

IED RTA 1

V.3.1 Dec 2015

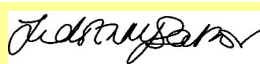
Releases of IED Pollutants to Air**Operational Summary for the year****q4****Operator:** Dow Silicones UK Ltd**Site Location:** Barry Cogeneration Plant**Original permit number:** EPR/JP3632ZH **LCP:** 60.

Note: beginning 1 January 2016, a return is required for each LCP within 28 days of the end of each quarter

Emissions	SO2	NOx	Dust
	(tonnes)	(tonnes)	(tonnes)
January		8.2	
February		6.94	
March		8.5	
Total for Quarter 1	0.	23.64	
April		7.75	
May		9.39	
June		8.74	
Total for Quarter 2	0.	25.88	
July		6.02	
August		2.65	
September		1.54	
Total for Quarter 3	0.	10.21	
October		7.16	
November		5.41	
December		4.2	
Total for Quarter 4	0.	16.76	
Annual Total	0	76.49	

I confirm that this data is not knowingly reported with any omissions, errors or misrepresentation. All measurement equipment used to generate the data has been appropriately calibrated and maintained regularly; this includes calibration against traceable international measurement standards where available. The data is supported by appropriate record keeping. IT is designed, documented, tested, implemented, controlled and maintained to ensure reliable, accurate and timely processing of data; data handling and calculations have been appropriate; data has been checked for false and unusual measurements. The annual report of emissions for the above participating large combustion plant has been verified in accordance with the requirements of the Transitional National Plan Regulations.

Name of the operator staff responsible for the quality of data supplied to the Register in accordance with the principles above.



Judith Sartor, Environmental Specialist

Date 30th January 202

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

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

Form: IED CON 2 (Gas Turbines)
Version/date: V.3.1 31 Dec 2015

A1 / LCP 60						
Year: 2020	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	56.85	75.76		10.5	27	50.7
February	67.16	83.61		5.4	11.6	17.7
March	81.93	97.15		3.9	7.7	16.2
April	73.43	94.45		7.2	22.5	50.1
May	65.65	70.79		8.1	17.5	36.2
June	68.4	77.91		5.5	12.4	35.8
July	63.97	71.53		6.8	19.7	36.4
August	65.43	74.67		5.1	10.6	40.3
September	78.59	79.48		2.9	3	3.1
October	-	-		-	-	-
November	61	94.21		5.5	12.1	120.9
December	45.61	49.11		5.8	12.4	77.3
Monthly ELV / Daily ELV (f)	75.	82.5		80.	80.	
Annual 95th Percentile (h)	92.26(264)			18.0(264)		
Annual Percentile ELV (g)						

New permit limits from 1 July 2020

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:

30th January 2021

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 CON 2 (Gas Turbines)
Location: **Barry Cogeneration Plant** Version/date: **V.3.1 31 Dec 2015**
Permit/Variation Number: **EPR/JP3632ZH/V004**

Year: 2020	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	200.81	217.31		15.4	19.2	
April	208.98	218.51		11.3	25.4	
May	224.36	240.01		8.4	11.1	
June	218.01	233.57		8.2	12.3	
July	207.71	215.44		32.2	327.2	
August	-	-		-	-	
September	221.12	231.28		8.6	9.6	
October	211.91	228.69		8	9.7	
November	222.8	230.46		7.7	12.2	
December	218.2	222.11		8	8.3	
Monthly ELV / Daily ELV (f)	100	110		100	110	
Annual 95th Percentile (h)	238.15(112)			17.5(112)		
Annual Percentile ELV (g)						

65 hours
0 hours
53 hours
400 hours
72.5 hours
27.5 hours

New permit limits from 1 July 2020

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:

30th January 2021

No confidence adjustment

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

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

Form: IED CON 2 (Gas Turbines)
Version/date: V.3.1 31 Dec 2015

A3 / LCP60						
Year: 2020						
	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	82.62	89.08		0.3	1.5	17.3
February	78.13	88.05		0.3	1.8	6.1
March	71.65	78.52		0	0.1	3.1
April	70.75	77.66		0	0.2	18
May	74.09	81.84		0	0.1	9.7
June	55.83	71.3		0.7	5.8	11
July	34	75.05		1.4	7.8	12.1
August	25.48	30.86		2.1	5.7	23.4
September	27.58	29.58		1	13.9	14.4
October	26.48	29.95		1	9.4	20.1
November	25.14	70.13		6.2	49.3	49.3
December	15.42	28.76		38.8	58.5	58.5
Monthly ELV / Daily ELV (f)	75.	82.5		80.	80.	
Annual 95th Percentile (h)	87.58(269)			58.5(269)		
Annual Percentile ELV (g)						

New permit limits from 1 July 2020

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)
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Signed on behalf of the Operator by:



Judith Sartor, Environmental Specialist

Date of return:

30th January 2021

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

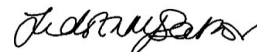
Form: IED PM1
Version: V.11 Mar 2016

Year - 2020	LCP 60 (A1 & A3 HR-001A & B)				
Six months to -31/12/20					
Measurement approach	NO _x	SO ₂	CO	Hg	Dust
Time					
Date					
Measurement 1 (mg/m ³) ^(b)					
Measurement 2 (mg/m ³) ^(b)					
Measurement 3 (mg/m ³) ^(b)					
Alternative approach ^(c)					
Method ^(d)		FS			DF
Calculation (mg/m ³)		0.24			0
Operational data ^(a)					
Load (%MCR)					
Fuel 1 Natural Gas (%)		100			100
Fuel 2 name (%)					
Fuel 3 name (%)					
Daily Emission Limit Value					
(mg/m ³)					

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: 30th January 2021

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

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

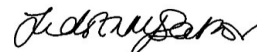
Form: IED PM1
Version: V.11 Mar 2016

Year - 2020	LCP 60 (A2 FB-001)				
Six months to -31/12/20					
Measurement approach	NO _x	SO ₂	CO	Hg	Dust
Time					
Date					
Measurement 1 (mg/m ³) ^(b)					
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
Fuel 2 <i>name</i> (%)					
Fuel 3 <i>name</i> (%)					
Daily Emission Limit Value					
(mg/m ³)					

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: 30th January 2021

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

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

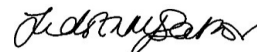
Form: IED PM1
Version: V.11 Mar 2016

Year - 2020	LCP 60 (A4 FB-002A)				
Six months to -31/12/20					
Measurement approach	NO _x	SO ₂	CO	Hg	Dust
Time	08:20-09:20		08:20-09:20		
Date	18/12/2020		18/12/2020		
Measurement 1 (mg/m ³) ^(b)	106.21		69.42		
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: 30th January 2021

RELEASES TO AIR
RETURN OF DISCONTINUOUS MONITORING RESULTS

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

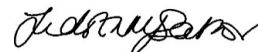
Form: IED PM1
Version: V.11 Mar 2016

Year - 2020	LCP 60 (A5 FB-002B)				
Six months to -31/12/20					
Measurement approach	NO _x	SO ₂	CO	Hg	Dust
Time	10:45-11:45		10:45-11:45		
Date	15/01/2021		15/01/2021		
Measurement 1 (mg/m ³) ^(b)	99.25		6.08		
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 <i>name</i> (%)					
Fuel 3 <i>name</i> (%)					
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: 30th January 2021

IED AR1

V.3.1 Dec 2015

IED Reporting - Energy Usage & Emissions for the year: q4

Operator: Dow Silicones UK Ltd

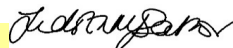
Site Location: Barry Cogeneration Plant

Permit/Variation number: EPR/JP3632ZH/V004 LCP: 60.

LCP Net Rated Thermal Input Capacity (MW):

Parameter	TOTAL	By Fuel							
		Coal	Lignite	Peat	Biomass	Other solid fuels	Liquid fuels	Natural gas	Other gases
Annual energy input (TJ)	2660.43							2660.43	
Total Annual SO2 emission (tonnes)									
Total Annual NOx emission (tonnes)	76.49								
Total Annual Dust (PM) emission (tonnes)									

Signed on behalf of the Operator



Judith Sartor, Environmental Specialist

Date 30th January 2021

NOTES:

- (a) Annual energy input must be reported in TJ to 1 decimal places
- (b) Annual emissions to air must be reported to 2 decimal places and exclude start-up and shut-down
- (c) All forms must be saved in the format IED AR1—DEFRA IED LCP Number - Inventory Year i.e. IED AR1-XXX-2013
- (d) No PDF documents shall be accepted
- (e) Upload Forms held on GOV.UK will be accepted other variants of the forms will be automatically rejected which may impact their statutory obligations to report on time

**RELEASES TO AIR
ANNUAL RETURN
OPERATING HOURS**

Operator:
Location:
Permit/Variation Number:

**Dow Silicones UK Ltd
Barry Cogeneration Plant
EPR/JP3632ZH/V004**

Form: IED HR1
Version/date: V.3.1 31 Dec 2015

Year: 2020	A1 (hours)	Bypass (hours)	A2 (hours)	Bypass (hours)	A3 (hours)	Bypass (hours)	LCP4 (hours)	Bypass (hours)
Annual Operating Hours (a), (b)	5435.65	8.58	2223.95		5361.3	6.21		
Cumulative Operating Hours (c), (d)								
Derogated Annual Hours (e)								
Five year rolling average (f)								

NOTES:

- (a) Annual operating hours for every LCP from 1-Jan in calendar year. (For gas turbines with a Bypass stack, include the Bypass stack operating hours during normal operation even though these are reported separately).
- (b) For gas turbines with a Bypass stack, report Bypass operating hours from 1-Jan in calendar year, excluding Start-Up and Shut-down, in the adjacent column (labelled Bypass) which may be deleted if not applicable.
- (c) Cumulative operating hours from 1-Jan-2016 for LCP subject to a Limited Lifetime Derogation or a 10,000h monitoring derogation. (For gas turbines with a Bypass stack, include the Bypass stack operating hours during normal operation even though these are reported separately).
- (d) For gas turbines with a Bypass stack, report Bypass Cumulative operating hours from 1-Jan-2016 if subject to a separate 10,000h monitoring derogation, in the adjacent column (labelled Bypass).
- (e) Annual operating hours in calendar year from entry date (in first year as applicable) or from 1-Jan in calendar year, for each 1,500h ELV derogated Unit/LCP only.
- (f) Five year running average from entry date for each 1,500h derogated Unit/LCP only.
- (g) General note: hours are reported as a decimal number to two decimal places.

Signed on behalf of the Operator by:



Judith Sartor, Environmental Specialist

Date of return:

30th January 2021