

Operator: Dow Corning Ltd
Installation: Barry Silicon-Based Manufacturing Installation

Permit Reference Number: BR9685IX

2017 Annual Reporting for Dow Corning Ltd

Parameters, for which reports are required, in accordance with conditions of the permit, are listed within this report.

Performance Parameter	Reporting Form	Page
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Quarterly Reporting of Emissions to Water (other than to Sewer) for the period from **October 1 2017 to December 31 2017**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
W1 via M1	Flow	11 000 m ³ /day	8899	Agreed ⁽¹⁰⁾	14/12/17	MCERT Approved	+/- 0.5%
W1 via M1	Flow	625 m ³ /hour	611.44	Agreed ⁽¹⁰⁾	13/10/17	MCERT Approved	+/- 0.5%
W1 via M1	pH	≥ 6, ≤ 9	6.09 8.32	To be agreed ⁽¹¹⁾	17/11/17 5/10/17	Under Review ⁽¹¹⁾	+/- 4%
W1 via M1	Temperature	40 °C ^[6]	26.139	RTD ⁽¹²⁾	25/10/17	MCERTS Equiv ⁽¹²⁾	+/- 0.55 °C
W1 via M1	Suspended solids	30 mg/l	18.010	SCA Blue Book 105	Q4 – 95 th %	Under Review	+/- 6mg/l
W1 via M1	BOD ₅	20 mg/l	2	SCA Blue Book 130	3/10/17	UKAS	+/- 21%
W1 via M1	Copper	0.1 mg/l	0.055	Inductively Coupled Plasma	Q4 – 95 th %	In house validated method	+/- 0.0096 mg/l
W1 via M1	Zinc	0.5 mg/l	0.042	Inductively Coupled Plasma	Q4 – 95 th %	In house validated method	+/- 0.02 mg/l
W1 via M1	Hydrocarbon oil	No visible sheen	None	Visual Check	Q4	N/A	N/A
W2	pH	≥ 6, ≤ 9	7.43 7.43	pH probe	10/12/2017	In house validated method	+/- 4%
W2	Suspended solids	30 mg/l	12.90	SCA Blue Book 105	10/12/2017	Under Review	+/- 6mg/l
W2	BOD ₅	20 mg/l	3	SCA Blue Book 130	7/12/2017	UKAS	+/- 21%
W2	COD	125 mg/l (13)	6.62	Offsite Analysis	10/12/2017	UKAS	Unknown
W2	Copper	0.15 mg/l ^[7]	0.0253	Inductively Coupled Plasma	10/12/2017	In house validated method	+/- 0.0096 mg/l
W2	Zinc	0.25 mg/l ^[7]	0.0895	Inductively Coupled Plasma	10/12/2017	In house validated method	+/- 0.02 mg/l
W2	Hydrocarbon oil	No visible sheen	None	Visual Check	10/12/2017	N/A	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 accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.
- [5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
- [6] Not more than 5% of measurements in the reporting period shall exceed the limit value.
- [7] To be reported for each effluent transfer from W809 to W413.

- (8) The result is the 95%ile reading for the reporting period to demonstrate compliance with the emission limit value stated, which is a 95%ile limit.
- (9) Old note now removed (not applicable).
- (10) Instrument and measurement technique has been reviewed under improvement item IP8. The final treated effluent Danfloss flow meter FT5098 has been MCERT approved. It has been agreed that from 1 October 2009 onwards that the dry flow rate discharge limit of 11,000 m3/day will apply and that reported flow data will relate purely to treated effluent with storm water flow (from W952 penstock valve) excluded from the totalised discharge from release point W1.
- (11) Instrument and measurement technique has been reviewed under improvement item IP10. Existing pH meters will be replaced by MCERT certified pH meter upon failure. Current meters deemed satisfactory in the interim.
- (12) Instrument and measurement technique was reviewed under Note 7 Table 2.2.5 and Agency responded. A New MCERT equivalent resistance thermometer was installed by Dow Corning in Q4 2007.
- (13) No spot sample shall exceed the limit value by more than 50%. Limit is 125 mg/l so allowable spot sample result is 187.5 mg/l, result was below this.

Signed 
(authorised to sign as representative of Operator)

Quarterly Reporting of Emissions to Air for the period from **October 1 2017 to December 31 2017**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]		Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A26	Class B VOC's	No limit applies	1.182	kg/hr	Gas chromatography	16/11/2017 11:15	In House Validated Method	3.6%
A26	Siloxanes	No limit applies ⁽⁶⁾	0.604	kg/hr	Gas chromatography	16/11/2017 11:15	In House Validated Method	3.6%
A27	Siloxanes	No limit applies ⁽⁶⁾	0.462	kg/hr	Gas chromatography	16/11/2017 11:30	In House Validated Method	3.6%
A43	Hydrogen chloride	10mg/m ³	0.5343	mg/m ³	Ion chromatography	18/12/2017 15:02	In House Validated Method	3.6%
A44	Hydrogen chloride	10mg/m ³	See note 8		Ion chromatography	N/A	In House Validated Method	3.6%
A57	Hydrogen chloride	10mg/m ³	0.204	mg/m ³	Ion chromatography	27/11/2017 14:50	In House Validated Method	3.6%
A60	Class B VOC's	5000 kg/year ⁽⁷⁾	0.018	kg/hr	Gas chromatography	09/11/2017 11:51	In House Validated Method	3.6%
			227.59	kg		-		
A65	Siloxanes	No limit applies ⁽⁶⁾	0.052	kg/hr	Gas chromatography	09/11/2017 11:30	In House Validated Method	3.6%
A68	Class B VOC's	5000 kg/year ⁽⁷⁾	0.119	kg/hr	Gas chromatography	09/11/2017 12:30	In House Validated Method	3.6%
			1238.83	kg		-		
A68	Siloxanes	No limit applies ⁽⁶⁾	1.2583	kg/hr	Gas chromatography	09/11/2017 12:30	In House Validated Method	3.6%
A78	Class A VOC's	No limit. Temperature (°C)	25.80	°C	RTD	23/12/2017 17:52	Internally Calibrated	0.02%
A79	Siloxanes	No limit applies ⁽⁶⁾	1.370	kg/hr	Gas chromatography	09/11/2017 11:10	In House Validated Method	3.6%
A85	Siloxanes	No limit applies ⁽⁶⁾	0.145	kg/hr	Gas chromatography	23/11/2017 13:45	In House Validated Method	3.6%

[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 accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

[6] Emission limit to be agreed following completion of IP14. This was deferred for consideration with IP25. No limit applies.

[7] Emission limit agreed following completion of IP4 (5000 kg/year).

Dow Corning Notes:

(8) A44 is now decommissioned (vent is released via A43).

(9) Releases modelled as part of IP16. Agency agreed that releases do not require abatement and that limit no longer applies. Instead the vent temperature will be recorded on form A2 quarterly to ensure vent condenser performance does not deteriorate. A new temperature transmitter was installed in 2009 to give continuous temperature monitoring with operator alarm for elevated condenser outlet temperature to trigger condenser cleaning operations. Result recorded is the maximum temperature value obtained during the reporting period.

Operator Comments – Jan 2018

Signed 

Date...25th Jan 2018.....

(authorised to sign as representative of Operator)

Annual Reporting of Emissions to Air for the period from **January 1 2017 to December 31 2017**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Units	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A12, A33, A34, A40 ⁽¹⁰⁾	Chloromethane	60 000kg/year	36132.88	kg/yr	US EPA Method 18	continuous	In House GC	A12 = 4% A33 = 24% A34 = 3% A40 = 3.6%
A12, A33, A34, A40 ⁽¹⁰⁾	Chloromethane	1000kg/day	146.14	kg/day	US EPA Method 18	Continuous	In House GC	A12 = 4% A33 = 24% A34 = 3% A40 = 3.6%
A12, A33, A34, A40 ⁽¹⁰⁾	Chloromethane	250kg/hour	128.22	kg/hr	US EPA Method 18	Continuous	In House GC	A12 = 4% A33 = 24% A34 = 3% A40 = 3.6%
A33	Methanol	60kg/hour	9.57	kg/hr	US EPA Method 18	Continuous	In House GC	42%
A34	Methanol	60kg/hour	42.81	kg/hr	US EPA Method 18	Continuous	In House GC	1%
A12	Methane ^[6]	No limit applies	381.84	kg/hr	US EPA Method 18	Continuous	In House GC	1%
A12	Non-methane hydrocarbons ^[6]	No limit applies	105.02	kg/hr	US EPA Method 18	Continuous	In House GC	2%
A40	Silanes ^[6]	No limit applies	N/A	-	Gas chromatography	n/a	In House validated Method	3.6%
A40	Silanes ^[7]	No limit applies	N/A	-	Gas chromatography	n/a	In House validated Method	3.6%
A41	Particulates	10 mg/m ³	0.86	mg/m ³	BS EN 13284	6-Mar-2017	UKAS & MCERTS	+/- 0.9
A41	Carbon monoxide	50mg/m ³	1.50	mg/m ³	ISO 12039	6-Mar-2017	In House validated Method	13%
A41	Oxides of nitrogen as NO ₂	100mg/m ³	11.00	mg/m ³	ISO 10849	6-Mar-2017	In House validated Method	11%
A41	Dioxins and furans	0.1ng/m ³	0.02	ng/m ³	BS EN 1948	22 May 2017	UKAS & MCERTS	+/- 0.003
A48	Oxides of nitrogen as NO ₂	No limit applies	191.20	mg/m ³	ISO 10849	23-Oct-2017	In House validated Method	11%
A48	Carbon monoxide	No limit applies	3.70	mg/m ³	ISO 12039	23-Oct-2017	In House validated Method	13%

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1]	Units	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A50	Oxides of nitrogen as NO ₂	200mg/m ³	53.00	mg/m ³	ISO 10849	11-Dec-2017	In House validated Method	11%
A50	Carbon monoxide	200mg/m ³	2.40	mg/m ³	ISO 12039	11-Dec-2017	In House validated Method	13%
A85	Hydrogen chloride ^[8]	10mg/m ³	N/A	mg/m ³	BS EN 1911:1998	n/a		
A26	Class B VOC's ^[9]	No limit applies	2.39	kg/hr	BS EN 13649	Annual average	In House validated Method	3.6%
A60	Class B VOC's ^[9]	5,000 kg/yr ⁽¹¹⁾	227.59	kg	BS EN 13649	Annual total release	In House validated Method	3.6%
A68	Class B VOC's ^[9]	5,000 kg/yr ⁽¹¹⁾	1238.83	kg	BS EN 13649	Annual total release	In House validated Method	3.6%
A26	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	0.79	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%
A65	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	0.05	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%
A68	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	1.44	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%
A79	Siloxanes ^[9]	An agreed limit ⁽¹²⁾	0.75	kg/hr	Gas chromatography	Annual average	In House validated Method	3.6%

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[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 accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

[6] Maximum kg/h obtained during the reporting period.

[7] Total release during the reporting period.

[8] Reporting only required if phosphonitrile production during reporting year.

[9] Average of quarterly reported values in reporting year.

[10] Based on an agreed emission factor

[11] Emission limit agreed following completion of IP4

[12] Emission limit to be agreed following completion of IP14. This has been deferred for consideration with IP25. No limit was agreed.

Dow Corning Notes:

(13) There is no routine monitoring frequency required for A40 apart from the requirements listed in Table 2.10.1 under 'other requirements' and a method for such testing has not yet been agreed with the Agency. Dow Corning has agreed with the Agency to use previously agreed IPC emission factors for silane releases from A40 for PI reporting purposes, as described in IPC improvement item 8.21. Under Improvement item IP3 the Environment Agency agreed to remove the requirement for silane monitoring at A41 when the ERU is not available for periods greater than 6 hrs.

(14) This is no longer made in W307.

Signed 
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Date...25th Jan 2018.....

Annual Reporting of Emissions to Air for the period from **January 1 2017 to December 31 2017**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1] Mg/m ³	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A41	Hydrogen chloride	15mg/m ³	1.760	US EPA Method 26	09/01/2017 12:05	UKAS & MCERTS	±36%
			4.370	US EPA Method 26	07/02/2017 10:15	UKAS & MCERTS	±36%
			1.985	US EPA Method 26	06/03/2017 10:23	UKAS & MCERTS	±36%
			4.622	US EPA Method 26	10/04/2017 12:10	UKAS & MCERTS	±36%
			3.590	US EPA Method 26	02/05/2017 11:15	UKAS & MCERTS	±36%
			2.237	US EPA Method 26	02/06/2017 08:45	UKAS & MCERTS	±36%
			5.976	US EPA Method 26	06/07/2017 10:18	UKAS & MCERTS	±36%
			3.527	US EPA Method 26	04/08/2017 08:52	UKAS & MCERTS	±36%
			3.240	US EPA Method 26	04/09/2017 10:40	UKAS & MCERTS	±36%
			3.295	US EPA Method 26	23/10/2017 10:40	UKAS & MCERTS	±36%
			0.101	US EPA Method 26	06/11/2017 12:08	UKAS & MCERTS	±36%
			0.069	US EPA Method 26	11/12/2017 10:00	UKAS & MCERTS	±36%
		10mg/m ³	2.898		Annual average		

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Dow Corning Notes:

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Date...25th Jan 2018.....

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Annual Reporting of Emissions to Air for the period from **January 1 2017 to December 31 2017**

Emission Point	Substance / Parameter	Emission Limit Value	Result ^[1] Mg/m ³	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A41	Chlorine	15mg/m ³	1.516	US EPA Method 26	09/01/2017 13:20	UKAS & MCERTS	±36%
			4.577	US EPA Method 26	07/02/2017 11:45	UKAS & MCERTS	±36%
			0.547	US EPA Method 26	06/03/2017 11:35	UKAS & MCERTS	±36%
			2.325	US EPA Method 26	10/04/2017 10:56	UKAS & MCERTS	±36%
			2.297	US EPA Method 26	02/05/2017 10:00	UKAS & MCERTS	±36%
			2.151	US EPA Method 26	02/06/2017 10:00	UKAS & MCERTS	±36%
			5.875	US EPA Method 26	06/07/2017 11:38	UKAS & MCERTS	±36%
			2.038	US EPA Method 26	29/08/2017 12:42	UKAS & MCERTS	±36%
			2.804	US EPA Method 26	04/09/2017 11:55	UKAS & MCERTS	±36%
			21.858	US EPA Method 26	23/10/2017 12:00	UKAS & MCERTS	±36%
			1.091	US EPA Method 26	06/11/2017 13:45	UKAS & MCERTS	±36%
			0.695	US EPA Method 26	11/12/2017 11:15	UKAS & MCERTS	±36%
		10mg/m ³	3.981		Annual average		

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[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.

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Date...25th Jan 2018.....

Reporting of Energy Usage for the year 2017

Energy Source	Energy Usage		
	Quantity	Primary Energy (MWh)	CO ₂ Produced (tonnes)
Steam	731,908	583,636	110,860
Electricity *	163,966,303	358,174	67,251
Natural Gas	98,569,097	98,569	18,723
Gas Oil	0	-	0
TOTAL		1,040,379	196,834

Trends in Energy Usage			
Year	Parameter		
Year	Primary Energy usage	CO ₂ produced	
2008	1,101,571	207,755	
2009	1,066,743	183,110	
2010	1,018,415	191,869	
2011	1,040,640	195,636	
2012	1,044,862	197,154	
2013	1,039,643	196,913	
2014	1,080,683	204,686	
2015	1,060,647	200,560	
2016	1,065,704.1	200,195.5	
2017	1,040,379	196,834	

* Conversion factor for delivered electricity to primary energy = 2.4

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Date...25th Jan 2018.....

Reporting of Waste Disposal and Recovery for the year 2017

Waste Description	Route	Disposal Tonnes	Recovery Tonnes
1) Hazardous Wastes			
Acetyl Chloride	Incineration	16	
CISi - DPR liquid gas (8-6149)	Energy recovery		208.82
CISi - DPR liquid gas (8-6149)	Incineration	646.94	
Cuprous Chloride	Incineration	7.659	
Cuprous Chloride	Water Treatment	205.575	
Haz DPR	Recovery		19036.54
Haz DPR	Recycling		727.42
Mixed incineration	Incineration	377.78225	
SiH Siloxane & Isoparaffin 8-6856 (tanker - W922)	Incineration	236.42	
Siloxane Hydrocarbons 8-6818 (tanker)	Energy recovery		200.26
Siloxane Hydrocarbons 8-6818 (tanker)	Incineration	21.22	
Solvent siloxane	Energy recovery		708.1085
Spent Bed	Recovery		9279.08
Spent Sulphuric acid	Recovery		7431.86
Toluene/Glycol	Energy recovery		8.569
Contaminated PPE (Tonnes)	Energy recovery		57.45
Interceptor pit cleanout	Incineration	27.6545	
Diol vols	Energy recovery		788.348
Gum rig vols	Energy recovery		5.64775
Waste gum	Incineration	0.779	
Total Hazardous waste		1540.03	38452.10
2) Non-Hazardous Wastes			
Alumina RAR Catalyst	Landfill	175.85	
Aluminium cans	Recycling		25.8
Biosludge from SWWT	Water Treatment	2460.22	
Calcium filtercake	Landfill	4316.57	
Calcium Slurry	Water Treatment	505	

[illegible]

Waste Description	Route	Disposal Tonnes	Recovery Tonnes
Cardboard	Recycling		175.87
Filter Cartridge material	Landfill	21.66	
Food waste for composting	Composted		8.9
General Waste	Landfill	226.04	
Glass	Recycling		8.44
Lagging	Energy recovery	47.56	16.19
Non Haz White DPR (Q8-6717)	Landfill	7223.46	
Paint Tins	Recycling	4.84	
Paper	Recycling		13.72
Plastic	Recycling		73.62
Rubber	Energy recovery		491.54
Scrap metal	Recycling		199.82
Shot Blast	Landfill	19.28	
Silicon Metal	Recycling		60.36
WEEE	Recycling		8.92
Wood	Recycling		316.88
Empty drums (tonnes)	Recycling		150.656
Empty IBC (tonnes)	Recycling		118.144
E tank cleanout waste	Landfill	904.47	
Total Non Hazardous waste		15904.95	1668.86
TOTAL WASTE		17444.98	40120.96

Trends in Waste Disposal and Recovery			
Year	Parameter		
OPERATOR COMMENTS: - Haz DPR increased this year to empty the landfill - Diol vols and gum rig vols split out from Solvent siloxane to allow the production area to track better - Mixed incineration down this year due to one of our outlets struggling to process our materials. - Calcium slurry down this year due to improved operation of PWWT - Non Haz DPR up this year to empty the landfill - Scrap metal down from last year – no major demolition projects on site this year - Rubber to energy recovery increased due to not being able to send it to India for Recycling due to Indian legislation change. - Etank cleanout waste increased due to cleaning of the second Etank – it was longer since this tank had been cleaned and it contained more solids.			

Signed 
 (authorised to sign as representative of Operator)

Date...25th Jan 2018.....

Reporting of Water Usage for the year 2017

Water Source	Usage (m ³)	Specific Usage (m ³ /t)
Towns water	245,697	
Bigliss well water	1,248,673	
Cadoxton river water	863,303	
TOTAL WATER USAGE	2,357,673	

Trends in Water Usage					
Year	Parameter				
	Towns water	Bigliss well water	Cadoxton river water	Total water usage	Water per unit output
2009	121,193	821,102	899,394	1,851,689	Report on PI1
2010	237,014	986,518	748,770	1,972,302	Report on PI1
2011	273,504	932,737	925,974	2,132,215	Report on PI1
2012	187,886	826,251	1,058,541	2,072,658	Report on PI1
2013	230,623	933,912	899,926	2,064,461	Report on PI1
2014	230,189	768,111	551,771	1,550,071	Report on PI1
2015	244,473	785,203	564,798	1,594,474	Report on PI1
2016	276,011	993,693	442,702	1,712,406	Report on PI1
2017	245,697	1,248,673	863,303	2,357,673	Report on PI1

Operator's comments :

Towns water and Biglis water data obtained from invoices.
River water is measured.
The Biglis water consumption includes the supply to the CHP

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Date...25th Jan 2018.....

Reporting of Performance Indicators for the period 2017

Annual Production/Treatment		
Polydimethylsiloxane		tonnes

Environmental Performance Indicators

Parameter	Annual Average	Units	Trends in Environmental Performance Year	Parameter	Water	Energy	Waste	CO ₂	W955 NaOH	W955 Nat. gas
					m ³ /t	MWh/t	kg/t	t/t	m ³ /t	MJ/t
Water use		m ³ /tonne	2009						N/A	N/A
Energy use		MWh/tonne	2010						N/A	N/A
Waste		Kg/tonne	2011						N/A	N/A
Carbon dioxide		Tonne/tonne	2012						N/A	N/A
			2013						N/A	N/A
			2014						N/A	N/A
			2015						n/a	n/a
			2016						n/a	n/a
			2017						n/a	n/a

Operator's comments:

Signed



... ..

Date...25th Jan 2018.....

(authorised to sign as representative of Operator)

Annual Reporting of Energy Recovery Unit Availability for the period from **January 1 2017 to December 31 2017**

Process	Parameter	Month	Result ^[1] , %
Energy Recovery Unit W949	Availability	January	74.68%
		February	80.26%
		March	50.14%
		April	48.99%
		May	42.20%
		June	31.08%
		July	66.57%
		August	67.09%
		September	38.41%
		October	91.91%
		November	84.69%
		December	49.06%
		Reporting year total	59.66%

[1] Based on the availability to process 100% of W714 FBR vent.

Signed 
(authorised to sign as representative of Operator)

Date...25th Jan 2018.....