

## Annual performance report for:

Grundon Waste Management Ltd. Clinical Waste Incinerator

### Permit Number:

EPR/BT2866IG V003

### 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  | Clinical Waste Incinerator<br>Lakeside Road<br>Colnbrook<br>SL3 0EG         |
| Description of waste input   | Clinical waste  |
| Operator contact details if members of the public have any questions | Grundon Waste Management Ltd.<br>Clinical Waste Incinerator<br>01753 686777 |

## 2. Plant description

|  |
|--|
| <p>The incinerator plant consists of the following major components.</p> <ol style="list-style-type: none"><li>1. Incinerator waste loading system. This consists of two separate loading systems, namely a conveyor infeed section fed by two self-contained bin loaders and a semi-automatic bin loader (Lodematic) that loads directly into the primary chamber loader box.</li><li>2. The primary chamber that burns the waste. The chamber is initially gas fired but as the waste volume burned comes up to the required temperature so the volume of gas burned falls away. Primary and under fire air is introduced into the chamber to support combustion. The gaseous product of combustion passes onto the secondary chamber and the ash is released into a bin under the chamber. Water is sprayed into the primary chamber to reduce over-temperature.</li><li>3. A waste fuel system allows waste fuel to be burnt in the primary chamber.</li><li>4. A gas fired secondary chamber ensures complete combustion and that the products of combustion reach a temperature greater than 1100oC for 2 seconds with oxygen content of greater than 6%. Secondary air is introduced into the crossover between the primary and secondary chambers.</li><li>5. Ash is released from the PCC on a batch wise basis.</li><li>6. The gas from the secondary chamber passes into the boiler where it is cooled down by producing steam. The steam is either sent to the EfW plant or the air blast coolers where it is condensed.</li><li>7. Gas from the boiler passes into the Flue Gas Treatment plant. Here the gas is cooled</li></ol> |
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and passed through the reactor, filter units.

8. On leaving the treatment plant the flue gas is passed through the Induced Draft Fan and then sent to atmosphere via the stack.

9. The plant incorporates CEMS (Continuous Emission Monitoring System).

10. The plant uses gas, electricity, water, compressed air and hydraulic services.

### 3. Summary of Plant Operation

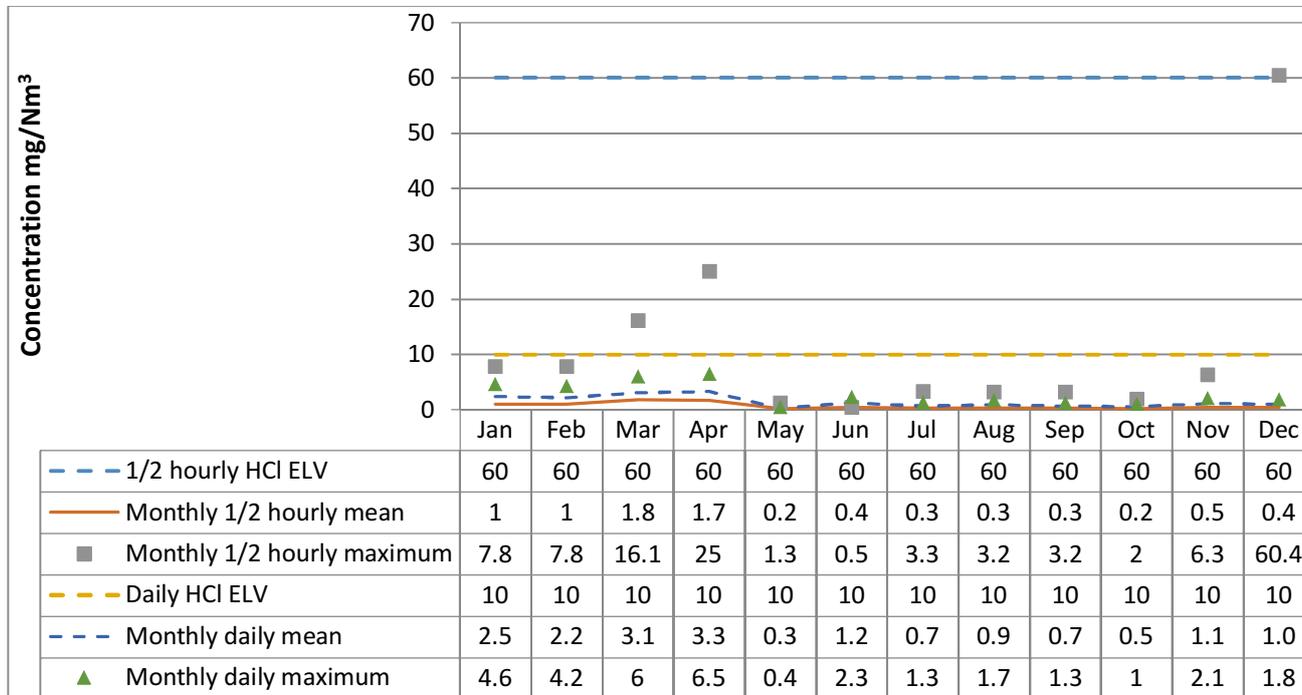
|  |   |
|--|---|
| Hazardous waste received   | 4,060.636 tonnes including hazardous clinical |
| Total waste received   | 5,197.48 tonnes                               |
| Total plant operational hours                                    | 7355.5 hours                                  |
| Total hours of "abnormal operation" (see permit for definition)  | 2 hours                                       |
| Total quantity of incinerator bottom ash (IBA) produced          | 620.37 tonnes                                 |
| Disposal or recovery route for IBA                               | Disposal                                      |
| Did any batches of IBA test as hazardous? If yes, state quantity | None  |
| Total quantity of air pollution control (APC) residues produced  | 821.26 tonnes                                 |
| Disposal or recovery route for APC residues                      | Disposal                                      |

## 4. Summary of Plant Emissions

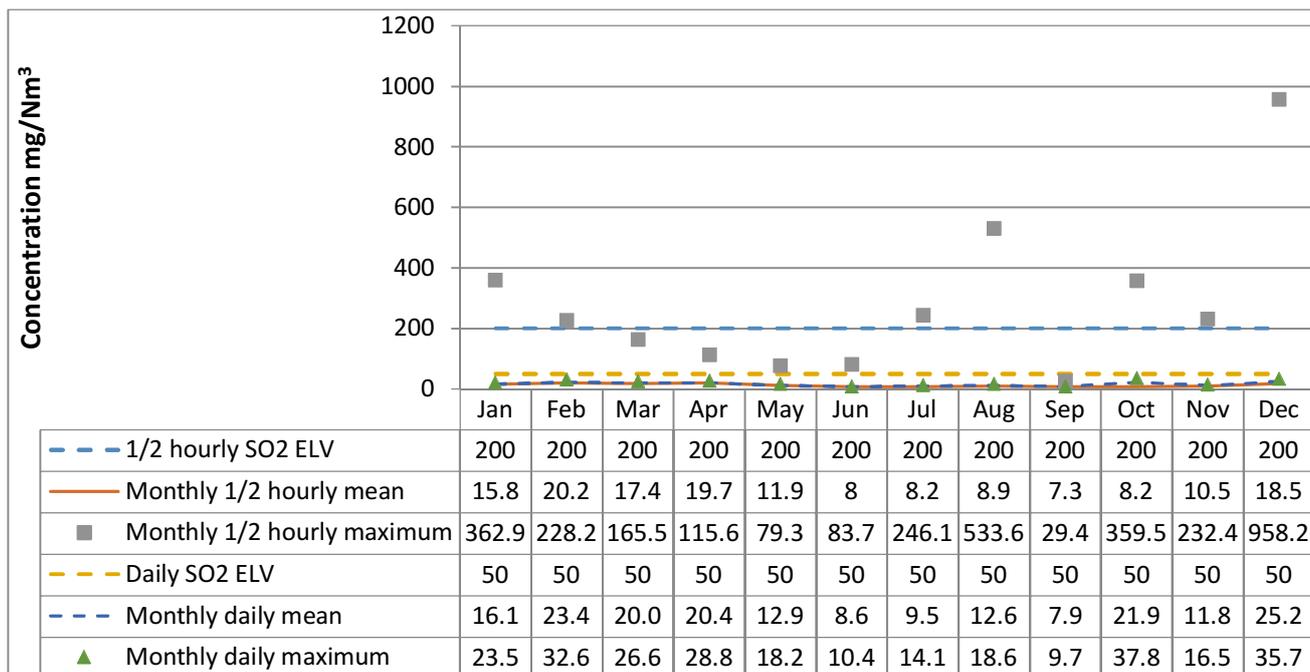
### 4.1 Summary of continuous emissions monitoring results for emissions to air

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

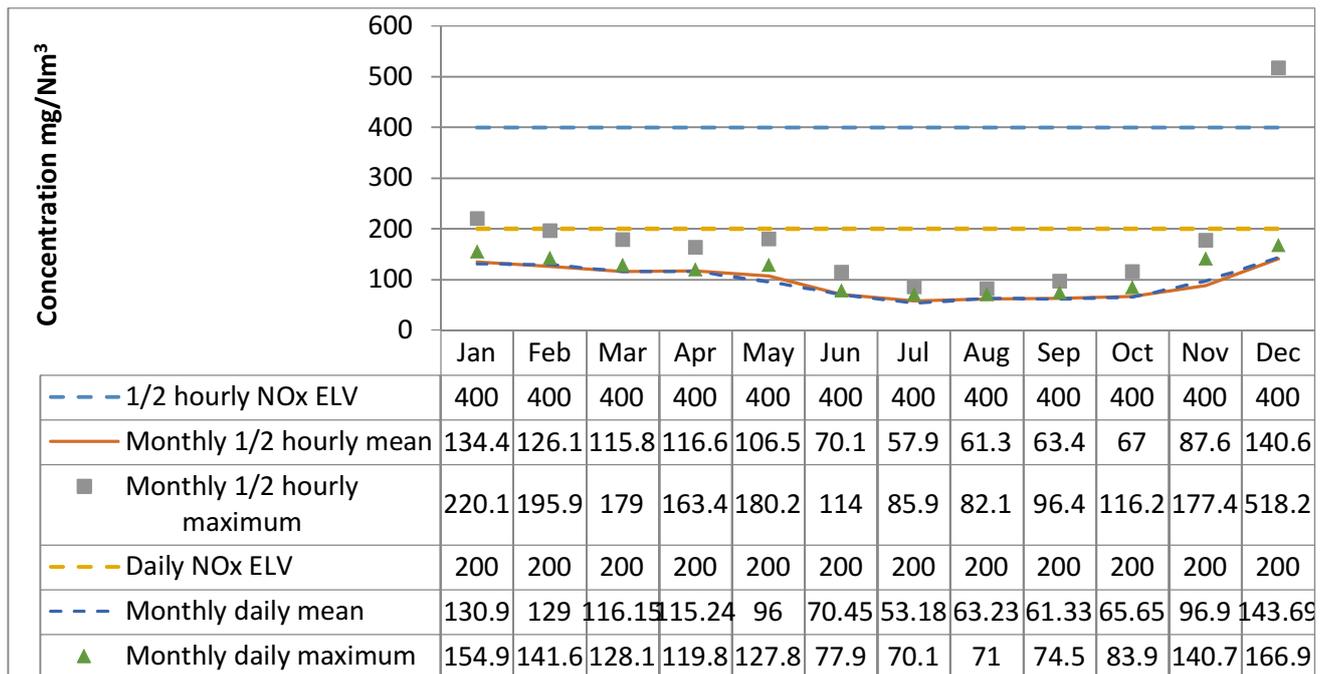
#### Hydrogen chloride



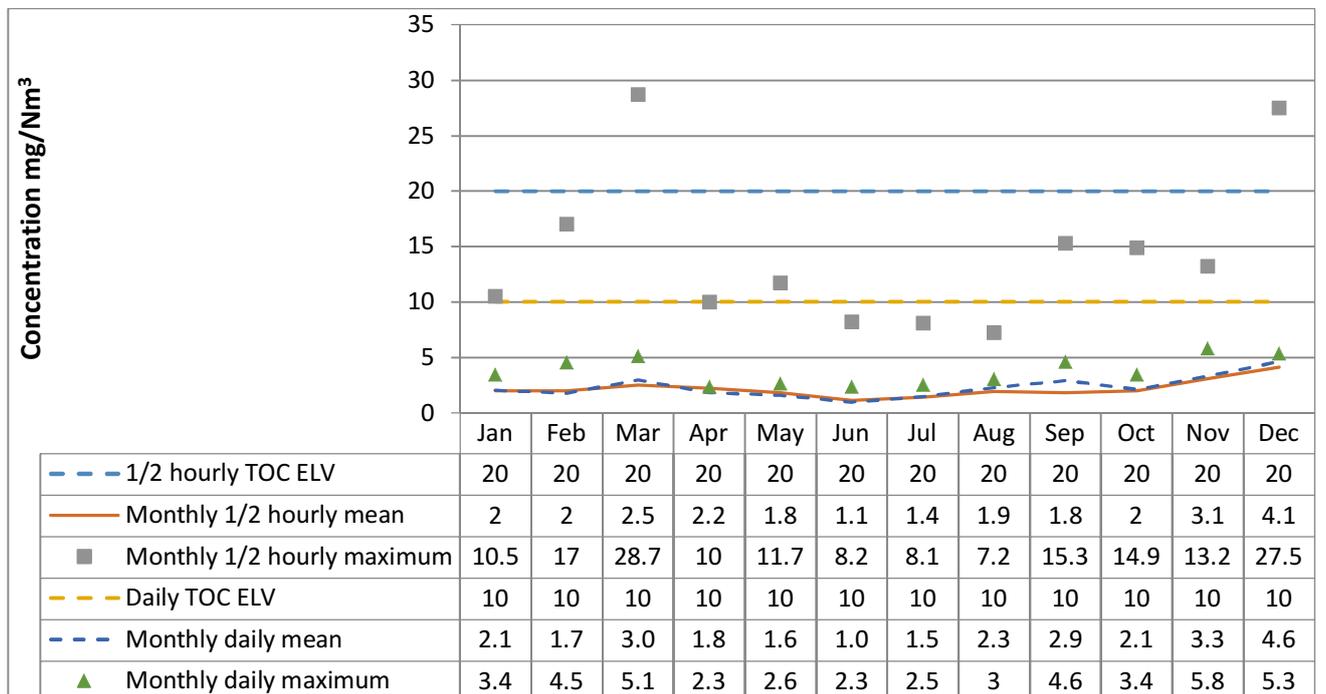
#### Sulphur dioxide



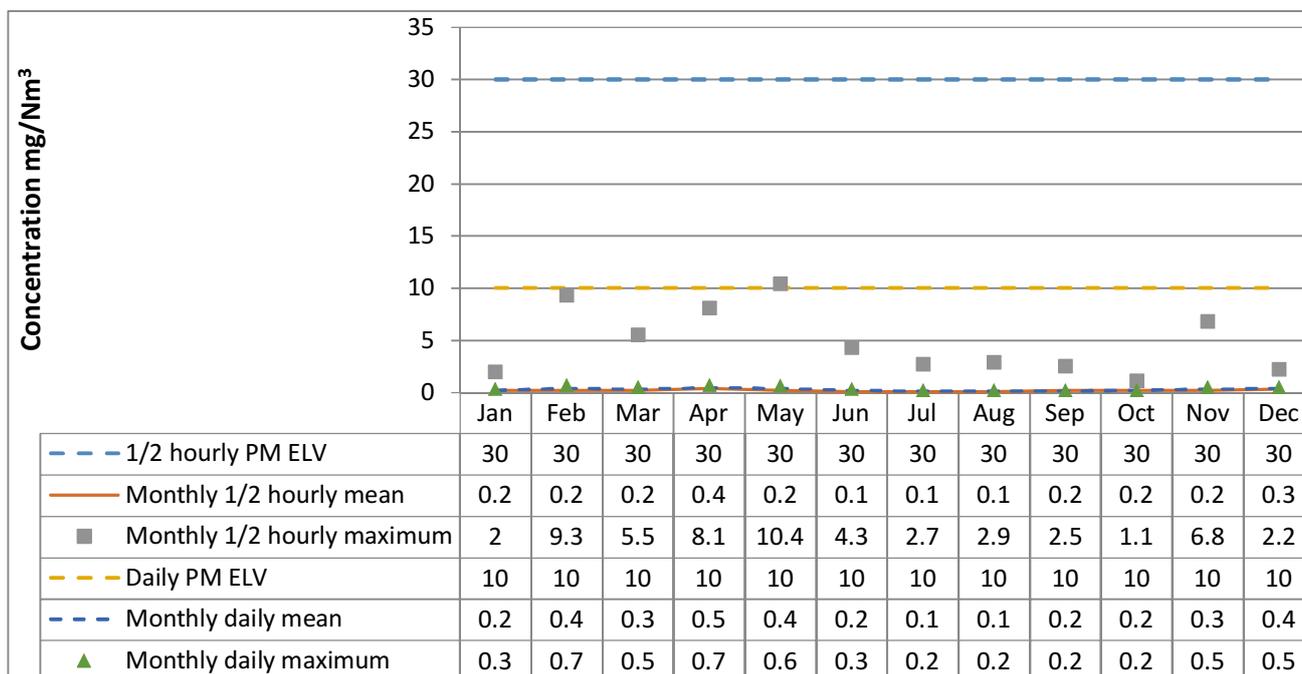
## Oxides of nitrogen



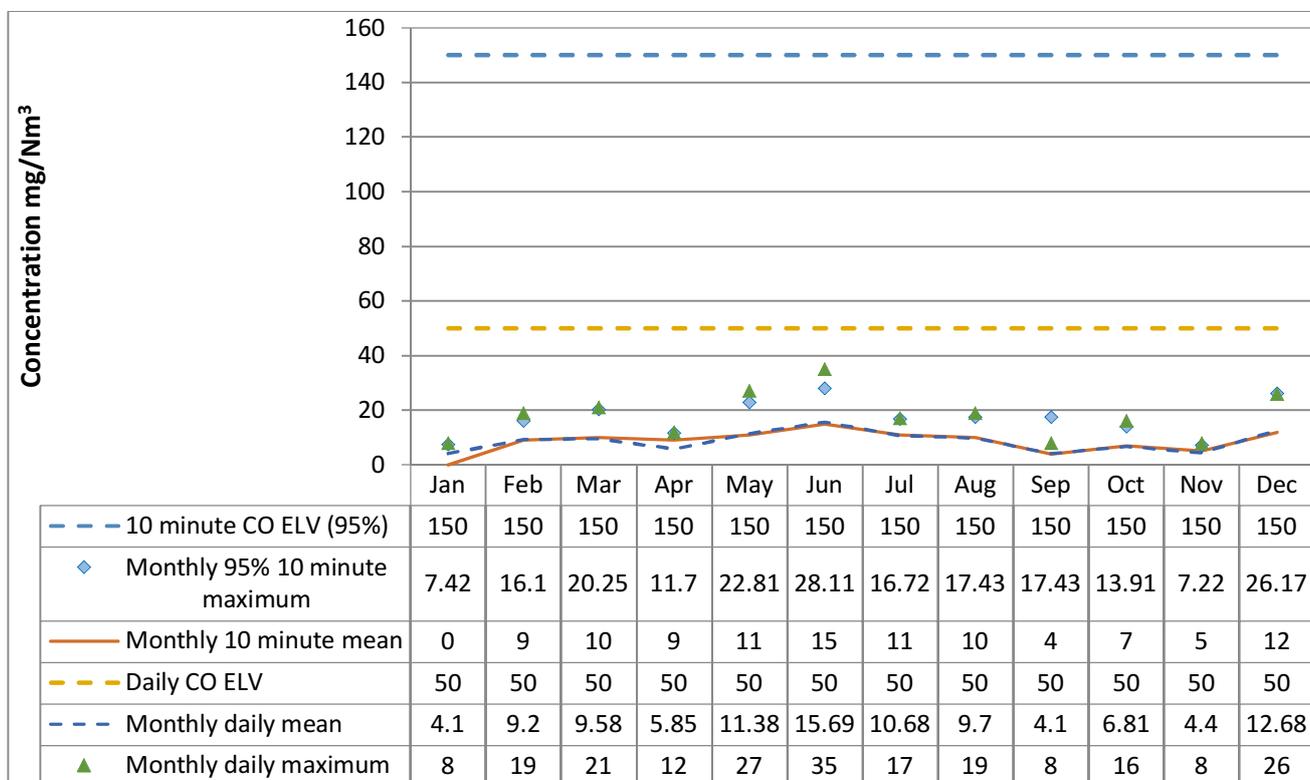
## Total organic carbon



## Particulates



## Carbon monoxide



## 4.2 Summary of periodic monitoring results for emissions to air

The table below shows the results of periodically monitored substances.

| Substance  | Emission limit value   | Results                  |                          |
|--|------------------------|--------------------------|--------------------------|
|  |                        | 1705/18                  | 23/11/18                 |
| Mercury and its compounds  | 0.05 mg/m <sup>3</sup> | 0.0006 mg/m <sup>3</sup> | 0.0012 mg/m <sup>3</sup> |
| Cadmium & thallium and their compounds (total)                   | 0.05 mg/m <sup>3</sup> | 0.0013 mg/m <sup>3</sup> | 0.0018 mg/m <sup>3</sup> |
| Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total) | 0.5 mg/m <sup>3</sup>  | 0.0234 mg/m <sup>3</sup> | 0.018 mg/m <sup>3</sup>  |
| Dioxins and furans (I-TEQ)                                       | 0.1 ng/m <sup>3</sup>  | 0.0024 ng/m <sup>3</sup> | 0.0020 ng/m <sup>3</sup> |
| Hydrogen Fluoride  | 2 mg/m <sup>3</sup>    | 0.06 mg/m <sup>3</sup>   | 0.019 mg/m <sup>3</sup>  |

## 4.3 Summary of monitoring results for emissions to water

N/A

## 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   | 99.9%                                      | 100%        |
| Sulphur dioxide      | 99.9%                                      | 100%        |
| Carbon monoxide      | 99.9%                                      | 100%        |
| Total organic carbon | 99.9%                                      | 100%        |
| Hydrogen chloride    | 99.9%                                      | 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   |
|----------|---|---|--|
| 08/01/18 | SO2                                       | 1100L Tech bin                          | Stopped Loading, increased lime feed, more information will be requested for waste of this nature in future  |
| 16/02/18 | SO2                                       | Unknown waste stream                    | Stopped loading, increased lime on already operational dual filter mode  |
| 26/03/18 | VOC                                       | Analyser Drift                          | Instrument fault, CBISS Engineer rectified fault   |
| 29/03/18 | VOC                                       | Unknown waste stream                    | Loading switched off, Combustion air fans increased  |
| 19/04/18 | CO  | Max Avarage above 95%ile                | 4 period exceedances due to late evening start up following shutdown   |
| 04/07/18 | SO2                                       | Sulphur waste in Tech burn bin          | Loading switched off, lime increased on already dual filter mode, further reduction in Sulphur compounds max 2.5kg.                                |
| 18/08/18 | SO2                                       | Pharmaceutical waste containing sulphur | Loading switched off, lime increased on already dual filter mode, further description and analysis of pharmaceutical waste at pre acceptance phase |

|          |           |  |   |
|----------|-----------|--|---|
| 07/10/18 | SO2       | Unknown waste stream                         | Stopped loading, increased lime on already operational dual filter mode   |
| 08/11/18 | SO2       | Witness burn containing sulphur              | Loading switched off, lime increased on already dual filter mode, More stringent checks on witness burn waste at early stages.  |
| 18/11/18 | SO2       | 1100L bin containing Nicotine based inhalers | Loading switched off, lime increased on already dual filter mode, Further discussion with TS to reduce package sizes of this waste stream   |
| 17/12/18 | NOx       | False readings                               | False readings due to service visit during earlier shutdown, CBISS Engineer rectified fault   |
| 18/12/18 | SO2 / HCl | 1100L bin containing Nicotine based inhalers | Loading switched off, lime increased on already dual filter mode, Remaining Nicotine waste has been broken down into smaller quantities, Waste containing sulphur is highlighted for all shift supervisors. |

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

| <b>Date of complaint</b> | <b>Summary of complaint</b> | <b>Reason for complaint including whether substantiated by the operator or the EA</b> | <b>If substantiated, measures to prevent reoccurrence</b> |
|--------------------------|-----------------------------|---|---|
|                          | None                        |   |   |

## 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.**

In cooperation and agreement with the Environment Agency, following an assessment into the reasons of the occasional SO<sub>2</sub> elevated levels measured by the emission monitoring system, it was decided that with the intention to improve the Plant's environmental performance, a so called 'Dual filter full Plant' operating regime was initiated in May 2018. This means that more reagent is used to prevent re-occurrence of the SO<sub>2</sub> elevated levels in the chimney and steps have been taken to improve assessment of incoming wastes to provide operatives with better forecasts. Monitoring of the effects and results are under monitoring.