

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

Form Number: **Air1**
 Form Date: **17 Jan 2022**

Reporting of Emissions to Air period

FROM	Q1 01/01/2021
TO	Q2 30/06/2021

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	102.52	BS EN 14792:2017	03/06/21 13:22 – 14:22	UKAS / MCERTS	95
A24	Carbon Monoxide (Gas Firing)	n/a	4.67	BS EN 15058:2017	03/06/21 13:22 – 14:22	UKAS / MCERTS	95
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	102.55	BS EN 14792:2017	03/06/21 12:10 – 13:10	UKAS / MCERTS	95
A25	Carbon Monoxide (Gas Firing)	n/a	4.76	BS EN 15058:2017	03/06/21 12:10 – 13:10	UKAS / MCERTS	95
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	92.13	BS EN 14792:2017	03/06/21 15:46 – 16:46	UKAS / MCERTS	95
A26	Carbon Monoxide (Gas Firing)	n/a	3.40	BS EN 15058:2017	03/06/21 15:46 – 16:46	UKAS / MCERTS	95
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	103.20	BS EN 14792:2017	03/06/21 14:42 – 15:42	UKAS / MCERTS	95
A27	Carbon Monoxide (Gas Firing)	n/a	221.12	BS EN 15058:2017	03/06/21 14:42 – 15:42	UKAS / MCERTS	95
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.....21/11/21.....

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: **17 Jan 2022**

Reporting of Emissions to Air period

FROM	Q3 01/07/2021
TO	Q4 31/12/2021

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	57.5	BS EN 14792:2017	Annual 18/11/2021	UKAS/MCERTS	95
A2 Tin Anode plant	Oxides of Nitrogen as NO ₂	100 mg/m ³	57.5	BS EN 14792:2017	Annual 18/11/2021	UKAS/MCERTS	95
A6	Oxides of Nitrogen as NO ₂	350 mg/m ³	270	BS EN 14792:2017	Q4 only 11/11/2021	UKAS/MCERTS	95
A24	Oxides of Nitrogen as NO ₂ (Gas Firing)	200 mg/m ³	86.44	BS EN 14792:2017	19/11/2021 11:13 – 12:13	UKAS/MCERTS	95
A24	Carbon Monoxide (Gas Firing)	n/a	3.24	BS EN 15058:2017	19/11/2021 11:13 – 12:13	UKAS/MCERTS	95
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	84.66	BS EN 14792:2017	19/11/2021 12:27 – 13:27	UKAS/MCERTS	95
A25	Carbon Monoxide (Gas Firing)	n/a	2.76	BS EN 15058:2017	19/11/2021 12:27 – 13:27	UKAS/MCERTS	95
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	90.85	BS EN 14792:2017	19/11/2021 13:48 – 14:48	UKAS/MCERTS	95
A26	Carbon Monoxide (Gas Firing)	n/a	2.94	BS EN 15058:2017	19/11/2021 13:48 – 14:48	UKAS/MCERTS	95
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	88.14	BS EN 14792:2017	19/11/2021 15:00 – 16:00	UKAS/MCERTS	95
A27	Carbon Monoxide (Gas Firing)	n/a	2.91	BS EN 15058:2017	19/11/2021 15:00 – 16:00	UKAS/MCERTS	95
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.

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(authorised to sign as representative of the Operator)

Date..... 21/11/21

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: **Energy1**
 Form Date: **17 Jan 2022**

Reporting of energy usage for the year

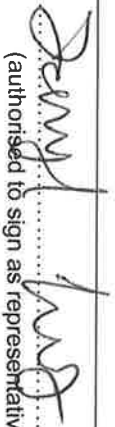
2021

Energy Usage				Trends in Energy Usage		
Energy Source	Delivered Quantity	Primary Energy (MWh)	CO ₂ Produced (tonnes)	Year	Primary Energy usage	Parameter CO ₂ produced CO ₂ per unit output
Electricity*	125,330 MWh	325,658 MWh	54,092	2016	617,916	113,602 0.307
Natural Gas*	216,029 MWh	216,029 MWh	42,916	2017	643,027	118,435 0.305
Gas Oil*	0	0	0	2018	624,114	112,202 0.302
				2019	566,858	112,452 0.297
				2020	533,937	97,201 0.260
				2021	541,687	97,008 0.260
Totals			97,008			

- 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 2021. Trostre works has remained fully loaded and operational throughout the pandemic, and its product range is registered as "key sector product."

Signed  (authorised to sign as representative of the Operator)

Date: 21/1/21

Form Number:

Air1

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Form Date:

14 Sep 2018

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

Form Number: **Performance1**
 Form Date: **17 Jan 2022**

Reporting of performance for the year

2021

Annual Production/Treatment		
Output	Quantity	Unit
Boiler House Energy Consumption per tonne steam	2814	MJ/t steam
Tin Plated steel coils	229,044	Tonnes
Electrically Coated chrome coils	143,150	tonnes

Environmental Performance Indicators

Parameter	Annual Average	Units
Energy Consumption - Gas	2795	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]	0.58	m ³
Potable water use per tonne of product produced [Chrome-plate]	0.93	m ³
Primary Energy used per tonne of product produced [Tin-plate]	2365	kWh
Primary Energy used per tonne of product produced [Chrome-plate]	3784	kWh
Tonnes of waste disposed per tonne of product produced [Tin-plate]	0.01	Tonnes
Tonnes of waste disposed per tonne of product produced [Chrome-plate]	0.02	Tonnes

Trends in Environmental Performance

Year	Boiler House Energy Consumption			Tin Plate			Chrome Plate		
	Parameter			Parameter			Parameter		
	Gas	Oil	Electricity	Water Use	Energy Use	Waste produced	Water Use	Energy Use	Waste produced
	MJ/t steam	MJ/t steam	MJ/t steam	m ³	kWh	Tonnes	m ³	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

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'

2021 performance data reflects the constant output to plan for both Tin Plate to Chrome Plate products throughout the pandemic over the past 2 years. The business production has been largely unaffected through 2020 & 2021, as indicated by similar metrics above for its performance. 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), 2021 performance now has the lowest "Disposed Waste per unit product"

Signed
 (authorised to sign as representative of the Operator)

Date.....21/1/21.....

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number:
Form Date:
WaterUsage1
17 Jan 2022

Reporting of water usage for the period			
FROM		01/01/2021	
TO		31/12/2021	

Water Usage			Trends in Water Usage	
Water Source	Quantity	Units	Year	Total Water usage [m ³]
Main Boiler House supply (Boiler Feedwater)	155,953	m ³	2015	1,671,660
Works Non-potable process trade water	1,429,649	m ³ /year	2016	1,621,140
Works domestic process potable water	133,218	m ³ /year	2017	1,653,170
			2018	1,668,382
			2019	1,582,245
			2020	1,608,347
			2021	1,562,867
Total Water Usage		1,562,867		

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. 2021 performance data reflects the fact that business production has been largely unaffected throughout the pandemic.

Signed
(authorised to sign as representative of the Operator)

Date.....21/1/21.....

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

Form Number: **R1**
 Form Date: **17 Jan 2022**

Reporting of waste generation for the year

2021

Waste Description	Route	Disposal Tonnes	Recovery Tonnes
Hazardous Waste			
Named Hazardous Waste	Oil Waste and Spent Tin Electrolyte	203	1460
Other Hazardous Waste			
Total Hazardous Waste			
Non-hazardous Wastes			
Named Non-hazardous Waste	General waste, wood, plastic, filter cake.	614	6277
Other non-hazardous Waste			
Total Hazardous Waste			
TOTAL WASTE		8554	

Trends in waste disposal and recovery			
Year	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

Operator's comments:

2021 performance data reflects the fact that business production has been largely unaffected throughout the pandemic. Total waste produced is consistent with previous years, at a level of 0.02 T/unit output. 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 > 90% of total waste produced.
 Further increases on this % are targeted for 2022

Signed 

Date 21/1/21

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

Form Number: **Mass Release1**
Form Date: **17 Jan 2022**

Reporting of mass release to water for the year

2021

Parameter	Limit	Quantity released (kg)
Cadmium	40 kg/year	0.070
Mercury	40 kg/year	0.110

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	

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. The flatline trend reflects the fact that the business production levels have remained largely unaffected by the pandemic during the past 2 years.

Signed
(authorised to sign as representative of the Operator)

Date: 21/1/21

(authorised to sign as representative of the Operator)

Form Number:

R1

Page 2 of 2

Form Date:

14 Sep 2018

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: Water1
Form Date: 17 Jan 2022

Reporting of water emissions for the period	
FROM	01/10/2021
TO	31/12/2021

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.	105.3 l/s	(See permit MCERT flow meter)	27/10/21		
	Temperature	35 C	31.9 C	See permit – continuous monitoring system)	15/10/21		
	pH	5.0 - 10.0	5.8 9.0	BS6068-2:1995 ISO 10523:1984	07/10/21 03/10/21		
	Suspended Solids	60 mg/l	33.2 mg/l	BS EN 872:1996 BS 6068-2.54:1996 ^[1]	19/10/21		
	Oil and grease	12 mg/l	8.2 mg/l	SCA Blue Book 77 ISBN 0117517283 ^[1]	21/10/21		
	Dissolved iron	40 mg/l	12.7 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 ^[1]	07/10/21		
	Total chromium	0.4 mg/l	0.148 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 ^[1]	24/10/21		
	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	282 mg/l	SCA Blue Book 97 ISBN 0117519154	13/10/21		
W2	pH	5.0 - 10.0	6.2 7.3	(See permit – SCADA probe continuous monitoring)	15/10/21 03/10/21		

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: **Water1**
Form Date: **17 Jan 2022**

Reporting of water emissions for the period		
FROM	01/11/2021	
TO	30/11/2021	

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.	57.9 l/s	(See permit MCERT flow meter)	22/11/21		
	Temperature	35 C	33.6 C	See permit – continuous monitoring (system)	09/11/21		
	pH	5.0 - 10.0	6.3 9.1	BS6068-2:1995 ISO 10523:1984	14/11/21 20/11/21		
	Suspended Solids	60 mg/l	25.2 mg/l	BS EN 872:1996 BS 6068-2.54:1996 (i)	13/11/21		
	Oil and grease	12 mg/l	2.9 mg/l	SCA Blue Book 77 ISBN 0117517283 (ii)	01/11/21		

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
	Dissolved iron	40 mg/l	7.9 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 ⁽¹⁾	07/11/21		
	Total chromium	0.4 mg/l	0.04 mg/l	BS ISO 17294-2:2003 BS6068-2.89:2003 ⁽¹⁾	04/11/21		
	Biochemical Oxygen Demand	N/A					
	Chemical Oxygen Demand	300 mg/l	222 mg/l	SCA Blue Book 97 ISBN 0117519154 (See permit – SCADA probe continuous monitoring)	16/11/21		
W2	pH	5.0 - 10.0	6.5 7.6		11/11/21 24/11/21		

Permit Reference Number:
Operator:
Installation:

EPR/BX9471IU
TATA Steel UK Limited
Trostre Works, Llanelli

Form Number: **Water1**
Form Date: **17 Jan 2022**

Reporting of water emissions for the period		
FROM	01/12/2021	
TO	31/12/2021	

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.	81.0 Vs	(See permit MCERT flow meter)	09/12/19		
	Temperature	35 C	26.2 C	See permit – continuous monitoring (system)	16/12/21		
	pH	5.0 - 10.0	6.6 9.2	BS6068-2:1995 ISO 10523:1984	09/12/21 20/12/21		
	Suspended Solids	60 mg/l	45.2 mg/l	BS EN 872:1996 BS 6068-2:54:1996 [1]	28/12/21		
	Oil and grease	12 mg/l	4.2 mg/l	SCA Blue Book 77 ISBN 0117517283 [1]	14/12/21		
	Dissolved iron	40 mg/l	7.8 mg/l	BS ISO 17294-2:2003 BS6068-2:89:2003 [1]	01/12/21		
	Total chromium	0.4 mg/l	0.123 mg/l	BS ISO 17294-2:2003 BS6068-2:89:2003 [1]	30/12/21		
	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	181 mg/l	SCA Blue Book 97 ISBN 0117519154	24/12/21		
W2	pH	5.0 - 10.0	6.7 7.2	(See permit – SCADA probe continuous monitoring)	19/12/21 30/12/21		

Operator's comments:

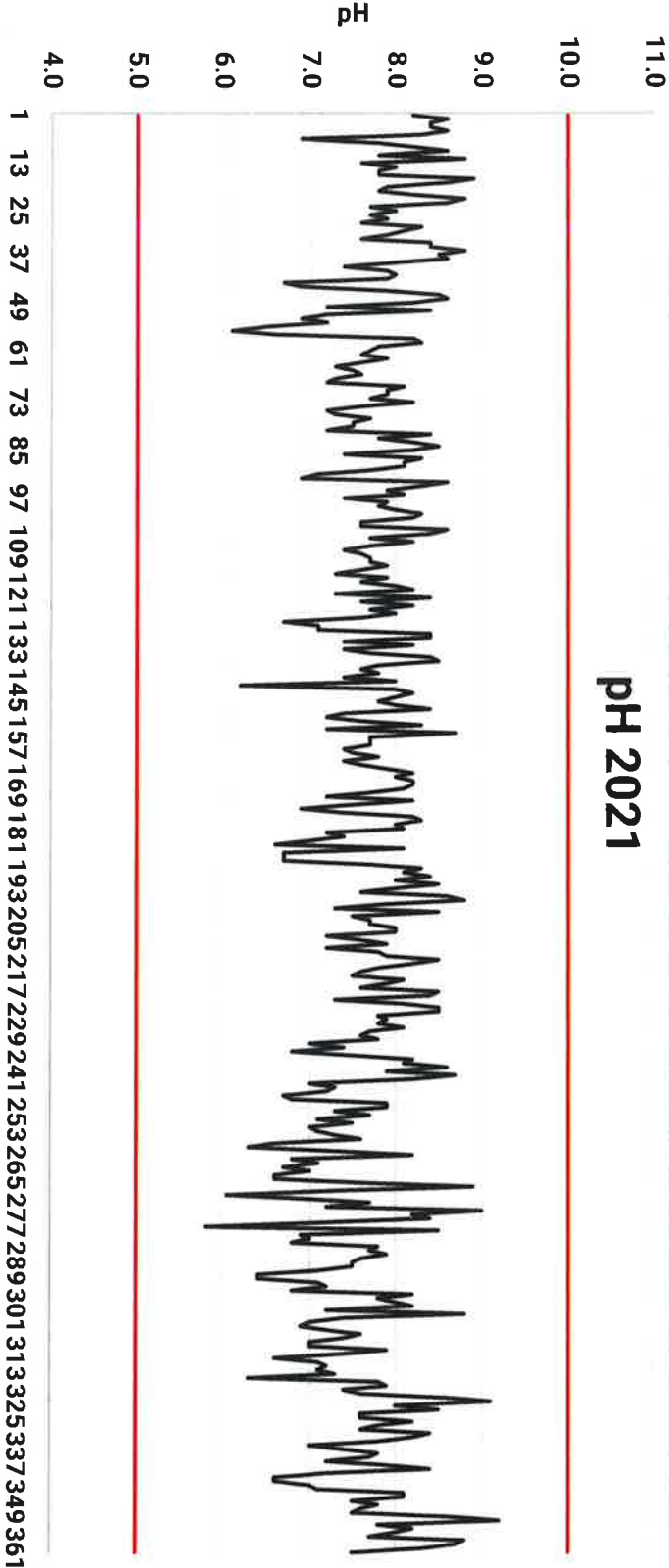
All levels remain within permit limits. Graphical representation of these parameters for 2021 is given below.

Signed
(authorised to sign as representative of the Operator)

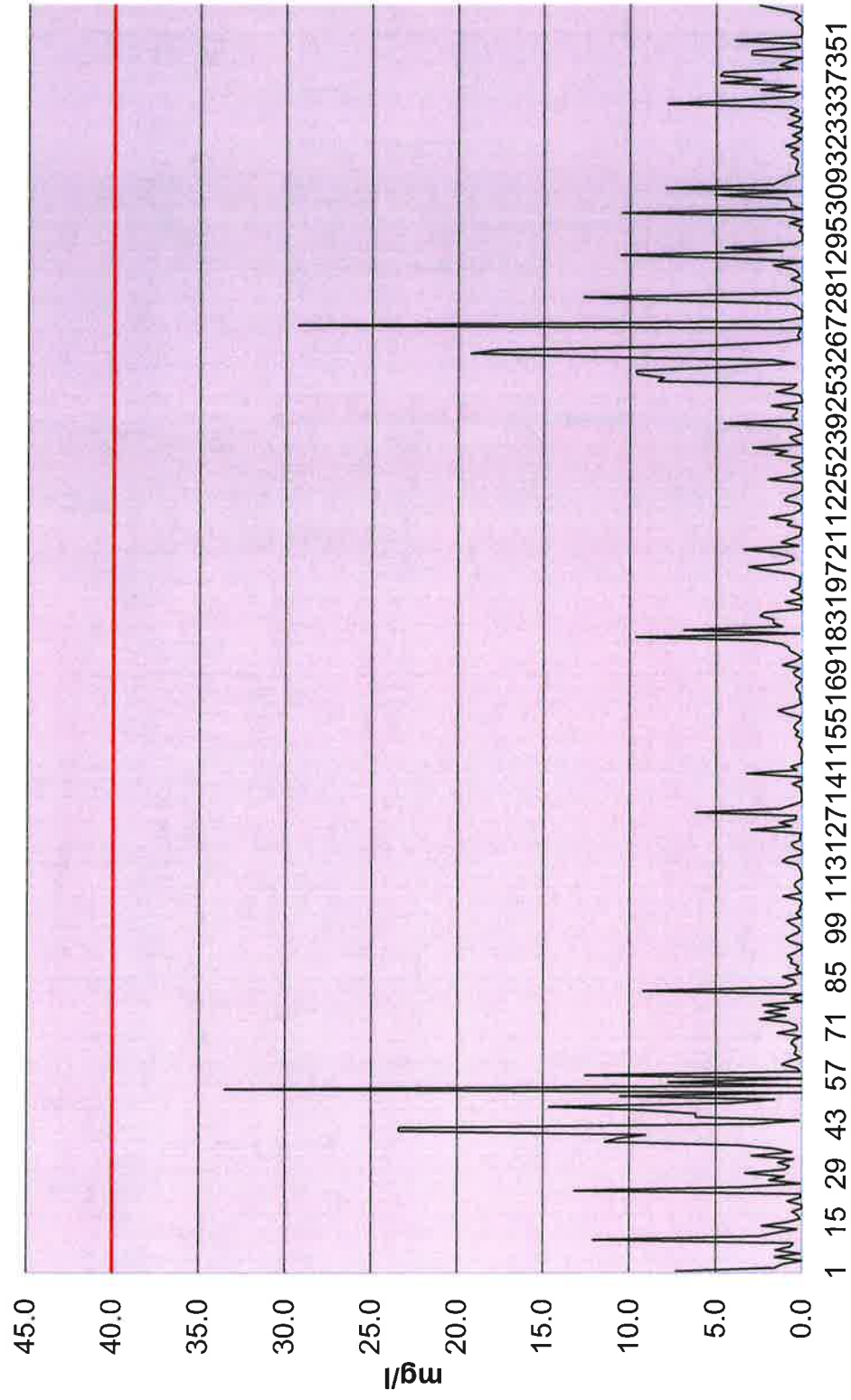
Date.....21/11/21.....

2021 PERFORMANCE INDICATORS FOR EMISSIONS TO WATER (W1)

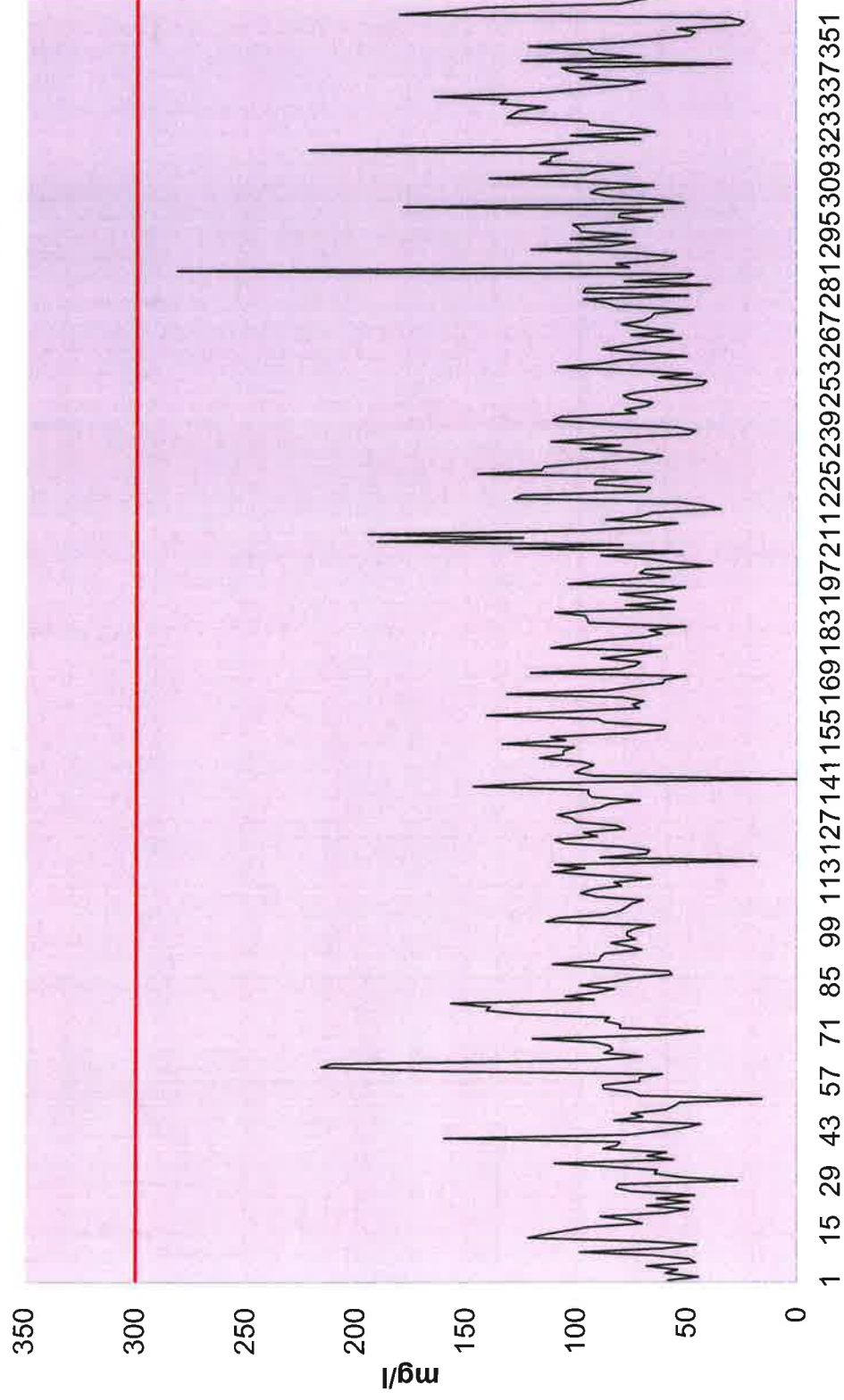
(Red lines denote permit AEL's)



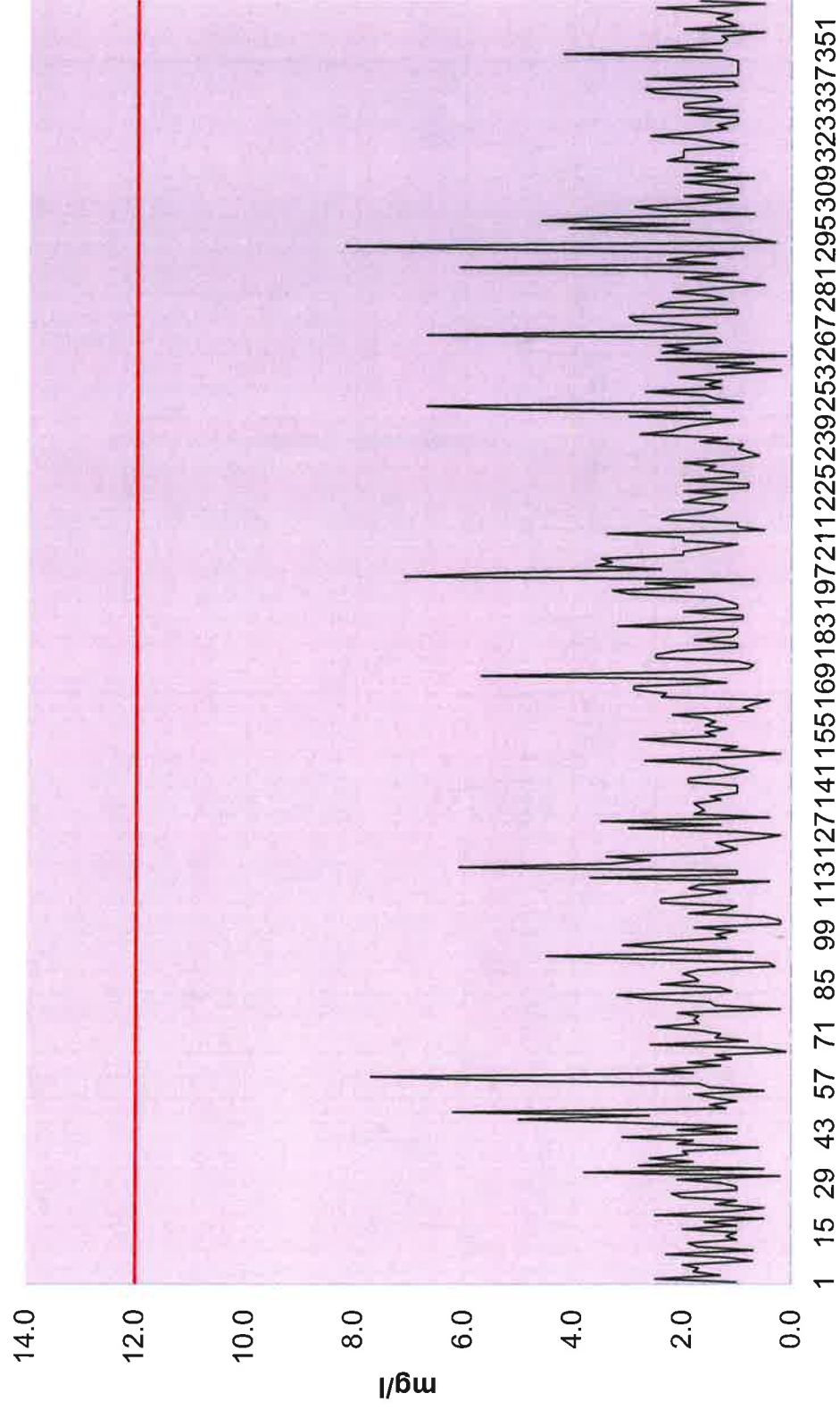
Disolved Iron 2021



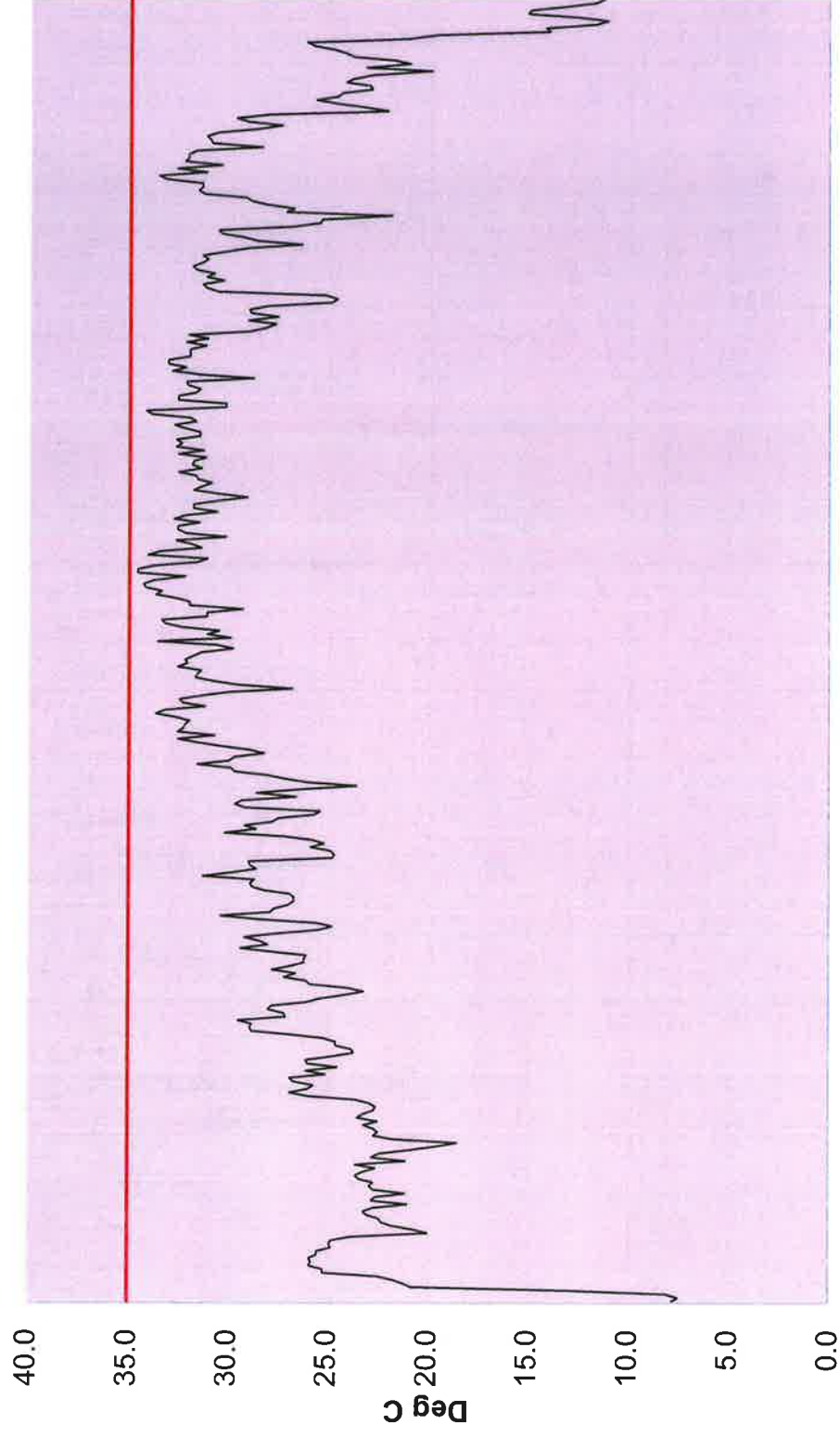
COD 2021



Oil & Grease - 2021

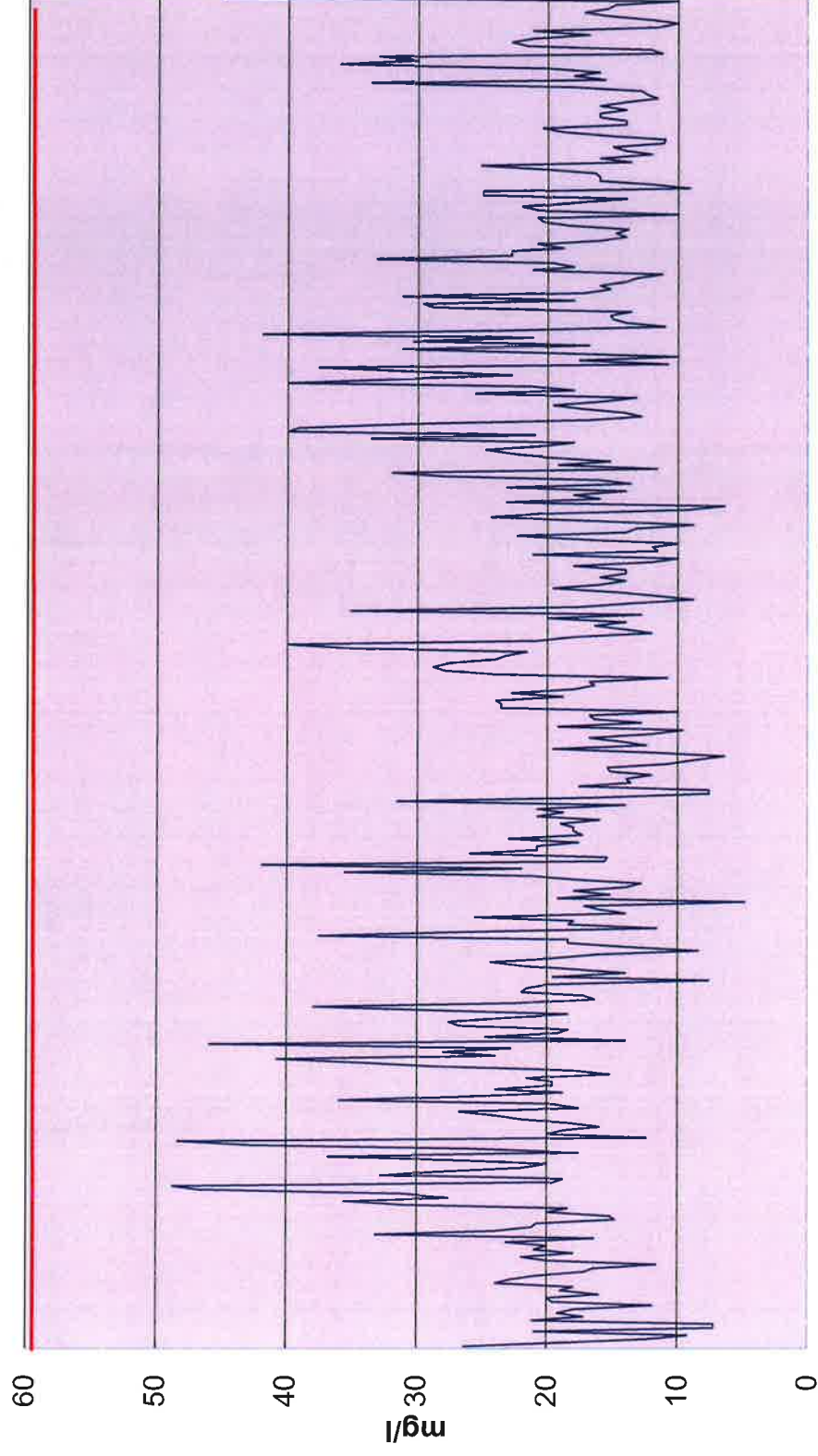


Max Daily Temp 2021



1 15 29 43 57 71 85 99 113127141155169183197211225239253267281295309323337351

Total Suspended Material 2021



1 14 27 40 53 66 79 92 10511813114415717018319620922235248261274287300313326339352

Total Chrome 2021

