



Water and Waste
Eaux et déchets

ENVIRONMENTAL STANDARDS DIVISION

2023 ANNUAL WATER REPORT

CITY OF WINNIPEG WATER SUPPLY SYSTEM



OPERATING LICENCE #PWS-09-412-02 A

2023



INTRODUCTION

The Mission of the City of Winnipeg’s Water and Waste Department is to serve the community by providing and continually improving drinking water, wastewater, land drainage, and solid waste services to the citizens of Winnipeg.

The City of Winnipeg ensures that our drinking water is safe by using watershed protection measures, design and construction standards, multi-step water treatment, operator certification programs, standardized operating procedures, and a comprehensive source-to-tap monitoring program.

The Province of Manitoba and the Winnipeg Regional Health Authority regulate the quality of our drinking water using the *Manitoba Drinking Water Safety Act* and the *Guidelines for Canadian Drinking Water Quality*. The City of Winnipeg’s Public Water System Operating Licence, PWS-09-412-02 A, requires that we regularly monitor the quality of our drinking water and submit an annual report to the regulating authority on or before the 31st of March of each year as set out in subsection 32(2) of *MR 40/2007, Drinking Water Safety Regulation*.

In keeping with this requirement, the City of Winnipeg has compiled this report, which summarizes the results of the City’s 2023 Water Quality Monitoring Program.



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1.0 DRINKING WATER SOURCE, TREATMENT, AND DISTRIBUTION

The City of Winnipeg gets its water from Shoal Lake, which is on the border between Manitoba and Ontario, and covers 277 square kilometers. The intake for the water system is only accessible by rail or boat. The water flows by gravity from the intake through a 135-kilometer-long aqueduct into four large reservoirs located adjacent to the Winnipeg Drinking Water Treatment Plant (WTP). The reservoirs can hold enough water to supply Winnipeg for approximately one month, depending on demand. The raw water is pumped from the reservoirs into the WTP, where it undergoes several steps of treatment to produce high quality drinking water:

1. Coagulation and flocculation: sulphuric acid and ferric sulphate are added to lower the pH of the water and cause particles of organic material to clump together.
2. Dissolved Air Flootation (DAF): tiny bubbles of air are used to remove the clumped organic material from the water.
3. Ozonation: gaseous ozone is added to kill bacteria, remove tastes and odors, and improve filter performance. Sodium bisulphite is added at the end of the ozonation process to remove excess ozone.
4. Filtration: the water flows through biologically activated carbon filters to remove any remaining small particles, including parasites.
5. Chlorination: chlorine, the most widely-used drinking water disinfectant in North America, is added to kill viruses and bacteria, and then sodium hydroxide is added to raise the pH back to the original level.
6. Ultraviolet (UV) Light: the water is disinfected by exposing it to UV light.
7. Orthophosphate is added to form a protective coating inside water pipes, which helps to reduce corrosion. Fluoride is added to prevent dental decay, as a part of the Provincial Water Fluoridation Program, overseen by Manitoba Health.

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In 2023, the WTP produced an average of 198 megalitres (ML) of high-quality drinking water per day. The water is pumped from the WTP to three smaller reservoirs and regional pumping stations in different areas of the City. The Wilkes Reservoir holds 252 ML and feeds water to the Hurst Regional Pumping Station; the McPhillips Reservoir holds 240 ML and feeds water to the McPhillips Regional Pumping Station; the Maclean Reservoir holds 222 ML and feeds water to the Maclean Regional Pumping Station. At the regional pumping stations, chlorine is added again before entering the distribution system, which is comprised of approximately: 2,739.5 km of water mains, 151.5 km of feeder mains, 30,631 valves, and 23,563 fire hydrants.

2.0 DRINKING WATER QUALITY STANDARDS AND MONITORING

The bacteriological, chemical, physical, and microbial drinking water quality standards that apply to the City of Winnipeg's Public Water System are listed in Operating Licence PWS-09-412-02 A¹ (Operating Licence). The Operating Licence is issued by the Province of Manitoba's Department of Environment and Climate Change, under the authority of the *Manitoba Drinking Water Safety Act*² and its associated Regulations: *MR 40/2007, Drinking Water Safety Regulation*³ and *MR 41/2007, Drinking Water Quality Standards Regulation*⁴.

The required water quality monitoring frequency and monitoring locations are specified in our Operating Licence. We are required to test the raw water, treated water leaving the WTP, water leaving the three regional pumping stations, and at a minimum of 39 sites within the distribution system every week. To ensure the quality of our water, we exceed the minimum requirements by sampling at 57 locations within the distribution system and test for additional parameters beyond the requirements of our Operating Licence.

The parameters tested are listed in Table 1 and summaries of the 2023 Water Quality results are provided in Appendix A.

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Table 1. Drinking Water Parameters				
Parameter	Shoal Lake	WTP Raw Water	WTP Treated Water	Distribution System
Alkalinity	✓	✓✓	✓	✓✓
Bacteria	✓	✓✓	✓✓	✓✓
Bromate				✓✓
Bromide		✓✓		✓✓
Chloride	✓	✓✓	✓	✓✓
Chlorine		✓	✓✓	✓✓
Chlorophyll-a	✓	✓	✓	
Colour	✓	✓	✓	✓
Conductivity	✓	✓✓	✓	✓✓
Disinfection By-Products	✓	✓	✓	✓✓
Dissolved Oxygen		✓	✓	✓
Enteric Protozoa	✓	✓		
Fluoride	✓	✓✓		✓✓
Hardness	✓	✓✓	✓	✓✓
Langelier Index		✓✓		✓✓
Microcystin LR		✓	✓	
Nitrogen	✓	✓✓		✓✓
Odour	✓	✓	✓	✓
Organic Carbon	✓	✓✓	✓	✓✓
ORP		✓	✓	✓
Perchlorate	✓	✓	✓	
Pesticides	✓	✓	✓	
Phenoxy Acid Herbicides	✓	✓	✓	
pH	✓	✓✓	✓	✓✓
Phosphorous	✓	✓✓		✓✓
Plankton (algae) count	✓	✓	✓	
Polychlorinated Biphenyls	✓	✓	✓	
Solids	✓	✓✓	✓	✓✓
Sulphate	✓	✓✓	✓	✓✓
Taste and Odour Compounds		✓	✓	
Temperature	✓	✓	✓	✓
Total Metals	✓	✓✓	✓	✓✓
Turbidity	✓	✓✓	✓✓	✓✓
UV – Transmittance		✓✓	✓✓	✓✓

✓ Additional sampling beyond requirements of PWS-09-412-02 A

✓✓ Required as per PWS-09-412-02 A

3.0 COMPLIANCE AND CORRECTIVE ACTIONS SUMMARY

The City of Winnipeg operates a comprehensive Water Quality Monitoring program that exceeds the requirements of our Operating Licence. We monitor the quality of our water from source to tap and respond to customer inquiries and complaints about water quality. We submit various compliance reports to our regulators: monthly reports detailing turbidity, chlorine, and UV results at the WTP; quarterly reports detailing fluoride, haloacetic acid (HAA), and trihalomethane (THM) levels in the distribution system; algae monitoring reports; and an annual update on our Residential Lead Monitoring Program. Weekly bacteriological results are sent directly to the Province of Manitoba's Office of Drinking Water (ODW) by the laboratory that performs the analysis.

If test results do not meet a drinking water quality standard, or we fail to meet a licence requirement we notify ODW and take corrective action to ensure our water remains safe. We inform Winnipeg residents immediately if there is ever a water quality issue that could affect public health.

The City of Winnipeg monitors the water supply for algae blooms that may indicate the presence of cyanobacteria (also known as blue-green algae), which can release toxins known as microcystins under certain conditions. We perform weekly visual inspections for algae at the Shoal Lake Intake and the WTP Reservoirs during open water season, and we test raw and finished water monthly for microcystins. If an algae bloom is observed we notify ODW, perform a microscopic examination to determine if cyanobacteria are present, test for microcystins, and increase our monitoring and testing frequency. In 2023, algae blooms were not observed in our source water and microcystins were not detected in 100.00% of the twelve raw water and twelve finished water samples.

The presence of bacteria in a treated water sample could indicate a potential treatment failure or contamination after treatment. If bacteria are detected in a treated water sample from the WTP or the distribution system we take immediate corrective actions to maintain water quality, notify the ODW, and submit a Corrective Action Report (CAR). In 2023, total coliform and *E. coli* bacteria were not detected in any of the 209 samples from the WTP and not detected in 99.95% of the 6,236 samples from the distribution system.

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We add chlorine to disinfect the water as it leaves the WTP, as well as where it enters the distribution system from the three regional pumping stations, using continuous online analyzers to manage the chlorine dosing levels. Grab samples are used to confirm the accuracy of the analyzers and to confirm that appropriate levels of chlorine are maintained throughout the distribution system. We are required to maintain a free chlorine residual of 0.5 milligrams per litre (mg/L) in the water as it leaves the WTP and 0.1 mg/L at all points within the distribution system. If the free chlorine residual drops below these levels we take immediate corrective actions to maintain water quality, notify the ODW, and submit a CAR. In 2023, 99.88% of the 3,293 grab samples collected by laboratory staff met the free chlorine requirements.

Turbidity is a measurement of the cloudiness of water caused by small particles, which can reduce the effectiveness of disinfection. Our Operating Licence requires the turbidity of the water leaving the filters at the WTP is never to exceed 1.0 Nephelometric Turbidity Units (NTU) and not to exceed 0.3 NTU for more than 12 consecutive hours and/or more than 5% of readings per month on any operating filter. We continuously monitor the turbidity of the water leaving each filter using online analyzers, and confirm the accuracy of the analyzers using grab samples. If the turbidity exceeds Operating Licence limits we take immediate corrective actions to maintain water quality, notify the ODW, and submit a CAR. In 2023, 100% of the 1,889 grab samples collected by lab staff for turbidity were at or below 0.3 NTU. There is no maximum allowable turbidity in the distribution system, however, we take corrective actions if turbidity greater than 1.0 NTU is measured. In 2023, turbidity measured less than 1.0 NTU in 99.27% of the 3,308 samples from the distribution system.

No drinking water safety orders were issued for the City of Winnipeg in 2023. No boil water advisories were issued by ODW/WRHA in 2023. No charges were laid, pending, or disposed of for any offences against the City of Winnipeg in 2023.

A summary of the CARs submitted in 2023 is provided in Table 2; Compliance and Correction Action Reports are provided in Appendix B.

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Table 2. Corrective Action Reports Summary

Report Number	Incident Date(s)	Incident Location	Parameter	Result	Description of Corrective Actions Taken and Comments
CAR-01	31-Jan-23	WC04	Total Coliform	1 MPNU per 100 mL	Re-sampled location; re-samples met bacteriological standards.
CAR-02	27-Feb-23	SE12	Chlorine	<0.02 mg/L	Re-sampled location until chlorine levels were re-established. Also investigated the cause of the low chlorine. Definitive cause not determined.
CAR-03	15-Mar-23	WTP	Chlorine	<0.5 mg/L	Incident occurred during routine maintenance. No further action required. Water quality was not impacted.
CAR-04	5-Apr-23	Hydrant	Total Coliform	1 MPNU per 100mL	Flushed and re-sampled; re-samples met bacteriological standards.
CAR-05	7-Apr-23	WTP	Monitoring Requirement	Branch 2 average UVT of 100%	WTP will implement an alarm at 100% UVT on both Branch 1 and 2 UVT analyzers. Water quality was not impacted.
CAR-06	1-Jun-23	Hydrant	Total Coliform	1 MPNU per 100mL	Flushed and re-sampled; re-samples met bacteriological standards.
CAR-07	26-Jun-23	SE12	Chlorine	<0.02 mg/L	Re-sampled location as well as upstream and downstream. Investigation revealed issue was caused by water main renewal.
CAR-08	30-Jun-23	Hydrant	Total Coliform	1 MPNU per 100mL	Flushed and re-sampled; re-samples met bacteriological standards.
CAR-09	4-Jul-23	SE12	Chlorine	<0.02 mg/L	Re-sampled location as well as upstream and downstream. Investigation revealed issue was caused by water main renewal. Additional flushing was conducted.
CAR-10	20-Aug-23	WTP	Turbidity	1.33 NTU	Turbidity spike was due to material sloughing from the turbidity analyzer sample line. Water quality was not impacted.

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Table 2. Corrective Action Reports Summary

Report Number	Incident Date(s)	Incident Location	Parameter	Result	Description of Corrective Actions Taken and Comments
CAR-11	24-Aug-23	WTP	Chlorine	<0.5 mg/L	Incident occurred during a power failure. No further action required. Water quality was not impacted.
CAR-12	13-Sep-23	Hydrant	Total Coliform	3 MPNU per 100mL	Flushed and re-sampled; re-samples met bacteriological standards.
CAR-13	9-Sep-13	WTP	Turbidity	1.05 NTU	Turbidity spike was due to material sloughing from the turbidity analyzer sample line. Water quality was not impacted.
CAR-14	11-Sep-13	WTP	Turbidity	2.20 NTU	Turbidity spike was due to material sloughing from the turbidity analyzer sample line. Water quality was not impacted.
CAR-15	24-Oct-23	SW05	Total Coliform	1 MPNU per 100 mL	Re-sampled location; re-samples met bacteriological standards.
CAR-16	30-Oct-23	SE12	Total Coliform	1 MPNU per 100 mL	Re-sampled location; re-samples met bacteriological standards.
CAR-17	31-Oct-13	WTP	Turbidity	2.06 NTU	Turbidity spike was due to material sloughing from the turbidity analyzer sample line. Water quality was not impacted.
CAR-18	10-Nov-23	WTP	Turbidity	2.16 NTU	Turbidity spike was due to material sloughing from the turbidity analyzer sample line. Water quality was not impacted.
CAR-19	30-Nov-23	WTP	Turbidity	1.34 NTU	Turbidity spike was due to material sloughing from the turbidity analyzer sample line. Water quality was not impacted.

4.0 LICENCES AND PERMITS

The City of Winnipeg operates its public water system according to the requirements listed in PWS-09-412-02, which came into effect on December 1, 2020 and was amended on June 23, 2023. The amended license, PWS-09-412-02 A, expires on November 30, 2025.

Approximately 22.8 km of water mains were added to the distribution system in 2023. All of the extensions conform to the City of Winnipeg’s engineering standards and construction specifications, as such, the works were approved by ODW as a minor alteration and a Permit to Construct or Alter a Public Water System was not required.

5.0 MAJOR EXPENSES

In 2023, the City’s major expenses relating to drinking water included:

- Renewal of 12.3 km of water mains at 23 locations in the City’s water distribution system
- Installation of a 66” butterfly valve on the suction header at Deacon Booster Pumping Station
- Flood protection upgrades at the WTP
- Structural and architectural upgrades at the Taché Booster Pumping Station

6.0 ZEBRA MUSSELS

Zebra mussels are an invasive mollusk which can negatively impact ecosystems as they compete with fish for food. Zebra mussels can also settle inside water intake pipes and restrict water flow.

The City of Winnipeg monitors Shoal Lake and the WTP raw water reservoirs for both adult zebra mussels and zebra mussel larva (veligers) during open water season. In 2023, there was no evidence of adult or veliger zebra mussels observed in any of the samples. The 2023 Zebra Mussel (*Dreissena Polymorpha*) Monitoring Report is provided in Appendix C.

7.0 BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL

As required under our Operating Licence, the City of Winnipeg operates a Backflow Prevention and Cross-Connection Control Program, which is enforced under the City of Winnipeg's Water By-law 2015/107. The program requires all moderate and severe hazard premises to install and maintain a premise isolation backflow prevention device on the incoming water line, to prevent the backwards flow of water from the building into the distribution system. Existing and newly installed devices are inspected by program staff to ensure they have been installed according to the Plumbing Code and that the device offers the required level of protection, which is dependent upon the type of activities that occur within the building.

In 2023, program staff notified 314 building owners of the requirement to install premise isolation devices, conducted approximately 1,500 inspections, and tracked the testing and maintenance of approximately 19,000 backflow prevention devices.

8.0 CORROSION CONTROL AND RESIDENTIAL LEAD MONITORING PROGRAMS

Although lead is not present in the water produced by the WTP, it can enter the water as it passes through a lead service line (the pipe that connects a building to the water main) and/or plumbing systems and fixtures that contain lead. Buildings constructed before 1950 may have a lead service line and those constructed before 1990 may have lead solder or brass plumbing fixtures. There are approximately 22,200 buildings with lead service lines in the City of Winnipeg. The ODW regulates the City of Winnipeg's Corrosion Control Program and Residential Lead Monitoring Program under our Operating Licence.

As part of our Corrosion Control Program, we add orthophosphate to the water as it leaves the WTP. Orthophosphate forms a coating inside water pipes which helps reduce corrosion that can allow lead to enter water as it travels through the pipes. We also replace the City's portion of lead service lines (from the water main to the shut-off valve at the property line) when replacing water mains or if a repair is required to a lead service. We notify building owners when this work is being done so they have the

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option to benefit from cost-savings achieved by replacing their portion of the service line (from the shut-off valve at the property line to the building) at the same time.

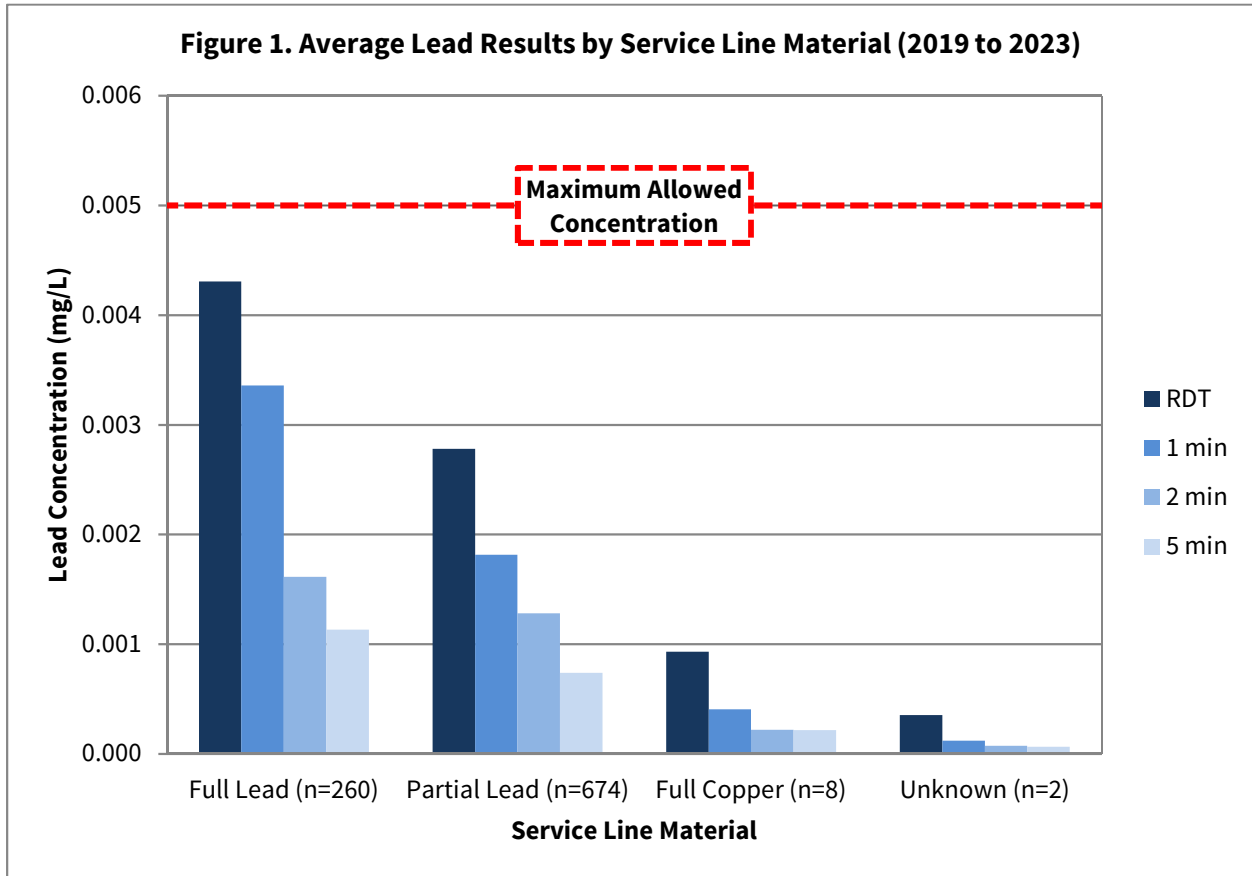
For the 2023 Residential Lead Monitoring Program we analyzed 210 sets of samples collected from buildings with full or partial lead service lines and/or older buildings that may contain lead in their plumbing systems. Sample sets consist of a Random Daytime Sample (RDT), and samples collected after 1, 2, and 5 minutes of flushing. The RDT sample is the best estimate of typical lead exposure within the building, while the sample collected after 1 minute of flushing is the water that was in the service line when the RDT sample was collected (depending on the distance of the sample tap from the service line). The samples collected after 2 and 5 minutes of flushing show the effect of flushing on lead levels at the tap.

Although 13% of the RDT and 5% of the 1-minute flushed samples were over the guideline of 0.005 mg/L, lead levels decreased significantly with increased flushing. After five minutes of flushing, all but one sample were below the guideline; we conducted follow-up sampling at this location using the 30-minute stagnation (30MS) procedure, the 30MS results were below the guideline. Overall, the results obtained from the 2023 Residential Lead Monitoring Program were similar to those obtained in previous years. A summary of the results from the 2023 Residential Lead Monitoring Program is provided in Table 3; results are provided in Appendix D.

Table 3: 2023 Residential Lead Monitoring Program Summary

	Average (mg/L)	Minimum (mg/L)	Maximum (mg/L)	% of samples above guideline (0.005 mg/L)
Random Daytime	0.002783	<0.000065	0.109390	12.8%
1 minute	0.001394	<0.000065	0.026532	5.24%
2 minute	0.000745	<0.000065	0.032682	0.95%
5 minute	0.000603	<0.000065	0.012980	0.48%

As shown in Figure 1, the average lead concentration in buildings with full lead service lines was higher than those with partial lead service lines. The average lead concentration was highest in the RDT and 1-minute flushed samples, but decreased significantly in the 2-minute and 5-minute flushed samples.



Customers are encouraged to remove lead from their plumbing systems whenever feasible. If this is not feasible, customers should flush the water until it is cold to the touch before drinking, preparing food, or making beverages; or use a point-of-use or pitcher-style filter that is certified for lead removal. If filters are used to remove lead it is important that they are maintained and replaced as per manufacturer's instructions. Poor maintenance may increase the levels of lead in the water.

More information on lead in drinking water is available at:

<https://winnipeg.ca/waterandwaste/water/lead.stm>

9.0 REFERENCES

1. City of Winnipeg Operating Licence PWS-09-412-02 A.

<https://legacy.winnipeg.ca/waterandwaste/pdfs/water/PublicWaterSystemOperatingLicence2023.pdf>

2. Manitoba Drinking Water Safety Act C.C.S.M. c. D101 (2002). Manitoba Water Stewardship.

<https://web2.gov.mb.ca/laws/statutes/ccsm/pdf.php?cap=d101>

3. Manitoba Drinking Water Safety Regulation 40/2007. Manitoba Water Stewardship.

<http://web2.gov.mb.ca/laws/regs/current/pdf-regs.php?reg=40/2007>

4. Manitoba Drinking Water Quality Standards Regulation 41/2007. Manitoba Water Stewardship.

<http://web2.gov.mb.ca/laws/regs/current/pdf-regs.php?reg=41/2007>

APPENDIX A
WATER QUALITY SUMMARY REPORTS

City of Winnipeg
Environmental Standards Division
2023 Shoal Lake Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	<i>parts per million</i>	8.8	7.3	10.1
Carbon, Total Organic	<i>parts per million</i>	8.9	7.0	11.0
Chlorophyll-a	<i>parts per billion</i>	4.3	<1.0	8.0
Colour, Apparent	<i>TCU</i>	15.6	12.0	20.0
Colour, True	<i>TCU</i>	9.7	7.5	12.0
Conductivity	<i>microsiemens per centimetre</i>	157	145	174
Odour	<i>units</i>	90	75	150
pH	<i>units</i>	8.05	7.59	8.70
Plankton (algae) count	<i>cells/mL</i>	14,257	<100	62,830
Solids, Total	<i>parts per million</i>	105	98	114
Solids, Total Dissolved	<i>parts per million</i>	87	68	104
Temperature	<i>degrees Celcius</i>	11.2	2.4	24.0
Turbidity (clearness)	<i>NTU</i>	0.87	0.18	3.03
Anions and Nutrients				
Alkalinity, Total	<i>parts per million as calcium carbonate</i>	75.5	67.8	82.9
Hardness, Total	<i>parts per million as calcium carbonate</i>	78.6	70.2	95.2
Chloride	<i>parts per million</i>	2.2	1.5	2.8
Fluoride	<i>parts per million</i>	0.07	0.07	0.08
Nitrate Nitrogen	<i>parts per million</i>	0.042	0.011	0.082
Perchlorate	<i>parts per billion</i>	<0.20	<0.20	<0.20
Phosphorus, Total Reactive	<i>parts per million</i>	0.0023	<0.0010	0.0118
Phosphorus, Total	<i>parts per million</i>	<0.02	<0.02	0.04
Sulphate	<i>parts per million</i>	<0.4	<0.4	0.4
Total Kjeldahl Nitrogen (TKN)	<i>parts per million</i>	0.52	0.45	0.63
Bacteria				
Escherichia Coli	<i>MPN per 100 mL</i>	2	<1	8
Total Coliforms	<i>MPN per 100 mL</i>	94	<1	>200
Disinfection By-Products				
Haloacetic acids	<i>parts per billion</i>	<1.2	<1.2	<1.2
Trihalomethanes	<i>parts per billion</i>	<2.7	<2.7	<2.7
Enteric Protozoa				
Cryptosporidium	<i>oocysts per 100 L</i>	<0.1	<0.1	<0.1
Giardia	<i>cysts per 100 L</i>	<0.1	<0.1	<0.1

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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Pesticides				
Alachlor	<i>parts per billion</i>	<0.10	<0.10	<0.10
Aldrin	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
alpha-HCH	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
alpha-Chlordane	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
alpha-Endosulfan	<i>parts per billion</i>	<0.0070	<0.0070	<0.0070
Atrazine	<i>parts per billion</i>	<0.10	<0.10	<0.10
Azinphos-methyl	<i>parts per billion</i>	<0.10	<0.10	<0.10
beta-HCH	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
beta-Endosulfan	<i>parts per billion</i>	<0.0070	<0.0070	<0.0070
Carbaryl	<i>parts per billion</i>	<0.20	<0.20	<0.20
Carbofuran	<i>parts per billion</i>	<0.20	<0.20	<0.20
Chlorpyrifos	<i>parts per billion</i>	<0.10	<0.10	<0.10
delta-HCH	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Diazinon	<i>parts per billion</i>	<0.10	<0.10	<0.10
Diclofop-methyl	<i>parts per billion</i>	<0.10	<0.10	<0.10
Dieldrin	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Dimethoate	<i>parts per billion</i>	<0.10	<0.10	<0.10
Endrin	<i>parts per billion</i>	<0.010	<0.010	<0.010
Eptam	<i>parts per billion</i>	<0.20	<0.20	<0.20
gamma-Chlordane	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Heptachlor	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Heptachlor Epoxide	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Lindane (gamma-HCH)	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Malathion	<i>parts per billion</i>	<0.10	<0.10	<0.10
Methoxychlor	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Methyl Parathion	<i>parts per billion</i>	<0.10	<0.10	<0.10
Metribuzin	<i>parts per billion</i>	<0.10	<0.10	<0.10
Mirex	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
o,p-DDD	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
o,p-DDE	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
o,p-DDT	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
p,p-DDD	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
p,p-DDE	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
p,p-DDT	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
Parathion	<i>parts per billion</i>	<0.10	<0.10	<0.10
Propaclor	<i>parts per billion</i>	<0.20	<0.20	<0.20
Propanil	<i>parts per billion</i>	<0.20	<0.20	<0.20
Propoxur	<i>parts per billion</i>	<0.20	<0.20	<0.20
Simazine	<i>parts per billion</i>	<0.10	<0.10	<0.10
Terbufos	<i>parts per billion</i>	<0.10	<0.10	<0.10
Triallate	<i>parts per billion</i>	<0.10	<0.10	<0.10
Trichlopyr	<i>parts per billion</i>	<0.50	<0.050	<0.50
Trifluralin	<i>parts per billion</i>	<0.10	<0.10	<0.10

City of Winnipeg
Environmental Standards Division
2023 Shoal Lake Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Polychlorinated Biphenyls				
Arochlor 1016	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1221	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1232	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1242	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1248	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1254	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1260	<i>parts per billion</i>	<0.020	<0.020	<0.020
Phenoxy Acid Herbicides				
2,4,5-T	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4,5-TP	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4-D	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4-DB	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4-DP	<i>parts per billion</i>	<0.50	<0.050	<0.50
Bromoxynil	<i>parts per billion</i>	<0.50	<0.050	<0.50
Dicamba	<i>parts per billion</i>	<1.0	<0.010	<1.0
Dinoseb	<i>parts per billion</i>	<0.50	<0.050	<0.50
MCPA	<i>parts per billion</i>	<0.50	<0.050	<0.50
MCPB	<i>parts per billion</i>	<0.50	<0.050	<0.50
Mecoprop	<i>parts per billion</i>	<0.50	<0.050	<0.50
Picloram	<i>parts per billion</i>	<1.0	<0.10	<1.0
Total Metals				
Aluminum	<i>parts per million</i>	0.00467	0.00097	0.01358
Antimony	<i>parts per million</i>	0.000071	<0.000025	0.000168
Arsenic	<i>parts per million</i>	0.000907	0.000636	0.001104
Boron	<i>parts per million</i>	0.01079	0.00788	0.01329
Cadmium	<i>parts per million</i>	<0.000007	<0.000007	<0.000007
Calcium	<i>parts per million</i>	19.890	17.303	24.924
Chromium	<i>parts per million</i>	<0.00004	<0.00004	0.00012
Chromium VI	<i>parts per million</i>	<0.00050	<0.00050	0.00064
Copper	<i>parts per million</i>	0.001716	0.000613	0.005230
Iron	<i>parts per million</i>	0.03523	0.01213	0.07318
Lead	<i>parts per million</i>	0.000099	<0.000065	0.000541
Magnesium	<i>parts per million</i>	5.973	5.450	7.285
Manganese	<i>parts per million</i>	0.00907	0.00204	0.02812
Mercury	<i>parts per billion</i>	<0.0050	<0.0050	<0.0050
Nickel	<i>parts per million</i>	0.000206	<0.000021	0.000308
Potassium	<i>parts per million</i>	1.244	1.083	1.465
Sodium	<i>parts per million</i>	2.245	1.997	2.737
Uranium	<i>parts per million</i>	0.000044	<0.000032	0.000123
Zinc	<i>parts per million</i>	0.00160	0.00023	0.01039

Note: Where value is expressed as less than (<), the value is halved and used in the calculations, where value is expressed as (>), the value is used in the calculations.
Guidelines for Canadian Drinking Water Quality do not apply to Shoal Lake.

City of Winnipeg
Environmental Standards Division
2023 Water Treatment Plant - Raw Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	<i>parts per million</i>	8.6	6.3	14.5
Carbon, Total Organic	<i>parts per million</i>	8.7	6.8	15.6
Chlorine, Free	<i>parts per million</i>	0.02	<0.02	0.10
Chlorine, Total	<i>parts per million</i>	0.03	<0.02	0.12
Chlorophyll-a	<i>parts per billion</i>	4.8	<1.0	13.4
Colour, Apparent	<i>TCU</i>	15.5	10.0	24.0
Colour, True	<i>TCU</i>	9.8	5.0	14.0
Conductivity	<i>microsiemens per centimetre</i>	166	154	182
Langelier Index (4 C)	<i>units</i>	-0.43	-0.56	-0.32
Langelier Index (60 C)	<i>units</i>	0.35	0.22	0.45
Microcystin	<i>parts per billion</i>	<0.20	<0.20	<0.20
Odour	<i>units</i>	92	70	150
ORP	<i>millivolts</i>	442.0	294.1	558.8
Oxygen, Dissolved	<i>parts per million</i>	10.6	7.1	13.5
pH	<i>units</i>	7.83	6.98	8.50
Plankton (algae) count	<i>cells/mL</i>	25,456	<100	213,200
Solids, Total	<i>parts per million</i>	113	99	172
Solids, Total Dissolved	<i>parts per million</i>	94	60	144
Temperature	<i>degrees Celcius</i>	9.9	1.2	23.4
Turbidity (clearness)	<i>NTU</i>	0.88	0.37	3.13
UV Transmittance, Filtered	<i>percent transmissivity</i>	72.9	67.6	78.7
UV Transmittance, Unfiltered	<i>percent transmissivity</i>	71.0	65.8	76.7
Anions and Nutrients				
Alkalinity, Total	<i>parts per million as calcium carbonate</i>	75.4	64.6	83.6
Alkalinity, Bicarbonate	<i>parts per million</i>	83.5	71.5	100.0
Alkalinity, Carbonate	<i>parts per million</i>	<0.60	<0.60	<1.0
Alkalinity, Hydroxide	<i>parts per million</i>	<0.34	<0.34	<1.0
Hardness, Total	<i>parts per million as calcium carbonate</i>	81.4	73.8	99.6
Ammonia	<i>parts per million</i>	0.02	<0.01	0.05
Bromide	<i>parts per million</i>	<0.050	<0.010	<0.050
Chloride	<i>parts per million</i>	2.1	1.3	2.9
Fluoride	<i>parts per million</i>	0.060	0.057	0.063
Nitrate Nitrogen	<i>parts per million</i>	0.033	<0.0050	0.079
Nitrite	<i>parts per million</i>	0.002	<0.0010	0.006
Perchlorate	<i>parts per billion</i>	<0.20	<0.20	<0.20
Phosphorus, Total	<i>parts per million</i>	<0.030	<0.030	<0.050
Sulphate	<i>parts per million</i>	<0.4	<0.4	0.7
Disinfection By-Products				
Haloacetic acids	<i>parts per billion</i>	<1.2	<1.2	<1.2
Trihalomethanes	<i>parts per billion</i>	<2.7	<2.7	<2.7

City of Winnipeg
Environmental Standards Division
2023 Water Treatment Plant - Raw Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Enteric Protozoa				
Cryptosporidium	<i>oocysts per 100 L</i>	<0.1	<0.1	<0.1
Giardia	<i>cysts per 100 L</i>	<0.1	<0.1	<0.1
Total Metals				
Aluminum	<i>parts per million</i>	0.00251	0.00103	0.01413
Antimony	<i>parts per million</i>	0.000086	<0.000025	0.000225
Arsenic	<i>parts per million</i>	0.000891	0.000484	0.001403
Barium	<i>parts per million</i>	0.0158	0.0144	0.0183
Beryllium	<i>parts per million</i>	<0.00010	<0.00002	<0.00010
Bismuth	<i>parts per million</i>	<0.000050	<0.000050	<0.000050
Boron	<i>parts per million</i>	0.01139	0.00803	0.01800
Cadmium	<i>parts per million</i>	<0.000005	<0.000005	<0.000007
Calcium	<i>parts per million</i>	20.570	16.667	25.757
Cesium	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Chromium	<i>parts per million</i>	<0.000040	<0.000040	<0.00050
Chromium VI	<i>parts per million</i>	<0.00050	<0.00050	<0.00050
Cobalt	<i>parts per million</i>	<0.00010	<0.00010	<0.00010
Copper	<i>parts per million</i>	0.000450	0.000091	0.002240
Iron	<i>parts per million</i>	0.07874	0.01865	0.33450
Lead	<i>parts per million</i>	<0.000050	<0.000050	<0.000065
Lithium	<i>parts per million</i>	0.0023	0.0017	0.0025
Magnesium	<i>parts per million</i>	6.187	5.066	7.260
Manganese	<i>parts per million</i>	0.01230	0.00289	0.06894
Mercury	<i>parts per billion</i>	<0.0050	<0.0050	<0.0050
Molybdenum	<i>parts per million</i>	0.000163	0.000142	0.000189
Nickel	<i>parts per million</i>	0.000299	<0.000021	0.000640
Potassium	<i>parts per million</i>	1.245	0.970	1.472
Rubidium	<i>parts per million</i>	0.0018	0.0016	0.0020
Selenium	<i>parts per million</i>	0.000076	<0.000050	0.000122
Silicon	<i>parts per million</i>	1.98	0.51	3.63
Silver	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Sodium	<i>parts per million</i>	2.334	1.983	2.685
Strontium	<i>parts per million</i>	0.0406	0.0369	0.0438
Tellurium	<i>parts per million</i>	<0.00020	<0.00020	<0.00020
Thallium	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Thorium	<i>parts per million</i>	<0.00010	<0.00010	<0.00010
Tin	<i>parts per million</i>	<0.00010	<0.00010	<0.00010
Titanium	<i>parts per million</i>	<0.00030	<0.00030	<0.00030
Tungsten	<i>parts per million</i>	<0.00010	<0.00010	<0.00010
Uranium	<i>parts per million</i>	0.000048	<0.000032	0.000116
Vanadium	<i>parts per million</i>	<0.00050	<0.00050	<0.00050
Zinc	<i>parts per million</i>	0.00065	<0.00011	0.00459
Zirconium	<i>parts per million</i>	<0.00020	<0.00020	<0.00020

City of Winnipeg
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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Pesticides				
Alachlor	<i>parts per billion</i>	<0.10	<0.10	<0.10
Aldrin	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
alpha-HCH	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
alpha-Chlordane	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
alpha-Endosulfan	<i>parts per billion</i>	<0.0070	<0.0070	<0.0070
Atrazine	<i>parts per billion</i>	<0.10	<0.10	<0.10
Azinphos-methyl	<i>parts per billion</i>	<0.10	<0.10	<0.10
beta-HCH	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
beta-Endosulfan	<i>parts per billion</i>	<0.0070	<0.0070	<0.0070
Carbaryl	<i>parts per billion</i>	<0.20	<0.20	<0.20
Carbofuran	<i>parts per billion</i>	<0.20	<0.20	<0.20
Chlorpyrifos	<i>parts per billion</i>	<0.10	<0.10	<0.10
delta-HCH	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Diazinon	<i>parts per billion</i>	<0.10	<0.10	<0.10
Diclofop-methyl	<i>parts per billion</i>	<0.10	<0.10	<0.10
Dieldrin	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Dimethoate	<i>parts per billion</i>	<0.10	<0.10	<0.10
Endrin	<i>parts per billion</i>	<0.010	<0.010	<0.010
Eptam	<i>parts per billion</i>	<0.20	<0.20	<0.20
gamma-Chlordane	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Heptachlor	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Heptachlor Epoxide	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Lindane (gamma-HCH)	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Malathion	<i>parts per billion</i>	<0.10	<0.10	<0.10
Methoxychlor	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
Methyl Parathion	<i>parts per billion</i>	<0.10	<0.10	<0.10
Metribuzin	<i>parts per billion</i>	<0.10	<0.10	<0.10
Mirex	<i>parts per billion</i>	<0.0080	<0.0080	<0.0080
o,p-DDD	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
o,p-DDE	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
o,p-DDT	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
p,p-DDD	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
p,p-DDE	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
p,p-DDT	<i>parts per billion</i>	<0.0040	<0.0040	<0.0040
Parathion	<i>parts per billion</i>	<0.10	<0.10	<0.10
Propaclar	<i>parts per billion</i>	<0.20	<0.20	<0.20
Propanil	<i>parts per billion</i>	<0.20	<0.20	<0.20
Propoxur	<i>parts per billion</i>	<0.20	<0.20	<0.20
Simazine	<i>parts per billion</i>	<0.10	<0.10	<0.10
Terbufos	<i>parts per billion</i>	<0.10	<0.10	<0.10
Triallate	<i>parts per billion</i>	<0.10	<0.10	<0.10
Trichlopyr	<i>parts per billion</i>	<0.50	<0.050	<0.50
Trifluralin	<i>parts per billion</i>	<0.10	<0.10	<0.10

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2023 Water Treatment Plant - Raw Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Bacteria				
Escherichia Coli	<i>MPN per 100 mL</i>	28	<1	>200
Total Coliforms	<i>MPN per 100 mL</i>	89	<1	>200
Heterotrophic Plate Count	<i>CFU per mL</i>	151	6	>300
Taste and Odours				
Dichloromethane	<i>parts per billion</i>	<1.0	<1.0	<1.0
MTBE - methyl tertiary-butyl ether	<i>parts per billion</i>	<0.50	<0.50	<0.50
NDMA - N-nitrosodimethylamine	<i>parts per billion</i>	<0.033	<0.033	<0.10
Polychlorinated Biphenyls				
Arochlor 1016	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1221	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1232	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1242	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1248	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1254	<i>parts per billion</i>	<0.020	<0.020	<0.020
Arochlor 1260	<i>parts per billion</i>	<0.020	<0.020	<0.020
Phenoxy Acid Herbicides				
2,4,5-T	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4,5-TP	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4-D	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4-DB	<i>parts per billion</i>	<0.50	<0.050	<0.50
2,4-DP	<i>parts per billion</i>	<0.50	<0.050	<0.50
Bromoxynil	<i>parts per billion</i>	<0.50	<0.050	<0.50
Dicamba	<i>parts per billion</i>	<1.0	<0.10	<1.0
Dinoseb	<i>parts per billion</i>	<0.50	<0.050	<0.50
MCPA	<i>parts per billion</i>	<0.50	<0.050	<0.50
MCPB	<i>parts per billion</i>	<0.50	<0.050	<0.50
Mecoprop	<i>parts per billion</i>	<0.50	<0.050	<0.50
Picloram	<i>parts per billion</i>	<1.0	<0.10	<1.0
Note: Where value is expressed as less than (<), the value is halved and used in the calculations, where value is expressed as (>), the value is used in the calculations. Guidelines for Canadian Drinking Water Quality do not apply to raw water.				

City of Winnipeg
Environmental Standards Division
2023 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous					
Carbon, Dissolved Organic	<i>parts per million</i>	no guideline	3.2	2.2	4.2
Carbon, Total Organic	<i>parts per million</i>	no guideline	3.0	2.2	3.9
Chlorine, Free	<i>parts per million</i>	no guideline	1.40	1.06	2.05
Chlorine, Total	<i>parts per million</i>	no guideline	1.67	1.27	2.40
Chlorophyll-a	<i>parts per billion</i>	no guideline	<1.0	<1.0	<1.0
Colour, Apparent	<i>TCU</i>	no guideline	0.4	0.0	2.5
Colour, True	<i>TCU</i>	no more than 15 *	0.0	0.0	0.0
Conductivity	<i>microsiemens per centimetre</i>	no guideline	304	277	346
Microcystin	<i>parts per billion</i>	no more than 1.5	<0.2	<0.2	<0.2
Odour	<i>units</i>	inoffensive*	17	8	25
ORP	<i>millivolts</i>	no guideline	512.4	217.6	642.0
Oxygen, Dissolved	<i>parts per million</i>	no guideline	11.5	7.5	15.0
pH	<i>units</i>	between 7.0 and 10.5	7.77	7.29	7.96
Plankton (algae) count	<i>cells/mL</i>	no guideline	<100	<100	<100
Solids, Total	<i>parts per million</i>	no guideline	190	170	236
Solids, Total Dissolved	<i>parts per million</i>	no more than 500 *	169	141	191
Temperature	<i>degrees Celcius</i>	no more than 15 *	10.2	1.5	22.8
Turbidity (clearness)	<i>NTU</i>	no more than 0.3 in 95% of measurements/month, never to exceed 1.0	0.15	0.10	0.27
UV Transmittance, Filtered	<i>percent transmissivity</i>	no guideline	94.3	92.3	96.8
UV Transmittance, Unfiltered	<i>percent transmissivity</i>	no guideline	93.0	90.0	96.2
Anions and Nutrients					
Alkalinity, Total	<i>parts per million as calcium carbonate</i>	no guideline	70.0	58.3	85.3
Hardness, Total	<i>parts per million as calcium carbonate</i>	no guideline	81.6	74.9	94.3
Chloride	<i>parts per million</i>	no more than 250 *	4.5	3.4	5.7
Perchlorate	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20
Sulphate	<i>parts per million</i>	no more than 500 *	59.8	52.2	66.9
Bacteria					
Escherichia Coli	<i>MPN per 100 mL</i>	none detectable per 100 mL	<1	<1	<1
Total Coliforms	<i>MPN per 100 mL</i>	none detectable per 100 mL	<1	<1	<1
Heterotrophic Plate Count	<i>CFU per mL</i>	no guideline	2	<1	201
Disinfection By-Products					
Haloacetic acids	<i>parts per billion</i>	no more than 80	16.7	6.9	28.0
Trihalomethanes	<i>parts per billion</i>	no more than 100	19.5	7.1	29.3

City of Winnipeg
Environmental Standards Division
2023 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Taste and Odours					
Dichloromethane	<i>parts per billion</i>	no more than 50	<1.0	<1.0	<1.0
MTBE - methyl tertiary-butyl ether	<i>parts per billion</i>	no more than 15	<0.50	<0.50	<0.50
NDMA -N-nitrosodimethylamine	<i>parts per billion</i>	no more than 0.04	<0.033	<0.033	<0.10
Polychlorinated Biphenyls					
Arochlor 1016	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020
Arochlor 1221	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020
Arochlor 1232	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020
Arochlor 1242	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020
Arochlor 1248	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020
Arochlor 1254	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020
Arochlor 1260	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020
Phenoxy Acid Herbicides					
2,4,5-T	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
2,4,5-TP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
2,4-D	<i>parts per billion</i>	no more than 100	<0.050	<0.050	<0.050
2,4-DB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
2,4-DP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
Bromoxynil	<i>parts per billion</i>	no more than 5	<0.050	<0.050	<0.050
Dicamba	<i>parts per billion</i>	no more than 120	<0.10	<0.10	<0.10
Dinoseb	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
MCPA	<i>parts per billion</i>	no more than 100	<0.050	<0.050	<0.050
MCPB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
Mecoprop	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
Picloram	<i>parts per billion</i>	no more than 190	<0.50	<0.10	<0.50

City of Winnipeg
Environmental Standards Division
2023 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Pesticides					
Alachlor	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10
Aldrin	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
alpha-HCH	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
alpha-Chlordane	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
alpha-Endosulfan	<i>parts per billion</i>	no guideline	<0.0070	<0.0070	<0.0070
Atrazine	<i>parts per billion</i>	no more than 5	<0.10	<0.10	<0.10
Azinphos-methyl	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10
beta-HCH	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
beta-Endosulfan	<i>parts per billion</i>	no guideline	<0.0070	<0.0070	<0.0070
Carbaryl	<i>parts per billion</i>	no more than 90	<0.20	<0.20	<0.20
Carbofuran	<i>parts per billion</i>	no more than 90	<0.20	<0.20	<0.20
Chlorpyrifos	<i>parts per billion</i>	no more than 90	<0.10	<0.10	<0.10
delta-HCH	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
Diazinon	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10
Diclofop-methyl	<i>parts per billion</i>	no more than 9	<0.10	<0.10	<0.10
Diieldrin	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
Dimethoate	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10
Endrin	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010
Eptam	<i>parts per billion</i>	no guideline	<2.0	<0.20	<2.0
gamma-Chlordane	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
Heptachlor	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
Heptachlor Epoxide	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
Lindane (gamma-HCH)	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
Malathion	<i>parts per billion</i>	no more than 190	<0.10	<0.10	<0.10
Methoxychlor	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
Methyl Parathion	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10
Metribuzin	<i>parts per billion</i>	no more than 80	<0.10	<0.10	<0.10
Mirex	<i>parts per billion</i>	no guideline	<0.0080	<0.0080	<0.0080
o,p-DDD	<i>parts per billion</i>	no guideline	<0.0040	<0.0040	<0.0040
o,p-DDE	<i>parts per billion</i>	no guideline	<0.0040	<0.0040	<0.0040
o,p-DDT	<i>parts per billion</i>	no guideline	<0.0040	<0.0040	<0.0040
p,p-DDD	<i>parts per billion</i>	no guideline	<0.0040	<0.0040	<0.0040
p,p-DDE	<i>parts per billion</i>	no guideline	<0.0040	<0.0040	<0.0040
p,p-DDT	<i>parts per billion</i>	no guideline	<0.0040	<0.0040	<0.0040
Parathion	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10
Propaclor	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20
Propanil	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20
Propoxur	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20
Simazine	<i>parts per billion</i>	no more than 10	<0.10	<0.10	<0.10
Terbufos	<i>parts per billion</i>	no more than 1	<0.10	<0.10	<0.10
Triallate	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10
Trichlopyr	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050
Trifluralin	<i>parts per billion</i>	no more than 45	<0.10	<0.10	<0.10

City of Winnipeg
Environmental Standards Division
2023 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Total Metals					
Aluminum	<i>parts per million</i>	no guideline	0.00580	0.00171	0.03220
Antimony	<i>parts per million</i>	no more than 0.006	0.000144	<0.000025	0.000703
Arsenic	<i>parts per million</i>	no more than 0.010	0.000349	0.000277	0.000440
Boron	<i>parts per million</i>	no more than 5	0.01160	0.00824	0.02044
Cadmium	<i>parts per million</i>	no more than 0.007	<0.000007	<0.000007	0.000014
Calcium	<i>parts per million</i>	no guideline	20.997	16.938	24.964
Chromium	<i>parts per million</i>	no more than 0.05	0.00005	<0.00004	0.00020
Chromium VI	<i>parts per million</i>	no guideline	<0.00050	<0.00050	<0.00050
Copper	<i>parts per million</i>	no more than 2.0	0.000373	<0.000022	0.001940
Iron	<i>parts per million</i>	no more than 0.3 *	0.06781	0.01504	0.12974
Lead	<i>parts per million</i>	no more than 0.005	<0.000065	<0.000065	<0.000065
Magnesium	<i>parts per million</i>	no guideline	6.301	5.280	7.279
Manganese	<i>parts per million</i>	no more than 0.12	0.00996	0.00507	0.01857
Mercury	<i>parts per billion</i>	no more than 1	<0.0050	<0.0050	<0.0050
Nickel	<i>parts per million</i>	no guideline	0.002691	0.001672	0.004841
Potassium	<i>parts per million</i>	no guideline	1.261	1.038	1.560
Sodium	<i>parts per million</i>	no more than 200 *	29.785	25.643	36.391
Uranium	<i>parts per million</i>	no more than 0.02	0.000048	<0.000032	0.000172
Zinc	<i>parts per million</i>	no more than 5.0 *	0.00091	0.00019	0.00914

*Aesthetic objective: These guidelines have an objective and not a maximum acceptable concentration. These parameters should not impact the safety of the water to drink and there is no anticipated health risk for short-term exposures.

Guidelines from 'Summary of Guidelines for Canadian Drinking Water Quality' by Health Canada, September 2020

Results in red do not meet the guideline

Note: Where value is expressed as less than (<), the value is halved and used in the calculations, where value is expressed as (>), the value is used in the calculations.

City of Winnipeg
Environmental Standards Division
2023 Winnipeg Distribution System Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous					
Carbon, Dissolved Organic	<i>parts per million</i>	no guideline	6.3	2.6	16.9
Carbon, Total Organic	<i>parts per million</i>	no guideline	4.9	2.2	17.1
Chlorine, Free	<i>parts per million</i>	no guideline	0.88	0.02	3.50
Chlorine, Total	<i>parts per million</i>	no guideline	1.11	0.07	3.70
Colour, Apparent	<i>TCU</i>	no guideline	1.7	0.0	5.0
Colour, True	<i>TCU</i>	no more than 15 *	0.4	0.0	<5.0
Conductivity	<i>microsiemens per centimetre</i>	no guideline	302	275	336
Langelier Index (4 C)	<i>units</i>	no guideline	-0.65	-0.83	-0.51
Langelier Index (60 C)	<i>units</i>	no guideline	0.12	-0.06	0.26
Odour	<i>units</i>	inoffensive*	11	6	20
ORP	<i>millivolts</i>	no guideline	602.2	441.6	687.8
Oxygen, Dissolved	<i>parts per million</i>	no guideline	10.9	7.4	15.1
pH	<i>units</i>	between 7.0 and 10.5	7.52	6.73	7.99
Solids, Total Dissolved	<i>parts per million</i>	no more than 500 *	168	129	226
Temperature	<i>degrees Celcius</i>	no more than 15 *	11.2	1.8	24.2
Turbidity (clearness)	<i>NTU</i>	no guideline	0.22	<0.10	9.1
UV Transmittance, Filtered	<i>percent transmissivity</i>	no guideline	93.8	93.0	95.0
Anions and Nutrients					
Alkalinity, Total	<i>parts per million as calcium carbonate</i>	no guideline	67.1	56.7	80.5
Alkalinity, Bicarbonate	<i>parts per million</i>	no guideline	73.0	58.8	93.8
Alkalinity, Carbonate	<i>parts per million</i>	no guideline	<0.60	<0.60	<1.0
Alkalinity, Hydroxide	<i>parts per million</i>	no guideline	<0.34	<0.34	<1.0
Hardness, Total	<i>parts per million as calcium carbonate</i>	no guideline	82.0	73.2	93.2
Ammonia	<i>parts per million</i>	no guideline	<0.01	<0.01	<0.01
Bromate	<i>parts per million</i>	no more than 0.01	<0.0003	<0.0003	<0.0003
Bromide	<i>parts per million</i>	no guideline	<0.05	<0.01	<0.05
Chloride	<i>parts per million</i>	no more than 250 *	5.0	3.7	6.7
Fluoride	<i>parts per million</i>	no more than 1.5	0.60	0.07	0.81
Nitrate Nitrogen	<i>parts per million</i>	no more than 10	0.039	0.012	0.074
Nitrite	<i>parts per million</i>	no more than 3	<0.005	<0.001	<0.005
Phosphate, Soluble	<i>parts per million as phosphate</i>	no guideline	1.82	<0.04	4.84
Phosphorus, Total	<i>parts per million</i>	no guideline	0.707	0.654	0.777
Sulphate	<i>parts per million</i>	no more than 500 *	60.7	51.1	71.2
Bacteria					
Escherichia Coli	<i>MPN per 100 mL</i>	none detectable per 100 mL	<1	<1	<1
Total Coliforms	<i>MPN per 100 mL</i>	none detectable per 100 mL	<1	<1	1
Heterotrophic Plate Count	<i>CFU per mL</i>	no guideline	<1	<1	90
Disinfection By-Products					
Haloacetic acids	<i>parts per billion</i>	no more than 80	33.3	11.5	62.2
Trihalomethanes	<i>parts per billion</i>	no more than 100	44.4	12.2	76.0

City of Winnipeg
Environmental Standards Division
2023 Winnipeg Distribution System Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Total Metals					
Aluminum	parts per million	no guideline	0.00544	0.00222	0.02144
Antimony	parts per million	no more than 0.006	0.000133	<0.000025	0.001156
Arsenic	parts per million	no more than 0.010	0.000364	0.000227	0.000520
Barium	parts per million	no more than 2	0.0155	0.0142	0.0182
Beryllium	parts per million	no guideline	<0.00010	<0.00002	<0.00010
Bismuth	parts per million	no guideline	<0.000050	<0.000050	<0.000050
Boron	parts per million	no more than 5	0.012	<0.010	0.021
Cadmium	parts per million	no more than 0.007	<0.000005	<0.000005	0.000023
Calcium	parts per million	no guideline	21.154	17.025	25.938
Cesium	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Chromium	parts per million	no more than 0.05	0.00006	<0.00004	0.00045
Chromium VI	parts per million	no guideline	<0.00050	<0.00050	0.00147
Cobalt	parts per million	no guideline	0.00133	0.00080	0.00170
Copper	parts per million	no more than 2.0	0.035970	0.000159	0.167470
Iron	parts per million	no more than 0.3 *	0.07855	0.02197	1.79340
Lead	parts per million	no more than 0.005	0.000072	<0.000050	0.000290
Lithium	parts per million	no guideline	0.0024	0.0016	0.0029
Magnesium	parts per million	no guideline	6.252	5.072	7.420
Manganese	parts per million	no more than 0.12	0.01038	0.00347	0.16325
Mercury	parts per billion	no more than 1	<0.0050	<0.0050	<0.0050
Molybdenum	parts per million	no guideline	<0.000050	<0.000050	<0.000050
Nickel	parts per million	no guideline	0.002475	0.001406	0.004939
Potassium	parts per million	no guideline	1.256	0.988	1.566
Rubidium	parts per million	no guideline	0.0018	0.0016	0.0020
Selenium	parts per million	no more than 0.05	<0.000050	<0.000050	0.000091
Silicon	parts per million	no guideline	2.10	0.66	3.71
Silver	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Sodium	parts per million	no more than 200 *	29.484	24.481	35.628
Strontium	parts per million	no more than 7	0.0412	0.0375	0.0448
Tellurium	parts per million	no guideline	<0.00020	<0.00020	<0.00020
Thallium	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Thorium	parts per million	no guideline	<0.00010	<0.00010	<0.00010
Tin	parts per million	no guideline	<0.00010	<0.00010	0.00015
Titanium	parts per million	no guideline	<0.00030	<0.00030	<0.00030
Tungsten	parts per million	no guideline	<0.00010	<0.00010	<0.00010
Uranium	parts per million	no more than 0.02	0.000058	<0.000010	0.000264
Vanadium	parts per million	no guideline	<0.00050	<0.00050	<0.00050
Zinc	parts per million	no more than 5.0 *	0.0034	0.0002	0.0307
Zirconium	parts per million	no guideline	<0.00020	<0.00020	<0.00020

*Aesthetic objective: These guidelines have an objective and not a maximum acceptable concentration. These parameters should not impact the safety of the water to drink and there is no anticipated health risk for short-term exposures.

Guidelines from 'Summary of Guidelines for Canadian Drinking Water Quality' by Health Canada, September 2020

Results in red do not meet the guideline

Data reported was collected from a combination of MacLean, Hurst, and McPhillips Pumping Station Discharges, 57 distribution system locations, and/or Branch I at McPhillips and Branch II at Hurst.

Note: Where value is expressed as less than (<), the value is halved and used in the calculations, where value is expressed as (>), the value is used in the calculations.

City of Winnipeg
Environmental Standards Division
2023 Winnipeg Distribution System Bacteriological Summary

PARAMETER	REQUIREMENT	OUR TEST RESULTS	COMMENTS
Number of total coliform bacteria tests in year	2028 samples/year	3,118	
Number of times that total coliform bacteria show up in a test	none detectable per 100 mL	0.10% (3 positive tests)	All resamples were negative and met the operating licence requirements.
Number of <i>Escherichia coli</i> bacteria tests in year	2028 samples/year	3,118	
Number of times that <i>Escherichia coli</i> bacteria show up in a test	none detectable per 100 mL	0.00% (0 positive tests)	
Number of heterotrophic (bacteria) plate count (HPC) tests done	no requirement	2,170	Heterotrophic plate count testing is not required under the operating licence
Requirements from City of Winnipeg Operating Licence PWS-09-412-02 A			
Data reported was collected from 57 distribution system locations and MacLean, Hurst, and McPhillips Pumping Station Discharges			

APPENDIX B
COMPLIANCE SUBMISSION REPORTS

2023 MONTHLY CHLORINE REPORTS

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02**
Report Created: **01 February 2023**

Report Period: January 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/01/2023	1.23	1.14	1.30	1.23
02/01/2023	1.26	1.17	1.34	1.26
03/01/2023	1.25	1.19	1.33	1.25
04/01/2023	1.22	1.14	1.28	1.16
05/01/2023	1.19	1.08	1.20	1.14
06/01/2023	1.36	1.19	1.39	1.20
07/01/2023	1.51	1.44	1.50	1.43
08/01/2023	1.48	1.36	1.48	1.42
09/01/2023	1.47	1.38	1.50	1.43
10/01/2023	1.47	1.37	1.47	1.31
11/01/2023	1.38	1.24	1.38	1.21
12/01/2023	1.46	1.37	1.56	1.46
13/01/2023	1.35	1.22	1.44	1.34
14/01/2023	1.34	1.27	1.41	1.35
15/01/2023	1.39	1.32	1.41	1.34
16/01/2023	1.36	1.26	1.39	1.32
17/01/2023	1.41	1.33	1.39	1.32
18/01/2023	1.35	1.17	1.38	1.33
19/01/2023	1.28	1.19	1.36	1.29
20/01/2023	1.23	1.11	1.28	1.17
21/01/2023	1.28	1.20	1.35	1.25
22/01/2023	1.30	1.18	1.39	1.30
23/01/2023	1.31	1.23	1.45	1.38
24/01/2023	1.33	1.22	1.46	1.37
25/01/2023	1.47	1.27	1.45	1.34
26/01/2023	1.31	1.19	1.45	1.37
27/01/2023	1.27	1.16	1.41	1.29
28/01/2023	1.32	1.20	1.44	1.34
29/01/2023	1.46	1.33	1.43	1.36
30/01/2023	1.39	1.26	1.39	1.29
31/01/2023	1.66	1.41	1.63	1.38

Total Number of Measurements, A:	21603	21603
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21603	21603
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2023\01-January

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Jan-2023	ns	ns	ns	ns	ns	ns
02-Jan-2023	ns	ns	ns	ns	ns	ns
03-Jan-2023	1.27	1.32	1.49	1.35	1.39	1.57
04-Jan-2023	1.24	1.29	1.47	1.33	1.31	1.54
05-Jan-2023	1.20	1.23	1.41	1.24	1.27	1.41
06-Jan-2023	1.31	1.29	1.49	1.36	1.37	1.57
07-Jan-2023	ns	ns	ns	ns	ns	ns
08-Jan-2023	ns	ns	ns	ns	ns	ns
09-Jan-2023	1.44	1.45	1.68	1.45	1.47	1.68
10-Jan-2023	1.48	1.52	1.73	1.51	1.57	1.78
11-Jan-2023	1.42	1.51	1.69	1.42	1.49	1.72
12-Jan-2023	1.49	1.53	1.71	1.57	1.55	1.71
13-Jan-2023	1.38	1.45	1.64	1.44	1.49	1.65
14-Jan-2023	ns	ns	ns	ns	ns	ns
15-Jan-2023	ns	ns	ns	ns	ns	ns
16-Jan-2023	1.36	1.39	1.59	1.39	1.46	1.61
17-Jan-2023	1.40	1.46	1.59	1.39	1.39	1.64
18-Jan-2023	1.32	1.31	1.56	1.39	1.42	1.60
19-Jan-2023	1.33	1.35	1.56	1.37	1.44	1.62
20-Jan-2023	1.26	1.30	1.51	1.28	1.36	1.58
21-Jan-2023	ns	ns	ns	ns	ns	ns
22-Jan-2023	ns	ns	ns	ns	ns	ns
23-Jan-2023	1.30	1.33	1.56	1.46	1.48	1.69
24-Jan-2023	1.31	1.37	1.53	1.53	1.47	1.69
25-Jan-2023	1.74	1.81	2.10	1.96	1.99	2.18
26-Jan-2023	1.26	1.33	1.52	1.46	1.41	1.66
27-Jan-2023	1.27	1.28	1.47	1.35	1.37	1.60
28-Jan-2023	ns	ns	ns	ns	ns	ns
29-Jan-2023	ns	ns	ns	ns	ns	ns
30-Jan-2023	1.33	1.39	1.57	1.33	1.40	1.62
31-Jan-2023	1.81	1.82	2.16	1.77	1.92	2.19
Total number of measurements taken, A:		21		21		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		21		21		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 1-Feb-2023



WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02**
Report Created: **01 March 2023**

Report Period: February 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/02/2023	1.40	1.31	1.47	1.26
02/02/2023	1.41	1.26	1.39	1.23
03/02/2023	1.46	1.35	1.51	1.40
04/02/2023	1.56	1.37	1.63	1.40
05/02/2023	1.44	1.30	1.47	1.35
06/02/2023	1.40	1.28	1.39	1.29
07/02/2023	1.41	1.29	1.37	1.24
08/02/2023	1.48	1.31	1.44	1.28
09/02/2023	1.41	1.30	1.35	1.26
10/02/2023	1.40	1.24	1.39	1.27
11/02/2023	1.36	1.25	1.34	1.24
12/02/2023	1.31	1.23	1.30	1.22
13/02/2023	1.32	1.23	1.33	1.25
14/02/2023	1.35	1.27	1.38	1.19
15/02/2023	1.31	1.16	1.27	1.17
16/02/2023	1.33	1.25	1.24	1.17
17/02/2023	1.35	1.27	1.22	1.16
18/02/2023	1.37	1.29	1.19	1.14
19/02/2023	1.35	1.23	1.24	1.15
20/02/2023	1.33	1.26	1.26	1.19
21/02/2023	1.28	1.21	1.19	1.14
22/02/2023	1.72 *	1.27 *	1.84	1.13
23/02/2023	1.60 *	1.50 *	1.61	1.36
24/02/2023	1.47 *	1.33 *	1.48	1.23
25/02/2023	1.37 *	1.31 *	1.42	1.24
26/02/2023	1.38 *	1.32 *	1.35	1.27
27/02/2023	1.51 *	1.39 *	1.46	1.30
28/02/2023	1.42 *	1.33 *	1.42	1.22

Total Number of Measurements, A:	19081	19078
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	19081	19078
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2023\02-February

* Branch 1 samples are taken at the nearest location to the entry point to Branch 1 while Deacon Booster Pumping Station and UV System were offline for the gravity flow

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Feb-2023	2.10	2.00	2.20	1.76	1.76	1.99
02-Feb-2023	1.37	1.43	1.67	1.25	1.53	1.87
03-Feb-2023	1.42	1.48	1.78	1.55	1.54	2.08
04-Feb-2023	ns	ns	ns	ns	ns	ns
05-Feb-2023	ns	ns	ns	ns	ns	ns
06-Feb-2023	1.41	1.48	1.81	1.32	1.39	1.65
07-Feb-2023	1.46	1.55	1.77	1.45	1.52	1.79
08-Feb-2023	1.43	1.44	1.73	1.46	1.51	1.78
09-Feb-2023	1.50	1.54	1.84	1.45	1.49	1.82
10-Feb-2023	1.44	1.55	1.76	1.43	1.51	1.69
11-Feb-2023	ns	ns	ns	ns	ns	ns
12-Feb-2023	ns	ns	ns	ns	ns	ns
13-Feb-2023	1.36	1.27	1.59	1.35	1.43	1.65
14-Feb-2023	1.34	1.44	1.72	1.40	1.38	1.59
15-Feb-2023	1.26	1.32	1.54	1.29	1.31	1.49
16-Feb-2023	1.39	1.49	1.80	1.32	1.39	1.69
17-Feb-2023	1.39	1.47	1.71	1.25	1.34	1.64
18-Feb-2023	ns	ns	ns	ns	ns	ns
19-Feb-2023	ns	ns	ns	ns	ns	ns
20-Feb-2023	ns	ns	ns	ns	ns	ns
21-Feb-2023	1.27	1.34	1.62	1.20	1.30	1.49
22-Feb-2023	1.96	2.05	2.40	1.95	2.05	2.30
23-Feb-2023	1.58	1.57	1.84	1.59	1.63	1.92
24-Feb-2023	1.50	1.50	1.79	1.48	1.50	1.80
25-Feb-2023	ns	ns	ns	ns	ns	ns
26-Feb-2023	ns	ns	ns	ns	ns	ns
27-Feb-2023	1.53	1.55	1.73	1.41	1.60	1.94
28-Feb-2023	1.45	1.46	1.81	1.22	1.51	1.80
Total number of measurements taken, A:			19			19
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			19			19
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

* Effective February 22, 2023, Branch 1 chlorine analyzer readings and grab samples have been taken at the nearest location to the entry point to Branch 1, while Deacon Booster Pumping Station and the UV System are offline to accommodate planned upgrades at the Water Treatment Plant.

Report Date: 1-Mar-2023

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02**
Report Created: **01 April 2023**

Report Period: March 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/03/2023	1.41 *	1.33 *	1.32	0.89
02/03/2023	1.41 *	1.11 *	1.41	1.20
03/03/2023	1.42 *	1.28 *	1.41	1.26
04/03/2023	1.42 *	1.31 *	1.47	1.37
05/03/2023	1.47 *	1.19 *	1.56	1.12
06/03/2023	1.41 *	1.30 *	1.43	1.26
07/03/2023	1.36 *	1.31 *	1.43	1.27
08/03/2023	1.30 *	1.20 *	1.35	1.28
09/03/2023	1.35 *	1.29 *	1.34	1.27
10/03/2023	1.46 *	1.38 *	1.43	1.33
11/03/2023	1.35 *	1.25 *	1.36	1.26
12/03/2023	1.35 *	1.28 *	1.41	1.28
13/03/2023	1.39 *	1.33 *	1.43	1.36
14/03/2023	1.36 *	1.30 *	1.39	1.33
15/03/2023	1.16	0.26	1.21	0.27
16/03/2023	1.30	1.21	1.28	1.21
17/03/2023	1.34	1.27	1.32	1.24
18/03/2023	1.34	1.22	1.34	1.27
19/03/2023	1.39	1.31	1.42	1.31
20/03/2023	1.36	1.19	1.36	1.21
21/03/2023	1.28	1.05	1.31	1.10
22/03/2023	1.18	1.08	1.19	1.10
23/03/2023	1.13	1.06	1.18	1.10
24/03/2023	1.12	0.97	1.22	1.08
25/03/2023	1.11	1.04	1.19	1.11
26/03/2023	1.19	1.08	1.24	1.13
27/03/2023	1.16	1.07	1.21	1.12
28/03/2023	1.19	1.11	1.25	1.17
29/03/2023	1.26	1.11	1.34	1.19
30/03/2023	1.33	1.23	1.44	1.35
31/03/2023	1.26	1.10	1.41	1.33

Total Number of Measurements, A:	21571	21573
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21529	21553
COMPLIANCE, C = B/A X 100%:	99.81	99.91

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* Branch 1 samples are taken at the nearest location to the entry point to Branch 1 while Deacon Booster Pumping Station and UV System were offline for the gravity flow

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00 Licence No. PWS-09-412-02	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Mar-2023	1.45	1.44	1.76	1.39	1.44	1.65
02-Mar-2023	1.48	1.53	1.94	1.69	1.62	1.90
03-Mar-2023	1.36	1.39	1.70	1.35	1.41	1.71
04-Mar-2023	ns	ns	ns	ns	ns	ns
05-Mar-2023	ns	ns	ns	ns	ns	ns
06-Mar-2023	1.52	1.58	1.88	1.45	1.55	1.85
07-Mar-2023	1.38	1.45	1.78	1.42	1.41	1.73
08-Mar-2023	1.34	1.39	1.72	1.33	1.38	1.69
09-Mar-2023	1.33	1.40	1.71	1.31	1.41	1.69
10-Mar-2023	1.49	1.59	1.83	1.40	1.50	1.77
11-Mar-2023	ns	ns	ns	ns	ns	ns
12-Mar-2023	ns	ns	ns	ns	ns	ns
13-Mar-2023	1.41	1.47	1.75	1.40	1.49	1.75
14-Mar-2023	1.32	1.36	1.67	1.38	1.37	1.71
15-Mar-2023	1.37	1.43	1.75	1.45	1.54	1.85
16-Mar-2023	1.34	1.41	1.65	1.29	1.37	1.65
17-Mar-2023	1.29	1.38	1.68	1.25	1.34	1.65
18-Mar-2023	ns	ns	ns	ns	ns	ns
19-Mar-2023	ns	ns	ns	ns	ns	ns
20-Mar-2023	1.45	1.40	1.72	1.37	1.45	1.70
21-Mar-2023	1.35	1.42	1.71	1.36	1.45	1.75
22-Mar-2023	1.19	1.20	1.49	1.18	1.28	1.56
23-Mar-2023	1.10	1.16	1.41	1.18	1.23	1.47
24-Mar-2023	1.00	1.24	1.51	1.11	1.29	1.54
25-Mar-2023	ns	ns	ns	ns	ns	ns
26-Mar-2023	ns	ns	ns	ns	ns	ns
27-Mar-2023	1.12	1.25	1.59	1.17	1.32	1.59
28-Mar-2023	1.16	1.20	1.47	1.21	1.25	1.54
29-Mar-2023	1.26	1.30	1.54	1.37	1.43	1.74
30-Mar-2023	1.39	1.38	1.69	1.45	1.48	1.86
31-Mar-2023	1.27	1.33	1.62	1.42	1.49	1.75
Total number of measurements taken, A:			23			23
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			23			23
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

* February 22 - March 15, 2023, Branch 1 chlorine analyzer readings and grab samples were taken at the nearest location to the entry point to Branch 1, while Deacon Booster Pumping Station and the UV System were offline to accomodate planned upgrades at the WTP

Report Date: 3-Apr-2023

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02**
Report Created: **01 May 2023**

Report Period: April 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/04/2023	1.26	1.15	1.39	1.32
02/04/2023	1.18	1.10	1.31	1.21
03/04/2023	1.18	1.08	1.30	1.22
04/04/2023	1.13	1.04	1.25	1.16
05/04/2023	1.12	1.06	1.24	1.16
06/04/2023	1.14	1.07	1.29	1.18
07/04/2023	1.12	1.08	1.31	1.26
08/04/2023	1.13	1.07	1.27	1.18
09/04/2023	1.23	1.13	1.25	1.14
10/04/2023	1.27	1.13	1.26	1.16
11/04/2023	1.36	1.18	1.35	1.16
12/04/2023	1.39	1.24	1.39	1.26
13/04/2023	1.30	1.19	1.30	1.21
14/04/2023	1.35	1.19	1.30	1.26
15/04/2023	1.40	0.69	1.29	1.08
16/04/2023	1.51	1.43	1.34	1.30
17/04/2023	1.47	1.38	1.32	1.26
18/04/2023	1.45	1.38	1.35	1.25
19/04/2023	1.42	1.20	1.37	1.15
20/04/2023	1.24	1.11	1.19	1.10
21/04/2023	1.22	1.12	1.20	1.06
22/04/2023	1.27	1.15	1.28	1.19
23/04/2023	1.28	1.18	1.29	1.22
24/04/2023	1.21	1.14	1.30	1.24
25/04/2023	1.24	1.17	1.31	1.23
26/04/2023	1.25	1.17	1.30	1.21
27/04/2023	1.28	1.19	1.31	1.26
28/04/2023	1.26	1.18	1.28	1.20
29/04/2023	1.25	1.15	1.27	1.20
30/04/2023	1.26	1.14	1.29	1.17

Total Number of Measurements, A:	20880	20880
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	20880	20880
COMPLIANCE, C = B/A X 100%:	100.00	100.00

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Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Apr-2023	ns	ns	ns	ns	ns	ns
02-Apr-2023	ns	ns	ns	ns	ns	ns
03-Apr-2023	1.19	1.20	1.49	1.31	1.39	1.66
04-Apr-2023	1.13	1.20	1.44	1.25	1.29	1.58
05-Apr-2023	1.09	1.08	1.39	1.23	1.29	1.59
06-Apr-2023	1.15	1.19	1.51	1.31	1.31	1.60
07-Apr-2023	ns	ns	ns	ns	ns	ns
08-Apr-2023	ns	ns	ns	ns	ns	ns
09-Apr-2023	ns	ns	ns	ns	ns	ns
10-Apr-2023	ns	ns	ns	ns	ns	ns
11-Apr-2023	1.36	1.35	1.58	1.32	1.38	1.58
12-Apr-2023	1.38	1.34	1.57	1.40	1.37	1.64
13-Apr-2023	1.28	1.20	1.46	1.28	1.25	1.47
14-Apr-2023	1.37	1.44	1.75	1.32	1.42	1.65
15-Apr-2023	ns	ns	ns	ns	ns	ns
16-Apr-2023	ns	ns	ns	ns	ns	ns
17-Apr-2023	1.51	1.49	1.72	1.34	1.37	1.65
18-Apr-2023	1.45	1.45	1.74	1.31	1.41	1.70
19-Apr-2023	1.45	1.48	1.77	1.45	1.46	1.71
20-Apr-2023	1.28	1.19	1.44	1.31	1.37	1.60
21-Apr-2023	1.20	1.16	1.49	1.10	1.19	1.46
22-Apr-2023	ns	ns	ns	ns	ns	ns
23-Apr-2023	ns	ns	ns	ns	ns	ns
24-Apr-2023	1.20	1.30	1.54	1.27	1.35	1.63
25-Apr-2023	1.30	1.35	1.62	1.36	1.43	1.68
26-Apr-2023	1.22	1.30	1.55	1.30	1.39	1.64
27-Apr-2023	1.27	1.34	1.57	1.29	1.37	1.59
28-Apr-2023	1.24	1.29	1.61	1.26	1.40	1.67
29-Apr-2023	ns	ns	ns	ns	ns	ns
30-Apr-2023	ns	ns	ns	ns	ns	ns
Total number of measurements taken, A:			18			18
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			18			18
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 1-May-2023

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02**
Report Created: **01 June 2023**

Report Period: May 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/05/2023	1.17	1.09	1.21	1.10
02/05/2023	1.19	1.07	1.18	1.10
03/05/2023	1.23	1.12	1.22	1.14
04/05/2023	1.24	1.16	1.24	1.12
05/05/2023	1.29	1.15	1.21	1.14
06/05/2023	1.34	1.26	1.20	1.12
07/05/2023	1.30	1.20	1.18	1.10
08/05/2023	1.20	1.10	1.23	1.04
09/05/2023	1.13	1.02	1.21	1.07
10/05/2023	1.13	1.00	1.20	1.09
11/05/2023	1.36	1.13	1.33	1.23
12/05/2023	1.39	0.70	1.29	0.67
13/05/2023	1.40	1.26	1.35	1.21
14/05/2023	1.33	1.13	1.27	1.08
15/05/2023	1.27	1.06	1.19	1.01
16/05/2023	1.20	1.00	1.22	1.06
17/05/2023	1.11	0.97	1.19	1.03
18/05/2023	1.16	0.96	1.24	1.02
19/05/2023	1.16	0.71	1.27	1.11
20/05/2023	1.28	1.15	1.29	1.13
21/05/2023	1.27	1.14	1.26	1.12
22/05/2023	1.16	1.04	1.15	1.01
23/05/2023	1.12	0.99	1.11	1.00
24/05/2023	1.22	1.09	1.21	1.04
25/05/2023	1.24	0.59	1.20	0.64
26/05/2023	1.33	1.26	1.31	1.20
27/05/2023	1.34	1.26	1.32	1.19
28/05/2023	1.32	1.24	1.30	1.18
29/05/2023	1.26	1.12	1.21	1.03
30/05/2023	1.22	0.90	1.18	0.97
31/05/2023	1.17	0.99	1.14	0.84

Total Number of Measurements, A:	21604	21604
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21604	21604
COMPLIANCE, C = B/A X 100%:	100.00	100.00

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Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-May-2023	1.18	1.27	1.51	1.22	1.25	1.52
02-May-2023	1.17	1.27	1.54	1.17	1.23	1.48
03-May-2023	1.26	1.35	1.63	1.26	1.20	1.50
04-May-2023	1.29	1.37	1.61	1.21	1.27	1.47
05-May-2023	1.22	1.30	1.62	1.18	1.27	1.50
06-May-2023	ns	ns	ns	ns	ns	ns
07-May-2023	ns	ns	ns	ns	ns	ns
08-May-2023	1.20	1.30	1.60	1.19	1.22	1.48
09-May-2023	1.15	1.23	1.52	1.20	1.21	1.50
10-May-2023	1.16	1.15	1.45	1.21	1.30	1.59
11-May-2023	1.28	1.31	1.60	1.28	1.31	1.58
12-May-2023	1.44	1.43	1.67	1.33	1.35	1.53
13-May-2023	ns	ns	ns	ns	ns	ns
14-May-2023	ns	ns	ns	ns	ns	ns
15-May-2023	1.33	1.33	1.61	1.20	1.29	1.53
16-May-2023	1.24	1.34	1.62	1.29	1.38	1.67
17-May-2023	1.16	1.18	1.42	1.24	1.30	1.60
18-May-2023	1.21	1.26	1.47	1.29	1.29	1.59
19-May-2023	1.05	1.09	1.34	1.12	1.18	1.40
20-May-2023	ns	ns	ns	ns	ns	ns
21-May-2023	ns	ns	ns	ns	ns	ns
22-May-2023	ns	ns	ns	ns	ns	ns
23-May-2023	1.03	1.12	1.40	1.09	1.19	1.44
24-May-2023	1.29	1.28	1.52	1.28	1.30	1.55
25-May-2023	1.23	1.21	1.43	1.23	1.26	1.48
26-May-2023	1.32	1.32	1.64	1.31	1.35	1.60
27-May-2023	ns	ns	ns	ns	ns	ns
28-May-2023	ns	ns	ns	ns	ns	ns
29-May-2023	1.40	1.41	1.66	1.34	1.40	1.66
30-May-2023	1.23	1.20	1.46	1.20	1.26	1.55
31-May-2023	1.11	1.15	1.40	1.05	1.12	1.39
Total number of measurements taken, A:		22		22		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		22		22		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 1-Jun-2023



WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02**
Report Created: **01 July 2023**

Report Period: June 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/06/2023	1.21	0.82	1.14	0.84
02/06/2023	1.21	1.10	1.20	1.03
03/06/2023	1.27	1.17	1.26	1.13
04/06/2023	1.22	1.06	1.19	0.99
05/06/2023	1.23	1.08	1.15	0.94
06/06/2023	1.32	1.19	1.30	1.02
07/06/2023	1.32	1.21	1.30	1.11
08/06/2023	1.42	1.00	1.54	0.83
09/06/2023	1.33	0.93	1.59	1.01
10/06/2023	1.20	1.10	1.15	0.98
11/06/2023	1.24	1.12	1.21	1.06
12/06/2023	1.22	1.13	1.15	1.01
13/06/2023	1.26	1.16	1.20	1.06
14/06/2023	1.32	1.22	1.25	1.09
15/06/2023	1.26	0.85	1.29	0.72
16/06/2023	1.17	1.08	1.11	1.01
17/06/2023	1.22	1.14	1.18	1.02
18/06/2023	1.32	1.18	1.27	1.15
19/06/2023	1.38	1.21	1.27	1.08
20/06/2023	1.41	1.24	1.31	1.12
21/06/2023	1.17	0.93	1.10	0.82
22/06/2023	1.20	1.07	1.18	1.01
23/06/2023	1.42	1.10	1.30	1.07
24/06/2023	1.39	1.14	1.27	1.05
25/06/2023	1.18	1.03	1.13	0.94
26/06/2023	1.20	1.09	1.17	0.98
27/06/2023	1.28	1.11	1.23	1.00
28/06/2023	1.28	1.04	1.20	0.96
29/06/2023	1.29	1.00	1.20	0.88
30/06/2023	1.34	1.17	1.41	1.20

Total Number of Measurements, A:	20895	20891
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	20895	20891
COMPLIANCE, C = B/A X 100%:	100.00	100.00

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Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Jun-2023	1.22	1.25	1.50	1.09	1.14	1.40
02-Jun-2023	1.17	1.26	1.50	1.25	1.23	1.48
03-Jun-2023	ns	ns	ns	ns	ns	ns
04-Jun-2023	ns	ns	ns	ns	ns	ns
05-Jun-2023	1.26	1.26	1.52	1.20	1.23	1.45
06-Jun-2023	1.27	1.30	1.59	1.25	1.34	1.57
07-Jun-2023	1.32	1.31	1.60	1.33	1.30	1.57
08-Jun-2023	1.41	1.49	1.71	1.40	1.45	1.67
09-Jun-2023	1.42	1.27	1.51	1.89	1.18	1.42
10-Jun-2023	ns	ns	ns	ns	ns	ns
11-Jun-2023	ns	ns	ns	ns	ns	ns
12-Jun-2023	1.25	1.30	1.58	1.17	1.24	1.51
13-Jun-2023	1.23	1.26	1.62	1.22	1.26	1.58
14-Jun-2023	1.31	1.43	1.58	1.19	1.29	1.55
15-Jun-2023	1.19	1.24	1.52	0.89	1.19	1.46
16-Jun-2023	1.18	1.23	1.47	1.12	1.16	1.42
17-Jun-2023	ns	ns	ns	ns	ns	ns
18-Jun-2023	ns	ns	ns	ns	ns	ns
19-Jun-2023	1.36	1.45	1.74	1.20	1.26	1.59
20-Jun-2023	1.40	1.47	1.72	1.23	1.46	1.71
21-Jun-2023	1.19	1.23	1.48	1.08	1.18	1.45
22-Jun-2023	1.24	1.33	1.59	1.26	1.34	1.57
23-Jun-2023	1.36	1.39	1.67	1.31	1.39	1.66
24-Jun-2023	ns	ns	ns	ns	ns	ns
25-Jun-2023	ns	ns	ns	ns	ns	ns
26-Jun-2023	1.21	1.30	1.52	1.04	1.06	1.30
27-Jun-2023	1.13	1.34	1.58	1.02	1.28	1.52
28-Jun-2023	1.39	1.47	1.77	1.31	1.39	1.65
29-Jun-2023	1.21	1.28	1.50	1.14	1.21	1.43
30-Jun-2023	1.43	1.33	1.61	1.49	1.39	1.62
Total number of measurements taken, A:			22			22
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			22			22
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 5-Jul-2023



WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02 A**
Report Created: 01 August 2023

Report Period: July 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/07/2023	1.14	1.02	1.32	1.01
02/07/2023	1.09	1.02	1.09	1.00
03/07/2023	1.08	0.89	1.06	0.79
04/07/2023	1.14	0.99	1.19	0.99
05/07/2023	1.20	1.10	1.22	1.08
06/07/2023	1.35	0.76	1.44	0.62
07/07/2023	1.16	0.99	1.14	0.92
08/07/2023	1.27	1.09	1.17	1.02
09/07/2023	1.26	1.14	1.20	0.96
10/07/2023	1.33	1.20	1.24	0.98
11/07/2023	1.31	1.16	1.23	1.12
12/07/2023	1.25	1.13	1.12	1.04
13/07/2023	1.19	1.06	1.10	0.99
14/07/2023	1.20	1.04	1.13	0.99
15/07/2023	1.18	1.05	1.15	0.97
16/07/2023	1.26	1.06	1.28	1.08
17/07/2023	1.36	1.23	1.34	1.24
18/07/2023	1.34	1.15	1.29	1.08
19/07/2023	1.39	1.22	1.33	1.14
20/07/2023	1.58	1.13	1.68	1.18
21/07/2023	1.30	1.14	1.31	1.20
22/07/2023	1.26	1.03	1.24	1.04
23/07/2023	1.30	1.09	1.22	1.05
24/07/2023	1.43	1.25	1.28	1.09
25/07/2023	1.48	1.06	1.54	0.91
26/07/2023	1.33	1.19	1.47	1.30
27/07/2023	1.28	1.17	1.37	1.24
28/07/2023	1.34	1.19	1.43	1.27
29/07/2023	1.46	1.34	1.55	1.33
30/07/2023	1.50	1.07	1.44	0.99
31/07/2023	1.42	1.29	1.44	1.19

Total Number of Measurements, A:	21592	21574
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21592	21574
COMPLIANCE, C = B/A X 100%:	100.00	100.00

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Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02 A						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Jul-2023	ns	ns	ns	ns	ns	ns
02-Jul-2023	ns	ns	ns	ns	ns	ns
03-Jul-2023	ns	ns	ns	ns	ns	ns
04-Jul-2023	1.11	1.18	1.41	1.14	1.20	1.49
05-Jul-2023	1.21	1.23	1.51	1.22	1.25	1.52
06-Jul-2023	1.19	1.24	1.50	1.20	1.23	1.52
07-Jul-2023	1.06	1.15	1.41	0.98	1.08	1.37
08-Jul-2023	ns	ns	ns	ns	ns	ns
09-Jul-2023	ns	ns	ns	ns	ns	ns
10-Jul-2023	1.26	1.33	1.62	1.22	1.31	1.59
11-Jul-2023	1.31	1.33	1.60	1.22	1.24	1.48
12-Jul-2023	1.23	1.24	1.47	1.11	1.11	1.31
13-Jul-2023	1.15	1.18	1.43	1.04	1.11	1.27
14-Jul-2023	1.14	1.24	1.45	1.08	1.10	1.33
15-Jul-2023	ns	ns	ns	ns	ns	ns
16-Jul-2023	ns	ns	ns	ns	ns	ns
17-Jul-2023	1.40	1.40	1.62	1.33	1.30	1.54
18-Jul-2023	1.33	1.40	1.67	1.31	1.36	1.61
19-Jul-2023	1.42	1.49	1.76	1.37	1.46	1.66
20-Jul-2023	1.16	1.33	1.61	1.29	1.38	1.64
21-Jul-2023	1.32	1.41	1.70	1.30	1.40	1.69
22-Jul-2023	ns	ns	ns	ns	ns	ns
23-Jul-2023	ns	ns	ns	ns	ns	ns
24-Jul-2023	1.46	1.49	1.73	1.36	1.43	1.67
25-Jul-2023	1.93	1.38	1.65	2.07	1.49	1.79
26-Jul-2023	1.39	1.49	1.73	1.54	1.63	1.91
27-Jul-2023	1.27	1.31	1.56	1.33	1.39	1.73
28-Jul-2023	1.29	1.34	1.58	1.34	1.39	1.61
29-Jul-2023	ns	ns	ns	ns	ns	ns
30-Jul-2023	ns	ns	ns	ns	ns	ns
31-Jul-2023	1.41	1.41	1.72	1.50	1.58	1.86
Total number of measurements taken, A:		20		20		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		20		20		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 1-Aug-2023



WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02 A**
Report Created: 01 September 2023

Report Period: August 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/08/2023	1.28	1.06	1.37	1.17
02/08/2023	1.28	1.10	1.37	1.18
03/08/2023	1.32	1.18	1.44	1.29
04/08/2023	1.28	1.13	1.45	1.24
05/08/2023	1.15	1.02	1.30	1.09
06/08/2023	1.25	1.00	1.29	1.05
07/08/2023	1.26	1.13	1.34	1.20
08/08/2023	1.45	1.34	1.49	1.31
09/08/2023	1.39	1.24	1.49	1.34
10/08/2023	1.44	1.24	1.57	1.24
11/08/2023	1.44	1.09	1.58	1.22
12/08/2023	1.22	1.15	1.35	1.21
13/08/2023	1.29	1.15	1.40	1.22
14/08/2023	1.25	0.98	1.32	1.00
15/08/2023	1.35	1.22	1.47	1.30
16/08/2023	1.32	1.14	1.45	1.29
17/08/2023	1.32	1.00	1.46	1.07
18/08/2023	1.36	1.24	1.48	1.36
19/08/2023	1.35	1.27	1.49	1.40
20/08/2023	1.40	1.30	1.53	1.47
21/08/2023	1.37	1.26	1.47	1.31
22/08/2023	1.33	1.20	1.37	1.22
23/08/2023	1.30	1.16	1.29	1.13
24/08/2023	1.30	0.87	1.28	0.49
25/08/2023	1.37	1.06	1.37	0.96
26/08/2023	1.54	1.38	1.58	1.38
27/08/2023	1.48	1.35	1.37	1.29
28/08/2023	1.44	1.35	1.32	1.24
29/08/2023	1.50	1.36	1.39	1.29
30/08/2023	1.49	1.38	1.36	1.25
31/08/2023	1.42	1.18	1.33	1.14

Total Number of Measurements, A:	21621	21611
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21621	21610
COMPLIANCE, C = B/A X 100%:	100.000	99.995%

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Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00 Licence No. PWS-09-412-02 A	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Aug-2023	1.29	1.31	1.55	1.40	1.50	1.75
02-Aug-2023	1.23	1.31	1.58	1.29	1.38	1.68
03-Aug-2023	1.33	1.37	1.66	1.45	1.48	1.76
04-Aug-2023	1.39	1.35	1.59	1.58	1.54	1.74
05-Aug-2023	ns	ns	ns	ns	ns	ns
06-Aug-2023	ns	ns	ns	ns	ns	ns
07-Aug-2023	ns	ns	ns	ns	ns	ns
08-Aug-2023	1.42	1.43	1.58	1.43	1.51	1.86
09-Aug-2023	1.43	1.44	1.70	1.53	1.52	1.86
10-Aug-2023	1.41	1.40	1.70	1.52	1.45	1.75
11-Aug-2023	1.48	1.52	1.75	1.61	1.59	1.90
12-Aug-2023	ns	ns	ns	ns	ns	ns
13-Aug-2023	ns	ns	ns	ns	ns	ns
14-Aug-2023	1.36	1.31	1.58	1.38	1.42	1.65
15-Aug-2023	1.40	1.41	1.70	1.51	1.50	1.80
16-Aug-2023	1.35	1.33	1.58	1.44	1.41	1.73
17-Aug-2023	1.40	1.37	1.61	1.53	1.55	1.72
18-Aug-2023	1.32	1.33	1.52	1.45	1.49	1.69
19-Aug-2023	ns	ns	ns	ns	ns	ns
20-Aug-2023	ns	ns	ns	ns	ns	ns
21-Aug-2023	1.48	1.38	1.68	1.58	1.56	1.80
22-Aug-2023	1.31	1.31	1.60	1.27	1.22	1.51
23-Aug-2023	1.33	1.31	1.55	1.33	1.34	1.58
24-Aug-2023	1.45	1.20	1.48	1.42	1.22	1.47
25-Aug-2023	1.26	1.22	1.52	1.41	1.38	1.67
26-Aug-2023	ns	ns	ns	ns	ns	ns
27-Aug-2023	ns	ns	ns	ns	ns	ns
28-Aug-2023	1.40	1.46	1.74	1.28	1.38	1.67
29-Aug-2023	1.56	1.56	1.86	1.51	1.52	1.88
30-Aug-2023	1.49	1.44	1.70	1.36	1.39	1.69
31-Aug-2023	1.45	1.37	1.65	1.35	1.35	1.60
Total number of measurements taken, A:			22			22
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			22			22
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 5-Sep-2023



WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02 A**
Report Created: **01 October 2023**

Report Period: September 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/09/2023	1.23	1.12	1.18	1.10
02/09/2023	1.27	1.16	1.19	1.09
03/09/2023	1.36	1.26	1.24	1.16
04/09/2023	1.35	1.23	1.18	1.08
05/09/2023	1.36	1.26	1.21	1.11
06/09/2023	1.38	1.26	1.25	1.16
07/09/2023	1.43	1.34	1.29	1.20
08/09/2023	1.49	1.40	1.37	1.24
09/09/2023	1.43	1.33	1.36	1.30
10/09/2023	1.46	1.35	1.39	1.26
11/09/2023	1.40	1.22	1.29	1.21
12/09/2023	1.35	1.26	1.27	1.18
13/09/2023	1.40	1.23	1.34	1.23
14/09/2023	1.35	1.08	1.33	1.15
15/09/2023	1.40	1.21	1.35	1.06
16/09/2023	1.43	1.18	1.38	1.16
17/09/2023	1.56	1.38	1.45	1.35
18/09/2023	1.46	1.32	1.41	1.28
19/09/2023	1.45	1.34	1.47	1.37
20/09/2023	1.40	1.30	1.40	1.31
21/09/2023	1.41	1.32	1.49	1.32
22/09/2023	1.29	1.15	1.42	1.28
23/09/2023	1.34	1.26	1.48	1.40
24/09/2023	1.42	1.35	1.50	1.39
25/09/2023	1.37	1.28	1.42	1.31
26/09/2023	1.42	1.35	1.46	1.39
27/09/2023	1.44	1.26	1.49	1.36
28/09/2023	1.50	1.34	1.56	1.47
29/09/2023	1.41	1.19	1.44	1.27
30/09/2023	1.39	1.29	1.39	1.23

Total Number of Measurements, A:	20845	20839
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	20845	20839
COMPLIANCE, C = B/A X 100%:	100.00	100.00

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Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02 A						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Sep-2023	1.22	1.32	1.62	1.16	1.24	1.54
02-Sep-2023	ns	ns	ns	ns	ns	ns
03-Sep-2023	ns	ns	ns	ns	ns	ns
04-Sep-2023	ns	ns	ns	ns	ns	ns
05-Sep-2023	1.32	1.42	1.71	1.20	1.30	1.59
06-Sep-2023	1.38	1.36	1.65	1.26	1.27	1.59
07-Sep-2023	1.42	1.40	1.67	1.31	1.27	1.56
08-Sep-2023	1.50	1.45	1.73	1.34	1.39	1.66
09-Sep-2023	ns	ns	ns	ns	ns	ns
10-Sep-2023	ns	ns	ns	ns	ns	ns
11-Sep-2023	1.40	1.46	1.71	1.26	1.35	1.65
12-Sep-2023	1.30	1.51	1.71	1.25	1.33	1.62
13-Sep-2023	1.37	1.37	1.63	1.26	1.32	1.56
14-Sep-2023	1.56	1.56	2.01	1.54	1.50	1.93
15-Sep-2023	1.45	1.36	1.70	1.34	1.40	1.76
16-Sep-2023	ns	ns	ns	ns	ns	ns
17-Sep-2023	ns	ns	ns	ns	ns	ns
18-Sep-2023	1.47	1.40	1.72	1.40	1.40	1.71
19-Sep-2023	1.45	1.44	1.80	1.47	1.48	1.87
20-Sep-2023	1.39	1.41	1.79	1.39	1.47	1.81
21-Sep-2023	1.43	1.44	1.80	1.51	1.49	1.84
22-Sep-2023	1.30	1.36	1.73	1.43	1.46	1.76
23-Sep-2023	ns	ns	ns	ns	ns	ns
24-Sep-2023	ns	ns	ns	ns	ns	ns
25-Sep-2023	1.40	1.41	1.65	1.40	1.40	1.69
26-Sep-2023	1.39	1.41	1.70	1.44	1.52	1.77
27-Sep-2023	1.41	1.42	1.71	1.45	1.44	1.73
28-Sep-2023	1.43	1.42	1.71	1.49	1.54	1.82
29-Sep-2023	1.41	1.42	1.68	1.46	1.47	1.74
30-Sep-2023	ns	ns	ns	ns	ns	ns
Total number of measurements taken, A:			20			20
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			20			20
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 4-Oct-2023

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02 A**
Report Created: 01 November 2023

Report Period: October 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/10/2023	1.37	1.26	1.44	1.29
02/10/2023	1.41	1.32	1.50	1.37
03/10/2023	1.42	1.29	1.51	1.36
04/10/2023	1.39	1.25	1.47	1.38
05/10/2023	1.38	1.19	1.43	1.16
06/10/2023	1.42	1.18	1.38	1.19
07/10/2023	1.50	1.38	1.45	1.32
08/10/2023	1.29	1.18	1.42	1.32
09/10/2023	1.29	1.20	1.37	1.30
10/10/2023	1.37	1.32	1.38	1.29
11/10/2023	1.42	1.34	1.50	1.39
12/10/2023	1.46	1.34	1.49	1.39
13/10/2023	1.50	1.32	1.48	1.36
14/10/2023	1.38	1.29	1.43	1.32
15/10/2023	1.40	1.32	1.42	1.32
16/10/2023	1.44	1.38	1.47	1.38
17/10/2023	1.48	1.40	1.50	1.41
18/10/2023	1.46	1.12	1.51	1.17
19/10/2023	1.52	1.43	1.55	1.45
20/10/2023	1.60	1.54	1.57	1.48
21/10/2023	1.57	1.47	1.49	1.38
22/10/2023	1.53	1.45	1.40	1.32
23/10/2023	1.50	1.16	1.36	1.11
24/10/2023	1.62	1.36	1.56	1.35
25/10/2023	1.51	1.39	1.50	1.35
26/10/2023	1.39	1.31	1.38	1.28
27/10/2023	1.39	1.22	1.36	1.26
28/10/2023	1.55	1.46	1.52	1.45
29/10/2023	1.58	1.50	1.59	1.53
30/10/2023	1.55	1.47	1.64	1.41
31/10/2023	1.57	1.44	1.73	1.52

Total Number of Measurements, A:	21608	21604
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21608	21604
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2023\10-October

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00 Licence No. PWS-09-412-02 A	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Oct-2023	ns	ns	ns	ns	ns	ns
02-Oct-2023	ns	ns	ns	ns	ns	ns
03-Oct-2023	1.40	1.38	1.66	1.45	1.46	1.71
04-Oct-2023	1.39	1.38	1.68	1.47	1.51	1.78
05-Oct-2023	1.38	1.41	1.71	1.44	1.46	1.74
06-Oct-2023	1.22	1.48	1.76	1.19	1.41	1.70
07-Oct-2023	ns	ns	ns	ns	ns	ns
08-Oct-2023	ns	ns	ns	ns	ns	ns
09-Oct-2023	ns	ns	ns	ns	ns	ns
10-Oct-2023	1.32	1.27	1.56	1.32	1.33	1.63
11-Oct-2023	1.40	1.39	1.68	1.50	1.52	1.82
12-Oct-2023	1.36	1.45	1.73	1.46	1.46	1.76
13-Oct-2023	1.48	1.43	1.82	1.51	1.49	1.81
14-Oct-2023	ns	ns	ns	ns	ns	ns
15-Oct-2023	ns	ns	ns	ns	ns	ns
16-Oct-2023	1.42	1.39	1.83	1.48	1.49	1.90
17-Oct-2023	1.42	1.38	1.82	1.45	1.48	1.82
18-Oct-2023	1.42	1.51	1.80	1.46	1.53	1.82
19-Oct-2023	1.49	1.56	1.85	1.64	1.59	1.88
20-Oct-2023	1.63	1.66	2.05	1.60	1.57	1.91
21-Oct-2023	ns	ns	ns	ns	ns	ns
22-Oct-2023	ns	ns	ns	ns	ns	ns
23-Oct-2023	1.51	1.51	1.92	1.34	1.35	1.72
24-Oct-2023	1.61	1.58	1.87	1.54	1.51	1.79
25-Oct-2023	1.57	1.61	1.88	1.55	1.56	1.84
26-Oct-2023	1.42	1.46	1.79	1.40	1.42	1.69
27-Oct-2023	1.36	1.34	1.63	1.34	1.41	1.69
28-Oct-2023	ns	ns	ns	ns	ns	ns
29-Oct-2023	ns	ns	ns	ns	ns	ns
30-Oct-2023	1.55	1.63	1.88	1.53	1.51	1.80
31-Oct-2023	1.61	1.68	1.95	1.73	1.83	2.20
Total number of measurements taken, A:			20			20
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			20			20
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: November 7, 2023



WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02 A**
Report Created: 01 December 2023

Report Period: November 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/11/2023	1.53	1.47	1.62	1.50
02/11/2023	1.47	1.34	1.63	1.50
03/11/2023	1.46	1.34	1.66	1.54
04/11/2023	1.72	1.62	1.69	1.58
05/11/2023	1.64	1.46	1.61	1.42
06/11/2023	1.60	1.41	1.55	1.40
07/11/2023	1.49	1.30	1.45	1.31
08/11/2023	1.43	1.36	1.38	1.33
09/11/2023	1.43	1.32	1.42	1.28
10/11/2023	1.53	1.33	1.46	1.36
11/11/2023	1.66	1.56	1.56	1.40
12/11/2023	1.68	1.64	1.70	1.63
13/11/2023	1.68	1.55	1.68	1.59
14/11/2023	1.56	1.49	1.61	1.54
15/11/2023	1.44	1.26	1.45	1.26
16/11/2023	1.49	1.41	1.37	1.22
17/11/2023	1.61	1.48	1.40	1.26
18/11/2023	1.68	1.57	1.48	1.35
19/11/2023	1.71	1.64	1.50	1.43
20/11/2023	1.61	1.49	1.45	1.34
21/11/2023	1.46	1.37	1.53	1.34
22/11/2023	1.46	1.38	1.47	1.35
23/11/2023	1.49	1.38	1.46	1.34
24/11/2023	1.63	1.58	1.57	1.51
25/11/2023	1.60	1.54	1.56	1.50
26/11/2023	1.61	1.53	1.60	1.52
27/11/2023	1.53	1.45	1.55	1.47
28/11/2023	1.54	1.45	1.56	1.45
29/11/2023	1.64	1.54	1.64	1.53
30/11/2023	1.65	1.58	1.60	1.52

Total Number of Measurements, A:	20912	20911
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	20912	20911
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2023\11-November

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-02 A						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Nov-2023	1.55	1.48	1.77	1.64	1.73	2.01
02-Nov-2023	1.47	1.45	1.74	1.66	1.64	2.10
03-Nov-2023	1.47	1.50	1.80	1.71	1.68	2.11
04-Nov-2023	ns	ns	ns	ns	ns	ns
05-Nov-2023	ns	ns	ns	ns	ns	ns
06-Nov-2023	1.46	1.55	1.83	1.46	1.56	1.79
07-Nov-2023	1.57	1.50	1.89	1.53	1.50	1.90
08-Nov-2023	1.45	1.39	1.75	1.40	1.37	1.71
09-Nov-2023	1.43	1.41	1.81	1.37	1.36	1.69
10-Nov-2023	1.57	1.52	1.86	1.56	1.57	1.90
11-Nov-2023	ns	ns	ns	ns	ns	ns
12-Nov-2023	ns	ns	ns	ns	ns	ns
13-Nov-2023	ns	ns	ns	ns	ns	ns
14-Nov-2023	1.58	1.48	1.77	1.62	1.53	1.81
15-Nov-2023	1.39	1.41	1.70	1.39	1.44	1.71
16-Nov-2023	1.43	1.46	1.75	1.36	1.37	1.65
17-Nov-2023	1.60	1.58	1.88	1.40	1.44	1.72
18-Nov-2023	ns	ns	ns	ns	ns	ns
19-Nov-2023	ns	ns	ns	ns	ns	ns
20-Nov-2023	1.67	1.62	1.90	1.48	1.49	1.75
21-Nov-2023	1.47	1.57	1.84	1.53	1.44	1.74
22-Nov-2023	1.50	1.40	1.78	1.50	1.51	1.81
23-Nov-2023	1.46	1.46	1.75	1.46	1.41	1.70
24-Nov-2023	1.61	1.58	1.86	1.56	1.50	1.79
25-Nov-2023	ns	ns	ns	ns	ns	ns
26-Nov-2023	ns	ns	ns	ns	ns	ns
27-Nov-2023	1.54	1.55	1.84	1.58	1.68	1.97
28-Nov-2023	1.53	1.58	1.84	1.54	1.62	1.89
29-Nov-2023	1.63	1.68	1.97	1.70	1.68	1.98
30-Nov-2023	1.68	1.69	1.99	1.64	1.60	1.90
Total number of measurements taken, A:	21			21		
Chlorine Standard for Monitoring Location (mg/L):	0.50			0.50		
Number of measurements meeting standard, B:	21			21		
Compliance with Chlorine Standard, C= B/A X 100%:	100%			100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: December 6, 2023

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: **252.00**
Licence Number: **PWS-09-412-02-A**
Report Created: 01 January 2024

Report Period: December 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/12/2023	1.70	1.62	1.61	1.52
02/12/2023	1.57	1.42	1.47	1.33
03/12/2023	1.38	1.30	1.30	1.22
04/12/2023	1.48	1.39	1.37	1.29
05/12/2023	1.56	1.50	1.45	1.39
06/12/2023	1.59	1.50	1.45	1.38
07/12/2023	1.37	1.15	1.44	1.36
08/12/2023	1.26	1.16	1.37	1.31
09/12/2023	1.31	1.23	1.38	1.31
10/12/2023	1.30	1.18	1.37	1.27
11/12/2023	1.19	1.13	1.27	1.24
12/12/2023	1.17	1.10	1.28	1.23
13/12/2023	1.16	1.12	1.29	1.23
14/12/2023	1.16	1.10	1.29	1.25
15/12/2023	1.15	1.10	1.29	1.23
16/12/2023	1.21	1.11	1.29	1.25
17/12/2023	1.24	1.22	1.31	1.26
18/12/2023	1.21	1.17	1.33	1.28
19/12/2023	1.26	1.21	1.38	1.33
20/12/2023	1.36	1.21	1.39	1.18
21/12/2023	1.26	1.10	1.31	1.26
22/12/2023	1.29	1.13	1.32	1.18
23/12/2023	1.34	1.25	1.29	1.22
24/12/2023	1.30	1.22	1.25	1.18
25/12/2023	1.35	1.31	1.31	1.23
26/12/2023	1.37	1.30	1.35	1.29
27/12/2023	1.49	1.35	1.41	1.33
28/12/2023	1.49	1.26	1.38	1.23
29/12/2023	1.40	1.35	1.31	1.23
30/12/2023	1.36	1.33	1.29	1.20
31/12/2023	1.26	1.23	1.17	1.10

Total Number of Measurements, A:	21601	21601
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21601	21601
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2023\12-December

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00 Licence No. PWS-09-412-02 A	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Dec-2023	1.68	1.72	2.01	1.58	1.60	1.90
02-Dec-2023	ns	ns	ns	ns	ns	ns
03-Dec-2023	ns	ns	ns	ns	ns	ns
04-Dec-2023	1.42	1.46	1.75	1.34	1.35	1.65
05-Dec-2023	1.57	1.61	1.96	1.46	1.44	1.80
06-Dec-2023	1.57	1.59	1.93	1.44	1.50	1.80
07-Dec-2023	1.36	1.43	1.77	1.48	1.49	1.80
08-Dec-2023	1.29	1.32	1.61	1.37	1.38	1.68
09-Dec-2023	ns	ns	ns	ns	ns	ns
10-Dec-2023	ns	ns	ns	ns	ns	ns
11-Dec-2023	1.19	1.27	1.44	1.26	1.31	1.61
12-Dec-2023	1.18	1.20	1.49	1.28	1.29	1.60
13-Dec-2023	1.14	1.17	1.47	1.27	1.25	1.57
14-Dec-2023	1.17	1.22	1.49	1.28	1.30	1.58
15-Dec-2023	1.18	1.25	1.55	1.28	1.29	1.58
16-Dec-2023	ns	ns	ns	ns	ns	ns
17-Dec-2023	ns	ns	ns	ns	ns	ns
18-Dec-2023	1.20	1.17	1.47	1.34	1.34	1.61
19-Dec-2023	1.26	1.30	1.55	1.38	1.36	1.66
20-Dec-2023	1.28	1.28	1.60	1.38	1.43	1.74
21-Dec-2023	1.16	1.16	1.47	1.28	1.28	1.57
22-Dec-2023	1.24	1.22	1.52	1.33	1.29	1.60
23-Dec-2023	ns	ns	ns	ns	ns	ns
24-Dec-2023	ns	ns	ns	ns	ns	ns
25-Dec-2023	ns	ns	ns	ns	ns	ns
26-Dec-2023	ns	ns	ns	ns	ns	ns
27-Dec-2023	1.45	1.47	1.76	1.37	1.39	1.68
28-Dec-2023	1.50	1.49	1.77	1.40	1.39	1.64
29-Dec-2023	1.41	1.40	1.69	1.34	1.39	1.64
30-Dec-2023	ns	ns	ns	ns	ns	ns
31-Dec-2023	ns	ns	ns	ns	ns	ns
Total number of measurements taken, A:			19			19
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			19			19
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: January 5, 2024

2023 MONTHLY TURBIDITY REPORTS



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

January 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/01/2023	0.35	0.05	0.06	0.02	0.03	0.03	0.06	0.04	0.06	0.04	0.05	0.03	0.06	0.01	0.03	0.03	0.05
2/01/2023	0.35	0.06	0.10	0.02	0.05	0.03	0.06	0.04	0.09	0.04	0.07	0.04	0.05	0.01	0.02	0.03	0.06
3/01/2023	0.36	0.07	0.14	0.02	0.07	0.05	0.10	0.05	0.15	0.04	0.08	0.05	0.07	0.01	0.04	0.03	0.06
4/01/2023	0.35	0.06	0.09	0.02	0.05	0.04	0.08	0.04	0.07	0.04	0.06	0.04	0.07	0.01	0.03	0.03	0.05
5/01/2023	0.39	0.05	0.07	0.02	0.05	0.03	0.06	0.05	0.06	0.05	0.07	0.04	0.07	0.01	0.03	0.03	0.06
6/01/2023	0.39	0.06	0.09	0.02	0.06	0.03	0.05	0.04	0.08	0.04	0.07	0.04	0.05	0.01	0.02	0.03	0.06
7/01/2023	0.37	0.06	0.11	0.02	0.04	0.05	0.08	0.05	0.09	0.04	0.08	0.04	0.06	0.01	0.03	0.03	0.04
8/01/2023	0.37	0.06	0.11	0.03	0.06	0.04	0.08	0.05	0.07	0.05	0.07	0.04	0.07	0.01	0.04	0.03	0.07
9/01/2023	0.37	0.07	0.09	0.02	0.07	0.04	0.07	0.06	0.09	0.04	0.08	0.04	0.07	0.01	0.02	0.03	0.06
10/01/2023	0.36	0.06	0.10	0.02	0.08	0.04	0.06	0.05	0.18	0.06	0.67	0.06	0.45	0.02	0.46	0.03	0.07
11/01/2023	0.59	0.04	0.13	0.03	0.08	0.04	0.11	0.04	0.10	0.03	0.08	0.03	0.12	0.01	0.07	0.02	0.09
12/01/2023	0.35	0.08	0.11	0.03	0.08	0.05	0.10	0.06	0.11	0.04	0.07	0.04	0.05	0.01	0.03	0.03	0.07
13/01/2023	0.35	0.07	0.12	0.03	0.05	0.06	0.08	0.05	0.10	0.04	0.08	0.05	0.07	0.01	0.04	0.03	0.07
14/01/2023	0.35	0.06	0.10	0.03	0.09	0.04	0.10	0.05	0.07	0.04	0.07	0.03	0.06	0.01	0.03	0.03	0.05
15/01/2023	0.34	0.06	0.08	0.02	0.06	0.04	0.08	0.05	0.08	0.04	0.08	0.03	0.06	0.01	0.01	0.03	0.06
16/01/2023	0.34	0.06	0.10	0.02	0.07	0.04	0.05	0.05	0.09	0.04	0.06	0.04	0.05	0.01	0.03	0.03	0.06
17/01/2023	0.34	0.06	0.11	0.03	0.05	0.05	0.09	0.05	0.10	0.04	0.08	0.04	0.06	0.01	0.03	0.03	0.04
18/01/2023	0.34	0.07	0.08	0.04	0.07	0.05	0.10	0.06	0.07	0.05	0.08	0.04	0.07	0.01	0.05	0.04	0.07
19/01/2023	0.33	0.09	0.13	0.05	0.10	0.06	0.11	0.07	0.12	0.05	0.09	0.04	0.10	0.02	0.03	0.04	0.08
20/01/2023	0.34	0.08	0.14	0.05	0.06	0.07	0.09	0.07	0.12	0.05	0.08	0.05	0.08	0.02	0.06	0.03	0.08
21/01/2023	0.34	0.08	0.14	0.06	0.11	0.06	0.12	0.06	0.12	0.04	0.07	0.04	0.08	0.01	0.05	0.04	0.06
22/01/2023	0.33	0.07	0.10	0.05	0.08	0.05	0.10	0.06	0.10	0.05	0.09	0.04	0.07	0.01	0.04	0.03	0.08
23/01/2023	0.33	0.08	0.12	0.05	0.10	0.05	0.10	0.06	0.10	0.04	0.08	0.04	0.05	0.01	0.02	0.03	0.07
24/01/2023	0.33	0.07	0.12	0.05	0.07	0.06	0.08	0.06	0.11	0.04	0.07	0.04	0.07	0.01	0.04	0.03	0.07
25/01/2023	0.32	0.04	0.16	0.03	0.11	0.03	0.12	0.03	0.10	0.03	0.09	0.01	0.05	0.01	0.06	0.02	0.07
26/01/2023	0.33	0.11	0.17	0.04	0.06	0.04	0.06	0.06	0.11	0.04	0.07	0.01	0.03	0.01	0.04	0.01	0.03
27/01/2023	0.33	0.11	0.15	0.05	0.10	0.04	0.09	0.05	0.09	0.03	0.06	0.01	0.04	0.01	0.04	0.00	0.01
28/01/2023	0.33	0.10	0.16	0.04	0.08	0.03	0.08	0.05	0.06	0.05	0.08	0.01	0.04	0.01	0.03	0.01	0.03
29/01/2023	0.33	0.12	0.15	0.04	0.08	0.03	0.08	0.05	0.09	0.05	0.09	0.01	0.04	0.01	0.02	0.01	0.03
30/01/2023	0.32	0.11	0.17	0.04	0.09	0.03	0.08	0.04	0.08	0.05	0.08	0.01	0.03	0.01	0.03	0.01	0.03
31/01/2023	0.31	0.03	0.13	0.01	0.08	0.01	0.08	0.01	0.06	0.02	0.07	0.00	0.02	0.00	0.01	0.00	0.01

Total Number of Measurements Taken, A:	12400	12780	12885	13664	14604	14762	13967	15965
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	12400	12780	12885	13664	14577	14744	13950	15965
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	99.815%	99.878%	99.878%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\01-January

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00

Licence No. PWS-09-412-02

Turbidity (NTU)

Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
02-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
03-Jan-2023	0.43	0.34	0.10	0.08	0.10	0.02	0.10	0.05	0.07	0.05	0.08	0.05	0.08	0.05	0.10	<0.02	0.09	0.03
04-Jan-2023	0.41	0.33	0.09	0.07	0.10	0.03	0.12	0.06	0.09	0.06	0.08	0.06	0.08	0.05	0.08	<0.02	0.10	0.03
05-Jan-2023	0.44	0.41	0.08	0.06	0.09	0.03	0.08	0.04	0.09	0.04	0.07	0.05	0.07	0.04	0.08	<0.02	0.10	0.03
06-Jan-2023	0.41	0.38	0.09	0.08	0.08	0.02	0.09	0.04	0.11	0.08	0.07	0.05	0.09	0.05	0.09	<0.02	0.08	0.02
07-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
08-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
09-Jan-2023	0.42	0.35	0.10	0.08	0.10	0.03	0.11	0.04	0.10	0.06	0.09	0.08	0.08	0.05	0.09	<0.02	0.10	0.03
10-Jan-2023	0.42	0.35	0.12	0.09	0.10	0.02	0.11	0.05	0.10	0.06	0.07	0.05	0.08	0.05	0.09	<0.02	0.09	0.02
11-Jan-2023	0.41	0.34	0.10	0.07	0.13	0.04	0.14	0.08	0.10	0.06	0.08	0.05	0.08	<0.02	0.08	<0.02	0.10	0.03
12-Jan-2023	0.40	0.34	0.12	0.09	0.10	0.03	0.11	0.06	0.12	0.07	0.10	0.07	0.08	0.05	0.09	<0.02	0.11	0.04
13-Jan-2023	0.41	0.35	0.12	0.09	0.12	0.04	0.14	0.06	0.12	0.06	0.11	0.06	0.10	0.05	0.10	<0.02	0.10	0.03
14-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
15-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
16-Jan-2023	0.40	0.32	0.13	0.09	0.10	0.03	0.10	0.05	0.11	0.07	0.08	0.05	0.08	0.05	0.09	<0.02	0.09	0.02
17-Jan-2023	0.41	0.34	0.09	0.07	0.10	0.03	0.11	0.06	0.09	0.06	0.07	0.05	0.09	0.06	0.10	<0.02	0.08	0.03
18-Jan-2023	0.41	0.32	0.11	0.08	0.13	0.07	0.13	0.09	0.11	0.07	0.10	0.06	0.08	0.04	0.09	<0.02	0.10	0.04
19-Jan-2023	0.41	0.32	0.13	0.10	0.13	0.05	0.13	0.07	0.13	0.09	0.11	0.09	0.09	0.06	0.10	<0.02	0.13	0.05
20-Jan-2023	0.40	0.33	0.17	0.12	0.13	0.06	0.15	0.07	0.15	0.10	0.10	0.06	0.10	0.06	0.11	<0.02	0.10	0.03
21-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
22-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
23-Jan-2023	0.39	0.31	0.12	0.09	0.11	0.05	0.12	0.06	0.13	0.09	0.11	0.07	0.08	0.05	0.09	<0.02	0.09	0.02
24-Jan-2023	0.42	0.33	0.13	0.07	0.12	0.06	0.12	0.07	0.10	0.07	0.08	0.05	0.09	0.05	0.10	<0.02	0.09	0.03
25-Jan-2023	0.42	0.30	0.11	0.08	0.13	0.07	0.14	0.08	0.11	0.06	0.08	0.07	ns	ns	0.09	<0.02	0.10	0.03
26-Jan-2023	0.42	0.33	0.17	0.16	0.11	0.05	0.12	0.05	0.10	0.06	0.08	0.04	0.09	0.02	0.11	<0.02	0.09	<0.02
27-Jan-2023	0.40	0.32	0.11	0.12	0.13	0.06	0.14	0.06	0.10	0.07	0.08	0.05	0.11	0.03	0.10	<0.02	0.09	<0.02
28-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.07	0.02	ns	ns	ns	ns
29-Jan-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
30-Jan-2023	0.40	0.31	0.13	0.15	0.11	0.05	0.12	0.03	0.13	0.07	0.08	0.08	0.08	0.02	0.09	<0.02	0.09	<0.02
31-Jan-2023	0.38	0.30	0.10	0.13	0.12	0.06	0.14	0.06	0.09	0.05	0.08	0.06	ns	ns	0.08	<0.02	0.09	<0.02
Total number of measurements taken, A:			21		21		21		21		21		20		21		21	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			21		21		21		21		21		20		21		21	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 6-Feb-2023



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

February 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/02/2023	0.72	0.13	0.17	0.05	0.07	0.04	0.06	0.06	0.11	0.05	0.07	0.02	0.06	0.01	0.06	0.01	0.03
2/02/2023	0.32	0.14	0.18	0.06	0.11	0.06	0.16	0.06	0.16	0.06	0.08	0.01	0.04	0.01	0.04	0.01	0.04
3/02/2023	0.32	0.11	0.16	0.05	0.10	0.05	0.10	0.06	0.10	0.05	0.08	0.01	0.04	0.04	0.01	0.01	0.03
4/02/2023	0.32	0.08	0.13	0.05	0.10	0.04	0.07	0.06	0.12	0.05	0.08	0.01	0.03	0.01	0.04	0.01	0.04
5/02/2023	0.31	0.07	0.14	0.05	0.08	0.05	0.10	0.05	0.09	0.04	0.07	0.01	0.04	0.01	0.04	0.00	0.03
6/02/2023	0.32	0.07	0.13	0.05	0.10	0.04	0.09	0.05	0.07	0.05	0.07	0.01	0.05	0.01	0.05	0.01	0.02
7/02/2023	0.33	0.08	0.11	0.06	0.10	0.04	0.10	0.06	0.11	0.04	0.08	0.01	0.05	0.01	0.02	0.01	0.04
8/02/2023	0.33	0.12	0.14	0.07	0.16	0.07	0.09	0.08	0.14	0.06	0.12	0.03	0.05	0.03	0.05	0.02	0.09
9/02/2023	0.33	0.11	0.20	0.10	0.12	0.10	0.16	0.09	0.16	0.06	0.12	0.04	0.09	0.05	0.10	0.03	0.05
10/02/2023	0.31	0.10	0.17	0.08	0.16	0.08	0.15	0.09	0.12	0.08	0.12	0.04	0.12	0.04	0.11	0.05	0.10
11/02/2023	0.29	0.12	0.14	0.08	0.15	0.07	0.15	0.09	0.14	0.07	0.11	0.03	0.09	0.03	0.05	0.03	0.08
12/02/2023	0.28	0.10	0.19	0.07	0.15	0.08	0.11	0.09	0.16	0.06	0.12	0.04	0.06	0.04	0.09	0.03	0.09
13/02/2023	0.28	0.09	0.17	0.08	0.14	0.07	0.15	0.07	0.11	0.05	0.10	0.03	0.09	0.03	0.09	0.03	0.05
14/02/2023	0.35	0.10	0.20	0.08	0.22	0.07	0.23	0.09	0.16	0.07	0.11	0.04	0.10	0.03	0.11	0.04	0.09
15/02/2023	0.28	0.08	0.17	0.06	0.13	0.06	0.08	0.08	0.13	0.07	0.11	0.04	0.07	0.05	0.10	0.03	0.10
16/02/2023	0.28	0.09	0.16	0.07	0.10	0.08	0.13	0.07	0.15	0.06	0.12	0.05	0.10	0.04	0.11	0.03	0.05
17/02/2023	0.28	0.09	0.16	0.06	0.13	0.07	0.14	0.08	0.10	0.07	0.11	0.03	0.05	0.03	0.10	0.04	0.09
18/02/2023	0.29	0.11	0.16	0.06	0.14	0.06	0.08	0.07	0.14	0.06	0.12	0.05	0.10	0.04	0.07	0.03	0.09
19/02/2023	0.29	0.10	0.17	0.07	0.10	0.09	0.15	0.07	0.15	0.06	0.08	0.04	0.10	0.04	0.10	0.03	0.05
20/02/2023	0.29	0.09	0.17	0.07	0.13	0.07	0.15	0.08	0.11	0.08	0.13	0.04	0.11	0.04	0.11	0.04	0.10
21/02/2023	0.29	0.11	0.16	0.07	0.14	0.07	0.16	0.08	0.18	0.08	0.14	0.06	0.11	0.04	0.07	0.04	0.10
22/02/2023	0.32	0.07	0.18	0.07	0.11	0.08	0.13	0.06	0.14	0.06	0.16	0.04	0.08	0.05	0.12	0.03	0.06
23/02/2023	0.34	0.09	0.17	0.10	0.18	0.09	0.17	0.07	0.10	0.11	0.14	0.03	0.11	0.07	0.16	0.06	0.13
24/02/2023	0.35	0.09	0.20	0.11	0.20	0.11	0.23	0.08	0.15	0.10	0.17	0.04	0.09	0.07	0.15	0.05	0.13
25/02/2023	0.38	0.11	0.23	0.10	0.16	0.09	0.19	0.07	0.18	0.09	0.14	0.04	0.12	0.07	0.10	0.05	0.13
26/02/2023	0.56	0.02	0.22	0.04	0.13	0.04	0.15	0.02	0.17	0.03	0.13	0.01	0.19	0.02	0.15	0.02	0.11
27/02/2023	0.38	0.12	0.28	0.12	0.24	0.11	0.45	0.09	0.16	0.09	0.14	0.03	0.07	0.06	0.07	0.05	0.11
28/02/2023	0.38	0.10	0.19	0.12	0.15	0.12	0.16	0.09	0.16	0.09	0.11	0.03	0.08	0.08	0.13	0.05	0.08

Total Number of Measurements Taken, A:	11002	10923	11003	11515	12601	12721	12383	13962
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	11002	10923	10998	11515	12601	12721	12383	13962
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	99.955%	100.000%	100.000%	100.000%	100.000%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\02-February

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Feb-2023	0.44	0.32	0.12	0.13	0.14	0.07	0.15	0.07	0.12	0.06	0.11	0.08	0.16	0.07	0.12	0.02	0.12	0.02	
02-Feb-2023	0.39	0.29	0.12	0.13	0.17	0.09	0.17	0.08	0.12	0.07	0.10	0.08	0.08	0.02	0.09	<0.02	0.10	<0.02	
03-Feb-2023	0.40	0.31	0.13	0.09	0.12	0.06	0.13	0.04	0.13	0.08	0.10	0.07	0.08	0.02	0.09	<0.02	0.11	0.02	
04-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.09	0.02	ns	ns	ns	ns
05-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
06-Feb-2023	0.41	0.32	0.11	0.09	0.14	0.07	0.14	0.06	0.11	0.06	0.09	0.06	0.08	<0.02	0.09	<0.02	0.09	<0.02	
07-Feb-2023	0.42	0.32	0.13	0.09	0.12	0.05	0.13	0.05	0.13	0.08	0.10	0.06	0.09	0.02	0.10	<0.02	0.12	0.02	
08-Feb-2023	0.43	0.32	0.15	0.11	0.13	0.05	0.14	0.05	0.20	0.14	0.09	0.05	0.10	0.02	0.11	<0.02	0.12	0.02	
09-Feb-2023	0.42	0.32	0.19	0.12	0.21	0.11	0.21	0.11	0.17	0.10	0.13	0.07	0.17	0.07	0.20	0.07	0.16	0.03	
10-Feb-2023	0.42	0.33	0.22	0.12	0.22	0.12	0.21	0.11	0.17	0.10	0.15	0.09	0.13	0.04	0.13	0.03	0.14	0.04	
11-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
12-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
13-Feb-2023	0.37	0.27	0.15	0.11	0.18	0.09	0.20	0.10	0.14	0.09	0.12	0.07	0.17	0.07	0.15	0.05	0.13	0.03	
14-Feb-2023	0.43	0.33	0.16	0.11	0.18	0.09	0.15	0.07	0.16	0.09	0.13	0.08	0.13	0.04	0.13	0.03	0.15	0.05	
15-Feb-2023	0.40	0.32	0.17	0.12	0.13	0.07	0.14	0.07	0.16	0.10	0.10	0.07	0.13	0.05	0.14	0.04	0.12	0.02	
16-Feb-2023	0.40	0.30	0.13	0.09	0.15	0.08	0.17	0.09	0.13	0.08	0.12	0.08	0.17	0.07	0.17	0.07	0.13	0.03	
17-Feb-2023	0.40	0.30	0.14	0.10	0.21	0.11	0.22	0.13	0.14	0.09	0.13	0.09	0.12	0.04	0.13	0.03	0.14	0.04	
18-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
19-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
20-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
21-Feb-2023	0.43	0.28	0.17	0.11	0.15	0.07	0.16	0.08	0.17	0.10	0.19	0.14	nr	0.06	0.14	0.04	0.12	0.03	
22-Feb-2023	0.40	0.28	0.17	0.13	0.11	0.05	0.13	0.06	0.10	0.05	0.08	0.07	0.18	0.08	0.11	<0.02	0.09	<0.02	
23-Feb-2023	0.42	0.33	0.18	0.09	0.26	0.17	0.27	0.17	0.17	0.08	0.15	0.13	0.14	0.05	0.14	0.07	0.17	0.07	
24-Feb-2023	0.43	0.33	0.17	0.10	0.19	0.12	0.18	0.10	0.18	0.10	0.15	0.14	0.14	0.05	0.15	0.07	0.18	0.08	
25-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
26-Feb-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
27-Feb-2023	0.50	0.38	0.19	0.11	0.24	0.16	0.21	0.14	0.20	0.12	0.13	0.11	0.14	0.04	0.14	0.06	0.13	0.04	
28-Feb-2023	0.47	0.36	0.24	0.14	0.20	0.13	0.21	0.13	0.18	0.10	0.10	0.08	0.18	0.08	0.17	0.07	0.13	0.04	
Total number of measurements taken, A:			19		19		19		19		19		19		19		19		
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:			19		19		19		19		19		19		19		19		
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

February 21, Filter 6 no result due to lab error.

Report Date: 7-Mar-2023



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

March 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/03/2023	0.39	0.10	0.17	0.12	0.17	0.10	0.19	0.07	0.16	0.08	0.11	0.03	0.09	0.08	0.12	0.05	0.07
2/03/2023	0.40	0.08	0.17	0.11	0.19	0.11	0.19	0.10	0.13	0.10	0.14	0.03	0.08	0.05	0.08	0.05	0.13
3/03/2023	0.40	0.07	0.09	0.10	0.21	0.10	0.20	0.11	0.19	0.08	0.13	0.04	0.07	0.03	0.10	0.05	0.12
4/03/2023	0.40	0.09	0.17	0.10	0.21	0.11	0.14	0.11	0.20	0.09	0.15	0.04	0.09	0.04	0.08	0.05	0.12
5/03/2023	0.40	0.09	0.17	0.11	0.15	0.13	0.21	0.11	0.22	0.08	0.14	0.03	0.10	0.04	0.11	0.04	0.06
6/03/2023	0.40	0.08	0.17	0.11	0.21	0.12	0.21	0.11	0.15	0.09	0.13	0.03	0.09	0.03	0.07	0.04	0.11
7/03/2023	0.40	0.05	0.09	0.09	0.17	0.10	0.17	0.11	0.20	0.08	0.15	0.03	0.06	0.02	0.09	0.04	0.10
8/03/2023	0.40	0.07	0.13	0.08	0.18	0.09	0.11	0.09	0.17	0.08	0.17	0.03	0.08	0.03	0.05	0.04	0.10
9/03/2023	0.40	0.06	0.14	0.09	0.13	0.11	0.19	0.09	0.18	0.07	0.14	0.03	0.09	0.03	0.10	0.04	0.05
10/03/2023	0.40	0.07	0.16	0.09	0.18	0.10	0.20	0.11	0.15	0.07	0.11	0.02	0.08	0.03	0.07	0.04	0.11
11/03/2023	0.40	0.06	0.09	0.09	0.18	0.11	0.20	0.10	0.19	0.09	0.15	0.03	0.05	0.03	0.11	0.04	0.11
12/03/2023	0.39	0.08	0.16	0.09	0.19	0.10	0.14	0.10	0.20	0.08	0.15	0.03	0.09	0.03	0.06	0.04	0.11
13/03/2023	0.39	0.07	0.16	0.10	0.14	0.12	0.21	0.10	0.20	0.08	0.15	0.03	0.15	0.03	0.10	0.04	0.12
14/03/2023	0.39	0.07	0.14	0.09	0.18	0.12	0.22	0.12	0.16	0.07	0.12	0.03	0.08	0.03	0.11	0.05	0.12
15/03/2023	0.42	0.03	0.11	0.04	0.10	0.05	0.15	0.06	0.20	0.05	0.13	0.01	0.08	0.01	0.03	0.02	0.07
16/03/2023	0.39	0.02	0.08	0.05	0.06	0.07	0.11	0.06	0.12	0.05	0.08	0.00	0.04	0.01	0.04	0.01	0.05
17/03/2023	0.38	0.02	0.07	0.05	0.10	0.06	0.13	0.06	0.09	0.05	0.10	0.00	0.04	0.01	0.03	0.01	0.03
18/03/2023	0.38	0.02	0.06	0.05	0.10	0.06	0.12	0.06	0.12	0.06	0.09	0.00	0.01	0.01	0.03	0.01	0.05
19/03/2023	0.38	0.02	0.05	0.04	0.09	0.06	0.18	0.05	0.10	0.05	0.09	0.00	0.03	0.01	0.01	0.01	0.05
20/03/2023	0.37	0.02	0.12	0.05	0.06	0.06	0.11	0.05	0.09	0.05	0.08	0.00	0.03	0.01	0.03	0.01	0.02
21/03/2023	0.37	0.02	0.08	0.05	0.12	0.07	0.16	0.07	0.09	0.05	0.08	0.00	0.03	0.01	0.03	0.02	0.05
22/03/2023	0.37	0.02	0.04	0.05	0.12	0.07	0.14	0.07	0.12	0.07	0.09	0.00	0.02	0.01	0.04	0.01	0.05
23/03/2023	0.37	0.03	0.08	0.05	0.13	0.06	0.09	0.06	0.12	0.06	0.11	0.01	0.03	0.01	0.02	0.02	0.05
24/03/2023	0.37	0.02	0.06	0.05	0.07	0.07	0.11	0.05	0.12	0.06	0.10	0.00	0.03	0.01	0.03	0.01	0.02
25/03/2023	0.36	0.02	0.09	0.06	0.12	0.07	0.14	0.08	0.10	0.06	0.08	0.00	0.03	0.01	0.04	0.02	0.05
26/03/2023	0.36	0.03	0.06	0.05	0.13	0.07	0.15	0.07	0.13	0.06	0.10	0.01	0.02	0.01	0.01	0.02	0.05
27/03/2023	0.35	0.04	0.09	0.06	0.08	0.09	0.11	0.07	0.15	0.05	0.11	0.01	0.03	0.01	0.04	0.01	0.06
28/03/2023	0.35	0.03	0.10	0.06	0.14	0.07	0.15	0.07	0.10	0.05	0.08	0.01	0.03	0.01	0.04	0.02	0.04
29/03/2023	0.35	0.01	0.07	0.04	0.09	0.06	0.11	0.06	0.11	0.06	0.08	0.00	0.01	0.01	0.04	0.02	0.05
30/03/2023	0.34	0.02	0.07	0.04	0.10	0.06	0.12	0.06	0.11	0.05	0.08	0.01	0.03	0.01	0.01	0.02	0.05
31/03/2023	0.34	0.03	0.06	0.06	0.07	0.08	0.12	0.05	0.12	0.06	0.10	0.01	0.03	0.01	0.04	0.01	0.03

Total Number of Measurements Taken, A:	13031	13518	13280	13931	15191	13858	14616	16827
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	13031	13518	13280	13931	15191	13858	14616	16827
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\03-March

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Licence No. PWS-09-412-02																		
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Mar-2023	0.50	0.37	0.16	0.10	0.18	0.12	0.21	0.12	0.14	0.07	0.11	0.09	0.11	0.03	0.21	0.12	0.14	0.05
02-Mar-2023	0.46	0.37	0.18	0.11	0.29	0.20	0.26	0.16	0.18	0.09	0.14	0.12	0.13	0.04	0.14	0.06	0.17	0.07
03-Mar-2023	0.51	0.41	0.19	0.09	0.19	0.12	0.19	0.11	0.19	0.12	0.16	0.12	0.13	0.04	0.11	0.02	0.14	0.04
04-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
05-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
06-Mar-2023	0.48	0.38	0.18	0.08	0.25	0.15	0.26	0.18	0.19	0.12	0.13	0.11	0.12	0.04	0.12	0.02	0.15	0.05
07-Mar-2023	0.50	0.40	0.16	0.06	0.15	0.08	0.17	0.09	0.16	0.09	0.13	0.11	0.12	0.03	0.11	<0.02	0.15	0.05
08-Mar-2023	0.48	0.39	0.19	0.09	0.17	0.09	0.18	0.11	0.15	0.09	0.10	0.08	0.14	0.09	0.12	0.02	0.12	0.03
09-Mar-2023	0.49	0.39	0.19	0.09	0.19	0.10	0.20	0.12	0.15	0.10	0.12	0.08	0.12	0.03	0.14	0.04	0.13	0.03
10-Mar-2023	0.48	0.39	0.16	0.06	0.23	0.13	0.22	0.14	0.18	0.12	0.12	0.09	0.12	0.03	0.11	<0.02	0.14	0.04
11-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
12-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
13-Mar-2023	0.47	0.38	0.20	0.10	0.21	0.11	0.23	0.14	0.17	0.12	0.11	0.08	0.11	0.03	0.15	0.05	0.13	0.03
14-Mar-2023	0.47	0.39	0.18	0.08	0.24	0.14	0.24	0.15	0.21	0.14	0.14	0.10	0.12	0.04	0.11	<0.02	0.14	0.04
15-Mar-2023	0.47	0.37	0.18	0.08	0.17	0.09	0.18	0.11	0.21	0.15	0.13	0.10	0.12	0.03	0.11	<0.02	0.10	0.03
16-Mar-2023	0.47	0.37	0.14	0.05	0.12	0.05	0.12	0.07	0.09	0.06	0.08	0.05	0.12	0.02	0.09	<0.02	0.08	<0.02
17-Mar-2023	0.47	0.38	0.11	0.02	0.13	0.07	0.16	0.09	0.10	0.06	0.08	0.06	0.10	<0.02	0.10	<0.02	0.10	<0.02
18-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
19-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
20-Mar-2023	0.49	0.35	0.12	0.03	0.11	0.05	0.13	0.07	0.10	0.06	0.08	0.06	0.08	<0.02	0.10	<0.02	0.09	<0.02
21-Mar-2023	0.51	0.35	0.12	0.03	0.16	0.08	0.16	0.09	0.13	0.07	0.08	0.06	0.09	<0.02	0.09	<0.02	0.10	<0.02
22-Mar-2023	0.48	0.36	0.12	0.03	0.12	0.06	0.13	0.07	0.12	0.09	0.09	0.06	0.09	<0.02	0.09	<0.02	0.11	0.02
23-Mar-2023	0.46	0.36	0.14	0.04	0.13	0.06	0.14	0.08	0.12	0.07	0.09	0.08	0.10	0.02	0.09	<0.02	0.09	<0.02
24-Mar-2023	0.45	0.35	0.16	0.07	0.12	0.06	0.13	0.07	0.11	0.07	0.08	0.06	0.08	<0.02	0.10	<0.02	0.09	<0.02
25-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
26-Mar-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
27-Mar-2023	0.45	0.33	0.16	0.06	0.14	0.07	0.15	0.09	0.12	0.07	0.09	0.07	0.10	0.02	0.10	<0.02	0.10	<0.02
28-Mar-2023	0.45	0.34	0.13	0.03	0.16	0.08	0.20	0.13	0.12	0.07	0.08	0.07	0.08	<0.02	0.12	0.02	0.09	<0.02
29-Mar-2023	0.44	0.34	0.10	<0.02	0.15	0.08	0.11	0.06	0.11	0.07	0.09	0.07	0.09	<0.02	0.09	<0.02	0.12	0.03
30-Mar-2023	0.43	0.33	0.11	0.02	0.11	0.05	0.12	0.07	0.10	0.05	0.11	0.08	0.09	0.02	0.09	<0.02	0.08	<0.02
31-Mar-2023	0.42	0.33	0.15	0.08	0.12	0.06	0.14	0.08	0.11	0.07	0.08	0.08	0.08	<0.02	0.10	<0.02	0.10	<0.02
Total number of measurements taken, A:			23		23		23		23		23		23		23		23	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			23		23		23		23		23		23		23		23	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 3-Apr-2023



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

April 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/04/2023	0.34	0.02	0.08	0.05	0.11	0.07	0.14	0.07	0.10	0.06	0.09	0.00	0.03	0.01	0.03	0.02	0.06
2/04/2023	0.34	0.02	0.20	0.05	0.10	0.07	0.12	0.06	0.13	0.06	0.10	0.00	0.02	0.01	0.04	0.02	0.05
3/04/2023	0.34	0.02	0.07	0.04	0.10	0.05	0.12	0.05	0.10	0.06	0.10	0.01	0.03	0.01	0.01	0.01	0.07
4/04/2023	0.48	0.01	0.08	0.05	0.07	0.07	0.12	0.05	0.09	0.06	0.11	0.01	0.03	0.01	0.04	0.01	0.02
5/04/2023	0.44	0.01	0.04	0.04	0.08	0.05	0.11	0.05	0.07	0.06	0.10	0.01	0.04	0.01	0.05	0.02	0.07
6/04/2023	0.43	0.00	0.01	0.04	0.08	0.05	0.11	0.05	0.09	0.07	0.13	0.01	0.02	0.01	0.04	0.02	0.06
7/04/2023	0.42	0.01	0.04	0.03	0.08	0.04	0.06	0.05	0.10	0.06	0.09	0.01	0.04	0.01	0.02	0.02	0.06
8/04/2023	0.41	0.01	0.05	0.04	0.06	0.07	0.11	0.06	0.11	0.02	0.07	0.02	0.06	0.02	0.05	0.03	0.10
9/04/2023	0.41	0.01	0.05	0.05	0.12	0.05	0.11	0.05	0.15	0.00	0.00	0.02	0.06	0.02	0.07	0.03	0.07
10/04/2023	0.42	0.01	0.05	0.04	0.09	0.06	0.11	0.06	0.08	0.00	0.00	0.02	0.05	0.01	0.06	0.03	0.07
11/04/2023	0.41	0.01	0.05	0.04	0.09	0.06	0.11	0.05	0.11	0.00	0.00	0.02	0.05	0.01	0.06	0.03	0.07
12/04/2023	0.42	0.01	0.04	0.04	0.09	0.05	0.11	0.05	0.10	0.07	0.11	0.02	0.05	0.01	0.02	0.02	0.06
13/04/2023	0.42	0.01	0.04	0.03	0.07	0.06	0.10	0.05	0.11	0.06	0.11	0.02	0.04	0.01	0.05	0.02	0.06
14/04/2023	0.42	0.01	0.04	0.04	0.09	0.06	0.10	0.05	0.09	0.06	0.10	0.01	0.05	0.01	0.05	0.02	0.05
15/04/2023	0.42	0.00	0.04	0.04	0.08	0.06	0.11	0.05	0.09	0.06	0.10	0.01	0.03	0.01	0.05	0.02	0.07
16/04/2023	0.42	0.00	0.01	0.03	0.07	0.06	0.11	0.05	0.09	0.06	0.10	0.01	0.04	0.01	0.01	0.02	0.06
17/04/2023	0.43	0.00	0.03	0.03	0.07	0.07	0.10	0.05	0.09	0.05	0.08	0.01	0.05	0.01	0.04	0.02	0.07
18/04/2023	0.43	0.05	0.12	0.04	0.07	0.07	0.13	0.05	0.07	0.05	0.13	0.01	0.05	0.01	0.04	0.02	0.04
19/04/2023	0.45	0.07	0.12	0.04	0.08	0.05	0.12	0.06	0.09	0.04	0.06	0.01	0.04	0.03	0.11	0.02	0.06
20/04/2023	0.42	0.09	0.10	0.05	0.08	0.04	0.10	0.05	0.08	0.03	0.05	0.01	0.03	0.06	0.08	0.01	0.05
21/04/2023	0.39	0.08	0.13	0.05	0.07	0.05	0.07	0.05	0.09	0.02	0.04	0.00	0.02	0.06	0.10	0.00	0.02
22/04/2023	0.42	0.07	0.13	0.05	0.09	0.04	0.16	0.06	0.07	0.02	0.06	0.00	0.01	0.04	0.08	0.01	0.04
23/04/2023	0.43	0.08	0.11	0.04	0.10	0.04	0.09	0.05	0.09	0.03	0.05	0.00	0.03	0.04	0.07	0.01	0.04
24/04/2023	0.44	0.08	0.13	0.04	0.07	0.05	0.07	0.04	0.09	0.02	0.05	0.00	0.06	0.07	0.10	0.01	0.04
25/04/2023	0.45	0.07	0.13	0.06	0.09	0.05	0.09	0.05	0.07	0.01	0.05	0.00	0.03	0.05	0.09	0.01	0.03
26/04/2023	0.47	0.06	0.10	0.04	0.10	0.04	0.09	0.06	0.09	0.03	0.05	0.00	0.04	0.05	0.09	0.01	0.04
27/04/2023	0.49	0.09	0.11	0.04	0.08	0.03	0.05	0.04	0.08	0.02	0.05	0.00	0.04	0.06	0.08	0.01	0.04
28/04/2023	0.51	0.06	0.11	0.05	0.07	0.05	0.09	0.04	0.08	0.02	0.05	0.00	0.07	0.06	0.10	0.01	0.02
29/04/2023	0.53	0.07	0.13	0.05	0.09	0.04	0.09	0.06	0.08	0.02	0.06	0.00	0.01	0.05	0.10	0.01	0.05
30/04/2023	0.56	0.07	0.11	0.04	0.09	0.04	0.09	0.05	0.09	0.03	0.04	0.00	0.04	0.05	0.10	0.01	0.03

Total Number of Measurements Taken, A:	10645	12324	12259	13225	12522	13026	13608	15606
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	10645	12324	12259	13225	12522	13026	13608	15606
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\04-April

Submitted By (Print): D.Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
02-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
03-Apr-2023	0.42	0.32	0.11	0.02	0.11	0.05	0.12	0.06	0.09	0.05	0.10	0.09	0.09	0.02	0.09	<0.02	0.09	<0.02	
04-Apr-2023	0.44	0.33	0.14	0.04	0.13	0.06	0.15	0.08	0.12	0.06	0.09	0.08	0.08	<0.02	0.10	<0.02	0.09	<0.02	
05-Apr-2023	0.43	0.42	0.09	<0.02	0.11	0.05	0.12	0.07	0.10	0.08	0.09	0.06	0.10	<0.02	0.12	<0.02	0.10	0.02	
06-Apr-2023	0.43	0.40	0.09	<0.02	0.14	0.06	0.10	0.05	0.10	0.06	0.10	0.08	0.10	0.02	0.10	<0.02	0.13	0.03	
07-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
08-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
09-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
10-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
11-Apr-2023	0.43	0.39	0.13	0.02	0.13	0.06	0.14	0.07	0.13	0.07	0.20	0.15	0.11	0.02	0.11	<0.02	0.14	0.04	
12-Apr-2023	0.45	0.40	0.10	<0.02	0.09	0.04	0.10	0.06	0.14	0.09	0.09	0.09	0.11	0.03	0.10	<0.02	0.10	<0.02	
13-Apr-2023	0.44	0.42	0.11	0.02	0.10	0.04	0.11	0.06	0.09	0.05	0.11	0.09	0.09	0.02	0.10	<0.02	0.10	<0.02	
14-Apr-2023	0.42	0.39	0.08	<0.02	0.10	0.05	0.11	0.07	0.09	0.06	0.08	0.06	0.09	0.02	0.11	<0.02	0.10	0.02	
15-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
16-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
17-Apr-2023	0.43	0.41	0.10	<0.02	0.09	0.04	0.10	0.08	0.09	0.08	0.10	0.08	0.12	0.04	0.10	<0.02	0.10	<0.02	
18-Apr-2023	0.41	0.41	0.12	0.12	0.10	0.04	0.11	0.09	0.11	0.08	0.09	0.05	0.08	0.02	0.13	0.03	0.10	<0.02	
19-Apr-2023	0.42	0.41	0.09	0.09	0.11	0.06	0.09	0.07	0.09	0.06	0.08	0.06	0.09	0.02	0.09	<0.02	0.11	0.03	
20-Apr-2023	0.44	0.42	0.08	0.09	0.09	0.05	0.09	0.05	0.10	0.08	0.08	0.03	0.10	0.03	0.09	0.06	0.08	<0.02	
21-Apr-2023	0.44	0.37	0.11	0.11	0.10	0.06	0.11	0.06	0.09	0.06	0.08	0.04	0.08	<0.02	0.09	0.06	0.08	<0.02	
22-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
23-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
24-Apr-2023	0.47	0.42	0.10	0.11	0.09	0.06	0.10	0.06	0.08	0.06	0.10	0.04	0.15	0.06	0.09	0.06	0.08	<0.02	
25-Apr-2023	0.47	0.43	0.12	0.12	0.11	0.07	0.13	0.07	0.10	0.06	0.09	0.03	0.09	<0.02	0.10	0.06	0.10	<0.02	
26-Apr-2023	0.50	0.44	0.09	0.09	0.12	0.09	0.10	0.06	0.11	0.08	0.08	0.03	0.09	<0.02	0.08	0.06	0.12	0.02	
27-Apr-2023	0.48	0.47	0.08	0.09	0.08	0.05	0.09	0.05	0.11	0.08	0.08	0.04	0.13	0.05	0.09	0.06	0.08	<0.02	
28-Apr-2023	0.54	0.48	0.10	0.10	0.09	0.07	0.10	0.06	0.09	0.06	0.09	0.04	0.08	<0.02	0.10	0.07	0.08	<0.02	
29-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
30-Apr-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Total number of measurements taken, A:			18		18		18		18		18		18		18		18		
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:			18		18		18		18		18		18		18		18		
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 1-May-2023



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

May 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/05/2023	0.59	0.09	0.12	0.04	0.08	0.04	0.06	0.04	0.09	0.02	0.05	0.00	0.03	0.07	0.09	0.01	0.03
2/05/2023	0.63	0.07	0.11	0.05	0.10	0.05	0.07	0.04	0.08	0.02	0.05	0.00	0.04	0.06	0.10	0.01	0.02
3/05/2023	0.64	0.07	0.12	0.05	0.09	0.04	0.07	0.05	0.07	0.03	0.06	0.00	0.01	0.06	0.15	0.01	0.03
4/05/2023	0.66	0.06	0.10	0.04	0.08	0.03	0.07	0.05	0.08	0.03	0.05	0.01	0.07	0.06	0.10	0.01	0.03
5/05/2023	0.67	0.09	0.11	0.04	0.07	0.03	0.05	0.04	0.07	0.02	0.06	0.00	0.05	0.07	0.09	0.01	0.03
6/05/2023	0.68	0.06	0.11	0.05	0.06	0.04	0.05	0.04	0.08	0.02	0.04	0.00	0.04	0.06	0.09	0.00	0.02
7/05/2023	0.70	0.06	0.10	0.05	0.08	0.03	0.07	0.05	0.07	0.02	0.05	0.00	0.01	0.06	0.10	0.01	0.02
8/05/2023	0.71	0.06	0.09	0.05	0.08	0.03	0.07	0.05	0.08	0.02	0.03	0.00	0.04	0.06	0.11	0.01	0.03
9/05/2023	0.73	0.09	0.11	0.05	0.10	0.03	0.06	0.05	0.09	0.02	0.05	0.00	0.05	0.08	0.10	0.01	0.03
10/05/2023	0.76	0.06	0.11	0.07	0.09	0.06	0.09	0.05	0.10	0.01	0.04	0.00	0.02	0.08	0.11	0.00	0.01
11/05/2023	0.77	0.07	0.11	0.07	0.10	0.04	0.10	0.07	0.09	0.01	0.04	0.00	0.00	0.07	0.13	0.01	0.06
12/05/2023	0.78	0.06	0.10	0.07	0.12	0.05	0.10	0.07	0.11	0.01	0.04	0.00	0.06	0.08	0.15	0.01	0.04
13/05/2023	0.82	0.09	0.12	0.08	0.14	0.05	0.11	0.07	0.12	0.01	0.05	0.00	0.04	0.11	0.14	0.01	0.03
14/05/2023	0.82	0.06	0.13	0.11	0.15	0.08	0.10	0.07	0.13	0.00	0.05	0.00	0.02	0.12	0.16	0.01	0.03
15/05/2023	0.86	0.06	0.12	0.13	0.18	0.06	0.13	0.09	0.12	0.00	0.03	0.00	0.06	0.10	0.19	0.01	0.02
16/05/2023	0.86	0.06	0.12	0.12	0.21	0.06	0.13	0.11	0.15	0.00	0.00	0.00	0.02	0.13	0.30	0.01	0.03
17/05/2023	0.80	0.07	0.11	0.09	0.22	0.05	0.11	0.05	0.17	0.03	0.10	0.01	0.04	0.10	0.20	0.00	0.04
18/05/2023	0.77	0.06	0.12	0.05	0.08	0.05	0.08	0.04	0.09	0.05	0.11	0.01	0.08	0.03	0.07	0.00	0.02
19/05/2023	0.76	0.04	0.11	0.07	0.11	0.05	0.09	0.04	0.08	0.04	0.08	0.01	0.03	0.02	0.05	0.00	0.01
20/05/2023	0.75	0.05	0.09	0.06	0.09	0.04	0.10	0.06	0.09	0.05	0.08	0.01	0.05	0.02	0.23	0.00	0.03
21/05/2023	0.75	0.06	0.09	0.07	0.11	0.05	0.09	0.07	0.10	0.06	0.08	0.01	0.04	0.03	0.05	0.01	0.03
22/05/2023	0.73	0.06	0.08	0.08	0.26	0.05	0.09	0.06	0.11	0.04	0.08	0.01	0.05	0.03	0.05	0.01	0.03
23/05/2023	0.76	0.05	0.10	0.09	0.15	0.06	0.09	0.06	0.11	0.04	0.06	0.01	0.04	0.03	0.06	0.01	0.04
24/05/2023	0.76	0.06	0.10	0.14	0.18	0.06	0.10	0.07	0.12	0.05	0.07	0.01	0.03	0.03	0.06	0.01	0.03
25/05/2023	0.81	0.05	0.08	0.14	0.19	0.06	0.10	0.08	0.11	0.04	0.07	0.01	0.04	0.03	0.06	0.01	0.03
26/05/2023	0.81	0.05	0.09	0.17	0.23	0.07	0.14	0.08	0.12	0.03	0.06	0.00	0.03	0.03	0.06	0.01	0.03
27/05/2023	0.79	0.06	0.08	0.17	0.24	0.08	0.13	0.09	0.15	0.02	0.06	0.00	0.03	0.04	0.05	0.00	0.02
28/05/2023	0.80	0.05	0.10	0.12	0.16	0.10	0.13	0.10	0.16	0.02	0.05	0.00	0.02	0.04	0.06	0.01	0.04
29/05/2023	0.91	0.06	0.10	0.08	0.19	0.07	0.15	0.08	0.15	0.03	0.08	0.00	0.08	0.02	0.05	0.01	0.03
30/05/2023	0.99	0.04	0.08	0.04	0.10	0.04	0.09	0.06	0.11	0.03	0.06	0.01	0.04	0.01	0.03	0.00	0.01
31/05/2023	0.94	0.04	0.08	0.04	0.08	0.04	0.09	0.05	0.08	0.03	0.07	0.02	0.05	0.01	0.05	0.00	0.01

Total Number of Measurements Taken, A:	12637	13739	13604	13948	13448	9769	14288	15369
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	12637	13739	13604	13948	13448	9769	14288	15369
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\05-May

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00

Licence No. PWS-09-412-02

Turbidity (NTU)

Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-May-2023	0.56	0.57	0.09	0.10	0.09	0.06	0.09	0.05	0.12	0.07	0.08	0.04	0.10	<0.02	0.09	0.07	0.09	<0.02
02-May-2023	0.59	0.59	0.10	0.10	0.10	0.06	0.10	0.06	0.09	0.06	0.09	0.07	0.08	<0.02	0.09	0.07	0.09	<0.02
03-May-2023	0.59	0.61	0.09	0.10	0.10	0.07	0.10	0.07	0.10	0.06	0.09	0.04	0.09	<0.02	0.11	0.08	0.10	<0.02
04-May-2023	0.64	0.63	0.08	0.10	0.10	0.07	0.08	0.05	0.09	0.07	0.08	0.04	0.08	<0.02	0.08	<0.02	0.08	<0.02
05-May-2023	0.57	0.64	0.08	0.10	0.08	0.06	0.08	0.05	0.09	0.07	0.08	0.04	0.08	<0.02	0.08	0.08	0.08	<0.02
06-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
07-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
08-May-2023	0.62	0.69	0.08	0.10	0.10	0.08	0.09	0.05	0.09	0.07	0.08	0.03	0.08	<0.02	0.07	0.07	0.08	<0.02
09-May-2023	0.63	0.69	0.08	0.10	0.08	0.07	0.09	0.05	0.10	0.09	0.08	0.03	0.09	<0.02	0.08	0.08	0.07	<0.02
10-May-2023	0.59	0.72	0.10	0.10	0.09	0.08	0.09	0.08	0.08	0.07	0.08	0.04	0.07	<0.02	0.08	0.10	0.08	<0.02
11-May-2023	0.58	0.73	0.09	0.09	0.10	0.09	0.10	0.07	0.09	0.09	0.08	0.02	0.08	<0.02	0.10	0.11	0.08	<0.02
12-May-2023	0.64	0.77	0.09	0.09	0.11	0.12	ns	ns	0.10	0.09	0.08	0.02	0.08	<0.02	0.08	0.11	0.10	0.02
13-May-2023	ns	ns	ns	ns	ns	ns	0.10	0.07	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
14-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
15-May-2023	0.68	0.80	0.13	0.11	0.10	0.15	0.12	0.10	0.10	0.12	0.07	<0.02	0.08	<0.02	0.09	0.16	0.08	<0.02
16-May-2023	0.59	0.82	0.09	0.08	0.11	0.19	0.15	0.14	0.11	0.14	0.10	<0.02	0.09	<0.02	0.08	0.16	0.10	<0.02
17-May-2023	0.67	0.87	0.09	0.08	0.09	0.18	0.10	0.08	ns	ns	0.08	<0.02	0.08	<0.02	0.09	0.18	ns	ns
18-May-2023	0.60	0.74	0.10	0.09	0.10	0.07	0.11	0.07	0.08	0.06	0.08	0.08	0.09	0.03	0.08	0.03	0.08	<0.02
19-May-2023	0.63	0.75	0.10	0.08	0.09	0.07	0.11	0.06	0.09	0.07	0.07	0.07	0.08	0.02	0.09	0.03	0.08	<0.02
20-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	0.12	0.07	ns	ns	ns	ns	ns	ns	0.09	<0.02
21-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
22-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
23-May-2023	0.57	0.72	0.10	0.07	0.09	0.11	0.10	0.07	0.08	0.07	0.10	0.09	0.10	0.03	0.10	0.03	0.08	<0.02
24-May-2023	0.61	0.74	0.11	0.08	0.10	0.14	0.10	0.07	0.09	0.08	0.08	0.05	0.09	0.02	0.09	0.03	0.09	<0.02
25-May-2023	0.55	0.74	0.09	0.06	0.11	0.18	0.12	0.08	0.10	0.08	0.08	0.06	0.08	0.02	0.08	0.03	0.09	<0.02
26-May-2023	0.55	0.69	0.10	0.06	0.09	0.20	0.10	0.08	0.11	0.10	0.08	0.04	0.08	0.02	0.09	0.03	0.09	<0.02
27-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
28-May-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
29-May-2023	0.63	0.80	0.11	0.07	0.12	0.15	0.13	0.12	0.10	0.12	0.08	0.03	0.08	<0.02	0.09	<0.02	0.09	0.02
30-May-2023	0.66	0.98	0.09	0.04	0.13	0.06	0.13	0.06	0.10	0.05	0.08	0.05	0.07	0.04	0.07	<0.02	0.08	<0.02
31-May-2023	0.55	0.80	0.09	0.05	0.10	0.04	0.10	0.04	0.11	0.06	0.07	0.05	0.07	0.02	0.07	<0.02	0.08	<0.02
Total number of measurements taken, A:			22		22		22		22		22		22		22		22	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			22		22		22		22		22		22		22		22	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 1-Jun-2023



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

June 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/06/2023	0.98	0.04	0.08	0.03	0.08	0.05	0.09	0.05	0.11	0.02	0.12	0.01	0.08	0.01	0.05	0.00	0.02
2/06/2023	1.04	0.04	0.09	0.05	0.10	0.06	0.10	0.06	0.12	0.02	0.06	0.01	0.06	0.01	0.03	0.00	0.01
3/06/2023	1.06	0.03	0.06	0.04	0.09	0.06	0.12	0.07	0.11	0.01	0.04	0.01	0.04	0.01	0.02	0.00	0.01
4/06/2023	1.04	0.03	0.08	0.04	0.08	0.07	0.12	0.07	0.12	0.02	0.05	0.01	0.03	0.01	0.05	0.00	0.01
5/06/2023	0.97	0.04	0.06	0.05	0.09	0.09	0.14	0.08	0.15	0.02	0.06	0.02	0.04	0.01	0.03	0.00	0.01
6/06/2023	1.01	0.04	0.09	0.05	0.08	0.10	0.17	0.09	0.15	0.01	0.05	0.02	0.04	0.01	0.02	0.00	0.01
7/06/2023	1.02	0.03	0.08	0.06	0.09	0.14	0.17	0.10	0.15	0.02	0.05	0.02	0.04	0.01	0.03	0.00	0.01
8/06/2023	1.05	0.08	0.27	0.05	0.12	0.07	0.22	0.06	0.19	0.02	0.11	0.02	0.12	0.01	0.06	0.00	0.07
9/06/2023	1.13	0.08	0.19	0.06	0.11	0.05	0.11	0.05	0.10	0.02	0.06	0.03	0.06	0.01	0.05	0.00	0.02
10/06/2023	1.20	0.05	0.09	0.07	0.14	0.07	0.09	0.06	0.11	0.03	0.08	0.03	0.06	0.02	0.05	0.00	0.03
11/06/2023	1.23	0.05	0.10	0.08	0.10	0.07	0.11	0.05	0.14	0.03	0.06	0.03	0.05	0.01	0.05	0.00	0.01
12/06/2023	1.30	0.04	0.09	0.08	0.13	0.07	0.12	0.07	0.09	0.02	0.05	0.02	0.04	0.01	0.04	0.00	0.02
13/06/2023	1.29	0.04	0.09	0.08	0.14	0.07	0.12	0.06	0.14	0.02	0.05	0.02	0.04	0.01	0.17	0.00	0.03
14/06/2023	1.35	0.06	0.08	0.08	0.14	0.07	0.13	0.06	0.12	0.03	0.07	0.03	0.06	0.02	0.04	0.00	0.02
15/06/2023	1.45	0.05	0.12	0.08	0.18	0.09	0.19	0.06	0.23	0.02	0.08	0.02	0.07	0.02	0.08	0.00	0.09
16/06/2023	1.46	0.05	0.10	0.09	0.14	0.08	0.25	0.07	0.14	0.01	0.04	0.03	0.09	0.02	0.08	0.01	0.04
17/06/2023	1.57	0.05	0.10	0.07	0.12	0.07	0.13	0.08	0.11	0.01	0.03	0.03	0.08	0.02	0.06	0.01	0.03
18/06/2023	1.49	0.05	0.10	0.07	0.12	0.07	0.12	0.07	0.14	0.02	0.07	0.04	0.07	0.03	0.06	0.01	0.04
19/06/2023	1.50	0.05	0.08	0.06	0.12	0.07	0.13	0.07	0.13	0.01	0.05	0.04	0.07	0.02	0.06	0.01	0.04
20/06/2023	1.69	0.06	0.09	0.07	0.14	0.07	0.15	0.08	0.13	0.01	0.12	0.04	0.07	0.03	0.04	0.01	0.05
21/06/2023	1.69	0.05	0.11	0.07	0.13	0.08	0.12	0.08	0.15	0.02	0.05	0.04	0.09	0.04	0.09	0.03	0.07
22/06/2023	1.75	0.05	0.24	0.08	0.11	0.08	0.15	0.08	0.15	0.02	0.06	0.04	0.07	0.03	0.08	0.02	0.08
23/06/2023	1.65	0.06	0.11	0.08	0.14	0.08	0.14	0.08	0.11	0.03	0.06	0.04	0.09	0.04	0.08	0.04	0.08
24/06/2023	1.70	0.06	0.13	0.08	0.14	0.08	0.15	0.10	0.16	0.02	0.06	0.04	0.06	0.03	0.08	0.04	0.08
25/06/2023	1.77	0.06	0.09	0.08	0.14	0.08	0.16	0.08	0.15	0.02	0.07	0.04	0.08	0.03	0.08	0.03	0.08
26/06/2023	1.87	0.06	0.13	0.08	0.14	0.09	0.12	0.09	0.16	0.02	0.06	0.03	0.07	0.03	0.07	0.04	0.08
27/06/2023	1.85	0.06	0.13	0.09	0.13	0.09	0.16	0.08	0.16	0.02	0.06	0.04	0.11	0.03	0.09	0.05	0.09
28/06/2023	1.96	0.06	0.12	0.09	0.15	0.09	0.17	0.10	0.12	0.02	0.05	0.04	0.09	0.04	0.08	0.06	0.13
29/06/2023	1.94	0.06	0.10	0.08	0.15	0.09	0.17	0.09	0.17	0.04	0.09	0.05	0.08	0.05	0.09	0.08	0.13
30/06/2023	2.13	0.08	0.13	0.09	0.18	0.10	0.13	0.10	0.18	0.03	0.10	0.06	0.11	0.06	0.08	0.09	0.19

Total Number of Measurements Taken, A:	14338	15712	15578	15812	15778	15911	15332	16017
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	14338	15712	15578	15812	15778	15911	15332	16017
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\06-June

Submitted By (Print): D. Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Jun-2023	0.59	0.95	0.11	0.05	0.10	0.04	0.11	0.05	0.09	0.05	0.20	0.12	0.08	0.02	0.08	<0.02	0.08	<0.02	
02-Jun-2023	0.64	0.96	0.14	0.06	0.13	0.05	0.13	0.07	0.09	0.07	0.08	0.03	0.08	0.02	0.09	<0.02	0.08	<0.02	
03-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
04-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
05-Jun-2023	0.72	0.98	0.11	0.05	0.11	0.05	0.12	0.09	0.16	0.14	0.09	0.04	0.08	0.02	0.08	<0.02	0.10	<0.02	
06-Jun-2023	0.83	0.92	0.13	0.05	0.12	0.07	0.13	0.12	0.10	0.09	0.09	0.02	0.10	0.04	0.09	<0.02	0.08	<0.02	
07-Jun-2023	0.81	0.99	0.12	0.05	0.11	0.06	0.14	0.13	0.09	0.12	0.09	0.02	0.10	0.03	0.09	<0.02	0.09	<0.02	
08-Jun-2023	0.82	0.99	0.12	0.05	0.13	0.08	0.16	0.19	0.12	0.13	0.09	0.05	0.10	0.04	0.13	0.06	0.10	<0.02	
09-Jun-2023	0.81	1.03	0.12	0.05	0.11	0.07	0.12	0.06	0.12	0.06	0.09	0.03	0.09	0.04	0.09	<0.02	0.09	<0.02	
10-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
11-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
12-Jun-2023	0.82	1.23	0.11	0.05	0.14	0.10	0.16	0.10	0.12	0.06	0.09	0.02	0.09	0.03	0.10	<0.02	0.09	<0.02	
13-Jun-2023	0.80	1.19	0.13	0.05	0.15	0.10	0.12	0.07	0.13	0.08	0.09	0.02	0.09	0.03	0.09	<0.02	0.11	<0.02	
14-Jun-2023	0.87	1.28	0.14	0.07	0.13	0.09	0.13	0.08	0.13	0.07	0.10	0.06	0.09	0.05	0.09	<0.02	0.09	<0.02	
15-Jun-2023	0.79	1.39	0.13	0.07	0.13	0.10	0.14	0.10	0.12	0.08	0.18	0.09	0.10	0.04	0.09	<0.02	0.09	<0.02	
16-Jun-2023	0.80	1.40	0.16	0.08	0.15	0.12	0.18	0.12	0.13	0.09	0.11	0.02	0.10	0.04	0.11	0.02	0.10	<0.02	
17-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
18-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
19-Jun-2023	0.98	1.50	0.15	0.06	0.13	0.07	0.14	0.07	0.15	0.09	0.10	0.02	0.10	0.04	0.10	<0.02	0.11	<0.02	
20-Jun-2023	1.04	1.58	0.14	0.06	0.12	0.07	0.14	0.08	0.12	0.08	0.09	<0.02	0.12	0.05	0.10	0.02	0.10	<0.02	
21-Jun-2023	1.06	1.60	0.15	0.07	0.14	0.08	0.16	0.09	0.13	0.09	0.12	0.03	0.13	0.06	0.12	0.04	0.12	0.02	
22-Jun-2023	1.06	1.69	0.16	0.08	0.14	0.08	0.14	0.09	0.12	0.09	0.10	0.02	0.12	0.05	0.12	0.03	0.11	0.02	
23-Jun-2023	1.01	1.58	0.14	0.06	0.16	0.10	0.18	0.11	0.13	0.09	0.10	0.04	0.11	0.05	0.12	0.03	0.12	0.03	
24-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
25-Jun-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
26-Jun-2023	1.03	1.82	0.17	0.09	0.17	0.09	0.16	0.09	0.14	0.09	0.12	0.03	0.13	0.05	0.12	0.02	0.11	0.03	
27-Jun-2023	1.04	1.74	0.17	0.08	0.16	0.11	0.19	0.11	0.15	0.11	0.12	0.03	0.12	0.08	0.14	0.04	0.11	0.05	
28-Jun-2023	1.13	1.75	0.15	0.08	0.18	0.11	0.19	0.12	0.16	0.11	0.11	0.03	0.12	0.05	0.12	0.03	0.13	0.06	
29-Jun-2023	1.14	1.89	0.15	0.09	0.19	0.13	0.15	0.10	0.16	0.11	0.10	0.03	0.14	0.05	0.12	0.04	0.16	0.11	
30-Jun-2023	1.16	2.00	0.17	0.09	0.15	0.11	0.16	0.11	0.20	0.13	0.15	0.07	0.13	0.08	0.15	0.06	0.14	0.09	
Total number of measurements taken, A:			22		22		22		22		22		22		22		22		
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:			22		22		22		22		22		22		22		22		
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

The raw water analyzer is cleaned daily during warm water months because it is susceptible to frequent fouling

Report Date: 4-Jul-2023



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02 A

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

July 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/07/2023	2.14	0.09	0.17	0.12	0.16	0.13	0.22	0.12	0.20	0.05	0.09	0.07	0.14	0.08	0.15	0.11	0.17
2/07/2023	2.19	0.09	0.18	0.12	0.20	0.12	0.23	0.14	0.17	0.05	0.11	0.08	0.15	0.09	0.16	0.14	0.22
3/07/2023	2.27	0.09	0.19	0.11	0.25	0.13	0.23	0.14	0.23	0.07	0.11	0.09	0.12	0.09	0.16	0.10	0.24
4/07/2023	2.46	0.14	0.17	0.14	0.23	0.14	0.25	0.16	0.23	0.10	0.16	0.10	0.16	0.10	0.13	0.09	0.18
5/07/2023	2.58	0.13	0.24	0.15	0.24	0.16	0.21	0.16	0.25	0.12	0.18	0.10	0.17	0.10	0.19	0.09	0.17
6/07/2023	2.63	0.15	0.29	0.18	0.30	0.16	0.28	0.16	0.35	0.12	0.25	0.09	0.27	0.09	0.23	0.08	0.19
7/07/2023	2.82	0.12	0.18	0.12	0.25	0.12	0.22	0.14	0.22	0.10	0.18	0.07	0.13	0.07	0.13	0.06	0.20
8/07/2023	2.84	0.10	0.21	0.11	0.19	0.11	0.18	0.13	0.18	0.09	0.14	0.05	0.08	0.05	0.09	0.04	0.10
9/07/2023	2.77	0.12	0.17	0.12	0.21	0.11	0.18	0.11	0.25	0.09	0.15	0.07	0.12	0.06	0.08	0.05	0.10
10/07/2023	2.98	0.12	0.21	0.13	0.17	0.13	0.16	0.13	0.21	0.10	0.16	0.07	0.13	0.07	0.12	0.05	0.12
11/07/2023	3.06	0.11	0.20	0.13	0.22	0.10	0.23	0.12	0.20	0.10	0.16	0.07	0.12	0.06	0.14	0.06	0.09
12/07/2023	3.07	0.08	0.15	0.10	0.18	0.09	0.21	0.10	0.16	0.09	0.13	0.06	0.08	0.06	0.12	0.05	0.11
13/07/2023	3.03	0.09	0.13	0.09	0.17	0.08	0.17	0.09	0.20	0.08	0.16	0.08	0.14	0.05	0.08	0.06	0.12
14/07/2023	3.03	0.08	0.15	0.08	0.12	0.08	0.12	0.09	0.15	0.09	0.15	0.07	0.15	0.08	0.18	0.05	0.13
15/07/2023	3.08	0.08	0.15	0.10	0.16	0.08	0.22	0.08	0.18	0.10	0.15	0.08	0.16	0.08	0.15	0.06	0.12
16/07/2023	3.22	0.08	0.17	0.09	0.16	0.08	0.16	0.10	0.13	0.09	0.13	0.08	0.15	0.07	0.15	0.07	0.15
17/07/2023	3.04	0.08	0.12	0.09	0.17	0.08	0.19	0.09	0.17	0.11	0.17	0.09	0.13	0.08	0.16	0.07	0.17
18/07/2023	2.84	0.13	0.17	0.10	0.17	0.08	0.14	0.10	0.20	0.10	0.19	0.09	0.17	0.09	0.13	0.07	0.14
19/07/2023	2.94	0.13	0.21	0.11	0.14	0.11	0.18	0.10	0.18	0.10	0.17	0.09	0.17	0.09	0.16	0.07	0.14
20/07/2023	2.91	0.09	0.25	0.09	0.18	0.08	0.19	0.10	0.18	0.08	0.18	0.07	0.17	0.07	0.29	0.05	0.13
21/07/2023	3.16	0.11	0.17	0.08	0.15	0.08	0.14	0.09	0.18	0.09	0.16	0.08	0.12	0.07	0.13	0.02	0.09
22/07/2023	3.11	0.12	0.16	0.08	0.14	0.07	0.15	0.09	0.15	0.08	0.15	0.07	0.13	0.06	0.11	0.02	0.07
23/07/2023	2.91	0.11	0.17	0.07	0.14	0.07	0.11	0.09	0.15	0.09	0.15	0.07	0.13	0.08	0.13	0.02	0.08
24/07/2023	2.77	0.11	0.18	0.09	0.12	0.08	0.15	0.08	0.15	0.08	0.12	0.07	0.14	0.07	0.14	0.01	0.04
25/07/2023	2.89	0.09	0.18	0.08	0.20	0.07	0.15	0.09	0.18	0.07	0.17	0.06	0.17	0.07	0.16	0.05	0.16
26/07/2023	2.76	0.09	0.13	0.07	0.14	0.07	0.14	0.09	0.29	0.07	0.13	0.06	0.10	0.05	0.12	0.04	0.25
27/07/2023	2.72	0.11	0.17	0.07	0.13	0.08	0.15	0.09	0.17	0.06	0.16	0.06	0.12	0.06	0.10	0.04	0.12
28/07/2023	2.78	0.11	0.17	0.07	0.16	0.09	0.16	0.09	0.18	0.07	0.13	0.05	0.13	0.05	0.10	0.03	0.08
29/07/2023	2.57	0.14	0.25	0.12	0.16	0.13	0.19	0.12	0.22	0.09	0.16	0.07	0.27	0.07	0.25	0.05	0.82
30/07/2023	2.61	0.13	0.21	0.11	0.20	0.11	0.26	0.13	0.19	0.07	0.17	0.06	0.14	0.06	0.14	0.05	0.16
31/07/2023	2.69	0.12	0.19	0.09	0.16	0.10	0.23	0.12	0.20	0.06	0.13	0.04	0.30	0.04	0.10	0.03	0.08

Total Number of Measurements Taken, A:	14573	15819	15518	16424	16760	16351	16139	16952
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	14573	15819	15518	16421	16760	16351	16139	16951
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	99.982%	100.000%	100.000%	100.000%	99.994%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\07-July

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00 Licence No. PWS-09-412-02 A	Turbidity (NTU)																			
	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8			
Date	Grab	Analysed	Grab	Analysed	Grab	Analysed	Grab	Analysed	Grab	Analysed	Grab	Analysed	Grab	Analysed	Grab	Analysed	Grab	Analysed		
01-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
02-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
03-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
04-Jul-2023	1.30	2.20	0.22	0.14	0.21	0.19	0.22	0.16	0.24	0.19	0.17	0.09	0.18	0.11	0.18	0.10	0.16	0.07	0.10	
05-Jul-2023	1.43	2.65	0.25	0.19	0.21	0.17	0.23	0.17	0.18	0.17	0.14	0.13	0.22	0.16	0.17	0.10	0.17	0.10	0.10	
06-Jul-2023	1.62	2.65	0.27	0.23	0.25	0.19	0.29	0.19	0.24	0.19	0.18	0.14	0.18	0.10	0.19	0.11	0.19	0.10	0.10	
07-Jul-2023	1.54	na	0.19	0.15	0.24	0.18	0.29	0.22	0.20	0.16	0.15	0.12	0.15	0.09	0.14	0.05	0.16	0.08	0.08	
08-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
09-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
10-Jul-2023	1.89	2.87	0.23	0.17	0.20	0.14	0.22	0.14	0.20	0.15	0.13	0.12	0.18	0.11	0.17	0.07	0.15	0.06	0.06	
11-Jul-2023	1.78	2.98	0.17	0.14	0.19	0.15	0.23	0.16	0.16	0.13	0.13	0.12	0.14	0.08	0.16	0.07	0.14	0.06	0.06	
12-Jul-2023	1.87	3.02	0.17	0.10	0.25	0.18	0.24	0.14	0.18	0.12	0.14	0.10	0.15	0.08	0.15	0.06	0.19	0.07	0.07	
13-Jul-2023	1.87	3.19	0.18	0.11	0.17	0.10	0.18	0.10	0.22	0.13	0.16	0.12	0.16	0.08	0.16	0.06	0.15	0.04	0.04	
14-Jul-2023	1.79	2.99	0.19	0.12	0.16	0.10	0.17	0.09	0.15	0.09	0.22	0.14	0.23	0.14	0.17	0.08	0.15	0.06	0.06	
15-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
16-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
17-Jul-2023	1.86	2.97	0.16	0.11	0.24	0.15	0.16	0.08	0.19	0.12	0.18	0.13	0.18	0.10	0.17	0.07	0.22	0.12	0.12	
18-Jul-2023	2.08	2.96	0.18	0.12	0.17	0.11	0.18	0.10	0.15	0.09	0.20	0.13	0.22	0.14	0.20	0.08	0.18	0.07	0.07	
19-Jul-2023	1.97	2.89	0.24	0.20	0.18	0.12	0.20	0.12	0.16	0.11	0.16	0.11	0.16	0.10	0.22	0.11	0.19	0.07	0.07	
20-Jul-2023	2.03	2.96	0.15	0.14	0.19	0.13	0.21	0.13	0.16	0.12	0.16	0.12	0.17	0.10	0.21	0.12	0.19	0.07	0.07	
21-Jul-2023	2.17	3.19	0.15	0.14	0.15	0.10	0.16	0.09	0.18	0.13	0.17	0.12	0.18	0.11	0.17	0.07	0.19	0.03	0.03	
22-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
23-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
24-Jul-2023	2.09	2.65	0.16	0.14	0.15	0.10	0.16	0.10	0.13	0.09	0.14	0.10	0.15	0.09	0.19	0.09	0.16	0.02	0.02	
25-Jul-2023	2.25	2.69	0.13	0.13	0.17	0.13	0.22	0.13	0.14	0.12	0.17	0.14	0.18	0.13	0.18	0.10	0.23	0.09	0.09	
26-Jul-2023	2.56	2.63	0.13	0.11	0.12	0.07	0.13	0.07	0.16	0.11	0.15	0.08	0.16	0.08	0.15	0.06	0.19	0.04	0.04	
27-Jul-2023	2.13	2.59	0.14	0.13	0.13	0.08	0.14	0.08	0.14	0.08	0.19	0.12	0.19	0.11	0.17	0.07	0.16	0.04	0.04	
28-Jul-2023	2.11	2.54	0.16	0.14	0.14	0.08	0.17	0.09	0.12	0.09	0.14	0.08	0.21	0.12	0.17	0.07	0.16	0.04	0.04	
29-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
30-Jul-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
31-Jul-2023	1.82	2.87	0.15	0.14	0.19	0.12	0.15	0.11	0.16	0.13	0.13	0.08	0.13	0.06	0.13	0.04	0.16	0.04	0.04	
Total number of measurements taken, A:			20		20		20		20		20		20		20		20		20	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			20		20		20		20		20		20		20		20		20	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%		100%	

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: 3-Aug-2023



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02 A

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

August 2023 Turbidity (NTU)																	
Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/08/2023	2.49	0.13	0.20	0.09	0.20	0.09	0.19	0.11	0.21	0.06	0.13	0.05	0.09	0.04	0.09	0.03	0.10
2/08/2023	2.54	0.11	0.20	0.08	0.14	0.09	0.22	0.10	0.18	0.05	0.11	0.04	0.08	0.04	0.10	0.02	0.08
3/08/2023	2.46	0.09	0.17	0.08	0.12	0.08	0.31	0.09	0.23	0.04	0.08	0.03	0.08	0.04	0.10	0.02	0.05
4/08/2023	2.23	0.10	0.19	0.08	0.16	0.09	0.19	0.11	0.15	0.04	0.09	0.03	0.09	0.03	0.08	0.03	0.23
5/08/2023	2.26	0.10	0.20	0.08	0.15	0.09	0.18	0.11	0.17	0.06	0.10	0.03	0.08	0.04	0.09	0.03	0.07
6/08/2023	2.29	0.11	0.20	0.10	0.15	0.11	0.19	0.14	0.20	0.08	0.12	0.05	0.09	0.05	0.14	0.06	0.13
7/08/2023	2.47	0.16	0.21	0.13	0.23	0.12	0.58	0.16	0.25	0.09	0.15	0.05	0.16	0.06	0.16	0.07	0.13
8/08/2023	2.87	0.15	0.23	0.14	0.22	0.13	0.26	0.16	0.24	0.09	0.16	0.05	0.10	0.07	0.19	0.08	0.13
9/08/2023	2.57	0.14	0.34	0.19	0.21	0.15	0.29	0.12	0.21	0.12	0.19	0.06	0.13	0.08	0.17	0.09	0.15
10/08/2023	2.32	0.14	0.18	0.18	0.25	0.11	0.20	0.13	0.15	0.12	0.18	0.06	0.12	0.08	0.14	0.13	0.20
11/08/2023	2.37	0.18	0.22	0.15	0.24	0.11	0.20	0.11	0.18	0.12	0.17	0.05	0.08	0.07	0.12	0.07	0.23
12/08/2023	2.42	0.16	0.24	0.13	0.23	0.10	0.15	0.10	0.17	0.09	0.16	0.06	0.11	0.07	0.11	0.04	0.09
13/08/2023	2.34	0.17	0.26	0.17	0.26	0.13	0.17	0.11	0.22	0.08	0.16	0.05	0.10	0.06	0.11	0.04	0.06
14/08/2023	2.63	0.22	0.27	0.20	0.28	0.19	0.32	0.18	0.21	0.10	0.23	0.10	0.25	0.09	0.18	0.08	0.15
15/08/2023	2.89	0.18	0.25	0.17	0.26	0.13	0.19	0.13	0.24	0.13	0.39	0.14	0.19	0.10	0.18	0.08	0.16
16/08/2023	2.92	0.15	0.24	0.15	0.22	0.11	0.18	0.10	0.17	0.10	0.24	0.13	0.23	0.10	0.17	0.08	0.12
17/08/2023	2.74	0.13	0.19	0.13	0.16	0.09	0.12	0.08	0.14	0.08	0.15	0.09	0.16	0.08	0.14	0.05	0.12
18/08/2023	2.68	0.12	0.18	0.13	0.18	0.08	0.14	0.08	0.12	0.08	0.13	0.09	0.15	0.07	0.15	0.06	0.12
19/08/2023	2.91	0.14	0.16	0.12	0.18	0.07	0.14	0.09	0.14	0.07	0.10	0.08	0.13	0.07	0.15	0.06	0.25
20/08/2023	2.74	0.12	0.19	0.12	0.19	0.07	0.12	0.08	0.14	0.10	0.15	0.09	0.13	0.07	0.13	0.06	1.34
21/08/2023	3.57	0.13	0.19	0.11	0.16	0.06	0.09	0.07	0.12	0.08	0.17	0.07	0.14	0.07	0.12	0.04	0.09
22/08/2023	4.74	0.13	0.18	0.10	0.13	0.07	0.12	0.07	0.12	0.06	0.11	0.05	0.11	0.05	0.10	0.02	0.09
23/08/2023	3.65	0.13	0.17	0.11	0.15	0.07	0.12	0.07	0.11	0.06	0.11	0.05	0.11	0.05	0.12	0.03	0.06
24/08/2023	3.62	0.13	0.19	0.09	0.17	0.06	0.16	0.08	0.14	0.14	0.09	0.05	0.15	0.04	0.13	0.02	0.07
25/08/2023	2.96	0.14	0.19	0.11	0.16	0.07	0.13	0.08	0.14	0.08	0.11	0.06	0.12	0.05	0.11	0.02	0.07
26/08/2023	2.61	0.12	0.18	0.10	0.15	0.07	0.09	0.07	0.13	0.05	0.11	0.05	0.10	0.05	0.09	0.01	0.07
27/08/2023	2.53	0.11	0.18	0.11	0.13	0.07	0.13	0.07	0.14	0.04	0.08	0.04	0.08	0.05	0.10	0.01	0.04
28/08/2023	2.67	0.11	0.16	0.08	0.16	0.07	0.13	0.08	0.13	0.08	0.19	0.04	0.09	0.06	0.13	0.03	0.08
29/08/2023	2.84	0.12	0.15	0.08	0.13	0.08	0.14	0.08	0.13	0.15	0.17	0.05	0.10	0.08	0.15	0.04	0.12
30/08/2023	3.33	0.11	0.16	0.08	0.13	0.08	0.14	0.07	0.12	0.14	0.22	0.06	0.09	0.10	0.12	0.05	0.11
31/08/2023	3.75	0.11	0.17	0.08	0.13	0.08	0.11	0.08	0.14	0.14	0.21	0.06	0.11	0.13	0.17	0.05	0.11

Total Number of Measurements Taken, A:	14602	15801	15645	16356	16742	16643	16567	17184
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	14601	15801	15637	16356	16741	16643	16567	17183
Compliance with Turbidity Standard, C = B/A X 100%:	99.993%	100.000%	99.949%	100.000%	99.994%	100.000%	100.000%	99.994%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\08-August

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02 A																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Aug-2023	1.94	2.48	0.17	0.14	0.15	0.10	0.16	0.10	0.18	0.14	0.15	0.10	0.13	0.06	0.14	0.04	0.12	<0.02	
02-Aug-2023	1.83	2.55	0.17	0.14	0.16	0.10	0.17	0.10	0.14	0.10	0.16	0.07	0.14	0.07	0.14	0.04	0.13	<0.02	
03-Aug-2023	1.63	2.29	0.21	0.17	0.15	0.10	0.16	0.10	0.13	0.11	0.11	0.06	0.11	0.04	0.14	0.05	0.12	0.02	
04-Aug-2023	1.58	2.04	0.13	0.12	0.17	0.13	0.22	0.14	0.14	0.13	0.11	0.09	0.11	0.05	0.12	0.03	0.13	0.03	
05-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
06-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
07-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
08-Aug-2023	1.58	2.57	0.19	0.19	0.16	0.15	0.19	0.14	0.15	0.18	0.13	0.10	0.15	0.08	0.14	0.07	0.12	0.07	
09-Aug-2023	1.42	2.99	0.22	0.22	0.18	0.19	0.20	0.17	0.17	0.14	0.12	0.12	0.18	0.10	0.15	0.08	0.14	0.10	
10-Aug-2023	1.39	1.95	0.14	0.17	0.17	0.22	0.23	0.19	0.15	0.13	0.13	0.14	0.13	0.07	0.14	0.07	0.16	0.14	
11-Aug-2023	1.68	2.59	0.15	0.18	0.13	0.18	0.14	0.11	0.15	0.12	0.11	0.13	0.13	0.06	0.13	0.06	0.19	0.07	
12-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
13-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
14-Aug-2023	1.59	2.58	0.24	0.27	0.27	0.27	0.29	0.24	0.22	0.20	0.14	0.12	0.14	0.08	0.15	0.07	0.17	0.07	
15-Aug-2023	1.90	2.82	0.19	0.22	0.18	0.20	0.19	0.16	0.18	0.16	0.17	0.16	0.17	0.17	0.16	0.12	0.22	0.14	
16-Aug-2023	1.74	2.91	0.17	0.21	0.18	0.20	0.17	0.16	0.16	0.15	0.17	0.17	0.18	0.18	0.18	0.14	0.17	0.10	
17-Aug-2023	1.75	2.81	0.11	0.15	0.12	0.14	0.13	0.09	0.11	0.09	0.15	0.12	0.16	0.13	0.15	0.08	0.13	0.04	
18-Aug-2023	1.90	2.51	0.11	0.15	0.13	0.15	0.15	0.10	0.11	0.09	0.11	0.10	0.13	0.10	0.21	0.12	0.16	0.06	
19-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
20-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
21-Aug-2023	1.77	3.99	0.12	0.17	0.11	0.14	0.12	0.06	0.09	0.08	0.12	0.12	0.12	0.10	0.13	0.07	0.12	0.05	
22-Aug-2023	1.56	4.81	0.10	0.15	0.11	0.12	0.12	0.08	0.10	0.08	0.15	0.09	0.16	0.09	0.15	0.06	0.12	0.02	
23-Aug-2023	1.67	3.29	0.10	0.15	0.12	0.13	0.14	0.09	0.10	0.08	0.11	0.07	0.12	0.06	0.16	0.07	0.13	0.03	
24-Aug-2023	1.69	3.98	0.10	0.15	0.13	0.13	0.15	0.09	0.10	0.08	0.11	0.07	0.12	0.05	0.12	0.03	0.13	0.03	
25-Aug-2023	1.83	2.94	0.11	0.17	0.11	0.12	0.10	0.08	0.12	0.12	0.10	0.10	0.11	0.07	0.12	0.05	0.10	0.03	
26-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
27-Aug-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
28-Aug-2023	1.61	2.64	0.10	0.15	0.13	0.14	0.14	0.10	0.11	0.09	0.10	0.07	0.10	0.04	0.11	0.04	0.10	<0.02	
29-Aug-2023	1.82	2.84	0.14	0.14	0.11	0.08	0.12	0.09	0.13	0.10	0.11	0.15	0.12	0.06	0.14	0.07	0.15	0.05	
30-Aug-2023	1.79	3.16	0.13	0.14	0.11	0.09	0.11	0.09	0.15	0.11	0.12	0.18	0.13	0.07	0.13	0.09	0.12	0.03	
31-Aug-2023	1.95	na	0.16	0.14	0.12	0.10	0.13	0.09	0.11	0.08	0.17	0.18	0.16	0.08	0.16	0.13	0.14	0.05	
Total number of measurements taken, A:			22		22		22		22		22		22		22		22		
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:			22		22		22		22		22		22		22		22		
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

The raw water analyzer is cleaned daily during warm water months because it is susceptible to frequent fouling

Report Date: 5-Sep-2023



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02 A

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

September 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/09/2023	3.14	0.11	0.16	0.10	0.12	0.08	0.14	0.08	0.14	0.14	0.26	0.06	0.13	0.13	0.53	0.04	0.08
2/09/2023	2.97	0.10	0.13	0.09	0.14	0.07	0.14	0.08	0.11	0.13	0.18	0.04	0.09	0.12	0.21	0.05	0.11
3/09/2023	3.09	0.11	0.16	0.09	0.15	0.07	0.14	0.08	0.15	0.15	0.18	0.04	0.06	0.14	0.24	0.04	0.10
4/09/2023	3.71	0.10	0.16	0.10	0.16	0.16	0.10	0.08	0.16	0.15	0.21	0.05	0.09	0.20	0.29	0.05	0.12
5/09/2023	4.76	0.09	0.17	0.12	0.14	OL	OL	0.07	0.15	0.10	0.20	0.05	0.10	0.09	0.28	0.06	0.08
6/09/2023	4.80	0.10	0.16	0.12	0.19	OL	OL	0.07	0.11	0.09	0.54	0.05	0.10	0.08	0.19	0.08	0.56
7/09/2023	5.00	0.09	0.13	0.13	0.20	OL	OL	0.09	0.15	0.09	0.14	0.05	0.12	0.08	0.16	0.07	0.13
8/09/2023	3.87	0.12	0.18	0.15	0.23	OL	OL	0.09	0.17	0.09	0.15	0.06	0.12	0.09	0.17	0.09	0.16
9/09/2023	2.56	0.10	0.17	0.17	0.25	OL	OL	0.10	0.17	0.10	0.14	0.06	0.12	0.08	0.15	0.09	1.05
10/09/2023	2.52	0.09	0.17	0.18	0.25	OL	OL	0.10	0.17	0.09	0.14	0.05	0.08	0.07	0.12	0.08	0.14
11/09/2023	2.55	0.10	0.15	0.16	0.23	OL	OL	0.08	0.17	0.09	0.13	0.05	0.18	0.06	0.14	0.06	2.20
12/09/2023	2.66	0.12	0.17	0.13	0.18	OL	OL	0.06	0.12	0.09	0.14	0.04	0.08	0.04	0.11	0.03	0.09
13/09/2023	2.97	0.12	0.17	0.13	0.16	OL	OL	0.06	0.14	0.08	0.14	0.03	0.07	0.04	0.08	0.03	0.07
14/09/2023	3.10	0.09	0.23	0.13	0.34	OL	OL	0.08	0.26	0.08	0.19	0.03	0.12	0.03	0.15	0.03	0.14
15/09/2023	3.51	0.17	0.23	0.12	0.19	OL	OL	0.13	0.19	0.11	0.21	0.04	0.07	0.04	0.08	0.03	0.09
16/09/2023	3.77	0.19	0.25	0.13	0.20	OL	OL	0.15	0.23	0.12	0.17	0.05	0.11	0.06	0.13	0.06	0.12
17/09/2023	3.22	0.18	0.27	0.15	0.27	OL	OL	0.16	0.28	0.15	0.22	0.07	0.15	0.07	0.16	0.08	0.13
18/09/2023	2.16	0.14	0.29	0.14	0.23	OL	OL	0.15	0.24	0.13	0.27	0.08	0.11	0.07	0.15	0.09	0.16
19/09/2023	2.28	0.18	0.27	0.15	0.21	0.08	0.33	0.17	0.26	0.11	0.21	0.09	0.14	0.08	0.11	0.08	0.18
20/09/2023	2.06	0.14	0.24	0.16	0.32	0.12	0.26	0.13	0.24	0.07	0.12	0.06	0.13	0.01	0.08	0.08	0.14
21/09/2023	1.65	0.16	0.26	0.15	0.27	0.15	0.21	0.12	0.25	0.06	0.10	0.05	0.11	OL	OL	0.06	0.13
22/09/2023	1.97	0.12	0.22	0.12	0.21	0.12	0.26	0.12	0.24	0.07	0.10	0.05	0.12	OL	OL	0.08	0.15
23/09/2023	2.06	0.16	0.22	0.12	0.21	0.11	0.21	0.11	0.22	0.06	0.09	0.05	0.09	OL	OL	0.07	0.12
24/09/2023	1.80	0.10	0.19	0.10	0.17	0.07	0.14	0.09	0.16	0.07	0.10	0.06	0.09	OL	OL	0.08	0.15
25/09/2023	1.90	0.09	0.16	0.09	0.16	0.06	0.12	0.08	0.14	0.06	0.11	0.06	0.09	OL	OL	0.09	0.14
26/09/2023	1.92	0.09	0.14	0.10	0.13	0.06	0.14	0.07	0.15	0.06	0.10	0.05	0.09	OL	OL	0.08	0.11
27/09/2023	2.11	0.09	0.16	0.08	0.16	0.06	0.10	0.07	0.15	0.06	0.10	0.05	0.09	OL	OL	0.11	0.14
28/09/2023	1.62	0.07	0.13	0.06	0.11	0.03	0.13	0.06	0.15	0.05	0.09	0.05	0.08	OL	OL	0.07	0.17
29/09/2023	1.74	0.06	0.08	0.06	0.11	0.02	0.06	0.04	0.08	0.04	0.06	0.03	0.05	OL	OL	0.08	0.12
30/09/2023	1.97	0.09	0.13	0.08	0.14	0.05	0.22	0.06	0.13	0.05	0.06	0.04	0.06	OL	OL	0.10	0.14

Total Number of Measurements Taken, A:	13657	15156	7317	15680	15919	15631	9613	16103
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	13657	15142	7271	15680	15918	15631	9612	16101
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	99.908%	99.371%	100.000%	99.994%	100.000%	99.990%	99.988%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\09-September

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02 A																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Sep-2023	1.75	3.03	0.13	0.12	0.11	0.11	0.12	0.09	0.11	0.09	0.15	0.19	0.16	0.08	0.16	0.14	0.14	0.05	
02-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
03-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
04-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
05-Sep-2023	1.91	4.84	0.10	0.11	0.11	0.12	o/l	o/l	0.10	0.08	0.12	0.11	0.14	0.07	0.13	0.08	0.11	0.05	
06-Sep-2023	1.77	4.64	0.10	0.12	0.13	0.16	o/l	o/l	0.10	0.08	0.09	0.10	0.17	0.09	0.18	0.12	0.14	0.08	
07-Sep-2023	1.82	6.01	0.11	0.12	0.16	0.20	o/l	o/l	0.11	0.10	0.10	0.09	0.11	0.05	0.17	0.10	0.13	0.07	
08-Sep-2023	1.71	7.89	0.11	0.12	0.15	0.20	o/l	o/l	0.13	0.12	0.11	0.12	0.13	0.08	0.14	0.08	0.18	0.12	
09-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
10-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
11-Sep-2023	1.68	2.57	0.11	0.13	0.08	0.21	o/l	o/l	0.11	0.08	0.10	0.13	0.10	0.06	0.10	0.07	0.09	0.08	
12-Sep-2023	1.80	2.69	0.11	0.14	0.11	0.15	o/l	o/l	0.09	0.05	0.10	0.12	0.13	0.06	ns	ns	0.12	0.03	
13-Sep-2023	1.60	2.82	0.12	0.16	0.10	0.16	o/l	o/l	0.09	0.07	0.12	0.14	0.10	0.09	0.11	0.03	0.11	0.02	
14-Sep-2023	1.90	3.26	0.10	0.14	0.12	0.18	o/l	o/l	0.10	0.09	0.10	0.10	0.09	0.05	0.11	0.04	0.10	0.03	
15-Sep-2023	1.69	3.40	0.15	0.19	0.18	0.15	o/l	o/l	0.16	0.15	0.10	0.13	0.09	0.04	0.10	0.02	0.11	0.04	
16-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
17-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
18-Sep-2023	1.56	2.06	0.31	0.27	0.22	0.15	o/l	o/l	0.25	0.22	0.24	0.17	0.15	0.09	0.16	0.07	0.14	0.08	
19-Sep-2023	1.43	2.27	0.27	0.21	0.23	0.16	o/l	o/l	0.20	0.14	0.21	0.16	0.16	0.10	0.16	0.08	0.15	0.08	
20-Sep-2023	1.50	1.97	0.20	0.15	0.23	0.16	0.22	0.13	0.14	0.10	0.12	0.09	0.14	0.09	o/l	o/l	0.12	0.07	
21-Sep-2023	1.59	1.90	0.24	0.18	0.27	0.23	0.26	0.17	0.15	0.11	0.10	0.07	0.12	0.08	o/l	o/l	0.12	0.07	
22-Sep-2023	1.46	1.79	0.18	0.14	0.23	0.16	0.21	0.12	0.16	0.12	0.10	0.08	0.11	0.08	o/l	o/l	0.13	0.09	
23-Sep-2023	ns	ns	ns	ns	ns	ns	0.19	0.11	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
24-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
25-Sep-2023	1.50	1.86	0.18	0.14	0.15	0.10	0.15	0.06	0.18	0.11	0.10	0.09	0.11	0.07	o/l	o/l	0.10	0.08	
26-Sep-2023	1.33	1.81	0.21	0.13	0.17	0.10	0.15	0.06	0.15	0.09	0.13	0.10	0.11	0.07	o/l	o/l	0.11	0.09	
27-Sep-2023	1.40	nr	0.13	0.10	0.16	0.11	0.15	0.06	0.11	0.07	0.09	0.08	0.14	0.08	o/l	o/l	0.12	0.11	
28-Sep-2023	1.23	1.81	0.14	0.09	0.13	0.08	0.17	0.08	0.13	0.08	0.11	0.08	0.12	0.07	o/l	o/l	0.11	0.08	
29-Sep-2023	0.78	1.55	0.11	0.08	0.11	0.06	0.14	0.05	0.11	0.07	0.08	0.05	0.08	0.05	o/l	o/l	0.09	0.08	
30-Sep-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
Total number of measurements taken, A:			20		20		10		20		20		20		11		20		
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:			19		20		10		20		20		20		11		20		
Compliance with Turbidity Standard, C= B/A X 100%:			95%		100%		100%		100%		100%		100%		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

The raw water analyzer is cleaned daily during warm water months because it is susceptible to frequent fouling

Report Date: 5-Oct-2023

Filter 3 was offline for scheduled maintenance from September 4 at 20:45 to September 19 at 16:26

Filter 7 was taken offline for scheduled maintenance on September 20 at 01:51



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02 A**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

October 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/10/2023	1.71	0.09	0.14	0.09	0.25	0.09	0.64	0.07	0.16	0.04	0.09	0.04	0.07	OL	OL	0.11	0.16
2/10/2023	1.75	0.07	0.13	0.07	0.13	0.08	0.15	0.06	0.12	0.04	0.07	0.05	0.07	OL	OL	0.13	0.18
3/10/2023	1.92	0.07	0.13	0.07	0.12	0.08	0.15	0.06	0.12	0.04	0.06	0.05	0.08	OL	OL	0.15	0.18
4/10/2023	1.77	0.07	0.13	0.08	0.10	0.08	0.11	0.04	0.11	0.04	0.06	0.04	0.08	OL	OL	0.16	0.21
5/10/2023	1.31	0.06	0.10	0.06	0.11	0.07	0.13	0.04	0.09	0.05	0.13	0.05	0.08	OL	OL	0.08	0.25
6/10/2023	2.48	0.06	0.11	0.05	0.08	0.06	0.10	0.04	0.08	0.06	0.10	0.06	0.08	OL	OL	0.05	0.08
7/10/2023	1.59	0.08	0.11	0.05	0.14	0.06	0.11	0.04	0.08	0.07	0.10	0.06	0.11	OL	OL	0.05	0.07
8/10/2023	2.36	0.06	0.09	0.05	0.09	0.05	0.09	0.03	0.08	0.08	0.13	0.07	0.09	OL	OL	0.04	0.07
9/10/2023	3.86	0.06	0.09	0.04	0.06	0.04	0.08	0.03	0.21	0.07	0.11	0.08	0.10	OL	OL	0.05	0.07
10/10/2023	2.78	0.06	0.10	0.05	0.09	0.05	0.07	0.03	0.06	0.08	0.11	0.09	0.11	OL	OL	0.05	0.08
11/10/2023	1.28	0.06	0.10	0.04	0.09	0.05	0.09	0.03	0.06	0.09	0.17	0.08	0.11	OL	OL	0.05	0.09
12/10/2023	1.26	0.07	0.09	0.05	0.09	0.05	0.09	0.03	0.12	0.08	0.11	0.08	0.12	OL	OL	0.05	0.07
13/10/2023	1.36	0.06	0.10	0.05	0.08	0.05	0.09	0.03	0.06	0.08	0.10	0.09	0.13	OL	OL	0.05	0.08
14/10/2023	1.35	0.06	0.10	0.04	0.08	0.04	0.08	0.02	0.07	0.09	0.12	0.11	0.12	OL	OL	0.05	0.08
15/10/2023	1.58	0.06	0.10	0.04	0.09	0.04	0.07	0.02	0.05	0.08	0.12	0.11	0.16	OL	OL	0.05	0.07
16/10/2023	1.52	0.07	0.10	0.04	0.08	0.04	0.06	0.03	0.05	0.08	0.14	0.10	0.13	OL	OL	0.05	0.08
17/10/2023	1.45	0.07	0.10	0.06	0.09	0.05	0.09	0.02	0.05	0.09	0.21	0.12	0.15	OL	OL	0.05	0.08
18/10/2023	1.44	0.06	0.09	0.05	0.13	0.04	0.08	0.03	0.08	0.09	0.29	0.12	0.16	OL	OL	0.05	0.07
19/10/2023	1.43	0.07	0.26	0.05	0.14	0.05	0.19	0.04	0.23	0.08	0.13	0.13	0.17	OL	OL	0.05	0.08
20/10/2023	1.21	0.09	0.22	0.07	0.23	0.06	0.25	0.03	0.11	0.09	0.14	0.12	0.18	OL	OL	0.05	0.08
21/10/2023	1.21	0.08	0.11	0.06	0.10	0.04	0.08	0.03	0.08	0.10	0.13	0.09	0.18	OL	OL	0.06	0.10
22/10/2023	1.13	0.07	0.10	0.06	0.11	0.04	0.09	0.03	0.26	0.09	0.13	0.06	0.08	OL	OL	0.05	0.07
23/10/2023	1.09	0.09	0.26	0.09	0.24	0.07	0.25	0.04	0.18	0.09	0.14	0.05	0.08	OL	OL	0.06	0.09
24/10/2023	1.06	0.07	0.10	0.08	0.18	0.05	0.08	0.03	0.07	0.09	0.14	0.05	0.08	OL	OL	0.05	0.08
25/10/2023	1.06	0.08	0.24	0.11	0.23	0.04	0.16	0.03	0.05	0.10	0.13	0.05	0.08	OL	OL	0.05	0.12
26/10/2023	1.07	0.07	0.10	0.14	0.17	0.03	0.07	0.03	0.07	0.10	0.15	0.05	0.08	OL	OL	0.05	0.08
27/10/2023	1.07	0.09	0.10	0.15	0.21	0.03	0.06	0.02	0.05	0.11	0.15	0.05	0.10	OL	OL	0.05	0.08
28/10/2023	1.10	0.08	0.11	0.18	0.26	0.03	0.06	0.02	0.05	0.12	0.15	0.05	0.08	OL	OL	0.06	0.09
29/10/2023	1.13	0.08	0.12	0.16	0.21	0.03	0.06	0.02	0.07	0.13	0.16	0.05	0.09	OL	OL	0.06	0.10
30/10/2023	1.17	0.06	0.11	0.11	0.20	0.04	0.08	0.02	0.06	0.09	0.17	0.04	0.09	OL	OL	0.05	0.09
31/10/2023	1.21	0.05	0.07	0.04	0.06	0.07	2.06	0.01	0.04	0.06	0.10	0.02	0.05	OL	OL	0.03	0.07

Total Number of Measurements Taken, A:	14294	15807	15760	16491	16943	17068	OL	17404
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	OL	0.3
Number of Measurements Meeting Standard, B:	14294	15807	15747	16491	16943	17068	OL	17404
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	99.918%	100.000%	100.000%	100.000%	OL	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\10-October

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Licence No. PWS-09-412-02 A																		
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
02-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
03-Oct-2023	1.35	1.76	0.14	0.10	0.14	0.09	0.14	0.10	0.12	0.08	0.09	0.05	0.08	0.06	o/l	o/l	0.09	0.15
04-Oct-2023	1.04	1.64	0.11	0.08	0.12	0.09	0.13	0.09	0.09	0.05	0.08	0.05	0.11	0.09	o/l	o/l	0.09	0.18
05-Oct-2023	0.84	1.22	0.12	0.07	0.13	0.08	0.13	0.08	0.10	0.05	0.09	0.08	0.10	0.07	o/l	o/l	0.10	0.07
06-Oct-2023	0.69	1.25	0.10	0.07	0.14	0.08	0.13	0.08	0.11	0.05	0.09	0.08	0.08	0.07	o/l	o/l	0.09	0.05
07-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
08-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
09-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
10-Oct-2023	0.86	nr	0.10	0.07	0.10	0.06	0.10	0.05	0.09	0.04	0.09	0.09	0.10	0.10	o/l	o/l	0.10	0.06
11-Oct-2023	0.77	1.28	0.10	0.07	0.12	0.08	0.11	0.06	0.09	0.03	0.08	0.10	0.08	0.10	o/l	o/l	0.09	0.10
12-Oct-2023	0.82	1.22	0.11	0.09	0.10	0.06	0.13	0.08	0.11	0.05	0.09	0.11	0.09	0.10	o/l	o/l	0.09	0.04
13-Oct-2023	0.88	1.44	0.10	0.09	0.09	0.04	0.11	0.06	0.10	0.05	0.08	0.10	0.08	0.10	o/l	o/l	0.08	0.04
14-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
15-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
16-Oct-2023	0.83	1.44	0.09	0.08	0.09	0.06	0.10	0.05	0.08	0.03	0.08	0.10	0.09	0.13	o/l	o/l	0.09	0.05
17-Oct-2023	0.84	1.43	0.09	0.07	0.09	0.06	0.10	0.06	0.08	0.03	0.09	0.11	0.10	0.15	o/l	o/l	0.09	0.07
18-Oct-2023	0.85	1.44	0.11	0.08	0.11	0.06	0.12	0.06	0.10	0.03	0.09	0.10	0.10	0.14	o/l	o/l	0.11	0.06
19-Oct-2023	0.85	1.65	0.09	0.08	0.10	0.06	0.12	0.07	0.09	0.03	0.08	0.11	0.08	0.14	o/l	o/l	0.12	0.09
20-Oct-2023	0.85	1.49	0.10	0.09	0.11	0.08	0.13	0.07	0.10	0.04	0.08	0.11	0.09	0.15	o/l	o/l	0.08	0.05
21-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
22-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
23-Oct-2023	0.73	1.07	0.12	0.08	0.10	0.10	0.11	0.06	0.09	0.04	0.09	0.13	0.09	0.07	o/l	o/l	0.09	0.06
24-Oct-2023	0.75	1.02	0.08	0.08	0.09	0.09	0.10	0.05	0.08	0.02	0.09	0.06	0.10	0.08	o/l	o/l	0.09	0.06
25-Oct-2023	0.78	1.03	0.09	0.08	0.10	0.12	0.11	0.06	0.10	0.03	0.09	0.12	0.14	0.06	o/l	o/l	0.11	0.06
26-Oct-2023	0.67	1.07	0.09	0.09	0.10	0.16	0.13	0.06	0.10	0.04	0.09	0.12	0.08	0.06	o/l	o/l	0.11	0.06
27-Oct-2023	0.66	0.99	0.10	0.09	0.12	0.19	0.12	0.05	0.11	0.03	0.10	0.13	0.09	0.06	o/l	o/l	0.11	0.05
28-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
29-Oct-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
30-Oct-2023	0.69	1.10	0.10	0.11	0.09	0.18	0.09	0.03	0.10	0.03	0.09	0.15	0.11	0.06	o/l	o/l	0.09	0.06
31-Oct-2023	0.76	1.16	0.11	0.06	0.09	0.05	0.10	0.05	0.10	0.02	0.10	0.09	0.10	0.03	o/l	o/l	0.10	0.02
Total number of measurements taken, A:			20		20		20		20		20		20		0		20	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			20		20		20		20		20		20		0		20	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		*		100%	

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: November 7, 2023



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02 A**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

November 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/11/2023	1.18	0.06	0.09	0.04	0.07	0.04	0.06	0.01	0.04	0.07	0.11	0.02	0.06	OL	OL	0.03	0.05
2/11/2023	1.10	0.08	0.36	0.06	0.26	0.07	0.31	0.02	0.20	0.07	0.11	0.02	0.05	OL	OL	0.03	0.06
3/11/2023	1.08	0.06	0.09	0.04	0.07	0.04	0.20	0.01	0.06	0.07	0.11	0.02	0.05	OL	OL	0.03	0.06
4/11/2023	1.05	0.06	0.08	0.04	0.07	0.04	0.11	0.01	0.04	0.07	0.11	0.02	0.08	OL	OL	0.02	0.06
5/11/2023	1.02	0.06	0.08	0.04	0.07	0.04	0.08	0.01	0.03	0.07	0.11	0.02	0.05	OL	OL	0.03	0.06
6/11/2023	1.01	0.06	0.08	0.04	0.06	0.03	0.06	0.01	0.05	0.07	0.11	0.02	0.06	OL	OL	0.02	0.06
7/11/2023	0.99	0.05	0.08	0.04	0.07	0.04	0.09	0.01	0.03	0.08	0.10	0.02	0.06	OL	OL	0.03	0.07
8/11/2023	0.98	0.05	0.08	0.04	0.07	0.05	0.23	0.01	0.04	0.07	0.11	0.03	0.06	OL	OL	0.03	0.06
9/11/2023	0.97	0.07	0.16	0.05	0.18	0.07	0.43	0.01	0.05	0.07	0.11	0.02	0.05	OL	OL	0.03	0.06
10/11/2023	0.96	0.05	0.08	0.05	0.09	0.06	2.16	0.00	0.05	0.08	0.11	0.02	0.06	OL	OL	0.03	0.06
11/11/2023	0.94	0.05	0.08	0.05	0.08	0.05	0.14	0.01	0.04	0.08	0.12	0.02	0.06	OL	OL	0.03	0.08
12/11/2023	0.97	0.05	0.08	0.05	0.08	0.05	0.21	0.01	0.05	0.08	0.12	0.03	0.08	OL	OL	0.03	0.07
13/11/2023	0.98	0.06	0.10	0.05	0.09	0.06	0.26	0.01	0.03	0.06	0.11	0.02	0.05	0.01	0.05	0.04	0.09
14/11/2023	0.98	0.05	0.10	0.06	0.11	0.06	0.41	0.00	0.03	0.08	0.13	0.02	0.06	0.02	0.05	0.03	0.08
15/11/2023	0.95	0.06	0.08	0.06	0.10	0.04	0.11	0.01	0.05	0.08	0.12	0.01	0.07	0.03	0.05	0.02	0.05
16/11/2023	0.95	0.05	0.09	0.06	0.11	0.06	0.11	0.01	0.05	0.08	0.14	0.01	0.04	0.03	0.05	0.03	0.06
17/11/2023	0.91	0.05	0.09	0.06	0.12	0.06	0.10	0.01	0.04	0.07	0.14	0.03	0.11	0.03	0.05	0.03	0.07
18/11/2023	0.89	0.06	0.09	0.08	0.12	0.07	0.20	0.01	0.05	0.07	0.12	0.02	0.07	0.02	0.05	0.03	0.08
19/11/2023	0.85	0.06	0.09	0.07	0.11	0.09	0.44	0.01	0.05	0.10	0.13	0.02	0.07	0.02	0.04	0.02	0.08
20/11/2023	0.87	0.06	0.13	0.05	0.11	0.05	0.14	0.01	0.06	0.04	0.44	0.02	0.07	0.02	0.05	0.04	0.08
21/11/2023	0.86	0.08	0.12	0.01	0.05	0.01	0.13	0.00	0.04	0.03	0.08	0.03	0.05	0.01	0.03	0.03	0.11
22/11/2023	0.86	0.11	0.13	0.02	0.04	0.00	0.37	0.01	0.04	0.03	0.08	0.02	0.06	0.01	0.03	0.03	0.08
23/11/2023	0.88	0.08	0.14	0.02	0.10	0.03	0.52	0.00	0.04	0.05	0.09	0.02	0.06	0.01	0.04	0.03	0.08
24/11/2023	0.84	0.07	0.24	0.02	0.06	0.01	0.14	0.01	0.06	0.05	0.08	0.03	0.06	0.01	0.03	0.05	0.09
25/11/2023	0.83	0.04	0.23	0.02	0.05	0.01	0.18	0.00	0.05	0.05	0.08	0.02	0.06	0.01	0.04	0.05	0.09
26/11/2023	0.82	0.05	0.17	0.03	0.12	0.03	0.29	0.02	0.11	0.05	0.09	0.03	0.07	0.01	0.03	0.04	0.08
27/11/2023	0.86	0.05	0.08	0.03	0.08	0.07	0.25	0.04	0.08	0.05	0.08	0.02	0.07	0.01	0.04	0.04	0.10
28/11/2023	0.82	0.07	0.19	0.04	0.08	0.10	0.50	0.09	0.22	0.06	0.11	0.02	0.08	0.01	0.04	0.04	0.10
29/11/2023	0.75	0.08	0.19	0.05	0.10	0.06	0.16	0.16	0.22	0.06	0.10	0.00	0.05	0.01	0.03	0.01	0.06
30/11/2023	0.75	0.07	0.17	0.06	0.55	0.08	0.19	0.11	0.21	0.06	1.34	0.00	0.05	0.01	0.08	0.01	0.04

Total Number of Measurements Taken, A:	12926	15257	14416	14790	16078	15978	8392	16851
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	12910	15256	14392	14790	16076	15978	8392	16851
Compliance with Turbidity Standard, C = B/A X 100%:	99.876%	99.993%	99.834%	100.000%	99.988%	100.000%	100.000%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\11-November

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02 A																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Nov-2023	0.70	1.09	0.08	0.07	0.09	0.05	0.10	0.05	0.09	<0.02	0.10	0.09	0.10	0.05	o/l	o/l	0.09	0.02	
02-Nov-2023	0.69	1.08	0.08	0.06	0.09	0.05	0.10	0.05	0.08	<0.02	0.08	0.09	0.10	0.04	o/l	o/l	0.10	0.03	
03-Nov-2023	0.69	1.08	0.08	0.07	0.09	0.04	0.11	0.05	0.08	<0.02	0.08	0.09	0.09	0.04	o/l	o/l	0.10	0.04	
04-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
05-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
06-Nov-2023	0.72	0.99	0.09	0.07	0.10	0.06	0.10	0.05	0.10	0.02	0.08	0.09	0.08	0.03	o/l	o/l	0.08	0.02	
07-Nov-2023	0.64	0.95	0.09	0.08	0.07	0.05	0.09	0.04	0.09	0.02	0.08	0.09	0.10	0.04	o/l	o/l	0.08	0.03	
08-Nov-2023	0.66	0.95	0.09	0.08	0.08	0.05	0.12	0.07	0.09	0.02	0.08	0.10	0.09	0.04	o/l	o/l	0.09	0.04	
09-Nov-2023	0.64	0.95	0.09	0.08	0.08	0.06	0.09	0.04	0.08	<0.02	0.08	0.10	0.09	0.04	o/l	o/l	0.08	0.04	
10-Nov-2023	0.65	0.97	0.07	0.06	0.08	0.05	0.09	0.05	0.08	0.02	0.06	0.09	0.08	0.05	o/l	o/l	0.08	0.03	
11-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
12-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
13-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
14-Nov-2023	0.61	0.92	0.08	0.08	0.09	0.08	0.14	0.11	0.09	0.02	0.08	0.10	0.08	0.05	0.08	0.02	0.08	0.04	
15-Nov-2023	0.64	0.91	0.09	0.08	0.09	0.09	0.08	0.05	0.07	<0.02	0.08	0.11	0.09	0.04	0.09	0.02	0.08	0.02	
16-Nov-2023	0.59	0.90	0.10	0.09	0.08	0.08	0.10	0.07	0.09	<0.02	0.09	0.11	0.08	0.03	0.09	0.03	0.08	0.02	
17-Nov-2023	0.57	0.90	0.08	0.09	0.09	0.08	0.10	0.08	0.08	0.02	ns	ns	0.08	0.04	0.10	0.04	0.10	0.04	
18-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.08	0.09	ns	ns	ns	ns	ns	ns	
19-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
20-Nov-2023	0.55	0.84	0.11	0.13	0.08	0.10	0.10	0.11	0.08	0.02	0.09	0.05	0.09	0.04	0.09	0.04	0.09	0.03	
21-Nov-2023	0.59	0.83	0.08	0.12	0.08	0.03	0.09	<0.02	0.09	<0.02	0.10	0.05	0.09	0.04	0.09	<0.02	0.09	0.05	
22-Nov-2023	0.65	0.82	0.10	0.12	0.09	0.02	0.09	<0.02	0.10	<0.02	0.09	0.05	0.10	0.05	0.08	<0.02	0.08	0.03	
23-Nov-2023	0.59	0.87	0.10	0.13	0.09	0.03	0.10	0.02	0.10	<0.02	0.09	0.06	0.09	0.05	0.08	<0.02	0.09	0.03	
24-Nov-2023	0.59	0.82	0.11	0.08	0.10	0.03	0.10	<0.02	0.09	<0.02	0.09	0.07	0.09	0.03	0.09	<0.02	0.09	0.04	
25-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
26-Nov-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	
27-Nov-2023	0.59	0.83	0.10	0.06	0.10	0.03	0.14	0.07	0.11	0.05	0.09	0.05	0.09	0.05	0.09	<0.02	0.09	0.04	
28-Nov-2023	0.58	0.85	0.12	0.12	0.11	0.06	0.11	0.06	0.09	0.04	0.10	0.07	0.10	0.04	0.09	<0.02	0.10	0.05	
29-Nov-2023	0.52	0.70	0.09	0.08	0.09	0.06	0.11	0.04	0.09	0.18	0.09	0.11	0.09	0.07	0.10	<0.02	0.09	0.05	
30-Nov-2023	0.53	0.72	0.09	0.08	0.09	0.06	0.11	0.05	0.09	0.19	0.08	0.07	0.09	<0.02	0.08	<0.02	0.09	<0.02	
Total number of measurements taken, A:			21		21		21		21		21		21		13		21		
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:			21		21		21		21		21		21		13		21		
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%		

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Filter 7 was offline for scheduled maintenance from September 20 to November 13, 2023.

Report Date: December 6, 2023



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02-A

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

December 2023 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/12/2023	0.76	0.00	0.02	0.04	0.08	0.05	0.28	0.04	0.18	0.05	0.07	0.01	0.04	0.01	0.01	0.00	0.02
2/12/2023	0.74	0.00	0.00	0.03	0.06	0.02	0.10	0.03	0.06	0.05	0.09	0.01	0.04	0.01	0.01	0.00	0.03
3/12/2023	0.74	0.00	0.00	0.04	0.07	0.02	0.13	0.03	0.06	0.05	0.09	0.00	0.04	0.01	0.01	0.00	0.01
4/12/2023	0.74	0.00	0.01	0.03	0.07	0.02	0.05	0.03	0.05	0.05	0.08	0.00	0.03	0.01	0.01	0.00	0.01
5/12/2023	0.73	0.00	0.00	0.03	0.07	0.02	0.07	0.03	0.07	0.04	0.07	0.00	0.04	0.01	0.01	0.00	0.03
6/12/2023	0.72	0.05	0.10	0.03	0.05	0.03	0.13	0.03	0.06	0.05	0.08	0.01	0.05	0.01	0.03	0.01	0.05
7/12/2023	0.72	0.07	0.12	0.04	0.07	0.02	0.07	0.03	0.07	0.05	0.09	0.02	0.06	0.01	0.04	0.01	0.03
8/12/2023	0.68	0.07	0.13	0.03	0.06	0.02	0.08	0.03	0.06	0.04	0.09	0.03	0.05	0.01	0.04	0.01	0.04
9/12/2023	0.66	0.08	0.09	0.03	0.06	0.02	0.10	0.03	0.07	0.04	0.08	0.03	0.05	0.01	0.04	0.01	0.05
10/12/2023	0.65	0.08	0.10	0.03	0.06	0.01	0.05	0.03	0.05	0.05	0.08	0.02	0.05	0.01	0.03	0.01	0.04
11/12/2023	0.65	0.07	0.10	0.04	0.06	0.01	0.05	0.03	0.06	0.05	0.08	0.02	0.06	0.01	0.04	0.01	0.05
12/12/2023	0.64	0.08	0.12	0.04	0.06	0.02	0.06	0.02	0.08	0.04	0.08	0.02	0.05	0.01	0.03	0.02	0.06
13/12/2023	0.65	0.09	0.11	0.04	0.08	0.03	0.08	0.04	0.07	0.05	0.10	0.03	0.07	0.02	0.05	0.03	0.07
14/12/2023	0.65	0.09	0.13	0.05	0.10	0.03	0.07	0.04	0.08	0.06	0.08	0.03	0.08	0.02	0.03	0.03	0.08
15/12/2023	0.72	0.10	0.16	0.07	0.09	0.07	0.22	0.05	0.11	0.06	0.09	0.03	0.09	0.02	0.04	0.03	0.08
16/12/2023	0.74	0.10	0.16	0.06	0.12	0.06	0.10	0.05	0.10	0.05	0.10	0.03	0.06	0.02	0.05	0.05	0.09
17/12/2023	0.72	0.10	0.14	0.06	0.11	0.06	0.12	0.06	0.08	0.06	0.10	0.04	0.09	0.02	0.05	0.05	0.10
18/12/2023	0.69	0.12	0.16	0.06	0.11	0.06	0.14	0.05	0.10	0.06	0.09	0.03	0.08	0.02	0.04	0.05	0.11
19/12/2023	0.67	0.11	0.16	0.06	0.08	0.05	0.11	0.06	0.11	0.06	0.10	0.03	0.07	0.02	0.05	0.06	0.12
20/12/2023	1.01	0.07	0.18	0.06	0.28	0.06	0.28	0.04	0.24	0.04	0.26	0.03	0.12	0.02	0.14	0.06	0.18
21/12/2023	0.74	0.12	0.17	0.06	0.10	0.05	0.15	0.06	0.14	0.06	0.09	0.04	0.08	0.02	0.06	0.08	0.15
22/12/2023	0.62	0.09	0.16	0.05	0.08	0.03	0.07	0.04	0.09	0.06	0.11	0.03	0.07	0.02	0.04	0.08	0.14
23/12/2023	0.60	0.08	0.12	0.05	0.07	0.01	0.05	0.02	0.05	0.05	0.09	0.03	0.07	0.02	0.04	0.09	0.12
24/12/2023	0.60	0.07	0.12	0.04	0.08	0.01	0.04	0.02	0.04	0.05	0.10	0.04	0.06	0.01	0.05	0.10	0.16
25/12/2023	0.61	0.09	0.11	0.05	0.08	0.02	0.05	0.03	0.06	0.06	0.10	0.03	0.07	0.01	0.04	0.11	0.18
26/12/2023	0.64	0.08	0.12	0.05	0.07	0.01	0.04	0.03	0.05	0.08	0.10	0.04	0.07	0.01	0.03	0.12	0.20
27/12/2023	0.65	0.09	0.12	0.06	0.09	0.01	0.05	0.03	0.06	0.08	0.13	0.04	0.08	0.02	0.05	0.17	0.21
28/12/2023	0.65	0.08	0.12	0.06	0.10	0.02	0.05	0.03	0.05	0.08	0.13	0.04	0.17	0.01	0.03	0.08	0.23
29/12/2023	0.66	0.08	0.11	0.06	0.10	0.01	0.04	0.03	0.05	0.09	0.15	0.06	0.09	0.01	0.03	0.03	0.07
30/12/2023	0.66	0.09	0.11	0.07	0.11	0.02	0.07	0.03	0.06	0.12	0.15	0.06	0.10	0.01	0.02	0.04	0.08
31/12/2023	0.63	0.08	0.12	0.08	0.10	0.01	0.04	0.03	0.06	0.12	0.18	0.06	0.11	0.01	0.04	0.04	0.07

Total Number of Measurements Taken, A:	11215	15569	16531	15999	17550	17072	15993	17474
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	11215	15569	16531	15999	17550	17072	15993	17474
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2023\12-December

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Licence No. PWS-09-412-02 A																		
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Dec-2023	0.55	0.40	0.09	0.09	0.09	0.05	0.11	0.03	0.10	0.05	0.08	0.07	0.09	0.02	0.09	<0.02	0.10	<0.02
02-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
03-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
04-Dec-2023	0.62	0.71	0.09	<0.02	0.09	0.04	0.11	0.03	0.09	0.04	0.08	0.05	0.09	0.02	0.08	<0.02	0.10	<0.02
05-Dec-2023	0.66	0.70	0.10	<0.02	0.09	0.04	0.11	0.03	0.10	0.04	0.10	0.06	0.10	<0.02	0.09	<0.02	0.09	<0.02
06-Dec-2023	0.60	0.70	0.09	<0.02	0.08	0.04	0.12	0.04	0.09	0.05	0.08	0.06	0.08	<0.02	0.08	<0.02	0.09	<0.02
07-Dec-2023	0.62	0.68	0.09	0.09	0.10	0.05	0.10	0.03	0.09	0.03	0.09	0.08	0.09	0.03	0.09	<0.02	0.10	<0.02
08-Dec-2023	0.60	0.66	0.09	0.08	0.09	0.05	0.09	0.02	0.08	0.03	0.08	0.05	0.09	0.03	0.09	<0.02	0.10	<0.02
09-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
10-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
11-Dec-2023	0.57	0.63	0.09	0.10	0.09	0.05	0.09	0.02	0.08	0.03	0.09	0.06	0.09	0.02	0.09	<0.02	0.08	<0.02
12-Dec-2023	0.57	0.64	0.07	0.08	0.09	0.05	0.09	0.03	0.09	0.03	0.09	0.05	0.09	0.05	0.09	<0.02	0.09	<0.02
13-Dec-2023	0.56	0.65	0.10	0.10	0.09	0.05	0.13	0.04	0.09	0.05	0.09	0.07	0.10	0.04	0.09	<0.02	0.11	0.04
14-Dec-2023	0.58	0.62	0.11	0.11	0.09	0.06	0.11	0.04	0.12	0.07	0.09	0.07	0.10	0.05	0.09	<0.02	0.10	0.02
15-Dec-2023	0.58	0.74	0.13	0.13	0.11	0.07	0.18	0.10	0.10	0.05	0.10	0.07	0.09	0.04	0.10	<0.02	0.10	0.02
16-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
17-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
18-Dec-2023	0.50	0.69	0.12	0.12	0.11	0.06	0.17	0.11	0.14	0.07	0.10	0.06	0.14	0.08	0.10	<0.02	0.10	0.05
19-Dec-2023	0.55	0.71	0.16	0.14	0.14	0.07	0.15	0.06	0.16	0.08	0.13	0.09	0.11	0.04	0.12	0.02	0.13	0.06
20-Dec-2023	0.62	0.63	0.12	0.13	0.14	0.09	0.15	0.08	0.11	0.05	0.12	0.08	0.09	0.04	0.11	0.03	0.10	0.07
21-Dec-2023	0.61	0.61	0.15	0.15	0.14	0.09	0.13	0.06	0.14	0.09	0.10	0.07	0.11	0.06	0.09	0.02	0.09	0.06
22-Dec-2023	0.57	0.62	0.12	0.12	0.10	0.06	0.12	0.04	0.13	0.08	0.10	0.07	0.12	0.06	0.10	<0.02	0.10	0.08
23-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
24-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
25-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
26-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
27-Dec-2023	0.53	0.61	0.10	0.11	0.09	0.07	0.09	0.02	0.08	0.03	0.10	0.11	0.09	0.05	0.10	0.02	0.10	0.17
28-Dec-2023	0.54	0.61	0.08	0.09	0.09	0.09	0.09	0.02	0.08	0.04	0.08	0.09	0.08	0.05	0.09	<0.02	0.09	0.10
29-Dec-2023	0.54	0.63	0.08	0.10	0.08	0.08	0.10	0.03	0.10	0.04	0.08	0.11	0.09	0.07	0.08	<0.02	0.09	0.04
30-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
31-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Total number of measurements taken, A:			19		19		19		19		19		19		19		19	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			19		19		19		19		19		19		19		19	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: January 5, 2024

2023 MONTHLY UV SUMMARY REPORTS



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02**

WATER TREATMENT PLANT UV REPORT

Report Period: **January 2023**

Report Created: **Thursday, February 02, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/01/2023	93.3	92.7	95.5	94.2	OL	OL	OL	18.4	22.0	21.4	OL	OL	OL	OL	OL	OL	22.9	30.8	28.0	16.5	23.8	21.2
02/01/2023	93.1	92.6	95.4	94.7	OL	OL	OL	18.4	22.1	21.4	OL	OL	OL	OL	OL	OL	20.7	29.4	26.4	16.7	21.8	21.1
03/01/2023	92.8	91.5	95.1	93.9	OL	OL	OL	18.3	22.1	21.4	OL	OL	OL	OL	OL	OL	19.9	28.1	24.9	16.6	21.9	21.1
04/01/2023	93.0	92.5	95.4	94.9	OL	OL	OL	18.1	22.2	21.4	OL	OL	OL	OL	OL	OL	20.1	28.5	25.6	16.5	30.0	21.1
05/01/2023	93.2	92.8	95.7	95.2	OL	OL	OL	18.2	22.2	21.4	OL	OL	OL	OL	OL	OL	20.0	29.0	26.2	16.0	22.3	21.4
06/01/2023	93.0	92.5	95.5	95.0	OL	OL	OL	18.0	22.1	21.4	OL	OL	OL	OL	OL	OL	19.8	28.6	25.2	16.1	24.0	21.2
07/01/2023	92.9	92.3	95.3	94.7	OL	OL	OL	18.3	22.1	21.4	OL	OL	OL	OL	OL	OL	19.9	27.4	24.6	16.6	21.8	21.1
08/01/2023	93.0	92.6	95.4	95.0	OL	OL	OL	18.3	22.2	21.4	OL	OL	OL	OL	OL	OL	20.6	27.8	25.7	17.0	21.8	21.1
09/01/2023	93.0	92.4	95.3	94.7	OL	OL	OL	18.4	22.0	21.4	OL	OL	OL	OL	OL	OL	21.2	27.6	25.6	17.1	21.8	21.1
10/01/2023	92.9	90.7	94.9	92.7	OL	OL	OL	18.2	22.2	21.4	OL	OL	OL	19.1	102.0	24.2	0.0	40.1	25.8	16.7	22.3	21.1
11/01/2023	92.8	92.2	94.6	93.7	0.0	51.4	24.3	0.0	87.7	21.5	0.0	103.9	22.2	0.0	104.4	24.3	OL	OL	OL	0.0	84.6	21.4
12/01/2023	92.7	92.2	94.6	92.7	OL	OL	OL	18.8	21.9	21.3	0.0	41.3	21.3	18.8	104.5	21.7	OL	OL	OL	16.0	22.8	21.3
13/01/2023	92.6	92.3	94.6	93.4	OL	OL	OL	18.7	21.6	21.2	OL	OL	OL	19.1	23.2	21.8	20.8	95.7	24.8	0.0	31.9	21.2
14/01/2023	92.8	92.0	94.9	94.0	OL	OL	OL	18.7	21.6	21.2	OL	OL	OL	19.4	23.3	22.0	20.4	26.9	24.1	OL	OL	OL
15/01/2023	92.9	92.4	95.2	94.6	OL	OL	OL	18.8	21.6	21.2	OL	OL	OL	19.5	23.3	22.1	20.2	26.2	23.5	OL	OL	OL
16/01/2023	92.8	92.5	95.1	93.9	OL	OL	OL	18.6	21.7	21.2	OL	OL	OL	19.3	23.4	22.0	20.2	26.6	23.3	OL	OL	OL
17/01/2023	92.8	92.2	94.8	94.2	OL	OL	OL	18.6	21.6	21.2	OL	OL	OL	19.2	23.3	22.0	20.0	26.3	23.3	OL	OL	OL
18/01/2023	92.6	92.1	94.7	93.7	OL	OL	OL	18.4	21.1	21.3	OL	OL	OL	18.9	23.2	21.7	19.8	25.5	23.1	OL	OL	OL
19/01/2023	92.3	91.9	94.5	93.5	OL	OL	OL	18.1	22.0	21.4	OL	OL	OL	18.8	22.8	21.3	19.2	25.8	22.8	OL	OL	OL
20/01/2023	92.3	92.0	94.5	91.4	OL	OL	OL	18.2	22.0	21.4	OL	OL	OL	18.7	22.7	21.2	19.7	25.4	22.8	OL	OL	OL
21/01/2023	92.3	92.0	94.7	94.0	OL	OL	OL	18.1	21.9	21.4	OL	OL	OL	18.7	22.4	21.5	19.8	25.6	22.9	OL	OL	OL
22/01/2023	92.6	91.9	94.9	93.3	OL	OL	OL	18.1	22.0	21.4	OL	OL	OL	18.8	22.9	21.5	19.7	25.9	23.0	OL	OL	OL
23/01/2023	92.6	92.3	95.0	92.6	OL	OL	OL	18.2	22.0	21.4	OL	OL	OL	18.8	22.6	21.3	19.3	25.6	22.7	OL	OL	OL
24/01/2023	92.6	91.9	94.8	93.8	OL	OL	OL	18.2	22.0	21.4	OL	OL	OL	18.7	22.7	21.2	19.3	25.5	22.3	OL	OL	OL
25/01/2023	92.7	91.3	94.4	93.9	OL	OL	OL	0.0	75.1	21.5	OL	OL	OL	0.0	80.5	21.4	0.0	95.7	22.3	OL	OL	OL
26/01/2023	92.6	91.9	94.6	93.5	OL	OL	OL	18.2	22.0	21.4	OL	OL	OL	18.6	21.9	21.2	18.5	25.0	21.6	OL	OL	OL
27/01/2023	92.7	91.9	94.7	93.5	OL	OL	OL	18.2	21.9	21.4	OL	OL	OL	18.7	21.8	21.2	18.5	24.2	21.6	OL	OL	OL
28/01/2023	92.8	92.5	94.6	93.7	OL	OL	OL	18.2	21.9	21.4	OL	OL	OL	18.5	21.8	21.2	18.1	23.8	21.5	OL	OL	OL
29/01/2023	92.4	91.8	94.5	93.5	16.4	80.0	21.2	0.0	27.7	21.4	17.6	83.1	21.3	0.0	37.7	21.2	18.4	23.9	21.2	OL	OL	OL
30/01/2023	91.9	91.6	94.5	93.0	17.0	23.0	21.1	OL	OL	OL	17.5	22.1	21.2	0.0	0.0	0.0	18.3	23.1	21.2	OL	OL	OL
31/01/2023	91.6	42.3	92.1	42.1	0.0	41.0	21.3	OL	OL	OL	0.0	36.5	21.3	OL	OL	OL	0.0	93.4	22.4	OL	OL	OL

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02**

WATER TREATMENT PLANT UV REPORT

Report Period: **February 2023**

Report Created: **Thursday, March 02, 2023**

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose		
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]						
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total		Untreated	Below
01/02/2023	0.00	0.00	37.25	37.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.06	38.06	0.00	0.00	36.65	36.65	0.00	0.00	0.00	0.00	0.00	0.00	111.95	111.95	100.00		
02/02/2023	0.00	0.00	75.26	75.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77.73	77.73	0.00	0.00	74.07	74.07	0.00	0.00	0.00	0.00	0.00	0.00	227.07	227.07	100.00		
03/02/2023	0.00	0.00	74.83	74.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.70	75.70	0.00	0.00	74.22	74.22	0.00	0.00	0.00	0.00	0.00	0.00	224.75	224.75	100.00		
04/02/2023	0.00	0.00	68.14	68.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.10	71.10	0.00	0.00	69.69	69.69	0.00	0.00	0.00	0.00	0.00	0.00	208.93	208.93	100.00		
05/02/2023	0.00	0.00	61.70	61.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.74	66.74	0.00	0.00	63.96	63.96	0.00	0.00	0.00	0.00	0.00	0.00	192.40	192.40	100.00		
06/02/2023	0.00	0.00	59.46	59.46	0.00	0.00	0.00	0.00	0.00	0.09	33.57	33.67	0.00	0.00	32.33	32.33	0.00	0.00	64.54	64.54	0.00	0.00	0.00	0.00	0.00	0.09	189.90	189.99	99.95		
07/02/2023	0.00	0.00	57.68	57.68	0.00	0.04	5.26	5.31	0.00	0.19	53.79	53.97	0.00	0.05	6.82	6.87	0.00	0.00	65.87	65.87	0.00	0.00	0.00	0.00	0.00	0.28	189.42	189.69	99.85		
08/02/2023	0.00	0.00	57.34	57.34	0.00	0.00	0.00	0.00	0.00	0.09	64.92	65.02	0.00	0.00	0.00	0.00	0.00	0.00	64.65	64.65	0.00	0.00	0.00	0.00	0.00	0.09	186.91	187.00	99.95		
09/02/2023	0.00	0.00	55.74	55.74	0.00	0.00	0.00	0.00	0.00	0.09	63.11	63.20	0.00	0.00	0.00	0.00	0.00	0.00	62.83	62.83	0.00	0.00	0.00	0.00	0.00	0.09	181.68	181.77	99.95		
10/02/2023	0.00	0.00	53.16	53.16	0.00	0.00	0.00	0.00	0.00	0.17	61.15	61.32	0.00	0.00	0.00	0.00	0.00	0.00	60.53	60.53	0.00	0.00	0.00	0.00	0.00	0.17	174.85	175.02	99.90		
11/02/2023	0.00	0.00	52.76	52.76	0.00	0.00	0.00	0.00	0.00	0.04	60.27	60.31	0.00	0.00	0.00	0.00	0.00	0.00	60.04	60.04	0.00	0.00	0.00	0.00	0.00	0.04	173.07	173.11	99.98		
12/02/2023	0.00	0.00	54.05	54.05	0.00	0.00	0.00	0.00	0.00	0.09	60.12	60.20	0.00	0.00	0.00	0.00	0.00	0.00	61.07	61.07	0.00	0.00	0.00	0.00	0.00	0.09	175.24	175.32	99.95		
13/02/2023	0.00	0.00	53.02	53.02	0.00	0.00	0.00	0.00	0.00	0.16	58.79	58.95	0.00	0.00	0.00	0.00	0.00	0.00	60.04	60.04	0.00	0.00	0.00	0.00	0.00	0.16	171.85	172.01	99.90		
14/02/2023	0.00	0.00	53.36	53.36	0.00	0.00	0.00	0.00	0.00	0.20	58.27	58.47	0.00	0.00	0.00	0.00	0.00	0.00	60.15	60.15	0.00	0.00	0.00	0.00	0.00	0.21	171.78	171.99	99.88		
15/02/2023	0.00	0.00	23.08	23.08	0.00	0.00	42.40	42.40	0.00	0.11	48.72	48.83	0.00	0.00	0.00	0.00	0.00	0.00	55.56	55.56	0.00	0.00	0.00	0.00	0.00	0.11	169.76	169.87	99.93		
16/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	78.59	78.59	0.00	0.08	40.27	40.35	0.00	0.00	0.00	0.00	0.00	0.00	51.57	51.57	0.00	0.00	0.00	0.00	0.00	0.08	170.43	170.51	99.95		
17/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	82.62	82.62	0.00	0.06	40.44	40.50	0.00	0.00	0.00	0.00	0.00	0.00	52.24	52.24	0.00	0.00	0.00	0.00	0.00	0.06	175.31	175.37	99.97		
18/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	82.75	82.75	0.00	0.11	40.11	40.22	0.00	0.00	0.00	0.00	0.00	0.00	52.21	52.21	0.00	0.00	0.00	0.00	0.00	0.11	175.07	175.18	99.94		
19/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	79.78	79.78	0.00	0.03	40.45	40.48	0.00	0.00	0.00	0.00	0.00	0.04	51.73	51.76	0.00	0.00	0.00	0.00	0.00	0.06	171.96	172.02	99.96		
20/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	80.92	80.92	0.00	0.11	39.80	39.91	0.00	0.00	0.00	0.00	0.00	0.00	51.18	51.18	0.00	0.00	0.00	0.00	0.00	0.11	171.89	172.00	99.94		
21/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	81.87	81.87	0.00	0.14	40.16	40.30	0.00	0.00	0.00	0.00	0.00	0.04	51.55	51.58	0.00	0.00	0.00	0.00	0.00	0.18	173.57	173.75	99.90		
22/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	28.51	28.51	0.00	0.06	13.51	13.56	0.00	0.00	0.00	0.00	0.00	0.00	17.42	17.42	0.00	0.00	0.00	0.00	0.00	0.06	59.43	59.49	99.90		
23/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
24/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
25/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
26/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
27/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
28/02/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total [ML]:	0.00	0.00	836.83	836.83	0.00	0.04	562.70	562.74	0.00	1.83	817.44	819.27	0.00	0.05	368.48	368.53	0.00	0.07	1261.77	1261.84	0.00	0.00	0.00	0.00	0.00	1.99	3847.22	3849.21			

Water Volume [%]:

Untreated: 0.00 %
 Below Dose 0.05 %
 To Dose 99.95 %

- Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Offline

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02**

WATER TREATMENT PLANT UV REPORT

Report Period: **February 2023**

Report Created: **Thursday, March 02, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/02/2023	90.8	90.6	93.8	93.7	20.7	21.9	21.2	OL	OL	OL	OL	OL	OL	18.5	21.6	21.1	18.2	23.1	21.1	OL	OL	OL
02/02/2023	90.5	89.8	93.7	93.2	20.7	26.7	21.2	OL	OL	OL	OL	OL	OL	14.9	21.7	21.1	18.3	21.8	21.1	OL	OL	OL
03/02/2023	91.2	86.5	93.7	93.2	20.6	27.2	21.2	OL	OL	OL	OL	OL	OL	18.6	21.6	21.2	18.3	21.7	21.1	OL	OL	OL
04/02/2023	92.3	91.8	94.0	93.4	20.7	27.4	21.3	OL	OL	OL	OL	OL	OL	18.6	21.7	21.2	18.3	21.8	21.1	OL	OL	OL
05/02/2023	91.5	90.9	94.4	93.9	20.8	30.2	21.5	OL	OL	OL	OL	OL	OL	18.6	21.7	21.2	18.3	23.1	21.2	OL	OL	OL
06/02/2023	90.3	88.8	95.0	94.6	17.6	32.7	21.4	OL	OL	OL	17.4	105.9	21.3	0.0	36.2	21.2	18.3	29.7	21.2	OL	OL	OL
07/02/2023	90.9	59.7	95.1	94.6	20.7	26.6	21.5	0.0	69.7	21.7	0.0	93.3	21.3	0.0	86.1	21.9	18.2	23.3	21.2	OL	OL	OL
08/02/2023	92.3	91.9	95.8	95.2	20.6	22.1	21.3	OL	OL	OL	17.5	23.2	21.2	OL	OL	OL	18.3	22.8	21.2	OL	OL	OL
09/02/2023	92.6	92.0	95.8	95.3	20.7	22.1	21.3	OL	OL	OL	17.5	24.1	21.2	OL	OL	OL	18.3	22.8	21.2	OL	OL	OL
10/02/2023	93.0	92.6	96.3	95.8	20.7	22.1	21.3	OL	OL	OL	17.6	23.5	21.3	OL	OL	OL	18.3	22.8	21.2	OL	OL	OL
11/02/2023	93.2	92.9	97.1	96.6	20.7	22.2	21.3	OL	OL	OL	17.5	23.7	21.3	OL	OL	OL	18.4	22.3	21.2	OL	OL	OL
12/02/2023	93.2	92.7	97.3	96.9	20.7	22.1	21.3	OL	OL	OL	17.5	24.4	21.3	OL	OL	OL	18.1	21.8	21.2	OL	OL	OL
13/02/2023	93.1	92.4	97.1	96.6	20.7	22.1	21.3	OL	OL	OL	17.6	22.8	21.2	OL	OL	OL	18.3	22.9	21.2	OL	OL	OL
14/02/2023	93.3	92.3	97.4	96.1	20.7	22.2	21.3	0.0	0.0	0.0	17.6	22.8	21.2	OL	OL	OL	17.8	23.2	21.2	OL	OL	OL
15/02/2023	93.6	93.3	96.7	94.3	0.0	29.8	21.3	15.9	79.4	21.2	16.1	30.1	21.5	OL	OL	OL	16.2	30.1	21.3	OL	OL	OL
16/02/2023	93.6	93.3	96.7	96.1	OL	OL	OL	18.6	22.6	21.2	17.4	27.0	21.4	OL	OL	OL	18.4	22.6	21.3	OL	OL	OL
17/02/2023	93.6	93.3	96.9	96.6	OL	OL	OL	18.7	23.2	21.1	17.4	26.5	21.4	OL	OL	OL	18.2	21.8	21.2	OL	OL	OL
18/02/2023	93.5	93.2	97.1	96.6	OL	OL	OL	18.8	23.5	21.1	17.4	25.5	21.4	OL	OL	OL	18.3	30.2	21.3	OL	OL	OL
19/02/2023	93.5	93.2	96.8	96.2	OL	OL	OL	18.4	29.7	21.3	17.7	25.1	21.4	OL	OL	OL	17.9	23.9	21.7	OL	OL	OL
20/02/2023	93.5	93.1	96.9	96.5	OL	OL	OL	18.3	22.1	21.4	17.6	23.9	21.4	OL	OL	OL	17.7	23.1	21.6	OL	OL	OL
21/02/2023	93.4	92.9	96.8	96.2	OL	OL	OL	18.3	22.1	21.4	16.7	23.1	21.4	OL	OL	OL	17.5	22.5	21.6	OL	OL	OL
22/02/2023	92.9	89.3	95.8	93.4	OL	OL	OL	0.0	27.0	21.4	0.0	24.7	21.3	OL	OL	OL	0.0	29.1	21.5	OL	OL	OL
23/02/2023	93.1	92.8	95.6	95.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
24/02/2023	92.9	92.6	95.6	95.1	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
25/02/2023	93.1	92.7	95.9	95.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
26/02/2023	92.4	88.8	95.1	91.6	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
27/02/2023	92.6	91.1	95.9	94.1	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
28/02/2023	92.8	92.4	96.2	94.6	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02

WATER TREATMENT PLANT UV REPORT

Report Period: **March 2023**

Report Created: **Saturday, April 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/03/2023	93.0	92.5	96.1	95.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
02/03/2023	90.0	0.0	95.6	95.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
03/03/2023	93.2	92.5	94.8	75.9	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
04/03/2023	93.0	92.5	93.6	93.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
05/03/2023	93.3	92.5	94.0	93.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
06/03/2023	93.1	92.2	93.4	92.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
07/03/2023	93.8	92.9	93.8	93.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
08/03/2023	93.7	92.7	93.6	69.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
09/03/2023	93.1	92.6	93.5	93.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
10/03/2023	93.4	92.4	94.2	93.5	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
11/03/2023	93.6	93.0	94.5	94.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
12/03/2023	93.5	93.0	94.3	93.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
13/03/2023	93.5	93.0	93.9	93.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
14/03/2023	93.6	92.9	94.3	93.9	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
15/03/2023	93.4	86.8	94.2	91.6	0.0	63.0	21.4	OL	OL	OL	11.5	56.0	21.6	0.0	90.1	40.9	0.0	48.7	22.5	17.1	84.6	21.6
16/03/2023	92.9	92.4	93.8	93.2	20.8	24.5	21.3	OL	OL	OL	16.7	21.9	21.1	OL	OL	OL	OL	OL	OL	16.7	21.8	21.1
17/03/2023	92.8	92.2	93.2	92.8	20.9	23.6	21.3	OL	OL	OL	17.3	21.9	21.2	OL	OL	OL	OL	OL	OL	16.5	21.8	21.1
18/03/2023	92.7	92.1	93.4	92.8	20.9	22.8	21.3	OL	OL	OL	17.0	23.3	21.2	OL	OL	OL	OL	OL	OL	16.4	21.8	21.1
19/03/2023	92.5	92.0	93.7	93.3	20.8	21.7	21.3	OL	OL	OL	17.1	22.0	21.2	OL	OL	OL	OL	OL	OL	16.5	21.8	21.1
20/03/2023	92.5	92.0	93.5	92.9	0.0	29.9	21.3	17.3	68.7	21.4	16.2	28.3	21.2	15.8	104.5	21.2	0.0	49.8	20.8	0.0	43.6	21.1
21/03/2023	92.5	91.7	94.0	93.3	16.4	41.4	21.7	18.1	26.7	21.5	15.8	48.7	21.2	0.0	36.2	21.1	OL	OL	OL	0.0	0.0	0.0
22/03/2023	92.4	91.8	95.2	94.4	15.6	22.6	21.4	18.3	22.1	21.5	15.8	28.6	21.2	OL	OL	OL	OL	OL	OL	OL	OL	OL
23/03/2023	92.3	91.6	95.1	94.3	16.1	23.5	21.6	18.4	22.0	21.4	17.4	21.8	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
24/03/2023	92.7	91.8	96.3	95.5	16.3	26.4	21.7	18.1	22.0	21.4	17.1	22.3	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
25/03/2023	92.3	91.5	96.1	95.2	16.2	26.0	21.8	18.2	21.9	21.4	17.1	22.7	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
26/03/2023	92.2	91.5	95.7	94.9	16.1	24.9	21.7	18.3	21.9	21.4	17.1	21.7	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
27/03/2023	92.1	91.4	94.6	93.5	16.1	23.6	21.7	18.2	21.9	21.4	17.0	23.0	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
28/03/2023	92.3	91.4	94.4	93.8	16.2	23.1	21.7	18.2	21.9	21.4	17.4	23.0	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
29/03/2023	92.7	92.0	95.4	94.5	0.0	33.3	21.7	18.0	22.3	21.5	17.2	22.7	21.2	OL	OL	OL	OL	OL	OL	17.0	84.6	21.4
30/03/2023	92.6	92.0	96.3	95.5	OL	OL	OL	18.1	22.1	21.5	17.3	22.0	21.2	OL	OL	OL	OL	OL	OL	17.0	24.3	21.2
31/03/2023	92.4	91.7	96.7	96.2	OL	OL	OL	18.1	22.0	21.5	16.6	22.4	21.2	OL	OL	OL	OL	OL	OL	16.7	22.9	21.2

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D.Morredew

Signature: Original signed by D.Morredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02

WATER TREATMENT PLANT UV REPORT

Report Period: April 2023

Report Created: **Monday, May 01, 2023**

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose		
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]						
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total		Untreated	Below
01/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	61.70	61.70	0.00	0.22	10.18	10.40	0.00	0.00	50.74	50.74	0.00	0.00	0.00	0.00	0.00	0.04	62.05	62.09	0.00	0.26	184.67	184.93	99.86		
02/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	62.08	62.08	0.00	0.00	0.00	0.00	0.00	0.00	61.35	61.35	0.00	0.00	0.00	0.00	0.00	0.43	61.20	61.63	0.00	0.43	184.63	185.06	99.77		
03/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	61.96	61.96	0.00	0.00	0.00	0.00	0.00	0.00	61.55	61.55	0.00	0.00	0.00	0.00	0.00	0.55	60.91	61.47	0.00	0.55	184.43	184.98	99.70		
04/04/2023	0.00	0.04	2.01	2.05	0.00	0.03	59.87	59.90	0.00	0.00	0.00	0.00	0.00	0.00	62.19	62.19	0.00	0.00	0.00	0.00	0.00	0.51	61.06	61.57	0.00	0.58	185.13	185.71	99.69		
05/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	62.95	62.95	0.00	0.00	0.00	0.00	0.00	0.00	62.81	62.81	0.00	0.00	0.00	0.00	0.00	0.83	61.42	62.25	0.00	0.83	187.19	188.01	99.56		
06/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	62.81	62.81	0.00	0.00	0.00	0.00	0.00	0.00	62.43	62.43	0.00	0.00	22.49	22.49	0.00	0.43	39.89	40.32	0.00	0.43	187.62	188.06	99.77		
07/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	63.00	63.00	0.00	0.00	0.00	0.00	0.00	0.00	62.58	62.58	0.00	0.00	64.14	64.14	0.00	0.00	0.00	0.00	0.00	0.00	189.72	189.72	100.00		
08/04/2023	0.00	15.36	4.05	19.41	0.17	0.17	43.20	43.54	0.00	0.00	0.00	0.00	0.00	0.00	63.70	63.70	0.00	0.00	65.49	65.49	0.00	0.00	0.00	0.00	0.17	15.53	176.43	192.13	91.83		
09/04/2023	0.00	1.10	0.02	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.63	84.63	0.00	0.00	42.46	42.46	0.00	1.12	67.64	68.76	0.00	2.22	194.74	196.96	98.87		
10/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.98	84.98	0.00	0.00	41.75	41.75	0.00	1.03	69.15	70.18	0.00	1.03	195.89	196.91	99.48		
11/04/2023	0.00	0.00	3.52	3.52	0.00	0.00	32.54	32.54	0.00	0.00	0.00	0.00	0.00	0.00	73.37	73.37	0.00	0.00	56.09	56.09	0.00	0.05	31.26	31.31	0.00	0.05	196.79	196.84	99.98		
12/04/2023	0.00	0.00	0.00	0.00	0.15	0.33	58.35	58.83	0.00	0.00	0.00	0.00	0.00	0.08	66.15	66.23	0.00	0.00	38.48	38.48	0.00	0.33	32.88	33.21	0.15	0.75	195.86	196.75	99.55		
13/04/2023	0.00	0.00	23.43	23.43	0.15	0.15	39.83	40.14	0.00	0.00	0.00	0.00	0.00	0.00	65.65	65.65	0.00	0.00	0.76	0.76	0.00	0.79	66.31	67.10	0.15	0.95	195.98	197.08	99.44		
14/04/2023	0.00	0.00	34.03	34.03	0.00	0.00	30.51	30.52	0.00	0.00	0.00	0.00	0.00	0.00	65.69	65.69	0.00	0.00	0.00	0.00	0.00	0.84	66.51	67.35	0.00	0.85	196.74	197.59	99.57		
15/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	77.33	77.33	0.00	0.00	0.00	0.00	0.00	0.05	58.04	58.09	0.00	0.00	0.00	0.00	0.00	0.63	63.61	64.24	0.00	0.68	198.99	199.66	99.66		
16/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	80.99	80.99	0.00	0.00	0.00	0.00	0.00	0.00	51.89	51.89	0.00	0.00	0.00	0.00	0.00	1.01	59.69	60.70	0.00	1.01	192.56	193.58	99.48		
17/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	80.25	80.25	0.00	0.00	0.00	0.00	0.00	0.00	51.52	51.52	0.00	0.00	0.00	0.00	0.00	0.84	59.39	60.23	0.00	0.84	191.17	192.00	99.56		
18/04/2023	0.00	0.00	0.00	0.00	0.00	0.00	80.56	80.56	0.00	0.00	0.00	0.00	0.00	0.00	50.86	50.86	0.00	0.00	29.96	29.96	0.00	0.42	30.13	30.55	0.00	0.42	191.51	191.93	99.78		
19/04/2023	0.00	0.00	0.90	0.90	0.00	0.06	81.67	81.73	0.00	0.00	0.00	0.00	0.00	0.12	47.81	47.93	0.00	0.00	60.99	60.99	0.00	0.00	0.00	0.00	0.00	0.18	191.37	191.55	99.91		
20/04/2023	0.00	0.00	50.13	50.13	0.00	0.00	70.68	70.68	0.00	0.00	0.00	0.00	0.00	0.19	15.46	15.65	0.00	0.00	15.10	15.10	0.00	0.74	29.71	30.45	0.00	0.94	181.08	182.01	99.49		
21/04/2023	0.00	0.00	43.97	43.97	0.00	0.00	61.83	61.83	0.00	0.00	0.00	0.00	0.00	0.05	23.24	23.29	0.00	0.00	0.00	0.00	0.00	0.90	41.32	42.22	0.00	0.95	170.36	171.31	99.45		
22/04/2023	0.00	0.00	40.02	40.02	0.00	0.00	65.33	65.33	0.00	0.00	0.00	0.00	0.00	0.00	62.46	62.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	167.81	167.81	100.00		
23/04/2023	0.00	0.00	38.06	38.06	0.00	0.00	69.49	69.49	0.00	0.00	0.00	0.00	0.00	0.00	58.45	58.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	165.99	165.99	100.00		
24/04/2023	0.00	0.00	39.17	39.17	0.00	0.00	70.98	70.98	0.00	0.00	0.00	0.00	0.00	0.00	59.80	59.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	169.95	169.95	100.00		
25/04/2023	0.00	0.00	42.67	42.67	0.00	0.00	78.54	78.54	0.00	0.00	0.00	0.00	0.00	0.00	65.76	65.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	186.98	186.98	100.00		
26/04/2023	0.00	0.00	45.52	45.52	0.00	0.00	82.85	82.85	0.00	0.00	0.00	0.00	0.00	0.00	69.01	69.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	197.38	197.38	100.00		
27/04/2023	0.00	0.00	44.61	44.61	0.00	0.00	81.47	81.47	0.00	0.00	0.00	0.00	0.00	0.00	67.98	67.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.07	194.07	100.00		
28/04/2023	0.00	0.00	45.24	45.24	0.00	0.00	82.13	82.13	0.00	0.00	0.00	0.00	0.00	0.00	68.46	68.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	195.84	195.84	100.00		
29/04/2023	0.00	0.10	45.15	45.25	0.00	0.00	82.19	82.19	0.00	0.00	0.00	0.00	0.00	0.00	68.46	68.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	195.80	195.89	99.95		
30/04/2023	0.10	0.10	16.80	17.00	0.00	0.03	83.70	83.73	0.00	0.00	0.00	0.00	0.00	0.00	56.73	56.73	0.10	0.10	0.16	0.36	0.06	0.64	36.70	37.40	0.26	0.87	194.08	195.22	99.42		
Total [ML]:	0.10	16.70	519.30	536.10	0.47	0.77	1868.82	1870.06	0.00	0.22	10.18	10.40	0.00	0.49	1803.74	1804.23	0.10	0.10	437.88	438.09	0.06	12.15	1000.82	1013.03	0.74	30.43	5640.74	5671.91			

Water Volume [%]:
 Untreated: 0.01 %
 Below Dose 0.54 %
 To Dose 99.45 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²

Submitted By (Print): D. Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02**

WATER TREATMENT PLANT UV REPORT

Report Period: **April 2023**

Report Created: **Monday, May 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/04/2023	92.4	91.7	95.7	92.9	OL	OL	OL	18.1	22.2	21.5	0.0	29.1	21.4	16.0	99.8	21.2	OL	OL	OL	17.1	23.7	21.2
02/04/2023	92.5	91.8	97.6	95.8	OL	OL	OL	18.2	22.0	21.5	OL	OL	OL	18.4	22.0	21.2	OL	OL	OL	17.0	24.4	21.2
03/04/2023	92.7	92.0	97.6	96.6	OL	OL	OL	18.1	21.9	21.5	OL	OL	OL	18.5	22.6	21.2	OL	OL	OL	16.8	22.8	21.2
04/04/2023	92.6	92.0	98.4	97.0	0.0	41.7	19.0	0.0	54.0	21.4	OL	OL	OL	18.3	30.5	21.4	OL	OL	OL	16.8	29.9	21.2
05/04/2023	92.8	92.1	98.7	96.8	OL	OL	OL	18.2	21.9	21.4	OL	OL	OL	18.3	22.4	21.5	OL	OL	OL	16.7	22.0	21.2
06/04/2023	92.8	92.2	98.7	69.1	OL	OL	OL	18.2	22.0	21.4	OL	OL	OL	18.3	22.5	21.5	0.0	95.7	24.3	0.0	34.6	21.2
07/04/2023	92.7	92.0	99.6	98.6	OL	OL	OL	18.1	22.0	21.4	OL	OL	OL	18.3	22.5	21.5	18.4	23.7	21.8	OL	OL	OL
08/04/2023	92.4	91.1	100.0	99.7	10.4	40.7	17.8	0.0	21.9	21.3	OL	OL	OL	18.1	22.6	21.4	18.2	23.6	21.3	OL	OL	OL
09/04/2023	92.2	90.9	100.0	0.8	0.0	38.0	17.5	OL	OL	OL	OL	OL	OL	18.0	22.3	21.2	18.5	30.0	27.4	15.8	84.6	21.2
10/04/2023	92.4	91.4	99.9	0.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.0	22.1	21.3	21.9	30.2	27.2	16.8	21.9	21.1
11/04/2023	92.3	91.5	93.1	0.0	0.0	79.3	29.4	17.1	80.2	21.5	OL	OL	OL	18.2	23.2	21.4	18.2	45.8	24.2	0.0	49.6	21.2
12/04/2023	92.7	91.8	91.3	90.9	OL	OL	OL	0.0	98.0	21.7	OL	OL	OL	15.3	43.6	21.4	0.0	43.8	22.5	16.0	84.6	21.2
13/04/2023	92.8	91.9	91.4	91.0	21.9	88.4	27.5	0.0	24.6	21.6	OL	OL	OL	17.8	22.8	21.4	0.0	95.7	34.4	16.8	22.3	21.1
14/04/2023	92.8	92.0	91.5	91.1	0.0	52.3	26.9	16.2	59.2	21.3	OL	OL	OL	18.1	22.8	21.1	OL	OL	OL	16.8	21.8	21.1
15/04/2023	92.9	91.0	91.6	91.3	OL	OL	OL	18.5	24.8	21.2	OL	OL	OL	16.1	25.6	21.1	OL	OL	OL	16.7	23.3	21.2
16/04/2023	93.0	92.3	91.8	91.3	OL	OL	OL	18.7	21.5	21.1	OL	OL	OL	18.2	22.4	21.6	OL	OL	OL	16.9	24.2	21.2
17/04/2023	92.9	92.2	91.7	33.2	OL	OL	OL	18.4	21.5	21.1	OL	OL	OL	18.2	22.4	21.4	OL	OL	OL	16.5	21.9	21.2
18/04/2023	93.0	92.1	91.7	91.4	OL	OL	OL	18.5	21.6	21.1	OL	OL	OL	18.2	22.3	20.5	18.4	95.7	21.7	0.0	30.3	21.2
19/04/2023	93.1	92.3	91.7	91.4	24.0	102.6	35.3	17.3	33.6	21.0	OL	OL	OL	15.2	34.4	19.9	0.0	36.8	21.3	OL	OL	OL
20/04/2023	93.2	92.3	91.8	91.4	20.2	48.6	30.9	18.4	33.4	21.5	OL	OL	OL	0.0	33.6	19.1	0.0	95.7	21.6	15.8	54.9	21.4
21/04/2023	93.4	92.5	91.9	91.4	25.9	47.4	32.7	18.4	24.2	21.6	OL	OL	OL	17.2	104.4	21.4	OL	OL	OL	0.0	34.0	21.4
22/04/2023	93.5	92.6	91.9	91.4	27.0	50.2	34.3	17.1	35.4	21.5	OL	OL	OL	19.3	36.9	21.3	OL	OL	OL	OL	OL	OL
23/04/2023	93.5	92.5	91.9	91.3	26.4	50.4	35.0	18.3	23.5	21.5	OL	OL	OL	19.9	23.1	21.3	OL	OL	OL	0.0	0.0	0.0
24/04/2023	93.4	92.6	91.8	91.4	25.8	50.1	33.8	18.2	23.6	21.4	OL	OL	OL	18.8	22.9	21.3	OL	OL	OL	OL	OL	OL
25/04/2023	93.3	92.6	91.7	91.2	23.9	43.9	31.8	18.2	22.4	21.4	OL	OL	OL	18.8	22.6	21.2	OL	OL	OL	OL	OL	OL
26/04/2023	93.4	92.7	91.7	91.3	23.6	44.2	30.5	18.1	22.1	21.3	OL	OL	OL	18.8	22.8	21.2	OL	OL	OL	OL	OL	OL
27/04/2023	93.4	92.7	91.8	91.3	23.6	45.0	30.5	18.1	22.0	21.3	OL	OL	OL	18.8	22.6	21.2	OL	OL	OL	OL	OL	OL
28/04/2023	93.4	92.6	91.7	90.8	18.1	45.9	25.3	18.0	22.0	21.3	OL	OL	OL	16.0	29.9	21.2	OL	OL	OL	OL	OL	OL
29/04/2023	93.4	92.6	91.7	91.3	17.4	42.8	21.6	18.0	22.0	21.3	OL	OL	OL	18.6	22.8	21.2	OL	OL	OL	OL	OL	OL
30/04/2023	93.5	92.7	91.9	90.9	0.0	84.5	21.5	16.2	41.6	21.3	OL	OL	OL	0.0	92.8	21.3	0.0	60.8	51.4	16.2	49.1	21.5

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02**

WATER TREATMENT PLANT UV REPORT

Report Period: **May 2023**

Report Created: **Thursday, June 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/05/2023	93.6	92.7	92.1	91.5	17.0	85.8	21.7	18.1	22.1	21.3	OL	OL	OL	0.0	38.4	21.3	0.0	0.0	0.0	15.7	22.5	21.4
02/05/2023	93.8	93.0	92.3	91.8	17.1	24.2	21.3	0.0	29.9	21.3	OL	OL	OL	22.7	67.3	26.9	0.0	0.0	0.0	16.1	23.6	21.4
03/05/2023	93.6	92.9	92.2	91.8	16.9	22.6	21.1	OL	OL	OL	OL	OL	OL	21.5	27.1	25.3	0.0	0.0	0.0	16.1	22.4	21.4
04/05/2023	93.8	93.0	92.4	91.9	16.9	21.7	21.1	OL	OL	OL	OL	OL	OL	20.4	25.6	24.1	0.0	0.0	0.0	15.9	22.3	21.4
05/05/2023	94.2	93.2	92.7	91.9	16.9	23.3	21.1	OL	OL	OL	OL	OL	OL	20.5	26.0	23.7	0.0	0.0	0.0	16.1	22.4	21.4
06/05/2023	94.5	93.9	93.1	92.4	16.6	39.3	21.1	OL	OL	OL	OL	OL	OL	19.3	39.2	23.1	0.0	0.0	0.0	14.2	39.4	21.4
07/05/2023	94.4	93.2	93.0	91.6	16.7	21.6	21.1	OL	OL	OL	OL	OL	OL	19.2	23.8	22.2	0.0	0.0	0.0	0.0	22.4	21.4
08/05/2023	94.5	93.7	93.0	92.3	0.0	97.4	21.2	0.0	91.9	21.3	OL	OL	OL	18.8	32.7	22.3	0.0	95.7	23.3	0.0	84.6	22.3
09/05/2023	94.3	93.6	92.7	92.3	OL	OL	OL	18.3	22.5	21.4	OL	OL	OL	18.7	24.2	21.4	OL	OL	OL	17.0	26.3	21.6
10/05/2023	94.3	93.2	92.6	91.5	OL	OL	OL	17.3	30.0	21.4	OL	OL	OL	18.5	26.6	21.3	OL	OL	OL	17.1	26.8	21.4
11/05/2023	94.0	93.1	92.5	92.0	20.8	90.5	21.5	0.0	37.0	21.4	OL	OL	OL	18.6	23.6	21.3	OL	OL	OL	16.9	24.2	21.2
12/05/2023	93.8	92.4	92.3	90.2	0.0	43.4	21.4	OL	OL	OL	OL	OL	OL	0.0	81.6	21.2	18.5	95.7	22.3	0.0	84.6	21.3
13/05/2023	93.7	92.5	92.2	91.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.3	22.9	21.1	18.0	31.6	21.5	16.9	22.0	21.1
14/05/2023	93.7	92.8	92.2	91.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.3	21.7	21.1	17.8	30.5	21.5	16.9	23.3	21.1
15/05/2023	93.8	93.0	92.3	91.9	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.4	22.8	21.1	17.8	31.2	21.5	16.9	21.8	21.1
16/05/2023	93.9	92.3	92.3	91.8	0.0	105.7	29.7	0.0	87.2	21.3	OL	OL	OL	17.1	29.6	21.2	0.0	36.0	21.7	16.8	29.9	21.1
17/05/2023	93.9	0.0	92.2	0.0	OL	OL	OL	0.0	60.7	21.4	OL	OL	OL	0.0	105.3	21.4	OL	OL	OL	0.0	83.5	21.3
18/05/2023	94.1	92.9	92.5	92.0	OL	OL	OL	15.8	21.9	19.4	OL	OL	OL	18.3	22.7	21.2	OL	OL	OL	16.8	22.2	21.1
19/05/2023	94.3	93.4	92.7	92.4	OL	OL	OL	13.6	22.2	20.0	OL	OL	OL	18.4	22.1	21.1	OL	OL	OL	16.5	22.2	21.1
20/05/2023	94.3	93.5	92.8	92.4	17.1	87.1	21.5	0.0	21.3	20.5	OL	OL	OL	18.4	22.4	21.1	OL	OL	OL	16.9	22.2	21.1
21/05/2023	94.3	93.0	92.9	92.6	17.1	33.8	21.2	OL	OL	OL	OL	OL	OL	18.5	22.5	21.1	OL	OL	OL	16.7	22.2	21.1
22/05/2023	94.3	93.3	92.9	92.4	17.2	34.9	21.2	OL	OL	OL	OL	OL	OL	18.4	22.3	21.1	OL	OL	OL	16.5	22.1	21.1
23/05/2023	94.3	93.4	92.9	92.5	0.0	100.8	21.6	0.0	55.2	21.0	OL	OL	OL	16.1	29.4	21.1	0.0	94.8	23.3	15.7	30.1	21.1
24/05/2023	94.2	93.4	92.9	92.5	0.0	101.8	22.0	0.0	59.4	21.9	OL	OL	OL	17.9	22.1	21.1	OL	OL	OL	16.7	23.1	21.1
25/05/2023	94.3	93.7	92.9	92.5	17.2	37.7	23.5	0.0	97.1	24.6	OL	OL	OL	18.5	24.2	21.2	OL	OL	OL	16.8	24.3	21.1
26/05/2023	94.2	93.6	92.9	92.3	16.8	34.1	22.0	OL	OL	OL	OL	OL	OL	18.6	22.5	21.1	OL	OL	OL	16.8	22.1	21.1
27/05/2023	94.0	93.1	92.7	91.8	16.0	31.8	21.2	OL	OL	OL	OL	OL	OL	18.6	21.7	21.1	OL	OL	OL	16.8	22.2	21.1
28/05/2023	93.8	92.9	92.5	90.6	15.9	30.0	21.2	OL	OL	OL	OL	OL	OL	18.6	22.3	21.1	OL	OL	OL	16.8	21.7	21.1
29/05/2023	93.7	92.9	92.5	92.0	16.4	30.2	21.3	OL	OL	OL	OL	OL	OL	18.6	22.7	21.1	OL	OL	OL	16.9	23.5	21.1
30/05/2023	93.5	0.0	92.3	0.0	0.0	101.0	22.1	OL	OL	OL	OL	OL	OL	0.0	62.1	21.1	OL	OL	OL	0.0	84.6	21.1
31/05/2023	94.1	92.2	92.9	91.9	17.0	39.6	21.2	0.0	98.0	24.1	OL	OL	OL	13.1	43.3	21.5	0.0	95.7	21.4	0.0	84.6	23.0

Notes:
 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-02

WATER TREATMENT PLANT UV REPORT

Report Period: June 2023

Report Created: Saturday, July 01, 2023

Table with columns for Date, UVR-D100A, UVR-D200A, UVR-D300A, UVR-D400A, UVR-D500A, UVR-D600A, Total Water Volume [ML], and % Volume Treated To Dose. Includes daily data from 01/06/2023 to 30/06/2023 and a total row at the bottom.

Water Volume [ML]:

Untreated: 0.03 %
Below Dose: 0.95 %
To Dose: 99.03 %

Notes: 1. UV Comparative Dose: 18.1 mj/cm²

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02**

WATER TREATMENT PLANT UV REPORT

Report Period: **June 2023**

Report Created: **Saturday, July 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/06/2023	93.8	0.0	92.5	0.0	0.0	89.2	21.3	OL	OL	OL	16.8	64.6	21.6	0.0	22.8	21.6	0.0	95.7	21.4	OL	OL	OL
02/06/2023	93.9	93.0	92.4	91.7	16.7	21.8	21.0	OL	OL	OL	16.6	25.9	21.5	OL	OL	OL	18.2	23.3	21.1	OL	OL	OL
03/06/2023	93.9	93.0	92.5	91.9	16.1	21.9	21.1	OL	OL	OL	16.2	22.8	21.3	OL	OL	OL	18.3	23.4	21.1	OL	OL	OL
04/06/2023	93.8	92.4	92.4	91.9	15.9	23.7	21.0	OL	OL	OL	16.8	22.5	21.3	OL	OL	OL	18.3	21.6	21.1	OL	OL	OL
05/06/2023	93.7	92.7	92.3	91.9	15.3	21.9	21.0	OL	OL	OL	16.5	22.8	21.3	OL	OL	OL	18.2	21.7	21.1	OL	OL	OL
06/06/2023	93.7	92.7	92.2	91.4	15.5	23.5	21.1	OL	OL	OL	16.5	22.8	21.4	OL	OL	OL	18.3	21.7	21.1	OL	OL	OL
07/06/2023	93.8	92.4	92.4	92.0	15.7	21.8	21.1	OL	OL	OL	16.8	23.0	21.4	OL	OL	OL	18.3	23.1	21.1	OL	OL	OL
08/06/2023	88.1	0.0	87.3	0.0	0.0	95.3	21.7	OL	OL	OL	0.0	62.6	21.4	OL	OL	OL	0.0	74.6	21.4	OL	OL	OL
09/06/2023	93.7	0.0	92.2	0.0	0.0	86.2	21.4	OL	OL	OL	0.0	63.4	21.3	OL	OL	OL	0.0	89.0	21.3	OL	OL	OL
10/06/2023	93.7	93.0	92.1	0.0	17.1	29.9	21.2	OL	OL	OL	16.7	22.4	21.3	OL	OL	OL	18.1	22.8	21.1	OL	OL	OL
11/06/2023	93.9	93.2	92.5	92.0	17.3	30.5	21.2	OL	OL	OL	16.9	22.7	21.3	OL	OL	OL	17.8	28.6	21.4	OL	OL	OL
12/06/2023	93.9	92.5	92.5	92.0	17.4	30.8	21.2	OL	OL	OL	16.7	22.6	21.3	OL	OL	OL	17.7	24.7	21.4	OL	OL	OL
13/06/2023	93.9	93.2	92.5	91.9	17.3	30.2	21.2	OL	OL	OL	16.7	22.5	21.3	OL	OL	OL	17.8	24.5	21.4	OL	OL	OL
14/06/2023	93.8	93.1	92.4	91.9	16.9	30.0	21.2	OL	OL	OL	16.7	22.6	21.3	OL	OL	OL	17.5	23.7	21.4	OL	OL	OL
15/06/2023	93.8	92.7	92.3	92.0	0.0	71.7	21.4	OL	OL	OL	0.0	61.3	21.5	OL	OL	OL	0.0	73.3	21.4	OL	OL	OL
16/06/2023	93.8	92.8	92.3	91.9	15.4	29.6	21.2	OL	OL	OL	16.9	23.0	21.5	OL	OL	OL	17.3	22.3	21.3	OL	OL	OL
17/06/2023	93.7	93.0	92.3	91.3	15.8	25.7	21.1	OL	OL	OL	17.0	23.5	21.6	OL	OL	OL	17.6	22.1	21.3	OL	OL	OL
18/06/2023	93.7	92.8	92.2	91.8	16.0	25.0	21.1	OL	OL	OL	17.1	23.0	21.5	OL	OL	OL	17.6	22.0	21.3	OL	OL	OL
19/06/2023	92.4	0.0	91.1	0.0	15.6	32.4	21.1	OL	OL	OL	16.8	32.8	21.5	OL	OL	OL	17.6	27.3	21.3	OL	OL	OL
20/06/2023	93.6	92.5	92.1	90.6	15.5	24.3	21.1	OL	OL	OL	16.6	22.8	21.3	OL	OL	OL	17.4	22.0	21.3	OL	OL	OL
21/06/2023	93.5	92.7	92.0	91.1	15.7	33.5	21.6	15.1	85.5	21.3	0.0	60.1	21.4	0.0	48.2	21.7	15.2	31.3	21.4	0.0	83.8	20.6
22/06/2023	93.7	92.6	92.1	90.9	16.2	33.9	21.4	17.8	22.2	21.4	0.0	58.0	21.4	0.0	50.2	21.7	0.0	67.9	21.3	0.0	84.6	27.6
23/06/2023	93.7	92.9	92.1	91.8	15.7	27.0	21.4	0.0	36.6	21.4	17.4	25.9	21.5	16.3	51.1	21.9	15.4	31.4	21.3	0.0	84.6	42.9
24/06/2023	93.6	92.8	92.1	91.1	16.5	27.2	21.2	OL	OL	OL	17.3	23.6	21.6	18.5	30.3	21.6	17.6	22.6	21.3	0.0	0.0	0.0
25/06/2023	93.7	92.9	92.1	91.5	16.9	27.9	21.2	OL	OL	OL	17.3	23.7	21.7	18.8	30.4	21.6	17.5	22.8	21.4	OL	OL	OL
26/06/2023	93.6	92.9	92.0	91.7	16.0	25.8	21.2	OL	OL	OL	17.6	23.5	21.6	18.4	28.7	21.5	15.2	32.7	21.3	0.0	84.6	36.4
27/06/2023	93.6	92.8	92.0	91.0	15.6	25.6	21.2	OL	OL	OL	17.3	23.2	21.5	18.7	28.4	21.5	17.4	22.1	21.3	OL	OL	OL
28/06/2023	93.6	92.7	92.0	91.4	15.8	26.6	21.2	OL	OL	OL	17.5	23.6	21.6	18.6	30.1	21.5	17.4	22.2	21.3	OL	OL	OL
29/06/2023	93.6	92.9	92.0	91.6	16.3	27.1	21.2	OL	OL	OL	17.4	23.7	21.7	18.5	30.1	21.6	17.7	22.3	21.4	OL	OL	OL
30/06/2023	93.6	92.7	91.9	90.9	13.4	31.9	19.8	0.0	80.3	21.7	16.2	30.3	21.5	0.0	27.7	21.6	15.2	34.6	20.9	0.0	84.6	21.8

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original Signed by D.Merredew



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02 A

WATER TREATMENT PLANT UV REPORT

Report Period: July 2023

Report Created: Tuesday, August 01, 2023

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm ²]			UV Dose [mJ/cm ²]			UV Dose [mJ/cm ²]			UV Dose [mJ/cm ²]			UV Dose [mJ/cm ²]			UV Dose [mJ/cm ²]		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/07/2023	93.4	91.6	91.5	90.4	15.3	23.2	20.9	OL	OL	OL	17.1	29.5	21.3	OL	OL	OL	17.9	29.7	21.7	17.0	23.7	21.2
02/07/2023	93.2	0.0	91.4	90.5	15.8	24.3	21.6	OL	OL	OL	16.7	23.8	21.5	OL	OL	OL	17.7	31.2	22.0	16.6	24.0	21.1
03/07/2023	93.3	90.8	91.4	90.4	16.5	24.4	21.6	OL	OL	OL	15.9	23.8	21.5	OL	OL	OL	17.4	28.5	22.0	16.9	22.1	21.1
04/07/2023	93.0	92.2	91.2	90.0	15.3	24.2	21.6	OL	OL	OL	0.0	35.4	21.5	0.0	104.8	24.1	16.5	26.3	22.0	16.6	24.9	21.1
05/07/2023	92.7	0.0	90.9	90.1	15.6	23.2	21.6	OL	OL	OL	OL	OL	OL	17.3	24.8	22.0	17.8	23.7	22.0	16.5	21.9	21.1
06/07/2023	92.5	90.7	90.6	88.7	0.0	54.6	21.6	16.8	85.7	21.4	OL	OL	OL	0.0	92.4	21.9	0.0	31.8	20.6	0.0	84.0	21.2
07/07/2023	93.1	91.7	91.3	89.7	0.0	81.0	39.9	14.9	23.3	21.4	0.0	69.5	50.5	15.5	32.8	21.9	15.5	24.6	20.9	16.6	24.4	21.2
08/07/2023	93.7	92.9	91.9	90.9	OL	OL	OL	18.0	21.9	21.4	OL	OL	OL	15.4	29.2	23.2	17.4	27.0	22.1	16.9	23.3	21.2
09/07/2023	93.6	92.5	91.9	90.9	OL	OL	OL	17.1	22.0	21.3	OL	OL	OL	14.2	31.8	23.0	18.0	25.1	22.2	16.9	23.3	21.2
10/07/2023	93.6	92.8	91.9	90.7	25.9	79.3	35.7	18.0	22.1	21.4	OL	OL	OL	0.0	29.1	22.3	18.0	24.3	22.1	16.8	22.0	21.2
11/07/2023	93.9	92.9	92.3	91.4	20.4	45.8	28.1	17.9	21.9	21.4	OL	OL	OL	OL	OL	OL	18.0	24.1	22.2	16.1	24.4	21.4
12/07/2023	95.1	94.3	93.5	92.4	20.5	43.7	25.9	17.1	22.0	21.4	OL	OL	OL	OL	OL	OL	17.7	26.6	22.2	16.4	22.9	21.5
13/07/2023	95.0	93.7	93.4	92.4	20.1	42.2	25.3	18.0	21.9	21.3	OL	OL	OL	OL	OL	OL	17.9	29.0	22.1	16.2	23.3	21.5
14/07/2023	95.0	93.8	93.4	92.6	20.1	41.3	25.4	18.0	21.9	21.3	OL	OL	OL	OL	OL	OL	17.7	32.3	22.1	16.5	23.8	21.4
15/07/2023	95.1	93.8	93.1	80.0	20.6	41.7	25.4	17.8	21.9	21.3	OL	OL	OL	OL	OL	OL	17.8	33.4	22.1	16.1	29.6	21.3
16/07/2023	95.0	93.8	93.4	92.0	20.4	42.8	25.8	17.9	21.9	21.4	OL	OL	OL	OL	OL	OL	16.1	34.6	22.0	17.0	22.3	21.2
17/07/2023	94.9	93.5	93.3	92.1	19.7	42.9	25.2	17.8	22.0	21.4	OL	OL	OL	OL	OL	OL	17.8	32.6	22.2	16.9	24.1	21.2
18/07/2023	94.7	93.3	93.1	92.5	19.8	41.0	24.6	17.9	21.9	21.4	OL	OL	OL	OL	OL	OL	18.0	31.1	22.2	16.9	22.1	21.2
19/07/2023	94.7	93.6	93.2	92.2	18.5	41.0	23.8	17.9	22.0	21.4	OL	OL	OL	0.0	104.6	44.8	18.0	30.2	22.2	16.6	22.5	21.2
20/07/2023	94.4	92.6	92.7	90.6	0.0	74.9	22.1	0.0	78.0	21.4	OL	OL	OL	OL	OL	OL	0.0	34.5	21.2	0.0	40.7	21.2
21/07/2023	95.0	93.8	93.3	91.9	16.6	23.1	21.1	17.5	21.9	21.3	OL	OL	OL	OL	OL	OL	16.0	22.1	20.4	0.0	0.0	0.0
22/07/2023	95.1	93.2	93.5	92.2	16.5	21.6	21.0	17.7	21.8	21.3	OL	OL	OL	OL	OL	OL	15.2	21.1	18.8	OL	OL	OL
23/07/2023	95.0	93.1	93.4	92.4	16.6	21.7	21.0	17.6	21.8	21.3	OL	OL	OL	OL	OL	OL	15.4	21.0	19.2	OL	OL	OL
24/07/2023	95.2	93.7	93.4	92.3	16.4	21.6	21.1	17.5	21.8	21.3	OL	OL	OL	OL	OL	OL	15.6	20.3	19.1	OL	OL	OL
25/07/2023	94.8	92.3	92.9	90.4	0.0	84.9	21.4	0.0	72.7	21.3	0.0	101.1	21.7	OL	OL	OL	0.0	79.2	19.8	0.0	84.4	46.7
26/07/2023	95.3	94.1	93.4	91.6	16.0	29.0	21.4	17.7	21.8	21.3	17.4	29.6	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
27/07/2023	95.4	94.3	93.4	92.5	15.8	29.8	21.4	17.3	21.8	21.3	17.5	29.7	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
28/07/2023	95.5	94.0	93.6	92.2	15.5	30.5	21.4	17.7	21.8	21.3	17.6	22.0	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
29/07/2023	94.9	92.4	93.0	91.9	15.3	28.0	21.4	17.9	21.8	21.3	17.4	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
30/07/2023	95.0	93.2	93.0	90.9	16.2	27.3	21.4	17.8	21.9	21.3	17.3	22.0	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
31/07/2023	95.4	94.1	93.5	92.3	16.2	28.0	21.4	17.8	21.8	21.3	17.3	24.0	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL

- Notes:**
- UV Comparative Dose: 18.1 mJ/cm²
 - OL - Off Line

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-02 A

WATER TREATMENT PLANT UV REPORT

Report Period: August 2023

Report Created: Friday, September 01, 2023

Table with columns: Date, UVR-D100A Water Volume [ML], UVR-D200A Water Volume [ML], UVR-D300A Water Volume [ML], UVR-D400A Water Volume [ML], UVR-D500A Water Volume [ML], UVR-D600A Water Volume [ML], Total Water Volume [ML], % Volume Treated To Dose. Rows include dates from 01/08/2023 to 31/08/2023 and a Total [ML] row.

Water Volume [%]:

Untreated: 0.01 %
Below Dose: 0.76 %
To Dose: 99.23 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02 A**

WATER TREATMENT PLANT UV REPORT

Report Period: **August 2023**

Report Created: **Friday, September 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/08/2023	95.4	93.9	93.5	92.2	16.2	28.3	21.4	17.8	21.9	21.3	17.5	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
02/08/2023	95.5	93.8	93.5	91.4	16.3	29.0	21.4	17.7	21.9	21.3	17.6	22.0	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
03/08/2023	95.6	94.1	93.7	92.0	15.6	30.0	21.4	17.7	21.9	21.3	17.5	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
04/08/2023	95.7	94.0	93.8	92.6	16.4	29.9	21.4	17.8	21.8	21.3	17.4	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
05/08/2023	95.8	94.4	93.9	93.1	16.6	30.4	21.4	17.8	21.8	21.3	17.5	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
06/08/2023	95.0	86.1	93.2	91.4	15.2	29.4	21.4	15.8	21.8	21.3	17.2	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
07/08/2023	94.9	93.6	93.0	92.0	15.7	28.0	21.4	17.3	21.8	21.3	17.6	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
08/08/2023	94.9	93.0	92.9	91.3	16.0	26.4	21.4	17.8	21.8	21.3	17.3	21.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
09/08/2023	94.9	93.9	93.0	91.1	16.4	25.3	21.4	17.7	21.8	21.3	17.4	21.8	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL
10/08/2023	95.3	94.1	93.4	92.4	16.5	26.2	21.4	17.7	22.1	21.4	0.0	37.9	21.1	OL	OL	OL	OL	OL	OL	17.1	84.6	21.4
11/08/2023	95.5	94.2	93.6	91.3	15.5	27.3	21.4	17.8	22.0	21.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	16.9	22.7	21.1
12/08/2023	95.4	93.8	93.5	92.3	16.3	34.8	21.4	16.9	31.0	21.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	13.6	40.5	21.1
13/08/2023	95.2	93.5	93.4	91.8	15.2	27.6	21.4	17.9	21.9	21.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	16.9	24.9	21.1
14/08/2023	93.4	91.8	91.4	89.9	0.0	34.6	18.8	15.3	34.1	21.2	OL	OL	OL	0.0	102.4	21.3	OL	OL	OL	16.4	40.7	21.1
15/08/2023	93.6	92.7	91.5	90.8	OL	OL	OL	18.0	22.0	21.4	OL	OL	OL	18.8	22.9	21.2	OL	OL	OL	16.8	22.2	21.2
16/08/2023	94.3	93.0	92.3	90.9	OL	OL	OL	17.6	21.9	21.4	OL	OL	OL	18.7	22.2	21.2	OL	OL	OL	16.6	22.5	21.2
17/08/2023	95.8	94.9	94.1	92.6	OL	OL	OL	17.6	21.9	21.4	OL	OL	OL	16.1	30.0	21.2	OL	OL	OL	17.0	22.2	21.2
18/08/2023	95.9	94.1	94.1	92.8	OL	OL	OL	17.5	21.9	21.4	OL	OL	OL	18.8	22.9	21.2	OL	OL	OL	16.4	22.2	21.2
19/08/2023	96.0	94.8	94.3	93.1	OL	OL	OL	17.8	22.0	21.4	OL	OL	OL	18.6	21.7	21.2	OL	OL	OL	16.8	22.2	21.2
20/08/2023	96.0	94.5	94.3	92.8	OL	OL	OL	17.8	21.8	21.4	OL	OL	OL	18.8	22.5	21.2	OL	OL	OL	16.7	24.3	21.2
21/08/2023	96.2	94.8	94.7	92.8	OL	OL	OL	16.2	22.4	21.4	0.0	54.9	21.2	0.0	21.7	21.2	0.0	71.3	30.6	5.9	24.9	21.2
22/08/2023	96.2	95.2	94.9	89.2	0.0	102.1	69.0	17.6	22.2	21.4	0.0	36.3	21.5	0.0	72.6	21.5	0.0	58.8	27.5	0.0	84.6	21.8
23/08/2023	96.3	94.9	94.8	92.9	OL	OL	OL	17.5	21.9	21.4	OL	OL	OL	18.1	26.5	21.5	OL	OL	OL	16.8	24.1	21.2
24/08/2023	96.2	94.9	93.4	0.0	0.0	93.2	26.9	0.0	27.3	21.3	OL	OL	OL	0.0	33.7	21.5	17.5	66.6	25.4	0.0	49.2	20.9
25/08/2023	95.2	93.0	93.4	89.0	17.3	34.9	21.8	0.0	77.5	21.2	OL	OL	OL	0.0	96.1	53.2	18.2	33.8	22.5	0.0	84.6	21.1
26/08/2023	96.1	94.9	94.8	92.4	16.6	23.7	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.2	34.3	21.8	17.0	21.8	21.1
27/08/2023	96.1	95.3	94.8	93.9	17.1	22.9	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.2	35.0	21.6	16.7	21.8	21.1
28/08/2023	96.2	94.8	94.8	93.3	16.8	22.3	21.1	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.8	34.1	21.5	16.6	21.8	21.1
29/08/2023	96.0	94.6	94.6	93.6	16.1	21.9	21.1	OL	OL	OL	OL	OL	OL	18.0	101.2	26.5	0.0	33.6	21.3	0.0	84.6	21.2
30/08/2023	95.7	93.5	94.4	92.6	16.2	22.1	21.1	OL	OL	OL	OL	OL	OL	18.9	25.4	22.9	OL	OL	OL	16.3	22.5	21.2
31/08/2023	95.5	93.3	94.1	92.8	15.1	21.8	21.0	OL	OL	OL	OL	OL	OL	18.6	25.0	21.4	OL	OL	OL	16.2	22.0	21.2

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02 A

WATER TREATMENT PLANT UV REPORT

Report Period: **September 2023**

Report Created: **Sunday, October 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/09/2023	95.3	92.7	93.9	91.3	16.4	28.9	21.0	OL	OL	OL	OL	OL	OL	18.6	30.4	21.4	OL	OL	OL	16.2	26.8	21.2
02/09/2023	95.9	94.1	94.8	92.9	15.4	21.7	21.1	OL	OL	OL	OL	OL	OL	18.6	24.9	21.3	OL	OL	OL	16.2	21.9	21.2
03/09/2023	95.9	95.0	94.9	93.5	16.2	21.7	21.1	OL	OL	OL	OL	OL	OL	18.4	25.5	21.3	OL	OL	OL	16.1	22.0	21.3
04/09/2023	95.9	95.0	94.8	93.7	16.6	23.5	21.1	OL	OL	OL	OL	OL	OL	18.6	27.1	21.3	OL	OL	OL	16.2	22.1	21.3
05/09/2023	95.9	94.6	94.7	93.3	16.8	21.9	21.1	OL	OL	OL	0.0	0.0	0.0	18.2	27.4	21.3	OL	OL	OL	15.9	22.1	21.3
06/09/2023	96.0	94.7	94.8	93.4	16.5	21.9	21.1	OL	OL	OL	OL	OL	OL	18.7	27.4	21.3	OL	OL	OL	15.8	22.0	21.3
07/09/2023	96.2	94.2	94.8	93.9	16.3	22.9	21.1	OL	OL	OL	OL	OL	OL	18.5	27.0	21.3	OL	OL	OL	16.2	23.1	21.3
08/09/2023	96.0	94.5	94.6	93.4	16.4	23.2	21.1	OL	OL	OL	OL	OL	OL	18.6	26.4	21.3	OL	OL	OL	16.3	23.7	21.3
09/09/2023	96.1	94.3	94.8	93.7	15.5	21.9	21.0	OL	OL	OL	OL	OL	OL	18.5	26.6	21.3	OL	OL	OL	16.2	22.3	21.3
10/09/2023	96.3	94.6	95.0	93.3	15.3	21.6	21.0	OL	OL	OL	16.2	68.5	21.5	0.0	26.1	21.3	OL	OL	OL	16.2	22.5	21.3
11/09/2023	96.4	93.2	95.4	93.6	14.6	22.7	21.0	OL	OL	OL	0.0	50.5	21.3	0.0	93.2	27.9	OL	OL	OL	16.3	22.1	21.3
12/09/2023	96.4	94.9	95.7	92.7	15.3	23.4	21.0	OL	OL	OL	0.0	28.1	21.6	20.3	93.3	22.5	OL	OL	OL	16.3	22.0	21.3
13/09/2023	96.5	95.3	95.7	94.6	15.9	21.7	21.0	OL	OL	OL	OL	OL	OL	20.6	28.7	21.4	OL	OL	OL	16.3	22.1	21.3
14/09/2023	94.2	93.2	92.7	88.2	0.0	104.8	22.4	OL	OL	OL	OL	OL	OL	0.0	53.8	21.7	OL	OL	OL	0.0	54.5	21.3
15/09/2023	96.1	94.5	94.6	93.1	15.8	26.0	21.7	OL	OL	OL	OL	OL	OL	20.4	22.6	21.7	OL	OL	OL	15.3	22.1	21.2
16/09/2023	95.7	94.6	94.2	93.4	15.7	33.1	21.6	17.5	85.2	21.3	OL	OL	OL	0.0	22.5	21.3	OL	OL	OL	14.5	23.0	20.3
17/09/2023	94.9	93.1	93.3	91.2	16.7	23.2	21.2	17.6	21.9	21.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	12.3	21.4	18.8
18/09/2023	94.4	93.1	92.7	91.6	0.0	84.8	21.3	17.5	22.3	21.3	0.0	27.9	15.4	OL	OL	OL	6.2	28.5	21.1	0.0	32.7	17.3
19/09/2023	94.2	91.8	92.5	90.5	16.2	30.3	21.3	17.7	21.9	21.3	OL	OL	OL	OL	OL	OL	0.0	31.6	21.1	17.0	84.6	21.4
20/09/2023	93.0	91.8	91.2	90.0	15.1	22.5	21.5	17.7	22.0	21.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	16.8	23.4	21.1
21/09/2023	93.0	92.2	91.2	90.7	0.0	31.5	21.5	17.7	22.2	21.3	17.6	62.4	27.2	OL	OL	OL	OL	OL	OL	16.7	24.5	21.1
22/09/2023	93.2	92.0	91.5	90.8	OL	OL	OL	17.8	21.9	21.3	21.9	28.8	26.9	OL	OL	OL	OL	OL	OL	16.5	24.6	21.1
23/09/2023	93.3	92.5	91.6	91.1	OL	OL	OL	17.6	21.9	21.3	21.0	27.8	25.8	OL	OL	OL	OL	OL	OL	16.6	24.6	21.1
24/09/2023	93.6	92.6	92.0	90.5	OL	OL	OL	17.7	22.0	21.3	20.6	27.1	25.4	OL	OL	OL	OL	OL	OL	16.4	21.8	21.1
25/09/2023	93.8	92.9	92.2	91.4	OL	OL	OL	17.9	21.9	21.3	20.8	27.5	25.9	OL	OL	OL	OL	OL	OL	16.6	21.8	21.1
26/09/2023	93.8	92.8	92.2	90.7	OL	OL	OL	17.5	21.9	21.3	20.8	27.9	25.6	OL	OL	OL	OL	OL	OL	16.5	23.9	21.1
27/09/2023	93.9	92.9	91.2	0.0	0.0	48.8	21.5	0.0	64.6	21.3	17.7	31.0	23.6	OL	OL	OL	0.0	29.4	21.2	0.0	28.3	21.0
28/09/2023	94.3	93.2	92.9	91.6	17.9	103.6	22.7	0.0	31.6	21.3	17.5	22.5	21.3	OL	OL	OL	0.0	29.5	21.2	17.1	84.6	21.3
29/09/2023	94.8	94.1	93.2	92.6	16.7	36.1	21.3	OL	OL	OL	17.5	22.2	21.2	OL	OL	OL	OL	OL	OL	16.3	29.0	21.3
30/09/2023	94.5	93.5	92.8	91.8	16.5	29.5	21.3	OL	OL	OL	17.0	22.3	21.2	OL	OL	OL	OL	OL	OL	14.0	22.8	20.7

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02 A**

WATER TREATMENT PLANT UV REPORT

Report Period: **October 2023**

Report Created: **Wednesday, November 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/10/2023	94.3	92.9	92.5	92.0	16.2	27.8	21.3	15.8	66.3	21.3	17.3	22.2	21.1	OL	OL	OL	OL	OL	OL	0.0	36.3	17.8
02/10/2023	94.5	93.3	92.7	92.1	16.7	27.7	21.3	17.4	25.7	21.3	15.8	30.3	21.2	OL	OL	OL	OL	OL	OL	0.0	0.0	0.0
03/10/2023	94.5	93.4	92.7	91.7	16.9	25.6	21.3	0.0	29.9	21.2	17.3	23.2	21.1	OL	OL	OL	OL	OL	OL	16.6	83.7	21.4
04/10/2023	94.5	93.2	92.7	91.1	16.7	24.9	21.3	OL	OL	OL	17.3	23.5	21.2	OL	OL	OL	OL	OL	OL	16.9	22.1	21.1
05/10/2023	94.6	93.1	92.8	91.8	15.6	35.6	21.3	OL	OL	OL	17.5	38.4	21.6	OL	OL	OL	OL	OL	OL	15.5	46.2	21.3
06/10/2023	94.7	94.0	93.0	92.3	15.8	30.1	21.2	OL	OL	OL	17.8	27.7	22.8	OL	OL	OL	OL	OL	OL	16.1	22.5	21.4
07/10/2023	94.8	94.2	93.1	92.5	16.5	28.3	21.2	OL	OL	OL	17.2	28.2	22.3	OL	OL	OL	OL	OL	OL	16.3	22.4	21.4
08/10/2023	95.0	94.2	93.2	92.8	14.7	22.4	21.4	OL	OL	OL	17.4	29.6	21.6	OL	OL	OL	OL	OL	OL	16.0	22.8	21.4
09/10/2023	95.0	94.4	93.3	92.8	14.2	29.2	21.4	OL	OL	OL	17.4	30.1	21.5	OL	OL	OL	OL	OL	OL	16.0	23.5	21.4
10/10/2023	95.0	94.2	93.2	92.8	14.0	22.4	21.3	OL	OL	OL	0.0	29.1	21.5	0.0	88.0	26.7	OL	OL	OL	16.1	23.1	21.4
11/10/2023	94.7	94.0	93.0	92.3	14.1	22.1	21.3	OL	OL	OL	OL	OL	OL	20.5	25.7	21.6	OL	OL	OL	14.9	22.3	20.6
12/10/2023	94.6	93.6	92.9	92.4	0.0	31.8	21.3	OL	OL	OL	OL	OL	OL	18.1	23.5	21.3	8.9	29.3	21.3	14.2	24.6	20.0
13/10/2023	94.6	93.4	92.8	92.1	OL	OL	OL	13.8	48.9	21.0	0.0	71.5	26.0	18.6	22.9	21.3	0.0	31.0	21.2	0.0	83.9	21.1
14/10/2023	94.7	92.4	92.9	92.1	OL	OL	OL	16.7	21.7	20.6	OL	OL	OL	20.5	22.2	21.4	OL	OL	OL	16.2	29.8	21.1
15/10/2023	94.7	0.1	93.1	92.5	OL	OL	OL	17.0	21.9	21.1	OL	OL	OL	20.5	22.3	21.4	OL	OL	OL	16.1	22.1	21.4
16/10/2023	94.8	93.8	93.1	91.8	OL	OL	OL	0.0	52.1	20.5	0.0	69.5	22.5	18.8	23.0	21.4	OL	OL	OL	16.2	24.4	21.4
17/10/2023	94.8	93.9	93.0	92.2	OL	OL	OL	15.2	20.3	18.9	OL	OL	OL	20.5	22.3	21.3	OL	OL	OL	16.1	24.2	21.3
18/10/2023	94.7	93.7	93.0	91.4	OL	OL	OL	14.4	18.6	17.6	OL	OL	OL	20.0	22.6	21.3	11.3	27.4	21.3	0.0	34.1	21.3
19/10/2023	94.6	93.3	92.9	92.0	OL	OL	OL	0.0	80.2	20.6	16.2	64.2	21.4	0.0	26.1	21.3	17.2	23.2	21.3	0.0	0.0	0.0
20/10/2023	94.4	92.7	92.9	91.2	OL	OL	OL	17.6	21.8	21.2	17.2	27.4	21.4	OL	OL	OL	16.8	22.8	21.3	OL	OL	OL
21/10/2023	94.5	93.0	93.0	89.0	OL	OL	OL	17.5	22.0	21.2	17.0	26.1	21.4	OL	OL	OL	17.4	22.9	21.4	OL	OL	OL
22/10/2023	94.5	93.1	93.1	92.2	OL	OL	OL	17.5	21.8	21.2	17.2	25.5	21.4	OL	OL	OL	17.3	22.7	21.4	0.0	0.0	0.0
23/10/2023	94.0	92.5	92.7	91.5	OL	OL	OL	17.5	21.8	21.2	16.0	30.4	21.6	OL	OL	OL	17.6	22.8	21.4	0.0	0.0	0.0
24/10/2023	94.3	93.4	93.1	92.5	OL	OL	OL	0.0	68.5	21.2	0.0	72.2	21.4	0.0	26.3	21.2	0.0	29.8	21.4	0.0	84.3	21.3
25/10/2023	94.1	92.1	93.1	91.7	OL	OL	OL	0.0	32.3	21.2	15.7	27.0	21.4	OL	OL	OL	16.1	33.3	21.3	18.8	29.9	21.4
26/10/2023	94.0	92.7	93.2	92.2	OL	OL	OL	OL	OL	OL	16.8	22.5	21.4	0.0	0.0	0.0	17.7	22.8	21.3	0.0	22.0	21.4
27/10/2023	93.7	92.6	93.3	92.7	OL	OL	OL	OL	OL	OL	16.3	26.6	21.4	0.0	83.8	25.0	0.0	27.5	21.3	19.7	22.3	21.3
28/10/2023	93.4	92.3	93.5	92.8	OL	OL	OL	OL	OL	OL	16.2	30.3	21.5	0.0	22.6	21.4	OL	OL	OL	18.6	21.6	20.0
29/10/2023	93.1	91.8	94.1	93.1	OL	OL	OL	OL	OL	OL	16.7	22.7	21.5	20.6	21.7	21.2	OL	OL	OL	17.5	21.3	19.2
30/10/2023	92.9	91.0	95.4	94.5	0.0	32.4	19.0	OL	OL	OL	14.4	27.8	21.5	0.0	105.7	21.4	0.0	95.7	21.4	0.0	36.7	20.4
31/10/2023	92.7	91.2	96.2	95.0	OL	OL	OL	OL	OL	OL	15.5	23.8	21.6	18.8	22.9	21.2	0.0	95.7	21.3	0.0	84.6	21.4

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02 A

WATER TREATMENT PLANT UV REPORT

Report Period: November 2023

Report Created: Friday, December 01, 2023

Date	UVR-D100A Water Volume [ML]				UVR-D200A Water Volume [ML]				UVR-D300A Water Volume [ML]				UVR-D400A Water Volume [ML]				UVR-D500A Water Volume [ML]				UVR-D600A Water Volume [ML]				Total Water Volume [ML]				% Volume Treated To Dose	
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total		
01/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.74	52.13	52.87	0.00	0.00	57.22	57.22	0.00	0.00	0.00	0.00	0.00	1.00	83.94	84.94	0.00	1.74	193.29	195.02	99.11
02/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.80	51.65	52.45	0.00	0.00	56.11	56.11	0.00	0.00	35.59	35.59	0.00	0.65	48.83	49.48	0.00	1.45	192.18	193.63	99.25
03/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	1.08	46.58	47.66	0.00	0.00	59.03	59.03	0.00	0.00	80.54	80.54	0.00	0.17	8.58	8.75	0.00	1.25	194.74	195.98	99.36
04/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00	0.00	0.00	72.52	72.52	0.00	0.00	45.33	45.33	0.00	0.95	79.09	80.04	0.00	0.95	196.94	197.88	99.52
05/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00	0.00	0.00	70.46	70.46	0.00	0.00	43.20	43.20	0.00	0.69	75.86	76.55	0.00	0.69	189.53	190.22	99.64
06/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	36.44	36.44	0.00	0.00	32.44	32.44	0.00	0.00	42.15	42.15	0.00	1.04	73.92	74.96	0.00	1.04	184.94	185.99	99.44
07/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	67.18	67.18	0.00	0.00	0.00	0.00	0.00	0.00	41.87	41.87	0.00	0.68	73.67	74.34	0.00	0.68	182.72	183.40	99.63
08/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	66.81	66.81	0.00	0.00	0.00	0.00	0.00	0.00	41.50	41.50	0.00	0.87	72.86	73.73	0.00	0.87	181.17	182.04	99.52
09/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	58.60	58.60	0.00	0.00	20.94	20.94	0.00	0.00	59.19	59.19	0.00	0.77	41.69	42.45	0.00	0.77	180.41	181.18	99.58
10/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	19.21	19.21	0.00	0.00	60.60	60.60	0.00	0.00	57.74	57.74	0.00	0.55	43.72	44.27	0.00	0.55	181.26	181.81	99.70
11/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	22.88	22.88	0.00	0.00	59.10	59.10	0.00	0.00	62.27	62.27	0.00	0.61	37.11	37.71	0.00	0.61	181.36	181.97	99.67
12/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	47.42	47.42	0.00	0.05	54.47	54.52	0.00	0.00	79.95	79.95	0.00	0.00	0.00	0.00	0.00	0.05	181.84	181.89	99.97
13/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	49.11	49.11	0.00	0.00	67.23	67.23	0.00	0.00	68.50	68.50	0.00	0.00	0.00	0.00	0.00	0.00	184.84	184.84	100.00
14/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	49.02	49.02	0.00	0.00	66.79	66.79	0.00	0.00	69.26	69.26	0.00	0.00	0.00	0.00	0.00	0.00	185.07	185.07	100.00
15/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	49.17	49.17	0.00	0.00	66.30	66.30	0.00	0.05	69.70	69.75	0.00	0.00	0.00	0.00	0.00	0.05	185.17	185.22	99.97
16/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.18	66.79	66.97	0.00	0.00	29.99	29.99	0.00	0.05	49.33	49.39	0.00	0.94	39.72	40.66	0.00	1.17	185.83	187.01	99.37
17/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.41	84.48	84.89	0.00	0.00	0.00	0.00	0.00	0.11	37.53	37.64	0.00	1.08	63.40	64.48	0.00	1.61	185.41	187.02	99.14
18/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.59	84.35	84.94	0.00	0.00	0.00	0.00	0.00	0.03	37.81	37.84	0.00	1.16	63.09	64.25	0.00	1.78	185.25	187.03	99.05
19/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.47	84.42	84.89	0.00	0.00	0.00	0.00	0.00	0.03	37.96	37.98	0.00	0.80	63.35	64.15	0.00	1.30	185.72	187.02	99.31
20/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.47	77.85	78.32	0.00	0.00	0.00	0.00	0.00	0.00	40.16	40.16	0.00	1.62	66.67	68.28	0.00	2.08	184.68	186.76	98.88
21/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.30	55.23	55.53	0.00	0.07	35.32	35.39	0.00	0.03	61.68	61.71	0.00	1.20	72.45	73.65	0.00	1.60	224.68	226.28	99.29
22/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.04	50.92	50.95	0.00	0.00	53.98	53.98	0.00	0.18	76.88	77.06	0.16	0.38	35.07	35.60	0.16	0.60	216.84	217.59	99.65
23/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.04	49.76	49.80	0.00	0.03	52.32	52.34	0.00	0.06	84.59	84.65	0.00	0.00	0.00	0.00	0.00	0.12	186.66	186.78	99.94
24/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.14	50.83	50.97	0.00	0.00	54.03	54.03	0.00	0.00	84.96	84.96	0.00	0.00	0.00	0.00	0.00	0.14	189.82	189.97	99.92
25/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.32	50.65	50.97	0.00	0.00	54.04	54.04	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.32	189.70	190.02	99.83
26/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.61	50.36	50.97	0.00	0.00	54.05	54.05	0.00	0.18	84.81	84.99	0.00	0.00	0.00	0.00	0.00	0.78	189.23	190.01	99.59
27/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.27	48.39	48.66	0.00	0.10	51.96	52.06	0.00	0.30	82.93	83.23	0.00	0.00	0.00	0.00	0.00	0.67	183.28	183.95	99.64
28/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.45	49.23	49.67	0.00	0.56	65.76	66.32	0.00	0.05	71.86	71.92	0.00	0.00	0.00	0.00	0.00	1.06	186.85	187.91	99.43
29/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.13	55.46	55.60	0.00	0.04	67.49	67.53	0.00	0.01	49.17	49.17	0.00	0.14	46.05	46.19	0.00	0.32	218.17	218.49	99.85
30/11/2023	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00	0.00	0.00	84.95	84.95	0.00	0.00	37.20	37.2	0.00	0.42	65.97	66.39	0.00	0.42	209.65	210.06	99.79
Total [ML]:	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	7.03	1474.92	1481.95	0.00	0.85	1347.09	1347.95	0.00	1.08	1718.67	1719.75	0.16	15.71	1155.01	1170.88	0.16	24.68	5717.22	5742.06	

Water Volume [%]:
 Untreated: 0.00 %
 Below Dose: 0.43 %
 To Dose: 99.57 %

Notes: 1. UV Comparative Dose: 18.1 mj/cm²

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-02 A**

WATER TREATMENT PLANT UV REPORT

Report Period: **November 2023**

Report Created: **Friday, December 01, 2023**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²		
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/11/2023	93.5	92.6	95.8	0.0	OL	OL	OL	OL	OL	OL	16.7	22.6	21.6	18.8	22.3	21.2	OL	OL	OL	17.2	29.6	21.1
02/11/2023	93.7	91.7	91.1	90.1	OL	OL	OL	OL	OL	OL	14.9	22.9	21.0	18.7	22.8	21.2	0.0	95.7	21.6	0.0	40.3	21.1
03/11/2023	93.7	91.6	91.4	90.5	OL	OL	OL	OL	OL	OL	0.0	30.7	19.7	18.6	23.1	21.2	18.4	27.1	21.3	0.0	84.6	21.5
04/11/2023	91.8	88.8	91.8	91.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.7	22.6	21.2	18.3	32.1	21.5	17.0	23.6	21.1
05/11/2023	92.6	87.4	92.3	91.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.5	22.4	21.2	18.4	30.7	21.5	16.9	23.7	21.1
06/11/2023	94.5	93.3	92.7	92.4	OL	OL	OL	OL	OL	OL	20.4	91.1	25.3	0.0	31.3	21.2	18.4	31.1	21.5	16.8	21.8	21.1
07/11/2023	94.6	93.3	93.1	92.3	OL	OL	OL	OL	OL	OL	20.4	26.8	24.7	OL	OL	OL	18.2	30.0	21.5	16.4	29.7	21.1
08/11/2023	94.6	93.2	93.4	93.0	OL	OL	OL	OL	OL	OL	19.6	25.8	24.0	OL	OL	OL	18.1	22.7	21.4	16.9	21.8	21.2
09/11/2023	94.5	93.0	93.4	92.6	OL	OL	OL	OL	OL	OL	19.4	30.4	25.5	0.0	88.6	21.4	17.5	22.9	21.3	0.0	39.0	21.3
10/11/2023	94.6	93.5	93.8	92.7	OL	OL	OL	OL	OL	OL	0.0	44.4	28.0	16.8	30.0	21.2	18.3	27.7	21.3	15.2	71.4	21.4
11/11/2023	94.6	92.9	94.5	93.3	OL	OL	OL	OL	OL	OL	21.4	90.4	26.7	18.5	23.2	21.2	16.9	22.8	21.3	0.0	36.7	21.3
12/11/2023	94.7	93.1	94.8	94.2	OL	OL	OL	OL	OL	OL	18.8	41.3	26.1	16.2	32.8	21.3	16.1	32.9	21.1	OL	OL	OL
13/11/2023	94.6	93.1	95.7	94.8	OL	OL	OL	OL	OL	OL	19.9	27.4	24.8	18.4	22.1	21.2	18.3	22.7	21.1	0.0	0.0	0.0
14/11/2023	94.9	93.4	96.8	88.5	OL	OL	OL	OL	OL	OL	19.4	26.2	23.9	18.4	22.3	21.2	18.2	22.2	21.1	OL	OL	OL
15/11/2023	94.9	67.5	96.6	58.6	OL	OL	OL	OL	OL	OL	18.5	25.3	22.9	18.4	22.1	21.2	17.9	30.2	21.4	OL	OL	OL
16/11/2023	94.7	93.7	94.5	94.2	OL	OL	OL	OL	OL	OL	0.0	105.1	21.5	0.0	31.6	21.2	15.9	27.5	21.4	13.4	70.8	21.5
17/11/2023	94.5	90.6	94.3	94.0	OL	OL	OL	OL	OL	OL	17.5	23.2	21.1	OL	OL	OL	17.6	23.6	21.4	16.0	24.0	21.4
18/11/2023	94.4	93.5	94.2	93.9	OL	OL	OL	OL	OL	OL	17.2	22.0	21.1	OL	OL	OL	17.4	23.6	21.4	16.1	23.0	21.4
19/11/2023	94.4	92.9	93.7	93.3	OL	OL	OL	OL	OL	OL	17.3	23.0	21.1	OL	OL	OL	17.4	23.5	21.4	15.7	23.2	21.4
20/11/2023	94.4	92.7	93.5	93.2	OL	OL	OL	OL	OL	OL	17.4	41.0	21.2	OL	OL	OL	17.5	29.7	21.5	14.6	41.7	20.9
21/11/2023	94.6	93.3	93.5	93.1	OL	OL	OL	OL	OL	OL	0.0	100.2	21.4	15.9	68.6	21.3	0.0	40.6	21.6	0.0	84.6	21.2
22/11/2023	94.6	92.6	93.6	93.2	OL	OL	OL	OL	OL	OL	17.6	26.1	21.3	17.6	22.5	21.2	0.0	21.9	21.2	0.0	21.7	21.1
23/11/2023	94.5	93.8	93.6	93.2	OL	OL	OL	OL	OL	OL	16.6	30.2	21.3	16.6	33.4	21.3	17.7	26.8	21.2	0.0	0.0	0.0
24/11/2023	94.4	93.6	93.8	93.3	OL	OL	OL	OL	OL	OL	17.5	22.9	21.3	18.6	22.4	21.2	17.7	21.8	21.2	OL	OL	OL
25/11/2023	94.3	92.8	94.2	93.6	OL	OL	OL	OL	OL	OL	17.4	22.8	21.2	18.7	22.3	21.2	17.8	21.8	21.2	0.0	0.0	0.0
26/11/2023	94.2	92.7	94.5	94.1	OL	OL	OL	OL	OL	OL	17.3	22.9	21.2	18.6	22.0	21.2	17.7	21.8	21.2	0.0	0.0	0.0
27/11/2023	94.1	93.3	94.4	94.1	OL	OL	OL	OL	OL	OL	16.2	33.4	21.2	16.6	33.1	21.2	17.4	39.6	21.2	0.0	0.0	0.0
28/11/2023	93.9	92.9	94.2	93.5	OL	OL	OL	OL	OL	OL	17.0	23.1	21.2	15.5	22.4	20.0	17.8	23.1	21.3	OL	OL	OL
29/11/2023	93.8	92.4	94.3	94.0	OL	OL	OL	OL	OL	OL	0.0	49.6	21.3	0.0	103.8	21.3	0.0	27.1	21.5	16.9	84.2	21.7
30/11/2023	93.6	92.6	94.1	93.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.7	21.6	21.1	17.6	26.9	21.5	0.0	24.5	21.3

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02-A

WATER TREATMENT PLANT UV REPORT

Report Period: December 2023

Report Created: Monday, January 01, 2024

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A						
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²						
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.				
01/12/2023	93.7	92.4	94.2	93.6	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.7	21.6	21.1	18.3	25.8	21.5	17.2	22.9	21.2		
02/12/2023	93.8	92.8	94.5	92.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.8	21.7	21.1	18.0	26.1	21.5	16.9	22.0	21.1		
03/12/2023	93.8	92.4	94.4	93.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.7	21.8	21.1	14.2	24.9	21.5	16.8	23.8	21.2		
04/12/2023	93.7	92.5	94.5	93.5	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.8	21.6	21.1	17.8	23.6	21.9	17.2	21.9	21.2		
05/12/2023	93.9	92.7	94.4	93.6	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.8	21.6	21.1	17.9	24.1	21.9	17.0	22.0	21.1		
06/12/2023	94.0	92.4	94.5	93.9	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.8	34.5	21.1	17.5	27.3	21.8	16.9	30.0	21.1		
07/12/2023	94.0	92.8	94.3	93.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.9	52.4	21.4	18.7	27.1	21.2	0.0	27.7	21.4		
08/12/2023	94.1	92.6	94.4	93.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.5	22.0	21.2	18.8	22.4	21.3	18.5	22.2	21.1		
09/12/2023	94.1	92.9	94.3	94.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.6	22.0	21.3	18.7	22.0	21.3	18.5	21.5	21.1		
10/12/2023	94.2	92.9	94.5	93.9	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.7	22.1	21.3	18.8	22.0	21.3	18.6	23.3	21.1		
11/12/2023	94.1	92.9	94.3	93.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.8	22.1	21.3	18.8	21.8	21.3	18.6	21.5	21.1		
12/12/2023	94.0	92.9	94.3	93.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.4	22.2	21.3	18.8	22.2	21.3	18.4	21.5	21.1		
13/12/2023	93.9	92.9	94.1	93.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.5	22.0	21.3	18.7	21.9	21.3	18.6	21.5	21.1		
14/12/2023	93.7	5.3	93.8	93.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	16.7	25.9	21.3	18.8	22.0	21.3	18.5	21.5	21.1		
15/12/2023	93.3	92.5	93.4	92.2	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.7	24.1	21.3	18.5	22.8	21.2	0.0	21.7	21.1		
16/12/2023	93.2	92.4	93.4	92.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.3	22.2	21.2	18.4	22.4	21.2	18.4	21.8	21.1		
17/12/2023	93.0	92.1	93.2	91.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.0	29.2	21.3	17.5	23.2	21.2	17.9	21.9	21.1		
18/12/2023	93.2	91.8	93.2	92.6	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	16.6	23.3	21.4	18.4	24.6	21.2	18.3	21.9	21.1		
19/12/2023	93.4	92.2	93.2	92.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.3	22.0	21.2	18.5	21.9	21.2	18.3	21.5	21.1		
20/12/2023	93.8	84.1	93.7	88.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.0	65.0	21.2	0.0	89.0	21.3	0.0	36.4	21.2		
21/12/2023	93.1	92.4	93.5	92.6	OL	OL	OL	0.0	105.9	83.4	16.2	29.5	21.3	18.5	22.0	21.2	18.4	22.5	21.1	18.4	22.5	21.1	OL	OL	OL	
22/12/2023	93.4	92.5	93.7	93.2	0.0	105.8	70.8	0.0	102.8	54.6	0.0	68.3	21.2	0.0	27.3	21.2	17.9	25.1	21.3	0.0	27.3	21.2	0.0	84.6	21.2	
23/12/2023	93.8	93.3	94.8	93.9	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.1	22.7	21.1	0.0	0.0	0.0	18.2	27.5	21.4		
24/12/2023	93.9	93.4	94.3	94.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.3	22.8	21.1	OL	OL	OL	18.2	27.0	21.5		
25/12/2023	93.9	93.4	94.2	94.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.3	22.3	21.1	OL	OL	OL	18.2	27.3	21.4		
26/12/2023	93.9	93.4	94.9	94.0	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	17.4	22.0	21.1	OL	OL	OL	18.0	23.5	21.4		
27/12/2023	93.5	92.8	94.4	93.8	0.0	105.9	41.9	12.0	100.5	33.1	0.0	23.0	21.1	OL	OL	OL	OL	OL	OL	OL	0.0	27.2	21.2	0.0	72.5	21.4
28/12/2023	93.5	93.0	94.1	93.9	0.0	105.7	35.1	11.2	87.6	34.2	OL	OL	OL	16.3	74.8	21.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	
29/12/2023	93.5	93.0	94.2	93.9	15.5	28.3	25.8	13.3	23.5	21.8	OL	OL	OL	18.1	22.2	21.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	
30/12/2023	93.5	93.0	94.5	94.1	20.7	29.1	23.6	19.7	23.2	21.8	OL	OL	OL	0.0	31.3	21.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	
31/12/2023	93.6	93.0	95.1	94.5	20.0	24.7	22.5	19.8	23.1	21.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

2023 CORRECTIVE ACTION REPORTS



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

February 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-01-2023-ESD

Reported to ODW: February 1, 2023

Reported by: Courtney Diduck, Analytical Services Branch Head

Approved by: Courtney Diduck, Analytical Services Branch Head

Incident Date: January 31, 2023

Incident Location: Winnipeg 3-Dist (WC04)

Incident Type: Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007

Description and Corrective Actions:

Environmental Standards:

Contacted the ODW and re-sampled original location for bacteria, turbidity, free/total chlorine, and temperature. Monitoring was terminated after two consecutive sets of re-samples taken 24 hours apart tested negative for bacteria.

Test Results: See attached

Reference No: Job_1402

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Heterotrophic Plate Count (CFU/mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
WC04	547626	31-Jan-23	0	1	<1	0.84	1.13	0.17	7.9	10:55
WC04_Resample 1	548195	1-Feb-23	0	0	NA	1.04	1.33	0.24	8.6	14:29
WC04_Resample 1 (Duplicate)	548196	1-Feb-23	0	0	NA	1.02	1.32	0.23	8.6	14:29
WC04_Resample 2	548197	2-Feb-23	0	0	NA	1.07	1.37	0.20	6.1	11:28
WC04_Resample 2 (Duplicate)	548198	2-Feb-23	0	0	NA	1.10	1.38	0.19	6.1	11:28

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

March 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-02-2023-ESD

Reported to ODW: March 2, 2023

Reported by: Courtney Diduck, Analytical Services Branch Head

Approved by: Courtney Diduck, Analytical Services Branch Head

Incident Date: February 27, 2023

Incident Location: Winnipeg 3-Dist (SE12)

Incident Type: Low Disinfectant Residual in Distribution System, 22(1) MR 40/2007

Description and Corrective Actions:

Environmental Standards:

Contacted the ODW and re-sampled original location for bacteria, turbidity, free/total chlorine, and temperature. An investigation into the cause of the incident included a site inspection by a Backflow Prevention Program Inspector, a review of work in the area by Water Services, and a review of the water quality at the location and immediate area. No definitive cause was determined. Possible causes include unprotected cross-connections in the internal plumbing system which will be addressed in the near future; inadequate flushing during sample collection; or increased water age related to valve manipulation in the system.

Test Results: See attached

Reference No: Job_1408

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
SE12	553352	27-Feb-23	<1	<1	0.02	0.25	0.23	21.2	12:25
SE12_Resample 1	555153	2-Mar-23	<1	<1	0.58	0.86	0.24	19.2	15:47
SE12_Resample 1 (Duplicate)	555154	2-Mar-23	<1	<1	0.58	0.87	0.24	22.2	15:52
SE12_Resample 2	555155	3-Mar-23	N/A	N/A	1.00	1.20	0.22	12.1	13:59
SE12_Resample 2 (Duplicate)	555156	3-Mar-23	N/A	N/A	1.02	1.23	0.21	16.8	14:04

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

April 5, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-03-2023

Reported to ODW: March 15, 2023 2:35pm

Reported by: Heather Buhler, Water Treatment Operations Engineer

Approved by: Dan Merredew, Water Treatment Plant Operations Supervisor

Incident Date: March 15, 2023

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Low Disinfectant Residual Entering Distribution System (<0.5 mg/L free chlorine), 22(1) MR 40/2007

Description of Corrective Actions:

Water Treatment Plant Operator: on March 15, 2023 there was a scheduled Water Treatment Plant (WTP) shut down for maintenance work. The WTP was offline from 8:22am until 2:20pm. During this shutdown period, the Branch 1 free chlorine analyzer was reading below 0.5mg/L off and on from 11:33am until 2:02pm, reaching a low of 0.26mg/L at 11:38am. Between 11:33am and 2:02pm, the free chlorine was below 0.5 mg/L for a total of 1 hour and 34 minutes. The Branch 2 free chlorine analyzer was reading below 0.5mg/L from 1:19pm until 2:02pm, reaching a low of 0.27 mg/L at 1:36pm. From 1:19pm until 2:02pm, the free chlorine was below 0.5 mg/L for a total of 43 minutes.

During this period, operators were attempting to purge air out of the UV system prior to restarting the WTP. It is estimated that approximately 1.33ML of water was sent to Branch 1 and 0.84ML of water was sent to Branch 2 while the free chlorine residual was below 0.5mg/L. This issue was not noted by Operators at the time because the WTP was offline. As a result, no additional testing was conducted at the time of the incident. Branch 1 and Branch 2 free chlorine analyzers were reading 1.38mg/L and 1.43mg/L respectively, prior to the purging of air from the UV units. Grab sampled collected from the Branch 1 and Branch 2 read 1.22 mg/L and 1.21mg/L at 3:15pm.

Due to the relatively small volume of water and the fact that the water is further boosted with chlorine at the In-town pumping stations, this event will not have impacted water quality.



Water and Waste
Eaux et déchets

Test Results: n/a

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

May 3, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-04-2023-WMR

Reported to ODW: April 6, 2023

Reported by: Louis Rivard, Superintendent of Water Distribution

Approved by: Louis Rivard, Superintendent of Water Distribution

Incident Date: April 5, 2023

Incident Location: Winnipeg 3-Dist (WM Repair)

Incident Type:

1. Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007

Description of Corrective Actions:

Water Services:

IMMEDIATELY: Contacted the ODW and Environmental Standards, and flushed the isolated area. Re-sampled original location, and tested for; bacteria, turbidity, and free chlorine until one negative bacteria results was obtained.

Test Results: See attached

LIMS Reference No: N/A

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Work Order Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Turbidity-field (ntu)	Time Sampled (hrs)
Hydrant - Ashdale	2303358	5-Apr-23	<1	1	0.28	3.94	15:15
Hydrant - Ashdale_Resample	2303358	6-Apr-23	<1	<1	0.69	2.97	13:35

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

May 9, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-05-2023-WTP

Reported to ODW: May 9, 2023

Reported by: Heather Buhler, Water Treatment Operations Engineer

Approved by: Dan Merredew, Water Treatment Operations Supervisor

Incident Date: April 7, 2023

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Failure to provide continuous UVT monitoring of the water downstream of the UV Reactors for Branch 2

Description of Corrective Actions:

On April 7th at approximately 14:10 the Branch 2 UVT (UV Transmittance) analyzer malfunctioned. This malfunction of the analyzer resulted in an average UVT of 100% being reported on April 8th and April 9th; and 99.9% UVT on April 10th. Currently, the only alarms on the system occur when UVT decreases, Low alarm is at 90% and the Low-Low is at 80%. As a result, operators did not flag an issue on the instrument while it was reading 100%. On April 11th, a concern was raised about the UVT analyzer and it was immediately cleaned and calibrated by the Technicians and returned to service by 9:45.

Online results from the Branch 2 UVT analyzer were reading 99.4% prior to the incident and 91.1% after recalibration. Throughout this period, the UV system was fully operational. The UVT analyzer on the Branch 1, which is fed from the same source water, was also fully operational throughout this period and confirmed all water leaving the Deacon Booster Pump Station was above an average of 92% UVT. As a result, this event will not have impacted water quality.

The Water Treatment Plant is in the process of implementing an alarm at 100% UVT on both the Branch 1 and Branch 2 UVT analyzers to prevent any reoccurrences of this event.

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

July 6, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-06-2023-WMR

Reported to ODW: June 3, 2023

Reported by: Louis Rivard, Superintendent of Water Distribution

Approved by: Louis Rivard, Superintendent of Water Distribution

Incident Date: June 1, 2023

Incident Location: Winnipeg 3-Dist (WM Repair)

Incident Type:

1. Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007

Description of Corrective Actions:

Water Services:

IMMEDIATELY: Contacted the ODW and Environmental Standards, and flushed the isolated area. Re-sampled original location, and tested for; bacteria, turbidity, and free chlorine until one negative bacteria result was obtained.

Test Results: See attached

LIMS Reference No: N/A

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Work Order Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Turbidity-field (ntu)	Time Sampled (hrs)
Hydrant - Chataway	2305899	1-Jun-23	<1	1	0.36	3.44	14:55
Hydrant - Chataway_Resample	2305899	3-Jun-23	<1	<1	0.65	4.19	14:10

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

July 6, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-07-2023-ESD

Reported to ODW: June 26, 2023

Reported by: Courtney Diduck, Analytical Services Branch Head

Approved by: Courtney Diduck, Analytical Services Branch Head

Incident Date: June 26, 2023

Incident Location: Winnipeg 3-Dist (SE12)

Incident Type: Low Disinfectant Residual in Distribution System, 22(1) MR 40/2007

Description and Corrective Actions:

Environmental Standards:

Contacted the ODW, Water Services and re-sampled original and upstream location for bacteria, turbidity, free/total chlorine, and temperature. An investigation determined that the water main renewal occurring in the immediate area created a dead end for this location. The customer was instructed by Water Services and by ESD staff to run water to waste until the work in the area was complete. Follow up testing confirmed corrective actions have resolved the issue.

Test Results: See attached

Reference No: Job_1496

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Heterotrophic Plate Count (CFU/mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
SE12	582147	26-Jun-23	<1	<1	na	0.03	0.07	3.17	13.9	11:38
SE12_Upstream	583256	26-Jun-23	<1	<1	na	0.59	0.86	0.71	14.7	12:37
SE12_Resample	584198	29-Jun-23	<1	<1	na	0.77	0.99	0.93	15.4	10:48

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

July 6, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-08-2023-WMR

Reported to ODW: July 1, 2023

Reported by: Jim Burbella, Supervisor of Maintenance

Approved by: Zeljko Bodiroga, Field Services Engineer

Incident Date: June 30, 2023

Incident Location: Winnipeg 3-Dist (WM Repair)

Incident Type:

1. Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007

Description of Corrective Actions:

Water Services:

IMMEDIATELY: Contacted the ODW and Environmental Standards, and flushed the isolated area. Re-sampled original location, and tested for; bacteria, turbidity, and free chlorine until one negative bacteria result was obtained.

Test Results: See attached

LIMS Reference No: N/A

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Work Order Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Turbidity-field (ntu)	Time Sampled (hrs)
Hydrant - Leatherwood	2306929	30-Jun-23	<1	1	0.76	3.54	13:30
Hydrant - Leatherwood_Resample	2306929	1-Jul-23	<1	<1	0.83	1.72	16:15

NOTES/COMMENTS:

- 1. All microbiological tests performed by contract laboratory.
- 2. OL - Autosampler or Process Offline
- 3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

August 3, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-09-2023-ESD

Reported to ODW: July 4, 2023

Reported by: Krista Wazny, Laboratory Supervisor

Approved by: Courtney Diduck, Analytical Services Branch Head

Incident Date: July 4, 2023

Incident Location: Winnipeg 3-Dist (SE12)

Incident Type: Low Disinfectant Residual in Distribution System, 22(1) MR 40/2007

Description and Corrective Actions:

Environmental Standards:

Contacted the ODW, Water Services and re-sampled original and upstream location for bacteria, turbidity, free/total chlorine, and temperature. The water main renewal occurring in the immediate area created a dead end for this location. The customer was instructed by Water Services and by ESD staff to run water to waste until the work in the area was complete. Additional flushing took place during this incident as the customer running water to waste did not resolve the issue. The completion of the water main renewal and corrective actions performed resolved the issue.

Test Results: See attached

Reference No: Job_1496

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
SE12	584119	4-Jul-23	<1	<1	0.02	0.11	1.74	14.5	13:00
SE12_Upstream	585435	4-Jul-23	<1	<1	0.25	0.49	1.31	16.4	13:13
WS_Hydrant	na	4-Jul-23	na	na	0.42	na	4.03	na	15:50
SE12_Resample	585725	6-Jul-23	<1	<1	0.02	0.21	1.04	19.2	15:01
SE12_Upstream	585726	6-Jul-23	na	na	0.30	0.43	0.71	17.3	15:19
WS_Hydrant	na	7-Jul-23	na	na	0.24	na	1.00	na	11:00
SE12	585801	10-Jul-23	<1	<1	0.35	0.50	0.73	17.3	13:10
SE12	587633	17-Jul-23	<1	<1	0.28	0.45	0.32	21.4	13:24

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

September 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-10-2023

Reported to ODW: August 20, 2023

Reported by: Raimo Perhonen, Senior Operator

Approved by: Dan Merredew, Operations Supervisor

Incident Date: August 20, 2023 @ 20:27:37

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Water Entering Distribution System Exceeds Turbidity Standard, 6(1) MR 41/2007

Description of Incident and Corrective Actions:

Water Treatment Plant Operator:

On August 20th Filter 8 experienced a short turbidity spike above 1.0 NTU. The turbidity reached 1.33 NTU at 20:27:37 and went below 1.0 NTU at 20:27:57. Immediately after the spike the reading was 0.14 NTU, then it settled at 0.06 NTU at 20:28:27. Neither water quality nor safety were impacted by this event. All other treatment barriers including UV and chlorination remained online without issue during this event. The brief duration of the spike is indicative of material sloughing from the sample line and not a true indication of process turbidity. Maintenance staff will be inspecting and cleaning the sample line on Filter 8, as a corrective action.

Test Results:

Recorded turbidity - 0.06 NTU @ 20:27:02

Recorded turbidity – 0.14 NTU @ 20:27:57

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

September 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-11-2023

Reported to ODW: September 1, 2023

Reported by: Dan Merredew

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: August 24, 2023

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Low Disinfectant Residual Entering Distribution System (<0.5 mg/L free chlorine), 22(1) MR 40/2007

Description of Incident and Corrective Actions:

Water Treatment Plant Operator:

On August 24, 2023 the Water Treatment Plant (WTP) and Deacon Booster Pumping Station (DBPS) were impacted by a power failure at approximately 19:02. During DBPS start-up, the Branch 2 free chlorine dropped below 0.5 mg/L from 21:24:49 to 21:26:15 reaching a low of 0.49 mg/L. No grab samples were taken because this event happened as the WTP and DBPS were coming online. Due to the relatively small volume of water, short duration and the fact that the water is further boosted with chlorine at the In-town pumping stations, this event will not have impacted water quality.

Test Results: N/A

Reference No: N/A

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

October 6, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-12-2023-WMR

Reported to ODW: September 14, 2023

Reported by: Louis Rivard, Superintendent of Water Distribution Operations

Approved by: Zeljko Bodiroga, Field Services Engineer

Incident Date: September 13, 2023

Incident Location: Winnipeg 3-Dist (WM Repair)

Incident Type:

1. Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007

Description of Corrective Actions:

Water Services:

IMMEDIATELY: Contacted the ODW and Environmental Standards, and flushed the isolated area. Re-sampled original location, and tested for; bacteria, turbidity, and free chlorine until one negative bacteria result was obtained.

Test Results: See attached

LIMS Reference No: N/A

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Work Order Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Turbidity-field (ntu)	Time Sampled (hrs)
Hydrant - Lenore	2309403	13-Sep-23	<1	3	0.92	4.25	13:30
Hydrant - Lenore_Resample	2309941	14-Sep-23	<1	<1	0.75	4.42	15:06

NOTES/COMMENTS:
1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

October 6, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-13-2023

Reported to ODW: September 9, 2023

Reported by: Andrew Ehlers, Operator

Approved by: Dan Merredew, Operations Supervisor

Incident Date: September 9, 2023 @ 11:31:45

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Water Entering Distribution System Exceeds Turbidity Standard, 6(1) MR 41/2007

Description of Event and Corrective Actions:

Water Treatment Plant Operator:

On September 9th, Filter 8 experienced a short turbidity spike above 1.0 NTU. The turbidity reached 1.05 NTU at 11:31:45 and went below 1.0 NTU at 11:32:05. Turbidity was above 1.0 NTU for 20 seconds. Immediately before the spike the analyzer was reading 0.13 NTU and immediately after the spike the analyzer was reading was 0.26 NTU, then settled at 0.15 NTU at 11:32:26.

Neither water quality nor safety were impacted by this event. All other treatment barriers including UV and chlorination remained online without issue during this event. The brief duration of the spike is indicative of material sloughing from the sample line and not a true indication of process turbidity. Maintenance staff will be inspecting and cleaning the sample line on Filter 8, as a corrective action.

Test Results:

Grab Sample collected after spike - Result turbidity - 0.11 NTU

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

October 6, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-14-2023

Reported to ODW: October 3, 2023

Reported by: Dan Merredew, Operations Supervisor

Approved by: Dan Merredew, Operations Supervisor

Incident Date: September 11, 2023 @ 09:47:25

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Water Entering Distribution System Exceeds Turbidity Standard, 6(1) MR 41/2007

Description of Event and Corrective Actions:

Water Treatment Plant Operator:

On September 11th, Filter 8 experienced a short turbidity spike above 1.0 NTU. The turbidity reached 2.20 NTU at 09:47:25 and went below 1.0 NTU at 09:47:46. Turbidity was above 1.0 NTU for 53 seconds. Immediately before the spike the analyzer was reading 0.09 NTU and immediately after the spike the analyzer was reading was 0.17 NTU, then settling at 0.09 NTU at 09:48:44.

Neither water quality nor safety were impacted by this event. All other treatment barriers including UV and chlorination remained online without issue during this event. Given the brief duration of the spike, this is indicative of material sloughing from the sample line and not a true indication of process turbidity.

Test Results:

Grab Sample collected after spike – n/a

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

November 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-15-2023-ESD

Reported to ODW: October 25, 2023

Reported by: Courtney Diduck, Analytical Services Branch Head

Approved by: Courtney Diduck, Analytical Services Branch Head

Incident Date: October 24, 2023

Incident Location: Winnipeg 3-Dist (SW05)

Incident Type: Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007

Description and Corrective Actions:

Environmental Standards:

IMMEDIATELY: Contacted the ODW and re-sampled original location for bacteria, turbidity, free/total chlorine, and temperature. Monitoring was terminated after two consecutive sets of re-samples taken 24 hours apart tested negative for bacteria.

Test Results: See attached

Reference No: Job_1722

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Colliform (MPNU/100mL)	Heterotrophic Plate Count (CFU/mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
SW05	613190	24-Oct-23	<1	1	<1	0.87	1.13	0.13	15.0	9:57
SW05_Resample 1	613988	25-Oct-23	<1	<1	NA	0.57	0.81	0.58	17.0	15:39
SW05_Resample 2	613989	26-Oct-23	<1	<1	<1	0.99	1.24	0.19	13.5	14:58

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

November 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-16-2023-ESD

Reported to ODW: October 31, 2023

Reported by: Courtney Diduck, Analytical Services Branch Head

Approved by: Courtney Diduck, Analytical Services Branch Head

Incident Date: October 30, 2023

Incident Location: Winnipeg 3-Dist (SE12)

Incident Type: Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007

Description and Corrective Actions:

Environmental Standards:

IMMEDIATELY: Contacted the ODW and re-sampled original location for bacteria, turbidity, free/total chlorine, and temperature. Monitoring was terminated after two consecutive sets of re-samples taken 24 hours apart tested negative for bacteria.

Test Results: See attached

Reference No: Job_1732

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Colliform (MPNU/100mL)	Heterotrophic Plate Count (CFU/mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
SE12	614054	30-Oct-23	<1	1	NA	0.60	0.88	0.17	23.1	12:58
SE12_Resample 1	615467	31-Oct-23	<1	<1	<1	1.02	1.28	0.21	13.9	15:47
SE12_Resample 2	615468	1-Nov-23	<1	<1	NA	0.95	1.25	0.12	14.0	15:30

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. OL - Autosampler or Process Offline
3. NA - Not Applicable



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

November 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-17-2023

Reported to ODW: October 31, 2023 @ 18:00

Reported by: Dan Merredew, Operations Supervisor

Approved by: Dan Merredew

Incident Date: October 31, 2023

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Water Entering Distribution System Exceeds Turbidity Standard, 6(1) MR 41/2007

Description of Incident and Corrective Actions:

Water Treatment Plant Operator:

On October 31st, Filter 3 experienced a turbidity spike above 1.0 NTU. The turbidity reached a maximum of 2.06 NTU at 03:51:10 and was above 1.0 NTU for 1 minute and 5 seconds. Prior to the event, Operations had diverted flow to the backwash tank due to smaller turbidity spikes going through the filter. The spike occurred when Operations put the filter back into normal operation. Filter flow was immediately put back into the backwash tank. Technicians were contacted to clean the instrument and flush the line. Once the task was completed the filter was retuned to normal operation.

Neither water quality nor safety were impacted by this event, the duration of the spike is indicative of material sloughing from the sample line. Work was taking place on DAF process during this time, but all other filters performed normally. All other treatment barriers including UV and chlorination remained online without issue.

Test Results: n/a

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

December 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-18-2023

Reported to ODW: December 1, 2023

Reported by: Dan Merredew, Operations Supervisor

Approved by: Dan Merredew

Incident Date: November 10, 2023

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Water Entering Distribution System Exceeds Turbidity Standard, 6(1) MR 41/2007

Description of Corrective Actions:

Water Treatment Plant Operator:

On November 10, 2023 Filter 3 experienced a turbidity spike above 1.0 NTU. The turbidity reached a maximum of 2.16 NTU at 23:15:18 and was above 1.0 NTU for 1 minute and 22 seconds. Prior to the event, Operations had diverted flow to the backwash tank due to smaller turbidity spikes going through the filter. The spike occurred when Operations put the filter back into normal operation. Filter flow was immediately put back into the backwash tank. After this event the turbidity stabilized at 0.10 NTU through the filter.

During this event turbidity post DAF was consistently between 0.65 NTU and 0.70 NTU.

Neither water quality nor safety were impacted by this event. All other treatment barriers including UV and chlorination remained online without issue. The duration of the spike is indicative of material sloughing off the sample line. All other filter performance was normal during this time frame.

Test Results: n/a

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

December 7, 2023

RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM, 252.00

Incident No: CAR-19-2023

Reported to ODW: December 4, 2023

Reported by: Dan Merredew, Operations Supervisor

Approved by: Dan Merredew, Operations Supervisor

Incident Date: November 30, 2023 @ 11:19:00

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type:

Water Entering Distribution System Exceeds Turbidity Standard, 6(1) MR 41/2007

Description of Corrective Actions:

Water Treatment Plant Operator:

On November 30, 2023 Filter 5 experienced a turbidity spike above 1.0 NTU. The turbidity reached a maximum of 1.34 NTU at 11:19:00 and was above 1.0 NTU for 21 seconds. After this event the turbidity stabilized at 0.14 NTU through the filter.

During this event turbidity post DAF was consistently between 0.80 NTU and 0.84 NTU.

Neither water quality nor safety were impacted by this event. All other treatment barriers including UV and chlorination remained online without issue during this event. The duration of the spike is indicative of material sloughing off the sample line. All other filter performance was normal during this time frame.

Test Results: n/a

Reference No: n/a

EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER IN SITUATIONS REQUIRING IMMEDIATE REPORTING

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2023 QUARTERLY FLUORIDE MONITORING REPORTS



Dr. Khalida Hai-Santiago c/o Angela Peck
300 Carlton Street (Room 4068)
Winnipeg, Manitoba
R3B 3M9

April 3, 2023

RE: FIRST QUARTER 2023 CITY OF WINNIPEG FLUORIDE MONITORING DATA

As a participant in the Provincial Water Fluoridation Program, the City of Winnipeg Water and Waste Department hereby submits the following fluoride monitoring data on analyses conducted by the Environmental Standards Division.

LOCATION	SAMPLE NUMBER	DATE	FLUORIDE (mg/L)
Distribution System (Composite – 39 Locations)	541147	3-Jan-23	0.68
	542499	9-Jan-23	0.62
	544204	16-Jan-23	0.64
	545808	23-Jan-23	0.60
	547622	30-Jan-23	0.61
	548352	6-Feb-23	0.62
	550288	13-Feb-23	0.63
	552023	21-Feb-23	0.58
	553347	27-Feb-23	0.19
	554880	8-Mar-23	0.10
	556576	13-Mar-23	0.09
	558229	20-Mar-23	0.23
	559970	27-Mar-23	0.32

nr: no result ns: no sample na: not analyzed

Comments:

Deacon Booster Pumping Station was offline February 22 to March 15 to accomodate planned upgrades at the Water Treatment Plant. The reduced pressure during this time led to the Branch 2 chemical feed line freezing, resulting in decreased fluoride levels in the distribution system.

If you have any questions on the foregoing, please call Ms. Nancy Crawford, Compliance Reporting Branch Head, at 204-986-4807.

Yours sincerely,

*Original signed by R. Grosselle:
(Signed original available upon request)*

Manager of Environmental Standards

cc: Manager of Water Services (email)



Dr. Khalida Hai-Santiago c/o Angela Peck
300 Carlton Street (Room 4068)
Winnipeg, Manitoba
R3B 3M9

July 18, 2023

RE: SECOND QUARTER 2023 CITY OF WINNIPEG FLUORIDE MONITORING DATA

As a participant in the Provincial Water Fluoridation Program, the City of Winnipeg Water and Waste Department hereby submits the following fluoride monitoring data on analyses conducted by the Environmental Standards Division.

LOCATION	SAMPLE NUMBER	DATE	FLUORIDE (mg/L)
Distribution System (Composite – 39 Locations)	561697	3-Apr-23	0.31
	563521	11-Apr-23	0.29
	564888	17-Apr-23	0.27
	566685	27-Apr-23	0.31
	568222	1-May-23	0.60
	569843	8-May-23	0.59
	571530	15-May-23	0.58
	573222	23-May-23	0.61
	574761	29-May-23	0.63
	576741	5-Jun-23	0.64
	578671	12-Jun-23	0.64
	580395	19-Jun-23	0.64
	582142	26-Jun-23	0.67

nr: no result ns: no sample na: not analyzed

Comments:

The Branch 2 chemical feed line froze during planned upgrades at the Deacon Booster Pumping Station; the line was thawed and returned to normal operation on April 24, 2023.

If you have any questions on the foregoing, please call Ms. Nancy Crawford, Compliance Reporting Branch Head, at 204-986-4807.

Yours sincerely,

Original signed by R. Grosselle:

(Signed original available upon request)

Manager of Environmental Standards

cc: Manager of Water Services (email)

ENVIRONMENTAL STANDARDS DIVISION

2230 Main Street, Winnipeg, Manitoba R2V 4T8

DIVISION DES NORMES ENVIRONNEMENTALES

2230, rue Main, Winnipeg (Manitoba) R2V 4T8

T. | Tél. : 204-986-4684

F. | Fax : 204-339-2147

winnipeg.ca/waterandwaste



Dr. Khalida Hai-Santiago c/o Angela Peck
300 Carlton Street (Room 4068)
Winnipeg, Manitoba
R3B 3M9

October 5, 2023

RE: THIRD QUARTER 2023 CITY OF WINNIPEG FLUORIDE MONITORING DATA

As a participant in the Provincial Water Fluoridation Program, the City of Winnipeg Water and Waste Department hereby submits the following fluoride monitoring data on analyses conducted by the Environmental Standards Division.

LOCATION	SAMPLE NUMBER	DATE	FLUORIDE (mg/L)
Distribution System (Composite – 39 Locations)	584114	4-Jul-23	0.68
	585796	10-Jul-23	0.67
	587628	17-Jul-23	0.69
	589478	24-Jul-23	0.74
	591566	31-Jul-23	0.72
	593406	8-Aug-23	0.71
	594987	14-Aug-23	0.73
	596871	21-Aug-23	0.73
	598583	28-Aug-23	0.74
	600316	5-Sep-23	0.71
	601922	11-Sep-23	0.71
	603790	18-Sep-23	0.72
	605522	25-Sep-23	0.73

nr: no result ns: no sample na: not analyzed

Comments:

If you have any questions on the foregoing, please call Ms. Nancy Crawford, Compliance Reporting Branch Head, at 204-986-4807.

Yours sincerely,

*Original signed by R. Grosselle:
(Signed original available upon request)*

Manager of Environmental Standards

cc: Manager of Water Services (email)

ENVIRONMENTAL STANDARDS DIVISION

2230 Main Street, Winnipeg, Manitoba R2V 4T8

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winnipeg.ca/waterandwaste



Dr. Khalida Hai-Santiago c/o Angela Peck
300 Carlton Street (Room 4068)
Winnipeg, Manitoba
R3B 3M9

January 15, 2024

RE: FOURTH QUARTER 2023 CITY OF WINNIPEG FLUORIDE MONITORING DATA

As a participant in the Provincial Water Fluoridation Program, the City of Winnipeg Water and Waste Department hereby submits the following fluoride monitoring data on analyses conducted by the Environmental Standards Division.

LOCATION	SAMPLE NUMBER	DATE	FLUORIDE (mg/L)
Distribution System (Composite – 39 Locations)	607292	3-Oct-23	0.72
	608971	10-Oct-23	0.71
	610576	16-Oct-23	0.68
	612391	23-Oct-23	0.71
	614049	30-Oct-23	0.68
	615829	6-Nov-23	0.72
	617384	14-Nov-23	0.74
	618776	20-Nov-23	0.66
	620432	27-Nov-23	0.60
	622148	4-Dec-23	0.68
	623839	11-Dec-23	0.65
	625533	18-Dec-23	0.66
	627032	27-Dec-23	0.64

nr: no result ns: no sample na: not analyzed

Comments:

If you have any questions on the foregoing, please call Ms. Nancy Crawford, Compliance Reporting Branch Head, at 204-986-4807.

Yours sincerely,

*Original signed by R. Grosselle:
(Signed original available upon request)*

Manager of Environmental Standards

cc: Manager of Water Services (email)

ENVIRONMENTAL STANDARDS DIVISION

2230 Main Street, Winnipeg, Manitoba R2V 4T8

DIVISION DES NORMES ENVIRONNEMENTALES

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winnipeg.ca/waterandwaste

**2023 QUARTERLY TOTAL TRIHALOMETHANE
SUMMARY REPORTS**



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 1 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, May 2, 2022	37.6	29.5	34.8	34.4	27.9	29.8
Monday, August 8, 2022	68.5	68.9	69.0	65.3	64.4	66.0
Monday, November 7, 2022	52.9	51.6	48.9	51.0	52.5	53.0
Monday, February 6, 2023	52.7	48.6	49.7	49.1	49.0	50.4
RUNNING AVERAGE THM	52.9	49.7	50.6	50.0	48.5	49.8

COMMENTS:

Methodology

Modified from EPA Method 5021A, "Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis", Revision 2, July 2014 and EPA Method 8260B, "Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)", Revision 3, August 2006.

Report Date: June 21, 2023

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Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 2 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, August 8, 2022	68.5	68.9	69.0	65.3	64.4	66.0
Monday, November 7, 2022	52.9	51.6	48.9	51.0	52.5	53.0
Monday, February 6, 2023	52.7	48.6	49.7	49.1	49.0	50.4
Monday, May 1, 2023	45.5	47.0	41.3	46.0	43.2	47.8
RUNNING AVERAGE THM	54.9	54.0	52.2	52.9	52.3	54.3

COMMENTS:

Methodology

Modified from EPA Method 5021A, "Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis", Revision 2, July 2014 and EPA Method 8260B, "Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)", Revision 3, August 2006.

Report Date: June 21, 2023

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Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 3 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 7, 2022	52.9	51.6	48.9	51.0	52.5	53.0
Monday, February 6, 2023	52.7	48.6	49.7	49.1	49.0	50.4
Monday, May 1, 2023	45.5	47.0	41.3	46.0	43.2	47.8
Monday, August 14, 2023	54.0	58.5	49.0	56.4	55.4	57.3
RUNNING AVERAGE THM	51.3	51.4	47.2	50.6	50.0	52.1

COMMENTS:

Methodology

Modified from EPA Method 5021A, "Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis", Revision 2, July 2014 and EPA Method 8260B, "Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)", Revision 3, August 2006.

Report Date: November 28, 2023



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 4 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 6, 2023	52.7	48.6	49.7	49.1	49.0	50.4
Monday, May 1, 2023	45.5	47.0	41.3	46.0	43.2	47.8
Monday, August 14, 2023	54.0	58.5	49.0	56.4	55.4	57.3
Tuesday, November 14, 2023	37.7	35.8	35.5	30.9	48.2	39.1
RUNNING AVERAGE THM	47.5	47.5	43.9	45.6	49.0	48.7

COMMENTS:

Methodology

Modified from EPA Method 5021A, "Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis", Revision 2, July 2014 and EPA Method 8260B, "Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)", Revision 3, August 2006.

Report Date: March 22, 2024

**2023 QUARTERLY TOTAL HALOACETIC ACID
SUMMARY REPORTS**



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 1 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, May 2, 2022	31.9	28.7	31.6	30.6	25.1	28.4
Tuesday, August 2, 2022	36.6	47.4	40.0	43.7	51.0	46.4
Monday, November 14, 2022	36.9	35.6	37.9	33.6	37.1	38.5
Monday, February 13, 2023	30.5	30.5	31.9	29.2	28.8	34.8
RUNNING AVERAGE HAA	34.0	35.6	35.4	34.3	35.5	37.0

COMMENTS:

Methodology

Modified from EPA Method 552.3, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Micro extraction, Derivatization, and Gas Chromatography with Electron Capture Detection".

Report Date: June 21, 2023



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 2 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Tuesday, August 2, 2022	36.6	47.4	40.0	43.7	51.0	46.4
Monday, November 14, 2022	36.9	35.6	37.9	33.6	37.1	38.5
Monday, February 13, 2023	30.5	30.5	31.9	29.2	28.8	34.8
Monday, May 1, 2023	42.5	41.3	37.3	39.6	41.9	42.5
RUNNING AVERAGE HAA	36.6	38.7	36.8	36.5	39.7	40.6

COMMENTS:

Methodology

Modified from EPA Method 552.3, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Micro extraction, Derivatization, and Gas Chromatography with Electron Capture Detection".

Report Date: June 21, 2023



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 3 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 14, 2022	36.9	35.6	37.9	33.6	37.1	38.5
Monday, February 13, 2023	30.5	30.5	31.9	29.2	28.8	34.8
Monday, May 1, 2023	42.5	41.3	37.3	39.6	41.9	42.5
Monday, August 14, 2023	32.5	44.2	27.0	31.3	43.4	43.7
RUNNING AVERAGE HAA	35.6	37.9	33.5	33.4	37.8	39.9

COMMENTS:

Methodology

Modified from EPA Method 552.3, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Micro extraction, Derivatization, and Gas Chromatography with Electron Capture Detection".

Report Date: November 28, 2023



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 4 2023

License: PWS-09-412-02 A

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 13, 2023	30.5	30.5	31.9	29.2	28.8	34.8
Monday, May 1, 2023	42.5	41.3	37.3	39.6	41.9	42.5
Monday, August 14, 2023	32.5	44.2	27.0	31.3	43.4	43.7
Monday, October 30, 2023	35.2	36.8	34.4	34.8	37.9	39.1
Tuesday, November 14, 2023	nr	nr	nr	nr	nr	nr
RUNNING AVERAGE HAA	35.2	38.2	32.7	33.7	38.0	40.0

COMMENTS:

November 14, 2023 no results due to lab error; October 30, 2023 results were used to calculate the running average

Methodology

Modified from EPA Method 552.3, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-Liquid Micro extraction, Derivatization, and Gas Chromatography with Electron Capture Detection".

Report Date: March 22, 2024

**2023 MONTHLY ALGAE MONITORING
REPORTS**

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
Month: June

Instructions:

Complete this form weekly from June to September
If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer
Submit completed forms to your regional Drinking Water Officer in the first week of October

Visual Inspection

Date	June 2		June 9		June 16		June 23		June 30	
Name (Print)	Derek Eydson		Derek Eydson		Derek Eydson		Derek Eydson		Derek Eydson	
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

Visual Inspection

Date	June 5		June 12		June 19		June 26			
Name (Print)	Dan Merredew		Dan Merredew		Dan Merredew		Dan Merredew			
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
Deacon Cell 2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
Deacon Cell 3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
Deacon Cell 4	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			

Submitted by (Print): Dan Merredew

Signature: 

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
Month: June

Instructions:

Complete this form monthly from June to September
If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer
Submit completed forms to your regional Drinking Water Officer in the first week of October

Visual Inspection

Date	21-Jun-23									
Name (Print)	Mason Dyck & Sam Okewumi									
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	X									

Visual Inspection

Date	23-Jun-23									
Name (Print)	Sam Okewumi & Panna Rai									
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	X									
Deacon Cell 2	X									
Deacon Cell 3	X									
Deacon Cell 4	X									

Submitted by (Print): Courtney Diduck Analytical Services Branch Head

Signature: C. Diduck

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
Month: July

Instructions:

Complete this form weekly from June to September
If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer
Submit completed forms to your regional Drinking Water Officer in the first week of October

Visual Inspection

Date	July 7		July 14		July 21		July 28			
Name (Print)	Derek Eydson		Derek Eydson		Derek Eydson		Derek Eydson			
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	✓		✓		✓		✓			

Visual Inspection

Date	July 3		July 10		July 17		July 24		July 31	
Name (Print)	Dan Merredew		Dan Merredew		Dan Merredew		Dan Merredew		Dan Merredew	
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	✓		✓		✓		✓		✓	
Deacon Cell 2	✓		✓		✓		✓		✓	
Deacon Cell 3	✓		✓		✓		✓		✓	
Deacon Cell 4	✓		✓		✓		✓		✓	

Submitted by (Print): Dan Merredew

Signature:

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
 Month: July

Instructions:

Complete this form monthly from June to September
 If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer
 Submit completed forms to your regional Drinking Water Officer in the first week of October

Visual Inspection

Date	27-Jul-23									
Name (Print)	Mason Dyck & Sam Okewumi									
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	X									

Visual Inspection

Date	21-Jul-23									
Name (Print)	Sam Okewumi & Panna Rai									
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	X									
Deacon Cell 2	X									
Deacon Cell 3	X									
Deacon Cell 4	X									

Submitted by (Print): Courtney Diduck Analytical Services Branch Head

Signature: *C. Diduck*

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
Month: August

Instructions:

Complete this form weekly from June to September
If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer
Submit completed forms to your regional Drinking Water Officer in the first week of October

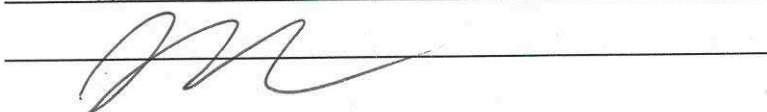
Visual Inspection

Date	August 4		August 11		August 18		August 25			
Name (Print)	Derek Eyolfson		Derek Eyolfson		Derek Eyolfson		Derek Eyolfson			
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			

Visual Inspection

Date	August 7		August 14		August 21		August 28			
Name (Print)	Dan Merredew		Dan Merredew		Dan Merredew		Dan Merredew			
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
Deacon Cell 2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
Deacon Cell 3	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			
Deacon Cell 4	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			

Submitted by (Print): Dan Merredew

Signature: 

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
Month: August

Instructions:

Complete this form monthly from June to September
If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer
Submit completed forms to your regional Drinking Water Officer in the first week of October

Visual Inspection

Date	17-Aug-23		29-Aug-23							
Name (Print)	Mason Dyck & Sam Okewumi		Mason Dyck & Sam Okewumi							
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	X		X							

Visual Inspection

Date	15-Aug-23									
Name (Print)	Sam Okewumi & Panna Rai									
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	X									
Deacon Cell 2	X									
Deacon Cell 3	X									
Deacon Cell 4	X									

Submitted by (Print): Courtney Diduck Analytical Services Branch Head

Signature: C. Diduck

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
Month: September

Instructions:

Complete this form weekly from June to September
If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer
Submit completed forms to your regional Drinking Water Officer in the first week of October

Visual Inspection

Date	September 1		September 8		September 15		September 22		September 29	
Name (Print)	Derek Eydison		Derek Eydison		Derek Eydison		Derek Eydison		Derek Eydison	
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Visual Inspection

Date	September 4		September 11		September 18		September 25		September 29	
Name (Print)	Dan Merredew		Dan Merredew		Dan Merredew		Dan Merredew		Dan Merredew	
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Deacon Cell 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Deacon Cell 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Deacon Cell 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submitted by (Print): Dan Merredew

Signature: 

City of Winnipeg Monthly Algae Monitoring Report



Water and Waste
Eaux et déchets

Year: 2023
Month: September

Instructions:

Complete this form monthly from June to September

If a bloom is present, take photos and report the bloom to your regional Drinking Water Officer

Submit completed forms to your regional Drinking Water Officer in the first week of October

Visual Inspection

Date	14-Sep-23									
Name (Print)	Mason Dyck & Sam Okewumi									
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Shoal Lake Intake	X									

Visual Inspection

Date	12-Sep-23									
Name (Print)	Sam Okewumi & Mason Dyck									
	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)	Absent (X)	Present (X)
Deacon Cell 1	X									
Deacon Cell 2	X									
Deacon Cell 3	X									
Deacon Cell 4	X									

Submitted by (Print): Courtney Diduck Analytical Services Branch Head

Signature: *C. Diduck*

APPENDIX C
2023 ZEBRA MUSSEL (*DREISSENA*
POLYMORPHA) MONITORING REPORT



2023 Zebra Mussel (*Dreissena Polymorpha*) Monitoring Report

Objective:

To detect/monitor the presence of Zebra Mussels (adult and veliger) in the City of Winnipeg's source water, Shoal Lake

Methods:

Supporting Work Instructions - SWI 111-06: Zebra Mussel Sampling Program

Wildco Plankton net using vertical or horizontal sweeps compiled into a composite sample, for the capture of veliger stage zebra mussels

Soap-free green kitchen scrubbers tied to plexiglass acrylic sheets, suspended several feet below an inflatable buoy, anchored to the lake bottom with a concrete block, for the capture of adult stage zebra mussels

Supporting Work Instructions - SWI 017-34: Decontamination for Aquatic Invasive Species

Permits/Licences:

Manitoba Agriculture and Resource Development Scientific Collection Permit: 56396315 (SCP 14-2023)

Manitoba Agriculture and Resource Development Aquatic Invasive Species Permit: 19-2023

Ontario Ministry of Natural Resources Licence to Collect Fish for Scientific Purposes: 1103702

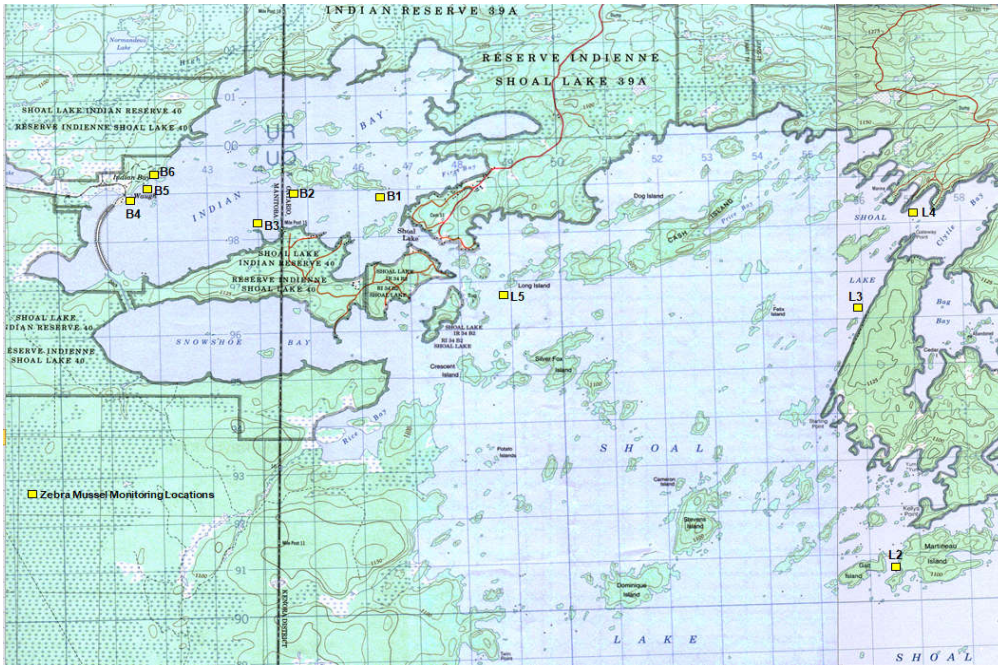
Sampling Locations:

Code	Location	Coordinates	
Deacon Cell 1	Deacon Cell 1 at WTP	N 49°51'02.9"	W 96°56'32.2"
Deacon Cell 2	Deacon Cell 2 at WTP	N 49°51'02.9"	W 96°56'32.2"
Deacon Cell 3	Deacon Cell 3 at WTP	N 49°51'02.9"	W 96°56'32.2"
Deacon Cell 4	Deacon Cell 4 at WTP	N 49°51'02.9"	W 96°56'32.2"
B1	Indian Bay	N 49° 37' 21.3"	W 95° 07' 36.6"
B2	Indian Bay at MB-ON Boundary	N 49° 37' 23.9"	W 95° 08' 56.8"
B3	Indian Bay	N 49° 37' 06.4"	W 95° 09' 23.5"
B4	Indian Bay	N 49° 37' 13.4"	W 95° 11' 42.9"
B5	Indian Bay between Island & Intake	N 49° 37' 13.5"	W 95° 11' 30.6"
B6	Indian Bay	N 49° 37' 27.6"	W 95° 11' 20.3"
L1	Shoal lake	N 49° 36' 33.1"	W 94° 47' 40.7"
L2	Shoal lake	N 49° 32' 56.5"	W 94° 59' 14.9"
L3	Shoal lake	N 49° 35' 59.3"	W 94° 59' 38.7"
L4	Clytie Bay	N 49° 37' 04.4"	W 94° 58' 49.6"
L5	Shoal lake	N 49° 36' 18.4"	W 95° 05' 23.7"

Deacon Cells Map



Shoal Lake Map (B1-B6, L2-L5)



Shoal Lake Map (L1 and L2)





2023 Zebra Mussel (*Dreissena Polymorpha*) Monitoring Report Environmental Standards Division

Monitoring Results

Sample Location	Sample Date	Sample Number	Temperature (° C)	Transparency (m)	Veliger (Net)	Adult (Trap)
Deacon Cell 1 - Middle	16-May-23	566561	14.2	3.3	Absent	ns
Deacon Cell 1-100m from NE corner	16-May-23	566562	13.7	2.8	Absent	
Deacon Cell 2 - Middle	16-May-23	566570	14.1	3.3	Absent	ns
Deacon Cell 2-100m from NE corner	16-May-23	566571	14.1	3.0	Absent	
Deacon Cell 3 - Middle	16-May-23	566574	14.1	3.5	Absent	ns
Deacon Cell 3-100m from NE corner	16-May-23	566575	14.1	3.3	Absent	
Deacon Cell 4 -Middle	16-May-23	566578	13.6	3.0	Absent	ns
Deacon Cell 4-100m from NE corner	16-May-23	566579	13.1	2.8	Absent	
Indian Bay - B1	24-May-23	566610	14.0	2.8	Absent	ns
Indian Bay - B2	24-May-23	566611	14.3	3.0	Absent	ns
Indian Bay - B3	24-May-23	566612	14.7	2.8	Absent	ns
Indian Bay - B4	24-May-23	566613	15.1	2.3	Absent	ns
Indian Bay - B5	24-May-23	566614	15.0	2.5	Absent	ns
Indian Bay - B6	24-May-23	566615	15.0	2.0	Absent	ns
Shoal Lake - L1	30-May-23	566617	16.4	3.3	Absent	ns
Shoal Lake - L2	30-May-23	566618	15.7	3.3	Absent	ns
Shoal Lake - L3	30-May-23	566619	14.4	4.0	Absent	ns
Shoal Lake - L4	30-May-23	566620	15.9	5.0	Absent	ns
Shoal Lake - L5	30-May-23	566621	16.8	4.3	Absent	ns

Notes:

All samples are discarded and equipment decontaminated according to SWI 017-34: Decontamination for Aquatic Invasive Species
ns - no sample, traps were set for the season on May 16, 24, and 30, 2023

Weather Conditions During Monitoring

Survey Location	Sample Date	Wind Direction	Wind Speed (km/h)	Cloud Coverage (%)	Precipitation (mm)	Air Temperature (° C)
Deacon Reservoirs	16-May-23	North East	5	95	<0.1	22.0
Shoal Lake	24-May-23	East-South East	27	100	<0.1	17.0
Shoal Lake	30-May-23	North-North East	6	50	<0.1	24.0

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2023 Zebra Mussel (*Dreissena Polymorpha*) Monitoring Report Environmental Standards Division

Monitoring Results

Sample Location	Sample Date	Sample Number	Temperature (° C)	Transparency (m)	Veliger (Net)	Adult (Trap)
Deacon Cell 1 - Middle	23-Jun-23	576636	23.5	3.0	Absent	Absent
Deacon Cell 1-100m from NE corner	23-Jun-23	576637	23.8	2.5	Absent	
Deacon Cell 2 - Middle	23-Jun-23	576640	23.4	2.8	Absent	Absent
Deacon Cell 2-100m from NE corner	23-Jun-23	576641	23.3	2.8	Absent	
Deacon Cell 3 - Middle	23-Jun-23	576644	23.3	2.8	Absent	Absent
Deacon Cell 3-100m from NE corner	23-Jun-23	576645	23.2	3.3	Absent	
Deacon Cell 4 - Middle	23-Jun-23	576648	24.2	2.8	Absent	Absent
Deacon Cell 4-100m from NE corner	23-Jun-23	576649	24.1	2.5	Absent	
Indian Bay - B1	21-Jun-23	576660	23.2	3.3	Absent	Absent
Indian Bay - B2	21-Jun-23	576661	23.3	2.8	Absent	Absent
Indian Bay - B3	21-Jun-23	576662	23.2	2.8	Absent	Absent
Indian Bay - B4	21-Jun-23	576663	23.6	2.8	Absent	Absent
Indian Bay - B5	21-Jun-23	576664	23.8	3.3	Absent	Absent
Indian Bay - B6	21-Jun-23	576665	23.6	2.8	Absent	Absent
Shoal Lake - L1	21-Jun-23	576667	22.2	2.8	Absent	Absent
Shoal Lake - L2	21-Jun-23	576668	21.6	4.3	Absent	Absent
Shoal Lake - L3	21-Jun-23	576669	21.0	4.0	Absent	Absent
Shoal Lake - L4	21-Jun-23	576670	23.3	4.0	Absent	Absent
Shoal Lake - L5	21-Jun-23	576671	22.6	3.5	Absent	Absent

Notes:

All samples are discarded and equipment decontaminated according to SWI 017-34: Decontamination for Aquatic Invasive Species

Weather Conditions During Monitoring

Survey Location	Sample Date	Wind Direction	Wind Speed (km/h)	Cloud Coverage (%)	Precipitation (mm)	Air Temperature (° C)
Deacon Reservoirs	23-Jun-23	East	3	40	<0.1	25.0
Shoal Lake	21-Jun-23	West	14	15	<0.1	21.6

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Monitoring Results

Sample Location	Sample Date	Sample Number	Temperature (° C)	Transparency (m)	Veliger (Net)	Adult (Trap)
Deacon Cell 1 - Middle	21-Jul-23	583919	21.9	2.3	Absent	Absent
Deacon Cell 1-100m from NE corner	21-Jul-23	583920	22.0	2.3	Absent	
Deacon Cell 2 - Middle	21-Jul-23	583923	21.3	2.3	Absent	Absent
Deacon Cell 2-100m from NE corner	21-Jul-23	583924	21.3	2.5	Absent	
Deacon Cell 3 - Middle	21-Jul-23	583927	21.8	1.8	Absent	Absent
Deacon Cell 3-100m from NE corner	21-Jul-23	583928	21.3	2.0	Absent	
Deacon Cell 4 - Middle	21-Jul-23	583931	20.9	2.3	Absent	Absent
Deacon Cell 4-100m from NE corner	21-Jul-23	583932	20.8	2.3	Absent	
Indian Bay - B1	27-Jul-23	583943	23.1	3.0	Absent	Absent
Indian Bay - B2	27-Jul-23	583944	23.4	3.5	Absent	Absent
Indian Bay - B3	27-Jul-23	583945	23.3	3.5	Absent	Absent
Indian Bay - B4	27-Jul-23	583946	24.2	3.5	Absent	Absent
Indian Bay - B5	27-Jul-23	583947	24.1	4.0	Absent	Absent
Indian Bay - B6	27-Jul-23	583948	23.7	3.5	Absent	ns
Shoal Lake - L1	27-Jul-23	583950	24.4	3.5	Absent	Absent
Shoal Lake - L2	27-Jul-23	583951	23.0	3.5	Absent	Absent
Shoal Lake - L3	27-Jul-23	583952	23.3	3.5	Absent	Absent
Shoal Lake - L4	27-Jul-23	583953	24.0	3.0	Absent	Absent
Shoal Lake - L5	27-Jul-23	583954	22.1	2.5	Absent	Absent

Notes:

All samples are discarded and equipment decontaminated according to SWI 017-34: Decontamination for Aquatic Invasive Species
ns - no sample, trap missing

Weather Conditions During Monitoring

Survey Location	Sample Date	Wind Direction	Wind Speed (km/h)	Cloud Coverage (%)	Precipitation (mm)	Air Temperature (° C)
Deacon Reservoirs	21-Jul-23	West	4	90	<0.1	25.0
Shoal Lake	27-Jul-23	South-South West	12	45	<0.1	24.7

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Monitoring Results

Sample Location	Sample Date	Sample Number	Temperature (° C)	Transparency (m)	Veliger (Net)	Adult (Trap)
Deacon Cell 1 - Middle	15-Aug-23	591424	22.4	2.3	Absent	Absent
Deacon Cell 1-100m from NE corner	15-Aug-23	591425	22.4	2.3	Absent	
Deacon Cell 2 - Middle	15-Aug-23	591428	22.1	2.3	Absent	Absent
Deacon Cell 2-100m from NE corner	15-Aug-23	591429	22.4	2.0	Absent	
Deacon Cell 3 - Middle	15-Aug-23	591432	22.6	2.0	Absent	Absent
Deacon Cell 3-100m from NE corner	15-Aug-23	591433	22.3	2.0	Absent	
Deacon Cell 4 - Middle	15-Aug-23	591436	21.3	2.3	Absent	Absent
Deacon Cell 4-100m from NE corner	15-Aug-23	591437	20.2	2.5	Absent	
Indian Bay - B1	29-Aug-23	591470	20.7	2.0	Absent	Absent
Indian Bay - B2	17-Aug-23	591471	20.7	1.8	Absent	Absent
Indian Bay - B3	17-Aug-23	591472	20.3	1.8	Absent	Absent
Indian Bay - B4	17-Aug-23	591473	20.6	2.0	Absent	Absent
Indian Bay - B5	29-Aug-23	591474	20.2	2.3	Absent	Absent
Indian Bay - B6	17-Aug-23	591475	20.5	1.8	Absent	ns
Shoal Lake - L1	29-Aug-23	591477	21.3	2.3	Absent	Absent
Shoal Lake - L2	29-Aug-23	591478	20.0	2.3	Absent	Absent
Shoal Lake - L3	29-Aug-23	591479	20.1	3.0	Absent	Absent
Shoal Lake - L4	17-Aug-23	591480	20.3	2.0	Absent	ns
Shoal Lake - L5	29-Aug-23	591481	20.1	2.8	Absent	Absent

Notes:

All samples are discarded and equipment decontaminated according to SWI 017-34: Decontamination for Aquatic Invasive Species
ns - no sample, trap missing

Weather Conditions During Monitoring

Survey Location	Sample Date	Wind Direction	Wind Speed (km/h)	Cloud Coverage (%)	Precipitation (mm)	Air Temperature (° C)
Deacon Reservoirs	15-Aug-23	North	11	90	<0.1	26.0
Shoal Lake	17-Aug-23	West	20	60	<0.1	18.5
Shoal Lake	29-Aug-23	North East	15	90	<0.1	19.0

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Monitoring Results

Sample Location	Sample Date	Sample Number	Temperature (° C)	Transparency (m)	Veliger (Net)	Adult (Trap)
Deacon Cell 1 - Middle	12-Sep-23	599137	19.0	2.5	Absent	Absent
Deacon Cell 1-100m from NE corner	12-Sep-23	599138	19.3	2.5	Absent	
Deacon Cell 2 - Middle	12-Sep-23	599141	18.8	2.5	Absent	ns
Deacon Cell 2-100m from NE corner	12-Sep-23	599142	19.0	3.0	Absent	
Deacon Cell 3 - Middle	12-Sep-23	599145	19.1	1.5	Absent	Absent
Deacon Cell 3-100m from NE corner	12-Sep-23	599146	19.2	1.5	Absent	
Deacon Cell 4 - Middle	12-Sep-23	599149	18.5	2.5	Absent	Absent
Deacon Cell 4-100m from NE corner	12-Sep-23	599150	18.5	2.5	Absent	
Indian Bay - B1	14-Sep-23	599161	17.5	2.0	Absent	Absent
Indian Bay - B2	14-Sep-23	599162	17.6	1.8	Absent	Absent
Indian Bay - B3	14-Sep-23	599163	17.5	1.8	Absent	Absent
Indian Bay - B4	14-Sep-23	599164	17.3	1.8	Absent	Absent
Indian Bay - B5	14-Sep-23	599165	17.3	2.3	Absent	Absent
Indian Bay - B6	14-Sep-23	599166	17.4	2.0	Absent	Absent
Shoal Lake - L1	14-Sep-23	599168	17.6	2.0	Absent	Absent
Shoal Lake - L2	14-Sep-23	599169	17.7	2.8	Absent	Absent
Shoal Lake - L3	14-Sep-23	599170	18.0	2.5	Absent	Absent
Shoal Lake - L4	14-Sep-23	599171	17.9	3.3	Absent	Absent
Shoal Lake - L5	14-Sep-23	599172	18.0	2.3	Absent	Absent

Notes:

All samples are discarded and equipment decontaminated according to SWI 017-34: Decontamination for Aquatic Invasive Species
ns - no sample, trap missing

Weather Conditions During Monitoring

Survey Location	Sample Date	Wind Direction	Wind Speed (km/h)	Cloud Coverage (%)	Precipitation (mm)	Air Temperature (° C)
Deacon Reservoirs	12-Sep-23	South-South East	9	75	<0.1	18.0
Shoal Lake	14-Sep-23	South	15	100	2.0	18.0

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Monitoring Results

Sample Location	Sample Date	Sample Number	Temperature (° C)	Transparency (m)	Veliger (Net)	Adult (Trap)
Deacon Cell 1 - Middle	12-Oct-23	607166	13.0	3.5	Absent	Absent
Deacon Cell 1-100m from NE corner	12-Oct-23	607167	12.9	3.5	Absent	
Deacon Cell 2 - Middle	12-Oct-23	607170	13.0	3.0	Absent	ns
Deacon Cell 2-100m from NE corner	12-Oct-23	607171	13.0	2.0	Absent	
Deacon Cell 3 - Middle	12-Oct-23	607174	13.1	3.0	Absent	Absent
Deacon Cell 3-100m from NE corner	12-Oct-23	607175	13.0	2.5	Absent	
Deacon Cell 4 - Middle	12-Oct-23	607178	12.8	3.0	Absent	Absent
Deacon Cell 4-100m from NE corner	12-Oct-23	607179	13.0	2.5	Absent	
Indian Bay - B1	19-Oct-23	607190	11.5	2.0	Absent	Absent
Indian Bay - B2	19-Oct-23	607191	11.5	1.8	Absent	ns
Indian Bay - B3	19-Oct-23	607192	11.2	2.0	Absent	Absent
Indian Bay - B4	19-Oct-23	607193	11.4	2.0	Absent	Absent
Indian Bay - B5	19-Oct-23	607194	11.4	2.0	Absent	Absent
Indian Bay - B6	19-Oct-23	607195	11.4	2.0	Absent	Absent
Shoal Lake - L1	19-Oct-23	607197	12.1	2.8	Absent	Absent
Shoal Lake - L2	19-Oct-23	607198	13.3	2.3	Absent	Absent
Shoal Lake - L3	19-Oct-23	607199	13.5	2.5	Absent	Absent
Shoal Lake - L4	19-Oct-23	607200	13.5	2.5	Absent	Absent
Shoal Lake - L5	19-Oct-23	607201	13.2	2.3	Absent	Absent

Notes:

All samples are discarded and equipment decontaminated according to SWI 017-34: Decontamination for Aquatic Invasive Species
ns - no sample, trap missing

Weather Conditions During Monitoring

Survey Location	Sample Date	Wind Direction	Wind Speed (km/h)	Cloud Coverage (%)	Precipitation (mm)	Air Temperature (° C)
Deacon Reservoirs	12-Oct-23	East-North East	7	10	<0.1	13.0
Shoal Lake	19-Oct-23	North West	7	100	<0.1	6.5

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APPENDIX D
2023 RESIDENTIAL LEAD MONITORING
PROGRAM RESULTS

City of Winnipeg
Environmental Standards Division
2023 Residential Lead Monitoring Program Results

DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	SAMPLED BY	RDT	1 MIN	2 MIN	5 MIN
29-May-23	1436	Fort Rouge - East Fort Garry	Copper	Lead	Participant	0.000823	0.000899	0.000811	0.000770
29-May-23	1437	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.001807	0.000450	0.000360	0.000360
29-May-23	1438	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.001299	0.001347	0.000382	0.000402
29-May-23	1439	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.000846	0.001084	0.000196	0.000183
29-May-23	1440	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.000929	0.026532	0.000931	0.000772
29-May-23	1441	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.000581	0.000703	0.000179	0.000155
29-May-23	1442	Fort Rouge - East Fort Garry	Lead	Lead	City Staff	0.000356	0.000217	0.000205	0.000198
30-May-23	1445	Fort Rouge - East Fort Garry	Lead	Lead	Participant	0.000609	0.000683	0.000248	0.000239
29-May-23	1446	Fort Rouge - East Fort Garry	Lead	Lead	Participant	0.000117	0.000107	0.000104	0.000104
30-May-23	1448	River Heights - Fort Garry	Lead	Lead	City Staff	0.000242	0.001420	0.000110	0.000094
30-May-23	1449	River Heights - Fort Garry	Copper	Lead	City Staff	0.000696	0.001315	0.000322	0.000277
30-May-23	1450	River Heights - Fort Garry	Copper	Lead	City Staff	0.000643	0.004539	0.000397	0.000367
30-May-23	1451	River Heights - Fort Garry	Copper	Lead	City Staff	0.003931	0.000699	0.000671	0.000670
30-May-23	1452	River Heights - Fort Garry	Copper	Lead	City Staff	0.000578	0.000792	0.000369	0.000330
29-May-23	1455	Fort Rouge - East Fort Garry	Copper	Lead	Participant	0.005027	0.001047	0.000794	0.000720
1-Jun-23	1457	Mynarski	Lead	Lead	City Staff	0.000370	0.000530	0.000128	0.000123
1-Jun-23	1458	Mynarski	Lead	Lead	City Staff	0.007803	0.015712	0.000421	0.000360
1-Jun-23	1459	Mynarski	Copper	Lead	City Staff	0.000871	0.000448	0.000149	0.000133
1-Jun-23	1460	Mynarski	Copper	Lead	City Staff	0.001409	0.002157	0.000602	0.000524
1-Jun-23	1461	Mynarski	Copper	Lead	City Staff	0.001286	0.002546	0.000552	0.000550
2-Jun-23	1463	Mynarski	Copper	Lead	Participant	0.109390	0.000331	0.000149	0.000134
2-Jun-23	1465	River Heights - Fort Garry	Copper	Lead	Participant	0.000132	<0.000065	<0.000065	<0.000065
5-Jun-23	1466	Point Douglas	Copper	Lead	City Staff	0.010326	0.000547	0.000454	0.000574
5-Jun-23	1467	Point Douglas	Copper	Lead	City Staff	0.000482	0.000394	0.000424	0.000412
5-Jun-23	1468	Point Douglas	Lead	Lead	City Staff	0.003084	0.001750	0.001607	0.001680
5-Jun-23	1469	Point Douglas	Copper	Lead	City Staff	0.003938	0.000466	0.000673	0.000415
4-Jun-23	1470	Mynarski	Copper	Lead	Participant	0.008510	0.000774	0.000722	0.002366
3-Jun-23	1471	Mynarski	Copper	Lead	Participant	0.000190	0.000095	0.000086	0.000090
5-Jun-23	1472	Point Douglas	Copper	Lead	City Staff	0.001369	0.000306	0.000337	0.000360
5-Jun-23	1473	Point Douglas	Copper	Lead	City Staff	0.000689	0.000485	0.002119	0.000421
7-Jun-23	1475	St. James	Lead	Lead	City Staff	0.001285	0.000283	0.000307	0.000271
7-Jun-23	1476	St. James	Copper	Lead	City Staff	0.002428	0.000368	0.000340	0.000337
7-Jun-23	1477	St. James	Copper	Lead	City Staff	0.002369	0.000439	0.000432	0.000359

City of Winnipeg
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2023 Residential Lead Monitoring Program Results

DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	SAMPLED BY	RDT	1 MIN	2 MIN	5 MIN
7-Jun-23	1478	Daniel McIntyre	Copper	Lead	City Staff	0.018702	0.001831	0.001527	0.001416
7-Jun-23	1479	Daniel McIntyre	Copper	Lead	City Staff	0.000463	0.000172	0.000171	0.000168
7-Jun-23	1480	Daniel McIntyre	Copper	Lead	City Staff	0.000837	0.002044	0.000536	0.000753
7-Jun-23	1481	Daniel McIntyre	Lead	Lead	City Staff	0.002287	0.001060	0.000211	0.000240
7-Jun-23	1482	Daniel McIntyre	Lead	Lead	City Staff	0.001129	0.001214	0.000589	0.000608
7-Jun-23	1483	Daniel McIntyre	Lead	Lead	City Staff	0.003802	0.002147	0.000611	0.000108
8-Jun-23	1484	Elmwood - East Kildonan	Copper	Lead	City Staff	0.017875	0.000589	0.000572	0.000564
8-Jun-23	1485	Elmwood - East Kildonan	Lead	Lead	City Staff	0.002588	0.000576	0.000520	0.000519
8-Jun-23	1486	North Kildonan	Copper	Copper	City Staff	0.000098	<0.000065	<0.000065	<0.000065
8-Jun-23	1487	Elmwood - East Kildonan	Lead	Lead	City Staff	0.019771	0.005200	0.005190	0.004412
8-Jun-23	1488	Elmwood - East Kildonan	Copper	Lead	City Staff	0.006726	0.000793	0.000417	0.000633
8-Jun-23	1489	St. James	Copper	Lead	Participant	0.000579	0.000464	0.000791	0.000340
8-Jun-23	1490	Elmwood - East Kildonan	Lead	Lead	City Staff	0.002621	0.000605	0.000678	0.000703
28-Jun-23	1505	St. Vital	Copper	Lead	City Staff	0.000997	0.000487	0.000352	0.000459
28-Jun-23	1506	St. Vital	Copper	Lead	City Staff	0.000244	0.000170	0.000100	0.000144
28-Jun-23	1507	St. Vital	Copper	Lead	City Staff	0.002729	0.001133	0.001119	0.001099
28-Jun-23	1508	St. Vital	Unknown	Lead	City Staff	0.007929	0.001342	0.001351	0.001189
28-Jun-23	1509	St. Boniface	Copper	Lead	City Staff	0.009539	0.005487	0.003569	0.002821
28-Jun-23	1510	St. Boniface	Copper	Lead	City Staff	0.001567	0.000670	0.000734	0.000749
28-Jun-23	1511	St. Boniface	Copper	Copper	City Staff	0.004571	0.000732	0.000728	0.000661
28-Jun-23	1512	St. Boniface	Copper	Lead	City Staff	0.008287	0.006915	0.001405	0.001411
28-Jun-23	1513	St. Vital	Copper	Lead	City Staff	0.006237	0.001959	0.001582	0.001505
28-Jun-23	1514	St. Vital	Unknown	Lead	City Staff	0.000088	<0.000065	<0.000065	0.000073
29-Jun-23	1515	Transcona	Unknown	Lead	Participant	0.000094	<0.000065	<0.000065	<0.000065
29-Jun-23	1516	Elmwood - East Kildonan	Copper	Lead	City Staff	0.000460	0.000373	0.000369	0.000339
29-Jun-23	1517	Elmwood - East Kildonan	Lead	Lead	City Staff	0.001071	0.007423	0.000890	0.000699
29-Jun-23	1518	Transcona	Copper	Lead	City Staff	0.000494	0.000182	<0.000065	0.000094
29-Jun-23	1519	Elmwood - East Kildonan	Unknown	Lead	City Staff	0.004949	0.000777	0.000350	0.000328
29-Jun-23	1520	Transcona	Unknown	Lead	City Staff	0.000197	<0.000065	<0.000065	<0.000065
29-Jun-23	1521	Elmwood - East Kildonan	Copper	Lead	City Staff	0.003430	0.001501	0.001532	0.001434
28-Jun-23	1524	St. Boniface	Unknown	Lead	Participant	0.000073	<0.000065	<0.000065	<0.000065
5-Jul-23	1526	Mynarski	Copper	Lead	City Staff	0.001323	0.000704	0.000721	0.000710
5-Jul-23	1527	Mynarski	Lead	Lead	City Staff	0.007418	0.001341	0.000953	0.000969

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DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	SAMPLED BY	RDT	1 MIN	2 MIN	5 MIN
5-Jul-23	1528	Mynarski	Lead	Lead	City Staff	0.001089	0.000121	0.000109	0.000107
5-Jul-23	1529	Mynarski	Copper	Lead	City Staff	0.000641	0.000571	0.000503	0.000470
5-Jul-23	1530	Mynarski	Lead	Lead	City Staff	0.000800	0.000613	0.000235	0.000223
5-Jul-23	1531	Mynarski	Copper	Lead	City Staff	0.000479	0.000279	0.000272	0.000255
5-Jul-23	1532	Mynarski	Copper	Lead	City Staff	0.000766	0.000522	0.000490	0.000516
4-Jul-23	1533	Transcona	Copper	Lead	Participant	0.000287	<0.000065	<0.000065	<0.000065
6-Jul-23	1534	River Heights - Fort Garry	Lead	Lead	City Staff	0.001697	0.004345	0.000526	0.000518
6-Jul-23	1535	Elmwood - East Kildonan	Lead	Lead	City Staff	0.002836	0.009565	0.001486	0.000923
6-Jul-23	1536	River Heights - Fort Garry	Lead	Lead	City Staff	0.002560	0.003139	0.000810	0.000881
6-Jul-23	1537	River Heights - Fort Garry	Copper	Lead	City Staff	0.000448	0.001324	0.000332	0.000364
6-Jul-23	1538	River Heights - Fort Garry	Copper	Lead	City Staff	0.001096	0.000110	<0.000065	<0.000065
6-Jul-23	1539	Mynarski	Copper	Lead	City Staff	0.000837	0.001498	0.000241	0.000211
6-Jul-23	1540	Mynarski	Copper	Lead	Participant	0.001298	0.000823	0.000473	0.000461
6-Jul-23	1541	River Heights - Fort Garry	Lead	Lead	City Staff	0.000841	0.001911	0.000215	0.000157
6-Jul-23	1542	River Heights - Fort Garry	Copper	Lead	City Staff	0.000224	<0.000065	<0.000065	<0.000065
6-Jul-23	1543	River Heights - Fort Garry	Copper	Lead	City Staff	0.000186	0.000163	0.000099	<0.000065
6-Jul-23	1544	River Heights - Fort Garry	Copper	Lead	City Staff	0.000942	0.000263	0.000248	0.000168
6-Jul-23	1545	River Heights - Fort Garry	Lead	Lead	City Staff	0.000918	0.000913	0.000492	0.000360
6-Jul-23	1546	River Heights - Fort Garry	Lead	Lead	City Staff	0.003024	0.014539	0.000849	0.000946
11-Jul-23	1548	River Heights - Fort Garry	Copper	Copper	Participant	<0.000065	0.000083	<0.000065	<0.000065
11-Jul-23	1549	Charleswood - Tuxedo - Westwood	Copper	Lead	City Staff	0.007323	0.001863	0.000717	0.000790
11-Jul-23	1550	North Kildonan	Lead	Lead	City Staff	0.002556	0.001182	0.000883	0.000877
12-Jul-23	1551	Daniel McIntyre	Copper	Lead	City Staff	0.002062	0.000815	0.000847	0.000833
12-Jul-23	1552	Daniel McIntyre	Copper	Lead	City Staff	0.000264	0.000107	0.000096	0.000104
12-Jul-23	1553	Daniel McIntyre	Copper	Lead	City Staff	0.000337	<0.000065	<0.000065	<0.000065
12-Jul-23	1554	Daniel McIntyre	Copper	Lead	City Staff	0.007108	0.005937	0.000425	0.000410
12-Jul-23	1555	Daniel McIntyre	Copper	Lead	City Staff	0.001092	0.000567	0.000424	0.000464
12-Jul-23	1556	Daniel McIntyre	Copper	Lead	City Staff	0.000276	0.000065	0.000108	0.000078
12-Jul-23	1557	St. James	Copper	Lead	Participant	0.008689	0.001855	0.001038	0.001051
13-Jul-23	1558	Daniel McIntyre	Copper	Lead	Participant	0.008295	0.000690	0.000496	0.000461
13-Jul-23	1559	Daniel McIntyre	Copper	Lead	City Staff	0.000802	0.000342	<0.000065	<0.000065
13-Jul-23	1560	Point Douglas	Copper	Lead	City Staff	0.001711	0.000175	0.000291	0.000273
13-Jul-23	1561	Point Douglas	Copper	Lead	City Staff	0.000250	<0.000065	<0.000065	<0.000065

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13-Jul-23	1562	Point Douglas	Copper	Lead	City Staff	0.000152	0.000246	<0.000065	<0.000065
13-Jul-23	1563	Point Douglas	Copper	Lead	City Staff	0.001905	0.000939	0.000982	0.000908
18-Jul-23	1567	Fort Rouge - East Fort Garry	Lead	Lead	City Staff	0.000754	0.003070	0.000478	0.000585
18-Jul-23	1568	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.004675	0.002872	0.002059	0.002230
18-Jul-23	1569	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.000761	0.003473	0.000577	0.000535
18-Jul-23	1570	Fort Rouge - East Fort Garry	Lead	Lead	City Staff	0.000779	0.000698	0.000302	0.000263
18-Jul-23	1571	Fort Rouge - East Fort Garry	Lead	Lead	City Staff	0.003449	0.003821	0.001056	0.001004
18-Jul-23	1572	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.001751	0.004263	0.000701	0.000803
18-Jul-23	1573	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.003592	0.002832	0.001198	0.001155
18-Jul-23	1574	Fort Rouge - East Fort Garry	Lead	Lead	City Staff	0.001986	0.000856	0.000379	0.002657
18-Jul-23	1575	Fort Rouge - East Fort Garry	Lead	Lead	City Staff	0.001909	0.001209	0.000852	0.000592
18-Jul-23	1576	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.000137	<0.000065	<0.000065	<0.000065
19-Jul-23	1578	Mynarski	Copper	Lead	City Staff	0.005650	0.002078	0.001579	0.000965
20-Jul-23	1580	Mynarski	Copper	Lead	City Staff	0.001521	0.000359	0.000339	0.000313
20-Jul-23	1581	Mynarski	Lead	Lead	City Staff	0.000356	0.002333	0.000663	0.000273
20-Jul-23	1582	Mynarski	Lead	Lead	City Staff	0.000076	<0.000065	<0.000065	<0.000065
20-Jul-23	1583	Mynarski	Lead	Lead	City Staff	0.002226	0.001930	0.000165	0.000175
20-Jul-23	1584	Mynarski	Copper	Lead	City Staff	0.000262	0.000202	0.000200	0.000080
20-Jul-23	1585	Mynarski	Copper	Lead	City Staff	0.000667	0.000329	0.032682	0.000315
20-Jul-23	1586	Mynarski	Copper	Lead	City Staff	0.002503	0.000472	0.000476	0.000501
20-Jul-23	1587	Mynarski	Copper	Lead	City Staff	0.000444	<0.000065	<0.000065	<0.000065
20-Jul-23	1588	Mynarski	Copper	Lead	City Staff	0.001638	0.000944	0.000918	0.000896
20-Jul-23	1589	Mynarski	Copper	Lead	City Staff	<0.000065	<0.000065	<0.000065	<0.000065
20-Jul-23	1590	Mynarski	Lead	Lead	City Staff	0.000502	0.000109	0.000082	0.000076
20-Jul-23	1591	Mynarski	Copper	Lead	City Staff	0.000432	0.000172	0.000090	0.000067
26-Jul-23	1608	Elmwood - East Kildonan	Copper	Lead	City Staff	<0.000065	<0.000065	<0.000065	<0.000065
26-Jul-23	1609	Elmwood - East Kildonan	Lead	Lead	City Staff	0.000852	0.000232	0.000102	0.000095
26-Jul-23	1610	Elmwood - East Kildonan	Copper	Lead	City Staff	0.000668	0.000496	0.000441	0.000419
26-Jul-23	1611	River Heights - Fort Garry	Copper	Lead	City Staff	<0.000065	<0.000065	<0.000065	<0.000065
26-Jul-23	1613	Elmwood - East Kildonan	Copper	Lead	City Staff	0.000455	0.000207	0.000185	0.000189
26-Jul-23	1614	Elmwood - East Kildonan	Lead	Lead	City Staff	0.001981	0.001055	0.001354	0.000977
26-Jul-23	1616	Elmwood - East Kildonan	Copper	Lead	City Staff	0.009657	0.000535	0.000404	0.000373
26-Jul-23	1617	Elmwood - East Kildonan	Copper	Lead	City Staff	0.000113	<0.000065	<0.000065	<0.000065

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26-Jul-23	1618	Elmwood - East Kildonan	Copper	Lead	City Staff	0.002427	0.001143	0.001267	0.001190
27-Jul-23	1622	Elmwood - East Kildonan	Copper	Lead	Participant	0.004740	0.000758	0.000742	0.000728
27-Jul-23	1623	Fort Rouge - East Fort Garry	Copper	Lead	City Staff	0.006997	0.001768	0.001554	0.001530
27-Jul-23	1624	Mynarski	Lead	Lead	City Staff	0.010086	0.001814	0.001055	0.001027
27-Jul-23	1625	Elmwood - East Kildonan	Copper	Lead	Participant	0.002110	0.001176	0.001273	0.001149
26-Jul-23	1626	Elmwood - East Kildonan	Copper	Lead	Participant	0.002556	0.003810	0.000707	<0.000065
27-Jul-23	1627	Elmwood - East Kildonan	Copper	Lead	City Staff	<0.000065	<0.000065	<0.000065	<0.000065
27-Jul-23	1628	Elmwood - East Kildonan	Copper	Lead	City Staff	0.002318	0.001393	0.001320	0.001338
27-Jul-23	1629	Daniel McIntyre	Copper	Lead	Participant	0.003626	0.001262	0.001177	0.001165
27-Jul-23	1630	Mynarski	Copper	Lead	City Staff	0.002112	0.001147	0.001139	0.001276
2-Aug-23	1636	Daniel McIntyre	Copper	Lead	City Staff	0.000558	0.000208	0.000214	0.000214
2-Aug-23	1637	Daniel McIntyre	Copper	Lead	City Staff	0.001343	0.000099	0.000094	0.000071
2-Aug-23	1638	Daniel McIntyre	Lead	Lead	City Staff	0.005047	0.000605	0.000537	0.000558
2-Aug-23	1639	Daniel McIntyre	Copper	Lead	City Staff	0.001415	0.000468	0.000603	0.000523
2-Aug-23	1640	Daniel McIntyre	Copper	Lead	City Staff	0.001970	0.000892	0.000762	0.000349
2-Aug-23	1641	Daniel McIntyre	Copper	Lead	City Staff	0.002196	0.003531	0.002294	0.001692
2-Aug-23	1642	Mynarski	Lead	Lead	City Staff	0.000792	0.001023	0.000542	0.000472
3-Aug-23	1643	Daniel McIntyre	Copper	Lead	City Staff	0.001207	0.000536	0.000531	0.000508
3-Aug-23	1644	Transcona	Copper	Lead	Participant	<0.000065	<0.000065	<0.000065	<0.000065
2-Aug-23	1645	Daniel McIntyre	Copper	Lead	Participant	0.000830	0.000562	0.000525	0.000553
3-Aug-23	1646	Point Douglas	Lead	Lead	City Staff	<0.000065	<0.000065	<0.000065	<0.000065
9-Aug-23	1647	Mynarski	Copper	Lead	City Staff	0.000499	0.000330	0.000272	0.000236
9-Aug-23	1648	Daniel McIntyre	Copper	Lead	City Staff	0.000695	0.000341	0.000358	0.000337
9-Aug-23	1649	Daniel McIntyre	Copper	Lead	City Staff	0.000501	0.000885	0.001972	0.000504
9-Aug-23	1650	Daniel McIntyre	Copper	Lead	City Staff	0.000411	0.000498	0.000260	0.000243
9-Aug-23	1651	Daniel McIntyre	Copper	Lead	City Staff	0.001275	0.001055	0.001013	0.001018
9-Aug-23	1652	Daniel McIntyre	Lead	Lead	City Staff	0.001393	0.000618	0.000635	0.000555
9-Aug-23	1653	Daniel McIntyre	Lead	Lead	City Staff	0.011485	0.006463	0.001394	0.012980
9-Aug-23	1654	Daniel McIntyre	Copper	Lead	City Staff	0.012370	0.000599	0.000654	0.000742
9-Aug-23	1655	Fort Rouge - East Fort Garry	Lead	Copper	City Staff	0.001146	0.000653	0.000067	<0.000065
9-Aug-23	1656	Daniel McIntyre	Copper	Lead	City Staff	0.001661	0.000866	0.000723	0.000677
15-Aug-23	1659	Daniel McIntyre	Copper	Lead	City Staff	0.001397	0.000640	0.000442	0.000442
15-Aug-23	1660	Daniel McIntyre	Copper	Lead	City Staff	0.000488	0.000070	<0.000065	<0.000065
16-Aug-23	1662	Mynarski	Copper	Lead	City Staff	0.003038	0.000605	0.000671	0.000596

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16-Aug-23	1663	Mynarski	Copper	Lead	City Staff	0.001102	0.001192	0.000313	0.000279
16-Aug-23	1664	Mynarski	Copper	Lead	City Staff	0.002187	0.000659	0.000600	0.000526
16-Aug-23	1665	Mynarski	Copper	Lead	City Staff	0.001690	0.000764	0.000728	0.000741
16-Aug-23	1666	Mynarski	Copper	Lead	City Staff	0.000634	0.000840	0.000385	0.000508
16-Aug-23	1667	Mynarski	Copper	Copper	City Staff	0.000209	<0.000065	<0.000065	<0.000065
16-Aug-23	1668	Mynarski	Lead	Lead	City Staff	0.001503	0.001112	0.000512	0.000494
16-Aug-23	1669	Daniel McIntyre	Copper	Copper	City Staff	0.000383	<0.000065	<0.000065	<0.000065
16-Aug-23	1670	Daniel McIntyre	Copper	Lead	City Staff	0.000104	<0.000065	<0.000065	<0.000065
15-Aug-23	1671	Daniel McIntyre	Copper	Lead	Participant	0.001663	0.000352	0.000310	0.000305
17-Aug-23	1673	Mynarski	Copper	Lead	City Staff	0.001351	0.001324	0.001166	0.001042
17-Aug-23	1674	Elmwood - East Kildonan	Copper	Lead	City Staff	0.000079	0.000191	<0.000065	<0.000065
17-Aug-23	1675	Daniel McIntyre	Copper	Lead	City Staff	0.000614	0.000325	0.000305	0.000297
17-Aug-23	1676	Daniel McIntyre	Copper	Lead	City Staff	0.011509	0.000668	0.000688	0.000644
17-Aug-23	1677	Daniel McIntyre	Copper	Lead	City Staff	0.001475	0.000264	0.000264	0.000267
17-Aug-23	1678	Daniel McIntyre	Copper	Lead	Participant	0.000284	<0.000065	<0.000065	<0.000065
17-Aug-23	1679	Daniel McIntyre	Copper	Lead	City Staff	0.004419	0.015725	0.000782	0.000647
17-Aug-23	1680	Daniel McIntyre	Copper	Lead	City Staff	0.007594	0.001976	0.002008	0.001927
17-Aug-23	1681	Daniel McIntyre	Copper	Lead	City Staff	0.003738	0.001627	0.001629	0.001612
19-Sep-23	1695	Daniel McIntyre	Copper	Copper	Participant	0.001367	0.001937	0.000514	0.000541
28-Sep-23	1701	Point Douglas	Copper	Copper	Participant	0.000644	0.000223	0.000187	0.000203
28-Sep-23	1702	Point Douglas	Copper	Lead	Participant	0.001447	0.001221	0.001275	0.001384
29-Sep-23	1703	Point Douglas	Copper	Lead	City Staff	0.004552	0.001212	0.001080	0.001021
29-Sep-23	1704	Point Douglas	Copper	Lead	City Staff	0.002100	0.001182	0.000983	0.000947
29-Sep-23	1705	Point Douglas	Copper	Lead	City Staff	0.000839	0.001549	0.001384	0.001264
29-Sep-23	1706	Point Douglas	Lead	Lead	City Staff	0.001810	0.001231	0.001058	0.000668
29-Sep-23	1707	Point Douglas	Lead	Lead	City Staff	0.000841	0.000777	0.000306	0.000304
29-Sep-23	1708	Point Douglas	Lead	Lead	City Staff	0.001458	0.000699	0.000686	0.000624
29-Sep-23	1709	Point Douglas	Lead	Lead	City Staff	0.001319	0.000298	0.000289	0.000286
29-Sep-23	1710	Point Douglas	Copper	Copper	City Staff	0.000099	<0.000065	<0.000065	<0.000065
13-Oct-23	1716	Point Douglas	Copper	Lead	City Staff	0.001687	0.000690	0.000641	0.000577
25-Oct-23	1718	Point Douglas	Copper	Lead	City Staff	0.004333	0.000724	0.000322	0.000268
25-Oct-23	1719	Point Douglas	Copper	Lead	City Staff	0.000986	0.000244	0.000152	0.000121
25-Oct-23	1720	Point Douglas	Lead	Lead	City Staff	0.000658	0.000331	0.000316	0.000317
25-Oct-23	1721	Point Douglas	Copper	Lead	City Staff	0.001511	0.000538	0.000462	0.000456
26-Oct-23	1723	Daniel McIntyre	Copper	Lead	City Staff	0.000991	0.000534	0.000491	0.000466

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26-Oct-23	1724	Daniel McIntyre	Copper	Lead	City Staff	0.004259	0.002933	0.001844	0.001272
25-Oct-23	1725	Point Douglas	Copper	Lead	Participant	0.006242	0.001460	0.001451	0.001387
26-Oct-23	1726	Point Douglas	Lead	Lead	City Staff	0.002371	0.000333	0.000317	0.000294
27-Oct-23	1727	Daniel McIntyre	Lead	Lead	Participant	0.000306	0.000267	0.000241	0.000235
26-Oct-23	1728	Daniel McIntyre	Copper	Lead	Participant	0.000685	0.000445	0.000355	0.000354
23-Nov-23	1739	Mynarski	Copper	Lead	City Staff	0.001875	0.000707	0.000713	0.000676
24-Nov-23	1742	Daniel McIntyre	Copper	Lead	City Staff	0.000775	0.000996	0.000606	0.000549
24-Nov-23	1743	Daniel McIntyre	Copper	Lead	City Staff	0.000128	0.000109	<0.000065	<0.000065
7-Dec-23	1758	St. Boniface	Unknown	Unknown	City Staff	0.000370	0.000125	0.000081	<0.000065

Results in red are over the lead limit of 0.005 mg/L

DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	SAMPLED BY	30MS 1	30 MS 2
13-Oct-23	1712	Daniel McIntyre	Lead	Lead	City Staff	0.001959	0.003830