

Annual performance report for: EPR Thetford Power Limited, Thetford Power Station.

Permit Number: EPR/PP3235LP

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 | EPR Thetford Power Station Mundford Road Thetford Norfolk IP24 1LX |
| Description of waste input | Poultry Litter, Horse Bedding, Forest Woodchips mainly sourced from East Anglia. |
| Operator contact details if members of the public have any questions | Richard Bloomfield (Operation & Maintenance manager) EPR Thetford Power Station. 01842 752255. |

2. Plant description

Thetford Power Station is a renewable energy plant using biomass as a fuel to generate electricity. It is classified as a co-incinerator under the Industrial Emissions Directive (IED) since its main fuels are waste biomass including some IED article 3(31) Biomass materials and the plant's principle purpose is to generate renewable electricity.

3. Summary of Plant Operation

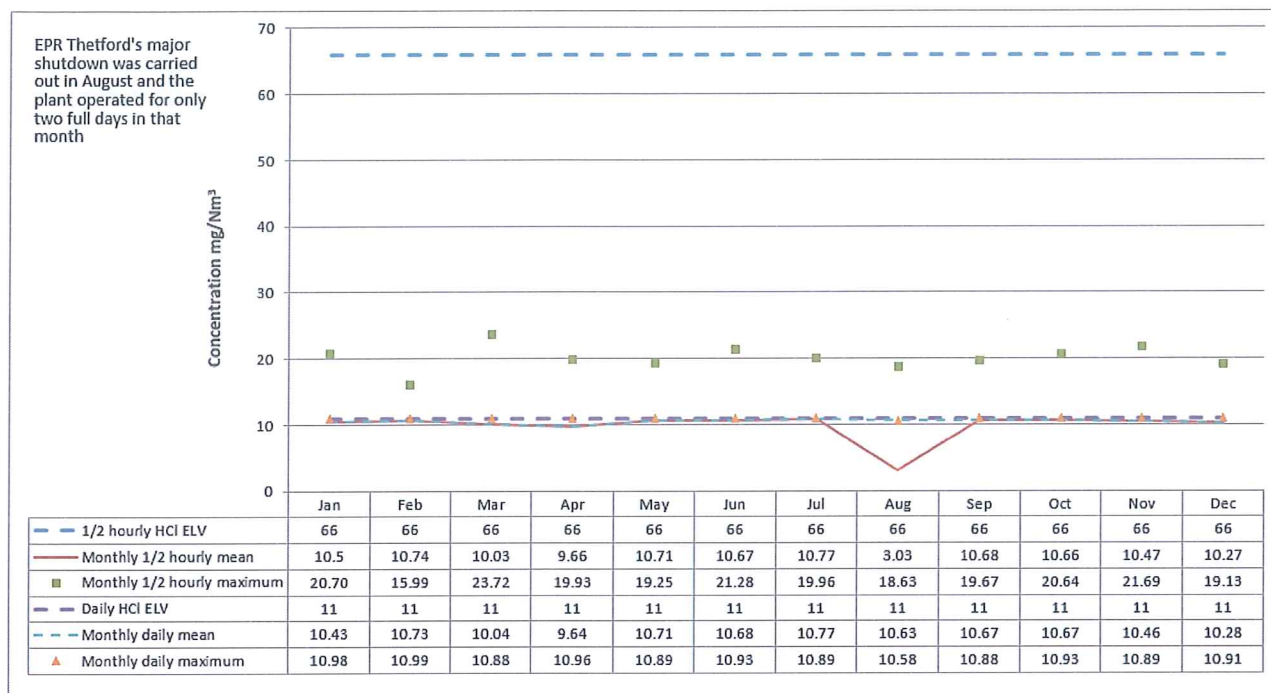
| | |
|--|---|
| Waste wood (biomass) received | 38,274.32 tonnes. |
| Other waste received (Poultry Litter & Horse bedding) | 422,583.14 tonnes. |
| Total waste received | 460,857.46 tonnes. |
| Total plant operational hours | 7,396 hours. |
| Total hours of "abnormal operation" (see permit for definition) | None. |
| Total quantity of incinerator bottom ash (IBA) produced | 8782.12 tonnes |
| Disposal or recovery route for IBA | The Disposal of all site IBA is via FibroPhos Thetford where it is used in the production of Fertiliser. |
| Did any batches of IBA test as hazardous? If yes, state quantity | None. |
| Total quantity of air pollution control (APC) residues produced | The only APC controls used on site are the use of dry sorbent injection on to bag filters, a total of 1337 tonnes of Bicarb was used. |
| Disposal or recovery route for APC residues | The Disposal of all site residue APC is via FibroPhos Thetford where it is used in the production of Fertiliser. |
| Total electricity generated for export to the National Grid | 277,374 MWh. |

4. Summary of Plant Emissions

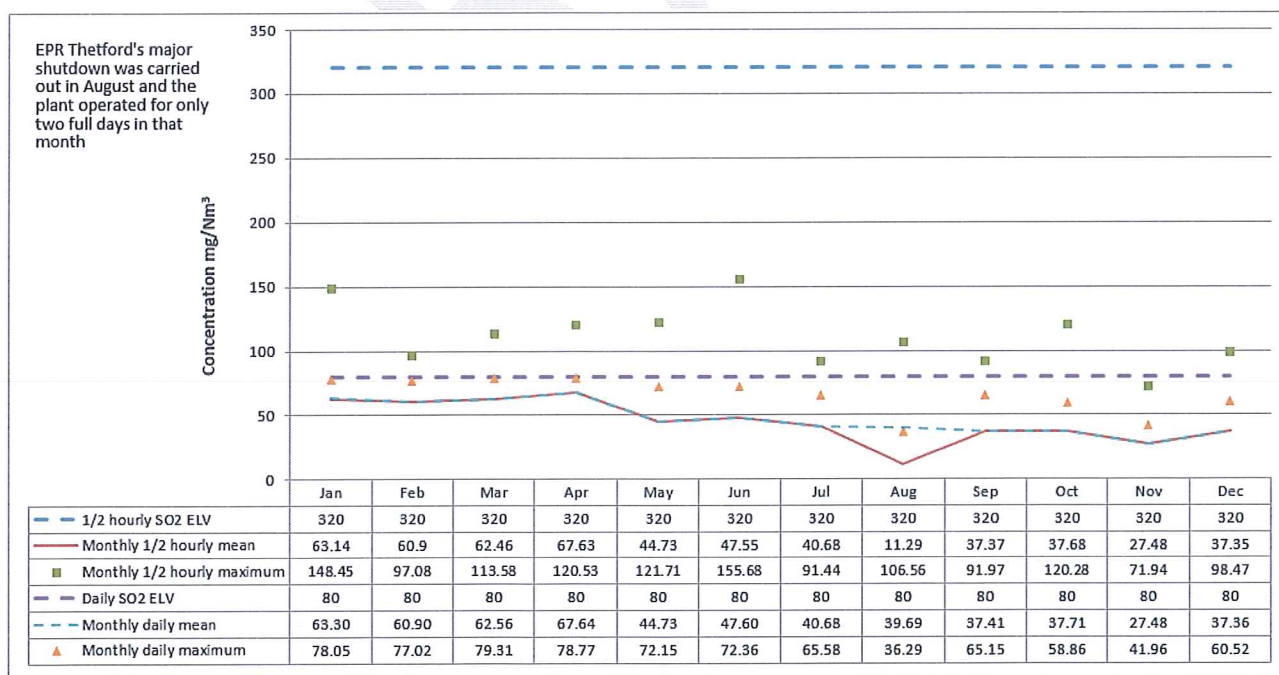
4.1 Summary of continuous emissions monitoring results for emissions to air

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

Line 1 - Hydrogen chloride.

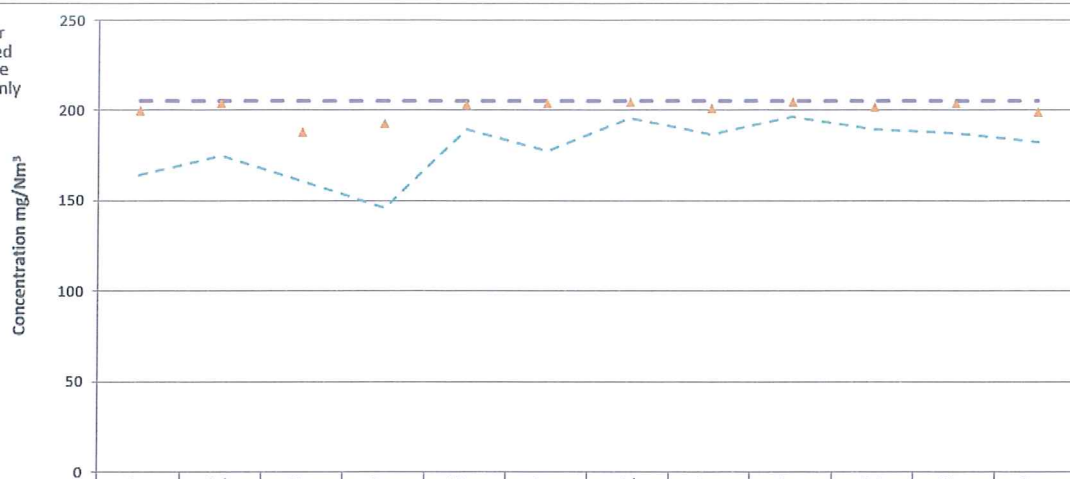


Line 1 – Sulphur dioxide



Line 1 – Oxides of nitrogen

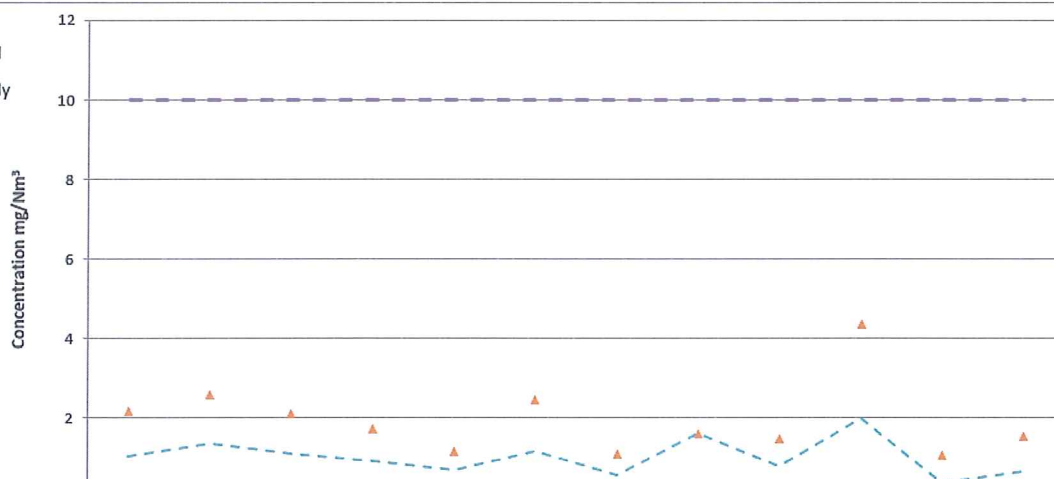
EPR Thetford's major shutdown was carried out in August and the plant operated for only two full days in that month



| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| — Daily Nox ELV | 205 | 205 | 205 | 205 | 205 | 205 | 205 | 205 | 205 | 205 | 205 | 205 |
| - - Monthly daily mean | 163.94 | 174.94 | 160.96 | 145.81 | 189.58 | 177.52 | 195.91 | 186.51 | 196.72 | 189.72 | 187.35 | 182.14 |
| ▲ Monthly daily maximum | 199.59 | 203.52 | 187.56 | 192.66 | 202.96 | 203.59 | 204.28 | 200.63 | 204.54 | 201.70 | 203.72 | 198.52 |

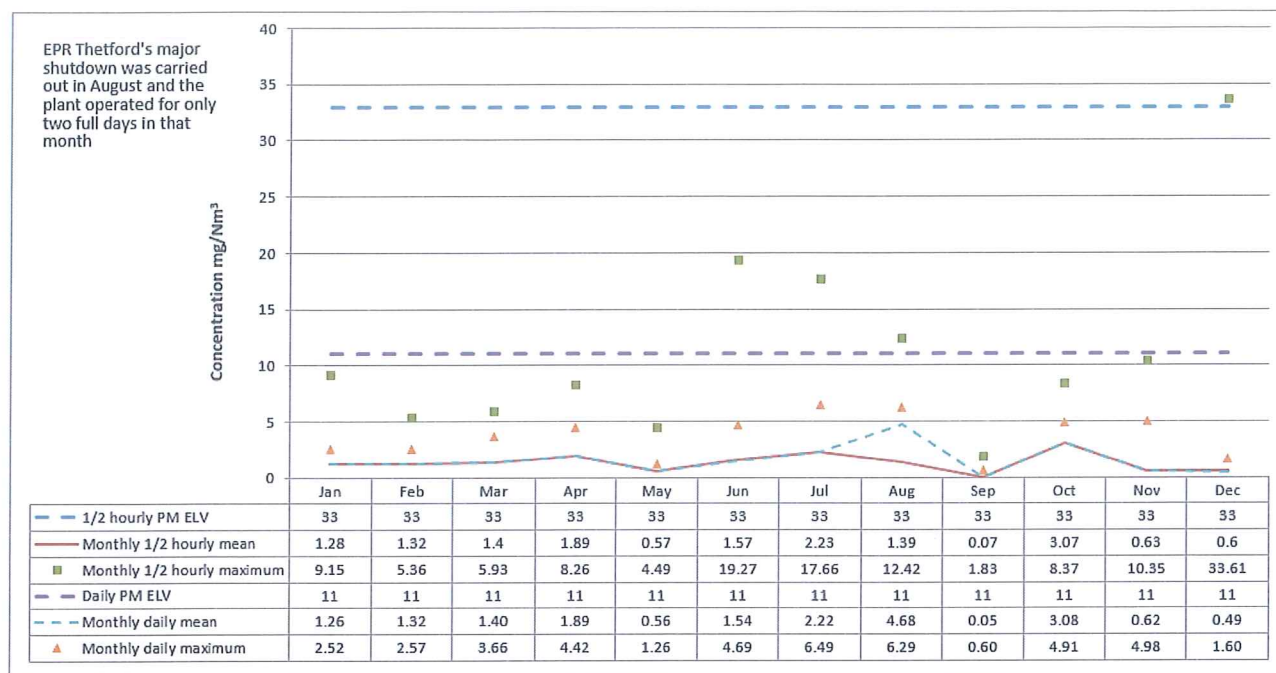
Line 1 – Total organic carbon

EPR Thetford's major shutdown was carried out in August and the plant operated for only two full days in that month

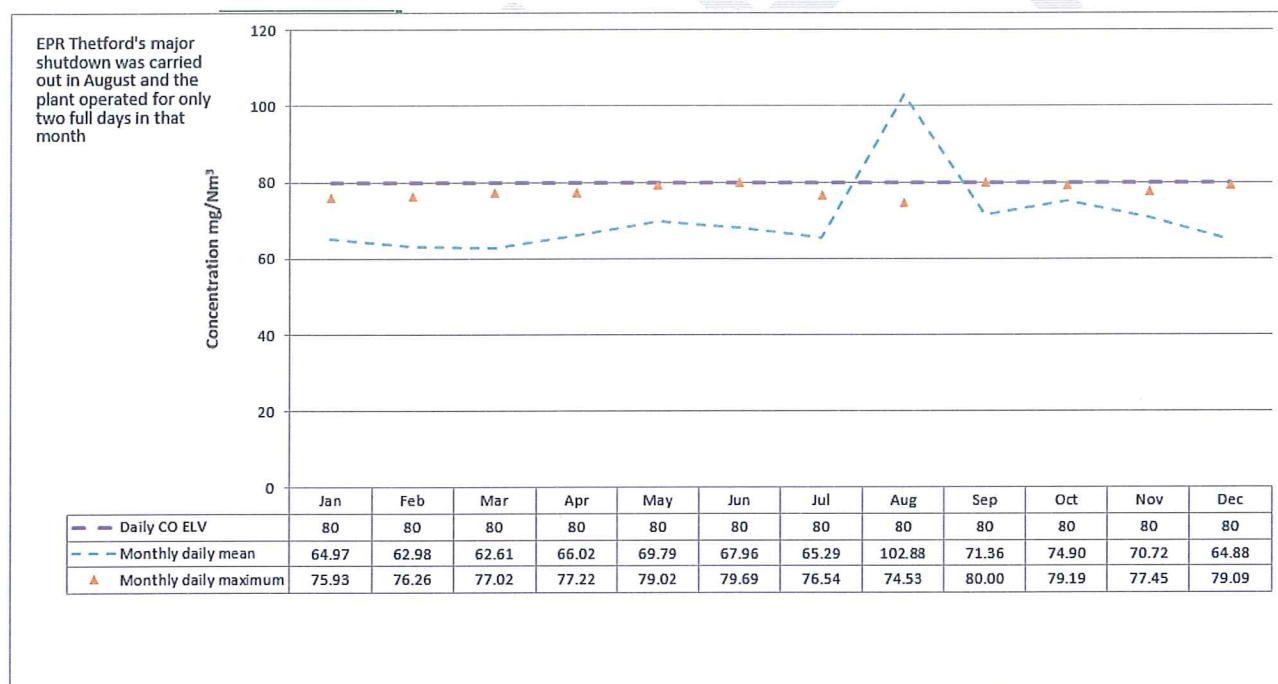


| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| — Daily TOC ELV | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| - - Monthly daily mean | 1.05 | 1.36 | 1.12 | 0.92 | 0.69 | 1.18 | 0.56 | 1.61 | 0.80 | 2.00 | 0.37 | 0.68 |
| ▲ Monthly daily maximum | 2.15 | 2.59 | 2.10 | 1.72 | 1.14 | 2.46 | 1.09 | 1.59 | 1.47 | 4.35 | 1.07 | 1.53 |

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 | |
|--|---|---|--|
| | | 1 st January to 30 th June 2018 | 1 st July to 31 st December 2018 |
| Mercury and its compounds | 0.3 mg/m ³ Over minimum 30 minute, maximum 8 hour period. | <0.0005 mg/Nm ³ | 0.0004 mg/Nm ³ |
| Cadmium & thallium and their compounds (total) | 0.3 mg/m ³ Over minimum 30 minute, maximum 8 hour period. | <0.001 mg/Nm ³ | <0.0006 mg/Nm ³ |
| Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total) | 0.3 mg/m ³ Over minimum 30 minute, maximum 8 hour period. | 0.1 mg/Nm ³ | 0.16 mg/Nm ³ |
| Dioxins and furans (I-TEQ) | 0.07 ng/m ³ Over minimum 6 hour, maximum 8 hour period. | 0.03 ng/Nm ³ | 0.03 ng/Nm ³ |
| Hydrogen Fluoride | No Limit applies | 0.2 mg/Nm ³ | 0.1 mg/Nm ³ |

4.3 Summary of monitoring results for emissions to water

Option 2: The following tables summarises the results of monitoring of emissions to water for each Quarter:

Total suspended solids

| | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Spot sample ELV (mg/l) | 60 mg/l | 60 mg/l | 60 mg/l | 60 mg/l |
| Spot sample value (mg/l) | 23.5 mg/l | 15 mg/l | 14 mg/l | 12.6 mg/l |

Biological oxygen demand

| | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Spot sample ELV (mg/l) | 30 mg/l | 30 mg/l | 30 mg/l | 30 mg/l |
| Spot sample value (mg/l) | 1 mg/l | 2 mg/l | 1 mg/l | 1 mg/l |

Ammonia (expressed as N)

| | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Spot sample ELV (mg/l) | 5 mg/l | 5 mg/l | 5 mg/l | 5 mg/l |
| Spot sample value (mg/l) | 0.3 mg/l | 0.5 mg/l | 0.36 mg/l | 0.4 mg/l |

Chloride

| | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Spot sample ELV (mg/l) | 2000 mg/l | 2000 mg/l | 2000 mg/l | 2000 mg/l |
| Spot sample value (mg/l) | 1743 mg/l | 1320 mg/l | 1492 mg/l | 1523 mg/l |

Sulphate

| | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Spot sample ELV (mg/l) | 1000 mg/l | 1000 mg/l | 1000 mg/l | 1000 mg/l |
| Spot sample value (mg/l) | 54.6 mg/l | 43.7 mg/l | 54.6 mg/l | 48.2 mg/l |

Mercury

| | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Spot sample ELV (mg/l) | 0.005 mg/l | 0.005 mg/l | 0.005 mg/l | 0.005 mg/l |
| Spot sample value (mg/l) | 0.0001 mg/l | 0.00005 mg/l | 0.0001 mg/l | 0.00002 mg/l |

Cadmium

| | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Spot sample ELV (mg/l) | 0.010 mg/l | 0.010 mg/l | 0.010 mg/l | 0.010 mg/l |
| Spot sample value (mg/l) | 0.0006 mg/l | 0.0006 mg/l | 0.0006 mg/l | 0.0006 mg/l |

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 % | 100 % |
| Total organic carbon | 100 % | 100 % |
| Hydrogen chloride | 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 |
|--------------------------------|--|----------------------------------|---|
| 10 th December 2018 | During a plant run-up on the 10 th December 2018 the Particulates 30 minute ELV of 33 mg/Nm ³ was breached by 0.6mg/Nm ³ . That breach was discussed with the site's local EA officer, Samuel Fuller, who advised that the breach should be shown on the Quarterly Report but that a formal breach report was not required. | Plant run up after boiler clean. | Discussed between the station management team and local EA officer Samuel Fuller. |

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

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|--|
| 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. Details of any public liaison planned for 2019

| Date and time | Description | Location |
|---------------------------------|--|-----------------------------|
| Date's & Time's to be confirmed | The site hosts two local liaison meetings each year, the first meeting in 2019 is likely to be held in March or April. | EPR Thetford Power Station. |
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