

RELEASES TO AIR

QUARTERLY RETURN

MONTHLY MEAN, MAXIMUM DAILY MEAN, ANNUAL MEAN AND ANNUAL PERCENTILE CONCENTRATIONS ^{(a),(b),(c)}

OPERATING MODE: Combined Cycle

Operator: RWE Generation UK plc

Form: IED/LCPBREF CON2 (Gas Turbines)

Location: Pembroke

Vers./date: V3.0 Mar 2021

Permit/Variation Number: EPR/DP3333TA



Year: 2021	LCP: Unit 11 A1					
	NO _x (mg/m ³)			CO (mg/m ³)		
Month	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)
January	11.53	13.85	13.85	1.07	2.12	9.33
February	11.26	13.02	13.14	0.83	1.44	4.75
March	11.59	14.04	13.96	0.77	1.12	6.35
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Jan-Dec) ^(f)	50.00	50.00	50.00	100.00	100.00	250.00
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV ^(a)	Annual Only	43.00		Annual Only	30.00	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95 th Percentile & ELV ^(h)						
	Maximum Hourly Mean (d)	Hourly ELV		Maximum Hourly Mean (d)	Hourly ELV	
Maximum Hourly Mean & ELV ⁽ⁱ⁾	16.53	50.00		19.73	200.00	

NOTES:

(a) All concentration data, at 15% O₂, dry, 273K, 101.3 kPa, are based on validated hourly mean concentrations, excluding start-up and shut-down, periods of Malfunction or Breakdown of abatement equipment or Black Start operation.

(b) Daily, Monthly and Annual means, and Annual percentile concentrations, are calculated from the validated hourly means defined in (a). CCGT qualifying periods for Hourly, Daily, Monthly and Annual averages are 40m, 6h, 72h or 3d, and 500h, respectively. OCGT qualifying periods are the same apart from the Hourly qualifying period which is reduced to 20m of normal operation. Annual averages, for plants with an Annual ELV, and Annual percentile concentrations, are submitted with the final return (Quarter 4).

(c) Extend report to cover the required number of LCP on each site and repeat report for each separately regulated Operating Mode as required, e.g., Combined Cycle, Open Cycle, Supplementary firing, Auxiliary firing.

(d) Averages determined at loads in the range E-DLN < Load ≤ 100% ISO base load and above (where E-DLN is the Effective-DLN load point).

(e) Averages determined in the range MSUL* < Load ≤ 100% ISO base load and above. (* For a 3 parameter approach, from the point of Start-Up to the point of Shut-down).

(f) When there is an in-year change of ELV, record both ELVs in consecutive rows. For example, compliance with the LCP BREF begins in August 2021 therefore replace 'Period 1' with 'Jan - Jul' and 'Period 2' with 'Aug - Dec'. Otherwise, replace 'Period 1' with 'Jan - Dec' and delete or blank out the row containing 'Period 2'.

(g) For plants with an Annual ELV, for each pollutant, report the Annual mean in the first column and the Annual ELV in the second column. Annual ELVs are not applicable, and are not entered on the form, when the plant operates less than 1500 hours within the reporting year or for plant with a 1500 h/yr five-year rolling average derogation. Otherwise, reporting of the Annual mean begins in 2021 but compliance assessment with the Annual ELV begins in 2022 (incorporating plant operation from 1 January 2022); the Annual ELV is therefore not entered on the form for 2021 reporting.

(h) For each pollutant, report the Annual 95th percentile of hourly means in the first column and the Annual 95th percentile ELV in the second column. However, if there is an in-year reduction of the percentile ELV then it is not mandatory to enter the ELV as compliance assessment will commence in the following year.

(i) Year-to-date maximum of hourly means reported in the first column and the hourly mean ELV reported in the second column. This is an addition to the standard report to meet the requirements specified in the Pembroke permit.

Signed on behalf of the Operator by:

Jaydel Williams

Date of return:

19 April 2021

RELEASES TO AIR

QUARTERLY RETURN

MONTHLY MEAN, MAXIMUM DAILY MEAN, ANNUAL MEAN AND ANNUAL PERCENTILE CONCENTRATIONS ^{(a),(b),(c)}

OPERATING MODE: Combined Cycle

Operator: RWE Generation UK plc

Form: IED/LCPBREF CON2 (Gas Turbines)

Location: Pembroke

Vers./date: V3.0 Mar 2021

Permit/Variation Number: EPR/DP3333TA



Year: 2021	LCP: Unit 21 A2					
	NO _x (mg/m ³)			CO (mg/m ³)		
Month	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)
January	14.75	17.51	17.17	0.15	0.48	9.13
February	14.72	17.52	16.88	0.14	1.45	26.21
March	14.91	17.60	15.81	0.10	0.39	19.08
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Jan-Dec) ^(f)	50.00	50.00	50.00	100.00	100.00	250.00
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV ^(a)	Annual Only	43.00		Annual Only	30.00	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95 th Percentile & ELV ^(h)						
	Maximum Hourly Mean (d)	Hourly ELV		Maximum Hourly Mean (d)	Hourly ELV	
Maximum Hourly Mean & ELV ⁽ⁱ⁾	20.17	50.00		10.75	200.00	

NOTES:

(a) All concentration data, at 15% O₂, dry, 273K, 101.3 kPa, are based on validated hourly mean concentrations, excluding start-up and shut-down, periods of Malfunction or Breakdown of abatement equipment or Black Start operation.

(b) Daily, Monthly and Annual means, and Annual percentile concentrations, are calculated from the validated hourly means defined in (a). CCGT qualifying periods for Hourly, Daily, Monthly and Annual averages are 40m, 6h, 72h or 3d, and 500h, respectively. OCGT qualifying periods are the same apart from the Hourly qualifying period which is reduced to 20m of normal operation. Annual averages, for plants with an Annual ELV, and Annual percentile concentrations, are submitted with the final return (Quarter 4).

(c) Extend report to cover the required number of LCP on each site and repeat report for each separately regulated Operating Mode as required, e.g., Combined Cycle, Open Cycle, Supplementary firing, Auxiliary firing.

(d) Averages determined at loads in the range E-DLN < Load ≤ 100% ISO base load and above (where E-DLN is the Effective-DLN load point).

(e) Averages determined in the range MSUL* < Load ≤ 100% ISO base load and above. (* For a 3 parameter approach, from the point of Start-Up to the point of Shut-down).

(f) When there is an in-year change of ELV, record both ELVs in consecutive rows. For example, compliance with the LCP BREF begins in August 2021 therefore replace 'Period 1' with 'Jan - Jul' and 'Period 2' with 'Aug - Dec'. Otherwise, replace 'Period 1' with 'Jan - Dec' and delete or blank out the row containing 'Period 2'.

(g) For plants with an Annual ELV, for each pollutant, report the Annual mean in the first column and the Annual ELV in the second column. Annual ELVs are not applicable, and are not entered on the form, when the plant operates less than 1500 hours within the reporting year or for plant with a 1500 h/yr five-year rolling average derogation. Otherwise, reporting of the Annual mean begins in 2021 but compliance assessment with the Annual ELV begins in 2022 (incorporating plant operation from 1 January 2022); the Annual ELV is therefore not entered on the form for 2021 reporting.

(h) For each pollutant, report the Annual 95th percentile of hourly means in the first column and the Annual 95th percentile ELV in the second column. However, if there is an in-year reduction of the percentile ELV then it is not mandatory to enter the ELV as compliance assessment will commence in the following year.

(i) Year-to-date maximum of hourly means reported in the first column and the hourly mean ELV reported in the second column. This is an addition to the standard report to meet the requirements specified in the Pembroke permit.

Signed on behalf of the Operator by:

David Williams

Date of return:

19 April 2021

RELEASES TO AIR

QUARTERLY RETURN

MONTHLY MEAN, MAXIMUM DAILY MEAN, ANNUAL MEAN AND ANNUAL PERCENTILE CONCENTRATIONS ^{(a),(b),(c)}

OPERATING MODE: Combined Cycle

Operator: RWE Generation UK plc

Form: IED/LCPBREF CON2 (Gas Turbines)

Location: Pembroke

Vers./date: V3.0 Mar 2021

Permit/Variation Number: EPR/DP3333TA



Year: 2021	LCP: Unit 31 A3					
	NO _x (mg/m ³)			CO (mg/m ³)		
Month	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)
January	13.72	15.86	16.01	0.65	1.04	8.96
February	13.03	14.96	15.57	0.70	4.37	33.89
March	12.51	14.03	14.03	0.61	1.94	25.41
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Jan-Dec) ^(f)	50.00	50.00	50.00	100.00	100.00	250.00
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV ^(a)	Annual Only	43.00		Annual Only	30.00	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95 th Percentile & ELV ^(h)						
	Maximum Hourly Mean (d)	Hourly ELV		Maximum Hourly Mean (d)	Hourly ELV	
Maximum Hourly Mean & ELV ⁽ⁱ⁾	17.82	50.00		11.78	200.00	

NOTES:

(a) All concentration data, at 15% O₂, dry, 273K, 101.3 kPa, are based on validated hourly mean concentrations, excluding start-up and shut-down, periods of Malfunction or Breakdown of abatement equipment or Black Start operation.

(b) Daily, Monthly and Annual means, and Annual percentile concentrations, are calculated from the validated hourly means defined in (a). CCGT qualifying periods for Hourly, Daily, Monthly and Annual averages are 40m, 6h, 72h or 3d, and 500h, respectively. OCGT qualifying periods are the same apart from the Hourly qualifying period which is reduced to 20m of normal operation. Annual averages, for plants with an Annual ELV, and Annual percentile concentrations, are submitted with the final return (Quarter 4).

(c) Extend report to cover the required number of LCP on each site and repeat report for each separately regulated Operating Mode as required, e.g., Combined Cycle, Open Cycle, Supplementary firing, Auxiliary firing.

(d) Averages determined at loads in the range E-DLN < Load ≤ 100% ISO base load and above (where E-DLN is the Effective-DLN load point).

(e) Averages determined in the range MSUL* < Load ≤ 100% ISO base load and above. (* For a 3 parameter approach, from the point of Start-Up to the point of Shut-down).

(f) When there is an in-year change of ELV, record both ELVs in consecutive rows. For example, compliance with the LCP BREF begins in August 2021 therefore replace 'Period 1' with 'Jan - Jul' and 'Period 2' with 'Aug - Dec'. Otherwise, replace 'Period 1' with 'Jan - Dec' and delete or blank out the row containing 'Period 2'.

(g) For plants with an Annual ELV, for each pollutant, report the Annual mean in the first column and the Annual ELV in the second column. Annual ELVs are not applicable, and are not entered on the form, when the plant operates less than 1500 hours within the reporting year or for plant with a 1500 h/yr five-year rolling average derogation. Otherwise, reporting of the Annual mean begins in 2021 but compliance assessment with the Annual ELV begins in 2022 (incorporating plant operation from 1 January 2022); the Annual ELV is therefore not entered on the form for 2021 reporting.

(h) For each pollutant, report the Annual 95th percentile of hourly means in the first column and the Annual 95th percentile ELV in the second column. However, if there is an in-year reduction of the percentile ELV then it is not mandatory to enter the ELV as compliance assessment will commence in the following year.

(i) Year-to-date maximum of hourly means reported in the first column and the hourly mean ELV reported in the second column. This is an addition to the standard report to meet the requirements specified in the Pembroke permit.

Signed on behalf of the Operator by:

David Williams

Date of return:

19 April 2021

RELEASES TO AIR

QUARTERLY RETURN

MONTHLY MEAN, MAXIMUM DAILY MEAN, ANNUAL MEAN AND ANNUAL PERCENTILE CONCENTRATIONS ^{(a),(b),(c)}

OPERATING MODE: Combined Cycle

Operator: RWE Generation UK plc

Form: IED/LCPBREF CON2 (Gas Turbines)

Location: Pembroke

Vers./date: V3.0 Mar 2021

Permit/Variation Number: EPR/DP3333TA



Year: 2021	LCP: Unit 41 A4					
	NO _x (mg/m ³)			CO (mg/m ³)		
Month	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)
January	8.55	9.74	9.73	1.13	3.14	30.89
February	8.40	9.62	9.27	1.22	3.08	39.74
March	8.68	10.41	9.75	1.01	2.76	43.77
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Jan-Dec) ^(f)	50.00	50.00	50.00	100.00	100.00	250.00
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV ^(a)	Annual Only	43.00		Annual Only	30.00	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95 th Percentile & ELV ^(h)						
	Maximum Hourly Mean (d)	Hourly ELV		Maximum Hourly Mean (d)	Hourly ELV	
Maximum Hourly Mean & ELV ⁽ⁱ⁾	12.85	50.00		42.25	200.00	

NOTES:

(a) All concentration data, at 15% O₂, dry, 273K, 101.3 kPa, are based on validated hourly mean concentrations, excluding start-up and shut-down, periods of Malfunction or Breakdown of abatement equipment or Black Start operation.

(b) Daily, Monthly and Annual means, and Annual percentile concentrations, are calculated from the validated hourly means defined in (a). CCGT qualifying periods for Hourly, Daily, Monthly and Annual averages are 40m, 6h, 72h or 3d, and 500h, respectively. OCGT qualifying periods are the same apart from the Hourly qualifying period which is reduced to 20m of normal operation. Annual averages, for plants with an Annual ELV, and Annual percentile concentrations, are submitted with the final return (Quarter 4).

(c) Extend report to cover the required number of LCP on each site and repeat report for each separately regulated Operating Mode as required, e.g., Combined Cycle, Open Cycle, Supplementary firing, Auxiliary firing.

(d) Averages determined at loads in the range E-DLN < Load ≤ 100% ISO base load and above (where E-DLN is the Effective-DLN load point).

(e) Averages determined in the range MSUL* < Load ≤ 100% ISO base load and above. (* For a 3 parameter approach, from the point of Start-Up to the point of Shut-down).

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(h) For each pollutant, report the Annual 95th percentile of hourly means in the first column and the Annual 95th percentile ELV in the second column. However, if there is an in-year reduction of the percentile ELV then it is not mandatory to enter the ELV as compliance assessment will commence in the following year.

(i) Year-to-date maximum of hourly means reported in the first column and the hourly mean ELV reported in the second column. This is an addition to the standard report to meet the requirements specified in the Pembroke permit.

Signed on behalf of the Operator by:

Jaqueline Williams

Date of return:

19 April 2021

RELEASES TO AIR

QUARTERLY RETURN

MONTHLY MEAN, MAXIMUM DAILY MEAN, ANNUAL MEAN AND ANNUAL PERCENTILE CONCENTRATIONS ^{(a),(b),(c)}

OPERATING MODE: Combined Cycle

Operator: RWE Generation UK plc

Form: IED/LCPBREF CON2 (Gas Turbines)

Location: Pembroke

Vers./date: V3.0 Mar 2021

Permit/Variation Number: EPR/DP3333TA



Year: 2021	LCP: Unit 51 A5					
	NO _x (mg/m ³)			CO (mg/m ³)		
Month	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)	Monthly Mean (d)	Max Daily Mean (d)	Part Load Max Daily Mean (e)
January	17.55	20.33	20.33	0.60	2.46	28.17
February	17.23	21.56	20.80	0.49	1.02	44.22
March	19.32	24.30	23.90	0.52	1.41	21.27
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Jan-Dec) ^(f)	50.00	50.00	50.00	100.00	100.00	250.00
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV ^(g)	Annual Only	43.00		Annual Only	30.00	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95 th Percentile & ELV ^(h)						
	Maximum Hourly Mean (d)	Hourly ELV		Maximum Hourly Mean (d)	Hourly ELV	
Maximum Hourly Mean & ELV ⁽ⁱ⁾	30.25	50.00		26.97	200.00	

NOTES:

(a) All concentration data, at 15% O₂, dry, 273K, 101.3 kPa, are based on validated hourly mean concentrations, excluding start-up and shut-down, periods of Malfunction or Breakdown of abatement equipment or Black Start operation.

(b) Daily, Monthly and Annual means, and Annual percentile concentrations, are calculated from the validated hourly means defined in (a). CCGT qualifying periods for Hourly, Daily, Monthly and Annual averages are 40m, 6h, 72h or 3d, and 500h, respectively. OCGT qualifying periods are the same apart from the Hourly qualifying period which is reduced to 20m of normal operation. Annual averages, for plants with an Annual ELV, and Annual percentile concentrations, are submitted with the final return (Quarter 4).

(c) Extend report to cover the required number of LCP on each site and repeat report for each separately regulated Operating Mode as required, e.g., Combined Cycle, Open Cycle, Supplementary firing, Auxiliary firing.

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(h) For each pollutant, report the Annual 95th percentile of hourly means in the first column and the Annual 95th percentile ELV in the second column. However, if there is an in-year reduction of the percentile ELV then it is not mandatory to enter the ELV as compliance assessment will commence in the following year.

(i) Year-to-date maximum of hourly means reported in the first column and the hourly mean ELV reported in the second column. This is an addition to the standard report to meet the requirements specified in the Pembroke permit.

Signed on behalf of the Operator by:

David Williams

Date of return:

19 April 2021