

**Annual performance report for:** Slough Heat and Power Ltd, Slough Heat and Power Station

**Permit Number:** EPR/ CP3031SX

**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  | Slough Heat and Power Station<br>342 Edinburgh Avenue<br>Slough Trading Estate<br>Berkshire<br>SL1 4TU |
| Description of waste input   | Waste wood   |
| Operator contact details if members of the public have any questions | Email: <a href="mailto:SHP_Enquiries@sse.com">SHP_Enquiries@sse.com</a><br>Tel: 01753213200            |

## 2. Plant description

Slough Heat and Power Ltd generates electricity for input to both the Slough Trading Estate and the National Grid with excess heat supplying steam and hot water to local customers on the trading estate. The site is mainly located on the south side of Edinburgh Avenue, Slough and is occupied by several buildings and facilities which form the installation including: combustion activities, water treatment plant, water transfer, hot water and steam systems, raw material storage and maintenance. There are also two natural draught cooling towers occupying an area on the opposite north side of Edinburgh Avenue.

### 3. Summary of Plant Operation

|  |  |
|--|--|
| Waste wood (biomass) received  | 111,418 tonnes   |
| Refuse-derived fuel received   | 0 tonnes   |
| Total waste received   | 111,418 tonnes   |
| Total plant operational hours  | 6,464 hours  |
| Total hours of “abnormal operation” (see permit for definition)              | 6 hours  |
| Total quantity of incinerator bottom ash (IBA) produced                      | 3,389 tonnes   |
| Disposal or recovery route for IBA   | Landfill (D09)   |
| Did any batches of IBA test as hazardous? If yes, state quantity             | IBA is classified as hazardous. (WAC limits) 3389 Te disposed in 2018. |
| Total quantity of air pollution control (APC) residues produced              | 953 tonnes   |
| Disposal or recovery route for APC residues                                  | Landfill (D09)   |
| Total electricity generated for export to the National Grid                  | 63,365 MWh   |
| Total heat produced for export (e.g. to hospital or district heating scheme) | 75,856 MWh   |

## 4. Summary of Plant Emissions

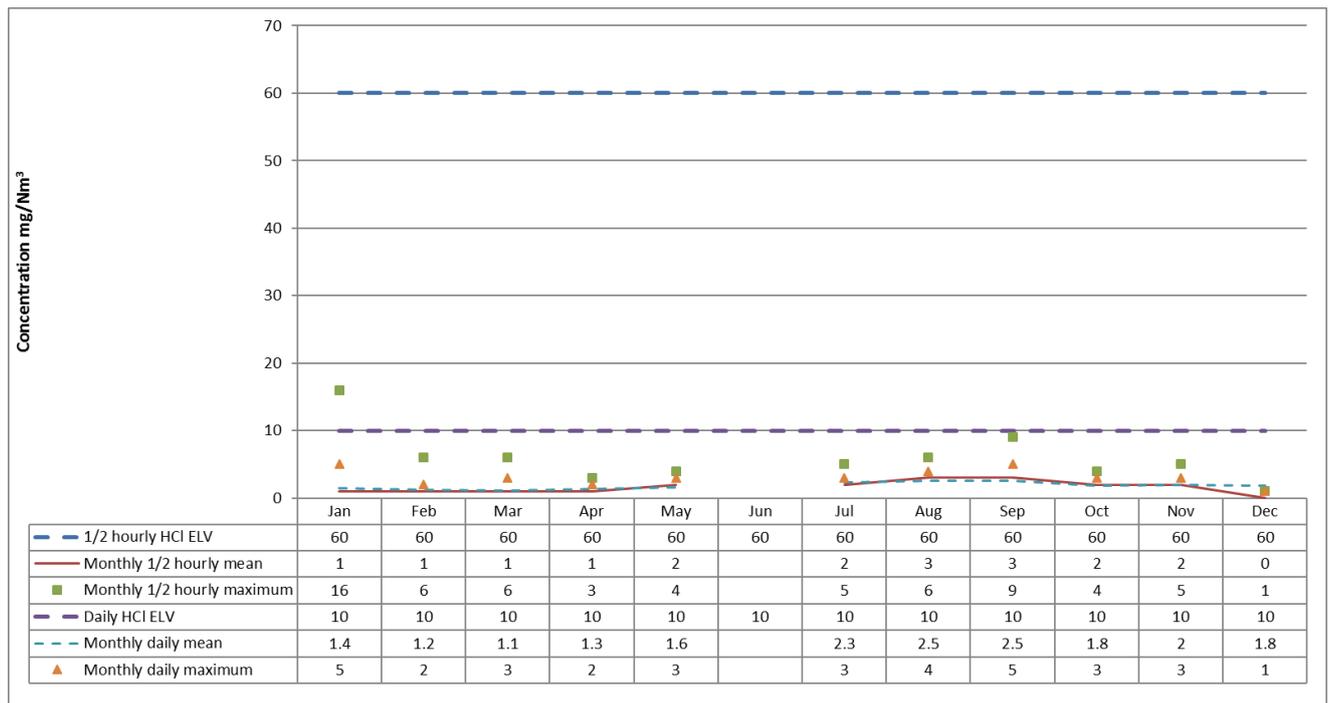
### 4.1 Summary of continuous emissions monitoring results for emissions to air

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



Monthly Emission  
Data 2018.xls

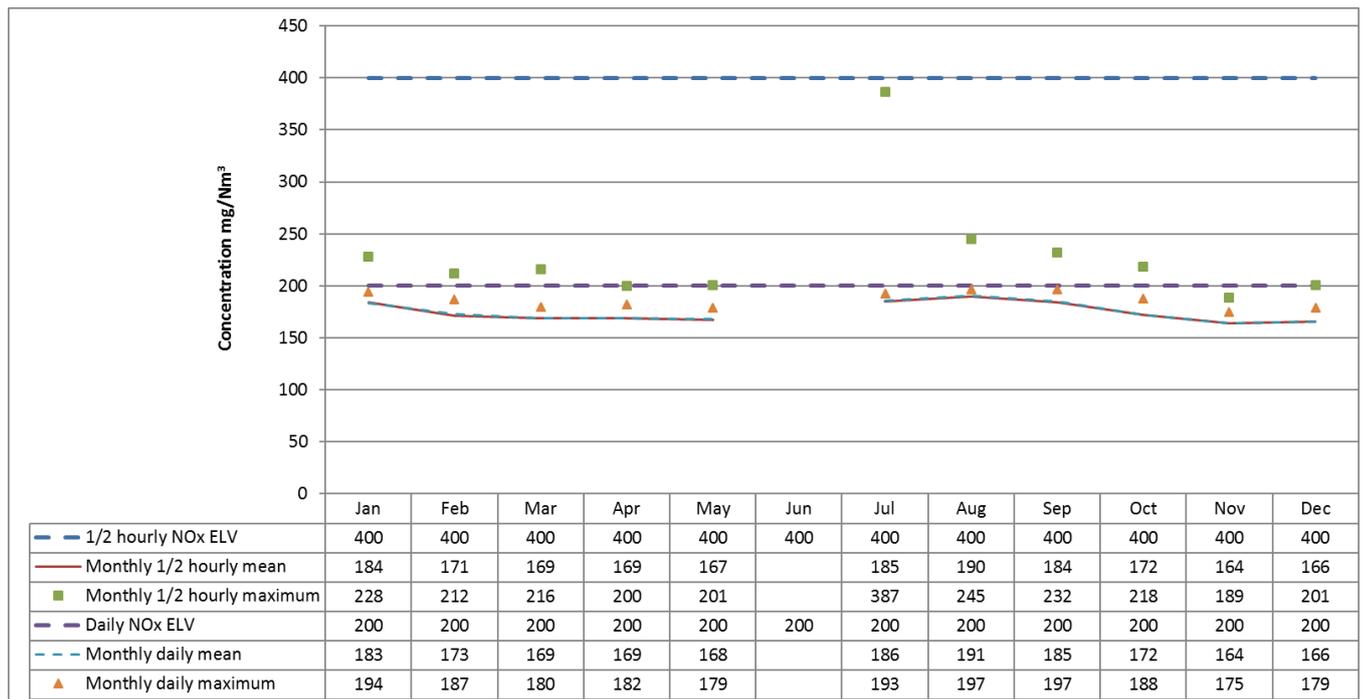
## Line 1 - Hydrogen chloride



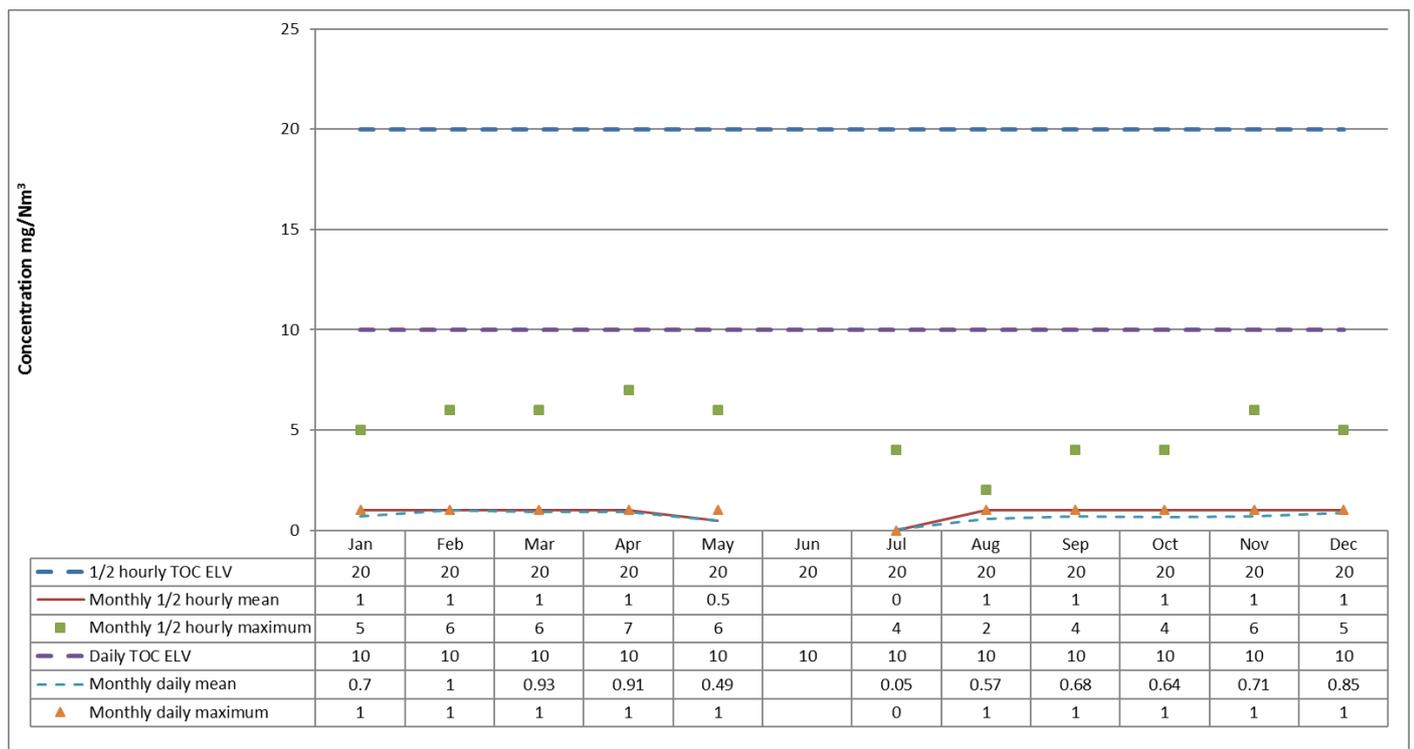
## Line 1 – Sulphur dioxide



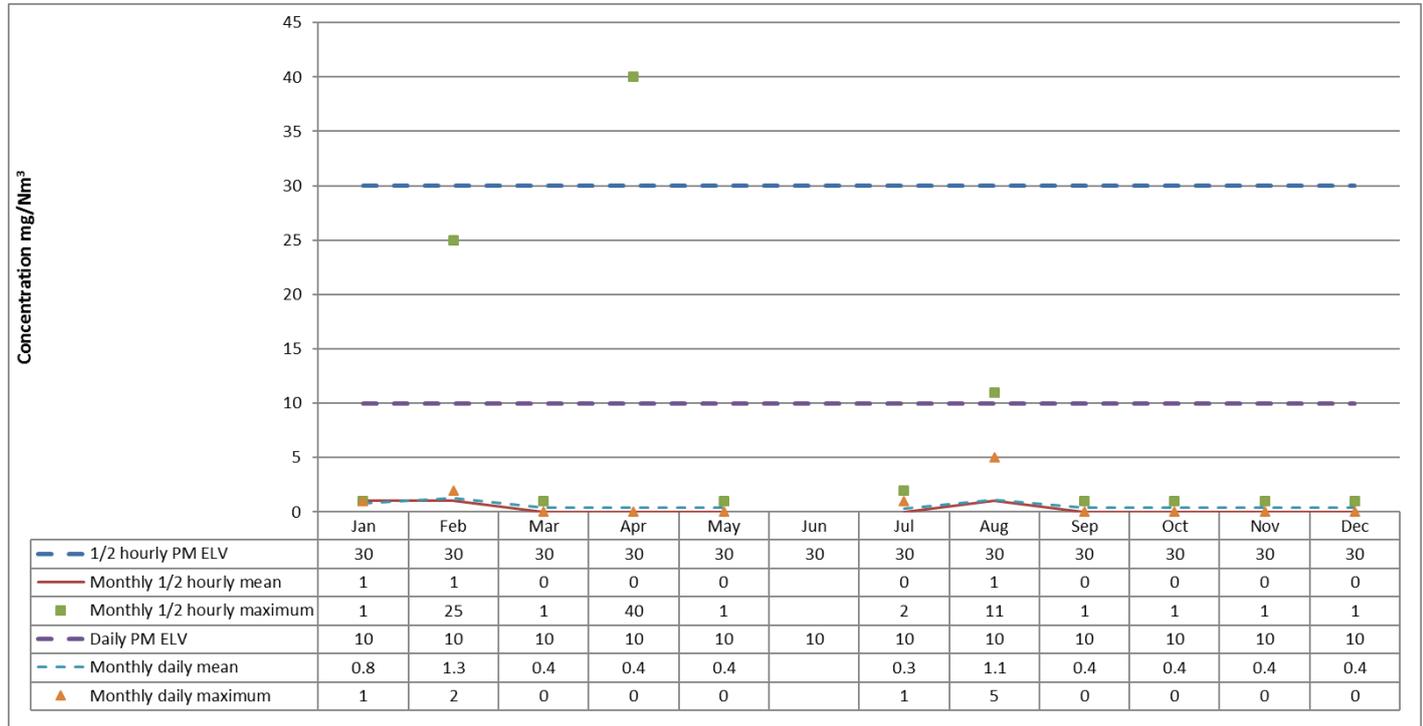
## Line 1 – Oxides of nitrogen



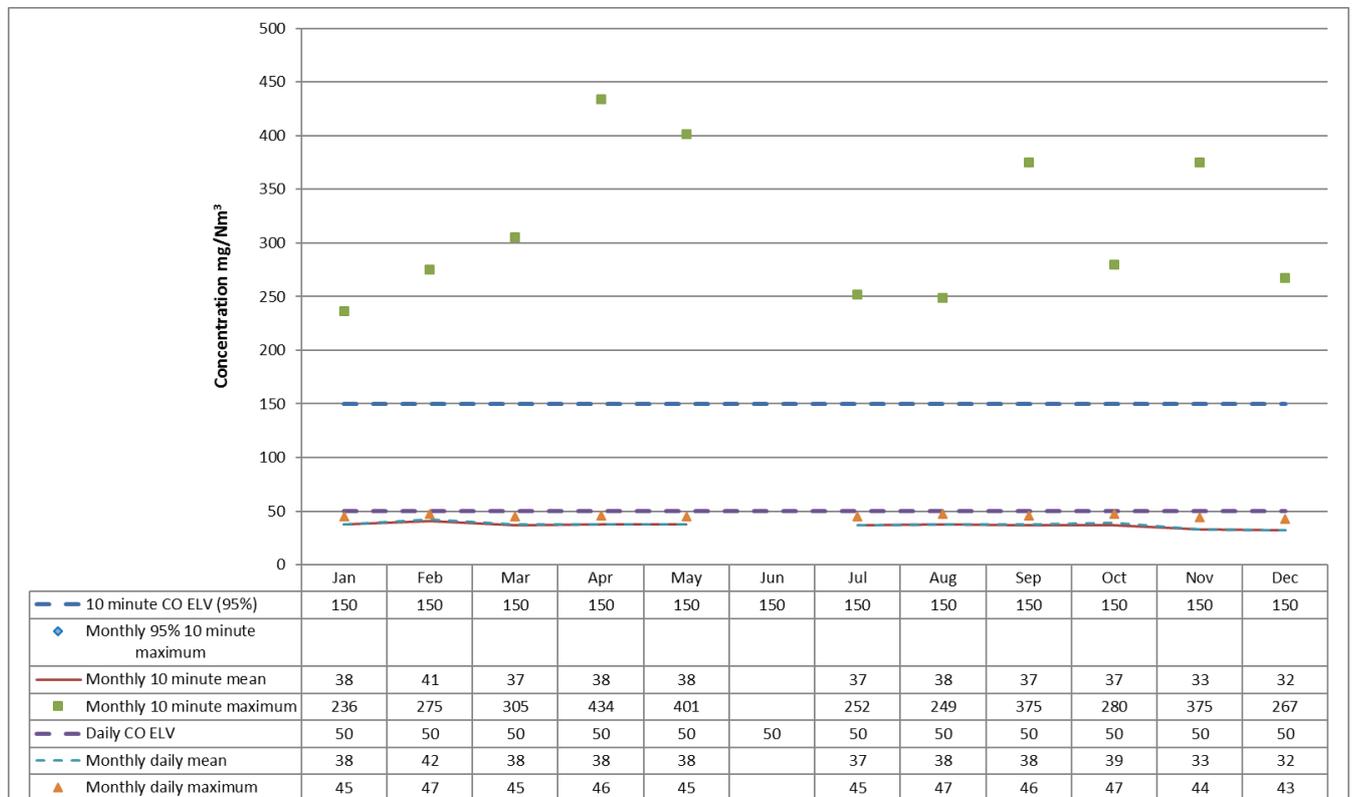
## Line 1 – Total organic carbon



## Line 1 – Particulates



## Line 1 – 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                   |                           |
|--|------------------------|---------------------------|---------------------------|
|  |                        | 25/04/18-09/05/18         | 15/10/18 -18/10/18        |
| Mercury and its compounds  | 0.05 mg/m <sup>3</sup> | <0.0005 mg/m <sup>3</sup> | <0.0003 mg/m <sup>3</sup> |
| Cadmium & thallium and their compounds (total)                   | 0.05 mg/m <sup>3</sup> | <0.001 mg/m <sup>3</sup>  | <0.0008 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>  | 0.09 mg/m <sup>3</sup>    | 0.06 mg/m <sup>3</sup>    |
| Dioxins and furans (I-TEQ)                                       | 0.1 ng/m <sup>3</sup>  | 0.005 ng/m <sup>3</sup>   | 0.003 ng/m <sup>3</sup>   |
| Hydrogen Fluoride  | 2 mg/m <sup>3</sup>    | 0.04 mg/m <sup>3</sup>    | 0.13 mg/m <sup>3</sup>    |

## 4.3 Summary of monitoring results for emissions to water

Surface and roof water are not monitored analytically. Visual checks are carried out periodically for visible oil and grease.

Foul sewer effluent is monitored independently by the sewerage company and is controlled by the consent to the discharge of trade effluent.

## 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         | 99.99 %                                    | 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                                      |
|------------|--|---|---|
| 07/03/2018 | Notification of half hourly abnormal operation due to loss of CEMS on Particulate Monitoring | Comms error on instrument.  | Instrument restored to normal working condition.                            |
| 02/04/2018 | Notification for half-hourly abnormal operation for PTC ELV exceedance.                      | High pressure across abatement system triggered safety release causing particulates to be bypassed. | Operational training and provision of alarms.                               |
| 05/08/2018 | Notification for half-hourly abnormal operation for NOx ELV exceedance.                      | Analytical (O <sub>2</sub> ) sensor failure on CEMS, amplifying emissions data                      | Sensor replace and instrument restored to normal working condition.         |
| 03/09/2018 | Notification for half hourly abnormal operation on TOC CEMS                                  | FID (Flame Ionisation Detection) tripped during monitoring of CEMS.                                 | FID reset and serviced and instrument restored to normal working condition. |
| 10/12/2018 | Notification of loss of abatement on PAC delivery system                                     | Boiler tripped resulting in unsuspected suspension of PAC dosing system                             | PAC dosing restarted and restored to normal working condition.              |

### 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 |
|-------------------|----------------------|--|--|
| None              |                      |  |  |

## 6. Summary of plant improvements

|  |
|--|
| <p><b>Summary of any permit improvement conditions that have been completed within the year and the resulting environmental benefits.</b></p>  |
| <p>None</p>  |
| <p><b>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.</b></p>  |
| <p>None</p>  |
| <p><b>Summary of any other improvements made to the plant or planned to be made and a summary of the resulting environmental benefits.</b></p>   |
| <ul style="list-style-type: none"> <li>• Boiler 18 Project and Demolition</li> </ul> <p>The Station has occupied its current location for nearly a century and much of the plant and buildings are due for replacement. The Boiler 18 Project continues to be a major project to develop the site by removing the redundant plant and buildings and replace them with an additional solid fuel boiler.</p> <p>The Boiler 18 Project is set to run for some years but, if successful, it should allow the redevelopment of the older areas of the site and secure the long-term viability of the Station.</p> <p>The variation of the Environmental Permit was applied in July 2016 which details the requirements for Boiler 18.</p> <p>Demolishing for this plant is currently underway, this will remove aged and redundant assets which in some cases poses a risk to environment such as old storage tanks, silos and bunkers.</p> <ul style="list-style-type: none"> <li>• CEMS Improvements</li> </ul> <p>CEMS are in good condition, A weekly service contract remains in place in which QAL3 checks and a planned maintenance regime is provided.</p> <p>A replacement FID and wet oxygen analyser was successfully installed in 2018.</p> |

- Water Treatment Plant and Feedwater systems.

A new (refurbished) water treatment plant was been procured and installed and now operational. This has reduced the quantity of chemicals stored on site. The chemical storage and linework on the old water treatment plant has been decontaminated and is now positioned for removal as part of the sites demolition plan.

Additionally a new feedwater system is currently being fitted, and should be operational in the first half of the year 2019. This, will reduce complexity and eliminate aged pipework, pumps and vessels and improve water and energy efficiency on site.

## 7. Summary of Management Targets

### 1. Target – Maintaining an ISO 14001 compliant EMS

Slough Heat and Power Station have had an ISO14001-accredited Environmental Management System since September 2009. Annual surveillance visits by an external auditing company (SGS) ensures that this accreditation is maintained.

A Surveillance inspection was carried out successfully in February 2018, with no major or minor non-conformities raised against the site. A forthcoming audit is due to assess site against the revised version ISO14001:2015.

### 2. Target – Ensure Incident Response Process is Effective

The station has an Emergency Response Manual which details the mitigation actions for a number of safety and environmental scenarios. This manual has been reviewed in July 2017 and 1 desktop exercises and timed evacuations were undertaken during 2018 in order to test the scenarios and increase training and awareness among the staff. The site maintains a regular contact with the local fire authority, and visits are conducted on a 6 monthly basis.

### 3. Target – Maintain Environmental Permit Compliance

The operations at Slough Heat and Power are driven by the requirements of the Environmental Permit. The management team set targets for training, compliance checks and audits to support this goal. Monthly compliance checks and environmental walk-rounds were carried out throughout 2018.

### 4. Target – Zero Significant Chemical Spills

There are a number of liquid and dry chemicals in use at the station; including banded bulk and semi-bulk storage tanks. A target was set to avoid loss of containment from these tanks, along with any significant spills as a result of operational process at the site.

There was no containment loss recorded during 2018 for chemicals. Additionally, the decommissioning of site and installation of a new water treatment plant has reduced the risk significantly of spillage of water treatment chemicals from the old tankage and pipework.

## 5. Target – Zero Permit Breaches

During 2018 SHP reported a loss of emission abatement dosing (PAC) for a period of 8 half hours when the system was not restarted after an earlier trip on the boiler. The abatement system was available to start and in working condition.

Additionally, SHP submitted 4 Schedule 5 permit notifications to the Environment Agency.

3 of these were abnormal operations incurred with disruption to CEMs and 1 was attributed to a momentary loss of the dust abatement system after a pressure spike across the baghouse.

## 6. Target – Zero Substantiated Dust Complaints

Boiler 17 at Slough Heat and Power is predominantly run on woodchip. This is a notoriously dusty fuel, and the Station is also located in an urban area (Slough Trading Estate) and therefore features a number of neighbours in the immediate vicinity.

The systems used to mitigate and contain the dusts, including mist suppression system, road sweeping routines and good operational practice.

No dust complaints were received in 2018.

## 7. Target – Zero Substantiated Noise Complaints

Slough Heat and Power is a long-established business and normal operating practices, along with considerate management, rarely elicit noise complaints. In 2018 two noise surveys were carried out (external/off site and internal/on site) both surveys revealed no significant deterioration of noise levels emitted from site.

In 2018 there were zero noise complaints.

## 8. Additional Target –Mains water, feedwater and boiler blow-down losses

Water use on site has decreased by 3%, but has approximately remained the same m<sup>3</sup> per tonne of wood burnt. This could be attributed to the boiler incurring numerous unplanned failures, in which case the operation and control of the process including water use has been difficult. The site is currently in the construction stage of a new feedwater pump station and system which will simplify the complexity and enhance water use in 2019.