



ENGIE Energy Infrastructure
Dow Corning CHP Site,
Wimbourne Road
Dock No 2
Barry
CF63 3DH

Mrs Liz Parr
Natural Resources Wales
Rivers House
St Mellons Business Park
St Mellons
Cardiff
CF3 0EY

Ref: EPR/JP3632ZH

27th January 2016

Dear Mrs Parr

Please find enclosed our 3 monthly returns for Quarter 4 2015 up until 31st December 2015 for the Releases to Air form A1(a).

As required by our permit find enclosed the annual report forms A1 Extractive Testing results, E1 Energy Usage, WR1 Waste report, P11 Performance Indicators, MR1 Mass Releases, LCPD1 LCPD Energy Usage and WU1 Water Usage. Also enclosed are copies of our Environmental Objectives and Targets and the 2015 Fugitive Emissions review.

Please forward to the relevant inspector and contact me if there are any questions in relation to these returns.

Yours sincerely

Andrew Sanderson
Operations Manager
T: 01446 723001
andrew.sanderson1@engie.com

Cofely Industrial Energy Services Limited

REGISTERED OFFICE: Q3 Quorum Business Park, Barton Lane, Newcastle Upon Tyne NE12 8EX
A COMPANY REGISTERED IN ENGLAND NO. 01732659

Permit Reference Number : JP3632ZH

Operator : Cofely Industrial Energy Services

Installation : Barry Cogeneration Plant

Form Number : E1

Reporting of Energy Usage for the year 2015

Energy Source	Energy Usage		CO ₂ Produced (tonnes)
	Quantity	Primary Energy (MWh)	
Electricity *	MWh	28,140	4,671
Natural Gas	MWh	872,853	157,505
Gas Oil	MWh	469	125
TOTAL	-	901,462	162,301

* Conversion factor for delivered electricity to primary energy = 2.4

Trends in Energy Usage Year	Parameter		CO ₂ produced tonnes	CO ₂ per tonne steam
	Primary Energy usage			
2008	839,912		171,159	0.24614
2009	830,085		151,740	0.25710
2010	871,120		156,356	0.23406
2011	873,246		157,637	0.23527
2012	908,120		164,166	0.22791
2013	926,208		167,654	0.23559
2014	956,836		172,525	0.22556
2015	901,462		162,301	0.23887

Operator's comments :

Signed Andrew Sanderson
(authorised to sign as representative of the Operator)

Date... 27/01/2016

Permit Reference Number : JP3632ZH

Operator : Cofely Industrial Energy Services

Installation : Barry Cogeneration Plant

Form Number :WR1

Reporting of Waste Disposal and Recovery for the year 2015

Waste Description	Disposal Route	Tonnes	Recovery Tonnes
1) Hazardous Wastes	Treatment and recovery	1.49	
2) Non-Hazardous Wastes			
General Waste	Landfill	4.02	0
Sewage	Treatment	45	Unknown
Metal	Recovery	1.5	Unknown
Mixed Recycling	Recovery	0.68	Unknown
Insulation Materials	Landfill	1.96	0
TOTAL WASTE	-	54.65	

Trends in Waste Disposal and Recovery			
Year	Hazardous Waste Parameter	Non-Hazardous Waste	Total Waste
2006	6.27	26.99	33.26
2007	20.5	45.2	65.7
2008	4.6	59.4	64
2009	3.5	102.5	106
2010	3.725	107.52	111.245
2011	5.85	108.58	114.43
2012	8.185	109.59	117.775
2013	1.05	123.1	124.15
2014	0	100.5	100.5
2015	1.49	53.16	54.65

Operator's comments :

Signed ... Andrew Sanderson...
(authorised to sign as representative of the Operator)

Date 27/01/2016

Permit Reference Number : JP3632ZH

Operator : Cofely Industrial Energy Services

Installation : Barry Cogeneration Plant

Form Number : WU1

Reporting of Water Usage for the year 2015		Trends in Water Usage	
Water Source	Usage (m ³)	Year	Total Water usage
Well Water	534,421	2011	531,705
Demin Water to Dow Corning	125,749	2012	483,047
		2013	493,645
		2014	505,382
TOTAL WATER USAGE	534,421	2015	534,421

Operator's comments :

Signed .. Andrew Sanderson.....
(authorised to sign as representative of the Operator)

Date 27/01/2016

Permit Reference Number : JP3632ZH

Operator : Cofely Industrial Services

Installation : Barry Cogeneration Plant

Form Number : PI1

Reporting of Performance Indicators for the year 2015

Annual Production/Treatment	
Generation of steam	679,430
Generation of electricity	141,286

Environmental Performance Indicators

Parameter	Annual Average	Units
Waste per tonne of steam	0.00008	Tonnes waste / tonne steam
Waste per MWh of electricity	0.0004	Tonnes waste / MWh electricity
Water usage per tonne of steam	0.7865	m ³ water / tonne steam
Water usage per MWh of electricity	3.7825	m ³ water /MWh electricity
Energy input per tonne of steam	1.4082	MWh energy input / tonne steam
Energy input per MWh of electricity produced	6.7723	MWh energy input / MWh electricity

Trends in Environmental Performance Year	Waste/T steam	Waste/ MWh electricity	Water usage /Tonne steam	Water usage/M Wh of electricity	Energy input/T steam	Energy input/MWh electricity
2009	0.0001	0.0008	0.895	4.033	1.406	6.334
2010	0.0001	0.0008	0.805	3.934	1.304	6.370
2011	0.0001	0.0008	0.7935	3.756	1.303	6.170
2012	0.0001	0.0008	0.6706	3.126	1.260	5.877
2013	0.0001	0.0008	0.6944	3.289	1.302	6.171
2014	0.0001	0.0006	0.6608	3.1903	1.251	6.040
	0.00008	0.0004	0.7865	3.7825	1.4082	6.7723

Operator's comments :

Signed Andrew Sanderson
(authorised to sign as representative of the Operator)

Date 27/01/2016

Permit Reference Number : JP3632ZH

Operator : Cofely Industrial Energy Services

Installation : Barry Cogeneration Plant

Form Number : LCPD1

LCPD Energy Usage for the year 2015

Net Caloric Values of fuels burnt		Trends in LCPD Plant Energy Usage						
Natural Gas MJ/M3	37.34	Year	Total annual energy usage for LCPD combustion plant MJ net	Total annual energy usage for all combustion plant MJ net	Total annual energy usage for fuels used on LCPD plant MJ net		Total annual energy usage for fuels used on all plant MJ net	
Distillate Fuel Oil MJ/KG	43.02				Natural Gas MJ net	Distillate Fuel Oil net	Natural Gas MJ net	Distillate Fuel Oil net
Total annual energy usage for LCPD combustion plant MJ net		2007	2,744,470,970	2,827,479,138	2,735,165,022	9,305,948	2,818,173,190	9,305,948
Total annual energy usage for all combustion plant MJ net		2008	2,962,410,332	3,013,222,604	2,960,073,332	2,337,000	3,010,885,604	2,337,000
Total annual energy usage for fuels used on LCPD plant MJ net		2009	2,645,771,411	2,687,613,424	2,645,430,411	341,000	2,687,272,424	341,000
Total annual energy usage for fuels used on LCPD plant MJ net		2010	2,784,078,512	2,820,351,466	2,783,796,056	289,000	2,820,069,010	289,000
Natural Gas MJ net	3,135,436,714	2011	2,811,342,557	2,835,610,626	2,809,712,557	1,630,000	2,833,980,626	1,630,000
Distillate Fuel Oil net	1,690,000	2012	2,882,783,244	2,908,180,629	2,882,600,244	183,000	2,907,997,629	183,000
Total annual energy usage for fuels used on all plant MJ net		2013	2,924,784,720	2,931,302,593	2,924,784,720	0	2,931,302,593	0
Natural Gas MJ net	3,142,270,800	2014	3,285,960,355	3,304,852,600	3,285,960,355	139,000	3,304,852,600	139,000
Distillate Fuel Oil net	1,690,000	2015	3,137,126,714	3,142,960,800	3,135,436,714	1,690,000	3,142,270,800	1,690,000

Operator's comments :

Signed Andrew Sanderson
(authorised to sign as representative of the Operator)

Date... 27/01/2016.

Permit Reference Number: EPR/JP3632ZH

Operator: Cofely Industrial Energy Services

Installation: Barry Cogeneration Plant

Form Number: A1(a)

Reporting of 3 monthly continuous monitoring Emissions to Air for the period from 1st October 2015 to 31st December 2015
Table 1: Burning Natural Gas

Emission Point	Substance / Parameter	Emission Limit Value	Result 95%ile (8)	Test Method (9)	Result Maximum 1/2 Hourly Concentration	Sample Date and Times (10)	Accreditation / Certification (11)	Uncertainty (12)
A1	Oxides of Nitrogen (as NO ₂)	125mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	93.1	BS EN 14792	127.4	99.8%	MCert Sira MC040019.01	5.4mg/m ³
A1	Carbon Monoxide	80 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	22	BS EN 15058	76.1	99.8%	MCert Sira MC040019.01	8mg/m ³
A2	Oxides of Nitrogen (as NO ₂)	125 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	64.8	BS EN 14792	80	99.8%	MCert Sira MC040019.01	5.4mg/m ³
A2	Carbon Monoxide	80 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	52.5	BS EN 15058	79	99.8%	MCert Sira MC040019.01	8mg/m ³
A3	Oxides of Nitrogen (as NO ₂)	125 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	85.7	BS EN 14792	115.8	99.8%	MCert Sira MC040019.01	5.4mg/m ³

A3	Carbon Monoxide	maximum average value not exceeding 1.5 times those values) 80 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	19.6	BS EN 15058	72.5	99.8%	MCert MCO40019.01	Sira	8mg/m ³
A4	Oxides of Nitrogen (as NO ₂)	45 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only				N/A		N/A
A4	Carbon Monoxide	80 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only				N/A		N/A
A5	Oxides of Nitrogen (as NO ₂)	45 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only				N/A		N/A
A5	Carbon Monoxide	80 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only				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] The result is the 95%ile concentration

Table 2: Burning Distillate Fuel Oil

Emission Point	Substance/Parameter	Emission Limit Value	Hours of Operation	Result of 95%ile [6]	Test Method [6]	Result Maximum 1/2 Hourly Concentration	Sample Date and Times [6]	Accreditation/Certification [6]	Uncertainty [6]
A1	Oxides of Nitrogen (as NO ₂)	150mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	0						
A1	Carbon Monoxide	80 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	0						
A2	Oxides of Nitrogen (as NO ₂)	160 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	0						
A2	Carbon Monoxide	80 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	0						
A3	Oxides of Nitrogen (as NO ₂)	160 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	0						
A3	Carbon Monoxide	80 mg/m ³ (95% of 1/2 hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	0						

A4	Oxides of Nitrogen (as NO ₂)	65 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only if in operation on Fuel oil						
A4	Carbon Monoxide	80 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only if in operation on Fuel oil						
A5	Oxides of Nitrogen (as NO ₂)	65 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only if in operation on Fuel oil						
A5	Carbon Monoxide	80 mg/m ³ (95% of ½ hourly readings in each 24hr period not exceeding those limits and the maximum average value not exceeding 1.5 times those values)	Not required Annual Extractive testing only if in operation on Fuel oil						

[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] The result is the 95%ile concentration

Signed ... Andrew Sanderson ...



Date... 25/01/2016.....

Permit Reference Number: EPR/JP3632ZH

Operator : Cofely Industrial Energy Services

Installation : Barry Cogeneration Plant

Form Number : A1

Reporting of Emissions to Air for the period from January 2015 to December 2015

Table 1: Burning Natural Gas

Emission Point	Substance / Parameter	Emission Limit Value	Result Annual Extractive Test	Result 95%ile	Test Method	Result Maximum 1/2 Hourly Concentration	Sample Date and Times	Accreditation / Certification	Uncertainty
A1	Oxides of Nitrogen (as NO ₂)	125mg/m ³	60.89 mg/m ³	62.12 mg/m ³	BS EN 14792	62.34 mg/m ³	08/09/2015 10:01 - 16:00	UKAS / MCERTS	3 %
A1	Carbon Monoxide	80 mg/m ³	4.85 mg/m ³	5.56 mg/m ³	BS EN 15058	5.75 mg/m ³	08/09/2015 10:01 - 16:00	UKAS / MCERTS	3 %
A2	Oxides of Nitrogen (as NO ₂)	125 mg/m ³	59.15 mg/m ³	61.26 mg/m ³	BS EN 14792	61.66 mg/m ³	09/09/2015 10:01 - 16:00	UKAS / MCERTS	3 %
A2	Carbon Monoxide	80 mg/m ³	40.94 mg/m ³	45.37 mg/m ³	BS EN 15058	45.74 mg/m ³	09/09/2015 10:01 - 16:00	UKAS / MCERTS	4 %
A3	Oxides of Nitrogen (as NO ₂)	125 mg/m ³	59.63 mg/m ³	83.18 mg/m ³	BS EN 14792	84.07 mg/m ³	11/09/2015 09:01 - 15:00	UKAS / MCERTS	5 %
A3	Carbon Monoxide	80 mg/m ³	9.91 mg/m ³	14.63 mg/m ³	BS EN 15058	15.62 mg/m ³	11/09/2015 09:01 - 15:00	UKAS / MCERTS	3 %
A4	Oxides of Nitrogen (as NO ₂)	45 mg/m ³	29.90 mg/m ³	30.66 mg/m ³	BS EN 14792	30.21 mg/m ³	08/09/2015 16:15 - 17:14	UKAS / MCERTS	3 %
A4	Carbon Monoxide	80 mg/m ³	2.78 mg/m ³	2.94 mg/m ³	BS EN 15058	2.83 mg/m ³	08/09/2015 16:15 - 17:14	UKAS / MCERTS	3 %
A5	Oxides of Nitrogen (as NO ₂)	45 mg/m ³	32.13 mg/m ³	32.80 mg/m ³	BS EN 14792	32.17 mg/m ³	09/09/2015 16:15 - 17:14	UKAS / MCERTS	3 %
A5	Carbon Monoxide	80 mg/m ³	2.24 mg/m ³	2.33 mg/m ³	BS EN 15058	7.08 mg/m ³	09/09/2015 16:15 - 17:14	UKAS / MCERTS	4 %

[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] The result is the 95%ile concentration

Andrew Sinden

 28th Jan 2016

Permit Reference Number: JP3632ZH

Operator: Cofely Industrial Energy Services

Installation: Barry Cogeneration Plant

Form Number: MR1

Reporting of Mass Releases for the year 2015

Parameter	t/yr
Mass releases of oxides of nitrogen as NO ₂ from LCPD plant (i.e. excluding gas turbines)	97.29
Mass releases of oxides of nitrogen as NO ₂ from all plant	97.5
Mass releases of carbon monoxide from LCPD plant (i.e. excluding gas turbines)	35.3
Mass releases of carbon monoxide from all plant	35.35
Mass releases of sulphur dioxide from A1-A5, from LCPD plant (i.e. excluding gas turbines)	0.64
Mass releases of sulphur dioxide from all plant	0.64

Operator's comments :

Signed Andrew Sanderson



Date: 27/01/2016

(authorised to sign as representative of the Operator)