Date: 24/05/2023

Mr Lee Mills
Natural Resources Wales
'Maes Newydd'
Llandarcy
Neath Port Talbot
SA10 6JQ

Morganite Electrical Carbon Limited
Morgan Advanced Materials
Upper Fforest Way
Morriston
Swansea
SA6 8PP

Dear Mr Mills,

The Environmental Permitting (England and Wales) Regulations 2016: EP Permit VP3339PD/as varied.

Please find attached annual PPC Permit reporting forms for 2022:

- Emissions to Air: A1
- Energy use: E1
- Waste: W1
- Water Use: WU1
- Performance Indicator: PI1

This is the second submission of the reporting forms for 2022. This is due to Cyber Security Issues experienced by our Group Company IT system on 08/01/2023 meaning that the first submission on 14/02/2023 didn't contain the Performance Indicator information in form PI1. This data is now available and has been added and applied to all relevant forms contained in this submission.

Completion date: 24/05/2023

Mark Williamson
EHS Lead

Permit Reference Number: VP3339PD

Operator: Morganite Electrical Carbon Ltd

Installation: Electrical Carbon Swansea

Form Number: A1

Reporting of Emissions to Air for the period from January '22 to December '22

Emissions to Air							
Emission Point	**Substance / Parameter**	**Emission Limit Value (mg/m^3)**	**Result [1]**	**Test Method [2]**	**Sample Date and Times [3]**	**Accreditation/Certification [4]**	**Uncertainty (mg/m^3) [5]**
A10	Lead	2	0.032	BS EN 14385:2004	09:45 – 10:47; 30/03/2022	UKAS/MCERTS	0.005
A10	Copper	2	0.40	BS EN 14385:2004	09:45 – 10:47; 30/03/2022	UKAS/MCERTS	0.06
A10	Antimony	2	0.00051	BS EN 14385:2004	09:45 – 10:47; 30/03/2022	UKAS/MCERTS	0.00007
A10	Lead	2	0.044	BS EN 14385:2004	11:00 – 12:03; 29/06/2022	UKAS/MCERTS	0.0049
A10	Copper	2	1.031	BS EN 14385:2004	11:00 – 12:03; 29/06/2022	UKAS/MCERTS	0.1149
A10	Antimony	2	<0.001	BS EN 14385:2004	11:00 – 12:03; 29/06/2022	UKAS/MCERTS	0.0001
A10	Lead	2	0.007	BS EN 14385:2004	09:38 – 10:40; 20/07/2022	UKAS/MCERTS	0.001
A10	Copper	2	0.976	BS EN 14385:2004	09:38 – 10:40; 20/07/2022	UKAS/MCERTS	0.143
A10	Antimony	2	0.001	BS EN 14385:2004	09:38 – 10:40; 20/07/2022	UKAS/MCERTS	0.0001
A10	Lead	2	0.023	BS EN 14385:2004	10:28 – 11:31; 10/11/2022	UKAS/MCERTS	0.0034
A10	Copper	2	0.84	BS EN 14385:2004	10:28 – 11:31; 10/11/2022	UKAS/MCERTS	0.84
A10	Antimony	2	<0.00063	BS EN 14385:2004	10:28 – 11:31; 10/11/2022	UKAS/MCERTS	0.00009
A27	Sulphur dioxide	2900	180.2	BS ISO 7935:1992	04:00 – 04:00; 21-22/07/2022	UKAS/MCERTS	58.4
A28	Sulphur dioxide	2900	301.6	BS ISO 7935:1992	13:19 – 13:19; 19-20/07/2022	UKAS/MCERTS	78.5
A61	Sulphur dioxide	2900	#	BS ISO 7935:1992	#	UKAS/MCERTS	#
A27	Oxides of nitrogen (as NO_2)	150	83.7	BS ISO 14792:2005	04:00 – 04:00; 21-22/07/2022	UKAS/MCERTS	22.6
A28	Oxides of nitrogen (as NO_2)	150	123.6	BS ISO 14792:2005	13:19 – 13:19; 19-20/07/2022	UKAS/MCERTS	30.3
A61	Oxides of nitrogen (as NO_2)	150	#	BS ISO 14792:2005	#	UKAS/MCERTS	#
A15	Benzo(A)pyrene	0.01	0.000018	BS ISO 11338	09:11 – 13:14; 21/07/2022	UKAS/MCERTS	0.000004
A27	Benzo(A)pyrene	0.01	0.0000028	BS ISO 11338	09:39 – 13:44; 21/07/2022	UKAS/MCERTS	0.0000006

A28	Benzo(A)pyrene	0.01	0.0000030	BS ISO 11338	10:40 – 14:45;19/07/2022	UKAS/MCERTS	0.0000006
A61	Benzo(A)pyrene	0.01	#	BS ISO 11338	#	UKAS/MCERTS	#
A10	Total particulate	10	2.75	BS ISO 13284:2002	09:50 – 10:53; 29/06/2022	UKAS/MCERTS	0.43
A15	Total particulate	5	0.62	BS ISO 13284:2002	13:25 – 14:27; 21/07/2022	UKAS/MCERTS	0.53
A19	Total particulate	5	0.93	BS ISO 13284:2002	11:34 – 12:34; 20/07/2022	UKAS/MCERTS	0.4
A27	Total particulate	10	46.0	BS ISO 13284:2002	08:49 – 9.51; 22/07/2022	UKAS/MCERTS	2.5
A28	Total particulate	10	18.14	BS ISO 13284:2002	12:19 – 13:21; 20/07/2022	UKAS/MCERTS	1.18
A61	Total particulate	10	#	BS ISO 13284:2002	#	UKAS/MCERTS	#

- Deferred emissions monitoring for 2022 period (CAR_NRW0039792).

[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. The following uncertainties are quoted on a different basis (basis as stated) – *{The basis of any other uncertainty figure needs to be stated. Where no figure is available the Agency will need to agree an appropriate uncertainty value.}*

Signed …… *J. Williamson*…… Date…08/02/2023….

(Authorised to sign as representative of the Operator)

Permit Reference Number: VP3339PD

Operator: Morganite Electrical Carbon Ltd

Installation: Electrical Carbon Swansea

Form Number: W1

Reporting of Waste Disposal and Recovery for the year

January '22 to December '22

Waste Disposal & Recovery			
Waste Description	Route	Disposal Tonnes	Recovery Tonnes
1) Hazardous Wastes			
10 10 11	R13	0	22.380
17 06 03	D15	1.567	
15 02 02	R13	0	0.883
15 01 10	R13	0	0.759
15 02 02	R13	0	0.286
16 05 04	R13	0	0.082
13 01 10	R13	0	1.466
20 01 21	R13	0	0.050
16 05 06	D15	0.366	0
08 01 12	D15	0.010	0
08 01 11	R13	0	0.025
06 01 03	D15	0.005	0
20 01 33	R13	0	0.050
06 04 04	D15	0.006	0
16 03 03	D15	0.040	0
15 01 10	D15	0.100	0
08 04 09	D15	0.015	0
Total Hazardous Waste		**2.109**	**25.981**
2) Non-Hazardous Wastes			
20 03 01 General Wastes	D1	10.5	0
17 01 07 Tiles & Ceramics	D1	15.5	0
16 10 02 Carbon Sludge	D8	5.3	0
16 05 09 Calcium Carbonate	D15	0.1	0
16 03 06 Extruded Carbon	D15	22.736	0
20 01 36 Paper/Cardboard	R3	0	4.125
20 01 38 Wood	R3	0	11.6
20 01 39 Plastic	R3	0	3.88
Metals – Ferrous/Non-Ferrous	R4	0	39.535
Total Non-Hazardous Waste		**54.136**	**59.14**
TOTAL WASTE		**56.245**	**85.121**

Trends in Waste Disposal and Recovery

Year	Parameter	Tonnage	Metric Kg/T
Hazardous			
2005	Hazardous	89.62	116
2006	Hazardous	149.54	192
2007	Hazardous	163.285	118
2008	Hazardous	109.33	119
2009	Hazardous	35.36	48
2010	Hazardous	115.47	128
2011	Hazardous	79.411	75
2012	Hazardous	79.8835	83
2013	Hazardous	47.092	49
2014	Hazardous	68.626	69
2015	Hazardous	83.530	120
2016*	Hazardous	148.888	257
2017*	Hazardous	34.273	118
2018*	Hazardous	132.175	365
2019*	Hazardous	77.807	224
2020	Hazardous	43.897	167
2021	Hazardous	48.733	179
2022	Hazardous	28.09	123
Non-hazardous			
2005	Non-hazardous	278.59	361
2006	Non-hazardous	209.91	269
2007	Non-hazardous	254.58	336
2008	Non-hazardous	298.2	325
2009	Non-hazardous	203.35	274
2010	Non-hazardous	211.14	235
2011	Non-hazardous	316.26	297
2012	Non-Hazardous	304.82	317
2013	Non-Hazardous	200.484	211
2014	Non-Hazardous	189.198	192
2015	Non-Hazardous	229.416	330
2016*	Non-Hazardous	2914.8195	5026

2017*	Non-Hazardous	426.4185	1470
2018*	Non-Hazardous	3278.998	9058
2019*	Non-Hazardous	312.8215	899
2020	Non-Hazardous	236.13465	898
2021	Non-Hazardous	272.450	998
2022	Non-Hazardous	113.276	498

Operator's Comments:
Base tonnage as form PI1, 228 Tonnes.
* - Waste volume increase due to site rationalisation/construction projects ongoing from 2016 to 2019.

Signed J. Williamson Date 24/05/2023 (Authorised to sign as representative of the Operator)

Permit Reference Number: VP3339PD

Operator: Morganite Electrical Carbon Ltd

Installation: Electrical Carbon Swansea

Form Number: WU1

Reporting of Water Usage for the year

Water Usage		
Water Source	Usage (m^3)	Specific Usage (m^3/t)
Mains water	1,777	7.81
TOTAL WATER USAGE	1,777m^3	

January '22 to December '22

Trends in Water Usage			
Year	Parameter		
	Named Water source (m^3)	Total Water usage (m^3)	Water per unit output (m^3/t)
2006	64,062	64,062	82.2
2007	30,879	30,879	41
2008	21,678	21,678	23.64
2009	25,103	25,103	33.88
2010	31,860	31,860	35.52
2011	23,244	23,244	21.84
2012	21,500	21,500	22.33
2013	20,685	20,685	21.73
2014	14,759	14,759	14.98
2015	13,069	13,069	18.78
2016	14,221	14,221	24.52
2017	10,328	10,328	35.61
2018	4,614	4,614	12.75
2019	3,236	3,236	9.30
2020	2,311	2,311	8.79
2021	1,757	1,757	6.44
2022	1,777	1,777	7.81

Operator's comments :
Base tonnage is mix produced as shown on form PI1, 228 Tonnes

Signed *J. Williamson* Date 24/05/2023 (Authorised to sign as representative of the Operator)

Permit Reference Number: VP3339PD

Operator: Morganite Electrical Carbon Ltd

Installation: Electrical Carbon Swansea

Form Number: E1

Reporting of Energy Usage for the year

Energy Usage			
Energy Source	Energy Usage		CO_2 Produced (tonnes)
	Quantity	Primary Energy (MWh)	
Electricity *	MWh	5,627.70	1088.28
Natural Gas	MWh	4,585.946	825.47
Green Electricity (Solar)	MWh	206.68	0
Gas Oil	tonnes	N/A	
Heavy Fuel Oil	tonnes	N/A	
TOTAL	-	10,420.326	1913.75

January '22 to December '22

Trends in Energy Usage			
Year	Parameter		
	Primary Energy usage (MWh)	CO_2 produced	CO_2 per unit output kg/t
2005	59,417	20,416T	26,500kg/T
2006	55,685	18,924T	24,293kg/T
2007	54,036	18,527T	24,638kg/T
2008	54,128	18,425T	20,093kg/T
2009	41,316	14,162T	19,112kg/T
2010	50,733	17,186T	19,159kg/T
2011	48,674	16,633T	15,632kg/T
2012	45,117	14,975T	15,550kg/T
2013	36,648	11,886T	12,485kg/T
2014	36,827	12,148T	12,333kg/T
2015	28,709	9,550T	13,720kg/T
2016	24,161	7,959T	13,722kg/T
2017	17,890	6,667T	22,990kg/T
2018	17,931	6,667T	18,419kg/T
2019	17,067	3,773T	10,842kg/T
2020	14,079	2,939T	11,176kg/T
2021	11,880	2,314T	8,475kg/T
2022	10,420	1,914T	8,409kg/T

* Conversion factor for delivered electricity to primary energy = 2.6 x MWh

Operator's comments:
Quantity unit used is MWh as opposed to Tonnes. Electricity supplied = 2,164.50 MWh, Primary Electricity = 5,627.70 MWh, Natural Gas supplied = 4,585.946 MWh
Conversion factors based upon primary energy use metered in kWh and converted to CO_2 upon UK Government GHG Conversion Factors for Company Reporting of Electricity 0.19338kg/kWh and Gas 0.18kg/kWh.
250kW solar farm installed in March 2012.
Base tonnage is mix produced as shown on form PI1 = 228 Tonnes

Signed *J. Williamson* Date 24/05/2023 (Authorised to sign as representative of the Operator)

Permit Reference Number: VP3339PD

Operator: Morganite Electrical Carbon Ltd

Installation: Electrical Carbon Swansea

Form Number: PI1

Reporting of Performance Indicators for the year January '22 to December '22

Annual Production/Treatment	
Block/Linear (1)	78.566 tonnes
Pantograph	145.899 tonnes
Premix (Mix Sold)	1.472 tonnes
Mix	83.152 tonnes
Performance Indicator Value (2)	227.579 tonnes

Environmental Performance Indicators

Performance Indicators		
Parameter	Annual	Units
Lead consumption (3)	2.65	Tonne
Sulphur consumption (3)	5	Tonne

Trends in Environmental Performance		
Year	Parameter	
	Lead consumption (kg)	Sulphur consumption (kg)
2005	8971	9266
2006	11475	11551
2007	9903	10000
2008	8989	17000
2009	8770	11000
2010	9192	13000
2011	8010	20000
2012	8607	15000
2013	8010	13000
2014	7795	20000
2015	8070	13000
2016	5383	6000
2017	5240	7000
2018	5165	10000
2019	3150	7000
2020	850	6000
2021	1600	6000
2022	2650	5000

Operator's comments: (1) Pressed Tonnage Carbon/Copper Blocks/Parts. (2) Performance Indicator: a) Mix plus Pantograph subtract sold premix used as base tonnage, (83.152 + 145.899) – 1.472 = 228 Tonnes (Mixes are used to make Block/Linear), Pantograph mixes are extruded to make pantograph (146T), Sold Premixes are booked as Mixes before being sold. (3) Lead and Sulphur are based on the purchased volumes in the year. Lead, includes powdered and solid lead.

Signed *J. Williamson* Date 24/05/2023 (Authorised to sign as representative of the Operator)