

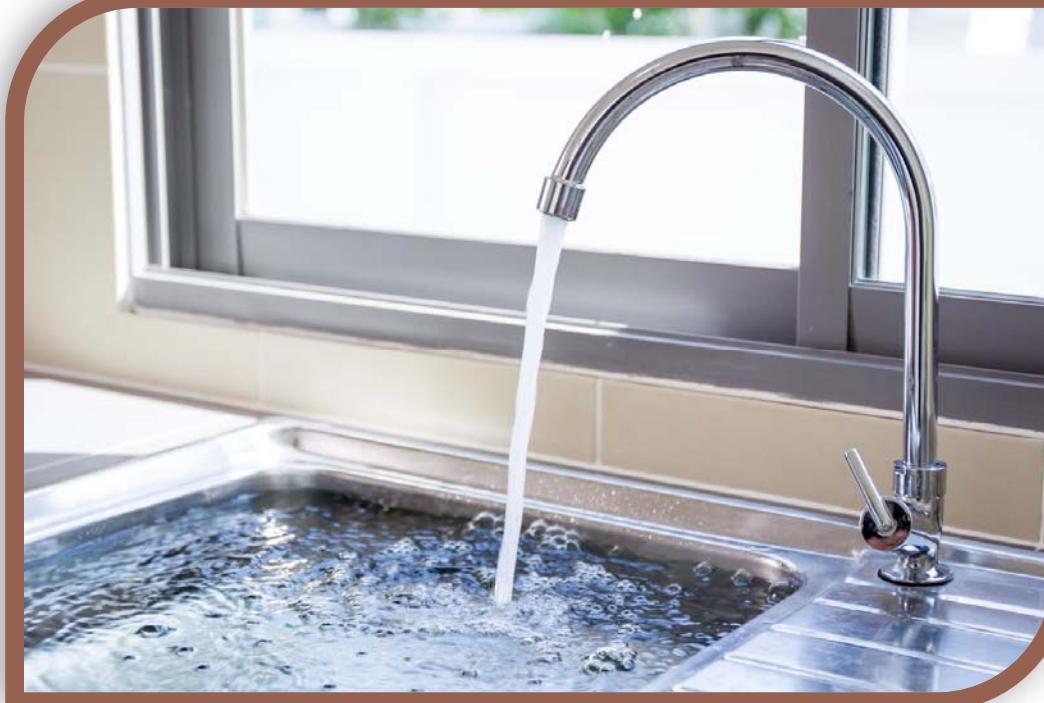


Water and Waste
Eaux et déchets

ENVIRONMENTAL STANDARDS DIVISION

2020 ANNUAL WATER REPORT

CITY OF WINNIPEG WATER SUPPLY SYSTEM



OPERATING LICENCE #PWS-09-412-01

2020

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-09-412-01, 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 2020 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 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 Floatation (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, and then sodium bisulphite is added to remove excess ozone.
4. Filtration: the water flows through biologically activated carbon filters to disinfect the water by removing 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. Fluoride is added to prevent dental decay and orthophosphate is added to form a protective coating inside water pipes, which helps to reduce corrosion.

In 2020, Winnipeg's WTP produced an average of 194 million litres of high-quality drinking water per day. The water is pumped from the WTP to three smaller reservoirs and pumping stations in different areas of the City. At the pumping stations, chlorine is added again before entering the distribution



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system, which is comprised of approximately: 2,691 km of water mains; 151 km of feeder mains*; 29,998 valves*; and 23,107 fire hydrants.

* there were 151 km of feeder mains and 29,979 valves in 2019, previously reported counts were incorrect

2.0 DRINKING WATER QUALITY STANDARDS AND TESTING

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-09-412-01¹, issued by Manitoba Conservation and Climate (MCC), 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 frequency of testing and testing locations are also specified in PWS-09-412-01. We are required to test the raw water, treated water leaving the WTP, water leaving the three pumping stations, and at a minimum of 39 sites within the distribution system every week. Because water quality is so important, we exceed the minimum requirements by testing at 57 locations within the distribution system every week, and by testing for additional parameters beyond the requirements of PWS-09-412-01. In March 2020, sampling at the 18 extra distribution system locations was temporarily suspended due to the COVID-19 pandemic.

The parameters tested are listed in Table 1 and summaries of the 2020 Water Quality results are provided in Appendix A.



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-09-412-01

✓✓ Required as per PWS-09-412-01

3.0 COMPLIANCE AND CORRECTIVE ACTIONS SUMMARY

The City of Winnipeg operates a comprehensive Water Quality Monitoring program that exceeds the requirements of PWS-09-412-01. 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; and an annual report on our Lead Testing Program. Weekly bacteriological results are sent directly to the Province of Manitoba's Office of Drinking Water (ODW) by the analytical laboratory that performs the testing, along with the chlorine and turbidity results measured by our staff when they collect the samples.

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

The presence of bacteria in a 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 in the distribution system we take immediate corrective actions, notify the ODW, and submit a Corrective Action Report (CAR). In 2020, total coliform and *E.coli* bacteria were not detected in 99.86% of the 208 samples from the WTP and 4,886 samples from the distribution system.

We add chlorine to disinfect the water as it leaves the WTP, and again as it enters the distribution system from the three 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



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immediate corrective actions, notify the ODW, and submit a CAR. In 2020, 100% of the 3,038 grab samples collected by laboratory staff for free chlorine met the chlorine requirements.

Turbidity is a measurement of the cloudiness of water caused by small particles, which can reduce the effectiveness of disinfection. 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 filter effluent using online analyzers, and confirm the accuracy of the analyzers using grab samples. If the turbidity rises above these levels we take immediate corrective actions, notify the ODW, and submit a CAR. In 2020, 100% of the 1,766 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.

A summary of the CARs submitted in 2020 is provided in Table 2; Compliance and Corrective action reports are provided in Appendix B.

Table 2. Corrective Action Reports Summary

Report Number	Incident Date(s)	Incident Location	Parameter	Result	Description of Corrective Actions Taken and Comments
CAR-01	15-Jan-20	SE04	Total Coliform	2 MPNU per 100mL	Re-sampled; re-samples met bacteriological standards.
CAR-02	9-Feb-20 to 15-Feb-20	WTP	Monitoring Requirement	2 samples	Maintenance procedures and monitoring requirements reviewed to ensure collection of a minimum of 3 confirmatory grab samples per week for turbidity.
CAR-03	21-Mar-20	Hydrant	Total Coliform	5 MPNU per 100mL	Re-flushed and re-sampled; re-samples met bacteriological standards.
CAR-04	19-Jun-20	WTP	Turbidity	1.21 NTU	Diverted filter effluent to the backwash supply tank.
CAR-05	22-Jul-20	Hydrant	Total Coliform <i>E. Coli</i>	6 MPNU per 100mL 5 MPNU per 100mL	Re-flushed and re-sampled. The City of Winnipeg issued a precautionary boil water advisory to residents in the impacted area. The boil water advisory was subsequently rescinded after re-samples met bacteriological standards.
CAR-06	3-Jul-20	WTP	Turbidity	1.51 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.



Table 2. Corrective Action Reports Summary

Report Number	Incident Date(s)	Incident Location	Parameter	Result	Description of Corrective Actions Taken and Comments
CAR-07	3-Jul-20	WTP	Turbidity	1.29 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-08	4-Jul-20	WTP	Turbidity	1.34 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-09	12-Jul-20	WTP	Turbidity	1.13 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-10	13-Jul-20	WTP	Turbidity	1.62 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-11	17-Jul-20	WTP	Turbidity	2.13 NTU	Turbidity spike occurred during instrument maintenance and was not representative of the filter effluent.
CAR-12	28-Jul-20	SE05	Total Coliform	2 MPNU per 100mL	Re-sampled; re-samples met bacteriological standards
CAR-13	4-Aug-20	WC12	Total Coliform	1 MPNU per 100mL	Re-sampled; re-samples met bacteriological standards
CAR-14	12-Aug-20	Hydrant	Total Coliform	2 MPNU per 100mL	Re-flushed and re-sampled; re-samples met bacteriological standards
CAR-15	7-Aug-20	WTP	Turbidity	1.18 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-16	28-Aug-20	WTP	Turbidity	1.89 NTU	Turbidity spike occurred during instrument maintenance and was not representative of the filter effluent.
CAR-17	30-Aug-20	WTP	Turbidity	1.02 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-18	8-Sep-20	NE09 WC01	Total Coliform	36 MPNU per 100mL >200MPNU per 100mL	Re-sampled and sampled upstream and downstream; all samples and re-samples met bacteriological standards
CAR-19	21-Sep-20	WTP	Free Chlorine	0.38 mg/L 0.49 mg/L	The chlorine dose was immediately increased to raise the free chlorine residual. The protocol for maintenance to the Aqueduct was updated to allow for seasonal considerations when lowering the chlorine dose.
CAR-20	25-Sep-20	WTP	Turbidity	1.21 NTU	Filter was immediately put into backwash mode. Reviewed the procedures for returning filters to the backwash cycle following a fault event.
CAR-21	30-Sep-20	WTP	Turbidity	1.17 NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.



Table 2. Corrective Action Reports Summary

Report Number	Incident Date(s)	Incident Location	Parameter	Result	Description of Corrective Actions Taken and Comments
CAR-22	13-Aug-20, 29-Aug-20, 30-Aug-20, 3-Sep-20 & 7-Sep-20	Assiniboine Park Conservatory	Free Chlorine	0.09 mg/L 0.06 mg/L 0.02 mg/L 0.02 mg/L 0.04 mg/L	The 2021 water main renewal program includes water mains in the residential area east of the park with a goal to improve the quality of water entering the park. If water quality issues continue, we will explore changes to the APC's water distribution system.
CAR-23	24-Nov-20	WTP	Propylene Glycol Morpholine	Not detected Not detected	Sampled upstream and downstream locations; contaminants were not detected in any samples. Isolated the domestic water system and heat exchanger and flushed to remove any residual chemical. Maintenance was performed on the heat exchanger to correct the issue.
CAR-24	25-Nov-20	NE02	Total Coliform	4 MPNU per 100mL	Re-sampled; re-samples met bacteriological standards
CAR-25	21-Dec-20	NE06	Total Coliform	1 MPNU per 100mL	Re-sampled; re-samples met bacteriological standards

No drinking water safety orders were issued for the City of Winnipeg in 2020. No boil water advisories were issued by the ODW/WRHA in 2020, however, one precautionary boil water advisory was issued by the City of Winnipeg to residents in a localized area on July 23, 2020 when a sample taken after a water main repair tested positive for E. coli. The water main was immediately re-flushed and re-sampled, and customers were immediately notified. The boil water advisory was subsequently rescinded on July 27, 2020, after two consecutive sets of re-samples taken 24 hours apart tested negative for E. coli. No charges were laid, pending, or disposed of for any offences against the City of Winnipeg in 2020.

4.0 LICENCES AND PERMITS

PWS-09-402-01 expired on November 30, 2020. The City submitted a renewal application on May 8, 2020; a new licence agreement is pending finalization.

Approximately 2.1 km of water mains were added to the distribution system in 2020. All of the extensions conform to the City of Winnipeg's engineering standards and construction specifications, as such, the works were approved by the ODW as a minor alteration and a Permit to Construct or Alter a Public Water System was not required.

5.0 MAJOR EXPENSES

In 2020, the City's major expenses relating to drinking water included:

- Renewal of 11.3 km of water mains at 31 locations in the distribution system
- Provision of new stop logs for the Shoal Lake Aqueduct
- Replacement of the roof at Tache Booster Pumping Station.
- Upgrades to Public Water System outlets
- Improvements to land drainage and an access path to the Shoal Lake Aqueduct
- Replacement of the protection for the Greater Winnipeg Water District railway crossing at the Trans-Canada Highway

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 impede 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 2020, there was no evidence of adult or veliger zebra mussels observed in any of the samples. The 2020 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report (MB) is provided in Appendix C.

7.0 BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL

As required under PWS-09-412-01, the City of Winnipeg operates a Backflow Prevention and Cross-Connection Control Program, which is enforced under the 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 Building 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 2020, Program staff notified 468 building owners of the requirement to install premises isolation, conducted approximately 2,000 inspections, and tracked the testing and maintenance of over 16,000 backflow prevention devices.

8.0 CORROSION CONTROL AND LEAD TESTING PROGRAMS

Although lead is not present in the water produced by the City of Winnipeg's water treatment plant, 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 household plumbing systems that contain lead. The amount of lead in tap water increases with the amount of time that the water is in contact with lead-containing materials. Buildings constructed before 1990 may have lead solder or brass plumbing fixtures and those constructed before 1950 may have a lead service line.

The ODW regulates the City of Winnipeg's Corrosion Control and Lead Testing Programs under our Operating Licence, PWS-09-412-01.

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 leach into water as it travels through the pipes. We also replace our portion of lead service lines (from the water main to the property line) when replacing water mains and we notify building owners when this work is being done so they have the option to benefit from cost-savings achieved by replacing their portion (from the property line to the building) at the same time.

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Under our current licence requirements, we report the lead results from a sample collected after five minutes of flushing from our lead loop surrogate system, after eight hours of stagnation. The 2020 Lead Loop Report is provided in Appendix B.

In March 2019, the Government of Canada reduced the allowable level of lead in drinking water to <0.005 milligrams per litre (mg/L) or as low as reasonably achievable (down from 0.01 mg/L) and recommended changes to sampling methods. In response to these changes, we worked with the ODW to develop a new Lead Testing Program, which involves collecting 200 sample sets per year from buildings that are the most likely to have elevated lead levels (i.e. those that have lead service lines). 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 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.

Lead testing in homes was postponed in 2020 to protect residents and employees from the risks associated with COVID-19. We continued with a communication plan on how to reduce the risk of lead exposure, which included a bilingual mail out to roughly 2,300 residents who are on the waitlist for testing, messaging on social media, and regular updates to our website. The testing program will resume in 2021, as long as it is safe to do so.

Customers are encouraged to remove lead from their plumbing systems whenever feasible. If this is not feasible, customers should flush the water until cold prior to drinking or preparing food or 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 properly maintained, as poor maintenance may increase the levels of lead in the water.

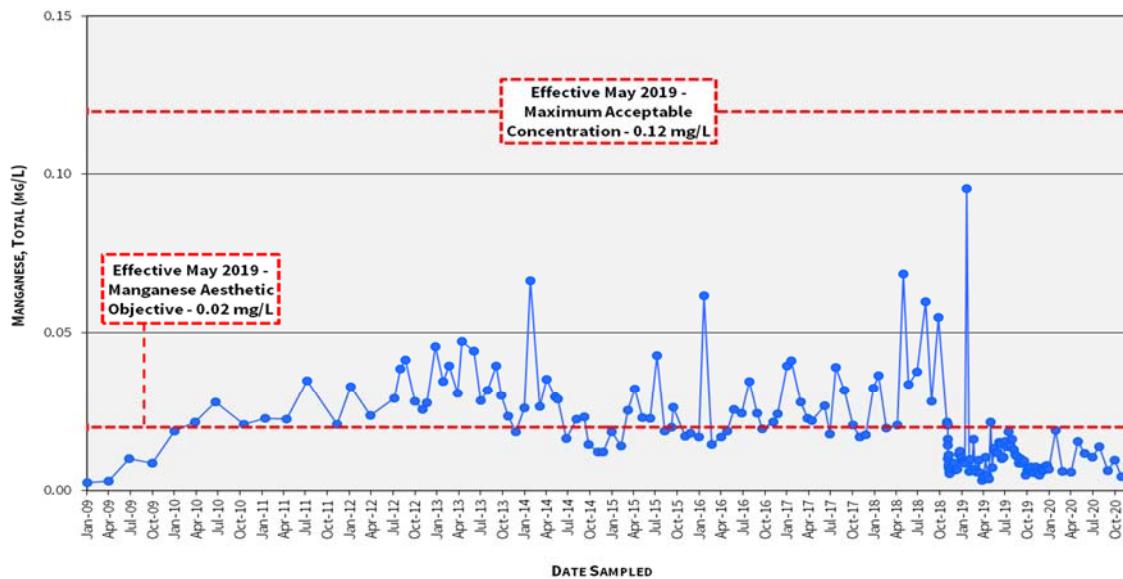
More information on lead in drinking water is available at:

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

9.0 DISCOLOURED WATER

Discoloured water events within the City of Winnipeg's distribution system are caused when sediment in the water main is disturbed by changes in pressure or direction of flow when there is a water main break or a hydrant is opened. When the WTP came online in 2010, ferric chloride was used as a coagulant; the ferric chloride contained low levels of manganese, which is not removed during the water treatment process. Sediments produced within the distribution system between 2010 and 2018 contained higher levels of manganese, which likely contributed to the increased frequency and severity of discoloured water events during this time. In November 2018, following a year of pilot testing, we switched the coagulant to ferric sulphate, which has a lower concentration of manganese. As shown in Figure 1, manganese levels in the distribution system decreased shortly after the coagulant switch; we have also seen a drastic reduction in frequency and severity of discoloured water events. Updates on discoloured water will not be included in future annual reports as it is no longer considered a significant issue in the distribution system.

**FIGURE 1. DISTRIBUTION SYSTEM TOTAL MANGANESE
(AVERAGE OF SIX DISTRIBUTION SYSTEM LOCATIONS)**





10.0 REFERENCES

1. City of Winnipeg Operating Licence PWS-09-412-01.
<http://www.winnipeg.ca/waterandwaste/pdfs/water/PublicWaterSystemOperatingLicence2016.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.
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4. Manitoba Drinking Water Quality Standards Regulation 41/2007. Manitoba Water Stewardship.
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APPENDIX A

WATER QUALITY SUMMARY REPORTS

City of Winnipeg
Environmental Standards Division
2020 Shoal Lake Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	parts per million	8.7	6.8	11.0
Carbon, Total Organic	parts per million	8.7	6.6	12.7
Chlorophyll-a	parts per billion	4.6	<1.0	12.3
Colour, Apparent	TCU	14.3	10.0	23.0
Colour, True	TCU	8.9	7.5	12.5
Conductivity	microsiemens per centimetre	153	144	167
Odour	units	92	75	150
pH	units	7.88	7.29	8.53
Plankton (algae) count	cells/mL	6,668	859	17,790
Solids, Total	parts per million	96	71	117
Solids, Total Dissolved	parts per million	80	50	121
Temperature	degrees Celcius	10.4	1.0	23.9
Turbidity (clearness)	NTU	0.90	0.23	5.03
Anions and Nutrients				
Alkalinity, Total	parts per million as calcium carbonate	73.7	68.5	89.3
Hardness, Total	parts per million as calcium carbonate	76.1	69.8	82.2
Chloride	parts per million	1.8	1.3	2.1
Fluoride	parts per million	0.08	0.07	0.09
Nitrate Nitrogen	parts per million	0.055	0.005	0.285
Perchlorate	parts per billion	<0.20	<0.20	<0.20
Phosphorus, Total Reactive	parts per million	0.0038	<0.0010	0.0201
Phosphorus, Total	parts per million	0.0183	0.0092	0.0340
Sulphate	parts per million	<0.4	<0.4	0.4
Total Kjeldahl Nitrogen (TKN)	parts per million	0.52	0.38	0.77
Bacteria				
Escherichia Coli	MPN per 100 mL	0	0	4
Total Coliforms	MPN per 100 mL	88	1	>200
Disinfection By-Products				
Aldehydes	parts per billion	6.7	3.5	10.4
Haloacetic acids	parts per billion	<1.2	<1.2	<1.2
Trihalomethanes	parts per billion	<2.7	<2.7	<2.7
Enteric Protozoa				
Cryptosporidium	oocysts per 100 L	0	0	0
Giardia	cysts per 100 L	0	0	0

City of Winnipeg
Environmental Standards Division
2020 Shoal Lake Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Pesticides				
Alachlor	parts per billion	<0.1000	<0.1000	<0.2000
Aldrin	parts per billion	<0.0100	<0.0100	<0.0500
alpha-BHC	parts per billion	<0.0100	<0.0100	<0.0500
alpha-Chlordane	parts per billion	<0.0100	<0.0100	<0.0500
alpha-Endosulfan	parts per billion	<0.0100	<0.0100	<0.0500
Atrazine	parts per billion	<0.1000	<0.1000	<0.2000
Azinphos-methyl	parts per billion	<0.0100	<0.0100	<0.0200
beta-BHC	parts per billion	<0.0100	<0.0100	<0.0500
beta-Endosulfan	parts per billion	<0.0100	<0.0100	<0.0500
Carbaryl	parts per billion	<0.2000	<0.2000	<0.4000
Carbofuran	parts per billion	<0.2000	<0.2000	<0.4000
Chlorothalonil	parts per billion	<0.050	<0.050	<0.050
Chlorpyrifos	parts per billion	<0.0050	<0.0050	<0.0100
delta-BHC	parts per billion	<0.0100	<0.0100	<0.0500
Diazinon	parts per billion	<0.0050	<0.0050	<0.0100
Diclofop-methyl	parts per billion	<0.1000	<0.1000	<0.2000
Dieldrin	parts per billion	<0.0100	<0.0100	<0.0500
Dimethoate	parts per billion	<0.1000	<0.1000	<0.2000
Endrin	parts per billion	<0.0100	<0.0100	<0.0500
Eptam	parts per billion	<0.200	<0.200	<0.200
gamma-Chlordane	parts per billion	<0.0100	<0.0100	<0.0500
Heptachlor	parts per billion	<0.0100	<0.0100	<0.0500
Heptachlor Epoxide	parts per billion	<0.0100	<0.0100	<0.0500
Lindane (gamma-BHC)	parts per billion	<0.0100	<0.0100	<0.0500
Malathion	parts per billion	<0.1000	<0.1000	<0.2000
Methoxychlor	parts per billion	<0.0100	<0.0100	<0.0500
Methyl Parathion	parts per billion	<0.1000	<0.1000	<0.2000
Metribuzin	parts per billion	<0.2000	<0.2000	<0.4000
Mirex	parts per billion	<0.1500	<0.0100	<0.1500
o,p-DDD	parts per billion	<0.0100	<0.0100	<0.0500
o,p-DDE	parts per billion	<0.0100	<0.0100	<0.0500
o,p-DDT	parts per billion	<0.0100	<0.0100	<0.0500
p,p-DDD	parts per billion	<0.0100	<0.0100	<0.0500
p,p-DDE	parts per billion	<0.0100	<0.0100	<0.0500
p,p-DDT	parts per billion	<0.0100	<0.0100	<0.0500
Parathion	parts per billion	<0.0130	<0.0130	<0.0260
Propaclor	parts per billion	<0.200	<0.200	<0.200
Propanil	parts per billion	<0.200	<0.200	<0.200
Propoxur	parts per billion	<0.200	<0.200	<0.200
Simazine	parts per billion	<0.1000	<0.1000	<0.2000
Terbufos	parts per billion	<0.1000	<0.1000	<0.2000
Triallate	parts per billion	<0.1000	<0.1000	<0.2000
Trichlopyr	parts per billion	<0.0500	<0.0500	<0.0500
Trifluralin	parts per billion	<0.0300	<0.0300	<0.0600

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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Polychlorinated Biphenyls				
Arochlor 1016	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1221	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1232	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1242	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1248	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1254	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1260	parts per billion	<0.0200	<0.0200	<0.0200
Phenoxy Acid Herbicides				
2,4,5-T	parts per billion	<0.5000	<0.5000	<0.5000
2,4,5-TP	parts per billion	<0.5000	<0.5000	<0.5000
2,4-D	parts per billion	<0.5000	<0.5000	<0.5000
2,4-DB	parts per billion	<0.0500	<0.0500	<0.0500
2,4-DP	parts per billion	<0.5000	<0.5000	<0.5000
Bromoxynil	parts per billion	<0.5000	<0.5000	<0.5000
Dicamba	parts per billion	0.0073	<0.0060	0.0105
Dinoseb	parts per billion	<0.5000	<0.5000	<0.5000
MCPA	parts per billion	<0.5000	<0.5000	<0.5000
MCPB	parts per billion	<0.0500	<0.0500	<0.0500
Mecoprop	parts per billion	<0.5000	<0.5000	<0.5000
Picloram	parts per billion	<0.5000	<0.5000	<0.5000
Total Metals				
Aluminum	parts per million	0.00269	0.00127	0.00510
Antimony	parts per million	0.000385	<0.000025	0.000180
Arsenic	parts per million	0.000751	0.000640	0.000891
Boron	parts per million	0.00368	<0.00208	0.00652
Cadmium	parts per million	<0.000007	<0.000007	<0.000007
Calcium	parts per million	19.600	17.529	23.740
Chromium	parts per million	<0.00004	<0.00004	0.00007
Chromium VI	parts per million	<0.00050	<0.00050	<0.00050
Copper	parts per million	0.001455	0.000638	0.003370
Iron	parts per million	0.04409	0.01288	0.17963
Lead	parts per million	<0.000065	<0.000065	0.000085
Magnesium	parts per million	6.015	5.329	7.163
Manganese	parts per million	0.01000	0.00285	0.03359
Mercury	parts per billion	<0.0050	<0.0005	<0.0050
Nickel	parts per million	0.000098	<0.000021	0.000191
Potassium	parts per million	1.232	1.064	1.521
Sodium	parts per million	2.228	2.000	2.669
Uranium	parts per million	<0.000032	<0.000032	0.000036
Zinc	parts per million	0.00110	0.00035	0.00236

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
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2020 Water Treatment Plant - Raw Water Quality Summary

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	parts per million	8.3	3.2	11.1
Carbon, Total Organic	parts per million	8.2	7.0	10.6
Chlorine, Free	parts per million	0.02	<0.02	0.13
Chlorine, Total	parts per million	0.03	<0.02	0.15
Chlorophyll-a	parts per billion	7.0	1.1	14.7
Colour, Apparent	TCU	14.5	8.5	28.5
Colour, True	TCU	8.5	2.0	17.0
Conductivity	microsiemens per centimetre	162	152	176
Langelier Index (4 C)	units	-0.36	-0.42	-0.31
Langelier Index (60 C)	units	0.41	0.36	0.46
Microcystin	parts per billion	<0.20	<0.20	<0.20
Odour	units	89	75	150
ORP	millivolts	464.8	290.7	554.1
Oxygen, Dissolved	parts per million	11.1	6.0	14.9
pH	units	7.90	7.32	8.55
Plankton (algae) count	cells/mL	5,859	1,117	14,530
Solids, Total	parts per million	106	85	131
Solids, Total Dissolved	parts per million	85	64	115
Temperature	degrees Celcius	9.2	1.2	24.2
Turbidity (clearness)	NTU	0.96	0.35	3.88
UV Transmittance, Filtered	percent transmissivity	74.7	72.1	78.4
UV Transmittance, Unfiltered	percent transmissivity	72.9	70.2	76.4
Anions and Nutrients				
Alkalinity, Total	parts per million as calcium carbonate	75.5	69.2	87.0
Alkalinity, Bicarbonate	parts per million	96.4	91.5	106.0
Alkalinity, Carbonate	parts per million	<0.60	<0.60	<0.60
Alkalinity, Hydroxide	parts per million	<0.34	<0.34	<0.34
Hardness, Total	parts per million as calcium carbonate	79.9	72.9	91.2
Ammonia	parts per million	0.01	<0.01	0.02
Bromide	parts per million	<0.01	<0.01	<0.01
Chloride	parts per million	2.0	1.4	2.6
Fluoride	parts per million	0.061	0.059	0.065
Nitrate Nitrogen	parts per million	0.014	<0.005	0.037
Nitrite	parts per million	<0.001	<0.001	0.001
Perchlorate	parts per billion	<0.20	<0.20	<0.20
Phosphorus, Total	parts per million	<0.030	<0.030	<0.050
Sulphate	parts per million	1.2	<0.4	5.2
Disinfection By-Products				
Aldehydes	parts per billion	6.6	4.3	10.3
Haloacetic acids	parts per billion	<1.2	<1.2	<1.2
Trihalomethanes	parts per billion	<2.7	<2.7	<2.7

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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Enteric Protozoa				
Cryptosporidium	<i>oocysts per 100 L</i>	0	0	0
Giardia	<i>cysts per 100 L</i>	0	0	0
Total Metals				
Aluminum	<i>parts per million</i>	0.00279	0.00094	0.01350
Antimony	<i>parts per million</i>	0.000046	<0.000025	0.000344
Arsenic	<i>parts per million</i>	0.000796	0.000520	0.001376
Barium	<i>parts per million</i>	0.0150	0.0140	0.0168
Beryllium	<i>parts per million</i>	<0.00010	<0.00010	<0.00010
Bismuth	<i>parts per million</i>	<0.000050	<0.000050	<0.000050
Boron	<i>parts per million</i>	0.00534	<0.00208	0.01600
Cadmium	<i>parts per million</i>	<0.000007	<0.000007	0.000007
Calcium	<i>parts per million</i>	20.421	17.260	26.080
Cesium	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Chromium	<i>parts per million</i>	0.00005	<0.00004	0.00041
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>	0.000504	0.000043	0.002523
Iron	<i>parts per million</i>	0.06284	0.02854	0.13196
Lead	<i>parts per million</i>	<0.000065	<0.000065	0.000175
Lithium	<i>parts per million</i>	0.0026	0.0025	0.0028
Magnesium	<i>parts per million</i>	6.309	4.919	7.942
Manganese	<i>parts per million</i>	0.01323	0.00364	0.04925
Mercury	<i>parts per billion</i>	<0.0050	<0.00050	<0.0050
Molybdenum	<i>parts per million</i>	0.000155	0.000148	0.000171
Nickel	<i>parts per million</i>	0.000206	<0.000021	0.001146
Potassium	<i>parts per million</i>	1.247	0.965	1.731
Rubidium	<i>parts per million</i>	0.0017	0.0016	0.0018
Selenium	<i>parts per million</i>	0.000067	0.000057	0.000077
Silicon	<i>parts per million</i>	3.04	2.12	3.49
Silver	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Sodium	<i>parts per million</i>	2.341	2.023	2.891
Strontium	<i>parts per million</i>	0.0399	0.0372	0.0456
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>	<0.000032	<0.000032	0.000058
Vanadium	<i>parts per million</i>	<0.00050	<0.00050	<0.00050
Zinc	<i>parts per million</i>	0.00085	<0.00011	0.00675
Zirconium	<i>parts per million</i>	<0.00020	<0.00020	<0.00020

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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Pesticides				
Alachlor	parts per billion	<0.1000	<0.1000	<0.2000
Aldrin	parts per billion	<0.0080	<0.0080	<0.0100
alpha-BHC	parts per billion	<0.0080	<0.0080	<0.0100
alpha-Chlordane	parts per billion	<0.0080	<0.0080	<0.0100
alpha-Endosulfan	parts per billion	<0.0100	<0.0100	<0.0500
Atrazine	parts per billion	<0.1000	<0.1000	<0.2000
Azinphos-methyl	parts per billion	<0.0100	<0.0100	<0.0300
beta-BHC	parts per billion	<0.0080	<0.0080	<0.0100
beta-Endosulfan	parts per billion	<0.0100	<0.0100	<0.0500
Carbaryl	parts per billion	<0.2000	<0.2000	<0.4000
Carbofuran	parts per billion	<0.2000	<0.2000	<0.4000
Chlorothalonil	parts per billion	<0.050	<0.050	<0.050
Chlorpyrifos	parts per billion	<0.0250	<0.0050	<0.0250
delta-BHC	parts per billion	<0.0080	<0.0080	<0.0100
Diazinon	parts per billion	<0.0250	<0.0050	<0.0250
Diclofop-methyl	parts per billion	<0.1000	<0.1000	<0.2000
Dieldrin	parts per billion	<0.0080	<0.0080	<0.0100
Dimethoate	parts per billion	<0.1000	<0.1000	<0.2000
Endrin	parts per billion	<0.0100	<0.0100	<0.0100
Eptam	parts per billion	<0.200	<0.200	<0.200
gamma-Chlordane	parts per billion	<0.0080	<0.0080	<0.0100
Heptachlor	parts per billion	<0.0080	<0.0080	<0.0100
Heptachlor Epoxide	parts per billion	<0.0080	<0.0080	<0.0100
Lindane (gamma-BHC)	parts per billion	<0.0080	<0.0080	<0.0100
Malathion	parts per billion	<0.1000	<0.1000	<0.2000
Methoxychlor	parts per billion	<0.5000	<0.0080	<0.5000
Methyl Parathion	parts per billion	<0.1000	<0.1000	<0.2000
Metribuzin	parts per billion	<0.2000	<0.2000	<0.4000
Mirex	parts per billion	<0.0080	<0.0080	<0.0100
o,p-DDD	parts per billion	<0.0100	<0.0040	<0.0100
o,p-DDE	parts per billion	<0.0100	<0.0040	<0.0100
o,p-DDT	parts per billion	<0.5000	<0.0040	<0.5000
p,p-DDD	parts per billion	<0.0100	<0.0040	<0.0100
p,p-DDE	parts per billion	<0.0100	<0.0040	<0.0100
p,p-DDT	parts per billion	<0.1000	<0.0040	<0.1000
Parathion	parts per billion	<0.0130	<0.0130	<0.0260
Propaclor	parts per billion	<0.200	<0.200	<0.200
Propanil	parts per billion	<0.200	<0.200	<0.200
Propoxur	parts per billion	<0.200	<0.200	<0.200
Simazine	parts per billion	<0.1000	<0.1000	<0.2000
Terbufos	parts per billion	<0.1000	<0.1000	<0.2000
Triallate	parts per billion	<0.1000	<0.1000	<0.2000
Trichlopyr	parts per billion	<0.0500	<0.0500	<0.0500
Trifluralin	parts per billion	<0.0300	<0.0300	<0.0600

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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Bacteria				
Escherichia Coli	MPN per 100 mL	29	0	>200
Total Coliforms	MPN per 100 mL	93	0	>200
Heterotrophic Plate Count	CFU per mL	125	<1	>300
Taste and Odours				
236 TCA - 2,3,6-trichloroanisole	parts per trillion	<0.48	<0.48	<0.51
246 TCA - 2,4,6-trichloroanisole	parts per trillion	<0.48	<0.48	<0.51
345 TCV - 3,4,5-trichloroveratrole	parts per trillion	<0.19	<0.19	<0.20
Geosmin	parts per trillion	7.23	1.00	34.7
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	<0.19	<0.19	<0.20
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	<0.19	<0.19	<0.20
Dichloromethane	parts per million	<0.0050	<0.0050	<0.0050
MIB - 2-methylisoborneol	parts per trillion	<9.60	<9.60	16
MTBE - methyl tertiary-butyl ether	parts per million	<0.00050	<0.00050	<0.00050
NDMA - N-nitrosodimethylamine	parts per trillion	2.00	0.51	4.10
Polychlorinated Biphenyls				
Arochlor 1016	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1221	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1232	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1242	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1248	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1254	parts per billion	<0.0200	<0.0200	<0.0200
Arochlor 1260	parts per billion	<0.0200	<0.0200	<0.0200
Phenoxy Acid Herbicides				
2,4,5-T	parts per billion	<0.5000	<0.5000	<0.5000
2,4,5-TP	parts per billion	<0.5000	<0.5000	<0.5000
2,4-D	parts per billion	<0.5000	<0.5000	<0.5000
2,4-DB	parts per billion	<0.0500	<0.0500	<0.0500
2,4-DP	parts per billion	<0.5000	<0.5000	<0.5000
Bromoxynil	parts per billion	<0.5000	<0.5000	<0.5000
Dicamba	parts per billion	0.0090	<0.0060	0.0167
Dinoseb	parts per billion	<0.5000	<0.5000	<0.5000
MCPA	parts per billion	<0.5000	<0.5000	<0.5000
MCPB	parts per billion	<0.0500	<0.0500	<0.0500
Mecoprop	parts per billion	<0.5000	<0.5000	<0.5000
Picloram	parts per billion	<0.5000	<0.5000	<0.5000

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
2020 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous					
Carbon, Dissolved Organic	parts per million	no guideline	3.1	2.0	4.9
Carbon, Total Organic	parts per million	no guideline	2.9	1.8	4.5
Chlorine, Free	parts per million	no guideline	1.29	0.97	2.44
Chlorine, Total	parts per million	no guideline	1.48	1.14	2.88
Chlorophyll-a	parts per billion	no guideline	<1.0	<1.0	<1.0
Colour, Apparent	TCU	no guideline	0.9	0.0	6.0
Colour, True	TCU	no more than 15 *	0.2	0.0	2.0
Conductivity	microsiemens per centimetre	no guideline	296	279	324
Microcystin	parts per billion	no more than 1.5	<0.20	<0.20	<0.20
Odour	units	inoffensive*	14	8	20
ORP	millivolts	no guideline	579.9	507.6	629.6
Oxygen, Dissolved	parts per million	no guideline	12.4	8.2	16.9
pH	units	between 7.0 and 10.5	7.68	7.45	7.89
Plankton (algae) count	cells/mL	no guideline	<100	<100	<100
Solids, Total	parts per million	no guideline	182	156	222
Solids, Total Dissolved	parts per million	no more than 500 *	162	128	186
Temperature	degrees Celcius	no more than 15 *	9.5	1.9	24.2
Turbidity (clearness)	NTU	no more than 0.3 in 95% of measurements/month, never to exceed 1.0	0.13	0.09	0.25
UV Transmittance, Filtered	percent transmissivity	no guideline	94.7	92.5	97.2
UV Transmittance, Unfiltered	percent transmissivity	no guideline	93.5	91.2	96.3
Anions and Nutrients					
Alkalinity, Total	parts per million as calcium carbonate	no guideline	68.5	61.2	77.1
Hardness, Total	parts per million as calcium carbonate	no guideline	80.0	72.3	90.5
Chloride	parts per million	no more than 250 *	4.1	2.4	5.4
Perchlorate	parts per billion	no guideline	<0.20	<0.20	0.33
Sulphate	parts per million	no more than 500 *	67.9	59.9	79.1
Bacteria					
Escherichia Coli	MPN per 100 mL	none detectable per 100 mL	0	0	0
Total Coliforms	MPN per 100 mL	none detectable per 100 mL	0	0	0
Heterotrophic Plate Count	CFU per mL	no guideline	<1	<1	1
Disinfection By-Products					
Aldehydes	parts per billion	no guideline	15.0	9.0	29.6
Haloacetic acids	parts per billion	no more than 80	11.7	4.1	19.1
Trihalomethanes	parts per billion	no more than 100	15.5	5.6	25.4

City of Winnipeg
Environmental Standards Division
2020 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Taste and Odours					
236 TCA - 2,3,6-trichloroanisole	parts per trillion	no guideline	<0.48	<0.48	<0.51
246 TCA - 2,4,6-trichloroanisole	parts per trillion	no guideline	<0.48	<0.48	<0.51
345 TCV - 3,4,5-trichloroveratrole	parts per trillion	no guideline	<0.19	<0.19	<1.50
Geosmin	parts per trillion	no guideline	2.34	<1.00	5.37
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	no guideline	<0.19	<0.19	<0.20
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	no guideline	<0.19	<0.19	<0.20
Dichloromethane	parts per million	no more than 0.05	<0.0050	<0.0050	0.0078
MIB - 2-methylisoborneol	parts per trillion	no guideline	<9.60	<9.60	14.8
MTBE - methyl tertiary-butyl ether	parts per million	no more than 0.015 *	<0.0005	<0.0005	<0.0005
NDMA -N-nitrosodimethylamine	parts per trillion	no more than 40	3.06	1.32	7.39
Polychlorinated Biphenyls					
Arochlor 1016	parts per billion	no guideline	<0.020	<0.020	<0.020
Arochlor 1221	parts per billion	no guideline	<0.020	<0.020	<0.020
Arochlor 1232	parts per billion	no guideline	<0.020	<0.020	<0.020
Arochlor 1242	parts per billion	no guideline	<0.020	<0.020	<0.020
Arochlor 1248	parts per billion	no guideline	<0.020	<0.020	<0.020
Arochlor 1254	parts per billion	no guideline	<0.020	<0.020	<0.020
Arochlor 1260	parts per billion	no guideline	<0.020	<0.020	<0.020
Phenoxy Acid Herbicides					
2,4,5-T	parts per billion	no guideline	<0.5000	<0.5000	<0.5000
2,4,5-TP	parts per billion	no guideline	<0.5000	<0.5000	<0.5000
2,4-D	parts per billion	no more than 100	<0.5000	<0.5000	<0.5000
2,4-DB	parts per billion	no guideline	<0.0500	<0.0500	<0.0500
2,4-DP	parts per billion	no guideline	<0.5000	<0.5000	<0.5000
Bromoxynil	parts per billion	no more than 5	<0.5000	<0.5000	<0.5000
Dicamba	parts per billion	no more than 120	0.0077	<0.0060	0.0164
Dinoseb	parts per billion	no guideline	<0.5000	<0.5000	<0.5000
MCPA	parts per billion	no more than 100	<0.5000	<0.5000	<0.5000
MCPB	parts per billion	no guideline	<0.0500	<0.0500	<0.0500
Mecoprop	parts per billion	no guideline	<0.5000	<0.5000	<0.5000
Picloram	parts per billion	no more than 190	<0.5000	<0.5000	<0.5000

City of Winnipeg
Environmental Standards Division
2020 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Pesticides					
Alachlor	parts per billion	no guideline	<0.1000	<0.1000	<0.2000
Aldrin	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
alpha-BHC	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
alpha-Chlordane	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
alpha-Endosulfan	parts per billion	no guideline	<0.0100	<0.0100	<0.0100
Atrazine	parts per billion	no more than 5	<0.1000	<0.1000	<0.2000
Azinphos-methyl	parts per billion	no more than 20	<0.0100	<0.0100	<0.0200
beta-BHC	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
beta-Endosulfan	parts per billion	no guideline	<0.0100	<0.0100	<0.0100
Carbaryl	parts per billion	no more than 90	<0.2000	<0.2000	<0.4000
Carbofuran	parts per billion	no more than 90	<0.2000	<0.2000	<0.4000
Chlorothalonil	parts per billion	no guideline	<0.050	<0.050	<0.050
Chlorpyrifos	parts per billion	no more than 90	<0.0050	<0.0050	<0.0100
delta-BHC	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
Diazinon	parts per billion	no more than 20	<0.0050	<0.0050	<0.0100
Diclofop-methyl	parts per billion	no more than 9	<0.1000	<0.1000	<0.2000
Dieldrin	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
Dimethoate	parts per billion	no more than 20	<0.1000	<0.1000	<0.2000
Endrin	parts per billion	no guideline	<0.0100	<0.0100	<0.0100
Eptam	parts per billion	no guideline	<2.00	<0.200	<2.00
gamma-Chlordane	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
Heptachlor	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
Heptachlor Epoxide	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
Lindane (gamma-BHC)	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
Malathion	parts per billion	no more than 190	<0.1000	<0.1000	<0.2000
Methoxychlor	parts per billion	no guideline	<0.5000	<0.0080	<0.5000
Methyl Parathion	parts per billion	no guideline	<0.1000	<0.1000	<0.2000
Metribuzin	parts per billion	no more than 80	<0.2000	<0.2000	<0.4000
Mirex	parts per billion	no guideline	<0.0080	<0.0080	<0.0100
o,p-DDD	parts per billion	no guideline	<0.0100	<0.0040	<0.0100
o,p-DDE	parts per billion	no guideline	<0.0100	<0.0040	<0.0100
o,p-DDT	parts per billion	no guideline	<0.5000	<0.0040	<0.5000
p,p-DDD	parts per billion	no guideline	<0.0100	<0.0040	<0.0100
p,p-DDE	parts per billion	no guideline	<0.0100	<0.0040	<0.0100
p,p-DDT	parts per billion	no guideline	<0.0500	<0.0040	<0.0500
Parathion	parts per billion	no guideline	<0.0130	<0.0130	<0.0260
Propaclor	parts per billion	no guideline	<0.200	<0.200	<0.200
Propanil	parts per billion	no guideline	<0.200	<0.200	<0.200
Propoxur	parts per billion	no guideline	<0.200	<0.200	<0.200
Simazine	parts per billion	no more than 10	<0.1000	<0.1000	<0.2000
Terbufos	parts per billion	no more than 1	<0.1000	<0.1000	<0.2000
Triallate	parts per billion	no guideline	<0.1000	<0.1000	<0.2000
Trichlopyr	parts per billion	no guideline	<0.0500	<0.0500	<0.0500
Trifluralin	parts per billion	no more than 45	<0.0300	<0.0300	<0.0600

City of Winnipeg
Environmental Standards Division
2020 Water Treatment Plant - Finished Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Total Metals					
Aluminum	parts per million	no guideline	0.00597	0.00249	0.03896
Antimony	parts per million	no more than 0.006	0.000062	<0.000025	0.000393
Arsenic	parts per million	no more than 0.010	0.000297	0.000163	0.000488
Boron	parts per million	no more than 5	0.00474	<0.00208	0.00936
Cadmium	parts per million	no more than 0.007	<0.000007	<0.000007	0.000009
Calcium	parts per million	no guideline	20.771	18.206	25.569
Chromium	parts per million	no more than 0.05	0.00035	<0.00004	0.01358
Chromium VI	parts per million	no guideline	<0.00050	<0.00050	<0.00050
Copper	parts per million	no more than 2.0	0.000778	<0.000022	0.014543
Iron	parts per million	no more than 0.3 *	0.06678	0.01878	0.22882
Lead	parts per million	no more than 0.005	<0.000065	<0.000065	<0.000065
Magnesium	parts per million	no guideline	6.327	5.479	7.812
Manganese	parts per million	no more than 0.12	0.00976	0.00518	0.02605
Mercury	parts per billion	no more than 1	<0.0050	<0.00050	<0.0050
Nickel	parts per million	no guideline	0.002449	0.001791	0.003072
Potassium	parts per million	no guideline	1.274	0.973	1.743
Sodium	parts per million	no more than 200 *	29.317	24.692	36.565
Uranium	parts per million	no more than 0.02	<0.000032	<0.000032	0.000052
Zinc	parts per million	no more than 5.0 *	0.00124	0.00019	0.01616

*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
2020 Winnipeg Distribution System Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous					
Carbon, Dissolved Organic	parts per million	no guideline	5.6	2.7	12.9
Carbon, Total Organic	parts per million	no guideline	4.4	1.9	13.5
Chlorine, Free	parts per million	no guideline	0.82	0.10	1.47
Chlorine, Total	parts per million	no guideline	1.03	0.19	1.67
Colour, Apparent	TCU	no guideline	3.0	0.5	6.0
Colour, True	TCU	no more than 15 *	0.5	0.0	2.0
Conductivity	microsiemens per centimetre	no guideline	302	209	335
Langelier Index (4 C)	units	no guideline	-0.74	-0.86	-0.57
Langelier Index (60 C)	units	no guideline	0.03	-0.09	0.20
Odour	units	inoffensive*	10	8	15
ORP	millivolts	no guideline	543.1	332.4	677.8
Oxygen, Dissolved	parts per million	no guideline	12.0	6.4	16.8
pH	units	between 7.0 and 10.5	7.45	7.24	7.81
Solids, Total Dissolved	parts per million	no more than 500 *	160	120	191
Temperature	degrees Celcius	no more than 15 *	10.3	1.7	24.7
Turbidity (clearness)	NTU	no guideline	0.19	0.08	4.60
UV Transmittance, Filtered	percent transmissivity	no guideline	94.0	94.0	95.0
Anions and Nutrients					
Alkalinity, Total	parts per million as calcium carbonate	no guideline	65.7	58.3	76.6
Alkalinity, Bicarbonate	parts per million	no guideline	82.7	78.2	93.5
Alkalinity, Carbonate	parts per million	no guideline	<0.60	<0.60	<0.60
Alkalinity, Hydroxide	parts per million	no guideline	<0.34	<0.34	<0.34
Hardness, Total	parts per million as calcium carbonate	no guideline	80.5	70.3	89.1
Ammonia	parts per million	no guideline	0.01	<0.01	0.02
Bromate	parts per million	no more than 0.01	<0.01	<0.0006	<0.01
Bromide	parts per million	no guideline	<0.01	<0.01	<0.01
Chloride	parts per million	no more than 250 *	4.6	3.7	6.1
Fluoride	parts per million	no more than 1.5	0.71	0.62	0.84
Nitrate Nitrogen	parts per million	no more than 10	0.023	0.008	0.039
Nitrite	parts per million	no more than 3	<0.001	<0.001	<0.001
Perchlorate	parts per billion	no guideline	<0.20	<0.20	0.34
Phosphate, Soluble	parts per million as phosphate	no guideline	1.99	0.38	2.41
Phosphorus, Total	parts per million	no guideline	0.690	0.638	0.752
Sulphate	parts per million	no more than 500 *	67.8	59.2	79.2
Bacteria					
Escherichia Coli	MPN per 100 mL	none detectable per 100 mL	0	0	0
Total Coliforms	MPN per 100 mL	none detectable per 100 mL	0	0	>200**
Heterotrophic Plate Count	CFU per mL	no guideline	2	<1	>300
Disinfection By-Products					
Aldehydes	parts per billion	no guideline	17.8	9.9	34.3
Haloacetic acids	parts per billion	no more than 80	25.7	8.5	41.2
Trihalomethanes	parts per billion	no more than 100	36.7	12.5	78.9

City of Winnipeg
Environmental Standards Division
2020 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	0.00547	0.00260	0.08883
Antimony	parts per million	no more than 0.006	0.000084	<0.000025	0.000952
Arsenic	parts per million	no more than 0.010	0.000405	0.000200	0.000630
Barium	parts per million	no more than 2	0.0150	0.0137	0.0166
Beryllium	parts per million	no guideline	<0.00010	<0.00010	<0.00010
Bismuth	parts per million	no guideline	<0.000050	<0.000050	<0.000050
Boron	parts per million	no more than 5	0.00501	<0.00208	0.01500
Cadmium	parts per million	no more than 0.007	<0.000007	<0.000007	0.000016
Calcium	parts per million	no guideline	21.460	17.521	26.162
Cesium	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Chromium	parts per million	no more than 0.05	0.00008	<0.00004	0.00280
Chromium VI	parts per million	no guideline	<0.00050	<0.00050	<0.00050
Cobalt	parts per million	no guideline	0.00133	0.00091	0.00171
Copper	parts per million	no more than 2.0	0.042819	0.000113	0.200120
Iron	parts per million	no more than 0.3 *	0.07743	0.02435	1.0081
Lead	parts per million	no more than 0.005	<0.000065	<0.000065	0.001713
Lithium	parts per million	no guideline	0.0024	0.0022	0.0026
Magnesium	parts per million	no guideline	6.336	5.044	7.590
Manganese	parts per million	no more than 0.12	0.00902	0.00362	0.07394
Mercury	parts per billion	no more than 1	<0.0050	<0.00050	<0.0050
Molybdenum	parts per million	no guideline	<0.000050	<0.000050	<0.000050
Nickel	parts per million	no guideline	0.002403	0.001513	0.008346
Potassium	parts per million	no guideline	1.280	1.033	1.692
Rubidium	parts per million	no guideline	0.0016	0.0015	0.0018
Selenium	parts per million	no more than 0.05	<0.000050	<0.000050	<0.000050
Silicon	parts per million	no guideline	2.99	2.32	3.45
Silver	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Sodium	parts per million	no more than 200 *	29.589	24.443	35.746
Strontium	parts per million	no more than 7	0.0395	0.0372	0.0435
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	0.00011	<0.00010	0.00027
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	<0.000032	<0.000032	0.000079
Vanadium	parts per million	no guideline	<0.00050	<0.00050	<0.00050
Zinc	parts per million	no more than 5.0 *	0.00378	<0.00011	0.02674
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.

**All resamples were negative and met the operating licence requirements

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 (39 distribution system locations April-December), 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
2020 Winnipeg Distribution System Bacteriological Summary

PARAMETER	REQUIREMENT	OUR TEST RESULTS	COMMENTS
Number of total coliform bacteria tests in year	2028 samples/year	2,443	
Number of times that total coliform bacteria show up in a test	none detectable per 100 mL	0.29% (7 positive test)	All resamples were negative and met the operating licence requirements
Number of Escherichia coli bacteria tests in year	2028 samples/year	2,443	
Number of times that Escherichia coli 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	2,225	Heterotrophic plate count testing is not required under the operating licence
Requirements from City of Winnipeg Operating Licence PWS-09-412-01 Data reported was collected from 57 distribution system locations (39 distribution system locations April-December) and MacLean, Hurst, and McPhillips Pumping Station Discharges			

APPENDIX B

COMPLIANCE SUBMISSION REPORTS

2020 MONTHLY CHLORINE REPORTS



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00	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-Jan-2020	NA	NA	NA	NA	NA	NA
02-Jan-2020	1.18	1.29	1.45	1.27	1.27	1.51
03-Jan-2020	1.24	1.25	1.49	1.29	1.32	1.43
04-Jan-2020	NA	NA	NA	NA	NA	NA
05-Jan-2020	NA	NA	NA	NA	NA	NA
06-Jan-2020	1.23	1.26	1.38	1.18	1.19	1.35
07-Jan-2020	1.19	1.22	1.41	1.31	1.39	1.48
08-Jan-2020	1.23	1.28	1.48	1.30	1.36	1.50
09-Jan-2020	1.27	1.28	1.43	1.31	1.31	1.51
10-Jan-2020	1.14	1.16	1.35	1.14	1.22	1.38
11-Jan-2020	NA	NA	NA	NA	NA	NA
12-Jan-2020	NA	NA	NA	NA	NA	NA
13-Jan-2020	1.11	1.12	1.32	1.16	1.20	1.43
14-Jan-2020	1.42	1.41	1.67	1.53	1.56	1.79
15-Jan-2020	1.14	1.14	1.31	1.22	1.29	1.46
16-Jan-2020	1.17	1.10	1.36	1.26	1.26	1.46
17-Jan-2020	1.05	1.05	1.30	1.17	1.22	1.39
18-Jan-2020	NA	NA	NA	NA	NA	NA
19-Jan-2020	NA	NA	NA	NA	NA	NA
20-Jan-2020	1.37	1.30	1.40	1.28	1.32	1.47
21-Jan-2020	1.26	1.28	1.46	1.23	1.31	1.44
22-Jan-2020	1.24	1.26	1.41	1.21	1.26	1.50
23-Jan-2020	1.24	1.29	1.43	1.23	1.28	1.43
24-Jan-2020	1.28	1.30	1.49	1.32	1.34	1.50
25-Jan-2020	NA	NA	NA	NA	NA	NA
26-Jan-2020	NA	NA	NA	NA	NA	NA
27-Jan-2020	1.30	1.30	1.49	1.24	1.29	1.41
28-Jan-2020	1.24	1.23	1.42	1.16	1.16	1.37
29-Jan-2020	1.25	1.30	1.44	1.13	1.23	1.35
30-Jan-2020	1.22	1.22	1.37	1.09	1.19	1.36
31-Jan-2020	1.15	1.17	1.41	1.09	1.22	1.40

Total number of measurements taken, A:

Chlorine Standard for Monitoring Location (mg/L):

Number of measurements meeting standard, B:

Compliance with Chlorine Standard, C= B/A X 100%:

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

Authorized By: B. Bradford

Date Authorized: 4-Feb-20



City Of Winnipeg

Water and Waste Department

Water Services

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping StationWater System Code: **252.00**Licence Number: **PWS-09-412-01**

Report Created: 01 February 2020

Report Period: January 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/01/2020	1.17	1.05	1.23	1.15
02/01/2020	1.22	1.09	1.29	1.17
03/01/2020	1.25	1.13	1.25	1.13
04/01/2020	1.22	1.11	1.18	1.12
05/01/2020	1.20	1.10	1.18	1.13
06/01/2020	1.20	1.12	1.24	1.10
07/01/2020	1.18	1.11	1.26	1.13
08/01/2020	1.21	1.11	1.24	1.11
09/01/2020	1.21	1.07	1.28	1.18
10/01/2020	1.14	1.05	1.20	1.09
11/01/2020	1.10	1.02	1.16	1.05
12/01/2020	1.09	0.98	1.16	1.07
13/01/2020	1.11	1.03	1.18	1.09
14/01/2020	1.27	1.11	1.38	1.10
15/01/2020	1.15	1.03	1.22	1.14
16/01/2020	1.13	0.96	1.23	1.13
17/01/2020	1.06	0.97	1.18	1.09
18/01/2020	1.06	0.96	1.17	1.12
19/01/2020	1.18	1.07	1.25	1.19
20/01/2020	1.30	1.17	1.27	1.18
21/01/2020	1.27	1.13	1.24	1.19
22/01/2020	1.25	1.16	1.24	1.18
23/01/2020	1.27	1.15	1.28	1.22
24/01/2020	1.27	1.13	1.28	1.15
25/01/2020	1.25	1.12	1.22	1.14
26/01/2020	1.26	1.12	1.23	1.17
27/01/2020	1.29	1.18	1.22	1.14
28/01/2020	1.24	1.15	1.19	1.12
29/01/2020	1.26	1.14	1.18	1.04
30/01/2020	1.17	1.02	1.05	0.97
31/01/2020	1.15	1.04	1.11	1.02

Total Number of Measurements, A: 21504 21504

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21504 21504

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\01-January

Submitted By (Print): D. MerredewSignature: Original signed by D. Merredew



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

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-09-412-01	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Feb-2020	NA	NA	NA	NA	NA	NA
02-Feb-2020	NA	NA	NA	NA	NA	NA
03-Feb-2020	1.27	1.34	1.46	1.27	1.30	1.44
04-Feb-2020	1.28	1.37	1.51	1.30	1.37	1.58
05-Feb-2020	1.36	1.37	1.56	1.32	1.34	1.52
06-Feb-2020	1.29	1.33	1.48	1.46	1.49	1.61
07-Feb-2020	1.19	1.21	1.38	1.23	1.31	1.43
08-Feb-2020	NA	NA	NA	NA	NA	NA
09-Feb-2020	NA	NA	NA	NA	NA	NA
10-Feb-2020	1.29	1.30	1.47	1.29	1.34	1.47
11-Feb-2020	1.24	1.27	1.44	1.28	1.26	1.48
12-Feb-2020	1.23	1.28	1.47	1.26	1.31	1.49
13-Feb-2020	1.31	1.32	1.48	1.33	1.33	1.49
14-Feb-2020	1.29	1.29	1.52	1.31	1.35	1.56
15-Feb-2020	NA	NA	NA	NA	NA	NA
16-Feb-2020	NA	NA	NA	NA	NA	NA
17-Feb-2020	NA	NA	NA	NA	NA	NA
18-Feb-2020	1.23	1.19	1.39	1.18	1.24	1.48
19-Feb-2020	1.26	1.27	1.48	1.26	1.30	1.48
20-Feb-2020	1.29	1.28	1.46	1.27	1.32	1.50
21-Feb-2020	1.34	1.38	1.55	1.37	1.35	1.55
22-Feb-2020	NA	NA	NA	NA	NA	NA
23-Feb-2020	NA	NA	NA	NA	NA	NA
24-Feb-2020	1.27	1.31	1.42	1.29	1.30	1.49
25-Feb-2020	1.97	2.44	2.64	1.96	2.38	2.88
26-Feb-2020	1.12	1.17	1.34	1.10	1.17	1.29
27-Feb-2020	1.26	1.30	1.58	1.25	1.33	1.53
28-Feb-2020	1.09	1.20	1.41	1.28	1.23	1.43
29-Feb-2020	NA	NA	NA	NA	NA	NA
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%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

Authorized By: B. Bradford



City Of Winnipeg

Water and Waste Department

Water Services

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping StationWater System Code: **252.00**Licence Number: **PWS-09-412-01**

Report Created: 01 March 2020

Report Period: February 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/02/2020	1.22	1.13	1.19	1.15
02/02/2020	1.26	1.15	1.25	1.18
03/02/2020	1.26	1.20	1.29	1.23
04/02/2020	1.27	1.15	1.27	1.22
05/02/2020	1.34	1.21	1.33	1.22
06/02/2020	1.27	1.20	1.40	1.30
07/02/2020	1.21	1.09	1.30	1.22
08/02/2020	1.23	1.10	1.32	1.16
09/02/2020	1.23	1.12	1.29	1.18
10/02/2020	1.27	1.18	1.30	1.25
11/02/2020	1.22	1.13	1.26	1.18
12/02/2020	1.30	1.14	1.32	0.98
13/02/2020	1.29	1.16	1.29	1.25
14/02/2020	1.32	1.20	1.33	1.27
15/02/2020	1.40	1.28	1.36	1.29
16/02/2020	1.35	1.24	1.30	1.24
17/02/2020	1.27	1.13	1.22	1.10
18/02/2020	1.23	1.12	1.20	1.14
19/02/2020	1.27	1.18	1.26	1.22
20/02/2020	1.28	1.19	1.28	1.25
21/02/2020	1.33	1.26	1.35	1.30
22/02/2020	1.29	1.12	1.31	1.11
23/02/2020	1.16	0.93	1.17	0.94
24/02/2020	1.29	1.21	1.30	1.20
25/02/2020	1.57	1.17	1.56	1.12
26/02/2020	1.14	1.04	1.11	1.05
27/02/2020	1.28	1.10	1.34	1.12
28/02/2020	1.24	1.01	1.37	1.24
29/02/2020	1.15	0.86	1.15	0.89

Total Number of Measurements, A: 20160 20160

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20160 20160

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\02-February

Submitted By (Print): D.MerredewSignature: Original signed by D. Merredew



Water and Waste
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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00	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-2020	NA	NA	NA	NA	NA	NA
02-Mar-2020	1.12	1.22	1.37	1.16	1.24	1.36
03-Mar-2020	1.21	1.24	1.40	1.14	1.18	1.35
04-Mar-2020	1.19	1.24	1.40	1.11	1.16	1.34
05-Mar-2020	1.10	1.15	1.27	1.04	1.04	1.26
06-Mar-2020	1.19	1.23	1.44	1.12	1.21	1.30
07-Mar-2020	NA	NA	NA	NA	NA	NA
08-Mar-2020	NA	NA	NA	NA	NA	NA
09-Mar-2020	1.11	1.13	1.36	1.10	1.14	1.26
10-Mar-2020	1.08	1.20	1.39	1.06	1.16	1.36
11-Mar-2020	1.07	1.28	1.37	1.12	1.16	1.31
12-Mar-2020	1.13	1.12	1.31	1.12	1.17	1.34
13-Mar-2020	1.14	1.11	1.29	1.14	1.13	1.28
14-Mar-2020	NA	NA	NA	NA	NA	NA
15-Mar-2020	NA	NA	NA	NA	NA	NA
16-Mar-2020	1.14	1.22	1.39	1.15	1.22	1.32
17-Mar-2020	1.14	1.10	1.28	1.19	1.14	1.26
18-Mar-2020	1.12	1.12	1.26	1.14	1.17	1.30
19-Mar-2020	1.08	1.08	1.24	1.10	1.10	1.24
20-Mar-2020	1.06	1.08	1.22	1.07	1.12	1.24
21-Mar-2020	NA	NA	NA	NA	NA	NA
22-Mar-2020	NA	NA	NA	NA	NA	NA
23-Mar-2020	1.11	1.10	1.24	1.04	1.10	1.23
24-Mar-2020	0.91	1.00	1.17	0.88	0.98	1.14
25-Mar-2020	1.01	1.02	1.16	0.94	1.08	1.21
26-Mar-2020	1.10	1.13	1.29	1.14	1.14	1.36
27-Mar-2020	1.10	1.11	1.26	1.07	1.11	1.27
28-Mar-2020	NA	NA	NA	NA	NA	NA
29-Mar-2020	NA	NA	NA	NA	NA	NA
30-Mar-2020	1.11	1.13	1.39	1.12	1.19	1.40
31-Mar-2020	1.14	1.16	1.29	1.10	1.17	1.29
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%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

Authorized By: B. Bradford



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: 01 April 2020

Report Period: March 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/03/2020	1.15	1.11	1.14	1.05
02/03/2020	1.14	0.85	1.17	0.96
03/03/2020	1.20	1.11	1.14	1.02
04/03/2020	1.18	0.77	1.11	0.92
05/03/2020	1.12	1.05	1.05	1.00
06/03/2020	1.16	1.04	1.13	0.94
07/03/2020	1.14	1.09	1.15	1.08
08/03/2020	1.11	1.08	1.10	1.05
09/03/2020	1.11	1.07	1.10	1.06
10/03/2020	1.08	1.04	1.09	1.04
11/03/2020	1.09	1.02	1.11	1.08
12/03/2020	1.13	1.07	1.13	1.09
13/03/2020	1.17	1.10	1.17	1.11
14/03/2020	1.12	1.07	1.12	1.09
15/03/2020	1.13	1.09	1.14	1.10
16/03/2020	1.15	1.10	1.14	1.11
17/03/2020	1.14	1.07	1.07	0.97
18/03/2020	1.13	1.07	1.11	1.04
19/03/2020	1.07	1.00	1.09	1.02
20/03/2020	1.10	1.02	1.07	1.03
21/03/2020	1.14	1.10	1.08	1.04
22/03/2020	1.12	1.08	1.06	1.01
23/03/2020	1.08	1.00	1.03	0.98
24/03/2020	0.99	0.83	0.96	0.80
25/03/2020	1.10	0.98	1.07	0.91
26/03/2020	1.12	1.06	1.11	0.98
27/03/2020	1.08	1.02	1.14	1.02
28/03/2020	1.07	1.02	1.23	1.19
29/03/2020	1.07	1.01	1.24	1.19
30/03/2020	1.11	1.02	1.19	1.07
31/03/2020	1.12	1.06	1.10	1.03

Total Number of Measurements, A: 21564 21564

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21564 21564

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\03-March

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00 Licence No. PWS-09-412-01	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Apr-2020	1.09	1.09	1.23	1.04	1.05	1.23
02-Apr-2020	1.06	1.08	1.28	1.07	1.12	1.27
03-Apr-2020	1.15	1.16	1.34	1.07	1.11	1.29
04-Apr-2020	NA	NA	NA	NA	NA	NA
05-Apr-2020	NA	NA	NA	NA	NA	NA
06-Apr-2020	1.12	1.13	1.32	1.18	1.16	1.33
07-Apr-2020	1.10	1.09	1.29	1.15	1.15	1.32
08-Apr-2020	0.97	1.03	1.17	1.12	1.13	1.32
09-Apr-2020	1.14	1.12	1.29	1.17	1.15	1.27
10-Apr-2020	NA	NA	NA	NA	NA	NA
11-Apr-2020	NA	NA	NA	NA	NA	NA
12-Apr-2020	NA	NA	NA	NA	NA	NA
13-Apr-2020	NA	NA	NA	NA	NA	NA
14-Apr-2020	1.20	1.13	1.33	1.18	1.18	1.32
15-Apr-2020	1.14	1.21	1.34	1.10	1.19	1.38
16-Apr-2020	1.13	1.16	1.32	1.10	1.16	1.32
17-Apr-2020	1.15	1.15	1.33	1.19	1.17	1.33
18-Apr-2020	NA	NA	NA	NA	NA	NA
19-Apr-2020	NA	NA	NA	NA	NA	NA
20-Apr-2020	1.20	1.18	1.33	1.19	1.19	1.38
21-Apr-2020	1.26	1.20	1.42	1.22	1.27	1.41
22-Apr-2020	1.22	1.23	1.37	1.15	1.18	1.40
23-Apr-2020	1.19	1.17	1.37	1.15	1.19	1.36
24-Apr-2020	1.21	1.19	1.35	1.15	1.13	1.31
25-Apr-2020	NA	NA	NA	NA	NA	NA
26-Apr-2020	NA	NA	NA	NA	NA	NA
27-Apr-2020	1.16	1.12	1.28	1.14	1.10	1.33
28-Apr-2020	1.21	1.24	1.34	1.19	1.22	1.31
29-Apr-2020	1.21	1.13	1.31	1.17	1.14	1.28
30-Apr-2020	1.21	1.18	1.33	1.18	1.17	1.31
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%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

Authorized By: B. Bradford



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: 01 May 2020

Report Period: April 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/04/2020	1.07	1.01	1.04	0.96
02/04/2020	1.07	1.01	1.07	1.01
03/04/2020	1.12	1.05	1.11	0.99
04/04/2020	1.07	1.01	1.10	1.02
05/04/2020	1.12	1.07	1.16	1.08
06/04/2020	1.11	1.07	1.16	1.06
07/04/2020	1.05	0.96	1.16	1.10
08/04/2020	0.98	0.90	1.14	1.07
09/04/2020	1.09	1.07	1.09	1.10
10/04/2020	1.16	1.05	1.17	1.09
11/04/2020	1.19	1.11	1.18	1.11
12/04/2020	1.17	1.08	1.16	1.09
13/04/2020	1.32	1.21	1.30	1.19
14/04/2020	1.20	1.09	1.16	1.09
15/04/2020	1.14	1.06	1.11	1.05
16/04/2020	1.14	1.04	1.15	1.04
17/04/2020	1.18	1.06	1.21	1.11
18/04/2020	1.26	1.18	1.24	1.16
19/04/2020	1.20	1.14	1.19	1.12
20/04/2020	1.19	1.15	1.17	1.12
21/04/2020	1.24	1.17	1.20	1.12
22/04/2020	1.20	1.14	1.17	1.11
23/04/2020	1.17	1.13	1.15	1.09
24/04/2020	1.15	1.10	1.13	1.07
25/04/2020	1.14	1.10	1.13	1.07
26/04/2020	1.13	1.07	1.09	1.02
27/04/2020	1.17	1.12	1.14	1.08
28/04/2020	1.21	1.17	1.19	1.12
29/04/2020	1.19	1.15	1.17	1.11
30/04/2020	1.23	1.15	1.21	1.10

Total Number of Measurements, A: 20853 20852

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20853 20852

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\04-April

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00	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-May-2020	1.33	1.29	1.45	1.30	1.33	1.42
02-May-2020	NA	NA	NA	NA	NA	NA
03-May-2020	NA	NA	NA	NA	NA	NA
04-May-2020	1.11	1.08	1.26	1.16	1.13	1.20
05-May-2020	1.09	1.13	1.33	1.08	1.08	1.30
06-May-2020	1.12	1.17	1.29	1.10	1.13	1.24
07-May-2020	1.10	1.18	1.31	1.10	1.13	1.26
08-May-2020	1.10	1.12	1.28	1.07	1.12	1.25
09-May-2020	NA	NA	NA	NA	NA	NA
10-May-2020	NA	NA	NA	NA	NA	NA
11-May-2020	1.18	1.13	1.34	1.11	1.17	1.29
12-May-2020	1.11	1.06	1.25	1.19	1.13	1.28
13-May-2020	1.16	1.20	1.38	1.09	1.15	1.30
14-May-2020	1.21	1.17	1.37	1.16	1.18	1.37
15-May-2020	1.13	1.16	1.38	1.12	1.18	1.35
16-May-2020	NA	NA	NA	NA	NA	NA
17-May-2020	NA	NA	NA	NA	NA	NA
18-May-2020	NA	NA	NA	NA	NA	NA
19-May-2020	1.25	1.22	1.36	1.22	1.20	1.38
20-May-2020	1.22	1.19	1.38	1.25	1.22	1.33
21-May-2020	1.17	1.12	1.32	1.20	1.20	1.37
22-May-2020	1.20	1.25	1.39	1.22	1.24	1.47
23-May-2020	NA	NA	NA	NA	NA	NA
24-May-2020	1.22	1.23	1.43	1.31	1.31	1.44
25-May-2020	1.17	1.15	1.36	1.18	1.22	1.39
26-May-2020	NA	NA	NA	NA	NA	NA
27-May-2020	1.26	1.20	1.42	1.24	1.27	1.40
28-May-2020	1.14	1.16	1.34	1.19	1.18	1.28
29-May-2020	1.19	1.13	1.33	1.17	1.15	1.33
30-May-2020	NA	NA	NA	NA	NA	NA
31-May-2020	1.20	1.20	1.38	1.16	1.23	1.38
Total number of measurements taken, A:	21				21	
Chlorine Standard for Monitoring Location (mg/L):					0.50	
Number of measurements meeting standard, B:					21	
Compliance with Chlorine Standard, C= B/A X 100%:					100%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: H. Demchenko

Authorized By: B. Bradford



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: 01 June 2020

Report Period: May 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/05/2020	1.28	1.19	1.33	1.23
02/05/2020	1.26	0.87	1.28	0.99
03/05/2020	1.21	1.01	1.16	1.07
04/05/2020	1.10	1.03	1.10	1.02
05/05/2020	1.11	1.01	1.10	1.01
06/05/2020	1.11	1.05	1.10	1.03
07/05/2020	1.09	1.05	1.08	1.02
08/05/2020	1.33	0.64	1.12	0.89
09/05/2020	1.10	1.06	1.05	0.98
10/05/2020	1.15	1.10	1.09	1.03
11/05/2020	1.14	1.07	1.15	1.09
12/05/2020	1.14	1.08	1.14	1.02
13/05/2020	1.16	1.07	1.11	1.01
14/05/2020	1.16	1.09	1.14	1.05
15/05/2020	1.13	1.08	1.11	1.03
16/05/2020	1.11	1.09	1.12	1.06
17/05/2020	1.13	1.08	1.11	1.02
18/05/2020	1.24	1.18	1.19	1.13
19/05/2020	1.22	1.11	1.21	1.14
20/05/2020	1.20	1.14	1.23	1.17
21/05/2020	1.16	1.10	1.18	1.08
22/05/2020	1.22	1.12	1.24	1.18
23/05/2020	1.23	1.16	1.25	1.18
24/05/2020	1.22	1.14	1.26	1.19
25/05/2020	1.20	1.10	1.22	1.11
26/05/2020	1.25	1.18	1.24	1.17
27/05/2020	1.23	1.17	1.23	1.16
28/05/2020	1.14	1.05	1.17	0.99
29/05/2020	1.16	1.09	1.14	1.06
30/05/2020	1.18	1.11	1.16	1.11
31/05/2020	1.21	1.15	1.18	1.10

Total Number of Measurements, A: 21583 21600

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21583 21600

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\05-May

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



Water and Waste
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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00 Licence No. PWS-09-412-01	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Jun-2020	1.17	1.24	1.38	1.27	1.23	1.39
02-Jun-2020	ns	ns	ns	ns	ns	ns
03-Jun-2020	1.22	1.19	1.35	1.24	1.23	1.37
04-Jun-2020	1.20	1.20	1.36	1.22	1.21	1.44
05-Jun-2020	1.18	1.12	1.33	1.19	1.19	1.35
06-Jun-2020	ns	ns	ns	ns	ns	ns
07-Jun-2020	ns	ns	ns	ns	ns	ns
08-Jun-2020	1.04	1.06	1.27	1.06	1.11	1.22
09-Jun-2020	1.23	1.26	1.35	1.25	1.25	1.37
10-Jun-2020	1.20	1.22	1.47	1.20	1.25	1.43
11-Jun-2020	1.29	1.23	1.47	1.27	1.25	1.49
12-Jun-2020	1.29	1.28	1.51	1.24	1.29	1.49
13-Jun-2020	ns	ns	ns	ns	ns	ns
14-Jun-2020	1.15	1.20	1.40	1.15	1.23	1.45
15-Jun-2020	1.29	1.33	1.56	1.33	1.28	1.41
16-Jun-2020	1.24	1.33	1.52	1.19	1.30	1.51
17-Jun-2020	1.26	1.35	1.52	1.29	1.36	1.49
18-Jun-2020	1.31	1.36	1.57	1.42	1.37	1.52
19-Jun-2020	ns	ns	ns	ns	ns	ns
20-Jun-2020	ns	ns	ns	ns	ns	ns
21-Jun-2020	1.28	1.29	1.54	1.28	1.38	1.53
22-Jun-2020	1.21	1.22	1.40	1.29	1.20	1.41
23-Jun-2020	1.15	1.19	1.35	1.16	1.16	1.35
24-Jun-2020	ns	ns	ns	ns	ns	ns
25-Jun-2020	1.21	1.22	1.42	1.24	1.20	1.37
26-Jun-2020	1.17	1.18	1.38	1.30	1.27	1.46
27-Jun-2020	ns	ns	ns	ns	ns	ns
28-Jun-2020	ns	ns	ns	ns	ns	ns
29-Jun-2020	0.93	1.00	1.19	1.02	1.05	1.24
30-Jun-2020	0.98	1.05	1.23	1.07	1.12	1.24
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%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: H. Demchenko

Authorized By: B. Bradford

Date Authorized: 7-Jul-20



City Of Winnipeg
Water and Waste Department
Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: **01 July 2020**

Report Period: June 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/06/2020	1.18	1.08	1.20	1.13
02/06/2020	1.22	1.09	1.26	1.13
03/06/2020	1.23	1.15	1.30	1.22
04/06/2020	1.17	0.99	1.21	1.08
05/06/2020	1.15	1.02	1.13	0.97
06/06/2020	1.16	1.06	1.14	1.04
07/06/2020	1.12	1.04	1.12	1.06
08/06/2020	1.10	1.00	1.11	1.03
09/06/2020	1.20	1.11	1.20	1.12
10/06/2020	1.20	1.14	1.21	1.13
11/06/2020	1.26	1.17	1.23	1.15
12/06/2020	1.24	1.07	1.21	1.07
13/06/2020	1.17	1.04	1.17	1.04
14/06/2020	1.25	1.12	1.26	1.12
15/06/2020	1.28	1.15	1.30	1.15
16/06/2020	1.22	1.10	1.21	1.13
17/06/2020	1.28	1.17	1.34	1.21
18/06/2020	1.25	1.18	1.34	1.27
19/06/2020	1.22	0.90	1.22	0.75
20/06/2020	1.37	1.25	1.31	1.23
21/06/2020	1.25	1.12	1.29	1.18
22/06/2020	1.20	1.11	1.24	1.15
23/06/2020	1.16	1.09	1.15	1.07
24/06/2020	1.21	1.15	1.20	1.10
25/06/2020	1.18	1.04	1.27	1.21
26/06/2020	1.14	1.04	1.29	1.18
27/06/2020	1.16	1.05	1.20	1.13
28/06/2020	1.08	0.92	1.13	1.01
29/06/2020	0.97	0.89	1.06	0.99
30/06/2020	1.01	0.93	1.09	0.98

Total Number of Measurements, A: **20858** 20857

Minimum Free Chlorine Standard: **0.5** 0.5

Number of Measurements Meeting Standard, B: **20858** 20857

COMPLIANCE, C = B/A X 100%: **100.00** 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\06-June

Submitted By (Print): D.Minor

Signature: Original signed by D.Minor



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00	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-Jul-2020	ns	ns	ns	ns	ns	ns
02-Jul-2020	1.04	1.06	1.23	1.11	1.09	1.28
03-Jul-2020	1.16	1.20	1.41	1.22	1.28	1.46
04-Jul-2020	ns	ns	ns	ns	ns	ns
05-Jul-2020	ns	ns	ns	ns	ns	ns
06-Jul-2020	1.11	1.14	1.36	1.13	1.22	1.43
07-Jul-2020	1.11	1.19	1.38	1.16	1.26	1.45
08-Jul-2020	1.13	1.13	1.35	1.22	1.21	1.36
09-Jul-2020	1.12	1.16	1.40	1.19	1.24	1.40
10-Jul-2020	1.23	1.29	1.47	1.34	1.31	1.51
11-Jul-2020	ns	ns	ns	ns	ns	ns
12-Jul-2020	ns	ns	ns	ns	ns	ns
13-Jul-2020	1.31	1.35	1.54	1.38	1.46	1.59
14-Jul-2020	1.28	1.30	1.52	1.13	1.22	1.45
15-Jul-2020	1.22	1.28	1.47	1.17	1.21	1.38
16-Jul-2020	1.31	1.37	1.56	1.38	1.32	1.47
17-Jul-2020	1.36	1.38	1.55	1.33	1.30	1.50
18-Jul-2020	ns	ns	ns	ns	ns	ns
19-Jul-2020	ns	ns	ns	ns	ns	ns
20-Jul-2020	1.45	1.40	1.59	1.30	1.31	1.49
21-Jul-2020	1.44	1.39	1.57	1.24	1.31	1.48
22-Jul-2020	1.20	1.27	1.37	1.18	1.27	1.47
23-Jul-2020	1.30	1.33	1.50	1.23	1.27	1.44
24-Jul-2020	1.38	1.31	1.48	1.28	1.22	1.43
25-Jul-2020	ns	ns	ns	ns	ns	ns
26-Jul-2020	ns	ns	ns	ns	ns	ns
27-Jul-2020	1.28	1.32	1.63	1.23	1.29	1.51
28-Jul-2020	1.50	1.43	1.51	1.35	1.28	1.41
29-Jul-2020	1.39	1.30	1.46	1.22	1.24	1.38
30-Jul-2020	1.39	1.30	1.42	1.32	1.31	1.47
31-Jul-2020	1.47	1.54	1.71	1.42	1.44	1.57
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%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: H. Demchenko

Authorized By: B. Bradford



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: 252.00

Licence Number: PWS-09-412-01

Report Created: 01 August 2020

Report Period: July 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/07/2020	0.98	0.90	1.04	0.96
02/07/2020	1.06	0.98	1.13	1.06
03/07/2020	1.19	1.09	1.24	1.15
04/07/2020	1.20	1.09	1.24	1.15
05/07/2020	1.16	1.06	1.19	1.08
06/07/2020	1.10	1.06	1.15	1.09
07/07/2020	1.14	1.05	1.23	1.06
08/07/2020	1.09	1.00	1.19	1.08
09/07/2020	1.12	1.06	1.21	1.11
10/07/2020	1.20	1.12	1.28	1.18
11/07/2020	1.30	1.06	1.32	1.09
12/07/2020	1.37	1.28	1.36	1.26
13/07/2020	1.26	1.15	1.30	1.18
14/07/2020	1.22	1.07	1.18	1.06
15/07/2020	1.22	1.05	1.21	1.05
16/07/2020	1.33	1.12	1.35	1.19
17/07/2020	1.38	1.17	1.34	1.17
18/07/2020	1.39	1.20	1.32	1.19
19/07/2020	1.38	1.26	1.26	1.11
20/07/2020	1.38	1.15	1.28	1.10
21/07/2020	1.39	1.13	1.23	1.11
22/07/2020	1.34	1.14	1.20	1.02
23/07/2020	1.33	1.08	1.25	1.09
24/07/2020	1.31	1.11	1.23	1.11
25/07/2020	1.26	1.01	1.21	1.07
26/07/2020	1.24	1.09	1.21	1.09
27/07/2020	1.36	1.09	1.28	1.10
28/07/2020	1.45	1.25	1.32	1.22
29/07/2020	1.24	1.06	1.22	1.12
30/07/2020	1.41	1.14	1.23	1.13
31/07/2020	1.38	1.19	1.39	1.21

Total Number of Measurements, A: 21600 21600

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21600 21600

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\07-July

Submitted By (Print): D.MinorSignature: Original signed by D.Minor



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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00	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-2020	ns	ns	ns	ns	ns	ns
02-Aug-2020	ns	ns	ns	ns	ns	ns
03-Aug-2020	ns	ns	ns	ns	ns	ns
04-Aug-2020	1.32	1.29	1.55	1.40	1.38	1.54
05-Aug-2020	1.21	1.38	1.56	1.30	1.37	1.56
06-Aug-2020	1.43	1.47	1.66	1.38	1.47	1.61
07-Aug-2020	1.55	1.56	1.79	1.56	1.49	1.66
08-Aug-2020	ns	ns	ns	ns	ns	ns
09-Aug-2020	ns	ns	ns	ns	ns	ns
10-Aug-2020	1.65	1.50	1.74	1.59	1.47	1.69
11-Aug-2020	1.39	1.46	1.68	1.38	1.46	1.66
12-Aug-2020	1.19	1.20	1.44	1.12	1.24	1.40
13-Aug-2020	1.45	1.36	1.63	1.42	1.36	1.64
14-Aug-2020	1.34	1.35	1.61	1.35	1.40	1.67
15-Aug-2020	ns	ns	ns	ns	ns	ns
16-Aug-2020	ns	ns	ns	ns	ns	ns
17-Aug-2020	1.58	1.30	1.64	1.58	1.51	1.73
18-Aug-2020	1.39	1.39	1.60	1.51	1.43	1.65
19-Aug-2020	1.51	1.46	1.66	1.43	1.37	1.59
20-Aug-2020	1.20	1.25	1.52	1.19	1.29	1.54
21-Aug-2020	1.44	1.45	1.60	1.38	1.37	1.63
22-Aug-2020	ns	ns	ns	ns	ns	ns
23-Aug-2020	ns	ns	ns	ns	ns	ns
24-Aug-2020	1.55	1.59	1.81	1.51	1.50	1.85
25-Aug-2020	1.50	1.50	1.70	1.55	1.58	1.74
26-Aug-2020	1.37	1.42	1.63	1.44	1.49	1.69
27-Aug-2020	1.59	1.50	1.76	1.61	1.53	1.77
28-Aug-2020	1.34	1.36	1.61	1.37	1.41	1.62
29-Aug-2020	ns	ns	ns	ns	ns	ns
30-Aug-2020	ns	ns	ns	ns	ns	ns
31-Aug-2020	1.54	1.49	1.70	1.56	1.50	1.76
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%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: H.Demchenko

Authorized By: B. Bradford



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: 01 September 2020

Report Period: August 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/08/2020	1.28	1.15	1.34	1.20
02/08/2020	1.28	1.06	1.30	1.21
03/08/2020	1.21	0.98	1.25	1.02
04/08/2020	1.24	1.09	1.33	1.14
05/08/2020	1.25	1.08	1.31	1.16
06/08/2020	1.36	1.16	1.39	1.18
07/08/2020	1.49	1.26	1.44	1.12
08/08/2020	1.23	1.02	1.15	0.95
09/08/2020	1.50	1.30	1.47	1.25
10/08/2020	1.55	1.28	1.54	1.29
11/08/2020	1.34	1.06	1.34	1.05
12/08/2020	1.14	1.02	1.13	1.02
13/08/2020	1.32	1.10	1.33	1.13
14/08/2020	1.36	1.22	1.41	1.29
15/08/2020	1.27	1.15	1.33	1.25
16/08/2020	1.38	1.27	1.44	1.33
17/08/2020	1.51	0.97	1.56	1.32
18/08/2020	1.42	1.28	1.48	1.36
19/08/2020	1.44	1.25	1.45	1.23
20/08/2020	1.28	1.16	1.29	1.16
21/08/2020	1.31	1.13	1.36	1.17
22/08/2020	1.34	1.17	1.38	1.20
23/08/2020	1.35	1.06	1.38	1.15
24/08/2020	1.56	1.32	1.57	1.33
25/08/2020	1.43	1.28	1.47	1.28
26/08/2020	1.45	1.29	1.51	1.33
27/08/2020	1.61	1.29	1.65	1.32
28/08/2020	1.37	1.19	1.42	1.22
29/08/2020	1.42	1.30	1.40	1.24
30/08/2020	1.46	1.22	1.42	1.26
31/08/2020	1.51	1.26	1.54	1.43

Total Number of Measurements, A: 21599 21600

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21599 21600

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\08-August

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00 Licence No. PWS-09-412-01	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Sep-2020	1.37	1.35	1.60	1.55	1.50	1.70
02-Sep-2020	1.35	1.40	1.57	1.53	1.50	1.72
03-Sep-2020	1.43	1.45	1.62	1.47	1.40	1.69
04-Sep-2020	1.63	1.60	1.81	1.76	1.67	1.84
05-Sep-2020	ns	ns	ns	ns	ns	ns
06-Sep-2020	ns	ns	ns	ns	ns	ns
07-Sep-2020	ns	ns	ns	ns	ns	ns
08-Sep-2020	1.41	1.40	1.57	1.33	1.42	1.59
09-Sep-2020	1.72	1.54	1.72	1.52	1.62	1.80
10-Sep-2020	1.72	1.73	1.97	1.79	1.83	2.00
11-Sep-2020	1.70	1.64	1.93	1.81	1.74	1.98
12-Sep-2020	ns	ns	ns	ns	ns	ns
13-Sep-2020	ns	ns	ns	ns	ns	ns
14-Sep-2020	1.48	1.53	1.76	1.47	1.53	1.76
15-Sep-2020	1.44	1.48	1.72	1.45	1.53	1.75
16-Sep-2020	1.73	1.70	1.92	1.89	1.85	2.12
17-Sep-2020	1.78	1.77	1.97	1.89	1.88	2.16
18-Sep-2020	1.59	1.63	1.84	1.64	1.73	2.00
19-Sep-2020	ns	ns	ns	ns	ns	ns
20-Sep-2020	ns	ns	ns	ns	ns	ns
21-Sep-2020	1.50	1.50	1.70	1.58	1.55	1.73
22-Sep-2020	ns	ns	ns	1.58	1.63	1.88
23-Sep-2020	ns	ns	ns	1.34	1.37	1.55
24-Sep-2020	ns	ns	ns	1.35	1.33	1.61
25-Sep-2020	ns	ns	ns	1.22	1.31	1.48
26-Sep-2020	ns	ns	ns	ns	ns	ns
27-Sep-2020	ns	ns	ns	ns	ns	ns
28-Sep-2020	ns	ns	ns	1.37	1.32	1.55
29-Sep-2020	ns	ns	ns	1.42	1.39	1.58
30-Sep-2020	1.33	1.33	1.59	1.47	1.46	1.68
Total number of measurements taken, A:		15				21
Chlorine Standard for Monitoring Location (mg/L):		0.50				0.50
Number of measurements meeting standard, B:		15				21
Compliance with Chlorine Standard, C= B/A X 100%:		100%				100%

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Branch I was offline for maintenance from September 22 to 30, 2020.

Report Compiled By: _____ H. Demchenko

Authorized By: _____ B. Bradford

Date Authorized: _____ 7-Oct-20

**City Of Winnipeg**

Water and Waste Department

Water Services

WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping StationWater System Code: **252.00**Licence Number: **PWS-09-412-01**

Report Created: 01 October 2020

Report Period: September 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/09/2020	1.49	1.30	1.58	1.47
02/09/2020	1.45	1.24	1.55	1.44
03/09/2020	1.47	1.25	1.53	1.38
04/09/2020	1.49	1.21	1.60	1.47
05/09/2020	1.49	1.19	1.57	1.49
06/09/2020	1.45	1.23	1.47	1.32
07/09/2020	1.30	1.03	1.32	1.21
08/09/2020	1.49	1.21	1.40	1.28
09/09/2020	1.60	1.21	1.53	1.42
10/09/2020	1.71	1.58	1.73	1.64
11/09/2020	1.66	1.55	1.73	1.60
12/09/2020	1.59	1.47	1.62	1.50
13/09/2020	1.47	1.36	1.51	1.42
14/09/2020	1.46	1.34	1.50	1.39
15/09/2020	1.50	1.17	1.67	1.16
16/09/2020	1.66	1.39	1.80	1.55
17/09/2020	1.74	1.64	1.83	1.73
18/09/2020	1.68	1.54	1.77	1.58
19/09/2020	1.79	1.70	1.91	1.80
20/09/2020	1.80	1.67	1.93	1.73
21/09/2020	1.09	0.38	1.20	0.49
22/09/2020	O/L	O/L	1.43	0.66
23/09/2020	O/L	O/L	1.21	0.55
24/09/2020	O/L	O/L	1.38	1.27
25/09/2020	O/L	O/L	1.28	1.15
26/09/2020	O/L	O/L	1.24	1.18
27/09/2020	O/L	O/L	1.20	1.13
28/09/2020	O/L	O/L	1.30	1.13
29/09/2020	O/L	O/L	1.40	1.32
30/09/2020	1.34	1.31	1.46	1.39

O/L = Offline

Total Number of Measurements, A: 14940 20859

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 14787 20835

COMPLIANCE, C = B/A X 100%: 98.98 99.88

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\09-September

Submitted By (Print): D.MinorSignature: Original signed by D.Minor



Water and Waste
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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00		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-2020		1.36	1.39	1.67	1.45	1.47	1.72
02-Oct-2020		1.39	1.45	1.65	1.49	1.50	1.70
03-Oct-2020		1.40	1.46	1.66	NS	NS	NS
04-Oct-2020		NS	NS	NS	NS	NS	NS
05-Oct-2020		1.40	1.34	1.59	1.47	1.49	1.69
06-Oct-2020		1.36	1.33	1.53	1.40	1.40	1.62
07-Oct-2020		1.36	1.33	1.60	1.45	1.44	1.62
08-Oct-2020		1.35	1.39	1.63	1.37	1.45	1.68
09-Oct-2020		1.42	1.39	1.66	1.46	1.51	1.77
10-Oct-2020		NS	NS	NS	NS	NS	NS
11-Oct-2020		NS	NS	NS	NS	NS	NS
12-Oct-2020		NS	NS	NS	NS	NS	NS
13-Oct-2020		1.40	1.39	1.64	1.44	1.51	1.70
14-Oct-2020		1.43	1.44	1.67	1.50	1.55	1.75
15-Oct-2020		1.38	1.42	1.69	1.31	1.49	1.69
16-Oct-2020		1.45	1.52	1.75	1.34	1.50	1.70
17-Oct-2020		NS	NS	NS	NS	NS	NS
18-Oct-2020		NS	NS	NS	NS	NS	NS
19-Oct-2020		1.49	1.44	1.72	1.43	1.44	1.63
20-Oct-2020		1.46	1.48	1.66	1.42	1.41	1.59
21-Oct-2020		1.56	1.47	1.64	1.44	1.46	1.64
22-Oct-2020		1.56	1.52	1.70	1.43	1.42	1.67
23-Oct-2020		1.56	1.56	1.81	1.47	1.45	1.68
24-Oct-2020		NS	NS	NS	NS	NS	NS
25-Oct-2020		NS	NS	NS	NS	NS	NS
26-Oct-2020		1.56	1.54	1.78	1.48	1.43	1.66
27-Oct-2020		1.43	1.43	1.62	1.30	1.32	1.51
28-Oct-2020		1.37	1.35	1.53	1.43	1.43	1.55
29-Oct-2020		1.29	1.25	1.44	1.35	1.36	1.57
30-Oct-2020		1.28	1.31	1.52	1.35	1.42	1.62
31-Oct-2020		NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:		22			21		
Chlorine Standard for Monitoring Location (mg/L):		0.50			0.50		
Number of measurements meeting standard, B:		22			21		
Compliance with Chlorine Standard, C= B/A X 100%:		100%			100%		

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: H. Demchenko

Authorized By: B. Bradford

Date Authorized: 6-Nov-20



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: 01 November 2020

Report Period: October 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/10/2020	1.36	1.26	1.47	1.41
02/10/2020	1.40	1.27	1.51	1.42
03/10/2020	1.38	1.25	1.48	1.40
04/10/2020	1.42	1.32	1.52	1.44
05/10/2020	1.36	1.25	1.44	1.40
06/10/2020	1.36	1.26	1.43	1.35
07/10/2020	1.36	1.28	1.45	1.38
08/10/2020	1.41	1.30	1.47	1.37
09/10/2020	1.40	1.29	1.44	1.32
10/10/2020	1.30	1.22	1.34	1.26
11/10/2020	1.32	1.24	1.37	1.32
12/10/2020	1.36	1.27	1.42	1.36
13/10/2020	1.39	1.29	1.41	1.33
14/10/2020	1.46	1.21	1.38	1.21
15/10/2020	1.43	1.34	1.35	1.20
16/10/2020	1.42	1.32	1.35	1.31
17/10/2020	1.38	1.30	1.28	1.20
18/10/2020	1.47	1.37	1.33	1.23
19/10/2020	1.50	1.27	1.41	1.24
20/10/2020	1.45	1.33	1.39	1.30
21/10/2020	1.55	1.45	1.44	1.34
22/10/2020	1.59	1.47	1.46	1.42
23/10/2020	1.53	1.46	1.45	1.40
24/10/2020	1.41	1.26	1.34	1.21
25/10/2020	1.52	1.41	1.43	1.33
26/10/2020	1.53	1.35	1.45	1.27
27/10/2020	1.31	1.14	1.34	1.22
28/10/2020	1.34	1.24	1.43	1.35
29/10/2020	1.27	1.22	1.35	1.33
30/10/2020	1.29	1.21	1.26	1.15
31/10/2020	1.36	1.31	1.17	1.11

Total Number of Measurements, A: 21605 21605

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21605 21605

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\10-October

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00 Licence No. PWS-09-412-01	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Nov-2020	NS	NS	NS	NS	NS	NS
02-Nov-2020	1.34	1.38	1.63	1.26	1.29	1.51
03-Nov-2020	1.26	1.28	1.53	1.29	1.34	1.52
04-Nov-2020	1.18	1.21	1.40	1.26	1.24	1.36
05-Nov-2020	1.25	1.32	1.52	1.28	1.29	1.49
06-Nov-2020	1.19	1.21	1.39	1.23	1.22	1.44
07-Nov-2020	NS	NS	NS	NS	NS	NS
08-Nov-2020	NS	NS	NS	NS	NS	NS
09-Nov-2020	1.03	1.09	1.27	0.96	0.98	1.15
10-Nov-2020	1.30	1.26	1.52	1.19	1.29	1.51
11-Nov-2020	NS	NS	NS	NS	NS	NS
12-Nov-2020	1.25	1.24	1.49	1.07	1.16	1.41
13-Nov-2020	1.28	1.24	1.44	1.08	1.16	1.32
14-Nov-2020	NS	NS	NS	NS	NS	NS
15-Nov-2020	NS	NS	NS	NS	NS	NS
16-Nov-2020	1.20	1.24	1.43	1.09	1.13	1.32
17-Nov-2020	1.22	1.22	1.43	1.08	1.14	1.32
18-Nov-2020	1.19	1.20	1.37	1.17	1.20	1.41
19-Nov-2020	1.21	1.20	1.40	1.19	1.24	1.43
20-Nov-2020	1.15	1.13	1.30	1.17	1.22	1.39
21-Nov-2020	NS	NS	NS	NS	NS	NS
22-Nov-2020	NS	NS	NS	NS	NS	NS
23-Nov-2020	1.15	1.20	1.37	1.31	1.35	1.55
24-Nov-2020	0.94	0.97	1.17	1.24	1.22	1.46
25-Nov-2020	1.64	1.66	1.84	1.39	1.55	1.75
26-Nov-2020	1.16	1.21	1.39	1.25	1.30	1.49
27-Nov-2020	1.17	1.24	1.42	1.24	1.30	1.47
28-Nov-2020	NS	NS	NS	NS	NS	NS
29-Nov-2020	NS	NS	NS	NS	NS	NS
30-Nov-2020	1.17	1.16	1.34	1.11	1.15	1.36
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%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: H.Demchenko

Authorized By: B. Bradford

Date Authorized: 7-Dec-20



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: 01 December 2020

Report Period: November 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/11/2020	1.34	1.21	1.14	1.03
02/11/2020	1.31	1.14	1.25	1.12
03/11/2020	1.24	1.04	1.27	1.05
04/11/2020	1.19	1.14	1.22	1.15
05/11/2020	1.24	1.19	1.25	1.21
06/11/2020	1.20	1.17	1.22	1.16
07/11/2020	1.17	1.13	1.27	1.14
08/11/2020	1.19	1.10	1.27	0.98
09/11/2020	1.10	1.00	1.06	0.89
10/11/2020	1.22	1.11	1.17	1.05
11/11/2020	1.15	1.05	1.07	0.95
12/11/2020	1.30	1.18	1.12	1.00
13/11/2020	1.26	1.16	1.10	0.97
14/11/2020	1.23	1.16	1.14	1.05
15/11/2020	1.18	1.10	1.11	1.00
16/11/2020	1.19	1.12	1.08	0.96
17/11/2020	1.21	1.11	1.14	1.00
18/11/2020	1.20	1.15	1.19	1.11
19/11/2020	1.17	1.07	1.16	1.05
20/11/2020	1.14	1.06	1.15	1.06
21/11/2020	1.13	1.06	1.18	1.07
22/11/2020	1.07	1.02	1.24	1.10
23/11/2020	1.08	0.91	1.29	1.13
24/11/2020	1.12	0.88	1.22	1.12
25/11/2020	2.71	1.25	2.66	1.19
26/11/2020	1.27	1.03	1.32	1.17
27/11/2020	1.25	1.02	1.24	1.15
28/11/2020	1.41	1.26	1.34	1.17
29/11/2020	1.30	1.15	1.25	1.12
30/11/2020	1.20	1.07	1.14	1.03

Total Number of Measurements, A: 20583 20568

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20583 20568

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 and Waste
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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00	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-2020	1.25	1.23	1.45	1.20	1.23	1.43
02-Dec-2020	1.22	1.16	1.39	1.21	1.22	1.41
03-Dec-2020	1.33	1.32	1.50	1.33	1.26	1.48
04-Dec-2020	1.20	1.14	1.33	1.19	1.13	1.33
05-Dec-2020	NS	NS	NS	NS	NS	NS
06-Dec-2020	NS	NS	NS	NS	NS	NS
07-Dec-2020	1.14	1.16	1.35	1.14	1.23	1.43
08-Dec-2020	1.18	1.20	1.39	1.18	1.25	1.44
09-Dec-2020	1.12	1.14	1.37	1.08	1.24	1.44
10-Dec-2020	1.10	1.14	1.32	1.07	1.21	1.39
11-Dec-2020	1.09	1.09	1.26	1.17	1.25	1.46
12-Dec-2020	NS	NS	NS	NS	NS	NS
13-Dec-2020	NS	NS	NS	NS	NS	NS
14-Dec-2020	1.15	1.16	1.39	1.28	1.28	1.52
15-Dec-2020	1.15	1.11	1.40	1.27	1.34	1.54
16-Dec-2020	1.63	1.70	1.97	1.77	1.94	2.18
17-Dec-2020	1.25	1.30	1.52	1.10	1.29	1.49
18-Dec-2020	1.26	1.27	1.47	1.16	1.18	1.40
19-Dec-2020	NS	NS	NS	NS	NS	NS
20-Dec-2020	1.51	1.44	1.67	1.34	1.35	1.55
21-Dec-2020	1.43	1.38	1.60	1.25	1.27	1.47
22-Dec-2020	1.44	1.40	1.62	1.24	1.24	1.47
23-Dec-2020	1.39	1.38	1.58	1.15	1.21	1.41
24-Dec-2020	NS	NS	NS	NS	NS	NS
25-Dec-2020	NS	NS	NS	NS	NS	NS
26-Dec-2020	NS	NS	NS	NS	NS	NS
27-Dec-2020	NS	NS	NS	NS	NS	NS
28-Dec-2020	1.15	1.19	1.39	1.20	1.21	1.38
29-Dec-2020	1.21	1.23	1.46	1.24	1.23	1.43
30-Dec-2020	1.21	1.26	1.48	1.23	1.29	1.49
31-Dec-2020	1.16	1.18	1.38	1.14	1.19	1.39
Total number of measurements taken, A:	22	22			22	
Chlorine Standard for Monitoring Location (mg/L):						
Number of measurements meeting standard, B:						
Compliance with Chlorine Standard, C= B/A X 100%:						

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Compiled By: H.Demchenko

Authorized By: B. Bradford



City Of Winnipeg

Water and Waste Department

Water Services

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

Water System Code: **252.00**

Licence Number: **PWS-09-412-01**

Report Created: 01 January 2021

Report Period: December 2020

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/12/2020	1.24	1.10	1.18	1.09
02/12/2020	1.27	1.12	1.24	0.97
03/12/2020	1.32	1.19	1.31	1.18
04/12/2020	1.14	1.01	1.14	1.00
05/12/2020	1.12	0.93	1.14	1.03
06/12/2020	1.16	1.07	1.21	1.13
07/12/2020	1.13	1.06	1.16	1.05
08/12/2020	1.17	1.08	1.19	1.09
09/12/2020	1.15	1.08	1.14	1.05
10/12/2020	1.09	1.01	1.11	1.05
11/12/2020	1.09	1.04	1.21	1.09
12/12/2020	1.18	1.06	1.28	1.16
13/12/2020	1.19	1.02	1.32	1.11
14/12/2020	1.15	1.04	1.26	1.14
15/12/2020	1.15	1.03	1.26	1.16
16/12/2020	1.40	1.09	1.39	1.06
17/12/2020	1.19	1.04	1.18	1.06
18/12/2020	1.22	0.98	1.16	0.97
19/12/2020	1.34	1.16	1.27	1.16
20/12/2020	1.43	1.25	1.28	1.14
21/12/2020	1.41	1.28	1.25	1.17
22/12/2020	1.44	1.32	1.24	1.14
23/12/2020	1.40	1.21	1.33	1.15
24/12/2020	1.30	1.20	1.34	1.23
25/12/2020	1.27	1.15	1.27	1.14
26/12/2020	1.22	1.09	1.21	1.08
27/12/2020	1.11	1.03	1.13	1.03
28/12/2020	1.15	1.06	1.18	1.08
29/12/2020	1.21	1.12	1.24	1.14
30/12/2020	1.19	0.97	1.20	1.08
31/12/2020	1.12	1.03	1.12	1.03

Total Number of Measurements, A: 21515 21514

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21515 21514

COMPLIANCE, C = B/A X 100%: 100.00 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2020\12-December

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

2020 MONTHLY TURBIDITY REPORTS



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
	01-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02-Jan-2020	0.46	0.51	0.09	0.06	0.10	0.05	0.07	0.03	0.08	0.06	0.10	0.07	0.11	0.07	0.08	0.04	0.07	0.03
	03-Jan-2020	0.47	0.51	0.10	0.08	OL	OL	0.07	0.04	0.09	0.07	0.07	0.04	0.08	0.04	0.09	0.05	0.10	0.05
	04-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06-Jan-2020	0.50	0.51	0.08	0.07	0.09	0.03	0.06	0.04	0.09	0.08	OL	OL	OL	OL	0.08	0.05	0.08	0.05
	07-Jan-2020	0.50	0.52	0.12	0.09	OL	OL	0.12	0.04	0.09	0.09	0.09	0.07	OL	OL	0.13	0.05	0.09	0.06
	08-Jan-2020	0.49	0.52	0.09	0.07	0.08	0.02	0.09	0.05	0.09	0.10	0.11	0.08	0.16	0.07	0.11	0.05	OL	OL
	09-Jan-2020	0.50	0.52	0.08	0.08	0.08	0.03	OL	OL	0.10	0.14	0.11	0.02	0.17	0.09	0.09	0.04	0.09	0.07
	10-Jan-2020	0.42	0.49	0.10	0.10	0.10	0.04	OL	OL	OL	OL	0.12	0.15	0.10	0.07	0.09	0.04	0.08	0.08
	11-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	13-Jan-2020	0.44	0.47	0.09	0.09	0.09	0.03	OL	OL	OL	OL	0.10	0.14	0.14	0.06	0.07	0.04	0.07	0.11
	14-Jan-2020	0.45	0.46	OL	OL	OL	OL	0.07	0.03	0.08	0.06	0.08	0.13	0.08	0.07	0.09	0.06	0.11	0.14
	15-Jan-2020	0.43	0.46	0.08	0.09	0.08	0.02	0.07	0.03	0.10	0.06	0.10	0.16	OL	OL	OL	OL	0.06	0.13
	16-Jan-2020	0.40	0.45	0.07	0.09	0.08	0.03	0.07	0.04	OL	OL	OL	OL	0.07	0.06	0.06	0.06	0.06	0.02
	17-Jan-2020	0.44	0.45	OL	OL	OL	OL	0.07	0.03	0.08	0.05	0.07	0.04	0.08	0.06	0.10	0.08	0.09	0.04
	18-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	19-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	20-Jan-2020	0.44	0.43	0.08	0.08	0.08	0.04	0.08	0.04	OL	OL	OL	OL	0.10	0.05	0.07	0.10	0.07	0.02
	21-Jan-2020	0.46	0.41	0.10	0.08	OL	OL	OL	OL	0.09	0.04	0.11	0.03	0.10	0.06	0.07	0.11	0.07	0.02
	22-Jan-2020	0.42	0.43	OL	OL	0.07	0.04	0.08	0.04	0.09	0.05	0.07	0.03	0.11	0.06	0.10	0.15	OL	OL
	23-Jan-2020	0.44	0.42	0.06	0.08	0.07	0.04	0.06	0.04	OL	OL	0.07	0.02	OL	OL	0.07	0.02	0.06	0.02
	24-Jan-2020	0.44	0.42	0.09	0.08	OL	OL	OL	OL	0.07	0.05	0.10	0.05	0.16	0.06	0.08	0.04	0.09	0.03
	25-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	26-Jan-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	27-Jan-2020	0.44	0.45	0.07	0.07	0.07	0.06	0.07	0.05	OL	OL	0.08	0.03	OL	OL	0.07	0.02	0.06	0.02
	28-Jan-2020	0.46	0.41	0.07	0.08	OL	OL	OL	OL	0.06	0.05	0.09	0.04	0.08	0.05	0.09	0.03	0.07	0.02
	29-Jan-2020	0.40	0.40	OL	OL	0.06	0.07	0.06	0.05	0.07	0.05	0.08	0.02	0.09	0.06	0.08	0.04	OL	OL
	30-Jan-2020	0.45	0.40	0.07	0.07	0.06	0.08	0.07	0.05	0.07	0.06	0.06	0.02	0.09	0.06	OL	OL	OL	OL
	31-Jan-2020	0.43	0.37	0.06	0.08	0.08	0.10	0.08	0.06	OL	OL	0.07	0.03	OL	OL	0.08	0.02	0.06	0.02
Total number of measurements taken, A:		18		15		16		15		19		16		20		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		15		16		15		19		16		20		18			
Compliance with Turbidity Standard, C= B/A X 100%:		100%		100%		100%		100%		100%		100%		100%		100%			

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Filter 6 was off-line for maintenance from January 5, 2020 at 12:28 to January 8, 2020 at 14:05.

Report Compiled By: A. Gordon

Authorized in Sample Manager By: B. Bradford



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

January 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/01/2020	0.54	0.06	0.08	0.03	0.06	0.03	0.08	0.05	0.14	0.03	0.09	0.05	0.12	0.04	0.09	0.03	0.07	
2/01/2020	0.55	0.05	0.11	0.02	0.08	0.03	0.05	0.05	0.12	0.02	0.08	0.04	0.12	0.05	0.07	0.04	0.09	
3/01/2020	0.52	0.04	0.09	0.01	0.07	0.03	0.06	0.06	0.10	0.02	0.04	0.03	0.11	0.04	0.08	0.03	0.08	
4/01/2020	0.52	0.03	0.07	0.02	0.05	0.03	0.06	0.06	0.11	0.04	0.08	0.05	0.08	0.04	0.08	0.03	0.11	
5/01/2020	0.53	0.06	0.12	0.02	0.07	0.03	0.07	0.07	0.13	0.04	0.09	0.00	0.06	0.05	0.10	0.04	0.07	
6/01/2020	0.55	0.05	0.11	0.02	0.05	0.03	0.04	0.07	0.13	0.04	0.19	OL	OL	0.06	0.07	0.05	0.09	
7/01/2020	0.54	0.07	0.12	0.02	0.07	0.04	0.07	0.08	0.12	0.06	0.13	OL	OL	0.05	0.10	0.05	0.11	
8/01/2020	0.54	0.06	0.13	0.02	0.08	0.03	0.07	0.10	0.15	0.07	0.10	0.03	0.09	0.05	0.18	0.05	0.12	
9/01/2020	0.53	0.07	0.09	0.02	0.05	0.03	0.07	0.06	0.16	0.09	0.13	0.05	0.13	0.03	0.07	0.05	0.12	
10/01/2020	0.51	0.09	0.16	0.03	0.08	0.03	0.09	0.04	0.12	0.09	0.18	0.05	0.14	0.04	0.06	0.08	0.11	
11/01/2020	0.51	0.06	0.16	0.02	0.06	0.03	0.06	0.04	0.11	0.09	0.17	0.06	0.10	0.04	0.08	0.07	0.15	
12/01/2020	0.49	0.05	0.13	0.01	0.04	0.03	0.06	0.05	0.25	0.11	0.13	0.04	0.11	0.03	0.07	0.07	0.16	
13/01/2020	0.50	0.08	0.10	0.02	0.06	0.03	0.06	0.04	0.11	0.09	0.17	0.04	0.13	0.03	0.09	0.09	0.14	
14/01/2020	0.61	0.06	0.29	0.04	0.26	0.03	0.16	0.05	0.17	0.10	0.24	0.06	0.18	0.06	0.21	0.08	0.25	
15/01/2020	0.48	0.06	0.13	0.02	0.05	0.03	0.08	0.04	0.09	0.07	0.20	0.05	0.10	0.05	0.09	0.07	0.15	
16/01/2020	0.47	0.08	0.11	0.02	0.06	0.02	0.06	0.03	0.08	0.03	0.08	0.04	0.11	0.05	0.07	0.03	0.05	
17/01/2020	0.49	0.06	0.13	0.02	0.07	0.02	0.06	0.03	0.07	0.02	0.08	0.05	0.07	0.08	0.10	0.03	0.06	
18/01/2020	0.46	0.07	0.22	0.03	0.11	0.03	0.08	0.06	0.12	0.03	0.06	0.05	0.13	0.07	0.14	0.03	0.09	
19/01/2020	0.45	0.06	0.09	0.03	0.06	0.03	0.06	0.03	0.09	0.03	0.07	0.04	0.11	0.07	0.13	0.02	0.06	
20/01/2020	0.45	0.08	0.13	0.03	0.08	0.02	0.06	0.04	0.08	0.01	0.04	0.05	0.10	0.09	0.15	0.03	0.05	
21/01/2020	0.44	0.06	0.11	0.02	0.08	0.02	0.06	0.03	0.06	0.01	0.09	0.04	0.06	0.12	0.13	0.03	0.06	
22/01/2020	0.44	0.06	0.12	0.03	0.06	0.03	0.05	0.05	0.08	0.01	0.07	0.04	0.10	0.04	0.16	0.02	0.06	
23/01/2020	0.44	0.06	0.09	0.04	0.08	0.03	0.07	0.03	0.09	0.02	0.05	0.04	0.11	0.03	0.08	0.02	0.08	
24/01/2020	0.43	0.06	0.13	0.03	0.09	0.03	0.06	0.03	0.09	0.02	0.07	0.04	0.08	0.04	0.06	0.03	0.07	
25/01/2020	0.43	0.05	0.10	0.04	0.08	0.02	0.06	0.04	0.06	0.02	0.05	0.05	0.10	0.03	0.06	0.02	0.07	
26/01/2020	0.42	0.05	0.11	0.05	0.07	0.04	0.06	0.04	0.09	0.01	0.04	0.04	0.11	0.03	0.06	0.02	0.06	
27/01/2020	0.42	0.06	0.10	0.06	0.10	0.03	0.08	0.03	0.13	0.02	0.06	0.04	0.11	0.03	0.06	0.02	0.06	
28/01/2020	0.42	0.05	0.11	0.04	0.10	0.03	0.06	0.03	0.09	0.02	0.06	0.04	0.08	0.03	0.05	0.03	0.06	
29/01/2020	0.42	0.06	0.13	0.07	0.10	0.04	0.07	0.05	0.07	0.02	0.06	0.05	0.10	0.03	0.08	0.00	0.06	
30/01/2020	0.41	0.06	0.11	0.08	0.11	0.04	0.06	0.04	0.09	0.02	0.03	0.05	0.11	0.02	0.06	0.00	0.11	
31/01/2020	0.42	0.06	0.08	0.07	0.13	0.05	0.09	0.04	0.12	0.02	0.06	0.03	0.10	0.02	0.06	0.03	0.05	

Total Number of Measurements Taken, A: 11842 12452 11587 13155 13627 12553 13722 14076
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: 11842 12452 11587 13155 13627 12553 13722 14076
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%
Off Line - OL

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\01-January

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00	Turbidity (NTU)																	
	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
02-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
03-Feb-2020	0.41	0.37	0.16	0.20	0.10	0.15	0.14	0.09	0.13	0.10	0.09	0.03	OL	OL	OL	0.07	0.02	
04-Feb-2020	0.40	0.37	0.24	0.25	0.11	0.16	0.08	0.10	0.13	0.12	0.09	0.04	OL	OL	OL	0.10	0.02	
05-Feb-2020	0.43	0.37	0.11	0.04	OL	OL	0.12	0.13	0.23	0.15	OL	OL	0.08	0.06	0.07	0.03	0.12	0.03
06-Feb-2020	0.42	0.40	0.14	0.06	0.22	0.10	OL	OL	0.16	0.11	0.07	0.00	0.10	0.04	0.10	0.00	OL	OL
07-Feb-2020	0.42	0.39	OL	OL	0.10	0.01	0.09	0.01	0.10	0.06	0.07	0.00	0.12	0.04	0.09	0.00	OL	OL
08-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
09-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10-Feb-2020	0.44	0.37	0.11	0.03	0.09	0.01	0.11	0.03	OL	OL	OL	0.07	0.03	0.08	0.00	0.07	0.00	
11-Feb-2020	0.44	0.36	0.14	0.06	0.09	0.00	0.08	0.02	0.10	0.05	0.10	0.00	0.13	0.03	0.08	0.00	OL	OL
12-Feb-2020	0.43	0.36	0.11	0.05	0.12	0.03	0.10	0.04	0.12	0.07	0.09	0.02	0.10	0.05	OL	OL	0.09	0.00
13-Feb-2020	0.46	0.37	0.10	0.02	OL	OL	0.07	0.02	0.11	0.06	OL	OL	0.09	0.03	0.07	0.00	0.07	0.00
14-Feb-2020	0.42	0.37	0.08	0.02	0.07	0.00	OL	OL	0.08	0.05	OL	OL	0.07	0.03	0.08	0.00	0.08	0.00
15-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	
16-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	
17-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	
18-Feb-2020	0.43	0.35	0.09	0.02	0.09	0.00	0.08	0.03	0.09	0.06	OL	OL	OL	0.06	0.00	0.06	0.00	
19-Feb-2020	0.42	0.36	0.08	0.03	0.07	0.01	0.08	0.04	OL	OL	OL	0.06	0.03	0.07	0.00	0.07	0.00	
20-Feb-2020	0.42	0.34	0.08	0.03	0.07	0.00	0.08	0.02	0.07	0.04	0.10	0.02	0.08	0.03	0.09	0.00	OL	OL
21-Feb-2020	0.42	0.35	OL	OL	0.10	0.02	0.07	0.04	0.08	0.06	0.06	0.00	0.08	0.03	OL	OL	0.06	0.00
22-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.07	0.00	NA	NA	NA	NA	NA	
23-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
24-Feb-2020	0.42	0.35	OL	OL	0.08	0.00	0.06	0.04	0.08	0.06	0.08	0.00	0.09	0.03	0.11	0.07	OL	OL
25-Feb-2020	0.43	0.39	0.09	0.03	OL	OL	0.08	0.06	0.11	0.08	0.09	0.01	0.13	0.07	OL	OL	0.09	0.04
26-Feb-2020	0.43	0.36	0.07	0.02	0.06	0.00	0.07	0.07	OL	OL	0.08	0.01	OL	OL	0.07	0.07	0.07	0.03
27-Feb-2020	0.42	0.37	OL	OL	0.07	0.00	0.06	0.06	0.07	0.05	0.06	0.00	0.08	0.04	0.09	0.08	OL	OL
28-Feb-2020	0.42	0.34	0.06	0.02	OL	OL	0.07	0.07	0.10	0.06	0.07	0.00	OL	OL	0.07	0.06	0.07	0.02
29-Feb-2020	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total number of measurements taken, A:				15		15		17		16		14		14		14		13
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:				15		15		17		16		14		14		14		13
Compliance with Turbidity Standard, C= B/A X 100%:				100%		100%		100%		100%		100%		100%		100%		100%

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Filter 5 was offline for unscheduled maintenance from February 12 at 23:30 to February 20 at 14:00.

Report Compiled By: A. Gordon

Authorized in Sample Manager By: B. Bradford



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

February 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/02/2020	0.39	0.07	0.18	0.06	0.15	0.04	0.09	0.04	0.09	0.02	0.06	0.05	0.08	0.04	0.07	0.02	0.17	
2/02/2020	0.39	0.10	0.33	0.10	0.15	0.06	0.15	0.07	0.12	0.01	0.04	0.05	0.13	0.03	0.07	0.02	0.08	
3/02/2020	0.39	0.12	0.24	0.12	0.19	0.08	0.11	0.07	0.14	0.04	0.08	0.05	0.23	0.03	0.07	0.02	0.09	
4/02/2020	0.38	0.14	0.28	0.12	0.27	0.09	0.16	0.09	0.33	0.03	0.09	0.05	0.21	0.03	0.07	0.03	0.08	
5/02/2020	0.39	0.07	0.42	0.09	0.27	0.04	0.16	0.09	0.29	0.01	0.08	0.04	0.08	0.04	0.06	0.03	0.07	
6/02/2020	0.39	0.04	0.23	0.04	0.41	0.03	0.18	0.09	0.37	0.00	0.04	0.04	0.21	0.01	0.07	0.01	0.04	
7/02/2020	0.38	0.03	0.09	0.00	0.06	0.00	0.04	0.07	0.15	0.00	0.02	0.02	0.13	0.00	0.01	0.00	0.04	
8/02/2020	0.39	0.01	0.06	0.00	0.05	0.00	0.01	0.04	0.10	0.00	0.01	0.02	0.15	0.00	0.01	0.00	0.03	
9/02/2020	0.38	0.01	0.03	0.00	0.03	0.00	0.03	0.04	0.09	0.00	0.02	0.02	0.11	0.00	0.01	0.01	0.02	
10/02/2020	0.39	0.02	0.06	0.00	0.02	0.01	0.03	0.04	0.11	0.00	0.02	0.02	0.05	0.01	0.01	0.00	0.04	
11/02/2020	0.37	0.02	0.06	0.00	0.03	0.01	0.05	0.04	0.09	0.00	0.03	0.02	0.11	0.00	0.01	0.00	0.16	
12/02/2020	0.38	0.02	0.13	0.02	0.21	0.03	0.18	0.06	0.26	0.01	0.14	0.02	0.23	0.00	0.01	0.01	0.12	
13/02/2020	0.38	0.01	0.03	0.00	0.03	0.01	0.05	0.04	0.09	OL	OL	0.02	0.06	0.01	0.01	0.01	0.02	
14/02/2020	0.38	0.02	0.06	0.00	0.12	0.02	0.05	0.05	0.10	OL	OL	0.02	0.07	0.01	0.01	0.01	0.04	
15/02/2020	0.38	0.02	0.06	0.00	0.06	0.02	0.06	0.05	0.12	OL	OL	0.03	0.05	0.01	0.01	0.01	0.04	
16/02/2020	0.38	0.03	0.13	0.01	0.16	0.03	0.14	0.05	0.17	OL	OL	0.04	0.31	0.01	0.08	0.01	0.05	
17/02/2020	0.37	0.02	0.07	0.01	0.06	0.03	0.05	0.04	0.11	OL	OL	0.02	0.34	0.01	0.19	0.01	0.04	
18/02/2020	0.37	0.01	0.07	0.00	0.04	0.03	0.06	0.04	0.11	OL	OL	0.02	0.06	0.01	0.01	0.01	0.02	
19/02/2020	0.37	0.02	0.04	0.00	0.04	0.03	0.06	0.04	0.10	OL	OL	0.03	0.07	0.01	0.01	0.01	0.04	
20/02/2020	0.37	0.02	0.06	0.00	0.02	0.02	0.05	0.03	0.09	0.00	0.05	0.02	0.04	0.01	0.01	0.01	0.04	
21/02/2020	0.37	0.02	0.07	0.00	0.05	0.03	0.05	0.05	0.08	0.00	0.02	0.02	0.05	0.04	0.08	0.01	0.07	
22/02/2020	0.38	0.01	0.03	0.01	0.04	0.04	0.07	0.04	0.11	0.00	0.02	0.02	0.05	0.05	0.09	0.02	0.06	
23/02/2020	0.39	0.02	0.07	0.00	0.01	0.03	0.07	0.04	0.10	0.00	0.02	0.02	0.05	0.06	0.08	0.02	0.07	
24/02/2020	0.37	0.01	0.06	0.00	0.03	0.03	0.07	0.04	0.08	0.00	0.03	0.03	0.05	0.06	0.10	0.02	0.08	
25/02/2020	0.38	0.01	0.05	0.00	0.04	0.05	0.06	0.05	0.10	0.00	0.01	0.03	0.07	0.05	0.11	0.02	0.08	
26/02/2020	0.38	0.01	0.02	0.00	0.03	0.04	0.07	0.03	0.09	0.00	0.04	0.02	0.06	0.05	0.08	0.03	0.06	
27/02/2020	0.57	0.01	0.09	0.00	0.04	0.03	0.11	0.03	0.09	0.00	0.06	0.02	0.08	0.05	0.15	0.01	0.08	
28/02/2020	0.36	0.01	0.02	0.00	0.03	0.06	0.09	0.04	0.09	0.00	0.01	0.02	0.07	0.05	0.11	0.03	0.05	
29/02/2020	0.37	0.01	0.05	0.00	0.02	0.05	0.10	0.03	0.10	0.00	0.03	0.02	0.05	0.08	0.10	0.03	0.08	

Total Number of Measurements Taken, A: 11156 6708 10570 12753 3486 13263 12572 13750

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: 11151 6706 10570 12744 3486 13261 12572 13750

Compliance with Turbidity Standard, C = B/A X 100%: 99.955% 99.970% 100.000% 99.929% 100.000% 99.985% 100.000% 100.000%

Off Line - OL

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\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-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02-Mar-2020		0.41	0.35	OL	OL	0.10	0.03	0.06	0.11	0.08	0.06	0.07	0.00	0.08	0.04	OL	OL	0.06	0.02
03-Mar-2020		0.39	0.37	0.07	0.03	0.07	0.00	0.08	0.12	OL	OL	0.07	0.00	OL	OL	0.07	0.08	0.07	0.03
04-Mar-2020		0.39	0.33	0.07	0.03	0.07	0.00	0.06	0.11	0.07	0.05	OL	OL	0.08	0.03	0.08	0.09	OL	OL
05-Mar-2020		0.38	0.34	0.09	0.03	0.08	0.01	0.06	0.12	0.07	0.07	0.06	0.00	0.08	0.04	0.10	0.12	0.06	0.03
06-Mar-2020		0.37	0.33	0.06	0.02	OL	OL	0.06	0.12	0.10	0.07	0.08	0.00	OL	OL	0.07	0.11	0.07	0.03
07-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09-Mar-2020		0.41	0.35	0.07	0.04	0.08	0.02	0.07	0.15	0.08	0.08	0.06	0.01	0.09	0.05	0.09	0.16	0.06	0.03
10-Mar-2020		0.42	0.35	0.08	0.04	0.07	0.01	0.07	0.16	0.10	0.09	0.08	0.02	0.07	0.05	0.08	0.15	0.08	0.04
11-Mar-2020		0.39	0.34	0.08	0.04	0.06	0.01	0.07	0.01	0.07	0.07	0.10	0.04	0.08	0.05	0.08	0.07	0.07	0.04
12-Mar-2020		0.41	0.36	0.09	0.06	OL	OL	0.06	0.01	0.07	0.09	0.07	0.00	0.09	0.06	OL	OL	0.07	0.04
13-Mar-2020		0.44	0.34	0.06	0.04	OL	OL	0.06	0.01	0.10	0.11	0.09	0.01	OL	OL	0.09	0.06	0.07	0.03
14-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16-Mar-2020		0.43	0.33	0.09	0.07	0.07	0.02	0.08	0.01	0.11	0.13	0.08	0.02	0.09	0.07	0.11	0.10	0.10	0.05
17-Mar-2020		0.40	0.34	0.07	0.08	0.08	0.03	0.07	0.02	0.12	0.17	0.07	0.03	0.13	0.04	0.08	0.07	0.07	0.03
18-Mar-2020		0.39	0.33	0.06	0.04	0.09	0.04	0.08	0.02	0.10	0.16	0.07	0.04	0.08	0.03	0.07	0.08	0.07	0.03
19-Mar-2020		0.42	0.35	0.07	0.04	0.08	0.02	0.06	0.01	0.06	0.05	OL	OL	0.10	0.03	0.09	0.09	OL	OL
20-Mar-2020		0.35	0.34	OL	OL	0.11	0.03	0.06	0.01	0.09	0.06	0.08	0.05	0.10	0.05	OL	OL	0.09	0.03
21-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23-Mar-2020		0.41	0.37	0.08	0.07	0.07	0.05	0.06	0.06	0.07	0.06	0.06	0.08	0.07	0.04	0.08	0.06	0.09	0.06
24-Mar-2020		0.37	0.37	0.22	0.18	0.09	0.07	0.08	0.07	0.11	0.10	0.09	0.08	0.09	0.04	0.09	0.07	0.08	0.06
25-Mar-2020		0.44	0.38	0.09	0.09	OL	OL	OL	OL	OL	OL	0.08	0.09	0.08	0.03	0.08	0.05	0.07	0.06
26-Mar-2020		0.41	0.36	0.11	0.06	0.09	0.02	0.12	0.09	0.10	0.07	0.07	0.09	0.09	0.04	OL	OL	0.08	0.06
27-Mar-2020		0.41	0.40	OL	OL	OL	OL	0.16	0.11	0.11	0.07	0.09	0.11	0.14	0.05	0.07	0.06	0.08	0.08
28-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29-Mar-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Mar-2020		0.45	0.46	0.10	0.05	0.09	0.02	0.11	0.08	0.09	0.06	0.08	0.16	0.08	0.03	0.09	0.08	0.07	0.10
31-Mar-2020		0.45	0.46	0.11	0.07	0.11	0.04	0.12	0.08	0.11	0.08	0.09	0.17	0.09	0.04	0.07	0.06	0.07	0.11
Total number of measurements taken, A:				19			17			21			20			20			18
Turbidity Standard for Monitoring Location (NTU):				0.30			0.30			0.30			0.30			0.30			20
Number of measurements meeting standard, B:				19			17			21			20			19			18
Compliance with Turbidity Standard, C= B/A X 100%:				100%			100%			100%			100%			100%			20

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

Authorized in Sample Manager By: B. Bradford



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

March 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/03/2020	0.37	0.01	0.05	0.00	0.03	0.06	0.12	0.04	0.09	0.00	0.02	0.03	0.09	0.06	0.11	0.02	0.06	
2/03/2020	0.38	0.01	0.06	0.00	0.04	0.09	0.11	0.05	0.09	0.00	0.00	0.02	0.05	0.05	0.11	0.02	0.04	
3/03/2020	0.36	0.02	0.16	0.01	0.11	0.07	0.14	0.04	0.16	0.00	0.07	0.02	0.06	0.07	0.12	0.03	0.08	
4/03/2020	0.36	0.01	0.06	0.00	0.02	0.07	0.14	0.03	0.09	0.00	0.02	0.02	0.05	0.10	0.12	0.02	0.07	
5/03/2020	0.35	0.01	0.05	0.00	0.02	0.10	0.12	0.05	0.08	0.00	0.01	0.03	0.05	0.08	0.14	0.02	0.07	
6/03/2020	0.35	0.01	0.05	0.00	0.02	0.10	0.14	0.04	0.10	0.00	0.03	0.02	0.10	0.08	0.15	0.03	0.06	
7/03/2020	0.34	0.02	0.05	0.00	0.02	0.09	0.15	0.04	0.11	0.00	0.03	0.02	0.06	0.12	0.14	0.03	0.07	
8/03/2020	0.36	0.02	0.06	0.00	0.03	0.09	0.14	0.05	0.10	0.00	0.03	0.04	0.06	0.10	0.16	0.02	0.07	
9/03/2020	0.36	0.02	0.07	0.00	0.04	0.14	0.17	0.06	0.11	0.00	0.02	0.03	0.07	0.10	0.18	0.03	0.05	
10/03/2020	0.36	0.03	0.04	0.00	0.04	0.11	0.19	0.05	0.12	0.00	0.04	0.03	0.09	0.13	0.17	0.04	0.07	
11/03/2020	0.36	0.02	0.06	0.00	0.02	0.06	0.16	0.05	0.12	0.00	0.04	0.03	0.06	0.09	0.20	0.03	0.08	
12/03/2020	0.37	0.03	0.07	0.00	0.03	0.00	0.01	0.08	0.10	0.00	0.01	0.04	0.07	0.05	0.10	0.03	0.08	
13/03/2020	0.36	0.03	0.04	0.01	0.06	0.01	0.02	0.07	0.13	0.01	0.05	0.03	0.08	0.05	0.10	0.04	0.05	
14/03/2020	0.38	0.05	0.10	0.01	0.12	0.01	0.04	0.07	0.16	0.02	0.13	0.04	0.13	0.05	0.08	0.04	0.08	
15/03/2020	0.40	0.05	0.09	0.01	0.05	0.01	0.03	0.08	0.13	0.01	0.05	0.05	0.08	0.08	0.10	0.03	0.09	
16/03/2020	0.36	0.04	0.11	0.01	0.04	0.01	0.02	0.12	0.16	0.01	0.05	0.05	0.13	0.06	0.11	0.03	0.07	
17/03/2020	0.36	0.04	0.13	0.02	0.05	0.01	0.04	0.09	0.18	0.02	0.05	0.03	0.10	0.06	0.11	0.03	0.05	
18/03/2020	0.37	0.05	0.18	0.01	0.04	0.00	0.02	0.07	0.17	0.02	0.07	0.02	0.11	0.07	0.10	0.04	0.07	
19/03/2020	0.37	0.02	0.06	0.01	0.04	0.00	0.02	0.04	0.08	0.02	0.07	0.03	0.05	0.08	0.12	0.03	0.07	
20/03/2020	0.37	0.02	0.07	0.02	0.03	0.01	0.05	0.04	0.09	0.03	0.05	0.02	0.11	0.07	0.13	0.03	0.07	
21/03/2020	0.37	0.03	0.09	0.02	0.06	0.04	0.07	0.04	0.09	0.04	0.08	0.02	0.17	0.05	0.09	0.05	0.06	
22/03/2020	0.37	0.04	0.19	0.03	0.10	0.04	0.11	0.04	0.14	0.04	0.08	0.02	0.06	0.07	0.09	0.04	0.08	
23/03/2020	0.40	0.04	0.28	0.04	0.11	0.04	0.08	0.06	0.13	0.04	0.10	0.03	0.09	0.06	0.09	0.04	0.08	
24/03/2020	0.40	0.07	0.26	0.26	0.51	0.07	0.21	0.08	0.16	0.05	0.09	0.03	0.10	0.05	0.10	0.04	0.09	
25/03/2020	0.78	0.10	0.88	0.03	1.00	0.06	0.94	0.07	0.49	0.08	0.86	0.02	0.24	0.06	0.68	0.07	0.74	
26/03/2020	0.39	0.05	0.21	0.02	0.11	0.04	0.17	0.06	0.16	0.06	0.13	0.04	0.13	0.04	0.09	0.04	0.11	
27/03/2020	0.41	0.06	0.36	0.03	0.28	0.05	0.11	0.06	0.10	0.08	0.13	0.03	0.06	0.04	0.09	0.07	0.10	
28/03/2020	0.41	0.04	0.16	0.01	0.04	0.04	0.07	0.04	0.10	0.10	0.14	0.02	0.06	0.06	0.08	0.06	0.12	
29/03/2020	0.42	0.03	0.05	0.01	0.04	0.05	0.08	0.04	0.09	0.09	0.18	0.02	0.06	0.05	0.09	0.07	0.13	
30/03/2020	0.45	0.04	0.08	0.02	0.05	0.05	0.09	0.04	0.10	0.10	0.20	0.03	0.05	0.05	0.10	0.07	0.14	
31/03/2020	0.46	0.04	0.09	0.02	0.07	0.05	0.10	0.07	0.12	0.11	0.20	0.03	0.06	0.05	0.10	0.10	0.13	

Total Number of Measurements Taken, A: 11494
Turbidity Standard for Monitoring Location (NTU): 0.3
Number of Measurements Meeting Standard, B: 11437
Compliance with Turbidity Standard, C = B/A X 100%: 99.504%

9804 11088 13694 9697 14063 13063 14553
0.3 0.3 0.3 0.3 0.3 0.3 0.3
9766 11067 13681 9657 14063 13034 14524
99.612% 99.811% 99.905% 99.588% 100.000% 99.778% 99.801%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\03-March

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Apr-2020		0.44	0.44	0.11	0.05	0.12	0.04	0.09	0.07	0.13	0.10	0.07	0.19	0.11	0.04	0.08	0.06	0.09	0.13
02-Apr-2020		0.47	0.47	0.08	0.02	0.12	0.02	0.09	0.06	OL	OL	0.10	0.00	0.09	0.03	OL	OL	0.09	0.05
03-Apr-2020		0.53	0.51	0.09	0.04	0.07	0.02	0.13	0.06	0.09	0.03	OL	OL	0.08	0.04	0.09	0.04	OL	OL
04-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06-Apr-2020		0.49	0.48	0.08	0.02	0.09	0.01	0.10	0.05	0.12	0.04	0.11	0.00	0.09	0.03	0.09	0.03	0.10	0.06
07-Apr-2020		0.51	0.55	0.11	0.04	0.09	0.03	0.11	0.07	0.10	0.03	0.09	0.04	0.08	0.03	0.07	0.03	0.10	0.05
08-Apr-2020		0.47	0.51	OL	OL	OL	OL	0.06	0.04	0.09	0.03	0.08	0.04	0.09	0.04	0.07	0.04	0.07	0.04
09-Apr-2020		0.53	0.57	0.09	0.04	0.09	0.03	0.11	0.06	0.10	0.04	0.08	0.05	OL	OL	OL	OL	0.10	0.05
10-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14-Apr-2020		0.48	0.66	0.08	0.02	0.08	0.01	0.10	0.08	0.07	0.02	0.10	0.07	0.07	0.04	0.08	0.03	0.06	0.04
15-Apr-2020		0.58	0.71	0.10	0.05	0.09	0.05	0.10	0.06	0.09	0.04	0.08	0.07	0.09	0.04	0.08	0.04	0.07	0.05
16-Apr-2020		0.47	0.60	0.10	0.02	0.07	0.02	0.07	0.05	0.10	0.03	0.07	0.06	OL	OL	OL	OL	0.06	0.05
17-Apr-2020		0.62	0.56	0.08	0.03	0.07	0.02	0.12	0.05	OL	OL	0.09	0.08	0.09	0.02	0.07	0.03	OL	OL
18-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20-Apr-2020		0.51	0.62	0.09	0.01	0.07	0.01	0.06	0.04	0.09	0.04	0.08	0.09	0.08	0.03	0.08	0.04	0.08	0.06
21-Apr-2020		0.50	0.67	0.08	0.02	0.07	0.01	0.08	0.05	0.07	0.02	0.07	0.10	0.08	0.03	0.07	0.03	0.07	0.06
22-Apr-2020		0.54	0.65	0.09	0.02	0.09	0.02	0.08	0.05	0.09	0.03	0.08	0.11	0.08	0.04	0.08	0.04	0.06	0.06
23-Apr-2020		0.47	0.62	OL	OL	OL	OL	0.08	0.06	0.11	0.05	0.08	0.14	0.12	0.06	0.16	0.06	0.07	0.06
24-Apr-2020		0.70	0.68	0.14	0.06	0.12	0.05	0.12	0.08	OL	OL	0.09	0.04	0.08	0.04	OL	OL	0.14	0.09
25-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26-Apr-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27-Apr-2020		0.53	0.68	0.09	0.04	0.08	0.02	0.08	0.05	0.10	0.05	0.08	0.02	0.08	0.03	0.07	0.05	0.08	0.08
28-Apr-2020		0.52	0.63	0.08	0.02	0.07	0.02	0.07	0.04	0.07	0.02	0.06	0.01	0.07	0.03	0.07	0.04	0.06	0.07
29-Apr-2020		0.48	0.68	0.07	0.04	0.07	0.02	0.06	0.04	0.06	0.03	0.06	0.00	0.07	0.03	0.07	0.05	0.06	0.07
30-Apr-2020		0.63	0.68	0.09	0.04	OL	OL	0.07	0.04	0.08	0.04	0.06	0.02	OL	OL	0.07	0.06	0.08	0.07
Total number of measurements taken, A:				18			17		20		17		19		17		16		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			17		20		17		19		17		16		18
Compliance with Turbidity Standard, C= B/A X 100%:				100%			100%		100%		100%		100%		100%		100%		100%

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

Authorized By: B. Bradford

Date Compiled: 7-May-20



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

April 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/04/2020	0.49	0.03	0.11		0.02	0.07	0.05	0.10	0.05	0.12	0.08	0.19	0.03	0.06	0.05	0.08	0.07	0.16
2/04/2020	0.48	0.02	0.05		0.01	0.04	0.05	0.10	0.03	0.07	0.00	0.02	0.02	0.05	0.02	0.12	0.04	0.08
3/04/2020	0.49	0.02	0.07		0.01	0.03	0.04	0.07	0.02	0.07	0.00	0.03	0.02	0.05	0.03	0.07	0.03	0.08
4/04/2020	0.48	0.02	0.05		0.01	0.04	0.03	0.07	0.02	0.07	0.00	0.03	0.03	0.05	0.05	0.07	0.03	0.06
5/04/2020	0.48	0.01	0.05		0.01	0.04	0.03	0.06	0.02	0.08	0.00	0.01	0.02	0.05	0.03	0.09	0.05	0.08
6/04/2020	0.50	0.02	0.04		0.01	0.03	0.05	0.07	0.02	0.07	0.00	0.05	0.02	0.04	0.03	0.06	0.03	0.07
7/04/2020	0.53	0.02	0.08		0.02	0.06	0.04	0.08	0.02	0.07	0.02	0.07	0.02	0.32	0.03	0.05	0.03	0.07
8/04/2020	0.51	0.01	0.05		0.01	0.03	0.03	0.08	0.02	0.05	0.02	0.07	0.02	0.05	0.04	0.09	0.04	0.06
9/04/2020	0.57	0.02	0.07		0.01	0.05	0.05	0.07	0.03	0.07	0.04	0.07	0.02	0.05	0.04	0.07	0.05	0.08
10/04/2020	0.62	0.02	0.04		0.01	0.03	0.05	0.07	0.02	0.07	0.05	0.08	0.03	0.09	0.04	0.10	0.05	0.09
11/04/2020	0.58	0.02	0.06		0.01	0.04	0.04	0.07	0.02	0.05	0.04	0.08	0.03	0.07	0.04	0.07	0.04	0.08
12/04/2020	0.62	0.01	0.05		0.00	0.04	0.03	0.06	0.02	0.06	0.04	0.06	0.02	0.05	0.04	0.08	0.05	0.07
13/04/2020	0.61	0.01	0.02		0.00	0.02	0.03	0.05	0.01	0.04	0.05	0.08	0.02	0.05	0.03	0.08	0.04	0.08
14/04/2020	0.66	0.02	0.05		0.02	0.06	0.04	0.08	0.01	0.07	0.04	0.08	0.02	0.04	0.03	0.05	0.04	0.09
15/04/2020	0.67	0.03	0.06		0.02	0.06	0.04	0.08	0.04	0.07	0.04	0.10	0.02	0.04	0.04	0.09	0.04	0.07
16/04/2020	0.60	0.01	0.06		0.01	0.04	0.04	0.07	0.03	0.06	0.06	0.08	0.01	0.04	0.03	0.08	0.05	0.08
17/04/2020	0.63	0.02	0.03		0.01	0.02	0.04	0.07	0.01	0.06	0.05	0.09	0.02	0.05	0.03	0.09	0.04	0.08
18/04/2020	0.56	0.01	0.04		0.00	0.03	0.03	0.06	0.01	0.05	0.05	0.09	0.02	0.04	0.04	0.05	0.04	0.08
19/04/2020	0.63	0.01	0.03		0.01	0.03	0.03	0.07	0.03	0.07	0.06	0.10	0.02	0.05	0.04	0.08	0.06	0.08
20/04/2020	0.62	0.01	0.02		0.00	0.03	0.03	0.05	0.02	0.04	0.09	0.11	0.02	0.05	0.03	0.08	0.05	0.08
21/04/2020	0.62	0.01	0.04		0.01	0.05	0.03	0.06	0.01	0.04	0.06	0.12	0.01	0.03	0.03	0.09	0.04	0.08
22/04/2020	0.63	0.01	0.04		0.01	0.03	0.03	0.08	0.02	0.07	0.07	0.14	0.02	0.04	0.05	0.06	0.04	0.08
23/04/2020	0.70	0.02	0.09		0.02	0.08	0.03	0.09	0.04	0.09	0.08	0.14	0.03	0.05	0.05	0.09	0.08	0.10
24/04/2020	0.74	0.05	0.09		0.03	0.08	0.08	0.10	0.04	0.12	0.03	0.10	0.03	0.08	0.05	0.11	0.06	0.11
25/04/2020	0.74	0.04	0.10		0.04	0.10	0.05	0.10	0.04	0.11	0.03	0.08	0.04	0.08	0.06	0.09	0.06	0.13
26/04/2020	0.72	0.03	0.09		0.02	0.07	0.04	0.09	0.04	0.08	0.02	0.06	0.04	0.08	0.08	0.11	0.07	0.13
27/04/2020	0.70	0.02	0.05		0.01	0.04	0.03	0.05	0.02	0.08	0.01	0.05	0.02	0.06	0.04	0.12	0.07	0.13
28/04/2020	0.67	0.02	0.03		0.01	0.02	0.03	0.05	0.02	0.05	0.00	0.03	0.01	0.04	0.04	0.09	0.05	0.09
29/04/2020	0.70	0.02	0.05		0.01	0.03	0.02	0.05	0.02	0.06	0.00	0.02	0.02	0.04	0.04	0.07	0.05	0.10
30/04/2020	0.73	0.03	0.06		0.02	0.04	0.02	0.06	0.04	0.38	0.00	0.02	0.02	0.04	0.06	0.11	0.07	0.10

Total Number of Measurements Taken, A: 11201
Turbidity Standard for Monitoring Location (NTU): 0.3
Number of Measurements Meeting Standard, B: 11201
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%

11566 11771 13233 11532 13599 12892 14416
0.3 0.3 0.3 0.3 0.3 0.3 0.3
11771 13232 11532 13598 12892 14416
100.000% 99.992% 100.000% 99.993% 100.000% 100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\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-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-May-2020		0.77	0.71	0.09	0.05	0.08	0.03	0.11	0.05	OL	OL	0.06	0.01	0.14	0.02	OL	OL	0.07	0.07
02-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
03-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
04-May-2020		0.56	0.80	0.08	0.09	0.08	0.05	0.08	0.05	0.09	0.12	0.07	0.00	0.07	0.07	0.07	0.11	0.06	0.10
05-May-2020		0.56	0.89	0.09	0.05	0.07	0.03	0.08	0.05	0.09	0.16	0.07	0.01	0.07	0.06	0.06	0.12	0.06	0.02
06-May-2020		0.62	1.01	0.09	0.06	0.10	0.03	0.10	0.06	0.09	0.16	0.07	0.01	0.07	0.08	0.06	0.05	0.06	0.02
07-May-2020		0.61	0.95	OL	OL	OL	OL	0.09	0.06	0.09	0.17	0.08	0.01	0.09	0.07	0.08	0.05	0.10	0.02
08-May-2020		0.83	0.94	0.08	0.05	0.07	0.02	0.11	0.05	0.10	0.16	0.10	0.02	OL	OL	OL	OL	0.08	0.03
09-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-May-2020		0.60	0.96	0.08	0.05	0.08	0.03	0.06	0.04	0.10	0.06	0.06	0.00	0.07	0.06	0.07	0.05	0.07	0.03
12-May-2020		0.55	0.93	0.07	0.06	0.07	0.02	0.07	0.05	0.08	0.02	0.07	0.01	0.07	0.05	0.07	0.06	0.07	0.03
13-May-2020		0.59	0.79	0.08	0.06	0.07	0.02	0.07	0.05	0.06	0.01	0.07	0.00	0.07	0.06	0.06	0.05	0.07	0.04
14-May-2020		0.82	0.83	OL	OL	0.08	0.02	OL	OL	0.07	0.02	0.10	0.00	0.09	0.07	0.09	0.05	0.08	0.03
15-May-2020		0.65	0.81	0.09	0.06	OL	OL	0.10	0.05	0.08	0.02	0.08	0.00	OL	OL	0.08	0.06	0.06	0.03
16-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19-May-2020		0.56	0.92	0.07	0.08	0.06	0.04	0.06	0.07	0.08	0.03	0.06	0.00	0.08	0.07	0.07	0.09	0.06	0.04
20-May-2020		0.63	0.82	0.08	0.10	0.07	0.06	0.07	0.08	0.11	0.04	0.07	0.02	0.06	0.08	0.06	0.09	0.07	0.05
21-May-2020		0.67	0.82	0.10	0.12	0.09	0.08	0.11	0.10	0.10	0.04	0.08	0.06	0.08	0.09	0.08	0.13	0.07	0.05
22-May-2020		0.68	0.96	OL	OL	0.12	0.10	OL	OL	0.11	0.07	0.08	0.08	0.10	0.12	0.08	0.17	0.08	0.04
23-May-2020		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24-May-2020		0.75	1.02	0.10	0.09	0.08	0.04	0.07	0.05	0.09	0.15	0.08	0.07	0.08	0.05	0.09	0.04	0.10	0.07
25-May-2020		0.62	1.02	OL	OL	0.09	0.05	0.07	0.05	0.12	0.09	0.08	0.07	0.07	0.05	0.08	0.06	0.07	0.09
26-May-2020		NA	NA	OL	OL	NA													
27-May-2020		0.76	1.11	OL	OL	0.08	0.01	0.07	0.03	0.07	0.07	0.08	0.02	0.09	0.04	0.08	0.08	0.09	0.03
28-May-2020		0.87	1.08	OL	OL	0.09	0.00	0.07	0.04	0.10	0.07	0.09	0.02	0.09	0.05	0.09	0.06	OL	OL
29-May-2020		0.69	1.09	OL	OL	0.08	0.00	0.08	0.04	0.12	0.09	0.11	0.02	0.16	0.04	0.10	0.06	OL	OL
30-May-2020		NA	NA	OL	OL	NA													
31-May-2020		0.65	0.90	OL	OL	OL	OL	0.07	0.03	0.08	0.08	0.09	0.01	0.11	0.05	0.08	0.12	0.07	0.02
Total number of measurements taken, A:				13			18			19			20			21			19
Turbidity Standard for Monitoring Location (NTU):				0.30			0.30			0.30			0.30			0.30			0.30
Number of measurements meeting standard, B:				13			18			19			20			21			19
Compliance with Turbidity Standard, C= B/A X 100%:				100%			100%			100%			100%			100%			100%

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:
Filter 1 was offline for maintenance from May 25-31, 2020.

Report Compiled By: H. Demchenko

Authorized in Sample Manager By: B. Bradford



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

May 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/05/2020	0.74	0.03	0.05	0.02	0.04	0.03	0.05	0.04	0.08	0.00	0.04	0.02	0.04	0.04	0.11	0.06	0.09	
2/05/2020	0.81	0.07	0.22	0.04	0.19	0.04	0.22	0.05	0.18	0.00	0.08	0.02	0.08	0.05	0.16	0.05	0.11	
3/05/2020	0.83	0.06	0.11	0.04	0.06	0.03	0.09	0.08	0.12	0.00	0.03	0.04	0.07	0.10	0.12	0.06	0.11	
4/05/2020	0.79	0.05	0.10	0.02	0.06	0.03	0.07	0.12	0.17	0.00	0.02	0.04	0.08	0.09	0.16	0.10	0.14	
5/05/2020	0.94	0.04	0.06	0.02	0.04	0.05	0.07	0.10	0.19	0.00	0.03	0.04	0.08	0.06	0.15	0.03	0.12	
6/05/2020	1.05	0.04	0.10	0.03	0.06	0.04	0.09	0.11	0.20	0.00	0.05	0.05	0.12	0.04	0.07	0.02	0.06	
7/05/2020	0.98	0.04	0.11	0.02	0.07	0.04	0.10	0.15	0.19	0.00	0.05	0.04	0.09	0.05	0.10	0.02	0.06	
8/05/2020	0.98	0.03	0.10	0.01	0.05	0.04	0.09	0.06	0.18	0.01	0.03	0.04	0.09	0.04	0.09	0.03	0.06	
9/05/2020	0.95	0.04	0.06	0.01	0.04	0.04	0.08	0.04	0.10	0.00	0.04	0.04	0.09	0.03	0.10	0.02	0.06	
10/05/2020	1.00	0.03	0.08	0.01	0.04	0.03	0.09	0.04	0.08	0.00	0.02	0.05	0.10	0.04	0.07	0.02	0.06	
11/05/2020	0.98	0.03	0.09	0.01	0.05	0.03	0.07	0.06	0.10	0.00	0.02	0.04	0.10	0.05	0.11	0.03	0.06	
12/05/2020	0.97	0.04	0.06	0.01	0.05	0.04	0.05	0.02	0.10	0.00	0.06	0.04	0.09	0.04	0.15	0.03	0.09	
13/05/2020	0.87	0.05	0.10	0.01	0.03	0.03	0.07	0.01	0.05	0.00	0.03	0.04	0.10	0.04	0.12	0.03	0.06	
14/05/2020	0.89	0.04	0.09	0.01	0.07	0.03	0.08	0.01	0.04	0.00	0.04	0.05	0.08	0.05	0.08	0.03	0.07	
15/05/2020	0.88	0.04	0.09	0.01	0.05	0.03	0.09	0.01	0.07	0.00	0.02	0.04	0.09	0.05	0.12	0.04	0.08	
16/05/2020	0.91	0.06	0.09	0.02	0.06	0.06	0.07	0.01	0.07	0.00	0.04	0.04	0.10	0.05	0.11	0.03	0.07	
17/05/2020	0.93	0.07	0.11	0.03	0.06	0.04	0.10	0.02	0.07	0.00	0.07	0.06	0.11	0.05	0.09	0.03	0.08	
18/05/2020	0.83	0.05	0.12	0.02	0.06	0.04	0.10	0.02	0.07	0.00	0.03	0.05	0.14	0.08	0.10	0.03	0.07	
19/05/2020	0.85	0.06	0.12	0.03	0.08	0.05	0.10	0.02	0.22	0.00	0.09	0.05	0.14	0.06	0.12	0.04	0.08	
20/05/2020	0.88	0.07	0.10	0.04	0.10	0.07	0.10	0.03	0.12	0.02	0.08	0.05	0.20	0.07	0.14	0.04	0.09	
21/05/2020	0.94	0.10	0.14	0.07	0.11	0.07	0.12	0.03	0.10	0.04	0.12	0.06	0.12	0.11	0.16	0.04	0.09	
22/05/2020	1.00	0.07	0.16	0.06	0.14	0.05	0.14	0.05	0.13	0.05	0.12	0.08	0.14	0.11	0.19	0.04	0.11	
23/05/2020	1.01	0.06	0.13	0.03	0.09	0.04	0.10	0.08	0.15	0.05	0.10	0.03	0.12	0.05	0.07	0.05	0.18	
24/05/2020	1.07	0.04	0.10	0.03	0.07	0.04	0.07	0.08	0.21	0.05	0.10	0.03	0.13	0.04	0.08	0.07	0.11	
25/05/2020	1.11	OL	OL	0.02	0.07	0.04	0.07	0.06	0.13	0.04	0.14	0.04	0.30	0.05	0.10	0.05	0.12	
26/05/2020	1.09	OL	OL	0.00	0.06	0.03	0.06	0.06	0.25	0.01	0.05	0.03	0.11	0.06	0.11	0.02	0.06	
27/05/2020	1.78	OL	OL	0.00	0.04	0.03	0.05	0.07	0.23	0.01	0.04	0.03	0.11	0.06	0.11	0.02	0.08	
28/05/2020	1.47	OL	OL	0.00	0.03	0.03	0.06	0.07	0.13	0.01	0.04	0.03	0.11	0.06	0.11	0.03	0.10	
29/05/2020	1.10	OL	OL	0.00	0.04	0.03	0.05	0.06	0.12	0.00	0.05	0.03	0.14	0.06	0.10	0.02	0.07	
30/05/2020	0.97	OL	OL	0.00	0.03	0.03	0.05	0.07	0.12	0.01	0.06	0.04	0.10	0.07	0.11	0.02	0.09	
31/05/2020	0.87	OL	OL	0.00	0.02	0.02	0.04	0.07	0.12	0.01	0.07	0.04	0.12	0.08	0.13	0.03	0.08	

Total Number of Measurements Taken, A: 9603 12662 13791 15119 9530 15724 14861 15890
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: 9603 12662 13791 15119 9530 15724 14861 15890
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%

OL - Off Line

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\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		Turbidity (NTU)																	
Licence No. PWS-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Jun-2020		0.62	0.82	OL	OL	0.06	0.00	0.06	0.03	0.09	0.10	0.07	0.04	0.08	0.06	0.08	0.10	0.07	0.04
02-Jun-2020		NS	NS	OL	OL	NS													
03-Jun-2020		0.60	0.79	OL	OL	0.08	0.03	0.09	0.03	0.09	0.10	0.09	0.06	0.10	0.11	0.08	0.10	0.08	0.04
04-Jun-2020		0.77	0.76	OL	OL	OL	OL	0.09	0.04	0.09	0.09	0.10	0.05	0.10	0.09	0.09	0.08	0.09	0.07
05-Jun-2020		0.72	0.84	0.09	0.03	0.08	0.12	OL	OL	0.08	0.04	0.08	0.05	0.09	0.08	0.09	0.06	0.08	0.03
06-Jun-2020		NS	NS	0.11	0.07	NS													
07-Jun-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Jun-2020		0.57	1.08	0.10	0.07	0.09	0.04	0.09	0.04	0.09	0.04	0.09	0.07	0.09	0.03	0.11	0.08	0.10	0.04
09-Jun-2020		0.55	1.08	0.11	0.08	0.11	0.06	0.11	0.06	0.10	0.05	0.11	0.08	0.11	0.05	0.09	0.06	0.09	0.02
10-Jun-2020		0.58	0.69	0.11	0.08	0.13	0.07	0.13	0.08	0.12	0.07	0.10	0.08	0.12	0.06	0.10	0.07	0.09	0.03
11-Jun-2020		0.66	0.86	0.11	0.07	OL	OL	0.10	0.05	0.14	0.08	0.11	0.07	OL	OL	0.12	0.08	0.12	0.04
12-Jun-2020		0.63	0.74	0.10	0.07	0.11	0.05	0.10	0.06	OL	OL	0.10	0.04	OL	OL	0.13	0.01	0.12	0.04
13-Jun-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Jun-2020		0.75	0.74	0.12	0.08	0.14	0.08	0.11	0.07	0.12	0.18	0.11	0.08	0.14	0.09	0.11	0.10	0.11	0.04
15-Jun-2020		0.76	0.85	0.11	0.08	0.17	0.12	0.11	0.07	0.17	0.24	0.12	0.11	0.17	0.11	0.14	0.12	0.12	0.07
16-Jun-2020		0.73	1.02	0.15	0.10	0.14	0.09	0.14	0.09	0.19	0.23	0.13	0.10	0.13	0.08	0.17	0.12	0.15	0.09
17-Jun-2020		0.72	0.94	0.18	0.13	0.16	0.10	0.16	0.11	0.14	0.19	0.19	0.17	0.15	0.11	0.13	0.11	OL	OL
18-Jun-2020		0.81	0.90	0.15	0.20	0.13	0.05	0.14	0.11	0.14	0.13	0.16	0.11	0.12	0.07	0.12	0.08	OL	OL
19-Jun-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Jun-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Jun-2020		1.07	1.20	0.10	0.03	0.10	0.02	0.10	0.05	0.13	0.10	0.10	0.02	0.10	0.06	0.11	0.07	0.13	0.03
22-Jun-2020		0.83	1.03	0.08	0.03	0.10	0.02	0.08	0.05	0.09	0.07	0.08	0.02	0.10	0.05	0.10	0.06	0.10	0.03
23-Jun-2020		0.95	1.00	0.10	0.05	0.09	0.03	0.10	0.06	0.08	0.08	0.09	0.03	0.10	0.05	0.08	0.05	0.09	0.01
24-Jun-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Jun-2020		1.11	1.13	0.10	0.05	0.09	0.03	0.10	0.06	0.12	0.11	0.11	0.03	OL	OL	0.12	0.08	0.12	0.05
26-Jun-2020		1.14	1.19	0.11	0.05	0.10	0.04	0.13	0.07	0.12	0.10	0.14	0.05	0.16	0.09	OL	OL	0.16	0.09
27-Jun-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Jun-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Jun-2020		1.12	1.20	0.07	0.02	0.09	0.02	0.08	0.04	0.11	0.09	0.09	0.02	0.17	0.13	0.12	0.08	0.11	0.04
30-Jun-2020		1.26	1.04	0.09	0.02	0.09	0.01	0.08	0.05	0.13	0.12	0.11	0.02	0.12	0.07	0.17	0.12	0.14	0.07
Total number of measurements taken, A:				19			20			21			18			20		19	
Turbidity Standard for Monitoring Location (NTU):				0.30			0.30			0.30			0.30			0.30		0.30	
Number of measurements meeting standard, B:				19			20			21			18			20		19	
Compliance with Turbidity Standard, C= B/A X 100%:				100%			100%			100%			100%			100%		100%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: INstrument Maintenance

 Report Compiled By: H. Demchenko

Filter 1 was offline for scheduled maintenance from May 25 to June 5, 2020.

 Authorized in Sample Manager By: B. Bradford

 Date Authorized: 7-Jul-20



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

June 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/06/2020	0.85	OL	OL	OL	0.00	0.04	0.02	0.05	0.10	0.13	0.02	0.09	0.06	0.13	0.10	0.21	0.04	0.10
2/06/2020	0.91	OL	OL	OL	0.01	0.04	0.02	0.05	0.09	0.16	0.04	0.34	0.08	0.14	0.12	0.29	0.04	0.09
3/06/2020	0.85	OL	OL	OL	0.03	0.07	0.02	0.05	0.07	0.46	0.04	0.08	0.07	0.25	0.09	0.13	0.05	0.10
4/06/2020	0.83	OL	OL	OL	0.07	0.10	0.02	0.07	0.08	0.14	0.04	0.23	0.07	0.16	0.08	0.23	0.07	0.14
5/06/2020	0.91	0.00	0.11	0.05	0.14	0.02	0.07	0.03	0.35	0.04	0.09	0.08	0.13	0.06	0.09	0.03	0.07	
6/06/2020	0.93	0.05	0.19	0.04	0.09	0.04	0.09	0.05	0.09	0.06	0.14	0.06	0.15	0.07	0.11	0.03	0.08	
7/06/2020	1.03	0.05	0.11	0.04	0.10	0.04	0.09	0.04	0.10	0.05	0.11	0.04	0.10	0.08	0.13	0.03	0.08	
8/06/2020	1.10	0.06	0.08	0.04	0.09	0.04	0.10	0.05	0.11	0.07	0.11	0.04	0.11	0.07	0.13	0.04	0.09	
9/06/2020	0.77	0.06	0.12	0.04	0.08	0.06	0.08	0.04	0.13	0.06	0.12	0.03	0.07	0.07	0.13	0.04	0.11	
10/06/2020	0.73	0.05	0.14	0.05	0.11	0.04	0.12	0.05	0.08	0.05	0.14	0.05	0.15	0.05	0.14	0.03	0.11	
11/06/2020	0.85	0.04	0.14	0.04	0.13	0.04	0.14	0.06	0.14	0.05	0.09	0.04	0.28	0.08	0.13	0.04	0.07	
12/06/2020	0.85	0.06	0.09	0.03	0.12	0.04	0.07	0.09	0.19	0.08	0.14	0.04	0.14	0.08	0.15	0.04	0.12	
13/06/2020	0.91	0.05	0.14	0.05	0.80	0.05	0.14	0.13	0.24	0.06	0.16	0.04	0.10	0.08	0.16	0.04	0.11	
14/06/2020	0.93	0.05	0.13	0.05	0.12	0.05	0.14	0.16	0.22	0.06	0.16	0.08	0.14	0.08	0.13	0.04	0.13	
15/06/2020	1.02	0.06	0.16	0.06	0.14	0.06	0.16	0.16	0.33	0.07	0.12	0.08	0.17	0.13	0.18	0.07	0.10	
16/06/2020	1.15	0.09	0.15	0.07	0.17	0.07	0.19	0.15	0.35	0.11	0.19	0.07	0.18	0.10	0.23	0.08	0.17	
17/06/2020	1.30	0.12	0.31	0.09	0.21	0.10	0.23	0.15	0.34	0.07	0.19	0.07	0.16	0.10	0.35	0.06	0.20	
18/06/2020	0.98	0.16	0.28	0.04	0.13	0.10	0.18	0.12	0.19	0.06	0.16	0.06	0.13	0.08	0.16	0.05	0.13	
19/06/2020	1.15	0.07	0.28	0.04	0.25	0.08	0.29	0.09	0.31	0.03	1.21	0.05	0.17	0.06	0.15	0.04	0.11	
20/06/2020	1.31	0.04	0.13	0.02	0.07	0.05	0.10	0.09	0.12	0.02	0.06	0.05	0.12	0.06	0.09	0.03	0.08	
21/06/2020	1.43	0.03	0.07	0.02	0.12	0.05	0.08	0.07	0.16	0.01	0.26	0.05	0.15	0.07	0.11	0.03	0.05	
22/06/2020	1.17	0.03	0.08	0.01	0.06	0.04	0.08	0.07	0.12	0.02	0.31	0.05	0.16	0.05	0.11	0.02	0.08	
23/06/2020	1.12	0.03	0.07	0.02	0.10	0.05	0.08	0.07	0.13	0.02	0.06	0.04	0.12	0.06	0.11	0.03	0.08	
24/06/2020	1.62	0.04	0.09	0.02	0.06	0.05	0.11	0.09	0.16	0.02	0.07	0.07	0.18	0.07	0.13	0.04	0.09	
25/06/2020	2.00	0.04	0.13	0.03	0.18	0.05	0.18	0.09	0.20	0.03	0.15	0.06	0.20	0.09	0.22	0.05	0.16	
26/06/2020	1.24	0.04	0.08	0.02	0.07	0.05	0.11	0.08	0.15	0.03	0.10	0.07	0.16	0.08	0.13	0.04	0.12	
27/06/2020	1.21	0.03	0.11	0.02	0.08	0.05	0.22	0.08	0.22	0.02	0.31	0.06	0.18	0.08	0.16	0.05	0.12	
28/06/2020	1.66	0.02	0.15	0.02	0.08	0.05	0.11	0.08	0.20	0.01	0.05	0.07	0.21	0.06	0.16	0.04	0.11	
29/06/2020	1.39	0.02	0.13	0.01	0.05	0.04	0.10	0.08	0.17	0.01	0.08	0.06	0.36	0.08	0.17	0.03	0.07	
30/06/2020	1.72	0.01	0.04	0.01	0.09	0.04	0.11	0.08	0.14	0.01	0.04	0.06	0.17	0.08	0.17	0.05	0.12	

Total Number of Measurements Taken, A: 10830 13862 13562 14867 14875 15647 15239 16036
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: 10819 13861 13562 14814 14867 15646 15238 16036
Compliance with Turbidity Standard, C = B/A X 100%: 99.898% 99.993% 100.000% 99.644% 99.946% 99.994% 99.993% 100.000%

Note: OL - Off Line

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\06-June

Submitted By (Print): D.Minor

Signature: Original signed by D.Minor



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00	Turbidity (NTU)																	
	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
02-Jul-2020	1.05	1.36	0.16	0.09	0.14	0.06	0.16	0.12	0.14	0.14	0.04	0.20	0.12	0.17	0.11	0.16	0.07	
03-Jul-2020	1.18	1.42	0.10	0.03	0.14	0.07	OL	OL	0.13	0.10	0.12	0.02	0.18	0.11	0.14	0.10	0.14	0.05
04-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
05-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
06-Jul-2020	1.53	2.35	0.11	0.04	0.11	0.04	0.10	0.07	0.11	0.11	0.13	0.00	0.13	0.06	0.21	0.15	0.17	0.08
07-Jul-2020	1.34	1.97	0.14	0.06	0.12	0.05	0.12	0.08	0.12	0.12	0.13	0.01	0.14	0.06	0.12	0.07	0.13	0.04
08-Jul-2020	1.57	2.25	0.11	0.04	0.15	0.08	0.18	0.14	0.14	0.13	0.11	0.00	0.16	0.09	0.14	0.09	0.13	0.06
09-Jul-2020	1.61	1.96	0.11	0.04	OL	OL	0.11	0.08	0.17	0.16	0.14	0.02	0.24	0.14	0.17	0.12	0.15	0.09
10-Jul-2020	1.35	2.09	0.13	0.06	0.11	0.08	0.13	0.08	OL	OL	0.15	0.04	0.15	0.09	0.22	0.14	0.18	0.10
11-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
12-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
13-Jul-2020	1.44	2.19	0.19	0.08	0.13	0.13	0.14	0.11	0.13	0.11	0.11	0.00	0.10	0.05	0.10	0.04	0.10	0.02
14-Jul-2020	1.49	16.18	0.17	0.06	0.13	0.13	0.16	0.12	0.14	0.11	0.10	0.00	0.14	0.04	0.11	0.05	0.11	0.03
15-Jul-2020	1.58	2.38	0.14	0.04	0.14	0.14	0.11	0.09	0.14	0.11	0.00	0.16	0.06	0.14	0.05	0.12	0.03	
16-Jul-2020	1.52	2.88	0.14	0.06	0.14	0.13	0.14	0.11	0.21	0.19	0.11	0.00	OL	OL	0.14	0.06	0.12	0.03
17-Jul-2020	1.53	2.45	OL	OL	0.13	0.05	0.13	0.12	0.11	0.13	0.11	0.00	0.12	0.03	0.11	0.05	OL	OL
18-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
19-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
20-Jul-2020	1.48	2.10	0.13	0.04	0.13	0.05	0.12	0.12	OL	OL	0.11	0.04	0.11	0.02	0.15	0.07	0.12	0.04
21-Jul-2020	1.47	2.20	0.14	0.05	0.12	0.05	0.12	0.12	0.12	0.12	0.12	0.03	0.12	0.04	0.12	0.05	0.15	0.03
22-Jul-2020	1.31	2.11	0.15	0.06	0.13	0.07	0.15	0.15	0.14	0.13	0.23	0.02	0.15	0.03	0.11	0.04	0.11	0.02
23-Jul-2020	1.50	8.77	0.12	0.05	OL	OL	0.14	0.13	0.17	0.16	0.22	0.04	0.16	0.06	0.13	0.05	0.12	0.02
24-Jul-2020	2.28	2.68	0.14	0.05	0.15	0.08	0.15	0.14	OL	OL	0.17	0.04	0.13	0.03	0.18	0.09	0.15	0.05
25-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
26-Jul-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
27-Jul-2020	1.81	2.90	0.12	0.04	0.15	0.18	0.12	0.10	0.16	0.17	0.13	0.02	0.16	0.09	0.13	0.07	0.12	0.05
28-Jul-2020	1.80	2.99	0.15	0.07	0.20	0.13	0.14	0.12	0.16	0.26	0.12	0.04	0.15	0.07	0.12	0.06	0.11	0.03
29-Jul-2020	1.98	3.03	0.17	0.07	0.16	0.08	0.16	0.13	0.18	0.20	0.12	0.05	0.12	0.04	0.15	0.08	0.14	0.06
30-Jul-2020	1.78	2.84	0.14	0.06	0.13	0.06	0.12	0.10	0.16	0.13	0.10	0.02	0.12	0.03	OL	OL	0.13	0.05
31-Jul-2020	1.60	3.05	0.14	0.06	0.14	0.06	0.12	0.10	0.12	0.12	0.03	0.12	0.03	0.10	0.04	OL	OL	
Total number of measurements taken, A:				21		20		21		19		22		21		21		
Turbidity Standard for Monitoring Location (NTU):				0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:				21		20		21		19		22		21		21		
Compliance with Turbidity Standard, C= B/A X 100%:				100%		100%		100%		100%		100%		100%		100%		

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: H. Demchenko

Authorized in Sample Manager By: B. Bradford

Date Authorized: 7-Aug-20



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
Licence Number: **PWS-09-412-01**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

July 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/07/2020	1.64	0.03	0.16		0.02	0.06	0.06	0.09	0.08	0.23	0.02	0.07	0.07	0.54	0.09	0.35	0.06	0.12
2/07/2020	1.51	0.05	0.22		0.05	0.27	0.07	0.14	0.11	0.19	0.05	0.16	0.11	0.77	0.12	0.25	0.09	0.21
3/07/2020	2.12	0.04	0.11		0.04	0.11	0.07	0.16	0.10	1.51	0.02	0.16	0.09	1.29	0.09	0.23	0.06	0.17
4/07/2020	3.02	0.04	0.11		0.04	0.21	0.07	0.13	0.12	0.18	0.01	0.52	0.08	1.34	0.11	0.21	0.07	0.26
5/07/2020	3.29	0.04	0.12		0.04	0.14	0.06	0.13	0.11	0.19	0.00	0.10	0.07	0.17	0.10	0.21	0.08	0.35
6/07/2020	2.64	0.04	0.28		0.04	0.10	0.06	0.10	0.10	0.20	0.01	0.11	0.07	0.15	0.09	0.25	0.07	0.17
7/07/2020	3.44	0.04	0.15		0.04	0.15	0.07	0.14	0.10	0.19	0.01	0.07	0.05	0.09	0.08	0.22	0.06	0.16
8/07/2020	2.38	0.04	0.17		0.05	0.21	0.07	0.16	0.13	0.35	0.02	0.08	0.09	0.22	0.10	0.22	0.07	0.19
9/07/2020	2.60	0.04	0.13		0.06	0.13	0.07	0.16	0.11	0.74	0.02	0.09	0.05	0.26	0.13	0.26	0.11	0.18
10/07/2020	2.68	0.05	0.24		0.07	0.19	0.08	0.16	0.11	0.21	0.04	0.27	0.10	0.24	0.11	0.21	0.09	0.17
11/07/2020	4.18	0.08	0.20		0.10	0.18	0.11	0.14	0.12	0.27	0.06	0.16	0.11	0.26	0.11	0.25	0.09	0.24
12/07/2020	4.16	0.06	1.13		0.10	0.13	0.10	0.16	0.11	0.19	0.04	0.13	0.07	0.28	0.08	0.16	0.06	0.15
13/07/2020	3.12	0.04	0.21		0.11	0.18	0.08	0.16	0.09	0.27	0.01	0.06	0.04	0.16	0.06	0.36	0.04	1.62
14/07/2020	3.97	0.04	0.13		0.11	0.17	0.08	0.16	0.10	0.29	0.00	0.09	0.03	0.14	0.05	0.11	0.03	0.13
15/07/2020	3.47	0.04	0.11		0.11	0.19	0.09	0.15	0.09	0.17	0.00	0.01	0.03	0.12	0.06	0.12	0.03	0.08
16/07/2020	3.23	0.04	0.07		0.10	0.16	0.09	0.17	0.11	0.21	0.00	0.00	0.02	0.13	0.05	0.14	0.04	0.12
17/07/2020	3.51	0.06	0.18		0.04	0.07	0.12	2.13	0.13	0.21	0.02	0.07	0.02	0.11	0.05	0.14	0.04	0.12
18/07/2020	3.37	0.04	0.11		0.05	0.13	0.11	0.20	0.12	0.20	0.02	0.08	0.02	0.06	0.05	0.12	0.03	0.12
19/07/2020	3.20	0.04	0.11		0.04	0.15	0.11	0.18	0.13	0.21	0.02	0.09	0.03	0.10	0.06	0.08	0.03	0.05
20/07/2020	2.97	0.04	0.06		0.04	0.11	0.10	0.19	0.12	0.22	0.03	0.05	0.03	0.12	0.06	0.15	0.04	0.11
21/07/2020	2.24	0.04	0.10		0.04	0.06	0.11	0.14	0.10	0.20	0.02	0.08	0.02	0.11	0.05	0.14	0.03	0.12
22/07/2020	2.92	0.04	0.10		0.05	0.12	0.10	0.19	0.12	0.18	0.02	0.08	0.02	0.08	0.04	0.13	0.03	0.12
23/07/2020	3.29	0.04	0.12		0.07	0.14	0.12	0.27	0.12	0.19	0.02	0.05	0.03	0.11	0.06	0.13	0.03	0.05
24/07/2020	2.83	0.04	0.07		0.07	0.17	0.13	0.16	0.12	0.21	0.03	0.08	0.03	0.44	0.06	0.15	0.04	0.13
25/07/2020	2.77	0.04	0.11		0.10	0.14	0.12	0.23	0.12	0.21	0.02	0.08	0.03	0.06	0.06	0.11	0.04	0.13
26/07/2020	3.10	0.04	0.11		0.11	0.19	0.10	0.17	0.14	0.16	0.02	0.08	0.05	0.13	0.05	0.13	0.04	0.13
27/07/2020	3.59	0.04	0.11		0.14	0.23	0.10	0.19	0.14	0.24	0.03	0.07	0.05	0.22	0.07	0.12	0.04	0.12
28/07/2020	3.24	0.05	0.13		0.10	0.19	0.10	0.18	0.15	0.30	0.02	0.06	0.04	0.13	0.06	0.14	0.05	0.12
29/07/2020	3.25	0.07	0.13		0.07	0.15	0.12	0.22	0.17	0.25	0.04	0.08	0.03	0.33	0.06	0.13	0.05	0.11
30/07/2020	3.57	0.05	0.12		0.05	0.11	0.09	0.17	0.13	0.22	0.02	0.07	0.03	0.09	0.05	0.11	0.03	0.11
31/07/2020	3.30	0.04	0.12		0.06	0.11	0.09	0.11	0.11	0.21	0.02	0.08	0.03	0.11	0.05	0.12	0.03	0.12

Total Number of Measurements Taken, A: 14874 15899 14848 15946 13005 16615 16343 17190
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: 14871 15899 14846 15944 13004 16609 16341 17189
Compliance with Turbidity Standard, C = B/A X 100%: 99.980% 100.000% 99.987% 99.987% 99.992% 99.964% 99.988% 99.994%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\07-July

Submitted By (Print): D.Minor

Signature: Original signed by D.Minor

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		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-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
03-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Aug-2020	2.20	3.34	0.18	0.08	0.15	0.07	0.14	0.11	0.12	0.11	0.11	0.02	0.11	0.06	0.09	0.03	0.10	<0.02
05-Aug-2020	2.40	3.64	0.23	0.12	0.19	0.09	0.18	0.13	0.16	0.13	0.11	<0.02	0.13	0.08	0.12	0.04	0.11	0.02
06-Aug-2020	2.31	3.19	0.14	0.06	0.14	0.05	0.12	0.09	0.13	0.10	0.10	<0.02	0.13	0.11	0.12	0.05	0.12	0.03
07-Aug-2020	2.30	NR	0.16	0.07	OL	OL	0.20	0.15	0.20	0.15	0.16	0.08	0.16	0.11	0.15	0.08	0.12	0.08
08-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
09-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10-Aug-2020	2.40	NR	0.17	0.14	0.19	0.09	0.16	0.16	0.22	0.20	0.12	0.10	0.12	0.10	0.11	0.08	0.10	0.08
11-Aug-2020	3.21	3.78	0.17	0.14	0.16	0.09	0.16	0.15	0.20	0.18	0.10	0.08	0.11	0.09	0.10	0.08	0.10	0.08
12-Aug-2020	2.49	NR	0.16	0.11	0.15	<0.02	0.14	0.11	0.21	0.16	0.10	0.07	0.12	0.08	0.12	0.08	0.11	0.08
13-Aug-2020	2.14	3.74	0.16	0.11	0.14	0.04	0.14	0.12	0.21	0.16	0.13	0.09	OL	OL	0.14	0.10	0.13	0.10
14-Aug-2020	2.80	NR	0.17	0.12	0.16	0.05	0.15	0.12	OL	OL	0.11	0.08	0.13	0.08	0.14	0.10	0.13	0.09
15-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
16-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
17-Aug-2020	3.00	NR	0.21	0.20	0.17	0.07	0.15	0.12	0.13	0.11	0.08	0.07	0.12	0.09	0.10	0.07	0.10	0.07
18-Aug-2020	2.16	NR	0.15	0.17	0.13	0.04	0.12	0.10	0.11	0.10	0.09	0.09	0.10	0.11	0.10	0.07	0.11	0.07
19-Aug-2020	1.99	2.63	0.17	0.21	0.14	0.04	0.13	0.11	0.12	0.09	0.08	0.08	0.12	0.09	0.11	0.06	0.09	0.05
20-Aug-2020	1.85	2.42	0.16	0.22	0.14	0.04	0.13	0.11	0.11	0.10	OL	OL	0.10	0.08	0.09	0.04	0.10	0.04
21-Aug-2020	1.90	2.68	0.11	0.19	OL	OL	0.14	0.12	0.13	0.11	0.09	0.07	0.12	0.09	0.09	0.05	0.09	0.05
22-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
23-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
24-Aug-2020	2.08	2.61	0.14	0.12	0.13	0.03	0.12	0.12	0.19	0.21	0.11	0.11	0.11	0.09	0.17	0.13	0.12	0.07
25-Aug-2020	2.08	2.73	0.18	0.14	0.16	0.05	0.17	0.13	0.13	0.17	0.16	0.12	0.12	0.10	0.11	0.06	0.14	0.09
26-Aug-2020	2.29	2.79	0.14	0.15	0.17	0.07	0.15	0.17	0.15	0.19	0.10	0.08	0.13	0.11	0.11	0.07	0.11	0.06
27-Aug-2020	2.40	3.03	0.13	0.14	0.12	0.04	0.18	0.19	0.16	0.21	0.12	0.10	0.16	0.13	0.14	0.08	0.13	0.07
28-Aug-2020	2.30	2.99	0.15	0.17	0.15	0.06	0.14	0.18	0.20	0.23	0.11	0.09	OL	OL	0.14	0.08	0.13	0.07
29-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
30-Aug-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
31-Aug-2020	2.33	2.96	0.16	0.11	0.11	0.04	0.11	0.07	0.11	0.12	0.10	0.11	0.11	0.09	0.11	0.06	0.09	0.06

Total number of measurements taken, A:
Turbidity Standard for Monitoring Location (NTU):
Number of measurements meeting standard, B:
Compliance with Turbidity Standard, C= B/A X 100%:

20	18	20	19	17	18	20	19
0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
20	18	20	19	17	18	20	19
100%	100%	100%	100%	100%	100%	100%	100%

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

NR - not representative. The raw water analyser is cleaned daily during warm water months because it is susceptible to frequent fouling.

Report Compiled By: H.Demchenko

Authorized in Sample Manager By: B. Bradford



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
Licence Number: **PWS-09-412-01**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

August 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/08/2020	4.38	0.05	0.13		0.06	0.14	0.11	0.17	0.13	0.23	0.03	0.07	0.04	0.12	0.06	0.12	0.05	0.11
2/08/2020	3.56	0.06	0.14		0.07	0.15	0.12	0.20	0.13	0.22	0.02	0.07	0.04	0.11	0.05	0.13	0.05	0.11
3/08/2020	4.08	0.04	0.12		0.05	0.12	0.11	0.17	0.11	0.19	0.01	0.04	0.04	0.13	0.04	0.13	0.03	0.08
4/08/2020	4.85	0.04	0.10		0.05	0.11	0.10	0.17	0.11	0.19	0.01	0.04	0.05	0.11	0.04	0.11	0.03	0.08
5/08/2020	4.17	0.05	0.13		0.06	0.13	0.10	0.16	0.12	0.20	0.01	0.05	0.07	0.13	0.05	0.11	0.03	0.09
6/08/2020	4.12	0.07	0.42		0.06	0.33	0.11	0.37	0.12	0.29	0.03	0.11	0.09	0.17	0.06	0.14	0.05	0.15
7/08/2020	4.37	0.10	0.33		0.07	0.26	0.13	0.30	0.13	0.25	0.06	0.15	0.08	1.18	0.08	0.13	0.09	0.17
8/08/2020	4.01	0.13	0.23		0.10	0.19	0.16	0.26	0.17	0.28	0.06	0.13	0.08	0.15	0.09	0.13	0.09	0.13
9/08/2020	4.19	0.15	0.24		0.11	0.20	0.16	0.25	0.17	0.28	0.07	0.14	0.08	0.37	0.09	0.13	0.09	0.13
10/08/2020	4.42	0.14	0.29		0.09	0.23	0.15	0.42	0.16	0.37	0.07	0.12	0.07	0.14	0.08	0.13	0.08	0.12
11/08/2020	4.55	0.12	0.18		0.07	0.13	0.13	0.19	0.13	0.22	0.06	0.11	0.07	0.38	0.08	0.12	0.08	0.11
12/08/2020	4.04	0.11	0.18		0.05	0.14	0.12	0.26	0.12	0.24	0.06	0.12	0.07	0.15	0.08	0.14	0.08	0.13
13/08/2020	4.11	0.10	0.20		0.04	0.12	0.11	0.21	0.11	0.21	0.07	0.10	0.07	0.15	0.08	0.14	0.08	0.13
14/08/2020	4.21	0.11	0.20		0.04	0.12	0.11	0.20	0.11	0.21	0.07	0.13	0.08	0.16	0.08	0.14	0.08	0.14
15/08/2020	4.12	0.12	0.20		0.03	0.07	0.09	0.17	0.10	0.18	0.07	0.12	0.07	0.15	0.08	0.14	0.08	0.14
16/08/2020	4.05	0.11	0.19		0.04	0.09	0.10	0.13	0.09	0.18	0.06	0.11	0.07	0.22	0.07	0.12	0.07	0.12
17/08/2020	4.67	0.14	0.27		0.04	0.15	0.10	0.20	0.11	0.26	0.08	0.51	0.10	0.53	0.07	0.16	0.08	0.52
18/08/2020	4.77	0.14	0.21		0.03	0.09	0.09	0.16	0.09	0.16	0.08	0.12	0.08	0.12	0.07	0.12	0.06	0.10
19/08/2020	3.87	0.15	0.22		0.02	0.07	0.09	0.15	0.09	0.14	0.07	0.10	0.08	0.14	0.06	0.09	0.05	0.09
20/08/2020	3.07	0.16	0.24		0.02	0.08	0.09	0.14	0.09	0.12	0.06	0.10	0.07	0.12	0.05	0.11	0.05	0.10
21/08/2020	2.88	0.13	0.19		0.02	0.08	0.09	0.16	0.10	0.15	0.07	0.10	0.07	0.14	0.05	0.11	0.05	0.11
22/08/2020	2.82	0.09	0.16		0.03	0.08	0.10	0.18	0.12	0.18	0.07	0.11	0.08	0.14	0.06	0.08	0.05	0.12
23/08/2020	3.01	0.09	0.17		0.03	0.09	0.10	0.18	0.13	0.21	0.07	0.11	0.08	0.16	0.07	0.12	0.07	0.11
24/08/2020	2.73	0.11	0.14		0.03	0.11	0.11	0.20	0.15	0.26	0.09	0.16	0.09	0.16	0.07	0.17	0.07	0.17
25/08/2020	3.02	0.12	0.20		0.05	0.10	0.13	0.16	0.17	0.29	0.09	0.13	0.09	0.19	0.08	0.14	0.07	0.14
26/08/2020	2.44	0.12	0.21		0.04	0.11	0.14	0.23	0.17	0.22	0.08	0.16	0.10	0.16	0.07	0.15	0.07	0.13
27/08/2020	2.99	0.13	0.22		0.04	0.12	0.15	0.24	0.19	0.28	0.08	0.14	0.10	0.18	0.09	0.11	0.07	0.10
28/08/2020	3.38	0.14	1.89		0.06	0.14	0.15	0.42	0.18	0.28	0.09	0.14	0.09	0.19	0.08	0.14	0.08	0.14
29/08/2020	3.31	0.08	0.12		0.05	0.14	0.09	0.18	0.14	0.26	0.10	0.19	0.08	0.16	0.08	0.14	0.07	0.14
30/08/2020	3.27	0.07	0.16		0.06	0.11	0.08	0.13	0.13	1.02	0.09	0.15	0.08	0.15	0.07	0.15	0.07	0.13
31/08/2020	3.14	0.05	0.12		0.04	0.11	0.07	0.24	0.11	0.15	0.09	0.15	0.08	0.11	0.06	0.14	0.06	0.14

Total Number of Measurements Taken, A: 14670 15789 15027 16013 16024 16751 16374 17396
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: 14641 15781 14994 15997 16009 16718 16374 17381
Compliance with Turbidity Standard, C = B/A X 100%: 99.802% 99.949% 99.780% 99.900% 99.906% 99.803% 100.000% 99.914%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\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-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Sep-2020		2.00	2.77	0.16	0.08	0.17	0.10	0.15	0.10	0.13	0.14	0.10	0.12	0.12	0.10	0.10	0.07	0.10	0.06
02-Sep-2020		2.07	NR*	0.12	0.04	0.11	0.03	0.16	0.11	0.15	0.10	0.11	0.13	0.17	0.14	0.11	0.08	0.11	0.07
03-Sep-2020		2.09	2.08	0.10	0.03	0.10	<0.02	0.09	0.06	0.13	0.06	0.13	0.16	0.11	0.09	OL	OL	0.15	0.10
04-Sep-2020		1.74	2.73	0.16	0.04	0.11	0.05	0.10	0.06	0.11	0.06	OL	OL	0.10	0.09	0.12	0.06	0.09	0.05
05-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Sep-2020		2.03	2.28	0.11	0.04	0.11	0.06	0.10	0.06	0.15	0.05	0.10	0.19	0.10	0.08	0.09	0.05	0.09	0.04
09-Sep-2020		1.70	2.10	0.10	0.02	0.09	0.05	0.10	0.06	0.12	0.05	0.10	0.20	0.11	0.08	0.09	0.05	0.08	0.04
10-Sep-2020		1.94	2.12	0.09	0.03	0.10	0.04	0.09	0.04	0.11	0.06	0.07	0.20	0.08	0.07	0.10	0.06	0.09	0.09
11-Sep-2020		1.81	2.16	0.12	0.04	0.10	0.04	0.09	0.05	0.09	0.04	0.08	0.11	0.09	0.07	0.08	0.05	OL	OL
12-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Sep-2020		1.62	2.30	0.09	0.03	0.08	0.04	0.09	0.05	0.10	0.06	0.08	0.11	0.09	0.07	0.09	0.06	0.09	0.05
15-Sep-2020		1.65	2.31	0.11	0.05	0.10	0.05	0.09	0.06	0.09	0.05	0.09	0.12	0.09	0.08	0.10	0.07	0.11	0.07
16-Sep-2020		1.72	2.16	0.14	0.13	0.10	0.06	0.10	0.06	0.09	0.07	0.10	0.18	0.10	0.09	0.11	0.07	0.12	0.08
17-Sep-2020		1.40	2.31	0.09	0.09	0.11	0.07	0.11	0.07	0.10	0.07	0.08	0.17	0.11	0.10	0.10	0.07	0.09	0.06
18-Sep-2020		1.55	2.34	0.11	0.08	0.11	0.04	OL	OL	0.11	0.08	0.09	0.18	0.13	0.12	0.10	0.07	0.10	0.07
19-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Sep-2020		1.38	3.95	0.11	0.10	0.10	0.05	0.10	0.07	OL	OL	0.11	0.07	0.12	0.08	0.11	0.06	0.11	0.08
22-Sep-2020		1.31	1.67	0.12	0.11	0.10	0.05	0.10	0.06	0.15	0.11	0.13	0.09	0.12	0.07	0.11	0.06	0.10	0.07
23-Sep-2020		1.28	1.57	0.11	0.10	0.12	0.07	0.19	0.16	0.11	0.08	0.14	0.11	0.14	0.10	0.14	0.07	0.12	0.08
24-Sep-2020		1.20	1.74	0.11	0.12	OL	OL	0.10	0.08	0.14	0.12	0.13	0.10	OL	OL	0.14	0.10	0.13	0.10
25-Sep-2020		1.36	1.49	0.11	0.10	0.14	0.04	0.10	0.07	OL	OL	0.11	0.07	OL	OL	0.18	0.11	0.14	0.09
26-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Sep-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Sep-2020		1.54	1.50	0.11	0.11	0.11	0.06	0.12	0.09	0.14	0.10	0.12	0.07	0.13	0.09	0.11	0.07	0.11	0.08
29-Sep-2020		1.22	1.44	0.11	0.11	0.11	0.07	0.11	0.07	OL	OL	0.13	0.08	0.18	0.11	0.14	0.07	0.15	0.08
30-Sep-2020		1.51	1.43	0.10	0.11	0.09	0.06	0.09	0.07	OL	OL	0.09	0.09	0.11	0.08	0.11	0.07	0.10	0.08
Total number of measurements taken, A:				21			20			17			20			19			20
Turbidity Standard for Monitoring Location (NTU):				0.30			0.30			0.30			0.30			0.30			0.30
Number of measurements meeting standard, B:				21			20			17			20			19			20
Compliance with Turbidity Standard, C= B/A X 100%:				100%			100%			100%			100%			100%			100%

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

 Report Compiled By: H. Demchenko

NR* - not representative. The raw water analyser is cleaned daily during warm water months because it is susceptible to frequent fouling.

 Authorized By: B. Bradford

 Date Authorized: 7-Oct-20



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

September 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/09/2020	2.76	0.05	0.10		0.04	0.11	0.07	0.15	0.12	0.21	0.10	0.17	0.08	0.17	0.08	0.10	0.06	0.13
2/09/2020	2.59	0.03	0.11		0.03	0.10	0.08	0.14	0.08	0.15	0.12	0.15	0.08	0.17	0.07	0.13	0.08	0.12
3/09/2020	2.80	0.02	0.08		0.01	0.06	0.05	0.11	0.06	0.10	0.11	0.20	0.08	0.14	0.07	0.13	0.07	0.14
4/09/2020	2.77	0.02	0.07		0.04	0.10	0.06	0.09	0.05	0.08	0.12	0.19	0.08	0.10	0.06	0.13	0.06	0.13
5/09/2020	3.64	0.02	0.08		0.04	0.08	0.05	0.12	0.06	0.09	0.13	0.18	0.08	0.15	0.08	0.11	0.06	0.10
6/09/2020	3.98	0.02	0.09		0.04	0.10	0.05	0.11	0.05	0.13	0.15	0.17	0.06	0.14	0.06	0.11	0.06	0.12
7/09/2020	2.38	0.03	0.07		0.04	0.07	0.05	0.08	0.04	0.11	0.14	0.24	0.06	0.12	0.06	0.12	0.05	0.12
8/09/2020	2.26	0.02	0.09		0.04	0.12	0.05	0.11	0.04	0.07	0.16	0.20	0.07	0.09	0.05	0.11	0.05	0.11
9/09/2020	2.17	0.02	0.07		0.04	0.08	0.04	0.09	0.04	0.10	0.16	0.22	0.06	0.12	0.06	0.08	0.05	0.07
10/09/2020	2.20	0.02	0.04		0.03	0.08	0.04	0.11	0.04	0.10	0.17	0.21	0.06	0.11	0.05	0.10	0.05	0.14
11/09/2020	2.31	0.03	0.08		0.04	0.05	0.04	0.05	0.04	0.13	0.13	0.24	0.06	0.13	0.05	0.10	0.05	0.11
12/09/2020	2.09	0.02	0.07		0.03	0.08	0.05	0.09	0.04	0.07	0.08	0.14	0.07	0.09	0.05	0.11	0.05	0.09
13/09/2020	2.16	0.02	0.07		0.03	0.09	0.04	0.10	0.04	0.09	0.09	0.13	0.07	0.13	0.06	0.08	0.05	0.06
14/09/2020	2.14	0.03	0.05		0.03	0.08	0.04	0.10	0.04	0.12	0.09	0.12	0.06	0.12	0.06	0.10	0.06	0.09
15/09/2020	2.19	0.06	0.73		0.05	0.58	0.05	0.59	0.06	0.55	0.14	0.82	0.08	0.24	0.07	0.34	0.07	0.29
16/09/2020	2.26	0.08	0.13		0.04	0.10	0.06	0.09	0.06	0.12	0.15	0.21	0.07	0.13	0.07	0.12	0.06	0.14
17/09/2020	2.38	0.07	0.12		0.03	0.11	0.05	0.10	0.07	0.09	0.15	0.22	0.09	0.15	0.06	0.09	0.07	0.12
18/09/2020	2.43	0.07	0.13		0.03	0.06	0.05	0.10	0.06	0.12	0.09	0.18	0.07	0.16	0.07	0.14	0.07	0.09
19/09/2020	2.66	0.08	0.10		0.03	0.08	0.04	0.10	0.06	0.12	0.05	0.07	0.06	0.13	0.06	0.11	0.07	0.13
20/09/2020	3.09	0.07	0.11		0.02	0.04	0.04	0.06	0.03	0.46	0.05	0.10	0.05	0.11	0.05	0.10	0.06	0.13
21/09/2020	2.64	0.07	0.15		0.04	0.09	0.05	0.08	0.00	0.00	0.06	0.10	0.07	0.13	0.07	0.13	0.08	0.14
22/09/2020	1.69	0.07	0.15		0.04	0.09	0.05	0.10	0.02	0.15	0.06	0.12	0.06	0.09	0.06	0.15	0.08	0.14
23/09/2020	1.68	0.06	0.19		0.05	0.13	0.05	0.19	0.08	0.17	0.04	0.18	0.09	0.38	0.07	0.34	0.07	0.36
24/09/2020	1.63	0.08	0.14		0.05	0.16	0.06	0.16	0.07	0.20	0.07	0.15	0.07	0.21	0.08	0.20	0.09	0.15
25/09/2020	1.55	0.09	0.17		0.04	0.13	0.05	0.15	0.07	1.21	0.05	0.09	0.06	0.15	0.05	0.15	0.08	0.17
26/09/2020	1.54	0.06	0.19		0.04	0.07	0.06	0.11	0.06	0.15	0.06	0.13	0.06	0.16	0.06	0.15	0.06	0.17
27/09/2020	1.60	0.08	0.18		0.06	0.13	0.06	0.15	0.06	0.10	0.04	0.16	0.07	0.10	0.05	0.16	0.06	0.16
28/09/2020	1.55	0.07	0.26		0.04	0.16	0.05	0.16	0.07	0.20	0.05	0.14	0.07	0.15	0.06	0.10	0.06	0.10
29/09/2020	1.46	0.10	0.18		0.05	0.12	0.06	0.11	0.01	0.07	0.07	0.13	0.06	0.16	0.07	0.14	0.09	0.15
30/09/2020	1.47	0.10	0.13		0.05	0.10	0.06	0.10	O/L	O/L	0.07	1.17	0.06	0.15	0.06	0.19	0.08	0.13

Total Number of Measurements Taken, A: 12714
Turbidity Standard for Monitoring Location (NTU): 0.3
Number of Measurements Meeting Standard, B: 12704
Compliance with Turbidity Standard, C = B/A X 100%: 99.921%

99.940% 99.941% 99.909% 99.854% 99.894% 99.824% 99.912%

O/L = Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\09-September

Submitted By (Print): D.Minor

Signature: Original signed D.Minor

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		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-Oct-2020	1.33	1.39	0.09	0.10	0.09	0.06	0.09	0.06	OL	OL	0.10	0.08	OL	OL	0.11	0.06	0.10	0.07
02-Oct-2020	1.24	1.40	0.09	0.10	0.08	0.05	0.09	0.06	OL	OL	0.10	0.07	0.09	0.07	OL	OL	0.10	0.08
03-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
04-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
05-Oct-2020	1.19	1.38	0.09	0.08	0.10	0.05	0.09	0.04	OL	OL	0.09	0.07	0.11	0.06	0.10	0.05	0.10	0.06
06-Oct-2020	1.44	1.39	0.08	0.09	0.09	0.05	0.08	0.04	OL	OL	0.08	0.07	0.11	0.08	0.09	0.06	0.09	0.06
07-Oct-2020	1.15	1.34	0.09	0.09	0.08	0.04	0.09	0.04	OL	OL	0.10	0.08	0.13	0.07	0.09	0.06	0.10	0.07
08-Oct-2020	1.21	1.29	0.11	0.10	0.09	0.05	0.09	0.04	OL	OL	0.08	0.08	0.09	0.06	0.10	0.07	0.09	0.07
09-Oct-2020	1.17	1.32	0.09	0.11	0.10	0.04	0.14	0.04	OL	OL	0.13	0.08	0.14	0.07	0.10	0.06	OL	OL
10-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
11-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
12-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
13-Oct-2020	1.07	1.39	0.10	0.12	0.09	0.05	0.09	0.05	OL	OL	0.10	0.10	0.09	0.11	0.10	0.07	0.09	0.07
14-Oct-2020	1.17	1.27	0.09	0.14	0.09	0.06	0.08	0.06	OL	OL	0.08	0.11	0.10	0.11	0.12	0.07	0.10	0.08
15-Oct-2020	1.07	1.41	0.11	0.10	0.09	0.05	0.11	0.06	OL	OL	0.08	0.09	0.09	0.08	0.11	0.06	0.08	0.05
16-Oct-2020	1.04	1.17	OL	OL	0.12	0.07	0.11	0.08	OL	OL	0.11	0.12	0.10	0.10	0.10	0.07	0.09	0.06
17-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
18-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
19-Oct-2020	0.94	1.20	0.10	0.11	0.11	0.06	0.10	0.07	OL	OL	0.11	0.10	0.11	0.12	0.11	0.07	0.10	0.06
20-Oct-2020	0.87	1.19	0.09	0.10	0.09	0.06	0.09	0.06	OL	OL	0.09	0.11	0.11	0.11	0.12	0.08	0.10	0.06
21-Oct-2020	0.80	1.27	0.10	0.11	0.09	0.07	0.09	0.08	OL	OL	0.09	0.11	0.09	0.09	0.11	0.08	0.11	0.07
22-Oct-2020	0.85	1.32	OL	OL	0.10	0.09	0.10	0.08	OL	OL	0.10	0.13	0.10	0.09	0.09	0.06	0.09	0.05
23-Oct-2020	0.94	1.62	0.10	0.11	0.12	0.10	0.12	0.10	OL	OL	OL	0.12	0.12	0.10	0.08	0.11	0.07	
24-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
25-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
26-Oct-2020	0.93	0.96	0.10	0.11	0.09	0.09	0.09	0.07	OL	OL	0.09	0.13	0.10	0.10	0.10	0.07	0.10	0.06
27-Oct-2020	1.00	1.01	0.11	0.08	0.09	0.09	0.09	0.08	OL	OL	0.09	0.07	0.09	0.07	0.09	0.06	0.10	0.06
28-Oct-2020	1.05	1.12	0.08	0.07	0.10	0.09	0.10	0.09	OL	OL	0.11	0.10	0.10	0.07	0.08	0.06	0.08	0.06
29-Oct-2020	1.03	1.13	0.09	0.07	0.12	0.12	0.10	0.10	OL	OL	0.09	0.07	0.11	0.09	0.10	0.07	0.09	0.05
30-Oct-2020	1.03	1.08	0.10	0.08	OL	OL	OL	OL	OL	OL	0.09	0.08	0.11	0.09	0.10	0.07	0.09	0.06
31-Oct-2020	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
Total number of measurements taken, A:			19		20		20		OL		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	
Number of measurements meeting standard, B:			19		20		20		OL		20		20		20		20	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		OL		100%		100%		100%		100%	

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments: Filter 4 offline for maintenance

Report Compiled By: H. Demchenko

Authorized By: B. Bradford



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
Licence Number: **PWS-09-412-01**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

October 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/10/2020	1.46	0.09	0.13		0.04	0.08	0.06	0.09	O/L	O/L	0.06	0.56	0.06	0.12	0.05	0.12	0.07	0.11
2/10/2020	1.44	0.08	0.13		0.04	0.08	0.04	0.08	O/L	O/L	0.06	0.09	0.05	0.16	0.05	0.11	0.06	0.13
3/10/2020	2.16	0.07	0.11		0.04	0.05	0.03	0.05	O/L	O/L	0.04	0.10	0.04	0.09	0.05	0.08	0.05	0.11
4/10/2020	1.99	0.07	0.10		0.04	0.07	0.03	0.06	O/L	O/L	0.05	0.08	0.05	0.07	0.05	0.10	0.06	0.09
5/10/2020	1.47	0.07	0.11		0.04	0.07	0.03	0.06	O/L	O/L	0.05	0.09	0.05	0.09	0.06	0.08	0.05	0.10
6/10/2020	1.44	0.07	0.11		0.04	0.07	0.03	0.06	O/L	O/L	0.06	0.09	0.05	0.10	0.06	0.11	0.07	0.09
7/10/2020	1.38	0.09	0.11		0.04	0.07	0.03	0.06	O/L	O/L	0.06	0.10	0.04	0.10	0.06	0.10	0.06	0.10
8/10/2020	1.39	0.08	0.13		0.04	0.07	0.03	0.07	O/L	O/L	0.07	0.09	0.05	0.11	0.06	0.09	0.06	0.10
9/10/2020	1.37	0.08	0.12		0.04	0.09	0.04	0.06	O/L	O/L	0.07	0.10	0.06	0.10	0.06	0.10	0.06	0.10
10/10/2020	2.90	0.09	0.13		0.05	0.11	0.05	0.08	O/L	O/L	0.07	0.11	0.06	0.11	0.06	0.10	0.06	0.10
11/10/2020	1.30	0.10	0.15		0.05	0.09	0.05	0.08	O/L	O/L	0.07	0.11	0.08	0.10	0.06	0.08	0.06	0.09
12/10/2020	1.25	0.09	0.14		0.04	0.08	0.04	0.08	O/L	O/L	0.08	0.11	0.07	0.12	0.07	0.10	0.07	0.09
13/10/2020	1.26	0.12	0.13		0.04	0.08	0.04	0.08	O/L	O/L	0.07	0.11	0.08	0.13	0.06	0.10	0.07	0.10
14/10/2020	1.21	0.10	0.35		0.06	0.28	0.06	0.29	O/L	O/L	0.10	0.34	0.09	0.40	0.07	0.53	0.07	0.46
15/10/2020	1.22	0.06	0.10		0.04	0.08	0.06	0.08	O/L	O/L	0.07	0.11	0.07	0.11	0.06	0.09	0.05	0.08
16/10/2020	1.20	0.08	0.11		0.06	0.10	0.06	0.10	O/L	O/L	0.08	0.13	0.08	0.13	0.07	0.11	0.06	0.09
17/10/2020	1.19	0.09	0.13		0.07	0.11	0.07	0.11	O/L	O/L	0.09	0.14	0.10	0.12	0.08	0.13	0.07	0.11
18/10/2020	1.21	0.09	0.16		0.06	0.12	0.07	0.12	O/L	O/L	0.08	0.15	0.09	0.20	0.08	0.14	0.06	0.12
19/10/2020	1.22	0.08	0.13		0.06	0.11	0.06	0.10	O/L	O/L	0.09	0.15	0.08	0.15	0.07	0.11	0.06	0.10
20/10/2020	1.25	0.09	0.13		0.06	0.11	0.05	0.10	O/L	O/L	0.10	0.14	0.07	0.14	0.06	0.10	0.05	0.09
21/10/2020	1.27	0.08	0.13		0.05	0.11	0.07	0.09	O/L	O/L	0.10	0.14	0.08	0.13	0.06	0.10	0.05	0.09
22/10/2020	1.46	0.10	0.20		0.08	0.15	0.08	0.15	O/L	O/L	0.10	0.17	0.07	0.16	0.07	0.16	0.06	0.15
23/10/2020	1.35	0.10	0.15		0.09	0.16	0.08	0.12	O/L	O/L	0.11	0.16	0.10	0.15	0.08	0.12	0.07	0.11
24/10/2020	1.09	0.09	0.14		0.08	0.14	0.07	0.12	O/L	O/L	0.11	0.16	0.10	0.15	0.08	0.10	0.06	0.10
25/10/2020	1.02	0.09	0.11		0.08	0.13	0.06	0.10	O/L	O/L	0.11	0.16	0.07	0.13	0.07	0.11	0.07	0.09
26/10/2020	0.99	0.10	0.14		0.07	0.12	0.06	0.11	O/L	O/L	0.12	0.15	0.08	0.12	0.06	0.10	0.06	0.10
27/10/2020	1.11	0.07	0.14		0.08	0.11	0.08	0.10	O/L	O/L	0.07	0.16	0.06	0.11	0.06	0.10	0.05	0.09
28/10/2020	1.17	0.06	0.11		0.09	0.12	0.07	0.11	O/L	O/L	0.06	0.10	0.07	0.09	0.06	0.10	0.06	0.10
29/10/2020	1.15	0.06	0.10		0.09	0.13	0.07	0.12	O/L	O/L	0.06	0.12	0.07	0.11	0.07	0.09	0.04	0.08
30/10/2020	1.25	0.07	0.14		0.11	0.15	0.09	0.15	O/L	O/L	0.07	0.12	0.06	0.11	0.07	0.11	0.06	0.09
31/10/2020	1.39	0.08	0.12		0.09	0.15	0.09	0.14	O/L	O/L	0.06	0.11	0.06	0.11	0.06	0.10	0.05	0.09

Total Number of Measurements Taken, A: 14652 16313 16372 0 16784 16722 15972 17351
Turbidity Standard for Monitoring Location (NTU): 0.3 0.3 0.3 O/L 0.3 0.3 0.3 0.3
Number of Measurements Meeting Standard, B: 14630 16313 16372 O/L 16769 16702 15952 17327
Compliance with Turbidity Standard, C = B/A X 100%: 99.850% 100.000% 100.000% O/L 99.911% 99.880% 99.875% 99.862%

O/L -Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\10-October

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Nov-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-Nov-2020		1.07	1.22	0.12	0.11	0.11	0.12	0.10	0.10	OL	OL	0.10	0.08	0.11	0.08	0.09	0.06	0.12	0.07
03-Nov-2020		1.07	1.21	0.15	0.14	0.11	0.13	0.12	0.12	OL	OL	0.13	0.12	0.09	0.07	0.09	0.06	0.09	0.05
04-Nov-2020		1.17	1.30	0.11	0.10	0.13	0.08	0.14	0.15	OL	OL	0.10	0.08	0.10	0.08	0.09	0.06	0.09	0.04
05-Nov-2020		1.05	1.24	0.12	0.09	0.12	0.07	OL	OL	OL	OL	0.13	0.08	0.15	0.11	0.12	0.08	0.11	0.06
06-Nov-2020		1.06	1.23	0.13	0.11	0.12	0.08	0.11	0.12	OL	OL	0.09	0.07	0.09	0.06	OL	OL	0.10	0.06
07-Nov-2020		NS	NS	NS	NS	NS	NS	NS	OL	OL	NS								
08-Nov-2020		NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS							
09-Nov-2020		0.95	1.14	0.11	0.10	0.14	0.10	0.12	0.14	OL	OL	0.12	0.09	0.09	0.06	0.08	0.05	0.08	0.04
10-Nov-2020		0.94	1.00	0.11	0.05	0.13	0.07	0.13	0.10	OL	OL	0.10	0.07	0.11	0.06	0.10	0.02	0.08	0.05
11-Nov-2020		NS	NS	NS	NS	NS	NS	NS	OL	OL	NS								
12-Nov-2020		0.85	0.93	0.13	0.09	0.12	0.06	0.10	0.09	0.12	0.09	0.09	0.08	0.09	0.05	0.10	0.03	0.10	0.06
13-Nov-2020		0.88	0.92	OL	OL	0.15	0.07	0.13	0.09	0.11	0.06	0.11	0.09	0.10	0.05	0.09	0.02	0.09	0.05
14-Nov-2020		NS	NS	NS	NS	NS	NS	NS	0.13	0.08	NS								
15-Nov-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
16-Nov-2020		0.87	0.91	0.17	0.10	0.13	0.06	0.12	0.08	0.10	0.06	0.13	0.10	0.14	0.06	0.11	0.03	OL	OL
17-Nov-2020		0.72	0.88	0.13	0.06	0.15	0.08	0.15	0.10	0.12	0.07	OL	OL	0.13	0.07	0.13	0.03	0.12	0.06
18-Nov-2020		0.79	0.90	0.13	0.07	0.11	0.05	OL	OL	0.14	0.09	0.11	0.10	0.17	0.11	0.13	0.05	0.11	0.07
19-Nov-2020		0.83	0.89	0.16	0.10	0.13	0.07	0.12	0.08	0.09	0.06	0.11	0.11	0.12	0.07	OL	OL	0.13	0.08
20-Nov-2020		0.80	0.90	OL	OL	0.16	0.09	0.14	0.10	0.10	0.06	OL	OL	0.13	0.08	0.11	0.04	0.10	0.06
21-Nov-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-Nov-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
23-Nov-2020		0.75	0.80	0.16	0.09	0.16	0.09	0.14	0.10	0.12	0.07	0.14	0.16	0.13	0.08	0.12	0.04	0.16	0.11
24-Nov-2020		0.72	0.81	0.15	0.08	0.15	0.09	0.14	0.13	0.14	0.09	OL	OL	0.15	0.09	0.13	0.05	0.12	0.08
25-Nov-2020		0.69	0.77	0.13	0.08	0.12	0.07	0.11	0.09	OL	OL	0.09	0.15	OL	OL	0.12	0.05	0.11	0.07
26-Nov-2020		0.70	0.80	OL	OL	0.15	0.07	0.12	0.08	0.10	0.07	0.13	0.18	0.12	0.07	0.11	0.02	OL	OL
27-Nov-2020		0.70	0.77	0.12	0.06	OL	OL	OL	0.11	0.08	0.10	0.17	0.15	0.09	0.12	0.04	0.11	0.07	
28-Nov-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Nov-2020		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
30-Nov-2020		0.68	0.72	OL	OL	0.17	0.11	0.13	0.09	0.10	0.09	OL	0.14	0.09	0.12	0.04	0.11	0.07	
Total number of measurements taken, A:				16			19		17		13		16		19		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:				16			19		17		13		16		19		18		18
Compliance with Turbidity Standard, C= B/A X 100%:				100%			100%		100%		100%		100%		100%		100%		100%

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Report Compiled By: H.Demchenko

Filter 4 was offline from September 30th until November 12th for maintenance work. The Filter was brought back online on November 12th at 10:35.

Authorized By: B. Bradford

Date Authorized: 7-Dec-20



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

November 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8		
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	O/L	O/L	Avg	Max	Avg	Max	Avg	Max	
1/11/2020	1.33	0.08	0.12	0.10	0.14	0.09	0.14	0.07	0.11	0.05	0.13	0.06	0.10	0.05	0.09	0.06	0.10	0.05	0.09
2/11/2020	1.25	0.07	0.13	0.10	0.16	0.10	0.13	0.07	0.11	0.06	0.10	0.06	0.10	0.05	0.10	0.05	0.10	0.05	0.10
3/11/2020	1.26	0.08	0.13	0.13	0.19	0.10	0.16	0.06	0.12	0.06	0.10	0.06	0.09	0.05	0.10	0.05	0.10	0.05	0.10
4/11/2020	1.34	0.08	0.12	0.09	0.18	0.10	0.17	0.07	0.14	0.07	0.12	0.07	0.11	0.05	0.12	0.05	0.12	0.05	0.12
5/11/2020	1.27	0.07	0.10	0.07	0.13	0.10	0.17	0.06	0.13	0.06	0.13	0.06	0.12	0.05	0.12	0.06	0.12	0.06	0.12
6/11/2020	1.23	0.10	0.15	0.07	0.13	0.11	0.19	0.06	0.10	0.05	0.11	0.05	0.10	0.05	0.10	0.05	0.09	0.05	0.09
7/11/2020	1.18	0.08	0.16	0.07	0.10	0.10	0.18	0.07	0.13	0.06	0.11	0.05	0.11	0.05	0.11	0.05	0.16	0.05	0.16
8/11/2020	1.17	0.07	0.14	0.07	0.11	0.10	0.14	0.06	0.12	0.05	0.11	0.06	0.11	0.05	0.09	0.06	0.11	0.04	0.09
9/11/2020	1.12	0.06	0.11	0.06	0.13	0.11	0.19	0.06	0.13	0.05	0.08	0.04	0.07	0.05	0.09	0.05	0.09	0.05	0.09
10/11/2020	1.02	0.05	0.12	0.04	0.10	0.07	0.12	0.06	0.11	0.05	0.09	0.02	0.04	0.05	0.10	0.05	0.10	0.05	0.10
11/11/2020	0.98	0.06	0.09	0.06	0.11	0.08	0.14	0.07	0.12	0.05	0.10	0.04	0.08	0.06	0.08	0.06	0.08	0.06	0.08
12/11/2020	0.97	0.07	0.13	0.05	0.12	0.07	0.14	0.04	0.16	0.07	0.10	0.05	0.10	0.03	0.07	0.05	0.10	0.05	0.10
13/11/2020	0.97	0.06	0.13	0.07	0.12	0.08	0.10	0.05	0.10	0.06	0.12	0.04	0.06	0.03	0.09	0.06	0.11	0.05	0.11
14/11/2020	0.97	0.05	0.13	0.05	0.14	0.08	0.15	0.06	0.09	0.07	0.13	0.05	0.10	0.03	0.04	0.05	0.07	0.05	0.07
15/11/2020	0.96	0.05	0.07	0.04	0.11	0.06	0.13	0.05	0.09	0.07	0.09	0.05	0.12	0.04	0.09	0.07	0.12	0.06	0.12
16/11/2020	0.94	0.05	0.12	0.05	0.07	0.07	0.08	0.04	0.10	0.09	0.13	0.04	0.07	0.03	0.08	0.06	0.13	0.05	0.13
17/11/2020	0.92	0.04	0.13	0.05	0.11	0.07	0.13	0.07	0.08	0.05	0.18	0.06	0.11	0.04	0.06	0.05	0.13	0.05	0.13
18/11/2020	0.92	0.06	0.08	0.04	0.12	0.05	0.14	0.05	0.10	0.07	0.11	0.05	0.13	0.04	0.10	0.08	0.13	0.05	0.13
19/11/2020	0.92	0.06	0.13	0.06	0.08	0.06	0.10	0.04	0.10	0.11	0.17	0.04	0.13	0.04	0.10	0.06	0.14	0.05	0.14
20/11/2020	0.91	0.05	0.13	0.06	0.13	0.08	0.14	0.06	0.08	0.09	0.18	0.07	0.10	0.03	0.06	0.05	0.15	0.05	0.15
21/11/2020	0.84	0.05	0.09	0.05	0.18	0.07	0.15	0.06	0.12	0.08	0.20	0.06	0.13	0.06	0.11	0.08	0.11	0.08	0.11
22/11/2020	0.83	0.08	0.15	0.06	0.09	0.06	0.17	0.06	0.12	0.12	0.15	0.05	0.14	0.05	0.12	0.07	0.15	0.06	0.16
23/11/2020	0.83	0.06	0.15	0.07	0.15	0.09	0.14	0.05	0.12	0.11	0.21	0.06	0.09	0.04	0.11	0.06	0.16	0.05	0.16
24/11/2020	0.81	0.05	0.14	0.06	0.15	0.07	0.15	0.15	0.12	0.09	0.23	0.07	0.14	0.05	0.07	0.06	0.15	0.05	0.15
25/11/2020	0.90	0.06	0.11	0.05	0.08	0.05	0.11	0.04	0.13	0.13	0.25	0.03	0.12	0.05	0.20	0.08	0.22	0.05	0.22
26/11/2020	0.80	0.05	0.12	0.05	0.11	0.07	0.13	0.05	0.08	0.12	0.22	0.06	0.12	0.03	0.10	0.05	0.14	0.05	0.14
27/11/2020	0.78	0.04	0.13	0.05	0.11	0.06	0.13	0.07	0.11	0.12	0.23	0.06	0.12	0.04	0.07	0.06	0.10	0.05	0.10
28/11/2020	0.78	0.07	0.09	0.04	0.13	0.06	0.14	0.06	0.11	0.14	0.19	0.05	0.12	0.04	0.10	0.08	0.13	0.05	0.13
29/11/2020	0.77	0.06	0.14	0.07	0.10	0.06	0.10	0.06	0.12	0.15	0.26	0.05	0.15	0.04	0.12	0.06	0.15	0.05	0.15
30/11/2020	0.75	0.06	0.13	0.05	0.12	0.07	0.12	0.07	0.10	0.04	0.12	0.08	0.13	0.03	0.07	0.06	0.15	0.05	0.15

Total Number of Measurements Taken, A: 11327 11785 12159 6948 13638 14040 13670 15017
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: 11327 11785 12159 6948 13638 14040 13670 15017
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%

O/L -Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2020\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)																
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-2020	0.71	0.72	0.12	0.08	OL	OL	0.17	0.12	0.12	0.11	0.10	0.06	0.14	0.09	0.13	0.05	0.12	0.08
02-Dec-2020	0.67	0.74	0.13	0.09	0.12	0.08	0.11	0.08	0.12	0.12	0.12	0.07	0.13	0.09	0.14	0.07	0.15	0.11
03-Dec-2020	0.69	0.74	0.13	0.09	0.12	0.08	0.11	0.08	0.09	0.10	0.14	0.08	0.13	0.10	0.12	0.05	OL	OL
04-Dec-2020	0.70	0.71	OL	OL	0.15	0.11	0.12	0.09	0.10	0.11	OL	OL	0.14	0.10	0.13	0.06	0.12	0.08
05-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Dec-2020	0.65	0.68	OL	OL	0.14	0.11	0.12	0.09	0.10	0.13	OL	OL	0.15	0.11	0.13	0.06	0.12	0.09
08-Dec-2020	0.69	0.68	0.11	0.10	0.10	0.09	0.15	0.12	0.11	0.14	0.10	0.06	0.14	0.12	0.16	0.09	0.13	0.10
09-Dec-2020	0.74	0.68	0.14	0.13	0.12	0.10	0.11	0.08	OL	OL	0.11	0.06	0.11	0.09	0.10	0.05	OL	OL
10-Dec-2020	0.67	0.70	0.18	0.17	0.15	0.15	0.12	0.09	0.10	0.14	0.16	0.10	0.13	0.11	0.12	0.06	0.11	0.08
11-Dec-2020	0.68	0.68	0.09	0.10	OL	OL	OL	OL	0.10	0.14	0.09	0.06	0.17	0.14	0.13	0.07	0.11	0.09
12-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Dec-2020	0.64	0.63	0.07	0.10	0.09	0.13	0.08	0.05	0.07	0.14	0.07	0.04	0.11	0.11	0.09	0.05	0.08	0.07
15-Dec-2020	0.65	0.66	0.07	0.11	0.07	0.11	0.06	0.05	0.08	0.15	0.08	0.04	0.11	0.11	0.06	0.10	0.09	
16-Dec-2020	0.66	0.65	0.12	0.12	0.07	0.12	0.06	0.06	OL	OL	0.08	0.04	0.07	0.09	0.07	0.04	OL	OL
17-Dec-2020	0.66	0.65	0.07	0.12	0.07	0.11	OL	OL	0.07	0.14	0.07	0.04	OL	OL	0.09	0.06	0.07	0.08
18-Dec-2020	0.66	0.64	0.09	0.13	0.08	0.14	0.08	0.06	0.10	0.17	0.09	0.04	0.10	0.11	OL	OL	0.11	0.11
19-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Dec-2020	0.63	0.62	0.07	0.14	0.10	0.17	0.10	0.08	0.07	0.14	0.12	0.07	0.10	0.13	0.10	0.08	0.08	0.09
21-Dec-2020	0.62	0.59	0.09	0.16	OL	OL	0.13	0.10	0.08	0.15	0.09	0.04	0.12	0.15	0.11	0.10	OL	OL
22-Dec-2020	0.56	0.61	0.07	0.16	0.06	0.17	0.06	0.06	0.08	0.06	0.08	0.05	0.13	0.10	0.10	0.03	0.10	0.11
23-Dec-2020	0.59	0.61	0.09	0.04	0.08	0.04	0.07	0.05	OL	OL	0.09	0.07	0.09	0.08	0.08	0.02	OL	OL
24-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.12
25-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Dec-2020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Dec-2020	0.58	0.60	0.07	0.03	0.10	0.05	0.08	0.05	0.06	0.04	0.07	0.08	0.09	0.09	0.08	0.02	0.08	0.04
29-Dec-2020	0.55	0.59	0.07	0.03	0.07	0.03	0.08	0.05	0.07	0.05	0.07	0.07	0.13	0.12	0.10	0.03	0.08	0.05
30-Dec-2020	0.55	0.57	0.08	0.04	0.07	0.03	0.07	0.04	0.07	0.05	0.08	0.07	0.08	0.08	0.07	0.02	0.11	0.06
31-Dec-2020	0.63	0.60	0.06	0.02	0.09	0.05	0.07	0.04	0.06	0.04	OL	OL	0.09	0.09	0.02	0.08	0.05	
Total number of measurements taken, A:			20		19		20		19		21		21		18			
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30			
Number of measurements meeting standard, B:			20		19		20		19		21		21		18			
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%			

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

 Compiled By: H.Demchenko

 Authorized By: B. Bradford

 Report Date: 4-Jan-21



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
Licence Number: **PWS-09-412-01**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

December 2020 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/12/2020	0.76	0.06	0.14		0.05	0.14	0.06	0.14	0.08	0.13	0.04	0.12	0.06	0.13	0.06	0.11	0.07	0.10
2/12/2020	0.74	0.08	0.13		0.06	0.14	0.06	0.13	0.06	0.13	0.05	0.08	0.06	0.16	0.05	0.12	0.09	0.17
3/12/2020	0.73	0.05	0.17		0.08	0.14	0.07	0.13	0.08	0.14	0.06	0.12	0.07	0.15	0.05	0.13	0.07	0.16
4/12/2020	0.71	0.05	0.13		0.06	0.13	0.07	0.12	0.10	0.16	0.04	0.12	0.09	0.15	0.06	0.08	0.06	0.16
5/12/2020	0.72	0.07	0.11		0.06	0.15	0.07	0.14	0.10	0.16	0.04	0.13	0.08	0.15	0.06	0.12	0.10	0.15
6/12/2020	0.74	0.08	0.16		0.08	0.11	0.05	0.09	0.09	0.18	0.07	0.12	0.08	0.18	0.07	0.14	0.07	0.18
7/12/2020	0.71	0.05	0.16		0.08	0.16	0.08	0.13	0.10	0.13	0.04	0.12	0.09	0.12	0.06	0.09	0.10	0.16
8/12/2020	0.69	0.08	0.12		0.07	0.16	0.06	0.14	0.13	0.22	0.04	0.07	0.06	0.17	0.06	0.14	0.10	0.13
9/12/2020	0.70	0.09	0.17		0.09	0.12	0.05	0.10	0.10	0.25	0.06	0.12	0.07	0.16	0.05	0.15	0.07	0.16
10/12/2020	0.71	0.07	0.17		0.09	0.17	0.08	0.13	0.10	0.26	0.04	0.11	0.10	0.12	0.06	0.09	0.07	0.18
11/12/2020	0.69	0.07	0.11		0.06	0.16	0.05	0.12	0.14	0.16	0.03	0.10	0.07	0.17	0.06	0.11	0.08	0.11
12/12/2020	0.67	0.10	0.16		0.08	0.11	0.04	0.11	0.09	0.26	0.04	0.07	0.06	0.14	0.04	0.13	0.08	0.15
13/12/2020	0.66	0.07	0.15		0.10	0.15	0.06	0.10	0.10	0.27	0.03	0.09	0.07	0.10	0.04	0.10	0.07	0.15
14/12/2020	0.66	0.06	0.14		0.08	0.16	0.04	0.11	0.13	0.16	0.03	0.08	0.08	0.14	0.06	0.11	0.07	0.12
15/12/2020	0.67	0.10	0.13		0.08	0.16	0.04	0.11	0.10	0.27	0.03	0.05	0.07	0.14	0.05	0.10	0.08	0.14
16/12/2020	0.69	0.04	0.15		0.07	0.14	0.03	0.09	0.04	0.15	0.03	0.11	0.05	0.17	0.03	0.07	0.04	0.29
17/12/2020	0.66	0.07	0.12		0.10	0.18	0.04	0.09	0.13	0.25	0.02	0.07	0.08	0.12	0.06	0.09	0.08	0.11
18/12/2020	0.65	0.13	0.16		0.09	0.14	0.04	0.10	0.10	0.20	0.03	0.05	0.08	0.16	0.06	0.11	0.09	0.14
19/12/2020	0.63	0.10	0.17		0.15	0.19	0.05	0.08	0.09	0.23	0.04	0.08	0.08	0.13	0.06	0.14	0.08	0.16
20/12/2020	0.62	0.10	0.19		0.12	0.21	0.06	0.10	0.13	0.19	0.03	0.08	0.12	0.16	0.08	0.11	0.05	0.14
21/12/2020	0.62	0.13	0.19		0.14	0.22	0.06	0.11	0.13	0.16	0.04	0.08	0.12	0.19	0.10	0.15	0.00	0.00
22/12/2020	0.63	0.08	0.17		0.09	0.17	0.05	0.26	0.04	0.13	0.04	0.07	0.06	0.13	0.04	0.13	0.08	0.17
23/12/2020	0.63	0.02	0.06		0.03	0.06	0.03	0.08	0.04	0.10	0.07	0.10	0.07	0.13	0.03	0.07	0.00	0.05
24/12/2020	0.63	0.02	0.06		0.03	0.07	0.04	0.06	0.04	0.08	0.06	0.12	0.07	0.09	0.03	0.07	0.03	0.10
25/12/2020	0.65	0.02	0.06		0.03	0.07	0.03	0.07	0.04	0.05	0.06	0.10	0.07	0.12	0.03	0.05	0.04	0.10
26/12/2020	0.63	0.02	0.03		0.03	0.07	0.04	0.07	0.04	0.11	0.05	0.10	0.07	0.12	0.03	0.07	0.05	0.07
27/12/2020	0.62	0.02	0.07		0.03	0.04	0.03	0.04	0.04	0.07	0.06	0.08	0.07	0.14	0.03	0.06	0.05	0.09
28/12/2020	0.60	0.02	0.06		0.03	0.07	0.04	0.07	0.03	0.12	0.06	0.11	0.08	0.10	0.03	0.05	0.05	0.10
29/12/2020	0.60	0.02	0.03		0.03	0.07	0.03	0.07	0.05	0.08	0.05	0.11	0.07	0.13	0.04	0.07	0.05	0.07
30/12/2020	0.60	0.03	0.07		0.03	0.04	0.03	0.07	0.04	0.15	0.06	0.08	0.07	0.14	0.03	0.07	0.05	0.11
31/12/2020	0.65	0.02	0.05		0.03	0.07	0.04	0.06	0.04	0.07	0.05	0.10	0.07	0.10	0.02	0.04	0.04	0.08

Total Number of Measurements Taken, A: 11131 11577 11107 12148 13433 13860 13634 13698
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: 11131 11577 11107 12148 13433 13860 13634 13700
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\2020\12-December

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

2020 MONTHLY UV MONITORING REPORTS



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: January 2020

Report Created: Saturday, February 01, 2020

Date	Transmittance %	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]					
		UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total																	
01/01/2020	93.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.70	70.70	0.00	0.00	45.59	45.59	0.00	0.00	0.00	0.00	0.00	0.00	52.78	52.78	0.00	0.00	0.00	0.00	0.00	0.00	169.07	169.07	100.00
02/01/2020	94.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.51	70.51	2.94	2.94	26.12	32.00	0.00	0.00	17.07	17.07	0.00	0.00	51.81	51.81	0.00	0.00	0.00	0.00	2.94	2.94	165.51	171.39	96.57
03/01/2020	94.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.34	73.34	0.00	0.00	0.00	0.00	0.00	0.00	49.21	49.21	0.00	0.00	28.54	28.54	0.00	0.08	24.91	24.98	0.00	0.08	175.99	176.07	99.96
04/01/2020	94.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.42	74.42	0.00	0.00	0.00	0.00	0.00	0.00	49.76	49.76	0.00	0.00	0.00	0.00	0.00	0.42	54.39	54.81	0.00	0.42	178.56	178.98	99.77
05/01/2020	93.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.44	74.44	0.00	0.00	0.00	0.00	0.00	0.00	49.76	49.76	0.00	0.00	0.00	0.00	0.00	0.46	54.26	54.72	0.00	0.46	178.47	178.93	99.74
06/01/2020	93.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.71	78.71	0.00	0.00	12.09	12.09	0.00	0.00	40.10	40.10	0.04	31.34	31.38	0.00	0.28	28.02	28.30	0.00	0.32	190.27	190.59	99.83	
07/01/2020	93.63	0.00	0.05	0.56	0.61	0.00	0.00	83.14	83.14	0.00	0.00	34.51	34.51	0.00	0.00	22.12	22.12	0.00	0.24	49.98	50.22	0.00	0.26	14.06	14.32	0.00	0.55	204.36	204.92	99.73	
08/01/2020	93.36	0.00	0.00	0.00	0.00	0.00	0.00	83.52	83.52	0.00	0.00	58.28	58.28	0.00	0.00	0.00	0.00	0.00	0.00	38.38	38.38	0.00	0.33	25.96	26.29	0.00	0.33	206.14	206.47	99.84	
09/01/2020	92.99	0.00	0.00	0.00	0.00	0.00	0.00	79.64	79.64	0.00	0.00	51.80	51.80	0.00	0.00	0.00	0.00	0.00	0.00	63.58	63.58	0.00	0.00	0.00	0.00	0.00	0.00	195.02	195.02	100.00	
10/01/2020	92.65	0.00	0.00	0.00	0.00	0.00	0.00	76.15	76.15	0.00	0.00	49.27	49.27	0.00	0.00	0.00	0.00	0.00	0.00	59.21	59.21	0.00	0.00	0.00	0.00	0.00	0.00	184.63	184.63	100.00	
11/01/2020	92.55	0.00	0.00	0.00	0.00	0.00	0.00	74.04	74.04	0.00	0.00	48.06	48.06	0.00	0.00	0.00	0.00	0.00	0.00	56.80	56.80	0.00	0.00	0.00	0.00	0.00	0.00	178.90	178.90	100.00	
12/01/2020	92.45	0.00	0.00	0.00	0.00	0.00	0.00	74.28	74.28	0.00	0.00	48.37	48.37	0.00	0.00	0.00	0.00	0.00	0.00	57.35	57.35	0.00	0.00	0.00	0.00	0.00	0.00	179.99	179.99	100.00	
13/01/2020	92.00	0.00	0.00	0.00	0.00	0.00	0.00	74.01	74.01	0.00	0.00	48.26	48.26	0.00	0.00	0.00	0.00	0.00	0.00	34.42	34.42	0.00	0.00	23.34	23.34	0.00	0.00	180.03	180.03	100.00	
14/01/2020	91.77	0.01	0.01	0.00	0.02	0.00	0.00	37.54	37.54	0.02	0.02	23.27	23.31	0.00	0.00	0.00	0.00	0.00	0.00	28.54	28.54	0.03	0.03	89.35	89.41	0.00	0.00	89.93	89.93	100.00	
15/01/2020	91.79	0.00	0.00	0.00	0.00	0.00	0.00	73.41	73.41	0.00	0.00	43.66	43.66	0.00	0.00	0.00	0.00	0.00	0.00	67.95	67.95	0.00	0.00	185.02	185.02	0.00	0.00	185.02	185.02	100.00	
16/01/2020	91.65	0.00	0.00	0.00	0.00	0.00	0.00	73.66	73.66	0.00	0.00	43.67	43.67	0.00	0.00	0.00	0.00	0.00	0.00	67.69	67.69	0.00	0.00	185.02	185.02	0.00	0.00	185.02	185.02	100.00	
17/01/2020	92.01	0.00	0.00	0.00	0.00	0.00	0.00	74.52	74.52	0.00	0.00	44.29	44.29	0.00	0.00	0.00	0.00	0.00	0.00	68.74	68.74	0.00	0.00	187.54	187.54	0.00	0.00	187.54	187.54	100.00	
18/01/2020	92.63	0.00	0.00	0.00	0.00	0.00	0.00	74.46	74.46	0.00	0.00	44.39	44.39	0.00	0.00	0.00	0.00	0.00	0.00	69.12	69.12	0.00	0.00	187.97	187.97	0.00	0.00	187.97	187.97	100.00	
19/01/2020	94.09	0.00	0.00	0.00	0.00	0.00	0.00	74.30	74.30	0.00	0.00	44.38	44.38	0.00	0.00	0.00	0.00	0.00	0.00	69.30	69.30	0.00	0.00	187.98	187.98	0.00	0.00	187.98	187.98	100.00	
20/01/2020	94.09	0.00	0.00	45.38	45.38	0.00	0.00	26.15	26.15	0.00	0.00	45.64	45.64	0.00	0.00	0.00	0.00	0.00	0.00	70.82	70.82	0.00	0.00	187.98	187.98	0.00	0.00	187.98	187.98	100.00	
21/01/2020	94.59	0.00	0.00	69.86	69.86	0.00	0.00	0.00	0.00	0.03	46.32	46.35	0.00	0.00	0.00	0.00	0.00	0.00	0.05	71.74	71.79	0.00	0.08	187.92	188.01	0.00	0.00	188.01	188.01	99.96	
22/01/2020	95.19	0.00	0.00	68.72	68.72	0.00	0.00	0.00	0.00	0.00	45.39	45.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.25	70.25	0.00	0.00	184.36	184.36	0.00	0.00	184.36	184.36	100.00	
23/01/2020	95.38	0.00	0.00	67.46	67.46	0.00	0.00	0.00	0.00	0.00	43.89	43.89	0.00	0.00	0.00	0.00	0.00	0.00	0.05	67.31	67.36	0.00	0.05	178.66	178.71	0.00	0.05	178.71	178.71	99.97	
24/01/2020	95.93	0.00	0.00	67.02	67.02	0.00	0.00	0.38	0.38	0.00	0.00	43.59	43.59	0.00	0.00	0.00	0.00	0.00	0.00	63.61	63.61	0.00	0.00	174.59	174.59	0.00	0.00	174.59	174.59	100.00	
25/01/2020	96.60	0.00	0.00	70.26	70.26	0.00	0.00	0.00	0.00	0.07	48.57	48.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.06	59.06	0.00	0.07	177.89	177.95	0.00	0.00	177.95	177.95	99.96	
26/01/2020	97.56	0.00	0.00	69.81	69.81	0.00	0.00	0.00	0.00	0.03	48.35	48.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.01	59.01	0.00	0.03	177.17	177.21	0.00	0.00	177.21	177.21	99.98	
27/01/2020	98.30	0.00	0.00	68.59	68.59	0.00	0.00	0.00	0.00	0.13	47.39	47.52	0.00	0.00	0.00	0.00	0.00	0.00	0.08	57.17	57.25	0.00	0.21	173.15	173.36	0.00	0.08	173.36	173.36	99.88	
28/01/2020	99.10	0.00	0.00	69.23	69.23	0.00	0.00	0.00	0.00	0.03	47.68	47.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.75	56.75	0.00	0.03	173.66	173.69	0.00	0.03	173.69	173.69	99.98	
29/01/2020	92.10	0.00	0.00	69.68	69.68	0.00	0.00	0.00	0.00	0.17	47.90	48.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.27	57.27	0.00	0.17	174.85	175.02	0.00	0.17	175.02	175.02	99.90	
30/01/2020	90.78	0.00	0.00	69.80	69.80	0.00	0.00	0.00	0.00	0.13	47.95	48.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.09	57.09	0.00	0.13	174.84	174.97	0.00	0.13	174.97	174.97	99.92	
31/01/2020	93.42	0.00	0.00	70.32	70.32	0.00	0.00	0.00	0.00	0.10	48.41	48.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.59	57.71	0.00	0.22	176.32	176.54	0.00	0.22	176.54	176.54	99.87	

Total [ML]: 0.01 0.06 806.69 806.76 0.00 0.00 1421.30 1421.30 2



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: February 2020

Report Created: Sunday, March 01, 2020

Date	Transmittance %	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]					
	UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total																		
01/02/2020	93.03	0.00	0.00	72.38	72.38	0.00	0.00	0.00	0.00	0.00	0.28	50.09	50.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	61.08	61.25	0.00	0.45	183.55	184.00	99.75	
02/02/2020	92.91	0.00	0.00	72.49	72.49	0.00	0.00	0.00	0.00	0.00	0.00	50.33	50.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	61.66	61.74	0.00	0.09	184.47	184.56	99.95	
03/02/2020	92.77	0.00	0.00	74.90	74.90	0.00	0.00	0.00	0.00	0.00	0.18	51.80	51.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	64.32	64.54	0.00	0.40	191.01	191.42	99.79	
04/02/2020	92.40	0.00	0.00	74.65	74.65	0.00	0.00	0.00	0.00	0.00	0.11	51.77	51.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	64.05	64.14	0.00	0.20	190.47	190.67	99.90	
05/02/2020	92.33	0.00	0.32	76.47	76.79	0.00	0.00	0.00	0.00	0.00	0.11	38.12	38.23	0.00	0.00	16.13	16.13	0.00	0.00	0.00	0.00	0.00	0.18	65.44	65.63	0.00	0.61	196.17	196.78	99.69	
06/02/2020	92.35	0.00	0.95	75.18	76.13	0.00	0.00	0.00	0.00	0.00	0.00	57.39	57.39	0.00	0.00	0.00	0.00	0.00	0.05	65.46	65.51	0.00	1.00	198.03	199.03	99.50					
07/02/2020	92.81	0.00	0.16	24.36	24.51	0.00	0.00	55.11	55.11	0.00	0.00	0.00	0.00	0.00	0.00	55.73	55.73	0.00	0.00	0.00	0.00	0.05	63.58	63.63	0.00	0.20	198.78	198.98	99.90		
08/02/2020	93.28	0.00	0.00	0.00	0.00	0.00	0.00	82.74	82.74	0.00	0.00	0.00	0.00	0.00	0.00	55.97	55.97	0.00	0.00	0.00	0.00	0.09	64.15	64.24	0.00	0.09	202.85	202.95	99.96		
09/02/2020	93.23	0.00	0.00	0.00	0.00	0.00	0.00	82.56	82.56	0.00	0.00	0.00	0.00	0.00	0.00	55.99	55.99	0.00	0.00	0.00	0.00	0.00	64.39	64.39	0.00	0.00	202.94	202.94	100.00		
10/02/2020	93.14	0.00	0.00	0.00	0.00	0.00	0.00	81.43	81.43	0.00	0.00	0.00	0.00	0.00	0.00	56.50	56.50	0.00	0.00	0.00	0.00	0.14	64.90	65.04	0.00	0.14	202.83	202.97	99.93		
11/02/2020	93.18	0.00	0.00	0.00	0.00	0.00	0.00	75.41	75.41	0.00	0.00	0.00	0.00	0.00	0.00	52.91	52.91	0.00	0.00	0.00	0.00	0.04	60.19	60.23	0.00	0.04	188.51	188.55	99.98		
12/02/2020	92.81	0.00	0.00	0.00	0.00	0.00	0.04	71.84	71.88	0.00	0.00	0.00	0.00	0.00	0.00	51.27	51.27	0.00	0.00	0.00	0.00	0.16	54.57	54.73	0.00	0.20	177.68	177.88	99.89		
13/02/2020	93.10	0.00	0.00	0.00	0.00	0.00	0.00	70.54	70.54	0.00	0.00	0.00	0.00	0.00	0.04	56.96	57.00	0.00	0.00	0.00	0.00	0.08	59.28	59.37	0.00	0.13	186.78	186.91	99.93		
14/02/2020	93.11	0.00	0.00	0.00	0.00	0.00	0.00	63.10	63.10	0.00	0.00	0.00	0.00	0.00	0.00	64.12	64.12	0.00	0.00	0.00	0.00	0.13	59.65	59.78	0.00	0.13	186.87	187.00	99.93		
15/02/2020	93.05	0.00	0.00	0.00	0.00	0.00	0.00	62.41	62.41	0.00	0.00	0.00	0.00	0.00	0.00	63.38	63.38	0.00	0.00	0.00	0.00	0.17	59.20	59.36	0.00	0.17	184.98	185.15	99.91		
16/02/2020	92.89	0.00	0.00	0.00	0.00	0.00	0.00	57.01	57.01	0.00	0.00	0.00	0.00	0.00	0.00	62.38	62.38	0.00	0.00	0.00	0.00	0.04	59.56	59.60	0.00	0.04	178.95	178.99	99.98		
17/02/2020	93.09	0.00	0.00	0.00	0.00	0.00	0.00	58.22	58.22	0.00	0.00	0.00	0.00	0.00	0.00	61.49	61.49	0.00	0.00	0.00	0.00	0.08	59.19	59.27	0.00	0.08	178.89	178.97	99.95		
18/02/2020	93.23	0.00	0.00	0.00	0.00	0.00	0.00	58.38	58.38	0.00	0.00	0.00	0.00	0.00	0.00	61.50	61.50	0.00	0.00	0.00	0.00	0.12	58.97	59.10	0.00	0.12	178.86	178.99	99.93		
19/02/2020	93.29	0.00	0.00	0.00	0.00	0.00	0.00	58.50	58.50	0.00	0.00	0.00	0.00	0.00	0.00	61.55	61.55	0.00	0.00	0.00	0.00	0.12	58.80	58.92	0.00	0.12	178.85	178.97	99.93		
20/02/2020	93.25	0.00	0.00	0.00	0.00	0.00	0.00	58.63	58.63	0.00	0.00	0.00	0.00	0.00	0.00	61.67	61.67	0.00	0.00	0.00	0.00	0.12	58.58	58.70	0.00	0.12	178.87	179.00	99.93		
21/02/2020	93.17	0.00	0.00	0.00	0.00	0.00	0.00	62.58	62.58	0.00	0.00	0.00	0.00	0.00	0.00	66.11	66.11	0.00	0.00	0.00	0.00	0.09	61.09	61.18	0.00	0.09	189.79	189.87	99.95		
22/02/2020	92.97	0.00	0.00	0.00	0.00	0.00	0.00	68.32	68.32	0.00	0.00	0.00	0.00	0.00	0.00	71.76	71.76	0.00	0.00	0.00	0.00	0.23	64.67	64.90	0.00	0.23	204.75	204.98	99.89		
23/02/2020	92.93	0.00	0.00	0.00	0.00	0.00	0.00	68.11	68.11	0.00	0.00	0.00	0.00	0.00	0.00	71.78	71.78	0.00	0.00	0.00	0.00	0.18	64.92	65.10	0.00	0.18	204.81	205.00	99.91		
24/02/2020	92.96	0.00	0.00	21.76	21.76	0.00	0.00	43.87	43.87	0.00	0.00	0.00	0.00	0.00	0.00	69.68	69.68	0.00	0.00	0.00	0.00	0.13	63.52	63.65	0.00	0.13	198.84	198.97	99.93		
25/02/2020	93.00	0.00	0.00	60.39	60.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.05	65.05	0.00	0.00	0.00	0.00	0.21	60.77	60.98	0.00	0.21	186.21	186.43	99.88		
26/02/2020	93.05	0.00	0.05	63.73	63.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.07	66.07	0.00	0.00	0.00	0.00	0.13	62.00	62.12	0.00	0.18	191.80	191.98	99.91		
27/02/2020	93.09	0.01	0.01	19.50	19.53	0.00	0.00	27.87	27.87	0.00	0.00	0.00	0.00	0.00	0.00	31.63	31.63	0.00	0.00	19.06	19.06	0.00	0.04	15.24	15.29	0.01	0.06	113.29	113.37	99.94	
28/02/2020	93.09	0.00	0.00	0.00	0.00	0.00	0.00	72.60	72.60	0.00	0.00	0.00	0.00	0.00	0.00	56.71	56.71	0.00	0.00	60.34	60.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.65	189.65	100.00
29/02/2020	92.96	0.00	0.00	49.29	49.29	0.04	0.04	21.57	21.65	0.00	0.04	35.62	35.66	0.01	0.01	20.84	20.86	0.00	0.00	63.98	63.98	0.00	0.00	0.00	0.00	0.05	0.09	191.29	191.44	99.93	

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.10 %

To Dose: 99.90 %

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-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: March 2020

Report Created: Wednesday, April 01, 2020

Date	Transmittance %	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]						
	UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total																							
01/03/2020	92.96	0.00	0.00	59.38	59.38	0.00	0.00	51.65	51.65	0.00	0.13	21.86	21.99	0.00	0.05	20.50	20.55	0.00	0.16	14.27	14.43	0.00	0.68	28.25	28.93	0.00	1.02	195.92	196.94	99.48		
02/03/2020	93.08	0.02	0.06	48.49	48.57	0.01	0.01	56.84	56.86	0.00	0.00	0.00	0.00	0.04	0.04	66.71	66.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.12	172.03	172.23	99.89		
03/03/2020	93.13	0.00	0.00	44.64	44.64	0.00	0.00	36.11	36.11	0.00	0.00	0.00	0.00	0.00	0.04	65.71	65.75	0.00	0.00	0.00	0.00	0.00	0.72	37.03	37.75	0.00	0.76	183.48	184.24	99.59		
04/03/2020	93.17	0.04	0.04	61.56	61.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	63.71	63.74	0.00	0.00	0.00	0.00	0.04	1.53	58.66	60.23	0.09	1.59	183.93	185.61	99.10		
05/03/2020	93.31	0.00	0.09	63.33	63.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.29	66.29	0.00	0.00	0.00	0.00	0.00	1.17	61.05	62.22	0.00	1.26	190.68	191.94	99.34		
06/03/2020	93.19	0.00	0.04	57.44	57.49	0.00	0.00	26.39	26.39	0.00	0.00	0.00	0.00	0.00	0.00	67.47	67.47	0.00	0.00	0.00	0.00	0.00	1.39	33.28	34.67	0.00	1.43	184.58	186.01	99.23		
07/03/2020	93.22	0.00	0.00	52.98	52.98	0.00	0.00	62.93	62.93	0.00	0.00	0.00	0.00	0.00	0.00	74.07	74.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.98	189.98	100.00		
08/03/2020	93.23	0.00	0.00	53.04	53.04	0.00	0.00	62.94	62.94	0.00	0.00	0.00	0.00	0.00	0.00	74.16	74.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.14	190.14	100.00		
09/03/2020	93.45	0.00	0.00	53.00	53.00	0.00	0.00	62.88	62.88	0.00	0.00	0.00	0.00	0.00	0.00	74.11	74.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.00	190.00	100.00		
10/03/2020	93.38	0.00	0.00	51.69	51.69	0.00	0.00	62.88	62.88	0.00	0.00	0.00	0.00	0.00	0.00	75.43	75.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.00	190.00	100.00		
11/03/2020	93.42	0.00	0.00	50.31	50.31	0.00	0.00	61.90	61.90	0.00	0.00	0.00	0.00	0.00	0.00	77.38	77.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.58	189.58	100.00		
12/03/2020	93.50	0.00	0.00	51.30	51.30	0.00	0.00	62.09	62.09	0.00	0.00	0.00	0.00	0.00	0.00	76.59	76.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.98	189.98	100.00		
13/03/2020	93.24	0.00	0.00	51.28	51.28	0.00	0.00	62.02	62.02	0.00	0.00	0.00	0.00	0.00	0.00	76.53	76.53	0.00	0.00	0.00	0.00	0.04	0.17	0.00	0.21	0.04	0.17	189.83	190.03	99.89		
14/03/2020	93.19	0.00	0.00	51.30	51.30	0.00	0.00	62.05	62.05	0.00	0.00	0.00	0.00	0.00	0.00	76.64	76.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.99	189.99	100.00		
15/03/2020	92.96	0.00	0.00	51.97	51.97	0.00	0.00	62.83	62.83	0.00	0.00	0.00	0.00	0.00	0.00	77.47	77.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	192.27	192.27	100.00		
16/03/2020	93.06	0.00	0.00	51.86	51.86	0.00	0.00	62.76	62.76	0.00	0.00	0.00	0.00	0.00	0.00	77.39	77.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	192.00	192.00	100.00		
17/03/2020	93.02	0.00	0.00	57.82	57.82	0.00	0.00	69.89	69.89	0.08	0.08	9.94	10.10	0.00	0.00	29.60	29.60	0.00	0.00	0.00	0.00	0.00	1.45	23.25	24.70	0.08	1.53	190.50	192.12	99.16		
18/03/2020	93.24	0.00	0.00	55.10	55.10	0.00	0.00	66.46	66.46	0.00	0.10	50.57	50.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	15.03	15.38	0.00	0.44	187.17	187.62	99.76		
19/03/2020	93.30	0.00	0.00	51.70	51.70	0.00	0.00	62.18	62.18	0.00	0.00	73.14	73.14	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	187.02	187.02	100.00		
20/03/2020	93.34	0.00	0.00	51.80	51.80	0.00	0.00	62.10	62.10	0.00	0.10	72.98	73.08	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	186.88	186.98	99.94		
21/03/2020	93.29	0.00	0.04	51.55	51.59	0.00	0.00	61.82	61.82	0.00	0.10	72.64	72.74	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	186.02	186.16	99.93		
22/03/2020	93.11	0.00	0.00	51.86	51.86	0.00	0.00	62.38	62.38	0.00	0.41	72.93	73.34	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	187.17	187.59	99.78		
23/03/2020	93.06	0.00	0.11	53.10	53.21	0.00	0.00	63.77	63.77	0.00	0.32	74.72	75.04	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	0.43	191.59	192.02	99.78	
24/03/2020	92.77	0.00	0.28	50.83	51.11	0.02	0.02	62.19	62.24	0.01	0.38	72.59	72.97	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	0.03	185.61	186.32	99.62	
25/03/2020	92.12	0.00	0.04	18.36	18.40	0.00	0.10	43.61	43.70	0.00	0.05	38.11	38.17	0.00	0.00	11.26	11.26	0.16	0.20	3.38	3.74	0.00	0.00	0.00	0.00	0.16	0.39	114.72	115.27	99.53		
26/03/2020	92.38	0.00	0.00	0.00	0.00	0.00	0.00	85.04	85.04	0.00	0.00	44.33	44.33	0.00	0.00	62.59	62.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	191.95	191.95	100.00
27/03/2020	92.71	0.00	0.00	0.00	0.00	0.00	0.00	38.22	38.22	0.00	0.00	48.29	48.29	0.00	0.00	57.63	57.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.91	46.91	0.00		
28/03/2020	93.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	51.86	51.93	0.00	0.00	54.10	54.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.97	84.97	0.00		
29/03/2020	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	51.79	51.94	0.00	0.00	54.07	54.07	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			
30/03/2020	93.12	0.00	0.71	49.71	50.42	0.00	0.00	0.00	0.00	0.00	0.10	48.45	48.55	0.00	0.00	60.87	60.87	0.00	0.35	3.16	3.51	0.00	0.00	27.57	27.57	0.00	1.16	189.76	190.92	99.39		
31/03/2020	93.06	0.00	0.83	78.65	79.48	0.00	0.00	0.00	0.00	0.00	0.13	46.49	46.62	0.00	0.00	64.90	64.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.04	191.00	99.50		

Total [ML]: 0.06 2.24 1424.05 1426.35 0.03 0.13 1473.94 1474.10 0.09 2.13 850.69 852.91 0.06 0.15 1505.18 1505.40 0.16 0.70 20.81 21.67 0.07 7.46 500.98 508.52 0.48 12.82 577



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

Report Period: April 2020

Report Created: Friday, May 01, 2020

WATER TREATMENT PLANT UV REPORT

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% 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]					
		UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total																	
01/04/2020	93.03	0.00	0.61	78.73	79.34	0.00	0.00	0.00	0.00	0.00	0.20	46.51	46.71	0.00	0.00	64.98	64.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	190.22	191.03	99.58		
02/04/2020	93.09	0.00	0.86	76.80	77.67	0.00	0.00	0.00	0.00	0.00	0.10	45.64	45.74	0.00	0.00	63.74	63.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	186.19	187.15	99.49		
03/04/2020	92.74	0.00	0.38	12.06	12.44	0.00	0.00	57.30	57.30	0.00	0.03	20.42	20.45	0.00	0.00	63.56	63.56	0.00	0.00	32.29	32.29	0.00	0.00	0.00	0.00	0.41	185.62	186.03	99.78		
04/04/2020	92.45	0.00	0.00	0.00	0.00	0.00	0.00	61.91	61.91	0.00	0.00	0.00	0.00	0.00	0.00	63.61	63.61	0.00	0.00	60.50	60.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	186.02	186.02	100.00
05/04/2020	91.73	0.00	0.00	0.00	0.00	0.00	0.00	61.86	61.86	0.00	0.00	0.00	0.00	0.00	0.00	63.57	63.57	0.00	0.00	60.60	60.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	186.03	186.03	100.00
06/04/2020	91.15	0.00	0.00	0.00	0.00	0.00	0.00	61.77	61.77	0.00	0.00	0.00	0.00	0.00	0.00	63.49	63.49	0.00	0.00	60.46	60.46	0.00	0.00	0.26	0.27	0.00	0.00	185.99	185.99	100.00	
07/04/2020	90.51	0.00	0.00	0.00	0.00	0.00	0.00	35.41	35.41	0.00	0.00	21.70	21.70	0.00	0.00	63.09	63.09	0.00	0.00	63.67	63.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.88	183.88	100.00
08/04/2020	90.51	0.00	0.00	10.62	10.62	0.00	0.00	0.00	0.00	0.00	0.07	42.81	42.89	0.00	0.00	64.20	64.20	0.00	0.00	67.58	67.58	0.00	0.00	0.00	0.00	0.07	185.22	185.29	99.96		
09/04/2020	90.23	0.00	0.00	56.55	56.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.49	60.49	0.00	0.00	57.75	57.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	174.79	174.79	100.00
10/04/2020	88.60	0.00	0.00	59.23	59.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.27	63.27	0.00	0.00	60.49	60.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.99	182.99	100.00
11/04/2020	89.73	0.00	0.00	58.38	58.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.42	62.42	0.00	0.00	59.89	59.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.69	180.69	100.00
12/04/2020	93.60	0.00	0.00	58.26	58.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.24	62.24	0.00	0.00	59.49	59.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.00	180.00	100.00
13/04/2020	93.98	0.00	0.05	66.08	66.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.97	54.97	0.00	0.00	58.60	58.60	0.00	0.00	0.00	0.00	0.05	179.66	179.71	99.97		
14/04/2020	93.78	0.00	0.00	64.99	64.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.34	53.34	0.00	0.00	59.67	59.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.00	178.00	100.00
15/04/2020	93.58	0.00	0.00	65.00	65.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.49	53.49	0.00	0.00	59.52	59.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.01	178.01	100.00
16/04/2020	93.66	0.00	0.00	65.00	65.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.72	53.72	0.00	0.00	59.58	59.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.29	178.29	100.00
17/04/2020	93.51	0.00	0.00	66.50	66.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.74	53.74	0.00	0.00	59.77	59.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.01	180.01	100.00
18/04/2020	93.38	0.00	0.00	71.62	71.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.37	51.37	0.00	0.00	57.01	57.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.01	180.01	100.00
19/04/2020	93.40	0.00	0.00	69.74	69.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	44.12	0.00	0.00	66.08	66.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.93	179.93	100.00
20/04/2020	93.52	0.00	0.00	69.69	69.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.94	43.94	0.00	0.00	66.36	66.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.99	179.99	100.00
21/04/2020	93.46	0.00	0.00	69.68	69.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.92	43.92	0.00	0.00	66.39	66.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.99	179.99	100.00
22/04/2020	93.41	0.00	0.00	69.17	69.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	43.41	0.00	0.00	65.52	65.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.10	178.10	100.00
23/04/2020	93.44	0.00	0.00	69.57	69.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.53	43.53	0.00	0.00	65.78	65.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.88	178.88	100.00
24/04/2020	93.23	0.00	0.00	69.92	69.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.73	43.73	0.00	0.00	66.06	66.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.71	179.71	100.00
25/04/2020	93.23	0.00	0.00	70.96	70.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	44.57	0.00	0.00	67.44	67.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.97	182.97	100.00
26/04/2020	93.34	0.00	0.00	70.88	70.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	44.56	0.00	0.00	67.58	67.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.02	183.02	100.00
27/04/2020	93.90	0.00	0.00	70.82	70.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.59	44.59	0.00	0.00	67.60	67.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.01	183.01	100.00
28/04/2020	94.21	0.00	0.00	71.29	71.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.93	44.93	0.00	0.00	68.25	68.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.47	184.47	100.00
29/04/2020	94.17	0.00	0.00	71.43	71.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.09	45.09	0.00	0.00	68.50	68.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.02	185.02	100.00
30/04/2020	92.95	0.00	0.00	71.42	71.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.02	45.02	0.00	0.00	68.55	68.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.99	184.99	100.00

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.04 %

To Dose: 99.96 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²Submitted 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-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: May 2020

Report Created: Monday, June 01, 2020

Date	Transmittance %	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]					
	UVTavg	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		
01/05/2020	94.28	0.00	0.00	67.09	67.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.55	50.55	0.00	0.00	67.41	67.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.04	185.04	100.00
02/05/2020	94.08	0.04	0.04	61.00	61.08	0.00	0.00	0.00	0.00	0.03	0.06	32.93	33.02	0.01	0.07	23.88	23.96	0.05	0.05	61.67	61.77	0.00	0.00	0.00	0.00	0.14	0.24	179.47	179.84	99.79	
03/05/2020	94.43	0.00	0.00	59.75	59.75	0.00	0.00	0.00	0.00	0.00	0.49	63.15	63.64	0.00	0.00	0.00	0.00	0.00	0.00	60.67	60.67	0.00	0.00	0.00	0.00	0.00	0.49	183.56	184.05	99.73	
04/05/2020	94.58	0.00	0.00	57.50	57.50	0.00	0.00	0.00	0.00	0.00	0.14	63.67	63.80	0.00	0.00	0.00	0.00	0.00	0.00	62.70	62.70	0.00	0.00	0.00	0.00	0.00	0.14	183.87	184.00	99.93	
05/05/2020	94.62	0.00	0.15	60.26	60.41	0.00	0.00	0.00	0.00	0.00	0.16	56.20	56.37	0.00	0.00	0.00	0.00	0.00	0.00	64.00	64.00	0.00	0.00	0.00	0.00	0.00	0.31	180.47	180.78	99.83	
06/05/2020	94.59	0.00	0.00	67.77	67.77	0.00	0.00	0.00	0.00	0.00	0.16	44.41	44.57	0.00	0.00	0.00	0.00	0.00	0.00	67.65	67.65	0.00	0.00	0.00	0.00	0.00	0.16	179.83	179.99	99.91	
07/05/2020	94.63	0.00	0.00	68.32	68.32	0.00	0.00	0.00	0.00	0.00	0.09	44.32	44.41	0.00	0.00	0.00	0.00	0.00	0.00	67.23	67.23	0.00	0.00	0.00	0.00	0.00	0.09	179.88	179.97	99.95	
08/05/2020	94.52	0.00	0.00	75.23	75.23	0.00	0.00	0.00	0.00	0.00	0.06	26.31	26.38	0.00	0.25	0.07	0.32	0.00	0.00	54.70	54.70	0.00	0.00	25.76	25.76	0.00	0.32	182.07	182.39	99.83	
09/05/2020	94.39	0.00	0.00	69.81	69.81	0.00	0.00	0.00	0.00	0.00	0.13	46.03	46.16	0.00	0.00	0.00	0.00	0.00	0.00	69.71	69.71	0.00	0.00	0.00	0.00	0.00	0.13	185.55	185.69	99.93	
10/05/2020	94.07	0.00	0.00	70.38	70.38	0.00	0.00	0.00	0.00	0.00	0.20	46.70	46.90	0.00	0.00	0.00	0.00	0.00	0.00	70.71	70.71	0.00	0.00	0.00	0.00	0.00	0.20	187.79	187.99	99.89	
11/05/2020	93.89	0.00	0.00	70.31	70.31	0.00	0.00	0.00	0.00	0.00	0.07	46.66	46.72	0.00	0.00	0.00	0.00	0.00	0.00	71.00	71.00	0.00	0.00	0.00	0.00	0.00	0.07	187.97	188.04	99.96	
12/05/2020	93.78	0.00	0.00	69.73	69.73	0.00	0.00	0.00	0.00	0.00	0.13	46.57	46.71	0.00	0.00	0.00	0.00	0.00	0.00	71.56	71.56	0.00	0.00	0.00	0.00	0.00	0.13	187.87	188.00	99.93	
13/05/2020	93.54	0.00	0.00	69.16	69.16	0.00	0.00	0.00	0.00	0.00	0.13	46.59	46.72	0.00	0.00	0.00	0.00	0.00	0.00	72.10	72.10	0.00	0.00	0.00	0.00	0.00	0.13	187.84	187.97	99.93	
14/05/2020	93.08	0.00	0.00	69.29	69.29	0.00	0.00	0.00	0.00	0.00	0.13	45.98	46.12	0.00	0.00	0.46	0.46	0.00	0.00	72.12	72.12	0.00	0.00	0.00	0.00	0.00	0.13	187.85	187.98	99.93	
15/05/2020	92.56	0.00	0.00	69.47	69.47	0.00	0.00	0.00	0.00	0.00	0.06	43.34	43.40	0.00	0.00	0.00	0.00	0.00	0.00	69.73	69.73	0.00	0.00	0.00	0.00	0.00	0.06	182.55	182.61	99.97	
16/05/2020	91.77	0.00	0.05	68.60	68.65	0.00	0.00	0.00	0.00	0.00	0.06	42.68	42.74	0.00	0.00	0.00	0.00	0.00	0.00	69.56	69.56	0.00	0.00	0.00	0.00	0.00	0.11	180.84	180.95	99.94	
17/05/2020	91.64	0.00	0.00	70.40	70.40	0.00	0.00	0.00	0.00	0.00	0.22	43.67	43.89	0.00	0.00	0.00	0.00	0.00	0.00	70.94	70.94	0.00	0.00	0.00	0.00	0.00	0.22	185.01	185.23	99.88	
18/05/2020	91.77	0.00	0.00	71.87	71.87	0.00	0.00	0.00	0.00	0.00	0.13	47.19	47.33	0.00	0.00	0.00	0.00	0.00	0.00	74.38	74.38	0.00	0.00	0.00	0.00	0.00	0.13	193.44	193.57	99.93	
19/05/2020	91.03	0.00	0.39	76.78	77.17	0.00	0.00	0.00	0.00	0.00	0.24	49.97	50.21	0.00	0.00	0.00	0.00	0.00	0.00	78.81	78.81	0.00	0.00	0.00	0.00	0.00	0.63	205.57	206.20	99.69	
20/05/2020	90.21	0.00	0.11	79.33	79.45	0.00	0.00	0.00	0.00	0.00	0.14	50.42	50.57	0.00	0.00	0.00	0.00	0.00	0.00	80.47	80.47	0.00	0.00	0.00	0.00	0.00	0.26	210.23	210.48	99.88	
21/05/2020	92.13	0.00	0.56	78.96	79.51	0.00	0.00	0.00	0.00	0.00	0.18	51.14	51.32	0.00	0.00	0.00	0.00	0.00	0.00	81.58	81.58	0.00	0.00	0.00	0.00	0.00	0.74	211.68	212.42	99.65	
22/05/2020	93.56	0.00	0.33	78.89	79.23	0.00	0.00	0.00	0.00	0.00	0.07	53.04	53.11	0.00	0.00	0.00	0.00	0.00	0.00	84.17	84.17	0.00	0.00	0.00	0.00	0.00	0.41	216.10	216.51	99.81	
23/05/2020	93.04	0.00	0.22	79.01	79.23	0.00	0.00	0.00	0.00	0.00	0.07	53.02	53.09	0.00	0.00	0.00	0.00	0.00	0.00	84.20	84.20	0.00	0.00	0.00	0.00	0.00	0.30	216.23	216.53	99.86	
24/05/2020	92.24	0.00	0.33	78.24	78.57	0.00	0.00	0.00	0.00	0.00	0.19	52.62	52.81	0.00	0.00	0.00	0.00	0.00	0.00	83.65	83.65	0.00	0.00	0.00	0.00	0.00	0.52	214.51	215.03	99.76	
25/05/2020	93.66	0.00	0.16	74.31	74.48	0.00	0.00	0.00	0.00	0.16	0.31	34.28	34.75	0.00	0.00	25.36	25.36	0.00	0.00	77.84	77.84	0.00	0.00	0.00	0.00	0.16	0.47	211.79	212.43	99.70	
26/05/2020	94.10	0.00	0.00	69.64	69.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.18	74.18	0.00	0.00	68.52	68.52	0.00	0.00	0.00	0.00	0.00	0.00	212.34	212.34	100.00
27/05/2020	94.15	0.00	0.00	68.00	68.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.61	72.61	0.00	0.00	67.41	67.41	0.00	0.00	0.00	0.00	0.00	0.00	208.02	208.02	100.00
28/05/2020	94.19	0.00	0.00	66.81	66.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.67	71.67	0.05	0.05	44.98	45.08	0.04	0.04	212.8	213.36	0.09	0.09	204.74	204.93	99.91
29/05/2020	94.33	0.00	0.00	62.31	62.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.88	66.88	0.00	0.00	0.00	0.00	0.00	0.00	61.67	61.67	0.00	0.00	190.87	190.87	100.00
30/05/2020	94.45	0.00	0.00	60.78	60.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.25	65.25	0.00	0.00	0.00	0.00	0.00	0.00	60.51	60.51	0.00	0.00	186.55	186.55	100.00
31/05/2020	94.47	0.00	0.00	61.05	61.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.58	65.58	0.00	0.00	0.00	0.00	0.00	0.00	61.03	61.03	0.00	0.00	187.66	187.66	100.00

Total [ML]: 0.04 2.35 2150.05 2152.44 0.00 0.00 0.00 0.00 0.18 3.66 1130.88 1134.73 0.01 0.33 516.49 516.82 0.11 0.11 1969.50 1969.71 0.04 0



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: June 2020

Report Created: Wednesday, July 01, 2020

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To			
		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]							
	UVATavg	Untreated	Below	To	Total	Untreated	Below	To	Total	Dose																							
01/06/2020	94.35	0.00	0.00	64.76	64.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.59	70.59	0.00	0.00	0.00	0.00	0.00	0.00	63.59	63.59	0.00	0.00	198.93	198.93	100.00		
02/06/2020	93.96	0.00	0.12	78.25	78.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.74	67.74	0.00	0.00	0.00	0.00	0.00	0.00	69.70	69.70	0.00	0.12	215.70	215.81	99.95		
03/06/2020	93.58	0.00	0.22	79.77	80.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.24	68.24	0.00	0.00	0.00	0.00	0.00	0.00	76.47	76.47	0.00	0.22	224.48	224.70	99.90		
04/06/2020	93.19	0.00	0.29	78.73	79.03	0.00	0.03	0.06	0.09	0.00	0.00	10.58	10.58	0.00	0.00	67.36	67.36	0.00	0.00	0.00	0.00	0.00	0.00	80.13	80.13	0.00	0.33	236.86	237.19	99.86			
05/06/2020	92.89	0.00	0.00	64.87	64.87	0.00	0.00	0.00	0.00	0.00	0.00	63.40	63.40	0.00	0.00	25.94	25.94	0.00	0.00	23.68	23.68	0.00	0.00	69.96	69.96	0.00	0.00	247.85	247.85	100.00			
06/06/2020	92.67	0.00	0.00	68.11	68.11	0.00	0.00	0.00	0.00	0.18	0.18	70.61	70.98	0.00	0.00	2.29	2.29	0.00	0.00	23.63	23.63	0.00	0.05	72.08	72.13	0.18	0.23	236.72	237.13	99.83			
07/06/2020	92.76	0.00	0.00	73.84	73.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.73	79.73	0.00	0.00	0.00	0.00	0.00	0.00	73.25	73.25	0.00	0.00	226.82	226.82	100.00		
08/06/2020	92.89	0.00	0.00	65.30	65.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.25	70.25	0.00	0.00	0.00	0.00	0.00	0.00	65.02	65.02	0.00	0.00	200.57	200.57	100.00		
09/06/2020	93.17	0.00	0.00	62.15	62.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.84	66.84	0.00	0.00	0.00	0.00	0.00	0.00	62.10	62.10	0.00	0.00	191.08	191.08	100.00		
10/06/2020	93.58	0.00	0.00	61.94	61.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.61	66.61	0.00	0.00	0.00	0.00	0.00	0.00	61.93	61.93	0.00	0.00	190.48	190.48	100.00		
11/06/2020	93.62	0.00	0.00	61.53	61.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.14	66.14	0.00	0.00	0.00	0.00	0.00	0.00	61.65	61.65	0.00	0.00	189.33	189.33	100.00		
12/06/2020	93.68	0.00	0.00	63.85	63.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	59.86	59.90	0.00	0.00	0.00	0.00	0.00	0.00	65.11	65.11	0.00	0.05	188.82	188.87	99.98			
13/06/2020	93.76	0.00	0.00	70.54	70.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.69	44.69	0.00	0.00	0.00	0.00	0.00	0.00	73.65	73.80	0.00	0.16	188.87	189.03	99.92			
14/06/2020	93.61	0.00	0.00	73.67	73.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.80	46.80	0.00	0.00	0.00	0.00	0.00	0.00	76.57	76.63	0.00	0.05	197.04	197.09	99.97			
15/06/2020	93.27	0.18	0.18	47.78	48.13	0.01	0.01	24.41	24.44	0.00	0.00	33.42	33.42	0.00	0.00	17.72	17.72	0.00	0.00	0.00	0.00	0.00	0.00	0.11	78.17	78.28	0.19	0.30	201.51	202.00	99.76		
16/06/2020	92.94	0.00	0.00	43.98	43.98	0.00	0.00	28.54	28.54	0.00	0.05	61.50	61.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.24	81.29	0.00	0.10	215.42	215.52	99.95	
17/06/2020	92.75	0.00	0.00	77.93	77.93	0.00	0.00	0.00	0.00	0.00	0.00	66.74	66.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.31	72.31	0.00	0.00	226.90	226.98	100.00	
18/06/2020	94.92	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.00	65.20	65.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.42	79.42	0.00	0.00	229.64	229.64	100.00	
19/06/2020	94.36	0.17	0.41	70.67	71.25	0.00	0.00	0.00	0.00	0.16	0.29	45.45	45.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.47	65.99	66.66	0.53	1.17	182.11	183.81	99.07			
20/06/2020	94.25	0.00	0.59	84.39	84.98	0.00	0.00	0.00	0.00	0.00	0.35	54.79	55.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	83.79	84.67	0.00	1.83	222.97	224.80	99.19			
21/06/2020	94.26	0.00	0.89	84.13	85.02	0.00	0.00	0.00	0.00	0.00	0.12	56.55	56.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	84.04	84.98	0.00	1.95	224.72	226.67	99.14			
22/06/2020	94.36	0.00	1.01	84.00	85.00	0.00	0.00	0.00	0.00	0.00	0.16	56.81	56.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	83.97	84.97	0.00	2.17	224.77	226.94	99.04			
23/06/2020	94.43	0.00	0.77	77.87	78.64	0.00	0.00	0.00	0.00	0.00	0.13	49.33	49.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	78.90	79.84	0.00	1.84	206.10	207.94	99.12			
24/06/2020	94.34	0.00	0.75	76.03	76.78	0.00	0.00	0.00	0.00	0.00	0.07	47.57	47.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	77.54	78.58	0.00	1.85	201.15	203.00	99.09			
25/06/2020	94.41	0.01	0.85	52.52	53.38	0.00	0.00	0.00	0.00	0.00	0.12	46.60	46.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	54.20	54.81	0.01	1.59	153.32	154.92	98.97			
26/06/2020	95.24	0.00	1.28	67.32	68.61	0.00	0.00	0.00	0.00	0.00	0.28	78.78	79.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	76.18	77.13	0.00	2.52	222.28	224.79	98.88			
27/06/2020	96.16	0.00	0.67	68.52	69.19	0.00	0.00	0.00	0.00	0.00	0.22	79.50	79.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	77.30	78.11	0.00	1.71	225.32	227.03	99.25			
28/06/2020	96.32	0.00	0.62	67.48	68.09	0.00	0.00	0.00	0.00	0.00	0.22	78.24	78.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	76.25	77.16	0.00	1.74	221.97	223.71	99.22			
29/06/2020	96.28	0.00	0.75	66.89	67.64	0.00	0.00	0.00	0.00	0.00	0.16	77.89	78.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	75.54	76.28	0.00	1.65	220.32	221.97	99.25			
30/06/2020	96.32	0.00	0.28	67.10	67.39	0.00	0.00	3.18	3.18	0.00	0.33	74.54	74.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.93	0.00	0.78	74.81	75.59	0.00	1.39	220.57	221.96	99.37

Water Volume [%]:

Untreated: 0.01 %

Below Dose: 0.36 %

To Dose: 99.62 %

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

Submitted By (Print): D.Minor _____ Signature: Original signed by D.Minor _____



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: July 2020

Report Created: Saturday, August 01, 2020

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% 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]				
		UVTavg	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
01/07/2020	96.06	0.00	0.86	67.67	68.53	0.00	0.00	0.00	0.00	0.00	1.38	77.43	78.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	73.81	74.64	0.00	3.07	218.91	221.98	98.62
02/07/2020	95.23	0.00	1.57	66.84	68.41	0.00	0.00	0.00	0.00	0.00	0.88	77.79	78.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	74.02	74.91	0.00	3.34	218.65	221.99	98.49
03/07/2020	95.80	0.00	1.44	67.37	68.81	0.00	0.00	0.00	0.00	0.00	0.72	78.19	78.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	74.00	74.26	0.00	2.42	219.56	221.98	98.91
04/07/2020	95.84	0.00	1.77	67.11	68.88	0.00	0.00	0.00	0.00	0.00	0.50	78.40	78.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	73.20	74.24	0.00	3.31	218.71	222.02	98.51
05/07/2020	95.64	0.00	2.24	66.35	68.59	0.00	0.00	0.00	0.00	0.00	0.44	78.30	78.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	73.27	74.61	0.00	4.02	217.92	221.94	98.19
06/07/2020	95.62	0.00	1.73	67.33	69.05	0.00	0.00	0.00	0.00	0.00	0.33	78.65	78.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	73.50	73.96	0.00	2.52	219.48	221.99	98.87
07/07/2020	95.72	0.00	1.78	67.42	69.20	0.00	0.00	0.00	0.00	0.00	0.44	78.58	79.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	73.18	73.79	0.00	2.84	219.18	222.02	98.72
08/07/2020	95.42	0.00	1.78	67.45	69.24	0.00	0.00	0.00	0.00	0.00	0.61	78.41	79.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	72.44	73.77	0.00	3.72	218.30	222.02	98.32
09/07/2020	95.17	0.00	1.91	66.72	68.63	0.00	0.00	0.00	0.00	0.00	0.61	78.22	78.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	72.98	74.56	0.00	4.10	217.93	222.02	98.15
10/07/2020	95.24	0.00	1.61	66.23	67.84	0.00	0.00	0.00	0.00	0.00	0.60	77.67	78.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	73.97	75.86	0.00	4.10	217.87	221.97	98.15
11/07/2020	94.68	0.00	2.08	65.73	67.80	0.00	0.00	0.00	0.00	0.00	0.82	77.26	78.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	74.95	76.12	0.00	4.06	217.94	222.00	98.17
12/07/2020	95.78	0.00	2.24	66.14	68.37	0.00	0.00	0.00	0.00	0.00	0.89	77.84	78.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	75.55	75.82	0.00	3.39	219.53	222.91	98.48
13/07/2020	96.25	0.00	1.83	67.14	68.97	0.00	0.00	0.00	0.00	0.00	0.77	78.70	79.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	74.57	75.52	0.00	3.54	220.42	223.97	98.42
14/07/2020	96.41	0.00	0.62	21.67	22.29	0.00	0.00	47.23	47.23	0.00	0.77	78.09	78.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	73.87	75.66	0.00	3.18	220.86	224.04	98.58
15/07/2020	96.39	0.00	0.00	0.00	0.00	0.00	0.00	69.39	69.39	0.00	1.15	77.35	78.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	74.80	76.12	0.00	2.47	221.54	224.01	98.90
16/07/2020	96.45	0.00	0.00	0.00	0.00	0.00	0.00	67.11	67.11	0.00	0.89	72.84	73.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	69.12	71.01	0.00	2.78	209.07	211.86	98.69
17/07/2020	96.39	0.00	0.00	0.00	0.00	0.00	0.00	64.99	64.99	0.00	1.32	69.41	70.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	67.06	68.30	0.00	2.56	201.47	204.02	98.75
18/07/2020	96.43	0.00	0.00	0.00	0.00	0.00	0.00	64.59	64.59	0.00	1.24	70.20	71.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	66.85	67.94	0.00	2.32	201.65	203.97	98.86
19/07/2020	96.54	0.00	0.00	0.00	0.00	0.00	0.00	61.91	61.91	0.00	1.25	67.88	69.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	64.92	65.96	0.00	2.30	194.71	197.01	98.83
20/07/2020	96.57	0.03	0.03	20.88	20.94	0.00	0.00	39.51	39.51	0.00	0.85	67.41	68.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	64.29	65.33	0.03	1.93	192.09	194.04	98.99
21/07/2020	96.80	0.00	0.00	60.74	60.74	0.00	0.00	0.00	0.00	0.00	1.03	69.13	70.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	65.79	66.81	0.00	2.05	195.66	197.70	98.97
22/07/2020	96.70	0.00	0.05	65.01	65.06	0.00	0.00	0.00	0.00	0.00	1.41	73.34	74.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	68.85	70.52	0.00	3.12	207.21	210.32	98.52
23/07/2020	96.51	0.00	0.43	67.55	67.98	0.00	0.00	0.00	0.00	0.00	1.79	75.74	77.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	72.33	73.35	0.00	3.24	215.62	218.86	98.52
24/07/2020	96.50	0.00	0.29	67.68	67.96	0.00	0.00	0.00	0.00	0.00	1.66	74.83	76.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	72.50	74.53	0.00	3.97	215.01	218.98	98.19
25/07/2020	96.44	0.00	0.28	67.58	67.86	0.00	0.00	0.00	0.00	0.00	1.63	76.46	78.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	72.89	73.04	0.00	2.07	216.92	218.99	99.06
26/07/2020	96.49	0.00	0.42	67.40	67.82	0.00	0.00	0.00	0.00	0.00	2.28	75.82	78.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	71.93	73.10	0.00	3.87	215.15	219.02	98.23
27/07/2020	96.22	0.00	0.52	71.78	72.29	0.00	0.00	0.00	0.00	0.00	2.35	78.91	81.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.47	76.51	79.98	0.00	6.33	227.20	233.53	97.29
28/07/2020	96.34	0.00	0.25	71.33	71.58	0.00	0.00	0.00	0.00	0.00	2.47	80.11	82.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.16	77.49	80.66	0.00	5.88	228.93	234.81	97.50
29/07/2020	95.83	0.00	0.77	73.43	74.20	0.00	0.00	0.00	0.00	0.00	2.27	79.20	81.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	79.88	81.86	0.00	5.02	232.51	237.52	97.89
30/07/2020	96.05	0.00	0.53	75.13	75.66	0.00	0.00	0.00	0.00	0.00	2.51	81.73	84.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22	82.65	84.87	0.00	5.26	239.51	244.77	97.85
31/07/2020	96.36	0.00	0.73	74.28	75.01	0.00	0.00	0.00	0.00	0.00	2.07	82.94	85.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	82.91	84.98	0.00	4.86	240.13	245.00	98.02

Total [ML]: 0.03 27.76 1673.93 1701.72 0.00 0.00 414.74 414.74 0.00 37.90 2366.84 2404.75 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 41.96 2264.10 2306.06 0.03 107.62 6719.62 6827.27

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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: August 2020

Report Created: Tuesday, September 01, 2020

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% 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]					
		UVTavg	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	
01/08/2020	96.00	0.00	1.04	73.41	74.45	0.00	0.00	0.00	0.00	0.00	2.60	82.35	84.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	81.48	83.75	0.00	5.91	237.24	243.15	97.57	
02/08/2020	96.10	0.00	0.41	72.82	73.23	0.00	0.00	0.00	0.00	0.00	2.77	82.11	84.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	79.12	81.91	0.00	5.97	234.05	240.02	97.51	
03/08/2020	96.62	0.00	0.56	72.74	73.30	0.00	0.00	0.00	0.00	0.00	2.46	81.93	84.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69	79.64	82.32	0.00	5.71	234.30	240.01	97.62	
04/08/2020	96.62	0.00	0.81	76.95	77.76	0.00	0.00	0.00	0.00	0.00	2.48	76.94	79.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	82.13	83.57	0.00	4.73	236.02	240.75	98.04	
05/08/2020	96.41	0.00	0.71	72.47	73.18	0.00	0.00	0.00	0.00	0.00	2.46	81.56	84.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28	79.82	82.10	0.00	5.45	233.84	239.30	97.72	
06/08/2020	96.24	0.00	0.67	66.82	67.49	0.00	0.00	0.00	0.00	0.00	2.10	75.76	77.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	74.23	75.98	0.00	4.53	216.80	221.33	97.95	
07/08/2020	95.86	0.00	0.42	75.38	75.80	0.00	0.00	0.00	0.00	0.00	2.60	82.42	85.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.59	77.06	83.65	0.00	9.62	234.86	244.47	96.07	
08/08/2020	94.04	0.00	0.88	78.08	78.96	0.00	0.00	0.00	0.00	0.00	3.15	80.59	83.74	0.00	0.00	0.00	0.00	0.00	0.10	39.83	39.93	0.00	0.94	38.91	39.84	0.00	5.06	237.41	242.47	97.91	
09/08/2020	94.10	0.00	1.05	78.86	79.92	0.00	0.00	0.00	0.00	0.00	17.90	52.70	70.61	0.00	0.00	6.61	6.61	0.00	0.24	84.45	84.69	0.00	0.00	0.00	0.00	0.00	19.20	222.62	241.82	92.06	
10/08/2020	94.10	0.00	0.98	77.80	78.78	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	0.34	80.89	81.23	0.00	0.00	0.00	0.00	0.00	1.32	243.67	245.00	99.46	
11/08/2020	94.88	0.00	0.58	76.15	76.73	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	0.11	78.80	78.91	0.00	0.00	0.00	0.00	0.00	0.70	239.95	240.64	99.71	
12/08/2020	96.10	0.00	0.63	74.46	75.09	0.00	0.00	0.00	0.00	0.00	0.00	13.66	13.66	0.00	0.00	80.20	80.20	0.00	0.27	76.66	76.93	0.00	0.00	0.00	0.00	0.00	0.90	244.98	245.88	99.63	
13/08/2020	95.98	0.00	0.72	64.28	65.01	0.00	0.00	0.00	0.00	0.00	0.27	62.55	62.82	0.00	0.00	64.98	64.98	0.00	0.00	65.02	65.02	0.00	0.00	0.00	0.00	0.00	0.99	256.85	257.84	99.62	
14/08/2020	96.24	0.00	0.67	68.57	69.23	0.00	0.00	0.00	0.00	0.00	0.04	13.17	13.22	0.00	0.00	73.98	73.98	0.00	0.00	68.42	68.42	0.00	0.00	0.00	0.00	0.00	0.71	224.14	224.85	99.68	
15/08/2020	96.53	0.00	0.48	68.10	68.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.78	72.78	0.00	0.00	69.11	69.11	0.00	0.00	0.00	0.00	0.00	0.48	209.98	210.46	99.77	
16/08/2020	96.80	0.00	0.38	67.87	68.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.74	72.74	0.00	0.00	69.00	69.00	0.00	0.00	0.00	0.00	0.00	0.38	209.61	209.99	99.82	
17/08/2020	96.08	0.00	0.45	39.00	39.45	0.00	0.00	26.43	26.43	0.00	0.48	27.30	27.78	0.00	0.00	40.11	40.11	0.00	0.00	65.31	65.31	0.00	0.00	0.00	0.00	0.00	0.92	198.16	199.09	99.54	
18/08/2020	96.09	0.00	0.00	0.00	0.00	0.00	0.00	67.84	67.84	0.00	0.30	72.05	72.36	0.00	0.00	0.00	0.00	0.05	69.81	69.86	0.00	0.00	0.00	0.00	0.00	0.35	209.71	210.6	99.83		
19/08/2020	96.86	0.00	0.00	0.00	0.00	0.00	0.00	68.29	68.29	0.00	0.27	75.89	76.16	0.00	0.00	0.00	0.00	0.05	72.71	72.76	0.00	0.00	0.00	0.00	0.00	0.32	216.88	217.21	99.85		
20/08/2020	96.75	0.00	0.00	0.00	0.00	0.00	0.00	70.00	70.00	0.00	0.51	79.07	79.58	0.00	0.00	0.00	0.00	0.00	75.95	75.95	0.00	0.00	0.00	0.00	0.00	0.51	225.01	225.52	99.78		
21/08/2020	96.70	0.00	0.39	0.00	0.39	0.00	0.00	48.82	48.82	0.10	0.65	47.63	48.39	0.00	0.00	27.44	27.44	0.00	0.00	70.34	70.34	0.00	0.06	34.23	34.29	0.10	1.11	228.45	229.66	99.47	
22/08/2020	96.58	0.00	0.00	25.21	25.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.98	80.98	0.00	0.00	33.74	33.74	0.00	1.34	76.79	78.14	0.00	1.34	216.72	218.06	99.38	
23/08/2020	96.58	0.00	0.00	31.98	31.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.20	79.20	0.00	0.00	21.72	21.72	0.00	0.57	68.74	69.31	0.00	0.57	201.64	202.21	99.72	
24/08/2020	96.20	0.00	0.09	35.79	35.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.92	74.92	0.00	0.00	55.09	55.09	0.00	0.15	31.97	32.12	0.00	0.24	197.78	198.02	99.88	
25/08/2020	96.02	0.00	0.22	63.89	64.11	0.00	0.00	0.00	0.00	0.00	0.00	25.74	25.74	0.00	0.00	44.73	44.73	0.00	0.00	66.95	66.95	0.00	0.00	0.00	0.00	0.00	0.22	201.30	201.53	99.89	
26/08/2020	95.98	0.00	0.27	62.86	63.12	0.00	0.00	0.00	0.00	0.10	71.22	71.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.60	70.60	0.00	0.00	0.00	0.00	0.00	0.37	204.68	205.04	99.82	
27/08/2020	96.38	0.00	0.33	67.16	67.49	0.00	0.00	0.00	0.00	0.00	0.58	74.91	75.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.16	74.16	0.00	0.00	0.00	0.00	0.00	0.91	216.23	217.13	99.58
28/08/2020	96.08	0.00	0.38	66.59	66.96	0.00	0.00	0.00	0.00	0.00	0.53	74.15	74.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.10	73.10	0.00	0.00	0.00	0.00	0.00	0.91	213.84	214.75	99.58
29/08/2020	96.15	0.00	0.18	65.39	65.57	0.00	0.00	0.00	0.00	0.00	0.46	72.76	73.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.19	71.19	0.00	0.00	0.00	0.00	0.00	0.64	209.33	209.97	99.70
30/08/2020	96.36	0.00	0.18	65.24	65.42	0.00	0.00	0.00	0.00	0.00	0.41	72.84	73.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.34	71.34	0.00	0.00	0.00	0.00	0.00	0.59	209.41	210.00	99.72
31/08/2020	96.86	0.00	0.22	63.39	63.62	0.00	0.00	0.00	0.00	0.00	0.35	70.96	71.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.63	69.63	0.00	0.00	0.00	0.00	0.00	0.57	203.99	204.56	99.72
Total [ML]:		0.00	13.72	1751.24	1764.96	0.00	0.00	281.37	281.37	0.10	43.47	1550.26	1593.84	0.00	0.00	888.66															



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: September 2020

Report Created: Thursday, October 01, 2020

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% 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]						
	UVTavg	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			
01/09/2020	96.66	0.00	0.29	60.80	61.09	0.00	0.00	0.00	0.00	0.00	0.24	68.57	68.80	0.00	0.00	0.00	0.00	0.00	0.00	67.43	67.43	0.00	0.00	0.00	0.00	0.00	0.53	196.79	197.32	99.73		
02/09/2020	96.78	0.00	0.29	60.00	60.29	0.00	0.00	0.00	0.00	0.00	0.09	67.88	67.97	0.00	0.00	0.00	0.00	0.00	0.00	40.52	40.52	0.00	0.05	26.21	26.26	0.00	0.44	194.61	195.05	99.78		
03/09/2020	97.11	0.00	0.25	59.49	59.74	0.00	0.00	0.00	0.00	0.00	0.37	66.09	66.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.83	64.83	0.00	0.61	190.41	191.03	99.68
04/09/2020	97.42	0.00	0.37	59.22	59.59	0.00	0.00	0.00	0.00	0.00	0.51	65.64	66.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.28	64.28	0.00	0.88	189.14	190.02	99.54
05/09/2020	97.35	0.00	0.33	57.98	58.31	0.00	0.00	0.00	0.00	0.00	0.28	64.16	64.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.99	62.99	0.00	0.60	185.14	185.74	99.68
06/09/2020	97.49	0.00	0.40	57.77	58.16	0.00	0.00	0.00	0.00	0.00	0.36	64.25	64.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.08	63.08	0.00	0.75	185.10	185.85	99.59
07/09/2020	97.53	0.00	0.45	58.72	59.17	0.00	0.00	0.00	0.00	0.00	0.41	65.39	65.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.03	64.03	0.00	0.87	188.14	189.01	99.54
08/09/2020	96.19	0.00	0.29	59.00	59.29	0.00	0.00	0.00	0.00	0.00	0.74	64.98	65.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.01	64.01	0.00	1.03	187.98	189.01	99.46
09/09/2020	95.00	0.00	0.33	58.85	59.18	0.00	0.00	0.00	0.00	0.00	0.37	65.20	65.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.51	25.51	0.00	0.00	38.73	38.73	0.00	0.70	188.29	188.98	99.63
10/09/2020	95.26	0.00	0.45	58.52	58.97	0.00	0.00	0.00	0.00	0.00	0.27	34.85	35.12	0.00	0.00	29.16	29.16	0.00	0.00	62.10	62.10	0.00	0.00	0.00	0.00	0.00	0.72	184.63	185.35	99.61		
11/09/2020	95.17	0.00	0.29	59.02	59.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.72	62.72	0.00	0.00	59.98	59.98	0.00	0.00	0.00	0.00	0.00	0.29	181.72	182.01	99.84		
12/09/2020	95.23	0.00	0.37	59.26	59.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.04	62.04	0.00	0.00	60.35	60.35	0.00	0.00	0.00	0.00	0.00	0.37	181.66	182.03	99.80		
13/09/2020	95.29	0.00	0.39	62.55	62.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.35	66.35	0.00	0.00	62.74	62.74	0.00	0.00	0.00	0.00	0.00	0.39	191.64	192.04	99.80		
14/09/2020	95.12	0.00	0.90	63.84	64.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.35	68.35	0.00	0.00	63.87	63.87	0.00	0.00	0.00	0.00	0.00	0.90	196.06	196.96	99.54		
15/09/2020	94.83	0.00	1.50	67.59	69.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.21	60.24	0.00	0.00	63.08	63.08	0.00	0.00	0.00	0.00	0.00	1.53	190.87	192.41	99.20		
16/09/2020	94.81	0.00	1.23	79.26	80.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.50	56.50	0.00	0.05	65.03	65.07	0.00	0.00	0.00	0.00	0.00	1.28	200.79	202.07	99.37		
17/09/2020	94.96	0.00	1.40	79.00	80.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.11	56.11	0.00	0.05	64.44	64.48	0.00	0.00	0.00	0.00	0.00	1.45	199.54	200.99	99.28		
18/09/2020	94.94	0.00	2.02	80.91	82.93	0.00	0.00	0.00	0.00	0.00	0.00	22.96	22.96	0.00	0.00	35.06	35.06	0.00	0.00	68.60	68.60	0.00	0.00	0.00	0.00	0.00	2.02	207.52	209.54	99.04		
19/09/2020	94.87	0.00	1.82	82.69	84.51	0.00	0.00	0.00	0.00	0.00	0.00	59.21	59.21	0.00	0.00	0.00	0.00	0.00	0.00	71.80	71.80	0.00	0.00	0.00	0.00	0.00	1.82	213.70	215.52	99.15		
20/09/2020	95.06	0.00	1.76	82.53	84.29	0.00	0.00	0.00	0.00	0.00	0.00	59.71	59.71	0.00	0.00	0.00	0.00	0.00	0.00	72.73	72.73	0.00	0.00	0.00	0.00	0.00	1.76	214.96	216.72	99.19		
21/09/2020	94.76	0.00	0.79	28.11	28.90	0.00	0.00	0.00	0.00	0.00	0.00	52.20	52.20	0.00	0.03	38.12	38.14	0.00	0.00	84.17	84.17	0.00	0.49	0.13	0.61	0.00	1.31	202.72	204.03	99.36		
22/09/2020	94.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.40	46.40	0.00	0.00	73.52	73.52	0.00	0.06	84.97	85.03	0.00	0.00	0.00	0.00	0.00	0.06	204.89	204.95	99.97			
23/09/2020	93.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.13	39.08	39.23	0.02	0.02	59.01	59.06	0.03	0.12	35.40	35.56	0.00	0.23	33.06	33.30	0.08	0.51	166.55	167.14	99.65			
24/09/2020	92.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	47.81	48.19	0.00	0.00	77.25	77.25	0.00	0.00	0.06	0.06	0.00	0.82	83.94	84.77	0.00	1.19	209.07	210.27	99.43			
25/09/2020	94.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.36	48.36	0.00	0.00	77.64	77.64	0.00	0.00	0.00	0.00	0.00	0.77	84.24	85.01	0.00	0.77	210.24	211.01	99.63			
26/09/2020	94.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.88	47.88	0.00	0.00	76.27	76.27	0.00	0.00	0.00	0.00	0.00	0.88	83.55	84.43	0.00	0.88	207.71	208.59	99.58			
27/09/2020	94.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.95	40.95	0.00	0.00	63.23	63.23	0.00	0.00	0.00	0.00	0.00	0.74	74.74	75.48	0.00	0.74	178.92	179.66	99.59			
28/09/2020	94.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	43.25	0.00	0.00	68.17	68.17	0.00	0.00	0.00	0.00	0.00	0.93	80.90	81.82	0.00	0.93	192.31	193.24	99.52			
29/09/2020	93.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	42.53	42.59	0.00	0.00	66.95	66.95	0.00	0.00	0.00	0.00	0.00	1.00	79.36	80.36	0.00	1.06	188.84	189.90	99.44			
30/09/2020	93.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	47.50	47.71	0.00	0.00	67.07	67.07	0.00	0.00	0.00	0.00	0.00	1.33	73.78	75.11	0.00	1.53	188.35	189.89	99.19			

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.48 %

To Dose: 99.52 %

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

Submitted By (Print): D.Minor _____

Signature: Original signed by D.Minor _____



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: October 2020

Report Created: Sunday, November 01, 2020

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% 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]				
		UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total																				
01/10/2020	93.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	54.94	55.33	0.00	0.00	69.57	69.57	0.00	0.00	0.00	0.00	0.00	0.51	72.56	73.07	0.00	0.90	197.07	197.97	99.55
02/10/2020	93.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	54.83	55.30	0.00	0.00	69.61	69.61	0.00	0.00	0.00	0.00	0.00	0.76	72.35	73.11	0.00	1.23	196.79	198.02	99.38
03/10/2020	93.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	54.76	55.15	0.00	0.05	69.55	69.60	0.00	0.00	0.00	0.00	0.00	1.07	72.20	73.27	0.00	1.50	196.51	198.02	99.24
04/10/2020	93.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	52.11	52.25	0.00	0.18	65.54	65.72	0.00	0.00	0.00	0.00	0.00	0.86	68.78	69.64	0.00	1.19	186.42	187.62	99.36
05/10/2020	93.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	51.13	51.46	0.00	0.05	64.71	64.76	0.00	0.00	0.00	0.00	0.00	0.72	68.04	68.75	0.00	1.09	183.88	184.97	99.41
06/10/2020	93.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	51.16	51.34	0.00	0.05	64.48	64.53	0.00	0.00	0.00	0.00	0.00	0.81	67.82	68.64	0.00	1.04	183.47	184.50	99.44
07/10/2020	93.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	50.64	51.03	0.00	0.27	63.57	63.84	0.00	0.00	0.00	0.00	0.00	0.76	67.40	68.16	0.00	1.43	181.62	183.04	99.22
08/10/2020	93.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	50.68	51.04	0.00	0.04	63.67	63.72	0.00	0.00	0.00	0.00	0.00	0.85	67.39	68.25	0.00	1.26	181.74	183.00	99.31
09/10/2020	93.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	50.81	51.00	0.00	0.00	63.64	63.64	0.00	0.00	0.00	0.00	0.00	1.04	67.31	68.35	0.00	1.22	181.76	182.99	99.33
10/10/2020	93.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	50.38	50.96	0.00	0.05	63.54	63.59	0.00	0.00	0.00	0.00	0.00	1.00	67.43	68.43	0.00	1.62	181.35	182.97	99.11
11/10/2020	93.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	50.61	51.08	0.00	0.32	63.55	63.86	0.00	0.00	0.00	0.00	0.00	1.05	67.58	68.63	0.00	1.83	181.74	183.57	99.00
12/10/2020	93.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	51.71	52.07	0.00	0.44	62.97	63.41	0.00	0.00	0.00	0.00	0.00	0.96	68.57	69.53	0.00	1.76	183.25	185.02	99.05
13/10/2020	93.28	0.00	0.71	23.71	24.42	0.00	0.00	0.00	0.00	0.00	0.39	56.99	57.38	0.00	0.73	57.76	58.49	0.00	0.29	0.01	0.30	0.00	1.29	42.97	44.26	0.00	3.41	181.44	184.85	98.16
14/10/2020	92.82	0.00	0.76	53.41	54.17	0.00	0.00	11.20	11.20	0.00	0.59	58.12	58.71	0.00	0.10	25.52	26.62	0.00	4.79	3.61	8.40	0.00	1.11	18.24	19.35	0.00	7.35	170.10	177.46	95.86
15/10/2020	93.17	0.00	0.17	60.86	61.03	0.00	0.00	36.74	36.74	0.00	1.18	64.15	65.33	0.02	0.02	28.03	28.07	0.00	0.10	0.01	0.11	0.00	0.16	0.02	0.18	0.02	1.63	189.80	191.45	99.14
16/10/2020	92.80	0.00	0.45	64.55	65.01	0.00	0.00	0.00	0.00	0.00	0.58	60.63	61.21	0.00	0.00	64.99	64.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	190.17	191.21	99.46
17/10/2020	92.52	0.00	0.68	64.30	64.98	0.00	0.00	0.00	0.00	0.00	0.78	57.70	58.48	0.00	0.00	65.00	65.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	187.00	188.46	99.23
18/10/2020	92.61	0.00	0.68	64.30	64.98	0.00	0.00	0.00	0.00	0.00	0.25	59.75	60.01	0.00	0.09	64.89	64.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	188.94	189.96	99.46
19/10/2020	92.90	0.00	0.86	64.15	65.01	0.00	0.00	0.00	0.00	0.00	0.59	59.44	60.03	0.00	0.09	64.93	65.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	188.52	190.06	99.19
20/10/2020	93.02	0.00	1.04	63.96	65.00	0.00	0.00	0.00	0.00	0.00	0.76	59.25	60.00	0.00	0.05	64.97	65.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	188.18	190.02	99.03
21/10/2020	93.11	0.00	0.82	64.17	64.99	0.00	0.00	0.00	0.00	0.00	0.71	59.26	59.98	0.00	0.00	65.02	65.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	188.46	189.99	99.20
22/10/2020	92.93	0.00	1.03	63.76	64.79	0.00	0.00	0.00	0.00	0.00	0.64	55.39	56.03	0.00	0.09	64.91	65.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77	184.06	185.83	99.05
23/10/2020	92.46	0.00	1.05	62.12	63.17	0.00	0.00	0.00	0.00	0.00	0.37	51.48	51.85	0.00	0.00	64.99	64.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	178.59	180.01	99.21
24/10/2020	92.76	0.00	0.80	63.14	63.94	0.00	0.00	0.00	0.00	0.00	0.50	51.09	51.59	0.00	0.00	65.02	65.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	179.25	180.55	99.28
25/10/2020	92.92	0.00	1.00	64.01	65.01	0.00	0.00	0.00	0.00	0.00	0.80	49.21	50.01	0.00	0.00	65.02	65.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	178.24	180.04	99.00
26/10/2020	92.96	0.00	0.90	64.10	65.00	0.00	0.00	0.00	0.00	0.00	0.85	52.75	53.60	0.00	0.05	64.97	65.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	181.81	183.62	99.02
27/10/2020	93.01	0.00	0.41	37.40	37.80	0.00	0.00	0.00	0.00	0.00	1.10	51.44	52.54	0.00	0.23	64.79	65.02	0.00	0.00	29.15	29.15	0.00	0.00	0.00	0.00	0.00	1.73	182.78	184.51	99.06
28/10/2020	93.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	48.39	48.94	0.00	0.19	64.82	65.01	0.00	0.00	69.08	69.08	0.00	0.00	0.00	0.00	0.00	0.74	182.29	183.03	99.60
29/10/2020	93.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	48.52	49.18	0.00	0.05	64.92	64.96	0.00	0.00	68.86	68.86	0.00	0.00	0.00	0.00	0.00	0.70	182.30	183.00	99.62
30/10/2020	92.86	0.00	0.00	33.76	33.76	0.00	0.00	0.00	0.00	0.00	0.54	47.32	47.87	0.00	0.14	64.85	64.99	0.00	0.00	36.35	36.35	0.00	0.00	0.00	0.00	0.00	0.68	182.27	182.96	99.63
31/10/2020	92.64	0.00	0.20	71.32	71.52	0.00	0.00	0.00	0.00	0.00	0.55	45.94	46.50	0.00	0.09	64.89	64.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	182.16	183.00	99.54

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.86 %

To Dose: 99.14 %

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



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: November 2020

Report Created: Tuesday, December 01, 2020

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% 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]							
Date	UVTavg	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				
01/11/2020	92.67	0.00	0.73	69.84	70.57	0.00	0.00	0.00	0.00	0.00	0.57	44.87	45.45	0.00	0.05	64.99	65.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	179.70	181.05	99.25				
02/11/2020	92.70	0.00	0.25	63.93	64.18	0.00	0.00	0.00	0.00	0.00	0.76	53.89	54.65	0.12	0.12	33.71	33.95	0.00	0.00	29.17	29.17	0.00	0.22	0.01	0.23	0.13	1.35	180.70	182.18	99.19			
03/11/2020	93.03	0.00	0.04	56.50	56.54	0.00	0.00	0.00	0.00	0.00	0.85	63.15	64.00	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	0.89	182.14	183.02	99.52			
04/11/2020	94.09	0.00	0.00	56.44	56.44	0.00	0.00	0.00	0.00	0.00	1.16	62.87	64.04	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	1.16	181.83	183.00	99.36			
05/11/2020	94.07	0.00	0.08	56.07	56.14	0.00	0.00	0.00	0.00	0.00	0.85	62.96	63.81	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	0.92	181.36	182.28	99.49			
06/11/2020	94.17	0.00	0.27	55.29	55.56	0.00	0.00	0.00	0.00	0.00	0.93	62.04	62.97	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	1.20	178.80	180.00	99.34			
07/11/2020	94.25	0.00	0.15	55.09	55.24	0.00	0.00	0.00	0.00	0.00	1.01	62.19	63.21	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	1.21	178.79	180.00	99.33			
08/11/2020	94.31	0.00	0.69	70.16	70.86	0.00	0.00	0.00	0.00	0.00	0.79	48.63	49.42	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	1.74	178.38	180.12	99.03			
09/11/2020	94.21	0.00	0.95	71.26	72.21	0.00	0.00	0.00	0.00	0.00	1.02	49.37	50.39	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	2.65	181.33	183.98	98.56			
10/11/2020	94.09	0.00	0.75	71.43	72.18	0.00	0.00	0.00	0.00	0.00	1.16	49.16	50.32	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	2.64	181.37	184.01	98.57			
11/11/2020	92.76	0.00	0.54	71.01	71.56	0.00	0.00	0.00	0.00	0.00	2.11	47.72	49.83	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	3.42	178.91	182.33	98.13			
12/11/2020	93.29	0.00	1.59	69.79	71.38	0.00	0.00	0.00	0.00	0.00	2.11	47.71	49.82	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	4.42	177.57	181.99	97.57			
13/11/2020	94.31	0.00	1.18	69.45	70.63	0.00	0.00	0.00	0.00	0.00	1.54	47.68	49.21	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	3.21	176.34	179.55	98.21			
14/11/2020	94.27	0.00	1.22	69.19	70.41	0.00	0.00	0.00	0.00	0.00	1.40	47.66	49.06	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	1.57	57.94	59.51	97.66			
15/11/2020	94.27	0.00	1.01	68.25	69.26	0.00	0.00	0.00	0.00	0.00	1.57	46.59	48.16	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	0.60	57.44	58.04	98.19			
16/11/2020	94.11	0.00	1.10	67.92	69.02	0.00	0.00	0.00	0.00	0.00	1.33	46.68	48.01	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	1.37	56.59	57.95	97.83			
17/11/2020	93.98	0.00	0.91	68.87	69.79	0.00	0.00	0.00	0.00	0.00	1.00	25.56	26.57	0.00	0.00	22.98	22.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	56.88	57.64	98.49			
18/11/2020	93.71	0.00	1.28	69.64	70.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.45	51.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	56.25	57.60	98.53			
19/11/2020	93.51	0.00	1.73	69.21	70.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.48	51.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	56.24	57.61	98.28			
20/11/2020	93.53	0.00	2.11	68.82	70.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.41	51.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	56.84	57.64	98.38			
21/11/2020	93.20	0.00	1.97	69.00	70.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.39	51.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	56.67	57.67	98.35			
22/11/2020	93.07	0.00	2.43	69.00	71.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.44	51.44	0.00	0.04	56.09	56.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.47	177.33	179.79	98.63
23/11/2020	93.03	0.00	19.70	30.57	50.26	0.00	0.00	0.00	0.00	0.00	0.68	13.87	14.55	0.00	0.00	51.70	51.70	0.00	0.00	63.48	63.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.38	159.61	179.99	88.68
24/11/2020	92.99	0.00	0.15	29.43	29.59	0.00	0.00	0.00	0.00	0.00	1.02	28.49	29.52	0.00	0.00	52.77	52.77	0.00	0.00	71.05	71.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	181.75	182.93	99.36
25/11/2020	91.92	0.00	0.26	36.92	37.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.81	32.81	0.00	0.00	31.53	31.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	101.26	101.52	99.75
26/11/2020	92.93	0.00	0.31	63.03	63.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.69	65.83	0.00	0.09	66.47	66.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	195.19	195.73	99.73
27/11/2020	93.04	0.00	0.71	63.05	63.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.56	65.56	0.00	0.00	66.69	66.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	195.30	196.01	99.64
28/11/2020	92.81	0.00	0.70	62.90	63.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.97	66.11	0.00	0.05	66.24	66.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	195.11	196.01	99.55
29/11/2020	92.77	0.00	0.81	60.37	61.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.19	63.46	0.00	0.27	63.19	63.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	186.69	187.77	99.42
30/11/2020	92.97	0.00	0.84	59.69	60.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.09	63.14	0.00	0.04	61.34	61.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	184.13	185.01	99.52

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 1.48 %

To Dose: 98.51 %

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-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: December 2020

Report Created: Friday, January 01, 2021

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% 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]					
Date	UVTavg	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		
01/12/2020	92.85	0.00	1.05	59.51	60.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	62.63	62.98	0.00	0.00	61.46	61.46	0.00	0.00	0.00	0.00	0.00	1.40	183.59	185.00	99.24	
02/12/2020	92.74	0.00	1.04	58.91	59.95	0.00	0.00	0.17	0.17	0.00	0.00	22.46	22.47	0.00	0.38	38.36	38.73	0.29	0.47	62.99	63.74	0.00	0.00	0.00	0.00	0.29	1.89	182.88	185.06	98.82	
03/12/2020	92.63	0.00	0.99	56.01	57.00	0.00	0.00	0.00	0.00	0.00	0.00	64.46	64.46	0.00	0.00	0.00	0.00	0.00	0.58	62.98	63.56	0.00	0.00	0.00	0.00	0.00	1.57	183.45	185.02	99.15	
04/12/2020	92.98	0.00	1.10	55.07	56.17	0.00	0.00	0.00	0.00	0.00	0.05	63.40	63.45	0.00	0.00	0.00	0.00	0.00	0.13	61.75	61.88	0.00	0.00	0.00	0.00	0.00	1.27	180.23	181.50	99.30	
05/12/2020	92.82	0.00	1.16	54.63	55.80	0.00	0.00	0.00	0.00	0.00	0.40	62.51	62.91	0.00	0.00	0.00	0.00	0.00	0.26	61.06	61.32	0.00	0.00	0.00	0.00	0.00	1.82	178.21	180.02	98.99	
06/12/2020	92.62	0.00	0.93	54.83	55.76	0.00	0.00	0.00	0.00	0.00	0.53	62.35	62.88	0.00	0.00	0.00	0.00	0.00	0.39	61.00	61.38	0.00	0.00	0.00	0.00	0.00	1.84	178.18	180.02	98.98	
07/12/2020	92.84	0.00	1.30	53.80	55.11	0.00	0.00	0.00	0.00	0.00	0.57	62.10	62.66	0.00	0.00	0.00	0.00	0.00	0.17	61.01	61.18	0.00	0.00	0.00	0.00	0.00	2.04	176.91	178.95	98.86	
08/12/2020	92.89	0.00	1.26	52.06	53.31	0.00	0.00	0.00	0.00	0.00	0.72	60.04	60.76	0.00	0.00	0.00	0.00	0.00	0.29	58.68	58.97	0.00	0.00	0.00	0.00	0.00	2.27	170.77	173.05	98.69	
09/12/2020	92.96	0.00	1.16	51.14	52.30	0.00	0.00	0.00	0.00	0.00	0.60	60.30	60.90	0.00	0.00	0.00	0.00	0.00	0.25	59.53	59.78	0.00	0.00	0.00	0.00	0.00	2.01	170.97	172.98	98.84	
10/12/2020	92.84	0.00	1.02	51.27	52.30	0.00	0.00	0.00	0.00	0.00	0.60	60.43	61.03	0.00	0.00	0.00	0.00	0.00	0.04	36.09	36.14	0.00	0.00	23.57	23.57	0.00	1.66	171.37	173.03	99.04	
11/12/2020	93.33	0.00	1.31	51.14	52.45	0.00	0.00	0.00	0.00	0.00	0.55	60.55	61.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.49	59.49	0.00	1.86	171.19	173.05	98.93	
12/12/2020	93.44	0.00	0.19	9.30	9.49	0.00	0.00	0.00	0.00	0.00	0.45	49.81	50.26	0.00	0.00	51.87	51.87	0.00	0.00	0.00	0.00	0.00	63.22	63.22	0.00	0.64	174.20	174.84	99.64		
13/12/2020	93.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	47.33	47.77	0.00	0.00	63.33	63.33	0.00	0.00	0.00	0.00	0.00	63.92	63.92	0.00	0.43	174.59	175.02	99.75		
14/12/2020	93.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	47.08	47.42	0.00	0.00	63.68	63.68	0.00	0.00	0.00	0.00	0.00	64.06	64.06	0.00	0.34	174.83	175.17	99.81		
15/12/2020	93.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	48.80	49.21	0.00	0.00	66.63	66.63	0.00	0.00	0.00	0.00	0.00	67.40	67.59	0.00	0.61	182.83	183.44	99.67		
16/12/2020	92.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	27.90	28.74	0.29	0.29	22.18	22.77	0.00	0.04	5.79	5.83	0.00	0.05	32.89	32.93	0.29	1.21	88.76	90.27	98.33	
17/12/2020	92.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	21.75	22.21	0.00	0.11	57.02	57.12	0.00	0.23	39.28	39.51	0.00	0.05	67.01	67.06	0.00	0.85	185.05	185.90	99.54	
18/12/2020	93.54	0.00	0.00	21.17	21.17	0.00	0.00	0.00	0.00	0.00	0.00	14.60	14.60	0.00	0.00	72.88	72.88	0.00	0.57	56.81	57.38	0.00	0.00	24.01	24.01	0.00	0.57	189.46	190.03	99.70	
19/12/2020	93.50	0.00	0.00	61.45	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.75	63.75	0.00	0.36	64.45	64.81	0.00	0.00	0.00	0.00	0.00	0.36	189.65	190.01	99.81	
20/12/2020	93.24	0.00	0.00	61.00	61.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.21	63.21	0.00	0.31	63.48	63.79	0.00	0.00	0.00	0.00	0.00	0.31	187.70	188.01	99.83	
21/12/2020	93.40	0.00	0.00	60.36	60.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.34	62.34	0.00	0.31	61.93	62.23	0.00	0.00	0.00	0.00	0.00	0.31	184.63	184.94	99.83	
22/12/2020	93.66	0.00	0.00	58.89	58.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.52	61.52	0.00	0.24	57.74	57.98	0.00	0.00	0.00	0.00	0.00	0.24	178.15	178.40	99.86	
23/12/2020	93.75	0.00	0.00	58.69	58.69	0.00	0.00	0.00	0.00	0.00	0.00	38.35	38.35	0.00	0.00	31.24	31.24	0.00	0.38	50.59	50.97	0.00	0.00	0.00	0.00	0.00	0.38	178.87	179.26	99.79	
24/12/2020	93.74	0.00	0.00	54.60	54.60	0.00	0.00	0.00	0.00	0.00	0.39	62.21	62.60	0.00	0.00	0.00	0.00	0.00	0.00	61.37	61.37	0.00	0.00	0.00	0.00	0.00	0.39	178.18	178.57	99.78	
25/12/2020	93.83	0.00	0.00	56.46	56.46	0.00	0.00	0.00	0.00	0.18	0.39	30.43	31.00	0.00	0.03	30.77	30.81	0.00	0.04	59.85	59.89	0.00	0.00	0.00	0.00	0.00	0.18	0.47	177.51	178.16	99.64
26/12/2020	93.83	0.00	0.00	58.07	58.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	60.77	60.81	0.00	0.00	59.12	59.12	0.00	0.00	0.00	0.00	0.00	0.04	177.97	178.01	99.98	
27/12/2020	93.80	0.00	0.00	58.38	58.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.90	60.90	0.00	0.00	59.78	59.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.06	179.06	100.00
28/12/2020	93.82	0.00	0.00	58.85	58.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.90	61.90	0.00	0.00	59.74	59.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.49	180.49	100.00
29/12/2020	93.77	0.00	0.00	58.49	58.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.47	61.47	0.00	0.00	59.05	59.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.01	179.01	100.00
30/12/2020	93.77	0.00	0.00	58.31	58.31	0.00	0.00	0.00	0.00	0.00	0.00	1.79	1.79	0.00	0.13	59.38	59.51	0.00	0.04	58.78	58.82	0.00	0.00	0.00	0.00	0.00	0.17	178.25	178.43	99.90	
31/12/2020	93.14	0.00	0.00	55.65	55.65	0.00	0.00	0.00	0.00	0.00	0.08	5.62	5.70	0.00	0.00	52.79	52.79	0.00	0.00	57.75	57.75	0.00	0.00	0.00	0.00	0.00	0.08	171.80	171.89	99.95	

Water Volume [%]:

Untreated: 0.01 %

Below Dose: 0.49 %

To Dose: 99.49 %

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

2020 CORRECTIVE ACTION REPORTS



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

February 5, 2020

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

Incident No: CAR-ESD-01-2020

Reported to ODW: January 16, 2020

Reported by: Courtney Diduck, Analytical Services Branch Head

Approved by: Brock Bradford, Acting Analytical Services Branch Head

Incident Date: January 15, 2020

Incident Location: Winnipeg 3-Dist (SE04)

Incident Type:

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

Description of 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

LIMS Reference No: 272032

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)	HPC (CFU/mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
SE04	272032	15-Jan-20	<1	2	<1	0.86	1.19	0.17	4.1	15:21
SE04 (Resample)	273046	16-Jan-20	<1	<1	2	0.99	1.29	0.14	4.3	15:17
SE04 (Resample Duplicate)	273047	16-Jan-20	<1	<1	1	0.98	1.31	0.13	4.3	15:22
SE04 (Resample 2)	273048	17-Jan-20	<1	<1	<1	0.98	1.24	0.11	4.6	15:41
SE04 (Resample 2 Duplicate)	273049	17-Jan-20	<1	<1	3	1.07	1.24	0.12	4.6	15:45

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. N/R-No Result due to laboratory/analyst error.
3. N/A-Not Analyzed.



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

March 6, 2020

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

Incident No: CAR-ESD-02-2020

Reported to ODW: March 6, 2020

Reported by: Nancy Crawford, Compliance Reporting Branch Head

Approved by: Nancy Crawford, Compliance Reporting Branch Head

Incident Date: February 9 – 15, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: Water Quality Monitoring (PWS-09-412-01 Clause 5.1)

Did not obtain three confirmatory grab samples of effluent from Filter 5. The filter was in backwash mode at the time of sampling on February 10, and was taken offline for unscheduled maintenance from February 12 at 23:30 to February 20 at 14:00, grab samples were obtained on February 11 and 12.

Description of Corrective Actions:

Environmental Standards and Water Services: Reviewed monitoring requirements with laboratory staff and requested that they attempt to collect a sample at a later time if a filter is in backwash mode at the time of their first attempt.

Test Results: See attached

LIMS Reference No: 278799, 279122, 279396, 279701, and 280087

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	Date Sampled	Sample Number	Analyzer Turbidity (NTU)	Grab Turbidity (NTU)	Time Sampled (hrs)
WTP - Filter 5	Sunday, February 9, 2020	N/S	N/S	N/S	N/A
WTP - Filter 5	Monday, February 10, 2020	278799	O/L	N/S	N/A
WTP - Filter 5	Tuesday, February 11, 2020	279122	0.00	0.10	10:35 AM
WTP - Filter 5	Wednesday, February 12, 2020	279396	0.02	0.09	11:35 AM
WTP - Filter 5	Thursday, February 13, 2020	279701	O/L	N/S	N/A
WTP - Filter 5	Friday, February 14, 2020	280087	O/L	N/S	N/A
WTP - Filter 5	Saturday, February 15, 2020	N/S	O/L	N/S	N/A

Comments: Filter 5 was in backwash mode at the time of sampling on February 10 and was offline for unscheduled maintenance from Wednesday, February 12, 2020 at 11:30 PM to Thursday, February 20, 2020 at 2:00PM.

Notes:

N/S - No Sample O/L - Offline N/A - Not Applicable



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

April 2, 2020

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

Incident No: CAR-03-2020-WMR

Reported to ODW: March 23, 2020

Reported by: Louis Rivard, Superintendent of Water Distribution

Approved by: Zeljko Bodiroga, Water Distribution Engineer

Incident Date: March 21, 2020

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 made contact with ODW and Environmental Standards, flushed the isolated area and re-sampled original location. Tested the original location for bacteria, turbidity, and free chlorine until two consecutive negative bacteria results were 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	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)
Hydrant - Water Main Repair	N/A	21-Mar-20	0	5	NA	NA	NA	NA	15:20
Hydrant - Water Main Repair	219142	23-Mar-20	0	0	0.76	0.96	0.68	3.0	13:00
Hydrant - Water Main Repair	219143	24-Mar-20	0	0	0.49	0.83	0.69	2.4	13:51

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. NR-No Result due to laboratory/analyst error.
3. NA-Not Analyzed.



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

July 7, 2020

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

Incident No: CAR-04-2020-WTP

Reported to ODW: June 19, 2020, 15:41

Reported by: Johanne Mallord

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: June 19, 2020

Incident Location: Winnipeg 2-Treated (WTP)

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

Description of Corrective Actions:

A power failure caused the Water Treatment Plant to shutdown. When the plant was brought online the compressors for the DAF process were still in a fault state. The system does not have alarms to notify operations that the system is not working correctly. It was unnoticed for approximately an hour which caused further upset to the process.

To lower the impact of the turbidity spikes, Filter 5, which had been backwashed prior to the shutdown, was brought back online. The filter turbidity started to rise on the filter to 1.21 NTU. The water from filter 5 was diverted to the backwash supply tank. When it was safe to do so it was brought back online. This extra filter relieved the stress on the other filters. The duration of the spike was for approximately 55 seconds at 12:16:35 to 12:17:30.

Test Results: N/A

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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Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

July 30, 2020

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

Incident No: CAR-05-2020-WMR

Reported to ODW: July 23, 2020

Reported by: Louis Rivard, Superintendent of Water Distribution Operations

Approved by: Nancy Crawford, Compliance Reporting Branch Head

Incident Date: July 22, 2020

Incident Location: Winnipeg 3-Dist (Hydrant, Strathcona Street, 1200 Block)

Incident Type:

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

Positive *E.coli* (>0 per100mL), 3 MR 41/2007

Description of Corrective Actions:

Water Services: Contacted the ODW and Environmental Standards, flushed the isolated area, deployed a potable water tank, re-sampled original location, and tested additional samples upstream and downstream of original location for bacteria, turbidity, and free chlorine.

Environmental Standards: Re-sampled original location and tested additional samples upstream and downstream of original location for bacteria, turbidity, free/total chlorine, and temperature.

Other: The City of Winnipeg issued a notice to boil water to residents in the impacted area on July 23, 2020. The boil water advisory was subsequently rescinded on July 27, 2020, after two consecutive sets of re-samples taken 24 hours apart tested negative for bacteria.

Test Results: See attached

Reference No: Job No. 552

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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NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
 2. N/R-No Result due to laboratory/analyst error.
 3. N/A-Not Analyzed.



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

August 24, 2020

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

Incident No: CAR-06-2020-WTP

Reported to ODW: July 3, 2020, 18:52

Reported by: Raimo Perhonen

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: July 3, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

At approximately 18:10, filter 4 experienced a turbidity spike above 1.0 NTU for approximately 14 seconds, maximum turbidity reached 1.51 NTU. Due to the fact there was no alarm generated by the SCADA system with regards to high turbidity, the spike was noticed from viewing the filter turbidity trending screen approximately 20 minutes after the spike occurred. Spoke with the on duty OIC about the event. No action was taken because turbidity returned to normal after the spike.

The filter returned to 0.12 NTU after the event indicating that this is likely due to instrument sample lines and not a true reflection of the filter effluent turbidity. The lines are scheduled to be cleaned as a corrective action.

Test Results: Filter went above 1.0 NTU from 18:10:42 till 18:10:56. The peak was 1.51 NTU. Analyzer was reading 0.12 NTU prior to and after 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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Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

August 24, 2020

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

Incident No: CAR-07-2020-WTP

Reported to ODW: August 4, 2020 (The operator on shift did notice the spike and recorded it in the daily log. However, due to other issues in the WTP the operator missed notifying the operator-in-charge (OIC) immediately and as a result the ODW was not notified immediately.)

Reported by: Michael Logan

Approved by: David Minor Water Treatment Operations Engineer

Incident Date: July 3, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

At approximately 9:18 filter 6 experienced a turbidity spike above 1.0 NTU for approximately 19 seconds, maximum turbidity reached 1.29 NTU.

The filter returned to 0.11 NTU after the event indicating that this is likely due to instrument sample lines and not a true reflection of the filter effluent turbidity. The lines are scheduled to be cleaned as a corrective action.

Test Results: Filter went above 1.0 NTU from 9:17:59 till 9:18:18. The peak was 1.29 NTU. Analyzer was reading 0.10 NTU prior to event and 0.11 NTU after 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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Gimli, MB R0C 1B0

August 24, 2020

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

Incident No: CAR-08-2020-WTP

Reported to ODW: July 4, 2020 @ 20:00

Reported by: Raimo Perhonens

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: July 4, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

At approximately 19:35 filter 6 experienced a turbidity spike above 1.0 NTU for approximately 19 seconds, maximum turbidity reached 1.34 NTU. Due to the fact there was no alarm generated by the SCADA system with regards to high turbidity , the spike was noticed from viewing the filter turbidity trending screen several minutes after the spike occurred. Spoke with the on duty OIC about the event. No action was taken because the turbidity returned to normal after the spike.

The filter returned to 0.10 NTU after the event indicating that this is likely due to instrument sample lines and not a true reflection of the filter effluent turbidity. The lines are scheduled to be cleaned as a corrective action.

Test Results: Filter went above 1.0 NTU from 19:35:21 till 19:35:48. The peak was 1.34 NTU. Analyzer was reading 0.08 NTU prior to event and 0.10 NTU after 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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Gimli, MB R0C 1B0

August 24, 2020

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

Incident No: CAR-09-2020-WTP

Reported to ODW: July 12, 2020, 09:03

Reported by: Johanne Mallord

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: July 12, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

At 07:43 Filter 1 experienced a turbidity spike above 1.0 NTU for approximately 14 seconds with a maximum level of 1.13 NTU. Due to the fact there was no alarm generated by the SCADA system with regards to high turbidity, the spike was only noticed from viewing the filter turbidity trend screen several minutes after the event. No action was taken because turbidity returned to normal after the spike. This event appears to be related to a brief sluffing of material from the sample line to the turbidity analyzer and is not representative of the true Filter effluent turbidity. Arrangements will be made to clean the sample line on the turbidity instrument.

Test Results: Before, and immediately following the event, the filter was operating at an output turbidity of 0.08 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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Gimli, MB R0C 1B0

August 24, 2020

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

Incident No: CAR-10-2020-WTP

Reported to ODW: July 13, 2020, 17:30

Reported by: Johanne Mallord Senior Operator

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: July 13, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

At approximately 17:16:52, filter 8 experienced a turbidity spike above 1.0 NTU for approximately 13 seconds, maximum turbidity reached 1.62 NTU. Due to the fact there was no alarms generated by the SCADA system with regards to high turbidity, the spike was noticed from viewing the filter turbidity trending screen several minutes after the spike occurred. Spoke with the on duty OIC about event. No action was taken because the turbidity returned to normal after the spike.

Test Results: Before, and immediately following the event, the filter was operating at an output turbidity of 0.04 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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August 24, 2020

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

Incident No: CAR-11-2020-WTP

Reported to ODW: July 17, 2020, 16:00

Reported by: Mark Fisher, Operator

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: July 17, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

Filter #3 ran to 2.13 NTU at 11:32, and was over 1.00 NTU from 11:32:14 to 11:33:38, as the instrument was under maintenance.

Test Results: Grab samples before and after maintenance were, 0.14 NTU and 0.15 NTU respectively.

Reference No: N/A

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Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
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Gimli, MB R0C 1B0

August 12, 2020

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

Incident No: CAR-ESD-12-2020

Reported to ODW: July 30, 2020

Reported by: Brock Bradford, Analytical Services Branch Head (Acting)

Approved by: Heather Demchenko, Compliance Reporting Branch Head (Acting)

Incident Date: July 28, 2020

Incident Location: Winnipeg 3-Dist (SE05)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

Environmental Standards:

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

Test Results: See attached

Reference No: 320812

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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NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
 2. N/R-No Result due to laboratory/analyst error.
 3. N/A-Not Analyzed.



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

August 12, 2020

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

Incident No: CAR-ESD-13-2020

Reported to ODW: August 5, 2020

Reported by: Brock Bradford, Analytical Services Branch Head (Acting)

Approved by: Heather Demchenko, Compliance Reporting Branch Head (Acting)

Incident Date: August 4, 2020

Incident Location: Winnipeg 3-Dist (WC12)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

Environmental Standards:

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

Test Results: See attached

Reference No: 321988

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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NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
 2. N/R-No Result due to laboratory/analyst error.
 3. N/A-Not Analyzed.



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
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Gimli, MB R0C 1B0

September 4, 2020

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

Incident No: CAR-14-2020-WMR

Reported to ODW: August 14, 2020

Reported by: Louis Rivard, Superintendent of Water Distribution

Approved by: Zeljko Bodiroga, Water Distribution Engineer

Incident Date: August 12, 2020

Incident Location: Winnipeg 3-Dist (WM Repair)

Incident Type: Low Positive Total Coliform (<10 per100mL), 2 MR 41/2007

Description of Corrective Actions:

Immediately made contact with ODW and Environmental Standards, flushed the isolated area and re-sampled original location. Tested the original location for bacteria, turbidity, and free chlorine until two consecutive negative bacteria results were obtained.

Test Results: See attached

Reference No: Job No. 568

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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NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
 2. N/R-No Result due to laboratory/analyst error.
 3. N/A-Not Analyzed.



Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

September 4, 2020

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

Incident No: CAR-15-2020-WTP

Reported to ODW: August 7, 2020 @ 04:47

Reported by: Dan Merredew

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: August 7, 2020 @ 03:52

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

At approximately 03:52:10 Filter 6 experienced a turbidity spike above 1.0 NTU. Due to the fact there was no alarm generated by the SCADA system with regards to high turbidity, the turbidity spike was noticed by viewing the filter turbidity trending several minutes after the spike occurred. Spoke with on-duty OIC about the event. No action was taken because turbidity returned to normal after spike.

Test Results: Maximum turbidity of 1.18 NTU occurred at 03:52 for 35 seconds.

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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Office of Drinking Water, Manitoba Sustainable Development
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Gimli, MB R0C 1B0

September 4, 2020

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

Incident No: CAR-16-2020-WTP

Reported to ODW: August 28, 2020 @ 21:07

Reported by: Johanne Mallord, Acting Senior Operator

Approved by: Dan Merredew Water Treatment Operations Supervisor

Incident Date: August 28, 2020 @ 18:44

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

On August 28, 2020 Filter 1 spiked above 1.0 NTU. The turbidity analyzer on the Filter 1 had been cleaned by technicians which resulted in the turbidity spike. During the cleaning process the filter spiked to 1.89 NTU at 18:44. Before, and immediately following the event, the filter was operating at an output of 0.08 NTU. No corrective action was required due to the nature of the turbidity spike.

Test Results: Maximum turbidity of 1.89 NTU at 18:44 for 2 minutes.

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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Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

September 4, 2020

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

Incident No: CAR-17-2020-WTP

Reported to ODW: August 30, 2020 @ 09:27

Reported by: Andrew Ehlers, Acting Senior Operator

Approved by: Dan Merredew, Water Treatment Operations Supervisor

Incident Date: August 30, 2020 @ 07:24

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: (choose all that apply)

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

Description of Corrective Actions:

On August 30, 2020 at 07:24 Filter 4 spiked to 1.02 NTU. Before and immediately following the event, the filter was operating at an output turbidity of 0.14 NTU. The spike was most likely the result of material coming off the sample line and not a true event. All filters, including Filter 4 have been stable with no variance in operation. Technicians have been called to look at the turbidity analyzer. No corrective action was required due to the nature of the spike.

Test Results: Maximum turbidity of 1.02 NTU occurred at 07:24 for 20 seconds.

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 23, 2020

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

Incident No: CAR-18-2020-ESD

Reported to ODW: September 9, 2020

Reported by: Brock Bradford, Acting Analytical Services Branch Head

Approved by: Renée Grosselle, Manager of Environmental Standards

Incident Date: September 8, 2020

Incident Location: Winnipeg 3-Dist (NE09 and WC01)

Incident Type:

1. Positive Total Coliform NE09 (36 per100mL), 3 MR 41/2007
2. Positive Total Coliform WC01 (>200 per100mL), 3 MR 41/2007

Description of Event and Corrective Actions:

Environmental Standards:

IMMEDIATELY: Contacted the ODW and re-sampled original locations as well as upstream and downstream 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. A complete summary of corrective actions and follow-up activities are provided in a separate submission.

Test Results: See attached

Reference No: Jobs 579 and 580

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)	HPC (CFU/mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
NE09	331349	8-Sep-20	0	36	1	0.41	0.54	0.18	17.3	9:54
NE09 Resample 1	332506	9-Sep-20	0	0	n/a	0.39	0.55	0.16	16.8	15:58
NE09 Resample Duplicate 1	332507	9-Sep-20	0	0	n/a	n/a	n/a	n/a	n/a	15:58
NE09 Upstream	332508	9-Sep-20	0	0	n/a	0.50	0.66	0.13	20.2	16:44
NE09 Downstream	332509	9-Sep-20	0	0	n/a	0.37	0.56	0.17	15.7	16:17
NE09 Resample 2	332746	10-Sep-20	0	0	<1	0.34	0.52	0.15	16.7	15:59
NE09 Resample Duplicate 2	332747	10-Sep-20	0	0	<1	n/a	n/a	n/a	n/a	15:59
NE09 Upstream	332748	10-Sep-20	0	0	1	0.68	0.92	0.13	16.7	17:21
NE09 Downstream	332749	10-Sep-20	0	0	<1	0.33	0.51	0.15	15.4	16:18
WC01	331346	8-Sep-20	0	>200	206	1.05	1.21	0.12	19.9	9:32
WC01 Resample 1	332510	9-Sep-20	0	0	n/a	0.96	1.14	0.13	19.5	16:24
WC01 Resample Duplicate 1	332511	9-Sep-20	0	0	n/a	n/a	n/a	n/a	n/a	16:24
WC01 Upstream	332512	9-Sep-20	0	0	n/a	1.07	1.27	0.18	17.1	17:07
WC01 Downstream	332513	9-Sep-20	0	0	n/a	0.53	0.72	0.55	19.1	16:50
WC01 Resample 2	332750	10-Sep-20	0	0	<1	0.94	1.14	0.21	19.0	16:25
WC01 Resample Duplicate 2	332751	10-Sep-20	0	0	<1	n/a	n/a	n/a	n/a	16:25
WC01 Upstream	332752	10-Sep-20	0	0	<1	1.17	1.46	0.26	16.6	17:28
WC01 Downstream	332753	10-Sep-20	0	0	<1	0.58	0.78	0.49	18.8	16:50

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. NR-No Result due to laboratory/analyst error.
3. NA-Not Analyzed.



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
309 – 25 Tupper Street North
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October 7, 2020

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

Incident No: CAR-19-2020-WTP

Reported to ODW: September 21, 2020

Reported by: Mike Logan, Senior Operator

Approved by: Dan Merredew, Water Treatment Operations Supervisor

Incident Date: September 21, 2020

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 Event and Corrective Actions:

In preparation for draining the Branch 1 for Aqueduct maintenance and following standard operating procedures, the chlorine dose setpoint at the Water Treatment Plant was lowered to 0.85 mg/L to allow de-chlorination post Deacon. After the dose was lowered, the free chlorine residual at Deacon dropped below 0.50 mg/L: Branch 1 was below 0.50 mg/L from 13:29 to 15:53, minimum was 0.38 mg/L at 15:13.

Branch 2 was below 0.50 mg/L from 14:43 to 15:15, minimum was 0.49 mg/L at 15:00.

The chlorine dose setpoint was immediately increased to 1.25 mg/L to raise the free chlorine residual. In addition, the protocol for isolation and draining of Branch 1 Aqueduct will be updated to adjust the Water Treatment Plant chlorine dose setpoint based on seasonal considerations including current dose setpoint and water temperature. The existing protocol advised to adjust the chlorine dose setpoint to 0.85 mg/L but did not include guidance to consider seasonal factors that could impact chlorine consumption rates.

Test Results: Grab samples September 21, 2020 @ 13:50: Branch 1 – 0.46 mg/L Branch 2 – 0.49 mg/L

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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October 7, 2020

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

Incident No: CAR-20-2020-WTP

Reported to ODW: September 25, 2020

Reported by: Mark Fisher, Operator

Approved by: Dan Merredew, Operations Supervisor

Incident Date: September 25, 2020

Incident Location: Winnipeg 2-Treated (WTP), Filter 4

Incident Type:

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

Description of Event and Corrective Actions:

The effluent from Filter 4 was above 1.0 NTU from 6:38 to 6:43, with a maximum turbidity of 1.21 NTU at 6:40. This event was caused by the filter valves being manipulated after a failed backwash.

Corrective actions included placing Filter 4 into backwash mode immediately upon the filter effluent valve opening, to force the closing of the valve and minimize the amount of water passed to the filter effluent chamber. In addition, a review of the existing automated control system programming for filter operation will be conducted to determine if there are issues and subsequent changes required to the control strategy for returning filters to the backwash cycle following a fault event, in order to prevent future occurrences.

Test Results: SCADA Initial Result: 0.28 NTU

SCADA Final Result: 0.00 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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October 7, 2020

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

Incident No: CAR-21-2020-WTP

Reported to ODW: September 30, 2020

Reported by: Michael Logan, Senior Operator

Approved by: Dan Merredew, Operations Supervisor

Incident Date: September 30, 2020

Incident Location: Winnipeg 2-Treated (WTP), Filter 5

Incident Type:

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

Description of Event and Corrective Actions:

The effluent from Filter 5 was above 1.00 NTU for approximately 49 seconds, with a maximum turbidity of 1.17 NTU at 14:08. Based on the brief duration of the turbidity spike and the fact that there were no issues operationally in the plant at the time, this event appears to be related to a brief sluffing of material from the sample line to the turbidity analyzer and is not representative of the true filter effluent turbidity.

Corrective action included cleaning the sample line on the turbidity instrument.

Test Results: SCADA Initial Result: 0.08 NTU SCADA Final Result: 0.07 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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309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

December 22, 2020

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

Incident No: CAR-22-2020-APC

Reported to ODW: August 30, 2020 and September 3, 2020

Reported by: Mike Gottfried, Maintenance Supervisor (August 30); Louis Rivard, Superintendent of Water Services (September 3)

Approved by: Nancy Crawford, Compliance Reporting Branch Head

Incident Date: August 13, 29, and 30; September 3 and 7, 2020

Incident Location: Winnipeg 3-Dist Assiniboine Park

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

Description of Event and Corrective Actions:

A WQ Investigation conducted in 2015 in response to persistent low chlorine readings at distribution system monitoring location SW03 revealed that the issues originated in the Assiniboine Park Conservatory (APC) (refer to CAR-08-2015). As part of the investigation, an online chlorine analyzer was installed in the Qualico Centre; analyzer readings are received daily at 09:00. In addition, chlorine levels throughout the park have been routinely monitored by both APC and City of Winnipeg staff since this time. To ensure acceptable chlorine levels are maintained:

- taps are run at various locations around APC to promote water turnover within the service lines; and
- one of the feeds to APC is shut off seasonally to change the flow patterns.

Despite these efforts, low chlorine residual was experienced at APC on August 13, 29, and 30 and September 3 and 7, 2020; incident descriptions and corrective actions are as follows:

August 13, 2020: The Duck Pond (closet tap) grab sample taken by Water Services (WS) at 11:40 was 0.09 mg/L free chlorine. The taps that normally run to waste were found off. The City contacted APC to turn the taps back on. The Duck Pond (closet tap) grab sample taken by Environmental Standards (ES) at 11:39 on August 14 was 0.25 mg/L free chlorine.



August 29 and 30, 2020: The Qualico Centre online free chlorine analyzer readings were below 0.1 mg/L from 13:35 to 15:35 on August 29 with a minimum value 0.063 mg/L at 14:50. Upon receiving the analyzer readings at 09:00 on August 30 the following actions were taken:

- WS ran water to waste from the hydrant at the Qualico Centre
- WS performed free chlorine testing - Pavilion (men's washroom) grab sample was 0.02 mg/L at 11:30, Duck Pond (closet tap) grab sample was 0.02 mg/L at 11:45, and Qualico Centre (closet tap) grab sample was 0.11 mg/L at 11:55
- WS notified ODW at 13:12 of the low chlorine readings
- WS performed further free chlorine testing - Pavilion (men's washroom) grab sample was 0.04 mg/L at 16:35, Duck Pond (closet tap) grab sample was 0.04 mg/L at 16:20, and Qualico Centre hydrant grab sample was 0.25mg/L at 16:15
- WS continued running water to waste from the Qualico Centre hydrant until the morning of August 31
- APC took samples on August 31 and the free chlorine results were 0.44 mg/L at the Duck Pond (closet tap) and 0.32 mg/L at the Pavilion (men's washroom)

September 3, 2020: ES grab sample from the Gateway to the Arctic Building at 14:12 was 0.02 mg/L free chlorine (Note: It was later confirmed that the sample was taken from the kitchen tap which hadn't been used since March as it was shutdown due to COVID). The follow actions were taken:

- WS and ES took grab samples from several buildings and hydrants throughout and surrounding APC to assess chlorine levels. The sample taken at 15:57 from the hydrant outside the Pavilion had 0.08 mg/L free chlorine, the other samples ranged between 0.10 and 0.72 mg/L free chlorine
- WS notified ODW of the low chlorine readings
- WS ran water to waste from the hydrant at the Administration Building for several hours
- The Park/Nanton feed to APC was shutoff and water at this location was run to waste to increase the turnover of the water within the park
- WS took samples on September 4 and the free chlorine results were 0.20 mg/L at the Qualico Centre (closet tap) and 0.20 mg/L at Park/Nanton (meter pit).



September 7, 2020: The Duck Pond (closet tap) grab sample taken by WS at 09:20 was 0.04 mg/L free chlorine. The taps that normally run to waste were found off. The City contacted APC to turn the taps back on. The Duck Pond (closet tap) grab sample taken by WS on September 8 at 09:20 was 0.25 mg/L free chlorine.

Next steps: The 2021 water main renewal program includes water mains in the residential area east of the park with a goal to improve the quality of water entering the park through the Park Bv/Nanton Bv meter pit. Following the renewals, we will review chlorine/meter data to determine the impact on water quality. Once the diversity gardens building is complete we will monitor the impact on water demand and turnover within the park. If water quality issues continue, we will explore changes to the APC's water distribution system.

Test Results: See attached

Reference No: See attached

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

N:\Environmental Standards\Analytical Services\Government Agencies\Office of Drinking Water\Corrective Action Reports



Water and Waste Eaux et déchets

Sample Name	Sample Number	Date Sampled	Time Sampled (hrs)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)
Qualico Center Assiniboine Park	321237	28-Jul-20	12:24	0.37	0.54	0.31	10.0
Pavilion at Assiniboine Park	321239	28-Jul-20	10:58	0.43	0.69	0.63	10.7
Qualico Center Assiniboine Park	321240	5-Aug-20	12:25	0.45	0.66	0.19	10.7
Duck Pond at Assiniboine Park	321241	5-Aug-20	12:40	0.37	0.57	0.32	10.6
Pavilion at Assiniboine Park	321242	5-Aug-20	12:58	0.31	0.51	0.33	12.9
Qualico Center Assiniboine Park	324651	11-Aug-20	12:16	0.43	0.60	0.37	10.7
Duck Pond at Assiniboine Park	324652	11-Aug-20	12:02	0.20	0.56	0.36	11.7
Pavilion at Assiniboine Park	324653	11-Aug-20	11:50	0.29	0.52	0.36	11.7
Qualico Center (closet tap)	na	13-Aug-20	11:30	0.31	na	na	na
Duck Pond (closet tap)	na	13-Aug-20	11:40	0.09	na	na	na
Qualico Center Assiniboine Park	325499	14-Aug-20	11:13	0.32	0.54	0.27	11.9
Duck Pond at Assiniboine Park	325500	14-Aug-20	11:39	0.25	0.44	0.26	10.6
Pavilion at Assiniboine Park	325501	14-Aug-20	10:40	0.32	0.54	0.71	11.9
SW03_Roblin Blvd @ Wexford St	325716	14-Aug-20	12:06	0.68	0.88	0.17	14.9
Qualico Center Assiniboine Park	325502	18-Aug-20	11:22	0.29	0.51	0.28	11.5
Duck Pond at Assiniboine Park	325503	18-Aug-20	11:47	0.24	0.45	0.30	10.8
Pavilion at Assiniboine Park	325504	18-Aug-20	12:06	0.32	0.52	0.39	12.4
Qualico Center Assiniboine Park	326305	25-Aug-20	12:31	0.33	0.47	0.25	12.4
Duck Pond at Assiniboine Park	326306	25-Aug-20	12:18	0.31	0.45	0.26	12.2
Pavilion at Assiniboine Park	326307	25-Aug-20	12:00	0.31	0.50	0.45	14.0
Pavilion (men's washroom)	na	30-Aug-20	11:30	0.02	na	na	na
Duck Pond (closet tap)	na	30-Aug-20	11:45	0.02	na	na	na
Qualico Center (closet tap)	na	30-Aug-20	11:55	0.11	na	na	na
Qualico Centre (Hydrant)	na	30-Aug-20	16:15	0.25	na	na	na
Duck Pond (closet tap)	na	30-Aug-20	16:20	0.04	na	na	na
Pavilion (men's washroom)	na	30-Aug-20	16:35	0.04	na	na	na
Qualico Center Assiniboine Park	330135	1-Sep-20	11:30	0.18	0.38	0.24	14.7
Duck Pond at Assiniboine Park	330136	1-Sep-20	11:58	0.12	0.32	0.26	12.5
Pavilion at Assiniboine Park	330137	1-Sep-20	12:17	0.18	0.37	0.25	14.0
SW03_Roblin Blvd @ Wexford St	330946	3-Sep-20	12:59	0.54	0.76	0.15	18.0
Arctic Building Gateway at Assiniboine Park	330947	3-Sep-20	2:12	0.02	0.07	0.31	13.9
Administration Building at Assiniboine Park	330948	3-Sep-20	3:11	0.14	0.34	0.56	13.0
Leaf Building/Area at Assiniboine Park	330949	3-Sep-20	1:41	0.22	0.34	0.19	11.9
Main Entrance Building at Assiniboine Park	330950	3-Sep-20	1:38	0.71	0.89	1.03	16.8
Storage Building at Assiniboine Park	330951	3-Sep-20	2:22	0.15	0.37	0.22	13.8
Duck Pond at Assiniboine Park	330952	3-Sep-20	2:44	0.17	0.36	0.24	12.9
Heavy Horse building at Assiniboine Park	330953	3-Sep-20	2:26	0.41	0.62	0.17	14.6
Park/Nanton Meter Pit at Assiniboine Park	330954	3-Sep-20	3:31	0.24	0.43	0.33	15.3
Pavilion at Assiniboine Park	330956	3-Sep-20	1:58	0.18	0.35	0.31	13.9
Qualico Center Assiniboine Park	330957	3-Sep-20	2:58	0.18	0.37	0.26	14.7
Washroom Building #74 at Assiniboine Park	330958	3-Sep-20	2:51	0.18	0.33	0.33	13.4
Washroom Building near Picnic shelter at Assiniboine Park	330959	3-Sep-20	2:29	0.20	0.40	0.25	14.1
Hydrant (Education Trailer)	331186	3-Sep-20	3:04	0.10	0.25	0.39	13.9
Hydrant (Storage Building)	330962	3-Sep-20	3:56	0.15	0.34	0.90	14.6
Hydrant (Pavillion)	330961	3-Sep-20	3:57	0.08	0.25	0.38	15.1
Hydrant (Qualico Centre)	330963	3-Sep-20	4:15	0.17	0.37	0.28	14.7
Hydrant (Building #25)	330964	3-Sep-20	4:34	0.72	0.87	0.59	15.6
Hydrant (Roblin at Main Entrance)	330960	3-Sep-20	4:59	0.72	0.95	0.24	17.1
Hydrant (Caribou Building)	331185	3-Sep-20	5:19	0.15	0.35	1.88	14.2

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. N/A-Not Analyzed.



Water and Waste Eaux et déchets

Sample Name	Sample Number	Date Sampled	Time Sampled (hrs)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)
Park/Nanton (meter pit)	na	4-Sep-20	10:50	0.20	na	na	na
Qualico Center (closet tap)	na	4-Sep-20	12:20	0.20	na	na	na
Park/Nanton (meter pit)	na	7-Sep-20	8:50	0.22	na	na	na
Pavilion (men's washroom)	na	7-Sep-20	9:00	0.22	na	na	na
Duck Pond (closet tap)	na	7-Sep-20	9:20	0.04	na	na	na
Qualico Center (closet tap)	na	7-Sep-20	9:25	0.35	na	na	na
Park/Nanton (meter pit)	na	8-Sep-20	9:00	0.21	na	na	na
Pavilion (men's washroom)	na	8-Sep-20	9:10	0.47	na	na	na
Duck Pond (closet tap)	na	8-Sep-20	9:20	0.25	na	na	na
Qualico Center (closet tap)	na	8-Sep-20	9:35	0.45	na	na	na
Qualico Center Assiniboine Park	332674	9-Sep-20	11:29	0.42	0.62	0.13	12.8
Duck Pond at Assiniboine Park	332675	9-Sep-20	11:19	0.48	0.70	0.13	12.8
Pavilion at Assiniboine Park	332676	9-Sep-20	11:01	0.51	0.65	0.15	13.7
Qualico Center Assiniboine Park	333925	15-Sep-20	11:43	0.51	0.63	0.14	12.9
Duck Pond at Assiniboine Park	333926	15-Sep-20	11:31	0.52	0.65	0.21	13.3
Pavilion at Assiniboine Park	333927	15-Sep-20	11:17	0.48	0.65	0.28	13.6
Qualico Center Assiniboine Park	336358	22-Sep-20	12:08	0.77	0.97	0.14	13.6
Duck Pond at Assiniboine Park	336359	22-Sep-20	11:54	0.74	0.96	0.16	13.2
Pavilion at Assiniboine Park	336360	22-Sep-20	11:40	0.75	0.95	0.72	14.0
Qualico Center Assiniboine Park	337533	29-Sep-20	9:43	0.60	0.88	0.51	12.5
Duck Pond at Assiniboine Park	337534	29-Sep-20	9:52	0.46	0.77	0.32	12.7
Pavilion at Assiniboine Park	337535	29-Sep-20	10:09	0.69	0.90	0.23	13.4
Nanton Street sample Point at Assiniboine Park	337536	29-Sep-20	10:29	0.21	0.43	0.35	13.7
Qualico Center Assiniboine Park	339205	6-Oct-20	9:55	0.60	0.85	0.20	12.5
Duck Pond at Assiniboine Park	339206	6-Oct-20	10:19	0.51	0.82	0.16	13.2
Pavilion at Assiniboine Park	339207	6-Oct-20	10:36	0.63	0.86	0.15	13.0
Nanton Street sample Point at Assiniboine Park	339208	6-Oct-20	10:48	0.40	0.64	0.16	13.1
Qualico Center Assiniboine Park	341490	14-Oct-20	10:30	0.68	0.92	0.15	11.9
Duck Pond at Assiniboine Park	341491	14-Oct-20	10:40	0.54	0.81	0.13	12.8
Pavilion at Assiniboine Park	341492	14-Oct-20	10:00	0.75	0.92	0.12	12.4
Nanton Street sample Point at Assiniboine Park	341493	14-Oct-20	9:52	0.50	0.75	0.23	11.7
Qualico Center Assiniboine Park	343005	20-Oct-20	10:28	0.52	0.83	0.15	11.5
Duck Pond at Assiniboine Park	343006	20-Oct-20	10:15	0.51	0.78	0.13	12.0
Pavilion at Assiniboine Park	343007	20-Oct-20	10:05	0.58	0.83	0.20	11.9
Nanton Street sample Point at Assiniboine Park	343008	20-Oct-20	9:43	0.34	0.54	0.24	11.8
SW03_Roblin Blvd @ Wxford St	343527	22-Oct-20	11:18	0.70	0.95	0.14	16.1
Qualico Center Assiniboine Park	343528	22-Oct-20	10:38	0.22	0.47	0.19	12.1
Duck Pond at Assiniboine Park	343529	22-Oct-20	10:22	0.23	0.48	0.98	12.5
Pavilion at Assiniboine Park	343530	22-Oct-20	10:08	0.27	0.49	0.27	12.4
Nanton Street sample Point at Assiniboine Park	343531	22-Oct-20	10:58	0.34	0.51	0.63	12.2
Nanton Street sample Point at Assiniboine Park	344612	27-Oct-20	9:08	0.31	0.52	0.23	10.7
Pavilion at Assiniboine Park	344613	27-Oct-20	9:23	0.32	0.53	0.35	11.6
Duck Pond at Assiniboine Park	344614	27-Oct-20	9:35	0.22	0.46	0.22	11.5
Qualico Center Assiniboine Park	344615	27-Oct-20	9:47	0.29	0.45	0.38	11.4
Nanton Street sample Point at Assiniboine Park	346707	3-Nov-20	10:30	0.27	0.55	0.35	10.4
Pavilion at Assiniboine Park	346708	3-Nov-20	10:46	0.31	0.48	0.48	11.1
Duck Pond at Assiniboine Park	346709	3-Nov-20	10:58	0.22	0.43	0.34	11.5
Qualico Center Assiniboine Park	346710	3-Nov-20	11:12	0.27	0.50	0.25	11.1

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. N/A-Not Analyzed.



Sample Name	Date and Time Sampled	Online Analyzer Free Chlorine (mg/L)
Qualico Center Assiniboine Park	8/29/2020 1:00:05 PM	0.136
Qualico Center Assiniboine Park	8/29/2020 1:05:05 PM	0.132
Qualico Center Assiniboine Park	8/29/2020 1:10:05 PM	0.129
Qualico Center Assiniboine Park	8/29/2020 1:15:05 PM	0.124
Qualico Center Assiniboine Park	8/29/2020 1:20:05 PM	0.119
Qualico Center Assiniboine Park	8/29/2020 1:25:05 PM	0.111
Qualico Center Assiniboine Park	8/29/2020 1:30:05 PM	0.105
Qualico Center Assiniboine Park	8/29/2020 1:35:05 PM	0.100
Qualico Center Assiniboine Park	8/29/2020 1:40:05 PM	0.100
Qualico Center Assiniboine Park	8/29/2020 1:45:05 PM	0.094
Qualico Center Assiniboine Park	8/29/2020 1:50:05 PM	0.090
Qualico Center Assiniboine Park	8/29/2020 1:55:05 PM	0.086
Qualico Center Assiniboine Park	8/29/2020 2:00:05 PM	0.081
Qualico Center Assiniboine Park	8/29/2020 2:05:05 PM	0.077
Qualico Center Assiniboine Park	8/29/2020 2:10:05 PM	0.073
Qualico Center Assiniboine Park	8/29/2020 2:15:05 PM	0.070
Qualico Center Assiniboine Park	8/29/2020 2:20:05 PM	0.067
Qualico Center Assiniboine Park	8/29/2020 2:25:05 PM	0.065
Qualico Center Assiniboine Park	8/29/2020 2:30:05 PM	0.065
Qualico Center Assiniboine Park	8/29/2020 2:35:05 PM	0.064
Qualico Center Assiniboine Park	8/29/2020 2:40:05 PM	0.064
Qualico Center Assiniboine Park	8/29/2020 2:45:05 PM	0.064
Qualico Center Assiniboine Park	8/29/2020 2:50:05 PM	0.063
Qualico Center Assiniboine Park	8/29/2020 2:55:05 PM	0.065
Qualico Center Assiniboine Park	8/29/2020 3:00:05 PM	0.067
Qualico Center Assiniboine Park	8/29/2020 3:05:05 PM	0.068
Qualico Center Assiniboine Park	8/29/2020 3:10:05 PM	0.072
Qualico Center Assiniboine Park	8/29/2020 3:15:05 PM	0.072
Qualico Center Assiniboine Park	8/29/2020 3:20:05 PM	0.076
Qualico Center Assiniboine Park	8/29/2020 3:25:05 PM	0.082
Qualico Center Assiniboine Park	8/29/2020 3:30:05 PM	0.092
Qualico Center Assiniboine Park	8/29/2020 3:35:05 PM	0.095
Qualico Center Assiniboine Park	8/29/2020 3:40:05 PM	0.102
Qualico Center Assiniboine Park	8/29/2020 3:45:05 PM	0.106
Qualico Center Assiniboine Park	8/29/2020 3:50:05 PM	0.108
Qualico Center Assiniboine Park	8/29/2020 3:55:05 PM	0.108
Qualico Center Assiniboine Park	8/29/2020 4:00:05 PM	0.108

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. N/A-Not Analyzed.

ASSINIBOINE PARK Test Unit# 2 DATE Aug 13/2020

QUALICO CENTER

Closet Tap

MG/L 0.31

DATE: Aug 13/2020
TIME: 11:50

PAVILLION

Inside Pavillion-Men's Washroom

DATE:
TIME:

Water Fountain @Duck Pond

DATE: Aug 13/2020
TIME: 11:40

ADMINISTRATION BUILDING KITCHEN TAP

MG/L 0.

Conservatory@ Water Fountain

DATE:
TIME:

DATE:
TIME:

DATE:
TIME:

MG/L 0.

PARK S/W Naton

DATE:
TIME:

DATE:
TIME:

DATE:
TIME:

MG/L 0.

Assiniboine Park

- Sampling Time 8:00-10:00am
- Run tap 5 minutes. Take and record sample.
- If sample < 0.1 mg/L, run tap/hydrant 5 minutes. Resample.
- If resample < 0.1 mg/L, contact Foreman or Supervisor.

Date: 08/30/2020
 Test Unit #: 1
 Name: S. Hunt
 WO # 2008005 Task 01

CONSERVATORY

Water Fountain

Flow Status ON OFF

Time: _____ (Cl) mG/L: _____

PAVILLION

Inside Men's Washroom

Flow Status ON OFF

Time: _____ (Cl) mG/L: _____

1635

0.04

DUCK POND

Water Fountain

Flow Status ON OFF

Note: If locked call:
John at (204) 391-0255, or
Security at (204) 929-8000

Time: _____ (Cl) mG/L: _____

16:20

0.04

QUALICO FAMILY CENTRE

Closet Tap

Flow Status ON OFF

Time: _____ (Cl) mG/L: _____

~~QFC Hydrant~~
~~ADMINISTRATION BUILDING~~

~~Kitchen Tap~~

Flow Status ON OFF

100 L/min

Time: _____ (Cl) mG/L: _____

16:15

0.25

PARK BLVD

S/W Nanton Blvd

Meter Reading

--	--	--	--	--	--	--

Time: _____

(Cl) mG/L: _____

Assiniboine Park

- Sampling Time 8:00-10:00am
- Run tap 5 minutes. Take and record sample.
- If sample < 0.1 mg/L, run tap/hydrant 5 minutes. Resample.
- If resample < 0.1 mg/L, contact Foreman or Supervisor.

Date:

08/30/2020

Test Unit #

1

Name

S. Hunt

WO #

2008005

01

Task

CONSERVATORY

Water Fountain

Flow Status ON OFF

Time:

(Cl) mG/L:

PAVILLION

Inside Men's Washroom

Flow Status ON OFF

Time:

(Cl) mG/L:

turb

11:30
11:30

0.94
0.02

DUCK POND

Water Fountain

Flow Status ON OFF

Note: If locked call:
John at (204) 391-0255, or
Security at (204) 929-8000

Door #1
Closet #2

Time:

(Cl) mG/L:

turb
11:45
11:45

0.24
0.02

QUALICO FAMILY CENTRE

Closet Tap

Flow Status ON OFF

Turb

Time:

(Cl) mG/L:

11:55
11:55

0.27
0.11

ADMINISTRATION BUILDING

Kitchen Tap

Flow Status ON OFF

Time:

(Cl) mG/L:

PARK BLVD

S/W Nanton Blvd

Meter Reading

Time:

(Cl) mG/L:

Assiniboine Park

- Sampling Time 8:00-10:00am
- Run tap 5 minutes. Take and record sample.
- If sample < 0.1 mg/L, run tap/hydrant 5 minutes. Resample.
- If resample < 0.1 mg/L, contact Foreman or Supervisor.

Date:

Sep 04, 2020

Test Unit #

ES3

Name

J Palmer

WO # Task

2008005 01

CONSERVATORY

Water Fountain

Flow Status ON OFF

Time:

(Cl) mG/L:

PAVILLION

Inside Men's Washroom

Flow Status ON OFF

Time:

(Cl) mG/L:

DUCK POND

Water Fountain

Flow Status ON OFF

Time:

(Cl) mG/L:

QUALICO FAMILY CENTRE

Closet Tap

Flow Status ON OFF

Time:

(Cl) mG/L:

12:20

0.20

ADMINISTRATION BUILDING

Kitchen Tap

Flow Status ON OFF

Time:

(Cl) mG/L:

PARK BLVD

S/W Nanton Blvd

1 3 6 1 5 8

Flow Status ON OFF

Time:

(Cl) mG/L:

10:50

0.20

Assiniboine Park

- Sampling Time 8:00-10:00am
- Run tap 5 minutes. Take and record sample.
- If sample < 0.1 mg/L, run tap/hydrant 5 minutes. Resample.
- If resample < 0.1 mg/L, contact Foreman or Supervisor.

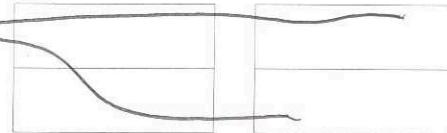
Date: 09/07/20
 Test Unit #: ES3
 Name: S. Hunt
 WO # 2008005 Task 01

CONSERVATORY

Water Fountain

Flow Status ON OFF

Time: (Cl) mG/L:

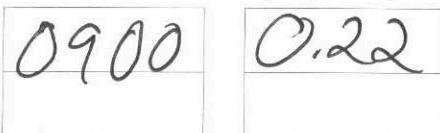


PAVILLION

Inside Men's Washroom

Flow Status ON OFF

Time: (Cl) mG/L:



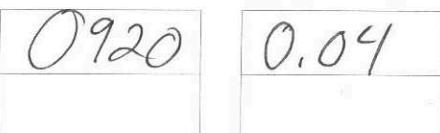
DUCK POND

Water Fountain

Flow Status ON OFF
Now "on" *found "off"*

Note: If locked call:
 John at (204) 391-0255, or
 Security at (204) 929-8000

Time: (Cl) mG/L:

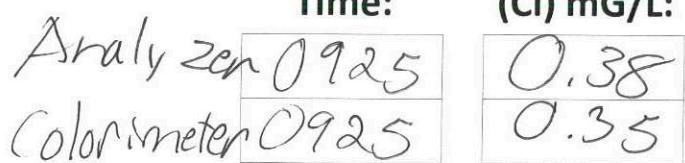


QUALICO FAMILY CENTRE

Closet Tap

Flow Status ON OFF

Time: (Cl) mG/L:

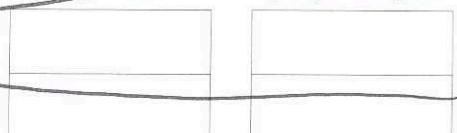


ADMINISTRATION BUILDING

Kitchen Tap

Flow Status ON OFF

Time: (Cl) mG/L:



PARK BLVD

S/W Nanton Blvd

Flow Status ON OFF

Meter Reading

1 3 6 9 3 8

Time:

0850

(Cl) mG/L:

0.22

Assiniboine Park

- Sampling Time 8:00-10:00am
- Run tap 5 minutes. Take and record sample.
- If sample < 0.1 mg/L, run tap/hydrant 5 minutes. Resample.
- If resample < 0.1 mg/L, contact Foreman or Supervisor.

Date: 09/8/20
 Test Unit #: ES 3
 Name: S Hunt
 WO # 2008005 Task 01

CONSERVATORY

Water Fountain

Flow Status ON OFF

Time: (Cl) mG/L:

PAVILLION

Inside Men's Washroom

Flow Status ON OFF

Time: (Cl) mG/L:

09:10	0.47

DUCK POND

Water Fountain

Flow Status ON OFF

Note: If locked call:
 John at (204) 391-0255, or
 Security at (204) 929-8000

In one CLOSET
 or in OTHER CLOSET

Time: (Cl) mG/L:

09:20	0.25

QUALICO FAMILY CENTRE

Closet Tap

Flow Status ON OFF

AUTOMATIC READER
 09:35
 COLORIMETRIC 09:35

Time: (Cl) mG/L:

0.45	0.45

ADMINISTRATION BUILDING

Kitchen Tap

Flow Status ON OFF

Time: (Cl) mG/L:

PARK BLVD

S/W Nanton Blvd

Flow Status ON OFF

Meter Reading

1 3 7 1 8 0

Time: (Cl) mG/L:

09:20	0.21



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 22, 2020

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

Incident No: CAR-23-2020-WTP

Reported to ODW: November 24, 2020, 17:54

Reported by: Mike Szmon, Water Treatment Systems Engineer

Approved by: Mike Szmon, Water Treatment Systems Engineer

Incident Date: November 24, 2020

Incident Location: Winnipeg 2-Treated (WTP)

Incident Type: Chemicals not certified safe for potable water use introduced to potable water supply,
PWS-09-412-01 Clause 2.4

Description of Incident and Corrective Actions:

At approximately 14:45 on November 24, 2020, a day shift Water Treatment Operator working in the Bulk Chemical Building at the Water Treatment Plant (WTP) noticed discolouration and odour from the domestic hot water he was using to clean in the area. At the same time, the domestic hot water system was being used to flush the sodium hydroxide dosing lines to the injection point at the chlorine contact chamber in the treated water system, as part of a routine maintenance program. Upon noting the issue, the operator stopped the flushing of the sodium hydroxide lines and isolated the domestic water system. Maintenance staff were dispatched to investigate and determined that propylene glycol and corrosion inhibitors had leaked from a heat exchanger into the domestic hot water system. The heat exchanger was immediately isolated from the domestic hot water system and Laboratory staff were dispatched to test the City's water system for morpholine, a compound noted on the Safety Data Sheets for the corrosion inhibitors, and propylene glycol.

Flushing of the sodium hydroxide lines occurred over the 4-day period of November 20-24, 2020. During this time, an estimated 2,200 litres of propylene glycol and four litres corrosion inhibitor products entered approximately 755 million litres of water that were produced at the WTP. Because the propylene glycol and corrosion inhibitor additives were diluted in the water produced by the WTP, they posed a low risk to



the safety of the water supply. Propylene glycol and morpholine were not detected in any of the samples collected from the WTP, Pumping Stations, or from the distribution system.

On November 25, a follow-up inspection of the heat exchanger was conducted with the equipment supplier. The inspection revealed a hole in one of the failsafe double-walled plates in the heat exchanger, which was caused by a piece of metal slag from the welding process at the factory. The walls of the plates were fused together at the hole, which allowed the glycol and corrosion inhibitors to leak into the hot water system instead of spilling out, as designed. The heat exchanger plates had been replaced on November 20, 2020 as part of a preventative maintenance work order and the heat exchanger was pressure tested before being returned to service; no issues were found. At some point after returning the heat exchanger to service on November 20, the metal slag dislodged, opening the hole that caused the glycol to enter the domestic hot water system.

The heat exchanger plates have since been inspected, replaced, pressure tested and the heat exchanger returned to service. The domestic hot water system in the Bulk Chemical Building at the WTP has also been flushed to remove any residual propylene glycol.

Test Results: See attached

Reference No: Job No. 609

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

N:\Environmental Standards\Analytical Services\Government Agencies\Office of Drinking Water\Corrective Action Reports



Water and Waste

Eaux et déchets

Report To :

Report Date : November 27, 2020

Mr. Michael Szmon

Water Services Division
57082 PR 207
Springfield MB R0E 0K0

Phone : 204-986-2108

Email : mszmon@winnipeg.ca

Certificate of Analysis Job No. 609

Date Authorised : November 27, 2020

Total Number of Pages : 16

This report is issued under the authority of:

Brock Bradford

Analytical Services Branch Head

This report shall not be reproduced except in full without the written approval of the laboratory.

The results relate only to the sample(s) as received by the laboratory.

Additional information regarding the test methods used by Analytical Services Branch or contract laboratory is available upon request.

Environmental Standards Division, Analytical Services Branch Laboratory Headquarters: 2230 Main Street, Winnipeg, MB R2V 4T8

Satellite Laboratory, Water Treatment Plant, 57082 PR207, Springfield, MB R0E 0K0

Ph: (204) 986-4684, Fax: (204) 986-4809, Email: AnalyticalServices@winnipeg.ca, Website: winnipeg.ca

Sample No. : 351587
Sample Description : WTP-Raw Water
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.1 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	8.09 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<1.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351588
Sample Description : WTP-Clearwell-WT1
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.1 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.78 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351589
Sample Description : WTP-DBPS Outlet, Branch 1
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.9 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.84 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351590
Sample Description : WTP-DBPS Outlet, Branch 2
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.6 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.71 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351591
Sample Description : MacLean Station Discharge
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.5 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.50 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351592
Sample Description : McPhillip's Station Discharge
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.1 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.45 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351593
Sample Description : Hurst Station Discharge
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.0 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.48 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351594
Sample Description : NE06_Nairn Ave. & Stapleton St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	5.5 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.39 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351595
Sample Description : NW04_Redwood Ave. & McGregor St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	10.8 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.45 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351596
Sample Description : SE02_Elizabeth Rd. & Archibald St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	13.0 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.50 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351597
Sample Description : SW04_Corydon Ave. & Renfrew St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	6.2 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.34 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351598
Sample Description : SW07_Kenaston Blvd. & Scurfield Blvd.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	8.1 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.56 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351599
Sample Description : WC12_McDermot Ave. & Ellen St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	8.0 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.58 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351600
Sample Description : Aqued. Branch 1 at McPhillip's Stn.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.4 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.39 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351601
Sample Description : Aqued. Branch 2 at Hurst Stn.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.1 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.38 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Reference Information

The Analytical Services Branch is accredited by CALA in accordance with ISO 17025 standards for specific tests.

Accredited Test Methods Used :

Test Method

pH in Laboratory by Electrometric Method

Reference Method

Modified from SM 4500 H+B (Electrometric Method)

Additional Test Methods Used :

Test Method

Temperature by Thermometer

Reference Method

Modified from SM 2550 B. Laboratory and Field Methods (Temperature)

Laboratories :

ALS : ALS Canada Ltd (ALS Environmental), 1329 Niakwa Road, Winnipeg, MB R2J 3T4

COW_ASB : City of Winnipeg Main Laboratory at NEWPCC, 2230 Main Street, Winnipeg, MB R2V 4T8

Additional Comments :

- 1) A quality control report can be provided upon request. These reports may contain quality control results from other samples not included in this test report.
- 2) Analytical Services Branch test methods may incorporate modifications from specified reference methods to improve performance.
- 3) For subcontracted testing, the certificate of analysis can be provided upon request.
- 4) Opinions and/or interpretations expressed in this report are outside the scope of this laboratory's accreditation.

----- END OF REPORT -----



Water and Waste

Eaux et déchets

Report To :

Report Date : November 27, 2020

Mr. Michael Szmon

Water Services Division
57082 PR 207
Springfield MB R0E 0K0

Phone : 204-986-2108

Email : mszmon@winnipeg.ca

Certificate of Analysis Job No. 609

Date Authorised : November 27, 2020

Total Number of Pages : 16

This report is issued under the authority of:

Brock Bradford

Analytical Services Branch Head

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Environmental Standards Division, Analytical Services Branch Laboratory Headquarters: 2230 Main Street, Winnipeg, MB R2V 4T8

Satellite Laboratory, Water Treatment Plant, 57082 PR207, Springfield, MB R0E 0K0

Ph: (204) 986-4684, Fax: (204) 986-4809, Email: AnalyticalServices@winnipeg.ca, Website: winnipeg.ca

Sample No. : 351587
Sample Description : WTP-Raw Water
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.1 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	8.09 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<1.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351588
Sample Description : WTP-Clearwell-WT1
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.1 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.78 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351589
Sample Description : WTP-DBPS Outlet, Branch 1
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.9 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.84 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351590
Sample Description : WTP-DBPS Outlet, Branch 2
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.6 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.71 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351591
Sample Description : MacLean Station Discharge
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.5 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.50 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351592
Sample Description : McPhillip's Station Discharge
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	4.1 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.45 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351593
Sample Description : Hurst Station Discharge
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.0 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.48 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351594
Sample Description : NE06_Nairn Ave. & Stapleton St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	5.5 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.39 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351595
Sample Description : NW04_Redwood Ave. & McGregor St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	10.8 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.45 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351596
Sample Description : SE02_Elizabeth Rd. & Archibald St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	13.0 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.50 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351597
Sample Description : SW04_Corydon Ave. & Renfrew St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	6.2 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.34 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351598
Sample Description : SW07_Kenaston Blvd. & Scurfield Blvd.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	8.1 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.56 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351599
Sample Description : WC12_McDermot Ave. & Ellen St.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	8.0 ± 2%	deg_C		11/24/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.58 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351600
Sample Description : Aqued. Branch 1 at McPhillip's Stn.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.4 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.39 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Sample No. : 351601
Sample Description : Aqued. Branch 2 at Hurst Stn.
Sample Date : November 24, 2020
Sample Received : November 24, 2020
Sample Plan : Ad hoc sample

Test Parameters	Result	Units	Comments	Completed	Lab
Temperature by Thermometer					
Temperature, sample	3.1 ± 2%	deg_C		11/25/2020	COW_ASB
pH in Laboratory by Electrometric Method					
pH in water	7.38 ± 0.07 units	units		11/25/2020	COW_ASB
Morpholine in Water by LC/MS-MS					
Morpholine	<10.0000	ug/L		11/27/2020	ALS
Alcohols and Glycols in Water					
Diethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Ethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Propylene Glycol in water	<5.00	mg/L		11/27/2020	ALS
Triethylene Glycol in water	<5.00	mg/L		11/27/2020	ALS

Reference Information

The Analytical Services Branch is accredited by CALA in accordance with ISO 17025 standards for specific tests.

Accredited Test Methods Used :

Test Method

pH in Laboratory by Electrometric Method

Reference Method

Modified from SM 4500 H+B (Electrometric Method)

Additional Test Methods Used :

Test Method

Temperature by Thermometer

Reference Method

Modified from SM 2550 B. Laboratory and Field Methods (Temperature)

Laboratories :

ALS : ALS Canada Ltd (ALS Environmental), 1329 Niakwa Road, Winnipeg, MB R2J 3T4

COW_ASB : City of Winnipeg Main Laboratory at NEWPCC, 2230 Main Street, Winnipeg, MB R2V 4T8

Additional Comments :

- 1) A quality control report can be provided upon request. These reports may contain quality control results from other samples not included in this test report.
- 2) Analytical Services Branch test methods may incorporate modifications from specified reference methods to improve performance.
- 3) For subcontracted testing, the certificate of analysis can be provided upon request.
- 4) Opinions and/or interpretations expressed in this report are outside the scope of this laboratory's accreditation.

----- END OF REPORT -----



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, 2020

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

Incident No: CAR-24-2020-ESD

Reported to ODW: November 26, 2020

Reported by: Brock Bradford, Analytical Services Branch Head (Acting)

Approved by: Brock Bradford, Analytical Services Branch Head (Acting)

Incident Date: November 25, 2020

Incident Location: Winnipeg 3-Dist (NE02)

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

Description of Event and Corrective Actions:

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_612

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

N:\Environmental Standards\Analytical Services\Government Agencies\Office of Drinking Water\Corrective Action Reports



Water and Waste
Eaux et déchets

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
 2. N/R-No Result due to laboratory/analyst error.
 3. N/A-Not Analyzed.



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

January 7, 2021

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

Incident No: CAR-25-2020-ESD

Reported to ODW: December 22, 2020

Reported by: Brock Bradford, Analytical Services Branch Head (Acting)

Approved by: Brock Bradford, Analytical Services Branch Head (Acting)

Incident Date: December 21, 2020, 2020

Incident Location: Winnipeg 3-Dist (NE06)

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

Description of Event and Corrective Actions:

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_619

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

N:\Environmental Standards\Analytical Services\Government Agencies\Office of Drinking Water\Corrective Action Reports



Water and Waste
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NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
 2. N/R-No Result due to laboratory/analyst error.
 3. N/A-Not Analyzed.

2020 QUARTERLY FLUORIDE MONITORING REPORTS



Water and Waste
Eaux et déchets

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

April 17, 2020

RE: FIRST QUARTER 2020 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	RESULT (MG/L F)
Distribution System (Composite – 39 Locations)	269273	6-Jan-20	0.73
	270959	13-Jan-20	0.72
	272735	20-Jan-20	0.75
	274583	27-Jan-20	0.71
	276271	3-Feb-20	0.73
	277996	10-Feb-20	0.69
	279723	18-Feb-20	0.72
	281283	24-Feb-20	0.69
	283108	2-Mar-20	0.72
	284925	9-Mar-20	0.70
	286614	16-Mar-20	0.73
	288317	23-Mar-20	0.70
	290124	30-Mar-20	0.70

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)

R. Grosselle
Manager of Environmental Standards

Enclosures
cc: T. Shanks, P.Eng. (email)



Water and Waste
Eaux et déchets

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

July 13, 2020

RE: SECOND QUARTER 2020 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	RESULT (MG/L F)
Distribution System (Composite – 39 Locations)	291830	6-Apr-20	0.70
	293472	13-Apr-20	0.70
	294830	20-Apr-20	0.70
	296784	27-Apr-20	0.69
	298580	4-May-20	0.69
	300301	11-May-20	0.69
	302044	19-May-20	0.71
	303838	25-May-20	0.71
	305606	1-Jun-20	0.70
	307441	8-Jun-20	0.71
	309202	15-Jun-20	0.69
	311074	22-Jun-20	0.71
	312881	29-Jun-20	0.71

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)

R. Grosselle
Manager of Environmental Standards

Enclosures
cc: T. Shanks, P.Eng. (email)



Water and Waste
Eaux et déchets

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

October 15, 2020

RE: THIRD QUARTER 2020 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	RESULT (MG/L F)
Distribution System (Composite – 39 Locations)	314521	6-Jul-20	0.69
	316194	13-Jul-20	0.71
	318039	20-Jul-20	0.72
	319908	27-Jul-20	0.72
	321697	4-Aug-20	0.73
	323404	10-Aug-20	0.72
	325265	17-Aug-20	0.71
	327108	24-Aug-20	0.72
	328947	31-Aug-20	0.69
	331338	8-Sep-20	0.69
	332566	14-Sep-20	0.65
	334476	21-Sep-20	0.67
	336213	28-Sep-20	0.68

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)

R. Grosselle
Manager of Environmental Standards

Enclosures
cc: T. Shanks, P.Eng. (email)



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

January 19, 2021

RE: FOURTH QUARTER 2020 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	RESULT (MG/L F)
Distribution System (Composite – 39 Locations)	338033	5-Oct-20	0.68
	339944	13-Oct-20	0.71
	341601	19-Oct-20	0.73
	343439	26-Oct-20	0.68
	345286	2-Nov-20	0.74
	347107	9-Nov-20	0.69
	348600	16-Nov-20	0.71
	350278	23-Nov-20	0.72
	351918	30-Nov-20	0.76
	353655	7-Dec-20	0.73
	355424	14-Dec-20	0.75
	357169	21-Dec-20	0.74
	358949	28-Dec-20	0.76

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)

R. Grosselle
Manager of Environmental Standards

cc: T. Shanks, P.Eng. (email)

**2020 QUARTERLY TOTAL TRIHALOMETHANE
AND TOTAL HALOACETIC ACID SUMMARY
REPORTS**



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 1 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, May 6, 2019	19.8	20.7	21.7	19.9	16.4	20.9
Tuesday, August 6, 2019	64.0	59.5	49.3	51.4	46.7	58.6
Monday, November 4, 2019	31.1	30.4	30.6	34.6	30.1	32.5
Monday, February 10, 2020	35.1	34.8	31.3	35.3	31.4	35.3
RUNNING AVERAGE THM	37.5	36.4	33.2	35.3	31.2	36.8

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.

Compiled by: A. Gordon

Approved by: B. Bradford

Date Compiled: May 5, 2020



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 2 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Tuesday, August 6, 2019	64.0	59.5	49.3	51.4	46.7	58.6
Monday, November 4, 2019	31.1	30.4	30.6	34.6	30.1	32.5
Monday, February 10, 2020	35.1	34.8	31.3	35.3	31.4	35.3
Monday, May 11, 2020	38.1	45.2	40.9	36.9	35.7	39.5
RUNNING AVERAGE THM	42.1	42.5	38.0	39.6	36.0	41.5

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.

Compiled by: H. Demchenko

Approved by: B. Bradford

Date Compiled: June 17, 2020



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 3 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 4, 2019	31.1	30.4	30.6	34.6	30.1	32.5
Monday, February 10, 2020	35.1	34.8	31.3	35.3	31.4	35.3
Monday, May 11, 2020	38.1	45.2	40.9	36.9	35.7	39.5
Monday, August 10, 2020	78.9	60.9	59.3	61.7	60.3	63.2
RUNNING AVERAGE THM	45.8	42.8	40.5	42.1	39.4	42.6

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.

Compiled by: H.Demchenko

Approved by: B.Bradford

Date Compiled: September 22, 2020



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Trihalomethanes Summary Report

Reporting Period: Quarter 4 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 10, 2020	35.1	34.8	31.3	35.3	31.4	35.3
Monday, May 11, 2020	38.1	45.2	40.9	36.9	35.7	39.5
Monday, August 10, 2020	78.9	60.9	59.3	61.7	60.3	63.2
Monday, November 16, 2020	26.8	29.9	29.8	28.6	29.4	33.8
RUNNING AVERAGE THM	44.7	42.7	40.3	40.6	39.2	43.0

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.

Compiled by: H.Demchenko

Approved by: B.Bradford

Report Date: December 15, 2020



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 1 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, May 6, 2019	18.5	25.1	24.7	20.5	19.6	18.6
Tuesday, August 6, 2019	23.7	40.8	22.5	27.3	37.8	38.6
Monday, November 4, 2019	29.5	31.4	29.1	22.9	28.9	31.1
Monday, February 10, 2020	35.4	34.9	35.2	35.0	34.1	41.2
RUNNING AVERAGE HAA	26.8	33.1	27.9	26.4	30.1	32.4

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".

Compiled by: _____ A. Gordon

Approved by: _____ B. Bradford

Date Compiled: _____ May 5, 2020



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 2 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Tuesday, August 6, 2019	23.7	40.8	22.5	27.3	37.8	38.6
Monday, November 4, 2019	29.5	31.4	29.1	22.9	28.9	31.1
Monday, February 10, 2020	35.4	34.9	35.2	35.0	34.1	41.2
Monday, May 11, 2020	24.8	28.6	29.4	27.2	25.8	26.5
RUNNING AVERAGE HAA	28.4	33.9	29.1	28.1	31.7	34.4

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".

Compiled by: H. Demchenko

Approved by: B. Bradford

Date Compiled: June 17, 2020



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 3 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 4, 2019	29.5	31.4	29.1	22.9	28.9	31.1
Monday, February 10, 2020	35.4	34.9	35.2	35.0	34.1	41.2
Monday, May 11, 2020	24.8	28.6	29.4	27.2	25.8	26.5
Monday, August 10, 2020	24.3	31.0	19.7	19.2	30.7	26.3
RUNNING AVERAGE HAA	28.5	31.5	28.4	26.1	29.9	31.3

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”.

Compiled by: H.Demchenko

Approved by: B.Bradford

Date Compiled: September 22, 2020



Water and Waste
Eaux et déchets

Environmental Standards Division

Total Haloacetic Acids Summary Report

Reporting Period: Quarter 4 2020

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 10, 2020	35.4	34.9	35.2	35.0	34.1	41.2
Monday, May 11, 2020	24.8	28.6	29.4	27.2	25.8	26.5
Monday, August 10, 2020	24.3	31.0	19.7	19.2	30.7	26.3
Monday, November 16, 2020	21.5	21.2	22.2	20.3	21.3	23.5
RUNNING AVERAGE HAA	26.5	28.9	26.6	25.4	28.0	29.4

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".

Compiled by: _____ H.Demchenko

Approved by: _____ B.Bradford

Report Date: _____ December 15, 2020

2020 LEAD LOOP MONITORING REPORT



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

Water System Code: 252.00

Licence Number: PWS-09-412-01

2020 Lead Loop System Summary Report

SAMPLE DATE	Five minute flushed Lead Concentration (mg/L)				
	Lead Loop Cu	Lead Loop Pb	Lead Loop Pb1	Lead Loop Pb2	Lead Loop Pb3
January 17, 2020	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
February 21, 2020	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
March 20, 2020	<0.000065	0.000071	<0.000065	0.000067	0.000134
April 23, 2020	<0.000065	<0.000065	<0.000065	<0.000065	0.000212
May 15, 2020	<0.000065	<0.000065	<0.000065	<0.000065	0.000078
June 19, 2020	<0.000065	0.000115	0.000101	0.000134	0.000255
July 17, 2020	<0.000065	0.000095	<0.000065	0.000114	<0.000065
August 21, 2020	<0.000065	<0.000065	<0.000065	<0.000065	0.000070
September 17, 2020	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
October 23, 2020	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
November 19, 2020	<0.000065	<0.000065	<0.000065	<0.000065	0.000439
December 17, 2020	<0.000065	<0.000065	<0.000065	0.000114	0.000280
2020 AVERAGE LEAD CONCENTRATION	<0.000065	<0.000065	<0.000065	<0.000065	0.000136

COMMENTS:

Report Compiled By: H. Demchenko

Approved By: D. Mendoza

Methodology

Lead was analyzed by ICP-MS according to Standard Methods for the Examination of Water and Wastewater, 21st Edition, Method 3125

File Location: N:\Compliance Reporting\Lead Loop Annual Report\2020 Lead Loop Annual Report\Lead Loop 2020.xls

APPENDIX C

ZEBRA MUSSEL REPORT



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	300189	TEMP	Temperature_Sample (Report)	8.0	deg_C			5/12/2020 9:59 AM	
Deacon Cell 1 - middle	300189	TRANSPAREN	Transparency (Report)	4.3	m			5/12/2020 9:59 AM	
Deacon Cell 1-100m from NE corner	300190	TEMP	Temperature_Sample (Report)	8.0	deg_C			5/12/2020 9:47 AM	
Deacon Cell 1-100m from NE corner	300190	TRANSPAREN	Transparency (Report)	3.5	m			5/12/2020 9:47 AM	
Deacon Cell 1 net composite	300191	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/12/2020	Discarded
Deacon Cell 2 - middle	300194	TEMP	Temperature_Sample (Report)	8.7	deg_C			5/12/2020 10:44 AM	
Deacon Cell 2 - middle	300194	TRANSPAREN	Transparency (Report)	3.8	m			5/12/2020 10:44 AM	
Deacon Cell 2-100m from NE corner	300195	TEMP	Temperature_Sample (Report)	8.2	deg_C			5/12/2020 10:34 AM	
Deacon Cell 2-100m from NE corner	300195	TRANSPAREN	Transparency (Report)	4.0	m			5/12/2020 10:34 AM	
Deacon Cell 2 net composite	300196	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/12/2020	Discarded
Deacon Cell 3 - middle	300198	TEMP	Temperature_Sample (Report)	7.6	deg_C			5/12/2020 9:23 AM	
Deacon Cell 3 - middle	300198	TRANSPAREN	Transparency (Report)	3.5	m			5/12/2020 9:23 AM	
Deacon Cell 3-100m from NE corner	300199	TEMP	Temperature_Sample (Report)	7.9	deg_C			5/12/2020 9:03 AM	
Deacon Cell 3-100m from NE corner	300199	TRANSPAREN	Transparency (Report)	3.3	m			5/12/2020 9:03 AM	
Deacon Cell 3 net composite	300200	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/12/2020	Discarded
Deacon Cell 4 - middle	300202	TEMP	Temperature_Sample (Report)	9.3	deg_C			5/12/2020 12:13 PM	
Deacon Cell 4 - middle	300202	TRANSPAREN	Transparency (Report)	3.5	m			5/12/2020 12:13 PM	
Deacon Cell 4-100m from NE corner	300203	TEMP	Temperature_Sample (Report)	8.4	deg_C			5/12/2020 12:26 PM	
Deacon Cell 4-100m from NE corner	300203	TRANSPAREN	Transparency (Report)	3.5	m			5/12/2020 12:26 PM	
Deacon Cell 4 net composite	300204	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/12/2020	Discarded
Weather Conditions - Deacon	300201	OBSERVE	Temperature_Air	5.2	deg_C			5/12/2020	

NOTE: Microscopic examination only performed on composite net samples because traps were set for the season on May 12, 2020.



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	303909	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	5/26/2020	Discarded
Indian Bay - B1	303912	TEMP	Temperature_Sample (Report)	18.1	deg_C			5/26/2020 1:31 PM	
Indian Bay - B1	303912	TRANSPAREN	Transparency (Report)	2.5	m			5/26/2020 1:31 PM	
Indian Bay - B2	303913	TEMP	Temperature_Sample (Report)	18.0	deg_C			5/26/2020 1:40 PM	
Indian Bay - B2	303913	TRANSPAREN	Transparency (Report)	2.0	m			5/26/2020 1:40 PM	
Indian Bay - B3	303914	TEMP	Temperature_Sample (Report)	17.9	deg_C			5/26/2020 1:44 PM	
Indian Bay - B3	303914	TRANSPAREN	Transparency (Report)	2.8	m			5/26/2020 1:44 PM	
Indian Bay - B4	303915	TEMP	Temperature_Sample (Report)	18.8	deg_C			5/26/2020 2:20 PM	
Indian Bay - B4	303915	TRANSPAREN	Transparency (Report)	2.0	m			5/26/2020 2:20 PM	
Indian Bay - B5	303916	TEMP	Temperature_Sample (Report)	18.7	deg_C			5/27/2020 2:13 PM	
Indian Bay - B5	303916	TRANSPAREN	Transparency (Report)	2.0	m			5/27/2020 2:13 PM	
Indian Bay - B6	303917	TEMP	Temperature_Sample (Report)	18.8	deg_C			5/26/2020 2:02 PM	
Indian Bay - B6	303917	TRANSPAREN	Transparency (Report)	3.0	m			5/26/2020 2:02 PM	
Shoal Lake - L1_L5 Water Composite	303918	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	5/26/2020	Discarded
Shoal Lake - L1	303919	TEMP	Temperature_Sample (Report)	19.1	deg_C			5/26/2020 11:40 AM	
Shoal Lake - L1	303919	TRANSPAREN	Transparency (Report)	3.0	m			5/26/2020 11:40 AM	
Shoal Lake - L2	303920	TEMP	Temperature_Sample (Report)	15.0	deg_C			5/26/2020 11:15 AM	
Shoal Lake - L2	303920	TRANSPAREN	Transparency (Report)	2.0	m			5/26/2020 11:15 AM	
Shoal Lake - L3	303921	TEMP	Temperature_Sample (Report)	14.6	deg_C			5/26/2020 12:41 PM	
Shoal Lake - L3	303921	TRANSPAREN	Transparency (Report)	2.5	m			5/26/2020 12:41 PM	
Shoal Lake - L4	303922	TEMP	Temperature_Sample (Report)	15.9	deg_C			5/26/2020 1:22 PM	
Shoal Lake - L4	303922	TRANSPAREN	Transparency (Report)	2.5	m			5/26/2020 1:22 PM	
Shoal Lake - L5	303923	TEMP	Temperature_Sample (Report)	17.3	deg_C			5/26/2020 12:33 PM	
Shoal Lake - L5	303923	TRANSPAREN	Transparency (Report)	2.0	m			5/26/2020 12:33 PM	
Shoal Lake - Horizontal Net Comp L1 B1 B4	303924	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/26/2020	Discarded
Weather Conditions - Indian Bay	303925	OBSERVE	Temperature_Air	16.0	deg_C			5/26/2020	

NOTE: Microscopic examination only performed on composite net samples because traps were set for the season on May 26. 2020



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	307027	TEMP	Temperature_Sample (Report)	17.3	deg_C			6/3/2020 10:00 AM	
Deacon Cell 1 - middle	307027	TRANSPAREN	Transparency (Report)	3.8	m			6/3/2020 10:00 AM	
Deacon Cell 1 - middle	307027	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/3/2020 10:00 AM	Discarded
Deacon Cell 1-100m from NE corner	307028	TEMP	Temperature_Sample (Report)	17.3	deg_C			6/3/2020 9:52 AM	
Deacon Cell 1-100m from NE corner	307028	TRANSPAREN	Transparency (Report)	3.5	m			6/3/2020 9:52 AM	
Deacon Cell 1 net composite	307029	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	6/3/2020	Discarded
Deacon Cell 2 - middle	307031	TEMP	Temperature_Sample (Report)	17.4	deg_C			6/3/2020 10:45 AM	
Deacon Cell 2 - middle	307031	TRANSPAREN	Transparency (Report)	3.8	m			6/3/2020 10:45 AM	
Deacon Cell 2 - middle	307031	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/3/2020 10:45 AM	Discarded
Deacon Cell 2-100m from NE corner	307032	TEMP	Temperature_Sample (Report)	17.7	deg_C			6/3/2020 10:36 AM	
Deacon Cell 2-100m from NE corner	307032	TRANSPAREN	Transparency (Report)	3.5	m			6/3/2020 10:36 AM	
Deacon Cell 2 net composite	307033	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	6/3/2020	Discarded
Deacon Cell 3 - middle	307035	TEMP	Temperature_Sample (Report)	16.8	deg_C			6/3/2020 9:24 AM	
Deacon Cell 3 - middle	307035	TRANSPAREN	Transparency (Report)	5.0	m			6/3/2020 9:24 AM	
Deacon Cell 3 - middle	307035	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/3/2020 9:24 AM	Discarded
Deacon Cell 3-100m from NE corner	307036	TEMP	Temperature_Sample (Report)	16.8	deg_C			6/3/2020 9:11 AM	
Deacon Cell 3-100m from NE corner	307036	TRANSPAREN	Transparency (Report)	4.0	m			6/3/2020 9:11 AM	
Deacon Cell 3 net composite	307037	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	6/3/2020	Discarded
Deacon Cell 4 - middle	307039	TEMP	Temperature_Sample (Report)	17.8	deg_C			6/3/2020 11:25 AM	
Deacon Cell 4 - middle	307039	TRANSPAREN	Transparency (Report)	4.0	m			6/3/2020 11:25 AM	
Deacon Cell 4 - middle	307039	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/3/2020 11:25 AM	Discarded
Deacon Cell 4-100m from NE corner	307040	TEMP	Temperature_Sample (Report)	17.5	deg_C			6/3/2020 11:32 AM	
Deacon Cell 4-100m from NE corner	307040	TRANSPAREN	Transparency (Report)	4.5	m			6/3/2020 11:32 AM	
Deacon Cell 4 net composite	307041	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	6/3/2020	Discarded
Weather Conditions - Deacon	307038	OBSERVE	Temperature_Air	21.1	deg_C			6/3/2020	



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	309314	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	6/24/2020	Discarded
Indian Bay - B1	309317	TEMP	Temperature_Sample (Report)	21.6	deg_C			6/24/2020 1:36 PM	
Indian Bay - B1	309317	TRANSPAREN	Transparency (Report)	2.8	m			6/24/2020 1:36 PM	
Indian Bay - B1	309317	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 1:36 PM	Discarded
Indian Bay - B2	309318	TEMP	Temperature_Sample (Report)	21.4	deg_C			6/24/2020 1:47 PM	
Indian Bay - B2	309318	TRANSPAREN	Transparency (Report)	4.0	m			6/24/2020 1:47 PM	
Indian Bay - B2	309318	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 1:47 PM	Discarded
Indian Bay - B3	309319	TEMP	Temperature_Sample (Report)	22.6	deg_C			6/24/2020 1:53 PM	
Indian Bay - B3	309319	TRANSPAREN	Transparency (Report)	2.5	m			6/24/2020 1:53 PM	
Indian Bay - B3	309319	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 1:53 PM	Discarded
Indian Bay - B4	309320	TEMP	Temperature_Sample (Report)	21.6	deg_C			6/24/2020 2:01 PM	
Indian Bay - B4	309320	TRANSPAREN	Transparency (Report)	3.3	m			6/24/2020 2:01 PM	
Indian Bay - B4	309320	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 2:01 PM	Discarded
Indian Bay - B5	309321	TEMP	Temperature_Sample (Report)	21.2	deg_C			6/24/2020 2:12 PM	
Indian Bay - B5	309321	TRANSPAREN	Transparency (Report)	3.0	m			6/24/2020 2:12 PM	
Indian Bay - B5	309321	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 2:12 PM	Discarded
Indian Bay - B6	309322	TEMP	Temperature_Sample (Report)	21.7	deg_C			6/24/2020 2:17 PM	
Indian Bay - B6	309322	TRANSPAREN	Transparency (Report)	3.3	m			6/24/2020 2:17 PM	
Indian Bay - B6	309322	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 2:17 PM	Discarded
Shoal Lake - L1_L5 Water Composite	309323	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	6/24/2020	Discarded
Shoal Lake - L1	309324	TEMP	Temperature_Sample (Report)	20.4	deg_C			6/24/2020 11:15 AM	
Shoal Lake - L1	309324	TRANSPAREN	Transparency (Report)	4.0	m			6/24/2020 11:15 AM	
Shoal Lake - L1	309324	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 11:15 AM	Discarded
Shoal Lake - L2	309325	TEMP	Temperature_Sample (Report)	18.9	deg_C			6/24/2020 11:44 AM	
Shoal Lake - L2	309325	TRANSPAREN	Transparency (Report)	4.0	m			6/24/2020 11:44 AM	
Shoal Lake - L2	309325	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 11:44 AM	Discarded
Shoal Lake - L3	309326	TEMP	Temperature_Sample (Report)	19.2	deg_C			6/24/2020 11:59 AM	
Shoal Lake - L3	309326	TRANSPAREN	Transparency (Report)	2.3	m			6/24/2020 11:59 AM	
Shoal Lake - L3	309326	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 11:59 AM	Discarded
Shoal Lake - L4	309327	TEMP	Temperature_Sample (Report)	20.1	deg_C			6/24/2020 12:07 PM	
Shoal Lake - L4	309327	TRANSPAREN	Transparency (Report)	4.0	m			6/24/2020 12:07 PM	
Shoal Lake - L4	309327	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 12:07 PM	Discarded
Shoal Lake - L5	309328	TEMP	Temperature_Sample (Report)	20.8	deg_C			6/24/2020 1:14 PM	
Shoal Lake - L5	309328	TRANSPAREN	Transparency (Report)	3.8	m			6/24/2020 1:14 PM	
Shoal Lake - L5	309328	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	6/24/2020 1:14 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	309329	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	6/24/2020	Discarded
Weather Conditions - Indian Bay	309330	OBSERVE	Temperature_Air	22.3	deg_C			6/24/2020	



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	314882	TEMP	Temperature_Sample (Report)	25.0	deg_C			7/7/2020 9:17 AM	
Deacon Cell 1 - middle	314882	TRANSPAREN	Transparency (Report)	1.8	m			7/7/2020 9:17 AM	
Deacon Cell 1 - middle	314882	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/7/2020 9:17 AM	Discarded
Deacon Cell 1-100m from NE corner	314883	TEMP	Temperature_Sample (Report)	24.9	deg_C			7/7/2020 9:01 AM	
Deacon Cell 1-100m from NE corner	314883	TRANSPAREN	Transparency (Report)	2.5	m			7/7/2020 9:01 AM	
Deacon Cell 1 net composite	314884	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	7/7/2020	Discarded
Deacon Cell 2 - middle	314886	TEMP	Temperature_Sample (Report)	24.9	deg_C			7/7/2020 9:58 AM	
Deacon Cell 2 - middle	314886	TRANSPAREN	Transparency (Report)	2.3	m			7/7/2020 9:58 AM	
Deacon Cell 2 - middle	314886	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/7/2020 9:58 AM	Discarded
Deacon Cell 2-100m from NE corner	314887	TEMP	Temperature_Sample (Report)	24.7	deg_C			7/7/2020 9:48 AM	
Deacon Cell 2-100m from NE corner	314887	TRANSPAREN	Transparency (Report)	2.0	m			7/7/2020 9:48 AM	
Deacon Cell 2 net composite	314888	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	7/7/2020	Discarded
Deacon Cell 3 - middle	314890	TEMP	Temperature_Sample (Report)	24.6	deg_C			7/7/2020 8:35 AM	
Deacon Cell 3 - middle	314890	TRANSPAREN	Transparency (Report)	2.3	m			7/7/2020 8:35 AM	
Deacon Cell 3 - middle	314890	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/7/2020 8:35 AM	Discarded
Deacon Cell 3-100m from NE corner	314891	TEMP	Temperature_Sample (Report)	24.3	deg_C			7/7/2020 8:30 AM	
Deacon Cell 3-100m from NE corner	314891	TRANSPAREN	Transparency (Report)	2.0	m			7/7/2020 8:30 AM	
Deacon Cell 3 net composite	314892	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	7/7/2020	Discarded
Deacon Cell 4 - middle	314894	TEMP	Temperature_Sample (Report)	25.0	deg_C			7/7/2020 10:27 AM	
Deacon Cell 4 - middle	314894	TRANSPAREN	Transparency (Report)	2.0	m			7/7/2020 10:27 AM	
Deacon Cell 4 - middle	314894	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/7/2020 10:27 AM	Discarded
Deacon Cell 4-100m from NE corner	314895	TEMP	Temperature_Sample (Report)	25.1	deg_C			7/7/2020 10:21 AM	
Deacon Cell 4-100m from NE corner	314895	TRANSPAREN	Transparency (Report)	2.3	m			7/7/2020 10:21 AM	
Deacon Cell 4 net composite	314896	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	7/7/2020	Discarded
Weather Conditions - Deacon	314893	OBSERVE	Temperature_Air	23.4	deg_C			7/7/2020	



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	316516	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	7/22/2020	Discarded
Indian Bay - B1	316519	TEMP	Temperature_Sample (Report)	23.6	deg_C			7/22/2020 1:39 PM	
Indian Bay - B1	316519	TRANSPAREN	Transparency (Report)	2.3	m			7/22/2020 1:39 PM	
Indian Bay - B1	316519	MICRO_EXAM	Zebra_Trap1 (Report)	nr	count/sample	Dreissena polymorpha	adult	7/22/2020 1:39 PM	n/a
Indian Bay - B2	316520	TEMP	Temperature_Sample (Report)	23.1	deg_C			7/22/2020 1:50 PM	
Indian Bay - B2	316520	TRANSPAREN	Transparency (Report)	2.0	m			7/22/2020 1:50 PM	
Indian Bay - B2	316520	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 1:50 PM	Discarded
Indian Bay - B3	316521	TEMP	Temperature_Sample (Report)	23.5	deg_C			7/22/2020 1:57 PM	
Indian Bay - B3	316521	TRANSPAREN	Transparency (Report)	2.3	m			7/22/2020 1:57 PM	
Indian Bay - B3	316521	MICRO_EXAM	Zebra_Trap1 (Report)	nr	count/sample	Dreissena polymorpha	adult	7/22/2020 1:50 PM	n/a
Indian Bay - B4	316522	TEMP	Temperature_Sample (Report)	23.7	deg_C			7/22/2020 2:06 PM	
Indian Bay - B4	316522	TRANSPAREN	Transparency (Report)	2.3	m			7/22/2020 2:06 PM	
Indian Bay - B4	316522	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 2:06 PM	Discarded
Indian Bay - B5	316523	TEMP	Temperature_Sample (Report)	23.8	deg_C			7/22/2020 2:18 PM	
Indian Bay - B5	316523	TRANSPAREN	Transparency (Report)	2.3	m			7/22/2020 2:18 PM	
Indian Bay - B5	316523	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 2:18 PM	Discarded
Indian Bay - B6	316524	TEMP	Temperature_Sample (Report)	23.5	deg_C			7/22/2020 2:23 PM	
Indian Bay - B6	316524	TRANSPAREN	Transparency (Report)	2.0	m			7/22/2020 2:23 PM	
Indian Bay - B6	316524	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 2:23 PM	Discarded
Shoal Lake - L1_L5 Water Composite	316525	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	7/22/2020	Discarded
Shoal Lake - L1	316526	TEMP	Temperature_Sample (Report)	23.3	deg_C			7/22/2020 11:10 AM	
Shoal Lake - L1	316526	TRANSPAREN	Transparency (Report)	2.3	m			7/22/2020 11:10 AM	
Shoal Lake - L1	316526	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 11:10 AM	Discarded
Shoal Lake - L2	316527	TEMP	Temperature_Sample (Report)	22.6	deg_C			7/22/2020 11:41 AM	
Shoal Lake - L2	316527	TRANSPAREN	Transparency (Report)	2.3	m			7/22/2020 11:41 AM	
Shoal Lake - L2	316527	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 11:41 AM	Discarded
Shoal Lake - L3	316528	TEMP	Temperature_Sample (Report)	22.8	deg_C			7/22/2020 12:01 PM	
Shoal Lake - L3	316528	TRANSPAREN	Transparency (Report)	2.0	m			7/22/2020 12:01 PM	
Shoal Lake - L3	316528	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 12:01 PM	Discarded
Shoal Lake - L4	316529	TEMP	Temperature_Sample (Report)	23.3	deg_C			7/22/2020 12:11 PM	
Shoal Lake - L4	316529	TRANSPAREN	Transparency (Report)	2.0	m			7/22/2020 12:11 PM	
Shoal Lake - L4	316529	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 12:11 PM	Discarded
Shoal Lake - L5	316530	TEMP	Temperature_Sample (Report)	23.0	deg_C			7/22/2020 1:16 PM	
Shoal Lake - L5	316530	TRANSPAREN	Transparency (Report)	2.5	m			7/22/2020 1:16 PM	
Shoal Lake - L5	316530	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	7/22/2020 1:16 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	316531	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	7/22/2020	Discarded
Weather Conditions - Indian Bay	316532	OBSERVE	Temperature_Air	23.4	deg_C			7/22/2020	

NOTE: nr- no result, trap missing



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	323915	TEMP	Temperature_Sample (Report)	21.5	deg_C			8/12/2020 8:39 AM	
Deacon Cell 1 - middle	323915	TRANSPAREN	Transparency (Report)	1.3	m			8/12/2020 8:39 AM	
Deacon Cell 1 - middle	323915	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/12/2020 8:39 AM	Discarded
Deacon Cell 1-100m from NE corner	323916	TEMP	Temperature_Sample (Report)	21.4	deg_C			8/12/2020 8:30 AM	
Deacon Cell 1-100m from NE corner	323916	TRANSPAREN	Transparency (Report)	1.5	m			8/12/2020 8:30 AM	
Deacon Cell 1 net composite	323917	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	8/12/2020	Discarded
Deacon Cell 2 - middle	323919	TEMP	Temperature_Sample (Report)	21.4	deg_C			8/12/2020 9:19 AM	
Deacon Cell 2 - middle	323919	TRANSPAREN	Transparency (Report)	1.5	m			8/12/2020 9:19 AM	
Deacon Cell 2 - middle	323919	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/12/2020 9:19 AM	Discarded
Deacon Cell 2-100m from NE corner	323920	TEMP	Temperature_Sample (Report)	21.4	deg_C			8/12/2020 9:12 AM	
Deacon Cell 2-100m from NE corner	323920	TRANSPAREN	Transparency (Report)	1.3	m			8/12/2020 9:12 AM	
Deacon Cell 2 net composite	323921	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	8/12/2020	Discarded
Deacon Cell 3 - middle	323923	TEMP	Temperature_Sample (Report)	21.4	deg_C			8/12/2020 8:07 AM	
Deacon Cell 3 - middle	323923	TRANSPAREN	Transparency (Report)	1.0	m			8/12/2020 8:07 AM	
Deacon Cell 3 - middle	323923	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/12/2020 8:07 AM	Discarded
Deacon Cell 3-100m from NE corner	323924	TEMP	Temperature_Sample (Report)	21.3	deg_C			8/12/2020 7:56 AM	
Deacon Cell 3-100m from NE corner	323924	TRANSPAREN	Transparency (Report)	1.0	m			8/12/2020 7:56 AM	
Deacon Cell 3 net composite	323925	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	8/12/2020	Discarded
Deacon Cell 4 - middle	323927	TEMP	Temperature_Sample (Report)	21.6	deg_C			8/12/2020 10:01 AM	
Deacon Cell 4 - middle	323927	TRANSPAREN	Transparency (Report)	1.3	m			8/12/2020 10:01 AM	
Deacon Cell 4 - middle	323927	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/12/2020 10:01 AM	Discarded
Deacon Cell 4-100m from NE corner	323928	TEMP	Temperature_Sample (Report)	21.5	deg_C			8/12/2020 9:54 AM	
Deacon Cell 4-100m from NE corner	323928	TRANSPAREN	Transparency (Report)	1.0	m			8/12/2020 9:54 AM	
Deacon Cell 4 net composite	323929	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	8/12/2020	Discarded
Weather Conditions - Deacon	323926	OBSERVE	Temperature_Air	19.8	deg_C			8/12/2020	



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	327505	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	8/25/2020	Discarded
Indian Bay - B1	327508	TEMP	Temperature_Sample (Report)	24.0	deg_C			8/25/2020 1:42 PM	
Indian Bay - B1	327508	TRANSPAREN	Transparency (Report)	1.5	m			8/25/2020 1:42 PM	
Indian Bay - B1	327508	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 1:42 PM	Discarded
Indian Bay - B2	327509	TEMP	Temperature_Sample (Report)	23.7	deg_C			8/25/2020 1:51 PM	
Indian Bay - B2	327509	TRANSPAREN	Transparency (Report)	1.8	m			8/25/2020 1:51 PM	
Indian Bay - B2	327509	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 1:51 PM	Discarded
Indian Bay - B3	327510	TEMP	Temperature_Sample (Report)	23.4	deg_C			8/25/2020 1:58 PM	
Indian Bay - B3	327510	TRANSPAREN	Transparency (Report)	1.5	m			8/25/2020 1:58 PM	
Indian Bay - B3	327510	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 1:58 PM	Discarded
Indian Bay - B4	327511	TEMP	Temperature_Sample (Report)	23.6	deg_C			8/25/2020 2:04 PM	
Indian Bay - B4	327511	TRANSPAREN	Transparency (Report)	1.8	m			8/25/2020 2:04 PM	
Indian Bay - B4	327511	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 2:04 PM	Discarded
Indian Bay - B5	327512	TEMP	Temperature_Sample (Report)	23.6	deg_C			8/25/2020 2:14 PM	
Indian Bay - B5	327512	TRANSPAREN	Transparency (Report)	1.8	m			8/25/2020 2:14 PM	
Indian Bay - B5	327512	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 2:14 PM	Discarded
Indian Bay - B6	327513	TEMP	Temperature_Sample (Report)	23.6	deg_C			8/25/2020 2:18 PM	
Indian Bay - B6	327513	TRANSPAREN	Transparency (Report)	1.5	m			8/25/2020 2:18 PM	
Indian Bay - B6	327513	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 2:18 PM	Discarded
Shoal Lake - L1_L5 Water Composite	327514	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	8/25/2020	Discarded
Shoal Lake - L1	327515	TEMP	Temperature_Sample (Report)	24.1	deg_C			8/25/2020 10:50 AM	
Shoal Lake - L1	327515	TRANSPAREN	Transparency (Report)	2.0	m			8/25/2020 10:50 AM	
Shoal Lake - L1	327515	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 10:50 AM	Discarded
Shoal Lake - L2	327516	TEMP	Temperature_Sample (Report)	23.7	deg_C			8/25/2020 11:22 AM	
Shoal Lake - L2	327516	TRANSPAREN	Transparency (Report)	2.5	m			8/25/2020 11:22 AM	
Shoal Lake - L2	327516	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 11:22 AM	Discarded
Shoal Lake - L3	327517	TEMP	Temperature_Sample (Report)	23.7	deg_C			8/25/2020 11:39 AM	
Shoal Lake - L3	327517	TRANSPAREN	Transparency (Report)	2.5	m			8/25/2020 11:39 AM	
Shoal Lake - L3	327517	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 11:39 AM	Discarded
Shoal Lake - L4	327518	TEMP	Temperature_Sample (Report)	24.2	deg_C			8/25/2020 11:49 AM	
Shoal Lake - L4	327518	TRANSPAREN	Transparency (Report)	2.0	m			8/25/2020 11:49 AM	
Shoal Lake - L4	327518	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 11:49 AM	Discarded
Shoal Lake - L5	327519	TEMP	Temperature_Sample (Report)	23.6	deg_C			8/25/2020 1:18 PM	
Shoal Lake - L5	327519	TRANSPAREN	Transparency (Report)	2.0	m			8/25/2020 1:18 PM	
Shoal Lake - L5	327519	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	8/25/2020 1:18 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	327520	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	8/25/2020	Discarded
Weather Conditions - Indian Bay	327521	OBSERVE	Temperature_Air	26.0	deg_C			8/25/2020	



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	330025	TEMP	Temperature_Sample (Report)	14.6	deg_C			9/22/2020 9:40 AM	
Deacon Cell 1 - middle	330025	TRANSPAREN	Transparency (Report)	2.0	m			9/22/2020 9:40 AM	
Deacon Cell 1 - middle	330025	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/22/2020 9:40 AM	Discarded
Deacon Cell 1-100m from NE corner	330026	TEMP	Temperature_Sample (Report)	14.5	deg_C			9/22/2020 9:32 AM	
Deacon Cell 1-100m from NE corner	330026	TRANSPAREN	Transparency (Report)	2.0	m			9/22/2020 9:32 AM	
Deacon Cell 1 net composite	330027	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	9/22/2020	Discarded
Deacon Cell 2 - middle	330029	TEMP	Temperature_Sample (Report)	14.7	deg_C			9/22/2020 10:19 AM	
Deacon Cell 2 - middle	330029	TRANSPAREN	Transparency (Report)	2.3	m			9/22/2020 10:19 AM	
Deacon Cell 2 - middle	330029	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/22/2020 10:19 AM	Discarded
Deacon Cell 2-100m from NE corner	330030	TEMP	Temperature_Sample (Report)	14.6	deg_C			9/22/2020 10:06 AM	
Deacon Cell 2-100m from NE corner	330030	TRANSPAREN	Transparency (Report)	2.0	m			9/22/2020 10:06 AM	
Deacon Cell 2 net composite	330031	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	9/22/2020	Discarded
Deacon Cell 3 - middle	330033	TEMP	Temperature_Sample (Report)	14.4	deg_C			9/22/2020 9:05 AM	
Deacon Cell 3 - middle	330033	TRANSPAREN	Transparency (Report)	2.3	m			9/22/2020 9:05 AM	
Deacon Cell 3 - middle	330033	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/22/2020 9:05 AM	Discarded
Deacon Cell 3-100m from NE corner	330034	TEMP	Temperature_Sample (Report)	14.3	deg_C			9/22/2020 8:50 AM	
Deacon Cell 3-100m from NE corner	330034	TRANSPAREN	Transparency (Report)	2.3	m			9/22/2020 8:50 AM	
Deacon Cell 3 net composite	330035	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	9/22/2020	Discarded
Deacon Cell 4 - middle	330037	TEMP	Temperature_Sample (Report)	14.7	deg_C			9/22/2020 10:49 AM	
Deacon Cell 4 - middle	330037	TRANSPAREN	Transparency (Report)	2.0	m			9/22/2020 10:49 AM	
Deacon Cell 4 - middle	330037	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/22/2020 10:49 AM	Discarded
Deacon Cell 4-100m from NE corner	330038	TEMP	Temperature_Sample (Report)	14.7	deg_C			9/22/2020 10:55 AM	
Deacon Cell 4-100m from NE corner	330038	TRANSPAREN	Transparency (Report)	1.8	m			9/22/2020 10:55 AM	
Deacon Cell 4 net composite	330039	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	9/22/2020	Discarded
Weather Conditions - Deacon	330036	OBSERVE	Temperature_Air	15.7	deg_C			9/22/2020	



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	333090	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	9/17/2020	Discarded
Indian Bay - B1	333093	TEMP	Temperature_Sample (Report)	14.4	deg_C			9/17/2020 1:40 PM	
Indian Bay - B1	333093	TRANSPAREN	Transparency (Report)	1.5	m			9/17/2020 1:40 PM	
Indian Bay - B1	333093	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 1:40 PM	Discarded
Indian Bay - B2	333094	TEMP	Temperature_Sample (Report)	14.5	deg_C			9/17/2020 1:50 PM	
Indian Bay - B2	333094	TRANSPAREN	Transparency (Report)	1.8	m			9/17/2020 1:50 PM	
Indian Bay - B2	333094	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 1:50 PM	Discarded
Indian Bay - B3	333095	TEMP	Temperature_Sample (Report)	14.4	deg_C			9/17/2020 1:57 PM	
Indian Bay - B3	333095	TRANSPAREN	Transparency (Report)	1.8	m			9/17/2020 1:57 PM	
Indian Bay - B3	333095	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 1:57 PM	Discarded
Indian Bay - B4	333096	TEMP	Temperature_Sample (Report)	14.3	deg_C			9/17/2020 2:06 PM	
Indian Bay - B4	333096	TRANSPAREN	Transparency (Report)	1.5	m			9/17/2020 2:06 PM	
Indian Bay - B4	333096	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 2:06 PM	Discarded
Indian Bay - B5	333097	TEMP	Temperature_Sample (Report)	14.5	deg_C			9/17/2020 2:19 PM	
Indian Bay - B5	333097	TRANSPAREN	Transparency (Report)	1.5	m			9/17/2020 2:19 PM	
Indian Bay - B5	333097	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 2:19 PM	Discarded
Indian Bay - B6	333098	TEMP	Temperature_Sample (Report)	14.6	deg_C			9/17/2020 2:26 PM	
Indian Bay - B6	333098	TRANSPAREN	Transparency (Report)	1.3	m			9/17/2020 2:26 PM	
Indian Bay - B6	333098	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 2:26 PM	Discarded
Shoal Lake - L1_L5 Water Composite	333099	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	9/17/2020	Discarded
Shoal Lake - L1	333100	TEMP	Temperature_Sample (Report)	15.6	deg_C			9/17/2020 11:12 AM	
Shoal Lake - L1	333100	TRANSPAREN	Transparency (Report)	2.0	m			9/17/2020 11:12 AM	
Shoal Lake - L1	333100	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 11:12 AM	Discarded
Shoal Lake - L2	333101	TEMP	Temperature_Sample (Report)	15.6	deg_C			9/17/2020 11:42 AM	
Shoal Lake - L2	333101	TRANSPAREN	Transparency (Report)	2.0	m			9/17/2020 11:42 AM	
Shoal Lake - L2	333101	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 11:42 AM	Discarded
Shoal Lake - L3	333102	TEMP	Temperature_Sample (Report)	16.0	deg_C			9/17/2020 11:59 AM	
Shoal Lake - L3	333102	TRANSPAREN	Transparency (Report)	1.8	m			9/17/2020 11:59 AM	
Shoal Lake - L3	333102	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 11:59 AM	Discarded
Shoal Lake - L4	333103	TEMP	Temperature_Sample (Report)	16.1	deg_C			9/17/2020 12:10 PM	
Shoal Lake - L4	333103	TRANSPAREN	Transparency (Report)	2.0	m			9/17/2020 12:10 PM	
Shoal Lake - L4	333103	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 12:10 PM	Discarded
Shoal Lake - L5	333104	TEMP	Temperature_Sample (Report)	15.8	deg_C			9/17/2020 1:14 PM	
Shoal Lake - L5	333104	TRANSPAREN	Transparency (Report)	2.0	m			9/17/2020 1:14 PM	
Shoal Lake - L5	333104	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	9/17/2020 1:14 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	333105	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	9/17/2020	Discarded
Weather Conditions - Indian Bay	333106	OBSERVE	Temperature_Air	10.0	deg_C			9/17/2020	



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	338565	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	10/8/2020	Discarded
Indian Bay - B1	338568	TEMP	Temperature_Sample (Report)	10.9	deg_C			10/8/2020 12:43 PM	
Indian Bay - B1	338568	TRANSPAREN	Transparency (Report)	1.8	m			10/8/2020 12:43 PM	
Indian Bay - B1	338568	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 12:43 PM	Discarded
Indian Bay - B2	338569	TEMP	Temperature_Sample (Report)	10.7	deg_C			10/8/2020 12:54 PM	
Indian Bay - B2	338569	TRANSPAREN	Transparency (Report)	1.8	m			10/8/2020 12:54 PM	
Indian Bay - B2	338569	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 12:54 PM	Discarded
Indian Bay - B3	338570	TEMP	Temperature_Sample (Report)	10.9	deg_C			10/8/2020 1:01 PM	
Indian Bay - B3	338570	TRANSPAREN	Transparency (Report)	1.5	m			10/8/2020 1:01 PM	
Indian Bay - B3	338570	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 1:01 PM	Discarded
Indian Bay - B4	338571	TEMP	Temperature_Sample (Report)	11.0	deg_C			10/8/2020 1:08 PM	
Indian Bay - B4	338571	TRANSPAREN	Transparency (Report)	1.8	m			10/8/2020 1:08 PM	
Indian Bay - B4	338571	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 1:08 PM	Discarded
Indian Bay - B5	338572	TEMP	Temperature_Sample (Report)	10.9	deg_C			10/8/2020 1:20 PM	
Indian Bay - B5	338572	TRANSPAREN	Transparency (Report)	1.8	m			10/8/2020 1:20 PM	
Indian Bay - B5	338572	MICRO_EXAM	Zebra_Trap1 (Report)	nr	count/sample	Dreissena polymorpha	adult	10/8/2020 1:20 PM	n/a
Indian Bay - B6	338573	TEMP	Temperature_Sample (Report)	11.1	deg_C			10/8/2020 1:25 PM	
Indian Bay - B6	338573	TRANSPAREN	Transparency (Report)	1.5	m			10/8/2020 1:25 PM	
Indian Bay - B6	338573	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 1:25 PM	Discarded
Shoal Lake - L1_L5 Water Composite	338574	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	10/8/2020	Discarded
Shoal Lake - L1	338575	TEMP	Temperature_Sample (Report)	11.9	deg_C			10/8/2020 2:46 PM	
Shoal Lake - L1	338575	TRANSPAREN	Transparency (Report)	1.5	m			10/8/2020 2:46 PM	
Shoal Lake - L1	338575	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 2:46 PM	Discarded
Shoal Lake - L2	338576	TEMP	Temperature_Sample (Report)	13.4	deg_C			10/8/2020 3:27 PM	
Shoal Lake - L2	338576	TRANSPAREN	Transparency (Report)	2.0	m			10/8/2020 3:27 PM	
Shoal Lake - L2	338576	MICRO_EXAM	Zebra_Trap1 (Report)	nr	count/sample	Dreissena polymorpha	adult	10/8/2020 3:27 PM	n/a
Shoal Lake - L3	338577	TEMP	Temperature_Sample (Report)	13.1	deg_C			10/8/2020 3:44 PM	
Shoal Lake - L3	338577	TRANSPAREN	Transparency (Report)	1.8	m			10/8/2020 3:44 PM	
Shoal Lake - L3	338577	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 3:44 PM	Discarded
Shoal Lake - L4	338578	TEMP	Temperature_Sample (Report)	13.3	deg_C			10/8/2020 3:53 PM	
Shoal Lake - L4	338578	TRANSPAREN	Transparency (Report)	2.0	m			10/8/2020 3:53 PM	
Shoal Lake - L4	338578	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 3:53 PM	Discarded
Shoal Lake - L5	338579	TEMP	Temperature_Sample (Report)	13.1	deg_C			10/8/2020 4:18 PM	
Shoal Lake - L5	338579	TRANSPAREN	Transparency (Report)	2.0	m			10/8/2020 4:18 PM	
Shoal Lake - L5	338579	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/8/2020 4:18 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	338580	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	10/8/2020	Discarded
Weather Conditions - Indian Bay	338581	OBSERVE	Temperature_Air	12.0	deg_C			10/8/2020	

NOTE: nr- no result, trap missing



Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	341178	TEMP	Temperature_Sample (Report)	8.6	deg_C			10/16/2020 1:52 PM	
Deacon Cell 1 - middle	341178	TRANSPAREN	Transparency (Report)	1.8	m			10/16/2020 1:52 PM	
Deacon Cell 1 - middle	341178	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/16/2020 1:52 PM	Discarded
Deacon Cell 1-100m from NE corner	341179	TEMP	Temperature_Sample (Report)	8.6	deg_C			10/16/2020 2:01 PM	
Deacon Cell 1-100m from NE corner	341179	TRANSPAREN	Transparency (Report)	1.8	m			10/16/2020 2:01 PM	
Deacon Cell 1 net composite	341180	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	10/16/2020	Discarded
Deacon Cell 2 - middle	341182	TEMP	Temperature_Sample (Report)	6.8	deg_C			10/19/2020 1:49 PM	
Deacon Cell 2 - middle	341182	TRANSPAREN	Transparency (Report)	2.0	m			10/19/2020 1:49 PM	
Deacon Cell 2 - middle	341182	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/19/2020 1:49 PM	Discarded
Deacon Cell 2-100m from NE corner	341183	TEMP	Temperature_Sample (Report)	6.8	deg_C			10/19/2020 1:43 PM	
Deacon Cell 2-100m from NE corner	341183	TRANSPAREN	Transparency (Report)	2.0	m			10/19/2020 1:43 PM	
Deacon Cell 2 net composite	341184	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	10/19/2020	Discarded
Deacon Cell 3 - middle	341186	TEMP	Temperature_Sample (Report)	8.6	deg_C			10/16/2020 1:18 PM	
Deacon Cell 3 - middle	341186	TRANSPAREN	Transparency (Report)	2.0	m			10/16/2020 1:18 PM	
Deacon Cell 3 - middle	341186	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/16/2020 1:18 PM	Discarded
Deacon Cell 3-100m from NE corner	341187	TEMP	Temperature_Sample (Report)	6.6	deg_C			10/16/2020 1:11 PM	
Deacon Cell 3-100m from NE corner	341187	TRANSPAREN	Transparency (Report)	2.3	m			10/16/2020 1:11 PM	
Deacon Cell 3 net composite	341188	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	10/16/2020	Discarded
Deacon Cell 4 - middle	341190	TEMP	Temperature_Sample (Report)	6.7	deg_C			10/19/2020 2:27 PM	
Deacon Cell 4 - middle	341190	TRANSPAREN	Transparency (Report)	2.0	m			10/19/2020 2:27 PM	
Deacon Cell 4 - middle	341190	MICRO_EXAM	Zebra_Trap1 (Report)	0	count/sample	Dreissena polymorpha	adult	10/19/2020 2:27 PM	Discarded
Deacon Cell 4-100m from NE corner	341191	TEMP	Temperature_Sample (Report)	6.8	deg_C			10/19/2020 2:20 PM	
Deacon Cell 4-100m from NE corner	341191	TRANSPAREN	Transparency (Report)	2.0	m			10/19/2020 2:20 PM	
Deacon Cell 4 net composite	341192	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	10/19/2020	Discarded
Weather Conditions - Deacon	341189	OBSERVE	Temperature_Air	-0.6	deg_C			10/16/2020	