

Permit Reference Number: **EPR/BX9471IU**
 Operator: **TATA Steel UK Limited**
 Installation: **Trostre Works, Llanelli**

Form Number: **Air1**
 Form Date: **28 Jan 2023**

Reporting of Emissions to Air period		
FROM		Q1 01/01/2022
TO		Q2 30/06/2022

Emission Point	Substance / Parameter	Emission Limit Value	Result mg/m ³	Test Method [2]	Sample Date and Times [3]	Accreditation/ Certification [4]	Uncertainty [5]
A1 Tin Anode plant	Oxides of Nitrogen as NO ₂	100 mg/m ³	unit mothballed				
A2 Tin Anode plant	Oxides of Nitrogen as NO ₂	100 mg/m ³	Ref: Air1 Q3-4 below				
A6	Oxides of Nitrogen as NO ₂	350 mg/m ³	Ref: previous quarterly submissions for Q1-3				
A24	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	98.88	BS EN 14792:2017	06/05/22 10:15 – 11:15	UKAS / MCERTS	2
A24	Carbon Monoxide (Gas Firing)	n/a	0.96	BS EN 15058:2017	06/05/22 10:15 – 11:15	UKAS / MCERTS	3
A24	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				
A25	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	99.47	BS EN 14792:2017	06/05/22 11:30 – 12:30	UKAS / MCERTS	2
A25	Carbon Monoxide (Gas Firing)	n/a	0.98	BS EN 15058:2017	06/05/22 11:30 – 12:30	UKAS / MCERTS	3
A25	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				
A26	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	102.74	BS EN 14792:2017	06/05/22 12:35 – 13:35	UKAS / MCERTS	2
A26	Carbon Monoxide (Gas Firing)	n/a	1.17	BS EN 15058:2017	06/05/22 12:35 – 13:35	UKAS / MCERTS	3
A26	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				
A27	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	98.62	BS EN 14792:2017	06/05/22 13:40 – 14:40	UKAS / MCERTS	2
A27	Carbon Monoxide (Gas Firing)	n/a	0.78	BS EN 15058:2017	06/05/22 13:40 – 14:40	UKAS / MCERTS	3
A27	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				

- [1] The result given is the mean value obtained during the monitoring period, corrected to specified reference conditions. Where the emission is expressed as a time averaged value corresponding to the permit reference period, the calculation methodology is specified in the business's relevant ISO14001 documentation.
- [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.

Signed  (authorised to sign as representative of the Operator) Date 30/01/2023

NOTE:- the standards now adopted for 2018 MCERTS emissions monitoring of NOx and CO have been updated from those listed in the permit EPR/BX9471IU to the latest versions ie. BS EN 14792:2017 & BS EN 15058 :2017

Permit Reference Number: **EPR/BX9471IU**
 Operator: **TATA Steel UK Limited**
 Installation: **Trostre Works, Llanelli**

Form Number: **Air1**
 Form Date: **28 Jan 2023**

Reporting of Emissions to Air period

FROM	Q3 01/07/2022
TO	Q4 31/12/2022

Emission Point	Substance / Parameter	Emission Limit Value	Result mg/m ³	Test Method ^[2]	Sample Date and Times ^[3]	Accreditation/ Certification ^[4]	Uncertainty ^[5]
A1 Tin Anode plant	Oxides of Nitrogen as NO ₂	100 mg/m ³	unit mothballed				
A2 Tin Anode plant	Oxides of Nitrogen as NO ₂	100 mg/m ³	23.92	BS EN 14792:2017	Annual 08/12/2022	UKAS/MCERTS	3
A6	Oxides of Nitrogen as NO ₂	350 mg/m ³	209.71	BS EN 14792:2017	Q4 only 06/12/2022	UKAS/MCERTS	2
A24	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	99.20	BS EN 14792:2017	07/12/2022 11:55 – 12:55	UKAS/MCERTS	3
A24	Carbon Monoxide (Gas Firing)	n/a	1.90	BS EN 15058:2017	07/12/2022 11:55 – 12:55	UKAS/MCERTS	4
A24	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				
A25	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	99.01	BS EN 14792:2017	07/12/2022 13:05 – 14:05	UKAS/MCERTS	3
A25	Carbon Monoxide (Gas Firing)	n/a	2.06	BS EN 15058:2017	07/12/2022 13:05 – 14:05	UKAS/MCERTS	4
A25	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				
A26	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	101.47	BS EN 14792:2017	07/12/2022 14:15 – 15:15	UKAS/MCERTS	3
A26	Carbon Monoxide (Gas Firing)	n/a	1.71	BS EN 15058:2017	07/12/2022 14:15 – 15:15	UKAS/MCERTS	4
A26	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				
A27	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	97.87	BS EN 14792:2017	09/12/2022 11:15 – 12:15	UKAS/MCERTS	2
A27	Carbon Monoxide (Gas Firing)	n/a	1.30	BS EN 15058:2017	09/12/2022 11:15 – 12:15	UKAS/MCERTS	3
A27	Oxides of Nitrogen as NO ₂ (Oil Firing)	n/a	Not required				

- [6] The result given is the mean value obtained during the monitoring period, corrected to specified reference conditions. Where the emission is expressed as a time averaged value corresponding to the permit reference period, the calculation methodology is specified in the business's relevant ISO14001 documentation.
- [7] 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.
- [8] 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.
- [9] The accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.
- [10] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed

(authorised to sign as representative of the Operator)

Date

30/01/23

NOTE:- the standards now adopted for 2018 MCERTS emissions monitoring of NOx and CO have been updated from those listed in the permit EPR/BX9471IU to the latest versions ie. BS EN 14792:2017 & BS EN 15058 :2017

Permit Reference Number:

EPR/BX9471IU

Form Number:

Energy1

Operator:

TATA Steel UK Limited

Form Date:

28 Jan 2023

Installation:

Trostre Works, Llanelli

Reporting of energy usage for the year	2022
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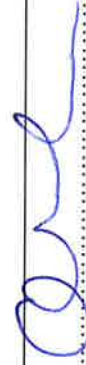
Energy Usage				Trends in Energy Usage		
Energy Source	Delivered Quantity	Primary Energy (MWh)	CO ₂ Produced (tonnes)	Year	Primary Energy usage	Parameter
Electricity*	140,837 MWh	366,176 MWh	60,785	2016	617,916	CO ₂ per unit output
Natural Gas*	200,229 MWh	200,229 MWh	40,315	2017	643,027	0.307
Gas Oil*	0	0	0	2018	624,114	0.305
				2019	566,858	0.302
				2020	533,937	0.297
				2021	541,687	0.260
				2022	566,405	0.260
Totals	341,066	566,405	101,100		101,100	0.301

- Conversion factor for Delivered Electricity to Primary Electricity = Delivered Quantity x 2.6
- Conversion factor for Primary Carbon Dioxide = Primary Electricity x 0.166 tonnes

Operator's comments:

Delivered energy use is essentially a combination of production volumes, product matrix and efficient use of electric and gas, while Natural gas data corresponds to UK ETS submissions for 2022. Electricity data is taken from fiscal billing data.

Signed



(authorised to sign as representative of the Operator)

Date

30/01/23

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: Performance1
Form Date: 28 Jan 2023

Reporting of performance for the year	2022
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Annual Production/Treatment		
Output	Quantity	Unit
Boiler House Energy Consumption per tonne steam	2654	MJ/t steam
Tin Plated steel coils	214,909	Tonnes
Electrically Coated chrome coils	120,511	tonnes

Environmental Performance Indicators

Parameter	Annual Average	Units
Energy Consumption - Gas	2635	MJ/t steam
Energy Consumption - Oil	n/a	MJ/t steam
Energy Consumption - Electricity	19	MJ/t steam
Potable water use per tonne of product produced [Tin-plate]	0.78	m ³
Potable water use per tonne of product produced [Chrome-plate]	0.56	m ³
Primary Energy used per tonne of product produced [Tin-plate]	1318	kWh
Primary Energy used per tonne of product produced [Chrome-plate]	2350	kWh
Tonnes of waste disposed per tonne of product produced [Tin-plate]	0.03	Tonnes
Tonnes of waste disposed per tonne of product produced [Chrome-plate]	0.03	Tonnes

Trends in Environmental Performance

Parameter

Year	Boiler House Energy Consumption				Tin Plate			Chrome Plate		
	Gas	Oil	Electricity	Water Use	Energy Use	Waste produced	Water Use	Energy Use	Waste produced	
	MJ/t steam	MJ/t steam	MJ/t steam	m³	kWh	Tonnes	m³	kWh	Tonnes	
2016	2594	1	21	0.45	2175	0.03	0.12	5826	0.07	
2017	2629	0.5	20	0.46	2385	0.03	0.99	5069	0.06	
2018	2733	0	20	0.50	2558	0.03	0.96	4889	0.05	
2019	2801	0	20	0.49	2710	0.03	0.97	4508	0.05	
2020	2792	0	19	0.59	2375	0.01	0.90	3715	0.02	
2021	2795	0	19	0.58	2365	0.01	0.93	3784	0.02	
2022	2635	0	19	0.78	1318	0.03	0.56	2350	0.03	

Operator's comments:

Waste produced = Total waste disposed & recovered as per form "R1"

Energy = Total Primary Energy (Gas & Electric) as per form 'Energy1'

Water use = Potable Water Usage as per form 'WaterUsage1'

2022 performance data reflects the output for both Tin Plate to Chrome Plate products. The production volumes reflected in Performance1 are slightly reduced, which influences the per T metrics.

Waste production remains similar levels to previous years, however as virtually all this waste is now 'recovered', hence diverted away from landfill (ref Operator's comments R1).

Signed

(authorised to sign as representative of the Operator)

Date

30/01/23

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: **WaterUsage1**
Form Date: **28 Jan 2023**

Reporting of water usage for the period

FROM	01/01/2022
TO	31/12/2022

Water Usage		
Water Source	Quantity	Units
Main Boiler House supply (Boiler Feedwater)	154,795	m ³
Works Non-potable process trade water	1,449,976	m ³ /year
Works domestic process potable water	235,089	m ³ /year
Total Water Usage	1,685,065	m ³ /year

Trends in Water Usage	
Year	Total Water usage [m ³]
2015	1,671,660
2016	1,621,140
2017	1,653,170
2018	1,668,382
2019	1,582,245
2020	1,608,347
2021	1,562,867
2022	1,685,065

Operator's comments:

Water supply for the works requirements of its Boiler plant, potable & non-potable consumption is predominantly influenced by production volumes and product mix.

Signed
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Date..... 30/01/23

Permit Reference Number:

EPR/BX9471IU

Form Number: R1

Operator:

TATA Steel UK Limited
Trostre Works, Llanelli

Form Date:

28 Jan 2023

Reporting of waste generation for the year

2022

Waste Description	Route	Disposal Tonnes	Recovery Tonnes
Hazardous Waste			
Named Hazardous Waste	Oil Waste and Spent Tin Electrolyte	57	1253
Other Hazardous Waste			596
Total Hazardous Waste	1906		
Non-hazardous Wastes			
Named Non-hazardous Waste	General waste, wood, plastic, filter cake.	0	6587
Other non-hazardous Waste			
Total Non- Hazardous Waste	6587		
TOTAL WASTE	8493		

Year	Trends in waste disposal and recovery		
	Disposed Waste	Recovered Waste	Total Waste per Unit output
2014	7521	455	0.02
2015	6979	780	0.02
2016	7797	898	0.02
2017	7178	1121	0.02
2018	5932	3062	0.02
2019	2094	6774	0.02
2020	1889	6801	0.02
2021	817	7737	0.02
2022	57	8436	0.03

Operator's comments:

2021 performance data reflects the fact that business production has been largely unaffected throughout the pandemic. Total waste produced is similar to previous years, at a level of 0.025 T/unit output, but with less volume through the plant. However the drive to recover Hazardous & Non Hazardous waste streams for internal recycling , and diversion from landfill continues to progress over the past couple of years, with recovered tonnages now representing > 95% of total waste produced. Further increases on this % are targeted for 2023

Signed



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Date

28/01/23

Permit Reference Number:
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Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: **Mass Release1**
Form Date: **28 Jan 2023**

Reporting of mass release to water for the year **2022**

Parameter	Limit	Quantity released (kg)
Cadmium	40 kg/year	0.060
Mercury	40 kg/year	0.088

Trends of releases to water		
Year	Parameter	
	Cadmium	Mercury
2017	0.068	0.110
2018	0.070	0.110
2019	0.066	0.102
2020	0.071	0.112
2021	0.070	0.110
2022	0.060	0.088

Operator's comments

Cd & Hg mass release quantities are calculated using the agreed standard mass balance calculator based on annual consumptions of sulphuric acid and caustic cleaner solutions.

Signed  (authorised to sign as representative of the Operator)

Date 30/01/23

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: **Water1**
Form Date: **28 Jan 2023**

Reporting of water emissions for the period		
FROM		01/10/2022
TO		31/10/2022

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
W1	Flow	190 litres/second, expressed as daily average.	76.3 l/s	(See permit MCERT flow meter)	23/10/22		
	Temperature	35 C	33.5 C	See permit – continuous monitoring system)	14/10/22		
	pH	5.0 - 10.0	6.3 8.6	BS6068-2:1995 ISO 10523:1984	21/10/22 01/10/22		
	Suspended Solids	60 mg/l	35.0 mg/l	BS EN 872:1996 BS 6068-2.54:1996 [1]	04/10/22		
	Oil and grease	12 mg/l	9.6 mg/l	SCA Blue Book 77 [ISBN 0117517283 [1]	03/10/22		
	Dissolved iron	40 mg/l	1.4 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 [1]	04/10/22		
	Total chromium	0.4 mg/l	0.148 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 [1]	15/10/22		
	Biochemical Oxygen Demand	N/A					

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
	Chemical Oxygen Demand	300 mg/l	112.0 mg/l	SCA Blue Book 97 ISBN 0117519154	10/10/21		
W2	pH	5.0 - 10.0	5.2 6.6	(See permit – SCADA probe continuous monitoring)	26/10/22 01/10/22		

Permit Reference Number:

Operator:
Installation:

EPR/BX9471IU

TATA Steel UK Limited
Trostre Works, Llanelli

Form Number:

Form Date:

Water1

28 Jan 2023

Reporting of water emissions for the period

FROM	01/11/2022
TO	30/11/2022

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
W1	Flow	190 litres/second, expressed as daily average.	75.2 l/s	(See permit MCERT flow meter)	15/11/22		
	Temperature	35 C	30.9 C	See permit – continuous monitoring system)	01/11/22		
	pH	5.0 - 10.0	6.3 8.6	BS6068-2:1995 ISO 10523:1984	09/11/22 24/11/22		
	Suspended Solids	60 mg/l	20.4 mg/l	BS EN 872:1996 BS 6068-2.54:1996 [1]	16/11/22		
	Oil and grease	12 mg/l	3.5 mg/l	SCA Blue Book 77 ISBN 0117517283 [1]	24/11/22		

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
	Dissolved iron	40 mg/l	6.7 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 [1]	30/11/22		
	Total chromium	0.4 mg/l	0.094 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 [1]	27/11/22		
	Biochemical Oxygen Demand	N/A					
	Chemical Oxygen Demand	300 mg/l	135 mg/l	SCA Blue Book 97 ISBN 0117519154	03/11/22		
W2	pH	5.0 - 10.0	5.0 5.2	(See permit – SCADA probe continuous monitoring)	01/11/22 29/11/22		

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: **Water1**
Form Date: **28 Jan 2023**

Reporting of water emissions for the period

FROM	01/12/2022
TO	31/12/2022

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
W1	Flow	190 litres/second, expressed as daily average.	52.1 l/s	(See permit MCERT flow meter)	10/12/22		
	Temperature	35 C	29.5 C	See permit – continuous monitoring system)	01/12/22		
	pH	5.0 - 10.0	7.0 8.7	BS6068-2:1995 ISO 10523:1984	14/12/22 03/12/22		
	Suspended Solids	60 mg/l	46.8 mg/l	BS EN 872:1996 BS 6068-2.54:1996 [1]	16/12/22		
	Oil and grease	12 mg/l	3.1 mg/l	SCA Blue Book 77 ISBN 0117517283 [1]	06/12/22		
	Dissolved iron	40 mg/l	4.35 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 [1]	17/12/22		
	Total chromium	0.4 mg/l	0.041 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 [1]	30/12/22		
	Biochemical Oxygen Demand	N/A					

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
	Chemical Oxygen Demand	300 mg/l	184 mg/l	SCA Blue Book 97 ISBN 0117519154	09/12/22		
W2	pH	5.0 - 10.0	5.0 5.71	(See permit – SCADA probe continuous monitoring)	11/12/22 31/12/22		

Operator's comments:

All levels remain within permit limits. Graphical representation of these parameters for 2022 is given below.

Signed



(authorised to sign as representative of the Operator)

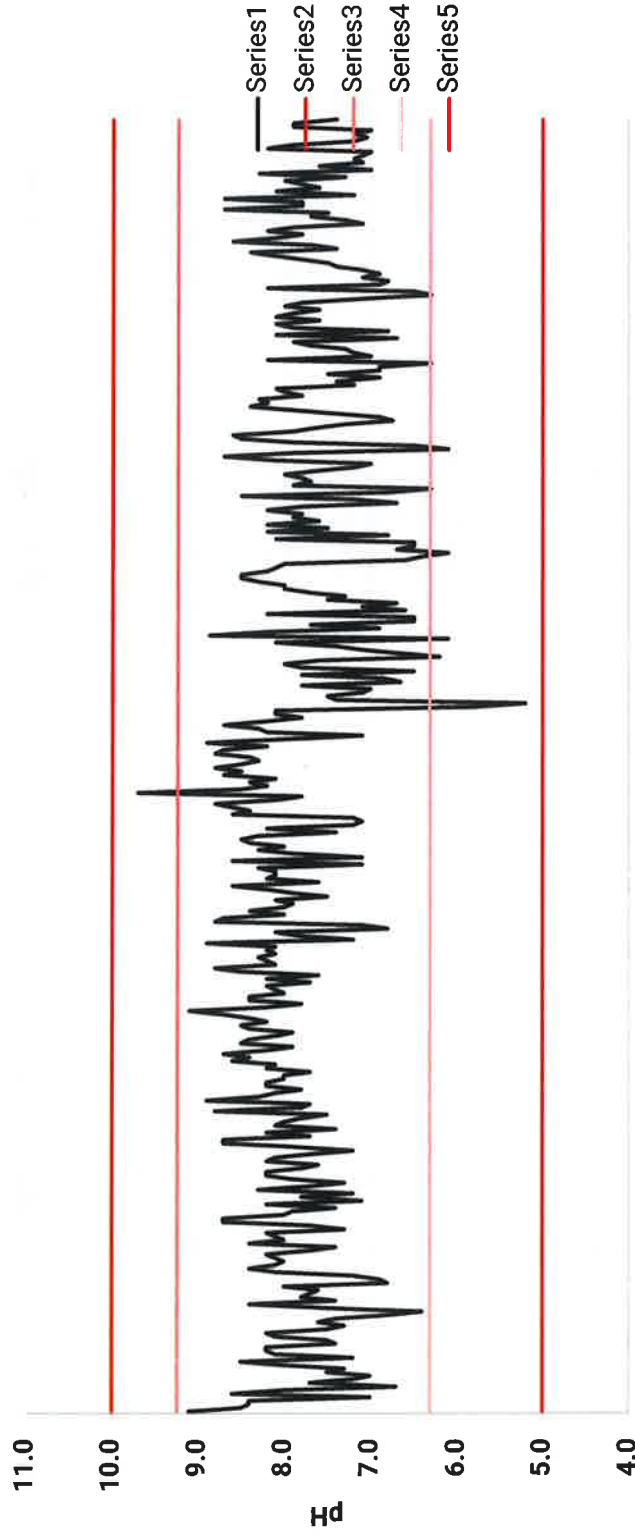
Date.....

30/01/23

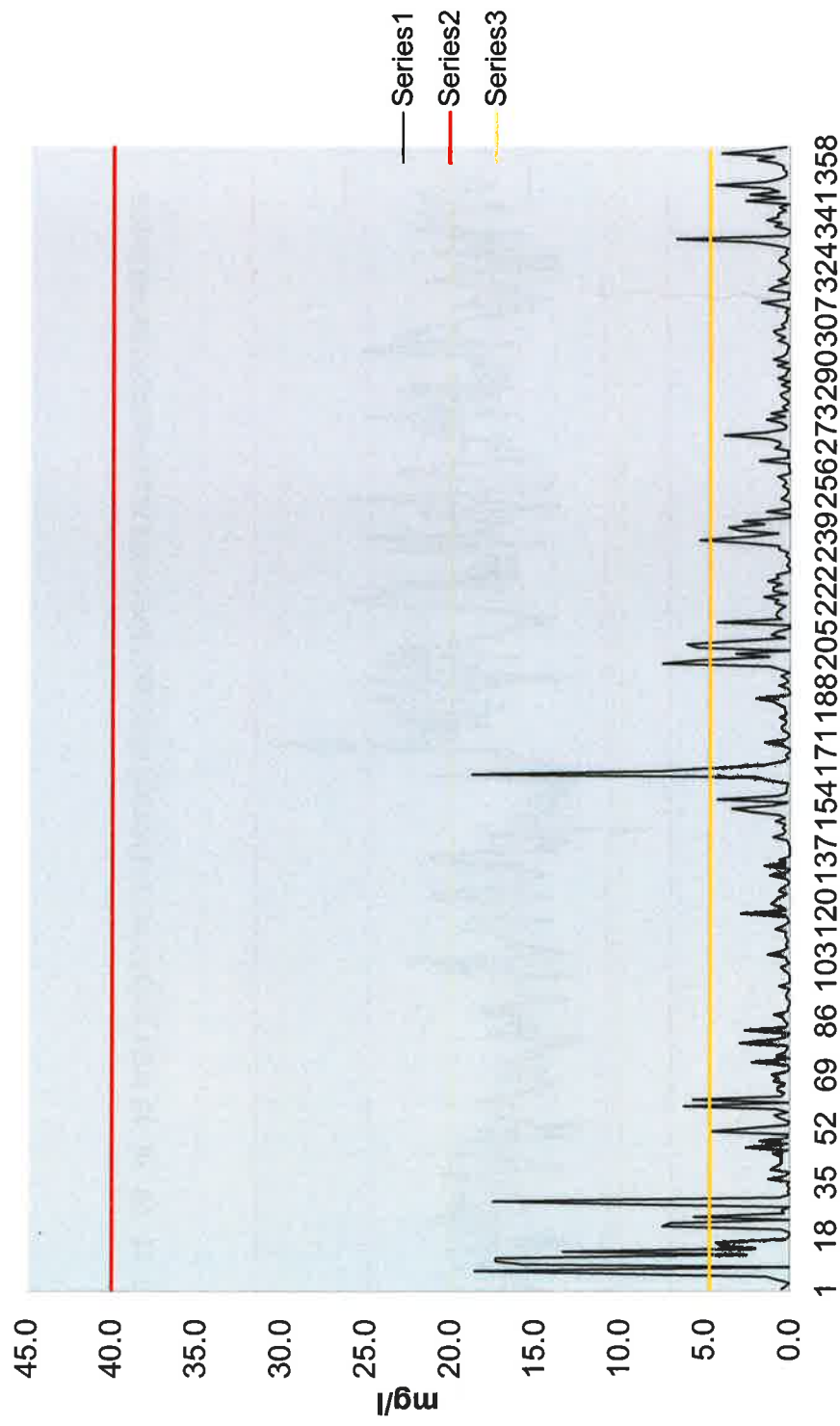
2021 PERFORMANCE INDICATORS FOR EMISSIONS TO WATER (W1)

(Red lines denote permit AEL's)

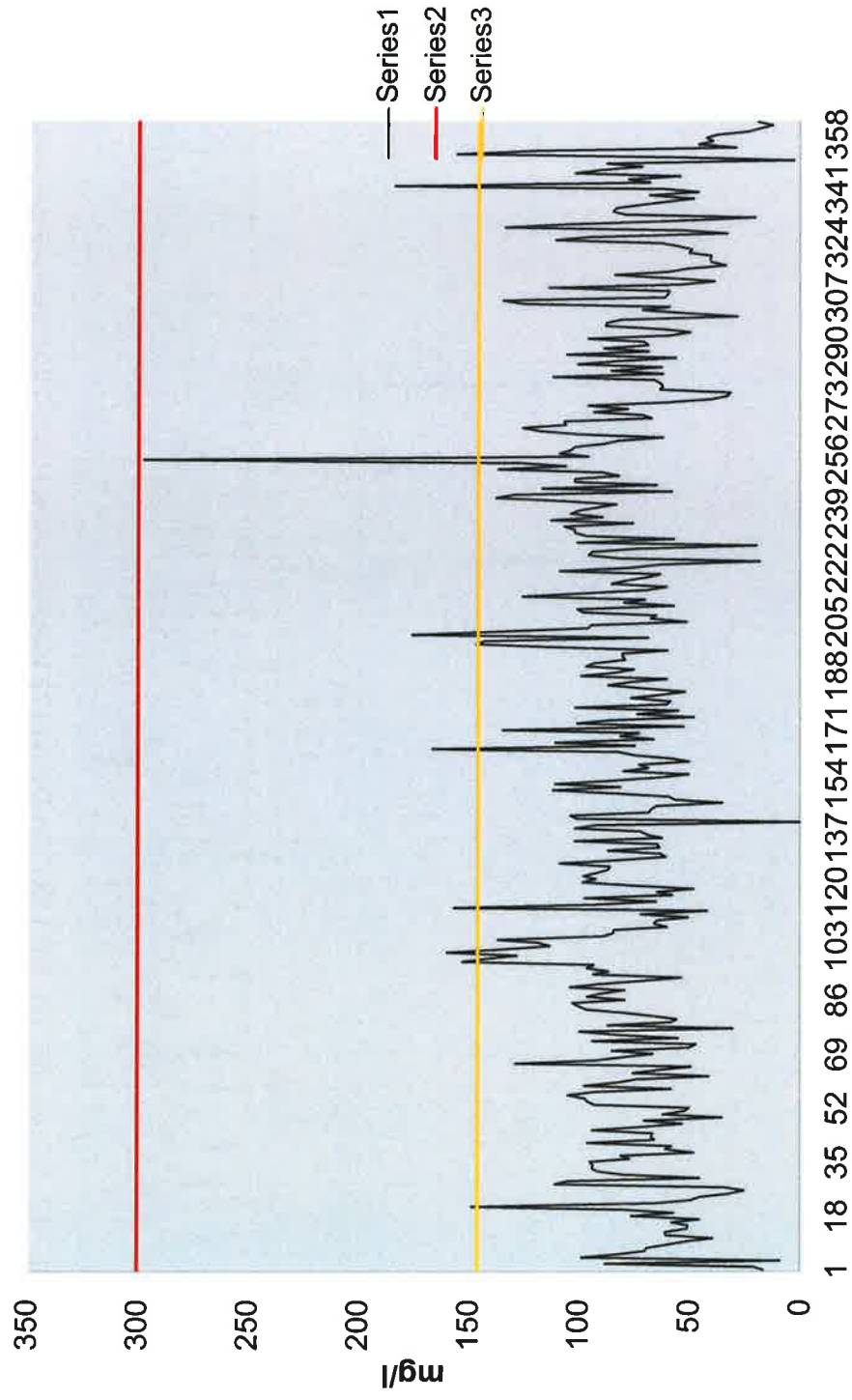
2022



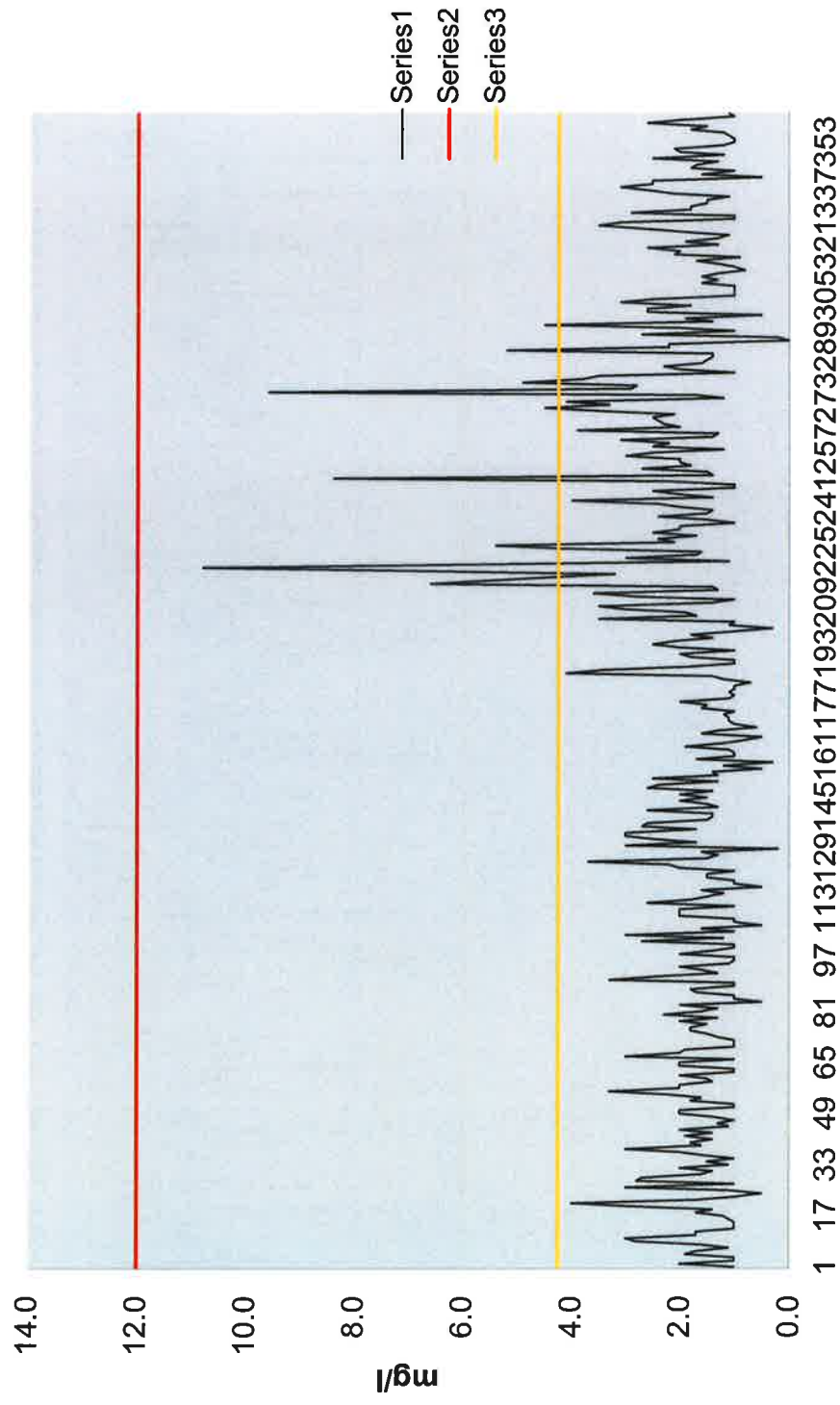
Dissolved Iron 2022



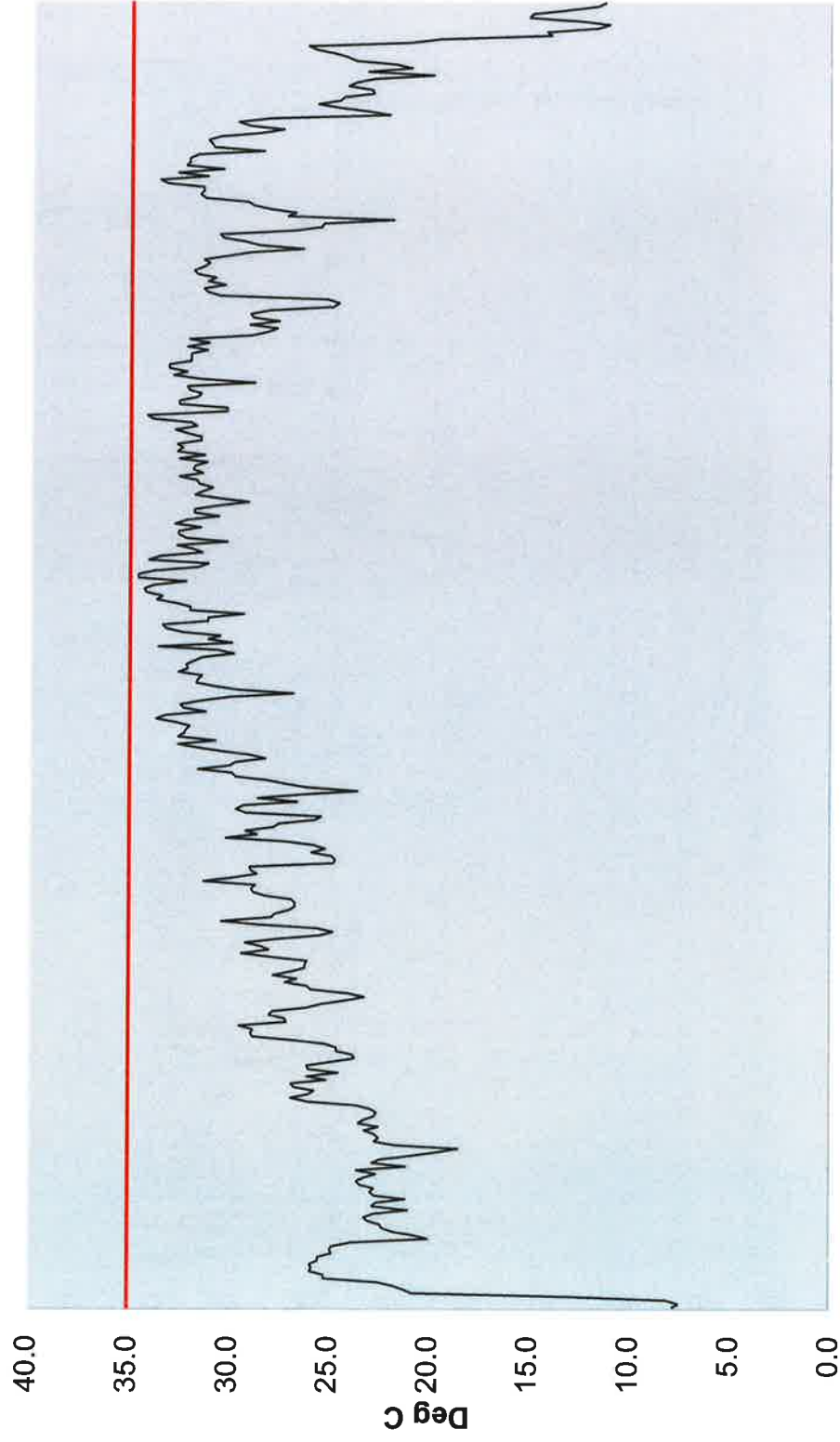
2022 COD



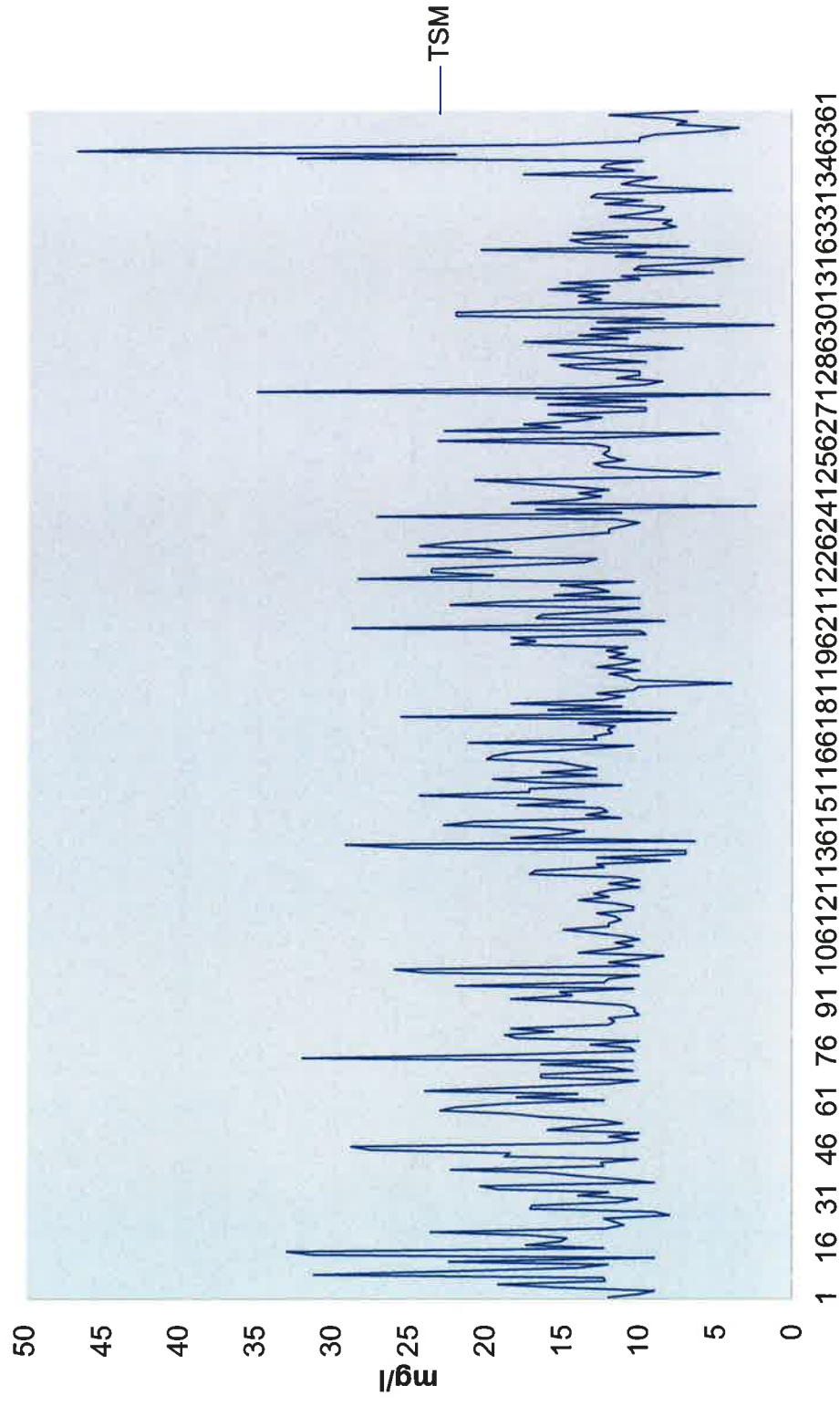
Total Oil & Grease 2022



Max Daily Temp 2022



Total Suspended Material 2022



Total Chrome 2022

