NRW Annual
Submissions

James McClaymont
Natural Resources Wales
Chester Road
Buckley
CH7 3AJ
Flintshire

Your Ref: LP 3738GG (BX4666IZ) Date: 26th January 2018

Subject: 2017 Annual Submissions

Dear James McClaymont,

Please find attached our annual submissions report for the Optical Shops manufacturing of Infra red Products Permit LP3738GG (BX4666IZ).

As you will see from the below report and also the already supplied Emissions Report the Total Particulate Matter and VOC emissions have not exceeded the permitted limit. Calculations that led to these conclusions have been carried out in accordance with Note 2, Schedule 2 – Reporting of monitoring Data.

Due to Thallium, Gallium and Selenium not being machined during the time that ESG Ltd conducted the Emissions monitoring estimation for the g/annum has been carried out.

Also please be informed that Debbie Roberts has no left the business. The role has been advertised and we are currently conducting interviews and we anticipate the role will be filled shortly.

If there is any additional information required please do not hesitate to contact me, however I will not be available from 31st Jan through to 2nd of Feb as have to go to South Wales for my mother's funeral, who sadly passed away this week.

Yours Sincerely,

Huw Williams
Site Services Manager

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Please refer to ESG Limited Report to reinforce the Data used and contained below.

Permit Number: BX4666IZ Operator: Qioptiq LTD, St Asaph

Facility: St Asaph, Infra Red Optics Form Number: A1 – Air

ANNUAL: Reporting of emissions to air for the period from 01/01/17 to 31/12/17

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
A2	Particulate Matter	1 mg/m³	60 Minutes (1118 LTR)	Total Annual:454.5 g Total: 0.1g/hr	BS EN 13284-1	17/07/17 10 :02-11 :02	-
A5	Particulate Matter	1 mg/m³	60 Minutes (1396 LTR)	Total Annual:454.5 g Total:0.1 g/hr	BS EN 13284-1	18/07/17 08:27-09:27	-
A7	Particulate Matter	1 mg/m³	60 Minutes (1193 LTR)	Total Annual:727.2 g Total: 0.16g/hr	BS EN 13284-1	17/07/17 13:05-14:05	-
A10	Particulate Matter	1 mg/m³	60 Minutes (1323 LTR)	Total Annual: 818.15g Total:0.18 g/hr	BS EN 13284-1	17/07/17 11:25-12:25	-
A2,A5,A7,A10 COMBINED	Particulate Matter (g/annum) (See Note 1)	-	NA	2454.3g/annum	BS EN 13284-1	-	-
A2	White Spirit, expressed as C (mg/m³)	-	30 Minutes (1.51 LTR)	Annual: 1081.71kg Total:238 g/hr	BS EN 13649	17/07/17 10 :15-10:45	-
A10	White Spirit, expressed as C (mg/m³)	-	30 Minutes (1.5 LTR)	Annual:5317.65kg Total: 117g/hr	BS EN 13649	17/07/17 10:58-11:28	-
A2	Specified Metals (mg/m³)	-	60 Minutes (1161 LTR)	Total Annual: 0.909g (As) Total: 0.0002g/hr	BS EN 14385	17/07/17 10 :02-11 :02	-
A5	Specified Metals (mg/m³)	-	60 Minutes (1312 LTR)	Total Annual: 0.82g (As) Total:0.00018 g/hr	BS EN 14385	18/07/17 08:27-09:27	-
A7	Specified Metals (mg/m³)	-	60 Minutes (1296 LTR)	Total Annual:1.82 g (As) Total: 0.0004g/hr	BS EN 14385	17/07/17 13:05-14:05	-
A10	Specified Metals (mg/m³)	-	60 Minutes (1270 LTR)	Total Annual: 1.36g (As) Total: 0.0003g/hr	BS EN 14385	17/07/17 11:25-12:25	-

ANNUAL: Reporting of emissions to sewer for the period from 01/01/17 to 31/12/17 Form Number: S1 –Sewer

Emission Point	Substance / Parameter	Limit Value (mg/l)	Result [1]	Test Method [2]	Sample Date and Times [3]
S1	Chemicals Oxygen Demand	3000	67	Severn Trent Labs PLC UKAS 1223	18/01/17
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	10/2/17 10:58
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	23/03/17 11:55
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	27/04/17 09:42
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	17/05/17 12:42
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	14/06/17 11:32
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	14/07/17 12:24
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	2/08/17 13:52
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	22/09/17 11:40
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	31/10/17 11:46
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	28/11/17
S1	Chemicals Oxygen Demand	3000	50	Severn Trent Labs PLC UKAS 1223	20/12/17

Signed ..... Date: 25.1.2018
(Huw Williams Site Services Manager)

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Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
A2,A5,A7,A10 COMBINED	Thallium and its compounds (g/annum)	-	N/A	Total Annual: <2 g/annum (est)	N/A	N/A	Estimate
A2,A5,A7,A10 COMBINED	Gallium and its compounds (g/annum)	-	N/A	Total Annual: <2 g/annum (est)	N/A	N/A	Estimate
A2,A5,A7,A10 COMBINED	Selenium and its compounds (g/annum)	-	N/A	Total Annual: <2 g/annum (est)	N/A	N/A	Estimate
A2,A5,A7,A10 COMBINED	Arsenic and its compounds (g/annum)	-	N/A	Total Annual: 1.36g/annum	N/A	N/A	
Installation A2 as C (A2. A10, A11)	Volatile Organic Compounds Kg/Annum	-	N/A	Annual:620.78 kg/annum	N/A	N/A	
A11	VOC	75 mg/m3	30 Minutes (14.45 Litres)	Annual: 72.72 kg Total:16 g/hr	BS EN 13649	19th July 17 11:25-11:55	
A2	Extraction Rate (m^3s^{-1})		N/A	3.4	N/A	17th July 17 10:15-10:45	
A5	Extraction Rate (m^3s^{-1})		N/A	3.1	N/A	18th July 17 08:27-09:27	
A7	Extraction Rate (m^3s^{-1})		N/A	3.0	N/A	17th July 17 13:05-14:05	
A10	Extraction Rate (m^3s^{-1})		N/A	5.3	N/A	17th July 17 11:25-12:25	
A11	Extraction Rate (m^3s^{-1})		N/A	3.1	N/A	19th July 17 11:25-11:55	

Operator's comments:

Final annual total figures are based on 4545 operating hours calculated against ESG g/hour result. These operating hours are an average annual figure based on a department operating 2 shifts a day at 7 ½ hours each over 303 days (Sundays x 52, and 10 day Christmas shut down has not been included).

(g/hour x 4545) = Annual Total in g/annum

Signed ..... Date 25.1.2018
(Huw Williams Site Services Manager)

Facility: St Asaph, Infra Red Optics Form Number: E1 – Energy

Annual: Reporting of Energy Usage for the year 2017

Energy Source	Energy Usage Quantity	Primary Energy (MWh)	CO2 Produced (Tonnes)
Electricity *	2023	4855	1103
Natural Gas	625	625	116
TOTAL	2648	5480	1219

* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments:

Electricity Total: 14451 MWh with 14% installation estimate = 2023 MWh.
Gas Total: 3288 MWh with 19% of installation estimate = 625 MWh

Signed .....
(Huw Williams Site Services Manager)

Date: 25.1.2018

Facility: St Asaph, Infra Red Optics Form Number: WU 1 – Water Usage

Annual: Reporting of Water Usage for the year 2017

Water Source	Usage (m^3/year	Specific Usage (m^3/unit output)
Mains water	383	0.09
TOTAL WATER USAGE	383	

Operator's comments :

Using the water meter readings which are strategically placed in all key areas of the optical shop an accurate estimate of the consumption of water per unit is as follows:

4249 lenses as defined in the permit have been processed throughout 2017; this is 8.16% of the 52068 lens grand total which were processed on site at St Asaph. By dividing the defined permitted lens against the Optical Shop meter readings has generated this specific usage figure.

Signed ..... Date: 25.1.2018
(Huw Williams Site Services Manager)

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Facility: St Asaph, Infra Red Optics Form Number: R1 – Waste Disposal

Annual: Reporting of Waste disposal and recovery for the year 2017

Waste Description	Disposal Route	Tonnes	Recovery Tonnes
Hazardous Waste Total	Segregation and recycling	73	4.3
	facility, landfill.		
Non-hazardous Waste	Segregation and recycling	31.02	29
(40% of Site Total)	facility, landfill.		
TOTAL:			

Trends in Waste Disposal and Recovery Year / Parameter	Total Hazardous Waste (Tonnes)	TOTAL N/H Waste (Tonnes)
2005	39.7	46
2006	48.5	40.7
2007	58.8	38.9
2008	48.6	45.2
2009	53.4	44.2
2010	58.83	41.4
2011	50.37	44
2012	55.4	35.48
2013	49.26	39.00
2014	42.55	39.01
2015	38.62	34.82
2016	51.00	30.00
2017	73	31.02

Operator Comments:

Sevenways Environmental Services released their recycling figures which had a mean average of 92% recovery rate for general waste, for the purpose of this report 90% has been used to calculate the recycling figures. Cardboard and Paper have been recycled at a 100% recovery rate. Wood has been recycled at 99% recovery rate.

The Optical Shop accounts for an estimated 40% of Qioptiq's total hazardous waste (182.22) in 2017.

Signed ..... Date 26.1.2018
(Huw Williams, Site Services Manager)

Facility: **St Asaph, Infra Red Optics** **Form Number: P/1 Performance**

Annual: Reporting of other performance indicators for the period 01/01/17 to 31/12/17

Parameter	Units
Water Usage	383
Energy Consumption	5480

Trends in Environmental Performance		
Year	Water Consumption Per Infra Red Optic	Energy Consumption Per Infra Red Optic
2005	1.30 m3 / lens	0.23 MWh / IR Lens
2006	0.0303 m3 / lens	0.28 MWh / IR Lens
2007	0.0167 m3 /lens	0.213 MWh / IR Lens
2008	0.0240 m3 / lens	0.512 MWh / IR Lens
2009	0.0404 m3 / lens	0.553 MWh / IR Lens
2010	0.124 m3 / lens	0.765 MWh / IR Lens
2011	0.077 m3 / lens	0.677 MWh / IR Lens
2012	0.011 m3 / lens	0.369 MWh / IR Lens
2013	0.012 m3/ lens	0.471 MWh/ IR Lens
2014	0.084 m3/lens	0.824 MWh/IR Lens
2015	0.066 m3/lens	0.752 MWh/IR Lens
2016	0.041 m3/lens	0.84 MWh/IR Lens
2017	0.090 m3/lens	1.289 MWh/IR Lens

Operator's comments :

Total 4249: Typically Gallium Arsenide Lens: 36.2g from a 70g blank. Viewed as the typical lens and produced in volume.

4249 lenses as defined in the permit have been processed throughout 2017; this is 8.16% of the lens grand total which were processed on site at St Asaph. By dividing the defined permitted lens against the Optical Shop meter readings and MWh this has generated this specific usage figure.

Signed HW ..... Date 25.1.2018
(Huw Williams Site Services Manager)