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

Form Number: **Air1**
Form Date: **14 Sep 2018**

Reporting of Emissions to Air period	
FROM	**Q1 01/01/2020**
TO	**Q2 30/06/2020**

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				
A6	Oxides of Nitrogen as NO_2	350 mg/m^3	Ref: individual quarterly submissions				
A24	Oxides of Nitrogen as NO_2 (Gas Firing)	200 mg/m^3	101.6	BS EN 14792:2017	29/06/20 11:40 – 12:40	UKAS / MCERTS	
A24	Carbon Monoxide (Gas Firing)	n/a	4.5	BS EN 15058:2017	29/06/20 11:40 – 12:40	UKAS / MCERTS	
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	96.0	BS EN 14792:2017	30/06/20 11:20 – 12:19	UKAS / MCERTS	
A25	Carbon Monoxide (Gas Firing)	n/a	0.8	BS EN 15058:2017	30/06/20 11:20 – 12:19	UKAS / MCERTS	
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	93.4	BS EN 14792:2017	29/06/20 13:15-14:15	UKAS / MCERTS	
A26	Carbon Monoxide (Gas Firing)	n/a	5.9	BS EN 15058:2017	29/06/20 13:15-14:15	UKAS / MCERTS	
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	103.5	BS EN 14792:2017	29/06/20 14:30 – 15:30	UKAS / MCERTS	
A27	Carbon Monoxide (Gas Firing)	n/a	7.3	BS EN 15058:2017	29/06/20 14:30 – 15:30	UKAS / MCERTS	
A27	Oxides of Nitrogen as NO_2 (Oil Firing)	n/a	Not required				

[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, corrected to reference conditions. Where the emission 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.

Signed ..... Date 25/1/21

(authorised to sign as representative of the Operator)

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: **14 Sep 2018**

Reporting of Emissions to Air period	
FROM	**Q3 01/07/2020**
TO	**Q4 31/12/2020**

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	32.84	BS EN 14792:2017	15/12/2020 10:55-14:55	UKAS/MCERTS	
A6	Oxides of Nitrogen as NO_2	350 mg/m^3	255	BS EN 14792:2017	Q4 data submission 11/12/2020	UKAS/MCERTS	
A24	Oxides of Nitrogen as NO_2 (Gas Firing)	200 mg/m^3	94.9	BS EN 14792:2017	14/12/20 12:15-13:15	UKAS/MCERTS	
A24	Carbon Monoxide (Gas Firing)	n/a	3.6	BS EN 15058:2017	14/12/20 12:15-13:15	UKAS/MCERTS	
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	94.3	BS EN 14792:2017	14/12/20 13:25-14:25	UKAS/MCERTS	
A25	Carbon Monoxide (Gas Firing)	n/a	3.1	BS EN 15058:2017	14/12/20 13:25-14:25	UKAS/MCERTS	
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	108.0	BS EN 14792:2017	11/12/20 12:00 – 12:59	UKAS/MCERTS	
A26	Carbon Monoxide (Gas Firing)	n/a	0.7	BS EN 15058:2017	11/12/20 12:00 – 12:59	UKAS/MCERTS	
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	92.2	BS EN 14792:2017	14/12/20 14:40-15:40	UKAS/MCERTS	
A27	Carbon Monoxide (Gas Firing)	n/a	3.9	BS EN 15058:2017	14/12/20 14:40-15:40	UKAS/MCERTS	
A27	Oxides of Nitrogen as NO_2 (Oil Firing)	n/a	Not required				

[6] 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, corrected to reference conditions. Where the emission is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[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 ..... Date 25/1/21

(authorised to sign as representative of the Operator)

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: **14 Sep 2018**

Reporting of energy usage for the year	2020

Energy Usage			
Energy Source	Delivered Quantity	Primary Energy (MWh)	CO_2 Produced (tonnes)
Electricity*	119,922 MWh	311,797 MWh	51,758
Natural Gas*	222,140 MWh	222,140 MWh	45,443
Gas Oil*	N/A		
Totals			97,201

Trends in Energy Usage			
	Parameter		
Year	Primary Energy usage	CO_2 produced	CO_2 per unit output
2014	654,478	120,056	0.313
2015	654,028	118,454	0.312
2016	617,916	113,602	0.307
2017	643,027	118,435	0.305
2018	624,114	112,202	0.302
2019	566,858	102,452	0.297
2020	533,937	97,201	0.260

- 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.
A significant factor of the reduced electric consumption in 2020 (and hence lower CO2 produced) arises from the implementation of a number of electrically more efficient systems on the production facilities.

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

Date 25/1/21

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

Form Number: **Performance1**
Form Date: **14 Sep 2018**

Reporting of performance for the year	2020

Annual Production/Treatment		
Output	**Quantity**	**Unit**
Boiler House Energy Consumption per tonne steam	2811	MJ/t steam
Tin Plated steel coils	224,813	Tonnes
Electrically Coated chrome coils	151,921	tonnes

Environmental Performance Indicators

Parameter	Annual Average	Units
Energy Consumption - Gas	2792	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]	0.60	m^3
Potable water use per tonne of product produced [Chrome-plate]	0.90	m^3
Energy used per tonne of product produced [Tin-plate]	2375	kWh
Energy used per tonne of product produced [Chrome-plate]	3515	kWh
Tonnes of waste disposed per tonne of product produced [Tin-plate]	0.008	Tonnes
Tonnes of waste disposed per tonne of product produced [Chrome-plate]	0.010	Tonnes

Trends in Environmental Performance									
Year	Parameter								
	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	m^3	kWh	Tonnes	m^3	kWh	Tonnes
2014	2668	2	21	0.49	2404	0.03	1.09	5359	0.07
2015	2609	0	21	0.49	2580	0.03	1.17	6167	0.06
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	0.01	0.97	4508	0.04
2020	2792	0	19	0.59	2375	0.008	0.90	3515	0.01

Operator's comments:

Waste produced = Total waste "disposed only" as per form "R1"
Energy = Total Primary Energy (Gas & Electric) as per form 'Energy1'
Water use = 'Total Water Usage as per form 'WaterUsage1'
Water and Energy use per Tonne product reflects the shift in volume from Tin Plate to Chrome Plate particularly over the past 3 years, and reflects comments in Energy1.
The mass of waste produced remains stable, however as more of this waste is now 'recovered for reuse within other parts of the business (ref: Operator's comments R1), 2020 now shows the lowest "Disposed Waste per unit product" , and hence the lowest "Disposed Waste produced for Tin Plate & Chrome Plate product"

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

Date 25/1/21

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

Form Number: **WaterUsage1**
Form Date: **14 Sep 2018**

Reporting of water usage for the period	
FROM	**01/01/2020**
TO	**31/12/2020**

Water Usage

Water Source	Quantity	Units
Main Boiler House supply (Boiler Feedwater)	182,840	m^3
Works Non-potable process trade water	1,471,495	m^3/year
Works domestic process potable water	136,852	m^3/year
Total Water Usage	1,608,347	m^3/year

Trends in Water Usage

Year	Total Water usage [m^3]
2014	1,612,990
2015	1,671,660
2016	1,621,140
2017	1,653,170
2018	1,668,382
2019	1,582,245
2020	1,608,347

Operator's comments:

Boiler house, non-potable and domestic water consumption is predominantly influenced by production volumes and product mix. These have tended to remain fairly stable over the above reporting period, even with the recent trend from Tinplate to Chrome plate product. Non potable (untreated reservoir) water remains by far the most widely used type of water for site use, typically > 92% by volume total.

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

Date 25/1/21

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

Form Number: **R1**
Form Date: **14 Sep 2018**

Reporting of waste generation for the year	2020

Waste Description	Disposal Route	Disposal Tonnes	Recovery Tonnes
Hazardous Waste			
Named Hazardous Waste	Oil Waste and Spent Tin Electrolyte	385	1504
Other Hazardous Waste			
Total Hazardous Waste			
Non-hazardous Wastes			
Named Non-hazardous Waste	General waste, wood, plastic, filter cake.	1135	5297
Other non-hazardous Waste			
Total Hazardous Waste			
TOTAL WASTE		8321	

Trends in waste disposal and recovery

Year	Parameter		
	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	6474	0.02
2020	1889	6801	0.02

Operator's comments:

Following the trend initiated since 2018, 2020 has now seen the continuation of "Recovered waste" primarily for reuse within the business, exceeding that of "Disposed Waste" . "Disposed" waste now only accounts for around 20% of total waste generated, against levels of over 90% only 4 years ago. Maximising recovery & reuse of waste oil and sludges remains key to further optimisation of this route during 2021/22

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

Date..... 25/1/21

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

Form Number: **Mass Release1**
Form Date: **14 Sep 2018**

Reporting of mass release to water for the year	2020

Parameter	Limit	Quantity released (kg)
Cadmium	40 kg/year	0.071
Mercury	40 kg/year	0.112

Trends of releases to water		
Year	Paramter	
	Cadmium	Mercury
2016	0.067	0.106
2017	0.068	0.110
2018	0.070	0.110
2019	0.066	0.102
2020	0.071	0.112

Operator's comments

Cd & Hg quantities are calculated using the agreed standard mass balance calculator based on annual consumptions of sulphuric acid and caustic cleaner solutions. While the trends are flat over the past 6 years, both metals continue to remain far below their permit release thresholds.

Signed ..... Daryl Lux .....
(authorised to sign as representative of the Operator)

Date..... 25/1/21 .....

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

Form Number: **Water1**
Form Date: **14 Sep 2018**

Reporting of water emissions for the period	
FROM	**01/10/2020**
TO	**31/10/2020**

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.	122.7 l/s	(See permit MCERT flow meter)	24/10/20		
	Temperature	35 C	29.8 C	See permit – continuous monitoring system)	12/10/20		
	pH	5.0 - 10.0	7.0 9.0	BS6068-2:1995 ISO 10523:1984	27/10/20 26/10/20		
	Suspended Solids	60 mg/l	40.0 mg/l	BS EN 872:1996 BS 6068-2.54:1996 [1]	27/10/20		
	Oil and grease	12 mg/l	4.1 mg/l	SCA Blue Book 77 ISBN 0117517283 [1]	04/10/20		
	Dissolved iron	40 mg/l	5.1 mg/l	*BS ISO 17294-2:2003* *BS6068-2.89:2003* [1]	10/10/20		
	Total chromium	0.4 mg/l	0.08 mg/l	*BS ISO 17294-2:2003* *BS6068-2.89:2003* [1]	24/10/20		
	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	150 mg/l	*SCA Blue Book 97 ISBN 0117519154*	0/10/20		
W2	pH	5.0 - 10.0	6.6 7.8	*(See permit – SCADA probe continuous monitoring)*	13/10/20 28/10/20		

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

Form Number: **Water1**
Form Date: **14 Sep 2018**

Reporting of water emissions for the period	
FROM	**01/11/2020**
TO	**30/11/2020**

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.	129.6 l/s	(See permit MCERT flow meter)	12/11/20		
	Temperature	35 C	30.2 C	See permit – continuous monitoring system)	30/11/20		
	pH	5.0 - 10.0	7.6 8.9	BS6068-2:1995 ISO 10523:1984	20/11/20 18/11/20		
	Suspended Solids	60 mg/l	47.2 mg/l	BS EN 872:1996 BS 6068-2.54:1996 [1]	19/11/20		
	Oil and grease	12 mg/l	4.0 mg/l	SCA Blue Book 77 ISBN 0117517283 [1]	11/11/20		

Emission Point	Substance / Parameter	Emission Limit Value	Result	Test Method	Sample Date and Times	Accreditation Certification	Uncertainty
	Dissolved iron	40 mg/l	11.8 mg/l	*BS ISO 17294-2:2003 BS6068-2.89:2003 [1]*	07/11/20		
	Total chromium	0.4 mg/l	0.027 mg/l	*BS ISO 17294-2:2003 BS6068-2.89:2003 [1]*	15/11/20		
	Biochemical Oxygen Demand	N/A					
	Chemical Oxygen Demand	300 mg/l	129 mg/l	*SCA Blue Book 97 ISBN 0117519154*	17/11/20		
W2	pH	5.0 - 10.0	6.5 7.7	*(See permit – SCADA probe continuous monitoring)*	18/11/20 01/11/20		

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

Form Number: **Water1**
Form Date: **14 Sep 2018**

Reporting of water emissions for the period	
FROM	**01/12/2020**
TO	**31/12/2020**

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.	116.9 l/s	(See permit MCERT flow meter)	09/12/20		
	Temperature	35 C	29.7 C	See permit – continuous monitoring system)	02/12/20		
	pH	5.0 - 10.0	7.5 8.9	BS6068-2:1995 ISO 10523:1984	13/12/20 17/12/20		
	Suspended Solids	60 mg/l	48.8 mg/l	BS EN 872:1996 BS 6068-2.54:1996 [1]	26/12/20		
	Oil and grease	12 mg/l	3.2 mg/l	SCA Blue Book 77 ISBN 0117517283 [1]	04/12/20		
	Dissolved iron	40 mg/l	8.5 mg/l	*BS ISO 17294-2:2003* *BS6068-2.89:2003* [1]	16/12/20		
	Total chromium	0.4 mg/l	0.044 mg/l	*BS ISO 17294-2:2003* *BS6068-2.89:2003* [1]	27/12/20		
	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	142 mg/l	*SCA Blue Book 97 ISBN 0117519154*	01/12/20		
W2	pH	5.0 - 10.0	6.4 7.9	*(See permit – SCADA probe continuous monitoring)*	02/12/20 12/12/20		

Operator's comments:

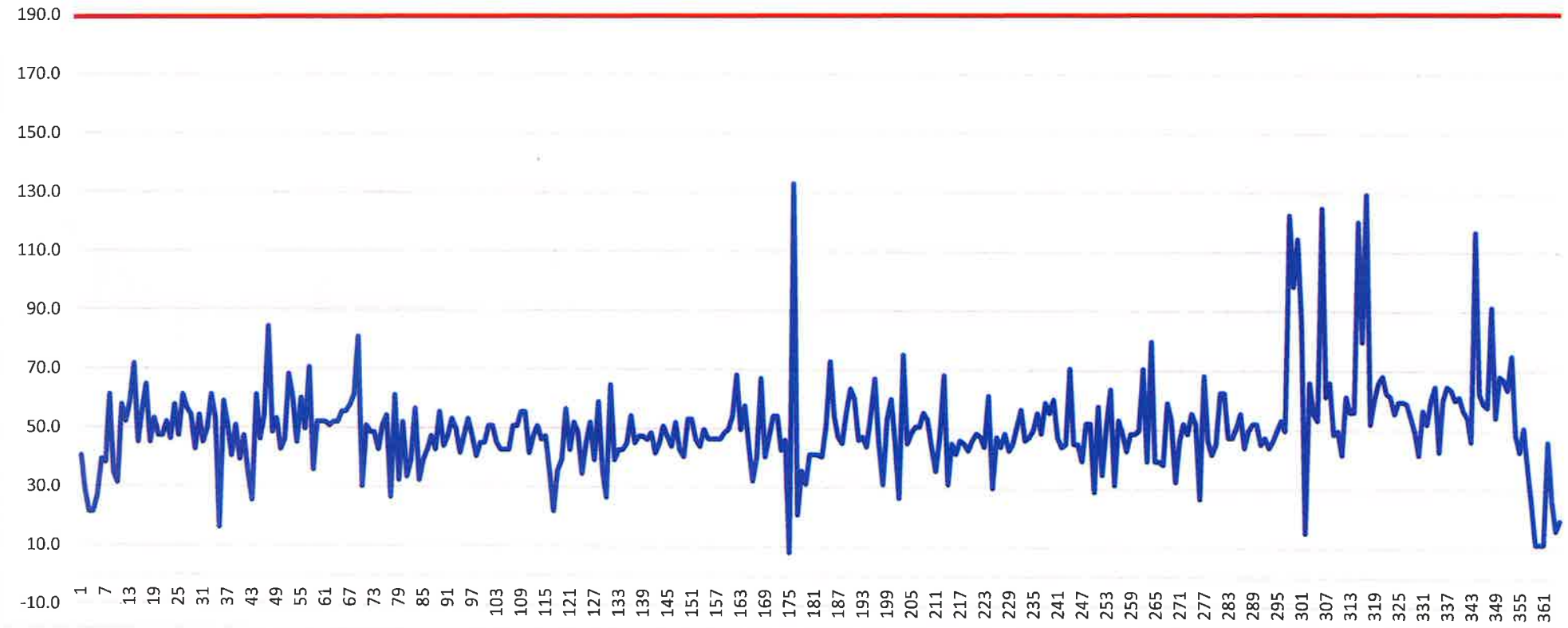
All levels remain within permit limits. Graphical representation of these parameters for whole of 2018 is provided below.

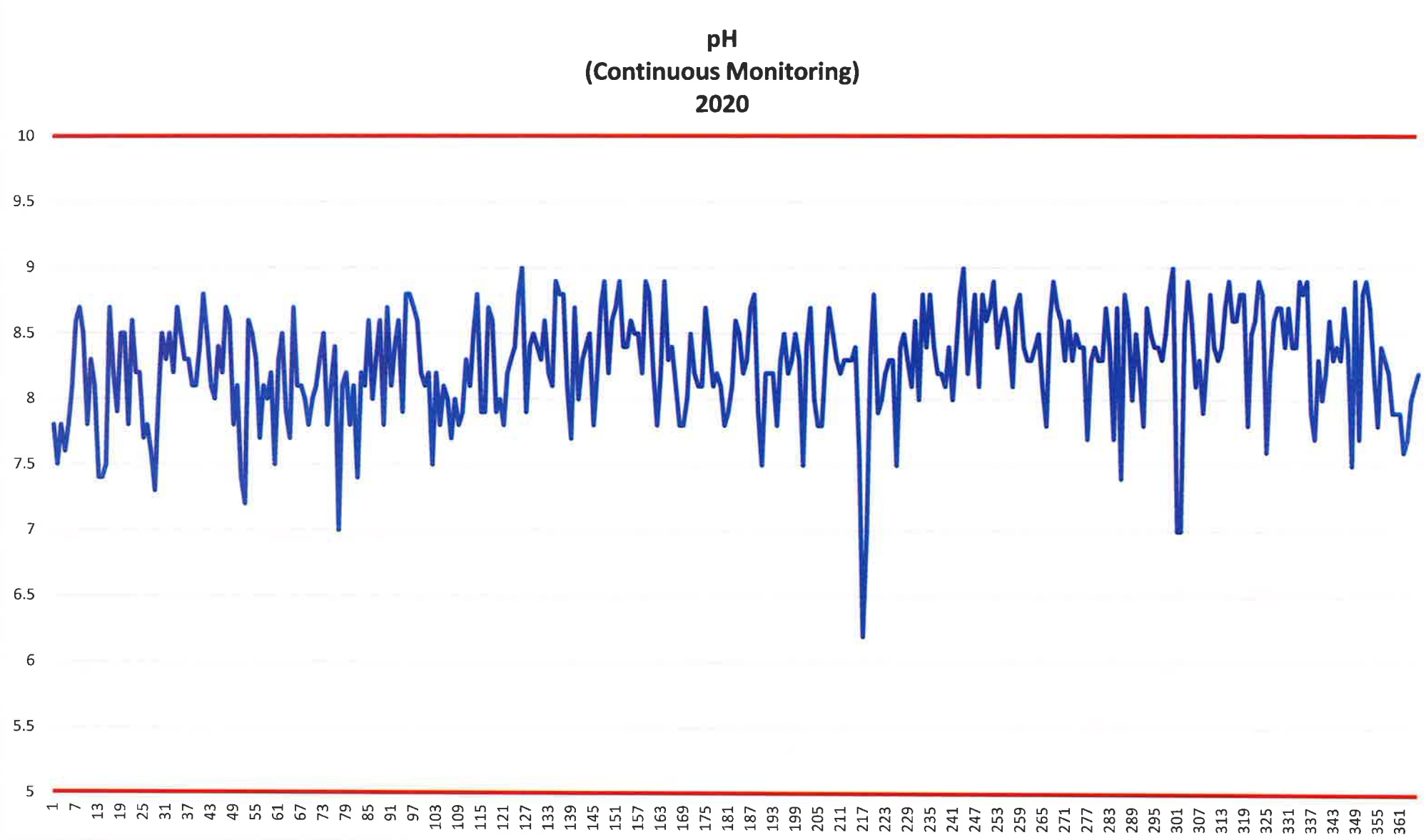
Signed ..... Date 25/1/21

(authorised to sign as representative of the Operator)

EMISSIONS TO WATER (Water1) PERFORMANCE INDICATORS 2020

Flowrate (l/sec)
(Continuous Monitoring)
2020




pH
(Continuous Monitoring)
2020
10
9.5
9
8.5
8
7.5
7
6.5
6
5.5
5
1
7
13
19
25
31
37
43
49
55
61
67
73
79
85
91
97
103
109
115
121
127
133
139
145
151
157
163
169
175
181
187
193
199
205
211
217
223
229
235
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289
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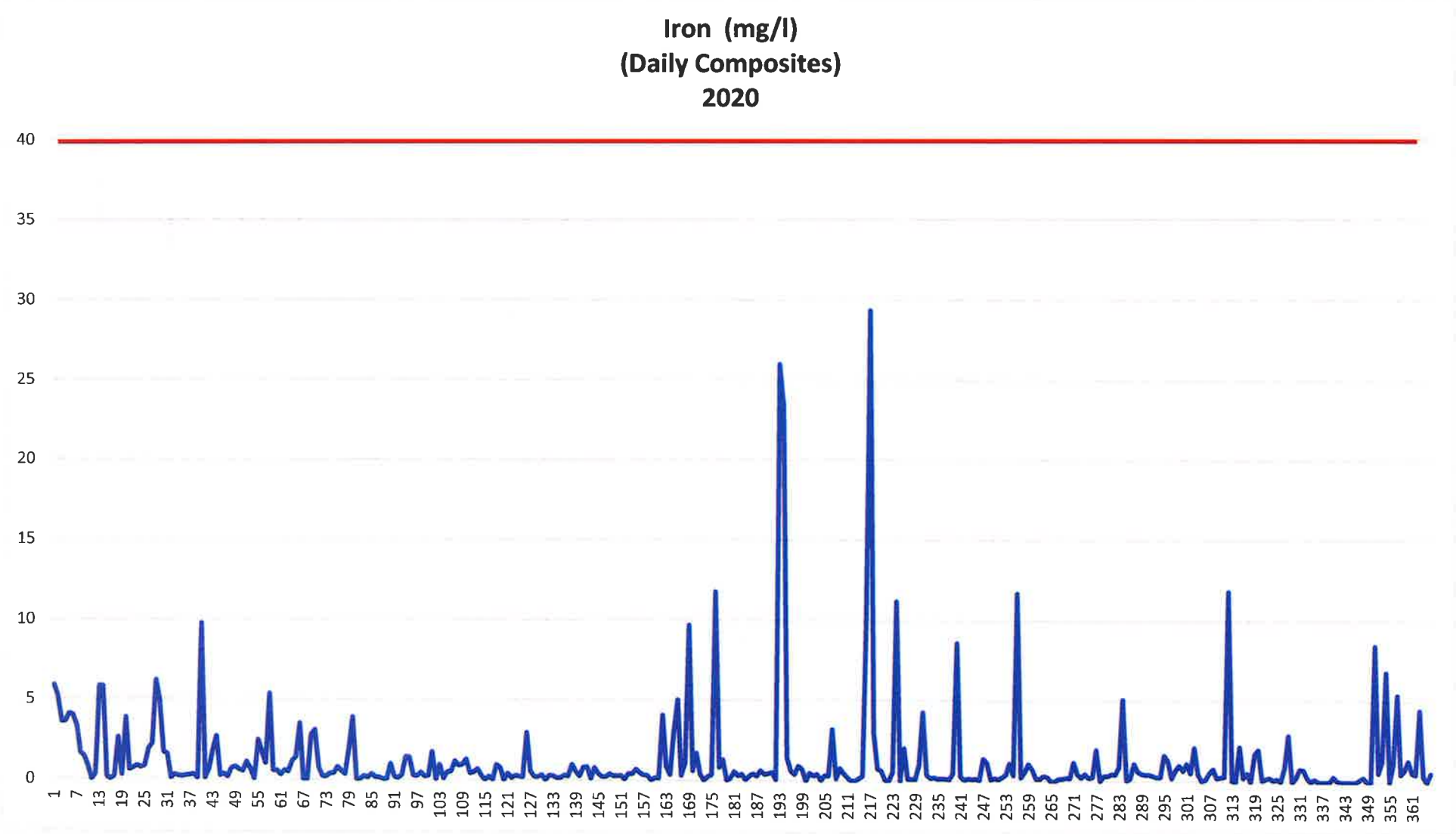
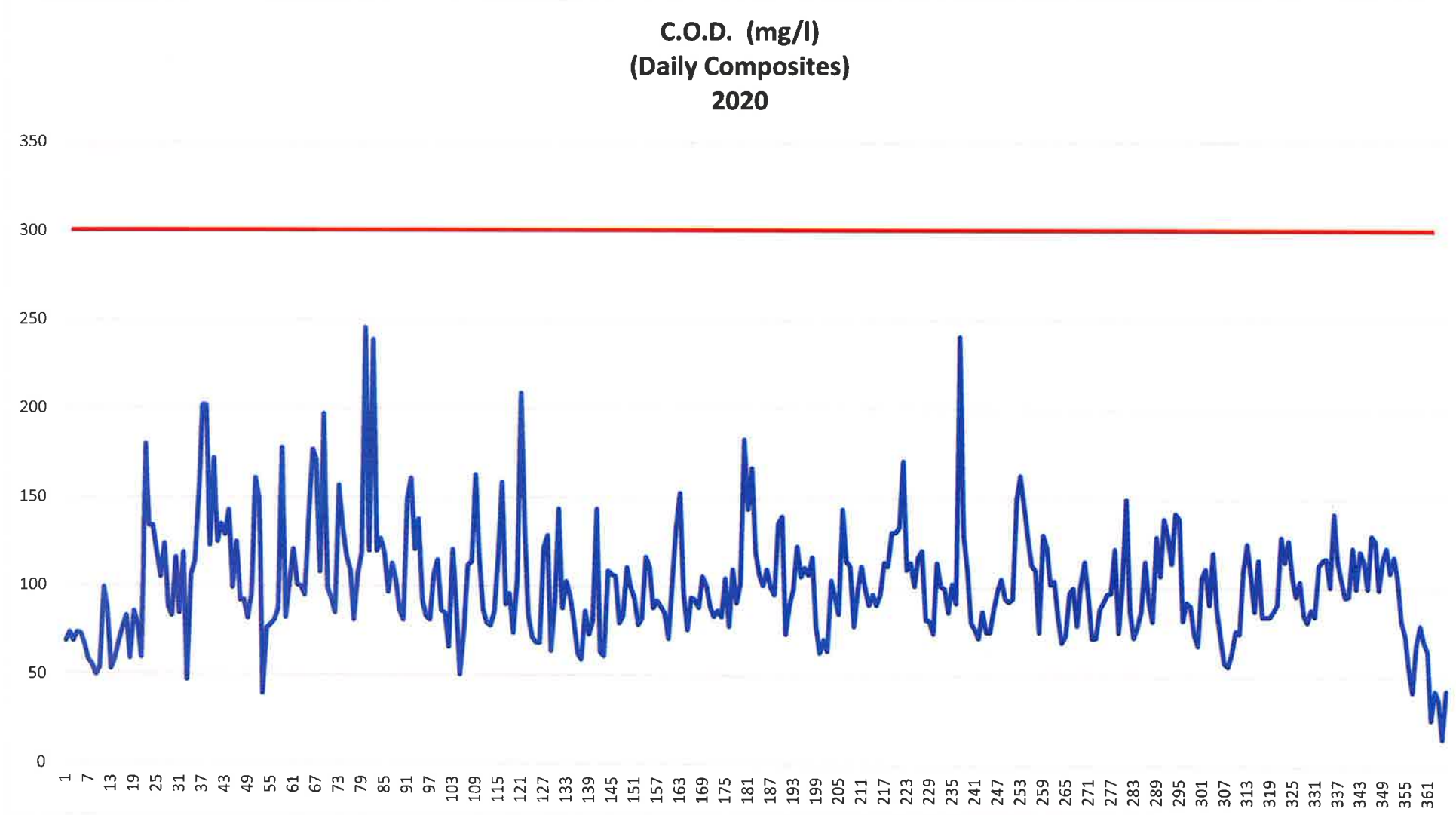
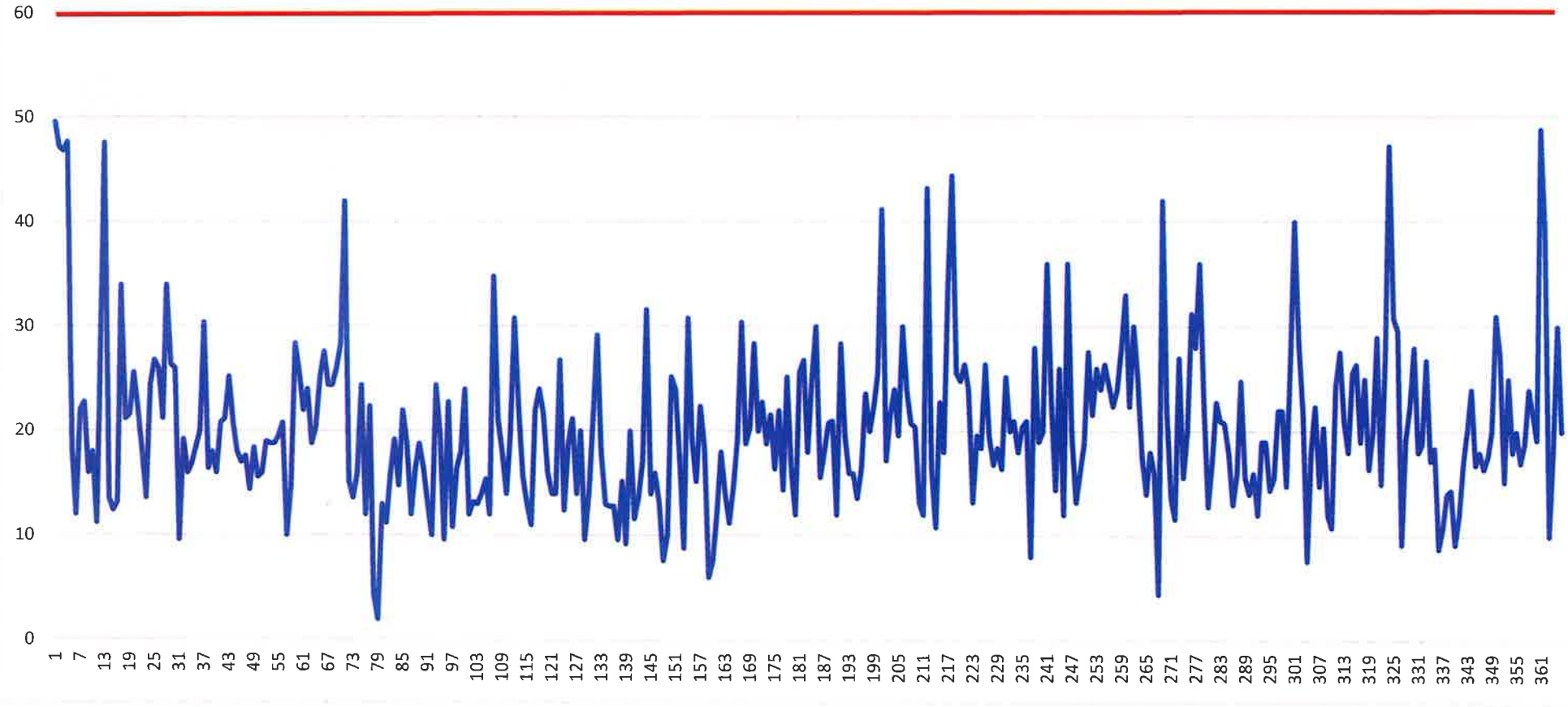
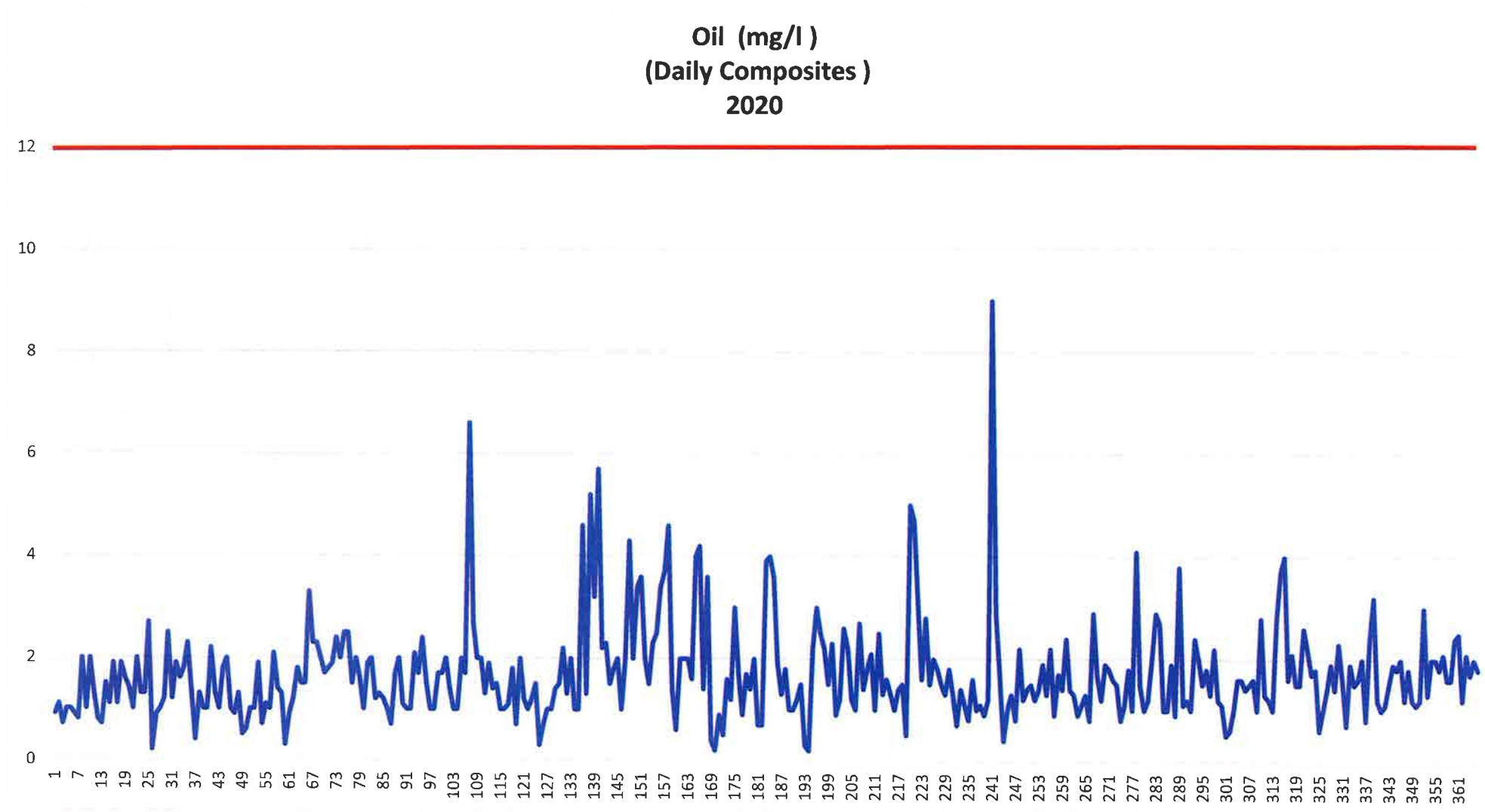
301
307
313
319
325
331
337
343
349
355
361


Iron (mg/l)
(Daily Composites)
2020
40
35
30
25
20
15
10
5
0
1 7 13 19 25 31 37 43 49 55 61 67 73 79 85 91 97 103 109 115 121 127 133 139 145 151 157 163 169 175 181 187 193 199 205 211 217 223 229 235 241 247 253 259 265 271 277 283 289 295 301 307 313 319 325 331 337 343 349 355 361


C.O.D. (mg/l)
(Daily Composites)
2020
350
300
250
200
150
100
50
0
1
7
13
19
25
31
37
43
49
55
61
67
73
79
85
91
97
103
109
115
121
127
133
139
145
151
157
163
169
175
181
187
193
199
205
211
217
223
229
235
241
247
253
259
265
271
277
283
289
295
301
307
313
319
325
331
337
343
349
355
361

T.S.M. (mg/l)
(Daily Composites)
2020




Oil (mg/l)
(Daily Composites)
2020
12
10
8
6
4
2
0
1
7
13
19
25
31
37
43
49
55
61
67
73
79
85
91
97
103
109
115
121
127
133
139
145
151
157
163
169
175
181
187
193
199
205
211
217
223
229
235
241
247
253
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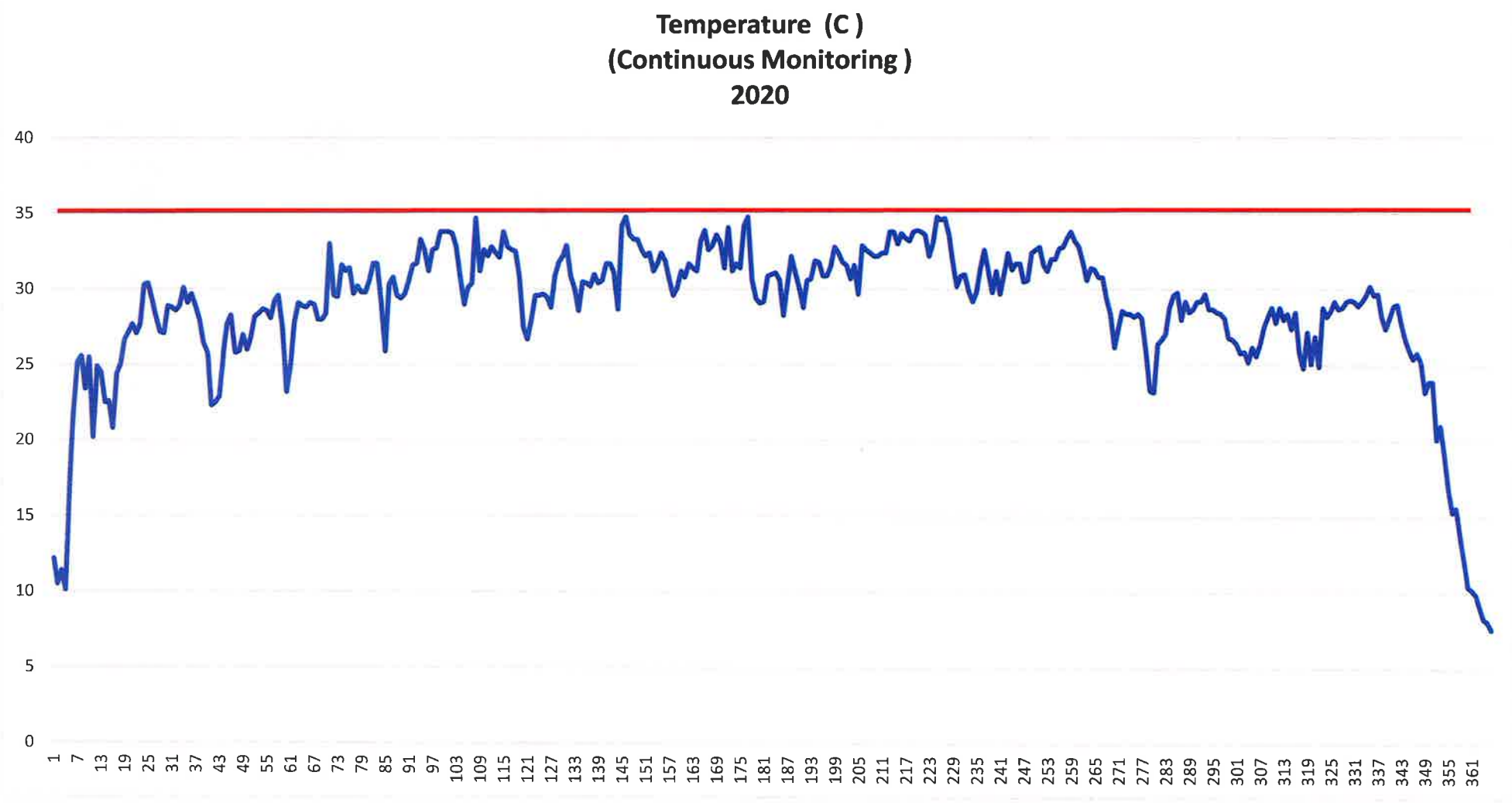
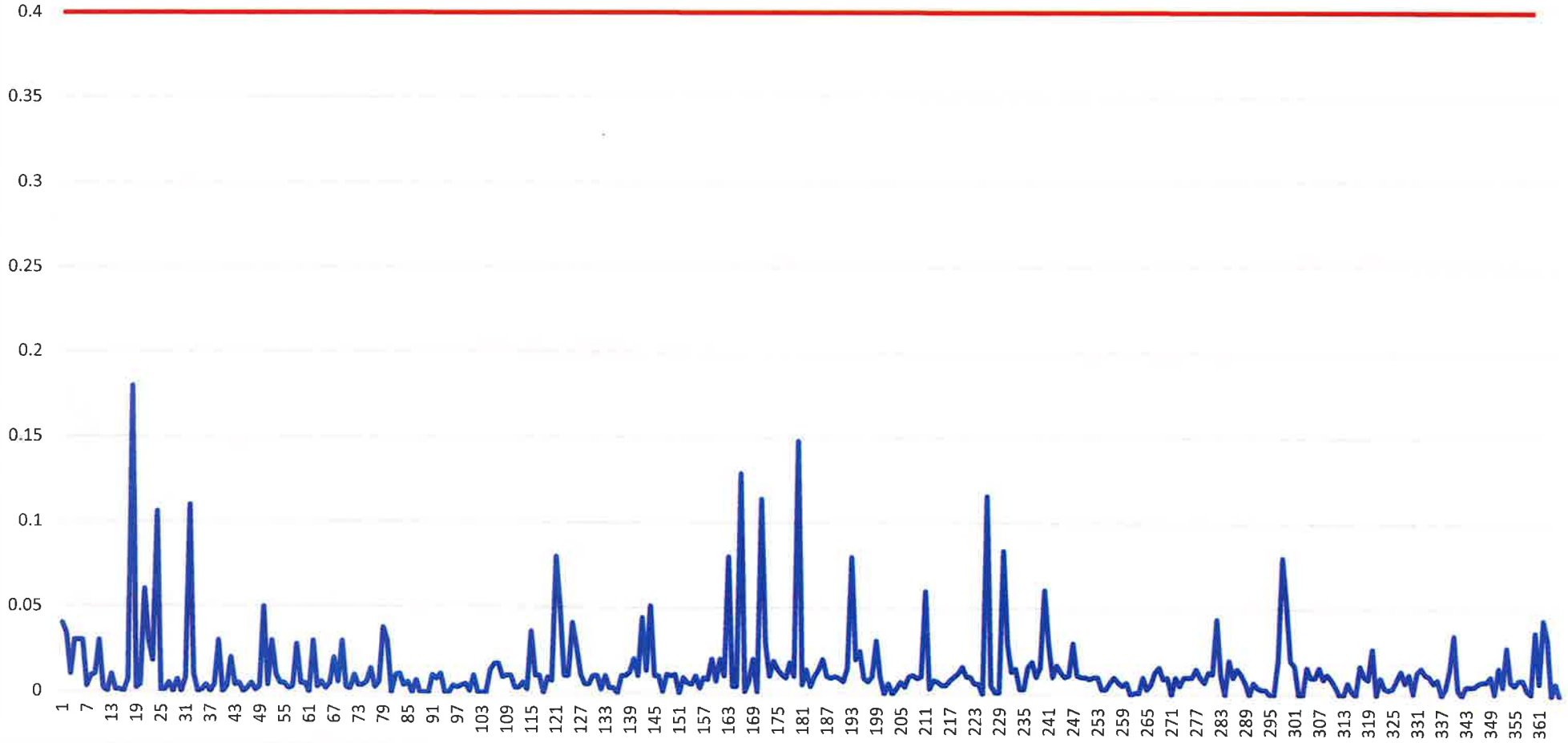
271
277
283
289
295
301
307
313
319
325
331
337
343
349
355
361


Temperature (C)
(Continuous Monitoring)
2020
40
35
30
25
20
15
10
5
0
1
7
13
19
25
31
37
43
49
55
61
67
73
79
85
91
97
103
109
115
121
127
133
139
145
151
157
163
169
175
181
187
193
199
205
211
217
223
229
235
241
247
253
259
265
271
277
283
289
295
301
307
313
319
325
331
337
343
349
355
361

Total Chrome (mg/l)
(Daily Composites)
2020



N/A.

David Lua. 25/1/21