



Water and Waste  
Eaux et déchets

ENVIRONMENTAL STANDARDS DIVISION

# 2021 ANNUAL WATER REPORT

## CITY OF WINNIPEG WATER SUPPLY SYSTEM



OPERATING LICENCE #PWS-09-412-02

2021



## INTRODUCTION

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

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

The Province of Manitoba and the Winnipeg Regional Health Authority regulate the quality of our drinking water using the *Manitoba Drinking Water Safety Act* and the *Guidelines for Canadian Drinking Water Quality*. The City of Winnipeg's Public Water System Operating Licence, PWS-09-412-02, requires that we regularly monitor the quality of our drinking water and submit an annual report to the regulating authority on or before the 31<sup>st</sup> 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 2021 Water Quality Monitoring Program.

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## 1.O DRINKING WATER SOURCE, TREATMENT, AND DISTRIBUTION

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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. Orthophosphate is added to form a protective coating inside water pipes, which helps to reduce corrosion. Fluoride is added to prevent dental decay, as a part of the Provincial Water Fluoridation Program, which is overseen by Manitoba Health and Seniors Care.

In 2021, Winnipeg's WTP produced an average of 198 megalitres (ML) of high-quality drinking water per day. The water is pumped from the WTP to three smaller reservoirs and pumping stations in different areas of the City. The Wilkes Reservoir holds 252 ML and feeds water to the Hurst Pumping Station; the McPhillips Reservoir holds 240 ML and feeds water to the McPhillips Pumping Station; the Maclean Reservoir holds 222 ML and feeds water to the Maclean Pumping Station. At the pumping stations, chlorine is added again before entering the distribution system, which is comprised of approximately: 2,698 km of water mains; 151 km of feeder mains; 30,084 valves; and 23,152 fire hydrants.

## **20 DRINKING WATER QUALITY STANDARDS AND TESTING**

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The bacteriological, chemical, physical, and microbial drinking water quality standards that apply to the City of Winnipeg's Public Water System are listed in Operating Licence PWS-09-412-02<sup>1</sup>, issued by Manitoba Environment, Climate and Parks under the authority of the *Manitoba Drinking Water Safety Act*<sup>2</sup> and its associated Regulations: *MR 40/2007, Drinking Water Safety Regulation*<sup>3</sup> and *MR 41/2007, Drinking Water Quality Standards Regulation*<sup>4</sup>.

The required frequency of testing and testing locations are specified in PWS-09-412-02. The City is 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 and by testing for additional parameters beyond the requirements of PWS-09-412-02. In April 2021, sampling at the additional distribution system locations was reintroduced, after being temporarily suspended in March 2020 due to the COVID-19 pandemic; sampling at the additional locations was suspended again in late December 2021 due to a surge in cases of COVID-19.

The parameters tested are listed in Table 1 and summaries of the 2021 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-09-412-02

✓✓ Required as per PWS-09-412-02

### **3.0 COMPLIANCE AND CORRECTIVE ACTIONS SUMMARY**

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The City of Winnipeg operates a comprehensive Water Quality Monitoring program that exceeds the requirements of PWS-09-412-02. 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; and quarterly reports detailing fluoride, haloacetic acid (HAA), and trihalomethane (THM) levels in the distribution system. 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 action 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 2021, total coliform and *E. coli*/bacteria were not detected in any of the 206 samples from the WTP and not detected in 99.95% of the 5,858 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 immediate corrective actions, notify the ODW, and submit a CAR. In 2021, laboratory staff collected 492

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grab samples from the WTP and 3,054 grab samples from the distribution system for free chlorine; 100% of the samples met the free chlorine requirements.

Turbidity is a measurement of the cloudiness of water caused by small particles, which can reduce the effectiveness of disinfection. The turbidity of the water leaving the filters at the WTP is never to exceed 1.0Nephelometric Turbidity Units (NTU) and not to exceed 0.3 NTU for more than 12consecutive 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 2021, 100% of the 1,882 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 1.0NTU is measured.

No drinking water safety orders were issued for the City of Winnipeg in 2021. No boil water advisories were issued by the ODW/MRHA in 2021, however, one precautionary boil water advisory was issued by the City of Winnipeg to residents in a localized area on July 28, 2021 when a sample taken after a water main repair tested positive for total coliforms. The water main was immediately re-flushed and re-sampled, and customers were immediately notified. The boil water advisory was subsequently rescinded on July 30, 2021, after two consecutive sets of re-samples taken 24 hours apart tested negative for total coliforms and *E. coli*. No charges were laid, pending, or disposed of for any offences against the City of Winnipeg in 2021.

A summary of the CARs submitted in 2021 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	Week of 7-Feb-21	WTP	Monitoring Requirement	Mssed bacterial sample at DBPS Branch 1	Reviewed requirements with staff and created a procedure to prevent recurrence.
CAR-02	20-Feb -21	WTP	Turbidity	1.10NTU	Turbidity spike was not representative of the filter effluent.
CAR-03	8-Apr-21	WTP	Free Chlorine	0.34mg/L	WTP and DBPS were offline due to a power failure. Water quality and our ability to continue supplying treated water were not impacted.
CAR-04	21-May-21	WTP	Turbidity	1.06NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-05	29-Jun-21	WTP	Turbidity	1.32NTU	Turbidity spike was not representative of the filter effluent. The Standard Operating Procedure for instrument maintenance was updated to prevent recurrence.
CAR-06	11-Jul-21	WTP	Turbidity	2.23NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-07	21-Jul-21	WC02	Total Coliform <i>E. coli</i>	14MPNU per 100mL 14MPNU per 100mL	Re-sampled location as well as upstream and downstream; re-samples met bacteriological standards
CAR-08	23-Jul-21	Hydrant	Total Coliform	14MPNU 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-09	29-Jul-21	WTP	Turbidity	1.38NTU	Turbidity spike was not representative of the filter effluent. Sample lines were cleaned.
CAR-10	31-Aug-21	NW03	Total Coliform	1 MPNU per 100mL	Re-sampled location; re-samples met bacteriological standards
CAR-11	3-Sep-21	WTP	Turbidity	5.00NTU	Turbidity spike was not representative of the filter effluent. Confirmed staff are following the updated Standard Operating Procedure to prevent recurrence.
CAR-12	7-Oct-21	NW02 Analyzer	Free Chlorine	0.09mg/L	Checked analyzer and reviewed for any work done in the area. Flow testing in the area was determined to be the cause.

## 4.0 LICENCES AND PERMITS

The City of Winnipeg operates its public water system according to the requirements listed in PWS-09-402-02, which came into effect on December 1, 2020 and expires on November 30, 2025.

Approximately 6.5 km of water mains were added to the distribution system in 2021. 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 2021, the City's major expenses relating to drinking water included:

- Renewal of 12.8 km water mains at 33 locations in the City's water distribution system
- Completion of structural repairs at the Hurst Pumping Station
- Completion of electrical upgrades at the McPhillips and Tache Booster Pumping Stations
- Replacement of the Public Water Outlet located at Portage Avenue and McCarthy Street
- Rehabilitation of the Public Water Outlet located at 1539 Waverley Street

## 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 2021, there was no evidence of adult or veliger zebra mussels observed in any of the samples. The 2021 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-09-412-02, 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 Plumbing Code and that the device offers the required level of protection, which is dependent upon the type of activities that occur within the building.

In 2021, Program staff notified 352 building owners of the requirement to install premises isolation devices, conducted approximately 1,200 inspections, and tracked the testing and maintenance of over 17,000 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; there are approximately 23,000 buildings with lead service lines in the City of Winnipeg. 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 PWS-09-412-02. 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 the City's portion of lead service lines (from the water main to the property line) when replacing water mains and notify building owners when this work is being done so they have the option to benefit from cost-savings achieved by replacing their portion of the service line (from the property line to the building) at the same time.

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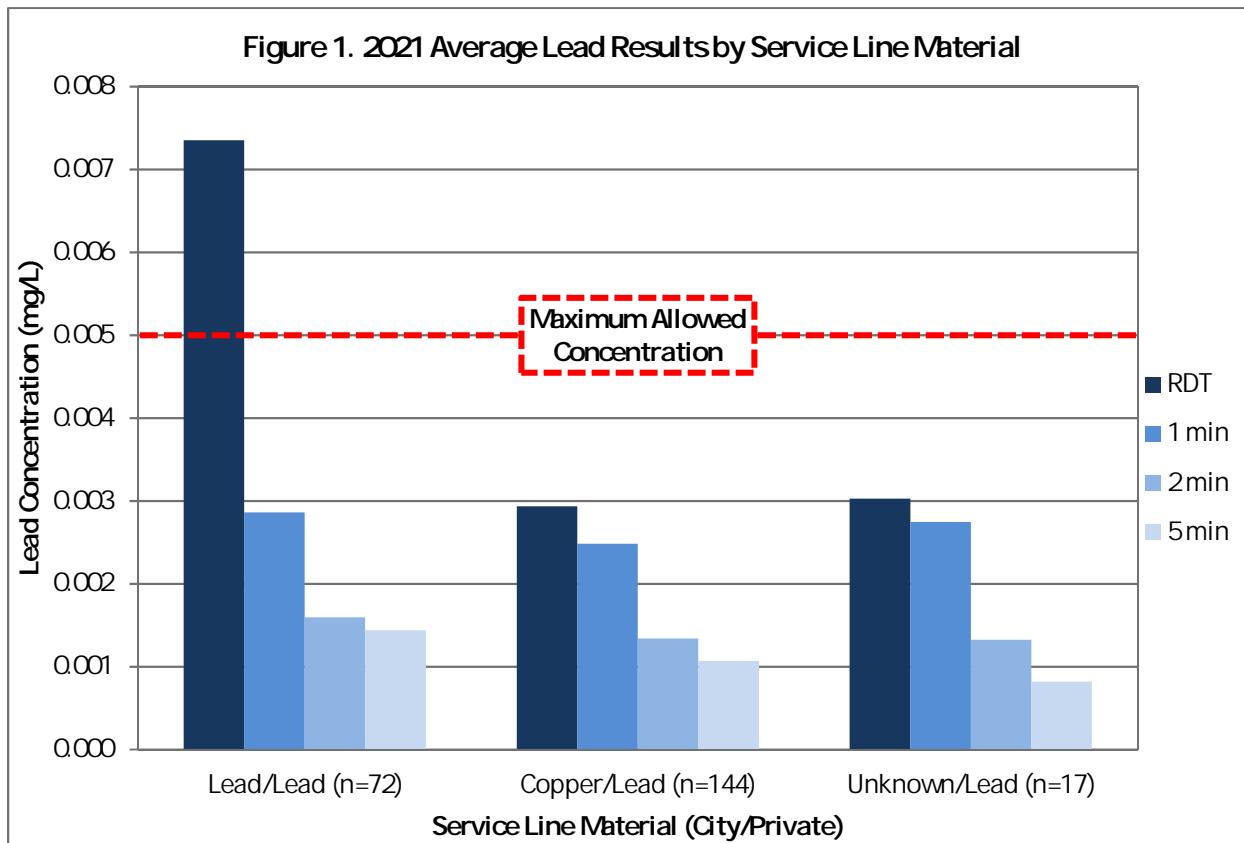
For the 2021 Lead Testing Program, we analyzed 233 sample sets collected from buildings with full lead (both the City and customer portions are lead) or partial lead (only one portion is lead) service lines. Sample sets consisted of a Random Daytime Sample (RDT), and samples collected after 1, 2, and 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.

Although 14% of the RDT samples were over the guideline the percentage dropped significantly with increased flushing; after five minutes of flushing all but three samples were below the guideline. A summary of the results from the 2021 Lead Testing Program is provided in Table 3; results are provided in Appendix D.

**Table 3: 2021 Lead Testing Program Summary**

	Average (mg/L)	Minimum (mg/L)	Maximum (mg/L)	% of samples above guideline (0.005 mg/L)
<b>Random Daytime</b>	0.004305	<0.000065	0.289630	14.16%
<b>1 minute</b>	0.002617	<0.000065	0.041467	10.30%
<b>2 minute</b>	0.001417	<0.000065	0.028573	4.29%
<b>5 minute</b>	0.001165	<0.000065	0.033667	1.29%

As shown in Figure 1, buildings with full lead service lines had higher average lead concentrations in the RDT compared to those with partial lead service lines. Seventeen of the sample sets collected in 2021 came from buildings where the City's portion of the service line material is unknown – the average results for these samples were similar to those from partial lead service lines. The average lead concentration in the 1, 2 and 5 minute flushed samples were similar in all of the categories.



Customers are encouraged to remove lead from their plumbing systems whenever feasible. If this is not feasible, customers should flush the water for up to 10 minutes 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>



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## 2021 ANNUAL WATER REPORT – CITY OF WINNIPEG WATER SUPPLY SYSTEM

### 9.0 REFERENCES

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

<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](https://web2.gov.mb.ca/laws/statutes/ccsm/_pdf.php?cap=d101)

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

[http://web2.gov.mb.ca/laws/regs/current/\\_pdf-reg.php?reg=40/2007](http://web2.gov.mb.ca/laws/regs/current/_pdf-reg.php?reg=40/2007)

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

[http://web2.gov.mb.ca/laws/regs/current/\\_pdf-reg.php?reg=41/2007](http://web2.gov.mb.ca/laws/regs/current/_pdf-reg.php?reg=41/2007)

## **APPENDIX A**

# **WATER QUALITY SUMMARY REPORTS**

**City of Winnipeg**  
**Environmental Standards Division**  
**2021 Shoal Lake Water Quality Summary**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	parts per million	9.2	7.4	11.7
Carbon, Total Organic	parts per million	88	6.7	109
Chlorophyll-a	parts per billion	5.2	1.3	14.7
Colour, Apparent	TCU	128	9.0	220
Colour, True	TCU	68	20	90
Conductivity	microsiemens per centimetre	157	149	173
Odour	units	96	75	150
pH	units	8.02	7.31	8.64
Plankton (algae) count	cells/mL	4,784	344	17,790
Solids, Total	parts per million	100	82	114
Solids, Total Dissolved	parts per million	79	56	99
Temperature	degrees Celsius	10.8	1.9	22.9
Turbidity (clearness)	NTU	0.90	0.25	2.80
Anions and Nutrients				
Alkalinity, Total	parts per million as calcium carbonate	76.6	72.2	89.4
Hardness, Total	parts per million as calcium carbonate	77.4	73.3	84.7
Chloride	parts per million	2.2	1.8	2.5
Fluoride	parts per million	0.08	0.08	0.09
Nitrate Nitrogen	parts per million	0.080	<0.003	0.363
Perchlorate	parts per billion	<0.20	<0.20	<0.20
Phosphorus, Total Reactive	parts per million	0.0035	0.0013	0.0165
Phosphorus, Total	parts per million	0.0150	0.0096	0.0259
Sulphate	parts per million	<0.4	<0.4	0.6
Total Kjeldahl Nitrogen (TKN)	parts per million	0.55	0.44	0.70
Bacteria				
Escherichia Coli	MPN per 100mL	2	0	25
Total Coliforms	MPN per 100mL	94	0	>200
Disinfection By-Products				
Aldehydes	parts per billion	8.7	3.1	11.7
Haloacetic acids	parts per billion	<1.2	<1.2	1.4
Trihalomethanes	parts per billion	<2.7	<2.7	<2.7
Enteric Protozoa				
Cryptosporidium	oocysts per 100L	0	0	0
Giardia	cysts per 100L	0	0	0

**City of Winnipeg**  
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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Pesticides				
Alachlor	parts per billion	<0.10	<0.10	<0.10
Aldrin	parts per billion	<0.010	<0.010	<0.010
alpha-BHC	parts per billion	<0.010	<0.010	<0.010
alpha-Chlordane	parts per billion	<0.010	<0.010	<0.010
alpha-Endosulfan	parts per billion	<0.010	<0.010	<0.010
Atrazine	parts per billion	<0.10	<0.10	<0.10
Azinphos-methyl	parts per billion	<0.010	<0.010	<0.010
beta-BHC	parts per billion	<0.010	<0.010	<0.010
beta-Endosulfan	parts per billion	<0.010	<0.010	<0.010
Carbaryl	parts per billion	<0.20	<0.20	<0.20
Carbofuran	parts per billion	<0.20	<0.20	<0.20
Chlorothalonil	parts per billion	<0.050	<0.050	<0.10
Chlorpyrifos	parts per billion	<0.0050	<0.0050	<0.0050
delta-BHC	parts per billion	<0.010	<0.010	<0.010
Diazinon	parts per billion	<0.0050	<0.0050	<0.0050
Diclofop-methyl	parts per billion	<0.10	<0.10	<0.10
Dieldrin	parts per billion	<0.010	<0.010	<0.010
Dimethoate	parts per billion	<0.10	<0.10	<0.10
Endrin	parts per billion	<0.010	<0.010	<0.010
Eptam	parts per billion	<0.20	<0.20	<0.20
gamma-Chlordane	parts per billion	<0.010	<0.010	<0.010
Heptachlor	parts per billion	<0.010	<0.010	<0.010
Heptachlor Epoxide	parts per billion	<0.010	<0.010	<0.010
Lindane (gamma-BHC)	parts per billion	<0.010	<0.010	<0.010
Malathion	parts per billion	<0.10	<0.10	<0.10
Methoxychlor	parts per billion	<0.010	<0.010	<0.020
Methyl Parathion	parts per billion	<0.10	<0.10	<0.10
Metribuzin	parts per billion	<0.20	<0.20	<0.20
Mrex	parts per billion	<0.010	<0.010	<0.010
o,p-DDD	parts per billion	<0.010	<0.010	<0.010
o,p-DDE	parts per billion	<0.010	<0.010	<0.010
o,p-DDT	parts per billion	<0.010	<0.010	<0.010
p,p-DDD	parts per billion	<0.010	<0.010	<0.010
p,p-DDE	parts per billion	<0.010	<0.010	<0.010
p,p-DDT	parts per billion	<0.010	<0.010	<0.020
Parathion	parts per billion	<0.0130	<0.0130	<0.0130
Propadollor	parts per billion	<0.20	<0.20	<0.20
Propanil	parts per billion	<0.20	<0.20	<0.20
Propoxur	parts per billion	<0.20	<0.20	<0.20
Simazine	parts per billion	<0.10	<0.10	<0.10
Terbufos	parts per billion	<0.10	<0.10	<0.10
Triallate	parts per billion	<0.10	<0.10	<0.10
Trichlopyr	parts per billion	<0.50	<0.050	<0.50
Trifluralin	parts per billion	<0.030	<0.030	<0.030

**City of Winnipeg**  
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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Polychlorinated Biphenyls				
Arochlor 1016	parts per billion	<0.020	<0.020	<0.020
Arochlor 1221	parts per billion	<0.020	<0.020	<0.020
Arochlor 1232	parts per billion	<0.020	<0.020	<0.020
Arochlor 1242	parts per billion	<0.020	<0.020	<0.020
Arochlor 1248	parts per billion	<0.020	<0.020	<0.020
Arochlor 1254	parts per billion	<0.020	<0.020	<0.020
Arochlor 1260	parts per billion	<0.020	<0.020	<0.020
Phenoxy Acid Herbicides				
2,4,5-T	parts per billion	<0.50	<0.50	<0.50
2,4,5-TP	parts per billion	<0.50	<0.50	<0.50
2,4-D	parts per billion	<0.50	<0.50	<0.50
2,4-DB	parts per billion	<0.050	<0.050	<0.050
2,4-DP	parts per billion	<0.50	<0.50	<0.50
Bromoxynil	parts per billion	<0.50	<0.50	<0.50
Dicamba	parts per billion	<0.0060	<0.0060	<0.0200
Dinoseb	parts per billion	<0.50	<0.50	<0.50
MCPA	parts per billion	<0.50	<0.50	<0.50
MCPB	parts per billion	<0.050	<0.050	<0.050
Mecoprop	parts per billion	<0.50	<0.50	<0.50
Picloram	parts per billion	<0.50	<0.50	<0.50
Total Metals				
Aluminum	parts per million	0.00702	0.00098	0.02995
Antimony	parts per million	0.000040	<0.000025	0.000191
Arsenic	parts per million	0.000812	0.000506	0.001185
Boron	parts per million	0.00391	<0.00208	0.00712
Cadmium	parts per million	<0.000007	<0.000007	<0.000007
Calcium	parts per million	19.938	18.707	23.946
Chromium	parts per million	<0.00004	<0.00004	0.00009
Chromium VI	parts per million	<0.00050	<0.00050	<0.00050
Copper	parts per million	0.001420	0.000220	0.002452
Iron	parts per million	0.03817	0.01190	0.12288
Lead	parts per million	<0.000065	<0.000065	0.000158
Magnesium	parts per million	5.970	5.252	6.899
Manganese	parts per million	0.01095	0.00335	0.02718
Mercury	parts per billion	<0.0050	<0.0050	<0.0050
Nickel	parts per million	0.000162	0.000051	0.000334
Potassium	parts per million	1.210	1.070	1.449
Sodium	parts per million	2.276	2.060	2.650
Uranium	parts per million	<0.000032	<0.000032	0.000039
Zinc	parts per million	0.00084	<0.00011	0.00219

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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**2021 Water Treatment Plant - Raw Water Quality Summary**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	parts per million	8.6	7.0	11.1
Carbon, Total Organic	parts per million	8.4	6.6	10.4
Chlorine, Free	parts per million	<0.02	<0.02	0.05
Chlorine, Total	parts per million	0.03	<0.02	0.07
Chlorophyll-a	parts per billion	6.2	1.3	13.4
Colour, Apparent	TCU	13.6	9.0	23.0
Colour, True	TCU	7.2	<5.0	10.0
Conductivity	microsiemens per centimetre	164	155	178
Langelier Index (4C)	units	-0.42	-0.57	-0.28
Langelier Index (60C)	units	0.36	0.21	0.49
Microcystin	parts per billion	<0.20	<0.20	<0.20
Odour	units	104	75	150
ORP	millivolts	478.6	418.1	519.3
Oxygen, Dissolved	parts per million	11.1	7.9	14.4
pH	units	8.02	7.36	8.44
Plankton (algae) count	cells/mL	4,956	1,461	9,197
Solids, Total	parts per million	109	81	139
Solids, Total Dissolved	parts per million	90	66	123
Temperature	degrees Celsius	10.3	1.1	24.1
Turbidity (clearness)	NTU	0.96	0.42	2.30
UV Transmittance, Filtered	percent transmissivity	76.0	71.6	78.8
UV Transmittance, Unfiltered	percent transmissivity	74.3	70.8	77.5
Anions and Nutrients				
Alkalinity, Total	parts per million as calcium carbonate	77.8	72.6	86.9
Alkalinity, Bicarbonate	parts per million	96.3	91.4	103.0
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	80.8	74.5	88.3
Ammonia	parts per million	0.01	<0.01	0.03
Bromide	parts per million	<0.010	<0.010	0.010
Chloride	parts per million	21	1.7	2.6
Fluoride	parts per million	0.061	0.058	0.063
Nitrate Nitrogen	parts per million	0.009	<0.005	0.028
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	<0.50	<0.030	<0.50
Sulphate	parts per million	1.3	<0.4	5.7
Disinfection By-Products				
Aldehydes	parts per billion	10.5	2.2	15.5
Haloacetic acids	parts per billion	<1.2	<1.2	<1.2
Trihalomethanes	parts per billion	<1.3	<1.3	<27

**City of Winnipeg**  
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**2021 Water Treatment Plant - Raw Water Quality Summary**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Enteric Protozoa				
Cryptosporidium	<i>oocysts per 100L</i>	0	0	0
Giardia	<i>cysts per 100L</i>	0	0	0
Total Metals				
Aluminum	<i>parts per million</i>	0.00327	<0.00026	0.03015
Antimony	<i>parts per million</i>	0.000048	<0.000025	0.000418
Arsenic	<i>parts per million</i>	0.000854	0.000562	0.001280
Barium	<i>parts per million</i>	0.0149	0.0139	0.0161
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>	0.00525	<0.00208	0.02000
Cadmium	<i>parts per million</i>	<0.0000050	<0.0000050	0.0000090
Calcium	<i>parts per million</i>	20.307	17.945	24.969
Cesium	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Chromium	<i>parts per million</i>	<0.000040	<0.000040	0.000120
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>	0.000330	<0.000022	0.001109
Iron	<i>parts per million</i>	0.04656	0.01667	0.08000
Lead	<i>parts per million</i>	<0.000050	<0.000050	<0.000065
Lithium	<i>parts per million</i>	0.0025	0.0023	0.0027
Magnesium	<i>parts per million</i>	6.248	5.503	6.989
Manganese	<i>parts per million</i>	0.01226	0.00147	0.04196
Mercury	<i>parts per billion</i>	<0.0050	<0.0050	<0.0050
Molybdenum	<i>parts per million</i>	0.000153	0.000113	0.000170
Nickel	<i>parts per million</i>	0.000204	<0.000021	0.001598
Potassium	<i>parts per million</i>	1.208	0.998	1.401
Rubidium	<i>parts per million</i>	0.0017	0.0014	0.0019
Selenium	<i>parts per million</i>	0.000066	0.000051	0.000093
Silicon	<i>parts per million</i>	2.76	2.29	3.28
Silver	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Sodium	<i>parts per million</i>	2.355	2.102	2.667
Strontium	<i>parts per million</i>	0.0395	0.0371	0.0445
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	0.000054
Vanadium	<i>parts per million</i>	<0.00050	<0.00050	<0.00050
Zinc	<i>parts per million</i>	0.00051	<0.00011	0.00330
Zirconium	<i>parts per million</i>	<0.00020	<0.00020	<0.00020

**City of Winnipeg**  
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**2021 Water Treatment Plant - Raw Water Quality Summary**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Pesticides				
Alachlor	parts per billion	<0.10	<0.10	<0.10
Aldrin	parts per billion	<0.010	<0.010	<0.010
alpha-BHC	parts per billion	<0.010	<0.010	<0.010
alpha-Chlordane	parts per billion	<0.010	<0.010	<0.020
alpha-Endosulfan	parts per billion	<0.010	<0.010	<0.010
Atrazine	parts per billion	<0.10	<0.10	<0.10
Azinphos-methyl	parts per billion	<0.010	<0.010	<0.010
beta-BHC	parts per billion	<0.010	<0.010	<0.010
beta-Endosulfan	parts per billion	<0.010	<0.010	<0.010
Carbaryl	parts per billion	<0.20	<0.20	<0.20
Carbofuran	parts per billion	<0.20	<0.20	<0.20
Chlorothalonil	parts per billion	<0.050	<0.050	<0.10
Chlorpyrifos	parts per billion	<0.0050	<0.0050	<0.0050
delta-BHC	parts per billion	<0.010	<0.010	<0.010
Diazinon	parts per billion	<0.0050	<0.0050	0.0067
Diclofop-methyl	parts per billion	<0.10	<0.10	<0.10
Dieldrin	parts per billion	<0.010	<0.010	<0.010
Dimethoate	parts per billion	<0.10	<0.10	<0.10
Endrin	parts per billion	<0.010	<0.010	<0.010
Eptam	parts per billion	<0.20	<0.20	<0.20
gamma-Chlordane	parts per billion	<0.010	<0.010	<0.020
Heptachlor	parts per billion	<0.010	<0.010	<0.010
Heptachlor Epoxide	parts per billion	<0.010	<0.010	<0.010
Lindane (gamma-BHC)	parts per billion	<0.010	<0.010	<0.010
Malathion	parts per billion	<0.10	<0.10	<0.10
Methoxychlor	parts per billion	<0.010	<0.010	<0.020
Methyl Parathion	parts per billion	<0.10	<0.10	<0.10
Metrabuzin	parts per billion	<0.20	<0.20	<0.20
Mrex	parts per billion	<0.010	<0.010	<0.030
o,p-DDD	parts per billion	<0.010	<0.010	<0.010
o,p-DDE	parts per billion	<0.010	<0.010	<0.020
o,p-DDT	parts per billion	<0.010	<0.010	<0.010
p,p-DDD	parts per billion	<0.010	<0.010	<0.010
p,p-DDE	parts per billion	<0.010	<0.010	<0.020
p,p-DDT	parts per billion	<0.010	<0.010	<0.020
Parathion	parts per billion	<0.0130	<0.0130	<0.0130
Propacol	parts per billion	<0.20	<0.20	<0.20
Propanil	parts per billion	<0.20	<0.20	<0.50
Propoxur	parts per billion	<0.20	<0.20	<0.20
Simazine	parts per billion	<0.10	<0.10	<0.10
Terbufos	parts per billion	<0.10	<0.10	<0.10
Triallate	parts per billion	<0.10	<0.10	<0.10
Trichlopyr	parts per billion	<0.050	<0.050	<0.050
Trifluralin	parts per billion	<0.030	<0.030	<0.030

**City of Winnipeg**  
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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Bacteria				
Escherichia Coli	MPN per 100mL	42	0	>200
Total Coliforms	MPN per 100mL	100	1	>200
Heterotrophic Plate Count	CFU per mL	119	2	>300
Taste and Odours				
236 TCA - 2,3,6-trichloroanisole	parts per trillion	<0.49	<0.49	<0.56
246 TCA - 2,4,6-trichloroanisole	parts per trillion	<0.49	<0.49	<0.56
345 TCV - 3,4,5-trichlorovertatrole	parts per trillion	<0.19	<0.19	<0.22
Geosmin	parts per trillion	6.99	<1.00	28.6
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	<0.19	<0.19	<0.22
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	<0.19	<0.19	<0.22
Dichloromethane	parts per million	<0.0050	<0.0050	<0.0050
MB - 2-methylisoborneol	parts per trillion	<9.71	<9.71	15.3
MTBE - methyl tertiary-butyl ether	parts per million	<0.0030	<0.0005	<0.0030
NDMA - N-nitrosodimethylamine	parts per trillion	<0.009	<0.001	<0.009
Polychlorinated Biphenyls				
Arochlor 1016	parts per billion	<0.020	<0.020	<0.020
Arochlor 1221	parts per billion	<0.020	<0.020	<0.020
Arochlor 1232	parts per billion	<0.020	<0.020	<0.020
Arochlor 1242	parts per billion	<0.020	<0.020	<0.020
Arochlor 1248	parts per billion	<0.020	<0.020	<0.020
Arochlor 1254	parts per billion	<0.020	<0.020	<0.020
Arochlor 1260	parts per billion	<0.020	<0.020	<0.020
Phenoxy Acid Herbicides				
2,4,5-T	parts per billion	<0.50	<0.50	<0.50
2,4,5-TP	parts per billion	<0.50	<0.50	<0.50
2,4-D	parts per billion	<0.50	<0.50	<0.50
2,4-DB	parts per billion	<0.050	<0.050	<0.050
2,4-DP	parts per billion	<0.50	<0.50	<0.50
Bromoxynil	parts per billion	<0.50	<0.50	<0.50
Dicamba	parts per billion	0.0067	<0.0060	0.0167
Dinoseb	parts per billion	<0.50	<0.50	<0.50
MCPA	parts per billion	<0.50	<0.50	<0.50
MCPB	parts per billion	<0.050	<0.050	<0.050
Mecoprop	parts per billion	<0.50	<0.50	<0.50
Picloram	parts per billion	<0.50	<0.50	<0.50

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 rawwater.

**City of Winnipeg**  
**Environmental Standards Division**  
**2021 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	3.2	1.5	4.9
Carbon, Total Organic	parts per million	no guideline	2.9	1.3	5.4
Chlorine, Free	parts per million	no guideline	1.34	0.94	1.85
Chlorine, Total	parts per million	no guideline	1.55	1.10	208
Chlorophyll-a	parts per billion	no guideline	<1.0	<1.0	<1.0
Colour, Apparent	TCU	no guideline	0.3	0.0	1.5
Colour, True	TCU	no more than 15*	0.0	0.0	1.0
Conductivity	microsiemens per centimetre	no guideline	303	290	336
Microcystin	parts per billion	no more than 1.5	<0.2	<0.2	<0.2
Odour	units	inoffensive*	16	10	25
ORP	millivolts	no guideline	590.8	498.9	670.8
Oxygen, Dissolved	parts per million	no guideline	12.2	8.3	17.0
pH	units	between 7.0 and 10.5	7.66	6.82	8.66
Plankton (algae) count	cells/mL	no guideline	<100	<100	<100
Solids, Total	parts per million	no guideline	188	159	209
Solids, Total Dissolved	parts per million	no more than 500*	166	139	195
Temperature	degrees Celsius	no more than 15*	10.8	1.5	23.7
Turbidity (clearness)	NTU	no more than 0.3 in 95% of measurements/month, never to exceed 1.0	0.11	0.07	0.19
UV Transmittance, Filtered	percent transmissivity	no guideline	95.0	92.4	99.6
UV Transmittance, Unfiltered	percent transmissivity	no guideline	94.2	91.2	99.5
Anions and Nutrients					
Alkalinity, Total	parts per million as calcium carbonate	no guideline	69.7	62.3	83.7
Hardness, Total	parts per million as calcium carbonate	no guideline	81.4	77.6	90.8
Chloride	parts per million	no more than 250*	4.4	3.8	5.1
Perchlorate	parts per billion	no guideline	<0.20	<0.20	<0.20
Sulphate	parts per million	no more than 500*	72.1	65.3	88.3
Bacteria					
Escherichia Coli	MPN per 100mL	none detectable per 100mL	C	C	C
Total Coliforms	MPN per 100mL	none detectable per 100mL	C	C	C
Heterotrophic Plate Count	CFU per mL	no guideline	<1	<1	1
Disinfection By-Products					
Aldehydes	parts per billion	no guideline	15.6	10.1	25.5
Haloacetic acids	parts per billion	no more than 80	11.0	6.5	21.0
Trihalomethanes	parts per billion	no more than 100	16.3	5.4	28.4

**City of Winnipeg**  
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**2021 Water Treatment Plant - Finished Water Quality Summary**

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Taste and Odours					
236TCA - 2,3,6-trichloroanisole	parts per trillion	no guideline	<0.49	<0.49	<0.53
246TCA - 2,4,6-trichloroanisole	parts per trillion	no guideline	<0.49	<0.49	<0.53
345TCV - 3,4,5-trichloroveratrole	parts per trillion	no guideline	<0.19	<0.19	<0.21
Geosmin	parts per trillion	no guideline	1.83	<1.10	4.30
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	no guideline	<0.19	<0.19	<0.21
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	no guideline	<0.19	<0.19	<0.21
Dichloromethane	parts per million	no more than 0.05	<0.0050	<0.0050	<0.0050
MB - 2-methylisoborneol	parts per trillion	no guideline	<9.71	<9.71	14.5C
MTBE - methyl tertiary-butyl ether	parts per million	no more than 0.015*	<0.0030	<0.0005	<0.0030
NDMA - N-nitrosodimethylamine	parts per trillion	no more than 4C	<0.0090	<0.001C	<0.009C
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	<0.50	<0.50	<0.50
2,4,5-TP	parts per billion	no guideline	<0.50	<0.50	<0.50
2,4-D	parts per billion	no more than 100	<0.50	<0.50	<0.50
2,4-DB	parts per billion	no guideline	<0.050	<0.050	<0.050
2,4-DP	parts per billion	no guideline	<0.50	<0.50	<0.50
Bromoxynil	parts per billion	no more than 5	<0.50	<0.50	<0.50
Dicamba	parts per billion	no more than 120	<0.006	<0.006	<0.018
Dinoseb	parts per billion	no guideline	<0.50	<0.50	<0.50
MCPA	parts per billion	no more than 100	<0.50	<0.50	<0.50
MCPB	parts per billion	no guideline	<0.050	<0.050	<0.050
Mecoprop	parts per billion	no guideline	<0.50	<0.50	<0.50
Picloram	parts per billion	no more than 190	<0.50	<0.50	<0.50

**City of Winnipeg**  
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**2021 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	<0.10	<0.10	<0.10
Aldrin	parts per billion	no guideline	<0.010	<0.010	<0.010
alpha-BHC	parts per billion	no guideline	<0.010	<0.010	<0.010
alpha-Chlordane	parts per billion	no guideline	<0.010	<0.010	<0.020
alpha-Endosulfan	parts per billion	no guideline	<0.010	<0.010	<0.010
Atrazine	parts per billion	no more than 5	<0.10	<0.10	<0.10
Azinphos-methyl	parts per billion	no more than 20	<0.010	<0.010	<0.010
beta-BHC	parts per billion	no guideline	<0.010	<0.010	<0.010
beta-Endosulfan	parts per billion	no guideline	<0.010	<0.010	<0.010
Carbaryl	parts per billion	no more than 90	<0.20	<0.20	<0.20
Carbofuran	parts per billion	no more than 90	<0.20	<0.20	<0.20
Chlorothalonil	parts per billion	no guideline	<0.050	<0.050	<0.100
Chlorpyrifos	parts per billion	no more than 90	<0.0050	<0.0050	<0.0050
delta-BHC	parts per billion	no guideline	<0.010	<0.010	<0.010
Diazinon	parts per billion	no more than 20	<0.0050	<0.0050	<0.0050
Diclofop-methyl	parts per billion	no more than 9	<0.10	<0.10	<0.10
Dieldrin	parts per billion	no guideline	<0.010	<0.010	<0.010
Dimethoate	parts per billion	no more than 20	<0.10	<0.10	<0.10
Endrin	parts per billion	no guideline	<0.010	<0.010	<0.010
Eptam	parts per billion	no guideline	<2.0	<0.20	<2.0
gamma-Chlordane	parts per billion	no guideline	<0.010	<0.010	<0.020
Heptachlor	parts per billion	no guideline	<0.010	<0.010	<0.010
Heptachlor Epoxide	parts per billion	no guideline	<0.010	<0.010	<0.010
Lindane (gamma-BHC)	parts per billion	no guideline	<0.010	<0.010	<0.010
Malathion	parts per billion	no more than 190	<0.10	<0.10	<0.10
Methoxychlor	parts per billion	no guideline	<0.010	<0.010	<0.020
Methyl Parathion	parts per billion	no guideline	<0.10	<0.10	<0.10
Metribuzin	parts per billion	no more than 80	<0.20	<0.20	<0.20
Mrex	parts per billion	no guideline	<0.010	<0.010	<0.030
o,p-DDD	parts per billion	no guideline	<0.010	<0.010	<0.010
o,p-DDE	parts per billion	no guideline	<0.010	<0.010	<0.020
o,p-DDT	parts per billion	no guideline	<0.010	<0.010	<0.010
p,p-DDD	parts per billion	no guideline	<0.010	<0.010	<0.010
p,p-DDE	parts per billion	no guideline	<0.010	<0.010	<0.020
p,p-DDT	parts per billion	no guideline	<0.010	<0.010	<0.020
Parathion	parts per billion	no guideline	<0.0130	<0.0130	<0.0130
Propadoll	parts per billion	no guideline	<0.20	<0.20	<0.20
Propanil	parts per billion	no guideline	<0.20	<0.20	<0.50
Propoxur	parts per billion	no guideline	<0.20	<0.20	<0.20
Simazine	parts per billion	no more than 10	<0.10	<0.10	<0.10
Terbufos	parts per billion	no more than 1	<0.10	<0.10	<0.10
Triallate	parts per billion	no guideline	<0.10	<0.10	<0.10
Trichlopyr	parts per billion	no guideline	<0.050	<0.050	<0.050
Trifluralin	parts per billion	no more than 45	<0.030	<0.030	<0.030

**City of Winnipeg**  
**Environmental Standards Division**  
**2021 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	0.00563	0.00287	0.01026
Antimony	parts per million	no more than 0.006	0.000056	<0.000025	0.000359
Arsenic	parts per million	no more than 0.010	0.000323	0.000100	0.000429
Boron	parts per million	no more than 5	0.00491	<0.00208	0.01373
Cadmium	parts per million	no more than 0.007	<0.000007	<0.000007	0.000015
Calcium	parts per million	no guideline	20.776	18.192	24.246
Chromium	parts per million	no more than 0.05	<0.00004	<0.00004	0.00009
Chromium VI	parts per million	no guideline	<0.00050	<0.00050	<0.00050
Copper	parts per million	no more than 20	0.000461	<0.000022	0.002832
Iron	parts per million	no more than 0.3*	0.05230	0.02459	0.11806
Lead	parts per million	no more than 0.005	<0.000065	<0.000065	<0.000065
Magnesium	parts per million	no guideline	6.321	5.421	7.059
Manganese	parts per million	no more than 0.12	0.00858	0.00421	0.01665
Mercury	parts per billion	no more than 1	<0.0050	<0.0050	<0.0050
Nickel	parts per million	no guideline	0.002549	0.001782	0.003781
Potassium	parts per million	no guideline	1.237	1.031	1.458
Sodium	parts per million	no more than 200*	30.019	25.742	35.453
Uranium	parts per million	no more than 0.02	<0.000032	<0.000032	0.000050
Zinc	parts per million	no more than 50*	0.00114	<0.00011	0.00243

\*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**  
**2021 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	7.1	3.0	17.8
Carbon, Total Organic	parts per million	no guideline	4.9	0.7	17.8
Chlorine, Free	parts per million	no guideline	0.90	0.16	1.48
Chlorine, Total	parts per million	no guideline	1.12	0.38	1.70
Colour, Apparent	TCU	no guideline	3.2	0.0	5.0
Colour, True	TCU	no more than 15*	0.8	0.0	<5.0
Conductivity	microsiemens per centimetre	no guideline	302	279	347
Langelier Index (4C)	units	no guideline	-0.69	-0.81	-0.54
Langelier Index (60C)	units	no guideline	0.08	-0.04	0.23
Odour	units	inoffensive*	11	8	25
ORP	millivolts	no guideline	473.7	319.0	682.7
Oxygen, Dissolved	parts per million	no guideline	11.8	8.5	16.2
pH	units	between 7.0 and 10.5	7.45	7.03	7.91
Solids, Total Dissolved	parts per million	no more than 500*	167	118	216
Temperature	degrees Celsius	no more than 15*	120	1.7	24.7
Turbidity (clearness)	NTU	no guideline	0.20	<0.10	14.5
UV Transmittance, Filtered	percent transmissivity	no guideline	94.0	93.0	95.0
Anions and Nutrients					
Alkalinity, Total	parts per million as calcium carbonate	no guideline	66.8	59.8	79.0
Alkalinity, Bicarbonate	parts per million	no guideline	81.6	73.0	95.4
Alkalinity, Carbonate	parts per million	no guideline	<0.6	<0.6	<0.6
Alkalinity, Hydroxide	parts per million	no guideline	<0.34	<0.34	<0.34
Hardness, Total	parts per million as calcium carbonate	no guideline	81.4	74.3	89.0
Ammonia	parts per million	no guideline	0.01	<0.01	0.02
Bromate	parts per million	no more than 0.01	<0.30	<0.30	<0.60
Bromide	parts per million	no guideline	<0.01	<0.01	<0.01
Chloride	parts per million	no more than 250*	4.9	4.0	6.0
Fluoride	parts per million	no more than 1.5	0.73	0.61	1.10
Nitrate Nitrogen	parts per million	no more than 10	0.016	0.006	0.035
Nitrite	parts per million	no more than 3	<0.001	<0.001	<0.001
Perchlorate	parts per billion	no guideline	<0.2	<0.2	<0.2
Phosphate, Soluble	parts per million as phosphate	no guideline	2.04	0.44	8.52
Phosphorus, Total	parts per million	no guideline	0.657	0.605	0.683
Sulphate	parts per million	no more than 500*	72.2	64.2	89.0
Bacteria					
Escherichia Coli	MPN per 100mL	none detectable per 100mL	0	C	14
Total Coliforms	MPN per 100mL	none detectable per 100mL	0	C	14
Heterotrophic Plate Count	CFU per mL	no guideline	1	<1	172
Disinfection By-Products					
Aldehydes	parts per billion	no guideline	18.0	11.2	44.6
Haloacetic acids	parts per billion	no more than 80	26.2	9.6	52.4
Trihalomethanes	parts per billion	no more than 100	41.5	11.6	66.6

**City of Winnipeg**  
**Environmental Standards Division**  
**2021 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	0.00587	0.00305	0.03608
Antimony	parts per million	no more than 0.006	0.000058	<0.000025	0.000837
Arsenic	parts per million	no more than 0.010	0.000353	0.000115	0.000530
Barium	parts per million	no more than 2	0.0149	0.0140	0.0160
Beryllium	parts per million	no guideline	<0.0001	<0.0001	<0.0001
Bismuth	parts per million	no guideline	<0.00005	<0.00005	<0.00005
Boron	parts per million	no more than 5	0.00492	<0.00208	0.02000
Cadmium	parts per million	no more than 0.007	<0.00005	<0.000005	0.000028
Calcium	parts per million	no guideline	21.127	18.555	25.543
Cesium	parts per million	no guideline	<0.00001	<0.00001	<0.00001
Chromium	parts per million	no more than 0.05	<0.00004	<0.00004	0.00036
Chromium VI	parts per million	no guideline	<0.0005	<0.0005	<0.0005
Cobalt	parts per million	no guideline	0.00117	0.00106	0.00127
Copper	parts per million	no more than 20	0.044926	<0.000022	0.226880
Iron	parts per million	no more than 0.3*	0.06538	0.02194	0.46259
Lead	parts per million	no more than 0.005	0.000066	<0.000040	0.000735
Lithium	parts per million	no guideline	0.0024	0.0020	0.0026
Magnesium	parts per million	no guideline	6.261	5.531	7.131
Manganese	parts per million	no more than 0.12	0.00897	0.00294	0.08261
Mercury	parts per billion	no more than 1	<0.0050	<0.0050	0.0089
Molybdenum	parts per million	no guideline	<0.00005	<0.00005	<0.00005
Nickel	parts per million	no guideline	0.002290	0.001126	0.007332
Potassium	parts per million	no guideline	1.240	1.032	1.684
Rubidium	parts per million	no guideline	0.0017	0.0014	0.0018
Selenium	parts per million	no more than 0.05	<0.00005	<0.00005	<0.00005
Silicon	parts per million	no guideline	2.93	2.45	3.38
Silver	parts per million	no guideline	<0.00001	<0.00001	<0.00001
Sodium	parts per million	no more than 200*	30.208	26.468	35.675
Strontium	parts per million	no more than 7	0.0403	0.0376	0.0441
Tellurium	parts per million	no guideline	<0.0002	<0.0002	<0.0002
Thallium	parts per million	no guideline	<0.00001	<0.00001	<0.00001
Thorium	parts per million	no guideline	<0.0001	<0.0001	<0.0001
Tin	parts per million	no guideline	<0.0001	<0.0001	<0.0001
Titanium	parts per million	no guideline	<0.0003	<0.0003	<0.0003
Tungsten	parts per million	no guideline	<0.0001	<0.0001	<0.0001
Uranium	parts per million	no more than 0.02	0.000021	<0.00001C	0.000250
Vanadium	parts per million	no guideline	<0.0005	<0.0005	<0.0005
Zinc	parts per million	no more than 5.0*	0.00340	<0.00011	0.02490
Zirconium	parts per million	no guideline	<0.0002	<0.0002	<0.0002

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

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

Results in red do not meet the guideline

Data reported was collected from a combination of MacLean, Hurst, and McPhillips Pumping Station Discharges,

57 distribution system locations (39 distribution system locations January-March), 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**  
**2021 Winnipeg Distribution System Bacteriological Summary**

PARAMETER	REQUIREMENT	OUR TEST RESULTS	COMMENTS
Number of total coliform bacteria tests in year	2028 samples/year	2,929	
Number of times that total coliform bacteria show up in a test	none detectable per 100mL	0.07% (2 positive tests)	All resamples were negative and met the operating licence requirements.
Number of <i>Escherichia coli</i> bacteria tests in year	2028 samples/year	2,929	
Number of times that <i>Escherichia coli</i> bacteria show up in a test	none detectable per 100mL	0.03% (1 positive test)	All resamples were negative and met the operating licence requirements.
Number of heterotrophic (bacteria) plate count (HPC) tests done	no requirement	2,217	Heterotrophic plate count testing is not required under the operating licence

Requirements from City of Winnipeg Operating Licence PWS-09-412-02  
Data reported was collected from 57 distribution system locations (39 distribution system locations January-March) and MacLean, Hurst, and McPhillips Pumping Station Discharges

## **APPENDIX B**

# **COMPLIANCE SUBMISSION REPORTS**

# **2021 MONTHLY CHLORINE REPORTS**



**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 February 2021

Report Period: January 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/01/2021	1.11	1.06	1.14	1.06
02/01/2021	1.14	0.83	1.14	0.68
03/01/2021	1.27	1.15	1.21	1.03
04/01/2021	1.20	1.07	1.20	1.08
05/01/2021	1.19	1.03	1.24	1.06
06/01/2021	1.18	1.08	1.19	1.09
07/01/2021	1.16	1.06	1.21	1.10
08/01/2021	1.21	1.11	1.27	1.13
09/01/2021	1.28	1.20	1.31	1.20
10/01/2021	1.37	1.22	1.36	1.27
11/01/2021	1.24	0.79	1.25	0.74
12/01/2021	1.23	1.15	1.27	1.15
13/01/2021	1.21	1.10	1.30	1.22
14/01/2021	1.55	1.13	1.64	0.84
15/01/2021	1.22	1.09	1.29	1.18
16/01/2021	1.17	1.05	1.17	1.05
17/01/2021	1.13	1.06	1.08	1.00
18/01/2021	1.13	1.01	1.08	0.97
19/01/2021	1.23	1.14	1.17	1.09
20/01/2021	1.22	1.11	1.17	1.07
21/01/2021	1.27	1.12	1.26	1.12
22/01/2021	1.20	1.13	1.20	1.12
23/01/2021	1.16	1.08	1.18	1.11
24/01/2021	1.12	1.05	1.11	1.04
25/01/2021	1.15	1.06	1.10	1.03
26/01/2021	1.19	1.12	1.19	1.07
27/01/2021	1.18	1.06	1.19	1.09
28/01/2021	1.04	0.62	1.07	0.76
29/01/2021	1.16	0.99	1.23	1.08
30/01/2021	1.21	1.07	1.23	1.09
31/01/2021	1.52	1.18	1.53	1.17

Total Number of Measurements, A: 21347 21342

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21347 21342

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\01-January

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
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-2021	NS	NS	NS	NS	NS	NS
02-Jan-2021	NS	NS	NS	NS	NS	NS
03-Jan-2021	NS	NS	NS	NS	NS	NS
04-Jan-2021	1.21	1.23	1.49	1.24	1.29	1.49
05-Jan-2021	1.16	1.20	1.45	1.21	1.29	1.46
06-Jan-2021	1.17	1.19	1.44	1.14	1.24	1.45
07-Jan-2021	1.19	1.22	1.46	1.18	1.25	1.47
08-Jan-2021	1.26	1.25	1.49	1.24	1.36	1.54
09-Jan-2021	NS	NS	NS	NS	NS	NS
10-Jan-2021	NS	NS	NS	NS	NS	NS
11-Jan-2021	1.13	1.18	1.37	1.23	1.24	1.44
12-Jan-2021	1.25	1.29	1.52	1.25	1.33	1.55
13-Jan-2021	1.20	1.23	1.43	1.29	1.28	1.53
14-Jan-2021	1.29	1.32	1.51	1.32	1.37	1.58
15-Jan-2021	1.28	1.25	1.46	1.37	1.28	1.46
16-Jan-2021	NS	NS	NS	NS	NS	NS
17-Jan-2021	NS	NS	NS	NS	NS	NS
18-Jan-2021	1.06	1.14	1.36	0.99	1.11	1.34
19-Jan-2021	1.23	1.33	1.53	1.16	1.35	1.53
20-Jan-2021	1.24	1.25	1.49	1.18	1.26	1.47
21-Jan-2021	1.34	1.34	1.61	1.27	1.36	1.56
22-Jan-2021	1.17	1.23	1.54	1.18	1.22	1.46
23-Jan-2021	NS	NS	NS	NS	NS	NS
24-Jan-2021	NS	NS	NS	NS	NS	NS
25-Jan-2021	1.15	1.17	1.39	1.09	1.15	1.35
26-Jan-2021	1.18	1.21	1.42	1.18	1.21	1.40
27-Jan-2021	1.19	1.23	1.44	1.17	1.24	1.47
28-Jan-2021	1.13	1.16	1.37	1.13	1.18	1.39
29-Jan-2021	1.22	1.17	1.36	1.30	1.24	1.44
30-Jan-2021	NS	NS	NS	NS	NS	NS
31-Jan-2021	NS	NS	NS	NS	NS	NS
<b>Total number of measurements taken, A:</b>		20			20	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50	
<b>Number of measurements meeting standard, B:</b>		20			20	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		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 March 2021

Report Period: February 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/02/2021	1.21	1.04	1.22	1.10
02/02/2021	1.17	1.04	1.20	1.13
03/02/2021	1.07	1.00	1.20	1.10
04/02/2021	OL	OL	1.23	1.03
05/02/2021	OL	OL	1.19	0.97
06/02/2021	OL	OL	1.26	1.21
07/02/2021	OL	OL	1.30	1.23
08/02/2021	OL	OL	1.32	1.24
09/02/2021	OL	OL	1.26	1.21
10/02/2021	OL	OL	1.30	1.25
11/02/2021	1.12	1.07	1.33	1.26
12/02/2021	1.34	1.13	1.36	1.25
13/02/2021	1.30	1.22	1.32	1.23
14/02/2021	1.22	1.15	1.25	1.18
15/02/2021	1.27	1.13	1.29	1.18
16/02/2021	1.16	1.11	1.23	1.18
17/02/2021	1.14	1.06	1.20	1.14
18/02/2021	1.33	1.09	1.37	1.19
19/02/2021	1.19	1.07	1.21	1.12
20/02/2021	1.18	1.07	1.19	1.06
21/02/2021	1.55	1.25	1.60	1.31
22/02/2021	1.26	1.15	1.28	1.23
23/02/2021	1.29	1.16	1.32	1.23
24/02/2021	1.35	1.28	1.39	1.35
25/02/2021	1.33	1.24	1.36	1.30
26/02/2021	1.23	1.06	1.23	1.07
27/02/2021	1.15	1.09	1.14	1.08
28/02/2021	1.12	1.04	1.14	1.09

Total Number of Measurements, A: 19438 19440

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 19438 19440

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\02-February

Notes: 1. OL - Offline

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 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-Feb-2021	1.28	1.28	1.50	1.26	1.30	1.51
02-Feb-2021	1.16	1.18	1.40	1.20	1.18	1.41
03-Feb-2021	1.03	0.98	1.18	1.18	1.16	1.38
04-Feb-2021	OL	OL	OL	1.20	1.24	1.43
05-Feb-2021	OL	OL	OL	1.17	1.17	1.38
06-Feb-2021	OL	OL	OL	NS	NS	NS
07-Feb-2021	OL	OL	OL	NS	NS	NS
08-Feb-2021	OL	OL	OL	1.36	1.40	1.58
09-Feb-2021	OL	OL	OL	1.25	1.24	1.48
10-Feb-2021	OL	OL	OL	1.26	1.34	1.54
11-Feb-2021	1.25	1.25	1.55	1.36	1.38	1.61
12-Feb-2021	1.27	1.20	1.49	1.32	1.34	1.45
13-Feb-2021	1.27	1.26	1.54	NS	NS	NS
14-Feb-2021	NS	NS	NS	NS	NS	NS
15-Feb-2021	NS	NS	NS	NS	NS	NS
16-Feb-2021	1.17	1.19	1.37	1.24	1.23	1.47
17-Feb-2021	1.14	1.21	1.41	1.19	1.21	1.43
18-Feb-2021	1.33	1.33	1.53	1.46	1.50	1.76
19-Feb-2021	1.22	1.25	1.43	1.19	1.22	1.44
20-Feb-2021	NS	NS	NS	NS	NS	NS
21-Feb-2021	NS	NS	NS	NS	NS	NS
22-Feb-2021	1.25	1.25	1.46	1.27	1.23	1.47
23-Feb-2021	1.32	1.24	1.46	1.36	1.29	1.56
24-Feb-2021	1.33	1.32	1.59	1.37	1.34	1.57
25-Feb-2021	1.30	1.34	1.59	1.33	1.46	1.58
26-Feb-2021	1.32	1.33	1.59	1.34	1.39	1.59
27-Feb-2021	NS	NS	NS	NS	NS	NS
28-Feb-2021	NS	NS	NS	NS	NS	NS
<b>Total number of measurements taken, A:</b>	15	0.50	15	100%	19	0.50
<b>Chlorine Standard for Monitoring Location (mg/L):</b>						
<b>Number of measurements meeting standard, B:</b>						
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>						

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

**Comments:**

Branch I was offline from February 3, 2021 at 12:00 until February 11, 2021 at 17:20 for repairs to the pipeline.

Compiled By: H. Demchenko

Authorized By: C. Diduck

**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 April 2021

Report Period: March 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/03/2021	1.11	1.03	1.18	1.13
02/03/2021	1.12	0.99	1.17	1.10
03/03/2021	1.14	1.04	1.15	1.10
04/03/2021	1.12	1.04	1.13	1.07
05/03/2021	1.16	1.02	1.13	1.01
06/03/2021	1.16	1.08	1.12	1.05
07/03/2021	1.11	1.00	1.07	0.99
08/03/2021	1.09	0.99	1.08	1.02
09/03/2021	1.06	0.71	1.05	0.77
10/03/2021	1.10	1.01	1.08	0.96
11/03/2021	1.15	1.06	1.11	1.06
12/03/2021	1.13	1.04	1.12	1.06
13/03/2021	1.21	1.09	1.20	1.14
14/03/2021	1.26	1.16	1.23	1.12
15/03/2021	1.20	1.13	1.15	1.09
16/03/2021	1.23	1.10	1.19	1.06
17/03/2021	1.19	1.12	1.17	1.13
18/03/2021	1.17	1.11	1.16	1.10
19/03/2021	1.21	1.09	1.27	0.99
20/03/2021	1.16	1.01	1.22	1.03
21/03/2021	1.11	1.00	1.10	1.06
22/03/2021	1.14	1.03	1.17	1.08
23/03/2021	1.20	1.13	1.23	1.14
24/03/2021	1.27	1.10	1.30	1.14
25/03/2021	1.28	1.15	1.25	0.88
26/03/2021	1.26	1.15	1.15	1.03
27/03/2021	1.25	1.17	1.18	1.13
28/03/2021	1.23	1.09	1.22	1.15
29/03/2021	1.32	1.17	1.32	1.22
30/03/2021	1.29	1.19	1.28	1.23
31/03/2021	1.21	1.11	1.23	1.19

Total Number of Measurements, A:	21570	21570
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21570	21570
COMPLIANCE, C = B/A X 100%:	100.00	100.00

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



**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
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-2021	1.08	1.17	1.35	1.16	1.22	1.41
02-Mar-2021	1.13	1.17	1.34	1.13	1.13	1.34
03-Mar-2021	1.19	1.18	1.40	1.18	1.16	1.39
04-Mar-2021	1.10	1.21	1.41	1.12	1.24	1.38
05-Mar-2021	1.19	1.19	1.35	1.18	1.17	1.38
06-Mar-2021	NS	NS	NS	NS	NS	NS
07-Mar-2021	NS	NS	NS	NS	NS	NS
08-Mar-2021	1.10	1.11	1.32	1.07	1.10	1.27
09-Mar-2021	1.11	1.13	1.35	1.10	1.12	1.33
10-Mar-2021	1.06	1.07	1.18	1.04	1.06	1.25
11-Mar-2021	1.18	1.16	1.34	1.11	1.16	1.33
12-Mar-2021	1.13	1.13	1.33	1.11	1.14	1.32
13-Mar-2021	NS	NS	NS	NS	NS	NS
14-Mar-2021	NS	NS	NS	NS	NS	NS
15-Mar-2021	1.23	1.18	1.40	1.17	1.17	1.37
16-Mar-2021	1.24	1.23	1.38	1.19	1.16	1.38
17-Mar-2021	1.19	1.16	1.34	1.16	1.11	1.33
18-Mar-2021	1.21	1.18	1.38	1.20	1.20	1.38
19-Mar-2021	1.20	1.14	1.34	1.19	1.12	1.27
20-Mar-2021	NS	NS	NS	NS	NS	NS
21-Mar-2021	NS	NS	NS	NS	NS	NS
22-Mar-2021	1.07	1.16	1.29	1.12	1.21	1.36
23-Mar-2021	1.25	1.17	1.35	1.27	1.21	1.36
24-Mar-2021	1.14	1.25	1.42	1.16	1.33	1.47
25-Mar-2021	1.36	1.30	1.54	1.39	1.31	1.54
26-Mar-2021	1.28	1.35	1.55	1.05	1.35	1.54
27-Mar-2021	NS	NS	NS	NS	NS	NS
28-Mar-2021	NS	NS	NS	NS	NS	NS
29-Mar-2021	1.24	1.25	1.43	1.29	1.33	1.47
30-Mar-2021	1.28	1.25	1.47	1.30	1.27	1.46
31-Mar-2021	1.18	1.20	1.40	1.22	1.21	1.41
<b>Total number of measurements taken, A:</b>	23				23	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>					0.50	
<b>Number of measurements meeting standard, B:</b>					23	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>					100%	

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

Comments:

Compiled By: H. Demchenko

Authorized By: C. Diduck

**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-09-412-02**Report Created: **01 May 2021**

Report Period: April 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/04/2021	1.21	1.10	1.25	1.19
02/04/2021	1.21	1.11	1.22	1.12
03/04/2021	1.29	1.21	1.27	1.23
04/04/2021	1.31	1.21	1.32	1.24
05/04/2021	1.28	1.23	1.33	1.29
06/04/2021	1.29	1.14	1.33	1.18
07/04/2021	1.17	1.09	1.15	1.09
08/04/2021	1.12	0.34	1.13	0.90
09/04/2021	1.12	1.05	1.29	1.18
10/04/2021	1.11	1.04	1.20	1.12
11/04/2021	1.12	1.04	1.23	1.16
12/04/2021	1.06	0.98	1.17	1.10
13/04/2021	1.12	1.02	1.23	1.16
14/04/2021	1.21	1.07	1.36	1.21
15/04/2021	1.07	0.85	1.09	0.79
16/04/2021	1.03	0.87	1.14	0.99
17/04/2021	1.09	0.95	1.20	1.10
18/04/2021	1.03	0.95	1.11	1.02
19/04/2021	1.16	0.68	1.11	0.78
20/04/2021	1.25	1.09	1.26	1.12
21/04/2021	1.16	1.02	1.18	1.11
22/04/2021	1.10	0.81	1.08	0.90
23/04/2021	1.17	1.02	1.15	1.10
24/04/2021	1.14	1.06	1.12	1.09
25/04/2021	1.14	1.01	1.11	1.07
26/04/2021	1.11	0.99	1.19	1.07
27/04/2021	1.07	1.01	1.19	1.15
28/04/2021	1.09	1.02	1.19	1.16
29/04/2021	1.07	0.96	1.15	1.08
30/04/2021	1.09	0.92	1.14	0.99

Total Number of Measurements, A: **20880**      20880Minimum Free Chlorine Standard: **0.5**      0.5Number of Measurements Meeting Standard, B: **20874**      20880COMPLIANCE, C = B/A X 100%: **99.97**      100.00

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Submitted By (Print): D.MerredewSignature: 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 Licence No. PWS-09-412-02	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-2021	1.18	1.22	1.40	1.22	1.24	1.41
02-Apr-2021	NS	NS	NS	NS	NS	NS
03-Apr-2021	NS	NS	NS	NS	NS	NS
04-Apr-2021	NS	NS	NS	NS	NS	NS
05-Apr-2021	NS	NS	NS	NS	NS	NS
06-Apr-2021	1.28	1.27	1.43	1.33	1.27	1.51
07-Apr-2021	1.18	1.21	1.40	1.14	1.22	1.41
08-Apr-2021	1.15	1.14	1.32	1.22	1.16	1.37
09-Apr-2021	1.07	1.11	1.26	1.40	1.12	1.31
10-Apr-2021	NS	NS	NS	NS	NS	NS
11-Apr-2021	NS	NS	NS	NS	NS	NS
12-Apr-2021	1.05	1.07	1.27	1.21	1.22	1.39
13-Apr-2021	1.10	1.10	1.27	1.20	1.22	1.41
14-Apr-2021	1.22	1.23	1.40	1.38	1.32	1.53
15-Apr-2021	1.11	1.12	1.34	1.19	1.18	1.35
16-Apr-2021	1.09	1.09	1.25	1.21	1.19	1.39
17-Apr-2021	NS	NS	NS	NS	NS	NS
18-Apr-2021	NS	NS	NS	NS	NS	NS
19-Apr-2021	1.21	1.15	1.38	1.17	1.17	1.31
20-Apr-2021	1.24	1.30	1.42	1.29	1.27	1.45
21-Apr-2021	1.16	1.16	1.41	1.18	1.20	1.41
22-Apr-2021	1.11	1.11	1.32	1.10	1.07	1.25
23-Apr-2021	1.14	1.17	1.35	1.13	1.11	1.30
24-Apr-2021	NS	NS	NS	NS	NS	NS
25-Apr-2021	NS	NS	NS	NS	NS	NS
26-Apr-2021	1.02	1.05	1.18	1.14	1.13	1.31
27-Apr-2021	1.07	1.07	1.23	1.18	1.19	1.37
28-Apr-2021	1.11	1.06	1.26	1.20	1.18	1.40
29-Apr-2021	1.09	1.03	1.26	1.17	1.12	1.38
30-Apr-2021	0.98	0.94	1.10	1.05	1.05	1.23
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:

Compiled By: H. Demchenko

Authorized By: C. Diduck



**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-09-412-02**

Report Created: 01 June 2021

Report Period: May 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/05/2021	1.15	1.03	1.22	1.12
02/05/2021	1.15	1.07	1.21	1.15
03/05/2021	1.18	1.10	1.26	1.18
04/05/2021	1.16	1.08	1.25	1.19
05/05/2021	1.13	1.04	1.22	1.18
06/05/2021	1.11	1.04	1.18	1.11
07/05/2021	1.17	1.10	1.20	1.13
08/05/2021	1.17	1.08	1.17	1.11
09/05/2021	1.13	1.05	1.17	1.12
10/05/2021	1.14	1.08	1.16	1.11
11/05/2021	1.20	1.15	1.19	1.14
12/05/2021	1.24	1.19	1.23	1.18
13/05/2021	1.38	1.13	1.34	1.14
14/05/2021	1.25	1.19	1.20	1.13
15/05/2021	1.28	1.16	1.23	1.16
16/05/2021	1.20	1.12	1.15	1.08
17/05/2021	1.25	1.18	1.19	1.12
18/05/2021	1.23	1.06	1.18	1.06
19/05/2021	1.17	0.97	1.24	1.04
20/05/2021	1.10	0.88	1.17	1.03
21/05/2021	1.24	1.11	1.26	1.13
22/05/2021	1.33	1.24	1.32	1.24
23/05/2021	1.31	1.23	1.34	1.27
24/05/2021	1.35	1.24	1.28	1.16
25/05/2021	1.35	1.22	1.23	1.18
26/05/2021	1.34	1.26	1.26	1.19
27/05/2021	1.28	1.12	1.23	1.14
28/05/2021	1.31	1.22	1.29	1.22
29/05/2021	1.24	1.11	1.18	1.07
30/05/2021	1.27	1.15	1.24	1.03
31/05/2021	1.28	1.15	1.31	1.20

Total Number of Measurements, A:	21390	21390
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21390	21390
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



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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-2021	NS	NS	NS	NS	NS	NS
02-May-2021	NS	NS	NS	NS	NS	NS
03-May-2021	1.18	1.16	1.28	1.26	1.27	1.40
04-May-2021	1.15	1.15	1.28	1.23	1.22	1.47
05-May-2021	1.14	1.16	1.37	1.22	1.28	1.46
06-May-2021	1.11	1.10	1.25	1.21	1.21	1.35
07-May-2021	1.15	1.15	1.32	1.20	1.15	1.36
08-May-2021	NS	NS	NS	NS	NS	NS
09-May-2021	NS	NS	NS	NS	NS	NS
10-May-2021	1.15	1.17	1.35	1.19	1.21	1.39
11-May-2021	1.18	1.23	1.39	1.19	1.24	1.43
12-May-2021	1.24	1.29	1.44	1.22	1.30	1.45
13-May-2021	1.21	1.27	1.42	1.16	1.21	1.40
14-May-2021	1.23	1.23	1.42	1.19	1.24	1.44
15-May-2021	NS	NS	NS	NS	NS	NS
16-May-2021	NS	NS	NS	NS	NS	NS
17-May-2021	1.29	1.24	1.45	1.25	1.24	1.44
18-May-2021	1.30	1.27	1.48	1.23	1.27	1.49
19-May-2021	1.14	1.11	1.33	1.11	1.13	1.30
20-May-2021	1.03	1.02	1.17	1.15	1.12	1.31
21-May-2021	1.25	1.21	1.41	1.23	1.21	1.41
22-May-2021	NS	NS	NS	NS	NS	NS
23-May-2021	NS	NS	NS	NS	NS	NS
24-May-2021	NS	NS	NS	NS	NS	NS
25-May-2021	1.32	1.37	1.53	1.27	1.28	1.50
26-May-2021	1.34	1.31	1.52	1.25	1.21	1.45
27-May-2021	1.31	1.24	1.49	1.23	1.19	1.38
28-May-2021	1.31	1.34	1.59	1.33	1.33	1.53
29-May-2021	NS	NS	NS	NS	NS	NS
30-May-2021	NS	NS	NS	NS	NS	NS
31-May-2021	1.30	1.28	1.54	1.34	1.33	1.53
<b>Total number of measurements taken, A:</b>		20				20
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50				0.50
<b>Number of measurements meeting standard, B:</b>		20				20
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%				100%

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

Comments:

Compiled By: H. Demchenko

Authorized By: C. Diduck



**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-09-412-02**

Report Created: **01 July 2021**

Report Period: June 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/06/2021	1.24	1.16	1.23	1.12
02/06/2021	1.31	1.02	1.22	0.87
03/06/2021	1.18	1.01	1.14	0.92
04/06/2021	1.33	1.23	1.30	1.20
05/06/2021	1.36	1.26	1.29	1.20
06/06/2021	1.33	1.20	1.27	1.17
07/06/2021	1.34	1.23	1.39	1.22
08/06/2021	1.27	1.11	1.37	1.11
09/06/2021	1.28	1.11	1.30	1.13
10/06/2021	1.33	1.18	1.31	1.18
11/06/2021	1.33	1.27	1.30	1.20
12/06/2021	1.25	1.17	1.21	1.10
13/06/2021	1.19	1.10	1.16	1.08
14/06/2021	1.22	1.03	1.21	1.10
15/06/2021	1.19	1.09	1.21	1.11
16/06/2021	1.22	0.97	1.26	0.85
17/06/2021	1.39	1.17	1.40	0.99
18/06/2021	1.38	1.23	1.42	1.25
19/06/2021	1.38	1.31	1.37	1.25
20/06/2021	1.26	1.10	1.27	1.11
21/06/2021	1.30	1.12	1.33	1.17
22/06/2021	1.26	0.98	1.33	1.19
23/06/2021	1.25	1.07	1.34	1.18
24/06/2021	1.33	1.23	1.37	1.26
25/06/2021	1.38	1.24	1.41	1.32
26/06/2021	1.37	1.24	1.42	1.24
27/06/2021	1.28	1.16	1.32	1.21
28/06/2021	1.25	1.09	1.26	1.15
29/06/2021	1.31	1.17	1.33	1.19
30/06/2021	1.35	1.24	1.37	1.23

Total Number of Measurements, A: **20882**      20880

Minimum Free Chlorine Standard: **0.5**      0.5

Number of Measurements Meeting Standard, B: **20882**      20880

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

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Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252 00 Licence No. PWS-09-412-02	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
	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-2021	1.28	1.28	1.51	1.28	1.30	1.51
02-Jun-2021	1.34	1.37	1.54	1.35	1.35	1.51
03-Jun-2021	1.21	1.25	1.45	1.19	1.19	1.40
04-Jun-2021	1.33	1.40	1.62	1.35	1.34	1.55
05-Jun-2021	NS	NS	NS	NS	NS	NS
06-Jun-2021	NS	NS	NS	NS	NS	NS
07-Jun-2021	1.27	1.33	1.54	1.32	1.38	1.56
08-Jun-2021	1.26	1.31	1.55	1.34	1.34	1.58
09-Jun-2021	1.31	1.40	1.65	1.33	1.43	1.68
10-Jun-2021	1.37	1.35	1.59	1.35	1.30	1.54
11-Jun-2021	1.36	1.36	1.59	1.33	1.40	1.58
12-Jun-2021	NS	NS	NS	NS	NS	NS
13-Jun-2021	NS	NS	NS	NS	NS	NS
14-Jun-2021	1.25	1.31	1.53	1.22	1.31	1.52
15-Jun-2021	1.18	1.18	1.45	1.16	1.20	1.42
16-Jun-2021	1.08	1.36	1.62	0.96	1.44	1.66
17-Jun-2021	1.26	1.28	1.53	1.10	1.29	1.55
18-Jun-2021	1.23	1.29	1.49	1.26	1.25	1.47
19-Jun-2021	NS	NS	NS	NS	NS	NS
20-Jun-2021	NS	NS	NS	NS	NS	NS
21-Jun-2021	1.32	1.34	1.61	1.35	1.34	1.56
22-Jun-2021	1.29	1.30	1.57	1.27	1.31	1.54
23-Jun-2021	1.22	1.29	1.51	1.31	1.35	1.58
24-Jun-2021	1.36	1.36	1.61	1.39	1.43	1.65
25-Jun-2021	1.41	1.40	1.64	1.39	1.46	1.66
26-Jun-2021	NS	NS	NS	NS	NS	NS
27-Jun-2021	NS	NS	NS	NS	NS	NS
28-Jun-2021	1.30	1.32	1.55	1.26	1.34	1.53
29-Jun-2021	1.32	1.40	1.61	1.35	1.45	1.68
30-Jun-2021	1.31	1.45	1.70	1.34	1.51	1.71
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:

Compiled By: H. Demchenko

Authorized By: C. Diduck

**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-09-412-02**

Report Created: 01 August 2021

Report Period: July 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/07/2021	1.31	1.14	1.29	1.04
02/07/2021	1.30	1.10	1.31	1.09
03/07/2021	1.42	1.22	1.50	1.31
04/07/2021	1.40	1.24	1.41	1.19
05/07/2021	1.48	1.31	1.44	1.23
06/07/2021	1.45	1.24	1.40	1.24
07/07/2021	1.31	1.20	1.35	1.24
08/07/2021	1.29	1.02	1.31	1.10
09/07/2021	1.25	1.03	1.25	1.08
10/07/2021	1.36	1.16	1.35	1.18
11/07/2021	1.38	1.22	1.30	1.14
12/07/2021	1.51	1.30	1.41	1.23
13/07/2021	1.52	1.35	1.49	1.30
14/07/2021	1.48	1.23	1.49	1.21
15/07/2021	1.23	1.12	1.34	1.19
16/07/2021	1.32	1.14	1.39	1.23
17/07/2021	1.40	1.26	1.47	1.34
18/07/2021	1.44	1.24	1.51	1.34
19/07/2021	1.58	1.43	1.61	1.40
20/07/2021	1.58	1.44	1.57	1.41
21/07/2021	1.53	1.44	1.53	1.41
22/07/2021	1.53	1.41	1.52	1.39
23/07/2021	1.55	1.41	1.50	1.34
24/07/2021	1.46	1.31	1.43	1.28
25/07/2021	1.36	1.08	1.40	1.12
26/07/2021	1.34	1.15	1.37	1.24
27/07/2021	1.28	1.17	1.32	1.22
28/07/2021	1.29	1.21	1.32	1.21
29/07/2021	1.87	1.26	1.89	1.28
30/07/2021	1.34	1.21	1.37	1.24
31/07/2021	1.39	1.21	1.38	1.22

Total Number of Measurements, A: 21551 21551

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21551 21551

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\07-July

Submitted By (Print): M.SzmonSignature: Original signed by M.Szmon



**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-2021	NS	NS	NS	NS	NS	NS
02-Jul-2021	1.27	1.30	1.52	1.26	1.36	1.53
03-Jul-2021	NS	NS	NS	NS	NS	NS
04-Jul-2021	NS	NS	NS	NS	NS	NS
05-Jul-2021	1.52	1.56	1.77	1.50	1.58	1.80
06-Jul-2021	1.32	1.37	1.57	1.31	1.39	1.57
07-Jul-2021	1.32	1.38	1.59	1.41	1.37	1.60
08-Jul-2021	1.32	1.35	1.56	1.28	1.35	1.57
09-Jul-2021	1.21	1.33	1.53	1.26	1.33	1.53
10-Jul-2021	NS	NS	NS	NS	NS	NS
11-Jul-2021	NS	NS	NS	NS	NS	NS
12-Jul-2021	1.39	1.44	1.61	1.35	1.36	1.58
13-Jul-2021	1.47	1.39	1.63	1.45	1.37	1.57
14-Jul-2021	1.46	1.47	1.69	1.46	1.42	1.62
15-Jul-2021	1.19	1.25	1.41	1.30	1.33	1.55
16-Jul-2021	1.35	1.37	1.54	1.37	1.43	1.64
17-Jul-2021	NS	NS	NS	NS	NS	NS
18-Jul-2021	NS	NS	NS	NS	NS	NS
19-Jul-2021	1.51	1.54	1.80	1.68	1.64	1.80
20-Jul-2021	1.59	1.55	1.84	1.59	1.54	1.76
21-Jul-2021	1.54	1.57	1.80	1.53	1.56	1.79
22-Jul-2021	1.43	1.48	1.75	1.42	1.49	1.72
23-Jul-2021	1.64	1.60	1.88	1.61	1.57	1.78
24-Jul-2021	NS	NS	NS	NS	NS	NS
25-Jul-2021	NS	NS	NS	NS	NS	NS
26-Jul-2021	1.36	1.53	1.74	1.33	1.43	1.61
27-Jul-2021	1.35	1.44	1.63	1.33	1.37	1.67
28-Jul-2021	1.38	1.42	1.65	1.38	1.42	1.61
29-Jul-2021	1.35	1.43	1.67	1.35	1.43	1.67
30-Jul-2021	1.41	1.46	1.64	1.43	1.42	1.62
31-Jul-2021	NS	NS	NS	NS	NS	NS
<b>Total number of measurements taken, A:</b>		21				21
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50				0.50
<b>Number of measurements meeting standard, B:</b>		21				21
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%				100%

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

Comments:

Compiled By: H. Demchenko

Authorized By: C. Diduck



**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-09-412-02**

Report Created: **01 September 2021**

Report Period: August 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/08/2021	1.36	1.27	1.33	1.24
02/08/2021	1.40	1.29	1.38	1.23
03/08/2021	1.42	1.00	1.38	1.14
04/08/2021	1.51	1.35	1.45	1.33
05/08/2021	1.69	1.44	1.60	1.35
06/08/2021	1.51	1.25	1.45	1.22
07/08/2021	1.31	1.14	1.23	1.12
08/08/2021	1.28	1.15	1.21	1.09
09/08/2021	1.30	1.09	1.25	1.05
10/08/2021	1.41	1.28	1.43	1.33
11/08/2021	1.51	1.38	1.55	1.43
12/08/2021	1.44	1.05	1.45	1.04
13/08/2021	1.51	1.26	1.63	1.45
14/08/2021	1.42	1.29	1.52	1.41
15/08/2021	1.46	1.33	1.55	1.43
16/08/2021	1.52	1.42	1.62	1.49
17/08/2021	1.29	1.19	1.29	1.12
18/08/2021	1.42	1.28	1.37	1.24
19/08/2021	1.47	1.27	1.41	1.25
20/08/2021	1.59	1.49	1.44	1.33
21/08/2021	1.46	1.15	1.33	1.09
22/08/2021	1.38	1.31	1.25	1.20
23/08/2021	1.41	1.31	1.29	1.18
24/08/2021	1.42	1.13	1.41	1.06
25/08/2021	1.37	1.17	1.34	1.19
26/08/2021	1.44	1.22	1.40	1.20
27/08/2021	1.48	1.43	1.40	1.33
28/08/2021	1.48	1.39	1.38	1.29
29/08/2021	1.48	1.38	1.34	1.28
30/08/2021	1.45	1.38	1.41	1.24
31/08/2021	1.48	1.37	1.53	1.38

Total Number of Measurements, A: **21603**      21602

Minimum Free Chlorine Standard: **0.5**      0.5

Number of Measurements Meeting Standard, B: **21603**      21602

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\08-August

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



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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-2021	NS	NS	NS	NS	NS	NS
02-Aug-2021	NS	NS	NS	NS	NS	NS
03-Aug-2021	1.47	1.61	1.80	1.45	1.55	1.75
04-Aug-2021	1.46	1.67	1.87	1.42	1.57	1.79
05-Aug-2021	1.57	1.71	1.95	1.48	1.63	1.82
06-Aug-2021	1.42	1.48	1.69	1.37	1.37	1.57
07-Aug-2021	NS	NS	NS	NS	NS	NS
08-Aug-2021	NS	NS	NS	NS	NS	NS
09-Aug-2021	1.31	1.41	1.62	1.20	1.24	1.50
10-Aug-2021	1.42	1.47	1.67	1.44	1.45	1.67
11-Aug-2021	1.50	1.56	1.78	1.53	1.58	1.78
12-Aug-2021	1.49	1.50	1.76	1.49	1.55	1.70
13-Aug-2021	1.64	1.63	1.85	1.73	1.69	1.91
14-Aug-2021	NS	NS	NS	NS	NS	NS
15-Aug-2021	NS	NS	NS	NS	NS	NS
16-Aug-2021	1.51	1.55	1.78	1.62	1.58	1.82
17-Aug-2021	1.32	1.39	1.57	1.35	1.40	1.61
18-Aug-2021	1.44	1.53	1.75	1.38	1.46	1.70
19-Aug-2021	1.33	1.51	1.67	1.39	1.49	1.69
20-Aug-2021	1.58	1.56	1.80	1.44	1.40	1.58
21-Aug-2021	NS	NS	NS	NS	NS	NS
22-Aug-2021	NS	NS	NS	NS	NS	NS
23-Aug-2021	1.32	1.48	1.67	1.19	1.26	1.47
24-Aug-2021	1.57	1.62	1.84	1.48	1.48	1.71
25-Aug-2021	1.40	1.36	1.61	1.30	1.33	1.53
26-Aug-2021	1.53	1.48	1.71	1.51	1.47	1.66
27-Aug-2021	1.51	1.51	1.72	1.43	1.43	1.62
28-Aug-2021	NS	NS	NS	NS	NS	NS
29-Aug-2021	NS	NS	NS	NS	NS	NS
30-Aug-2021	1.40	1.46	1.70	1.45	1.45	1.69
31-Aug-2021	1.47	1.45	1.65	1.47	1.52	1.72
<b>Total number of measurements taken, A:</b>		21				21
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50				0.50
<b>Number of measurements meeting standard, B:</b>		21				21
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%				100%

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

Comments:

Compiled By: H. Demchenko

Authorized By: C. Diduck



**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-09-412-02**

Report Created: 01 October 2021

Report Period: September 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/09/2021	1.48	1.37	1.57	1.48
02/09/2021	1.44	1.32	1.54	1.48
03/09/2021	1.52	1.44	1.57	1.47
04/09/2021	1.50	1.40	1.46	1.33
05/09/2021	1.52	1.43	1.42	1.33
06/09/2021	1.46	1.37	1.37	1.30
07/09/2021	1.50	1.41	1.44	1.36
08/09/2021	1.55	1.43	1.56	1.44
09/09/2021	1.47	1.34	1.58	1.50
10/09/2021	1.40	1.33	1.49	1.37
11/09/2021	1.34	1.12	1.37	1.12
12/09/2021	1.52	1.35	1.47	1.32
13/09/2021	1.51	1.42	1.51	1.42
14/09/2021	1.52	1.37	1.54	1.36
15/09/2021	1.49	1.40	1.49	1.35
16/09/2021	1.54	1.39	1.46	1.35
17/09/2021	1.64	1.49	1.61	1.53
18/09/2021	1.62	1.48	1.67	1.58
19/09/2021	1.58	1.35	1.62	1.30
20/09/2021	1.19	1.02	1.14	0.96
21/09/2021	O/L	O/L	1.48	1.13
22/09/2021	O/L	O/L	1.61	1.55
23/09/2021	O/L	O/L	1.63	1.50
24/09/2021	O/L	O/L	1.58	1.52
25/09/2021	O/L	O/L	1.49	1.37
26/09/2021	O/L	O/L	1.50	1.37
27/09/2021	O/L	O/L	1.51	1.41
28/09/2021	1.37	1.25	1.47	1.31
29/09/2021	1.37	0.91	1.39	1.24
30/09/2021	1.46	1.27	1.40	1.19

Total Number of Measurements, A: 20872 20871

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20872 20871

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\09-September

Submitted By (Print): D.Merredew

Signature: Original Signed by D.Merredew



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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-Sep-2021	1.49	1.50	1.72	1.53	1.53	1.70
02-Sep-2021	1.44	1.52	1.73	1.54	1.60	1.84
03-Sep-2021	1.51	1.53	1.77	1.57	1.56	1.78
04-Sep-2021	NS	NS	NS	NS	NS	NS
05-Sep-2021	NS	NS	NS	NS	NS	NS
06-Sep-2021	NS	NS	NS	NS	NS	NS
07-Sep-2021	1.48	1.50	1.74	1.43	1.47	1.70
08-Sep-2021	1.61	1.58	1.83	1.63	1.57	1.80
09-Sep-2021	1.53	1.51	1.75	1.60	1.57	1.78
10-Sep-2021	1.40	1.39	1.64	1.49	1.52	1.75
11-Sep-2021	NS	NS	NS	NS	NS	NS
12-Sep-2021	NS	NS	NS	NS	NS	NS
13-Sep-2021	1.48	1.52	1.78	1.46	1.55	1.73
14-Sep-2021	1.38	1.61	1.80	1.37	1.54	1.81
15-Sep-2021	1.50	1.50	1.74	1.51	1.50	1.72
16-Sep-2021	1.50	1.46	1.71	1.41	1.44	1.64
17-Sep-2021	1.73	1.59	1.82	1.63	1.53	1.79
18-Sep-2021	NS	NS	NS	NS	NS	NS
19-Sep-2021	NS	NS	NS	NS	NS	NS
20-Sep-2021	1.19	1.25	1.45	1.14	1.19	1.36
21-Sep-2021	1.37	1.38	1.61	1.48	1.65	1.83
22-Sep-2021	1.40	1.42	1.73	1.60	1.62	1.82
23-Sep-2021	1.44	1.44	1.69	1.64	1.66	1.91
24-Sep-2021	1.40	1.47	1.70	1.63	1.62	1.83
25-Sep-2021	NS	NS	NS	NS	NS	NS
26-Sep-2021	NS	NS	NS	NS	NS	NS
27-Sep-2021	1.33	1.38	1.56	1.50	1.59	1.76
28-Sep-2021	1.34	1.35	1.60	1.53	1.56	1.74
29-Sep-2021	1.33	1.38	1.59	1.53	1.59	1.79
30-Sep-2021	NS	NS	NS	NS	NS	NS
<b>Total number of measurements taken, A:</b>		20			20	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50	
<b>Number of measurements meeting standard, B:</b>		20			20	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%			100%	

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

Comments:

Compiled By: H. Demchenko

Authorized By: C. Diduck

**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-09-412-02**

Report Created: 01 November 2021

Report Period: October 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/10/2021	1.54	1.41	1.50	1.39
02/10/2021	1.46	1.35	1.50	1.31
03/10/2021	1.51	1.38	1.54	1.38
04/10/2021	1.52	1.38	1.56	1.45
05/10/2021	1.60	1.40	1.59	1.48
06/10/2021	1.64	1.50	1.60	1.52
07/10/2021	1.57	1.48	1.54	1.44
08/10/2021	1.49	1.37	1.44	1.29
09/10/2021	1.41	1.30	1.36	1.27
10/10/2021	1.31	1.21	1.30	1.19
11/10/2021	1.32	1.15	1.30	1.15
12/10/2021	1.48	1.36	1.46	1.33
13/10/2021	1.86	1.42	1.78	1.49
14/10/2021	1.64	1.41	1.69	1.55
15/10/2021	1.61	1.26	1.65	1.43
16/10/2021	1.60	1.37	1.61	1.37
17/10/2021	1.61	1.45	1.63	1.41
18/10/2021	1.65	1.38	1.71	1.50
19/10/2021	1.59	1.37	1.64	1.44
20/10/2021	1.57	1.42	1.57	1.45
21/10/2021	1.62	1.47	1.65	1.49
22/10/2021	1.55	1.27	1.59	1.32
23/10/2021	1.42	1.27	1.45	1.32
24/10/2021	1.43	1.31	1.43	1.31
25/10/2021	1.47	1.35	1.45	1.33
26/10/2021	1.54	1.40	1.56	1.40
27/10/2021	1.53	1.40	1.60	1.48
28/10/2021	1.50	1.27	1.56	1.35
29/10/2021	1.46	1.38	1.52	1.37
30/10/2021	1.47	1.36	1.50	1.39
31/10/2021	1.48	1.37	1.51	1.40

Total Number of Measurements, A: 21126 21128

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21126 21128

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\10-October

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



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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-2021	1.57	1.56	1.83	1.53	1.55	1.77
02-Oct-2021	NS	NS	NS	NS	NS	NS
03-Oct-2021	NS	NS	NS	NS	NS	NS
04-Oct-2021	1.48	1.55	1.77	1.55	1.52	1.77
05-Oct-2021	1.50	1.54	1.80	1.57	1.56	1.83
06-Oct-2021	1.66	1.68	1.93	1.66	1.72	1.92
07-Oct-2021	1.55	1.54	1.85	1.55	1.58	1.80
08-Oct-2021	1.51	1.50	1.74	1.47	1.49	1.73
09-Oct-2021	NS	NS	NS	NS	NS	NS
10-Oct-2021	NS	NS	NS	NS	NS	NS
11-Oct-2021	NS	NS	NS	NS	NS	NS
12-Oct-2021	1.46	1.42	1.67	1.45	1.46	1.71
13-Oct-2021	1.87	1.85	2.08	1.77	1.76	1.99
14-Oct-2021	1.60	1.61	1.87	1.68	1.64	1.90
15-Oct-2021	1.63	1.66	1.88	1.47	1.64	1.90
16-Oct-2021	NS	NS	NS	NS	NS	NS
17-Oct-2021	NS	NS	NS	NS	NS	NS
18-Oct-2021	1.73	1.73	2.01	1.76	1.81	2.05
19-Oct-2021	1.67	1.74	1.95	1.72	1.76	1.92
20-Oct-2021	1.54	1.48	1.75	1.53	1.56	1.77
21-Oct-2021	1.64	1.61	1.84	1.60	1.65	1.90
22-Oct-2021	1.62	1.65	1.89	1.64	1.69	1.93
23-Oct-2021	NS	NS	NS	NS	NS	NS
24-Oct-2021	NS	NS	NS	NS	NS	NS
25-Oct-2021	1.49	1.47	1.73	1.48	1.52	1.76
26-Oct-2021	1.55	1.58	1.81	1.62	1.62	1.82
27-Oct-2021	1.55	1.57	1.82	1.61	1.59	1.86
28-Oct-2021	1.54	1.59	1.83	1.60	1.63	1.86
29-Oct-2021	1.48	1.47	1.68	1.53	1.54	1.74
30-Oct-2021	NS	NS	NS	NS	NS	NS
31-Oct-2021	NS	NS	NS	NS	NS	NS
<b>Total number of measurements taken, A:</b>		20				20
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50				0.50
<b>Number of measurements meeting standard, B:</b>		20				20
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%				100%

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

Comments:

Compiled By: H. Demchenko

Authorized By: C. Diduck



**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-09-412-02**

Report Created: 01 December 2021

Report Period: November 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/11/2021	1.45	1.32	1.49	1.40
02/11/2021	1.47	1.34	1.46	1.33
03/11/2021	1.46	1.34	1.43	1.35
04/11/2021	1.51	1.33	1.44	1.28
05/11/2021	1.41	1.32	1.36	1.27
06/11/2021	1.34	1.28	1.37	1.28
07/11/2021	1.32	1.24	1.40	1.33
08/11/2021	1.34	1.25	1.41	1.35
09/11/2021	1.34	1.20	1.39	1.33
10/11/2021	1.23	1.18	1.32	1.26
11/11/2021	1.27	1.17	1.35	1.27
12/11/2021	1.31	1.23	1.39	1.33
13/11/2021	1.32	1.25	1.44	1.37
14/11/2021	1.26	1.17	1.36	1.21
15/11/2021	1.36	1.12	1.23	1.17
16/11/2021	1.42	1.25	1.23	1.15
17/11/2021	1.42	1.32	1.30	1.22
18/11/2021	1.45	1.30	1.32	1.24
19/11/2021	1.42	1.29	1.30	1.25
20/11/2021	1.43	1.25	1.29	1.24
21/11/2021	1.51	1.39	1.32	1.27
22/11/2021	1.50	1.39	1.41	1.28
23/11/2021	1.47	1.37	1.42	1.35
24/11/2021	1.42	1.30	1.39	1.30
25/11/2021	1.40	1.28	1.37	1.28
26/11/2021	1.36	1.14	1.44	1.35
27/11/2021	1.32	1.21	1.38	1.24
28/11/2021	1.32	1.21	1.31	1.23
29/11/2021	1.27	1.14	1.29	1.18
30/11/2021	1.26	1.06	1.21	0.88

Total Number of Measurements, A: 20912 20912

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20912 20912

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\11-November

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-09-412-02	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-2021	1.40	1.37	1.61	1.50	1.54	1.74
02-Nov-2021	1.47	1.45	1.67	1.47	1.55	1.72
03-Nov-2021	1.42	1.39	1.59	1.40	1.49	1.71
04-Nov-2021	1.38	1.38	1.59	1.34	1.50	1.69
05-Nov-2021	1.41	1.43	1.62	1.38	1.47	1.68
06-Nov-2021	NS	NS	NS	NS	NS	NS
07-Nov-2021	NS	NS	NS	NS	NS	NS
08-Nov-2021	1.31	1.33	1.55	1.41	1.41	1.64
09-Nov-2021	1.31	1.32	1.54	1.38	1.45	1.63
10-Nov-2021	1.23	1.25	1.49	1.30	1.37	1.54
11-Nov-2021	NS	NS	NS	NS	NS	NS
12-Nov-2021	1.31	1.38	1.51	1.36	1.42	1.63
13-Nov-2021	NS	NS	NS	NS	NS	NS
14-Nov-2021	NS	NS	NS	NS	NS	NS
15-Nov-2021	1.40	1.35	1.53	1.22	1.27	1.47
16-Nov-2021	1.43	1.36	1.52	1.20	1.26	1.41
17-Nov-2021	1.43	1.40	1.66	1.32	1.35	1.56
18-Nov-2021	1.48	1.44	1.73	1.34	1.39	1.59
19-Nov-2021	1.46	1.48	1.74	1.31	1.35	1.55
20-Nov-2021	NS	NS	NS	NS	NS	NS
21-Nov-2021	NS	NS	NS	NS	NS	NS
22-Nov-2021	1.53	1.51	1.71	1.47	1.48	1.64
23-Nov-2021	1.48	1.44	1.66	1.39	1.44	1.67
24-Nov-2021	1.44	1.43	1.64	1.40	1.46	1.64
25-Nov-2021	1.41	1.46	1.65	1.36	1.44	1.61
26-Nov-2021	1.42	1.45	1.65	1.45	1.52	1.68
27-Nov-2021	NS	NS	NS	NS	NS	NS
28-Nov-2021	NS	NS	NS	NS	NS	NS
29-Nov-2021	1.28	1.27	1.51	1.32	1.33	1.53
30-Nov-2021	1.24	1.26	1.45	1.24	1.31	1.42
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*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: C. Diduck



**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-09-412-02**

Report Created: 01 January 2022

Report Period: December 2021

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/12/2021	1.24	1.13	1.25	1.06
02/12/2021	1.28	1.15	1.31	1.21
03/12/2021	1.27	1.15	1.23	1.11
04/12/2021	1.12	1.00	1.12	1.00
05/12/2021	1.12	0.98	1.13	1.02
06/12/2021	1.16	1.02	1.16	1.06
07/12/2021	1.19	1.09	1.19	1.08
08/12/2021	1.17	1.04	1.23	1.09
09/12/2021	1.17	1.08	1.27	1.20
10/12/2021	1.17	1.10	1.27	1.17
11/12/2021	1.06	0.94	1.18	1.09
12/12/2021	1.04	0.98	1.21	1.15
13/12/2021	1.09	0.98	1.19	1.11
14/12/2021	1.08	1.01	1.22	1.13
15/12/2021	1.05	0.98	1.27	1.21
16/12/2021	1.05	0.69	1.31	0.81
17/12/2021	1.08	0.98	1.30	1.17
18/12/2021	1.04	0.99	1.24	1.17
19/12/2021	1.20	1.00	1.25	1.16
20/12/2021	1.27	1.17	1.22	1.12
21/12/2021	1.24	1.12	1.24	1.14
22/12/2021	1.25	1.08	1.28	1.19
23/12/2021	1.23	1.17	1.26	1.13
24/12/2021	1.13	1.07	1.18	1.09
25/12/2021	1.09	1.01	1.15	1.08
26/12/2021	1.17	0.99	1.22	1.05
27/12/2021	1.18	1.12	1.24	1.18
28/12/2021	1.19	1.09	1.28	1.20
29/12/2021	1.18	1.08	1.25	1.16
30/12/2021	1.22	1.06	1.29	1.17
31/12/2021	1.19	1.10	1.29	1.21

Total Number of Measurements, A: 21604 21604

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21604 21604

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2021\12-December

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	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-2021	1.22	1.27	1.47	1.28	1.34	1.51
02-Dec-2021	1.27	1.36	1.55	1.33	1.40	1.56
03-Dec-2021	1.28	1.29	1.49	1.24	1.31	1.47
04-Dec-2021	NS	NS	NS	NS	NS	NS
05-Dec-2021	NS	NS	NS	NS	NS	NS
06-Dec-2021	1.17	1.20	1.40	1.17	1.23	1.42
07-Dec-2021	1.18	1.22	1.42	1.18	1.24	1.44
08-Dec-2021	1.18	1.26	1.42	1.19	1.26	1.45
09-Dec-2021	1.09	1.16	1.38	1.26	1.28	1.46
10-Dec-2021	1.19	1.20	1.38	1.26	1.30	1.49
11-Dec-2021	NS	NS	NS	NS	NS	NS
12-Dec-2021	NS	NS	NS	NS	NS	NS
13-Dec-2021	1.04	1.04	1.26	1.19	1.21	1.43
14-Dec-2021	1.09	1.09	1.29	1.18	1.28	1.48
15-Dec-2021	1.07	1.03	1.24	1.30	1.28	1.48
16-Dec-2021	1.39	0.97	1.17	1.25	1.21	1.41
17-Dec-2021	1.11	1.10	1.24	1.34	1.31	1.44
18-Dec-2021	NS	NS	NS	NS	NS	NS
19-Dec-2021	NS	NS	NS	NS	NS	NS
20-Dec-2021	1.28	1.26	1.43	1.27	1.22	1.43
21-Dec-2021	1.29	1.26	1.44	1.26	1.29	1.45
22-Dec-2021	1.23	1.23	1.41	1.25	1.28	1.44
23-Dec-2021	1.25	1.23	1.41	1.28	1.30	1.44
24-Dec-2021	1.13	1.15	1.34	1.15	1.20	1.37
25-Dec-2021	NS	NS	NS	NS	NS	NS
26-Dec-2021	NS	NS	NS	NS	NS	NS
27-Dec-2021	NS	NS	NS	NS	NS	NS
28-Dec-2021	NS	NS	NS	NS	NS	NS
29-Dec-2021	1.21	1.20	1.38	1.25	1.27	1.44
30-Dec-2021	1.31	1.30	1.47	1.39	1.44	1.62
31-Dec-2021	1.21	1.22	1.41	1.30	1.32	1.50
<b>Total number of measurements taken, A:</b>	21	21	21		21	21
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50	
<b>Number of measurements meeting standard, B:</b>		21			21	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%			100%	

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

Comments:

Compiled By: H. Demchenko

Authorized By: C. Diduck

# **2021 MONTHLY TURBIDITY REPORTS**



**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 2021 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
1/01/2021	0.65	0.01	0.03		0.02	0.05	0.03	0.05	0.04	0.06	0.04	0.08	0.06	0.10	0.02	0.04	0.04	0.06
2/01/2021	0.62	0.02	0.04		0.02	0.05	0.02	0.06	0.04	0.10	0.06	0.08	0.06	0.10	0.02	0.05	0.04	0.07
3/01/2021	0.60	0.02	0.04		0.03	0.06	0.03	0.05	0.03	0.07	0.05	0.08	0.07	0.11	0.02	0.06	0.04	0.08
4/01/2021	0.58	0.01	0.04		0.02	0.05	0.03	0.06	0.04	0.20	0.05	0.09	0.06	0.10	0.02	0.04	0.04	0.06
5/01/2021	0.57	0.02	0.04		0.02	0.04	0.03	0.05	0.04	0.07	0.06	0.07	0.05	0.09	0.02	0.05	0.04	0.08
6/01/2021	0.58	0.02	0.05		0.03	0.05	0.03	0.04	0.04	0.08	0.05	0.08	0.07	0.09	0.02	0.05	0.04	0.08
7/01/2021	0.58	0.02	0.04		0.03	0.05	0.03	0.06	0.04	0.05	0.05	0.09	0.06	0.10	0.02	0.04	0.04	0.08
8/01/2021	0.59	0.02	0.03		0.02	0.05	0.03	0.05	0.04	0.09	0.05	0.08	0.06	0.11	0.02	0.05	0.05	0.07
9/01/2021	0.57	0.02	0.04		0.02	0.04	0.02	0.05	0.04	0.11	0.06	0.08	0.06	0.09	0.02	0.05	0.04	0.07
10/01/2021	0.55	0.02	0.05		0.03	0.05	0.03	0.05	0.04	0.07	0.06	0.09	0.07	0.10	0.02	0.03	0.04	0.08
11/01/2021	0.56	0.04	0.18		0.05	0.17	0.05	0.23	0.05	0.18	0.08	0.20	0.07	0.15	0.06	0.23	0.07	0.23
12/01/2021	0.55	0.03	0.05		0.03	0.07	0.03	0.07	0.04	0.08	0.07	0.08	0.07	0.12	0.03	0.06	0.05	0.10
13/01/2021	0.55	0.03	0.07		0.03	0.05	0.03	0.07	0.03	0.15	0.07	0.11	0.08	0.09	0.03	0.06	0.05	0.11
14/01/2021	0.68	0.02	0.07		0.02	0.08	0.03	0.06	0.03	0.07	0.04	0.12	0.06	0.20	0.02	0.11	0.04	0.14
15/01/2021	0.54	0.04	0.06		0.03	0.05	0.03	0.08	0.04	0.08	0.08	0.10	0.07	0.14	0.03	0.07	0.05	0.09
16/01/2021	0.53	0.03	0.07		0.04	0.07	0.04	0.05	0.04	0.11	0.08	0.13	0.10	0.12	0.03	0.05	0.05	0.11
17/01/2021	0.53	0.03	0.04		0.03	0.07	0.04	0.07	0.04	0.06	0.08	0.14	0.09	0.15	0.04	0.08	0.06	0.08
18/01/2021	0.51	0.04	0.07		0.03	0.04	0.03	0.07	0.04	0.09	0.10	0.12	0.10	0.17	0.03	0.08	0.05	0.11
19/01/2021	0.51	0.03	0.08		0.04	0.08	0.04	0.05	0.04	0.08	0.09	0.15	0.12	0.14	0.03	0.05	0.05	0.10
20/01/2021	0.50	0.03	0.06		0.04	0.09	0.04	0.07	0.04	0.06	0.06	0.11	0.07	0.13	0.04	0.07	0.06	0.08
21/01/2021	0.51	0.04	0.10		0.02	0.06	0.01	0.04	0.05	0.11	0.04	0.09	0.04	0.09	0.03	0.13	0.06	0.15
22/01/2021	0.50	0.05	0.10		0.03	0.06	0.00	0.01	0.05	0.09	0.04	0.08	0.04	0.07	0.03	0.06	0.06	0.10
23/01/2021	0.50	0.05	0.09		0.02	0.06	0.00	0.01	0.05	0.09	0.04	0.07	0.04	0.08	0.03	0.05	0.07	0.08
24/01/2021	0.49	0.06	0.07		0.03	0.07	0.01	0.05	0.05	0.09	0.04	0.05	0.04	0.08	0.03	0.06	0.06	0.10
25/01/2021	0.49	0.05	0.10		0.04	0.05	0.01	0.03	0.03	0.06	0.05	0.08	0.04	0.05	0.03	0.06	0.06	0.10
26/01/2021	0.49	0.06	0.12		0.04	0.10	0.02	0.05	0.03	0.07	0.05	0.09	0.05	0.08	0.04	0.06	0.06	0.09
27/01/2021	0.48	0.07	0.08		0.03	0.07	0.02	0.05	0.04	0.08	0.05	0.09	0.04	0.09	0.03	0.07	0.07	0.11
28/01/2021	0.73	0.05	0.14		0.03	0.10	0.01	0.07	0.03	0.13	0.04	0.11	0.04	0.11	0.03	0.08	0.05	0.11
29/01/2021	0.46	0.06	0.11		0.04	0.08	0.02	0.06	0.03	0.07	0.04	0.08	0.04	0.08	0.04	0.05	0.06	0.09
30/01/2021	0.47	0.06	0.08		0.03	0.07	0.02	0.05	0.04	0.06	0.04	0.07	0.04	0.08	0.03	0.06	0.07	0.11
31/01/2021	0.48	0.06	0.10		0.03	0.04	0.02	0.05	0.03	0.07	0.04	0.06	0.04	0.09	0.03	0.08	0.07	0.11

Total Number of Measurements Taken, A: 13058      13231      12008      13843      15357      15480      15276      16990  
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: 13058      13231      12008      13843      15357      15480      15276      16990  
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\2021\01-January

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
03-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Jan-2021	0.59	0.57	0.06	0.02	0.06	0.02	0.07	0.04	0.06	0.04	0.06	0.06	OL	OL	0.07	0.02	0.07	0.04
05-Jan-2021	0.57	0.56	0.06	0.03	0.06	0.03	0.05	0.04	0.07	0.06	0.07	0.07	0.07	0.08	0.02	0.08	0.05	0.03
06-Jan-2021	0.59	0.57	0.07	0.02	0.07	0.04	0.06	0.04	0.05	0.04	0.08	0.07	0.08	0.08	0.07	0.02	0.07	0.03
07-Jan-2021	0.55	0.59	0.06	0.02	OL	OL	0.07	0.04	0.06	0.05	0.06	0.07	0.10	0.10	0.08	0.02	0.07	0.04
08-Jan-2021	0.58	0.56	0.06	0.02	0.06	0.03	OL	OL	0.06	0.05	0.06	0.07	0.07	0.08	0.09	0.03	0.07	0.05
09-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Jan-2021	0.60	0.63	0.08	0.03	0.08	0.04	0.10	0.06	0.07	0.05	0.08	0.08	0.14	0.13	0.10	0.04	0.09	0.06
12-Jan-2021	0.53	0.51	0.08	0.04	0.07	0.04	0.06	0.03	0.07	0.06	0.08	0.08	0.09	0.09	OL	OL	0.10	0.06
13-Jan-2021	0.57	0.56	0.08	0.04	0.07	0.04	0.07	0.04	0.07	0.05	0.09	0.08	0.08	0.08	0.07	0.02	0.07	0.04
14-Jan-2021	0.54	0.52	0.07	0.04	OL	OL	0.08	0.04	0.06	0.05	0.07	0.08	0.10	0.10	0.08	0.02	0.08	0.04
15-Jan-2021	0.54	0.54	0.08	0.04	0.08	0.04	0.06	0.04	0.08	0.06	0.08	0.09	0.08	0.09	0.08	0.02	OL	OL
16-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
17-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
18-Jan-2021	0.53	0.49	0.08	0.05	0.08	0.05	0.07	0.04	0.09	0.06	0.09	0.11	0.11	0.12	0.09	0.03	0.09	0.06
19-Jan-2021	0.50	0.50	0.10	0.06	0.08	0.04	0.07	0.04	0.07	0.04	0.10	0.13	0.10	0.13	0.09	0.03	0.08	0.05
20-Jan-2021	0.52	0.49	0.09	0.05	0.09	0.05	0.10	0.06	0.08	0.06	0.09	0.05	0.09	0.06	0.12	0.05	0.11	0.07
21-Jan-2021	0.50	0.49	0.07	0.04	0.07	0.03	0.06	0.03	0.07	0.05	0.07	0.05	0.08	0.05	OL	OL	0.10	0.06
22-Jan-2021	0.51	0.50	0.12	0.09	0.09	0.03	0.08	<0.02	OL	OL	0.09	0.05	0.08	0.05	0.07	0.02	0.07	0.05
23-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
24-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Jan-2021	0.49	0.49	0.09	0.09	0.08	0.04	0.07	0.02	0.07	0.04	0.08	0.07	0.08	0.05	0.08	0.02	0.08	0.06
26-Jan-2021	0.48	0.47	0.08	0.07	0.10	0.06	0.08	0.03	0.07	0.04	0.07	0.06	0.10	0.07	0.08	0.03	0.08	0.06
27-Jan-2021	0.47	0.47	0.09	0.08	0.08	0.04	0.08	0.03	0.07	0.04	0.08	0.07	0.08	0.05	0.10	0.04	0.09	0.07
28-Jan-2021	0.46	0.45	0.11	0.09	0.09	0.05	0.08	0.02	OL	OL	0.09	0.05	0.09	0.07	0.08	0.03	0.07	0.06
29-Jan-2021	0.52	0.45	0.09	0.06	OL	OL	0.10	0.03	0.07	0.04	0.08	0.05	0.11	0.07	0.09	0.03	0.09	0.06
30-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
31-Jan-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
<b>Total number of measurements taken, A:</b>			20	0.30	17	0.30	19	0.30	18	0.30	20	0.30	19	0.30	18	0.30	19	0.30
<b>Turbidity Standard for Monitoring Location (NTU):</b>																		
<b>Number of measurements meeting standard, B:</b>			20		17		19		18		20		19		18		19	
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>			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 By: B. Bradford

Report Date: 4-Feb-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**

February 2021 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
1/02/2021	0.48	0.05	0.09		0.03	0.06	0.01	0.03	0.03	0.06	0.03	0.07	0.05	0.07	0.03	0.07	0.06	0.10
2/02/2021	0.46	0.05	0.10		0.03	0.07	0.02	0.05	0.03	0.04	0.03	0.07	0.04	0.08	0.04	0.06	0.07	0.08
3/02/2021	0.46	0.06	0.07		0.02	0.07	0.02	0.05	0.03	0.06	0.04	0.05	0.04	0.08	0.03	0.07	0.06	0.10
4/02/2021	0.46	0.05	0.10		0.03	0.05	0.01	0.05	0.03	0.06	0.03	0.06	0.04	0.05	0.03	0.07	0.05	0.10
5/02/2021	0.46	0.06	0.10		0.03	0.07	0.02	0.04	0.03	0.06	0.04	0.08	0.04	0.08	0.03	0.05	0.06	0.08
6/02/2021	0.45	0.07	0.08		0.03	0.07	0.01	0.04	0.03	0.05	0.04	0.07	0.05	0.10	0.04	0.08	0.07	0.11
7/02/2021	0.44	0.06	0.10		0.04	0.05	0.01	0.05	0.03	0.06	0.07	0.09	0.05	0.07	0.04	0.08	0.07	0.11
8/02/2021	0.39	0.05	0.08		0.03	0.08	0.01	0.05	0.03	0.04	0.04	0.07	0.03	0.09	0.03	0.05	0.06	0.11
9/02/2021	0.38	0.02	0.04		0.03	0.07	0.01	0.04	0.02	0.08	0.02	0.05	0.01	0.06	0.03	0.07	0.07	0.09
10/02/2021	0.37	0.03	0.07		0.04	0.06	0.00	0.04	0.02	0.06	0.03	0.07	0.01	0.02	0.03	0.08	0.06	0.11
11/02/2021	0.41	0.03	0.07		0.04	0.08	0.01	0.03	0.02	0.05	0.03	0.08	0.02	0.05	0.03	0.08	0.06	0.11
12/02/2021	0.40	0.03	0.05		0.04	0.09	0.01	0.06	0.03	0.06	0.03	0.07	0.02	0.07	0.04	0.05	0.07	0.18
13/02/2021	0.39	0.03	0.08		0.03	0.06	0.01	0.07	0.02	0.07	0.04	0.07	0.01	0.09	0.03	0.08	0.06	0.22
14/02/2021	0.38	0.04	0.09		0.06	0.17	0.01	0.07	0.02	0.06	0.04	0.09	0.02	0.09	0.04	0.09	0.07	0.12
15/02/2021	0.37	0.03	0.08		0.05	0.10	0.01	0.09	0.02	0.04	0.03	0.08	0.02	0.07	0.04	0.09	0.06	0.12
16/02/2021	0.36	0.03	0.04		0.04	0.09	0.01	0.05	0.02	0.05	0.02	0.05	0.03	0.12	0.03	0.07	0.07	0.09
17/02/2021	0.35	0.03	0.08		0.06	0.08	0.01	0.04	0.02	0.06	0.02	0.05	0.00	0.04	0.03	0.13	0.05	0.11
18/02/2021	0.44	0.02	0.11		0.06	0.43	0.01	0.04	0.03	0.28	0.02	0.28	0.01	0.05	0.02	0.09	0.03	0.10
19/02/2021	0.35	0.03	0.05		0.05	0.11	0.01	0.06	0.03	0.19	0.01	0.05	0.01	0.05	0.03	0.08	0.06	0.08
20/02/2021	0.36	0.03	0.08		0.06	0.11	0.01	0.05	0.01	0.03	0.01	0.05	0.04	1.10	0.03	0.07	0.05	0.10
21/02/2021	0.36	0.03	0.08		0.08	0.10	0.01	0.04	0.02	0.07	0.02	0.05	0.01	0.06	0.05	0.33	0.06	0.19
22/02/2021	0.33	0.04	0.08		0.08	0.12	0.01	0.03	0.02	0.08	0.02	0.06	0.02	0.04	0.02	0.10	0.04	0.08
23/02/2021	0.32	0.06	0.12		0.04	0.15	0.02	0.09	OL	OL	0.02	0.06	0.02	0.11	0.05	0.09	0.03	0.07
24/02/2021	0.33	0.07	0.09		0.02	0.05	0.02	0.05	0.03	0.81	0.01	0.04	0.00	0.03	0.05	0.08	0.02	0.04
25/02/2021	0.33	0.08	0.11		0.01	0.05	0.01	0.05	0.06	0.08	0.01	0.03	0.00	0.04	0.05	0.10	0.02	0.07
26/02/2021	0.33	0.07	0.11		0.01	0.03	0.01	0.05	0.07	0.12	0.01	0.05	0.00	0.00	0.05	0.09	0.02	0.07
27/02/2021	0.32	0.07	0.11		0.02	0.05	0.01	0.03	0.06	0.12	0.01	0.04	0.00	0.03	0.04	0.06	0.02	0.07
28/02/2021	0.32	0.06	0.09		0.01	0.04	0.01	0.04	0.06	0.09	0.01	0.04	0.00	0.03	0.05	0.09	0.02	0.05

Total Number of Measurements Taken, A: 11873      12022      12119      11539      13759      11441      14126      15498  
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: 11873      11999      12119      11536      13759      11433      14124      15498  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      99.809%      100.000%      99.974%      100.000%      99.930%      99.986%      100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\02-February

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)																	
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-Feb-2021		0.47	0.45	0.09	0.07	0.08	0.04	0.07	0.02	0.07	0.03	0.10	0.06	0.09	0.05	0.08	0.02	0.08	0.06
02-Feb-2021		0.47	0.44	0.08	0.06	0.10	0.05	0.08	0.03	0.07	0.04	0.08	0.04	0.11	0.07	0.08	0.03	0.08	0.06
03-Feb-2021		0.49	0.42	0.08	0.07	0.07	0.03	0.07	0.02	0.07	0.04	0.07	0.05	0.08	0.04	0.10	0.07	0.09	0.07
04-Feb-2021		0.48	0.45	0.11	0.09	0.08	0.04	0.07	0.02	0.07	0.04	0.09	0.05	0.08	0.05	0.08	0.02	0.07	0.06
05-Feb-2021		0.49	0.44	0.07	0.07	0.12	0.06	0.08	0.03	0.07	0.03	0.08	0.04	0.10	0.06	0.08	0.03	0.08	0.06
06-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Feb-2021		0.46	0.42	0.08	0.08	0.10	0.06	0.08	0.02	0.07	0.04	0.09	0.04	0.10	0.07	0.08	0.03	0.08	0.07
09-Feb-2021		0.47	0.36	0.07	0.03	0.07	0.04	0.08	0.02	0.08	0.03	0.07	0.03	0.08	0.02	0.10	0.03	0.09	0.06
10-Feb-2021		0.46	0.36	0.10	0.05	0.08	0.04	0.07	<0.02	0.06	0.02	0.09	0.04	0.09	<0.02	0.10	0.04	0.12	0.09
11-Feb-2021		0.45	0.36	0.08	0.03	0.11	0.06	0.08	<0.02	0.08	0.03	OL	OL	0.10	0.03	0.08	0.02	0.08	0.05
12-Feb-2021		0.52	0.41	0.10	0.04	0.09	0.04	OL	OL	0.10	0.04	0.09	0.05	0.09	0.02	0.10	0.03	0.09	0.07
13-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
15-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
16-Feb-2021		0.47	0.35	0.09	0.04	0.09	0.06	0.10	0.02	0.10	0.04	0.08	0.03	0.16	0.06	0.10	0.03	0.10	0.06
17-Feb-2021		0.49	0.34	0.09	0.04	0.08	0.06	0.08	<0.02	0.07	0.03	0.08	0.03	0.08	<0.02	0.12	0.03	0.10	0.07
18-Feb-2021		0.47	0.35	0.11	0.05	0.10	0.08	0.09	<0.02	0.06	0.02	0.30	0.17	0.11	0.02	0.08	<0.02	0.08	0.05
19-Feb-2021		0.43	0.33	0.08	0.03	0.07	0.06	0.11	0.03	0.08	0.03	0.07	0.02	0.08	<0.02	0.10	0.03	0.09	0.06
20-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-Feb-2021		0.46	0.33	0.08	0.03	0.10	0.09	0.07	<0.02	0.06	0.02	0.11	0.04	0.09	<0.02	0.08	0.02	0.07	<0.02
23-Feb-2021		0.50	0.30	0.13	0.05	0.11	0.04	0.13	0.02	OL	OL	0.11	0.03	0.18	0.05	0.14	0.04	0.11	0.03
24-Feb-2021		0.45	0.31	0.08	0.08	0.08	<0.02	0.09	0.03	0.10	0.10	0.08	<0.02	0.11	<0.02	0.10	0.05	0.10	0.02
25-Feb-2021		0.44	0.32	0.08	0.09	0.07	0.02	0.13	0.02	0.07	0.08	0.08	<0.02	0.09	<0.02	0.12	0.06	0.11	0.02
26-Feb-2021		0.43	0.31	0.10	0.10	0.08	0.02	0.07	0.02	0.07	0.08	0.10	0.03	0.09	<0.02	0.08	0.04	0.08	<0.02
27-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Feb-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
<b>Total number of measurements taken, A:</b>				19		19		18		18		19		19		19		19	
<b>Turbidity Standard for Monitoring Location (NTU):</b>				0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
<b>Number of measurements meeting standard, B:</b>				19		19		18		18		18		19		19		19	
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>				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 By: C. Diduck



**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 2021 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
1/03/2021	0.32	0.07	0.10		0.01	0.05	0.01	0.06	0.06	0.11	0.01	0.02	0.00	0.03	0.05	0.09	0.02	0.07
2/03/2021	0.32	0.06	0.10		0.02	0.02	0.01	0.05	0.08	0.10	0.01	0.04	0.00	0.04	0.05	0.09	0.02	0.07
3/03/2021	0.31	0.06	0.10		0.02	0.05	0.01	0.03	0.06	0.10	0.01	0.05	0.02	0.07	0.04	0.06	0.02	0.06
4/03/2021	0.31	0.06	0.08		0.02	0.06	0.01	0.04	0.06	0.10	0.01	0.07	0.05	0.10	0.05	0.08	0.02	0.04
5/03/2021	0.32	OL	OL		0.02	0.05	0.01	0.04	0.06	0.12	0.01	0.04	0.05	0.10	0.05	0.10	0.02	0.07
6/03/2021	0.32	0.05	0.11		0.02	0.03	0.01	0.05	0.07	0.10	0.01	0.06	0.05	0.07	0.05	0.09	0.02	0.11
7/03/2021	0.33	0.06	0.11		0.02	0.05	0.01	0.02	0.06	0.10	0.01	0.05	0.05	0.09	0.05	0.06	0.02	0.08
8/03/2021	0.34	0.07	0.08		0.01	0.05	0.01	0.05	0.07	0.10	0.00	0.05	0.05	0.09	0.05	0.09	0.03	0.05
9/03/2021	0.37	0.06	0.12		0.02	0.05	0.02	0.10	0.07	0.11	0.02	0.11	0.05	0.30	0.05	0.25	0.03	0.20
10/03/2021	0.36	0.07	0.11		0.02	0.06	0.01	0.05	0.07	0.10	0.01	0.09	0.06	0.26	0.04	0.21	0.02	0.17
11/03/2021	0.38	0.07	0.08		0.01	0.04	0.01	0.06	0.06	0.12	0.01	0.05	0.05	0.09	0.05	0.08	0.03	0.16
12/03/2021	0.37	0.07	0.11		0.01	0.06	0.01	0.04	0.07	0.09	0.01	0.03	0.05	0.09	0.05	0.08	0.03	0.07
13/03/2021	0.39	0.07	0.11		0.02	0.05	0.01	0.02	0.06	0.12	0.01	0.05	0.06	0.07	0.04	0.08	0.03	0.07
14/03/2021	0.39	0.07	0.08		0.02	0.05	0.01	0.04	0.07	0.12	0.01	0.05	0.05	0.09	0.05	0.07	0.03	0.04
15/03/2021	0.41	0.07	0.10		0.02	0.05	0.01	0.04	0.07	0.08	0.01	0.03	0.05	0.10	0.04	0.08	0.03	0.16
16/03/2021	0.41	0.06	0.10		0.02	0.03	0.01	0.04	0.07	0.10	0.01	0.04	0.05	0.07	0.04	0.07	0.03	0.06
17/03/2021	0.42	0.06	0.11		0.01	0.04	0.01	0.03	0.06	0.10	0.00	0.05	0.05	0.09	0.05	0.07	0.02	0.07
18/03/2021	0.43	0.07	0.09		0.01	0.05	0.01	0.06	0.07	0.11	0.01	0.02	0.05	0.10	0.05	0.08	0.04	0.07
19/03/2021	0.44	0.07	0.11		0.02	0.03	0.01	0.05	0.07	0.08	0.02	0.04	0.05	0.10	0.04	0.08	0.03	0.12
20/03/2021	0.44	0.07	0.11		0.02	0.05	0.01	0.02	0.06	0.13	0.02	0.06	0.06	0.08	0.04	0.06	0.03	0.09
21/03/2021	0.44	0.08	0.09		0.01	0.04	0.01	0.04	0.06	0.09	0.02	0.04	0.06	0.11	0.05	0.09	0.04	0.07
22/03/2021	0.46	0.07	0.11		0.01	0.02	0.01	0.04	0.07	0.08	0.02	0.05	0.05	0.07	0.05	0.09	0.04	0.13
23/03/2021	0.48	0.07	0.11		0.01	0.04	0.01	0.02	0.06	0.09	0.01	0.05	0.06	0.09	0.04	0.06	0.03	0.08
24/03/2021	0.51	0.07	0.09		0.01	0.04	0.01	0.04	0.06	0.09	0.01	0.03	0.05	0.08	0.05	0.08	0.04	0.06
25/03/2021	0.98	0.04	0.11		0.01	0.04	0.01	0.05	0.05	0.12	0.01	0.12	0.04	0.17	0.03	0.14	0.02	0.14
26/03/2021	0.53	0.06	0.08		0.02	0.04	0.01	0.03	0.05	0.08	0.00	0.04	0.05	0.09	0.05	0.07	0.05	0.07
27/03/2021	0.54	0.08	0.12		0.02	0.05	0.01	0.04	0.03	0.04	0.01	0.03	0.05	0.09	0.04	0.07	0.04	0.08
28/03/2021	0.56	0.07	0.10		0.02	0.03	0.01	0.03	0.03	0.05	0.01	0.04	0.05	0.08	0.04	0.08	0.05	0.09
29/03/2021	0.57	0.06	0.12		0.02	0.05	0.01	0.02	0.03	0.06	0.01	0.06	0.06	0.09	0.05	0.06	0.05	0.08
30/03/2021	0.61	0.09	0.10		0.02	0.06	0.01	0.05	0.03	0.07	0.02	0.04	0.07	0.13	0.05	0.10	0.07	0.12
31/03/2021	0.62	0.08	0.13		0.02	0.05	0.01	0.05	0.04	0.06	0.02	0.06	0.06	0.07	0.05	0.10	0.06	0.14

Total Number of Measurements Taken, A: 12133      13657      13951      13855      14886      14896      15335      16929  
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: 12133      13657      13951      13855      14886      14896      15335      16929  
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 - Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\03-March

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Mar-2021	0.43	0.32	0.08	0.08	0.07	0.02	0.10	0.04	0.07	0.08	0.09	0.02	0.08	<0.02	0.12	0.06	0.10	0.03
02-Mar-2021	0.42	0.30	0.11	0.10	0.08	0.02	0.11	0.02	0.09	0.09	0.10	0.03	0.09	<0.02	0.09	0.04	0.14	0.04
03-Mar-2021	0.46	0.30	0.09	0.06	0.09	0.02	0.08	0.02	0.09	0.09	0.11	0.03	0.11	<0.02	0.10	0.04	0.08	0.02
04-Mar-2021	0.44	0.30	0.08	0.07	OL	OL	0.11	0.03	0.07	0.07	0.08	<0.02	0.14	0.09	0.10	0.05	0.10	0.02
05-Mar-2021	0.44	0.30	OL	OL	0.07	0.02	OL	OL	0.09	0.08	0.08	0.02	0.08	0.06	0.12	0.07	0.10	0.03
06-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Mar-2021	0.45	0.33	0.08	0.07	0.07	0.02	0.09	0.03	0.07	0.08	0.08	0.02	0.11	0.08	0.09	0.05	0.09	0.02
09-Mar-2021	0.43	0.32	0.09	0.08	0.09	0.02	0.08	0.02	0.08	0.08	0.09	0.02	0.09	0.06	0.20	0.12	0.11	0.04
10-Mar-2021	0.45	0.33	0.08	0.08	0.09	0.03	0.08	0.02	0.08	0.09	0.11	0.04	0.10	0.06	0.10	0.04	0.08	<0.02
11-Mar-2021	0.46	0.34	0.07	0.08	OL	OL	0.07	0.02	0.07	0.08	0.09	<0.02	0.14	0.09	0.13	0.05	0.10	0.02
12-Mar-2021	0.45	0.35	0.08	0.09	0.06	<0.02	0.06	<0.02	0.06	0.08	0.08	0.02	0.10	0.06	OL	OL	0.10	0.04
13-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
15-Mar-2021	0.45	0.39	0.08	0.09	0.07	0.02	0.07	<0.02	0.06	0.07	0.08	<0.02	0.08	0.05	0.10	0.05	0.10	0.03
16-Mar-2021	0.47	0.40	0.10	0.09	0.07	0.02	0.08	0.02	0.07	0.08	0.10	0.03	0.09	0.06	0.08	0.04	0.08	0.02
17-Mar-2021	0.51	0.41	0.09	0.08	0.09	0.03	0.07	0.02	0.09	0.10	0.07	<0.02	0.10	0.06	0.08	0.04	0.09	0.02
18-Mar-2021	0.54	0.40	0.08	0.08	0.07	0.02	0.09	0.04	0.06	0.08	0.08	<0.02	0.12	0.04	0.09	0.09	0.09	0.09
19-Mar-2021	0.51	0.42	0.08	0.09	0.08	0.02	0.07	<0.02	0.09	0.07	0.09	0.02	0.11	0.07	0.13	0.04	OL	OL
20-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-Mar-2021	0.52	0.45	0.09	0.09	0.08	0.02	0.06	<0.02	0.07	0.07	0.08	0.03	0.09	0.07	0.09	0.04	0.11	0.06
23-Mar-2021	0.54	0.46	0.09	0.08	0.09	0.03	0.06	<0.02	0.09	0.08	0.08	<0.02	0.10	0.07	0.08	0.04	0.09	0.03
24-Mar-2021	0.58	0.49	0.06	0.08	0.06	0.02	0.09	0.02	0.06	0.07	0.08	<0.02	0.16	0.08	0.10	0.05	0.10	0.04
25-Mar-2021	0.58	0.53	0.09	0.10	0.06	0.02	0.06	<0.02	0.06	0.07	0.08	0.02	0.07	0.06	0.07	0.04	OL	OL
26-Mar-2021	0.59	0.51	0.06	0.08	0.05	0.02	0.08	0.02	0.06	0.08	0.07	<0.02	OL	OL	0.08	0.04	0.07	0.04
27-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Mar-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Mar-2021	0.60	0.53	0.12	0.08	0.08	0.03	0.08	<0.02	0.09	0.05	0.07	<0.02	0.09	0.07	0.08	0.04	0.07	0.05
30-Mar-2021	0.59	0.57	0.08	0.09	0.06	0.02	0.10	0.04	0.07	0.03	0.08	0.03	0.10	0.07	0.13	0.07	0.11	0.07
31-Mar-2021	0.61	0.61	0.11	0.13	0.07	0.03	0.07	<0.02	0.07	0.05	0.10	0.04	0.10	0.07	0.10	0.04	0.15	0.09
<b>Total number of measurements taken, A:</b>			22		21		22		23		23		22		22		21	
<b>Turbidity Standard for Monitoring Location (NTU):</b>			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
<b>Number of measurements meeting standard, B:</b>			22		21		22		23		23		22		22		21	
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>			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: C. Diduck

Report Date: 1-Apr-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

April 2021 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
1/04/2021	0.62	0.07	0.13		0.03	0.06	0.01	0.02	0.03	0.09	0.02	0.09	0.07	0.11	0.05	0.06	0.06	0.15
2/04/2021	0.62	0.08	0.10		0.02	0.06	0.01	0.05	0.03	0.43	0.01	0.06	0.06	0.11	0.05	0.10	0.07	0.14
3/04/2021	0.62	0.08	0.12		0.02	0.03	0.01	0.04	0.03	0.05	0.02	0.04	0.05	0.10	0.04	0.08	0.06	0.12
4/04/2021	0.61	0.08	0.12		0.03	0.06	0.01	0.02	0.03	0.07	0.02	0.06	0.06	0.08	0.04	0.08	0.06	0.17
5/04/2021	0.60	0.07	0.10		0.03	0.06	0.01	0.05	0.03	0.07	0.02	0.07	0.06	0.16	0.05	0.07	0.07	0.08
6/04/2021	0.61	0.09	0.12		0.03	0.04	0.01	0.04	0.04	0.05	0.02	0.04	0.04	0.12	0.05	0.09	0.06	0.13
7/04/2021	0.61	0.08	0.12		0.03	0.06	0.01	0.02	0.03	0.07	0.02	0.26	0.07	0.10	0.04	0.05	0.06	0.12
8/04/2021	0.62	0.04	0.09		0.02	0.05	0.01	0.04	0.02	0.04	0.01	0.05	0.04	0.21	0.04	0.08	0.04	0.09
9/04/2021	0.64	0.00	0.00		0.01	0.03	0.01	0.03	0.02	0.03	0.01	0.05	0.03	0.08	0.03	0.05	0.01	0.06
10/04/2021	0.60	0.00	0.00		0.02	0.05	0.01	0.01	0.02	0.04	0.01	0.04	0.04	0.06	0.03	0.07	0.02	0.06
11/04/2021	0.59	0.00	0.00		0.02	0.05	0.01	0.04	0.02	0.06	0.01	0.06	0.04	0.08	0.04	0.06	0.02	0.03
12/04/2021	0.59	0.00	0.00		0.01	0.02	0.01	0.04	0.02	0.03	0.01	0.03	0.03	0.07	0.03	0.07	0.02	0.06
13/04/2021	0.59	0.00	0.00		0.02	0.02	0.01	0.04	0.02	0.07	0.02	0.05	0.03	0.05	0.03	0.07	0.02	0.06
14/04/2021	0.58	0.00	0.00		0.02	0.05	0.01	0.02	0.02	0.09	0.01	0.05	0.04	0.08	0.03	0.04	0.02	0.05
15/04/2021	0.61	O/L	O/L		0.01	0.05	0.01	0.03	0.01	0.11	0.01	0.06	0.03	0.14	0.03	0.10	0.02	0.08
16/04/2021	0.62	O/L	O/L		0.02	0.05	0.01	0.04	0.02	0.06	0.02	0.05	0.04	0.08	0.03	0.07	0.02	0.05
17/04/2021	0.63	O/L	O/L		0.03	0.05	0.01	0.05	0.02	0.07	0.02	0.06	0.04	0.06	0.03	0.07	0.02	0.07
18/04/2021	0.72	O/L	O/L		0.02	0.06	0.01	0.03	0.02	0.06	0.01	0.05	0.04	0.08	0.03	0.06	0.02	0.06
19/04/2021	0.65	O/L	O/L		0.02	0.06	0.01	0.04	0.02	0.06	0.01	0.05	0.04	0.08	0.03	0.06	0.02	0.05
20/04/2021	0.64	O/L	O/L		0.02	0.04	0.01	0.03	0.02	0.04	0.01	0.04	0.03	0.07	0.03	0.05	0.02	0.14
21/04/2021	0.64	O/L	O/L		0.02	0.04	0.01	0.03	0.02	0.03	0.02	0.04	0.03	0.07	0.03	0.05	0.02	0.04
22/04/2021	0.63	O/L	O/L		0.02	0.10	0.01	0.04	0.03	0.09	0.01	0.12	0.03	0.16	0.04	0.24	0.03	0.22
23/04/2021	0.62	O/L	O/L		0.02	0.04	0.01	0.03	0.02	0.04	0.01	0.09	0.02	0.09	0.03	0.05	0.03	0.06
24/04/2021	0.62	O/L	O/L		0.02	0.04	0.01	0.03	0.02	0.04	0.02	0.04	0.00	0.04	0.03	0.05	0.03	0.05
25/04/2021	0.63	O/L	O/L		0.02	0.04	0.01	0.03	0.02	0.04	0.02	0.09	0.00	0.03	0.03	0.20	0.03	0.05
26/04/2021	0.62	O/L	O/L		0.02	0.04	0.01	0.03	0.02	0.04	0.02	0.05	0.00	0.03	0.03	0.05	0.04	0.06
27/04/2021	0.61	O/L	O/L		0.02	0.05	0.01	0.03	0.02	0.03	0.02	0.04	0.00	0.04	0.03	0.06	0.03	0.05
28/04/2021	0.63	O/L	O/L		0.02	0.05	0.01	0.03	0.03	0.05	0.02	0.04	0.00	0.05	0.03	0.06	0.03	0.05
29/04/2021	0.66	O/L	O/L		0.02	0.05	0.01	0.05	0.02	0.04	0.03	0.09	0.02	0.08	0.03	0.06	0.03	0.05
30/04/2021	0.66	O/L	O/L		0.02	0.04	0.01	0.03	0.02	0.04	0.06	0.10	0.06	0.10	0.03	0.05	0.03	0.07

Total Number of Measurements Taken, A: 3049  
Turbidity Standard for Monitoring Location (NTU): 0.3  
Number of Measurements Meeting Standard, B: 3049  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%  
O/L= Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\04-April

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



		WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																		
Licence No. PWS-09-412-02		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-2021		0.66	0.60	0.07	0.09	0.10	0.05	0.07	0.02	OL	OL	0.08	0.03	0.11	0.08	0.08	0.04	0.08	0.06	
02-Apr-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
03-Apr-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
04-Apr-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
05-Apr-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
06-Apr-2021		0.65	0.56	0.08	0.10	0.07	0.03	0.06	<0.02	0.07	0.04	0.07	0.03	0.09	0.07	0.09	0.05	0.10	0.08	
07-Apr-2021		0.70	0.66	0.06	0.09	0.08	0.04	0.06	<0.02	0.08	0.06	0.08	0.04	0.08	0.07	0.07	0.04	0.07	0.06	
08-Apr-2021		0.66	0.61	0.05	0.08	0.05	0.03	0.08	0.02	0.05	0.03	0.05	0.03	0.08	0.05	0.07	0.04	0.06	0.06	
09-Apr-2021		0.63	0.62	0.07	<0.02	0.06	0.02	0.06	<0.02	0.07	0.02	0.08	<0.02	0.08	0.04	0.06	0.02	OL	OL	
10-Apr-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
11-Apr-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
12-Apr-2021		0.65	0.57	0.06	<0.02	0.06	0.02	0.08	0.02	0.05	0.03	0.06	<0.02	0.06	0.04	0.09	0.04	0.07	0.02	
13-Apr-2021		0.57	0.57	0.07	<0.02	0.05	0.02	0.06	<0.02	0.06	0.03	0.07	0.03	0.07	0.05	0.06	0.02	0.07	<0.02	
14-Apr-2021		0.63	0.57	0.06	<0.02	0.08	0.03	0.06	0.02	0.08	0.04	0.06	0.02	0.08	0.05	0.08	0.02	0.08	<0.02	
15-Apr-2021		0.57	0.58	OL	OL	0.05	0.02	0.08	0.02	0.06	0.02	0.06	0.02	0.06	0.03	OL	0.07	0.03	0.07	<0.02
16-Apr-2021		0.64	0.59	OL	OL	0.08	0.03	0.06	<0.02	0.07	0.03	0.08	0.03	0.07	0.05	0.07	0.02	OL	OL	
17-Apr-2021		NS	NS	OL	OL	NS														
18-Apr-2021		NS	NS	OL	OL	NS														
19-Apr-2021		0.63	0.61	OL	OL	0.08	0.04	0.07	0.02	0.05	0.02	0.06	0.02	0.09	0.06	0.07	0.03	0.06	<0.02	
20-Apr-2021		0.57	0.62	OL	OL	0.05	0.02	0.06	0.02	0.05	0.02	0.05	0.02	0.07	0.05	0.06	0.03	0.06	0.02	
21-Apr-2021		0.58	0.63	OL	OL	0.05	0.02	0.07	0.02	0.05	0.02	0.06	0.02	0.06	0.04	0.07	0.03	0.06	0.02	
22-Apr-2021		0.64	0.60	OL	OL	0.06	0.02	0.06	0.02	0.06	0.03	0.07	0.02	0.06	0.04	OL	OL	0.08	0.03	
23-Apr-2021		0.63	0.60	OL	OL	0.06	0.03	0.06	0.02	0.07	0.04	OL	OL	0.08	0.04	0.06	0.02	0.07	0.02	
24-Apr-2021		NS	NS	OL	OL	NS														
25-Apr-2021		NS	NS	OL	OL	NS														
26-Apr-2021		0.61	0.63	OL	OL	0.07	0.03	0.07	0.03	0.06	0.03	0.06	0.03	0.07	<0.02	0.08	0.03	0.08	0.03	
27-Apr-2021		0.58	0.57	OL	OL	0.06	0.02	0.07	0.03	0.05	0.03	0.08	0.03	0.07	<0.02	0.09	0.03	0.07	0.03	
28-Apr-2021		0.60	0.60	OL	OL	0.06	0.03	0.05	0.02	0.05	0.02	0.07	0.04	0.07	<0.02	0.07	0.03	0.08	0.04	
29-Apr-2021		0.61	0.61	OL	OL	0.06	0.02	0.05	<0.02	0.06	0.03	0.07	0.03	0.06	<0.02	0.06	0.02	OL	OL	
30-Apr-2021		0.57	0.62	OL	OL	0.06	0.03	0.06	0.02	OL	OL	0.05	0.07	0.06	0.07	0.06	0.03	0.05	0.02	
Total number of measurements taken, A:				8			20		20		18		19		19		19		17	
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:				8			20		20		18		19		19		19		17	
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 1 was taken offline for maintenance on April 14th at 4:24pm and remained offline for the rest of the month.

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 6-May-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

May 2021 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	O/L	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/05/2021	0.67	O/L	0.67	O/L	0.02	0.06	0.02	0.04	0.02	0.04	0.06	0.08	0.05	0.12	0.03	0.05	0.03	0.05
2/05/2021	0.68	O/L	0.68	O/L	0.02	0.05	0.01	0.04	0.02	0.05	0.05	0.09	0.05	0.12	0.03	0.05	0.03	0.05
3/05/2021	0.69	O/L	0.69	O/L	0.02	0.05	0.02	0.04	0.02	0.08	0.06	0.08	0.05	0.09	0.03	0.05	0.03	0.05
4/05/2021	0.74	O/L	0.74	O/L	0.02	0.05	0.01	0.05	0.03	0.04	0.06	0.09	0.05	0.14	0.03	0.05	0.03	0.07
5/05/2021	0.70	O/L	0.70	O/L	0.02	0.06	0.01	0.05	0.02	0.06	0.06	0.09	0.05	0.08	0.03	0.05	0.03	0.05
6/05/2021	0.71	O/L	0.71	O/L	0.02	0.05	0.01	0.04	0.03	0.05	0.05	0.09	0.06	0.08	0.03	0.05	0.03	0.05
7/05/2021	0.73	O/L	0.73	O/L	0.02	0.06	0.02	0.04	0.02	0.05	0.05	0.08	0.05	0.08	0.03	0.05	0.02	0.05
8/05/2021	0.71	O/L	0.71	O/L	0.02	0.05	0.02	0.04	0.02	0.05	0.04	0.08	0.05	0.11	0.03	0.05	0.02	0.04
9/05/2021	0.69	O/L	0.69	O/L	0.02	0.06	0.02	0.03	0.02	0.05	0.04	0.07	0.05	0.08	0.03	0.05	0.03	0.06
10/05/2021	0.70	O/L	0.70	O/L	0.02	0.13	0.02	0.04	0.03	0.07	0.05	0.09	0.05	0.09	0.03	0.05	0.02	0.05
11/05/2021	0.71	O/L	0.71	O/L	0.00	0.03	0.02	0.04	0.04	0.06	0.06	0.17	0.05	0.10	0.03	0.05	0.03	0.06
12/05/2021	0.72	O/L	0.72	O/L	0.00	0.04	0.02	0.04	0.04	0.06	0.04	0.08	0.06	0.09	0.04	0.11	0.03	0.05
13/05/2021	0.77	O/L	0.77	O/L	0.00	0.03	0.02	0.03	0.03	0.06	0.03	0.07	0.06	0.10	0.03	0.07	0.02	0.05
14/05/2021	0.81	O/L	0.81	O/L	0.00	0.04	0.02	0.04	0.04	0.07	0.02	0.07	0.06	0.10	0.03	0.05	0.03	0.05
15/05/2021	0.83	O/L	0.83	O/L	0.00	0.04	0.02	0.05	0.04	0.07	0.02	0.06	0.07	0.12	0.04	0.06	0.03	0.06
16/05/2021	0.86	O/L	0.86	O/L	0.00	0.03	0.02	0.04	0.04	0.06	0.02	0.07	0.07	0.16	0.04	0.07	0.03	0.06
17/05/2021	0.88	O/L	0.88	O/L	0.00	0.03	0.03	0.04	0.05	0.07	0.01	0.04	0.06	0.14	0.04	0.08	0.06	0.16
18/05/2021	0.92	O/L	0.92	O/L	0.00	0.02	0.02	0.05	0.05	0.08	0.00	0.03	0.03	0.07	0.04	0.25	0.07	0.11
19/05/2021	0.99	O/L	0.99	O/L	0.00	0.02	0.03	0.06	0.05	0.08	0.00	0.01	0.03	0.15	0.03	0.05	0.06	0.09
20/05/2021	0.99	O/L	0.99	O/L	0.00	0.04	0.03	0.05	0.05	0.08	0.00	0.03	0.03	0.07	0.04	0.06	0.06	0.09
21/05/2021	0.99	O/L	0.99	O/L	0.00	0.03	0.03	0.05	0.06	0.09	0.00	0.00	0.04	1.06	0.03	0.06	0.06	0.09
22/05/2021	1.01	O/L	1.01	O/L	0.00	0.04	0.04	0.07	0.06	0.08	0.00	0.01	0.04	0.08	0.04	0.07	0.05	0.09
23/05/2021	1.08	O/L	1.08	O/L	0.01	0.03	0.04	0.07	0.07	0.10	0.00	0.02	0.03	0.11	0.04	0.07	0.05	0.08
24/05/2021	1.31	O/L	1.31	O/L	0.01	0.03	0.05	0.08	0.06	0.10	0.00	0.00	0.04	0.07	0.04	0.06	0.05	0.08
25/05/2021	1.33	O/L	1.33	O/L	0.01	0.04	0.06	0.08	0.07	0.10	0.00	0.00	0.04	0.08	0.05	0.07	0.05	0.09
26/05/2021	0.77	O/L	0.77	O/L	0.03	0.12	0.03	0.10	0.04	0.08	0.02	0.07	0.01	0.07	0.04	0.10	0.08	0.11
27/05/2021	0.79	O/L	0.79	O/L	0.04	0.16	0.00	0.00	0.02	0.06	0.05	0.09	0.00	0.03	0.04	0.07	0.08	0.12
28/05/2021	0.66	O/L	0.66	O/L	0.05	0.08	0.00	0.01	0.02	0.06	0.05	0.07	0.00	0.05	0.06	0.09	0.08	0.13
29/05/2021	0.66	O/L	0.66	O/L	0.06	0.09	0.00	0.01	0.04	0.06	0.06	0.09	0.00	0.31	0.07	0.11	0.08	0.12
30/05/2021	0.67	O/L	0.67	O/L	0.07	0.14	0.00	0.00	0.04	0.07	0.07	0.11	0.00	0.09	0.10	0.15	0.09	0.12
31/05/2021	0.63	O/L	0.63	O/L	0.09	0.16	0.00	0.00	0.05	0.07	0.09	0.14	0.01	0.04	0.14	0.30	0.09	0.13

Total Number of Measurements Taken, A: 0 13614 12572 14830 12141 14956 16110 17301  
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: 0 13614 12572 14830 12141 14955 16110 17301  
Compliance with Turbidity Standard, C = B/A X 100%: O/L 100.000% 100.000% 100.000% 99.993% 100.000% 100.000%  
O/L= Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\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-09-412-02		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-2021	NS	NS	OL	OL	NS													
	02-May-2021	NS	NS	OL	OL	NS													
	03-May-2021	0.63	0.69	OL	OL	0.06	0.02	0.08	0.02	0.06	0.03	0.06	0.09	0.07	0.06	0.08	0.04	0.07	0.03
	04-May-2021	0.62	0.68	OL	OL	0.05	0.02	0.05	0.02	0.06	0.03	0.06	0.08	0.06	0.06	0.06	0.03	0.07	0.03
	05-May-2021	0.59	0.68	OL	OL	0.06	0.02	0.05	0.02	0.06	0.03	0.07	0.08	0.06	0.06	0.06	0.02	0.07	0.03
	06-May-2021	0.65	0.68	OL	OL	0.06	0.03	0.06	0.02	0.06	0.04	0.07	0.08	0.07	0.07	0.07	0.03	0.06	0.03
	07-May-2021	0.58	0.69	OL	OL	0.06	0.03	0.06	0.02	0.05	0.03	0.06	0.06	0.07	0.07	0.06	0.02	0.06	0.02
	08-May-2021	NS	NS	OL	OL	NS													
	09-May-2021	NS	NS	OL	OL	NS													
	10-May-2021	0.61	0.68	OL	OL	0.05	0.03	0.05	0.02	0.05	0.04	0.06	0.06	0.06	0.06	0.07	0.03	0.07	0.02
	11-May-2021	0.60	0.70	OL	OL	0.05	<0.02	0.05	0.02	0.05	0.04	0.06	0.06	0.06	0.06	0.08	0.02	0.07	0.03
	12-May-2021	0.60	0.70	OL	OL	0.05	<0.02	0.05	0.03	0.05	0.05	0.07	0.08	0.06	0.08	0.06	0.03	0.05	0.02
	13-May-2021	0.68	0.75	OL	OL	0.06	<0.02	0.07	0.02	0.08	0.05	0.06	0.04	0.07	0.07	0.03	0.07	0.02	0.02
	14-May-2021	0.65	0.78	OL	OL	0.06	<0.02	0.05	0.03	0.06	0.05	0.05	0.03	0.07	0.07	0.06	0.03	0.08	0.02
	15-May-2021	NS	NS	OL	OL	NS													
	16-May-2021	NS	NS	OL	OL	NS													
	17-May-2021	0.67	0.83	OL	OL	0.07	<0.02	0.05	0.03	0.07	0.06	0.06	<0.02	0.07	0.09	0.06	0.04	0.06	0.15
	18-May-2021	0.96	0.87	OL	OL	0.09	<0.02	0.09	0.03	0.07	0.05	0.10	<0.02	0.10	0.03	0.11	0.04	0.09	0.07
	19-May-2021	0.73	0.97	OL	OL	0.06	<0.02	0.08	0.04	0.06	0.06	0.07	<0.02	0.08	0.04	0.08	0.03	0.07	0.06
	20-May-2021	0.56	0.94	OL	OL	0.07	<0.02	0.07	0.04	0.05	0.06	0.07	<0.02	0.09	0.04	0.07	0.04	0.09	0.06
	21-May-2021	0.65	0.96	OL	OL	0.08	<0.02	0.06	0.04	0.06	0.07	0.07	<0.02	0.08	0.04	0.08	0.04	0.09	0.06
	22-May-2021	NS	NS	OL	OL	NS													
	23-May-2021	NS	NS	OL	OL	NS													
	24-May-2021	NS	NS	OL	OL	NS													
	25-May-2021	0.73	IM	OL	OL	0.08	<0.02	0.06	0.07	0.07	0.09	0.07	<0.02	0.09	0.05	0.09	0.04	0.07	0.05
	26-May-2021	0.66	0.74	OL	OL	0.07	0.02	0.06	0.08	0.05	<0.02	0.07	0.05	0.07	<0.02	0.08	0.03	0.08	0.08
	27-May-2021	0.63	0.68	OL	OL	0.07	0.05	0.07	<0.02	0.06	0.03	0.08	0.06	0.08	<0.02	0.09	0.04	0.08	0.09
	28-May-2021	0.63	0.63	OL	OL	0.07	0.05	0.07	<0.02	0.07	0.03	0.09	0.07	0.09	<0.02	0.09	0.06	0.09	0.09
	29-May-2021	NS	NS	OL	OL	NS													
	30-May-2021	NS	NS	OL	OL	NS													
	31-May-2021	0.60	0.61	OL	OL	0.07	0.11	0.07	<0.02	0.06	0.06	0.07	0.10	0.10	<0.02	0.08	0.13	0.07	0.09
Total number of measurements taken, A:		0		20		20		20		20		20		20		20		20	
Turbidity Standard for Monitoring Location (NTU):		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:		0		20		20		20		20		20		20		20		20	
Compliance with Turbidity Standard, C=B/A X 100%:		OL		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 1 was taken offline for maintenance on April 14th at 4:24 pm and has remained offline.

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 3-Jun-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

June 2021 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	O/L	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/06/2021	0.61	O/L	0.61	O/L	0.06	0.14	0.00	0.02	0.02	0.09	0.07	0.15	0.01	0.17	0.10	0.19	0.07	0.15
2/06/2021	0.69	O/L	0.69	O/L	0.01	0.06	0.00	0.04	0.00	0.06	0.02	0.11	0.01	0.13	0.04	0.12	0.04	0.11
3/06/2021	0.55	O/L	0.55	O/L	0.01	0.03	0.00	0.17	0.00	0.02	0.02	0.05	0.01	0.07	0.05	0.15	0.04	0.06
4/06/2021	0.54	O/L	0.54	O/L	0.01	0.04	0.00	0.01	0.01	0.03	0.02	0.08	0.01	0.07	0.05	0.09	0.04	0.08
5/06/2021	0.50	O/L	0.50	O/L	0.01	0.05	0.00	0.02	0.01	0.03	0.02	0.05	0.02	0.07	0.05	0.09	0.03	0.06
6/06/2021	0.55	O/L	0.55	O/L	0.01	0.05	0.00	0.02	0.01	0.02	0.02	0.05	0.02	0.07	0.06	0.08	0.03	0.07
7/06/2021	0.58	O/L	0.58	O/L	0.02	0.08	0.00	0.04	0.02	0.03	0.02	0.04	0.04	0.07	0.06	0.09	0.03	0.07
8/06/2021	0.74	O/L	0.74	O/L	0.02	0.10	0.00	0.03	0.02	0.04	0.01	0.05	0.06	0.09	0.07	0.10	0.03	0.06
9/06/2021	1.46	O/L	1.46	O/L	0.02	0.13	0.00	0.03	0.02	0.05	0.02	0.06	0.10	0.17	0.07	0.11	0.03	0.08
10/06/2021	1.31	O/L	1.31	O/L	0.02	0.06	0.00	0.03	0.02	0.04	0.02	0.04	0.15	0.23	0.09	0.12	0.03	0.06
11/06/2021	0.90	O/L	0.90	O/L	0.03	0.18	0.00	0.04	0.02	0.05	0.03	0.05	0.10	0.26	0.06	0.18	0.01	0.04
12/06/2021	0.85	O/L	0.85	O/L	0.03	0.13	0.01	0.04	0.02	0.05	0.03	0.06	0.03	0.05	0.03	0.09	0.01	0.03
13/06/2021	0.92	O/L	0.92	O/L	0.04	0.13	0.01	0.05	0.03	0.06	0.04	0.08	0.04	0.07	0.04	0.07	0.01	0.03
14/06/2021	1.25	O/L	1.25	O/L	0.04	0.08	0.01	0.05	0.04	0.05	0.06	0.15	0.04	0.07	0.04	0.07	0.01	0.05
15/06/2021	1.40	O/L	1.40	O/L	0.05	0.10	0.02	0.05	0.04	0.08	0.06	0.11	0.05	0.11	0.05	0.14	0.01	0.03
16/06/2021	1.03	O/L	1.03	O/L	0.04	0.11	0.01	0.04	0.05	0.07	0.04	0.09	0.05	0.12	0.06	0.19	0.01	0.07
17/06/2021	0.88	O/L	0.88	O/L	0.02	0.14	0.00	0.03	0.05	0.07	0.04	0.10	0.06	0.11	0.08	0.38	0.01	0.03
18/06/2021	0.95	O/L	0.95	O/L	0.02	0.05	0.00	0.04	0.05	0.08	0.04	0.08	0.09	0.13	0.10	0.17	0.02	0.08
19/06/2021	0.98	O/L	0.98	O/L	0.02	0.05	0.00	0.04	0.05	0.08	0.04	0.08	0.05	0.13	0.06	0.13	0.01	0.05
20/06/2021	0.96	O/L	0.96	O/L	0.02	0.06	0.00	0.04	0.05	0.09	0.06	0.08	0.01	0.05	0.03	0.19	0.01	0.04
21/06/2021	0.97	O/L	0.97	O/L	0.02	0.05	0.00	0.04	0.05	0.08	0.07	0.10	0.02	0.07	0.02	0.05	0.02	0.05
22/06/2021	0.98	O/L	0.98	O/L	0.03	0.10	0.00	0.04	0.05	0.08	0.08	0.22	0.03	0.07	0.01	0.08	0.03	0.07
23/06/2021	1.01	O/L	1.01	O/L	0.03	0.06	0.00	0.03	0.05	0.08	0.09	0.19	0.03	0.15	0.03	0.08	0.03	0.07
24/06/2021	0.99	O/L	0.99	O/L	0.03	0.10	0.00	0.19	0.05	0.08	0.12	0.19	0.03	0.08	0.03	0.08	0.03	0.07
25/06/2021	0.99	O/L	0.99	O/L	0.03	0.08	0.00	0.04	0.05	0.09	0.08	0.22	0.03	0.09	0.03	0.17	0.04	0.07
26/06/2021	0.98	O/L	0.98	O/L	0.04	0.07	0.00	0.04	0.05	0.08	0.04	0.09	0.05	0.11	0.04	0.11	0.05	0.09
27/06/2021	1.01	O/L	1.01	O/L	0.04	0.22	0.00	0.04	0.05	0.07	0.04	0.07	0.08	0.14	0.05	0.23	0.06	0.44
28/06/2021	1.02	O/L	1.02	O/L	0.06	0.12	0.01	0.05	0.06	0.09	0.04	0.16	0.11	0.20	0.07	0.12	0.09	0.13
29/06/2021	1.03	O/L	1.03	O/L	0.07	0.10	0.01	0.03	0.04	0.11	0.03	0.09	0.04	0.13	0.04	0.17	0.06	1.32
30/06/2021	1.06	O/L	1.06	O/L	0.09	0.36	0.00	0.04	0.02	0.06	0.02	0.28	0.00	0.05	0.01	0.17	0.01	0.04

Total Number of Measurements Taken, A: 0 15102 8630 14829 15768 15600 14902 16337  
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: 0 15101 8630 14829 15768 15600 14901 16335  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000% 99.993% 100.000% 100.000% 100.000% 99.993% 99.988%

O/L - Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\06-June

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



		WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																	
Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02		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-2021		0.60	0.58	OL	OL	0.07	0.14	0.06	<0.02	0.07	0.08	0.07	0.13	0.07	0.02	0.08	0.18	0.07	0.10
02-Jun-2021		0.60	0.63	OL	OL	0.06	0.02	0.08	<0.02	0.08	<0.02	0.07	0.05	0.08	<0.02	0.08	0.05	0.07	0.04
03-Jun-2021		0.58	0.51	OL	OL	0.06	<0.02	0.07	<0.02	0.06	<0.02	0.07	0.03	0.08	<0.02	0.08	0.05	0.07	0.04
04-Jun-2021		0.54	0.51	OL	OL	0.07	<0.02	0.07	<0.02	0.07	0.02	0.07	0.03	0.07	<0.02	0.06	0.04	0.09	0.05
05-Jun-2021		NS	NS	OL	OL	NS													
06-Jun-2021		NS	NS	OL	OL	NS													
07-Jun-2021		0.57	0.55	OL	OL	0.08	0.02	0.07	<0.02	0.08	0.02	0.07	0.02	0.08	0.05	0.09	0.07	0.08	0.03
08-Jun-2021		0.55	0.64	OL	OL	0.07	0.02	0.07	<0.02	0.07	0.02	0.07	0.02	0.07	0.06	0.10	0.08	0.07	0.03
09-Jun-2021		0.54	1.20	OL	OL	0.08	0.02	0.08	<0.02	0.08	0.02	0.08	0.02	0.07	0.11	0.09	0.10	0.08	0.03
10-Jun-2021		0.53	0.54	OL	OL	0.08	0.03	0.10	<0.02	0.10	0.04	0.08	0.03	0.08	0.19	0.09	0.10	0.09	0.03
11-Jun-2021		0.53	0.70	OL	OL	0.08	0.03	0.09	0.02	0.07	0.02	0.08	0.03	0.08	0.26	0.08	0.10	0.10	<0.02
12-Jun-2021		NS	NS	OL	OL	NS													
13-Jun-2021		NS	NS	OL	OL	NS													
14-Jun-2021		0.68	1.23	OL	OL	0.10	0.07	0.09	<0.02	0.09	0.04	0.09	0.07	0.11	0.06	0.10	0.04	0.08	<0.02
15-Jun-2021		0.66	0.81	OL	OL	0.10	0.06	0.09	0.02	0.10	0.05	0.09	0.09	0.10	0.06	0.10	0.06	0.10	<0.02
16-Jun-2021		0.69	1.26	OL	OL	0.09	0.07	0.09	0.02	0.09	0.06	0.08	0.04	0.08	0.05	0.09	0.06	0.09	<0.02
17-Jun-2021		0.79	0.80	OL	OL	0.10	0.02	0.09	<0.02	0.10	0.06	0.09	0.05	0.08	0.07	0.10	0.08	0.09	<0.02
18-Jun-2021		0.65	0.88	OL	OL	0.10	0.02	0.10	<0.02	0.10	0.07	0.09	0.07	0.09	0.10	0.09	0.09	0.10	0.02
19-Jun-2021		NS	NS	OL	OL	NS													
20-Jun-2021		NS	NS	OL	OL	NS													
21-Jun-2021		0.80	0.95	OL	OL	0.09	0.03	0.10	<0.02	0.08	0.05	0.09	0.08	0.10	0.02	0.10	0.02	0.11	0.02
22-Jun-2021		0.80	0.91	OL	OL	0.10	0.03	0.11	<0.02	0.08	0.05	0.11	0.11	0.10	0.04	0.10	<0.02	0.12	0.03
23-Jun-2021		0.69	1.12	OL	OL	0.10	0.03	0.10	<0.02	0.08	0.06	0.12	0.13	0.11	0.04	0.10	0.03	0.09	0.02
24-Jun-2021		0.89	0.93	OL	OL	0.10	0.05	0.11	0.03	0.08	0.05	0.10	0.15	0.10	0.03	0.09	0.02	0.09	0.03
25-Jun-2021		0.78	0.94	OL	OL	0.12	0.06	0.09	<0.02	0.09	0.06	0.11	0.20	0.10	0.05	0.10	0.03	0.08	0.03
26-Jun-2021		NS	NS	OL	OL	NS													
27-Jun-2021		NS	NS	OL	OL	NS													
28-Jun-2021		0.80	1.08	OL	OL	0.10	0.06	0.10	<0.02	0.09	0.06	0.10	0.04	0.12	0.12	0.11	0.07	0.10	0.09
29-Jun-2021		0.81	0.96	OL	OL	0.10	0.09	0.11	0.02	0.11	0.09	0.08	0.05	0.10	0.10	0.08	0.11	0.09	0.12
30-Jun-2021		0.80	0.96	OL	OL	0.08	0.09	0.08	<0.02	0.08	0.03	0.08	0.03	0.08	<0.02	0.09	<0.02	0.07	<0.02
Total number of measurements taken, A:			0			22		22		22		22		22		22		22	
Turbidity Standard for Monitoring Location (NTU):			0.30			0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			0			22		22		22		22		22		22		22	
Compliance with Turbidity Standard, C=B/A X 100%:			OL			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 taken offline for maintenance on April 14th at 4:24pm and has remained offline.

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 5-Jul-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

July 2021 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	O/L	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/07/2021	1.21	O/L	0.1	0.1	0.09	0.29	0.00	0.31	0.01	0.03	0.01	0.04	0.01	0.11	0.01	0.10	0.01	0.05
2/07/2021	2.09	O/L	O/L	O/L	0.03	0.07	0.01	0.03	0.01	0.03	0.00	0.05	0.00	0.05	0.01	0.05	0.01	0.03
3/07/2021	1.32	O/L	O/L	O/L	0.02	0.06	0.00	0.02	0.00	0.02	0.00	0.15	0.00	0.02	0.01	0.11	0.01	0.13
4/07/2021	1.22	O/L	O/L	O/L	0.02	0.23	0.00	0.02	0.00	0.03	0.00	0.05	0.01	0.04	0.01	0.12	0.00	0.01
5/07/2021	1.21	O/L	O/L	O/L	0.02	0.06	0.00	0.03	0.01	0.03	0.00	0.13	0.01	0.04	0.02	0.10	0.02	0.07
6/07/2021	1.35	O/L	O/L	O/L	0.02	0.06	0.01	0.02	0.01	0.03	0.00	0.05	0.01	0.06	0.02	0.07	0.04	0.07
7/07/2021	1.27	O/L	O/L	O/L	0.03	0.09	0.01	0.03	0.01	0.03	0.02	0.08	0.02	0.09	0.04	0.08	0.04	0.09
8/07/2021	1.95	O/L	O/L	O/L	0.04	0.17	0.01	0.04	0.01	0.05	0.06	0.11	0.02	0.08	0.07	0.14	0.04	0.08
9/07/2021	3.06	O/L	O/L	O/L	0.06	0.11	0.03	0.11	0.03	0.07	0.09	0.13	0.03	0.10	0.10	0.17	0.05	0.09
10/07/2021	1.38	O/L	O/L	O/L	0.06	0.09	0.03	0.08	0.04	0.08	0.08	0.13	0.04	0.09	0.09	0.21	0.05	0.11
11/07/2021	1.61	O/L	O/L	O/L	0.06	0.11	0.03	0.07	0.03	0.06	0.06	0.20	0.04	0.10	0.08	0.14	0.05	0.23
12/07/2021	1.45	O/L	O/L	O/L	0.05	0.11	0.03	0.17	0.03	0.06	0.07	0.21	0.05	0.08	0.08	0.17	0.05	0.16
13/07/2021	1.23	0.01	0.22	O/L	0.05	0.10	0.03	0.07	0.04	0.07	0.07	0.30	0.06	0.10	0.08	0.15	0.05	0.10
14/07/2021	2.01	0.01	0.05	O/L	0.05	0.12	0.03	0.07	0.03	0.06	0.07	0.13	0.07	0.26	0.07	0.10	0.05	0.12
15/07/2021	1.54	0.02	0.06	O/L	0.06	0.12	0.03	0.11	0.04	0.07	0.07	0.11	0.07	0.12	0.08	0.13	0.05	0.11
16/07/2021	1.45	0.02	0.05	O/L	0.06	0.11	0.04	0.09	0.04	0.08	0.08	0.12	0.07	0.24	0.08	0.15	0.06	0.16
17/07/2021	1.68	0.02	0.05	O/L	0.06	0.10	0.03	0.09	0.04	0.08	0.07	0.12	0.07	0.12	0.08	0.14	0.06	0.13
18/07/2021	2.30	0.02	0.04	O/L	0.06	0.11	0.03	0.05	0.04	0.07	0.07	0.12	0.07	0.12	0.08	0.14	0.06	0.11
19/07/2021	1.70	0.02	0.06	O/L	0.06	0.14	0.03	0.10	0.05	0.08	0.08	0.10	0.08	0.13	0.08	0.18	0.06	0.10
20/07/2021	2.18	0.02	0.04	O/L	0.06	0.14	0.03	0.09	0.05	0.10	0.08	0.13	0.08	0.15	0.09	0.17	0.07	0.12
21/07/2021	1.81	0.02	0.07	O/L	0.06	0.12	0.03	0.06	0.06	0.10	0.08	0.12	0.11	0.12	0.09	0.12	0.07	0.14
22/07/2021	1.74	0.02	0.10	O/L	0.05	0.15	0.03	0.05	0.06	0.10	0.08	0.13	0.10	0.16	0.10	0.16	0.09	0.13
23/07/2021	1.71	0.02	0.06	O/L	0.05	0.20	0.03	0.05	0.07	0.09	0.10	0.22	0.11	0.18	0.10	0.15	0.07	0.14
24/07/2021	2.39	0.02	0.08	O/L	0.08	0.12	0.03	0.09	0.07	0.11	0.10	0.13	0.13	0.17	0.11	0.18	0.08	0.27
25/07/2021	2.49	0.03	0.05	O/L	0.09	0.13	0.05	0.10	0.09	0.13	0.12	0.17	0.15	0.21	0.14	0.16	0.10	0.19
26/07/2021	2.21	0.04	0.11	O/L	0.07	0.15	0.05	0.11	0.08	0.12	0.08	0.15	0.08	0.24	0.08	0.21	0.09	0.21
27/07/2021	2.41	0.04	0.09	O/L	0.04	0.09	0.06	0.14	0.06	0.11	0.04	0.08	0.03	0.09	0.05	0.13	0.05	0.25
28/07/2021	2.37	0.03	0.07	O/L	0.05	0.10	0.05	0.14	0.07	0.11	0.04	0.55	0.03	0.30	0.05	0.10	0.05	0.20
29/07/2021	2.38	0.04	0.14	O/L	0.05	0.11	0.05	0.11	0.06	0.09	0.04	0.10	0.03	1.38	0.05	0.10	0.05	0.31
30/07/2021	3.12	0.03	0.07	O/L	0.04	0.07	0.05	0.10	0.06	0.09	0.03	0.07	0.02	0.08	0.04	0.09	0.05	0.13
31/07/2021	2.30	0.04	0.07	O/L	0.05	0.09	0.05	0.10	0.07	0.09	0.04	0.10	0.03	0.08	0.05	0.12	0.05	0.15

Total Number of Measurements Taken, A: 8308      16053      14045      16124      14898      16105      16089      16778  
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: 8308      16053      14044      16124      14897      16104      16089      16777  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      99.993%      100.000%      99.993%      99.994%      100.000%      99.994%

O/L - Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\07-July

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02		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-2021	NS	NS	OL	OL	NS													
	02-Jul-2021	0.85	1.03	OL	OL	0.07	0.03	0.08	0.02	0.06	<0.02	0.08	0.02	0.08	<0.02	0.07	<0.02	0.09	<0.02
	03-Jul-2021	NS	NS	OL	OL	NS													
	04-Jul-2021	NS	NS	OL	OL	NS													
	05-Jul-2021	1.13	1.25	OL	OL	0.06	0.02	0.07	<0.02	0.06	<0.02	0.07	<0.02	0.08	0.02	0.07	<0.02	0.09	IM
	06-Jul-2021	0.92	1.07	OL	OL	0.08	0.03	0.09	<0.02	0.07	0.02	0.08	<0.02	0.08	0.02	0.09	<0.02	0.09	0.04
	07-Jul-2021	1.04	1.12	OL	OL	0.08	0.04	0.07	0.02	0.08	0.02	0.07	0.04	0.07	<0.02	0.07	0.03	0.07	0.04
	08-Jul-2021	0.89	1.58	OL	OL	0.08	0.03	0.08	0.02	0.09	0.02	0.08	0.04	0.09	0.02	0.09	0.04	0.10	0.05
	09-Jul-2021	1.05	5.57	OL	OL	0.09	0.07	0.10	0.02	0.13	0.07	0.09	0.10	0.08	0.03	0.08	0.10	0.12	0.07
	10-Jul-2021	NS	NS	OL	OL	NS													
	11-Jul-2021	NS	NS	OL	OL	NS													
	12-Jul-2021	1.07	1.12	OL	OL	0.09	0.06	0.11	0.06	0.07	0.04	0.08	0.09	0.09	0.06	0.08	0.08	0.10	0.05
	13-Jul-2021	1.06	1.17	0.10	0.07	0.10	0.07	0.09	0.04	0.07	0.04	0.08	0.09	0.09	0.07	0.07	0.07	0.07	0.04
	14-Jul-2021	1.10	1.39	0.07	0.02	0.09	0.07	0.09	0.04	0.07	0.04	0.10	0.12	0.08	0.07	0.07	0.07	0.06	0.04
	15-Jul-2021	1.10	1.32	0.07	0.02	0.12	0.08	0.09	0.03	0.08	0.04	0.09	0.10	0.10	0.09	0.10	0.08	0.08	0.05
	16-Jul-2021	1.23	1.37	0.10	0.04	0.12	0.08	0.09	0.04	0.10	0.05	0.09	0.10	0.15	0.12	0.12	0.10	0.11	0.07
	17-Jul-2021	NS	NS	0.08	0.02	NS													
	18-Jul-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	19-Jul-2021	1.32	1.59	0.08	0.02	0.11	0.06	0.11	0.05	0.11	0.05	0.08	0.08	0.10	0.09	0.10	0.09	0.10	0.07
	20-Jul-2021	1.29	1.77	0.09	0.02	0.11	0.07	0.13	0.06	0.10	0.06	0.09	0.09	0.10	0.11	0.09	0.08	0.13	0.10
	21-Jul-2021	1.39	1.75	0.11	0.03	0.11	0.08	0.09	0.03	0.08	0.06	0.11	0.11	0.10	0.11	0.10	0.09	0.10	0.08
	22-Jul-2021	1.26	1.87	0.10	0.04	0.10	0.07	0.10	0.03	0.10	0.07	0.11	0.11	0.15	0.15	0.12	0.11	0.11	0.09
	23-Jul-2021	1.28	1.94	0.08	0.02	0.09	0.07	0.11	0.04	0.09	0.07	0.09	0.11	0.10	0.13	0.10	0.10	0.12	0.09
	24-Jul-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	25-Jul-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	26-Jul-2021	1.38	2.05	0.12	0.05	0.12	0.06	0.11	0.06	0.11	0.11	0.15	0.16	0.22	0.13	0.15	0.12	0.12	0.12
	27-Jul-2021	1.57	2.18	0.11	0.04	0.10	0.04	0.11	0.06	0.10	0.07	0.10	0.05	0.14	0.06	0.15	0.08	0.12	0.07
	28-Jul-2021	1.52	1.94	0.12	0.04	0.11	0.05	0.11	0.08	0.11	0.07	0.10	0.04	0.11	0.03	0.14	0.06	0.17	0.10
	29-Jul-2021	1.86	2.30	0.10	0.04	0.10	0.06	0.13	0.08	0.10	0.07	0.10	0.05	0.11	0.03	0.10	0.04	0.12	0.07
	30-Jul-2021	1.68	2.22	0.11	0.05	0.11	0.06	0.12	0.07	0.10	0.08	0.11	0.07	0.08	0.03	0.08	0.04	0.08	0.04
	31-Jul-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:		15		21		21		21		21		21		21		21		21	
Turbidity Standard for Monitoring Location (NTU):		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:		15		21		21		21		21		21		21		21		21	
Compliance with Turbidity Standard, C=B/A X 100%:		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:

Note: The rawwater analyser is cleaned daily during warm water months because it is susceptible to frequent fouling

Filter 1 was taken offline for maintenance on April 14th at 4:24pm and remained offline until July 13th at 6:16pm.

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 6-Aug-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

August 2021 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
1/08/2021	3.19	0.04	0.09		0.05	0.09	0.06	0.09	0.07	0.11	0.05	0.10	0.03	0.15	0.06	0.10	0.06	0.12
2/08/2021	2.38	0.05	0.13		0.06	0.12	0.06	0.11	0.07	0.14	0.05	0.09	0.04	0.12	0.06	0.14	0.06	0.16
3/08/2021	2.13	0.04	0.10		0.05	0.10	0.05	0.11	0.06	0.11	0.04	0.09	0.03	0.08	0.05	0.09	0.06	0.10
4/08/2021	2.55	0.04	0.08		0.05	0.09	0.05	0.10	0.06	0.11	0.04	0.21	0.03	0.08	0.05	0.08	0.05	0.40
5/08/2021	1.93	0.04	0.09		0.05	0.10	0.06	0.08	0.06	0.11	0.04	0.10	0.04	0.14	0.06	0.12	0.06	0.12
6/08/2021	2.27	0.05	0.10		0.05	0.08	0.06	0.10	0.07	0.12	0.06	0.08	0.04	0.10	0.07	0.12	0.05	0.09
7/08/2021	1.81	0.06	0.17		0.07	0.10	0.06	0.10	0.07	0.16	0.06	0.10	0.05	0.09	0.07	0.18	0.04	0.09
8/08/2021	2.37	0.08	0.18		0.07	0.13	0.08	0.11	0.08	0.12	0.07	0.27	0.05	0.17	0.08	0.13	0.04	0.13
9/08/2021	2.41	0.07	0.19		0.07	0.12	0.07	0.11	0.10	0.15	0.07	0.14	0.05	0.12	0.08	0.17	0.05	0.10
10/08/2021	2.52	0.03	0.17		0.07	0.11	0.07	0.11	0.09	0.15	0.06	0.12	0.04	0.14	0.07	0.13	0.05	0.09
11/08/2021	3.00	OL	OL		0.07	0.12	0.07	0.13	0.09	0.17	0.07	0.15	0.05	0.10	0.08	0.15	0.05	0.11
12/08/2021	2.31	0.04	0.22		0.06	0.28	0.07	0.32	0.07	0.31	0.07	0.28	0.05	0.21	0.07	0.20	0.04	0.25
13/08/2021	2.34	0.15	0.21		0.09	0.17	0.08	0.15	0.12	0.17	0.09	0.30	0.07	0.11	0.09	0.21	0.06	0.11
14/08/2021	2.36	0.13	0.17		0.07	0.13	0.07	0.13	0.10	0.15	0.09	0.15	OL	OL	0.08	0.16	0.05	0.11
15/08/2021	2.17	0.12	0.17		0.06	0.11	0.06	0.11	0.10	0.16	0.08	0.12	OL	OL	0.07	0.14	0.04	0.14
16/08/2021	2.26	0.12	0.18		0.07	0.13	0.07	0.14	0.12	0.16	0.10	0.26	OL	OL	0.09	0.14	0.05	0.11
17/08/2021	2.33	0.13	0.17		0.07	0.13	0.07	0.16	0.12	0.21	0.12	0.17	OL	OL	0.09	0.15	0.05	0.08
18/08/2021	2.01	0.12	0.18		0.08	0.14	0.07	0.14	0.14	0.21	0.13	0.19	OL	OL	0.09	0.18	0.05	0.09
19/08/2021	2.04	0.07	0.19		0.09	0.14	0.08	0.16	0.12	0.24	0.11	0.17	OL	OL	0.08	0.15	0.05	0.12
20/08/2021	2.20	0.04	0.10		0.08	0.15	0.08	0.13	0.10	0.16	0.09	0.13	OL	OL	0.07	0.14	0.04	0.10
21/08/2021	2.02	0.03	0.08		0.06	0.13	0.06	0.10	0.09	0.13	0.09	0.16	OL	OL	0.07	0.10	0.03	0.11
22/08/2021	2.02	0.02	0.06		0.06	0.11	0.06	0.13	0.09	0.16	0.11	0.13	OL	OL	0.06	0.13	0.03	0.08
23/08/2021	1.96	0.02	0.07		0.06	0.08	0.06	0.13	0.10	0.18	0.14	0.16	OL	OL	0.06	0.12	0.04	0.07
24/08/2021	1.70	0.03	0.20		0.07	0.24	0.03	0.18	0.12	0.31	0.13	0.34	OL	OL	0.06	0.20	0.04	0.24
25/08/2021	1.69	0.03	0.10		0.05	0.17	0.07	0.18	0.11	0.24	0.15	0.24	0.07	0.15	0.04	0.16	0.04	0.11
26/08/2021	1.62	0.02	0.16		0.08	0.14	0.06	0.18	0.08	0.16	0.11	0.25	0.04	0.17	0.06	0.14	0.03	0.16
27/08/2021	1.59	0.04	0.05		0.07	0.19	0.06	0.15	0.04	0.14	0.06	0.18	0.06	0.10	0.09	0.16	0.03	0.14
28/08/2021	1.53	0.03	0.13		0.07	0.17	0.05	0.30	0.04	0.14	0.05	0.18	0.08	0.18	0.07	0.19	0.03	0.06
29/08/2021	1.44	0.03	0.12		0.06	0.10	0.09	0.18	0.04	0.15	0.06	0.09	0.06	0.17	0.08	0.18	0.03	0.15
30/08/2021	1.33	0.02	0.10		0.10	0.20	0.06	0.19	0.05	0.11	0.06	0.19	0.08	0.19	0.07	0.21	0.03	0.13
31/08/2021	1.45	0.03	0.04		0.08	0.21	0.07	0.19	0.07	0.17	0.05	0.19	0.08	0.22	0.11	0.13	0.03	0.13

Total Number of Measurements Taken, A: 12639      14240      13667      14757      15273      9681      14977      15980  
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: 12639      14240      13666      14755      15272      9681      14977      15979  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      99.993%      99.986%      99.993%      100.000%      100.000%      99.994%

OL=Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\08-August

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252 00		Turbidity (NTU)																	
Licence No. PWS-09-412-02		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-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	02-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	03-Aug-2021	1.70	209	011	0.06	013	0.08	014	005	010	0.07	008	0.05	010	004	011	005	009	006
	04-Aug-2021	1.63	218	013	0.07	009	0.05	009	006	011	0.09	008	0.05	009	004	008	0.04	009	005
	05-Aug-2021	2.30	214	009	0.05	010	0.05	010	006	013	010	010	0.05	011	006	010	0.06	015	011
	06-Aug-2021	207	212	010	0.06	010	0.06	011	007	009	0.07	008	0.05	014	008	012	0.08	009	0.03
	07-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	08-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09-Aug-2021	1.87	232	015	0.09	017	010	012	007	013	010	012	012	014	006	012	007	011	004
	10-Aug-2021	1.74	249	015	0.09	017	010	012	007	013	010	016	010	012	006	011	007	012	004
	11-Aug-2021	205	IM	OL	OL	012	0.07	011	007	013	012	011	009	012	007	012	007	012	006
	12-Aug-2021	1.77	234	015	0.20	015	011	015	013	014	013	012	010	016	010	014	010	013	007
	13-Aug-2021	202	234	014	0.19	014	013	017	013	014	014	012	013	013	008	012	009	011	007
	14-Aug-2021	NS	NS	012	014	NS	OL	OL	NS	NS	NS	NS							
	15-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS
	16-Aug-2021	1.81	203	012	013	014	0.09	011	007	010	013	012	014	OL	OL	010	008	010	004
	17-Aug-2021	1.97	207	013	014	017	012	011	008	012	015	016	017	OL	OL	011	009	011	005
	18-Aug-2021	1.85	1.96	013	014	015	010	012	008	013	018	009	014	OL	OL	011	009	011	005
	19-Aug-2021	217	214	013	014	015	012	011	008	016	021	011	016	OL	OL	011	010	011	005
	20-Aug-2021	204	220	015	008	012	010	012	010	013	013	010	011	OL	OL	012	008	013	005
	21-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS
	22-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS
	23-Aug-2021	1.92	204	007	0.02	007	0.07	0.08	007	007	0.11	008	014	OL	OL	011	009	012	0.02
	24-Aug-2021	1.47	1.73	009	0.05	010	010	012	009	009	015	011	020	OL	OL	009	008	009	005
	25-Aug-2021	1.49	1.68	010	005	010	0.08	008	008	008	0.09	014	009	019	017	008	015	014	012
	26-Aug-2021	1.44	1.64	008	0.03	008	0.08	0.09	008	0.07	0.04	009	010	010	010	009	0.08	013	007
	27-Aug-2021	1.53	1.53	010	006	012	011	009	009	010	006	012	011	010	009	010	009	009	004
	28-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Q10	Q10	Q10	NS	NS	NS
	29-Aug-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	30-Aug-2021	1.19	1.49	007	0.03	008	0.11	010	011	007	007	009	009	017	019	007	010	010	008
	31-Aug-2021	1.36	1.42	008	0.04	010	013	NS	NS	0.08	0.09	009	009	008	011	008	010	007	008
Total number of measurements taken, A:		21		21		20		21		21		15		21		21		21	
Turbidity Standard for Monitoring Location (NTU):		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:		21		21		20		21		21		15		21		21		21	
Compliance with Turbidity Standard, C=B/A X 100%:		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:

Note: The rawwater analyser is cleaned daily during warm water months because it is susceptible to frequent fouling  
Filter 6 was taken offline on August 13th at 12:53pm due to a failure on the filter Backwash Supply valve and remained offline until August 25th at 1:25am.

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 7-Sep-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

September 2021 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
1/09/2021	1.60	0.06	0.10		0.10	0.20	0.07	0.21	0.09	0.17	0.09	0.20	0.12	0.17	0.12	0.22	0.04	0.15
2/09/2021	1.54	0.03	0.15		0.09	0.17	0.07	0.15	0.06	0.15	0.09	0.23	0.08	0.25	0.10	0.27	0.09	0.22
3/09/2021	1.63	0.04	0.15		0.05	0.09	0.06	5.00	0.03	0.21	0.10	0.15	0.08	0.19	0.10	0.27	0.09	0.20
4/09/2021	1.70	0.06	0.16		0.05	0.16	0.04	0.18	0.10	0.13	0.09	0.24	0.10	0.25	0.10	0.15	0.09	0.25
5/09/2021	1.83	0.07	0.08		0.03	0.15	0.03	0.28	0.09	0.22	0.07	0.24	0.08	0.13	0.14	0.26	0.09	0.24
6/09/2021	1.88	0.08	0.17		0.04	0.17	0.04	0.07	0.06	0.18	0.06	0.21	0.10	0.23	0.07	0.27	0.11	0.16
7/09/2021	1.67	0.08	0.22		0.08	0.12	0.06	0.16	0.05	0.10	0.09	0.12	0.07	0.20	0.07	0.21	0.08	0.22
8/09/2021	1.70	0.08	0.12		0.07	0.18	0.04	0.14	0.07	0.17	0.06	0.21	0.07	0.18	0.08	0.11	0.08	0.21
9/09/2021	1.88	0.11	0.21		0.06	0.17	0.04	0.15	0.05	0.16	0.06	0.17	0.08	0.12	0.08	0.24	0.07	0.12
10/09/2021	1.77	0.07	0.19		0.06	0.16	0.05	0.08	0.05	0.15	0.05	0.17	0.07	0.19	0.06	0.20	0.09	0.22
11/09/2021	1.48	0.08	0.16		0.05	0.10	0.06	0.13	0.05	0.16	0.05	0.10	0.05	0.21	0.06	0.16	0.07	0.18
12/09/2021	1.55	0.07	0.20		0.08	0.16	0.04	0.16	0.07	0.09	0.04	0.20	0.06	0.11	0.05	0.09	0.05	0.18
13/09/2021	1.60	0.11	0.14		0.06	0.15	0.05	0.14	0.05	0.14	0.04	0.15	0.05	0.08	0.06	0.15	0.05	0.16
14/09/2021	1.68	0.08	0.19		0.06	0.15	0.05	0.07	0.06	0.16	0.03	0.16	0.06	0.12	0.05	0.20	0.07	0.09
15/09/2021	1.67	0.08	0.19		0.06	0.10	0.06	0.15	0.06	0.14	0.04	0.07	0.06	0.11	0.05	0.15	0.05	0.17
16/09/2021	1.73	0.08	0.18		0.08	0.16	0.05	0.14	0.07	0.10	0.04	0.16	0.04	0.12	0.05	0.13	0.05	0.16
17/09/2021	1.74	0.08	0.18		0.07	0.14	0.04	0.18	0.09	0.14	0.04	0.14	0.05	0.12	0.06	0.08	0.05	0.15
18/09/2021	1.81	0.10	0.14		0.06	0.17	0.04	0.13	0.07	0.16	0.04	0.15	0.05	0.08	0.07	0.12	0.05	0.14
19/09/2021	1.80	0.10	0.17		0.06	0.17	0.05	0.14	0.06	0.16	0.04	0.14	0.07	0.12	0.06	0.14	0.06	0.09
20/09/2021	1.74	0.08	0.21		0.06	0.17	0.07	0.14	0.05	0.14	0.05	0.07	0.06	0.13	0.06	0.16	0.07	0.15
21/09/2021	1.81	0.09	0.21		0.09	0.11	0.05	0.15	0.06	0.09	0.05	0.16	0.06	0.14	0.05	0.17	0.05	0.16
22/09/2021	1.81	0.09	0.13		0.07	0.17	0.04	0.78	0.06	0.15	0.05	0.16	0.05	0.15	0.08	0.11	0.05	0.15
23/09/2021	1.85	0.10	0.22		0.06	0.16	0.05	0.14	0.05	0.14	0.04	0.14	0.07	0.11	0.05	0.16	0.05	0.08
24/09/2021	2.10	0.08	0.18		0.06	0.17	0.06	0.09	0.05	0.14	0.03	0.06	0.05	0.12	0.03	0.12	0.07	0.16
25/09/2021	2.06	0.09	0.17		0.07	0.13	0.06	0.14	0.06	0.10	0.05	0.14	0.01	0.12	0.04	0.10	0.06	0.15
26/09/2021	2.07	0.09	0.16		0.08	0.11	0.06	0.12	0.06	0.11	0.04	0.10	0.00	0.00	0.04	0.09	0.07	0.13
27/09/2021	2.24	0.08	0.18		0.08	0.13	0.06	0.12	0.07	0.09	0.04	0.10	0.03	0.21	0.04	0.07	0.05	0.17
28/09/2021	2.25	0.11	0.14		0.07	0.17	0.05	0.15	0.05	0.14	0.04	0.15	0.05	0.16	0.05	0.12	0.07	0.10
29/09/2021	2.17	0.09	0.19		0.07	0.18	0.05	0.08	0.06	0.15	0.05	0.17	0.08	0.11	0.05	0.12	0.07	0.16
30/09/2021	2.22	0.09	0.20		0.07	0.11	0.07	0.16	0.06	0.17	0.06	0.08	0.07	0.16	0.05	0.13	0.06	0.17

Total Number of Measurements Taken, A: 11856      12049      11719      12817      13375      12574      13272      13964  
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: 11856      12049      11718      12817      13375      12574      13272      13964  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      99.991%      100.000%      100.000%      100.000%      100.000%      100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\09-September

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Sep-2021	1.28	1.46	0.12	0.06	0.15	0.16	0.10	0.11	0.14	0.14	0.10	0.10	0.12	0.15	0.13	0.15	0.11	0.04
02-Sep-2021	1.48	1.52	0.17	0.11	0.12	0.15	0.12	0.12	0.15	0.06	0.16	0.13	0.15	0.16	0.18	0.13	0.11	0.11
03-Sep-2021	1.32	1.42	0.15	0.11	0.10	0.07	0.11	0.05	0.10	0.02	0.13	0.11	0.17	0.16	0.13	0.09	0.18	0.09
04-Sep-2021	NS	NS	NS	NS	NS	NS	0.10	0.05	NS									
05-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Sep-2021	1.34	1.60	0.09	0.11	0.10	0.09	0.11	0.08	0.10	0.08	0.13	0.11	0.18	0.14	0.12	0.08	0.17	0.15
08-Sep-2021	1.54	1.77	0.09	0.11	0.10	0.09	0.12	0.08	0.09	0.08	0.15	0.12	0.13	0.09	0.13	0.08	0.17	0.14
09-Sep-2021	1.30	1.79	0.10	0.12	0.13	0.11	0.09	0.06	0.10	0.08	0.09	0.07	0.13	0.10	0.15	0.10	0.12	0.09
10-Sep-2021	1.61	1.55	0.12	0.13	0.09	0.09	0.09	0.07	0.12	0.10	0.12	0.08	0.16	0.12	0.12	0.08	0.13	0.10
11-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Sep-2021	1.24	1.57	0.09	0.11	0.11	0.10	0.09	0.07	0.11	0.09	0.18	0.16	0.08	0.07	0.09	0.06	0.07	0.06
14-Sep-2021	1.29	1.77	0.10	0.12	0.08	0.08	0.08	0.07	0.11	0.10	0.07	0.05	0.10	0.08	0.09	0.06	0.08	0.07
15-Sep-2021	1.25	1.66	0.13	0.14	0.09	0.08	0.09	0.08	0.07	0.08	0.08	0.05	0.09	0.08	0.08	0.06	0.12	0.09
16-Sep-2021	1.35	1.66	0.09	0.11	0.10	0.09	0.12	0.09	0.08	0.09	0.09	0.06	0.13	0.11	0.08	0.06	0.10	0.08
17-Sep-2021	1.25	1.69	0.09	0.11	0.11	0.09	0.11	0.08	0.09	0.09	0.09	0.06	0.08	0.07	0.08	0.06	0.08	0.05
18-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
19-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Sep-2021	1.40	1.65	0.11	0.13	0.10	0.09	0.11	0.07	0.09	0.08	0.08	0.07	0.11	0.10	0.12	0.10	0.09	0.08
21-Sep-2021	1.34	1.82	0.09	0.12	0.10	0.09	0.11	0.09	0.08	0.07	0.09	0.07	0.13	0.11	0.07	0.07	0.10	0.08
22-Sep-2021	1.35	1.70	0.09	0.12	0.11	0.10	0.13	0.09	0.11	0.07	0.10	0.09	0.08	0.09	0.08	0.08	0.08	0.06
23-Sep-2021	1.51	1.78	0.11	0.14	0.13	0.10	0.09	0.06	0.11	0.08	0.08	0.07	0.09	0.10	0.11	0.10	0.08	0.07
24-Sep-2021	1.54	1.92	0.17	0.16	0.09	0.08	0.09	0.07	0.09	0.07	0.07	0.05	0.10	0.08	0.11	0.05	0.09	0.07
25-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Sep-2021	1.52	210	0.09	0.11	0.10	0.09	0.11	0.09	0.08	0.07	0.09	0.07	0.11	0.09	0.09	0.05	0.08	0.07
28-Sep-2021	1.50	220	0.09	0.11	0.11	0.11	0.09	0.07	0.11	0.09	0.11	0.08	0.08	0.08	0.09	0.05	0.08	0.07
29-Sep-2021	1.52	1.98	0.11	0.14	0.09	0.10	0.09	0.07	0.12	0.11	0.07	0.07	0.09	0.09	0.09	0.05	0.10	0.08
30-Sep-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Total number of measurements taken, A:

20

20

20

20

20

20

Turbidity Standard for Monitoring Location (NTU):

0.30

0.30

0.30

0.30

0.30

Number of measurements meeting standard, B:

20

21

20

20

20

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

100%

100%

100%

100%

100%

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

**Comments**

Note: The raw water analyser is cleaned daily during warm water months because it is susceptible to frequent fouling

Compiled By: H. Demchenko

Authorized By: C. Diduck



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

October 2021 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
1/10/2021	2.14	0.08	0.22		0.11	0.18	0.06	0.16	0.09	0.12	0.06	0.17	0.07	0.17	0.05	0.08	0.06	0.16
2/10/2021	2.02	0.11	0.14		0.08	0.19	0.06	0.16	0.09	0.20	0.06	0.21	0.07	0.19	0.08	0.16	0.05	0.10
3/10/2021	2.07	0.11	0.22		0.09	0.19	0.05	0.09	0.11	0.18	0.05	0.17	0.09	0.12	0.07	0.15	0.08	0.18
4/10/2021	2.22	0.13	0.22		0.09	0.24	0.11	0.19	0.11	0.25	0.07	0.11	0.11	0.22	0.08	0.16	0.07	0.17
5/10/2021	2.17	0.13	0.26		0.16	0.20	0.10	0.22	0.14	0.20	0.09	0.22	0.13	0.24	0.08	0.22	0.09	0.19
6/10/2021	2.33	0.16	0.25		0.14	0.26	0.12	0.21	0.14	0.29	0.09	0.17	0.12	0.18	0.09	0.16	0.09	0.18
7/10/2021	2.57	0.14	0.28		0.10	0.20	0.07	0.19	0.10	0.19	0.07	0.23	0.07	0.11	0.05	0.14	0.10	0.12
8/10/2021	2.33	0.12	0.23		0.09	0.21	0.10	0.16	0.09	0.20	0.07	0.12	0.08	0.19	0.05	0.15	0.08	0.20
9/10/2021	2.25	0.13	0.31		0.16	0.31	0.14	0.33	0.12	0.27	0.13	0.24	0.08	0.24	0.06	0.20	0.08	0.21
10/10/2021	2.21	0.11	0.18		0.10	0.22	0.08	0.19	0.13	0.22	0.09	0.25	0.07	0.19	0.08	0.11	0.07	0.19
11/10/2021	2.17	0.14	0.26		0.08	0.19	0.06	0.16	0.09	0.21	0.09	0.22	0.06	0.11	0.07	0.20	0.08	0.12
12/10/2021	2.17	0.11	0.21		0.04	0.10	0.08	0.09	0.09	0.22	0.09	0.15	0.10	0.18	0.08	0.15	0.08	0.18
13/10/2021	2.17	0.04	0.16		0.04	0.20	0.00	0.07	0.05	0.17	0.02	0.30	0.02	0.10	0.03	0.11	0.03	0.10
14/10/2021	2.17	0.12	0.19		0.08	0.15	0.07	0.09	0.08	0.13	0.10	0.13	0.09	0.13	0.06	0.12	0.08	0.17
15/10/2021	2.09	0.13	0.19		0.10	0.12	0.07	0.12	0.08	0.11	0.11	0.19	0.08	0.15	0.05	0.12	0.08	0.13
16/10/2021	2.02	0.12	0.16		0.08	0.15	0.07	0.12	0.10	0.15	0.10	0.18	0.08	0.15	0.06	0.08	0.07	0.14
17/10/2021	1.98	0.13	0.19		0.07	0.15	0.06	0.13	0.09	0.15	0.11	0.17	0.09	0.10	0.07	0.12	0.09	0.11
18/10/2021	1.91	0.10	0.21		0.07	0.11	0.08	0.11	0.07	0.16	0.12	0.14	0.10	0.16	0.06	0.14	0.06	0.16
19/10/2021	1.92	0.11	0.21		0.09	0.16	0.07	0.17	0.11	0.15	0.11	0.21	0.08	0.20	0.08	0.11	0.07	0.16
20/10/2021	1.88	0.13	0.17		0.07	0.18	0.07	0.18	0.12	0.19	0.09	0.25	0.10	0.20	0.13	0.17	0.07	0.15
21/10/2021	1.80	0.14	0.21		0.06	0.16	0.08	0.12	0.09	0.20	0.11	0.24	0.13	0.15	0.11	0.19	0.10	0.13
22/10/2021	1.74	0.11	0.22		0.06	0.10	0.13	0.20	0.11	0.23	0.15	0.19	0.14	0.22	0.13	0.22	0.07	0.16
23/10/2021	1.70	0.09	0.18		0.09	0.17	0.05	0.14	0.09	0.20	0.11	0.26	0.09	0.18	0.09	0.20	0.07	0.13
24/10/2021	1.71	0.10	0.13		0.07	0.16	0.05	0.12	0.03	0.09	0.09	0.20	0.06	0.14	0.04	0.09	0.06	0.09
25/10/2021	1.66	0.09	0.18		0.07	0.15	0.04	0.07	0.03	0.09	0.09	0.21	0.09	0.11	0.03	0.08	0.08	0.14
26/10/2021	1.74	0.08	0.18		0.07	0.10	0.05	0.12	0.02	0.08	0.12	0.15	0.07	0.15	0.03	0.08	0.06	0.13
27/10/2021	2.08	0.07	0.17		0.07	0.15	0.03	0.10	0.03	0.07	0.10	0.20	0.06	0.15	0.03	0.07	0.05	0.13
28/10/2021	1.63	0.10	0.12		0.04	0.16	0.03	0.10	0.02	0.06	0.10	0.18	0.06	0.09	0.03	0.07	0.06	0.08
29/10/2021	1.74	0.07	0.16		0.07	0.09	0.05	0.06	0.02	0.08	0.07	0.13	0.08	0.13	0.02	0.07	0.06	0.12
30/10/2021	1.57	0.07	0.17		0.07	0.14	0.04	0.11	0.03	0.05	0.13	0.20	0.07	0.12	0.02	0.07	0.05	0.11
31/10/2021	1.57	0.08	0.12		0.06	0.13	0.04	0.10	0.03	0.07	0.09	0.19	0.06	0.13	0.04	0.07	0.05	0.12

Total Number of Measurements Taken, A: 11383      11626      11815      12452      13457      13533      13303      14474  
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: 11382      11623      11800      12452      13457      13533      13303      14474  
Compliance with Turbidity Standard, C = B/A X 100%: 99.991%      99.974%      99.873%      100.000%      100.000%      100.000%      100.000%      100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\10-October

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00		Turbidity (NTU)																		
Licence No. PWS-09-412-02		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-Oct-2021		1.61	203	0.09	0.12	0.10	0.11	0.13	0.11	0.09	0.10	0.10	0.08	0.12	0.12	0.09	0.06	0.15	0.12	
02-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
03-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
04-Oct-2021		1.81	210	0.16	0.18	0.12	0.13	0.13	0.11	0.11	0.15	0.10	0.09	0.13	0.15	0.16	0.14	0.15	0.12	
05-Oct-2021		1.70	202	0.14	0.16	0.16	0.17	0.20	0.16	0.12	0.18	0.13	0.12	0.17	0.19	0.11	0.10	0.18	0.14	
06-Oct-2021		1.80	230	0.16	0.19	0.20	0.18	0.20	0.20	0.17	0.22	0.17	0.14	0.12	0.17	0.13	0.13	0.12	0.10	
07-Oct-2021		1.78	230	0.20	0.22	0.21	0.19	0.15	0.10	0.19	0.14	0.15	0.12	0.13	0.09	0.17	0.09	0.12	0.10	
08-Oct-2021		1.90	232	0.20	0.17	0.16	0.12	0.17	0.11	0.15	0.12	0.12	0.11	0.14	0.10	0.17	0.09	0.15	0.12	
09-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
10-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
11-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
12-Oct-2021		1.67	210	0.16	0.18	0.12	0.09	0.12	0.08	0.16	0.18	0.09	0.12	0.10	0.10	0.12	0.11	0.10	0.09	
13-Oct-2021		1.80	211	0.12	0.14	0.14	0.11	0.11	0.10	0.12	0.15	0.13	0.19	0.11	0.14	0.09	0.10	0.09	0.08	
14-Oct-2021		1.50	210	0.15	0.16	0.11	0.09	0.11	0.08	0.10	0.09	0.09	0.12	0.10	0.10	0.14	0.07	0.11	0.09	
15-Oct-2021		1.75	215	0.11	0.14	0.13	0.10	0.14	0.09	0.11	0.08	0.11	0.12	0.12	0.11	0.10	0.05	0.09	0.08	
16-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
17-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
18-Oct-2021		1.51	1.88	0.17	0.19	0.12	0.10	0.12	0.09	0.10	0.10	0.10	0.09	0.13	0.11	0.12	0.09	0.07	0.11	0.10
19-Oct-2021		1.62	1.87	0.12	0.15	0.13	0.11	0.13	0.11	0.12	0.14	0.10	0.15	0.16	0.17	0.12	0.10	0.09	0.09	
20-Oct-2021		1.55	1.78	0.12	0.16	0.13	0.11	0.12	0.11	0.13	0.10	0.12	0.09	0.09	0.13	0.10	0.12	0.08	0.09	
21-Oct-2021		1.62	1.81	0.12	0.16	0.10	0.08	0.11	0.11	0.15	0.18	0.07	0.15	0.09	0.15	0.13	0.18	0.09	0.09	
22-Oct-2021		1.33	1.70	0.15	0.18	0.11	0.09	0.12	0.14	0.10	0.16	0.08	0.17	0.11	0.18	0.08	0.14	0.11	0.10	
23-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
24-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
25-Oct-2021		1.37	1.53	0.15	0.13	0.11	0.09	0.12	0.06	0.15	0.07	0.08	0.13	0.10	0.10	0.11	0.04	0.10	0.08	
26-Oct-2021		1.21	1.61	0.19	0.16	0.12	0.09	0.13	0.07	0.11	0.03	0.08	0.13	0.12	0.11	0.09	0.03	0.10	0.08	
27-Oct-2021		1.24	2.22	0.11	0.10	0.12	0.10	0.09	0.03	0.10	0.04	0.10	0.15	0.14	0.13	0.09	0.02	0.08	0.06	
28-Oct-2021		1.20	1.59	0.11	0.11	0.16	0.13	0.10	0.05	0.13	0.05	0L	0L	0.08	0.08	0.09	0.03	0.08	0.06	
29-Oct-2021		1.07	1.50	0.12	0.11	0.11	0.09	0.11	0.05	0.09	0.03	0.08	0.13	0.10	0.09	0.13	0.06	0.09	0.08	
30-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.07	0.13	NS	NS	NS	NS	NS	NS	
31-Oct-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Total number of measurements taken, A:		20		20		20		20		20		20		20		20		20		
Turbidity Standard for Monitoring Location (NTU):		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:		20		20		20		20		20		20		20		20		20		
Compliance with Turbidity Standard, C=B/A X 100%:		100%		100%		100%		100%		100%		100%		100%		100%		100%		

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

Comments:

Note: The raw water analyser is cleaned daily during warm water months because it is susceptible to frequent fouling

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 5-Nov-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

November 2021 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
1/11/2021	1.57	0.08	0.15		0.05	0.12	0.03	0.05	0.02	0.07	0.09	0.17	0.07	0.10	0.02	0.06	0.07	0.12
2/11/2021	1.55	0.07	0.15		0.08	0.10	0.04	0.10	0.01	0.06	0.10	0.13	0.07	0.12	0.02	0.07	0.05	0.12
3/11/2021	1.50	0.07	0.11		0.06	0.13	0.04	0.09	0.03	0.06	0.10	0.18	0.06	0.12	0.03	0.04	0.05	0.11
4/11/2021	1.52	0.06	0.20		0.04	0.17	0.03	0.14	0.00	0.09	0.03	0.19	0.05	0.19	0.02	0.18	0.05	0.18
5/11/2021	1.46	0.07	0.14		0.06	0.13	0.03	0.09	0.03	0.05	0.13	0.16	0.07	0.11	0.03	0.04	0.05	0.10
6/11/2021	1.42	0.10	0.14		0.06	0.12	0.04	0.08	0.03	0.06	0.09	0.17	0.06	0.12	0.04	0.05	0.06	0.09
7/11/2021	1.39	0.08	0.13		0.06	0.11	0.04	0.07	0.02	0.05	0.09	0.17	0.08	0.12	0.03	0.06	0.07	0.13
8/11/2021	1.37	0.07	0.13		0.08	0.11	0.04	0.07	0.02	0.04	0.10	0.15	0.07	0.11	0.03	0.05	0.05	0.10
9/11/2021	1.37	0.07	0.12		0.05	0.12	0.03	0.08	0.03	0.04	0.12	0.16	0.06	0.12	0.03	0.05	0.05	0.11
10/11/2021	1.36	0.09	0.13		0.06	0.12	0.03	0.09	0.02	0.05	0.09	0.17	0.06	0.10	0.03	0.06	0.07	0.09
11/11/2021	1.38	0.07	0.14		0.05	0.09	0.04	0.06	0.02	0.04	0.09	0.17	0.09	0.12	0.03	0.06	0.06	0.11
12/11/2021	1.51	0.06	0.12		0.07	0.11	0.03	0.07	0.01	0.03	0.12	0.15	0.07	0.12	0.02	0.06	0.05	0.11
13/11/2021	1.38	0.07	0.10		0.04	0.11	0.02	0.06	0.01	0.04	0.04	0.18	0.07	0.12	0.03	0.05	0.06	0.11
14/11/2021	1.35	0.09	0.13		0.05	0.10	0.02	0.05	0.01	0.03	0.02	0.08	0.06	0.10	0.03	0.06	0.06	0.09
15/11/2021	1.30	0.06	0.12		0.05	0.07	0.02	0.04	0.01	0.03	0.02	0.04	0.09	0.12	0.02	0.06	0.06	0.10
16/11/2021	1.32	0.06	0.13		0.06	0.10	0.02	0.05	0.01	0.02	0.04	0.07	0.07	0.13	0.02	0.04	0.05	0.10
17/11/2021	1.35	0.10	0.12		0.05	0.12	0.02	0.06	0.01	0.03	0.03	0.06	0.07	0.10	0.02	0.06	0.07	0.08
18/11/2021	1.33	0.07	0.13		0.07	0.09	0.03	0.06	0.01	0.09	0.02	0.08	0.07	0.11	0.02	0.04	0.05	0.10
19/11/2021	1.30	0.07	0.14		0.08	0.11	0.02	0.05	0.01	0.02	0.04	0.05	0.05	0.12	0.04	0.06	0.05	0.11
20/11/2021	1.28	0.11	0.13		0.07	0.14	0.02	0.06	0.01	0.04	0.03	0.09	0.06	0.09	0.03	0.08	0.07	0.09
21/11/2021	1.27	0.08	0.14		0.08	0.11	0.03	0.05	0.01	0.05	0.03	0.09	0.09	0.12	0.03	0.08	0.06	0.11
22/11/2021	1.25	0.07	0.15		0.09	0.14	0.03	0.07	0.01	0.02	0.05	0.07	0.06	0.13	0.04	0.06	0.05	0.12
23/11/2021	1.32	0.12	0.14		0.07	0.14	0.02	0.07	0.02	0.05	0.04	0.09	0.08	0.14	0.02	0.07	0.07	0.09
24/11/2021	1.23	0.10	0.15		0.08	0.13	0.03	0.05	0.01	0.04	0.04	0.09	0.10	0.12	O/L	O/L	0.08	0.13
25/11/2021	1.21	0.10	0.15		0.09	0.11	0.03	0.07	0.01	0.04	0.05	0.07	0.09	0.15	O/L	O/L	0.07	0.13
26/11/2021	1.21	0.10	0.16		0.09	0.14	0.03	0.07	0.01	0.02	0.05	0.10	0.09	0.15	O/L	O/L	0.07	0.13
27/11/2021	1.18	0.10	0.15		0.08	0.14	0.03	0.07	0.01	0.04	0.05	0.10	0.08	0.14	O/L	O/L	0.07	0.13
28/11/2021	1.17	0.10	0.13		0.08	0.13	0.03	0.06	0.01	0.04	0.04	0.08	0.08	0.14	O/L	O/L	0.07	0.12
29/11/2021	1.16	0.11	0.14		0.08	0.14	0.03	0.09	0.01	0.04	0.04	0.09	0.09	0.14	O/L	O/L	0.07	0.12
30/11/2021	1.14	0.03	0.14		0.04	0.10	0.02	0.06	0.01	0.05	0.03	0.10	0.04	0.11	O/L	O/L	0.04	0.11

Total Number of Measurements Taken, A: 10958  
Turbidity Standard for Monitoring Location (NTU): 0.3  
Number of Measurements Meeting Standard, B: 10958  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%  
O/L - Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\11-November

Submitted By (Print):

D.Merredew

Signature:

Original Signed by D.Merredew



		WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																	
Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-02		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-2021		1.12	1.51	0.12	0.11	0.10	0.08	0.10	0.05	0.10	0.03	0.07	0.12	0.08	0.09	0.08	0.03	0.08	0.07
02-Nov-2021		1.09	1.48	0.15	0.14	0.11	0.08	0.11	0.05	0.08	0.02	0.07	0.12	0.11	0.11	0.08	0.02	0.09	0.07
03-Nov-2021		1.06	1.45	0.10	0.10	0.15	0.11	0.12	0.06	0.10	0.03	0.10	0.14	0.12	0.12	0.08	0.02	0.07	0.06
04-Nov-2021		1.09	1.44	0.10	0.12	0.09	0.08	0.09	0.05	0.09	0.03	0.07	0.13	0.08	0.09	0.08	0.03	0.07	0.07
05-Nov-2021		1.05	1.39	0.10	0.11	0.12	0.10	0.10	0.05	0.10	0.04	0.09	0.14	0.09	0.10	0.08	0.03	0.07	0.07
06-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Nov-2021		1.17	1.34	0.12	0.12	0.09	0.09	0.10	0.06	0.09	0.03	0.08	0.13	0.09	0.10	0.07	0.02	0.09	0.07
09-Nov-2021		1.12	1.33	0.09	0.11	0.12	0.10	0.12	0.06	0.10	0.04	0.09	0.15	0.11	0.11	0.09	0.03	0.08	0.07
10-Nov-2021		1.12	1.32	0.11	0.11	0.10	0.08	0.10	0.04	0.11	0.04	0.13	0.16	0.09	0.09	0.11	0.04	0.09	0.07
11-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12-Nov-2021		1.27	1.48	0.08	0.10	0.09	0.08	0.10	0.05	0.07	<0.02	0.07	0.13	0.10	0.10	0.08	0.02	0.10	0.08
13-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
15-Nov-2021		1.14	1.27	0.10	0.11	0.08	0.07	0.08	0.03	0.08	<0.02	0.07	0.04	0.09	0.10	0.09	0.05	0.12	0.08
16-Nov-2021		1.11	1.31	0.08	0.11	0.10	0.08	0.09	0.04	0.08	<0.02	0.08	0.04	0.11	0.11	0.07	0.02	0.07	0.06
17-Nov-2021		1.07	1.34	0.08	0.11	0.07	0.06	0.07	0.03	0.08	0.02	0.07	0.10	0.08	0.10	0.10	0.05	0.08	0.07
18-Nov-2021		1.08	1.31	0.09	0.12	0.08	0.08	0.08	0.03	0.07	<0.02	0.07	0.04	0.10	0.10	0.08	0.02	0.10	0.08
19-Nov-2021		1.05	1.27	0.08	0.12	0.10	0.11	0.10	0.03	0.08	0.02	0.10	0.05	0.13	0.12	0.10	0.03	0.08	0.07
20-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-Nov-2021		1.03	1.23	0.08	0.11	0.10	0.11	0.13	0.06	0.10	0.02	0.11	0.06	0.12	0.12	0.12	0.04	0.14	0.11
23-Nov-2021		1.07	1.21	0.09	0.12	0.11	0.14	0.08	0.02	0.09	0.03	0.12	0.08	0.09	0.10	0.12	0.05	0.09	0.07
24-Nov-2021		1.07	1.20	0.11	0.13	0.09	0.03	0.09	0.05	0.09	0.02	0.08	0.10	0.10	0.11	OL	OL	0.10	0.08
25-Nov-2021		1.08	1.18	0.08	0.12	0.09	0.09	0.09	0.04	0.07	<0.02	0.08	0.07	0.12	0.12	OL	OL	0.12	0.10
26-Nov-2021		1.04	1.23	0.09	0.12	0.11	0.11	0.14	0.07	0.09	0.02	0.09	0.06	0.09	0.10	OL	OL	0.08	0.07
27-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS
28-Nov-2021		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS
29-Nov-2021		1.01	1.13	0.09	0.12	0.08	0.09	0.08	0.03	0.09	0.02	0.12	0.07	0.09	0.10	OL	OL	0.09	0.07
30-Nov-2021		1.06	1.14	0.08	0.12	0.07	0.09	0.07	0.03	0.09	0.04	0.06	0.05	0.08	0.09	OL	OL	0.07	0.07
Total number of measurements taken, A:				21			21			21			21			21		16	
Turbidity Standard for Monitoring Location (NTU):				0.30			0.30			0.30			0.30			0.30		21	
Number of measurements meeting standard, B:				21			21			21			21			21		16	
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:

Note: The rawwater analyser is cleaned daily during warm water months because it is susceptible to frequent fouling.

Filter 7 was taken offline at 8:34 PM on November 23rd due to an issue with the backwash valve.

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 7-Dec-21



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

**WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT**

December 2021 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
1/12/2021	1.14	0.02	0.05		0.03	0.05	0.02	0.04	0.02	0.05	0.07	0.08	0.03	0.05	OL	OL	0.03	0.06
2/12/2021	1.12	0.03	0.04		0.03	0.06	0.02	0.06	0.03	0.05	0.06	0.09	0.03	0.07	OL	OL	0.03	0.06
3/12/2021	1.11	0.03	0.05		0.03	0.06	0.02	0.07	0.03	0.05	0.06	0.09	0.03	0.09	OL	OL	0.04	0.07
4/12/2021	1.09	0.04	0.08		0.04	0.10	0.03	0.08	0.03	0.06	0.06	0.11	0.04	0.07	OL	OL	0.04	0.09
5/12/2021	1.08	0.04	0.09		0.04	0.09	0.04	0.07	0.03	0.07	0.06	0.12	0.04	0.10	OL	OL	0.04	0.09
6/12/2021	1.08	0.05	0.10		0.05	0.08	0.03	0.07	0.04	0.08	0.07	0.13	0.05	0.10	OL	OL	0.04	0.10
7/12/2021	1.07	0.04	0.10		0.05	0.10	0.03	0.09	0.03	0.06	0.08	0.12	0.04	0.09	0.03	0.21	0.04	0.10
8/12/2021	1.07	0.05	0.08		0.04	0.10	0.03	0.08	0.04	0.08	0.06	0.14	0.03	0.10	0.03	0.09	0.04	0.06
9/12/2021	1.06	0.05	0.09		0.04	0.11	0.03	0.10	0.04	0.09	0.05	0.11	0.04	0.06	0.03	0.05	0.05	0.10
10/12/2021	1.04	0.08	0.15		0.05	0.17	0.05	0.10	0.06	0.15	0.06	0.17	0.06	0.09	0.05	0.10	0.05	0.10
11/12/2021	1.03	0.07	0.19		0.11	0.17	0.09	0.16	0.06	0.11	0.08	0.12	0.05	0.13	0.05	0.14	0.05	0.14
12/12/2021	1.02	0.10	0.14		0.07	0.18	0.06	0.16	0.09	0.19	0.06	0.17	0.04	0.07	0.04	0.15	0.05	0.08
13/12/2021	1.02	0.06	0.16		0.05	0.16	0.05	0.09	0.06	0.15	0.05	0.15	0.06	0.12	0.05	0.07	0.05	0.12
14/12/2021	1.02	0.05	0.12		0.07	0.11	0.06	0.12	0.04	0.12	0.04	0.08	0.04	0.11	0.04	0.11	0.05	0.11
15/12/2021	1.02	0.04	0.08		0.08	0.13	0.06	0.12	0.06	0.10	0.07	0.13	0.05	0.11	0.04	0.10	0.04	0.12
16/12/2021	1.02	0.08	0.18		0.07	0.17	0.05	0.12	0.06	0.21	0.06	0.26	0.04	0.19	0.04	0.17	0.06	0.19
17/12/2021	1.02	0.06	0.13		0.07	0.17	0.05	0.08	0.06	0.14	0.06	0.15	0.06	0.13	0.05	0.08	0.06	0.13
18/12/2021	1.00	0.07	0.17		0.10	0.13	0.09	0.14	0.06	0.16	0.06	0.11	0.05	0.13	0.05	0.14	0.06	0.14
19/12/2021	0.99	0.06	0.11		0.08	0.19	0.05	0.15	0.07	0.12	0.08	0.18	0.05	0.16	0.04	0.15	0.04	0.13
20/12/2021	0.97	0.09	0.13		0.08	0.19	0.07	0.17	0.07	0.12	0.07	0.16	0.05	0.08	0.05	0.15	0.07	0.10
21/12/2021	0.97	0.04	0.15		0.06	0.18	0.05	0.16	0.04	0.15	0.05	0.12	0.05	0.14	0.05	0.11	0.04	0.14
22/12/2021	0.97	0.04	0.11		0.08	0.12	0.05	0.11	0.04	0.11	0.05	0.08	0.03	0.09	0.04	0.09	0.03	0.10
23/12/2021	0.95	0.04	0.08		0.05	0.14	0.03	0.15	0.05	0.10	0.05	0.12	0.03	0.07	0.03	0.10	0.03	0.07
24/12/2021	0.94	0.04	0.08		0.04	0.09	0.03	0.08	0.03	0.07	0.04	0.08	0.03	0.06	0.03	0.05	0.04	0.07
25/12/2021	0.93	0.03	0.08		0.06	0.08	0.05	0.07	0.03	0.08	0.04	0.10	0.03	0.08	0.05	0.09	0.03	0.07
26/12/2021	0.92	0.04	0.07		0.06	0.12	0.04	0.11	0.04	0.08	0.06	0.10	0.02	0.07	0.04	0.11	0.03	0.07
27/12/2021	0.90	0.04	0.07		0.04	0.12	0.03	0.10	0.03	0.07	0.03	0.08	0.04	0.08	0.05	0.07	0.04	0.07
28/12/2021	0.88	0.04	0.09		0.07	0.09	0.07	0.10	0.02	0.07	0.05	0.07	0.03	0.07	0.06	0.11	0.02	0.07
29/12/2021	0.88	0.05	0.07		0.06	0.11	0.05	0.11	0.04	0.06	0.07	0.12	0.03	0.09	0.05	0.12	0.03	0.05
30/12/2021	0.87	0.06	0.11		0.06	0.12	0.05	0.12	0.04	0.07	0.06	0.12	0.04	0.07	0.06	0.09	0.04	0.08
31/12/2021	0.86	0.05	0.11		0.08	0.11	0.08	0.11	0.03	0.09	0.06	0.14	0.04	0.08	0.09	0.13	0.03	0.07

Total Number of Measurements Taken, A: 11496      11621      11800      12459      13549      13941      10538      14907  
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: 11496      11621      11800      12459      13549      13941      10538      14907  
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=Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2021\12-December

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
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-2021	1.03	1.13	0.07	0.03	0.08	0.04	0.08	0.03	0.06	0.02	0.07	0.07	0.09	0.05	OL	OL	0.06	0.03
02-Dec-2021	1.02	1.10	0.07	0.04	0.08	0.04	0.07	0.03	0.07	0.03	0.08	0.08	0.07	0.04	OL	OL	0.07	0.03
03-Dec-2021	1.01	1.09	0.08	0.04	0.08	0.03	0.08	0.03	0.08	0.04	0.08	0.08	0.08	0.06	OL	OL	0.07	0.08
04-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS
05-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS
06-Dec-2021	1.05	1.06	0.10	0.05	0.11	0.05	0.12	0.05	0.08	0.04	0.09	0.10	0.14	0.08	OL	OL	0.12	0.06
07-Dec-2021	0.87	1.04	0.10	0.06	0.13	0.07	0.16	0.08	0.09	0.04	0.09	0.10	0.15	0.08	0.15	0.07	0.09	0.04
08-Dec-2021	0.97	1.04	0.11	0.06	0.12	0.07	0.16	0.08	0.12	0.08	0.15	0.14	0.10	0.05	0.09	0.03	0.09	0.04
09-Dec-2021	0.94	1.04	0.13	0.07	0.10	0.02	0.11	0.04	0.14	0.08	0.16	0.11	0.10	0.05	0.09	0.03	0.10	0.04
10-Dec-2021	0.89	1.02	0.22	0.14	0.13	0.07	0.14	0.06	0.25	0.15	0.10	0.06	0.13	0.07	0.11	0.04	0.15	0.08
11-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.13	0.06	NS	NS	NS
12-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Dec-2021	0.93	0.99	0.17	0.10	0.15	0.09	0.15	0.08	0.18	0.11	0.11	0.08	0.13	0.07	0.12	0.04	0.14	0.07
14-Dec-2021	0.92	1.00	0.12	0.07	0.14	0.09	0.14	0.07	0.10	0.05	0.09	0.06	0.12	0.07	0.13	0.06	0.12	0.06
15-Dec-2021	0.88	1.00	0.13	0.07	0.17	0.11	0.17	0.09	0.13	0.07	0.12	0.08	0.10	0.05	0.16	0.08	0.10	0.04
16-Dec-2021	0.87	0.98	0.16	0.09	0.15	0.10	0.14	0.07	0.16	0.10	0.10	0.08	0.11	0.06	0.11	0.04	0.12	0.05
17-Dec-2021	0.87	0.98	0.17	0.10	0.15	0.09	0.14	0.07	0.19	0.12	0.12	0.09	0.13	0.08	0.12	0.05	0.14	0.07
18-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
19-Dec-2021	NS	NS	0.13	0.07	0.15	0.11	0.17	0.09	0.11	0.06	0.10	0.07	0.20	0.14	0.20	0.11	0.11	0.05
20-Dec-2021	0.84	0.95	0.17	0.10	0.21	0.19	0.14	0.07	0.20	0.13	0.20	0.14	0.13	0.07	0.11	0.05	0.12	0.06
21-Dec-2021	0.86	0.95	0.16	0.11	0.11	0.07	0.11	0.06	0.11	0.06	0.10	0.07	0.11	0.05	0.09	0.03	0.13	0.07
22-Dec-2021	0.82	0.96	0.10	0.06	0.11	0.08	0.12	0.06	0.08	0.04	0.08	0.06	0.14	0.07	0.12	0.06	0.17	0.09
23-Dec-2021	0.84	0.94	0.09	0.05	0.11	0.08	0.11	0.06	0.09	0.06	0.08	0.07	0.07	0.04	0.10	0.05	0.07	0.03
24-Dec-2021	0.81	0.92	NS															
25-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Dec-2021	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Dec-2021	0.80	0.87	0.09	0.06	0.12	0.10	0.12	0.09	0.09	0.04	0.08	0.10	0.08	0.05	0.12	0.11	0.07	0.04
30-Dec-2021	0.78	0.85	0.13	0.08	0.11	0.09	0.10	0.07	0.11	0.06	0.13	0.12	0.09	0.05	0.08	0.07	0.08	0.04
31-Dec-2021	0.76	0.87	0.15	0.11	0.11	0.10	0.11	0.09	0.09	0.05	0.07	0.09	0.10	0.07	0.08	0.09	0.08	0.05
Total number of measurements taken, A:			21		21		21		21		21		21		18		21	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			21		21		21		21		21		21		18		21	
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:

Note: Filter 7 was offline from November 23 to December 7 for valve maintenance.

Compiled By: H. Demchenko

Authorized By: C. Diduck

Report Date: 7-Jan-22

# **2021 MONTHLY UV SUMMARY 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 2021

Report Created: Monday, February 01, 2021

Date	Transmittance (%)				UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Branch 1		Branch 2		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Avg.	Min.	Avg.	Min.	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		
01/01/2021	92.4	91.8	94.4	93.9	0.00	0.00	55.07	55.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	56.08	56.62	0.00	0.05	59.29	59.34	0.00	0.00	0.00	0.00	0.00	0.58	170.45	171.03	99.66		
02/01/2021	92.1	91.0	94.2	90.0	0.01	0.01	43.94	43.95	0.00	0.00	0.00	0.00	0.07	0.24	26.98	27.30	0.00	0.31	29.59	29.91	0.00	0.00	33.42	33.42	0.03	0.25	29.14	29.42	0.10	0.81	163.08	163.99	99.44	
03/01/2021	91.9	91.3	93.9	93.2	0.00	0.00	54.75	54.75	0.00	0.00	0.00	0.00	0.00	0.45	58.39	58.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	56.06	56.69	0.00	1.08	169.20	170.28	99.36			
04/01/2021	92.1	91.7	94.3	94.1	0.00	0.07	53.35	53.43	0.00	0.00	0.00	0.00	0.00	0.67	59.96	60.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	58.54	59.20	0.00	1.40	171.86	173.26	99.19			
05/01/2021	92.1	91.7	94.2	93.8	0.00	0.16	54.79	54.95	0.00	0.00	0.00	0.00	0.01	0.56	35.89	36.46	0.00	0.03	22.98	23.01	0.00	0.00	0.00	0.00	0.00	0.57	57.93	58.50	0.01	1.32	171.60	172.93	99.23	
06/01/2021	92.0	91.7	94.0	93.5	0.00	0.33	58.11	58.43	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	0.00	0.00	0.00	0.78	57.96	58.74	0.00	1.10	176.56	177.67	99.38	
07/01/2021	92.0	91.6	94.0	93.6	0.00	0.33	58.19	58.52	0.00	0.00	0.00	0.00	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	0.65	58.18	58.83	0.00	0.98	177.04	178.02	99.45	
08/01/2021	91.9	91.5	93.9	93.5	0.00	0.32	58.02	58.35	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	60.84	60.84	0.00	0.00	0.00	0.00	0.00	1.09	57.58	58.67	0.00	1.42	176.57	177.99	99.20	
09/01/2021	92.0	91.7	94.0	93.6	0.00	0.28	58.12	58.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.01	61.01	0.00	0.00	0.00	0.00	0.00	0.81	57.78	58.60	0.00	1.10	176.92	178.01	99.38	
10/01/2021	92.0	91.8	94.0	93.6	0.00	0.28	58.08	58.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.13	61.13	0.00	0.00	0.00	0.00	0.00	0.98	57.58	58.56	0.00	1.26	176.79	178.05	99.29	
11/01/2021	91.4	89.7	93.2	91.4	0.02	0.65	56.78	57.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	56.35	56.38	0.00	0.00	0.00	0.00	0.03	0.92	54.03	54.98	0.07	1.58	167.16	168.81	99.03	
12/01/2021	91.8	91.3	93.7	93.3	0.00	0.61	57.87	58.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.25	61.25	0.00	0.00	0.00	0.00	0.00	0.70	58.78	59.48	0.00	1.31	177.90	179.21	99.27	
13/01/2021	91.8	91.5	93.7	93.4	0.00	0.60	61.28	61.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.70	64.70	0.00	0.00	0.00	0.00	0.00	1.02	63.10	64.12	0.00	1.62	189.08	190.70	99.15	
14/01/2021	87.7	91.4	89.6	93.4	0.00	0.52	47.58	48.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.51	46.51	0.00	0.00	0.00	0.00	0.00	0.35	45.08	45.43	0.00	0.87	139.17	140.03	99.38	
15/01/2021	91.8	91.4	93.6	93.3	0.00	0.51	61.51	62.02	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	0.00	0.00	0.00	0.86	58.21	59.08	0.00	1.37	180.21	181.58	99.24	
16/01/2021	91.7	91.4	93.6	93.3	0.00	0.58	59.40	59.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.43	59.43	0.00	0.08	33.95	34.03	0.00	0.61	23.51	24.12	0.00	1.28	176.28	177.56	99.28	
17/01/2021	91.8	91.5	93.7	93.6	0.00	0.37	59.49	59.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.58	59.58	0.00	0.12	58.20	58.32	0.00	0.00	0.00	0.00	0.00	0.50	177.27	177.77	99.72	
18/01/2021	91.7	91.2	93.6	93.3	0.00	0.46	60.02	60.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.21	59.21	0.00	0.12	58.18	58.31	0.00	0.00	0.00	0.00	0.00	0.58	177.42	178.00	99.67	
19/01/2021	91.7	90.9	93.7	93.3	0.00	0.46	59.81	60.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.42	59.42	0.00	0.00	58.31	58.31	0.00	0.00	0.00	0.00	0.00	0.46	177.55	178.01	99.74	
20/01/2021	91.6	91.2	93.6	93.1	0.00	0.64	60.54	61.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.18	61.18	0.00	0.00	59.34	59.34	0.00	0.00	0.00	0.00	0.00	0.64	181.06	181.70	99.65	
21/01/2021	90.3	0.0	92.2	0.0	0.00	0.45	53.76	54.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.34	56.34	0.00	0.21	52.94	53.15	0.00	0.00	0.00	0.00	0.00	0.66	163.04	163.71	99.59	
22/01/2021	91.9	91.6	93.8	93.5	0.00	0.50	59.07	59.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	63.52	63.56	0.00	0.13	60.04	60.17	0.00	0.00	0.00	0.00	0.00	0.67	182.63	183.30	99.64	
23/01/2021	91.8	91.5	93.8	93.4	0.00	0.55	59.80	60.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.23	64.23	0.00	0.09	60.32	60.41	0.00	0.00	0.00	0.00	0.00	0.63	184.35	184.98	99.66	
24/01/2021	91.9	91.5	93.8	93.4	0.00	0.53	58.30	58.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.58	62.58	0.00	0.00	59.68	59.68	0.00	0.00	0.00	0.00	0.00	0.53	180.56	181.09	99.71	
25/01/2021	91.9	91.5	93.9	93.5	0.00	0.49	58.65	59.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.94	62.94	0.00	0.04	27.98	28.02	0.00	0.66	30.93	31.60	0.00	1.19	180.50	181.69	99.34	
26/01/2021	91.8	91.3	93.7	93.4	0.00	0.46	60.06	60.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	64.22	64.31	0.00	0.00	0.00	0.00	0.00	1.42	58.76	60.18	0.00	1.97	183.04	185.01	98.94	
27/01/2021	91.7	91.5	93.7	93.5	0.00	0.53	58.65	59.18	0.00	0.00	0.00	0.00	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	1.02	57.81	58.83	0.00	1.55	179.15	180.71	99.14	
28/01/2021	90.5	0.0	92.5	0.0	0.00	0.64	45.30	45.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	47.49	47.58	0.00	0.00	0.00	0.00	0.00	0.95	43.67	44.63	0.00	1.69	136.47	138.15	98.78	
29/01/2021	91.7	91.3	93.7	93.1	0.00	0.63	35.74	36.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	19.52	19.73	0.00	0.00	64.76	64.76	0.00	0.00	0.00	0.00	0.00	1.10	62.95	64.05	0.00	1.95	182.96	184.91</td



**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

Report Period: February 2021

Report Created: Monday, March 01, 2021

## 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]				
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	
01/02/2021	91.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	49.03	49.42	0.00	0.00	67.00	67.00	0.00	0.00	0.00	0.00	0.00	0.35	70.71	71.07	0.00	0.74	186.75	187.48	99.61
02/02/2021	91.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	48.32	48.69	0.00	0.00	68.33	68.33	0.00	0.00	0.00	0.00	0.00	0.45	70.53	70.97	0.00	0.82	187.17	187.99	99.56
03/02/2021	91.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	42.20	42.41	0.00	0.00	66.31	66.31	0.00	0.00	31.90	0.00	0.00	44.39	44.39	0.00	0.21	184.81	185.02	99.89	
04/02/2021	92.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.26	40.34	40.67	0.09	0.20	63.77	64.06	0.01	0.07	74.67	74.75	0.03	0.03	0.45	0.51	0.20	0.56	179.23	179.98	99.58
05/02/2021	91.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.35	40.80	41.17	0.02	0.17	64.96	65.15	0.03	0.03	75.11	75.18	0.00	0.00	0.00	0.00	0.07	0.55	180.87	181.49	99.66
06/02/2021	91.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	40.98	41.21	0.00	0.10	66.62	66.71	0.00	0.00	77.49	77.49	0.00	0.00	0.00	0.00	0.00	0.33	185.08	185.41	99.82
07/02/2021	91.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	40.59	40.90	0.00	0.14	63.85	63.98	0.00	0.00	75.45	75.45	0.00	0.00	0.00	0.00	0.00	0.45	179.88	180.34	99.75
08/02/2021	91.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	40.68	40.91	0.00	0.04	63.60	63.64	0.00	0.00	75.44	75.44	0.00	0.00	0.00	0.00	0.00	0.27	179.71	179.99	99.85
09/02/2021	91.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	40.56	40.88	0.00	0.09	63.64	63.73	0.00	0.00	75.45	75.45	0.00	0.00	0.00	0.00	0.00	0.41	179.65	180.06	99.77
10/02/2021	91.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	40.46	40.69	0.00	0.04	63.22	63.26	0.00	0.00	75.03	75.03	0.00	0.00	0.00	0.00	0.00	0.27	178.70	178.98	99.85
11/02/2021	91.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	42.55	42.85	0.00	0.13	63.78	63.92	0.00	0.00	73.05	73.05	0.00	0.00	0.00	0.00	0.00	0.43	179.39	179.82	99.76
12/02/2021	91.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	48.92	49.47	0.00	0.00	65.70	65.70	0.00	0.00	68.90	68.90	0.00	0.00	0.00	0.00	0.00	0.55	183.51	184.07	99.70
13/02/2021	92.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	50.52	51.03	0.00	0.05	64.92	64.97	0.00	0.00	68.88	68.88	0.00	0.00	0.00	0.00	0.00	0.55	184.32	184.87	99.70
14/02/2021	91.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	51.41	51.96	0.00	0.09	66.01	66.10	0.00	0.00	69.96	69.96	0.00	0.00	0.00	0.00	0.00	0.64	187.38	188.02	99.66
15/02/2021	91.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	51.14	51.90	0.00	0.14	65.95	66.09	0.00	0.00	70.01	70.01	0.00	0.00	0.00	0.00	0.00	0.91	187.10	188.01	99.52
16/02/2021	91.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	51.53	52.00	0.00	0.14	65.85	65.99	0.00	0.00	70.02	70.02	0.00	0.00	0.00	0.00	0.00	0.61	187.39	188.00	99.68	
17/02/2021	92.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	51.75	52.23	0.00	0.09	66.17	66.27	0.00	0.00	70.36	70.36	0.00	0.00	0.00	0.00	0.00	0.57	188.28	188.86	99.70	
18/02/2021	92.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.48	36.03	36.52	0.04	0.09	46.58	46.71	0.01	0.20	46.83	47.04	0.00	0.00	0.00	0.00	0.06	0.77	129.44	130.27	99.37	
19/02/2021	92.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	50.38	50.73	0.00	0.09	66.73	66.82	0.00	0.11	72.35	72.46	0.00	0.00	0.00	0.00	0.00	0.55	189.46	190.01	99.71	
20/02/2021	91.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	52.31	52.75	0.00	0.14	66.51	66.65	0.00	0.10	70.47	70.57	0.00	0.00	0.00	0.00	0.00	0.68	189.29	189.98	99.64	
21/02/2021	91.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	51.69	52.17	0.00	0.24	65.69	65.92	0.00	0.05	69.78	69.83	0.00	0.00	0.00	0.00	0.00	0.76	187.16	187.92	99.60	
22/02/2021	91.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	52.01	52.34	0.00	0.14	65.65	65.79	0.00	0.34	69.71	70.05	0.00	0.00	0.00	0.00	0.00	0.81	187.38	188.19	99.57	
23/02/2021	91.36	0.00	0.10	0.36	0.46	0.00	0.00	0.00	0.00	0.36	52.33	52.69	0.00	0.05	68.26	68.32	0.00	0.47	71.93	72.40	0.00	0.00	0.00	0.00	0.00	0.98	192.89	193.87	99.49	
24/02/2021	91.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	52.46	52.95	0.00	0.05	69.94	69.99	0.00	0.21	74.83	75.04	0.00	0.00	0.00	0.00	0.00	0.74	197.24	197.98	99.63	
25/02/2021	92.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	52.66	53.10	0.00	0.05	69.80	69.85	0.00	0.21	74.88	75.09	0.00	0.00	0.00	0.00	0.00	0.71	197.34	198.04	99.64	
26/02/2021	92.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	52.52	53.07	0.00	0.20	69.60	69.80	0.00	0.31	74.84	75.15	0.00	0.00	0.00	0.00	0.00	1.07	196.95	198.02	99.46	
27/02/2021	92.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	52.41	53.00	0.00	0.25	69.70	69.95	0.00	0.21	74.90	75.10	0.00	0.00	0.00	0.00	0.00	1.06	197.00	198.06	99.47	
28/02/2021	92.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	52.65	53.06	0.00	0.40	69.43	69.83	0.00	0.26	74.83	75.09	0.00	0.00	0.00	0.00	0.00	1.07	196.91	197.98	99.46	

## Water Volume [%]:

Untreated: 0.01 %

Below Dose: 0.35 %

To Dose: 99.65 %

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

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

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

Report Period: March 2021

Report Created: Tuesday, April 06, 2021

## WATER TREATMENT PLANT UV REPORT

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]					
Date	UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total																		
01/03/2021	92.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	52.43	53.07	0.00	0.10	69.70	69.80	0.00	0.37	74.77	75.14	0.00	0.00	0.00	0.00	0.00	1.10	196.90	198.00	99.44	
02/03/2021	91.96	0.00	0.00	0.00	0.00	0.00	0.00	41.46	41.46	0.00	0.82	60.43	61.25	0.00	0.05	24.58	24.63	0.00	0.33	69.63	69.96	0.00	0.00	0.00	0.00	0.00	1.20	196.11	197.31	99.39	
03/03/2021	91.95	0.00	0.00	0.00	0.00	0.00	0.00	61.44	61.44	0.00	0.96	61.34	62.29	0.00	0.00	0.00	0.00	0.00	0.09	61.96	62.05	0.00	0.00	0.00	0.00	0.00	1.05	184.73	185.78	99.44	
04/03/2021	91.99	0.00	0.00	0.00	0.00	0.00	0.00	61.48	61.48	0.00	0.72	60.34	61.06	0.00	0.00	0.00	0.00	0.00	0.00	60.46	60.46	0.00	0.00	0.00	0.00	0.00	0.72	182.28	183.00	99.61	
05/03/2021	91.96	0.00	0.00	0.00	0.00	0.00	0.00	61.53	61.53	0.00	0.89	60.15	61.04	0.00	0.00	0.00	0.00	0.00	0.08	60.35	60.43	0.00	0.00	0.00	0.00	0.00	0.98	182.03	183.00	99.47	
06/03/2021	91.98	0.00	0.00	0.00	0.00	0.00	0.00	60.27	60.27	0.00	1.22	59.25	60.48	0.00	0.00	0.00	0.00	0.00	0.08	59.78	59.87	0.00	0.00	0.00	0.00	0.00	1.31	179.30	180.61	99.28	
07/03/2021	92.06	0.00	0.00	0.00	0.00	0.00	0.00	59.90	59.90	0.00	0.76	59.62	60.38	0.00	0.00	0.00	0.00	0.00	0.04	59.68	59.73	0.00	0.00	0.00	0.00	0.00	0.80	179.20	180.00	99.56	
08/03/2021	92.04	0.00	0.00	0.00	0.00	0.00	0.00	59.78	59.78	0.00	0.63	59.75	60.38	0.00	0.00	0.00	0.00	0.00	0.13	59.71	59.83	0.00	0.00	0.00	0.00	0.00	0.75	179.25	180.00	99.58	
09/03/2021	91.76	0.05	0.16	25.46	25.68	0.02	0.02	29.64	29.68	0.02	0.35	29.55	29.92	0.02	0.02	19.15	19.18	0.07	0.15	51.59	51.81	0.00	0.00	0.00	0.00	0.17	0.70	155.40	156.27	99.44	
10/03/2021	91.93	0.00	0.24	67.47	67.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	62.69	62.78	0.00	0.00	62.82	62.82	0.00	0.00	0.00	0.00	0.00	0.32	192.97	193.30	99.83	
11/03/2021	92.04	0.00	0.36	65.40	65.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	62.01	62.05	0.00	0.00	60.45	60.45	0.00	0.00	0.00	0.00	0.00	0.41	187.86	188.27	99.78	
12/03/2021	92.18	0.00	0.34	61.79	62.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.83	63.83	0.00	0.00	62.51	62.51	0.00	0.00	0.00	0.00	0.00	0.34	188.12	188.47	99.82	
13/03/2021	92.12	0.00	0.43	61.33	61.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	63.97	64.05	0.00	0.00	62.51	62.51	0.00	0.00	0.00	0.00	0.00	0.50	187.81	188.31	99.73	
14/03/2021	92.13	0.00	0.51	60.86	61.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.79	64.79	0.00	0.00	60.93	60.93	0.00	0.00	0.00	0.00	0.00	0.51	186.58	187.10	99.73	
15/03/2021	92.18	0.00	0.38	60.79	61.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	64.65	64.74	0.00	0.00	61.05	61.05	0.00	0.00	0.00	0.00	0.00	0.47	186.50	186.97	99.75	
16/03/2021	92.18	0.00	0.21	60.94	61.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	64.71	64.80	0.00	0.00	61.07	61.07	0.00	0.00	0.00	0.00	0.00	0.30	186.71	187.02	99.84	
17/03/2021	92.24	0.00	0.46	59.92	60.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	63.44	63.53	0.00	0.00	60.60	60.60	0.00	0.00	0.00	0.00	0.00	0.55	183.96	184.52	99.70	
18/03/2021	92.33	0.00	0.29	59.46	59.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	61.93	62.14	0.00	0.00	60.11	60.11	0.00	0.00	0.00	0.00	0.00	0.51	181.50	182.00	99.72	
19/03/2021	92.60	0.00	0.40	56.71	57.11	0.00	0.00	9.37	9.37	0.16	0.16	13.65	13.96	0.00	0.04	39.59	39.63	0.00	0.00	62.06	62.06	0.00	0.00	0.00	0.00	0.16	0.60	181.37	182.13	99.58	
20/03/2021	92.65	0.00	0.32	45.35	45.67	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	71.39	71.39	0.00	0.00	0.00	0.00	0.00	0.32	181.64	181.96	99.82	
21/03/2021	92.54	0.00	0.25	44.06	44.30	0.00	0.00	64.71	64.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.72	70.72	0.00	0.00	0.00	0.00	0.00	0.25	179.49	179.73	99.86	
22/03/2021	92.70	0.00	0.36	49.55	49.90	0.00	0.00	22.94	22.94	0.00	0.00	39.81	39.81	0.00	0.00	0.00	0.00	0.00	0.00	64.04	64.04	0.00	0.00	0.00	0.00	0.00	0.36	176.34	176.69	99.80	
23/03/2021	92.82	0.00	0.22	52.11	52.33	0.01	0.01	8.07	8.09	0.00	0.00	53.78	53.78	0.00	0.00	0.00	0.00	0.00	0.00	61.73	61.73	0.00	0.00	0.00	0.00	0.01	0.23	175.71	175.94	99.87	
24/03/2021	92.77	0.00	0.21	43.75	43.97	0.00	0.00	61.95	61.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	69.99	70.04	0.00	0.00	0.00	0.00	0.00	0.26	175.70	175.96	99.85	
25/03/2021	87.12	0.00	0.10	28.73	28.83	0.00	0.00	38.74	38.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	41.25	41.44	0.00	0.00	0.00	0.00	0.00	0.29	108.73	109.02	99.74		
26/03/2021	92.62	0.00	0.49	49.63	50.12	0.00	0.00	67.50	67.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	71.61	72.36	0.00	0.00	0.00	0.00	0.00	1.24	188.74	189.98	99.35		
27/03/2021	92.63	0.00	0.59	49.47	50.06	0.00	0.00	67.48	67.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	71.95	72.45	0.00	0.00	0.00	0.00	0.00	1.09	188.89	189.98	99.43		
28/03/2021	92.61	0.00	0.59	49.26	49.85	0.00	0.00	67.28	67.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	24.22	24.42	0.00	0.00	48.48	48.48	0.00	0.79	189.24	190.03	99.59		
29/03/2021	93.03	0.00	0.93	59.00	59.94	0.00	0.00	39.16	39.16	0.00	0.00	21.04	21.04	0.00	0.00	0.00	0.00	0.00	0.00	62.74	62.74	0.00	0.00	0.35	69.42	69.78	0.00	1.29	188.62	189.91	99.32
30/03/2021	93.95	0.00	1.00	70.82	71.82	0.00	0.00	0.00	0.00	0.00	0.00	48.77	48.77	0.00	0.00	0.00	0.00	0.00	0.00	62.74	62.74	0.00	1.00	182.34	183.34	0.00	1.00	182.02	183.01	99.45	
31/03/2021	94.32	0.00	1.00	70.83	71.82	0.00	0.00	0.00	0.00	0.00	0.00	20.78	20.78	0.00	0.00	29.70	29.70	0.00	0.00	0.00	0.00	0.00	0.00	60.71	0.00	1.00	182.02	183.01	99.46		

Total [ML]:

0.05 9.84 1252.70 1262.59 0.03 0.03 947.61 947.67 0.17 7.15 700.68 708.00 0.02 0.91 754.74 755.66 0.07 2.96 1718.95 1721.98 0.00 0.35 241.36 241.72 0.34 21.23 5616.05 5637.62

Water Volume [%]:

WATER TREATMENT PLANT UV REPORT

Report Period: April 2021

Report Created: Saturday, May 01, 2021

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total		
01/04/2021	0.00	1.08	69.55	70.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.95	50.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.57	58.57	0.00	1.08	179.07	180.14	99.40	
02/04/2021	0.00	0.77	68.37	69.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.88	49.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.99	56.99	0.00	0.77	175.23	176.00	99.56	
03/04/2021	0.00	1.00	67.90	68.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.56	49.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.98	56.98	0.00	1.00	174.44	175.45	99.43	
04/04/2021	0.00	1.05	67.69	68.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.48	49.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.28	56.80	0.00	1.56	173.45	175.02	99.11	
05/04/2021	0.00	1.29	67.39	68.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.56	49.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.06	56.77	0.00	2.00	173.01	175.01	98.86	
06/04/2021	0.00	1.10	67.59	68.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.77	49.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.02	56.57	0.00	1.65	173.38	175.03	99.06	
07/04/2021	0.00	1.42	67.09	68.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.95	49.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.98	56.53	0.00	1.97	173.02	174.99	98.87	
08/04/2021	0.01	0.89	61.42	62.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	47.73	47.75	0.00	0.00	0.00	0.00	0.02	0.81	49.58	50.41	0.04	1.71	158.73	160.48	98.91			
09/04/2021	0.00	0.50	58.80	59.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.80	59.80	0.00	0.00	0.00	0.00	0.00	0.48	56.67	57.15	0.00	0.98	175.27	176.26	99.44			
10/04/2021	0.00	0.49	58.36	58.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.31	64.31	0.00	0.00	0.00	0.00	0.00	0.60	60.74	61.34	0.00	1.09	183.41	184.50	99.41			
11/04/2021	0.00	0.70	58.14	58.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.05	64.05	0.00	0.00	0.00	0.00	0.00	0.47	60.66	61.12	0.00	1.16	182.86	184.02	99.37			
12/04/2021	0.00	1.04	58.48	59.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.01	65.01	0.00	0.00	0.00	0.00	0.00	0.64	61.71	62.35	0.00	1.68	185.20	186.88	99.10			
13/04/2021	0.00	1.35	59.23	60.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.42	66.42	0.00	0.00	38.58	38.58	0.00	0.31	26.58	26.89	0.00	1.65	190.82	192.47	99.14			
14/04/2021	0.00	1.25	56.55	57.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.26	63.26	0.00	0.00	60.87	60.87	0.00	0.00	0.00	0.00	0.00	1.25	180.68	181.93	99.32			
15/04/2021	0.00	0.80	41.67	42.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.27	42.27	0.00	0.00	39.45	39.45	0.00	0.00	0.00	0.00	0.00	0.80	123.39	124.20	99.35			
16/04/2021	0.00	1.03	61.00	62.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.24	61.24	0.00	0.00	59.95	59.95	0.00	0.00	0.00	0.00	0.00	1.03	182.20	183.23	99.44			
17/04/2021	0.00	1.33	58.71	60.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.95	59.95	0.00	0.00	58.02	58.02	0.00	0.00	0.00	0.00	0.00	1.33	176.68	178.01	99.25			
18/04/2021	0.00	1.17	59.13	60.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.84	59.84	0.00	0.00	57.85	57.85	0.00	0.00	0.00	0.00	0.00	1.17	176.83	178.00	99.34			
19/04/2021	0.04	0.84	35.31	36.18	0.00	0.00	55.36	55.36	0.00	0.12	10.73	10.86	0.15	0.15	4.30	4.60	0.00	0.00	64.32	64.32	0.00	0.00	0.00	0.00	0.19	1.11	170.01	171.31	99.24	
20/04/2021	0.00	0.00	0.00	0.00	0.00	0.00	58.33	58.33	0.00	0.96	58.85	59.81	0.00	0.00	0.00	0.00	0.00	0.00	59.88	59.88	0.00	0.00	0.00	0.00	0.00	0.96	177.07	178.03	99.46	
21/04/2021	0.00	0.00	0.00	0.00	0.00	58.10	58.10	0.00	0.87	59.00	59.88	0.00	0.00	0.00	0.00	0.00	0.00	60.49	60.49	0.00	0.00	0.00	0.00	0.00	0.87	177.59	178.46	99.51		
22/04/2021	0.08	0.61	17.84	18.53	0.00	0.00	56.70	56.70	0.02	0.23	21.88	22.13	0.06	0.15	9.38	9.60	0.00	0.00	60.65	60.65	0.00	0.00	0.00	0.00	0.16	0.99	166.46	167.61	99.31	
23/04/2021	0.00	0.87	43.85	44.72	0.00	0.00	63.30	63.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.96	71.96	0.00	0.00	0.00	0.00	0.00	0.87	179.11	179.98	99.52	
24/04/2021	0.00	0.99	43.74	44.73	0.00	0.00	63.26	63.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.99	71.99	0.00	0.00	0.00	0.00	0.00	0.99	178.99	179.98	99.45	
25/04/2021	0.00	0.93	45.06	45.98	0.00	0.00	64.61	64.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.80	73.80	0.00	0.00	0.00	0.00	0.00	0.93	183.46	184.39	99.50	
26/04/2021	0.00	1.30	52.22	53.51	0.00	0.00	17.88	17.88	0.00	0.46	46.92	47.38	0.00	0.00	0.00	0.00	0.00	0.00	67.38	67.38	0.00	0.00	0.00	0.00	0.00	1.75	184.39	186.15	99.06	
27/04/2021	0.00	1.27	54.66	55.93	0.00	0.00	0.00	0.00	0.00	0.59	64.30	64.88	0.00	0.00	0.00	0.00	0.00	0.00	64.18	64.18	0.00	0.00	0.00	0.00	0.00	1.86	183.13	184.99	98.99	
28/04/2021	0.00	1.14	55.43	56.58	0.00	0.00	0.00	0.00	0.00	0.60	65.47	66.07	0.00	0.00	0.00	0.00	0.00	0.00	66.19	66.19	0.00	0.00	0.00	0.00	0.00	1.74	187.10	188.84	99.08	
29/04/2021	0.00	1.10	55.63	56.74	0.00	0.00	0.00	0.00	0.00	0.46	65.96	66.43	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	1.10	188.91	190.02	99.42	
30/04/2021	0.00	1.26	55.49	56.75	0.00	0.00	0.00	0.00	0.00	0.46	65.96	66.43	0.00	0.00	0.00	0.00	0.00	0.00	66.81	66.81	0.00	0.00	0.00	0.00	0.00	1.73	188.26	189.99	99.09	

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: April 2021

Report Created: Saturday, May 01, 2021

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]																	
	Avg.	Min.	Avg.	Min.	Max.	Avg.																
01/04/2021	94.3	93.9	95.5	95.2	16.6	21.7	21.1	OL	OL	OL	OL	OL	OL	20.5	29.1	24.2	OL	OL	OL	18.4	24.8	23.2
02/04/2021	94.6	93.6	95.7	95.3	16.7	23.2	21.1	OL	OL	OL	OL	OL	OL	20.0	28.4	23.8	OL	OL	OL	18.5	24.3	23.2
03/04/2021	94.9	94.5	95.9	95.6	16.8	23.5	21.1	OL	OL	OL	OL	OL	OL	19.2	27.7	23.0	OL	OL	OL	17.8	23.8	22.4
04/04/2021	95.0	94.6	95.8	95.5	16.7	21.8	21.1	OL	OL	OL	OL	OL	OL	18.2	26.3	21.8	OL	OL	OL	17.3	24.1	21.6
05/04/2021	95.1	94.5	95.9	95.4	16.7	21.7	21.1	OL	OL	OL	OL	OL	OL	18.2	24.9	21.4	OL	OL	OL	17.1	22.1	21.2
06/04/2021	95.3	94.8	96.0	95.5	16.5	21.8	21.1	OL	OL	OL	OL	OL	OL	18.3	23.8	21.4	OL	OL	OL	17.2	24.0	21.2
07/04/2021	95.4	94.9	96.1	95.8	16.5	23.3	21.1	OL	OL	OL	OL	OL	OL	18.1	22.8	21.3	OL	OL	OL	17.0	22.1	21.2
08/04/2021	95.7	0.0	96.2	0.0	0.0	79.3	21.3	OL	OL	OL	OL	OL	OL	0.0	69.3	21.3	OL	OL	OL	0.0	97.7	21.5
09/04/2021	95.6	94.7	96.1	95.3	16.4	23.5	21.2	OL	OL	OL	OL	OL	OL	18.2	21.9	21.2	OL	OL	OL	17.2	23.2	21.3
10/04/2021	95.9	94.8	96.3	96.1	16.6	23.2	21.2	OL	OL	OL	OL	OL	OL	18.3	21.9	21.2	OL	OL	OL	17.1	23.1	21.2
11/04/2021	95.8	95.1	96.3	95.4	16.6	22.7	21.2	OL	OL	OL	OL	OL	OL	18.1	22.6	21.2	OL	OL	OL	17.0	23.3	21.2
12/04/2021	96.0	95.4	96.5	96.1	15.6	29.7	21.3	OL	OL	OL	OL	OL	OL	18.3	22.5	21.2	OL	OL	OL	16.9	22.2	21.2
13/04/2021	96.0	95.4	96.4	96.2	15.3	22.7	21.4	OL	OL	OL	OL	OL	OL	18.2	21.8	21.2	27.0	90.9	28.6	0.0	35.8	21.2
14/04/2021	95.8	94.2	96.2	95.4	15.6	22.5	21.4	OL	OL	OL	OL	OL	OL	18.3	21.8	21.2	25.3	29.2	27.5	OL	OL	OL
15/04/2021	95.0	94.3	95.6	94.4	0.0	59.0	21.4	OL	OL	OL	OL	OL	OL	0.0	79.5	21.2	0.0	103.0	25.2	OL	OL	OL
16/04/2021	95.7	95.1	96.3	96.0	15.5	23.1	21.4	OL	OL	OL	OL	OL	OL	18.1	21.9	21.2	23.9	26.5	25.3	OL	OL	OL
17/04/2021	95.5	94.2	96.3	95.9	15.5	22.3	21.4	OL	OL	OL	OL	OL	OL	18.3	21.9	21.2	21.7	28.7	26.4	OL	OL	OL
18/04/2021	95.4	94.8	96.3	95.8	15.5	23.6	21.4	OL	OL	OL	OL	OL	OL	18.3	21.8	21.2	22.5	28.7	26.4	OL	OL	OL
19/04/2021	95.3	89.2	96.3	95.6	0.0	25.4	21.6	0.0	88.1	21.8	0.0	90.3	22.2	0.0	45.5	21.3	0.0	104.0	24.1	OL	OL	OL
20/04/2021	94.2	93.6	95.2	94.7	OL	OL	OL	18.8	23.9	21.3	17.1	22.0	21.2	OL	OL	OL	19.0	24.9	22.7	OL	OL	OL
21/04/2021	94.0	93.4	94.7	94.3	OL	OL	OL	18.7	31.6	21.2	16.9	28.1	21.2	OL	OL	OL	18.5	25.7	21.4	OL	OL	OL
22/04/2021	93.8	92.7	94.5	92.6	0.0	50.1	21.6	0.0	105.6	21.4	0.0	30.5	21.2	0.0	73.0	21.7	0.0	100.7	21.3	OL	OL	OL
23/04/2021	93.8	93.3	94.5	93.9	15.5	22.8	21.6	18.7	21.7	21.2	OL	OL	OL	OL	OL	OL	18.5	23.1	21.2	OL	OL	OL
24/04/2021	93.9	93.3	94.3	93.8	15.5	22.9	21.6	18.8	21.8	21.2	OL	OL	OL	OL	OL	OL	18.5	23.2	21.2	OL	OL	OL
25/04/2021	93.9	93.2	94.2	93.8	15.6	22.7	21.6	18.7	21.9	21.2	OL	OL	OL	OL	OL	OL	18.5	21.8	21.1	OL	OL	OL
26/04/2021	93.7	92.6	93.9	93.6	14.8	24.8	21.5	0.0	37.1	21.3	16.3	89.5	21.2	OL	OL	OL	18.3	22.9	21.2	OL	OL	OL
27/04/2021	93.7	93.3	93.7	93.3	15.8	23.1	21.4	OL	OL	OL	17.1	22.2	21.2	OL	OL	OL	18.3	22.8	21.2	OL	OL	OL
28/04/2021	93.7	93.4	93.5	93.0	15.5	22.7	21.4	OL	OL	OL	17.0	22.1	21.1	OL	OL	OL	18.4	22.8	21.2	OL	OL	OL
29/04/2021	93.7	93.2	93.6	93.0	15.6	22.8	21.4	OL	OL	OL	16.6	22.2	21.1	OL	OL	OL	18.4	21.9	21.2	OL	OL	OL
30/04/2021	93.9	93.4	93.6	92.7	15.3	22.6	21.4	OL	OL	OL	16.8	23.1	21.1	OL	OL	OL	18.2	21.9	21.2	OL	OL	OL

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT  
 WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: May 2021

Report Created: Tuesday, June 01, 2021

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total		
01/05/2021	0.00	1.06	55.64	56.70	0.00	0.00	0.00	0.00	0.00	0.51	65.92	66.43	0.00	0.00	0.00	0.00	0.00	0.00	66.86	66.86	0.00	0.00	0.00	0.00	0.00	1.56	188.42	189.99	99.18	
02/05/2021	0.00	1.33	55.06	56.39	0.00	0.00	0.00	0.00	0.00	0.78	65.19	65.97	0.00	0.00	0.00	0.00	0.00	0.00	66.09	66.09	0.00	0.00	0.00	0.00	0.00	2.11	186.34	188.45	98.88	
03/05/2021	0.00	1.24	54.25	55.49	0.00	0.00	0.00	0.00	0.00	0.32	64.57	64.89	0.00	0.00	0.00	0.00	0.00	0.00	64.60	64.60	0.00	0.00	0.00	0.00	0.00	1.55	183.41	184.97	99.16	
04/05/2021	0.00	1.29	53.62	54.92	0.00	0.00	0.00	0.00	0.00	0.40	63.17	63.57	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	1.69	179.90	181.59	99.07	
05/05/2021	0.00	1.22	53.72	54.95	0.00	0.00	0.00	0.00	0.00	0.62	62.51	63.13	0.00	0.00	0.00	0.00	0.00	0.00	62.78	62.78	0.00	0.00	0.00	0.00	0.00	1.84	179.02	180.86	98.98	
06/05/2021	0.00	1.04	54.22	55.25	0.00	0.00	0.00	0.00	0.00	0.22	63.31	63.53	0.00	0.00	0.00	0.00	0.00	0.00	63.21	63.21	0.00	0.00	0.00	0.00	0.00	1.26	180.73	181.99	99.31	
07/05/2021	0.00	0.31	54.95	55.26	0.00	0.00	0.00	0.00	0.00	0.00	63.52	63.52	0.00	0.00	0.00	0.00	0.00	0.00	63.22	63.22	0.00	0.00	0.00	0.00	0.00	0.31	181.69	182.00	99.83	
08/05/2021	0.00	0.61	54.60	55.21	0.00	0.00	0.00	0.00	0.00	0.80	62.80	63.59	0.00	0.00	0.00	0.00	0.00	0.00	63.20	63.20	0.00	0.00	0.00	0.00	0.00	1.41	180.59	182.00	99.23	
09/05/2021	0.00	0.50	54.69	55.19	0.00	0.00	0.00	0.00	0.00	1.06	62.53	63.59	0.00	0.00	0.00	0.00	0.00	0.00	63.26	63.26	0.00	0.00	0.00	0.00	0.00	1.56	180.48	182.04	99.14	
10/05/2021	0.00	0.58	54.95	55.53	0.00	0.00	0.00	0.00	0.00	0.97	63.10	64.07	0.00	0.00	0.00	0.00	0.00	0.00	63.73	63.73	0.00	0.00	0.00	0.00	0.00	1.55	181.78	183.33	99.15	
11/05/2021	0.00	0.44	57.12	57.56	0.00	0.00	0.00	0.00	0.00	0.43	66.90	67.33	0.00	0.00	0.00	0.00	0.00	0.00	67.67	67.67	0.00	0.00	0.00	0.00	0.00	0.87	191.69	192.56	99.55	
12/05/2021	0.00	0.26	63.65	63.91	0.00	0.00	0.00	0.00	0.00	0.40	70.84	71.24	0.00	0.00	0.00	0.00	0.00	0.00	71.45	71.45	0.00	0.00	0.00	0.00	0.00	0.66	205.94	206.60	99.68	
13/05/2021	0.00	0.73	69.19	69.92	0.00	0.00	0.00	0.00	0.00	0.72	29.59	30.31	0.00	0.11	45.54	45.65	0.00	0.00	74.21	74.21	0.00	0.00	0.00	0.00	0.00	1.56	218.53	220.09	99.29	
14/05/2021	0.00	0.55	71.54	72.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	78.77	78.88	0.00	0.00	74.01	74.01	0.00	0.00	0.00	0.00	0.00	0.66	224.32	224.98	99.71	
15/05/2021	0.00	0.45	71.44	71.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	78.91	79.02	0.00	0.00	73.62	73.62	0.00	0.00	0.00	0.00	0.00	0.56	223.97	224.53	99.75	
16/05/2021	0.00	0.43	68.37	68.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	74.72	74.93	0.00	0.00	71.26	71.26	0.00	0.00	0.00	0.00	0.00	0.64	214.35	214.99	99.70	
17/05/2021	0.00	0.38	56.48	56.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	62.26	62.31	0.00	0.00	59.12	59.12	0.00	0.00	0.00	0.00	0.00	0.44	177.86	178.29	99.76		
18/05/2021	0.00	0.63	62.34	62.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	68.97	69.13	0.00	0.00	65.34	65.34	0.00	0.00	0.00	0.00	0.00	0.79	196.65	197.43	99.60		
19/05/2021	0.00	0.56	62.67	63.24	0.00	0.00	0.00	0.00	0.00	0.26	28.10	28.36	0.00	0.05	50.49	50.54	0.00	0.00	73.71	73.71	0.00	0.00	0.00	0.00	0.00	0.87	214.97	215.85	99.60	
20/05/2021	0.00	0.60	56.97	57.57	0.00	0.00	0.00	0.00	0.00	0.47	74.01	74.48	0.00	0.04	0.76	0.80	0.00	0.00	38.98	38.98	0.00	0.63	43.56	44.19	0.00	1.73	214.29	216.02	99.20	
21/05/2021	0.00	0.43	61.33	61.76	0.00	0.00	0.00	0.00	0.00	0.63	68.54	69.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	70.63	71.67	0.00	2.10	200.49	202.59	98.96	
22/05/2021	0.00	0.44	57.50	57.94	0.00	0.00	0.00	0.00	0.00	0.68	64.68	65.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	66.09	66.70	0.00	1.73	188.27	190.00	99.09	
23/05/2021	0.00	0.53	54.03	54.56	0.00	0.00	0.00	0.00	0.00	0.47	61.23	61.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	61.38	62.03	0.00	1.65	176.64	178.29	99.08	
24/05/2021	0.00	0.59	62.54	63.13	0.00	0.00	0.00	0.00	0.00	0.29	51.92	52.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	58.74	59.48	0.00	1.62	173.20	174.83	99.07	
25/05/2021	0.00	0.54	70.01	70.55	0.00	0.00	0.00	0.00	0.00	0.40	47.98	48.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	60.14	60.86	0.00	1.66	178.13	179.79	99.08	
26/05/2021	0.00	0.89	70.20	71.08	0.00	0.00	0.00	0.00	0.00	0.27	47.84	48.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	59.86	60.79	0.00	2.08	177.90	179.99	98.84	
27/05/2021	0.00	0.74	70.36	71.10	0.00	0.00	0.00	0.00	0.00	0.20	47.93	48.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	59.91	60.80	0.00	1.83	178.20	180.03	98.98	
28/05/2021	0.00	0.73	74.12	74.86	0.00	0.00	0.00	0.00	0.00	0.18	50.43	50.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	64.27	65.12	0.00	1.76	188.82	190.59	99.07	
29/05/2021	0.00	0.97	76.36	77.33	0.00	0.00	0.00	0.00	0.00	0.33	52.02	52.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	67.73	68.34	0.00	1.91	196.11	198.02	99.03	
30/05/2021	0.00	0.70	64.33	65.04	0.00	0.00	0.00	0.00	0.00	0.52	62.68	63.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	68.98	69.61	0.00	1.85	195.99	197.84	99.07	
31/05/2021	0.00	0.70	58.20	58.90	0.00	0.00	0.00	0.00	0.00	0.73	68.44	69.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	69.24	69.97	0.00	2.15	195.88	198.03	98.91	

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): \_D.Merredew\_\_\_\_\_

Signature: \_\_Original signed by D.Merredew\_\_\_\_\_

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**CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT  
 WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: May 2021

Report Created: Tuesday, June 01, 2021

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]																	
01/05/2021	93.8	93.1	93.1	92.3	15.6	23.4	21.4	OL	OL	OL	16.7	22.1	21.1	OL	OL	OL	18.2	23.2	21.2	OL	OL	OL
02/05/2021	93.9	93.6	92.9	91.9	15.9	22.8	21.4	OL	OL	OL	16.9	22.4	21.1	OL	OL	OL	18.3	23.0	21.2	OL	OL	OL
03/05/2021	93.8	93.5	92.9	91.8	15.7	22.6	21.5	OL	OL	OL	16.7	22.2	21.1	OL	OL	OL	18.3	21.9	21.2	OL	OL	OL
04/05/2021	93.8	93.6	92.7	91.7	15.8	22.8	21.5	OL	OL	OL	17.1	22.9	21.2	OL	OL	OL	18.4	22.0	21.2	OL	OL	OL
05/05/2021	93.7	93.4	92.4	90.8	16.0	22.7	21.5	OL	OL	OL	17.1	22.7	21.2	OL	OL	OL	18.3	22.9	21.2	OL	OL	OL
06/05/2021	93.5	93.1	92.5	91.4	15.6	29.4	21.4	OL	OL	OL	16.9	22.5	21.2	OL	OL	OL	18.1	21.9	21.2	OL	OL	OL
07/05/2021	93.2	92.9	92.2	90.6	16.7	26.5	21.3	OL	OL	OL	16.9	22.4	21.2	OL	OL	OL	18.3	22.8	21.2	OL	OL	OL
08/05/2021	93.0	90.3	92.1	90.4	16.7	26.4	21.3	OL	OL	OL	16.8	22.3	21.2	OL	OL	OL	18.4	21.8	21.2	OL	OL	OL
09/05/2021	92.9	92.5	92.3	90.6	16.7	26.9	21.3	OL	OL	OL	17.1	22.7	21.2	OL	OL	OL	18.2	21.9	21.2	OL	OL	OL
10/05/2021	92.8	92.4	92.5	91.0	16.6	26.6	21.3	OL	OL	OL	17.0	22.3	21.2	OL	OL	OL	18.3	21.9	21.2	OL	OL	OL
11/05/2021	92.9	92.4	92.3	90.5	16.6	26.1	21.3	OL	OL	OL	17.0	22.5	21.1	OL	OL	OL	18.3	23.8	21.2	OL	OL	OL
12/05/2021	92.8	92.2	92.5	90.6	16.7	24.2	21.2	OL	OL	OL	16.9	22.1	21.1	OL	OL	OL	18.2	23.1	21.1	OL	OL	OL
13/05/2021	93.2	92.6	92.9	91.3	16.8	33.4	21.2	OL	OL	OL	0.0	34.0	21.0	15.0	61.7	21.3	18.3	25.2	21.1	OL	OL	OL
14/05/2021	93.4	92.5	93.9	91.3	17.1	24.0	21.2	OL	OL	OL	OL	OL	OL	17.7	22.1	21.2	18.3	22.7	21.1	OL	OL	OL
15/05/2021	93.7	93.2	95.1	93.4	16.7	23.5	21.2	OL	OL	OL	OL	OL	OL	17.5	22.0	21.2	18.2	21.8	21.1	OL	OL	OL
16/05/2021	94.3	93.2	95.9	94.5	16.5	24.2	21.2	OL	OL	OL	OL	OL	OL	17.7	22.1	21.3	18.2	21.9	21.1	OL	OL	OL
17/05/2021	94.3	93.6	96.4	95.5	16.6	23.9	21.2	OL	OL	OL	OL	OL	OL	17.9	22.1	21.3	17.9	23.6	21.1	OL	OL	OL
18/05/2021	94.3	93.3	96.4	95.0	16.7	24.1	21.2	OL	OL	OL	OL	OL	OL	17.6	22.1	21.3	18.3	21.9	21.1	OL	OL	OL
19/05/2021	94.3	93.6	96.7	96.0	0.0	52.0	21.3	OL	OL	OL	0.0	94.8	21.5	0.0	37.9	21.3	18.2	23.0	21.1	OL	OL	OL
20/05/2021	94.4	92.9	96.6	95.3	0.0	102.6	21.4	OL	OL	OL	17.0	25.9	21.1	0.0	52.1	22.5	0.0	36.0	21.5	15.8	77.4	21.2
21/05/2021	93.4	92.5	96.7	95.8	16.9	21.8	21.2	OL	OL	OL	17.0	23.2	21.1	OL	OL	OL	OL	OL	OL	16.3	22.1	21.1
22/05/2021	93.3	92.4	96.7	95.2	16.9	21.8	21.2	OL	OL	OL	17.0	23.2	21.2	OL	OL	OL	OL	OL	OL	16.4	22.2	21.2
23/05/2021	93.5	92.3	97.1	96.0	16.6	23.7	21.2	OL	OL	OL	17.2	23.2	21.2	OL	OL	OL	OL	OL	OL	16.7	22.2	21.2
24/05/2021	93.7	92.6	97.1	96.1	16.7	35.4	21.2	OL	OL	OL	16.8	36.6	21.3	OL	OL	OL	OL	OL	OL	16.2	38.2	21.2
25/05/2021	93.9	92.8	97.1	96.3	16.4	27.6	21.1	OL	OL	OL	17.1	27.8	21.4	OL	OL	OL	OL	OL	OL	16.3	26.4	21.2
26/05/2021	93.8	92.5	97.0	96.4	16.9	21.7	21.1	OL	OL	OL	17.1	23.6	21.4	OL	OL	OL	OL	OL	OL	16.4	21.8	21.2
27/05/2021	94.0	92.9	96.9	95.9	16.8	21.8	21.1	OL	OL	OL	17.1	24.3	21.4	OL	OL	OL	OL	OL	OL	16.6	21.8	21.2
28/05/2021	94.2	93.2	97.0	96.1	16.8	21.8	21.1	OL	OL	OL	17.1	23.3	21.3	OL	OL	OL	OL	OL	OL	16.9	21.8	21.2
29/05/2021	93.9	92.7	96.5	95.4	16.7	22.3	21.1	OL	OL	OL	17.1	23.1	21.3	OL	OL	OL	OL	OL	OL	17.1	21.8	21.1
30/05/2021	94.0	92.9	96.4	95.2	16.4	37.7	21.2	OL	OL	OL	17.1	34.3	21.2	OL	OL	OL	OL	OL	OL	16.4	38.3	21.1
31/05/2021	93.4	92.1	96.3	95.4	16.8	22.1	21.2	OL	OL	OL	16.8	22.9	21.1	OL	OL	OL	OL	OL	OL	16.3	22.1	21.1

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>  
 2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: June 2021

Report Created: Friday, July 02, 2021

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total																		
01/06/2021	0.00	0.89	60.42	61.31	0.00	0.00	0.00	0.00	0.00	0.83	69.92	70.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	70.95	71.73	0.00	2.51	201.29	203.80	98.77	
02/06/2021	0.04	0.69	53.57	54.30	0.00	0.00	0.00	0.00	0.00	0.35	56.22	56.58	0.00	0.00	3.39	3.39	0.00	0.09	35.97	36.06	0.00	0.33	26.33	26.66	0.04	1.47	175.48	176.99	99.15	
03/06/2021	0.00	0.71	70.21	70.91	0.00	0.00	0.00	0.00	0.00	0.21	42.78	42.99	0.00	0.14	68.57	68.71	0.00	0.23	77.00	77.23	0.00	0.00	0.00	0.00	0.00	1.28	258.56	259.84	99.51	
04/06/2021	0.00	0.82	78.04	78.86	0.00	0.00	0.00	0.00	0.00	0.34	44.12	44.46	0.00	0.11	62.61	62.71	0.00	0.27	80.45	80.73	0.00	0.00	0.00	0.00	0.00	1.55	265.22	266.77	99.42	
05/06/2021	0.00	0.59	70.45	71.04	0.00	0.00	0.00	0.00	0.00	0.35	45.26	45.61	0.00	0.21	72.59	72.80	0.00	0.21	76.99	77.20	0.00	0.00	0.00	0.00	0.00	1.37	265.28	266.65	99.49	
06/06/2021	0.00	0.48	62.93	63.41	0.00	0.00	0.00	0.00	0.00	0.29	41.66	41.95	0.00	0.20	68.70	68.90	0.00	0.10	71.16	71.25	0.00	0.00	0.00	0.00	0.00	1.06	244.45	245.52	99.57	
07/06/2021	0.00	0.30	62.32	62.62	0.00	0.00	0.00	0.00	0.00	0.59	58.73	59.31	0.00	0.05	34.10	34.14	0.00	0.05	74.72	74.77	0.00	0.00	0.00	0.00	0.00	0.98	229.86	230.85	99.57	
08/06/2021	0.00	0.41	65.59	66.00	0.00	0.00	0.00	0.00	0.00	0.62	79.38	79.99	0.00	0.00	0.00	0.00	0.00	0.00	81.10	81.10	0.00	0.00	0.00	0.00	0.00	1.03	226.06	227.09	99.55	
09/06/2021	0.00	0.63	68.30	68.93	0.00	0.00	0.19	0.19	0.00	0.45	36.99	37.44	0.00	0.05	42.90	42.95	0.00	0.00	79.62	79.62	0.00	0.00	0.00	0.00	0.00	1.13	227.99	229.13	99.51	
10/06/2021	0.00	0.53	62.39	62.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	63.22	63.37	0.00	0.00	68.86	68.86	0.00	0.00	0.00	0.00	0.00	0.68	194.47	195.15	99.65	
11/06/2021	0.00	0.41	58.55	58.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.13	55.13	0.00	0.00	66.29	66.29	0.00	0.00	0.00	0.00	0.00	0.41	179.97	180.38	99.77	
12/06/2021	0.00	0.49	58.76	59.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.03	55.03	0.00	0.00	66.77	66.77	0.00	0.00	0.00	0.00	0.00	0.49	180.56	181.05	99.73	
13/06/2021	0.00	0.55	59.99	60.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.87	57.87	0.00	0.00	67.24	67.24	0.00	0.00	0.00	0.00	0.00	0.55	185.10	185.65	99.70	
14/06/2021	0.00	0.44	62.15	62.58	0.00	0.00	0.00	0.00	0.00	0.00	30.57	30.57	0.00	0.00	38.29	38.29	0.00	0.00	70.47	70.47	0.00	0.00	0.00	0.00	0.00	0.44	201.48	201.92	99.78	
15/06/2021	0.00	0.57	65.18	65.75	0.00	0.00	0.00	0.00	0.00	0.00	79.31	79.31	0.00	0.00	0.00	0.00	0.00	0.00	79.37	79.37	0.00	0.00	0.00	0.00	0.00	0.57	223.85	224.42	99.75	
16/06/2021	0.00	0.73	74.25	74.98	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.73	244.26	244.99	99.70		
17/06/2021	0.00	0.42	68.39	68.81	0.00	0.00	0.00	0.00	0.00	0.18	84.05	84.22	0.00	0.00	0.00	0.00	0.00	0.00	84.28	84.28	0.00	0.00	0.00	0.00	0.00	0.60	236.71	237.31	99.75	
18/06/2021	0.00	0.36	78.38	78.74	0.00	0.00	0.00	0.00	0.00	0.18	27.20	27.38	0.00	0.00	0.00	0.00	0.00	0.00	64.31	64.31	0.00	0.29	56.54	56.83	0.00	0.83	226.43	227.26	99.64	
19/06/2021	0.00	0.71	84.29	85.00	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	50.98	50.98	0.00	1.00	84.00	85.00	0.00	1.72	219.27	220.99	99.22		
20/06/2021	0.00	0.77	84.24	85.00	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	49.98	49.98	0.00	0.83	84.19	85.02	0.00	1.60	218.41	220.01	99.27		
21/06/2021	0.00	0.88	54.73	55.61	0.00	0.00	29.26	29.26	0.00	0.00	0.00	0.00	0.04	0.65	0.69	0.00	0.00	49.85	49.85	0.00	0.76	83.86	84.63	0.00	1.68	218.36	220.04	99.24		
22/06/2021	0.00	0.00	0.00	0.00	0.00	69.48	69.48	0.00	0.00	5.67	5.67	0.00	0.00	41.94	41.94	0.00	0.00	22.65	22.65	0.00	0.84	75.71	76.55	0.00	0.84	215.46	216.29	99.61		
23/06/2021	0.00	0.00	0.00	0.00	0.00	73.01	73.01	0.00	0.00	0.00	0.00	0.00	0.00	74.97	74.97	0.00	0.00	0.00	0.00	0.00	0.86	71.68	72.54	0.00	0.86	219.66	220.53	99.61		
24/06/2021	0.00	0.00	0.00	0.00	0.00	76.95	76.95	0.00	0.00	0.00	0.00	0.00	0.00	81.49	81.49	0.00	0.00	0.00	0.00	0.00	0.82	78.00	78.83	0.00	0.82	236.44	237.26	99.65		
25/06/2021	0.00	0.00	0.00	0.00	0.00	79.34	79.34	0.00	0.00	0.00	0.00	0.00	0.00	83.82	83.82	0.00	0.00	0.00	0.00	1.02	80.55	81.57	0.00	1.02	243.71	244.74	99.58			
26/06/2021	0.00	0.00	0.00	0.00	0.00	78.72	78.72	0.00	0.00	0.00	0.06	77.88	77.93	0.00	0.00	0.00	0.00	0.55	79.47	80.03	0.00	0.61	236.07	236.68	99.74					
27/06/2021	0.00	0.00	0.00	0.00	0.00	76.95	76.95	0.00	0.00	0.00	0.05	76.25	76.30	0.00	0.00	0.00	0.00	0.63	81.15	81.78	0.00	0.68	234.35	235.04	99.71					
28/06/2021	0.00	0.16	42.78	42.94	0.00	0.00	32.36	32.36	0.00	0.00	0.00	0.06	79.90	79.96	0.00	0.00	0.00	0.00	0.75	82.94	83.70	0.00	0.97	237.98	238.95	99.59				
29/06/2021	0.00	0.35	63.38	63.73	0.00	0.00	0.00	0.00	0.00	0.09	33.35	33.44	0.00	0.00	71.88	71.88	0.00	0.15	0.00	0.00	0.72	78.32	79.03	0.00	1.30	246.93	248.24	99.47		
30/06/2021	0.00	0.40	63.29	63.69	0.00	0.00	0.00	0.00	0.00	0.10	45.20	45.30	0.00	0.15	69.89	70.04	0.00	0.00	0.00	0.00	0.54	77.72	78.26	0.00	1.19	256.09	257.28	99.54		

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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WATER TREATMENT PLANT UV REPORT

Report Period: June 2021

Report Created: Friday, July 02, 2021

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]																	
01/06/2021	93.4	91.9	96.2	95.3	16.7	23.2	21.2	OL	OL	OL	16.9	23.0	21.1	OL	OL	OL	OL	OL	OL	16.5	22.1	21.1
02/06/2021	93.5	87.5	96.0	94.8	0.0	101.2	21.6	OL	OL	OL	0.0	91.0	21.4	0.0	71.6	21.3	0.0	55.5	21.1	0.0	36.7	21.3
03/06/2021	93.3	91.9	95.8	94.7	16.0	28.6	21.2	OL	OL	OL	16.9	25.1	21.4	15.9	24.3	21.3	16.6	25.1	21.2	OL	OL	OL
04/06/2021	92.8	91.5	95.7	94.5	15.7	22.8	21.3	OL	OL	OL	16.8	25.3	21.4	17.5	28.4	21.3	17.4	22.7	21.2	OL	OL	OL
05/06/2021	92.3	90.7	95.7	94.8	16.0	23.7	21.3	OL	OL	OL	16.8	23.5	21.4	17.5	22.3	21.3	17.5	22.3	21.2	OL	OL	OL
06/06/2021	92.3	90.7	95.5	95.0	16.7	27.7	21.3	OL	OL	OL	16.8	24.4	21.4	17.5	22.5	21.3	17.7	22.8	21.4	OL	OL	OL
07/06/2021	91.8	90.2	95.1	94.4	16.8	31.1	21.3	OL	OL	OL	17.0	24.4	21.3	0.0	35.9	21.3	16.1	29.8	21.2	OL	OL	OL
08/06/2021	91.6	89.8	94.9	94.4	16.5	29.2	21.2	OL	OL	OL	17.1	22.0	21.1	OL	OL	OL	18.3	21.9	21.1	OL	OL	OL
09/06/2021	91.3	89.6	94.9	94.3	17.0	28.9	21.3	0.0	106.0	53.2	0.0	31.5	21.1	15.5	74.4	21.3	18.2	21.8	21.1	OL	OL	OL
10/06/2021	92.4	89.7	94.4	57.5	16.3	30.5	21.3	OL	OL	OL	OL	OL	OL	16.0	22.4	21.2	18.2	21.9	21.2	OL	OL	OL
11/06/2021	94.3	94.0	93.0	91.1	16.9	31.3	21.3	OL	OL	OL	OL	OL	OL	18.1	22.6	21.2	18.3	21.9	21.2	OL	OL	OL
12/06/2021	94.3	93.9	92.8	92.2	16.8	31.4	21.3	OL	OL	OL	OL	OL	OL	18.1	22.3	21.2	18.2	22.6	21.2	OL	OL	OL
13/06/2021	94.3	93.8	92.8	91.8	16.9	31.1	21.3	OL	OL	OL	OL	OL	OL	18.3	22.2	21.3	18.3	21.9	21.2	OL	OL	OL
14/06/2021	94.2	93.6	92.7	92.3	16.7	29.9	21.3	OL	OL	OL	16.2	87.7	21.4	0.0	29.9	21.3	18.3	22.9	21.1	OL	OL	OL
15/06/2021	94.0	93.4	92.5	91.3	16.3	29.1	21.2	OL	OL	OL	20.6	22.0	21.2	OL	OL	OL	18.3	21.8	21.1	OL	OL	OL
16/06/2021	94.0	91.8	92.5	91.5	16.6	25.5	21.2	OL	OL	OL	20.7	21.8	21.2	OL	OL	OL	18.4	22.7	21.1	OL	OL	OL
17/06/2021	94.0	93.6	92.5	92.0	16.6	28.2	21.2	OL	OL	OL	17.4	21.9	21.2	OL	OL	OL	18.3	22.6	21.1	OL	OL	OL
18/06/2021	94.0	93.6	92.5	92.0	16.6	28.4	21.2	OL	OL	OL	0.0	32.2	21.1	OL	OL	OL	18.1	23.5	21.2	17.3	101.5	21.3
19/06/2021	94.0	93.5	92.5	92.0	16.9	23.2	21.1	OL	18.2	23.2	21.3	17.2	21.8	21.1								
20/06/2021	94.0	93.5	92.5	91.9	16.9	22.9	21.1	OL	OL	OL	20.3	92.9	24.3	OL	OL	OL	0.0	51.5	23.4	17.9	23.1	21.3
21/06/2021	93.9	93.4	92.5	92.0	0.0	24.5	21.0	OL	OL	OL	0.0	100.2	24.2	0.0	89.8	22.8	15.9	88.9	21.2	0.0	32.9	21.4
22/06/2021	93.1	86.5	92.1	88.4	OL	OL	OL	OL	OL	OL	20.3	28.1	23.8	OL	OL	OL	18.1	21.7	21.1	OL	OL	OL
23/06/2021	90.5	0.0	92.1	91.7	OL	OL	OL	OL	OL	OL	19.6	26.8	22.6	OL	OL	OL	17.7	28.8	21.1	OL	OL	OL
24/06/2021	91.2	0.0	92.1	91.9	OL	OL	OL	OL	OL	OL	19.1	25.5	21.9	OL	OL	OL	17.8	22.0	21.2	OL	OL	OL
25/06/2021	92.4	90.8	92.2	92.1	OL	OL	OL	OL	OL	OL	18.7	36.6	22.0	OL	OL	OL	17.7	36.5	21.3	OL	OL	OL
26/06/2021	92.6	91.0	92.3	92.1	OL	OL	OL	OL	OL	OL	19.6	26.1	22.3	OL	OL	OL	17.9	22.1	21.3	OL	OL	OL
27/06/2021	92.9	91.5	92.4	92.2	OL	OL	OL	OL	OL	OL	16.0	49.6	22.5	OL	OL	OL	17.7	22.8	21.3	OL	OL	OL
28/06/2021	92.9	91.7	92.4	91.9	16.2	64.2	21.2	0.0	49.6	22.5	OL	OL	OL	OL	OL	OL	17.7	22.8	21.3	OL	OL	OL
29/06/2021	92.9	91.5	92.6	92.1	17.4	23.8	21.2	OL	OL	OL	16.7	84.1	21.5	17.8	22.5	21.4	0.0	14.9	9.4	17.2	22.3	21.1
30/06/2021	88.0	84.1	92.9	92.4	17.3	23.9	21.2	OL	OL	OL	17.3	23.6	21.4	OL	OL	OL	17.7	22.4	21.4	OL	OL	OL

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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WATER TREATMENT PLANT UV REPORT

Report Period: July 2021

Report Created: Sunday, August 01, 2021

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total														
01/07/2021	0.00	0.22	64.76	64.99	0.00	0.00	0.00	0.00	0.00	0.10	46.09	46.18	0.00	0.15	71.22	71.37	0.00	0.00	0.00	0.00	0.00	0.95	79.03	79.98	0.00	1.42	261.10	262.52	99.46	
02/07/2021	0.00	0.80	70.71	71.51	0.00	0.00	0.00	0.00	0.00	0.30	47.40	47.70	0.00	0.05	73.97	74.02	0.00	0.00	0.00	0.00	0.00	0.55	78.95	79.50	0.00	1.71	271.03	272.74	99.37	
03/07/2021	0.00	0.56	74.11	74.68	0.00	0.00	0.00	0.00	0.00	0.13	47.67	47.81	0.00	0.16	74.17	74.33	0.00	0.00	0.00	0.00	0.00	1.12	75.97	77.10	0.00	1.98	271.93	273.91	99.28	
04/07/2021	0.00	0.92	72.13	73.05	0.00	0.00	0.00	0.00	0.00	0.24	47.01	47.24	0.00	0.15	73.15	73.30	0.00	0.00	0.00	0.00	0.00	1.17	75.23	76.40	0.00	2.48	267.51	269.99	99.08	
05/07/2021	0.00	0.86	71.84	72.70	0.00	0.00	0.00	0.00	0.00	0.10	46.88	46.98	0.00	0.05	73.30	73.35	0.00	0.00	0.00	0.00	0.00	1.18	75.84	77.01	0.00	2.19	267.86	270.05	99.19	
06/07/2021	0.00	0.94	70.10	71.04	0.00	0.00	0.00	0.00	0.00	0.17	45.39	45.56	0.00	0.10	72.24	72.34	0.00	0.00	0.00	0.00	0.00	1.06	75.22	76.27	0.00	2.26	262.95	265.21	99.15	
07/07/2021	0.00	0.49	64.70	65.19	0.00	0.00	0.00	0.00	0.00	0.11	38.81	39.02	0.00	0.15	66.36	66.51	0.00	0.00	0.00	0.00	0.00	0.62	73.40	74.02	0.00	1.38	243.37	244.74	99.44	
08/07/2021	0.00	0.49	63.21	63.70	0.00	0.00	0.00	0.00	0.00	0.08	37.23	37.31	0.00	0.00	64.62	64.62	0.00	0.00	0.00	0.00	0.00	0.88	72.99	73.87	0.00	1.44	238.06	239.50	99.40	
09/07/2021	0.00	0.45	64.35	64.80	0.00	0.00	0.00	0.00	0.00	0.14	39.30	39.44	0.00	0.00	66.79	66.79	0.00	0.00	0.00	0.00	0.00	0.88	73.53	74.41	0.00	1.47	243.98	245.45	99.40	
10/07/2021	0.00	0.55	66.95	67.50	0.00	0.00	0.00	0.00	0.00	0.09	41.64	41.72	0.00	0.15	68.57	68.72	0.00	0.00	0.00	0.00	0.00	0.62	74.71	75.34	0.00	1.41	251.87	253.28	99.44	
11/07/2021	0.00	0.63	82.03	82.66	0.00	0.00	0.00	0.00	0.00	0.19	43.75	43.94	0.00	0.05	58.66	58.72	0.00	0.00	0.00	0.00	0.00	1.00	79.21	80.22	0.00	1.88	263.66	265.54	99.29	
12/07/2021	0.00	0.77	84.23	85.00	0.00	0.00	0.00	0.00	0.00	0.09	43.67	43.77	0.00	0.15	54.59	54.75	0.00	0.00	0.00	0.00	0.00	1.06	82.96	84.03	0.00	2.07	265.46	267.54	99.22	
13/07/2021	0.00	0.53	84.48	85.01	0.00	0.00	0.00	0.00	0.00	0.19	43.86	44.05	0.00	0.00	55.18	55.18	0.00	0.00	0.00	0.00	0.00	0.88	83.82	84.70	0.00	1.60	267.33	268.94	99.40	
14/07/2021	0.00	0.75	84.23	84.98	0.00	0.00	0.00	0.00	0.00	0.03	42.30	42.33	0.00	0.00	53.28	53.28	0.00	0.00	0.00	0.00	0.00	0.99	81.99	82.98	0.00	1.77	261.79	263.56	99.33	
15/07/2021	0.00	0.53	84.46	85.00	0.00	0.00	0.00	0.00	0.00	0.16	44.28	44.43	0.00	0.00	55.55	55.55	0.00	0.00	0.00	0.00	0.00	1.01	84.01	85.02	0.00	1.70	268.31	270.01	99.37	
16/07/2021	0.00	1.06	83.94	85.00	0.00	0.00	0.00	0.00	0.00	0.12	44.20	44.33	0.00	0.00	55.68	55.68	0.00	0.00	0.00	0.00	0.00	0.77	84.23	84.99	0.00	1.95	268.05	270.00	99.28	
17/07/2021	0.00	1.19	83.80	84.99	0.00	0.00	0.00	0.00	0.00	0.12	43.78	43.91	0.00	0.00	56.06	56.06	0.00	0.00	0.00	0.00	0.00	1.00	84.00	85.00	0.00	2.31	267.64	269.95	99.14	
18/07/2021	0.00	0.83	84.19	85.02	0.00	0.00	0.00	0.00	0.00	0.03	43.43	43.46	0.00	0.00	56.01	56.01	0.00	0.00	0.00	0.00	0.00	1.42	83.56	84.98	0.00	2.28	267.19	269.47	99.15	
19/07/2021	0.00	1.42	83.57	84.99	0.00	0.00	0.00	0.00	0.00	0.12	40.81	40.92	0.00	0.00	51.89	51.89	0.00	0.00	0.00	0.00	0.00	0.80	81.01	81.81	0.00	2.35	257.27	259.62	99.10	
20/07/2021	0.00	0.89	84.08	84.96	0.00	0.00	0.00	0.00	0.00	0.17	51.51	51.68	0.00	0.00	22.68	22.68	0.00	0.00	0.00	0.00	0.00	1.18	76.40	77.59	0.00	2.24	234.67	236.91	99.05	
21/07/2021	0.00	1.22	78.40	79.63	0.00	0.00	0.00	0.00	0.00	0.23	53.53	53.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	67.24	68.00	0.00	2.21	199.17	201.38	98.90	
22/07/2021	0.00	0.90	75.30	76.20	0.00	0.00	0.00	0.00	0.00	0.11	52.09	52.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	65.91	66.60	0.00	1.70	193.30	195.00	99.13	
23/07/2021	0.00	1.08	80.46	81.54	0.00	0.00	0.00	0.00	0.00	0.36	56.50	56.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	71.26	71.94	0.00	2.12	208.22	210.34	98.99	
24/07/2021	0.00	1.06	83.93	84.99	0.00	0.00	0.00	0.00	0.00	0.59	69.85	70.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	81.69	82.56	0.00	2.52	235.47	237.99	98.94	
25/07/2021	0.00	0.92	77.22	78.13	0.00	0.00	13.57	13.57	0.19	0.61	60.46	61.26	0.00	0.13	11.32	11.45	0.00	0.00	0.00	0.00	0.00	0.90	77.57	78.47	0.19	2.56	240.14	242.89	98.87	
26/07/2021	0.00	0.21	40.51	40.72	0.00	0.00	53.09	53.09	0.00	0.00	0.10	0.10	0.00	0.05	72.44	72.49	0.00	0.08	0.06	0.14	0.00	1.29	75.48	76.78	0.00	1.63	241.68	243.31	99.33	
27/07/2021	0.00	0.03	41.67	41.70	0.00	0.00	68.25	68.25	0.00	0.00	0.00	0.00	0.00	0.10	70.00	70.09	0.00	0.00	0.00	0.00	0.00	0.89	73.90	74.78	0.00	1.01	253.81	254.83	99.60	
28/07/2021	0.00	0.00	41.60	41.60	0.00	0.00	68.53	68.53	0.00	0.00	0.00	0.00	0.00	0.15	71.31	71.45	0.00	0.00	0.00	0.00	0.00	1.60	72.78	74.38	0.00	1.75	254.21	255.97	99.32	
29/07/2021	0.00	0.12	41.46	41.58	0.00	0.00	68.58	68.58	0.00	0.00	0.00	0.00	0.00	0.00	71.15	71.15	0.00	0.00	0.00	0.00	0.00	1.20	73.40	74.59	0.00	1.31	254.59	255.90	99.49	
30/07/2021	0.00	0.20	41.43	41.63	0.00	0.00	69.09	69.09	0.00	0.00	0.00	0.00	0.00	0.05	68.94	68.99	0.00	0.00	0.00	0.00	0.00	1.02	75.34	76.36	0.00	1.27	254.79	256.06	99.51	
31/07/2021	0.00	0.18	42.13	42.31	0.00	0.00	69.53	69.53	0.00	0.00	0.00	0.00	0.00	0.00	71.24	71.24	0.00	0.00	0.00	0.00	0.00	1.38	75.13	76.50	0.00	1.55	258.04	259.59	99.40	

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): M.Szmon \_\_\_\_\_

Signature: Original signed by M.Szmon \_\_\_\_\_

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: July 2021

Report Created: Sunday, August 01, 2021

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]																	
01/07/2021	83.7	0.0	92.9	92.5	17.3	23.3	21.1	OL	OL	OL	17.2	23.4	21.3	17.5	22.4	21.3	OL	OL	OL	17.2	22.1	21.1
02/07/2021	94.0	90.1	92.9	92.3	17.3	23.7	21.1	OL	OL	OL	17.2	24.4	21.3	17.6	23.4	21.3	OL	OL	OL	17.1	22.0	21.1
03/07/2021	94.1	92.6	92.9	92.1	17.0	23.3	21.1	OL	OL	OL	17.3	22.9	21.3	17.5	22.3	21.3	OL	OL	OL	17.2	21.8	21.1
04/07/2021	94.2	91.9	92.9	92.1	17.1	22.1	21.1	OL	OL	OL	17.3	23.1	21.3	17.3	22.4	21.3	OL	OL	OL	16.9	21.7	21.1
05/07/2021	94.2	93.4	92.9	92.2	16.7	22.1	21.1	OL	OL	OL	16.8	22.9	21.3	17.4	22.4	21.3	OL	OL	OL	16.8	23.5	21.1
06/07/2021	94.2	93.0	92.9	92.5	16.7	22.1	21.1	OL	OL	OL	16.8	23.4	21.3	17.6	22.4	21.3	OL	OL	OL	17.0	22.1	21.1
07/07/2021	94.4	92.8	93.0	92.7	17.2	23.5	21.2	OL	OL	OL	17.1	25.1	21.6	17.6	22.5	21.4	OL	OL	OL	16.7	22.3	21.1
08/07/2021	94.4	90.9	93.8	93.5	17.3	21.9	21.2	OL	OL	OL	17.2	27.3	22.1	17.9	22.4	21.4	OL	OL	OL	17.0	23.4	21.1
09/07/2021	93.0	90.8	94.2	93.8	17.4	22.3	21.2	OL	OL	OL	16.9	27.0	21.8	17.2	22.5	21.4	OL	OL	OL	16.8	23.6	21.1
10/07/2021	91.4	88.5	94.3	93.8	17.4	28.0	21.2	OL	OL	OL	16.8	31.3	21.5	17.5	42.2	21.4	OL	OL	OL	17.0	39.6	21.1
11/07/2021	89.8	86.8	94.6	93.8	17.2	22.1	21.1	OL	OL	OL	17.2	29.9	21.4	17.7	24.5	21.5	OL	OL	OL	17.2	23.4	21.1
12/07/2021	91.6	36.2	94.5	93.7	17.2	21.8	21.1	OL	OL	OL	17.3	24.7	21.4	17.8	22.3	21.5	OL	OL	OL	17.0	22.9	21.1
13/07/2021	94.1	90.7	95.0	93.6	17.2	22.0	21.1	OL	OL	OL	17.6	25.3	21.4	17.9	22.4	21.5	OL	OL	OL	16.8	21.9	21.1
14/07/2021	94.1	91.8	95.7	94.5	16.7	32.7	21.1	OL	OL	OL	17.4	31.3	21.6	16.2	34.1	21.5	OL	OL	OL	17.1	28.3	21.1
15/07/2021	93.8	91.4	95.0	94.2	16.5	24.0	21.4	OL	OL	OL	17.2	24.8	21.4	18.2	21.9	21.3	OL	OL	OL	17.1	22.8	21.1
16/07/2021	93.6	91.8	95.1	94.4	16.7	22.6	21.3	OL	OL	OL	17.4	24.1	21.4	18.0	21.8	21.3	OL	OL	OL	16.9	21.9	21.1
17/07/2021	93.5	91.7	95.3	94.0	16.8	24.2	21.3	OL	OL	OL	17.1	23.8	21.4	18.2	21.8	21.2	OL	OL	OL	17.2	21.9	21.1
18/07/2021	92.9	90.6	95.5	94.1	16.6	23.4	21.3	OL	OL	OL	17.5	24.3	21.4	18.2	21.8	21.2	OL	OL	OL	16.0	22.3	21.1
19/07/2021	93.0	91.1	95.7	94.9	15.8	29.5	21.2	OL	OL	OL	17.4	25.2	21.5	18.2	21.9	21.3	OL	OL	OL	16.3	23.3	21.1
20/07/2021	96.5	91.1	95.0	94.6	16.7	21.8	21.0	OL	OL	OL	17.3	25.4	21.9	0.0	27.6	21.3	OL	OL	OL	16.7	24.0	21.1
21/07/2021	97.5	2.6	95.1	94.7	16.8	23.2	21.0	OL	OL	OL	17.5	22.0	21.2	OL	OL	OL	OL	OL	OL	17.1	23.3	21.2
22/07/2021	96.5	95.3	95.2	94.7	16.8	21.6	21.1	OL	OL	OL	17.4	23.2	21.2	OL	OL	OL	OL	OL	OL	16.9	22.0	21.2
23/07/2021	96.3	95.1	95.2	94.5	16.7	21.6	21.0	OL	OL	OL	17.4	22.7	21.2	OL	OL	OL	OL	OL	OL	16.9	21.9	21.1
24/07/2021	95.6	93.9	95.0	94.1	16.7	21.8	21.0	OL	OL	OL	17.2	21.8	21.1	OL	OL	OL	OL	OL	OL	16.9	21.8	21.1
25/07/2021	95.0	93.8	94.9	94.3	16.8	33.3	21.2	0.0	92.2	28.7	0.0	21.8	21.1	0.0	39.4	21.4	OL	OL	OL	0.0	96.4	21.3
26/07/2021	94.7	92.6	94.8	94.1	0.0	102.2	22.5	0.0	105.9	26.4	0.0	80.5	31.0	17.5	22.9	21.3	0.0	101.0	40.7	16.0	25.6	21.3
27/07/2021	94.6	93.4	94.8	94.2	17.8	40.3	22.1	21.3	26.8	24.8	OL	OL	OL	17.7	22.3	21.4	OL	OL	OL	16.1	23.8	21.3
28/07/2021	94.4	91.7	95.1	93.4	17.8	41.3	22.2	20.7	26.7	24.1	OL	OL	OL	17.6	23.9	21.3	OL	OL	OL	16.3	23.8	21.3
29/07/2021	94.3	91.2	94.7	93.9	17.3	40.9	21.9	19.3	26.2	23.3	OL	OL	OL	17.6	22.2	21.3	OL	OL	OL	15.9	22.6	21.3
30/07/2021	94.4	92.9	94.9	94.2	17.2	38.6	21.7	20.3	26.6	23.4	OL	OL	OL	17.5	22.4	21.4	OL	OL	OL	16.3	22.8	21.3
31/07/2021	94.4	90.6	95.1	93.8	17.3	38.7	21.5	20.2	26.7	23.2	OL	OL	OL	17.4	22.3	21.3	OL	OL	OL	16.1	22.7	21.3

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

2. OL - Off Line

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: August 2021

Report Created: Wednesday, September 01,

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/08/2021	0.00	0.58	58.34	58.92	0.00	0.00	27.56	27.56	0.00	0.13	26.24	26.36	0.00	0.15	71.10	71.25	0.00	0.00	0.00	0.00	0.00	1.16	74.45	75.61	0.00	2.01	257.69	259.70	99.22	
02/08/2021	0.00	0.84	69.88	70.71	0.00	0.00	0.00	0.00	0.00	0.22	44.09	44.31	0.00	0.15	70.08	70.23	0.00	0.00	0.00	0.00	0.00	1.40	73.33	74.73	0.00	2.61	257.37	259.98	99.00	
03/08/2021	0.11	0.56	49.51	50.19	0.00	0.00	74.24	74.24	0.06	0.28	51.55	51.88	0.08	0.08	5.03	5.18	0.00	0.00	0.00	0.00	0.05	1.10	68.82	69.97	0.30	2.02	249.14	251.46	99.08	
04/08/2021	0.00	0.45	53.69	54.14	0.00	0.00	83.90	83.90	0.00	0.30	53.41	53.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	72.39	73.98	0.00	2.34	263.39	265.73	99.12	
05/08/2021	0.00	0.21	49.66	49.87	0.00	0.00	75.94	75.94	0.00	0.20	48.18	48.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	66.58	67.76	0.00	1.58	240.37	241.95	99.35	
06/08/2021	0.00	0.36	46.69	47.05	0.00	0.00	70.76	70.76	0.00	0.29	45.31	45.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	63.55	64.67	0.00	1.77	226.31	228.08	99.22	
07/08/2021	0.00	0.38	45.35	45.73	0.00	0.00	69.90	69.90	0.00	0.06	44.99	45.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	63.16	64.28	0.00	1.56	223.40	224.97	99.30	
08/08/2021	0.00	0.43	47.97	48.40	0.00	0.00	73.46	73.46	0.00	0.40	46.68	47.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	65.82	66.90	0.00	1.91	233.93	235.84	99.19	
09/08/2021	0.06	0.69	55.43	56.18	0.09	0.82	65.03	65.94	0.34	1.17	46.98	48.49	0.00	0.00	8.60	8.60	0.00	0.00	40.33	40.33	0.22	0.71	30.54	31.47	0.70	3.39	246.91	251.01	98.37	
10/08/2021	0.00	0.27	48.30	48.57	0.00	0.00	73.08	73.08	0.00	0.30	46.61	46.91	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	0.57	233.93	234.49	99.76	
11/08/2021	0.00	0.27	48.01	48.28	0.00	0.00	72.91	72.91	0.00	0.33	46.56	46.88	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	232.95	233.55	99.74	
12/08/2021	0.00	0.33	18.43	18.76	0.21	0.21	9.64	10.07	0.00	0.67	43.51	44.18	0.00	0.00	0.00	0.00	0.00	0.00	31.13	31.13	0.00	0.86	39.14	40.00	0.21	2.08	141.85	144.14	98.41	
13/08/2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29	78.28	80.58	0.00	0.00	0.00	0.00	0.00	0.00	51.99	51.99	0.00	1.94	82.62	84.56	0.00	4.23	212.89	217.12	98.05	
14/08/2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	79.23	81.21	0.00	0.00	0.00	0.00	0.00	0.00	53.08	53.08	0.00	2.01	82.95	84.96	0.00	3.99	215.26	219.25	98.18	
15/08/2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64	80.01	81.65	0.00	0.00	0.00	0.00	0.00	0.00	56.20	56.20	0.00	1.88	82.29	84.17	0.00	3.52	218.50	222.02	98.41	
16/08/2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95	78.05	80.00	0.00	0.00	0.00	0.00	0.00	0.00	69.19	69.19	0.00	2.01	78.00	80.01	0.00	3.96	225.24	229.20	98.27	
17/08/2021	0.00	1.01	38.13	39.14	0.00	0.00	0.00	0.00	0.00	1.76	75.59	77.36	0.00	0.00	0.00	0.00	0.00	0.00	55.95	55.95	0.00	1.11	67.51	68.62	0.00	3.88	237.19	241.07	98.39	
18/08/2021	0.00	15.26	52.30	67.56	0.00	0.00	0.00	0.00	0.00	1.92	76.75	78.67	0.00	0.00	0.00	0.00	0.00	0.00	39.33	39.33	0.00	0.83	58.77	59.60	0.00	18.02	227.14	245.16	92.65	
19/08/2021	0.37	27.37	8.14	35.88	0.00	0.00	26.40	26.40	0.00	1.86	72.89	74.75	0.05	1.04	5.69	6.77	0.00	0.00	37.60	37.60	0.00	1.21	60.76	61.98	0.43	31.48	211.47	243.38	86.89	
20/08/2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	72.13	73.94	0.00	0.00	0.00	0.00	0.00	0.00	34.86	34.86	0.00	0.90	55.29	56.19	0.00	2.70	240.59	243.30	98.89	
21/08/2021	0.02	0.18	26.63	26.84	0.23	0.25	45.38	45.86	0.07	1.17	61.78	63.03	0.00	0.00	0.00	0.00	0.03	0.03	20.65	20.71	0.10	1.09	55.71	56.90	0.45	2.72	210.16	213.33	98.52	
22/08/2021	0.00	0.51	72.81	73.32	0.00	0.00	0.00	0.00	0.00	0.22	51.85	52.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	63.49	64.56	0.00	1.81	188.15	189.96	99.05	
23/08/2021	0.00	0.47	74.06	74.53	0.00	0.00	0.00	0.00	0.00	0.22	52.63	52.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	64.88	66.17	0.00	1.98	191.57	193.55	98.98	
24/08/2021	0.02	0.77	58.15	58.94	0.00	0.00	0.00	0.00	0.00	0.33	37.55	37.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.78	46.35	47.14	0.04	1.88	142.04	143.95	98.67	
25/08/2021	0.00	1.01	79.69	80.70	0.00	0.00	0.00	0.00	0.00	0.15	53.02	53.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	67.09	68.54	0.00	2.60	199.81	202.41	98.71	
26/08/2021	0.00	1.49	74.17	75.66	0.00	0.00	0.00	0.00	0.00	0.29	48.81	49.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	58.66	60.06	0.00	3.18	181.64	184.82	98.28	
27/08/2021	0.00	1.18	83.82	85.00	0.00	0.00	0.00	0.00	0.00	0.68	64.31	64.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	59.16	59.99	0.00	2.69	207.29	209.98	98.72	
28/08/2021	0.00	1.65	83.35	85.00	0.00	0.00	0.00	0.00	0.00	0.69	65.49	66.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	57.79	58.78	0.00	3.33	206.63	209.96	98.42	
29/08/2021	0.00	1.60	83.42	85.02	0.00	0.00	0.00	0.00	0.00	1.29	69.95	71.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	52.73	53.74	0.00	3.91	206.10	210.01	98.14	
30/08/2021	0.00	1.40	82.81	84.22	0.00	0.00	0.00	0.00	0.00	1.04	62.63	63.67	0.00	0.00	0.00	0.00	0.00	0.05	41.02	41.07	0.00	0.31	20.71	21.02	0.00	2.80	207.17	209.97	98.67	
31/08/2021	0.00	1.55	91.59	93.14	0.00	0.00	0.00	0.00	0.00	0.62	21.23	21.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	42.11	42.44	0.00	2.51	206.12	208.63	98.80	

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon

Page 1 of 2

**CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT  
 WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: August 2021

Report Created: Wednesday, September 01, 2021

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]																	
01/08/2021	94.1	90.7	95.1	94.1	17.2	36.5	21.3	0.0	23.8	22.6	15.9	53.5	21.4	17.2	22.3	21.3	OL	OL	OL	16.2	23.9	21.3
02/08/2021	94.0	91.6	95.1	94.2	17.1	28.3	21.2	OL	OL	OL	17.1	23.2	21.3	17.3	22.4	21.4	OL	OL	OL	16.3	24.0	21.3
03/08/2021	94.1	91.3	95.2	94.1	0.0	77.4	21.3	16.3	77.4	21.1	0.0	70.2	21.3	0.0	37.0	21.4	OL	OL	OL	0.0	80.8	21.4
04/08/2021	93.9	90.6	95.4	94.3	16.9	29.4	21.3	18.4	23.2	21.1	17.5	21.9	21.2	OL	OL	OL	OL	OL	OL	16.4	23.9	21.3
05/08/2021	94.0	86.7	95.2	93.9	17.2	29.1	21.3	18.4	21.5	21.1	17.4	23.2	21.3	OL	OL	OL	OL	OL	OL	16.4	22.1	21.4
06/08/2021	94.1	91.7	94.6	93.9	17.1	28.9	21.4	18.6	21.8	21.1	17.5	23.3	21.3	OL	OL	OL	OL	OL	OL	16.2	22.4	21.4
07/08/2021	93.8	91.5	94.7	94.0	17.0	28.9	21.4	18.7	24.4	21.1	17.4	23.4	21.3	OL	OL	OL	OL	OL	OL	16.3	22.3	21.4
08/08/2021	93.4	91.5	94.1	93.4	17.1	27.8	21.3	18.7	21.7	21.1	17.2	22.1	21.3	OL	OL	OL	OL	OL	OL	16.3	22.2	21.4
09/08/2021	93.4	90.4	94.2	93.2	0.0	54.9	21.3	0.0	99.3	21.0	0.0	53.7	21.4	0.0	45.3	21.6	18.5	83.4	21.4	0.0	62.2	21.4
10/08/2021	93.6	88.5	94.6	0.0	17.2	33.0	21.4	18.7	23.4	21.2	16.2	29.4	21.3	OL	OL	OL	18.5	24.2	21.3	OL	OL	OL
11/08/2021	93.6	87.7	94.1	93.4	17.4	31.7	21.4	18.7	23.6	21.2	17.5	22.2	21.3	OL	OL	OL	18.4	23.2	21.2	OL	OL	OL
12/08/2021	92.7	3.8	93.0	92.1	0.0	38.0	21.2	0.0	22.5	21.2	0.0	51.7	21.2	OL	OL	OL	0.0	94.0	21.7	0.0	62.3	21.3
13/08/2021	93.3	86.8	93.5	92.6	OL	OL	OL	OL	OL	OL	16.6	36.3	21.2	OL	OL	OL	18.1	29.2	21.3	16.2	26.7	21.2
14/08/2021	94.1	87.6	94.3	93.9	OL	OL	OL	OL	OL	OL	16.7	22.0	21.2	OL	OL	OL	18.0	22.9	21.3	16.2	22.1	21.2
15/08/2021	94.4	89.9	94.4	93.5	OL	OL	OL	OL	OL	OL	16.7	21.9	21.2	OL	OL	OL	18.0	22.6	21.2	16.1	22.2	21.2
16/08/2021	94.4	87.6	94.2	93.0	OL	OL	OL	OL	OL	OL	16.8	21.9	21.2	OL	OL	OL	18.4	22.1	21.2	16.2	22.3	21.2
17/08/2021	94.6	81.6	94.5	93.3	13.3	56.8	21.3	OL	OL	OL	15.2	34.6	21.2	OL	OL	OL	18.0	29.7	21.4	16.3	43.0	21.4
18/08/2021	94.7	83.9	94.3	93.6	13.2	21.9	18.9	OL	OL	OL	16.4	22.7	21.2	OL	OL	OL	17.8	28.4	21.5	16.0	23.7	21.5
19/08/2021	94.4	85.1	94.3	92.7	0.0	98.8	17.8	18.4	63.7	21.2	9.9	27.1	21.3	0.0	36.4	18.9	17.7	32.3	21.6	15.9	24.0	21.4
20/08/2021	94.4	53.0	94.5	93.1	OL	OL	OL	20.6	21.5	21.2	16.6	22.8	21.3	OL	OL	OL	17.4	34.4	21.9	16.2	23.3	21.5
21/08/2021	95.0	87.0	95.4	94.2	16.0	97.2	21.8	0.0	21.6	21.2	0.0	67.6	21.4	OL	OL	OL	0.0	25.8	23.2	0.0	44.6	21.5
22/08/2021	95.1	90.0	95.6	94.8	17.2	29.4	21.2	OL	OL	OL	17.2	22.1	21.2	OL	OL	OL	OL	OL	OL	16.3	22.3	21.4
23/08/2021	94.9	89.2	95.6	94.5	17.1	27.9	21.2	OL	OL	OL	17.6	22.1	21.2	OL	OL	OL	OL	OL	OL	15.9	22.4	21.4
24/08/2021	93.8	3.0	94.1	3.0	0.0	75.6	21.4	OL	OL	OL	0.0	73.5	21.4	OL	OL	OL	OL	OL	OL	0.0	48.4	21.3
25/08/2021	94.5	93.8	95.2	94.6	15.9	29.2	21.2	OL	OL	OL	17.3	22.1	21.2	OL	OL	OL	OL	OL	OL	15.8	22.7	21.3
26/08/2021	94.1	89.9	94.6	93.3	0.0	68.3	21.3	OL	OL	OL	0.0	71.5	21.2	OL	OL	OL	OL	OL	OL	0.0	41.9	20.7
27/08/2021	94.3	92.8	95.4	93.6	15.8	21.9	21.2	OL	OL	OL	17.2	21.8	21.1	OL	OL	OL	OL	OL	OL	15.5	22.7	21.3
28/08/2021	94.6	89.4	95.6	95.0	16.0	22.0	21.2	OL	OL	OL	17.1	21.7	21.1	OL	OL	OL	OL	OL	OL	15.2	22.3	20.5
29/08/2021	94.5	90.7	95.9	95.1	16.2	23.0	21.2	OL	OL	OL	16.7	29.0	21.2	OL	OL	OL	OL	OL	OL	14.7	22.6	20.4
30/08/2021	94.5	89.4	95.6	95.1	15.9	29.5	21.2	OL	OL	OL	16.3	29.0	21.4	OL	OL	OL	16.4	66.0	21.2	0.0	96.1	20.7
31/08/2021	94.4	89.2	96.0	95.1	15.1	28.0	21.1	OL	OL	OL	0.0	33.3	21.5	OL	OL	OL	18.4	33.8	23.7	17.3	97.8	21.4

Notes:  
 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>  
 2. OL - Off Line

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon

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WATER TREATMENT PLANT UV REPORT

Report Period: September 2021

Report Created: Friday, October 01, 2021

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose			
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]							
	Untreated	Below	To	Total	Untreated	Below	To	Total																								
01/09/2021	0.00	1.24	92.60	93.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.88			
02/09/2021	0.00	1.66	83.34	84.99	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	44.45	44.45	0.00	1.18	79.34	80.52	0.00	2.83	207.13	209.96	98.65			
03/09/2021	0.00	1.42	83.58	85.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.79	41.79	0.00	0.94	74.52	75.45	0.00	2.36	199.89	202.25	98.83			
04/09/2021	0.00	1.41	83.19	84.60	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	38.40	38.40	0.00	1.05	65.20	66.25	0.00	2.46	186.79	189.25	98.70			
05/09/2021	0.00	0.51	80.52	81.03	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	39.59	39.59	0.00	0.89	60.81	61.70	0.00	1.40	180.92	182.32	99.23			
06/09/2021	0.00	0.70	76.41	77.11	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	38.77	38.77	0.00	0.92	58.23	59.14	0.00	1.61	173.41	175.02	99.08			
07/09/2021	0.00	0.83	77.83	78.65	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	39.03	39.03	0.00	0.97	59.32	60.29	0.00	1.80	176.17	177.98	98.99			
08/09/2021	0.00	0.83	84.18	85.01	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	0.00	41.81	41.81	0.00	0.80	71.99	72.79	0.00	1.63	197.98	199.61	99.19			
09/09/2021	0.00	5.34	76.81	82.15	0.00	0.00	0.00	0.00	0.00	0.63	7.60	8.23	0.00	0.00	0.00	0.00	0.00	0.00	46.27	46.27	0.00	1.25	68.58	69.83	0.00	7.22	199.26	206.47	96.50			
10/09/2021	0.00	2.39	81.32	83.70	0.00	0.13	0.17	0.30	0.00	0.00	0.42	0.42	0.00	0.00	0.00	0.00	0.00	0.00	43.08	43.08	0.00	1.71	74.73	76.43	0.00	4.23	199.71	203.93	97.93			
11/09/2021	0.00	1.45	74.04	75.49	0.00	0.00	17.71	17.71	0.01	0.79	10.87	11.67	0.00	0.00	0.00	0.00	0.00	0.00	57.02	57.02	0.00	0.88	41.83	42.71	0.01	3.12	201.47	204.60	98.47			
12/09/2021	0.00	0.31	49.96	50.27	0.00	0.00	73.34	73.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.41	83.41	0.00	0.00	0.00	0.00	0.00	0.00	0.31	206.71	207.03	99.85			
13/09/2021	0.00	0.35	49.88	50.23	0.00	0.00	73.40	73.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.38	83.38	0.00	0.00	0.00	0.00	0.00	0.00	0.35	206.66	207.01	99.83			
14/09/2021	0.00	0.38	49.86	50.25	0.00	0.00	73.33	73.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.42	83.42	0.00	0.00	0.00	0.00	0.00	0.00	0.38	206.62	207.00	99.81			
15/09/2021	0.00	0.14	32.40	32.54	0.00	0.00	73.01	73.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.93	22.93	0.00	0.00	78.34	78.34	0.00	0.14	0.01	0.15	0.00	0.28	206.70	206.98	99.87
16/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	76.58	76.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.27	69.27	0.00	0.00	69.60	69.60	0.00	0.00	0.00	0.00	0.00	0.00	215.45	215.45	100.00	
17/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	76.42	76.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.64	70.64	0.00	0.00	68.91	68.91	0.00	0.00	0.00	0.00	0.00	0.00	215.98	215.98	100.00	
18/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	72.35	72.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.95	64.95	0.00	0.00	67.47	67.47	0.00	0.00	0.00	0.00	0.00	0.00	204.77	204.77	100.00	
19/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	68.27	68.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.73	59.73	0.00	0.00	65.86	65.86	0.00	0.00	0.00	0.00	0.00	0.00	193.86	193.86	100.00	
20/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	76.45	76.45	0.00	0.00	0.00	0.00	0.00	0.02	52.51	52.53	0.00	0.00	61.83	61.83	0.00	0.00	0.00	0.00	0.00	0.00	0.02	190.79	190.81	99.99		
21/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	69.18	69.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.58	50.58	0.00	0.05	75.25	75.30	0.00	0.00	0.00	0.00	0.00	0.00	0.05	195.01	195.06	99.97
22/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	70.36	70.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.62	50.62	0.00	0.05	74.99	75.04	0.00	0.00	0.00	0.00	0.00	0.00	0.05	195.97	196.02	99.97
23/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	72.42	72.42	0.00	0.00	3.34	3.34	0.00	0.00	56.48	56.48	0.00	0.10	31.61	31.71	0.00	0.00	31.71	31.71	0.00	0.10	195.56	195.66	99.95			
24/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	70.14	70.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.82	50.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	195.97	195.97	100.00			
25/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	68.07	68.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.41	49.41	0.00	0.00	0.00	0.00	0.00	0.00	0.05	191.05	191.10	99.97				
26/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	67.21	67.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.96	48.96	0.00	0.00	0.00	0.00	0.00	0.00	0.31	189.36	189.66	99.84				
27/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	68.87	68.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.38	50.38	0.00	0.00	0.00	0.00	0.00	0.00	0.37	194.32	194.69	99.81				
28/09/2021	0.00	0.00	0.00	0.00	0.00	0.00	73.43	73.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.26	51.26	0.00	0.00	0.00	0.00	0.00	0.00	0.71	70.67	71.39	0.00				
29/09/2021	0.01	0.28	12.51	12.80	0.25	0.30	58.69	59.24	0.01	0.09	8.47	8.56	0.00	0.06	55.83	55.89	0.00	0.00	0.00	0.00	0.00	0.00	0.50	66.99	67.49	0.27						
30/09/2021	0.00	0.22	52.90	53.12	0.00	0.00	27.91	27.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.19	57.19	0.00	0.00	0.00	0.00	0.00	0.00	0.55	64.26	64.81	0.00				

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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WATER TREATMENT PLANT UV REPORT

Report Period: September 2021

Report Created: Friday, October 01, 2021

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]																	
01/09/2021	93.5	85.6	95.0	92.9	15.4	22.1	21.2	OL	18.4	31.6	23.3	17.0	23.6	21.1								
02/09/2021	92.0	85.6	93.6	92.7	16.1	23.3	21.2	OL	18.2	29.2	21.5	16.9	21.8	21.1								
03/09/2021	91.2	83.6	94.2	93.4	16.3	23.6	21.2	OL	18.6	31.3	22.4	17.1	24.8	21.1								
04/09/2021	94.7	2.5	94.9	94.0	16.4	50.0	21.2	OL	19.4	35.0	24.5	16.3	36.5	21.1								
05/09/2021	97.9	96.9	95.7	95.3	16.1	29.0	21.1	OL	22.1	34.7	26.9	16.8	22.6	21.2								
06/09/2021	97.5	96.5	95.5	95.2	17.4	24.1	21.2	OL	23.3	36.5	28.2	16.9	23.8	21.2								
07/09/2021	96.8	94.5	95.3	93.8	17.3	24.1	21.1	OL	22.3	33.2	28.0	16.6	23.1	21.2								
08/09/2021	96.6	92.2	95.5	95.1	17.2	22.3	21.0	OL	22.1	33.0	27.2	16.7	22.3	21.1								
09/09/2021	95.8	94.2	95.7	95.4	13.4	23.4	20.7	OL	OL	OL	0.0	85.3	21.3	OL	OL	OL	18.5	32.1	26.3	0.0	37.8	21.1
10/09/2021	95.0	93.1	95.8	95.2	16.0	25.5	21.2	0.0	86.5	33.1	0.0	92.0	28.1	OL	OL	OL	22.5	32.6	27.4	16.7	24.2	21.1
11/09/2021	94.7	91.8	95.7	94.4	15.8	44.7	21.3	21.0	71.6	25.0	0.0	61.2	21.4	OL	OL	OL	18.4	41.6	25.8	0.0	37.6	21.1
12/09/2021	94.5	92.0	95.7	94.3	17.4	31.2	21.4	20.9	27.2	22.3	OL	OL	OL	OL	OL	OL	18.4	23.3	21.1	OL	OL	OL
13/09/2021	94.1	92.4	96.3	95.5	17.3	30.7	21.4	20.6	26.6	21.2	OL	OL	OL	OL	OL	OL	18.2	21.7	21.1	OL	OL	OL
14/09/2021	93.4	89.6	96.3	95.3	17.3	30.5	21.4	20.6	26.1	21.2	OL	OL	OL	OL	OL	OL	18.4	21.7	21.1	OL	OL	OL
15/09/2021	92.7	90.9	95.9	95.5	0.0	30.3	21.4	20.1	26.0	21.2	OL	OL	OL	0.0	73.5	21.7	18.4	41.8	21.2	0.0	30.5	16.1
16/09/2021	92.0	86.0	96.2	95.4	OL	OL	OL	20.5	24.7	21.2	OL	OL	OL	18.3	34.3	21.5	18.4	21.9	21.2	OL	OL	OL
17/09/2021	91.4	89.1	96.3	95.5	OL	OL	OL	19.8	24.4	21.2	OL	OL	OL	18.4	30.5	21.5	18.1	21.8	21.2	OL	OL	OL
18/09/2021	93.0	1.1	96.1	95.7	OL	OL	OL	18.9	24.9	21.2	OL	OL	OL	18.3	28.4	21.6	18.3	22.0	21.2	OL	OL	OL
19/09/2021	96.8	95.0	96.3	95.9	OL	OL	OL	18.6	24.9	21.2	OL	OL	OL	18.4	30.2	21.6	18.3	22.6	21.2	OL	OL	OL
20/09/2021	95.8	94.1	96.1	95.7	OL	OL	OL	19.3	35.3	21.2	OL	OL	OL	17.0	44.1	21.5	18.3	39.2	21.4	OL	OL	OL
21/09/2021	94.5	91.7	96.1	95.5	OL	OL	OL	19.8	24.9	21.2	OL	OL	OL	18.7	24.0	21.3	17.5	22.7	21.1	OL	OL	OL
22/09/2021	92.7	88.6	96.5	96.0	OL	OL	OL	19.4	24.0	21.2	OL	OL	OL	18.6	22.2	21.2	16.4	23.0	21.1	OL	OL	OL
23/09/2021	93.9	55.2	96.4	95.7	OL	OL	OL	18.7	23.8	21.2	0.0	84.2	31.6	17.7	28.1	21.4	0.0	38.3	21.1	19.2	102.2	25.1
24/09/2021	97.0	95.3	96.3	83.5	OL	OL	OL	18.9	23.4	21.2	OL	OL	OL	18.5	29.0	21.8	OL	OL	OL	17.7	26.9	22.5
25/09/2021	95.6	92.4	96.5	96.0	OL	OL	OL	19.2	24.6	21.2	OL	OL	OL	18.6	26.1	21.8	OL	OL	OL	17.4	25.7	21.8
26/09/2021	94.4	92.8	96.5	95.9	OL	OL	OL	19.4	23.8	21.2	OL	OL	OL	18.5	24.1	21.7	OL	OL	OL	17.2	25.8	21.3
27/09/2021	93.3	91.7	96.5	95.9	OL	OL	OL	19.1	23.6	21.2	OL	OL	OL	18.5	22.9	21.6	OL	OL	OL	17.1	24.2	21.2
28/09/2021	92.1	89.6	96.5	95.9	OL	OL	OL	18.2	29.6	21.3	OL	OL	OL	18.4	22.4	21.6	OL	OL	OL	17.0	24.4	21.3
29/09/2021	92.7	90.2	95.9	95.5	0.0	76.7	21.3	0.0	72.1	21.3	0.0	58.9	21.4	16.9	24.9	21.6	OL	OL	OL	16.7	25.6	21.3
30/09/2021	91.2	87.9	95.9	95.4	14.3	93.2	21.3	0.0	41.1	21.4	OL	OL	OL	18.2	23.0	21.5	OL	OL	OL	16.6	24.5	21.2

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: October 2021

Report Created: Monday, November 01, 2021

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/10/2021	0.00	0.49	77.38	77.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.85	57.85	0.00	0.00	0.00	0.00	0.00	0.68	64.31	64.99	0.00	1.16	199.55	200.71	99.42				
02/10/2021	0.00	0.23	67.06	67.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.17	62.17	0.00	0.00	0.00	0.00	0.00	1.09	68.98	70.06	0.00	1.32	198.21	199.52	99.34				
03/10/2021	0.00	0.19	68.28	68.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.45	63.45	0.00	0.00	0.00	0.00	0.00	0.70	71.67	72.37	0.00	0.90	203.40	204.30	99.56				
04/10/2021	0.00	0.44	70.06	70.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.04	63.04	0.00	0.00	0.00	0.00	0.00	0.55	71.89	72.45	0.00	0.99	204.99	205.99	99.52				
05/10/2021	0.00	0.36	71.86	72.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.72	61.78	0.00	0.00	0.00	0.00	0.00	1.31	69.97	71.28	0.00	1.74	203.55	205.29	99.15				
06/10/2021	0.00	0.51	66.42	66.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.14	67.14	0.00	0.00	0.00	0.00	0.00	1.41	68.55	69.96	0.00	1.92	202.10	204.03	99.06				
07/10/2021	0.00	0.51	66.48	67.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.50	63.50	0.00	0.00	0.00	0.00	0.00	0.51	73.03	73.54	0.00	1.02	203.01	204.03	99.50				
08/10/2021	0.00	0.37	65.84	66.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.92	61.92	0.00	0.00	0.00	0.00	0.00	0.61	72.47	73.08	0.00	0.97	200.23	201.20	99.52				
09/10/2021	0.00	0.52	61.30	61.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.44	56.44	0.00	0.00	0.00	0.00	0.00	2.11	68.61	70.72	0.00	2.90	186.07	188.97	98.47				
10/10/2021	0.00	0.51	60.43	60.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.00	55.00	0.00	0.00	0.00	0.00	0.00	0.64	70.42	71.06	0.00	1.15	185.85	186.99	99.39				
11/10/2021	0.00	0.22	62.07	62.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.76	57.01	0.00	0.00	0.00	0.00	0.00	0.70	71.24	71.94	0.00	1.16	190.07	191.24	99.39				
12/10/2021	0.00	0.62	62.56	63.18	0.00	0.00	0.00	0.00	0.08	2.68	2.76	0.00	17.86	38.19	56.05	0.00	0.00	0.00	0.00	1.09	70.48	71.57	0.00	19.65	173.91	193.56	89.85			
13/10/2021	0.00	0.97	19.16	20.13	0.00	0.05	7.80	7.86	0.00	0.44	20.31	20.75	0.00	0.00	0.00	0.00	0.00	0.96	14.78	15.74	0.00	2.43	62.05	64.48	96.23					
14/10/2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.89	73.89	0.00	0.00	41.33	41.33	0.00	0.85	66.44	67.29	0.00	0.85	181.66	182.51	99.54				
15/10/2021	0.21	0.28	41.31	41.80	0.13	0.13	41.68	41.94	0.16	0.27	2.03	2.47	0.02	0.02	19.57	19.61	0.00	0.00	61.22	61.22	0.00	0.46	25.14	25.60	0.53					
16/10/2021	0.00	0.25	51.49	51.74	0.00	0.00	69.82	69.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.47	72.47	0.00	0.00	0.00	0.00	0.25	193.78	194.03	99.87				
17/10/2021	0.00	0.18	51.53	51.71	0.00	0.00	69.82	69.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.31	72.31	0.00	0.00	0.00	0.00	0.18	193.67	193.85	99.91				
18/10/2021	0.00	0.21	49.97	50.18	0.00	0.00	67.67	67.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.18	70.18	0.00	0.00	0.00	0.00	0.21	187.82	188.03	99.89				
19/10/2021	0.00	0.29	51.96	52.26	0.00	0.00	70.48	70.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.08	73.08	0.00	0.00	0.00	0.00	0.29	195.52	195.81	99.85				
20/10/2021	0.00	0.18	52.79	52.97	0.00	0.00	71.38	71.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.08	74.08	0.00	0.00	0.00	0.00	0.18	198.25	198.44	99.91				
21/10/2021	0.00	0.26	52.55	52.80	0.00	0.00	71.18	71.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.87	73.87	0.00	0.00	0.00	0.00	0.26	197.59	197.85	99.87				
22/10/2021	0.00	0.39	50.27	50.66	0.00	0.00	68.38	68.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.00	71.00	0.00	0.00	0.00	0.00	0.39	189.65	190.03	99.80				
23/10/2021	0.00	0.49	50.14	50.64	0.00	0.00	68.37	68.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.97	70.97	0.00	0.00	0.00	0.00	0.49	189.49	189.98	99.74				
24/10/2021	0.00	0.57	50.62	51.19	0.00	0.00	68.95	68.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.68	71.68	0.00	0.00	0.00	0.00	0.57	191.24	191.81	99.70				
25/10/2021	0.00	0.53	50.45	50.98	0.00	0.00	68.60	68.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.33	71.33	0.00	0.00	0.00	0.00	0.53	190.39	190.92	99.72				
26/10/2021	0.00	0.64	50.67	51.32	0.00	0.00	68.95	68.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.72	71.72	0.00	0.00	0.00	0.00	0.64	191.34	191.98	99.66				
27/10/2021	0.00	0.63	49.48	50.11	0.00	0.00	67.41	67.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.04	70.04	0.00	0.00	0.00	0.00	0.63	186.93	187.55	99.66				
28/10/2021	0.00	0.56	49.44	49.99	0.00	0.00	67.23	67.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.77	69.77	0.00	0.00	0.00	0.00	0.56	186.44	186.99	99.70				
29/10/2021	0.00	0.76	49.25	50.01	0.00	0.00	67.23	67.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.42	67.42	0.00	0.00	0.00	0.00	0.76	186.29	187.06	99.59				
30/10/2021	0.00	0.63	47.56	48.19	0.00	0.00	65.06	65.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.69	67.69	0.00	0.00	0.00	0.00	0.63	180.04	180.67	99.65				
31/10/2021	0.00	0.75	48.31	49.06	0.00	0.00	66.38	66.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.69	67.69	0.00	0.00	0.00	0.00	0.75	182.38	183.13	99.59				

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: October 2021

Report Created: Monday, November 01, 2021

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A			
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]			UV Dose [mJ/cm <sup>2</sup> ]			UV Dose [mJ/cm <sup>2</sup> ]			UV Dose [mJ/cm <sup>2</sup> ]			UV Dose [mJ/cm <sup>2</sup> ]			UV Dose [mJ/cm <sup>2</sup> ]			
	Avg.	Min.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.		
01/10/2021	91.8	1.8	95.9	95.7	17.4	30.6	21.2	OL	OL	OL	OL	OL	OL	OL	18.1	22.5	21.5	OL	OL	OL	16.5	24.0	21.2
02/10/2021	96.1	95.8	95.9	95.4	17.4	33.7	21.3	OL	OL	OL	OL	OL	OL	OL	18.3	22.4	21.5	OL	OL	OL	16.9	22.1	21.1
03/10/2021	95.9	95.1	95.7	95.2	17.2	30.5	21.3	OL	OL	OL	OL	OL	OL	OL	18.3	22.5	21.4	OL	OL	OL	16.8	22.1	21.1
04/10/2021	95.3	93.2	95.1	94.6	17.3	28.7	21.3	OL	OL	OL	OL	OL	OL	OL	18.3	22.2	21.4	OL	OL	OL	16.8	21.9	21.1
05/10/2021	94.6	93.8	94.3	93.6	17.0	35.5	21.2	OL	OL	OL	OL	OL	OL	OL	14.0	41.2	21.4	OL	OL	OL	16.7	37.2	21.1
06/10/2021	94.3	93.1	94.0	93.0	17.1	26.4	21.3	OL	OL	OL	OL	OL	OL	OL	18.0	22.3	21.3	OL	OL	OL	16.4	22.2	21.1
07/10/2021	94.5	93.8	94.1	93.8	16.8	25.8	21.2	OL	OL	OL	OL	OL	OL	OL	18.3	22.3	21.4	OL	OL	OL	16.4	22.1	21.1
08/10/2021	94.5	75.0	94.1	93.6	16.8	25.4	21.2	OL	OL	OL	OL	OL	OL	OL	18.2	22.4	21.4	OL	OL	OL	16.3	23.5	21.1
09/10/2021	93.4	91.3	92.9	91.1	17.0	26.4	21.3	OL	OL	OL	OL	OL	OL	OL	16.5	22.7	20.7	OL	OL	OL	16.4	21.9	21.1
10/10/2021	94.5	92.9	94.0	93.5	17.2	26.2	21.3	OL	OL	OL	OL	OL	OL	OL	18.2	22.6	21.5	OL	OL	OL	16.6	23.7	21.1
11/10/2021	95.2	93.8	94.8	93.9	17.3	26.2	21.3	OL	OL	OL	OL	OL	OL	OL	17.7	22.5	21.2	OL	OL	OL	16.5	21.8	21.1
12/10/2021	95.6	92.4	95.3	95.0	16.8	25.8	21.3	OL	OL	OL	OL	15.3	33.1	21.3	0.0	31.7	18.9	OL	OL	OL	16.4	23.8	21.1
13/10/2021	95.1	92.8	94.8	92.7	0.0	41.5	21.1	0.0	80.6	21.5	0.0	52.0	21.4	OL	OL	OL	OL	OL	OL	0.0	29.2	20.9	
14/10/2021	95.4	93.8	95.0	93.5	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	18.1	26.5	21.5	24.7	35.9	31.4	16.1	22.0	21.0
15/10/2021	95.5	94.3	95.2	94.7	4.8	43.8	21.9	0.0	101.6	27.5	0.0	68.1	21.8	0.0	62.7	21.5	18.6	40.3	25.1	0.0	31.5	20.7	
16/10/2021	95.5	93.1	95.2	95.0	17.4	30.6	21.5	22.8	30.3	26.3	OL	OL	OL	OL	OL	OL	OL	18.5	23.7	21.2	OL	OL	OL
17/10/2021	95.5	94.3	95.3	94.8	17.4	29.9	21.4	21.8	29.5	25.5	OL	OL	OL	OL	OL	OL	OL	18.4	23.3	21.2	OL	OL	OL
18/10/2021	95.5	92.6	95.2	95.0	17.3	26.2	21.4	21.2	28.5	24.6	OL	OL	OL	OL	OL	OL	OL	18.4	23.0	21.2	OL	OL	OL
19/10/2021	95.4	92.2	95.1	94.7	17.3	24.5	21.3	20.0	26.6	23.2	OL	OL	OL	OL	OL	OL	OL	18.5	22.9	21.2	OL	OL	OL
20/10/2021	95.5	88.8	95.2	94.9	17.2	23.8	21.3	19.4	26.4	22.5	OL	OL	OL	OL	OL	OL	OL	18.3	21.6	21.2	OL	OL	OL
21/10/2021	95.6	93.9	95.3	94.2	17.4	23.2	21.3	18.8	24.9	21.6	OL	OL	OL	OL	OL	OL	OL	18.5	23.2	21.2	OL	OL	OL
22/10/2021	95.5	92.0	95.3	94.9	17.3	23.7	21.3	18.7	23.8	21.3	OL	OL	OL	OL	OL	OL	OL	18.3	23.2	21.2	OL	OL	OL
23/10/2021	95.2	91.3	95.1	94.6	17.2	22.0	21.3	18.7	23.0	21.2	OL	OL	OL	OL	OL	OL	OL	18.5	21.7	21.2	OL	OL	OL
24/10/2021	95.1	92.7	95.0	94.5	17.3	23.2	21.3	18.6	23.5	21.2	OL	OL	OL	OL	OL	OL	OL	18.4	21.7	21.2	OL	OL	OL
25/10/2021	94.7	2.4	95.0	94.8	17.3	23.2	21.2	18.6	21.6	21.1	OL	OL	OL	OL	OL	OL	OL	18.4	21.7	21.2	OL	OL	OL
26/10/2021	94.9	94.8	95.0	94.6	17.4	21.9	21.2	18.5	22.5	21.1	OL	OL	OL	OL	OL	OL	OL	18.4	21.6	21.2	OL	OL	OL
27/10/2021	94.9	94.8	95.3	94.5	17.3	21.9	21.2	18.7	21.7	21.1	OL	OL	OL	OL	OL	OL	OL	18.3	21.7	21.2	OL	OL	OL
28/10/2021	94.9	94.8	95.5	95.1	17.2	22.9	21.2	18.4	22.5	21.1	OL	OL	OL	OL	OL	OL	OL	18.4	21.7	21.2	OL	OL	OL
29/10/2021	94.9	94.8	95.3	94.9	17.1	21.9	21.2	18.4	21.7	21.1	OL	OL	OL	OL	OL	OL	OL	18.4	21.7	21.1	OL	OL	OL
30/10/2021	94.9	94.8	95.3	95.0	17.0	22.2	21.3	18.5	21.8	21.1	OL	OL	OL	OL	OL	OL	OL	18.3	22.7	21.2	OL	OL	OL
31/10/2021	94.9	94.8	95.4	95.0	16.9	22.0	21.2	18.5	21.8	21.1	OL	OL	OL	OL	OL	OL	OL	18.4	22.3	21.2	OL	OL	OL

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: November 2021

Report Created: Wednesday, December 01, 2021

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total																		
01/11/2021	0.00	0.96	48.58	49.55	0.00	1.12	65.96	67.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.41	68.41	0.00	0.00	0.00	0.00	0.00	2.08	182.94	185.02	98.87			
02/11/2021	0.00	0.76	48.88	49.64	0.00	0.00	67.19	67.19	0.00	0.00	0.00	0.00	0.00	0.05	68.12	68.17	0.00	0.00	0.00	0.00	0.00	0.81	184.19	185.00	99.56					
03/11/2021	0.00	0.64	47.52	48.15	0.00	0.00	64.98	64.98	0.00	0.00	0.00	0.00	0.00	0.05	65.97	66.02	0.00	0.00	0.00	0.00	0.00	0.68	178.47	179.15	99.62					
04/11/2021	0.03	0.72	29.92	30.67	0.00	0.00	16.26	16.26	0.00	0.09	15.22	15.31	0.00	0.00	0.00	0.00	0.03	35.21	35.24	0.00	0.00	0.00	0.00	0.03	0.84	96.61	97.48	99.11		
05/11/2021	0.00	0.59	23.24	23.83	0.00	0.02	41.26	41.28	0.00	0.46	55.77	56.23	0.00	0.00	0.00	0.00	0.00	66.64	66.64	0.00	0.00	0.00	0.00	0.00	1.07	186.91	187.98	99.43		
06/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	64.98	64.98	0.00	0.16	55.88	56.04	0.00	0.00	0.00	0.00	0.00	66.97	66.97	0.00	0.00	0.00	0.00	0.00	0.16	187.83	187.99	99.92		
07/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	65.05	65.05	0.00	0.62	55.25	55.87	0.00	0.00	0.00	0.00	0.00	67.22	67.22	0.00	0.00	0.00	0.00	0.00	0.62	187.51	188.13	99.67		
08/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	65.00	65.00	0.00	0.27	55.46	55.74	0.00	0.00	0.00	0.00	0.05	67.19	67.24	0.00	0.00	0.00	0.00	0.00	0.32	187.65	187.97	99.83		
09/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	65.01	65.01	0.00	0.23	55.81	56.05	0.00	0.00	0.00	0.00	0.05	66.90	66.95	0.00	0.00	0.00	0.00	0.00	0.28	187.72	188.01	99.85		
10/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	64.99	64.99	0.00	0.31	56.08	56.39	0.00	0.00	0.00	0.00	0.00	66.63	66.63	0.00	0.00	0.00	0.00	0.00	0.31	187.70	188.01	99.83		
11/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	64.99	64.99	0.00	0.39	56.07	56.47	0.00	0.00	0.00	0.00	0.05	66.52	66.56	0.00	0.00	0.00	0.00	0.00	0.44	187.58	188.02	99.77		
12/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	64.98	64.98	0.00	0.12	56.05	56.16	0.00	0.00	0.00	0.00	0.05	66.78	66.83	0.00	0.00	0.00	0.00	0.00	0.16	187.81	187.98	99.91		
13/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	64.99	64.99	0.00	0.35	54.80	55.15	0.00	0.00	0.00	0.00	0.00	65.72	65.72	0.00	0.00	0.00	0.00	0.00	0.35	185.51	185.85	99.81		
14/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	0.45	63.99	64.44	0.00	0.26	52.63	52.89	0.00	0.00	0.00	0.00	0.04	62.33	62.37	0.00	0.00	0.00	0.00	0.00	0.75	178.95	179.71	99.58	
15/11/2021	0.23	0.23	13.91	14.36	0.00	0.00	47.15	47.15	0.00	0.25	52.45	52.71	0.00	0.00	0.65	0.65	0.00	61.79	61.79	0.00	0.00	0.00	0.00	0.23	0.48	175.95	176.65	99.60		
16/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.34	53.36	53.70	0.00	0.00	0.00	0.00	0.00	62.27	62.27	0.00	0.00	0.00	0.00	0.00	0.34	175.63	175.96	99.81		
17/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.45	53.84	54.29	0.00	0.00	0.00	0.00	0.22	62.56	62.78	0.00	0.00	0.00	0.00	0.00	0.67	176.38	177.06	99.62		
18/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.34	53.59	53.93	0.00	0.00	0.00	0.00	0.22	62.07	62.29	0.00	0.00	0.00	0.00	0.00	0.55	175.66	176.21	99.69		
19/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.19	54.60	54.78	0.00	0.00	0.00	0.00	0.13	63.20	63.34	0.00	0.00	0.00	0.00	0.00	0.32	177.80	178.12	99.82		
20/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.01	60.01	0.00	0.49	53.35	53.84	0.00	0.00	0.00	0.00	0.00	62.14	62.14	0.00	0.00	0.00	0.00	0.00	0.49	175.50	175.99	99.72		
21/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.56	53.33	53.89	0.00	0.00	0.00	0.00	0.04	62.06	62.11	0.00	0.00	0.00	0.00	0.00	0.61	175.37	175.98	99.66		
22/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.23	60.23	0.00	0.39	49.31	49.70	0.00	0.04	43.47	43.51	0.00	0.00	20.05	20.05	0.00	0.00	0.00	0.00	0.00	0.43	173.07	173.50	99.75	
23/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.96	59.96	0.00	0.20	22.46	22.66	0.00	0.00	59.11	59.11	0.00	0.00	31.26	31.26	0.00	0.00	0.00	0.00	0.00	0.20	172.78	172.98	99.88	
24/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	54.11	54.11	0.00	0.00	58.85	58.85	0.00	0.00	0.00	0.00	0.00	0.00	172.97	172.97	100.00	
25/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.98	59.98	0.00	0.00	0.00	0.00	0.00	0.00	55.82	55.82	0.00	0.00	61.09	61.09	0.00	0.00	0.00	0.00	0.00	0.00	176.90	176.90	100.00	
26/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.00	65.51	65.51	0.00	0.00	74.31	74.31	0.00	0.00	0.00	0.00	0.00	0.00	199.81	199.81	100.00	
27/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.00	64.34	64.34	0.00	0.00	73.19	73.19	0.00	0.00	0.00	0.00	0.00	0.00	197.52	197.52	100.00	
28/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.01	60.01	0.00	0.00	0.00	0.00	0.00	0.00	64.06	64.06	0.00	0.00	72.96	72.96	0.00	0.00	0.00	0.00	0.00	0.00	197.03	197.03	100.00	
29/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	64.19	64.19	0.00	0.00	73.22	73.22	0.00	0.00	0.00	0.00	0.00	0.00	197.40	197.40	100.00	
30/11/2021	0.00	0.00	0.00	0.00	0.00	0.00	43.43	43.43	0.00	0.00	0.00	0.00	0.03	44.24	44.27	0.00	0.00	48.60	48.60	0.00	0.00	0.00	0.00	0.00	0.03	136.26	136.30	99.98		

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: November 2021

Report Created: Wednesday, December 01, 2021

Date	Transmittance (%)				UVR_D100A UV Dose [mJ/cm] <sup>2</sup>			UVR_D200A UV Dose [mJ/cm] <sup>2</sup>			UVR_D300A UV Dose [mJ/cm] <sup>2</sup>			UVR_D400A UV Dose [mJ/cm] <sup>2</sup>			UVR_D500A UV Dose [mJ/cm] <sup>2</sup>			UVR_D600A UV Dose [mJ/cm] <sup>2</sup>		
	Branch 1		Branch 2		Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.
01/11/2021	94.9	94.8	95.5	95.2	16.9	22.9	21.2	13.9	28.9	21.1	OL	OL	OL	OL	OL	OL	18.4	21.8	21.2	OL	OL	OL
02/11/2021	94.9	94.8	95.6	95.5	16.8	30.0	21.4	18.1	22.0	21.3	OL	OL	OL	OL	OL	OL	17.8	21.8	21.1	OL	OL	OL
03/11/2021	94.9	94.8	95.7	95.5	16.7	23.2	21.6	18.2	22.1	21.4	OL	OL	OL	OL	OL	OL	17.9	21.7	21.1	OL	OL	OL
04/11/2021	94.9	94.8	94.9	90.8	0.0	47.2	21.4	0.0	27.5	21.4	0.0	57.7	21.3	OL	OL	OL	0.0	79.9	21.3	OL	OL	OL
05/11/2021	94.9	94.8	94.6	94.3	0.0	100.8	21.6	15.8	51.3	21.3	16.2	22.8	21.2	OL	OL	OL	17.8	22.8	21.3	OL	OL	OL
06/11/2021	94.9	94.8	94.6	94.4	OL	OL	OL	18.0	22.0	21.3	17.5	22.9	21.2	OL	OL	OL	17.8	22.1	21.3	OL	OL	OL
07/11/2021	94.9	94.8	94.5	94.1	OL	OL	OL	17.8	22.1	21.3	17.4	21.8	21.2	OL	OL	OL	17.9	22.1	21.3	OL	OL	OL
08/11/2021	94.8	0.0	94.6	84.7	OL	OL	OL	18.0	22.1	21.3	17.5	21.8	21.2	OL	OL	OL	17.9	22.0	21.3	OL	OL	OL
09/11/2021	94.3	0.0	94.8	94.2	OL	OL	OL	18.2	22.0	21.3	17.5	22.0	21.2	OL	OL	OL	17.8	22.1	21.3	OL	OL	OL
10/11/2021	95.1	87.6	95.0	94.6	OL	OL	OL	18.2	22.1	21.3	17.5	22.0	21.2	OL	OL	OL	17.9	22.0	21.3	OL	OL	OL
11/11/2021	95.3	92.2	95.2	94.9	OL	OL	OL	18.0	22.1	21.3	17.5	23.1	21.2	OL	OL	OL	18.0	22.2	21.3	OL	OL	OL
12/11/2021	95.7	92.7	95.6	95.2	OL	OL	OL	18.1	22.0	21.3	17.5	22.7	21.2	OL	OL	OL	17.9	22.2	21.3	OL	OL	OL
13/11/2021	96.2	87.1	96.1	95.8	OL	OL	OL	18.1	22.0	21.3	17.4	23.0	21.2	OL	OL	OL	17.9	22.1	21.3	OL	OL	OL
14/11/2021	96.4	91.7	96.2	96.0	OL	OL	OL	17.3	22.0	20.9	17.4	22.4	21.3	OL	OL	OL	18.0	22.1	21.4	OL	OL	OL
15/11/2021	96.3	87.5	96.1	95.8	0.0	98.9	24.3	0.0	70.9	26.0	17.6	25.8	21.3	0.0	55.8	22.5	17.8	23.5	21.4	OL	OL	OL
16/11/2021	96.2	94.0	96.0	95.6	OL	OL	OL	25.7	34.7	29.7	17.5	21.9	21.2	OL	OL	OL	17.9	22.0	21.4	OL	OL	OL
17/11/2021	96.2	95.3	95.8	95.6	OL	OL	OL	25.3	33.8	29.2	17.5	22.5	21.2	OL	OL	OL	17.2	22.0	21.3	OL	OL	OL
18/11/2021	96.2	95.3	95.6	95.3	OL	OL	OL	24.9	33.2	28.6	17.5	21.9	21.2	OL	OL	OL	17.5	22.1	21.3	OL	OL	OL
19/11/2021	96.1	94.1	95.3	95.0	OL	OL	OL	24.1	32.5	27.9	17.4	21.8	21.2	OL	OL	OL	17.4	22.0	21.2	OL	OL	OL
20/11/2021	96.1	94.8	94.9	94.6	OL	OL	OL	23.3	31.6	27.2	17.4	21.9	21.2	OL	OL	OL	17.2	22.1	21.3	OL	OL	OL
21/11/2021	96.0	94.5	92.3	0.0	OL	OL	OL	22.7	30.5	26.3	17.5	21.9	21.2	OL	OL	OL	17.5	22.1	21.3	OL	OL	OL
22/11/2021	95.9	10.7	95.9	88.1	OL	OL	OL	21.8	29.6	25.4	17.2	22.7	21.3	14.3	54.2	21.5	0.0	33.2	21.3	OL	OL	OL
23/11/2021	96.0	95.6	96.6	95.0	OL	OL	OL	21.2	28.9	24.8	0.0	26.3	21.3	18.5	32.8	21.7	23.1	98.2	27.9	OL	OL	OL
24/11/2021	95.9	95.4	95.7	95.0	OL	OL	OL	20.7	27.5	23.8	OL	OL	OL	18.6	31.3	21.7	21.2	33.3	25.7	OL	OL	OL
25/11/2021	95.7	89.9	95.6	94.9	OL	OL	OL	19.9	26.7	22.9	OL	OL	OL	18.5	27.7	21.7	18.5	30.6	23.4	OL	OL	OL
26/11/2021	95.5	93.5	95.4	94.8	OL	OL	OL	18.7	26.0	21.9	OL	OL	OL	18.4	23.8	21.6	18.0	26.7	21.2	OL	OL	OL
27/11/2021	95.4	94.5	95.3	94.7	OL	OL	OL	18.7	23.5	21.3	OL	OL	OL	18.4	23.0	21.5	18.2	25.5	21.2	OL	OL	OL
28/11/2021	95.5	93.5	95.5	95.0	OL	OL	OL	18.6	22.9	21.3	OL	OL	OL	18.4	22.8	21.5	18.2	24.3	21.1	OL	OL	OL
29/11/2021	95.4	93.3	95.4	94.8	OL	OL	OL	18.6	23.8	21.2	OL	OL	OL	18.2	22.1	21.4	18.0	23.0	21.1	OL	OL	OL
30/11/2021	94.7	11.7	94.7	94.0	OL	OL	OL	0.0	90.8	21.4	OL	OL	OL	0.0	44.1	21.4	0.0	85.3	21.1	OL	OL	OL

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT  
 WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: December 2021

Report Created: Saturday, January 01, 2022

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.00	61.72	61.72	0.00	0.00	69.31	69.31	0.00	0.00	0.00	0.00	0.00	0.00	191.02	191.02	100.00	
02/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.01	60.01	0.00	0.00	0.00	0.00	0.00	0.00	61.17	61.17	0.00	0.05	68.76	68.81	0.00	0.00	0.00	0.00	0.00	0.05	189.94	189.94	99.97	
03/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	60.04	60.04	0.00	0.14	66.29	66.43	0.00	0.00	0.00	0.00	0.00	0.14	186.33	186.47	99.93	
04/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.09	63.68	63.77	0.00	0.10	70.96	71.06	0.00	0.00	0.00	0.00	0.00	0.19	194.64	194.83	99.90	
05/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.01	60.01	0.00	0.00	0.00	0.00	0.00	0.00	62.90	63.57	0.00	0.05	71.39	71.44	0.00	0.00	0.00	0.00	0.00	0.71	194.30	195.02	99.63	
06/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	62.36	63.42	0.00	0.15	71.45	71.60	0.00	0.00	0.00	0.00	0.00	1.21	193.81	195.02	99.38	
07/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	59.97	59.97	0.00	0.00	26.15	26.15	0.00	0.53	35.56	36.09	0.00	0.15	71.36	71.51	0.00	0.00	0.00	0.00	0.00	0.68	193.04	193.72	99.65	
08/12/2021	0.00	0.00	0.26	0.26	0.00	0.00	63.35	63.35	0.00	0.09	61.52	61.60	0.00	0.00	0.07	0.07	0.00	0.00	28.14	28.14	0.31	0.31	39.57	40.18	0.31	0.39	192.90	193.60	99.64	
09/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	68.01	68.01	0.00	0.09	67.42	67.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	202.89	202.99	99.95		
10/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	64.53	64.53	0.00	0.18	62.21	62.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	192.09	192.27	99.91		
11/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	62.90	62.90	0.00	0.08	54.54	54.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	181.47	182.28	99.56		
12/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	63.05	63.05	0.00	0.27	53.54	53.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	181.26	181.98	99.60		
13/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	62.71	62.71	0.00	0.34	54.24	54.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	181.10	181.98	99.52		
14/12/2021	0.00	0.00	0.00	0.00	0.00	0.00	63.29	63.29	0.00	0.53	56.56	57.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	184.42	185.40	99.47		
15/12/2021	0.00	0.00	0.00	0.00	0.00	0.04	63.90	63.94	0.00	0.60	56.72	57.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	185.60	187.07	99.21		
16/12/2021	0.00	0.00	0.00	0.00	0.07	0.57	59.81	60.45	0.00	0.20	21.25	21.45	0.00	0.00	42.36	42.36	0.00	0.00	0.00	0.00	0.00	0.64	61.15	61.79	0.07	1.41	184.58	186.06	99.21	
17/12/2021	0.00	0.00	0.00	0.00	0.00	0.61	58.27	58.88	0.00	0.00	0.00	0.00	0.00	0.00	80.03	80.03	0.00	0.00	0.00	0.00	0.00	0.55	64.49	65.03	0.00	1.16	202.79	203.95	99.43	
18/12/2021	0.00	0.00	0.00	0.00	0.00	0.93	52.04	52.97	0.00	0.00	0.00	0.00	0.00	0.00	81.32	81.32	0.00	0.00	0.00	0.00	0.00	0.69	69.19	69.88	0.00	1.62	202.54	204.16	99.21	
19/12/2021	0.00	0.14	41.68	41.82	0.00	0.67	17.36	18.03	0.00	0.00	0.00	0.00	0.00	0.00	73.56	73.56	0.00	0.00	0.00	0.00	0.00	0.95	69.93	70.88	0.00	1.76	202.53	204.29	99.14	
20/12/2021	0.00	0.13	61.91	62.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.17	60.17	0.00	0.00	28.44	28.45	0.00	0.42	36.85	37.27	0.00	0.55	187.38	187.93	99.71	
21/12/2021	0.00	0.36	64.15	64.52	0.00	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00	63.94	63.94	0.00	0.00	66.04	66.04	0.00	0.00	0.00	0.00	0.00	0.36	194.40	194.77	99.81	
22/12/2021	0.00	0.23	64.25	64.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.05	62.05	0.00	0.00	65.81	65.81	0.00	0.00	0.00	0.00	0.00	0.23	192.11	192.33	99.88	
23/12/2021	0.00	0.40	63.15	63.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.76	60.76	0.00	0.00	66.21	66.21	0.00	0.00	0.00	0.00	0.00	0.40	190.12	190.52	99.79	
24/12/2021	0.00	0.52	61.61	62.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.77	58.77	0.00	0.00	65.68	65.68	0.00	0.00	0.00	0.00	0.00	0.52	186.06	186.58	99.72	
25/12/2021	0.00	0.44	57.24	57.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.16	53.16	0.00	0.00	63.07	63.07	0.00	0.00	0.00	0.00	0.00	0.44	173.47	173.91	99.75	
26/12/2021	0.00	0.39	55.83	56.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.54	51.54	0.00	0.00	62.22	62.22	0.00	0.00	0.00	0.00	0.00	0.39	169.59	169.98	99.77	
27/12/2021	0.00	0.39	55.80	56.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.54	51.54	0.00	0.00	62.29	62.29	0.00	0.00	0.00	0.00	0.00	0.39	169.63	170.02	99.77	
28/12/2021	0.00	0.90	55.26	56.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.50	51.50	0.00	0.00	62.34	62.34	0.00	0.00	0.00	0.00	0.00	0.90	169.10	170.00	99.47	
29/12/2021	0.00	0.86	55.29	56.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.19	52.19	0.00	0.00	62.66	62.66	0.00	0.00	0.00	0.00	0.00	0.86	169.13	170.00	99.49	
30/12/2021	0.00	0.83	55.89	56.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.72	55.72	0.00	0.00	63.72	63.72	0.00	0.00	0.00	0.00	0.00	0.83	170.74	171.57	99.52	
31/12/2021	0.00	1.23	58.01	59.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.72	55.72	0.00	0.00	63.72	63.72	0.00	0.00	0.00	0.00	0.00	1.23	177.45	178.68	99.31	

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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**CITY OF WINNIPEG**  
 WATER AND WASTE DEPARTMENT  
 WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: December 2021

Report Created: Saturday, January 01, 2022

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A		
	Branch 1		Branch 2		UV Dose [mJ/cm <sup>2</sup> ]																	
01/12/2021	94.6	92.2	94.5	94.0	OL	OL	OL	18.6	23.9	21.2	OL	OL	OL	18.2	22.3	21.4	18.0	30.0	21.2	OL	OL	OL
02/12/2021	94.5	93.5	94.4	93.9	OL	OL	OL	18.6	22.7	21.2	OL	OL	OL	18.0	22.3	21.3	17.4	27.7	21.4	OL	OL	OL
03/12/2021	94.6	93.5	94.5	93.7	OL	OL	OL	18.6	22.8	21.2	OL	OL	OL	17.8	22.4	21.3	17.3	25.2	21.5	OL	OL	OL
04/12/2021	95.3	94.1	95.3	94.9	OL	OL	OL	18.5	21.7	21.2	OL	OL	OL	17.7	22.2	21.0	17.6	25.3	21.4	OL	OL	OL
05/12/2021	95.2	93.1	95.4	94.9	OL	OL	OL	18.6	21.7	21.2	OL	OL	OL	17.2	21.5	20.4	17.6	25.6	21.3	OL	OL	OL
06/12/2021	95.0	89.0	95.5	94.7	OL	OL	OL	18.6	21.7	21.2	OL	OL	OL	16.1	20.9	19.6	17.3	24.5	21.3	OL	OL	OL
07/12/2021	94.8	93.5	95.6	95.1	OL	OL	OL	18.6	21.8	21.2	16.6	66.9	21.4	0.0	30.4	19.0	17.1	23.3	21.3	OL	OL	OL
08/12/2021	94.7	93.1	95.6	93.4	0.0	93.3	31.0	18.5	24.3	21.1	17.2	27.9	21.3	0.0	61.7	27.0	0.0	31.9	21.3	0.0	103.5	24.5
09/12/2021	94.4	92.5	95.5	94.7	OL	OL	OL	18.5	21.6	21.1	17.7	23.1	21.2	OL	OL	OL	OL	OL	OL	18.6	25.6	23.7
10/12/2021	93.7	91.4	94.9	93.7	OL	OL	OL	18.6	21.7	21.1	17.5	23.2	21.2	OL	OL	OL	OL	OL	OL	17.5	24.8	22.5
11/12/2021	93.0	80.1	94.2	93.6	OL	OL	OL	18.1	27.1	21.2	17.5	23.0	21.3	OL	OL	OL	OL	OL	OL	17.2	23.7	21.2
12/12/2021	93.3	91.6	93.9	93.1	OL	OL	OL	18.1	22.1	21.4	17.4	22.7	21.3	OL	OL	OL	OL	OL	OL	17.2	23.7	21.2
13/12/2021	93.6	82.0	94.0	93.3	OL	OL	OL	18.1	22.1	21.4	17.2	23.0	21.2	OL	OL	OL	OL	OL	OL	17.1	22.3	21.2
14/12/2021	93.8	90.6	94.3	93.7	OL	OL	OL	18.1	25.3	21.4	17.4	27.4	21.2	OL	OL	OL	OL	OL	OL	16.9	22.7	21.2
15/12/2021	93.5	90.7	94.1	93.1	OL	OL	OL	17.7	22.0	21.2	17.2	23.1	21.2	OL	OL	OL	OL	OL	OL	16.9	22.3	21.2
16/12/2021	92.8	11.4	93.5	91.6	OL	OL	OL	0.0	42.9	20.6	0.0	67.5	21.3	18.7	67.2	21.9	OL	OL	OL	0.0	96.9	21.4
17/12/2021	93.1	52.8	93.8	93.2	OL	OL	OL	16.8	22.0	20.5	OL	OL	OL	18.5	22.9	21.1	OL	OL	OL	16.8	22.3	21.2
18/12/2021	92.7	82.5	93.7	93.0	OL	OL	OL	15.5	21.1	19.4	OL	OL	OL	18.2	21.7	21.1	OL	OL	OL	16.3	22.4	21.1
19/12/2021	92.6	85.5	93.9	93.3	16.2	81.9	21.5	0.0	32.3	18.6	OL	OL	OL	18.1	21.9	21.2	OL	OL	OL	16.8	22.4	21.1
20/12/2021	92.2	91.1	93.7	92.9	17.1	27.8	21.4	OL	OL	OL	OL	OL	OL	18.6	22.4	21.2	20.6	65.3	22.9	0.0	28.7	21.2
21/12/2021	92.9	90.3	94.6	92.4	17.2	32.5	21.3	0.0	97.8	55.4	OL	OL	OL	18.3	22.4	21.2	20.6	26.4	21.5	OL	OL	OL
22/12/2021	93.4	87.9	95.2	94.6	17.3	26.7	21.3	OL	OL	OL	OL	OL	OL	18.5	22.7	21.2	20.3	26.2	21.3	OL	OL	OL
23/12/2021	92.9	91.2	94.8	94.0	17.0	25.6	21.2	OL	OL	OL	OL	OL	OL	18.2	22.8	21.2	20.6	22.7	21.3	OL	OL	OL
24/12/2021	92.4	90.8	94.4	93.8	17.2	23.7	21.2	OL	OL	OL	OL	OL	OL	18.3	22.0	21.2	20.6	22.0	21.3	OL	OL	OL
25/12/2021	92.3	90.8	94.2	93.7	17.3	23.5	21.3	OL	OL	OL	OL	OL	OL	18.1	22.1	21.2	20.7	21.9	21.3	OL	OL	OL
26/12/2021	92.2	91.7	94.2	93.4	17.2	23.5	21.3	OL	OL	OL	OL	OL	OL	18.3	22.4	21.3	20.7	22.0	21.3	OL	OL	OL
27/12/2021	92.2	89.7	94.2	93.6	17.4	23.0	21.3	OL	OL	OL	OL	OL	OL	18.0	22.2	21.3	20.8	22.0	21.3	OL	OL	OL
28/12/2021	92.1	89.3	94.1	93.4	17.1	22.6	21.2	OL	OL	OL	OL	OL	OL	18.2	22.0	21.3	20.7	21.9	21.3	OL	OL	OL
29/12/2021	92.0	68.0	94.0	93.6	16.6	29.8	21.3	OL	OL	OL	OL	OL	OL	18.1	22.1	21.3	20.8	21.9	21.3	OL	OL	OL
30/12/2021	91.7	84.0	93.8	93.2	16.6	23.3	21.5	OL	OL	OL	OL	OL	OL	18.1	22.2	21.2	20.8	21.9	21.3	OL	OL	OL
31/12/2021	91.4	76.4	93.8	93.1	16.5	22.3	21.4	OL	OL	OL	OL	OL	OL	18.2	22.0	21.2	20.1	21.9	21.2	OL	OL	OL

Notes: 1. UV Comparative Dose: 18.1 mJ/cm<sup>2</sup>

2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew

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# **2021 CORRECTIVE ACTION REPORTS**



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

**March 5, 2021**

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

**Incident No:** CAR-01-2021-ESD

**Reported to ODW:** February 17, 2021

**Reported by:** Courtney Diduck, Analytical Services Branch Head

**Approved by:** Courtney Diduck, Analytical Services Branch Head

**Incident Date:** Week of February 7, 2021

**Incident Location:** Winnipeg 2-Treated (WTP BR1)

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

**Description of Event:**

Deacon Booster Pumping Station (DBPS) Branch 1 was offline for maintenance from February 3<sup>rd</sup> to February 11<sup>th</sup>. The weekly bacteriological sample was not collected after DBPS Branch 1 was brought back online due to a miscommunication and misunderstanding of the return to service plan.

**Corrective Actions:**

Notified OWD, reviewed monitoring requirements with laboratory staff, and created a new procedure to prevent future events. Once Branch 1 was brought back online, samples were collected downstream as part of the return to service plan and as part of our regular monitoring program; the downstream samples were negative for bacteria and had acceptable chlorine and turbidity levels.

**Test Results:** See attached

**Reference No:** 369341

**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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Water and Waste  
Eaux et déchets

Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	HPC (CFU/100mL)	Free Chlorine Analyzer (mg/L)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
DBPSOUT1	367733	1-Feb-21	0	0	<1	1.28	1.28	1.50	0.11	2.5	10:49
DBPSOUT1	369341	8-Feb-21	OL	OL	OL	OL	OL	OL	OL	OL	OL
AQ_B1MC	370418	12-Feb-21	0	0	<1	NA	0.70	0.94	0.36	3.1	8:50
AQ_B1MC_Duplicate	370419	12-Feb-21	0	0	<1	NA	NA	NA	NA	NA	8:51
AQ_B1MC	370420	13-Feb-21	0	0	3	NA	1.27	1.27	0.11	2.6	12:15
AQ_B1MC_Duplicate	370421	13-Feb-21	0	0	<1	NA	NA	NA	NA	NA	12:15
DBPSOUT1	370961	16-Feb-21	0	0	<1	1.17	1.19	1.37	0.11	2.1	11:49
WC01	370265	16-Feb-21	0	0	<1	1.04	1.03	1.35	0.24	3.3	9:38

NOTES/COMMENTS:

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



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

**March 5, 2021**

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

**Incident No:** CAR-02-2021-WTP

**Reported to ODW:** March 1, 2021 @ 17:14

**Reported by:** Mike Szmon, Water Treatment Systems Engineer

**Approved by:** Dan Merredew, Water Treatment Operations Supervisor

**Incident Date:** February 20, 2021 @ 13:31

**Incident Location:** Winnipeg 2-Treated (WTP)

**Incident Type:**

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

**Description of Corrective Actions:**

At 13:31 on February 20<sup>th</sup> Filter 6 experienced a Filter spike above 1.0 NTU. The spike reached a maximum value of 1.10 NTU and stayed above 1.0 NTU for 3 minutes and 58 seconds. There were no operational issues with the Filter before or after the event. The event appears to be sluffing of material from the sample line to the turbidity analyzer. Due to the nature of this event there were no corrective actions required.

**Water Treatment Plant Operator:**

**Test Results:** SCADA Initial Result: 0.15 NTU SCADA Final Result: 0.15 NTU

**Reference No:** n/a

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

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

May 7, 2021

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

**Incident No:** CAR-03-2021

**Reported to ODW:** May 3, 2021

**Reported by:** David Minor

**Approved by:** Dan Merredew Water Treatment Operations Supervisor

**Incident Date:** April 8, 2021

**Incident Location:** Winnipeg 2-Treated (WTP)

**Incident Type:**

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

**Description of Incident and Corrective Actions:**

On April 8<sup>th</sup>, 2021 the Water Treatment Plant (WTP) and Deacon Booster Pumping Station (DBPS) were impacted by a power failure at approximately 4:19pm. During the DBPS start-up, the Branch 1 free chlorine residual dropped below 0.5 mg/L from 5:13:02 pm until 5:16:21 pm reaching a low of 0.34 mg/L at 5:14:35 pm. As stated above, the WTP and DBPS were offline so no grab samples were taken. Water quality and our ability to continue supplying treated water were not impacted.

**Test Results:** N/A

**Reference No:** N/A

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

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309 – 25 Tupper Street North  
Portage La Prairie, MB R1N 3K1

June 7, 2021

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

**Incident No:** CAR-04-2021

**Reported to ODW:** May 21, 2021 @ 10:10

**Reported by:** Raimo Perhonen, Senior Operator

**Approved by:** Mike Szmon, Water Treatment Systems Engineer

**Incident Date:** May 21, 2021 @ 05:12

**Incident Location:** Winnipeg 2-Treated (WTP)

**Incident Type:**

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

**Description of Corrective Actions:**

At 05:12 on May 21, 2021, Filter 6 experienced a brief spike in turbidity above 1.0 NTU. The filter turbidity reached a maximum value of 1.06 NTU and stayed above 1.0 NTU for a period of 14 seconds from 05:12:24 to 05:12:38. There were no operational issues with Filter 6 or any water treatment processes before or after the event. The event appears to be related to a release of material that may have accumulated in the sample line to the turbidity analyzer. As a corrective action, arrangements were made for maintenance staff to clean the sample line to the turbidity analyzer on Filter 6.

**Test Results:** n/a

**Reference No:** n/a

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

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309 – 25 Tupper Street North  
Portage La Prairie, MB R1N 3K1

July 7, 2021

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

**Incident No:** CAR-05-2021

**Reported to ODW:** July 2, 2021 @ 11:30

**Reported by:** Dan Merredew

**Approved by:** Dan Merredew, Water Treatment Plant Operations Supervisor

**Incident Date:** June 29, 2021 @ 13:18

**Incident Location:** Winnipeg 2-Treated (WTP)

**Incident Type:**

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

**Description of Corrective Actions:**

On June 29th Filter 8 experienced a short turbidity spike above 1.0 NTU. The analyzer had been cleaned by our Technical staff just prior to the event. The turbidity reached 1.32 NTU at 13:18:20 and went below 1.0 NTU at 13:20:20. Immediately after the spike the turbidity reading was 0.04 NTU. There was no impact on the process as the spike was related to loosened material coming off the sample line after cleaning and was not reflective of true filter effluent turbidity. The Standard Operating Procedure for instrument maintenance was updated as a corrective action to allow 30 minutes for an instrument to stabilize following maintenance to prevent the risk of future occurrence.

**Test Results:**

Grab 0.09 NTU @ 11:56 (Analyzer – 0.11 NTU)

Grab 0.14 NTU @ 13:17 (Analyzer – 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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Office of Drinking Water, Manitoba Sustainable Development  
309 – 25 Tupper Street North  
Portage La Prairie, MB R1N 3K1

August 3, 2021

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

**Incident No:** CAR\_06-2021

**Reported to ODW:** July 11, 2021 @ 16:14

**Reported by:** Mark Fisher, Operator

**Approved by:** Mike Szmon, Water Treatment Systems Engineer

**Incident Date:** July 11, 2021 @ 7:44

**Incident Location:** Winnipeg 2-Treated (WTP)

**Incident Type:**

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

**Description of Corrective Actions:**

Water Treatment Plant Operator:

On July 11th Filter 8 experienced a short turbidity spike above 1.0 NTU. The turbidity reached 2.23 NTU at 7:44:04 and went below 1.0 NTU at 7:44:36. The filter was in the process of being drained down to prepare the filter for backwash when the event occurred. Immediately after the spike the turbidity was 0.08 NTU. Neither water quality nor safety were impacted by this event. All other treatment barriers including UV and chlorination remained online without issue during this event. Given the brief duration of the spike, this is indicative of material sloughing from the sample line and not a true indication of process turbidity. The sample lines on all filters were recently cleaned, however, maintenance staff were requested to inspect and clean the lines as a corrective action.

**Test Results:**

Recorded turbidity - 0.04 NTU @ 7:43

Recorded turbidity - 0.08 NTU @ 7:44

**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

August 6, 2021

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

**Incident No:** CAR-07-2021-ESD

**Reported to ODW:** July 22, 2021

**Reported by:** Courtney Diduck, Analytical Services Branch Head

**Approved by:** Courtney Diduck, Analytical Services Branch Head

**Incident Date:** July 21, 2021

**Incident Location:** Winnipeg 3-Dist (WC02)

**Incident Type:**

1. High Positive Total Coliform (>10 per100mL), 3 MR 41/2007
2. Positive Escherichia Coliform (>0 per100mL), 3 MR 41/2007

**Description and Corrective Actions:**

Environmental Standards:

IMMEDIATELY: Contacted the ODW and re-sampled original location 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:** Job 758

**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/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
WC02	409906	21-Jul-21	14	14	<1	0.68	0.83	0.10	14.4	10:19
WC02 - Resample 1	410937	22-Jul-21	0	0	<1	0.75	0.96	0.12	17.4	16:06
WC02 - Resample 1 Duplicate	410938	22-Jul-21	0	0	<1	0.74	0.93	0.11	17.4	16:07
WC02 - Downstream	410939	22-Jul-21	0	0	<1	0.63	0.94	0.14	19.5	15.49
WC02 - Upstream	410940	22-Jul-21	0	0	<1	0.79	1.01	0.12	17.6	16:20
WC02 - Resample 2	410956	23-Jul-21	0	0	<1	0.81	0.98	0.14	17.8	16:22
WC02 - Resample 2 Duplicate	410957	23-Jul-21	0	0	<1	0.78	0.94	0.13	17.8	16:23
WC02 - Downstream	410958	23-Jul-21	0	0	<1	0.74	0.99	0.16	17.2	16:04
WC02 - Upstream	410959	23-Jul-21	0	0	<1	0.85	1.00	0.12	18.1	16:35

NOTES/COMMENTS:

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



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

August 6, 2021

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

**Incident No:** CAR-08-2021-WMR

**Reported to ODW:** July 25, 2021

**Reported by:** Louis Rivard, Superintendent of Water Distribution

**Approved by:** Zeljko Bodiroga, Water Distribution Engineer

**Incident Date:** July 23, 2021

**Incident Location:** Winnipeg 3-Dist (WM Repair)

**Incident Type:**

1. High Positive Total Coliform (>10 per100mL), 3 MR 41/2007

**Description of Corrective Actions:**

Water Services:

IMMEDIATELY: Contacted the ODW and Environmental Standards, and flushed the isolated area. Re-sampled original location and tested additional samples upstream and downstream of original location for; bacteria, turbidity, and free chlorine.

Environmental Standards:

IMMEDIATELY: Re-sampled original location and tested additional samples upstream and downstream of the original location for; bacteria, turbidity, free/total chlorine, and temperature, when a re-sample tested positive for bacteria.

Other:

A localized notice to residents in the impacted area to boil water was issued on July 28, 2021, by the City of Winnipeg, in consultation with the Office of Drinking Water and the Medical Officer of Health. A potable water tank was deployed to the area, and the isolated area was set to run water to waste. The boil water advisory was subsequently rescinded on July 30, 2021, after two consecutive sets of re-samples taken 24 hours apart tested negative for bacteria.

**Test Results:** See attached



**Water and Waste**  
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**LIMS Reference No:** Job 764

**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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**ENVIRONMENTAL STANDARDS DIVISION**  
2230 Main Street, Winnipeg, Manitoba R2V 4T8  
**DIVISION DES NORMES ENVIRONNEMENTALES**  
2230, rue Main, Winnipeg (Manitoba) R2V 4T8

T. | Tél.: 204-986-4684  
F. | Fax : 204-339-2147  
[winnipeg.ca/waterandwaste](http://winnipeg.ca/waterandwaste)



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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	HPC (CFU/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
Hydrant	N/A	23-Jul-21	0	14	N/A	0.86	N/A	3.69	N/A	13:30
Hydrant - Resample 1	N/A	25-Jul-21	0	0	N/A	0.97	N/A	3.37	N/A	15:21
Hydrant - Downstream 1	N/A	25-Jul-21	0	0	N/A	0.85	N/A	4.01	N/A	15:07
Hydrant - Upstream 1	N/A	25-Jul-21	0	0	N/A	0.95	N/A	2.53	N/A	15:40
Hydrant - Resample 2	N/A	27-Jul-21	0	0	N/A	0.60	N/A	3.69	N/A	9:40
Hydrant - Downstream 2	N/A	27-Jul-21	0	130	N/A	0.66	N/A	3.01	N/A	9:55
Hydrant - Upstream 2	N/A	27-Jul-21	0	0	N/A	0.80	N/A	3.87	N/A	9:15
Hydrant - Resample 3	412409	28-Jul-21	0	0	1	0.98	1.14	3.11	17.3	16:47
Hydrant - Upstream 3	412411	28-Jul-21	0	0	<1	1.07	1.31	3.03	17.5	16:59
Hydrant - Downstream 3	412410	28-Jul-21	0	0	8	0.96	1.12	2.78	17.3	16:31
Hydrant - Downstream 3 Duplicate	412412	28-Jul-21	0	0	<1	0.96	1.12	2.78	17.3	16:31
Hydrant - Resample 4	412611	29-Jul-21	0	0	3	0.81	1.02	0.41	16.0	15:35
Hydrant - Upstream 4	412613	29-Jul-21	0	0	3	0.98	1.24	0.27	16.8	15:48
Hydrant - Downstream 4	412614	29-Jul-21	0	0	2	0.76	0.98	0.38	15.3	15:21
Hydrant - Downstream 4 Duplicate	412612	29-Jul-21	0	0	1	0.76	0.98	0.39	15.3	15:22

NOTES/COMMENTS:

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



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

Aug 3, 2021

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

**Incident No:** CAR\_09-2021

**Reported to ODW:** Aug 3, 2021 @ 12:56

**Reported by:** Mike Logan, Operator

**Approved by:** Mike Szmon, Water Treatment Systems Engineer

**Incident Date:** July 29, 2021 @ 21:14

**Incident Location:** Winnipeg 2-Treated (WTP)

**Incident Type:**

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

**Description of Corrective Actions:**

Water Treatment Plant Operator:

On July 29th Filter 6 experienced a short turbidity spike above 1.0 NTU. The turbidity reached 1.38 NTU at 21:14:24 and went below 1.0 NTU at 21:14:33. Immediately after the spike the turbidity reading was 0.04 NTU. Neither water quality nor safety were impacted by this event. All other treatment barriers including UV and chlorination remained online without issue during this event. Maintenance staff were requested to inspect and clean the sample line on Filter 6, as a corrective action.

**Test Results:**

Recorded turbidity - 0.03 NTU @ 21:14

Recorded turbidity - 0.04 NTU @ 21:15

**Reference No:** n/a

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

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

September 7, 2021

**RE: CORRECTIVE ACTION REPORT FOR WINNIPEG PUBLIC WATER SYSTEM 252 00**

**Incident No:** CAR-10-2021-ESD

**Reported to ODW:** September 1, 2021

**Reported by:** Brock Bradford, Laboratory Supervisor

**Approved by:** Courtney Diduck, Analytical Services Branch Head

**Incident Date:** August 31, 2021

**Incident Location:** Winnipeg 3-Dist (NW03)

**Incident Type:** Low Positive Total Coliform (<10 per 100mL), 3 MR 41/2007

**Description 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 862

**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/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
NW03	420408	31-Aug-21	0	1	1	0.77	1.01	018	16.2	9.20
NW03 Resample	421345	1-Sep-21	0	0	<1	0.77	1.04	018	15.5	15:32
NW03 Resample (Duplicate)	421346	1-Sep-21	0	0	<1	0.79	1.02	017	15.5	15:33
NW03 Resample 2	421347	2-Sep-21	0	0	1	0.69	0.88	009	16.2	15:40
NW03 Resample 2(Duplicate)	421348	2-Sep-21	0	0	<1	0.69	0.88	009	16.2	15:40

NOTES/COMMENTS:

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



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

October 7, 2021

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

**Incident No:** CAR-11-2021

**Reported to ODW:** September 3, 2021

**Reported by:** Dan Merredew

**Approved by:** Dan Merredew, Water Treatment Plant Operations Supervisor

**Incident Date:** September 3, 2021 @ 12:57

**Incident Location:** Winnipeg 2-Treated (WTP)

**Incident Type:**

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

**Description of Corrective Actions:**

Water Treatment Plant Operator:

On September 3, 2021 Filter 3 experienced a short turbidity spike above 1.0 NTU. The turbidity reached a maximum of 5.00 NTU at 12:57 and went below 1.0 NTU at 13:00. The analyzer was being cleaned by our Technical staff just prior to the event. Immediately after the spike the turbidity reading was 0.02 NTU. There was no impact on the process as the spike was related to analyzer maintenance and was not reflective of the true filter effluent turbidity. The Standard Operating Procedure for instrument maintenance was updated in July 2021 to allow 30 minutes for an instrument to stabilize following maintenance. Corrective action for this event will be to confirm all technicians are following the updated Standard Operating Procedure to prevent the risk of future occurrence.

**Test Results:**

Initial Result @ 12:55: 0.11 NTU (grab)/0.05 NTU (analyzer)

Final Result @ 13:05: 0.11 NTU (grab)/0.06 NTU (analyzer)

**Reference No:** n/a

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

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

November 5, 2021

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

**Incident No:** CAR-12-2021

**Reported to ODW:** October 7, 2021

**Reported by:** Tim Shanks, Manager of Water Services

**Approved by:** Tim Shanks, Manager of Water Services

**Incident Date:** October 7, 2021

**Incident Location:** Winnipeg 3-Dist NW02\_Analyzer

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

**Description of Issue and Corrective Actions:**

The online analyzer installed at the NW02 Distribution System Monitoring Location began measuring decreasing chlorine residuals starting at approximately 11:35am, measuring a minimum of 0.09 mg/L free chlorine at 12:25pm. Water Services contacted the ODW to report the free chlorine residual below 0.1 mg/L and dispatched an instrument technician to confirm the chlorine analyzer readings. The instrument technician checked the analyzer and it appeared to be working normally. A review of work in the area revealed that flow testing had been performed on the hydrant adjacent to the building at approximately 11:30am, the reduced flow and resulting discoloured water were determined to be the cause of the low chlorine residual.

**Test Results:** Grab sample @ Hydrant (8:30pm): free chlorine 0.71 mg/L; turbidity 1.69 NTU; total coliforms 0 MPN/100mL; E. coli/0 MPN/100mL

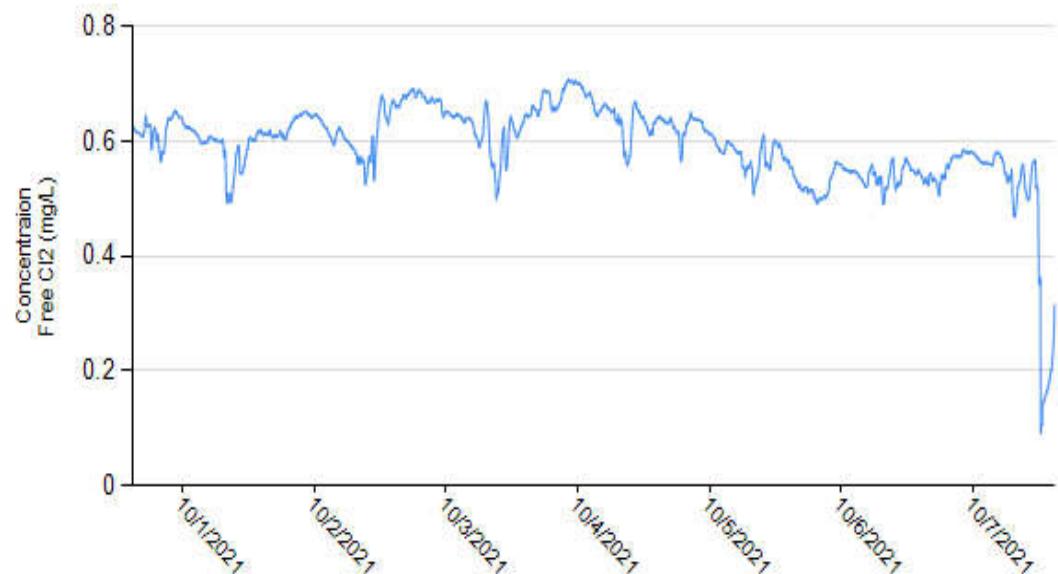
**Reference No:** L2649446

**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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## West Kildonan Library Chlorine Analyzer Data

<u>Date Time</u>	<u>Value</u>
10/7/2021 11:00:27 AM	0.56254226
10/7/2021 11:05:27 AM	0.56254226
10/7/2021 11:10:27 AM	0.566315889
10/7/2021 11:15:27 AM	0.565864265
10/7/2021 11:20:27 AM	0.564352691
10/7/2021 11:25:27 AM	0.566467047
10/7/2021 11:30:27 AM	0.552460074
10/7/2021 11:35:27 AM	0.518333197
10/7/2021 11:40:27 AM	0.521135509
10/7/2021 11:45:27 AM	0.523172379
10/7/2021 11:50:27 AM	0.51462841
10/7/2021 11:55:27 AM	0.513057351
10/7/2021 12:00:27 PM	0.419417262
10/7/2021 12:05:27 PM	0.353748888
10/7/2021 12:10:27 PM	0.350752264
10/7/2021 12:15:27 PM	0.350752264
10/7/2021 12:20:27 PM	0.362451315
10/7/2021 12:25:27 PM	0.091499701
10/7/2021 12:30:27 PM	0.107529961
10/7/2021 12:35:27 PM	0.106842689
10/7/2021 12:40:27 PM	0.104825214
10/7/2021 12:45:27 PM	0.141698614
10/7/2021 12:50:27 PM	0.146417886
10/7/2021 12:55:27 PM	0.146417886
10/7/2021 1:00:27 PM	0.146491587
10/7/2021 1:05:27 PM	0.150024503
10/7/2021 1:10:27 PM	0.153188601
10/7/2021 1:15:27 PM	0.156229764
10/7/2021 1:20:27 PM	0.158615217
10/7/2021 1:25:27 PM	0.161247641
10/7/2021 1:30:27 PM	0.164462388
10/7/2021 1:35:27 PM	0.164462388
10/7/2021 1:40:27 PM	0.16861546
10/7/2021 1:45:27 PM	0.172497064
10/7/2021 1:50:27 PM	0.176465064
10/7/2021 1:55:27 PM	0.178340778
10/7/2021 2:00:27 PM	0.181591645



# **2021 QUARTERLY FLUORIDE MONITORING REPORTS**



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

April 16, 2021

**RE: FIRST QUARTER 2021 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)	360232	4-Jan-21	0.75
	361995	11-Jan-21	0.74
	363742	18-Jan-21	0.75
	365387	25-Jan-21	0.76
	367059	1-Feb-21	0.75
	368657	8-Feb-21	0.68
	370258	16-Feb-21	0.76
	371803	22-Feb-21	0.74
	373651	1-Mar-21	0.75
	375346	8-Mar-21	0.76
	377130	15-Mar-21	0.73
	378626	22-Mar-21	0.73
	380337	29-Mar-21	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

cc: M Szmon, 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 14, 2021

**RE: SECOND QUARTER 2021 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)	382121	06-Apr-21	0.75
	383647	12-Apr-21	0.75
	385376	19-Apr-21	0.69
	387096	26-Apr-21	0.75
	388721	03-May-21	0.70
	390497	10-May-21	0.70
	392556	17-May-21	0.69
	394411	24-May-21	0.70
	396003	31-May-21	0.69
	397872	07-Jun-21	0.71
	399722	14-Jun-21	0.70
	401573	22-Jun-21	0.72
	403366	28-Jun-21	0.72

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)



Water and Waste  
Eaux et déchets

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

October 7, 2021

**RE: THIRD QUARTER 2021 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)	405101	5-Jul-21	0.72
	406830	12-Jul-21	0.72
	408698	19-Jul-21	0.72
	410615	26-Jul-21	0.73
	412465	3-Aug-21	0.71
	414269	9-Aug-21	0.72
	416089	16-Aug-21	0.71
	417941	23-Aug-21	0.72
	419638	30-Aug-21	0.76
	421430	7-Sep-21	0.71
	423160	13-Sep-21	0.75
	424924	20-Sep-21	0.73
	426692	27-Sep-21	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

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



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

January 21, 2022

**RE: FOURTH QUARTER 2021 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)	428561	4-Oct-21	0.80
	430159	12-Oct-21	0.78
	431814	18-Oct-21	0.76
	433601	25-Oct-21	0.76
	435288	1-Nov-21	0.72
	437014	8-Nov-21	0.74
	438583	15-Nov-21	0.70
	440007	22-Nov-21	0.70
	441628	29-Nov-21	0.69
	443314	6-Dec-21	0.68
	445000	13-Dec-21	0.68
	446630	20-Dec-21	0.70
	448232	29-Dec-21	0.69

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)

**2021 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 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
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
Monday, February 22, 2021	41.1	40.8	36.6	40.5	38.4	40.4
<b>RUNNING AVERAGE THM</b>	<b>46.2</b>	<b>44.2</b>	<b>41.7</b>	<b>41.9</b>	<b>41.0</b>	<b>44.2</b>

#### 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: C. Diduck

Compiled Date: March 8, 2021



Water and Waste  
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## Environmental Standards Division

### Total Trihalomethanes Summary Report

Reporting Period: Quarter 2 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
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
Monday, February 22, 2021	41.1	40.8	36.6	40.5	38.4	40.4
Monday, May 10, 2021	41.8	37.5	31.0	34.1	36.0	35.7
<b>RUNNING AVERAGE THM</b>	<b>47.2</b>	<b>42.3</b>	<b>39.2</b>	<b>41.2</b>	<b>41.0</b>	<b>43.3</b>

#### 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: \_\_\_\_\_ C. Diduck \_\_\_\_\_

Compiled Date: \_\_\_\_\_ July 13, 2021 \_\_\_\_\_



Water and Waste  
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## Environmental Standards Division

### Total Trihalomethanes Summary Report

Reporting Period: Quarter 3 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 16, 2020	26.8	29.9	29.8	28.6	29.4	33.8
Monday, February 22, 2021	41.1	40.8	36.6	40.5	38.4	40.4
Monday, May 10, 2021	41.8	37.5	31.0	34.1	36.0	35.7
Monday, August 16, 2021	66.6	63.0	64.5	63.1	59.1	61.1
RUNNING AVERAGE THM	44.1	42.8	40.5	41.6	40.7	42.8

#### 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: H.Demchenko

Approved by: C. Diduck

Compiled Date: September 21, 2021



Water and Waste  
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## Environmental Standards Division

### Total Trihalomethanes Summary Report

Reporting Period: Quarter 4 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 22, 2021	41.1	40.8	36.6	40.5	38.4	40.4
Monday, May 10, 2021	41.8	37.5	31.0	34.1	36.0	35.7
Monday, August 16, 2021	66.6	63.0	64.5	63.1	59.1	61.1
Monday, November 8, 2021	41.5	39.2	40.0	41.3	39.4	40.8
<b>RUNNING AVERAGE THM</b>	<b>47.8</b>	<b>36.3</b>	<b>43.0</b>	<b>44.8</b>	<b>43.2</b>	<b>44.5</b>

#### 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: C. Diduck

Compiled Date: November 25, 2021



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 1 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
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
Monday, February 8, 2021	20.5	23.1	25.7	22.7	21.8	24.1
<b>RUNNING AVERAGE HAA</b>	<b>228</b>	<b>260</b>	<b>24.3</b>	<b>22.4</b>	<b>24.9</b>	<b>25.1</b>

#### 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: \_\_\_\_\_ C. Diduck

Compiled Date: \_\_\_\_\_ May 17, 2021



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## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 2 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
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
Monday, February 8, 2021	20.5	23.1	25.7	22.7	21.8	24.1
Monday, May 10, 2021	28.0	25.6	28.7	27.2	16.5	26.6
<b>RUNNING AVERAGE HAA</b>	<b>23.6</b>	<b>25.2</b>	<b>24.1</b>	<b>22.4</b>	<b>22.6</b>	<b>25.1</b>

#### 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: \_\_\_\_\_ C. Diduck

Compiled Date: \_\_\_\_\_ July 13, 2021



Water and Waste  
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## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 3 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 16, 2020	21.5	21.2	22.2	20.3	21.3	23.5
Monday, February 8, 2021	20.5	23.1	25.7	22.7	21.8	24.1
Monday, May 10, 2021	28.0	25.6	28.7	27.2	16.5	26.6
Monday, August 16, 2021	28.6	33.9	30.4	34.2	32.4	36.0
<b>RUNNING AVERAGE HAA</b>	<b>24.7</b>	<b>26.0</b>	<b>26.8</b>	<b>26.1</b>	<b>23.0</b>	<b>27.6</b>

#### 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: \_\_\_\_\_ C. Diduck

Compiled Date: \_\_\_\_\_ September 21, 2021



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 4 2021

License: PWS-09-412-02

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 8, 2021	20.5	23.1	25.7	22.7	21.8	24.1
Monday, May 10, 2021	28.0	25.6	28.7	27.2	16.5	26.6
Monday, August 16, 2021	28.6	33.9	30.4	34.2	32.4	36.0
Monday, November 29, 2021	22.1	35.8	22.5	20.0	19.7	21.5
<b>RUNNING AVERAGE HAA</b>	<b>24.8</b>	<b>29.6</b>	<b>26.8</b>	<b>26.0</b>	<b>22.6</b>	<b>27.1</b>

#### 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: \_\_\_\_\_ C. Diduck

Compiled Date: \_\_\_\_\_ December 9, 2021

**APPENDIX C**

**2021 SHOAL LAKE ADULT AND VELIGER  
ZEBRA MUSSEL MONITORING REPORT (MB)**

**Objective:**

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

**Methods:**

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

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

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

**Permits/Licences:**

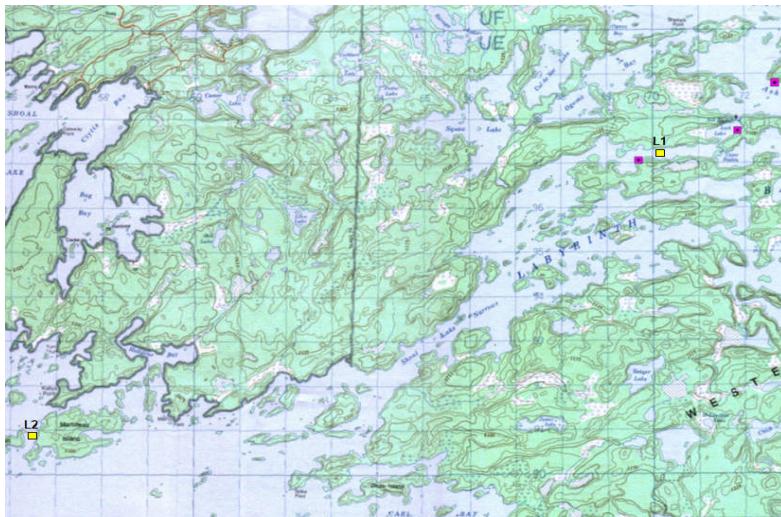
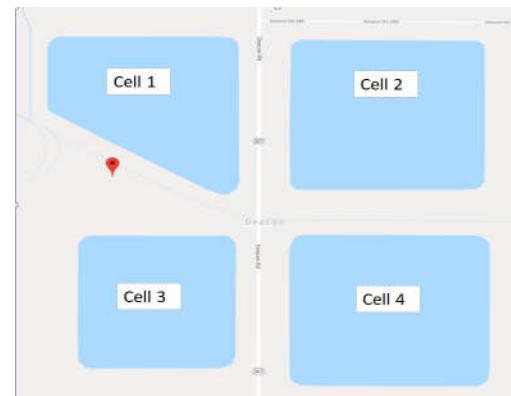
Manitoba Agriculture and Resource Development Scientific Collection Permit: 24466792

Manitoba Agriculture and Resource Development Aquatic Invasive Species Permit: 12-2021

Ontario Ministry of Natural Resources Licence to Collect Fish for Scientific Purposes: 1098361

**Sampling Locations:**

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





## Water and Waste Eaux et déchets

# 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	392340	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	5/13/2021	Discarded
Indian Bay - B1	392343	TEMP	Temperature_Sample (Report)	12.7	deg_C			5/13/2021 3:18 PM	
Indian Bay - B1	392343	TRANSPAREN	Transparency (Report)	2.0	m			5/13/2021 3:18 PM	
Indian Bay - B2	392344	TEMP	Temperature_Sample (Report)	12.4	deg_C			5/13/2021 3:30 PM	
Indian Bay - B2	392344	TRANSPAREN	Transparency (Report)	2.0	m			5/13/2021 3:30 PM	
Indian Bay - B3	392345	TEMP	Temperature_Sample (Report)	12.7	deg_C			5/13/2021 3:39 PM	
Indian Bay - B3	392345	TRANSPAREN	Transparency (Report)	2.0	m			5/13/2021 3:39 PM	
Indian Bay - B4	392346	TEMP	Temperature_Sample (Report)	12.5	deg_C			5/13/2021 3:49 PM	
Indian Bay - B4	392346	TRANSPAREN	Transparency (Report)	2.0	m			5/13/2021 3:49 PM	
Indian Bay - B5	392347	TEMP	Temperature_Sample (Report)	12.5	deg_C			5/13/2021 3:58 PM	
Indian Bay - B5	392347	TRANSPAREN	Transparency (Report)	2.0	m			5/13/2021 3:58 PM	
Indian Bay - B6	392348	TEMP	Temperature_Sample (Report)	12.6	deg_C			5/13/2021 10:04 AM	
Indian Bay - B6	392348	TRANSPAREN	Transparency (Report)	1.8	m			5/13/2021 10:04 AM	
Shoal Lake - L1_L5 Water Composite	392355	MICRO_EXAM	Zebra_Net_Vertical (Report)	0	count/sample	Dreissena polymorpha	veliger	5/13/2021	Discarded
Shoal Lake - L1	392356	TEMP	Temperature_Sample (Report)	11.8	deg_C			5/13/2021 11:27 AM	
Shoal Lake - L1	392356	TRANSPAREN	Transparency (Report)	2.5	m			5/13/2021 11:27 AM	
Shoal Lake - L2	392357	TEMP	Temperature_Sample (Report)	10.5	deg_C			5/13/2021 10:49 AM	
Shoal Lake - L2	392357	TRANSPAREN	Transparency (Report)	2.0	m			5/13/2021 10:49 AM	
Shoal Lake - L3	392358	TEMP	Temperature_Sample (Report)	9.7	deg_C			5/13/2021 12:35 PM	
Shoal Lake - L3	392358	TRANSPAREN	Transparency (Report)	1.8	m			5/13/2021 12:35 PM	
Shoal Lake - L4	392359	TEMP	Temperature_Sample (Report)	9.9	deg_C			5/13/2021 12:52 PM	
Shoal Lake - L4	392359	TRANSPAREN	Transparency (Report)	2.5	m			5/13/2021 12:52 PM	
Shoal Lake - L5	392360	TEMP	Temperature_Sample (Report)	10.8	deg_C			5/13/2021 2:29 PM	
Shoal Lake - L5	392360	TRANSPAREN	Transparency (Report)	2.3	m			5/13/2021 2:29 PM	
Shoal Lake - Horizontal Net Comp L1 B1 B4	392361	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/13/2021	Discarded
Weather Conditions - Indian Bay	392362	OBSERVE	Temperature_Air	21.0	deg_C			5/13/2021	

NOTE: Microscopic examination only performed on composite net samples because traps were set for the season on May 13, 2021



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	394350	TEMP	Temperature_Sample (Report)	12.7	deg_C			5/27/2021 7:58 AM	
Deacon Cell 1 - middle	394350	TRANSPAREN	Transparency (Report)	3.5	m			5/27/2021 7:58 AM	
Deacon Cell 1-100m from NE corner	394351	TEMP	Temperature_Sample (Report)	12.6	deg_C			5/27/2021 7:50 AM	
Deacon Cell 1-100m from NE corner	394351	TRANSPAREN	Transparency (Report)	4.0	m			5/27/2021 7:50 AM	
Deacon Cell 1 net composite	394352	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/27/2021	Discarded
Deacon Cell 2 - middle	394354	TEMP	Temperature_Sample (Report)	12.8	deg_C			5/27/2021 8:33 AM	
Deacon Cell 2 - middle	394354	TRANSPAREN	Transparency (Report)	3.0	m			5/27/2021 8:33 AM	
Deacon Cell 2-100m from NE corner	394355	TEMP	Temperature_Sample (Report)	12.8	deg_C			5/27/2021 8:30 AM	
Deacon Cell 2-100m from NE corner	394355	TRANSPAREN	Transparency (Report)	3.0	m			5/27/2021 8:30 AM	
Deacon Cell 2 net composite	394356	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/27/2021	Discarded
Deacon Cell 3 - middle	394358	TEMP	Temperature_Sample (Report)	12.6	deg_C			5/27/2021 7:00 AM	
Deacon Cell 3 - middle	394358	TRANSPAREN	Transparency (Report)	3.5	m			5/27/2021 7:00 AM	
Deacon Cell 3-100m from NE corner	394359	TEMP	Temperature_Sample (Report)	12.6	deg_C			5/27/2021 6:53 AM	
Deacon Cell 3-100m from NE corner	394359	TRANSPAREN	Transparency (Report)	3.5	m			5/27/2021 6:53 AM	
Deacon Cell 3 net composite	394360	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/27/2021	Discarded
Deacon Cell 4 - middle	394362	TEMP	Temperature_Sample (Report)	12.6	deg_C			5/27/2021 9:13 AM	
Deacon Cell 4 - middle	394362	TRANSPAREN	Transparency (Report)	3.0	m			5/27/2021 9:13 AM	
Deacon Cell 4-100m from NE corner	394363	TEMP	Temperature_Sample (Report)	12.6	deg_C			5/27/2021 9:10 AM	
Deacon Cell 4-100m from NE corner	394363	TRANSPAREN	Transparency (Report)	3.0	m			5/27/2021 9:10 AM	
Deacon Cell 4 net composite	394364	MICRO_EXAM	Zebra_Net_Horizontal (Report)	0	count/sample	Dreissena polymorpha	veliger	5/27/2021	Discarded
Weather Conditions - Deacon	394361	OBSERVE	Temperature_Air	13.0	deg_C			5/27/2021	

NOTE: Microscopic examination only performed on composite net samples because traps were set for the season on May 27, 2021



## Water and Waste Eaux et déchets

# 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	398883	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	6/10/2021	Discarded
Indian Bay - B1	398886	TEMP	Temperature, sample	21.0	deg_C			6/10/2021 2:03 PM	
Indian Bay - B1	398886	TRANSPAREN	Transparency in water	2.5	m			6/10/2021 2:03 PM	
Indian Bay - B1	398886	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 2:03 PM	Discarded
Indian Bay - B2	398890	TEMP	Temperature, sample	21.2	deg_C			6/10/2021 2:13 PM	
Indian Bay - B2	398890	TRANSPAREN	Transparency in water	2.5	m			6/10/2021 2:13 PM	
Indian Bay - B2	398890	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 2:13 PM	Discarded
Indian Bay - B3	398891	TEMP	Temperature, sample	21.5	deg_C			6/10/2021 2:20 PM	
Indian Bay - B3	398891	TRANSPAREN	Transparency in water	2.0	m			6/10/2021 2:20 PM	
Indian Bay - B3	398891	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 2:20 PM	Discarded
Indian Bay - B4	398892	TEMP	Temperature, sample	21.8	deg_C			6/10/2021 2:33 PM	
Indian Bay - B4	398892	TRANSPAREN	Transparency in water	2.5	m			6/10/2021 2:33 PM	
Indian Bay - B4	398892	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 2:33 PM	Discarded
Indian Bay - B5	398893	TEMP	Temperature, sample	21.7	deg_C			6/10/2021 2:46 PM	
Indian Bay - B5	398893	TRANSPAREN	Transparency in water	2.5	m			6/10/2021 2:46 PM	
Indian Bay - B5	398893	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 2:46 PM	Discarded
Indian Bay - B6	398894	TEMP	Temperature, sample	21.7	deg_C			6/10/2021 2:50 PM	
Indian Bay - B6	398894	TRANSPAREN	Transparency in water	2.3	m			6/10/2021 2:50 PM	
Indian Bay - B6	398894	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 2:50 PM	Discarded
Shoal Lake - L1_L5 Water Composite	398896	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	6/10/2021	Discarded
Shoal Lake - L1	398900	TEMP	Temperature, sample	21.0	deg_C			6/10/2021 10:59 AM	
Shoal Lake - L1	398900	TRANSPAREN	Transparency in water	2.8	m			6/10/2021 10:59 AM	
Shoal Lake - L1	398900	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 10:59 AM	Discarded
Shoal Lake - L2	398901	TEMP	Temperature, sample	19.7	deg_C			6/10/2021 11:32 AM	
Shoal Lake - L2	398901	TRANSPAREN	Transparency in water	2.8	m			6/10/2021 11:32 AM	
Shoal Lake - L2	398901	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 11:32 AM	Discarded
Shoal Lake - L3	398902	TEMP	Temperature, sample	19.5	deg_C			6/10/2021 12:05 PM	
Shoal Lake - L3	398902	TRANSPAREN	Transparency in water	2.8	m			6/10/2021 12:05 PM	
Shoal Lake - L3	398902	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 12:05 PM	Discarded
Shoal Lake - L4	398903	TEMP	Temperature, sample	20.3	deg_C			6/10/2021 12:25 PM	
Shoal Lake - L4	398903	TRANSPAREN	Transparency in water	2.5	m			6/10/2021 12:25 PM	
Shoal Lake - L4	398903	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 12:25 PM	Discarded
Shoal Lake - L5	398904	TEMP	Temperature, sample	20.1	deg_C			6/10/2021 1:38 PM	
Shoal Lake - L5	398904	TRANSPAREN	Transparency in water	2.8	m			6/10/2021 1:38 PM	
Shoal Lake - L5	398904	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/10/2021 1:38 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	398905	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	6/10/2021	Discarded
Weather Conditions - Indian Bay	398906	OBSERVE	Temperature_Air	20.0	deg_C			6/10/2021	



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	401488	TEMP	Temperature, sample	19.6	deg_C			6/24/2021 8:54 AM	
Deacon Cell 1 - middle	401488	TRANSPAREN	Transparency in water	1.5	m			6/24/2021 8:54 AM	
Deacon Cell 1 - middle	401488	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/24/2021 8:54 AM	Discarded
Deacon Cell 1-100m from NE corner	401489	TEMP	Temperature, sample	20.0	deg_C			6/24/2021 9:55 AM	
Deacon Cell 1-100m from NE corner	401489	TRANSPAREN	Transparency in water	2.8	m			6/24/2021 9:55 AM	
Deacon Cell 1 net composite	401490	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	6/24/2021	Discarded
Deacon Cell 2 - middle	401492	TEMP	Temperature, sample	19.6	deg_C			6/24/2021 8:54 AM	
Deacon Cell 2 - middle	401492	TRANSPAREN	Transparency in water	2.8	m			6/24/2021 8:54 AM	
Deacon Cell 2 - middle	401492	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/24/2021 8:54 AM	Discarded
Deacon Cell 2-100m from NE corner	401493	TEMP	Temperature, sample	20.6	deg_C			6/24/2021 9:03 AM	
Deacon Cell 2-100m from NE corner	401493	TRANSPAREN	Transparency in water	3.0	m			6/24/2021 9:03 AM	
Deacon Cell 2 net composite	401494	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	6/24/2021	Discarded
Deacon Cell 3 - middle	401496	TEMP	Temperature, sample	19.9	deg_C			6/24/2021 10:20 AM	
Deacon Cell 3 - middle	401496	TRANSPAREN	Transparency in water	2.0	m			6/24/2021 10:20 AM	
Deacon Cell 3 - middle	401496	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/24/2021 10:20 AM	Discarded
Deacon Cell 3-100m from NE corner	401497	TEMP	Temperature, sample	20.0	deg_C			6/24/2021 10:36 AM	
Deacon Cell 3-100m from NE corner	401497	TRANSPAREN	Transparency in water	2.0	m			6/24/2021 10:36 AM	
Deacon Cell 3 net composite	401498	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	6/24/2021	Discarded
Deacon Cell 4 - middle	401500	TEMP	Temperature, sample	19.4	deg_C			6/24/2021 8:40 AM	
Deacon Cell 4 - middle	401500	TRANSPAREN	Transparency in water	3.0	m			6/24/2021 8:40 AM	
Deacon Cell 4 - middle	401500	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	6/24/2021 8:40 AM	Discarded
Deacon Cell 4-100m from NE corner	401501	TEMP	Temperature, sample	19.3	deg_C			6/24/2021 8:34 AM	
Deacon Cell 4-100m from NE corner	401501	TRANSPAREN	Transparency in water	3.0	m			6/24/2021 8:34 AM	
Deacon Cell 4 net composite	401502	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	6/24/2021	Discarded
Weather Conditions - Deacon	401499	OBSERVE	Temperature_Air	20.7	deg_C			6/24/2021	



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	404885	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	7/7/2021	Discarded
Indian Bay - B1	404888	TEMP	Temperature, sample	23.6	deg_C			7/7/2021 1:18 PM	
Indian Bay - B1	404888	TRANSPAREN	Transparency in water	2.5	m			7/7/2021 1:18 PM	
Indian Bay - B1	404888	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 1:18 PM	Discarded
Indian Bay - B2	404889	TEMP	Temperature, sample	23.7	deg_C			7/7/2021 1:28 PM	
Indian Bay - B2	404889	TRANSPAREN	Transparency in water	2.8	m			7/7/2021 1:28 PM	
Indian Bay - B2	404889	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 1:28 PM	Discarded
Indian Bay - B3	404890	TEMP	Temperature, sample	23.3	deg_C			7/7/2021 1:39 PM	
Indian Bay - B3	404890	TRANSPAREN	Transparency in water	2.3	m			7/7/2021 1:39 PM	
Indian Bay - B3	404890	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 1:39 PM	Discarded
Indian Bay - B4	404891	TEMP	Temperature, sample	23.2	deg_C			7/7/2021 1:47 PM	
Indian Bay - B4	404891	TRANSPAREN	Transparency in water	1.8	m			7/7/2021 1:47 PM	
Indian Bay - B4	404891	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 1:47 PM	Discarded
Indian Bay - B5	404892	TEMP	Temperature, sample	23.4	deg_C			7/7/2021 2:00 PM	
Indian Bay - B5	404892	TRANSPAREN	Transparency in water	2.8	m			7/7/2021 2:00 PM	
Indian Bay - B5	404892	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 2:00 PM	Discarded
Indian Bay - B6	404893	TEMP	Temperature, sample	23.6	deg_C			7/7/2021 2:08 PM	
Indian Bay - B6	404893	TRANSPAREN	Transparency in water	2.5	m			7/7/2021 2:08 PM	
Indian Bay - B6	404893	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 2:08 PM	Discarded
Shoal Lake - L1_L5 Water Composite	404895	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	7/7/2021	Discarded
Shoal Lake - L1	404896	TEMP	Temperature, sample	23.1	deg_C			7/7/2021 10:38 AM	
Shoal Lake - L1	404896	TRANSPAREN	Transparency in water	2.8	m			7/7/2021 10:38 AM	
Shoal Lake - L1	404896	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 10:38 AM	Discarded
Shoal Lake - L2	404897	TEMP	Temperature, sample	21.7	deg_C			7/7/2021 11:10 AM	
Shoal Lake - L2	404897	TRANSPAREN	Transparency in water	2.3	m			7/7/2021 11:10 AM	
Shoal Lake - L2	404897	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 11:10 AM	Discarded
Shoal Lake - L3	404898	TEMP	Temperature, sample	20.8	deg_C			7/7/2021 11:40 AM	
Shoal Lake - L3	404898	TRANSPAREN	Transparency in water	3.3	m			7/7/2021 11:40 AM	
Shoal Lake - L3	404898	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 11:40 AM	Discarded
Shoal Lake - L4	404899	TEMP	Temperature, sample	21.9	deg_C			7/7/2021 11:53 AM	
Shoal Lake - L4	404899	TRANSPAREN	Transparency in water	3.0	m			7/7/2021 11:53 AM	
Shoal Lake - L4	404899	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/7/2021 11:53 AM	Discarded
Shoal Lake - L5	404900	TEMP	Temperature, sample	9.4	deg_C			7/7/2021 12:56 PM	
Shoal Lake - L5	404900	TRANSPAREN	Transparency in water	2.8	m			7/7/2021 12:56 PM	
Shoal Lake - L5	404900	MICRO_EXAM	Zebra Mussel, trap 1	nr	count/sample	Dreissena polymorpha	adult	7/7/2021 12:56 PM	n/a
Shoal Lake - Horizontal Net Comp L1 B1 B4	404901	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	7/7/2021	Discarded
Weather Conditions - Indian Bay	404902	OBSERVE	Temperature_Air	22.0	deg_C			7/7/2021	

NOTE: nr- no result, trap missing



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	408466	TEMP	Temperature, sample	23.5	deg_C			7/15/2021 10:06 AM	
Deacon Cell 1 - middle	408466	TRANSPAREN	Transparency in water	3.5	m			7/15/2021 10:06 AM	
Deacon Cell 1 - middle	408466	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/15/2021 10:06 AM	Discarded
Deacon Cell 1-100m from NE corner	408467	TEMP	Temperature, sample	23.5	deg_C			7/15/2021 10:08 AM	
Deacon Cell 1-100m from NE corner	408467	TRANSPAREN	Transparency in water	3.5	m			7/15/2021 10:08 AM	
Deacon Cell 1 net composite	408468	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	7/15/2021	Discarded
Deacon Cell 2 - middle	408470	TEMP	Temperature, sample	21.9	deg_C			7/15/2021 7:48 AM	
Deacon Cell 2 - middle	408470	TRANSPAREN	Transparency in water	2.8	m			7/15/2021 7:48 AM	
Deacon Cell 2 - middle	408470	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/15/2021 7:48 AM	Discarded
Deacon Cell 2-100m from NE corner	408471	TEMP	Temperature, sample	22.9	deg_C			7/15/2021 7:56 AM	
Deacon Cell 2-100m from NE corner	408471	TRANSPAREN	Transparency in water	2.8	m			7/15/2021 7:56 AM	
Deacon Cell 2 net composite	408472	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	7/15/2021	Discarded
Deacon Cell 3 - middle	408474	TEMP	Temperature, sample	23.3	deg_C			7/15/2021 10:49 AM	
Deacon Cell 3 - middle	408474	TRANSPAREN	Transparency in water	1.8	m			7/15/2021 10:49 AM	
Deacon Cell 3 - middle	408474	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/15/2021 10:49 AM	Discarded
Deacon Cell 3-100m from NE corner	408475	TEMP	Temperature, sample	23.3	deg_C			7/15/2021 10:54 AM	
Deacon Cell 3-100m from NE corner	408475	TRANSPAREN	Transparency in water	1.5	m			7/15/2021 10:54 AM	
Deacon Cell 3 net composite	408476	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	7/15/2021	Discarded
Deacon Cell 4 - middle	408482	TEMP	Temperature, sample	23.1	deg_C			7/15/2021 8:36 AM	
Deacon Cell 4 - middle	408482	TRANSPAREN	Transparency in water	2.0	m			7/15/2021 8:36 AM	
Deacon Cell 4 - middle	408482	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	7/15/2021 8:36 AM	Discarded
Deacon Cell 4-100m from NE corner	408483	TEMP	Temperature, sample	23.2	deg_C			7/15/2021 8:43 AM	
Deacon Cell 4-100m from NE corner	408483	TRANSPAREN	Transparency in water	2.0	m			7/15/2021 8:43 AM	
Deacon Cell 4 net composite	408484	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	7/15/2021	Discarded
Weather Conditions - Deacon	408477	OBSERVE	Temperature_Air	21.3	deg_C			7/15/2021	



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	413592	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	8/5/2021	Discarded
Indian Bay - B1	413595	TEMP	Temperature, sample	22.9	deg_C			8/5/2021 3:15 PM	
Indian Bay - B1	413595	TRANSPAREN	Transparency in water	1.5	m			8/5/2021 3:15 PM	
Indian Bay - B1	413595	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 3:15 PM	Discarded
Indian Bay - B2	413596	TEMP	Temperature, sample	22.5	deg_C			8/5/2021 1:33 PM	
Indian Bay - B2	413596	TRANSPAREN	Transparency in water	1.8	m			8/5/2021 1:33 PM	
Indian Bay - B2	413596	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 1:33 PM	Discarded
Indian Bay - B3	413597	TEMP	Temperature, sample	22.9	deg_C			8/5/2021 1:41 PM	
Indian Bay - B3	413597	TRANSPAREN	Transparency in water	2.0	m			8/5/2021 1:41 PM	
Indian Bay - B3	413597	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 1:41 PM	Discarded
Indian Bay - B4	413598	TEMP	Temperature, sample	22.3	deg_C			8/5/2021 1:49 PM	
Indian Bay - B4	413598	TRANSPAREN	Transparency in water	1.8	m			8/5/2021 1:49 PM	
Indian Bay - B4	413598	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 1:49 PM	Discarded
Indian Bay - B5	413599	TEMP	Temperature, sample	22.3	deg_C			8/5/2021 2:00 PM	
Indian Bay - B5	413599	TRANSPAREN	Transparency in water	1.5	m			8/5/2021 2:00 PM	
Indian Bay - B5	413599	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 2:00 PM	Discarded
Indian Bay - B6	413600	TEMP	Temperature, sample	22.3	deg_C			8/5/2021 7:00 AM	
Indian Bay - B6	413600	TRANSPAREN	Transparency in water	1.5	m			8/5/2021 7:00 AM	
Indian Bay - B6	413600	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 7:00 AM	Discarded
Shoal Lake - L1_L5 Water Composite	413606	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	8/5/2021	Discarded
Shoal Lake - L1	413607	TEMP	Temperature, sample	23.3	deg_C			8/5/2021 11:03 AM	
Shoal Lake - L1	413607	TRANSPAREN	Transparency in water	1.8	m			8/5/2021 11:03 AM	
Shoal Lake - L1	413607	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 11:03 AM	Discarded
Shoal Lake - L2	413608	TEMP	Temperature, sample	22.4	deg_C			8/5/2021 11:38 AM	
Shoal Lake - L2	413608	TRANSPAREN	Transparency in water	1.5	m			8/5/2021 11:38 AM	
Shoal Lake - L2	413608	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 11:38 AM	Discarded
Shoal Lake - L3	413609	TEMP	Temperature, sample	23.2	deg_C			8/5/2021 11:59 AM	
Shoal Lake - L3	413609	TRANSPAREN	Transparency in water	2.0	m			8/5/2021 11:59 AM	
Shoal Lake - L3	413609	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 11:59 AM	Discarded
Shoal Lake - L4	413610	TEMP	Temperature, sample	23.5	deg_C			8/5/2021 12:12 PM	
Shoal Lake - L4	413610	TRANSPAREN	Transparency in water	1.8	m			8/5/2021 12:12 PM	
Shoal Lake - L4	413610	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 12:12 PM	Discarded
Shoal Lake - L5	413611	TEMP	Temperature, sample	22.1	deg_C			8/5/2021 12:54 PM	
Shoal Lake - L5	413611	TRANSPAREN	Transparency in water	1.8	m			8/5/2021 12:54 PM	
Shoal Lake - L5	413611	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/5/2021 12:54 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	413612	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	8/5/2021	Discarded
Weather Conditions - Indian Bay	413613	OBSERVE	Temperature_Air	20.0	deg_C			8/5/2021	



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	417270	TEMP	Temperature, sample	19.1	deg_C			8/26/2021 8:28 AM	
Deacon Cell 1 - middle	417270	TRANSPAREN	Transparency in water	2.0	m			8/26/2021 8:28 AM	
Deacon Cell 1 - middle	417270	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/26/2021 8:28 AM	Discarded
Deacon Cell 1-100m from NE corner	417271	TEMP	Temperature, sample	19.1	deg_C			8/26/2021 8:15 AM	
Deacon Cell 1-100m from NE corner	417271	TRANSPAREN	Transparency in water	2.5	m			8/26/2021 8:15 AM	
Deacon Cell 1 net composite	417272	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	8/26/2021	Discarded
Deacon Cell 2 - middle	417274	TEMP	Temperature, sample	22.0	deg_C			8/19/2021 8:34 AM	
Deacon Cell 2 - middle	417274	TRANSPAREN	Transparency in water	1.5	m			8/19/2021 8:34 AM	
Deacon Cell 2 - middle	417274	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/19/2021 8:34 AM	Discarded
Deacon Cell 2-100m from NE corner	417275	TEMP	Temperature, sample	21.9	deg_C			8/19/2021 8:27 AM	
Deacon Cell 2-100m from NE corner	417275	TRANSPAREN	Transparency in water	1.5	m			8/19/2021 8:27 AM	
Deacon Cell 2 net composite	417276	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	8/19/2021	Discarded
Deacon Cell 3 - middle	417278	TEMP	Temperature, sample	19.2	deg_C			8/26/2021 9:34 AM	
Deacon Cell 3 - middle	417278	TRANSPAREN	Transparency in water	2.0	m			8/26/2021 9:34 AM	
Deacon Cell 3 - middle	417278	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/26/2021 9:34 AM	Discarded
Deacon Cell 3-100m from NE corner	417279	TEMP	Temperature, sample	19.0	deg_C			8/26/2021 9:22 AM	
Deacon Cell 3-100m from NE corner	417279	TRANSPAREN	Transparency in water	2.0	m			8/26/2021 9:22 AM	
Deacon Cell 3 net composite	417280	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	8/26/2021	Discarded
Deacon Cell 4 - middle	417282	TEMP	Temperature, sample	22.1	deg_C			8/19/2021 9:27 AM	
Deacon Cell 4 - middle	417282	TRANSPAREN	Transparency in water	1.5	m			8/19/2021 9:27 AM	
Deacon Cell 4 - middle	417282	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	8/19/2021 9:27 AM	Discarded
Deacon Cell 4-100m from NE corner	417283	TEMP	Temperature, sample	22.1	deg_C			8/19/2021 9:12 AM	
Deacon Cell 4-100m from NE corner	417283	TRANSPAREN	Transparency in water	1.5	m			8/19/2021 9:12 AM	
Deacon Cell 4 net composite	417284	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	8/19/2021	Discarded
Weather Conditions - Deacon	417281	OBSERVE	Temperature_Air	10.6	deg_C			8/26/2021	



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	421252	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	9/9/2021	Discarded
Indian Bay - B1	421255	TEMP	Temperature, sample	18.4	deg_C			9/9/2021 2:04 PM	
Indian Bay - B1	421255	TRANSPAREN	Transparency in water	1.0	m			9/9/2021 2:04 PM	
Indian Bay - B1	421255	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 2:04 PM	Discarded
Indian Bay - B2	421256	TEMP	Temperature, sample	18.1	deg_C			9/9/2021 2:14 PM	
Indian Bay - B2	421256	TRANSPAREN	Transparency in water	1.3	m			9/9/2021 2:14 PM	
Indian Bay - B2	421256	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 2:14 PM	Discarded
Indian Bay - B3	421257	TEMP	Temperature, sample	18.9	deg_C			9/9/2021 2:22 PM	
Indian Bay - B3	421257	TRANSPAREN	Transparency in water	1.5	m			9/9/2021 2:22 PM	
Indian Bay - B3	421257	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 2:22 PM	Discarded
Indian Bay - B4	421258	TEMP	Temperature, sample	18.4	deg_C			9/9/2021 2:33 PM	
Indian Bay - B4	421258	TRANSPAREN	Transparency in water	1.5	m			9/9/2021 2:33 PM	
Indian Bay - B4	421258	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 2:33 PM	Discarded
Indian Bay - B5	421259	TEMP	Temperature, sample	18.7	deg_C			9/9/2021 2:48 PM	
Indian Bay - B5	421259	TRANSPAREN	Transparency in water	1.5	m			9/9/2021 2:48 PM	
Indian Bay - B5	421259	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 2:48 PM	Discarded
Indian Bay - B6	421260	TEMP	Temperature, sample	18.6	deg_C			9/9/2021 2:53 PM	
Indian Bay - B6	421260	TRANSPAREN	Transparency in water	1.8	m			9/9/2021 2:53 PM	
Indian Bay - B6	421260	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 2:53 PM	Discarded
Shoal Lake - L1_L5 Water Composite	421266	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	9/9/2021	Discarded
Shoal Lake - L1	421267	TEMP	Temperature, sample	18.7	deg_C			9/9/2021 10:55 AM	
Shoal Lake - L1	421267	TRANSPAREN	Transparency in water	2.0	m			9/9/2021 10:55 AM	
Shoal Lake - L1	421267	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 10:55 AM	Discarded
Shoal Lake - L2	421268	TEMP	Temperature, sample	18.7	deg_C			9/9/2021 11:34 AM	
Shoal Lake - L2	421268	TRANSPAREN	Transparency in water	2.0	m			9/9/2021 11:34 AM	
Shoal Lake - L2	421268	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 11:34 AM	Discarded
Shoal Lake - L3	421269	TEMP	Temperature, sample	18.9	deg_C			9/9/2021 12:03 PM	
Shoal Lake - L3	421269	TRANSPAREN	Transparency in water	2.5	m			9/9/2021 12:03 PM	
Shoal Lake - L3	421269	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 12:03 PM	Discarded
Shoal Lake - L4	421270	TEMP	Temperature, sample	19.1	deg_C			9/9/2021 12:14 PM	
Shoal Lake - L4	421270	TRANSPAREN	Transparency in water	2.5	m			9/9/2021 12:14 PM	
Shoal Lake - L4	421270	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 12:14 PM	Discarded
Shoal Lake - L5	421271	TEMP	Temperature, sample	19.0	deg_C			9/9/2021 1:42 PM	
Shoal Lake - L5	421271	TRANSPAREN	Transparency in water	2.0	m			9/9/2021 1:42 PM	
Shoal Lake - L5	421271	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/9/2021 1:42 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	421272	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	9/9/2021	Discarded
Weather Conditions - Indian Bay	421273	OBSERVE	Temperature_Air	18.0	deg_C			9/9/2021	



## 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	424706	TEMP	Temperature, sample	17.1	deg_C			9/16/2021 9:31 AM	
Deacon Cell 1 - middle	424706	TRANSPAREN	Transparency in water	1.8	m			9/16/2021 9:31 AM	
Deacon Cell 1 - middle	424706	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/16/2021 9:31 AM	Discarded
Deacon Cell 1-100m from NE corner	424707	TEMP	Temperature, sample	17.0	deg_C			9/16/2021 9:25 AM	
Deacon Cell 1-100m from NE corner	424707	TRANSPAREN	Transparency in water	1.5	m			9/16/2021 9:25 AM	
Deacon Cell 1 net composite	424708	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	9/16/2021	Discarded
Deacon Cell 2 - middle	424710	TEMP	Temperature, sample	16.9	deg_C			9/16/2021 8:46 AM	
Deacon Cell 2 - middle	424710	TRANSPAREN	Transparency in water	1.5	m			9/16/2021 8:46 AM	
Deacon Cell 2 - middle	424710	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/16/2021 8:46 AM	Discarded
Deacon Cell 2-100m from NE corner	424711	TEMP	Temperature, sample	16.9	deg_C			9/16/2021 8:55 AM	
Deacon Cell 2-100m from NE corner	424711	TRANSPAREN	Transparency in water	1.5	m			9/16/2021 8:55 AM	
Deacon Cell 2 net composite	424712	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	9/16/2021	Discarded
Deacon Cell 3 - middle	424714	TEMP	Temperature, sample	17.0	deg_C			9/16/2021 10:11 AM	
Deacon Cell 3 - middle	424714	TRANSPAREN	Transparency in water	1.5	m			9/16/2021 10:11 AM	
Deacon Cell 3 - middle	424714	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/16/2021 10:11 AM	Discarded
Deacon Cell 3-100m from NE corner	424715	TEMP	Temperature, sample	16.9	deg_C			9/16/2021 9:59 AM	
Deacon Cell 3-100m from NE corner	424715	TRANSPAREN	Transparency in water	1.5	m			9/16/2021 9:59 AM	
Deacon Cell 3 net composite	424716	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	9/16/2021	Discarded
Deacon Cell 4 - middle	424718	TEMP	Temperature, sample	16.8	deg_C			9/16/2021 8:19 AM	
Deacon Cell 4 - middle	424718	TRANSPAREN	Transparency in water	1.3	m			9/16/2021 8:19 AM	
Deacon Cell 4 - middle	424718	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	9/16/2021 8:19 AM	Discarded
Deacon Cell 4-100m from NE corner	424719	TEMP	Temperature, sample	16.6	deg_C			9/16/2021 8:08 AM	
Deacon Cell 4-100m from NE corner	424719	TRANSPAREN	Transparency in water	1.3	m			9/16/2021 8:08 AM	
Deacon Cell 4 net composite	424720	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	9/16/2021	Discarded
Weather Conditions - Deacon	424717	OBSERVE	Temperature_Air	11.0	deg_C			9/16/2021	



## Water and Waste Eaux et déchets

# 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Indian Bay - B1_B6 Water Composite	429908	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	10/7/2021	Discarded
Indian Bay - B1	429911	TEMP	Temperature, sample	17.7	deg_C			10/7/2021 2:20 PM	
Indian Bay - B1	429911	TRANSPAREN	Transparency in water	1.5	m			10/7/2021 2:20 PM	
Indian Bay - B1	429911	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 2:20 PM	Discarded
Indian Bay - B2	429912	TEMP	Temperature, sample	17.4	deg_C			10/7/2021 2:35 PM	
Indian Bay - B2	429912	TRANSPAREN	Transparency in water	1.8	m			10/7/2021 2:35 PM	
Indian Bay - B2	429912	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 2:35 PM	Discarded
Indian Bay - B3	429913	TEMP	Temperature, sample	17.3	deg_C			10/7/2021 2:41 PM	
Indian Bay - B3	429913	TRANSPAREN	Transparency in water	1.5	m			10/7/2021 2:41 PM	
Indian Bay - B3	429913	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 2:41 PM	Discarded
Indian Bay - B4	429914	TEMP	Temperature, sample	17.5	deg_C			10/7/2021 3:15 PM	
Indian Bay - B4	429914	TRANSPAREN	Transparency in water	1.8	m			10/7/2021 3:15 PM	
Indian Bay - B4	429914	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 3:15 PM	Discarded
Indian Bay - B5	429915	TEMP	Temperature, sample	17.5	deg_C			10/7/2021 3:09 PM	
Indian Bay - B5	429915	TRANSPAREN	Transparency in water	1.8	m			10/7/2021 3:09 PM	
Indian Bay - B5	429915	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 3:09 PM	Discarded
Indian Bay - B6	429916	TEMP	Temperature, sample	17.6	deg_C			10/7/2021 3:15 PM	
Indian Bay - B6	429916	TRANSPAREN	Transparency in water	1.5	m			10/7/2021 3:15 PM	
Indian Bay - B6	429916	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 3:15 PM	Discarded
Shoal Lake - L1_L5 Water Composite	429918	MICRO_EXAM	Zebra Mussel, vertical net sample	0	count/sample	Dreissena polymorpha	veliger	10/7/2021	Discarded
Shoal Lake - L1	429919	TEMP	Temperature, sample	17.5	deg_C			10/7/2021 11:20 PM	
Shoal Lake - L1	429919	TRANSPAREN	Transparency in water	2.5	m			10/7/2021 11:20 PM	
Shoal Lake - L1	429919	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 11:20 PM	Discarded
Shoal Lake - L2	429920	TEMP	Temperature, sample	17.2	deg_C			10/7/2021 11:52 AM	
Shoal Lake - L2	429920	TRANSPAREN	Transparency in water	2.3	m			10/7/2021 11:52 AM	
Shoal Lake - L2	429920	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 11:52 AM	Discarded
Shoal Lake - L3	429921	TEMP	Temperature, sample	17.2	deg_C			10/7/2021 12:22 PM	
Shoal Lake - L3	429921	TRANSPAREN	Transparency in water	2.5	m			10/7/2021 12:22 PM	
Shoal Lake - L3	429921	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 12:22 PM	Discarded
Shoal Lake - L4	429922	TEMP	Temperature, sample	17.5	deg_C			10/7/2021 12:34 PM	
Shoal Lake - L4	429922	TRANSPAREN	Transparency in water	2.8	m			10/7/2021 12:34 PM	
Shoal Lake - L4	429922	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 12:34 PM	Discarded
Shoal Lake - L5	429923	TEMP	Temperature, sample	18.5	deg_C			10/7/2021 1:53 PM	
Shoal Lake - L5	429923	TRANSPAREN	Transparency in water	1.8	m			10/7/2021 1:53 PM	
Shoal Lake - L5	429923	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/7/2021 1:53 PM	Discarded
Shoal Lake - Horizontal Net Comp L1 B1 B4	429924	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	10/7/2021	Discarded
Weather Conditions - Indian Bay	429925	OBSERVE	Outside air temperature, website	22.0	deg_C			10/7/2021	



## Water and Waste Eaux et déchets

# 2021 Shoal Lake Adult and Veliger Zebra Mussel Monitoring Report

Sampling Point	ID Numeric	Analysis	Component	Result	Units	Species	Stage	Sampled Date	Disposition
Deacon Cell 1 - middle	432873	TEMP	Temperature, sample	10.2	deg_C			10/22/2021 11:42 AM	
Deacon Cell 1 - middle	432873	TRANSPAREN	Transparency in water	1.8	m			10/22/2021 11:42 AM	
Deacon Cell 1 - middle	432873	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/22/2021 11:42 AM	Discarded
Deacon Cell 1-100m from NE corner	432874	TEMP	Temperature, sample	10.2	deg_C			10/22/2021 11:50 AM	
Deacon Cell 1-100m from NE corner	432874	TRANSPAREN	Transparency in water	1.8	m			10/22/2021 11:50 AM	
Deacon Cell 1 net composite	432875	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	10/22/2021	Discarded
Deacon Cell 2 - middle	432877	TEMP	Temperature, sample	10.3	deg_C			10/21/2021 12:40 PM	
Deacon Cell 2 - middle	432877	TRANSPAREN	Transparency in water	1.5	m			10/21/2021 12:40 PM	
Deacon Cell 2 - middle	432877	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/21/2021 12:40 PM	Discarded
Deacon Cell 2-100m from NE corner	432878	TEMP	Temperature, sample	10.5	deg_C			10/21/2021 12:33 PM	
Deacon Cell 2-100m from NE corner	432878	TRANSPAREN	Transparency in water	1.8	m			10/21/2021 12:33 PM	
Deacon Cell 2 net composite	432879	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	10/21/2021	Discarded
Deacon Cell 3 - middle	432881	TEMP	Temperature, sample	10.3	deg_C			10/22/2021 12:30 PM	
Deacon Cell 3 - middle	432881	TRANSPAREN	Transparency in water	1.3	m			10/22/2021 12:30 PM	
Deacon Cell 3 - middle	432881	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/22/2021 12:30 PM	Discarded
Deacon Cell 3-100m from NE corner	432882	TEMP	Temperature, sample	10.2	deg_C			10/22/2021 12:18 PM	
Deacon Cell 3-100m from NE corner	432882	TRANSPAREN	Transparency in water	1.3	m			10/22/2021 12:18 PM	
Deacon Cell 3 net composite	432883	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	10/22/2021	Discarded
Deacon Cell 4 - middle	432885	TEMP	Temperature, sample	10.3	deg_C			10/21/2021 1:20 PM	
Deacon Cell 4 - middle	432885	TRANSPAREN	Transparency in water	1.0	m			10/21/2021 1:20 PM	
Deacon Cell 4 - middle	432885	MICRO_EXAM	Zebra Mussel, trap 1	0	count/sample	Dreissena polymorpha	adult	10/21/2021 1:20 PM	Discarded
Deacon Cell 4-100m from NE corner	432886	TEMP	Temperature, sample	10.4	deg_C			10/21/2021 1:30 PM	
Deacon Cell 4-100m from NE corner	432886	TRANSPAREN	Transparency in water	1.3	m			10/21/2021 1:30 PM	
Deacon Cell 4 net composite	432887	MICRO_EXAM	Zebra Mussel, horizontal net sample	0	count/sample	Dreissena polymorpha	veliger	10/21/2021	Discarded
Weather Conditions - Deacon	432884	OBSERVE	Outside air temperature, website	4.0	deg_C			10/22/2021	

## **APPENDIX D**

# **2021 LEAD MONITORING PROGRAM RESULTS**

**City of Winnipeg**  
**Environmental Standards Division**  
**2021 Lead Testing Program Summary**

DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	SAMPLED BY	RDT	1 MN	2MN	5MN
30-Jun-21	68C	Daniel McIntyre	Copper	Lead	Customer	0.001263	0.001838	0.001312	0.001345
30-Jun-21	681	Daniel McIntyre	Copper	Lead	Customer	0.004511	0.002745	0.003109	0.003627
30-Jun-21	682	Daniel McIntyre	Copper	Lead	Customer	0.001682	0.000081	0.000065	0.000067
30-Jun-21	683	Daniel McIntyre	Copper	Lead	Customer	0.000755	0.000984	0.000274	0.000293
30-Jun-21	684	Daniel McIntyre	Copper	Lead	Customer	0.000159	<0.000065	<0.000065	<0.000065
30-Jun-21	685	Daniel McIntyre	Copper	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
30-Jun-21	686	Daniel McIntyre	Lead	Lead	Customer	0.001250	0.000590	0.000484	0.000499
30-Jun-21	687	Daniel McIntyre	Copper	Lead	Customer	0.001181	0.003682	0.000849	0.000908
2-Jul-21	688	Daniel McIntyre	Copper	Lead	Customer	0.003378	0.002049	0.000932	0.000703
2-Jul-21	689	Daniel McIntyre	Copper	Lead	Customer	0.002206	0.035161	0.002847	0.002193
2-Jul-21	69C	Daniel McIntyre	Copper	Lead	Customer	0.000693	0.000722	0.000822	0.001038
2-Jul-21	691	Daniel McIntyre	Copper	Lead	Customer	0.000798	0.003594	0.000349	0.000367
2-Jul-21	692	Daniel McIntyre	Copper	Lead	Customer	0.007467	0.001426	0.001339	0.001344
2-Jul-21	693	Daniel McIntyre	Lead	Lead	Customer	0.003698	0.001125	0.001411	0.009524
2-Jul-21	694	Daniel McIntyre	Copper	Lead	Customer	0.001585	0.002328	0.000344	0.000307
2-Jul-21	695	Daniel McIntyre	Lead	Lead	Customer	0.001312	0.000846	0.001135	0.000371
2-Jul-21	696	Daniel McIntyre	Lead	Lead	Customer	0.001441	0.000869	0.000587	0.000648
8-Jul-21	70C	St. James	Copper	Lead	Customer	0.001068	0.000489	0.000378	0.000383
8-Jul-21	701	Daniel McIntyre	Copper	Lead	Customer	0.000583	0.000399	0.000387	0.000474
8-Jul-21	702	Daniel McIntyre	Copper	Lead	Customer	0.000267	0.000177	0.000142	0.000133
8-Jul-21	703	St. James	Lead	Lead	Customer	0.003052	0.000727	0.000455	0.000449
8-Jul-21	704	St. James	Copper	Lead	Customer	0.002192	0.001281	0.001169	0.001155
8-Jul-21	705	St. James	Copper	Lead	Customer	0.002623	0.000570	0.000589	0.000514
8-Jul-21	706	Daniel McIntyre	Lead	Lead	Customer	0.005215	0.000607	0.000633	0.000661
9-Jul-21	707	St. James	Copper	Lead	Customer	0.000850	0.001118	0.000682	0.000698
9-Jul-21	708	St. James	Lead	Lead	Customer	0.000290	0.000112	0.000069	0.000075
9-Jul-21	709	St. James	Copper	Lead	Customer	0.000214	0.000173	0.000168	0.000105
9-Jul-21	71C	St. James	Copper	Lead	Customer	0.001045	0.000836	0.001629	0.003957
9-Jul-21	711	St. James	Lead	Lead	Customer	0.001175	0.017573	0.005953	0.001188
9-Jul-21	712	St. James	Unknown	Lead	Customer	0.005437	0.003094	0.00202C	0.000878
9-Jul-21	713	Daniel McIntyre	Copper	Lead	Customer	0.000238	0.000113	<0.000065	0.000076

**City of Winnipeg**  
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DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	SAMPLED BY	RDT	1 MN	2MN	5MN
9-Jul-21	714	Daniel McIntyre	Copper	Lead	Customer	0.001277	0.000731	0.000785	0.001411
8-Jul-21	715	Daniel McIntyre	Copper	Lead	Customer	0.001562	0.000663	0.000658	0.000675
9-Jul-21	716	Daniel McIntyre	Copper	Lead	Customer	0.001288	0.001239	0.001112	0.001091
8-Jul-21	717	Daniel McIntyre	Copper	Lead	Customer	0.001049	0.004602	0.000752	0.000721
15-Jul-21	719	River Heights - Fort Garry	Lead	Lead	Customer	0.001651	0.003313	0.000577	0.000540
15-Jul-21	720	River Heights - Fort Garry	Unknown	Lead	Customer	0.000646	0.000630	0.000617	0.000621
15-Jul-21	722	Charleswood - Tuxedo - Westwood	Lead	Lead	Customer	0.004487	0.003951	0.000884	0.000782
15-Jul-21	723	River Heights - Fort Garry	Copper	Lead	Customer	0.040651	0.000706	0.000847	0.000986
15-Jul-21	724	River Heights - Fort Garry	Copper	Lead	Customer	0.001020	0.001088	0.000393	0.000438
15-Jul-21	725	River Heights - Fort Garry	Lead	Lead	Customer	0.002717	0.002119	0.003464	0.001284
15-Jul-21	726	River Heights - Fort Garry	Copper	Lead	Customer	0.001773	0.002187	0.002692	0.000546
15-Jul-21	727	River Heights - Fort Garry	Lead	Lead	Customer	0.001649	0.001126	0.001261	0.000655
15-Jul-21	728	River Heights - Fort Garry	Copper	Lead	Customer	0.005904	0.015949	0.001005	0.000921
16-Jul-21	729	River Heights - Fort Garry	Copper	Lead	Customer	0.004278	0.001749	0.002253	0.002314
16-Jul-21	730	River Heights - Fort Garry	Copper	Lead	Customer	0.000994	0.000398	0.001567	0.000393
16-Jul-21	731	River Heights - Fort Garry	Copper	Lead	Customer	0.000913	0.000627	0.000624	0.000631
16-Jul-21	732	River Heights - Fort Garry	Copper	Lead	Customer	0.003510	0.004226	0.002708	0.000884
15-Jul-21	733	Charleswood - Tuxedo - Westwood	Copper	Lead	Customer	0.002399	0.000102	0.000080	0.000109
16-Jul-21	734	River Heights - Fort Garry	Lead	Lead	Customer	0.010352	0.007792	0.001695	0.001629
16-Jul-21	735	River Heights - Fort Garry	Copper	Lead	Customer	0.005842	0.028984	0.001907	0.001897
16-Jul-21	736	River Heights - Fort Garry	Copper	Lead	Customer	0.002350	0.001114	0.001356	0.001292
21-Jul-21	739	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.002085	0.007871	0.001490	0.001528
21-Jul-21	740	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.002615	0.000871	0.000822	0.000789
21-Jul-21	741	Fort Rouge - East Fort Garry	Lead	Lead	Customer	0.000267	0.000418	0.000261	0.000239
21-Jul-21	742	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.006260	0.000972	0.001147	0.001103
21-Jul-21	743	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.001628	0.001627	0.000688	0.000845
21-Jul-21	744	River Heights - Fort Garry	Lead	Lead	Customer	0.003467	0.000760	0.000916	0.001031
21-Jul-21	745	River Heights - Fort Garry	Lead	Lead	Customer	0.000706	0.000517	0.000214	0.000175
21-Jul-21	746	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.000325	0.000215	0.000096	0.000090
21-Jul-21	747	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.004877	0.001347	0.001347	0.001307
21-Jul-21	748	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.000359	0.000324	0.000280	0.000284

**City of Winnipeg**  
**Environmental Standards Division**  
**2021 Lead Testing Program Summary**

DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	SAMPLED BY	RDT	1 MN	2MN	5MN
22-Jul-21	749	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.000295	0.001045	0.001196	0.00073C
22-Jul-21	75C	River Heights - Fort Garry	Lead	Lead	Customer	0.002548	0.004118	0.002606	0.000988
22-Jul-21	751	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.002518	0.001561	0.001345	0.001377
22-Jul-21	752	River Heights - Fort Garry	Copper	Lead	Customer	0.001334	0.000908	0.000461	0.000399
22-Jul-21	753	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.002393	0.000500	0.000508	0.000479
22-Jul-21	754	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.003224	0.009255	0.001682	0.001706
22-Jul-21	755	Fort Rouge - East Fort Garry	Lead	Lead	Customer	0.002166	0.001876	0.001903	0.002001
22-Jul-21	756	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.003455	0.001350	0.001317	0.001223
22-Jul-21	757	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.002550	0.000794	0.000823	0.000794
4-Aug-21	77C	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.001505	0.000175	0.00018C	0.000169
4-Aug-21	771	Daniel McIntyre	Copper	Lead	Customer	0.001284	0.000828	0.000746	0.000811
4-Aug-21	772	Daniel McIntyre	Copper	Lead	Customer	0.003082	0.005142	0.000618	0.000681
4-Aug-21	773	Mynarski	Copper	Lead	Customer	0.001081	0.001459	0.000864	0.000821
4-Aug-21	774	Mynarski	Lead	Lead	Customer	0.002833	0.003117	0.000743	0.000733
4-Aug-21	775	Mynarski	Lead	Lead	Customer	0.020094	0.029134	0.028573	0.033667
4-Aug-21	776	Fort Rouge - East Fort Garry	Lead	Lead	Customer	0.001517	0.000518	0.000425	0.000407
4-Aug-21	777	Daniel McIntyre	Lead	Lead	Customer	0.004916	0.002470	0.001581	0.001604
4-Aug-21	778	Daniel McIntyre	Copper	Lead	Customer	0.003816	0.000941	0.000739	0.000667
5-Aug-21	78C	Daniel McIntyre	Copper	Lead	Customer	0.003894	0.001840	0.001885	0.00192C
5-Aug-21	781	Mynarski	Lead	Lead	Customer	0.001216	0.000223	0.00022C	0.000221
4-Aug-21	782	Mynarski	Lead	Lead	Customer	0.005940	0.001966	0.001586	0.001571
5-Aug-21	783	Mynarski	Copper	Lead	Customer	0.000336	0.000246	0.000116	0.000106
5-Aug-21	784	Mynarski	Lead	Lead	Customer	0.001241	0.001281	0.001214	0.001247
5-Aug-21	785	Mynarski	Copper	Lead	Customer	0.000754	0.000437	0.000447	0.00043C
5-Aug-21	786	Daniel McIntyre	Copper	Lead	Customer	0.003108	0.002359	0.002393	0.002168
5-Aug-21	787	Daniel McIntyre	Copper	Lead	Customer	0.003034	0.000977	0.000845	0.000894
5-Aug-21	788	Daniel McIntyre	Lead	Lead	Customer	0.001367	0.001029	0.000479	0.000508
5-Aug-21	789	Daniel McIntyre	Copper	Lead	Customer	0.001471	0.005598	0.001131	0.001157
5-Aug-21	79C	Mynarski	Copper	Lead	Customer	0.000111	<0.000065	<0.000065	<0.000065
11-Aug-21	794	Fort Rouge - East Fort Garry	Unknown	Lead	Customer	0.001472	0.000808	0.000844	0.000821
11-Aug-21	795	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.003528	0.002558	0.016486	0.001082

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11-Aug-21	796	St. Vital	Lead	Lead	Customer	0.007491	0.001328	0.001248	0.001224
11-Aug-21	797	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.005747	0.001102	0.001042	0.000981
11-Aug-21	798	St. Vital	Copper	Lead	Customer	0.000071	<0.000065	<0.000065	<0.000065
11-Aug-21	799	St. Vital	Unknown	Lead	Customer	0.008037	0.002330	0.002239	0.002098
11-Aug-21	800	St. Vital	Copper	Lead	Customer	0.002685	0.001686	0.001445	0.001457
12-Aug-21	806	St. Vital	Unknown	Lead	Customer	0.001200	0.000406	0.000419	0.000445
12-Aug-21	807	St. Vital	Copper	Lead	Customer	0.004988	0.001621	0.001118	0.001131
12-Aug-21	808	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.010554	0.008450	0.006793	0.003221
12-Aug-21	809	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.000461	0.000581	0.000332	0.000406
12-Aug-21	810	Fort Rouge - East Fort Garry	Lead	Lead	Customer	0.003590	0.000779	0.000758	0.000762
12-Aug-21	811	St. Vital	Unknown	Lead	Customer	0.017462	0.014606	0.005227	0.003003
12-Aug-21	812	St. Vital	Copper	Lead	Customer	0.003313	0.001212	0.001183	0.001179
12-Aug-21	813	St. Vital	Copper	Lead	Customer	0.002129	0.001357	0.000696	0.000692
12-Aug-21	814	St. Vital	Copper	Lead	Customer	0.003490	0.001543	0.001549	0.001497
18-Aug-21	822	North Kildonan	Lead	Lead	Customer	0.001911	0.001637	0.000578	0.000946
18-Aug-21	823	St. Boniface	Copper	Lead	Customer	0.004812	0.002805	0.001734	0.001757
18-Aug-21	824	North Kildonan	Lead	Lead	Customer	0.003540	0.002992	0.002174	0.002135
18-Aug-21	825	North Kildonan	Copper	Lead	Customer	0.002346	0.001119	0.001166	0.001129
18-Aug-21	826	Elmwood - East Kildonan	Lead	Lead	Customer	0.001172	0.002128	0.001039	0.001040
18-Aug-21	827	St. Boniface	Copper	Lead	Customer	0.001195	0.001211	0.001066	0.001044
18-Aug-21	828	Elmwood - East Kildonan	Lead	Lead	Customer	0.001171	0.000480	0.000464	0.000443
18-Aug-21	829	Elmwood - East Kildonan	Copper	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
18-Aug-21	830	Elmwood - East Kildonan	Lead	Lead	Customer	0.002432	0.001664	0.001344	0.001298
19-Aug-21	831	Elmwood - East Kildonan	Lead	Lead	Customer	0.003375	0.004000	0.001824	0.001758
19-Aug-21	832	St. Boniface	Unknown	Lead	Customer	0.000815	0.000231	0.000162	0.000138
19-Aug-21	833	St. Boniface	Copper	Lead	Customer	0.003117	0.001503	0.001590	0.001528
19-Aug-21	834	St. Boniface	Copper	Lead	Customer	0.003077	0.001173	0.001109	0.000958
19-Aug-21	835	St. Boniface	Copper	Lead	Customer	0.000588	0.000577	0.000577	0.000558
19-Aug-21	836	North Kildonan	Unknown	Lead	Customer	0.000557	0.002816	0.005317	0.000597
19-Aug-21	837	Elmwood - East Kildonan	Unknown	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
19-Aug-21	838	Elmwood - East Kildonan	Copper	Lead	Customer	0.002985	0.001115	0.000884	0.000847

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19-Aug-21	839	St. Boniface	Unknown	Lead	Customer	0.001436	0.000346	0.000367	0.000341
19-Aug-21	84C	Elmwood - East Kildonan	Lead	Lead	Customer	0.002326	0.017408	0.000939	0.000762
25-Aug-21	843	Daniel McIntyre	Lead	Lead	Customer	0.021264	0.001215	0.001003	0.000963
26-Aug-21	844	St. Vital	Lead	Lead	Customer	0.008678	0.004852	0.001996	0.000731
26-Aug-21	845	Elmwood - East Kildonan	Copper	Lead	Customer	0.001903	0.000903	0.000938	0.000959
26-Aug-21	846	Elmwood - East Kildonan	Copper	Lead	Customer	0.001047	0.007137	0.000541	0.000563
26-Aug-21	847	Daniel McIntyre	Copper	Lead	Customer	0.004611	0.006570	0.001733	0.001713
26-Aug-21	848	Daniel McIntyre	Copper	Lead	Customer	0.001249	0.000888	0.00094C	0.001075
25-Aug-21	849	St. Boniface	Copper	Lead	Customer	0.000449	0.000368	0.000102	0.000096
25-Aug-21	85C	St. James	Unknown	Lead	Customer	0.001086	0.000763	0.000637	0.000639
1-Sep-21	855	Daniel McIntyre	Lead	Lead	Customer	0.000252	0.000215	0.000261	0.000208
1-Sep-21	856	Point Douglas	Copper	Lead	Customer	0.001031	0.000553	0.000544	0.000535
1-Sep-21	857	Point Douglas	Copper	Lead	Customer	0.000832	0.00064C	0.00064C	0.000616
1-Sep-21	858	Daniel McIntyre	Copper	Lead	Customer	0.001084	0.001020	0.000674	0.000643
1-Sep-21	859	Point Douglas	Lead	Lead	Customer	0.002351	0.000671	0.000369	0.000402
1-Sep-21	86C	Point Douglas	Copper	Lead	Customer	0.001611	0.001370	0.001396	0.001351
1-Sep-21	861	Point Douglas	Copper	Lead	Customer	0.002197	0.000572	0.000569	0.000567
1-Sep-21	863	Mynarski	Lead	Lead	Customer	0.000319	0.000076	<0.000065	<0.000065
2-Sep-21	865	Daniel McIntyre	Copper	Lead	Customer	0.001285	0.001681	0.000834	0.000828
2-Sep-21	866	Point Douglas	Lead	Lead	Customer	0.001515	0.001806	0.00182C	0.001794
2-Sep-21	867	Point Douglas	Copper	Lead	Customer	0.001118	0.000650	0.001231	0.000264
2-Sep-21	87C	Point Douglas	Copper	Lead	Customer	0.002718	0.000439	0.000428	0.000428
2-Sep-21	871	Point Douglas	Copper	Lead	Customer	0.000475	0.000187	0.000188	0.000174
1-Sep-21	872	Daniel McIntyre	Copper	Lead	Customer	0.002109	0.001363	0.00081C	0.00079C
1-Sep-21	873	Point Douglas	Copper	Lead	Customer	0.002841	0.003802	0.000608	0.000542
1-Sep-21	874	Mynarski	Copper	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
1-Sep-21	875	Point Douglas	Lead	Lead	Customer	0.001088	0.000332	0.000346	0.000981
2-Sep-21	876	Point Douglas	Copper	Lead	Customer	0.000444	0.000521	0.000325	0.000475
8-Sep-21	88C	Point Douglas	Lead	Lead	Customer	0.001076	0.000873	0.000834	0.000845
8-Sep-21	881	Point Douglas	Lead	Lead	Customer	0.000120	0.000097	0.000075	0.000087
8-Sep-21	882	Mynarski	Copper	Lead	Customer	0.002159	0.000776	0.000739	0.000702

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8-Sep-21	883	Mynarski	Copper	Lead	Customer	0.001517	0.000982	0.000812	0.000771
8-Sep-21	884	Mynarski	Copper	Lead	Customer	0.001335	0.000882	0.000859	0.000931
8-Sep-21	885	Mynarski	Copper	Lead	Customer	0.001541	0.000398	0.000334	0.000334
8-Sep-21	886	Mynarski	Copper	Lead	Customer	0.006379	0.001698	0.001856	0.003745
8-Sep-21	887	Mynarski	Copper	Lead	Customer	0.004155	0.001743	0.001713	0.001762
8-Sep-21	888	Mynarski	Lead	Lead	Customer	0.007714	0.003652	0.003307	0.003161
8-Sep-21	889	Mynarski	Copper	Lead	Customer	0.002483	0.002225	0.001883	0.001863
8-Sep-21	890	Mynarski	Lead	Lead	Customer	0.000476	0.000562	0.000522	0.000512
9-Sep-21	891	Mynarski	Lead	Lead	Customer	0.000822	0.001191	0.000966	0.000158
9-Sep-21	892	Mynarski	Copper	Lead	Customer	0.001571	0.003573	0.000897	0.00087C
9-Sep-21	893	Mynarski	Lead	Lead	Customer	0.289630	0.007512	0.004085	0.002275
9-Sep-21	894	Mynarski	Copper	Lead	Customer	0.032196	0.004478	0.003511	0.003276
9-Sep-21	895	Mynarski	Lead	Lead	Customer	0.008370	0.009191	0.000716	0.000634
9-Sep-21	896	Point Douglas	Copper	Lead	Customer	0.009118	0.002514	0.001753	0.001713
9-Sep-21	897	Point Douglas	Lead	Lead	Customer	0.012976	0.014679	0.002672	0.002533
9-Sep-21	898	Mynarski	Copper	Lead	Customer	0.003606	0.000756	0.00058C	0.000551
9-Sep-21	899	Mynarski	Copper	Lead	Customer	0.001609	0.001549	0.001578	0.001718
15-Sep-21	905	Point Douglas	Lead	Lead	Customer	0.002704	0.001584	0.000771	0.000292
15-Sep-21	906	Mynarski	Copper	Lead	Customer	0.002548	0.000880	0.000865	0.00086C
15-Sep-21	907	Point Douglas	Copper	Lead	Customer	0.002660	0.001269	0.001124	0.001199
15-Sep-21	908	Mynarski	Copper	Lead	Customer	0.000453	<0.000065	<0.000065	<0.000065
15-Sep-21	909	Mynarski	Lead	Lead	Customer	0.000656	0.000499	0.000528	0.00052C
15-Sep-21	910	Mynarski	Lead	Lead	Customer	0.009941	0.005877	0.000981	0.000986
15-Sep-21	911	Mynarski	Copper	Lead	Customer	0.001019	0.001019	0.000995	0.000951
15-Sep-21	916	Point Douglas	Copper	Lead	Customer	0.000715	0.000232	0.000209	0.000177
16-Sep-21	917	Point Douglas	Copper	Lead	Customer	0.000738	0.001841	0.001319	0.001246
16-Sep-21	918	Mynarski	Copper	Lead	Customer	0.000899	0.000795	0.000991	0.000712
16-Sep-21	919	Mynarski	Lead	Lead	Customer	0.002473	0.003741	0.001652	0.001316
16-Sep-21	920	Mynarski	Lead	Lead	Customer	0.001068	0.001213	0.00107C	0.00104C
16-Sep-21	921	Point Douglas	Copper	Lead	Customer	0.003355	0.000675	0.000518	0.000595
16-Sep-21	922	Mynarski	Copper	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065

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16-Sep-21	923	Mynarski	Copper	Lead	Customer	0.001381	0.001028	0.000988	0.000984
22-Sep-21	926	Elmwood - East Kildonan	Copper	Lead	Customer	0.007582	0.021607	0.019441	0.022667
22-Sep-21	927	Elmwood - East Kildonan	Lead	Lead	Customer	0.000674	0.000558	0.000413	0.000726
22-Sep-21	928	Elmwood - East Kildonan	Copper	Lead	Customer	0.003457	0.008936	0.001469	0.000974
22-Sep-21	929	Elmwood - East Kildonan	Unknown	Lead	Customer	0.000469	0.007523	0.000621	0.000462
22-Sep-21	930	Transcona	Unknown	Lead	Customer	0.000283	<0.000065	<0.000065	<0.000065
22-Sep-21	931	Transcona	Copper	Lead	Customer	0.000216	<0.000065	0.000065	<0.000065
22-Sep-21	932	Transcona	Unknown	Lead	Customer	0.000127	<0.000065	<0.000065	<0.000065
22-Sep-21	933	Transcona	Unknown	Lead	Customer	0.001379	0.000175	0.00009C	<0.000065
22-Sep-21	934	Elmwood - East Kildonan	Copper	Lead	Customer	0.000889	0.000454	0.000827	0.000608
23-Sep-21	937	Elmwood - East Kildonan	Lead	Lead	Customer	0.002579	0.003468	0.003957	0.001063
23-Sep-21	938	Elmwood - East Kildonan	Lead	Lead	Customer	0.000869	0.000231	0.000199	0.000193
23-Sep-21	939	Elmwood - East Kildonan	Copper	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
23-Sep-21	940	Elmwood - East Kildonan	Copper	Lead	Customer	0.009175	0.041467	0.013845	0.003151
23-Sep-21	941	Transcona	Copper	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
23-Sep-21	942	Transcona	Unknown	Lead	Customer	0.010368	0.012697	0.003711	0.003543
23-Sep-21	943	Transcona	Unknown	Lead	Customer	0.000615	<0.000065	<0.000065	<0.000065
23-Sep-21	944	Elmwood - East Kildonan	Copper	Lead	Customer	0.000225	<0.000065	<0.000065	<0.000065
23-Sep-21	945	Elmwood - East Kildonan	Lead	Lead	Customer	0.002143	0.000883	0.000788	0.000773
23-Sep-21	946	Elmwood - East Kildonan	Copper	Lead	Customer	0.001281	0.000612	0.000597	0.000543
23-Sep-21	947	Elmwood - East Kildonan	Lead	Lead	Customer	0.006601	0.002298	0.002155	0.001988
24-Sep-21	950	Elmwood - East Kildonan	Lead	Lead	Customer	0.003545	0.003949	0.001146	0.001074
29-Sep-21	951	Mynarski	Lead	Lead	Customer	0.002316	0.001586	0.006901	0.001657
29-Sep-21	952	Mynarski	Lead	Lead	Customer	0.014542	0.004396	0.000697	0.000712
29-Sep-21	953	Fort Rouge - East Fort Garry	Copper	Lead	Customer	0.005919	0.002355	0.008457	0.001202
6-Oct-21	956	Mynarski	Lead	Lead	Customer	0.002894	0.001702	0.000574	0.000563
6-Oct-21	957	Mynarski	Copper	Lead	Customer	0.006341	0.002006	0.001936	0.001816
6-Oct-21	958	Point Douglas	Copper	Lead	Customer	0.003750	0.001531	0.001473	0.001494
7-Oct-21	960	Point Douglas	Lead	Lead	Customer	N/R	N/R	N/R	N/R
7-Oct-21	961	Point Douglas	Lead	Lead	Customer	0.000610	0.000385	0.000351	0.000343
6-Oct-21	962	Point Douglas	Copper	Lead	Customer	0.000271	<0.000065	<0.000065	<0.000065

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7-Oct-21	963	Mynarski	Lead	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
6-Oct-21	964	Mynarski	Copper	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065
6-Oct-21	965	Daniel McIntyre	Lead	Lead	Customer	0.000366	0.000370	0.002207	0.000251
7-Oct-21	966	Daniel McIntyre	Copper	Lead	Customer	0.000459	0.000580	0.000344	0.000298
13-Oct-21	969	Daniel McIntyre	Copper	Lead	Customer	0.001762	0.001132	0.000615	0.000531
13-Oct-21	970	Daniel McIntyre	Lead	Lead	Customer	0.002550	0.004584	0.000709	0.000686
13-Oct-21	971	Daniel McIntyre	Lead	Lead	Customer	0.001243	0.000405	0.000456	0.000420
13-Oct-21	972	Mynarski	Copper	Lead	Customer	0.000712	0.003207	0.001193	0.000129
13-Oct-21	973	Daniel McIntyre	Copper	Lead	Customer	0.000795	0.000574	0.000519	0.000513
20-Oct-21	978	Daniel McIntyre	Copper	Lead	Customer	0.002432	0.004447	0.001673	0.001628
20-Oct-21	979	Daniel McIntyre	Copper	Lead	Customer	0.001745	0.002284	0.001074	0.001059
20-Oct-21	980	Daniel McIntyre	Copper	Lead	Customer	0.001270	0.001108	0.00133C	0.00128C
21-Oct-21	981	Daniel McIntyre	Copper	Lead	Customer	0.001931	0.000674	0.000634	0.00059C
21-Oct-21	982	Daniel McIntyre	Lead	Lead	Customer	0.000381	0.000342	0.00032C	0.00032C
13-Oct-21	983	Point Douglas	Lead	Lead	Customer	0.000732	0.000126	0.000076	0.000067
2-Nov-21	988	Point Douglas	Copper	Lead	Customer	0.041211	0.003027	0.00240C	0.002083
20-Dec-21	1005	Fort Rouge - East Fort Garry	Lead	Lead	Customer	<0.000065	<0.000065	<0.000065	<0.000065