

RELEASES TO AIR
 QUARTERLY RETURN
 MONTHLY MEAN, MAXIMUM DAILY MEAN AND ANNUAL PERCENTILE CONCENTRATIONS
 OPERATING MODE:

Operator: Dow Silicones UK Ltd Form: IED/LCPBREF CON2 (Gas Turbines)
 Location: Barry Cogeneration Plant Vers/date: V3.0 Mar 2021
 Permit/Variation Number: EPR/JP3632ZH/V004

Year: 2024	A1 / LCP 60 - TEG MODE					
	NOx (mg/m3)			CO (mg/m3)		
Month	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean
January	56.96	65.28		14.86	48.39	
February	55.11	60.17		14.78	46.	
March	58.07	60.88		7.35	24.26	
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Period 1) (f)	75.	80.		80.	80.	
Monthly ELV & Daily ELVs: (Period 2) (f)						
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV (g)	56.58	55.		13.09	30.	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95th Percentile (h)	61.1	125.		43.79	80.	

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 $E-DLN < Load \leq 100\%$ 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.

Signed on behalf of the Operator by:

[Redacted Signature]

24th April 2024

Date of return:

No confidence adjustment

**RELEASES TO AIR
 QUARTERLY RETURN
 MONTHLY MEAN, MAXIMUM DAILY MEAN AND ANNUAL PERCENTILE CONCENTRATIONS**

OPERATING MODE:

Operator: Dow Silicones UK Ltd **Form:** IED/LCPBREF CON2 (Gas Turbines)
Location: Barry Cogeneration Plant **Vers/date:** V3.0 Mar 2021
Permit/Variation Number: EPR/JP3632ZH/V004

Year: 2024	A1 / LCP 60 - FD MODE					
	NOx (mg/m3)			CO (mg/m3)		
Month	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean
January	84.08	87.24		43.8	70.27	
February	88.51	91.86		23.26	40.8	
March	93.52	93.52		4.51	4.51	
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Period 1) (f)	100.	110.		100.	110.	
Monthly ELV & Daily ELVs: (Period 2) (f)						
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV (g)	87.51	100.		28.4	40.	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95th Percentile (h)	93.43	200.		80.41	200.	

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.

Signed on behalf of the Operator by:



24th April 2024

Date of return:

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No confidence adjustment

**RELEASES TO AIR
 QUARTERLY RETURN
 MONTHLY MEAN, MAXIMUM DAILY MEAN AND ANNUAL PERCENTILE CONCENTRATIONS**

OPERATING MODE:

Operator: Dow Silicones UK Ltd **Form:** IED/LCPBREF CON2
Location: Barry Cogeneration Plant **Vers/date:** V3.0 Mar 2021
Permit/Variation Number: EPR/JP3632ZH/V004

Year: 2024	A2 / LCP 60					
	NOx (mg/m3)			CO (mg/m3)		
Month	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean
January	43.30	49.78		15.7	44.1	
February	43.84	48.87		34.1	57.8	
March	42.83	43.21		16.1	18.4	
April	-	-		-	-	
May	-	-		-	-	
June	-	-		-	-	
July	-	-		-	-	
August	-	-		-	-	
September	-	-		-	-	
October	-	-		-	-	
November	-	-		-	-	
December	-	-		-	-	
Monthly ELV & Daily ELVs: (Period 1) (f)	100.	110.		100.	110.	
Monthly ELV & Daily ELVs: (Period 2) (f)						
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV (g)	43.36	100.		18.7	40.	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95th Percentile (h)	49.54(26)	200.		56.6(26)	200.	

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 $E-DLN < Load \leq 100\%$ 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.

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24th April 2024

**RELEASES TO AIR
 QUARTERLY RETURN
 MONTHLY MEAN, MAXIMUM DAILY MEAN AND ANNUAL PERCENTILE CONCENTRATIONS**

OPERATING MODE:

Operator: Dow Silicones UK Ltd **Form:** IED/LCPBREF CON2 (Gas Turbines)
Location: Barry Cogeneration Plant **Vers/date:** V3.0 Mar 2021
Permit/Variation Number: EPR/JP3632ZH/V004

Year: 2024	A3 / LCP 60 - TEG MODE					
	NOx (mg/m3)			CO (mg/m3)		
Month	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean
January	-	-		-	-	
February	-	-		-	-	
March	-	-		-	-	
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Period 1) (f)	75.	80.		80.	80.	
Monthly ELV & Daily ELVs: (Period 2) (f)						
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV (g)	-	55.		-	30.	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95th Percentile (h)	-	125.		-	80.	

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 $E-DLN < Load \leq 100\%$ 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.

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Signed on behalf of the Operator by:



24th April 2024

Date of return:

No confidence adjustment

**RELEASES TO AIR
 QUARTERLY RETURN
 MONTHLY MEAN, MAXIMUM DAILY MEAN AND ANNUAL PERCENTILE CONCENTRATIONS**

OPERATING MODE:

Operator: Dow Silicones UK Ltd **Form:** IED/LCPBREF CON2 (Gas Turbines)
Location: Barry Cogeneration Plant **Vers/date:** V3.0 Mar 2021
Permit/Variation Number: EPR/JP3632ZH/V004

Year: 2024	A3 / LCP 60 - FD MODE					
	NOx (mg/m3)			CO (mg/m3)		
Month	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean	Monthly Mean	Max Daily Mean	Part Load Max Daily Mean
January	-	-		-	-	
February	68.13	72.65		0.11	1.33	
March	71.42	79.49		0.01	0.22	
April						
May						
June						
July						
August						
September						
October						
November						
December						
Monthly ELV & Daily ELVs: (Period 1) (f)	100.	110.		100.	110.	
Monthly ELV & Daily ELVs: (Period 2) (f)						
	Annual Mean (d)	Annual ELV		Annual Mean (d)	Annual ELV	
Annual Mean & ELV (g)	70.22	100.		0.05	40.	
	Annual Percentile (d)	Annual ELV		Annual Percentile (d)	Annual ELV	
Annual 95th Percentile (h)	79.	200.		0.	200.	

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 $E-DLN < Load \leq 100\%$ 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.

Signed on behalf of the Operator by:



24th April 2024

Date of return:

.....

No confidence adjustment

RELEASES TO AIR
 QUARTERLY RETURN **2024** **Q1**
 CUMULATIVE ROLLING MALFUNCTION AND BREAKDOWN HOURS (12 MONTH PERIOD)(a), (b)
 OPERATING MODE:

Operator: **DOW**
 Location: **Barry Cogeneration Plant**
 Permit/Variation Number: **EPR/JP3632ZH/V004**

Form: **IED/LCPBREF BD1**
 Version/date: **V.3.1 31 Dec 2015**

Year: 2023	A1 / LCP 60			
	NOx (mg/m3)		CO (mg/m3)	
Month	Malfunction (hours)	Breakdown (hours)	Malfunction (hours)	Breakdown (hours)
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	-	-	-	-
May	-	-	-	-
June	-	-	-	-
July	-	-	-	-
August	-	-	-	-
September	-	-	-	-
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
Annual total (hours)	-	-	-	-
Annual cap (hours)	120.	120.	120.	120.

- NOTES:
- (a) Cumulative rolling malfunction and breakdown hours (12 month period) updated monthly
 - (b) Data Acquisition and Handling Systems without the capability to report Black Start hours separately may incorporate Black Start hours on this form provided that a
 - (c) Insert the relevant months for the preceding 12 month period, e.g., starting with March 2016
 - (d) Gas turbines with CO abatement only (columns may be deleted for other plant types)
 - (e) Plants with HCl abatement only (columns may be deleted for other plant types)

Signed on behalf of the Operator by: 

 Environmental Specialist
 Date of return: 24th April 2024

No confidence adjustment

**RELEASES TO AIR
 QUARTERLY RETURN 2024 Q1
 CUMULATIVE ROLLING MALFUNCTION AND BREAKDOWN HOURS (12 MONTH PERIOD)(a), (b)
 OPERATING MODE:**

Operator: DOW
Location: Barry Cogeneration Plant
Permit/Variation Number: EPR/JP3632ZH/V004

Form: IED/LCPBREF BD1
Version/date: V.3.1 31 Dec 2015

Year: 2022	A2 / LCP 60			
	NOx (mg/m3)		CO (mg/m3)	
Month	Malfunction (hours)	Breakdown (hours)	Malfunction (hours)	Breakdown (hours)
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	-	-	-	-
May	-	-	-	-
June	-	-	-	-
July	-	-	-	-
August	-	-	-	-
September	-	-	-	-
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
Annual total (hours)	-	-	-	-
Annual cap (hours)	120.	120.	120.	120.

- NOTES:
- (a) Cumulative rolling malfunction and breakdown hours (12 month period) updated monthly
 - (b) Data Acquisition and Handling Systems without the capability to report Black Start hours separately may incorporate Black Start hours on this form provided that a
 - (c) Insert the relevant months for the preceding 12 month period, e.g., starting with March 2016
 - (d) Gas turbines with CO abatement only (columns may be deleted for other plant types)
 - (e) Plants with HCl abatement only (columns may be deleted for other plant types)

Signed on behalf of the Operator by: 
, Environmental Specialist
 Date of return: 24th April 2024

No confidence adjustment

**RELEASES TO AIR
 QUARTERLY RETURN 2024 Q1
 CUMULATIVE ROLLING MALFUNCTION AND BREAKDOWN HOURS (12 MONTH PERIOD)(a), (b)
 OPERATING MODE:**

Operator: DOW
Location: Barry Cogeneration Plant
Permit/Variation Number: EPR/JP3632ZH/V004

Form: IED/LCPBREF BD1
Version/date: V.3.1 31 Dec 2015

Year: 2022	A3 / LCP 60			
	NOx (mg/m3)		CO (mg/m3)	
Month	Malfunction (hours)	Breakdown (hours)	Malfunction (hours)	Breakdown (hours)
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	-	-	-	-
May	-	-	-	-
June	-	-	-	-
July	-	-	-	-
August	-	-	-	-
September	-	-	-	-
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
Annual total (hours)	-	-	-	-
Annual cap (hours)	120.	120.	120.	120.

- NOTES:
- (a) Cumulative rolling malfunction and breakdown hours (12 month period) updated monthly
 - (b) Data Acquisition and Handling Systems without the capability to report Black Start hours separately may incorporate Black Start hours on this form provided that a
 - (c) Insert the relevant months for the preceding 12 month period, e.g., starting with March 2016
 - (d) Gas turbines with CO abatement only (columns may be deleted for other plant types)
 - (e) Plants with HCl abatement only (columns may be deleted for other plant types)

Signed on behalf of the Operator by: 
, Environmental Specialist
 Date of return: 24th April 2024

No confidence adjustment