

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

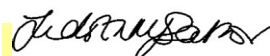
Operator: Dow Silicones UK Ltd **Form:** IED CON 2 (Gas Turbines)
Location: Barry Cogeneration Plant **Version/date:** V.3.1 31 Dec 2015
Permit/Variation Number: EPR/JP3632ZH/V004

Year: 2023	A1 / 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	96.73	102.89		10.0	30.4	
February	93.95	100.91		8.9	41.9	
March	92.30	105.42		30.5	54.2	
April	89.13	99.58		18.7	73.9	
May	103.16	156.82		3.0	5.9	
June	94.64	103.42		2.7	3.7	
July						
August						
September						
October						
November						
December						
Monthly ELV / Daily ELV (f)	75.	80.		80.	80.	
Annual 95th Percentile (h)						
Annual Percentile ELV (g)						

NOTES:

- (a) All data based on validated hourly average concentrations, excluding start-up and shut-down and periods of malfunction or breakdown of abatement equipment, at 15% O₂, dry, 273.15K, 101.325 kPa
- (b) Annual percentiles 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 70% < Load ≤ 100% ISO base load and above
- (e) Averages determined at loads 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) Leave the Daily ELV blank if this is applied as a 95th percentile ELV within the Permit
- (g) For each pollutant, report the Annual 95th percentile ELV for hourly averages in the first column and, if applicable, the Annual 95th percentile ELV for daily means in the second column
- (h) For each pollutant, report the Annual 95th percentile of hourly averages in the first column and, if applicable, the Annual 95th percentile of daily means in the second column

Signed on behalf of the Operator by:



Judith Sartor, Environmental Specialist

Date of return:

28th July 2023

No confidence adjustment

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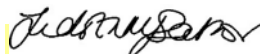
Operator: **Dow Silicones UK Ltd** Form: **IED CON 2**
 Location: **Barry Cogeneration Plant** Version/date: **V.3.1 31 Dec 2015**
 Permit/Variation Number: **EPR/JP3632ZH/V004**

Year: 2023	A2 / LCP60					
	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	48.95	53.55		37.9	85.9	
April	-	-		-	-	
May	46.58	49.69		12.2	16.8	
June	47.16	47.87		18.3	115.8	
July						
August						
September						
October						
November						
December						
Monthly ELV / Daily ELV (f)	100	110		100	110	
Annual 95th Percentile (h)						
Annual Percentile ELV (g)						

NOTES:

- (a) All data based on validated hourly average concentrations, excluding start-up and shut-down and periods of malfunction or breakdown of abatement equipment, at 3% O2, dry, 273.15K, 101.325 kPa
- (b) Annual percentiles 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 70% < Load ≤ 100% ISO base load and above
- (e) Averages determined at loads 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) Leave the Daily ELV blank if this is applied as a 95th percentile ELV within the Permit
- (g) For each pollutant, report the Annual 95th percentile ELV for hourly averages in the first column and, if applicable, the Annual 95th percentile ELV for daily means in the second column
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 OPERATING MODE:**

Operator: Dow Silicones UK Ltd **Form:** IED CON 2 (Gas Turbines)
Location: Barry Cogeneration Plant **Version/date:** V.3.1 31 Dec 2015
Permit/Variation Number: EPR/JP3632ZH/V004

Year: 2023	A3 / LCP60					
	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	65.66	70.50		5.6	18.1	
February	64.85	69.51		6.1	16.6	
March	67.20	72.88		11.2	25.4	
April	63.91	67.69		1.9	5.9	
May	66.80	71.07		1.7	4.6	
June	65.04	72.63		2.3	11.0	
July						
August						
September						
October						
November						
December						
Monthly ELV / Daily ELV (f)	75.	80.		80.	80.	
Annual 95th Percentile (h)						
Annual Percentile ELV (g)						

NOTES:

- (a) All data based on validated hourly average concentrations, excluding start-up and shut-down and periods of malfunction or breakdown of abatement equipment, at 15% O₂, dry, 273.15K, 101.325 kPa
- (b) Annual percentiles 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 70% < Load ≤ 100% ISO base load and above
- (e) Averages determined at loads 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) Leave the Daily ELV blank if this is applied as a 95th percentile ELV within the Permit
- (g) For each pollutant, report the Annual 95th percentile ELV for hourly averages in the first column and, if applicable, the Annual 95th percentile ELV for daily means in the second column
- (h) For each pollutant, report the Annual 95th percentile of hourly averages in the first column and, if applicable, the Annual 95th percentile of daily means in the second column

Signed on behalf of the Operator by:



Judith Sartor, Environmental Specialist

Date of return:

28th July 2023

No confidence adjustment

RELEASES TO AIR
 QUARTERLY RETURN **2023** **Q2**
 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	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: 

 Judith Sartor, Environmental Specialist
 Date of return: 28th July 2023

No confidence adjustment

RELEASES TO AIR
 QUARTERLY RETURN **2023** **Q2**
 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: 

 Judith Sartor, Environmental Specialist
 Date of return: 28th July 2023

No confidence adjustment

RELEASES TO AIR
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 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:
 Version/date:

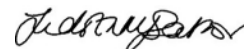
IED/LCPBREF BD1
 V.3.1 31 Dec 2015

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	234.	-	234.	-
July	Failed analyser		Failed analyser	
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:



.....
 Judith Sartor, Environmental Specialist

Date of return:

28th July 2023

No confidence adjustment

**RELEASES TO AIR
RETURN OF DISCONTINUOUS MONITORING RESULTS**

Operator: Dow Silicones UK Ltd
Location: Barry Cogeneration Plant
Permit/Variation Number: EPR/JP3632ZH/V004

Form: IED PM1
Version: V.11 Mar 2016

Year - 2023	LCP 60 (A4 FB-002A)				
Six months to -30/06/23					
Measurement approach	NO _x	SO ₂	CO	Hg	Dust
Time	14:27		14:27		
Date	18/05/2023		18/05/2023		
Measurement 1 (mg/m ³) ^(b)	98.99		1.06		
Measurement 2 (mg/m ³) ^(b)					
Measurement 3 (mg/m ³) ^(b)					
Alternative approach ^(c)					
Method ^(d)		FS			DF
Calculation (mg/m ³)		0.72			0
Operational data ^(a)					
Load (%MCR)					
Fuel 1 Natural Gas (%)	100	100	100		100
Fuel 2 name (%)					
Fuel 3 name (%)					
Daily Emission Limit Value					
(mg/m ³)	110	38.5	100		5.5

NOTES:

- (a) Operational data for the test period (measurement approach) or the six month period to date (Alternative approach)
- (b) Reference conditions for mg/m³ are 15% O₂ CCGT, 6% O₂ solid fuels, 3% O₂ for oil and gas, dry, 0°C, 101.325 kPa
- (c) Alternative approach to discontinuous monitoring by agreement with the Competent Authority
- (d) Use abbreviation: NF for agreed NO_x factor, FS for fuel sulphur content, CS for agreed CO factor, DF for agreed dust factor

Signed on behalf of the Operator by: Judith Sartor, Environmental Specialist



Date of return: 28th July 2023

**RELEASES TO AIR
RETURN OF DISCONTINUOUS MONITORING RESULTS**

Operator: Dow Silicones UK Ltd
Location: Barry Cogeneration Plant
Permit/Variation Number: EPR/JP3632ZH/V004

Form: IED PM1
Version: V.11 Mar 2016

Year - 2023	LCP 60 (A5 FB-002B)				
Six months to -30/06/23					
Measurement approach	NO _x	SO ₂	CO	Hg	Dust
Time	15:45		15:45		
Date	18/05/2023		18/05/2023		
Measurement 1 (mg/m ³) ^(b)	95.73		0.72		
Measurement 2 (mg/m ³) ^(b)					
Measurement 3 (mg/m ³) ^(b)					
Alternative approach ^(c)					
Method ^(d)		FS			DF
Calculation (mg/m ³)		0.72			0
Operational data ^(a)					
Load (%MCR)					
Fuel 1 Natural Gas (%)	100	100	100		100
Fuel 2 name (%)					
Fuel 3 name (%)					
Daily Emission Limit Value					
(mg/m ³)	110	38.5	100		5.5

NOTES:

- (a) Operational data for the test period (measurement approach) or the six month period to date (Alternative approach)
- (b) Reference conditions for mg/m³ are 15% O₂ CCGT, 6% O₂ solid fuels, 3% O₂ for oil and gas, dry, 0°C, 101.325 kPa
- (c) Alternative approach to discontinuous monitoring by agreement with the Competent Authority
- (d) Use abbreviation: NF for agreed NO_x factor, FS for fuel sulphur content, CS for agreed CO factor, DF for agreed dust factor

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Date of return: 28th July 2023