Permit Number: EPR/HP3737UE **Operator: Siemens plc**

Installation: Severn Power Station **Form Number:** Air - 1

LCPD Reporting of Discontinuous Measurements for the year commencing 1st January 2015

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	23/06/2015 19:00 to 20:00	27.30	29.06	95.9	Natural gas
NOx	A2	22/6/2015 17:00 to 18:00	22.82	24.92	54.2	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 by Independent sampling contractors ESG. Emissions from release point A1 were tested on 23rd June and those from A2 on 22nd June 2015. The full text of the samplers' report was sent to NRW.

The next annual testing is scheduled for June 2016.

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

Huw Edwards

Date of return: .....

20 JAN 2016

EHS Manager

Releases to Air – LCPD Continuous Monitoring Operational Summary for the 6 months commencing 1st Jan 2015

Permit Number:	EPR/HP3737UE	**Operator:**	Siemens plc
Installation:	Severn Power Station	**Form Number:**	Air - 2 / 10/03/10

OPERATION ON NATURAL GAS								
Month	**Pollutant**	**Release point**	**Maximum daily mean** mg/m³	**95% percentile of hourly means** mg/m³	**Maximum hourly mean** mg/m³	**Maximum daily (half hourly) mean** mg/m³	**95% percentile of half hourly means** mg/m³	**Maximum half hourly mean** mg/m³
			Emission Limit Values			**Results** [1]		
Jan	NOx	A1	50	75	100	28.9	29.9	30.4
	NOx	A2	50	75	100	35.4	32.4	38.8
Feb	NOx	A1	50	75	100	29.6	31.8	34.0
	NOx	A2	50	75	100	32.9	31.8	38.0
Mar	NOx	A1	50	75	100	33.5	34.8	37.2
	NOx	A2	50	75	100	15.2	23.2	23.2
Apr	NOx	A1	50	75	100	23.3	15.8	15.8
	NOx	A2	50	75	100	29.4	27.0	29.4
May	NOx	A1	50	75	100	38.9	44.0	45.4
	NOx	A2	50	75	100	31.3	32.9	33.7
Jun	NOx	A1	50	75	100	40.1	40.8	46.2
	NOx	A2	50	75	100	28.3	32.6	37.1

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.

Releases to Air – LCPD Continuous Monitoring Operational Summary for the 6 months commencing 1st July 2015

Permit Number: EPR/HP3737UE **Operator:** Siemens plc

Installation: Severn Power Station **Form Number:** Air - 2 / 10/03/10

Month	Pollutant	Release point	OPERATION ON NATURAL GAS					
			Maximum daily mean mg/m³	95% percentile of hourly means mg/m³	Maximum hourly mean mg/m³	Maximum daily mean mg/m³	95% percentile of hourly means mg/m³	Maximum hourly mean mg/m³
			Emission Limit Values			Results [1]		
July	NOx	A1	50	75	100	37.9	37.5	48.5
	NOx	A2	50	75	100	27.7	29.2	30.9
August	NOx	A1	50	75	100	33.8	32.2	36.5
	NOx	A2	50	75	100	25.8	29.1	31.6
September	NOx	A1	50	75	100	29.6	30.9	34.9
	NOx	A2	50	75	100	28.2	29.4	35.1
October	NOx	A1	50	75	100	29.6	32.7	32.7
	NOx	A2	50	75	100	25.5	26.1	27.5
November	NOx	A1	50	75	100	28.8	31.2	37.4
	NOx	A2	50	75	100	22.1	26.2	26.2
December	NOx	A1	50	75	100	25.4	32.6	32.6
	NOx	A2	50	75	100	17.6	23.6	23.6

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.

Operator's comments :

Comments regarding planned outages

Unit 20 was taken out of use for an 'Extended Hot Gas Path Outage' from 15th May to 15th June 2015. This period of planned maintenance was a significant milestone in the life cycle of the unit. Such outages take place periodically; their scheduling is mainly based on number of hours run. The unit was re-commissioned and returned to service without any incidents which would have affected emissions.

A similar Extended Hot Gas Path Outage took place on Unit 10 between 24th September to 22nd October 2015. The unit was re-commissioned and returned to service with no significant events which had any effect on emissions.

Comments Regarding Unplanned interruptions to service:-

On 13th May and 14th May 2015 there was a problem with the CEMS of Unit 10, and for part of each of the two days, the Unit was running at or above 70% load. In both cases over 4 hours' data were lost and therefore both days' data are regarded as invalid. Due to the intermittent nature of the fault, it was not successfully diagnosed at that time, but technicians kept the instrument under observation.

On 1st June the problem recurred and, using data from this and the previous events it was possible to identify replacement of the Ultramat unit as the appropriate remedial measure. The necessary work was completed whilst the unit was not operating and consequently only one hour and twenty minutes' data was lost on June 1st . The Unit 10 CEMS operated without further problems to the end of the monitored period on 31st December 2015.

The CEMS fitted to Unit 20 ran with no significant interruptions to planned operation throughout the period Jan 1st to December 31st 2015.

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

Date of return: ..... Huw Edwards 20 JAN 2016 EHS Manager

Permit Number: EPR/HP3737UE **Operator:** Siemens plc

Installation: Severn Power Station **Form Number:** Air - 3

LCPD CONTINUOUS MEASUREMENTS SYSTEMS INVALIDATION LOG FOR THE YEAR 2015

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
13/05/2015 14/05/2015	>4 >4	1 1	**On 13th May and 14th May 2015 there was a problem with the CEMS of Unit 10, and for part of each of the two days, the Unit was running at or above 70% load. In both cases over 4 hours of data were lost and therefore both days' data are regarded as invalid. Due to the intermittent nature of the fault, it was not successfully diagnosed at that time, but technicians kept the instrument under observation.**
01/06/2015	>4	1	**On 1st June the problem recurred and, using data from this and the previous events it was possible to identify replacement of the Ultramat unit as the appropriate remedial measure. The necessary work was completed whilst the unit was not operating and consequently only one hour and twenty minutes' data were lost on June 1st . The Unit 20 CEMS operated without further problems to the end of the monitored period on 30th June 2015.**
Total	Cumulated Days	3	

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:.....

Permit Number: EPR/HP3737UE **Operator:** Siemens plc

Installation: Severn Power Station **Form Number:** Air - 3

LCPD CONTINUOUS MEASUREMENTS SYSTEMS INVALIDATION LOG FOR THE YEAR 2015

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
January to June 2015	No periods of invalidation.	Zero	**The CEMS fitted to Unit 20 ran without any significant interruptions to its operation throughout the period Jan 1st to June 30th 2015.**
July to December 2015	No Periods of invalidation	Zero	**The CEMS fitted to Unit 20 ran without any significant interruptions to its operation throughout the period July 1st to December 31st 2015.**

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:.....H. Edwards.....

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

20 JAN 2016

EHS Manager

Permit Number: EPR/HP3737UE **Operator:** Siemens plc

Installation: Severn Power Station **Form Number:** Air – 5_1

LCPD MONTHLY AND CUMULATIVE RELEASES [1] (TONNES) FROM EACH LCP FOR THE YEAR 2015 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)	0.056	0.056	6.859	6.859	0.160	0.160
02 (Feb)	0.057	0.113	7.051	13.910	0.165	0.325
03 (Mar)	0.062	0.174	7.598	21.508	0.177	0.502
04 (Apr)	0.024	0.198	2.940	24.448	0.069	0.571
05 (May)	0.104	0.302	12.841	37.289	0.300	0.871
06 (Jun)	0.153	0.455	18.902	56.191	0.441	1.312
07 (Jul)	0.230	0.685	28.420	84.611	0.664	1.976
08 (Aug)	0.262	0.947	32.328	116.938	0.755	2.731
09 (Sep)	0.218	1.165	26.950	143.889	0.629	3.360
10 (Oct)	0.015	1.180	1.862	145.751	0.043	3.403
11 (Nov)	0.066	1.246	8.167	153.918	0.191	3.594
12 (Dec)	0.046	1.292	5.702	159.619	0.133	3.727

[1] Excluding start-up and shut-down

[2] Form Air 3 must be completed separately for each gas turbine at the Facility

Operator comments: **This combined cycle unit operated during every month in 2015.**

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

Permit Number: EPR/HP3737UE **Operator:** Siemens plc

Installation: Severn Power Station **Form Number:** Air – 5_2

LCPD MONTHLY AND CUMULATIVE RELEASES [1] (TONNES) FROM EACH LCP FOR THE YEAR 2015 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)	0.163	0.163	20.076	0.163	0.469	20.076
02 (Feb)	0.078	0.241	9.677	9.840	0.226	20.302
03 (Mar)	0.047	0.288	5.795	15.635	0.135	20.438
04 (Apr)	0.090	0.378	11.116	26.751	0.260	20.697
05 (May)	0.074	0.452	9.129	35.880	0.213	20.910
06 (Jun)	0.033	0.485	4.091	39.971	0.096	21.006
07 (Jul)	0.050	0.535	6.188	46.159	0.144	21.151
08 (Aug)	0.096	0.631	11.890	58.049	0.278	21.428
09 (Sep)	0.231	0.862	28.496	86.545	0.665	22.094
10 (Oct)	0.078	0.940	9.628	96.173	0.225	22.318
11 (Nov)	0.058	0.998	7.208	103.381	0.168	22.487
12 (Dec)	0.039	1.037	4.795	108.176	0.112	22.599

[1] Excluding start-up and shut-down

[2] Form Air 3 must be completed separately for each gas turbine at the Facility

Operator comments: **This combined cycle unit operated during every month in 2015.**

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

Permit Number: EPR/HP3737UE **Operator:** Siemens plc

Installation: Severn Power Station

Form number: Air 6

OPERATIONAL HOURS FOR THE YEAR 2015

Reporting period	Operational hours	
	Auxiliary boiler	
	Actual (hours)	Cumulative year to date (hours)
01 (Jan)	518.9	518.9
02 (Feb)	507.0	1025.9
03 (Mar)	583.9	1609.8
04 (Apr)	591.8	2201.7
05 (May)	384.4	2586.1
06 (Jun)	388.7	2974.9
07 (Jul)	501.8	3476.7
08 (Aug)	499.1	3975.8
09 (Sep)	394.1	4369.9
10 (Oct)	366.1	4736.0
11 (Nov)	546.1	5282.1
12 (Dec)	576.0	5858.1

Reporting period	Operational hours			
	Diesel generator 1		Diesel generator 2	
	Actual (hours)	Cumulative year to date (hours)	Actual (hours)	Cumulative year to date (hours)
01 (Jan)	13	13	17	17.0
02 (Feb)	11.5	24.5	14.5	31.5
03 (Mar)	8.1	32.6	15.8	47.3
04 (Apr)	30.95	63.55	36.1	83.4
05 (May)	8.45	72	41.19	124.6
06 (Jun)	24	96	18	142.6
07 (Jul)	9	105	40	182.6
08 (Aug)	14.5	119.5	19	201.6
09 (Sep)	24	143.5	17	218.6
10 (Oct)	15.5	159	18	236.6
11 (Nov)	22.5	181.5	43	279.6
12 (Dec)	15.5	197	17.5	297.1

Operator comments: No comments

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

Date of return: .....

Permit Number: EPR/HP3737UE **Operator:** Siemens plc

Installation: Severn Power Station **Form Number:** Energy - 1

LCPD ENERGY CONSUMPTION [1] FOR THE YEAR 2015

Energy Source	Units	Gas Turbine no. 1 (Unit 10)	Gas Turbine no. 2 (Unit 20)
Natural gas	Fuel Net Calorific Value (NCV) (TJ/tonne)	0.037355	0.037355
	Annual fuel consumption (tonnes)	159595.5	128060.1
	Annual energy input (TJ)	5965.1	4783.8

[1] Including start-up and shut-down

Operator comments: This year's operation included one major outage period for each of the two generating units. Commercial conditions also resulted in reduced running in comparison to last year.

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

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 2015

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	

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.

[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 ..... Date.....

(Authorised to sign as representative of Operator)

Huw Edwards
20 JAN 2025
EHS Manager