFORMATION

Total Waste Incinerated	573,035	Tonnes
Electricity Exports	299,218	MWh
Incinerator Bottom Ash Produced	119,760	Tonnes
APC Residues	22,824	Tonnes

3.1 Solid Residue Outputs

The Incinerator Bottom Ash (IBA) is transported by Hargreaves Services PLC to Ballast Phoenix Processing Facility situated in Sheffield. The IBA is reprocessed into a number of different graded aggregates, ferrous and non-ferrous metal products, which are then utilised in the construction and metal industry.

Ferrous metals removed during on site processing of IBA are forwarded to SIMS Metal Management (and also Smith's Metals during 2016). The metals are separated into individual fractions, and are sent on for utilisation in the metal industry.

The fine particulate matter, known as Air Pollution Control Residue (APCr), is removed from the process by a fabric filter and discharge from the reactor. The APCr is sent to Castle Environmental in Ilkeston, Derbyshire where it is used to neutralise spent acid wastes from other processes before final disposal at non-hazardous landfill. FM1 is currently working with Castle Environmental in their development of a treatment process which allows APCr to be used in concrete blocks. Trial loads from FM1 have been sent to the Cardiff Castle Environmental site where they have successfully been used in the block making process. This process is something that both FM1 and Castle Environmental are considering with regards to all APCr from FM1 in the future.

In line with Ferrybridge MFE Limited's corporate responsibility, Duty of Care audits have been conducted at these final disposal points.

3.2 Water Discharges from Site

The plant is designed to have zero effluent discharge and only surface rain water is discharged to Fryston Beck. Waste water is designed to be utilised in the plant via the bottom ash expellers. During 2015 and the first half of 2016, excess quantities of salt contaminated water from the water treatment plant caused more waste water to be produced than consumed by the plant. This excess waste water was being disposed of by Enviroclear at the FCCE facility in Knostrop, Leeds. The plant has now been modified to recycle the water treatment plant waste water as plant process water. This has removed the need for off-site disposal of water and has reduced the consumption of town's water for process water make up.

3.3 Flue Gases

All gaseous emissions generated during combustion pass through an extensive flue gas cleaning process which begins in the boiler where good combustion conditions are maintained and ammonia is added to control and reduce oxides of nitrogen. Gases exit the boiler and enter a gas scrubber where hydrated lime is injected to neutralise acid gases and activated carbon is added to remove metals and dioxins. Finally gases pass through the bag filter house to remove any remaining particulates. The cleaned gases are then released into the atmosphere through the chimney stacks.

In compliance with the IED and Environmental Permit requirements, the flue gases are continuously monitored using MCERTS accredited equipment. In addition to the continuous monitoring, a periodic extractive sampling campaign is undertaken by an approved service supplier. The organisation used for analysis and monitoring are accredited by the United Kingdom Accreditation Service (UKAS) and the Environment Agency's Monitoring Certification Scheme (MCERTS).

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Extractive Testing Results

In addition to the continuous monitoring of stack gases, further testing is conducted periodically on samples removed from the stack over shorter timescales. The results of the testing performed in the week commencing 11/07/2016 are summarised below for both boiler lines.

Substance / Parameter	Emission Limit Value / mg/m^3	Result Line 1 / mg/m^3	Result Line 2 / mg/m^3
Hydrogen fluoride	2	<0.02	<0.02
Cadmium & thallium and their compounds (total)	0.05	<0.001	0.0006
Mercury and its compounds	0.05	0.002	0.002
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5	0.013	0.04
Dioxins / Furans (I-TEQ)	0.0001	0.000035	0.00004
Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	No limit applies	0.00000239	0.00000071

Substance / Parameter	Emission Limit Value / mg/m^3	Result Line 1 / mg/m^3	Result Line 2 / mg/m^3
Dioxin-like PCBs (WHO-TEQ Fish)	No limit applies	0.00000012	0.00000004
Dioxin-like PCBs (WHO-TEQ Birds)	No limit applies	0.00000389	0.00000322
Dioxins / furans (WHO-TEQ Humans / Mammals)	No limit applies	0.000032	0.00004
Dioxins / furans (WHO-TEQ Fish)	No limit applies	0.000037	0.00004
Dioxins / furans (WHO-TEQ Birds)	No limit applies	0.000076	0.00007

Annual Emissions

The annual mass emissions of the continuously monitored emissions are summarised below.

Parameter	Annual Total Line 1 / Tonnes	Annual Total Line 2 / Tonnes
NO	315	206
NO_2	5.4	2.4
NO_x	433	390
CO	18.4	18.3
SO_2	14.6	20.1
HCl	12.6	8.9
NH_3	0	0.1
TOC	0	0

Dust	4	2.2

4.0 Use of Rejected Heat

Every practicable opportunity to use the heat rejected at the steam condensers for beneficial local use is investigated. The necessary works have been conducted in 2016 to install pipework to allow heat offtake from the steam turbine. This is in line with a number of potential heat "customers" becoming available both in the short and long term, and discussions with Wakefield Metropolitan District Council. The site is currently not able to further explore heat offtake agreements due to being tied to a capacity market contract.

5.0 Environmental Controls

The management and staff of FM1 are committed to maintaining the environmental performance of the plant. All operational staff have been briefed on the conditions in the Permit through extensive training by an external consultant during 2016. Nevertheless, the following incidents occurred during 2016:-

- On 25th January 2016 the permitted ½ hr average CO limit of 100mg/m^3 was exceeded when boiler line 2 produced an average of 123 mg/m^3 due to a feed hopper chute blockage.
- On 13th February 2016 the permitted ½ hr average CO limit of 100mg/m^3 was exceeded when boiler line 1 produced an average of 176 mg/m^3 due to a large item of plastic entering the boiler and having a large oxygen demand.
- On 21st February 2016 the permitted ½ hr average CO limit of 100mg/m^3 was exceeded for 2 consecutive hours causing a breach of the daily limit (50 mg/m3) also, due to ash blockages in the ash extraction system on start up. Clearing of these blockages caused ingress of air to the boiler.
- On 2 separate occasions during w/c 03/07/2016 the CEMS was run for a number of hours with an invalid calibration. This was due to a leak removing calibration gas from the system and therefore the automatic calibration conducted by the system was not valid.

All of these incidents have been investigated and actions implemented to prevent recurrence.

Table 5.1 Environmental Incidents.

Permit Breaches	1 period of CEMS calibration failure
Exceedance of Permitted Limits	4 x 30 minute, 1 x daily
Non-permitted Discharges	None
Abnormal Operations	30 minutes
Enforcement Notices	None
Complaints	4 complaints during the year. 3 odour complaints and 1 light pollution complaint.

	Odour 1 – 15th January from Ferrybridge C Power Station. South side tipping hall door was defective and in the open position for this day. Complaint probably justified. Odour 2 – 4th February from Ferrybridge C Power Station. Operations reminded to ensure south tipping hall door closed inbetween deliveries. Odour 3 – 9th November from Oakhill Caravan Park resident. Inconclusive, as the wind direction was blowing in the opposite direction to Oakhill for some of the times of the logged odours by the resident. Odour log importance has been reinforced to FMFEL Operators. Lighting 1 – 20th June. Lighting on top of silos left switched on. Staff reminded to switch off when access not required.

Ferrybridge MFE Ltd

Annual Environment Report

Matt Hardy
26th January 2017

Ferrybridge MFE Ltd
EPR/SP3239FU
Annual Report 2017

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1.0 INTRODUCTION

This document represents the Annual Performance Report for Ferrybridge MFE Ltd (FM1) and has been submitted in accordance with Chapter IV, Article 62 of the Industrial Emissions Directive (IED):

'The operator shall supply the competent authority, on request, with data enabling the competent authority to verify the compliance with the following:- (a) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.'

2.0 FACILITY INFORMATION

Plant Operator	Ferrybridge MFE Ltd
Name of Plant	Ferrybridge Multifuel 1
EPR Permit Number	EPR/SP3239FU/V005
Plant Address	Kirkhaw Lane Knottingley West Yorkshire WF11 8DX
Telephone No	01977 636 700

Ferrybridge MFE Ltd is the first Energy From Waste (EfW) plant to be built for and operated by Multifuel Energy Ltd (MEL) a joint venture between SSE Plc and Wheelabrator Technologies Inc. The plant burns Refuse Derived Fuels (RDF) supplied under long term fuel contracts with a range of waste recycling businesses. Much of this is processed from Local Authority collected waste streams. The energy produced by the combustion of RDF is converted to steam, which is then fed to a steam tubine generator. The electricity produced is exported to the National Grid. The plant is designed to achieve a high efficiency and achieves benchmark figures for the industry. The steam turbine is designed with interstage steam pass out to enable future installation of CHP should capacity market considerations be enabled.

The Plant was commissioned by Hitachi Zosen Inova (HZI) throughout the first half of 2015 and was handed over to Ferrybridge MFE Ltd for commercial operation on 25th July 2015.

In 2016, following a system failure during National Grid code compliance testing on April 26th 2016, the turbine was taken out of service for major repair. The facility continued to receive and incinerate waste while operating without R1 waste recovery status until the turbine returned to service on 12th October 2016, and after final National Grid code compliance testing has performed well to date.

In 2017, plant performance and availability has been very good with 91.9% availability for the 2 boilers and 99.3% availability for the turbine.

Boiler availability was impacted by the extended / additional outages required to carry out extensive repairs due to premature grate failures. Boiler 1 underwent an extended outage from 18th April to 29th April and a further 10 day outage from 11th September for grate replacement work. Boiler 2 was taken

off line for planned outage on 25th April for 10 days then underwent an additional 7 day outage from 1st June to convert sections of the water cooled grate to air cooled.

Other significant periods of maintenance impacting boiler availability were:

An ash expeller blockage on boiler 2 in January (56 hours)
Two superheater drain tube leaks on Boiler 2 in January and April (60 hours)

Turbine availability was excellent throughout 2017, performing well and without any significant losses.

2.1 Technical Information for the FM1 Multifuel Facility

- Maximum permitted waste throughput – 675,000 tonnes per annum
- Storage capacity – >10,000 tonnes
- Number of tipping bays – 11
- Number of boilers – 2
- Steam output per boiler – 145.2 t/hr at 430 °C and 70.0 Bar (turbine inlet)
- Maximum generating capacity – 85 MW gross (generator terminals)
- Flue gas treatment – exhaust gas recirculation, furnace spray quenching, ammonia injection (SNCR), powder activated carbon, HZI semi-dry lime reactor, bag filters and final discharge to 2 x 100m stacks.

Ferrybridge MFE Ltd has developed internal management systems in accordance with recognised standards and is working towards formal accreditation to the following standards:

- ISO 14001:2015 Environmental Management System
- OHAS 18001:2007 Safety Management System

2.2 Permitted Waste Types

Ferrybridge Multifuel 1 is permitted to accept wastes from several sections of the European Waste Catalogue, however currently only wastes with '19' codes as described in the table below are being accepted at the facility:

EWC Code	Description
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

3.0 OPERATIONAL INFORMATION

Total Waste Incinerated	631,515	Tonnes
Electricity Exports	580,814	MWh
Incinerator Bottom Ash Produced	125,051	Tonnes
APC Residues	25,822	Tonnes

3.1 Solid Residue Outputs

The Incinerator Bottom Ash (IBA) is transported by Hargreaves Services PLC to Ballast Phoenix Processing Facility situated in Sheffield. The IBA is reprocessed into a number of different graded aggregates, ferrous and non-ferrous metal products, which are then utilised in the construction and metal industry.

Ferrous metals removed during on site processing of IBA are forwarded to PJP Group in Shafton, South Yorkshire where they are separated into individual fractions, and are sent on for utilisation in the metal industry.

The fine particulate matter, known as Air Pollution Control Residue (APCr), is removed from the process by a fabric filter and discharge from the reactor. The APCr is sent to Castle Environmental in Ilkeston, Derbyshire where it is used to neutralise spent acid wastes from other processes before final disposal at non-hazardous landfill. FM1 is currently working with Castle Environmental in their development of a treatment process which allows APCr to be used in concrete blocks. Trial loads from FM1 were sent to the Cardiff Castle Environmental site in 2016 where they have successfully been used in the block making process. This process is something that both FM1 and Castle Environmental are considering with regards to all APCr from FM1 in the future. Another recycled aggregate producer Carbon8 have built an APCr reprocessing facility in Leeds and will begin commissioning in April 2018 with a view to receive up to 5% of FM1's APCr for reprocessing into construction products in 2018/19.

In line with Ferrybridge MFE Limited's corporate responsibility, Duty of Care audits have been conducted at these final disposal points.

3.2 Water Discharges from Site

The plant is designed to have zero effluent discharge and only surface rain water is discharged to Fryston Beck.

Waste water is designed to be utilised in the plant via the bottom ash expellers. During periods of boiler maintenance, excess waste water is transported off site by road tanker for disposal at the Knostrop Water Treatment Facility in Leeds operated by FCC Environment.

3.3 Flue Gases

All gaseous emissions generated during combustion pass through an extensive flue gas cleaning process which begins in the boiler where optimal combustion conditions are maintained and ammonia

is added to control and reduce oxides of nitrogen. Gases exit the boiler and enter a gas scrubber where hydrated lime is injected to neutralise acid gases and activated carbon is added to remove metals and dioxins. Finally gases pass through the bag filter house to remove any remaining particulates. The cleaned gases are then released into the atmosphere through the chimney stacks.

In compliance with the IED and Environmental Permit requirements, the flue gases are continuously monitored using MCERTS accredited monitoring equipment. In addition to the continuous monitoring, 6 monthly periodic extractive sampling is undertaken by an approved service supplier. The supplier is accredited by both the United Kingdom Accreditation Service (UKAS) and the Environment Agency's Monitoring Certification Scheme (MCERTS).

3.4 Extractive Testing Results

In addition to the continuous monitoring of stack gases, further testing is conducted periodically on samples removed from the stack over shorter timescales. The results of the testing performed in the week commencing 04/07/2017 are summarised below for both boiler lines.

Substance / Parameter	Emission Limit Value	Result Line 1	Result Line 2
Hydrogen fluoride	2 mg/m^3	<0.03 mg/m^3	<0.03 mg/m^3
Cadmium & thallium and their compounds (total)	0.05 mg/m^3	0.001 mg/m^3	0.001 mg/m^3
Mercury and its compounds	0.05 mg/m^3	0.001 mg/m^3	0.001 mg/m^3
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3	0.009 mg/m^3	0.008 mg/m^3
Dioxins / Furans (I-TEQ)	0.1 ng/m^3	0.0099 ng/m^3	0.029 ng/m^3
Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	No limit applies	0.0005 ng/m^3	0.0024 ng/m^3
Dioxin-like PCBs (WHO-TEQ Fish)	No limit applies	0.00003 ng/m^3	0.0002 ng/m^3
Dioxin-like PCBs (WHO-TEQ Birds)	No limit applies	0.0017 ng/m^3	0.0133 ng/m^3
Dioxins / furans (WHO-TEQ Humans / Mammals)	No limit applies	0.0096 ng/m^3	0.024 ng/m^3
Dioxins / furans (WHO-TEQ Fish)	No limit applies	0.0099 ng/m^3	0.026 ng/m^3
Dioxins / furans (WHO-TEQ Birds)	No limit applies	0.0170 ng/m^3	0.104 ng/m^3

3.5 Annual Mass Emissions Summary

The annual mass emissions of the continuously monitored emissions are summarised below.

Parameter	Annual Total Line 1 / Tonnes	Annual Total Line 2 / Tonnes
NO	308.3	224.7
NO_2	6.4	3.6
NO_x	458.7	429.6
CO	24.3	25.5
SO_2	21.2	21.9
HCl	12.6	13.1
NH_3	0.1	0.1
TOC	0.0	0.0
Dust	4.0	3.0

4.0 USE OF REJECTED HEAT

Every practicable opportunity to use the heat rejected at the steam condensers for beneficial local use is investigated. The necessary works were conducted in 2016 to install pipework to allow heat offtake from the steam turbine. This is in line with a number of potential heat "customers" becoming available both in the short and long term, and discussions with Wakefield Metropolitan District Council. The site is currently not able to further explore heat offtake agreements due to being tied to a capacity market contract.

5.0 ENVIRONMENTAL PERFORMANCE

The management and staff of FM1 are committed to maintaining the environmental performance of the plant. All members of staff are currently undergoing one to one environmental induction training to evaluate and develop their responsibilities and contribution to environmental compliance at FM1.

Following an initial 'gap analysis audit by Lloyds Register Quality Assurance (LRQA, the Environmental Management System was reviewed and revised in line with the ISO14001:2015 International Standard in 2017. LRQA will return to FM1 in January and March 2018 to complete a 2 stage verification audit of site systems and documents against the requirements of the standard.

A programme of Environmental Audits was developed and implemented during 2017 with 10 audits being carried out during the calender year. All negative findings from the audits are tracked and monitored internally to ensure actions are completed.

An emergency exercise involving a simulated environmental incident was carried out in November and findings identified in the report have resulted in environmental improvements for spill response.

5.1 Environmental Incidents

There were three environmental incidents during 2017 which were reported to the EA in accordance with the notification procedure and forms from Schedule 5 of the Environmental Permit.

- On 10th July, the permitted ½ hr average CO limit of 100mg/m^3 was exceeded twice for boiler line 2. The root cause for the events was a high differential pressure across the bag filter house.
- On 31st August, the permitted ½ hr average CO limit of 100mg/m^3 was exceeded for boiler line 2. The event occurred when the wet O2 monitor was out of service, and the surrogate measurement from the dry O2 analyser located in the stack was in use by the CCS resulting in a delayed reaction to changing combustion conditions.
- On 26th September, the permitted ½ hr average CO limit of 100mg/m3 was exceeded for boiler line 2. At the time of the event, the turbine was undergoing compliance testing for National Grid which involved a period of time where the steam was sent to bypass and the turbine was off load which created difficulties controlling the steam flow.

All of these incidents have been investigated and actions implemented to reduce the likelihood of recurrence.

5.2 Environmental Complaints

There were 8 environmental complaints received in 2017 by FM1 from external complainants, the Police, the Environment Agency or members of the Community Liaison Group (CLG).

On 24th January, a complaint received through the CLG alleged drivers attending the FM1 site were drivers parking up overnight and discarding bottled urine on the A162 resulting in the issue of a general warning was issued to all suppliers.

On 25th January, a complaint received through the CLG was received about the FM1 car park lighting shining down Stranglands Lane, immediate action was taken to prevent further complaints.

On 31st January, a complaint forwarded by the EA alleged odour from site was affecting residents in Knottingley, an internal investigation found no cause for odour and no further complaints received.

On 14th March, a complaint received from a member of public alleged a vehicle had left FM1 and was spilling waste onto the Old A1 at Brotherton. The FM1 Plant Manager narrowed the culprit down to 2 vehicles and informed the suppliers.

On 22nd June, a complaint received from a member of public alleged their own vehicle parked in Townville had been covered in dust blown from the FM1 site, an internal investigation found no cause for dust and no further complaints were received.

On 24th October, a complaint received by email from a member of public alleged numerous vehicle offences involving vehicles associated with the FM1 site, the complainant did not respond following numerous attempts to contact them by the FM1 Plant Manager.

On 26th October, a complaint received from local police stated three vehicles had been stopped for exceeding the road weight limit through Ferrybridge, on investigation, only one had visited FM1 and was not a regular visitor so the supplier involved was contacted and informed for future deliveries.

On 20th November, a complaint received from a member of public alleged vehicles attending FM1 were exceeding the road weight limit through Ferrybridge amongst other offences. The FM1 Plant Manager responded and explained that action would be taken if registration numbers were supplied.

5.3 Table of Environmental Performance (01/01/2017 to 31/12/2017)

Breaches of Permit Conditions	None
Breaches of Permitted Emission Limit Values	4 x (½ hr average CO limit of 100mg/m^3)
Non-Permitted Discharges	None
Periods of WID Abnormal Operation	13 x 30 minutes
Enforcement Notices	None

APPENDIX 1 – Ferrybridge Multifuel Energy Annual Returns

In accordance with Condition 4.2.2 of EPR/SP3239FU/V005.

Form: Performance 1;

- 2017 Annual Reporting of Waste Disposal and Recovery (01/01/2017 to 31/12/2017)
- 2017 Annual Reporting of Water and Other Raw Material Usage (01/01/2017 to 31/12/2017)
- 2017 Annual Reporting of other performance indicators (01/01/2017 to 31/12/2017)

Form: Energy 1;

- 2017 Annual Reporting of Energy Usage/Export (01/01/2017 to 31/12/2017)

Permit Number : EPR/SP3239FU

Operator : Ferrybridge MFE Limited

Facility : Ferrybridge Multifuel Facility

Form Number : Performance 1 / 30/11/2012

2017 Annual Reporting of Waste Disposal and Recovery (01/01/2017 to 31/12/2017)

Waste Description	Disposal Route	Tonnes	Recovery Tonnes
1) Hazardous Wastes			
APC Residues	D9	25,821.91	
Batteries	R13	0.02	0.02
Spent Filters	D14	0.68	
Spent Resin	R13	0.125	0.125
Total Hazardous Waste		25,822.735	0.145
2) Non-Hazardous Wastes			
IBA	R5	125,051.37	125,051.37
Ferrous Metal	R4	1,745.82	1,745.82
Process Water	D8	2,823.42	
Wood	R3	12.44	12.44
Dry Mixed Recyclables	R13	0.24	0.24
Anti Freeze	R13	1.00	1.00
Total Non-Hazardous Waste		129,634.29	126,810.87
TOTAL WASTE		155457.025	126,811.015

Operator's comments :

R3 – Recycling/reclamation of organic substances, R4 – Metals recovered, R5 – Processed for re use, R13 - Temporary storage of wastes pending any of the operations numbered R1 to R12, D8 - Biological treatment not specified, D9 – Acid neutralisation followed by non-hazardous landfill, D14 - Repackaging prior to submission to any of the operations numbered D1 to D13.

Signed ..... Date 26/1/18

(authorised to sign as representative of Ferrybridge MFE Limited)

2017 Annual Reporting of Water and Other Raw Material Usage (01/01/2017 to 31/12/2017)

Raw Material	Usage	Unit	Specific Usage	Unit
Mains water	77,215	m^3	0.122	m^3/t
Total water usage	158,268	m^3	0.251	m^3/t
Ammonia	281.90	Tonnes	0.446	kg/t
Activated carbon	197.16	Tonnes	0.312	kg/t
Lime/hydrated lime or sodium bicarbonate	10,213	Tonnes	16.172	kg/t

Operator's comments :

Fuel burn (01/01/2017 to 31/12/2017) = 631,515 tonnes

Signed ..... Date 26/1/18

(authorised to sign as representative of Ferrybridge MFE Limited)

2017 Annual Reporting of other performance indicators (01/01/2017 to 31/12/2017)

Parameter	Result
Number of periods of abnormal operation	13 periods - 390 mins
Cumulative hours of abnormal operation for this calendar year	6.5 hours

Operator's comments :

WID abnormal periods this period (01/01/2017 to 31/12/2017):

22/02/2017 – Boiler A1 1 period (0.5 hours) (CEMS H_2 gas bottle pressure loss)
17/05/2017 – Boiler A1 1 period (0.5 hours) (CEMS IP address issue)
19/05/2017 – Boiler A1 1 period (0.5 hours) CEMS IP address issue)
18/05/2017 – Boiler A1 2 periods (1.0 hours) CEMS IP address issue)
18/05/2017 – Boiler A2 1 period (0.5 hours) CEMS IP address issue)
03/07/2017 – Boiler A1 6 periods (3.0 hours) (SO2 monitoring issue)
30/10/2017 - Boiler A2 1 period (0.5 hours) (PM for daylight saving time change crashed PC for 20 minutes)

Signed ..... Date 26/1/18
(authorised to sign as representative of Ferrybridge MFE Limited)

Permit Number : EPR/SP3239FU

Operator : Ferrybridge MFE Limited

Facility : Ferrybridge Multifuel Facility

Form Number :Energy 1 / 30/11/2012

2017 Annual Reporting of Energy Usage/Export (01/01/2017 to 31/12/2017)

Energy Source	Energy Usage	Unit	Contained Energy (MWh)
Electricity Produced	633,906	MWh	
Electricity Imported	53,104	MWh	
Electricity Exported	580,814	MWh	
Gas Oil	602	tonnes	
Steam/hot water Exported	0	MWh	

Operator's comments :

Signed ..... Date 26/1/18

(authorised to sign as representative of Ferrybridge MFE Limited)

Ferrybridge MFE Ltd – Ferrybridge Multifuel 1

Annual Environment Report 2018

Matt Hardy
25th January 2019

Table of Contents

Permit Number: EPR/SP3239FU/V005

Year: 2018

This report is required under the Industrial Emissions Directive's Article 55(2) requirements on reporting and public information on waste incineration plants and co-incineration plants, which require the operator to produce an annual report on the functioning and monitoring of the plant and make it available to the public.

1. Introduction

Name and address of plant	Ferrybridge Multifuel 1 Kirkhaw Lane Knottingley West Yorkshire WF11 8DX
Description of waste input	Refuse Derived Fuel
Operator contact details if members of the public have any questions	01977 636700 admin@multifuelenergy.com

2. Plant description

The installation is located on land adjacent to the former Ferrybridge 'C' Power Station Site, close to the A1 (M). It lies 1km north-west of the village of Ferrybridge, 2km north-west of Knottingley, 1.9km south-east of Ferry Fryston, and 3 km northeast of Pontefract. Grid reference SE 447335, 424995.

Refuse derived fuel is delivered by road and the facility has a throughput limit of 675,000 tonnes per annum. The installation generates approximately 80MWe of electricity, of which approximately 73MWe is exported.

The installation consists of two combustion lines, waste reception, waste storage, water use, drainage, flue gas and air supply systems, boilers, facilities for the treatment of exhaust gases, on-site facilities for treatment and storage of residues and water recycling, stacks, devices and systems for controlling incineration operations, recording and monitoring conditions.

Moving grate technology is used for burning the waste material, the furnace design ensures that a temperature of at least 850°C for a period of at least two seconds is achieved in the combustion chamber. To ensure that the temperature does not fall below 850°C, auxiliary burners firing a fuel of low sulphur gas oil is automatically triggered by online process monitoring equipment.

Hot gases from the furnace pass into a boiler and the steam raised in the boiler passes through a turbine to generate electricity for export to the National Grid.

There are four components to the flue gas cleaning before combustion gases are released to atmosphere;

- Selective Non-Catalytic Reduction (SNCR), involving the injection of ammonia into the combustion chamber above the flame, provides for the abatement of nitrogen oxides;
- dry lime reagent, injected to neutralise acid gas compounds;
- activated carbon, injected to absorb mercury, dioxins and furans;
- bag filtration to remove fine particulates which are collected in the residues silo.

Cleaned flue gases exiting the abatement system are discharged through the 100m tall stack. Each boiler line has its own flue.

There are no discharges to controlled waters apart from uncontaminated surface water which is discharged to Fryston Beck via two discharge points. All waste waters from on-site processes are reused within the installation during normal operating conditions.

Any potential odours from the storage of waste materials are extracted from the Storage Bunker and Tipping Hall and used as combustion air within the furnace, thereby destroying any potentially odorous compounds.

The FM1 Environmental Management System was accredited to the ISO14001:2015 International Standard in April 2018 by LRQA. Compliance with the standard is closely monitored through an established internal audit programme carried out by 5 trained internal auditors.

3. Summary of Plant Operation

Refuse-derived fuel received	647,085 tonnes
Total waste received	647,085 tonnes
Total plant operational hours	8,279 hours
Total hours of "abnormal operation" (see permit for definition)	11.5 hours
Total quantity of incinerator bottom ash (IBA) produced	128,112 tonnes
Disposal or recovery route for IBA	R5 – Processed for re-use
Did any batches of IBA test as hazardous? If yes, state quantity	none
Total quantity of air pollution control (APC) residues produced	27,070 tonnes
Disposal or recovery route for APC residues	R5 – Processed for re-use D9 – Acid neutralisation followed by non-hazardous landfill
Total electricity generated for export to the National Grid	586,510 MWh

In 2018, plant performance and availability has been very good with 94.5% availability for the 2 boilers and 98.4% availability for the turbine.

Boiler 1 underwent a planned outage from 10th to 23rd September and a further 6 days off line in 2018 to repair a grate cooling hose and a superheater drain leak. Boiler 2 was taken off line for a planned outage from 18th September to 3rd October then underwent an further 3 days off line to repair a furnace wall tube leak.

The turbine was taken off line for 4 days during the September boiler outages for routine inspection of the HP header, turbine availability was excellent throughout 2018, performing well and without any significant losses.

The Incinerator Bottom Ash (IBA) is taken to Ballast Phoenix processing facility in Sheffield where it is reprocessed into graded aggregates and ferrous and non-ferrous metal products for use in the construction and metal industries. Ballast Phoenix are constructing a processing facility at Ferrybridge to receive all of the IBA from both FM1 and also the adjacent FM2 site which commences operation in 2019.

Ferrous metals removed during on site processing of IBA are forwarded to PJP Group in Shafton, South Yorkshire where they are separated into fractions, and recycled.

Air Pollution Control Residue (APCr), removed from the process are mostly sent to Castle Environmental in Ilkeston, Derbyshire where it is used to neutralise spent acid wastes before final disposal at non-hazardous landfill. Castle Environmental also take some of the FM1 APCr to Stoke for reprocessing into construction products.

Another recycled aggregate producer Carbon8 have built an APCr reprocessing facility in Leeds and receive up to 5% of FM1's APCr for reprocessing.

4. Summary of Plant Emissions

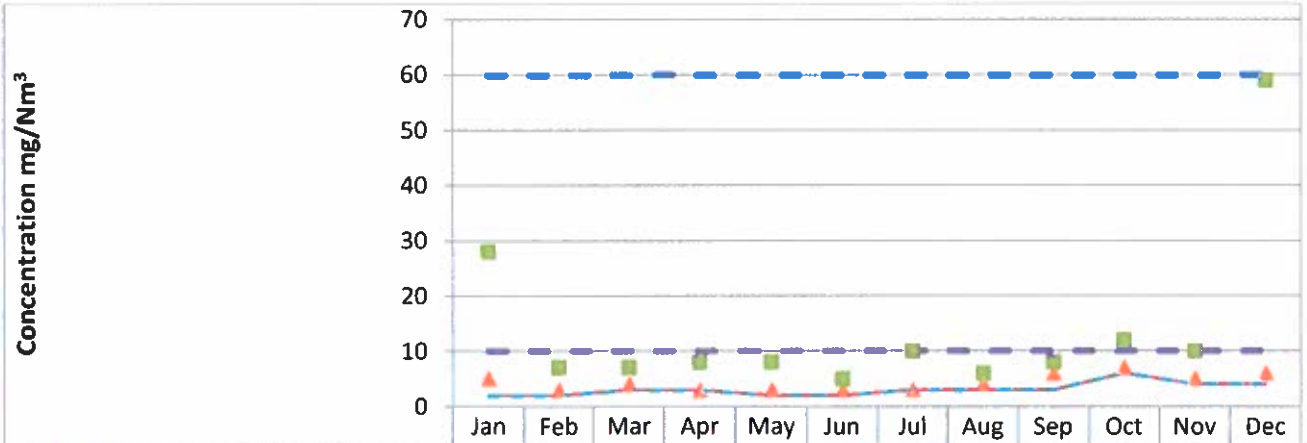
4.1 Summary of continuous emissions monitoring results for emissions to air

In compliance with the IED and Environmental Permit requirements, the flue gases are continuously monitored using MCERTS accredited monitoring equipment. In addition to the continuous monitoring, the 6 monthly periodic extractive sampling reported in Section 4.2 is undertaken by an approved service supplier. The supplier is accredited by both the United Kingdom Accreditation Service (UKAS) and the Environment Agency's Monitoring Certification Scheme (MCERTS).

The following charts show the performance of the plant against its emission limit values (ELVs) for substances that are continuously monitored.

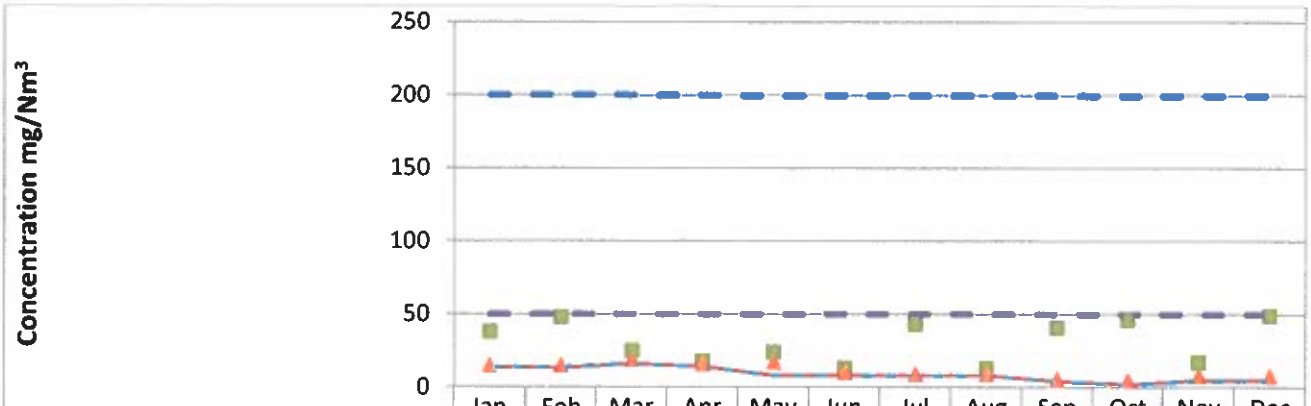
FM1 Monthly Emissions Summary

Line A1 - Hydrogen Chloride



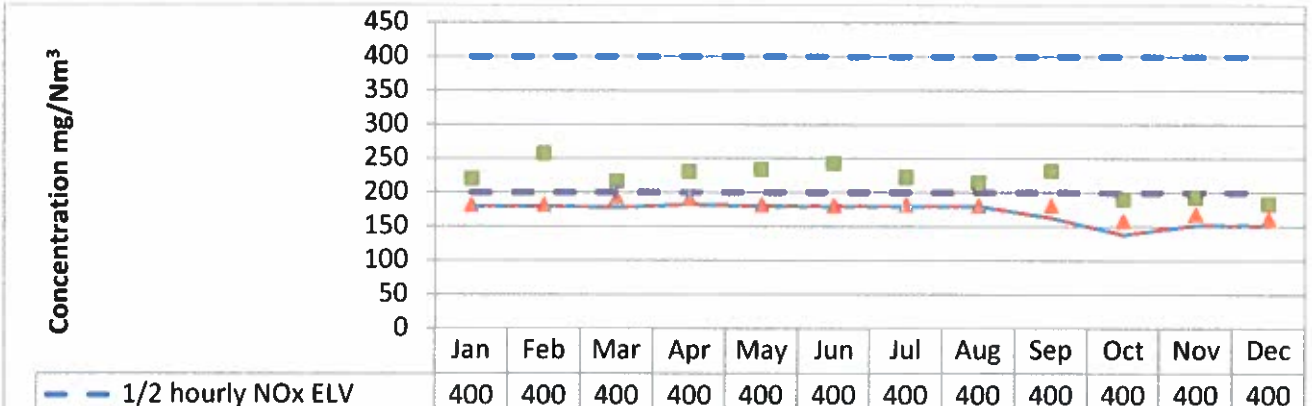
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly HCl ELV	60	60	60	60	60	60	60	60	60	60	60	60
Monthly 1/2 hourly mean	2	2	3	3	2	2	3	3	3	6	4	4
Monthly 1/2 hourly maximum	28	7	7	8	8	5	10	6	8	12	10	59
Daily HCl ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	2	2	3	3	2	2	3	3	3	6	4	4
Monthly daily maximum	5	3	4	3	3	3	3	4	6	7	5	6

Line A1 – Sulphur Dioxide



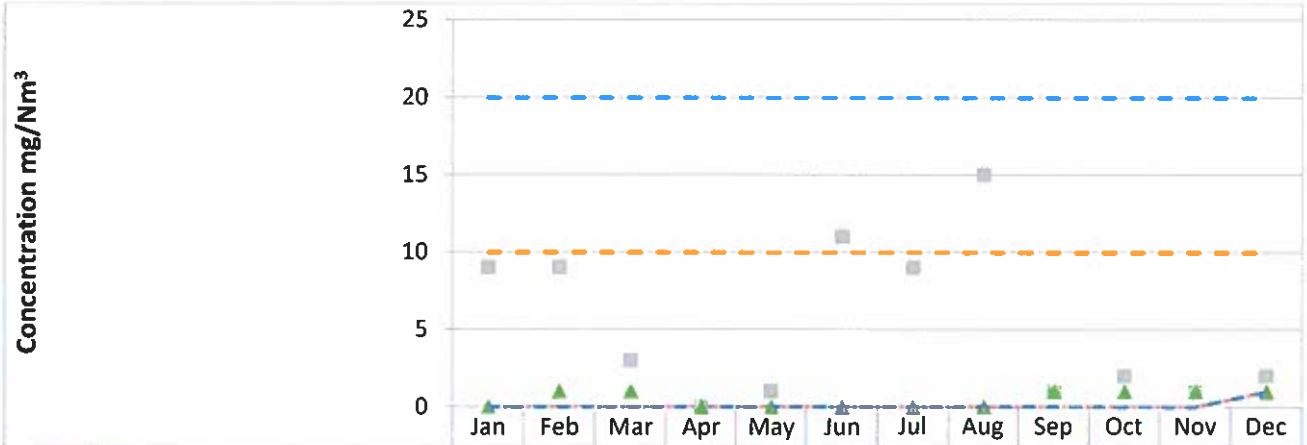
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly SO2 ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly 1/2 hourly mean	14	13	16	14	8	8	8	8	4	2	5	5
Monthly 1/2 hourly maximum	38	48	25	18	24	13	43	13	41	46	17	49
Daily SO2 ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	14	14	16	14	8	8	8	8	4	2	4	5
Monthly daily maximum	15	15	19	16	17	10	9	9	6	5	8	8

Line A1 – Oxides of Nitrogen



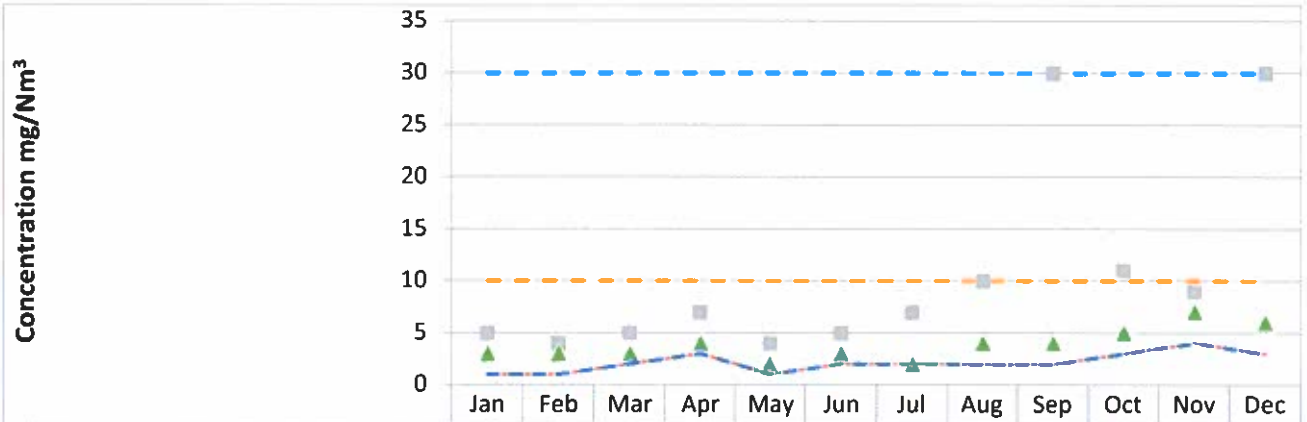
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NOx ELV	400	400	400	400	400	400	400	400	400	400	400	400
Monthly 1/2 hourly mean	180	180	178	182	180	180	180	180	163	138	152	151
Monthly 1/2 hourly maximum	221	258	217	231	234	243	223	215	232	191	193	184
Daily NOx ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly daily mean	180	180	178	182	180	180	180	180	163	138	152	152
Monthly daily maximum	182	182	192	191	182	181	182	181	181	159	168	161

Line A1 – Total Organic Carbon



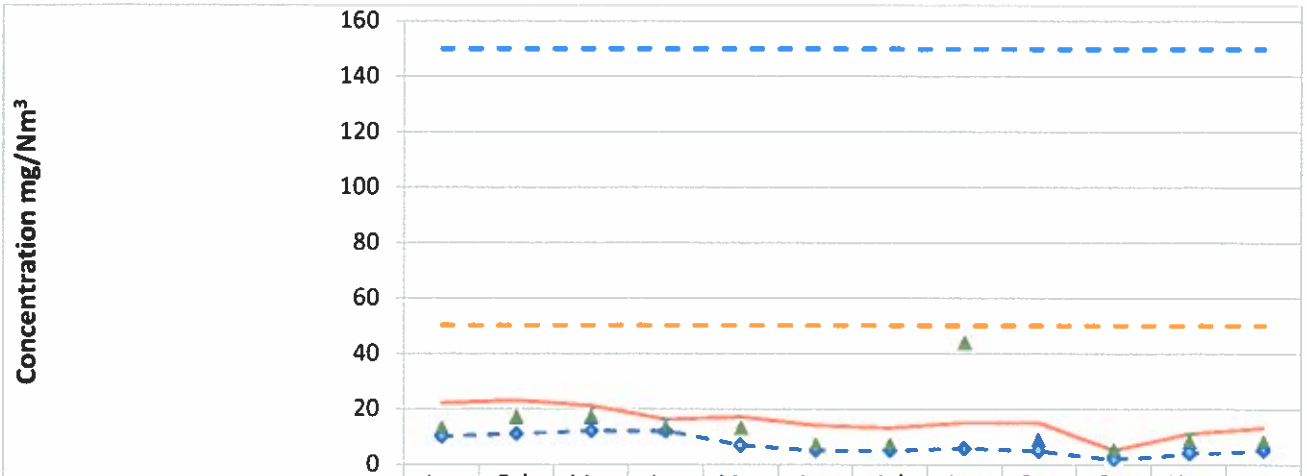
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly TOC ELV	20	20	20	20	20	20	20	20	20	20	20	20
Monthly 1/2 hourly mean	0	0	0	0	0	0	0	0	0	0	0	1
Monthly 1/2 hourly maximum	9	9	3	0	1	11	9	15	1	2	1	2
Daily TOC ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0	0	0	0	0	0	0	0	0	0	0	1
Monthly daily maximum	0	1	1	0	0	0	0	0	1	1	1	1

Line A1 – Particulates



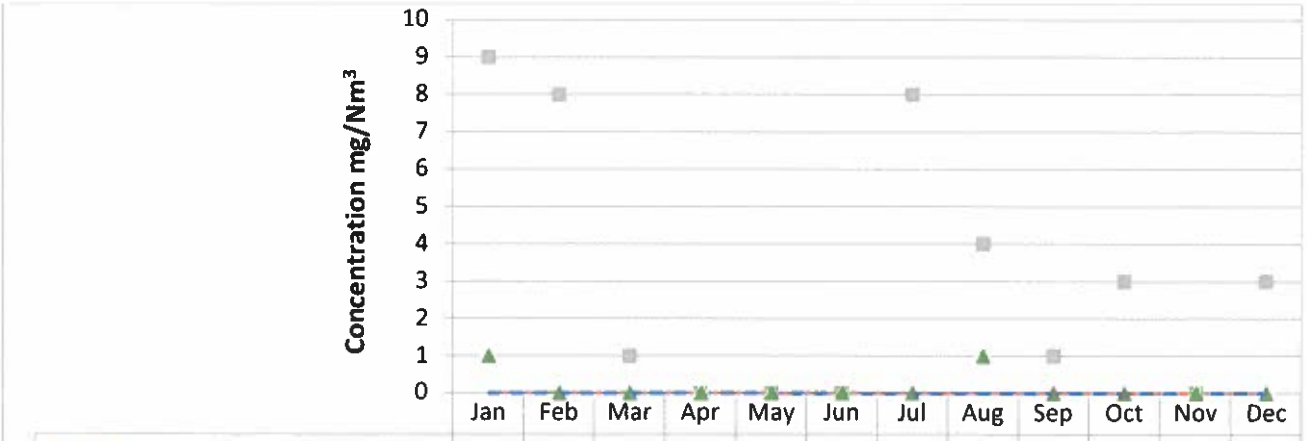
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly PM ELV	30	30	30	30	30	30	30	30	30	30	30	30
Monthly 1/2 hourly mean	1	1	2	3	1	2	2	2	2	3	4	3
Monthly 1/2 hourly maximum	5	4	5	7	4	5	7	10	30	11	9	30
Daily PM ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	1	1	2	3	1	2	2	2	2	3	4	3
Monthly daily maximum	3	3	3	4	2	3	2	4	4	5	7	6

Line A1 – Carbon Monoxide



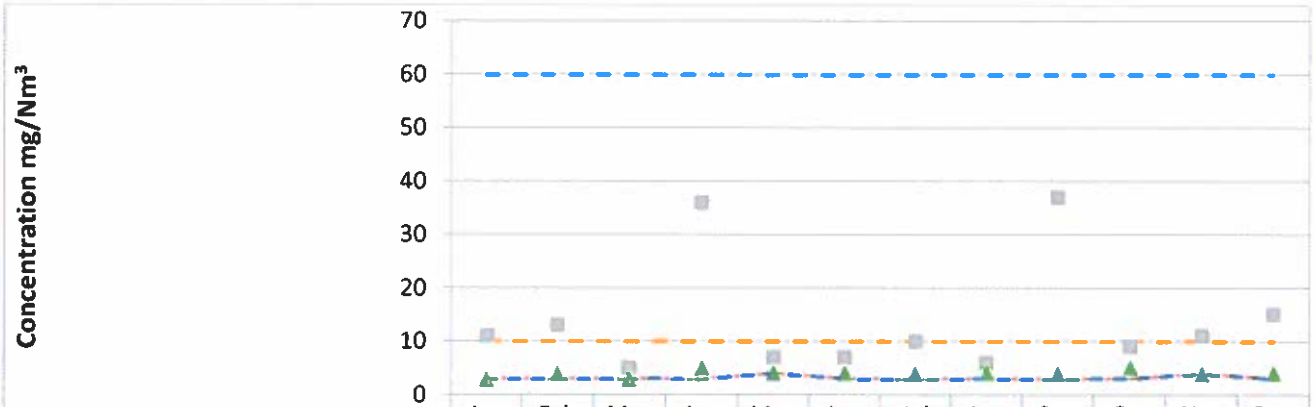
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10 minute CO ELV (95%)	150	150	150	150	150	150	150	150	150	150	150	150
Monthly 95% 10 minute maximum	10	11	12	12	7	5	5	6	5	2	4	5
Monthly 10 minute mean	22	23	21	16	17	14	13	15	15	5	11	13
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	10	11	12	12	7	5	5	6	5	2	4	5
Monthly daily maximum	13	17	17	13	13	7	7	44	9	5	8	8

Line A1 – Ammonia



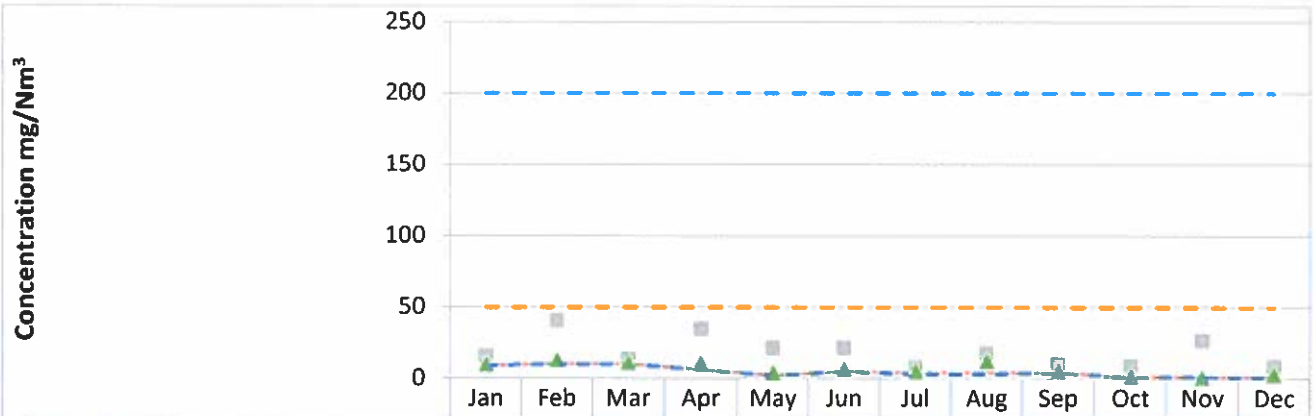
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NH3 ELV												
Monthly 1/2 hourly mean	0	0	0	0	0	0	0	0	0	0	0	0
Monthly 1/2 hourly maximum	9	8	1	0	0	0	8	4	1	3	0	3
Daily NH3 ELV												
Monthly daily mean	0	0	0	0	0	0	0	0	0	0	0	0
Monthly daily maximum	1	0	0	0	0	0	0	1	0	0	0	0

Line A2 – Hydrogen Chloride



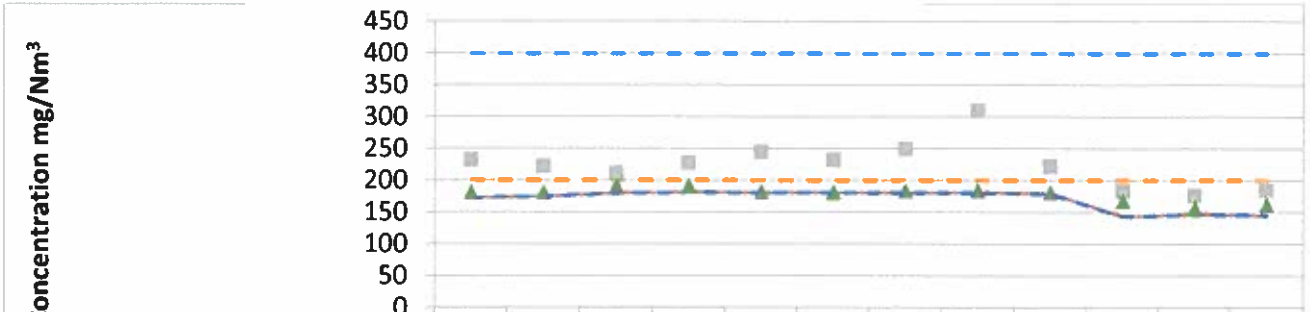
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly HCl ELV	60	60	60	60	60	60	60	60	60	60	60	60
Monthly 1/2 hourly mean	3	3	3	3	4	3	3	3	3	3	4	3
Monthly 1/2 hourly maximum	11	13	5	36	7	7	10	6	37	9	11	15
Daily HCl ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	3	3	3	3	4	3	3	3	3	3	4	3
Monthly daily maximum	3	4	3	5	4	4	4	4	4	5	4	4

Line A2 – Sulphur Dioxide



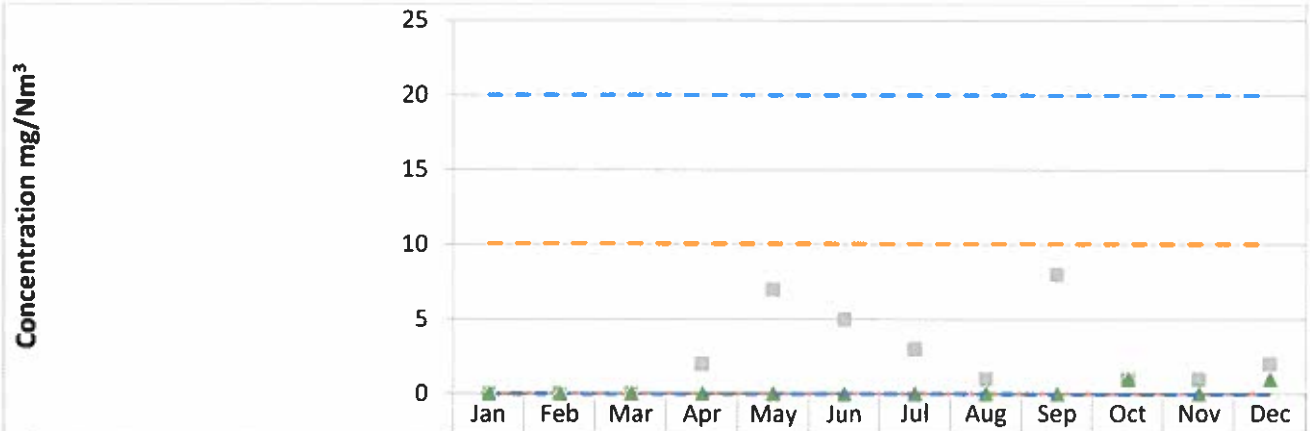
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly SO2 ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly 1/2 hourly mean	9	10	10	6	2	5	4	4	4	1	1	1
Monthly 1/2 hourly maximum	16	41	14	35	22	22	8	18	10	9	27	9
Daily SO2 ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	9	10	10	6	2	5	3	3	4	1	1	1
Monthly daily maximum	10	13	11	11	4	7	5	12	6	2	1	3

Line A2 – Oxides of Nitrogen



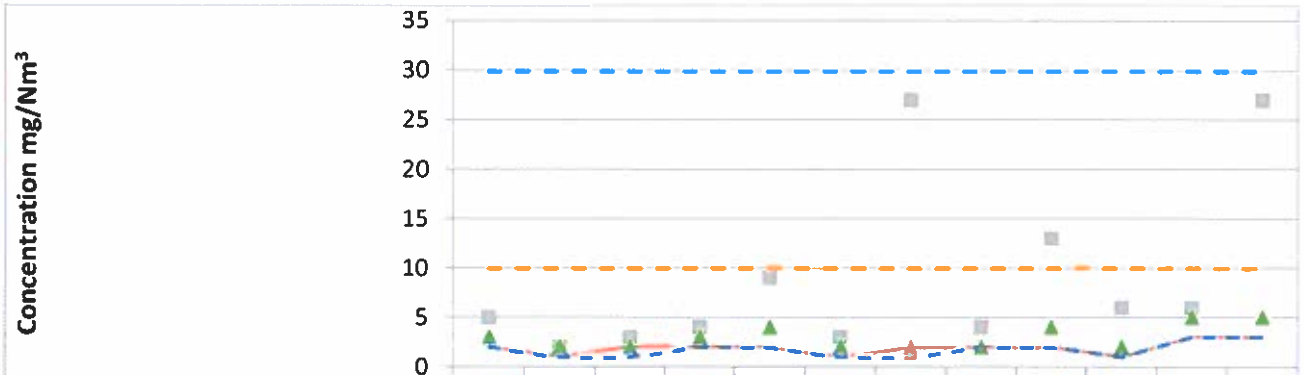
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NOx ELV	400	400	400	400	400	400	400	400	400	400	400	400
Monthly 1/2 hourly mean	172	174	179	181	180	180	180	180	179	143	146	145
Monthly 1/2 hourly maximum	232	222	211	227	245	232	250	310	222	183	176	184
Daily NOx ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly daily mean	172	174	179	181	180	180	180	180	178	143	146	145
Monthly daily maximum	181	181	191	191	182	181	183	184	181	167	155	161

Line A2 – Total Organic Carbon



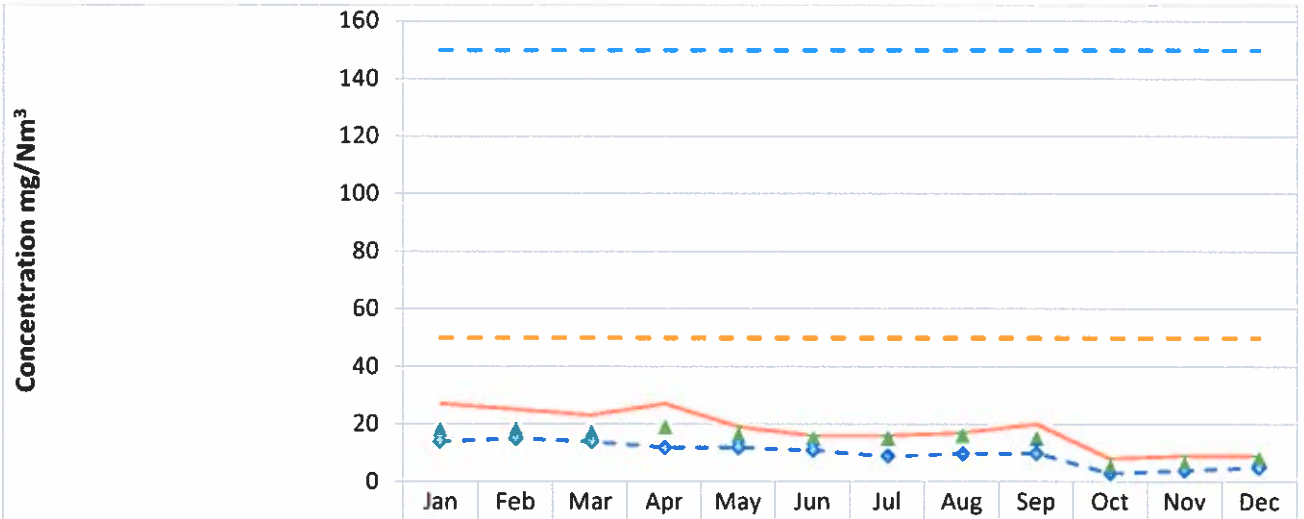
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly TOC ELV	20	20	20	20	20	20	20	20	20	20	20	20
Monthly 1/2 hourly mean	0	0	0	0	0	0	0	0	0	0	0	0
Monthly 1/2 hourly maximum	0	0	0	2	7	5	3	1	8	1	1	2
Daily TOC ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0	0	0	0	0	0	0	0	0	0	0	0
Monthly daily maximum	0	0	0	0	0	0	0	0	0	1	0	1

Line A2 – Particulates



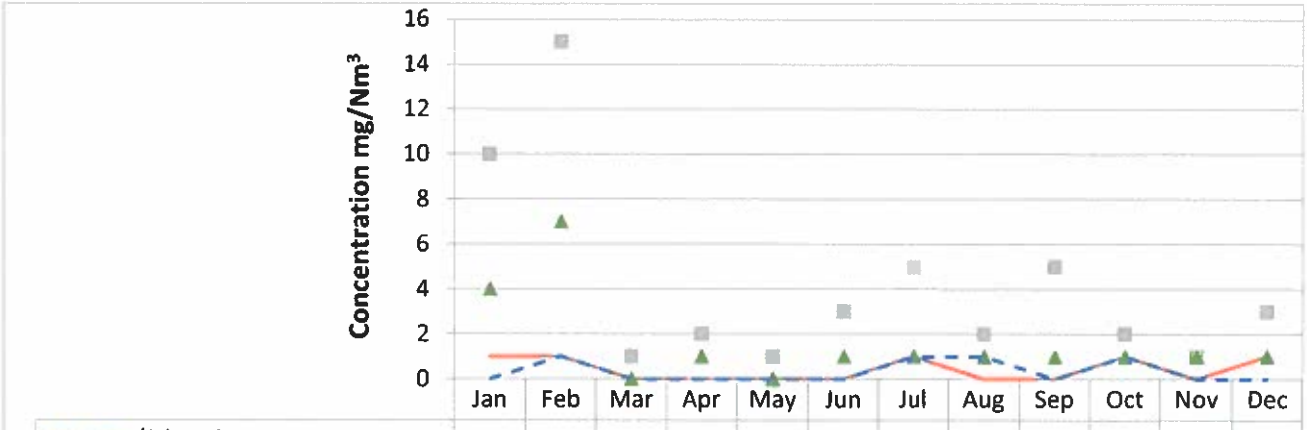
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly PM ELV	30	30	30	30	30	30	30	30	30	30	30	30
Monthly 1/2 hourly mean	2	1	2	2	2	1	2	2	2	1	3	3
Monthly 1/2 hourly maximum	5	2	3	4	9	3	27	4	13	6	6	27
Daily PM ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	2	1	1	2	2	1	1	2	2	1	3	3
Monthly daily maximum	3	2	2	3	4	2	2	2	4	2	5	5

Line A2 – Carbon Monoxide



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10 minute CO ELV (95%)	150	150	150	150	150	150	150	150	150	150	150	150
Monthly 95% 10 minute maximum	14	15	14	12	12	11	9	10	10	3	4	5
Monthly 10 minute mean	27	25	23	27	19	16	16	17	20	8	9	9
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	14	15	14	12	12	11	9	10	10	3	4	5
Monthly daily maximum	18	18	17	19	16	15	15	16	15	5	6	8

Line A2 – Ammonia



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NH3 ELV												
Monthly 1/2 hourly mean	1	1	0	0	0	0	1	0	0	1	0	1
Monthly 1/2 hourly maximum	10	15	1	2	1	3	5	2	5	2	1	3
Daily NH3 ELV												
Monthly daily mean	0	1	0	0	0	0	1	1	0	1	0	0
Monthly daily maximum	4	7	0	1	0	1	1	1	1	1	1	1

4.2 Summary of periodic monitoring results for emissions to air

The table below shows the results of periodically monitored substances.

Line A1

Substance	Emission limit value	Results	
		18, 19/01/2018 and 06/03/2018	24 and 25/07/2018
Mercury and its compounds	0.05 mg/m^3	0.0009 mg/m^3	0.001 mg/m^3
Cadmium & thallium and their compounds (total)	0.05 mg/m^3	<0.0005 mg/m^3	0.003 mg/m^3
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3	0.009 mg/m^3	0.35 mg/m^3
Dioxins and furans (I-TEQ)	0.1 ng/m^3	0.0039 ng/m^3	0.0037 ng/m^3
Hydrogen Fluoride	2 mg/m^3	<0.04 mg/m^3	<0.04 mg/m^3

Line A2

Substance	Emission limit value	Results	
		16 and 17/01/2018	23, 26 and 27/07/2018
Mercury and its compounds	0.05 mg/m^3	0.01 mg/m^3	0.002 mg/m^3
Cadmium & thallium and their compounds (total)	0.05 mg/m^3	<0.0006 mg/m^3	0.001 mg/m^3
Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3	0.01 mg/m^3	0.032 mg/m^3
Dioxins and furans (I-TEQ)	0.1 ng/m^3	0.0037 ng/m^3	0.0044 ng/m^3
Hydrogen Fluoride	2 mg/m^3	<0.06 mg/m^3	<0.06 mg/m^3

4.3 Summary of monitoring results for emissions to water

The plant is designed to have zero effluent discharge and only clean surface water is discharged to Fryston Beck.

Waste water is designed to be utilised in the plant via the bottom ash expellers. During periods of boiler maintenance, excess waste water is transported off site by road tanker for disposal at the Knostrop Water Treatment Facility in Leeds operated by FCC Environment.

5. Summary of Permit Compliance

5.1 Compliance with permit limits for continuously monitored pollutants

The plant met its emission limits as shown in the table below.

Substance	Percentage time compliant during operation	
	Half-hourly limit	Daily limit
Particulates	100 %	100 %
Oxides of nitrogen	100 %	100 %
Sulphur dioxide	100 %	100 %
Carbon monoxide	100 % 95% of 10-min averages	100 %
Total organic carbon	100 %	100 %
Hydrogen chloride	100 %	100 %
Hydrogen fluoride	100 %	100 %

5.2 Summary of any notifications or non-compliances under the permit

Date	Summary of notification or non-compliance	Reason	Measures taken to prevent reoccurrence
	None		

5.3 Summary of any complaints received and actions to taken to resolve them.

Date of complaint	Summary of complaint	Reason for complaint including whether substantiated by the operator or the EA	If substantiated, measures to prevent reoccurrence
23/04/2018	Local resident reported car coated in dust on driveway	Not substantiated, dust emissions were low during the period, complainant agreed another source was more likely	
25/06/2018	Local resident reported a TCP like odour	Not substantiated, plant was in normal operation and wind direction was away from complainant	

Several external complaints were received during 2018 regarding vehicles attending the FM1 site passing through a weight restricted area and also causing traffic issues on the A162 slip lane. All complaints were investigated and where attributable to a vehicle attending FM1, the driver's behaviour was reported to the supplier or haulier for action.

6. Summary of plant improvements

Summary of any permit improvement conditions that have been completed within the year and the resulting environmental benefits.
None
Summary of any changes to the plant or operating techniques which required a variation to the permit and a summary of the resulting environmental impact.
None
Summary of any other improvements made to the plant or planned to be made and a summary of the resulting environmental benefits.
None

7. Use of Rejected Heat

Every practicable opportunity to use the heat rejected at the steam condensers for beneficial local use is investigated. The necessary works were conducted in 2016 to install pipework to allow heat offtake from the steam turbine. This is in line with a number of potential heat "customers" becoming available both in the short and long term, and discussions with Wakefield Metropolitan District Council.

The site is currently not able to further explore heat offtake agreements due to being tied to a capacity market contract.

APPENDIX 1 – Ferrybridge Multifuel Energy Annual Returns

In accordance with Condition 4.2.2 of EPR/SP3239FU/V005.

Form: Performance 1;

- 2018 Annual Reporting of Waste Disposal and Recovery (01/01/2018 to 31/12/2018)
- 2018 Annual Reporting of Water and Other Raw Material Usage (01/01/2018 to 31/12/2018)
- 2018 Annual Reporting of other performance indicators (01/01/2018 to 31/12/2018)

Form: Energy 1;

- 2018 Annual Reporting of Energy Usage/Export (01/01/2018 to 31/12/2018)

2018 Annual Reporting of Waste Disposal and Recovery (01/01/2018 to 31/12/2018)

Waste Description	Disposal Route	Tonnes	Recovery Tonnes	Tonnes / tonne of waste incinerated
1) Hazardous Wastes				
APC Residues	D9 / R5	27,069.66	4,506.12	0.0418
Spent FGT Filter Bags	D14	3.4		0.0000053
WEEE	R4	0.3	0.3	0.0000005
Oil Contaminated Wastes	R13	1.96	1.96	0.000003
Spent Aerosol Cans	R13	0.1	0.1	0.0000001
Waste Oil	R9	2.26	2.26	0.0000035
Total Hazardous Waste		27,077.68	4,510.74	0.0419
2) Non-Hazardous Wastes				
IBA	R5	128,112.23	128,112.23	0.198
Ferrous Metal	R4	3,048.14	3,048.14	0.0047
Process Water	D8	836.3		0.0013
Wood	R3	6.58	6.58	0.00001
Dry Mixed Recyclables	R13	2.72	2.72	0.000004
General Waste	R13	15.2	15.2	0.000023
Rubble	R13	56.54	56.54	0.00009
Total Non-Hazardous Waste		132,077.71	131,241.41	0.204
TOTAL WASTE		159,155.39	135,752.15	0.246

Operator's comments: R3 – Recycling/reclamation of organic substances, R4 – Metals recovered, R5 – Processed for re use, R9 - Oil re-refining or other reuses of oil, R13 - Temporary storage of wastes pending any of the operations numbered R1 to R12, D8 - Biological treatment not specified, D9 – Acid neutralisation followed by non-hazardous landfill, D14 - Repackaging prior to submission to any of the operations numbered D1 to D13.

Signed ..... Date 25/1/19

(authorised to sign as representative of Ferrybridge MFE Limited)

2018 Annual Reporting of Water and Other Raw Material Usage (01/01/2018 to 31/12/2018)

Raw Material	Usage	Unit	Specific Usage	Unit
Mains water	70,506	m^3	0.109	m^3/t
Total water usage	175,795	m^3	0.272	m^3/t
Ammonia	613.91	Tonnes	0.949	kg/t
Activated carbon	225.67	Tonnes	0.349	kg/t
Lime/hydrated lime or sodium bicarbonate	10,858	Tonnes	16.783	kg/t

Operator's comments :

Fuel burn (01/01/2018 to 31/12/2018) = 646,959 tonnes

NB: Fuel burn = tonnes delivered in period + (tonnes in bunker at start of period – tonnes in bunker at end of period)
Fuel burn submitted in quarterly and annual returns prior to 01/10/2018 was measured using bunker waste crane load cells.

Signed ..... Date 25/1/19
(authorised to sign as representative of Ferrybridge MFE Limited)

2018 Annual Reporting of other performance indicators (01/01/2018 to 31/12/2018)

Parameter	Result	
Operating hours for the year	8,279 hours	
	Line A1	Line A2
Number of periods of abnormal operation	5 periods	18 periods
Cumulative hours of abnormal operation for this calendar year	2.5 hours	9.0 hours

Operator's comments :

WID abnormal periods (01/01/2018 to 31/12/2018):

A1 21st Feb, 1 period (0.5 hours) (CEMs communication issue)
A1 23rd Mar, 2 periods (1.0 hours) (CEMs communication issue)
A1 23rd September, 1 period (0.5 hours) (Dust Filtration Bag Failure)
A1 15th December, 1 period (0.5 hours) (Data Handling System Issue)

A2 15th Jan, 3 periods (1.5 hours) (CEMs communication issue)
A2 17th Jan, 3 periods (1.5 hours) (CEMs communication issue)
A2 21st Feb, 1 period (0.5 hours) (CEMs communication issue)
A2 18th Mar, 1 periods (0.5 hours) (CEMs communication issue)
A2 10th June, 1 period (0.5 hours) (CDAS reporting software issue)
A2 22nd October, 6 periods (3.0 hours) (CEMs issue, low data)
A2 11th December, 2 periods (1.0 hours) (CEMs issue, low data)
A2 15th December, 1 period (0.5 hours) (Data Handling System Issue)

The 2017 operating hours were 8,050 hours

Signed ..... Date 25/1/19
(authorised to sign as representative of Ferrybridge MFE Limited)

Permit Number : EPR/SP3239FU

Operator : Ferrybridge MFE Limited

Facility : Ferrybridge Multifuel Facility

Form Number :Energy 1 / 30/11/2012

2018 Annual Reporting of Energy Usage/Export (01/01/2018 to 31/12/2018)

Energy Source	Energy Usage	Unit	Contained Energy (MWh)
Electricity Produced	648,766	MWh	
Electricity Imported	620.303	MWh	
Electricity Exported	586,510	MWh	
Gas Oil	467.42	tonnes	
Steam/hot water Exported	0	MWh	

Operator's comments :

Signed ..... Date.....25/1/19.....

(authorised to sign as representative of Ferrybridge MFE Limited)

Annual Performance Report 2019

Permit EPR/SP3239FU

Ferrybridge Multifuel 1

FM1

Ferrybridge MFE Limited

Year: 2019

Address: Kirkhaw Lane, Knottingley, West Yorkshire, WF11 8DX

Tel: 01977 636763

Email: john.warren@multifuelenergy.com

Prepared by: John Warren Position: Environmental Officer

Approved by: Colin Drew Position: Plant Manager

Version: 1.1

Issue Date: 29/04/2020

Contents

Version Control

Section	Information	Date

Distribution

Copy	Name, Role	No.

This report is required under the Industrial Emissions Directive's Article 55(2) requirements on reporting and public information on waste incineration plants and co-incineration plants, which require the operator to produce an annual report on the functioning and monitoring of the plant and make it available to the public.

Plant Description and Design

Ferrybridge Multifuel 1 is designed for the disposal of waste with energy recovery in an incineration plant and is permitted under Section 5.1 A(1)(b) the incineration of non-hazardous waste in an incineration plant with a capacity exceeding 3 tonnes per hour. The installation is located on land adjacent to the Ferrybridge Power Station site, close to the A1(M). It lies 1km northwest of the village of Ferrybridge, 2km northwest of Knottingley, 1.9km southeast of Ferry Fryston, and 3km northeast of Pontefract, at grid reference SE 4726 2500. The facility has a throughput limit of 725,000 tonnes per year of waste which can include refuse derived fuel, waste wood and commercial and industrial waste. The facility consists of two combustion lines and generates approximately 80 MWe of electricity, of which approximately 73 MWe is exported. Moving grate technology is used for burning the waste material. The furnace design ensures that a temperature of at least 850 degrees celcius for a period of at least two seconds is achieved in the combustion chamber. Auxillary burners firing a low sulphur gas oil are automatically triggered by online process monitoring equipment are used to ensure the temperature does not fall below 850 degrees celcius. Hot gases from the furnace pass in a boiler. Steam raised in the boiler is passed to a turbine to generate electricity for export to the National Grid.

Summary of Operational Processes and Procedures

Key processes include waste reception, waste storage, water use, drainage, flue gas and air supply systems, boilers, treatment of exhaust gases, treatment and storage of residues and water recycling, stacks, devices and systems for controlling incineration operations, recording and monitoring conditions. The site has an Environmental Management System accredited to ISO 14001.

Health and Safety management system covering all aspects of health and safety comprising policy, procedures, risk assessments, Key Performance Indicators (KPIs) and objectives reviewed periodically. Seeking accreditation to ISO 45001:2018 in early 2020.

Maintenance across the facilities is broken down in to reactive (breakdown) maintenance, and planned preventive maintenance. Preventive maintenance is conducted via the philosophy of Risk Based Inspections to ensure the safety of personnel and availability of the plant is cost effectively maintained.

Operational Data

Plant Size		725,000	tonnes pa	80	MWth	73	MWe
No. of combustion lines	2		No. of Turbines:		1		

Waste types received	Unit	Q1	Q2	Q3	Q4	Year Total	%
Household / Local Authority	tonnes	174,726	165,505	168,664	158,047	**666,942**	100.0%
Commercial & Industrial				-		-	-
Hazardous				-		-	-
Clinical				-		-	-
Waste wood (biomass)				-		-	-
Refuse derived fuel				-		-	-
Solid recovered fuel				-		-	-
Other [Please specify]						-	-
Total waste received		**174,726**	**165,505**	**168,664**	**158,047**	**666,942**	100.0%
Rejected Waste						-	-
Waste transferred out						-	-

Energy Useage / Export	Unit	Q1	Q2	Q3	Q4	Year Total	KWh/te
Power Generated	MWh	171,655	157,828	163,602	164,439	**657,525**	986
Power Exported		155,321	142,424	147,600	148,294	**593,639**	890
Power Used on site		16,335	15,404	16,002	16,145	**63,886**	96
Power Imported		-	10	-	57	**67**	0
Parasitic Load	%	9.5%	9.8%	9.8%	9.8%	9.7%	
Thermal Energy Produced	GWh	-	-	-		-	-
Thermal Energy Exported		-	-	-		-	-
R1 value					0.91	Design / Operational / n/a	

Waste Disposal & Recover	Unit	Q1	Q2	Q3	Q4	Year Total	% inputs
APC Residues - produced	tonnes	6,677	6,766	6,901	6,998	**27,342**	4.1%
IBA - produced		32,821	31,525	33,097	31,773	**129,216**	19.4%
Metals recycling		1,190	1,010	1,028	1,025	**4,254**	0.6%
Building Rubble		-	7	7	-	**14**	0.0%
Dry Mixed Recyclables		1	0	2	0	**3**	0.0%
General Waste		6	6	4	4	**20**	0.0%
Wood		1	-	2	6	**8**	0.0%
Contaminated Packaging		3				**3**	0.0%
Waste Paint		0				**0**	0.0%
Spent Aerosol Cans		0			0	**0**	0.0%
Oil Contaminated Solid Waste		3			2	**4**	0.0%
WEEE					0	**0**	0.0%
APCr contaminated materials					3	**3**	0.0%
Waste Hydraulic Oil		3	-		2	**5**	0.0%

Raw Material Usage	Unit	Q1	Q2	Q3	Q4	Year Total	kg or Ltr /te
Mains Water	m^3	16,385	23,650	18,827	16,712	**75,574**	113.31
Other Water	m^3	28,357	26,960	30,840	28,713	**114,870**	172.23
Ammonia / Urea	kgs	267	566	1,712	5,141	**7,686**	0.01
Activated Carbon	kgs	57,561	52,600	58,350	62,300	**230,811**	0.35
Lime / hydrated lime	kgs	2,632,000	2,694,000	2,868,000	2,736,000	**10,930,000**	16.39
Fuel oil	ltrs	119,309	325,673	97,887	172,056	**714,926**	1.07
Gas	cf	-	-	-	-	-	-
Other		-	-	-	-	-	-

Summary of Hours	Line/Unit	Q1	Q2	Q3	Q4	**Year Total**	
Hours of waste combustion, to	2	2,146	2,136	2,131	1,848	**8,261**	94.3%
Hours of waste combustion, to	2	2,153	2,145	2,064	2,208	**8,570**	97.8%
Hours of turbine operations, to	1	2,160	2,182	2,197	2,206	**8,745**	99.8%
Hours of heat / steam export		-	-	-	-	**-**	n/a
Abnormal Events	qty.	10	-	4	1	**15**	yes
Abnormal operation	hours	5	-	2	1	**8**	0.09%
Permit Breaches	qty.	-	-	-	-	**-**	no

Summary of Plant Operations and Maintenance during the reporting year

Operations
10/02/2019 Bunker wing wall plate in ash extractor 1 - outage to remove
12/04/2019 Boiler 2 PA Fan trip on high inboard bearing temp - kept off line to replace both bearings and inspect fan
14/04/2019 Boiler 1 Tube Leak / Ash Extractor ram repair
18/04/2019 Boiler 2 waste hopper chute expansion joint damaged & smouldering
04/06/2019 Boiler 1 superheater 3.2 drain tube leak and header tube leak. Furnace north wall tube leak
24/06/2019 Boiler 2 pit-stop outage. Brought forward from September to align with north furnace wall tube leak repair.
24/08/2019 Boiler 1 ash extractor 2 worn ram plates, debris behind ram restricting movement. Ash extractor blocked. Shut down to repair holes in ram.
15/09/2019 Boiler 1 pit stop outage.
12/10/2019 Boiler 1 catastrophic furnace tube leak, upper furnace east wall.

Maintenance
Annual boiler outage, both Line 1 and 2
Replacement of furnace refractory
Replacement of moving grate bars and associated components

Remedial works
Line 2 boiler superheater drain line tube leak
Line 1 boiler superheater header cracking

Upgrades
Metso Valmet control system DCS upgrade

Summary of Residue Handling for the reporting year

Incinerator Bottom Ash (IBA) from FM1 is stored in the Ash Bunker and then outloaded by the ash crane grab to receiving lorries. From January to mid October 2019 the IBA was collected and taken to Ballast Phoenix In Sheffield. From mid October onwards the IBA has been taken to Blue Phoenix Ferrybridge (formerly Ballast Phoenix) site, which is adjacent to the north of the FM2 site. Movement of the IBA is carried out by dumper truck via a predominantly internal road network to the Blue Phoenix site where it is processed into Incinerator Bottom Ash Aggregate (IBAA).
APCr is collected in silos and then discharged to receiving tanker for off-site disposal. The APCr is transported to two companies; Castle Environmental and OCO Technology. Castle Environmental receives APCr at two sites located in Ilkeston (Derbyshire) and Stoke on Trent, whereas OCO Technology has one site located in Leeds. Castle Environmental currently recycles approximately 69% of the APCr whereas OCO Technology recycles 100%.

2019 Annual Reporting Performance Form 1

Permit EPR/SP3239FU
Facility: Ferrybridge Multifuel 1

Operator: 0
Form: Performance 1

Reporting Period from: 01 January 2019 to: 31 December 2019

2019 Annual Reporting of Waste Disposal and Recovery

Waste Description	Disposal Route(s)	Disposal Tonnes	Recovery Tonnes	% / tonne of waste incinerated
1) Hazardous Wastes				
APC Residues	D9/R5	13,300.6	14,041.2	4.1%
APCr contaminated materials	D14	2.9	0.0	0.0%
Waste Oil	R13	0.0	5.0	0.0%
Oil contaminated materials	D14	4.0	0.0	0.0%
Contaminated packaging	R13	0.0	6.0	0.0%
Paint	R13	0.0	0.1	0.0%
WEEE	R4	0.0	0.2	0.0%
Aerosols	R13	0.0	0.2	0.0%
Total Hazardous Waste		13,307.5	14,052.6	4.1%
2) Non-Hazardous Wastes				
IBA	R5	0.0	129,216.2	19.4%
Ferrous Metal	R4	0.0	4,254.0	0.6%
Dry mixed recyclables	R13	0.0	3.0	0.0%
Rubble	R13	0.0	14.0	0.0%
General waste	R13	0.0	20.0	0.0%
Wood	R3	0.0	8.0	0.0%
Total Non-Hazardous Waste		0.0	133,515.2	20.0%
TOTAL WASTE		**13,307.5**	**147,567.8**	24.1%

Operator's comments :

2019 Annual Reporting of Water and Other Raw Material Usage

Raw Material	Usage	Unit	Specific Useage	Unit
Mains Water	75574	m^3	0.11	m^3/te
Total Water	190443.8	m^3	0.29	m^3/te
Urea / Ammonia	7686	kg	0.01	kg/te
Activated Carbon	230811	kg	0.35	kg/te
Lime / hydrated lime / Sodium Bicarb.	10930000	kg	16.39	kg/te

Operator's comments :

2019 Annual Reporting of other performance indicators

Parameter	Results by Line A1	A2	A3	A4	A5		Turbine 1	Turbine 2
Operating hours for the year, hours	8261	8570					8745	
Number of periods of abnormal operation, qty.	8	7						
Cumulative hours of abnormal operation for this year, hours	4	3.5						

Operator's comments :

Signed: _____ Date: 30/4/20

2019 Annual Reporting of Energy Usage/Export

Permit EPR/SP3239FU Operator: 0

Facility: Ferrybridge Multifuel 1 Form: Energy 1

Reporting Period from: 01 January 2019 to: 31 December 2019

Energy Source	Energy Usage	Unit	Specific Useage (KWh/tonne incinerated
Electricity Produced	657,525	MWh	986
Electricity Imported	67.3933	MWh	0
Electricity Exported	593,639	MWh	890
Gas Oil	714,926	tonnes	1
Steam/hot water exported	0	GWh	-

Operator's comments :

Signed: CLD Date: 30/4/20

Summary of Permit Compliance

Compliance with permit limits for continuously monitored pollutants

The plant met its emission limits as shown in the table below:

Substance	Percentage time compliant during operation	
	Half-hourly limit	Daily limit
Particulates	100%	100%
Oxides of nitrogen	100%	100%
Sulphur dioxide	100%	100%
Carbon monoxide	100 % or 100% 95% of 10-	100%
Total organic carbon	100%	100%
Hydrogen chloride	100%	100%
Hydrogen fluoride		
	100%	100%

Summary of any notifications or non-compliances under the permit			
Date	Summary of notification or non-compliance [including Line/Reference]	Reason	Measures taken to prevent reoccurrence

Summary of any complaints received and actions to taken to resolve them.			
Date	Summary of complaint [including Line/Reference]	Reason *	Measures taken to prevent reoccurrence
07/01/2019	Public complant of RDF delivery vehicle using weight restricted road	Heavy goods vehicle using weight restricted road - substantiated	Waste supplier notified, haulier warned not to repeat.
15/02/2019	Public complaint of vehicles parking and litter on A162	Vehicles parking in restricted area and throwing litter from cabs - not substantiated	Discussed at manager meeting, dash cams to be purchased to gther evidence to present to fuel suppliers.
18/02/2019	Public complaint about vehicles overnighting in lay-by	Vehicles overnighting in restricted area - substantiated	Raised at manager meeting, fuel supplier notified and requested driver is banned from site.
27/03/2019	Public complaint of vehicles parking in lay-by	Vehicles parking in restricted area - substantiated	Fuel supplier notified and reminded of parking restrictions
08/04/2019	Public complaint of 2 RDF vehicles driving in restricted areas	Vehicles driving in restricted areas - not substantiated	Investigation showed one vehicle had not attended site and the other had not contravened highway regulations.
12/04/2019	Public complaint of vehicles parking in lay-by	Vehicles parking in restricted area	Insufficent information provided to pursue with fuel supplier.

28/08/2019	Public complaint of vehicles using weight restricted road	Heavy goods vehicle using weight restricted road - not substantiated	Investigation showed both vehicles had not attended site.
03/09/2019	Public complaint of vehicles causing problems in area	Vehicles causing problems in area - not substantiated	Investigation showed vehicles had not attended site.
05/11/2019	Public complaint via West Yorkshire Police of vehicles driving on weight restricted roads	Vehicles driving in restricted areas - not substantiated	Investigation showed vehicles had not attended site.
03/12/2019	Public complaint of vehicles using weight restricted road	Heavy goods vehicle using weight restricted road - substantiated	Raised at manager meeting, fuel supplier notified and requested driver is banned from site.
17/12/2019	Bonfire smoke from offsite premises blowing towards site	Smoke from neighbouring premises - not substantiated	Raised at manager meeting, site odour checks implemented.
23/12/2019	Public complaint of vehicles parking in restricted areas	Vehicles parking in restricted area - not substantiated	Investigation showed two vehicles had not attended site and the other was infrequent visitor but had suffered mechanical breakdown and was awaiting repair.
30/12/2019	Report via Environment Agency about litter on the A162 as a result of RDF delivery vehicles	EA investigations ongoing, including unannounced monitoring visits.	Day team monitoring all RDF delivery vehicles for signs of waste protruding from vehicle, chassis and netting/sheeting. Drivers instructed to clean vehicle before leaving site and if unable to do so safely then vehicle is banned from returning to site until the necessay repairs/improvemnts have been made. Waste companies and hauliers have been advised that vehicles in unacceptable conditions will not be permitted at site.

*** including whether substantiated by the operator or the EA**

Summary of Plant Improvements

Summary of any efficiency improvements that have been completed within the year.
None

Summary of any permit improvement conditions that have been completed within the year and the resulting environmental benefits.
None

Summary of any changes to the plant or operating techniques which required a variation to the permit and a summary of the resulting environmental impact.
None

Summary of any other improvements made to the plant or planned to be made and a summary of the resulting environmental benefits.
None

Details of Public & Stakeholder Liasion

Summary of events held during the reporting year.	
Date	**Description**
16/1/19, 17/4/19, 16/10/19	Community Liaison group meetings (quarterly)
11/4/19, 11/10/19	Transport Liaison Group meetings (twice yearly)

List of events planned for next year	
Date	**Description**
15/1/20 (held), April, July, October 2020	Quarterly Community Liaison Group meetings
April, October 2020	Transport Liaison Group Meetings

If you wish to be involved in the public liasion programme, please contact John Warren, Environmental Officer john.warren@multifuelenergy.com

Residue Quality Monitoring Requirements

Summary of monitoring undertaken and compliance
Monthly IBA hazard assessments and annual full hazardous property assessments, quarterly IBA and APC residue compliance monitoring, annual characterisation of IBA and APC residue. All carried out and reported by WRc.

Commentary on any specific events	
Date & Event	**Description**
October 2019 - Hazardous Property Assessment Summary Report	Full hazardous property assessment of IBA from FM1
October 2019 - IBA and APC Annual Characterisation Report	Results of the annual characterisation of IBA and APC residues from FM1, including a full hazardous property assessment of IBA as required by the ESA Protocol 2018.

Residue Quality Monitoring Results			
Parameter (unit)	**Limit**	**Normal Operation**	
		Bottom ash	**APC Residues**
Loss on Ignition (%)	<5%	1.9	
ToC (%)	<3%	0.8	
No. of Assessments Undertaken	---	4	4
No. of Hazardous Assessments	---	24	

Comments :
Loss on Ignition and ToC results taken from October 2019 report. No. of hazardous assessments over 2 lines.

Emissions to Water

Summary of monitoring undertaken and compliance
Frequent sampling and analysis of attenuation pond water, tested for pH and conductivity, odour and appearance prior to discharge to Fryston Beck. Annual borehole sampling and analysis at 4 boreholes on FM1 site however not a permit requirement.

Commentary on any specific events	
Date & Event	**Description**
24/09/19 - Attenuation pond suspended solids event	Following a period of heavy rainfall, an influx of sediment laden water into FM1 drainage prevented discharge to Fryston Beck due to colour and appearance. EA advised permitted discharge when sediment loading was lower than 35mg/litre suspended solids. Water pumped through filtration system to remove suspended solids. Water tested at below limit and subsequently discharged.

Emissions to Water / Sewer

Parameter	Monitoring Frequency	Limit	Target	Max.	Average
No parameters set in permit	None	None	None	None	None

Emissions to Air (periodically monitored)

Summary of monitoring undertaken, standards used and compliance
Bi-annual monitoring undertaken between January to March and July to September. Standards used include EN 14385, MID 14385, EN 1948, ISO 11338, ISO 15713, EN 14789, TGN M22 and EN 16911-1 (MID). All parameters tested demonstrate compliance against the relevant emission limit values.

Results of emissions to air that are periodically monitored

Substance	Ref. Period	Emission Limit Value	Average				
			A1	A2	A3	A4	A5
Hydrogen fluoride	1 hr	2 mg/m^3	<0.02	0.04			
Cd and Th and their compounds	6-8hrs	0.05 mg/m^3	0.001	0.001			
Hg and its compounds	6-8hrs	0.05 mg/m^3	0.005	0.003			
Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and their compounds	6-8hrs	0.5 mg/m^3	0.064	0.16			
Dioxins & Furans (I-TEQ)	6-8hrs	0.1 ng/m^3	0.03	0.019			
PCBs (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m^3	0.028	0.02			
PCBs (WHO-TEQ Fish)	6-8hrs	None set ng/m^3	0.032	0.02			
PCBs (WHO-TEQ Birds)	6-8hrs	None set ng/m^3	0.057	0.026			
Dioxins & Furans (WHO-TEQ Humans / Mammals)	6-8hrs	None set ng/m^3	0.0078	0.0008			
Dioxins & Furans (WHO-TEQ Fish)	6-8hrs	None set ng/m^3	0.0004	0.00004			
Dioxins & Furans (WHO-TEQ Birds)	6-8hrs	None set ng/m^3	0.0112	0.0016			
Anthanthrene	6-8hrs	None set µg/m^3	0.001	<0.001			
Benzo(a)anthracene	6-8hrs	None set µg/m^3	0.02	0.004			
Benzo(a)pyrene	6-8hrs	None set µg/m^3	0.02	0.003			
Benzo(b)fluoranthene	6-8hrs	None set µg/m^3	0.04	0.006			
Benzo(b)naptho(2,1-d) thiophene	6-8hrs	None set µg/m^3	0.01	0.002			
Benzo(c)phenanthrene	6-8hrs	None set µg/m^3	0.01	0.001			
Benzo(ghi)perylene	6-8hrs	None set µg/m^3	0.01	0.005			
Benzo(k)fluoranthene	6-8hrs	None set µg/m^3	0.01	0.002			
Cholanthrene	6-8hrs	None set µg/m^3	0	<0.001			
Chrysene	6-8hrs	None set µg/m^3	0.03	0.004			
Cyclopenta(cd)pyrene	6-8hrs	None set µg/m^3	0	0.002			
Dibenzo(ai)pyrene	6-8hrs	None set µg/m^3	0	<0.001			
Dibenzo(ah)anthracene	6-8hrs	None set µg/m^3	0	0.001			
Fluoranthene	6-8hrs	None set µg/m^3	0.1	0.077			
Indeno(123-cd) pyrene	6-8hrs	None set µg/m^3	0.01	0.003			
Naphthalene	6-8hrs	None set µg/m^3	0.29	0.19			

Comments :

Periodic monitoring results from 01/07/19 to 30/09/19, except PAHs which were tested on 24/10/19 due to

operational issues at time of original testing.

Emissions to Air (continously monitored)

Summary of monitoring undertaken, standards used and compliance

Continuous emissions monitoring of Oxides of Nitrogen, Particulates, Total Organic Carbon, Hydrogen Chloride, Sulphur Diox
Carbon Monoxide and Ammonia to EN14181. Instruments used PCME QAL 181 and Environement SA MIR FT multigas anal
All results demonstrate 100% compliance with the emission limit values.

Results of emissions to air that are continuously monitored

Substance	Reference Period	Emission Limit Value	A1		A2		A3		A4		A
			Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
Oxides of nitrogen	Daily mean	200 mg/m^3	167.00	145.74	179.00	159.08					
	½ hourly mean	400 mg/m^3	199.00	145.83	198.00	159.17					
Particulates	Daily mean	10 mg/m^3	22.00	2.25	7	2.94					
	½ hourly mean	30 mg/m^3	41.00	2.33	16	3.00					
Total Organic Carbon	Daily mean	10 mg/m^3	1.00	0.87	1.00	0.43					
	½ hourly mean	20 mg/m^3	4.00	1.00	4.00	0.08					
Hydrogen chloride	Daily mean	10 mg/m^3	7.00	4.98	6	3.70					
	½ hourly mean	60 mg/m^3	14.00	5.00	19	3.75					
Sulphur dioxide	Daily mean	50 mg/m^3	17.00	3.19	4.00	0.99					
	½ hourly mean	200 mg/m^3	34.00	3.17	34.00	0.92					
Carbon monoxide	Daily mean	50 mg/m^3	27.00	6.27	10.00	5.23					
	95%ile 10-min avg *	150 mg/m^3 *	6.33	12.42	4.83	9.58					
Ammonia	Daily mean	No limit set	4.00	0.04	4.00	0.46					

* = delete or amend as appr

Comments :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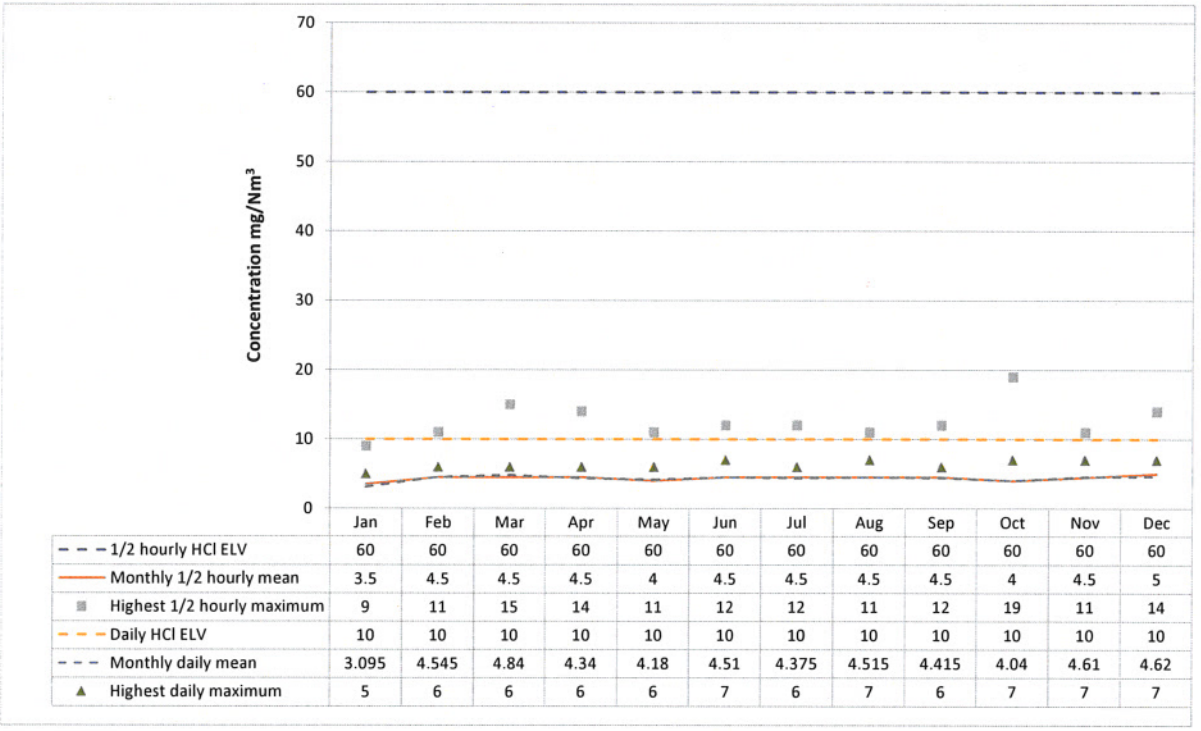
Monitoring of Hydrogen Chloride emissions **Whole Installation** *See Notes in Cell Q3*

mg/Nm^3	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	**1/2 hourly HCl ELV**	**Monthly 1/2 hourly mean**	**Highest 1/2 hourly maximum**	**Daily HCl ELV**	**Monthly daily mean**	**Highest daily maximum**
Jan	60	3.5	9	10	3.095	5
Feb	60	4.5	11	10	4.545	6
Mar	60	4.5	15	10	4.84	6
Apr	60	4.5	14	10	4.34	6
May	60	4	11	10	4.18	6
Jun	60	4.5	12	10	4.51	7
Jul	60	4.5	12	10	4.375	6
Aug	60	4.5	11	10	4.515	7
Sep	60	4.5	12	10	4.415	6
Oct	60	4	19	10	4.04	7
Nov	60	4.5	11	10	4.61	7
Dec	60	5	14	10	4.62	7

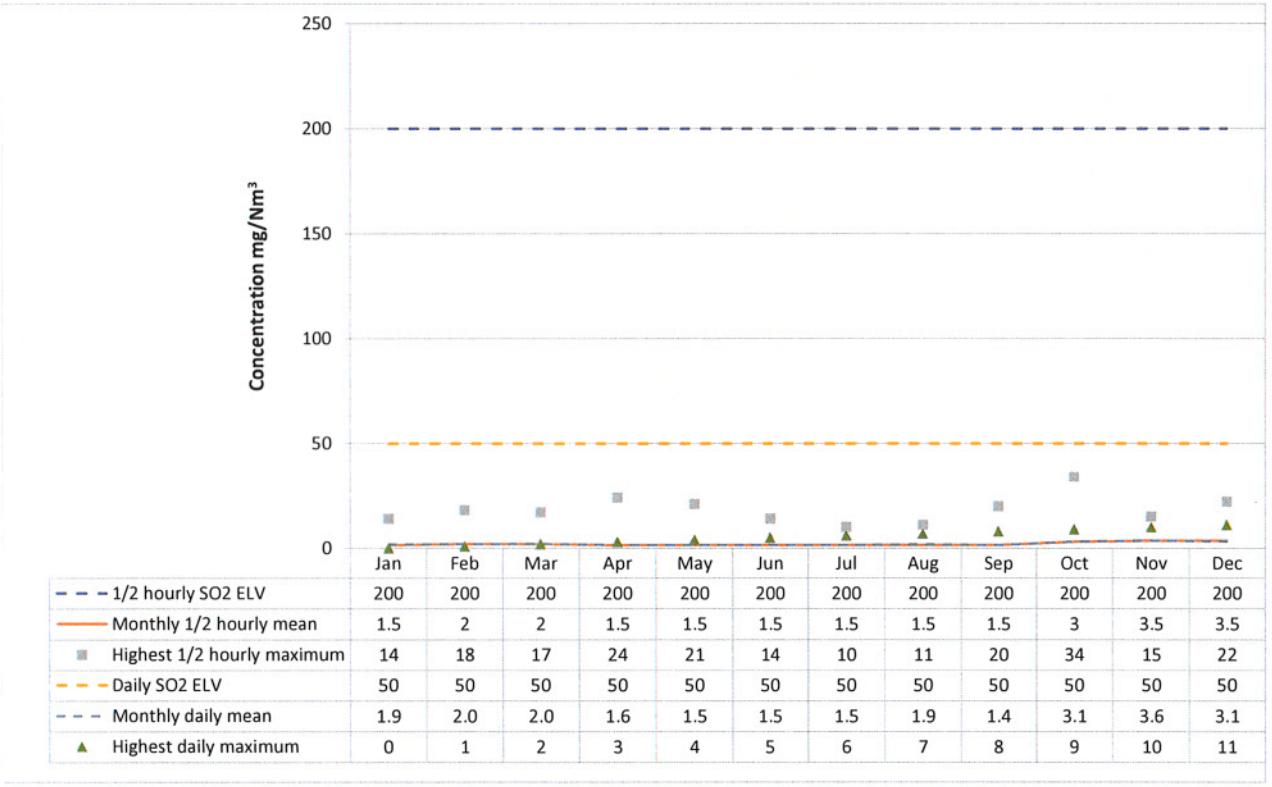


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly HCl ELV	60	60	60	60	60	60	60	60	60	60	60	60
Monthly 1/2 hourly mean	3.5	4.5	4.5	4.5	4	4.5	4.5	4.5	4.5	4	4.5	5
Highest 1/2 hourly maximum	9	11	15	14	11	12	12	11	12	19	11	14
Daily HCl ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	3.095	4.545	4.84	4.34	4.18	4.51	4.375	4.515	4.415	4.04	4.61	4.62
Highest daily maximum	5	6	6	6	6	7	6	7	6	7	7	7

Comments :

Monitoring of Sulphur dioxide emissions **Whole Installation** *See Notes in Cell Q3*

mg/Nm^3	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly SO2 ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily SO2 ELV	Monthly daily mean	Highest daily maximum
Jan	200	1.5	14	50	1.9	0
Feb	200	2	18	50	2.0	1
Mar	200	2	17	50	2.0	2
Apr	200	1.5	24	50	1.6	3
May	200	1.5	21	50	1.5	4
Jun	200	1.5	14	50	1.5	5
Jul	200	1.5	10	50	1.5	6
Aug	200	1.5	11	50	1.9	7
Sep	200	1.5	20	50	1.4	8
Oct	200	3	34	50	3.1	9
Nov	200	3.5	15	50	3.6	10
Dec	200	3.5	22	50	3.1	11

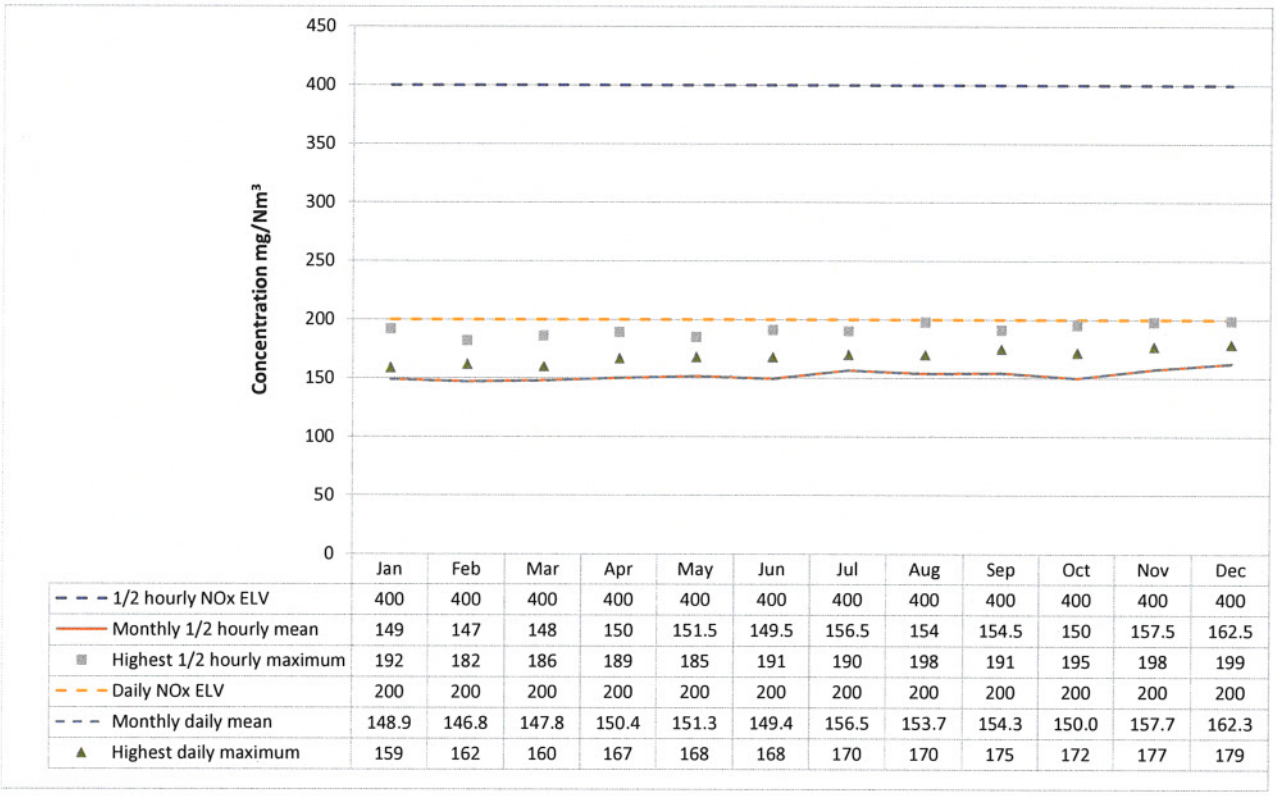


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly SO2 ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly 1/2 hourly mean	1.5	2	2	1.5	1.5	1.5	1.5	1.5	1.5	3	3.5	3.5
Highest 1/2 hourly maximum	14	18	17	24	21	14	10	11	20	34	15	22
Daily SO2 ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	1.9	2.0	2.0	1.6	1.5	1.5	1.5	1.9	1.4	3.1	3.6	3.1
Highest daily maximum	0	1	2	3	4	5	6	7	8	9	10	11

Comments :

Monitoring of Oxides of Nitrogen emissions **Whole Installation** *See Notes in Cell Q3*

mg/Nm^3	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly NOx ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily NOx ELV	Monthly daily mean	Highest daily maximum
Jan	400	149	192	200	148.9	159
Feb	400	147	182	200	146.8	162
Mar	400	148	186	200	147.8	160
Apr	400	150	189	200	150.4	167
May	400	151.5	185	200	151.3	168
Jun	400	149.5	191	200	149.4	168
Jul	400	156.5	190	200	156.5	170
Aug	400	154	198	200	153.7	170
Sep	400	154.5	191	200	154.3	175
Oct	400	150	195	200	150.0	172
Nov	400	157.5	198	200	157.7	177
Dec	400	162.5	199	200	162.3	179

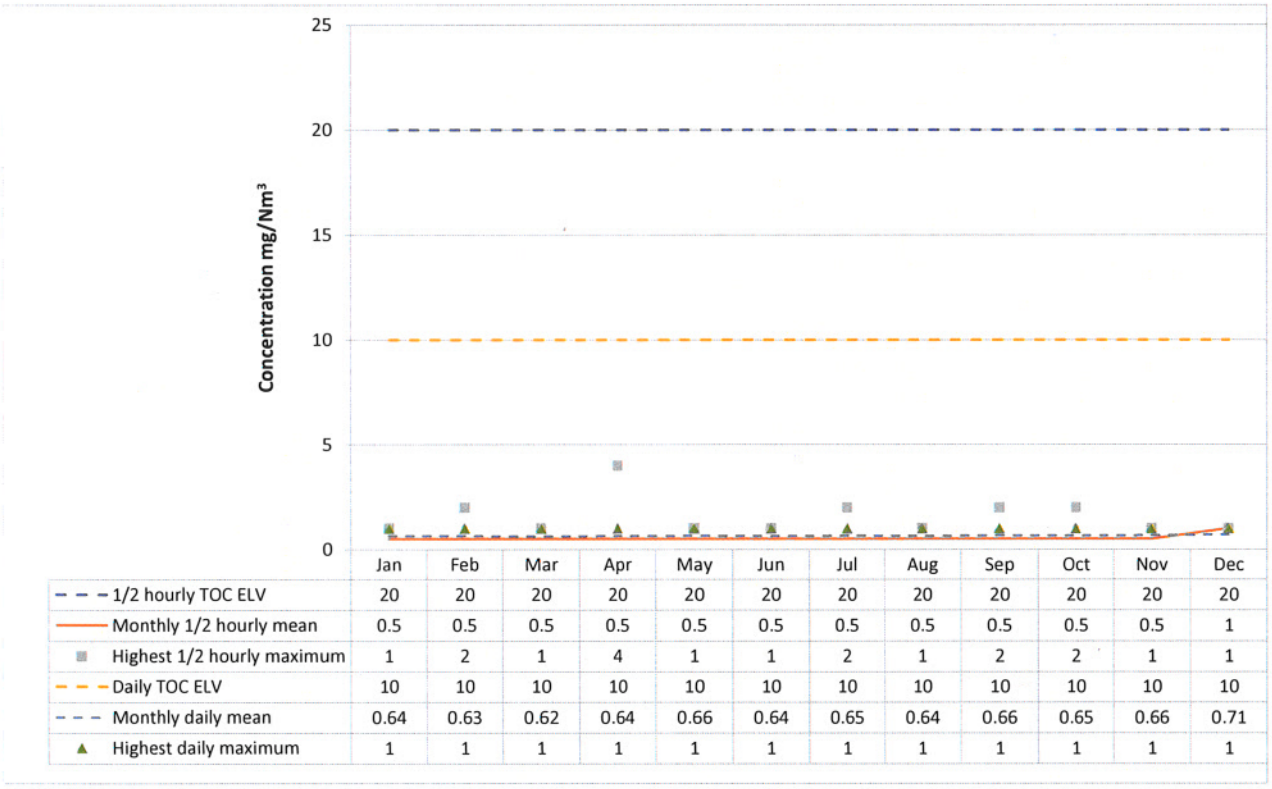


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NOx ELV	400	400	400	400	400	400	400	400	400	400	400	400
Monthly 1/2 hourly mean	149	147	148	150	151.5	149.5	156.5	154	154.5	150	157.5	162.5
Highest 1/2 hourly maximum	192	182	186	189	185	191	190	198	191	195	198	199
Daily NOx ELV	200	200	200	200	200	200	200	200	200	200	200	200
Monthly daily mean	148.9	146.8	147.8	150.4	151.3	149.4	156.5	153.7	154.3	150.0	157.7	162.3
Highest daily maximum	159	162	160	167	168	168	170	170	175	172	177	179

Comments :

Monitoring of Total organic carbon emissions **Whole Installation** *See Notes in Cell Q3*

mg/Nm^3	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly TOC ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily TOC ELV	Monthly daily mean	Highest daily maximum
Jan	20	0.5	1	10	0.64	1
Feb	20	0.5	2	10	0.63	1
Mar	20	0.5	1	10	0.62	1
Apr	20	0.5	4	10	0.64	1
May	20	0.5	1	10	0.66	1
Jun	20	0.5	1	10	0.64	1
Jul	20	0.5	2	10	0.65	1
Aug	20	0.5	1	10	0.64	1
Sep	20	0.5	2	10	0.66	1
Oct	20	0.5	2	10	0.65	1
Nov	20	0.5	1	10	0.66	1
Dec	20	1	1	10	0.71	1

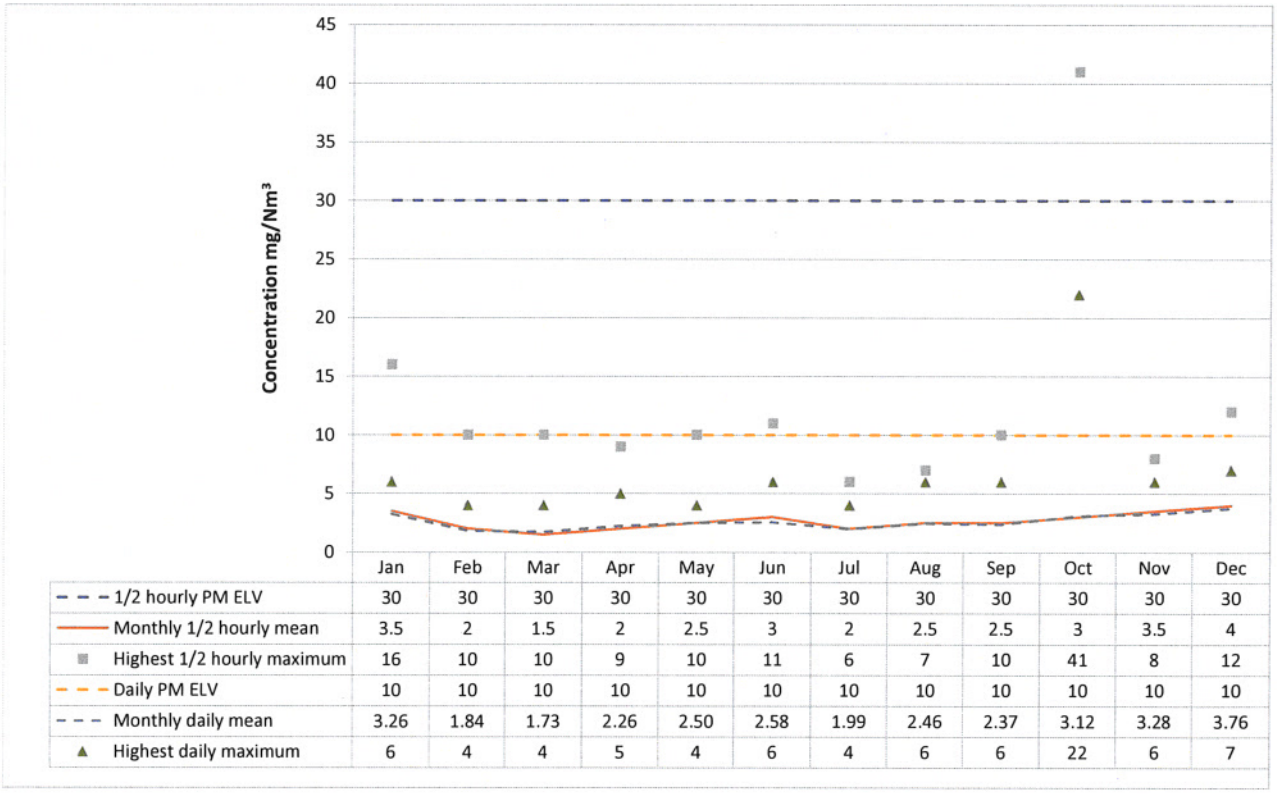


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly TOC ELV	20	20	20	20	20	20	20	20	20	20	20	20
Monthly 1/2 hourly mean	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1
Highest 1/2 hourly maximum	1	2	1	4	1	1	2	1	2	2	1	1
Daily TOC ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0.64	0.63	0.62	0.64	0.66	0.64	0.65	0.64	0.66	0.65	0.66	0.71
Highest daily maximum	1	1	1	1	1	1	1	1	1	1	1	1

Comments :

Monitoring of Particulate matter emissions **Whole Installation** *See Notes in Cell Q3*

mg/Nm^3	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly PM ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily PM ELV	Monthly daily mean	Highest daily maximum
Jan	30	3.5	16	10	3.26	6
Feb	30	2	10	10	1.84	4
Mar	30	1.5	10	10	1.73	4
Apr	30	2	9	10	2.26	5
May	30	2.5	10	10	2.50	4
Jun	30	3	11	10	2.58	6
Jul	30	2	6	10	1.99	4
Aug	30	2.5	7	10	2.46	6
Sep	30	2.5	10	10	2.37	6
Oct	30	3	41	10	3.12	22
Nov	30	3.5	8	10	3.28	6
Dec	30	4	12	10	3.76	7

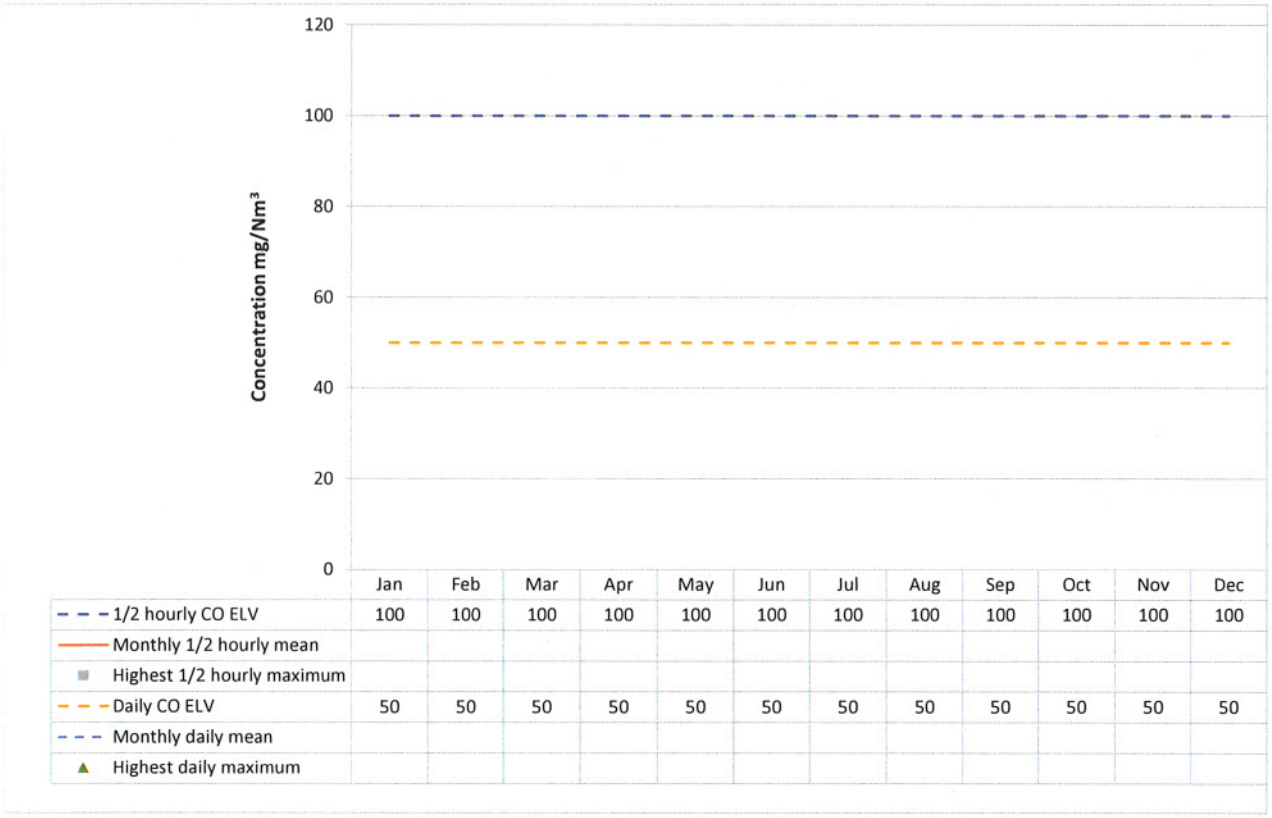


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly PM ELV	30	30	30	30	30	30	30	30	30	30	30	30
Monthly 1/2 hourly mean	3.5	2	1.5	2	2.5	3	2	2.5	2.5	3	3.5	4
Highest 1/2 hourly maximum	16	10	10	9	10	11	6	7	10	41	8	12
Daily PM ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	3.26	1.84	1.73	2.26	2.50	2.58	1.99	2.46	2.37	3.12	3.28	3.76
Highest daily maximum	6	4	4	5	4	6	4	6	6	22	6	7

Comments :

Monitoring of Carbon Monoxide (half hourly) **Whole Installation** *See Notes in Cell Q3*

mg/Nm^3	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly CO ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily CO ELV	Monthly daily mean	Highest daily maximum
Jan	100			50		
Feb	100			50		
Mar	100			50		
Apr	100			50		
May	100			50		
Jun	100			50		
Jul	100			50		
Aug	100			50		
Sep	100			50		
Oct	100			50		
Nov	100			50		
Dec	100			50		

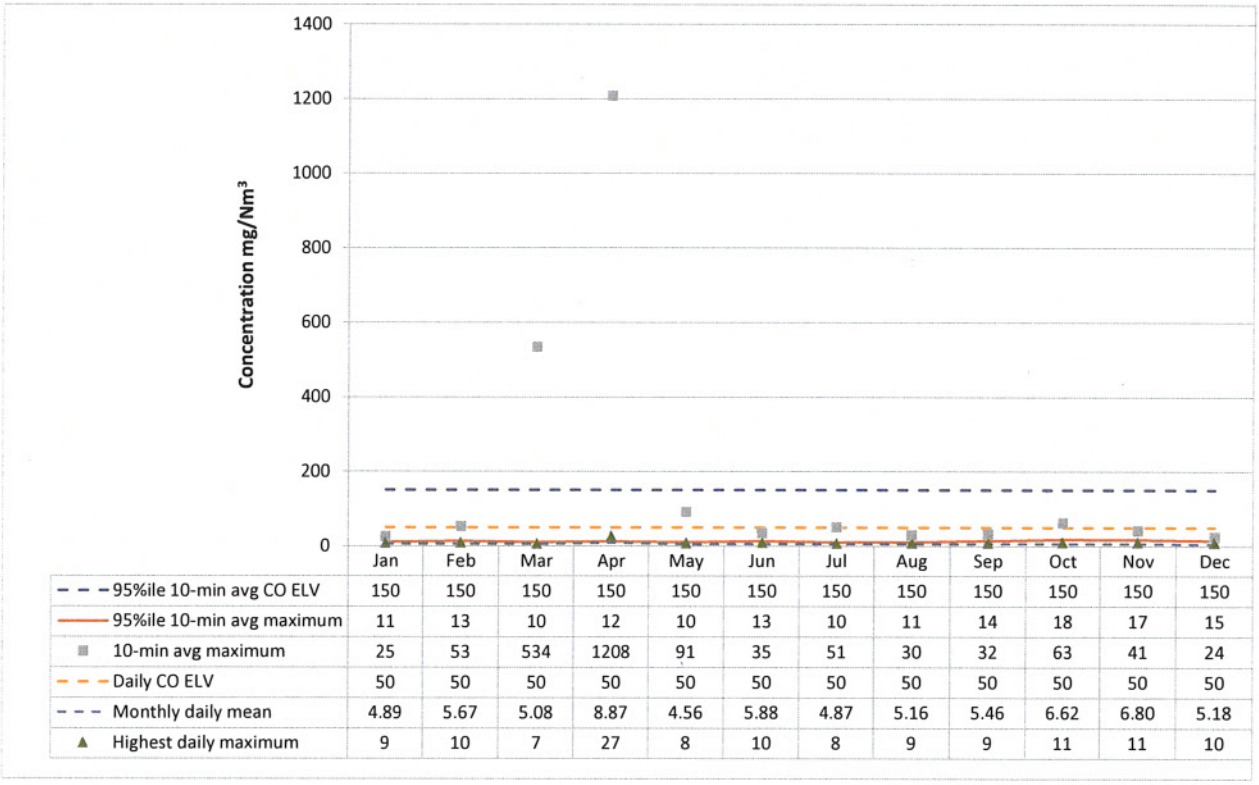


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly CO ELV	100	100	100	100	100	100	100	100	100	100	100	100
Monthly 1/2 hourly mean												
Highest 1/2 hourly maximum												
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean												
Highest daily maximum												

Comments :

Monitoring of Carbon Monoxide (10-minute avg) **Whole Installation** *See Notes in Cell S3*

mg/Nm^3	10-minute Reference Periods				Daily Reference Periods		
2019	95%ile 10-min avg CO ELV	95%ile 10-min avg maximum	Monthly CO 10-min avg mean	10-min avg maximum	Daily CO ELV	Monthly daily mean	Highest daily maximum
Jan	150	11	5	25	50	4.89	9
Feb	150	13	6	53	50	5.67	10
Mar	150	10	5	534	50	5.08	7
Apr	150	12	5.5	1208	50	8.87	27
May	150	10	5	91	50	4.56	8
Jun	150	13	6	35	50	5.88	10
Jul	150	10	5	51	50	4.87	8
Aug	150	11	5.5	30	50	5.16	9
Sep	150	14	5	32	50	5.46	9
Oct	150	18	7	63	50	6.62	11
Nov	150	17	6.5	41	50	6.80	11
Dec	150	15	5.5	24	50	5.18	10



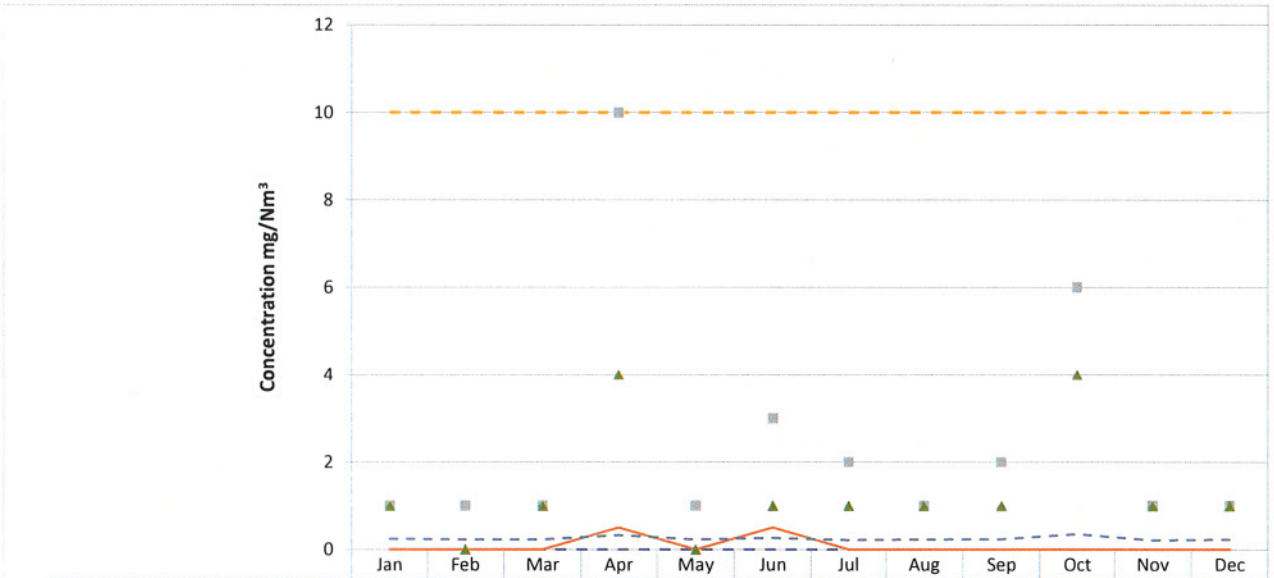
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
95%ile 10-min avg CO ELV	150	150	150	150	150	150	150	150	150	150	150	150
95%ile 10-min avg maximum	11	13	10	12	10	13	10	11	14	18	17	15
10-min avg maximum	25	53	534	1208	91	35	51	30	32	63	41	24
Daily CO ELV	50	50	50	50	50	50	50	50	50	50	50	50
Monthly daily mean	4.89	5.67	5.08	8.87	4.56	5.88	4.87	5.16	5.46	6.62	6.80	5.18
Highest daily maximum	9	10	7	27	8	10	8	9	9	11	11	10

Comments :

Environment Agency explanatory note: The 10-minute average ELV is based on the "95th percentile". In this case this means that 95% of the 10 minute averages in the relevant 24-hour period (i.e. 137) must be below 150 mg/Nm3, and 5% (i.e. 7) are allowed to be any value above 150 mg/Nm3. Whilst we expect operators to minimise CO emissions at all times, it is perfectly acceptable for the value of the maximum 10-minute average to be above 150 mg/Nm3, provided the 95th percentile ELV has been met for

Monitoring of Ammonia emissions **Whole Installation** *See Notes in Cell Q3*

mg/Nm^3	1/2 Hourly Reference Periods			Daily Reference Periods		
2019	1/2 hourly NH3 ELV	Monthly 1/2 hourly mean	Highest 1/2 hourly maximum	Daily NH3 ELV	Monthly daily mean	Highest daily maximum
Jan	0	0	1	10	0.25	1
Feb	0	0	1	10	0.23	0
Mar	0	0	1	10	0.23	1
Apr	0	0.5	10	10	0.33	4
May	0	0	1	10	0.23	0
Jun	0	0.5	3	10	0.27	1
Jul	0	0	2	10	0.22	1
Aug	0	0	1	10	0.23	1
Sep	0	0	2	10	0.24	1
Oct	0	0	6	10	0.35	4
Nov	0	0	1	10	0.21	1
Dec	0	0	1	10	0.23	1



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1/2 hourly NH3 ELV	0	0	0	0	0	0	0	0	0	0	0	0
Monthly 1/2 hourly mean	0	0	0	0.5	0	0.5	0	0	0	0	0	0
Highest 1/2 hourly maximum	1	1	1	10	1	3	2	1	2	6	1	1
Daily NH3 ELV	10	10	10	10	10	10	10	10	10	10	10	10
Monthly daily mean	0.25	0.23	0.23	0.33	0.23	0.27	0.22	0.23	0.24	0.35	0.21	0.23
Highest daily maximum	1	0	1	4	0	1	1	1	1	4	1	1

Comments :

An indicated ELV value of zero in the table above means that no ammonia limit is set in the permit.