

Permit Number: **EPR/HP3737UE**

Operator: **Siemens plc**

Installation: **Severn Power Station**

Form Number: **Air - 1**

LCPD Reporting of Discontinuous Measurements for the year commencing **January 1st 2014**

| Pollutant | Release Point | Time and date of sampling | Measured value (mg/m ³) | CEM result over sampling period (mg/m ³) | Unit load %MCR | Fuel used during sampling period |
|------------|---------------|------------------------------|-------------------------------------|--|----------------|----------------------------------|
| NOx | A1 | 17:30 to 18:30 on 10/06/2014 | 17.81 | 18.28 | 100 | Natural gas |
| NOx | A2 | 13:30 to 14:30 on 09/06/2014 | 25.72 | 29.96 | 100 | Natural gas |


Please note: the measured value should be quoted at the appropriate reference conditions for the type of equipment being subject to emissions monitoring-see Schedule 7.

Operator's comments: Annual testing was carried out on 9th and 10th June 2014.

The next annual testing is scheduled for May/June 2015.

Signed on behalf of **Siemens plc** by:

..... **Huw Edwards**



Date of return:

..... **2-7 JAN 2015**

EHS Manager

Releases to Air – LCPD Continuous Monitoring Operational Summary for the 6 months commencing 1st Jan 2014

Permit Number: **EPR/HP3737UE**
 Installation: **Severn Power Station**

Operator: **Siemens plc**
 Form Number: **Air - 2 / 10/03/10**

| OPERATION ON NATURAL GAS | | | | | | | | |
|--------------------------|-----------|---------------|--------------------|--------------------------------|----------------------|----------------------------------|-------------------------------------|--------------------------|
| Month | Pollutant | Release point | Maximum daily mean | 95% percentile of hourly means | Maximum hourly mean | Maximum daily (half hourly) mean | 95% percentile of half hourly means | Maximum half hourly mean |
| | | | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ |
| Emission Limit Values | | | | | Results ¹ | | | |
| Jan | NOx | A1 | 50 | 75 | 100 | 23.6 | 25.8 | 26.5 |
| | NOx | A2 | 50 | 75 | 100 | 24.8 | 28.6 | 29.2 |
| Feb | NOx | A1 | 50 | 75 | 100 | 23.5 | 27.1 | 27.1 |
| | NOx | A2 | 50 | 75 | 100 | 31.2 | 32.4 | 32.7 |
| Mar | NOx | A1 | 50 | 75 | 100 | 28.0 | 30.6 | 30.6 |
| | NOx | A2 | 50 | 75 | 100 | 25.6 | 30.5 | 36.1 |
| Apr | NOx | A1 | 50 | 75 | 100 | 24.9 | 27.7 | 28.5 |
| | NOx | A2 | 50 | 75 | 100 | 29.2 | 33.9 | 34.0 |
| May | NOx | A1 | 50 | 75 | 100 | 25.5 | 30.3 | 31.2 |
| | NOx | A2 | 50 | 75 | 100 | 29.8 | 34.3 | 34.3 |
| Jun | NOx | A1 | 50 | 75 | 100 | 36.2 | 37.7 | 40.5 |
| | NOx | A2 | 50 | 75 | 100 | 34.8 | 36.0 | 38.5 |

¹ The result reported should be the maximum value obtained during the year to date, expressed in the same terms as the emission limit value.

Huw Edwards

27 JAN 2015

EHS Manager

Releases to Air – LCPD Continuous Monitoring Operational Summary for the 6 months commencing 1st July 2014

Permit Number: EPR/HP3737UE
 Installation: Severn Power Station

Operator: Siemens plc
 Form Number: Air - 2 / 10/03/10

| OPERATION ON NATURAL GAS | | | | | | | | |
|--------------------------|-----------|---------------|--------------------|--------------------------------|---------------------|----------------------|--------------------------------|---------------------|
| Month | Pollutant | Release point | Maximum daily mean | 95% percentile of hourly means | Maximum hourly mean | Maximum daily mean | 95% percentile of hourly means | Maximum hourly mean |
| | | | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ | mg/m ³ |
| Emission Limit Values | | | | | | Results ¹ | | |
| July | NOx | A1 | 50 | 75 | 100 | 35.8 | 39.2 | 43.3 |
| | NOx | A2 | 50 | 75 | 100 | 33.9 | 35.4 | 39.8 |
| August | NOx | A1 | 50 | 75 | 100 | 32.4 | 37.4 | 43.1 |
| | NOx | A2 | 50 | 75 | 100 | 29.6 | 32.3 | 33.8 |
| September | NOx | A1 | 50 | 75 | 100 | 28.0 | 30.9 | 33.4 |
| | NOx | A2 | 50 | 75 | 100 | 27.9 | 29.8 | 33.0 |
| October | NOx | A1 | 50 | 75 | 100 | 33.0 | 34.0 | 38.4 |
| | NOx | A2 | 50 | 75 | 100 | 27.2 | 29.2 | 30.7 |
| November | NOx | A1 | 50 | 75 | 100 | 0.0 | 33.8 | 33.8 |
| | NOx | A2 | 50 | 75 | 100 | 27.2 | 32.9 | 32.9 |
| December | NOx | A1 | 50 | 75 | 100 | 25.7 | 31.2 | 36.0 |
| | NOx | A2 | 50 | 75 | 100 | 27.1 | 29.5 | 32.4 |

¹ The result reported should be the maximum value obtained during the year to date, expressed in the same terms as the emission limit value.

Huw Edwards

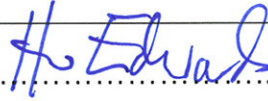
27 JAN 2015

EHS Manager

Operator's comments : Both units in operation throughout the year.

Signed on behalf of **Siemens plc** by:

Huw Edwards



Date of return:

27 JAN 2015

EHS Manager

Permit Number: **EPR/HP3737UE**
Installation: **Severn Power Station**


Operator: **Siemens plc**
Form Number: **Air - 3**

LCPD CONTINUOUS MEASUREMENTS SYSTEMS INVALIDATION LOG FOR THE YEAR 2014

Monitor positioned on release point: A 1 (Both A1 and A2 to be reported separately)

| Date | Period of invalidation (hours) | Cumulative invalidated days in year | Comments |
|------------|--------------------------------|-------------------------------------|---|
| 04/08/2014 | 4hr | 1 | Periods of greater than 3 hours were lost on 2 separate days in 2014 |
| 01/09/2014 | 6 hr | 2 | 2 days' data were therefore invalidated due to CEMS issues in 2014 |
| | | | Both occasions were due to a defective solenoid which caused a problem with the automatic calibration system of the CEMS. |
| | | | The fault has been diagnosed and the equipment is being monitored so that further episodes of this kind do not occur. |
| | | | |
| | | | |

Note: Compliance in LCPD is on the basis of validated hourly averages, measured by continuous monitors (except where discontinuous exemption applies). Confidence intervals are incorporated to convert the measured hourly value into a validated measurement for the purpose of compliance assessment. However, any day in which more than 3 hourly average values are invalid (due to malfunction or maintenance of the continuous measurement system) shall be invalidated for the purpose of compliance assessment. Then, if more than 10 days are invalid over a year the Environment Agency must ensure that the operator takes adequate measures to improve the continuous measurement system reliability. This table is a reporting form for the operator's use to alert the Environment Agency that action may be required.

Signed on behalf of Siemens plc by:..... 

Date of return:..... **Huw Edwards**

30 JAN 2015

EHS Manager

Permit Number: **EPR/HP3737UE**
Installation: **Severn Power Station**

Operator: **Siemens plc**
Form Number: **Air - 3**

LCPD CONTINUOUS MEASUREMENTS SYSTEMS INVALIDATION LOG FOR THE YEAR 2014

Monitor positioned on release point: A 2 (Both A1 and A2 to be reported separately)

| Date | Period of invalidation (hours) | Cumulative invalidated days in year | Comments |
|------|--------------------------------|-------------------------------------|--|
| | None | | No hours lost for this unit in 2014 |
| | | | Therefore no days' data lost in 2014 for this unit |
| | | | |
| | | | |
| | | | |
| | | | |

Note: Compliance in LCPD is on the basis of validated hourly averages, measured by continuous monitors (except where discontinuous exemption applies). Confidence intervals are incorporated to convert the measured hourly value into a validated measurement for the purpose of compliance assessment. However, any day in which more than 3 hourly average values are invalid (due to malfunction or maintenance of the continuous measurement system) shall be invalidated for the purpose of compliance assessment. Then, if more than 10 days are invalid over a year the Environment Agency must ensure that the operator takes adequate measures to improve the continuous measurement system reliability. This table is a reporting form for the operator's use to alert the Environment Agency that action may be required.

Signed on behalf of Siemens plc by:.....*Huw Edwards*.....

Date of return:.....*Huw Edwards*.....

30 JAN 2015

EHS Manager

Permit Number: **EPR/HP3737UE**
 Installation: **Severn Power Station**

Operator: **Siemens plc**
 Form Number: **Air - 5**

LCPD MONTHLY AND CUMULATIVE RELEASES ¹ (TONNES) FROM EACH LCP FOR THE YEAR 2014 GAS TURBINE NUMBER ² A1

| Reporting period | Sulphur dioxide | | Oxides of nitrogen | | Dust (Particulate matter) | |
|------------------|-----------------|--------------|--------------------|--------------|---------------------------|--------------|
| | Actual | Year to date | Actual | Year to date | Actual | Year to date |
| 01 (Jan) | 0.0665 | 0.0665 | 8.2192 | 8.2192 | 0.1919 | 0.1919 |
| 02 (Feb) | 0.0263 | 0.0928 | 3.2497 | 11.4689 | 0.0758 | 0.2678 |
| 03 (Mar) | 0.0107 | 0.1036 | 1.3275 | 12.7964 | 0.0309 | 0.2988 |
| 04 (Apr) | 0.0269 | 0.1305 | 3.3224 | 16.1189 | 0.0775 | 0.3763 |
| 05 (May) | 0.2247 | 0.3552 | 27.7535 | 43.8725 | 0.6480 | 1.0244 |
| 06 (Jun) | 0.3272 | 0.6824 | 40.4230 | 84.2955 | 0.9438 | 1.9683 |
| 07 (Jul) | 0.2581 | 0.9406 | 31.8900 | 116.1855 | 0.7446 | 2.7129 |
| 08 (Aug) | 0.2338 | 1.1745 | 28.8859 | 145.0715 | 0.6744 | 3.3874 |
| 09 (Sep) | 0.2340 | 1.4086 | 28.9136 | 173.9851 | 0.6751 | 4.0625 |
| 10 (Oct) | 0.1610 | 1.5696 | 19.8886 | 193.8737 | 0.4644 | 4.5270 |
| 11 (Nov) | 0.0636 | 1.6332 | 7.8566 | 201.7304 | 0.1834 | 4.7104 |
| 12 (Dec) | 0.0668 | 1.7001 | 8.2579 | 209.9884 | 0.1928 | 4.9032 |

¹ Excluding start-up and shut-down

² Form Air 5 must be completed separately for each gas turbine at the Facility

Operator comments: **Variability of monthly figures reflects variation in number of hours run per month.**

Signed on behalf of Siemens plc by: H. Edwards Date of return: Huw Edwards

27 JAN 2015
 EHS Manager

Permit Number: **EPR/HP3737UE**
 Installation: **Severn Power Station**

Operator: **Siemens plc**
 Form Number: **Air - 5**

LCPD MONTHLY AND CUMULATIVE RELEASES ¹ (TONNES) FROM EACH LCP FOR THE YEAR 2014 GAS TURBINE NUMBER ² A2

| Reporting period | Sulphur dioxide | | Oxides of nitrogen | | Dust (Particulate matter) | |
|------------------|-----------------|--------------|--------------------|--------------|---------------------------|--------------|
| | Actual | Year to date | Actual | Year to date | Actual | Year to date |
| 01 (Jan) | 0.0577 | 0.0577 | 7.1319 | 7.1319 | 0.1665 | 0.1665 |
| 02 (Feb) | 0.0275 | 0.0852 | 3.3967 | 10.5286 | 0.0793 | 0.2458 |
| 03 (Mar) | 0.0830 | 0.1682 | 10.2526 | 20.7812 | 0.2394 | 0.4852 |
| 04 (Apr) | 0.0621 | 0.2303 | 7.6713 | 28.4526 | 0.1791 | 0.6643 |
| 05 (May) | 0.2409 | 0.4713 | 29.7614 | 58.2140 | 0.6949 | 1.3593 |
| 06 (Jun) | 0.2589 | 0.7302 | 31.9790 | 90.1931 | 0.7467 | 2.1060 |
| 07 (Jul) | 0.1900 | 0.9202 | 23.4726 | 113.6657 | 0.5480 | 2.6541 |
| 08 (Aug) | 0.2301 | 1.1504 | 28.4279 | 142.0937 | 0.6638 | 3.3179 |
| 09 (Sep) | 0.2560 | 1.4065 | 31.6292 | 173.7230 | 0.7385 | 4.0564 |
| 10 (Oct) | 0.1714 | 1.5779 | 21.1752 | 194.8982 | 0.4944 | 4.5509 |
| 11 (Nov) | 0.0887 | 1.6667 | 10.9664 | 205.8647 | 0.2560 | 4.8069 |
| 12 (Dec) | 0.1055 | 1.7723 | 13.0378 | 218.9025 | 0.3044 | 5.1114 |

¹ Excluding start-up and shut-down

² Form Air 5 must be completed separately for each gas turbine at the Facility

Operator comments: **Variability of monthly figures reflects variation in number of hours run per month.**

Signed on behalf of Siemens plc by:  Date of return: **Huw Edwards**

27 JAN 2015

EHS Manager

Permit Number: EPR/HP3737UE
 Installation: Severn Power Station
 Form number: Air 6

Operator: Siemens plc

OPERATIONAL HOURS FOR THE YEAR 2014

| Reporting period | Operational hours | |
|------------------|-------------------|---------------------------------|
| | Auxiliary boiler | |
| | Actual (hours) | Cumulative year to date (hours) |
| 01 (Jan) | 696.6 | 696.6 |
| 02 (Feb) | 674.1 | 1370.7 |
| 03 (Mar) | 538.5 | 1909.2 |
| 04 (Apr) | 428.9 | 2338.2 |
| 05 (May) | 382.1 | 2720.2 |
| 06 (Jun) | 345.8 | 3066.0 |
| 07 (Jul) | 375.4 | 3441.3 |
| 08 (Aug) | 353.1 | 3794.5 |
| 09 (Sep) | 510.4 | 4304.8 |
| 10 (Oct) | 442.1 | 4746.9 |
| 11 (Nov) | 489.2 | 5236.1 |
| 12 (Dec) | 543.7 | 5779.9 |

Huw Edwards

27 JAN 2015

EHS Manager

| Reporting period | Operational hours | | | |
|------------------|---------------------------|---|---------------------------|---|
| | Diesel generator 1 | | Diesel generator 2 | |
| | Actual (hours.minutes) | Cumulative year to date (hours.minutes) | Actual (hours.minutes) | Cumulative year to date (hours.minutes) |
| 01 (Jan) | 0.18 | 0.18 | 0.17 | 0.17 |
| 02 (Feb) | 0.8 | 0.26 | 0.6 | 0.23 |
| 03 (Mar) | 0.6 | 0.32 | 0.0 | 0.23 |
| 04 (Apr) | 0.54 | 1.26 | 1.05 | 1.28 |
| 05 (May) | 0.27 | 1.53 | 0.24 | 1.52 |
| 06 (Jun) | 0.26 | 2.19 | 0.26 | 2.18 |
| 07 (Jul) | 0.11 | 2.30 | 0.44 | 3.02 |
| 08 (Aug) | 0.41 | 3.11 | 0.32 | 3.34 |
| 09 (Sep) | 0.14 | 3.25 | 0.14 | 3.48 |
| 10 (Oct) | 0.39 | 4.04 | 0.32 | 4.20 |
| 11 (Nov) | 0.35 | 4.39 | 0.35 | 4.55 |
| 12 (Dec) | 0.24 | 5.03 | 0.23 | 5.18 |

Operator comments: No comments

Signed on behalf of Siemens plc by.....

Huw Edwards

Date of return:

27 JAN 2015

EHS Manager

Permit Number: EPR/HP3737UE

Operator: Siemens plc

Installation: Severn Power Station Form Number: Energy - 1

LCPD ENERGY CONSUMPTION ¹ FOR THE YEAR 2014

| Energy Source | Units | Gas Turbine no. 1 (Unit 10) | Gas Turbine no. 2 (Unit 20) |
|---------------|--|--------------------------------|--------------------------------|
| Natural gas | Fuel Net Calorific Value (NCV) (TJ/tonne) | 0.037322 | 0.037322 |
| | Annual fuel consumption (tonnes) | 208 851.0 | 229 772.6 |
| | Annual energy input (TJ) | 7804.8 | 8580.8 |

¹ Including start-up and shut-down

Operator comments: Data supplied by site Owner Severn Power L^{td}.

Signed on behalf of Siemens plc by: *Huw Edwards* Date of return:

Huw Edwards

27 JAN 2015

EHS Manager

Permit Number: EPR/HP3737UE

Operator: Siemens plc

Facility: Severn Power Station

Form Number: Water1 / 10/03/10

Reporting of emissions to water (other than to sewer) and land for year commencing January 2014

| Month | Emissions Point | Parameter | Emission Limit Value | Reference Period | Result ^[1] | Test Method ^[2] | Sample Date and Times ^[3] | Uncertainty ^[4] |
|----------|-----------------|---------------|----------------------|------------------|-------------------------|----------------------------|--------------------------------------|----------------------------|
| January | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| February | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| March | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| April | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| May | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |

Huw Edwards

27 JAN 2015

EHS Manager

| | | | | | | | | |
|-----------|----|---------------|--------------|--------------|-------------------------|----------------------|-----|--|
| June | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| July | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| August | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| September | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| October | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| November | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |
| December | W1 | Total ammonia | No limit set | Monthly spot | Tankered away from site | BS EN ISO 11732:2005 | N/A | |
| | W1 | pH | 6-9 | Continuous | Tankered away from site | BS6068-2.50 | N/A | |

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

Huw Edwards

27 JAN 2015

EHS Manager

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, e.g. gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed *Huw Edwards*

(Authorised to sign as representative of Operator)

Date..... **Huw Edwards**

27 JAN 2015

EHS Manager