



Water and Waste  
Eaux et déchets

ENVIRONMENTAL STANDARDS DIVISION

# 2019 ANNUAL WATER REPORT CITY OF WINNIPEG WATER SUPPLY SYSTEM



**OPERATING LICENCE #PWS-09-412-01**

**2019**

## 2019 ANNUAL WATER REPORT – CITY OF WINNIPEG WATER SUPPLY SYSTEM

### **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-09-412-01, requires that we regularly monitor the quality of our drinking water and submit an annual report to the regulating authority on or before the 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 hereby submits this report which summarizes the results of the City's 2019 Water Quality Monitoring Program.

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## 1.0 DRINKING WATER SOURCE, TREATMENT, AND DISTRIBUTION

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

1. Coagulation and flocculation: sulphuric acid and ferric sulphate are added to lower the pH of the water and cause particles of organic material to clump together.
2. Dissolved Air Floatation (DAF): tiny bubbles of air are used to remove the clumped organic material from the water.
3. Ozonation: liquid ozone is added to kill bacteria, and then sodium bisulphite is added to remove excess ozone.
4. Filtration: the water flows through biologically activated carbon filters to disinfect the water by removing any remaining small particles, including parasites.
5. Chlorination: chlorine, the most widely-used drinking water disinfectant in North America, is added to kill viruses and bacteria, and then sodium hydroxide is added to raise the pH back to the original level.
6. Ultraviolet (UV) Light: the water is disinfected by exposing it to UV light.
7. Fluoride is added to prevent dental decay and orthophosphate is added to form a protective coating inside water pipes, which helps to reduce corrosion.

In 2019, Winnipeg's WTP produced an average of 196 million litres of high quality drinking water per day. The water is pumped from the WTP to three smaller reservoirs and pumping stations in different areas of the City. At the pumping stations, chlorine is added again before entering the distribution system, which is comprised of approximately: 2,689 km of water mains; 237 km of feeder mains; 23,180 valves; and 22,928 fire hydrants.



## 2.0 DRINKING WATER QUALITY STANDARDS AND TESTING

The bacteriological, chemical, physical, and microbial drinking water quality standards that apply to the City of Winnipeg's Public Water System are listed in Operating Licence PWS-09-412-01<sup>1</sup>, issued by Manitoba Conservation and Climate (MCC), 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>.

Our operating licence also specifies the required frequency of testing and testing locations. We are required to test the raw water, treated water leaving the WTP, water leaving the three pumping stations, and at a minimum of 39 sites within the distribution system every week. Because water quality is so important, we exceed the minimum requirements by testing at 57 locations within the distribution system every week, and by testing for additional parameters that are not required under our operating licence.

The parameters tested are listed in Table 1 and summaries of the 2019 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	✓	✓	✓	
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	✓	✓✓	✓	✓✓
True Colour	✓	✓	✓	✓
Turbidity	✓	✓✓	✓✓	✓✓
UV – Transmittance		✓✓	✓✓	✓✓

✓ Not required as per PWS-09-412-01

✓✓ Required as per PWS-09-412-01

### **3.0 COMPLIANCE AND CORRECTIVE ACTION REPORTING**

The City of Winnipeg operates a comprehensive Water Quality Monitoring program that exceeds the requirements of PWS-09-412-01. We monitor the quality of our water from source to tap and respond to customer inquiries and complaints about water quality. We submit various compliance reports to our regulators: monthly reports detailing turbidity, chlorine, and UV results at the WTP; quarterly reports detailing fluoride, HAA, and THM levels in the distribution system; and an annual report on our Lead Testing Program. Weekly bacteriological results are sent directly to the Province of Manitoba's Office of Drinking Water (ODW) by the analytical laboratory that performs the testing, along with the chlorine and turbidity results measured by our staff when they collect the samples.

Occasionally, test results do not meet a drinking water quality standard, or we fail to meet a licence requirement. In these cases, we take corrective actions immediately to ensure our water remains safe and notify the ODW. 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 total coliforms (TC) or *E. coli* (EC) 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).

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. 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.



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Turbidity is a measurement of the cloudiness of water caused by of small particles, which can reduce the effectiveness of disinfection. The turbidity of the water leaving the filters at the WTP is never to exceed 1.0 Nephelometric Turbidity Units (NTU) and not to exceed 0.3 NTU for more than 12 consecutive hours. If the turbidity rises above these levels we take immediate corrective actions, notify the ODW, and submit a CAR. There is no maximum allowable turbidity in the distribution system; however, we take corrective actions if turbidity greater than 1.0 NTU is measured.

A summary of the CARs submitted in 2019 is provided in Table 2; Compliance and Corrective action reports are provided in Appendix B.

**Table 2. Drinking Water Quality Compliance and Corrective Actions**

Incident Number	Incident Date(s)	Incident Location	Parameter	Result	Description of Corrective Actions Taken and Comments
CAR-01	2-Apr-19	WTP	Turbidity	5.0 NTU	Analyzed turbidity on grab samples; elevated turbidity was due to instrument maintenance and was not representative of the filter effluent.
CAR-02	8-May-19	NW02	Free Chlorine	0.05 mg/L	Readings were from an online analyzer. Confirmed analyzer calibration and sampled for bacteria, chlorine and turbidity; samples met chlorine and bacteriological standards.
CAR-03	28-Jun-19	Hydrant	Total Coliform	1 MPNU per 100 mL	Re-flushed and re-sampled; re-samples met bacteriological standards
CAR-04	7-Jul-19	Hydrant	Total Coliform	1 MPNU per 100 mL	Re-flushed and re-sampled; re-samples met bacteriological standards
CAR-05	9-Jul-19	NE03	Total Coliform	1 MPNU per 100 mL	Re-sampled; re-samples met bacteriological standards
CAR-06	11-Jul-19	Hydrant	Total Coliform	1 MPNU per 100 mL	Re-flushed and re-sampled; re-samples met bacteriological standards
	17-Jul-19	Residence	Free Chlorine	0.02 mg/L	Re-flushed and re-sampled; re-samples met chlorine standards
CAR-07	18-Jul-19	Hydrant	Total Coliform	2 MPNU per 100 mL	Re-flushed and re-sampled; re-samples met bacteriological standards
CAR-08	8-Jul-19 to 22-Jul-19	NW02	Free Chlorine	0.09 mg/L	Readings were from an online analyzer. Confirmed analyzer calibration and sampled for chlorine at NW02 and adjacent locations; samples met chlorine standards.
CAR-09	Dec 8-14, 2019	WTP	Monitoring Requirement	2 samples	Maintenance procedures and monitoring requirements reviewed to ensure collection of a minimum of 3 confirmatory grab samples per week for turbidity.
CAR-10	19-Dec-19	WTP	Turbidity	4.59 NTU	Analyzed turbidity on grab samples; elevated turbidity was due to instrument maintenance and was not representative of the filter effluent.
CAR-11	27-Dec-19	WTP (Branch I)	Free Chlorine	<0.5 mg/L	Compared analyzer readings to those on Branch II, analyzed chlorine on grab samples, and recalibrated instrument; low chlorine was not representative of true water quality.

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### **4.0 SUMMARY OF DRINKING WATER SAFETY ORDERS, ADVISORIES, AND OFFENCES**

No drinking water safety orders and no boil water advisories were issued for the City of Winnipeg in 2019. No charges were laid, pending, or disposed of for any offences against the City of Winnipeg in 2019.

### **5.0 CORROSION CONTROL AND LEAD TESTING PROGRAMS**

Although lead is not present in the water produced by the City of Winnipeg's water treatment plant, it can enter the water as it passes through a lead service line (the pipe that connects a building to the water main) and/or household plumbing systems that contain lead. The amount of lead in tap water increases with the amount of time that the water is in contact with lead-containing materials. Buildings constructed before 1990 may have lead solder or brass plumbing fixtures and those constructed before 1950 may have a lead service line.

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

As part of our Corrosion Control Program, we add orthophosphate to the water as it leaves the WTP. Orthophosphate forms a coating inside water pipes which helps reduce corrosion that can allow lead to leach into water as it travels through the pipes. We also replace our portion of lead service lines (from the water main to the property line) when replacing water mains and we notify building owners when this work is being done so they have the option to benefit from cost-savings achieved by replacing their portion (from the property line to the building) at the same time.

Under our current licence requirements, we report the lead results from a sample collected after five minutes of flushing from our lead loop surrogate system, after eight hours of stagnation. The 2019 Lead Loop Report is provided in Appendix B.

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In March 2019, the Government of Canada reduced the allowable level of lead in drinking water to <0.005 milligrams per litre (mg/L) or as low as reasonably achievable (down from 0.01 mg/L) and recommended changes to sampling methods. In response to these changes, we worked with the ODW to develop a new Lead Testing Program, which involves sampling from buildings that are the most likely to have elevated lead levels. In order to communicate the risks associated with elevated lead and to solicit volunteers for our new Lead Testing Program, we contacted approximately 23,000 customers who have lead service lines.

Initially we collected samples on a first come-first served basis, but the response to our call for volunteers exceeded the ODW's recommendation of 200 samples per year, so we attempted to collect samples from buildings within each of the 15 electoral wards in proportion to the number of lead service lines located within each ward. We created a waitlist of volunteers for future years and will continue to collect samples in proportion to the number of lead service lines in each ward.

In 2019 we analyzed 273 sample sets for the new Lead Testing Program. Sample sets consist of a Random Daytime Sample (RDT), and samples collected after 1, 2, and 5 minutes of flushing. The RDT sample is the best estimate of typical lead exposure within the building, while the sample collected after 1 minute of flushing is the water that was in the service line when the RDT was collected (depending on the distance of the sample tap from the service line). The samples collected after 2 and 5 minutes of flushing show the effect of flushing on lead levels at the tap. A summary of the results from the 2019 Lead Testing Program is provided in Table 3; results are provided in Appendix C.

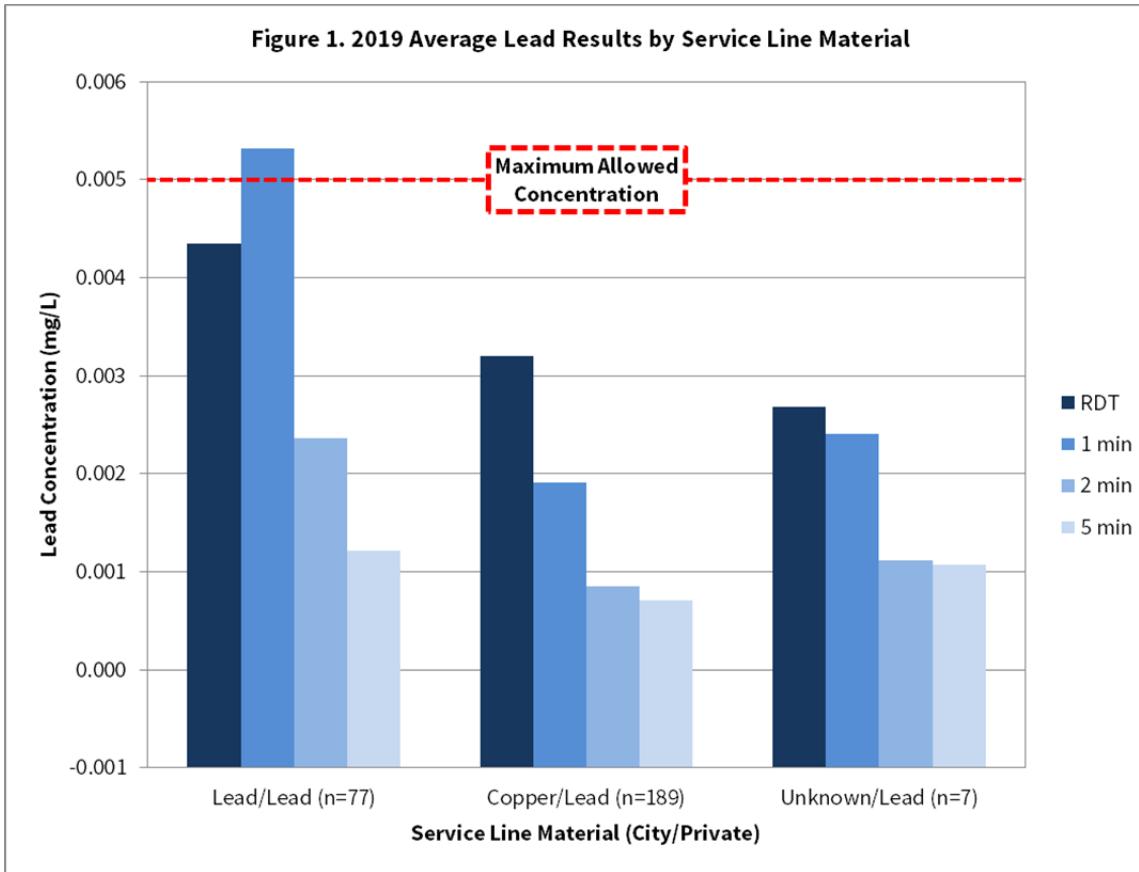
**2019 ANNUAL WATER REPORT – CITY OF WINNIPEG WATER SUPPLY SYSTEM**

<b>Table 3. 2019 New Lead Testing Program Results Summary</b>											
<b>Ward</b>	<b>Total # of Lead Service Lines</b>	<b># of Sample Sets</b>	<b>Average Lead (mg/L) in RDT Samples</b>	<b># of RDT Samples over 0.005 mg/L</b>	<b>Average Lead (mg/L) in 1 Minute Flush Samples</b>	<b># of 1 Minute Flush Samples over 0.005 mg/L</b>	<b>Average Lead (mg/L) in 2 Minute Flush Samples</b>	<b># of 2 Minute Flush Samples over 0.005 mg/L</b>	<b>Average Lead (mg/L) in 5 Minute Flush Samples</b>	<b># of 5 Minute Flush Samples over 0.005 mg/L</b>	
Charleswood - Tuxedo - Westwood	45	0	-	-	-	-	-	-	-	-	
Daniel McIntyre	5,496	84	0.003079	14	0.003469	7	0.001624	1	0.000700	0	
Elmwood - East Kildonan	2,755	16	0.005816	5	0.002857	4	0.001411	1	0.001070	0	
Fort Rouge - East Fort Garry	2,526	52	0.004852	15	0.003650	7	0.001254	1	0.001138	1	
Mynarski	4,971	25	0.003039	5	0.001955	2	0.000879	0	0.000840	0	
North Kildonan	183	1	0.002043	0	0.000504	0	0.000400	0	0.000405	0	
Old Kildonan	0	0	-	-	-	-	-	-	-	-	
Point Douglas	3,009	17	0.003822	5	0.002900	3	0.001668	1	0.001637	1	
River Heights - Fort Gary	1,905	63	0.002467	7	0.002273	8	0.000963	2	0.000627	0	
St. Boniface	489	2	0.000127	0	0.000000	0	0.000000	0	0.000000	0	
St. James	558	9	0.004726	4	0.001137	0	0.000876	0	0.000857	0	
St. Norbert - Seine River	1	0	-	-	-	-	-	-	-	-	
St. Vital	665	2	0.003169	1	0.002800	1	0.001562	0	0.000492	0	
Transcona	518	2	0.003186	0	0.001260	0	0.001290	0	0.001265	0	
Waverley West	0	0	-	-	-	-	-	-	-	-	
<b>Total</b>	<b>23,121</b>	<b>273</b>	<b>0.036326</b>	<b>56</b>	<b>0.022805</b>	<b>32</b>	<b>0.011927</b>	<b>6</b>	<b>0.009031</b>	<b>2</b>	

Although approximately 20% of the RDT samples were over the guideline, the percentage was significantly lower for the flushed samples. After five minutes of flushing, all but two samples were below the guideline; both locations were resampled and the results were below the guideline in the 1, 2, and 5 minute flushed samples. It is important to note that although samples were collected and results are summarized based on electoral ward, the service line material has the biggest impact on the amount of lead measured at the tap, as shown in Figure 1.

Buildings with full lead service lines (both the City and customer portions are lead) had higher average lead concentrations in the RDT, 1 and 2 minute flushed samples compared to those with partial lead service lines (only one portion is lead). Seven of the sample sets collected in 2019 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 5 minute flushed sample was similar in all of the categories.

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Customers are encouraged to remove lead from their plumbing systems whenever feasible. If this is not feasible, customers should flush the water until cold prior to drinking or preparing food or beverages, or use a point-of-use or pitcher-style filter that is certified for lead removal. If filters are used to remove lead it is important that they are properly maintained, as poor maintenance can actually increase the levels of lead in the water.

The 2019 Lead Testing Program results are also available at:

<https://winnipeg.ca/WaterAndWaste/water/leadWaterQualityTestingResults>

More information on lead in drinking water is available at:

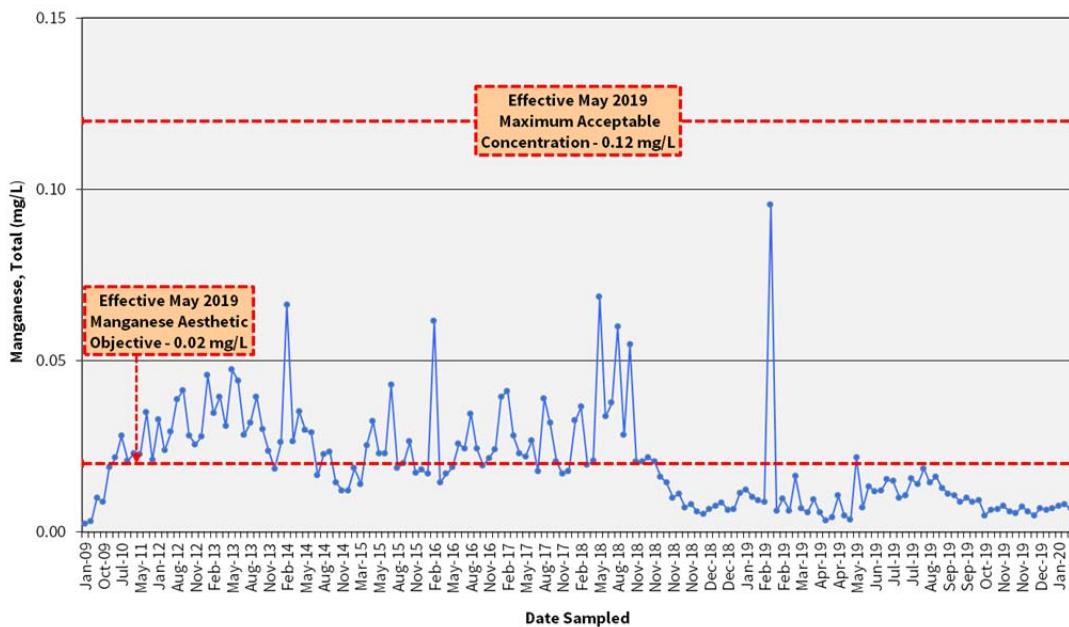
<https://winnipeg.ca/waterandwaste/water/lead.stm>

## 2019 ANNUAL WATER REPORT – CITY OF WINNIPEG WATER SUPPLY SYSTEM

### 6.0 DISCOLOURED WATER

Discoloured water events within the City of Winnipeg's distribution system are caused when sediment in the water main is disturbed by changes in pressure or direction of flow when there is a water main break or a hydrant is opened. When the WTP came online in 2010, ferric chloride was used as a coagulant; the ferric chloride contained low levels of manganese, which is not removed during the water treatment process. Sediments produced within the distribution system between 2010 and 2018 contained higher levels of manganese, which likely contributed to the increased frequency and severity of discoloured water events during this time. In November 2018, following a year of pilot testing, we switched the coagulant to ferric sulphate, which has a lower concentration of manganese. As shown in Figure 2, manganese levels in the distribution system decreased shortly after the coagulant switch; we have also seen a drastic reduction in frequency and severity of discoloured water events.

**Figure 2. Distribution System Total Manganese**  
(Average of six distribution system locations)



## **7.0 MAJOR EXPENSES**

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In 2019, the City's major expenses relating to drinking water included:

- Water main renewals at 46 locations in the City's water distribution system.
- Water main work associated with 10 Public Works projects as part of the 2019 Street Renewal program.
- Phase 2 of North St. Boniface upgrades - a total 1.3 km of water mains were renewed.
- Installation of high speed fiber to the WTP and Pumping Stations.
- Rehabilitation of the feeder main valve chamber at Raleigh Street and Nottingham Avenue.

## **8.0 REFERENCES**

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1. City of Winnipeg Operating Licence PWS-09-412-01.

<http://www.winnipeg.ca/waterandwaste/pdfs/water/PublicWaterSystemOperatingLicence2016.pdf>

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

[https://web2.gov.mb.ca/laws/statutes/ccsm/\\_pdf.php?cap=d101](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/lawsregs/current/\\_pdf-reg.php?reg=40/2007](http://web2.gov.mb.ca/lawsregs/current/_pdf-reg.php?reg=40/2007)

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

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

## **APPENDIX A**

# **WATER QUALITY SUMMARY REPORTS**

**City of Winnipeg**  
**Environmental Standards Division**  
**2019 Shoal Lake Water Quality Summary**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	parts per million	8.6	6.7	11.3
Carbon, Total Organic	parts per million	8.4	5.5	10.7
Chlorophyll-a	parts per billion	4.1	1.0	8.5
Colour, True	TCU	11.0	10.0	15.0
Conductivity	microsiemens per centimetre	156	141	185
Odour	units	85	75	150
pH	units	8.10	7.72	8.66
Plankton (algae) count	cells/mL	5,988	86	16,590
Solids, Total	parts per million	97	71	129
Solids, Total Dissolved	parts per million	78	56	98
Solids, Total Suspended	parts per million	<3	<3	3
Temperature	degrees Celcius	11.1	1.0	24.0
Turbidity (clearness)	NTU	0.86	0.14	2.23
Anions and Nutrients				
Alkalinity, Total	parts per million as calcium carbonate	74.2	68.5	87.0
Hardness, Total	parts per million as calcium carbonate	76.7	70.6	84.6
Chloride	parts per million	1.5	<0.4	2.3
Fluoride	parts per million	0.08	0.06	0.11
Nitrate Nitrogen	parts per million	0.093	<0.003	0.300
Perchlorate	parts per billion	<0.20	<0.20	<0.20
Phosphorus, Total Reactive	parts per million	0.0030	<0.0010	0.0062
Phosphorus, Total	parts per million	0.0260	0.0071	0.0920
Sulphate	parts per million	0.8	<0.4	2.0
Total Kjeldahl Nitrogen (TKN)	parts per million	0.494	0.340	0.680
Bacteria				
Escherichia Coli	MPN per 100 mL	0	0	2
Total Coliforms	MPN per 100 mL	76	0	>200
Disinfection By-Products				
Aldehydes	parts per billion	3.4	<0.5	9.2
Bromodichloromethane	parts per billion	<0.4	<0.4	<0.4
Haloacetic acids	parts per billion	<1.1	<1.1	3.2
Trihalomethanes	parts per billion	<2.7	<2.7	<2.7
Enteric Protozoa				
Cryptosporidium	oocysts per 100 L	0	0	0
Giardia	cysts per 100 L	0	0	0

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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	<0.050
alpha-BHC	parts per billion	<0.010	<0.010	<0.050
alpha-Chlordane	parts per billion	<0.010	<0.010	<0.050
alpha-Endosulfan	parts per billion	<0.010	<0.010	<0.050
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	<0.050
beta-Endosulfan	parts per billion	<0.010	<0.010	<0.050
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	<0.050
Chlorpyrifos	parts per billion	<0.0050	<0.0050	<0.0050
delta-BHC	parts per billion	<0.010	<0.010	<0.050
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	<0.050
Dimethoate	parts per billion	<0.10	<0.10	<0.10
Endrin	parts per billion	<0.010	<0.010	<0.050
Eptam	parts per billion	<0.20	<0.20	<0.20
gamma-Chlordane	parts per billion	<0.010	<0.010	<0.050
Heptachlor	parts per billion	<0.010	<0.010	<0.050
Heptachlor Epoxide	parts per billion	<0.010	<0.010	<0.050
Lindane (gamma-BHC)	parts per billion	<0.010	<0.010	<0.050
Malathion	parts per billion	<0.10	<0.10	<0.10
Methoxychlor	parts per billion	<0.10	<0.010	<0.10
Methyl Parathion	parts per billion	<0.10	<0.10	<0.20
Metribuzin	parts per billion	<0.20	<0.20	<0.20
Mirex	parts per billion	<0.010	<0.010	<0.050
o,p-DDD	parts per billion	<0.010	<0.010	<0.050
o,p-DDE	parts per billion	<0.010	<0.010	<0.050
o,p-DDT	parts per billion	<0.010	<0.010	<0.050
p,p-DDD	parts per billion	<0.010	<0.010	<0.050
p,p-DDE	parts per billion	<0.010	<0.010	<0.050
p,p-DDT	parts per billion	<0.10	<0.010	<0.10
Parathion	parts per billion	<0.013	<0.013	<0.013
Propaclor	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	<50	<0.10	<50
Trifluralin	parts per billion	<0.030	<0.030	<0.030

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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	<0.050	<0.50
2,4,5-TP	parts per billion	<0.50	<0.050	<0.50
2,4-D	parts per billion	<0.50	<0.050	<0.50
2,4-DB	parts per billion	<0.050	<0.050	<0.050
2,4-DP	parts per billion	<0.50	<0.050	<0.50
Bromoxynil	parts per billion	<0.50	<0.020	<0.50
Dicamba	parts per billion	0.016	<0.0060	0.084
Dinoseb	parts per billion	<0.50	<0.050	<0.50
MCPA	parts per billion	<0.50	<0.025	<0.50
MCPB	parts per billion	<0.050	<0.050	<0.050
Mecoprop	parts per billion	<0.50	<0.050	<0.50
Picloram	parts per billion	<0.20	<0.20	<0.50
Total Metals				
Aluminum	parts per million	0.00499	0.00134	0.01499
Antimony	parts per million	<0.000025	<0.000025	0.000066
Arsenic	parts per million	0.001437	0.000578	0.008690
Cadmium	parts per million	<0.000007	<0.000007	<0.000007
Calcium	parts per million	21.011	17.651	24.226
Chromium	parts per million	0.00004	<0.00004	0.00020
Chromium VI	parts per million	<0.010	<0.00050	<0.010
Copper	parts per million	0.000944	0.000419	0.001824
Iron	parts per million	0.03156	0.00654	0.08650
Lead	parts per million	<0.000065	<0.000065	<0.000065
Magnesium	parts per million	6.321	5.066	7.318
Manganese	parts per million	0.01262	0.00218	0.05007
Mercury	parts per billion	<0.50	<0.00050	<0.50
Nickel	parts per million	0.000108	<0.000021	0.000216
Potassium	parts per million	1.268	0.959	1.510
Sodium	parts per million	2.349	1.855	2.781
Uranium	parts per million	<0.000032	<0.000032	<0.000032
Zinc	parts per million	0.00115	0.00014	0.00373

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.

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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Miscellaneous				
Carbon, Dissolved Organic	parts per million	8.4	6.1	10.8
Carbon, Total Organic	parts per million	8.1	5.8	10.5
Chlorine, Free	parts per million	0.02	<0.02	0.09
Chlorine, Total	parts per million	0.03	<0.02	0.12
Chlorophyll-a	parts per billion	3.9	<1.0	8.8
Colour, True	TCU	9.9	7.0	13.0
Conductivity	microsiemens per centimetre	164	89	198
Langelier Index (4 C)	units	-0.35	-0.42	-0.25
Langelier Index (60 C)	units	0.42	0.35	0.52
Microcystin	parts per billion	<0.20	<0.20	<0.20
Odour	units	84	75	150
ORP	millivolts	439.7	246.0	669.5
Oxygen, Dissolved	parts per million	10.8	7.4	13.4
pH	units	7.97	7.44	8.61
Plankton (algae) count	cells/mL	6,655	172	27,680
Solids, Total	parts per million	104	48	202
Solids, Total Dissolved	parts per million	86	52	124
Temperature	degrees Celcius	9.5	52	23.7
Turbidity (clearness)	NTU	0.84	52	2.42
UV Transmittance, Filtered	percent transmissivity	76.8	52	81.0
UV Transmittance, Unfiltered	percent transmissivity	75.3	52	78.7
Anions and Nutrients				
Alkalinity, Total	parts per million as calcium carbonate	82.1	77.1	90.3
Alkalinity, Bicarbonate	parts per million	100	94	110
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	80.6	74.3	91.1
Ammonia	parts per million	0.023	<0.010	0.048
Bromide	parts per million	<0.010	<0.010	<0.010
Chloride	parts per million	2.1	<0.4	3.8
Fluoride	parts per million	0.061	0.057	0.067
Nitrate Nitrogen	parts per million	0.0195	<0.0050	0.0409
Nitrite	parts per million	0.0011	<0.0010	0.0022
Perchlorate	parts per billion	<0.20	<0.20	<0.20
Phosphorus, Total	parts per million	<0.030	<0.030	<0.050
Sulphate	parts per million	1.7	<0.4	6.4
Disinfection By-Products				
Aldehydes	parts per billion	0.7	<0.3	1.4
Bromodichloromethane	parts per billion	<0.4	<0.4	<0.4
Haloacetic acids	parts per billion	<1.1	<1.1	2.0
Trihalomethanes	parts per billion	<2.7	<2.7	<2.7

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PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM
Enteric Protozoa				
Cryptosporidium	<i>oocysts per 100 L</i>	0	0	0
Giardia	<i>cysts per 100 L</i>	0	0	0
Total Metals				
Aluminum	<i>parts per million</i>	0.00278	<0.00026	0.04430
Antimony	<i>parts per million</i>	<0.000025	<0.000025	0.000068
Arsenic	<i>parts per million</i>	0.000752	0.000593	0.001087
Barium	<i>parts per million</i>	0.0155	0.0132	0.0173
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>	0.00259	<0.00208	0.00671
Cadmium	<i>parts per million</i>	<0.000007	<0.000007	<0.000007
Calcium	<i>parts per million</i>	22.095	19.081	26.395
Cesium	<i>parts per million</i>	<0.000010	<0.000010	0.000011
Chromium	<i>parts per million</i>	0.00004	<0.00004	0.00091
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>	0.000432	<0.000022	0.004686
Iron	<i>parts per million</i>	0.05129	0.01828	0.10151
Lead	<i>parts per million</i>	<0.000065	<0.000065	<0.000065
Lithium	<i>parts per million</i>	0.0025	0.0021	0.0029
Magnesium	<i>parts per million</i>	6.594	5.658	7.541
Manganese	<i>parts per million</i>	0.01178	0.00186	0.04647
Mercury	<i>parts per billion</i>	<0.00050	<0.00050	<0.00050
Molybdenum	<i>parts per million</i>	0.000177	0.000157	0.000192
Nickel	<i>parts per million</i>	0.000125	<0.000021	0.000904
Potassium	<i>parts per million</i>	1.290	1.035	1.601
Rubidium	<i>parts per million</i>	0.00169	0.00145	0.00188
Selenium	<i>parts per million</i>	0.000052	<0.000050	0.000110
Silicon	<i>parts per million</i>	2.95	2.30	3.69
Silver	<i>parts per million</i>	<0.000010	<0.000010	<0.000010
Sodium	<i>parts per million</i>	2.467	2.077	2.966
Strontium	<i>parts per million</i>	0.040	0.037	0.044
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	0.00012
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	0.000034
Vanadium	<i>parts per million</i>	<0.00050	<0.00050	<0.00050
Zinc	<i>parts per million</i>	0.00065	<0.00011	0.01518
Zirconium	<i>parts per million</i>	<0.00020	<0.000060	<0.00020

**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	<0.050
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	<0.050
Methyl Parathion	parts per billion	<0.10	<0.10	<0.10
Metribuzin	parts per billion	<0.20	<0.20	<0.20
Mirex	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	<0.050
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	<0.050
Parathion	parts per billion	<0.013	<0.013	<0.013
Propaclor	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	<50	<0.10	<50
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 100 mL	25	0	>200
Total Coliforms	MPN per 100 mL	98	0	>200
Heterotrophic Plate Count	CFU per mL	119	2	>300
Taste and Odours				
236 TCA - 2,3,6-trichloroanisole	parts per trillion	<0.49	<0.037	<0.51
246 TCA - 2,4,6-trichloroanisole	parts per trillion	<0.49	0.059	<0.51
345 TCV - 3,4,5-trichloroveratrole	parts per trillion	<0.18	<0.18	<0.20
Geosmin	parts per trillion	4.97	<0.98	16
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	<0.20	<0.0097	<0.20
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	<0.20	<0.013	<0.20
Dichloromethane	parts per million	<0.0050	<0.00050	<0.0050
MIB - 2-methylisoborneol	parts per trillion	<9.8	3	<10
MTBE - methyl tertiary-butyl ether	parts per million	<0.00050	<0.00050	<0.00050
NDMA - N-nitrosodimethylamine	parts per trillion	1.02	<0.50	2.48
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	<0.050	<0.50
2,4,5-TP	parts per billion	<0.50	<0.050	<0.50
2,4-D	parts per billion	<0.50	<0.050	<0.50
2,4-DB	parts per billion	<0.050	<0.050	<0.050
2,4-DP	parts per billion	<0.50	<0.050	<0.50
Bromoxynil	parts per billion	<0.50	<0.020	<0.50
Dicamba	parts per billion	<0.0060	<0.0060	<0.0098
Dinoseb	parts per billion	<0.050	<0.50	<0.50
MCPA	parts per billion	<0.50	<0.025	<0.50
MCPB	parts per billion	<0.050	<0.050	<0.050
Mecoprop	parts per billion	<0.50	<0.050	<0.50
Picloram	parts per billion	<0.20	<0.20	<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 raw water.				

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**2019 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	3.3	1.9	5.9
Carbon, Total Organic	parts per million	no guideline	3.0	1.6	5.6
Chlorine, Free	parts per million	no guideline	1.28	0.95	1.77
Chlorine, Total	parts per million	no guideline	1.45	1.04	1.96
Chlorophyll-a	parts per billion	no guideline	<1.0	<1.0	<1.0
Colour, True	TCU	no more than 15 *	0.8	0.0	2.5
Conductivity	microsiemens per centimetre	no guideline	299	213	365
Microcystin	parts per billion	no more than 1.5	<0.20	<0.20	<0.20
Odour	units	inoffensive*	13	5	20
ORP	millivolts	no guideline	518.2	258.8	661.4
Oxygen, Dissolved	parts per million	no guideline	12.5	8.5	16.7
pH	units	between 7.0 and 10.5	7.75	7.52	8.07
Plankton (algae) count	cells/mL	no guideline	0	0	0
Solids, Total	parts per million	no guideline	183	143	234
Solids, Total Dissolved	parts per million	no more than 500 *	162	114	203
Temperature	degrees Celcius	no more than 15 *	9.6	1.3	23.6
Turbidity (clearness)	NTU	no more than 0.3 in 95% of measurements/month, never to exceed 1.0	0.14	0.08	0.63
UV Transmittance, Filtered	percent transmissivity	no guideline	94.9	91.8	98.1
UV Transmittance, Unfiltered	percent transmissivity	no guideline	94.1	90.8	97.6
Anions and Nutrients					
Alkalinity, Total	parts per million as calcium carbonate	no guideline	69.3	61.1	84.2
Hardness, Total	parts per million as calcium carbonate	no guideline	80.7	73.8	91.6
Chloride	parts per million	no more than 250 *	4.2	1.3	8.1
Perchlorate	parts per billion	no guideline	<0.20	<0.20	<0.20
Sulphate	parts per million	no more than 500 *	69.3	59.4	83.6
Bacteria					
Escherichia Coli	MPN per 100 mL	none detectable per 100 mL	0	0	0
Total Coliforms	MPN per 100 mL	none detectable per 100 mL	0	0	0
Heterotrophic Plate Count	CFU per mL	no guideline	<1	<1	2
Disinfection By-Products					
Aldehydes	parts per billion	no guideline	13.5	3.6	22.3
Bromodichloromethane	parts per billion	no guideline	1.1	<0.4	2.2
Haloacetic acids	parts per billion	no more than 80	12.8	4.8	28.8
Trihalomethanes	parts per billion	no more than 100	12.3	4.6	24.1

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**2019 Water Treatment Plant - Finished Water Quality Summary**

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM
Taste and Odours					
236 TCA - 2,3,6-trichloroanisole	parts per trillion	no guideline	<0.49	<0.030	<0.50
246 TCA - 2,4,6-trichloroanisole	parts per trillion	no guideline	<0.49	<0.020	<0.50
345 TCV - 3,4,5-trichloroveratrole	parts per trillion	no guideline	<170	<0.17	<0.20
Geosmin	parts per trillion	no guideline	2.21	<0.99	8.44
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	no guideline	<0.20	<0.008	<0.20
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	no guideline	<0.20	<0.010	<0.20
Dichloromethane	parts per million	no more than 0.05	<0.0050	<0.00050	<0.0050
MIB - 2-methylisoborneol	parts per trillion	no guideline	<9.8	<9.8	<10
MTBE - methyl tertiary-butyl ether	parts per million	no more than 0.015 *	<0.00050	<0.00050	<0.00050
NDMA -N-nitrosodimethylamine	parts per trillion	no more than 40	1.05	<0.50	1.85
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	<0.050	<0.50
2,4,5-TP	parts per billion	no guideline	<0.50	<0.050	<0.50
2,4-D	parts per billion	no more than 100	<0.50	<0.050	<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	<0.050	<0.50
Bromoxynil	parts per billion	no more than 5	<0.50	<0.020	<0.50
Dicamba	parts per billion	no more than 120	<0.0060	<0.0060	0.013
Dinoseb	parts per billion	no guideline	<0.50	<0.050	<0.50
MCPA	parts per billion	no more than 100	<0.50	<0.025	<0.50
MCPB	parts per billion	no guideline	<0.050	<0.050	<0.050
Mecoprop	parts per billion	no guideline	<0.50	<0.050	<0.50
Picloram	parts per billion	no more than 190	<0.20	<0.20	<0.50

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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	<0.010
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 guideline	<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	<0.050
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	<0.010
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	<0.010
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
Mirex	parts per billion	no guideline	<0.010	<0.010	<0.010
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	<0.010
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	<0.010
p,p-DDT	parts per billion	no guideline	<0.010	<0.010	<0.010
Parathion	parts per billion	no guideline	<0.013	<0.013	<0.013
Propaclor	parts per billion	no guideline	<0.20	<0.20	<0.20
Propanil	parts per billion	no guideline	<0.20	<0.20	<0.20
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	<50	<50	<50
Trifluralin	parts per billion	no more than 45	<0.030	<0.030	<0.030

**City of Winnipeg**  
**Environmental Standards Division**  
**2019 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	0.00448	0.00158	0.00835
Antimony	parts per million	no more than 0.006	<0.000025	<0.000025	0.000052
Arsenic	parts per million	no more than 0.010	0.000259	0.000101	0.000387
Cadmium	parts per million	no more than 0.005	<0.000007	<0.000007	<0.000007
Calcium	parts per million	no guideline	22.169	17.986	25.637
Chromium	parts per million	no more than 0.05	0.00004	<0.00004	0.00025
Chromium VI	parts per million	no guideline	<0.00050	<0.00050	<0.00050
Copper	parts per million	no more than 2.0	0.000325	<0.000022	0.000983
Iron	parts per million	no more than 0.3 *	0.04908	0.00953	0.10025
Lead	parts per million	no more than 0.005	<0.000065	<0.000065	<0.000065
Magnesium	parts per million	no guideline	6.587	5.484	7.578
Manganese	parts per million	no more than 0.12	0.00860	0.00242	0.01837
Mercury	parts per billion	no more than 1	0.00052	<0.00050	0.00085
Nickel	parts per million	no guideline	0.002361	0.001414	0.002824
Potassium	parts per million	no guideline	1.285	1.007	1.702
Sodium	parts per million	no more than 200 *	30.526	24.833	38.527
Uranium	parts per million	no more than 0.02	<0.000032	<0.000032	<0.000032
Zinc	parts per million	no more than 5.0 *	0.00073	<0.00011	0.01410

\*Aesthetic objective: These guidelines have an objective and not a maximum acceptable limit. 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, June 2019

**Results in red are over acceptable limits per 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**  
**2019 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	4.8	2.1	9.2
Carbon, Total Organic	parts per million	no guideline	4.4	2.1	18.2
Chlorine, Free	parts per million	no guideline	0.84	0.12	1.60
Chlorine, Total	parts per million	no guideline	1.06	0.12	1.93
Colour, True	TCU	no more than 15 *	0.7	0.0	2.5
Conductivity	microsiemens per centimetre	no guideline	306	266	369
Langelier Index (4 C)	units	no guideline	-0.59	-0.68	-0.41
Langelier Index (60 C)	units	no guideline	0.18	0.09	0.36
Odour	units	inoffensive*	10	8	15
ORP	millivolts	no guideline	624.9	420.9	761.9
Oxygen, Dissolved	parts per million	no guideline	12.3	9.5	16.5
pH	units	between 7.0 and 10.5	7.52	7.02	7.90
Solids, Total Dissolved	parts per million	no more than 500 *	164	117	220
Temperature	degrees Celcius	no more than 15 *	10.0	1.0	23.2
Turbidity (clearness)	NTU	no guideline	0.20	0.05	8.29
UV Transmittance, Filtered	percent transmissivity	no guideline	94.4	93.3	95.5
Anions and Nutrients					
Alkalinity, Total	parts per million as calcium carbonate	no guideline	72.7	66.8	82.9
Alkalinity, Bicarbonate	parts per million	no guideline	89	82	101
Alkalinity, Carbonate	parts per million	no guideline	<0.60	<0.60	<0.60
Alkalinity, Hydroxide	parts per million	no guideline	<0.34	<0.34	<0.34
Hardness, Total	parts per million as calcium carbonate	no guideline	82.4	74.0	94.1
Ammonia	parts per million	no guideline	<0.010	<0.010	0.016
Bromate	parts per million	no more than 0.01	<0.010	<0.010	<0.025
Bromide	parts per million	no guideline	<0.010	<0.010	<0.010
Chloride	parts per million	no more than 250 *	4.8	2.3	9.2
Fluoride	parts per million	no more than 1.5	0.68	0.57	0.81
Nitrate Nitrogen	parts per million	no more than 10	0.0296	0.0087	0.0512
Nitrite	parts per million	no more than 3	<0.0010	<0.0010	<0.0010
Perchlorate	parts per billion	no guideline	<0.20	<0.20	<0.20
Phosphate, Soluble	parts per million as phosphate	no guideline	1.91	<0.040 **	2.17
Phosphorus, Total	parts per million	no guideline	0.6800	0.6500	0.7200
Sulphate	parts per million	no more than 500 *	69.0	57.9	83.0
Bacteria					
Escherichia Coli	MPN per 100 mL	none detectable per 100 mL	0	0	0
Total Coliforms	MPN per 100 mL	none detectable per 100 mL	0	0	1
Heterotrophic Plate Count	CFU per mL	no guideline	2	<1	>300
Disinfection By-Products					
Aldehydes	parts per billion	no guideline	16.4	5.5	24.0
Bromodichloromethane	parts per billion	no guideline	2.5	0.7	5.5
Haloacetic acids	parts per billion	no more than 80	26.3	7.7	48.0
Trihalomethanes	parts per billion	no more than 100	31.3	9.2	64.0

**City of Winnipeg**  
**Environmental Standards Division**  
**2019 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	0.00677	0.00178	0.16856
Antimony	parts per million	no more than 0.006	0.000027	<0.000025	0.000354
Arsenic	parts per million	no more than 0.010	0.000399	0.000225	0.000567
Barium	parts per million	no more than 1	0.015600	0.015000	0.016700
Beryllium	parts per million	no guideline	<0.00010	<0.00010	<0.00010
Bismuth	parts per million	no guideline	<0.000050	<0.000050	<0.000050
Boron	parts per million	no more than 5	0.00370	<0.00208	0.01389
Cadmium	parts per million	no more than 0.005	<0.000007	<0.000007	0.000011
Calcium	parts per million	no guideline	22.503	18.489	38.407
Cesium	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Chromium	parts per million	no more than 0.05	0.00005	<0.00004	0.00142
Chromium VI	parts per million	no guideline	<0.00050	<0.00050	<0.00050
Cobalt	parts per million	no guideline	0.00129	0.00119	0.00144
Copper	parts per million	no more than 2.0	0.038097	<0.000022	0.285340
Iron	parts per million	no more than 0.3 *	0.06686	0.00449	1.3882 ***
Lead	parts per million	no more than 0.005	<0.000065	<0.000065	0.000509
Lithium	parts per million	no guideline	0.0026	0.0025	0.0027
Magnesium	parts per million	no guideline	6.509	5.294	11.071
Manganese	parts per million	no more than 0.12	0.01038	0.00245	0.52945 ***
Mercury	parts per billion	no more than 1	<0.00050	<0.00050	0.0009
Molybdenum	parts per million	no guideline	<0.000050	<0.000050	<0.000050
Nickel	parts per million	no guideline	0.002333	0.001165	0.010282
Potassium	parts per million	no guideline	1.277	0.967	1.614
Rubidium	parts per million	no guideline	0.00166	0.00149	0.00184
Selenium	parts per million	no more than 0.05	<0.000050	<0.000050	<0.000050
Silicon	parts per million	no guideline	3.01	2.62	3.66
Silver	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Sodium	parts per million	no more than 200 *	30.549	23.493	51.533
Strontium	parts per million	no guideline	0.043300	0.038600	0.049500
Tellurium	parts per million	no guideline	<0.00020	<0.00020	<0.00020
Thallium	parts per million	no guideline	<0.000010	<0.000010	<0.000010
Thorium	parts per million	no guideline	<0.00010	<0.00010	<0.00010
Tin	parts per million	no guideline	0.000100	<0.00010	0.000240
Titanium	parts per million	no guideline	<0.00030	<0.00030	<0.00030
Tungsten	parts per million	no guideline	<0.00010	<0.00010	<0.00010
Uranium	parts per million	no more than 0.02	<0.000032	<0.000032	<0.000032
Vanadium	parts per million	no guideline	<0.00050	<0.00050	0.000620
Zinc	parts per million	no more than 5.0 *	0.00307	<0.00011	0.02476
Zirconium	parts per million	no guideline	<0.00020	<0.000060	<0.00020

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

\*\* Phosphoric Acid System Offline from February 25 to March 8, 2019

\*\*\* Discoloured water at time of sampling

Guidelines from 'Summary of Guidelines for Canadian Drinking Water Quality' by Health Canada, June 2019

Results in red are over acceptable limits per guideline

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

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

where value is expressed as (>), the value is used in the calculations.

**City of Winnipeg**  
**Environmental Standards Division**  
**2019 Winnipeg Distribution System Bacteriological Summary**

PARAMETER	REQUIREMENT	OUR TEST RESULTS	COMMENTS
Number of total coliform bacteria tests in year	2028 samples/year	3,117	
Number of times that total coliform bacteria show up in a test	none detectable per 100 mL	0.03% (1 positive test)	All resamples were negative and met the operating licence requirements
Number of Escherichia coli bacteria tests in year	2028 samples/year	3,117	
Number of times that Escherichia coli bacteria show up in a test	none detectable per 100 mL	0% (0 positive tests)	
Number of heterotrophic (bacteria) plate count (HPC) tests done	no requirement	2,209	Heterotrophic plate count testing is not required under the operating licence
Requirements from City of Winnipeg Operating Licence PWS-09-412-01			
Data reported was collected from 57 distribution system locations and MacLean, Hurst, and McPhillips Pumping Station Discharges			

## **APPENDIX B**

## **COMPLIANCE SUBMISSION REPORTS**

# **2019 MONTHLY CHLORINE REPORTS**



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00		Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01		Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date		Analyser	Grab	Grab	Analyser	Grab	Grab
01-Jan-2019		NA	NA	NA	NA	NA	NA
02-Jan-2019		1.03	1.05	1.25	1.06	1.07	1.28
03-Jan-2019		1.04	1.07	1.23	1.05	1.10	1.25
04-Jan-2019		1.05	1.15	1.29	1.03	1.11	1.30
05-Jan-2019		NA	NA	NA	NA	NA	NA
06-Jan-2019		NA	NA	NA	NA	NA	NA
07-Jan-2019		1.11	1.12	1.31	1.07	1.11	1.30
08-Jan-2019		1.10	1.08	1.25	1.05	1.11	1.29
09-Jan-2019		1.30	1.25	1.48	1.30	1.34	1.49
10-Jan-2019		1.18	1.15	1.34	1.18	1.16	1.37
11-Jan-2019		1.11	1.12	1.32	1.11	1.11	1.34
12-Jan-2019		NA	NA	NA	NA	NA	NA
13-Jan-2019		NA	NA	NA	NA	NA	NA
14-Jan-2019		1.07	1.16	1.31	1.10	1.18	1.36
15-Jan-2019		1.05	1.12	1.30	1.08	1.13	1.33
16-Jan-2019		1.11	1.18	1.35	1.15	1.15	1.34
17-Jan-2019		1.03	1.16	1.34	1.10	1.19	1.34
18-Jan-2019		1.13	1.19	1.39	1.24	1.32	1.52
19-Jan-2019		NA	NA	NA	NA	NA	NA
20-Jan-2019		NA	NA	NA	NA	NA	NA
21-Jan-2019		1.11	1.19	1.37	1.20	1.24	1.50
22-Jan-2019		1.11	1.14	1.36	1.21	1.26	1.46
23-Jan-2019		1.06	1.13	1.33	1.21	1.23	1.42
24-Jan-2019		1.06	1.14	1.29	1.14	1.21	1.44
25-Jan-2019		1.15	1.17	1.40	1.20	1.32	1.56
26-Jan-2019		NA	NA	NA	NA	NA	NA
27-Jan-2019		NA	NA	NA	NA	NA	NA
28-Jan-2019		1.10	1.12	1.31	1.16	1.21	1.43
29-Jan-2019		1.16	1.15	1.34	1.24	1.25	1.50
30-Jan-2019		1.15	1.07	1.28	1.25	1.26	1.44
31-Jan-2019		1.12	1.16	1.30	1.19	1.18	1.44
<b>Total number of measurements taken, A:</b>		22			22		
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50		
<b>Number of measurements meeting standard, B:</b>		22			22		
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%			100%		

NS: No Sample    NA: Not Analyzed    OL: Off-Line

Comments:

Report Compiled By: \_\_\_\_\_ H.Demchenko

Authorized By: \_\_\_\_\_ C.Diduck

Date Authorized: \_\_\_\_\_ 7-Feb-19

**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 2019

Report Period: January 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/01/2019	0.99	0.90	0.99	0.92
02/01/2019	1.04	0.95	1.07	1.03
03/01/2019	1.04	0.95	1.06	1.00
04/01/2019	1.07	0.99	1.05	0.99
05/01/2019	1.10	1.03	1.06	0.99
06/01/2019	1.13	1.03	1.07	1.00
07/01/2019	1.11	1.01	1.06	1.00
08/01/2019	1.06	0.98	1.05	1.00
09/01/2019	1.22	1.00	1.22	1.04
10/01/2019	1.17	1.08	1.21	1.15
11/01/2019	1.10	1.02	1.12	1.01
12/01/2019	1.02	0.92	1.03	0.95
13/01/2019	1.07	1.00	1.11	1.02
14/01/2019	1.07	1.01	1.09	1.04
15/01/2019	1.06	0.93	1.07	1.00
16/01/2019	1.09	1.02	1.09	1.05
17/01/2019	1.07	1.00	1.11	1.06
18/01/2019	1.09	1.01	1.18	1.11
19/01/2019	1.04	0.95	1.18	1.12
20/01/2019	1.06	0.99	1.20	1.15
21/01/2019	1.10	1.02	1.20	1.11
22/01/2019	1.08	1.02	1.21	1.13
23/01/2019	1.09	0.86	1.15	0.91
24/01/2019	1.12	1.02	1.22	1.13
25/01/2019	1.14	1.08	1.22	1.13
26/01/2019	1.13	1.06	1.19	1.11
27/01/2019	1.14	1.06	1.21	1.12
28/01/2019	1.10	1.03	1.18	0.95
29/01/2019	1.15	1.10	1.25	1.15
30/01/2019	1.14	1.08	1.27	1.12
31/01/2019	1.08	0.95	1.16	0.99

Total Number of Measurements, A: 21607 21549

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21607 21549

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\01-January

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



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		
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Feb-2019	1.25	1.23	1.48	1.36	1.37	1.59
02-Feb-2019	NA	NA	NA	NA	NA	NA
03-Feb-2019	NA	NA	NA	NA	NA	NA
04-Feb-2019	1.16	1.13	1.29	1.20	1.25	1.40
05-Feb-2019	1.13	1.14	1.40	1.25	1.26	1.52
06-Feb-2019	1.26	1.24	1.42	1.18	1.26	1.43
07-Feb-2019	1.17	1.18	1.38	1.29	1.37	1.55
08-Feb-2019	1.20	1.26	1.47	1.35	1.38	1.63
09-Feb-2019	NA	NA	NA	NA	NA	NA
10-Feb-2019	NA	NA	NA	NA	NA	NA
11-Feb-2019	1.14	1.16	1.31	1.25	1.29	1.49
12-Feb-2019	1.04	1.07	1.26	1.20	1.23	1.44
13-Feb-2019	1.09	1.14	1.31	1.18	1.27	1.48
14-Feb-2019	1.13	1.10	1.30	1.21	1.25	1.48
15-Feb-2019	1.11	1.17	1.36	1.22	1.30	1.53
16-Feb-2019	NA	NA	NA	NA	NA	NA
17-Feb-2019	NA	NA	NA	NA	NA	NA
18-Feb-2019	NA	NA	NA	NA	NA	NA
19-Feb-2019	0.99	1.03	1.19	1.08	1.16	1.39
20-Feb-2019	1.05	1.12	1.34	1.06	1.16	1.38
21-Feb-2019	1.23	1.30	1.52	1.18	1.27	1.44
22-Feb-2019	1.18	1.26	1.48	1.17	1.21	1.41
23-Feb-2019	NA	NA	NA	NA	NA	NA
24-Feb-2019	NA	NA	NA	NA	NA	NA
25-Feb-2019	1.02	1.05	1.26	1.00	1.00	1.20
26-Feb-2019	1.21	1.31	1.53	1.16	1.25	1.42
27-Feb-2019	1.36	1.42	1.61	1.28	1.32	1.56
28-Feb-2019	1.14	1.29	1.46	1.14	1.19	1.41
<b>Total number of measurements taken, A:</b>		19			19	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50	
<b>Number of measurements meeting standard, B:</b>		19			19	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%			100%	

NS: No Sample NA: Not Analyzed OL: Off-Line

Comments:

Report 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-09-412-01**

Report Created: 01 March 2019

Report Period: February 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/02/2019	1.23	1.09	1.31	1.16
02/02/2019	1.17	1.10	1.22	1.12
03/02/2019	1.15	1.09	1.20	1.12
04/02/2019	1.15	1.09	1.20	1.13
05/02/2019	1.21	1.11	1.25	1.14
06/02/2019	1.18	1.01	1.18	1.10
07/02/2019	1.18	1.08	1.31	1.22
08/02/2019	1.20	1.14	1.34	1.27
09/02/2019	1.21	1.15	1.32	1.28
10/02/2019	1.17	1.10	1.27	1.21
11/02/2019	1.11	1.04	1.24	1.20
12/02/2019	1.04	0.99	1.19	1.12
13/02/2019	1.07	1.01	1.17	1.10
14/02/2019	1.10	0.99	1.19	1.11
15/02/2019	1.12	1.01	1.23	1.13
16/02/2019	1.04	0.98	1.14	1.09
17/02/2019	1.03	0.98	1.15	1.09
18/02/2019	1.00	0.96	1.11	1.07
19/02/2019	0.98	0.95	1.08	1.04
20/02/2019	1.10	0.94	1.05	0.97
21/02/2019	1.17	1.05	1.11	1.03
22/02/2019	1.17	1.08	1.19	1.13
23/02/2019	1.17	1.05	1.10	0.96
24/02/2019	1.08	1.01	1.02	0.96
25/02/2019	1.08	0.93	1.03	0.95
26/02/2019	1.22	1.14	1.16	1.13
27/02/2019	1.30	1.21	1.22	1.17
28/02/2019	1.19	1.09	1.21	1.12

Total Number of Measurements, A: 19440 19440

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 19440 19440

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\02-February

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



**CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION**

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00		Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01		Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab	
01-Mar-2019	1.22	1.34	1.53	1.28	1.34	1.53	
02-Mar-2019	NA	NA	NA	NA	NA	NA	
03-Mar-2019	NA	NA	NA	NA	NA	NA	
04-Mar-2019	1.24	1.35	1.46	1.31	1.32	1.47	
05-Mar-2019	1.23	1.30	1.44	1.26	1.28	1.51	
06-Mar-2019	1.29	1.38	1.56	1.34	1.35	1.57	
07-Mar-2019	1.31	1.38	1.58	1.28	1.39	1.64	
08-Mar-2019	1.25	1.31	1.51	1.22	1.32	1.48	
09-Mar-2019	NA	NA	NA	NA	NA	NA	
10-Mar-2019	NA	NA	NA	NA	NA	NA	
11-Mar-2019	1.12	1.17	1.35	1.08	1.20	1.34	
12-Mar-2019	1.23	1.30	1.48	1.17	1.31	1.51	
13-Mar-2019	1.17	1.21	1.43	1.11	1.25	1.40	
14-Mar-2019	1.10	1.19	1.38	1.03	1.16	1.33	
15-Mar-2019	1.07	1.17	1.33	1.11	1.20	1.34	
16-Mar-2019	NA	NA	NA	NA	NA	NA	
17-Mar-2019	NA	NA	NA	NA	NA	NA	
18-Mar-2019	1.20	1.27	1.43	1.25	1.26	1.44	
19-Mar-2019	1.08	1.16	1.33	1.11	1.22	1.37	
20-Mar-2019	1.06	1.20	1.28	1.07	1.17	1.33	
21-Mar-2019	1.07	1.13	1.28	1.11	1.19	1.35	
22-Mar-2019	1.04	1.11	1.28	1.07	1.15	1.32	
23-Mar-2019	NA	NA	NA	NA	NA	NA	
24-Mar-2019	NA	NA	NA	NA	NA	NA	
25-Mar-2019	1.17	1.29	1.41	1.15	1.28	1.37	
26-Mar-2019	1.16	1.22	1.41	1.13	1.22	1.39	
27-Mar-2019	1.15	1.31	1.37	1.17	1.26	1.39	
28-Mar-2019	1.11	1.17	1.39	1.13	1.17	1.36	
29-Mar-2019	1.10	1.26	1.39	1.17	1.30	1.45	
30-Mar-2019	NA	NA	NA	NA	NA	NA	
31-Mar-2019	NA	NA	NA	NA	NA	NA	
<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

Comments:

Report 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 2019

Report Period: March 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/03/2019	1.17	1.06	1.22	1.12
02/03/2019	1.17	1.09	1.21	1.10
03/03/2019	1.23	1.18	1.29	1.25
04/03/2019	1.24	1.19	1.30	1.25
05/03/2019	1.23	1.17	1.26	1.21
06/03/2019	1.33	1.24	1.35	1.28
07/03/2019	1.28	1.17	1.28	1.22
08/03/2019	1.26	1.20	1.22	1.18
09/03/2019	1.25	1.12	1.20	1.15
10/03/2019	1.16	1.12	1.16	1.11
11/03/2019	1.13	1.07	1.10	1.04
12/03/2019	1.22	1.16	1.16	1.13
13/03/2019	1.15	1.03	1.08	0.97
14/03/2019	1.08	0.99	1.01	0.93
15/03/2019	1.14	1.03	1.14	1.01
16/03/2019	1.19	1.11	1.22	1.13
17/03/2019	1.14	1.09	1.15	1.07
18/03/2019	1.15	1.06	1.18	1.10
19/03/2019	1.05	0.99	1.06	0.98
20/03/2019	1.06	0.95	1.07	0.98
21/03/2019	1.05	1.01	1.09	1.05
22/03/2019	1.03	0.98	1.07	1.04
23/03/2019	1.05	0.97	1.10	1.03
24/03/2019	1.07	1.03	1.09	1.02
25/03/2019	1.12	1.00	1.10	1.04
26/03/2019	1.15	1.08	1.12	1.09
27/03/2019	1.14	1.05	1.15	1.11
28/03/2019	1.09	1.03	1.14	1.03
29/03/2019	1.08	0.93	1.14	1.04
30/03/2019	0.99	0.92	1.07	1.04
31/03/2019	1.01	0.90	1.08	1.01

Total Number of Measurements, A: 21571 21569

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21571 21569

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\03-March

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



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01	Date	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	
		Analyser	Grab	Analyser	Grab	
	01-Apr-2019	1.03	0.98	1.23	1.09	1.17
	02-Apr-2019	1.03	1.09	1.25	1.07	1.12
	03-Apr-2019	1.14	1.20	1.27	1.18	1.15
	04-Apr-2019	1.18	1.25	1.39	1.13	1.24
	05-Apr-2019	1.15	1.14	1.36	1.12	1.17
	06-Apr-2019	NA	NA	NA	NA	NA
	07-Apr-2019	NA	NA	NA	NA	NA
	08-Apr-2019	1.10	1.04	1.30	1.10	1.22
	09-Apr-2019	1.13	1.08	1.28	1.16	1.21
	10-Apr-2019	1.11	1.09	1.24	1.13	1.09
	11-Apr-2019	1.05	1.05	1.17	1.11	1.15
	12-Apr-2019	1.04	1.01	1.16	1.06	1.09
	13-Apr-2019	NA	NA	NA	NA	NA
	14-Apr-2019	NA	NA	NA	NA	NA
	15-Apr-2019	0.95	0.95	1.04	0.93	0.96
	16-Apr-2019	0.93	0.99	1.14	0.98	1.01
	17-Apr-2019	1.52	1.61	1.71	1.79	1.77
	18-Apr-2019	0.93	1.00	1.10	1.08	1.09
	19-Apr-2019	NA	NA	NA	NA	NA
	20-Apr-2019	NA	NA	NA	NA	NA
	21-Apr-2019	NA	NA	NA	NA	NA
	22-Apr-2019	NA	NA	NA	NA	NA
	23-Apr-2019	1.07	1.04	1.23	1.06	1.03
	24-Apr-2019	1.03	1.07	1.11	1.11	1.06
	25-Apr-2019	1.21	1.16	1.37	1.03	1.06
	26-Apr-2019	1.21	1.21	1.35	1.05	1.13
	27-Apr-2019	NA	NA	NA	NA	NA
	28-Apr-2019	NA	NA	NA	NA	NA
	29-Apr-2019	1.11	1.17	1.38	0.96	1.13
	30-Apr-2019	1.26	1.13	1.39	1.22	1.10
<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

Comments:

Report Compiled By: \_\_\_\_\_ H.Demchenko

Authorized By: \_\_\_\_\_ C.Diduck

Date Compiled: \_\_\_\_\_ 2-May-19



**City Of Winnipeg**

Water and Waste Department

Water Services

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

Water System Code: **252.00**

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

Report Created: 01 May 2019

Report Period: April 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/04/2019	1.07	0.93	1.11	1.05
02/04/2019	1.15	0.91	1.17	1.05
03/04/2019	1.22	1.13	1.23	1.14
04/04/2019	1.19	1.08	1.16	1.08
05/04/2019	1.14	1.04	1.12	1.09
06/04/2019	1.11	1.03	1.09	1.04
07/04/2019	1.11	1.01	1.14	1.08
08/04/2019	1.12	1.00	1.15	1.08
09/04/2019	1.11	1.02	1.14	1.11
10/04/2019	1.08	0.99	1.10	1.03
11/04/2019	1.06	0.95	1.09	1.04
12/04/2019	1.02	0.93	1.08	1.05
13/04/2019	0.99	0.90	1.04	0.94
14/04/2019	0.93	0.79	0.94	0.85
15/04/2019	0.94	0.86	0.92	0.90
16/04/2019	0.99	0.82	1.06	0.91
17/04/2019	1.26	0.97	1.41	1.16
18/04/2019	1.11	0.89	1.27	0.99
19/04/2019	1.13	0.99	1.04	0.99
20/04/2019	1.18	1.07	1.11	1.02
21/04/2019	1.14	1.02	1.10	1.06
22/04/2019	1.09	0.99	1.04	0.95
23/04/2019	1.08	0.94	1.06	0.98
24/04/2019	1.13	0.90	1.11	1.03
25/04/2019	1.19	1.04	1.04	0.96
26/04/2019	1.34	0.95	1.60	0.74
27/04/2019	1.24	1.08	1.25	1.03
28/04/2019	1.12	0.98	1.02	0.86
29/04/2019	1.18	1.02	1.06	0.60
30/04/2019	1.21	1.07	1.17	1.02

Total Number of Measurements, A: 20838 20837

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20838 20837

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\04-April

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-May-2019	1.21	1.22	1.35	1.12	1.11	1.23
02-May-2019	1.07	1.02	1.22	1.19	1.14	1.23
03-May-2019	1.06	1.07	1.20	1.15	1.05	1.17
04-May-2019	NA	NA	NA	NA	NA	NA
05-May-2019	NA	NA	NA	NA	NA	NA
06-May-2019	1.12	1.15	1.32	1.05	1.12	1.23
07-May-2019	1.10	1.14	1.36	0.97	1.04	1.23
08-May-2019	1.08	1.12	1.28	1.03	1.03	1.15
09-May-2019	1.15	1.11	1.26	0.92	0.96	1.08
10-May-2019	1.14	1.21	1.33	1.22	1.28	1.37
11-May-2019	NA	NA	NA	NA	NA	NA
12-May-2019	NA	NA	NA	NA	NA	NA
13-May-2019	1.14	1.16	1.32	1.14	1.17	1.32
14-May-2019	1.16	1.14	1.29	1.10	1.03	1.32
15-May-2019	1.22	1.17	1.30	1.16	1.12	1.28
16-May-2019	1.15	1.12	1.29	1.14	1.13	1.29
17-May-2019	1.17	1.12	1.29	1.15	1.07	1.29
18-May-2019	NA	NA	NA	NA	NA	NA
19-May-2019	NA	NA	NA	NA	NA	NA
20-May-2019	NA	NA	NA	NA	NA	NA
21-May-2019	1.06	1.01	1.19	1.03	0.99	1.11
22-May-2019	1.02	1.04	1.18	1.05	1.04	1.21
23-May-2019	1.03	1.01	1.18	1.01	1.06	1.18
24-May-2019	1.08	1.12	1.25	1.09	1.12	1.26
25-May-2019	NA	NA	NA	NA	NA	NA
26-May-2019	NA	NA	NA	NA	NA	NA
27-May-2019	1.05	1.10	1.24	1.01	1.17	1.29
28-May-2019	1.13	1.14	1.27	1.09	1.15	1.31
29-May-2019	1.28	1.23	1.45	1.30	1.30	1.45
30-May-2019	1.19	1.22	1.45	1.14	1.24	1.40
31-May-2019	1.30	1.26	1.44	1.25	1.25	1.42
<b>Total number of measurements taken, A:</b>	22				22	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>					0.50	
<b>Number of measurements meeting standard, B:</b>					22	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>					100%	

NS: No Sample    NA: Not Analyzed    OL: Off-Line

Comments:

Report Compiled By: \_\_\_\_\_ H.Demchenko

Authorized By: \_\_\_\_\_ C.Diduck



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

Water System Code: **252.00**

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

Report Created: 01 June 2019

Report Period: May 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/05/2019	1.14	1.01	1.09	1.03
02/05/2019	1.03	0.92	1.07	0.99
03/05/2019	1.05	0.96	1.08	0.92
04/05/2019	1.13	1.00	1.13	1.01
05/05/2019	1.12	0.93	1.06	0.98
06/05/2019	1.13	0.98	1.04	0.98
07/05/2019	1.12	0.98	0.99	0.94
08/05/2019	1.11	0.98	0.97	0.93
09/05/2019	1.10	0.97	0.98	0.89
10/05/2019	1.10	0.92	1.13	0.93
11/05/2019	1.13	1.04	1.19	1.11
12/05/2019	1.09	0.95	1.16	1.04
13/05/2019	1.12	0.91	1.14	1.03
14/05/2019	1.17	1.08	1.13	0.99
15/05/2019	1.18	1.10	1.12	1.03
16/05/2019	1.15	1.08	1.13	1.05
17/05/2019	1.16	1.05	1.15	1.01
18/05/2019	1.11	1.01	1.07	0.98
19/05/2019	1.08	0.97	1.00	0.90
20/05/2019	1.07	0.98	0.98	0.92
21/05/2019	1.04	0.95	1.02	0.94
22/05/2019	1.03	0.98	1.07	1.02
23/05/2019	1.03	0.96	1.05	0.96
24/05/2019	1.14	0.99	1.13	0.99
25/05/2019	1.19	1.14	1.18	1.13
26/05/2019	1.19	1.13	1.12	1.04
27/05/2019	1.14	1.00	1.08	1.00
28/05/2019	1.10	0.83	1.06	0.74
29/05/2019	1.24	1.10	1.18	1.07
30/05/2019	1.21	1.11	1.16	1.09
31/05/2019	1.14	0.79	1.10	0.78

Total Number of Measurements, A: 21612 21612

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21612 21612

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\05-May

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-Jun-2019	NA	NA	NA	NA	NA	NA
02-Jun-2019	NA	NA	NA	NA	NA	NA
03-Jun-2019	1.22	1.30	1.48	1.19	1.26	1.36
04-Jun-2019	1.22	1.26	1.42	1.17	1.22	1.35
05-Jun-2019	1.20	1.28	1.40	1.25	1.32	1.45
06-Jun-2019	1.31	1.35	1.47	1.34	1.35	1.47
07-Jun-2019	1.28	1.30	1.49	1.23	1.27	1.45
08-Jun-2019	NA	NA	NA	NA	NA	NA
09-Jun-2019	NA	NA	NA	NA	NA	NA
10-Jun-2019	1.39	1.34	1.48	1.36	1.27	1.45
11-Jun-2019	1.25	1.23	1.36	1.23	1.20	1.35
12-Jun-2019	1.54	1.67	1.88	1.60	1.72	1.92
13-Jun-2019	1.34	1.31	1.49	1.34	1.35	1.49
14-Jun-2019	1.31	1.28	1.45	1.38	1.35	1.47
15-Jun-2019	NA	NA	NA	NA	NA	NA
16-Jun-2019	NA	NA	NA	NA	NA	NA
17-Jun-2019	OL	OL	OL	OL	OL	OL
18-Jun-2019	1.13	1.19	1.35	1.18	1.20	1.30
19-Jun-2019	1.27	1.30	1.52	1.28	1.33	1.43
20-Jun-2019	1.43	1.43	1.61	1.43	1.42	1.59
21-Jun-2019	1.45	1.45	1.91	1.47	1.46	1.60
22-Jun-2019	NA	NA	NA	NA	NA	NA
23-Jun-2019	NA	NA	NA	NA	NA	NA
24-Jun-2019	1.37	1.37	1.55	1.43	1.43	1.66
25-Jun-2019	1.43	1.46	1.67	1.37	1.33	1.52
26-Jun-2019	1.40	1.48	1.66	1.40	1.40	1.59
27-Jun-2019	1.39	1.40	1.60	1.32	1.41	1.58
28-Jun-2019	1.36	1.48	1.60	1.39	1.47	1.61
29-Jun-2019	NA	NA	NA	NA	NA	NA
30-Jun-2019	NA	NA	NA	NA	NA	NA
<b>Total number of measurements taken, A:</b>		19			19	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50	
<b>Number of measurements meeting standard, B:</b>		19			19	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%			100%	

NS: No Sample NA: Not Analyzed OL: Off-Line

**Comments:**

WTP offline for scheduled maintenance on June 17 from 8:00 am to 4:30 pm.

Report 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-09-412-01

Report Created: 01 July 2019

Report Period: June 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/06/2019	1.27	1.11	1.26	1.08
02/06/2019	1.25	1.05	1.22	1.02
03/06/2019	1.28	1.14	1.28	1.13
04/06/2019	1.26	1.16	1.25	1.14
05/06/2019	1.25	1.14	1.26	1.20
06/06/2019	1.26	1.16	1.28	1.17
07/06/2019	1.32	1.23	1.27	1.21
08/06/2019	1.33	1.09	1.25	1.18
09/06/2019	1.34	1.20	1.32	1.17
10/06/2019	1.38	1.29	1.36	1.26
11/06/2019	1.38	0.97	1.35	1.01
12/06/2019	1.40	0.97	1.48	1.06
13/06/2019	1.31	1.20	1.31	1.20
14/06/2019	1.35	1.22	1.34	1.26
15/06/2019	1.32	1.17	1.29	1.18
16/06/2019	1.27	1.14	1.25	1.17
17/06/2019	1.22	0.98	1.24	1.05
18/06/2019	1.25	1.09	1.23	1.17
19/06/2019	1.33	1.16	1.32	1.08
20/06/2019	1.40	1.30	1.40	1.29
21/06/2019	1.40	1.29	1.40	1.30
22/06/2019	1.34	1.24	1.32	1.24
23/06/2019	1.37	1.26	1.35	1.22
24/06/2019	1.41	1.22	1.41	1.09
25/06/2019	1.38	0.84	1.35	0.83
26/06/2019	1.39	1.29	1.37	1.26
27/06/2019	1.34	1.23	1.35	1.24
28/06/2019	1.38	1.18	1.48	1.30
29/06/2019	1.40	1.25	1.52	1.39
30/06/2019	1.35	1.24	1.44	1.35

Total Number of Measurements, A: 20880 20879

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20880 20879

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

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Submitted By (Print): D.MerredewOriginal signed by D.Merredew



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

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01						
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-2019	NA	NA	NA	NA	NA	NA
02-Jul-2019	1.29	1.40	1.56	1.37	1.53	1.63
03-Jul-2019	1.33	1.39	1.54	1.38	1.48	1.58
04-Jul-2019	1.52	1.26	1.53	1.49	1.45	1.57
05-Jul-2019	1.28	1.38	1.53	1.28	1.39	1.52
06-Jul-2019	NA	NA	NA	NA	NA	NA
07-Jul-2019	NA	NA	NA	NA	NA	NA
08-Jul-2019	1.54	1.56	1.74	1.45	1.43	1.64
09-Jul-2019	1.25	1.32	1.50	1.31	1.25	1.46
10-Jul-2019	1.19	1.31	1.45	1.21	1.37	1.46
11-Jul-2019	1.37	1.38	1.54	1.30	1.37	1.54
12-Jul-2019	1.38	1.46	1.60	1.42	1.48	1.65
13-Jul-2019	NA	NA	NA	NA	NA	NA
14-Jul-2019	NA	NA	NA	NA	NA	NA
15-Jul-2019	1.35	1.33	1.50	1.40	1.49	1.63
16-Jul-2019	1.40	1.41	1.57	1.48	1.49	1.63
17-Jul-2019	1.33	1.35	1.54	1.41	1.49	1.60
18-Jul-2019	1.31	1.37	1.56	1.37	1.45	1.64
19-Jul-2019	1.33	1.38	1.48	1.46	1.47	1.58
20-Jul-2019	NA	NA	NA	NA	NA	NA
21-Jul-2019	NA	NA	NA	NA	NA	NA
22-Jul-2019	1.32	1.37	1.54	1.37	1.45	1.61
23-Jul-2019	1.27	1.43	1.59	1.33	1.50	1.66
24-Jul-2019	1.33	1.42	1.60	1.44	1.51	1.73
25-Jul-2019	1.42	1.47	1.64	1.46	1.57	1.69
26-Jul-2019	1.42	1.41	1.60	1.42	1.46	1.63
27-Jul-2019	NA	NA	NA	NA	NA	NA
28-Jul-2019	NA	NA	NA	NA	NA	NA
29-Jul-2019	1.44	1.34	1.43	1.37	1.50	1.69
30-Jul-2019	1.28	1.41	1.60	1.27	1.44	1.58
31-Jul-2019	1.37	1.39	1.59	1.41	1.51	1.63
<b>Total number of measurements taken, A:</b>	22	22	22		22	22
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50	
<b>Number of measurements meeting standard, B:</b>		22			22	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		100%			100%	

NS: No Sample NA: Not Analyzed OL: Off-Line

Comments:

Report Compiled By: H.Demchenko

Authorized By: C.Diduck



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

Water System Code: **252.00**

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

Report Created: **01 August 2019**

Report Period: July 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/07/2019	1.29	1.18	1.37	1.28
02/07/2019	1.26	1.17	1.32	1.22
03/07/2019	1.30	1.14	1.37	1.22
04/07/2019	1.41	1.21	1.43	1.31
05/07/2019	1.35	1.18	1.36	1.18
06/07/2019	1.38	1.22	1.39	1.22
07/07/2019	1.36	1.23	1.39	1.30
08/07/2019	1.28	1.11	1.28	1.08
09/07/2019	1.26	1.10	1.28	1.09
10/07/2019	1.31	1.08	1.35	1.17
11/07/2019	1.36	1.20	1.41	1.19
12/07/2019	1.36	1.26	1.46	1.30
13/07/2019	1.38	1.27	1.46	1.35
14/07/2019	1.35	1.26	1.42	1.34
15/07/2019	1.33	1.25	1.39	1.33
16/07/2019	1.37	1.26	1.44	1.33
17/07/2019	1.39	1.28	1.48	1.38
18/07/2019	1.36	1.29	1.43	1.36
19/07/2019	1.32	1.25	1.40	1.34
20/07/2019	1.33	1.24	1.41	1.34
21/07/2019	1.37	1.28	1.42	1.34
22/07/2019	1.32	1.19	1.38	1.24
23/07/2019	1.30	1.18	1.38	1.28
24/07/2019	1.39	1.26	1.47	1.37
25/07/2019	1.43	1.12	1.46	1.13
26/07/2019	1.38	1.28	1.45	1.29
27/07/2019	1.44	1.34	1.53	1.44
28/07/2019	1.48	1.37	1.49	1.36
29/07/2019	1.42	1.29	1.38	1.29
30/07/2019	1.35	1.17	1.32	1.17
31/07/2019	1.40	1.33	1.41	1.32

Total Number of Measurements, A: **21600**      21600

Minimum Free Chlorine Standard: **0.5**      0.5

Number of Measurements Meeting Standard, B: **21600**      21600

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

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Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



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

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01						
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-2019	1.48	1.48	1.6	1.52	1.51	1.69
02-Aug-2019	1.53	1.45	1.65	1.42	1.44	1.6
03-Aug-2019	NA	NA	NA	NA	NA	NA
04-Aug-2019	NA	NA	NA	NA	NA	NA
05-Aug-2019	NA	NA	NA	NA	NA	NA
06-Aug-2019	1.33	1.37	1.54	1.29	1.34	1.54
07-Aug-2019	1.37	1.43	1.68	1.29	1.47	1.63
08-Aug-2019	1.39	1.5	1.7	1.33	1.47	1.66
09-Aug-2019	1.44	1.45	1.69	1.35	1.45	1.65
10-Aug-2019	NA	NA	NA	NA	NA	NA
11-Aug-2019	NA	NA	NA	NA	NA	NA
12-Aug-2019	1.38	1.42	1.61	1.41	1.47	1.6
13-Aug-2019	1.34	1.45	1.67	1.47	1.53	1.64
14-Aug-2019	1.41	1.48	1.66	1.36	1.53	1.68
15-Aug-2019	1.47	1.54	1.72	1.54	1.57	1.74
16-Aug-2019	1.36	1.47	1.66	1.48	1.58	1.74
17-Aug-2019	NA	NA	NA	NA	NA	NA
18-Aug-2019	NA	NA	NA	NA	NA	NA
19-Aug-2019	1.4	1.47	1.63	1.44	1.49	1.65
20-Aug-2019	1.21	1.25	1.43	1.31	1.37	1.53
21-Aug-2019	1.24	1.35	1.49	1.35	1.45	1.58
22-Aug-2019	1.75	1.44	1.57	1.75	1.46	1.61
23-Aug-2019	1.3	1.32	1.49	1.41	1.48	1.65
24-Aug-2019	NA	NA	NA	NA	NA	NA
25-Aug-2019	NA	NA	NA	NA	NA	NA
26-Aug-2019	1.29	1.32	1.52	1.37	1.44	1.56
27-Aug-2019	1.25	1.41	1.59	1.41	1.46	1.62
28-Aug-2019	1.33	1.38	1.58	1.38	1.55	1.67
29-Aug-2019	1.48	1.45	1.63	1.54	1.56	1.73
30-Aug-2019	1.38	1.3	1.5	1.42	1.49	1.62
31-Aug-2019	NA	NA	NA	NA	NA	NA
<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

Comments:

Report Compiled By: N. Crawford

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-09-412-01**

Report Created: 01 September 2019

Report Period: August 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/08/2019	1.48	1.34	1.46	1.38
02/08/2019	1.42	1.21	1.32	1.13
03/08/2019	1.31	1.18	1.25	1.13
04/08/2019	1.48	1.38	1.41	1.32
05/08/2019	1.37	1.26	1.31	1.20
06/08/2019	1.29	1.22	1.25	1.17
07/08/2019	1.39	1.30	1.33	1.26
08/08/2019	1.42	1.35	1.35	1.30
09/08/2019	1.48	1.33	1.43	1.29
10/08/2019	1.58	1.48	1.52	1.40
11/08/2019	1.47	1.35	1.41	1.34
12/08/2019	1.40	1.31	1.42	1.36
13/08/2019	1.35	1.21	1.45	1.36
14/08/2019	1.37	1.23	1.41	1.27
15/08/2019	1.38	1.25	1.51	1.40
16/08/2019	1.30	1.22	1.42	1.34
17/08/2019	1.34	1.24	1.38	1.32
18/08/2019	1.31	1.21	1.38	1.30
19/08/2019	1.34	1.23	1.38	1.30
20/08/2019	1.24	1.11	1.34	1.29
21/08/2019	1.39	1.20	1.48	1.31
22/08/2019	1.63	1.32	1.68	1.30
23/08/2019	1.40	1.27	1.49	1.38
24/08/2019	1.27	1.12	1.34	1.21
25/08/2019	1.33	1.02	1.37	1.12
26/08/2019	1.37	1.21	1.44	1.28
27/08/2019	1.28	1.19	1.38	1.32
28/08/2019	1.36	1.29	1.42	1.32
29/08/2019	1.43	1.37	1.51	1.45
30/08/2019	1.27	1.04	1.35	1.14
31/08/2019	1.23	0.99	1.25	1.07

Total Number of Measurements, A: 21599 21599

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21599 21599

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

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Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Sep-2019	NA	NA	NA	NA	NA	NA
02-Sep-2019	NA	NA	NA	NA	NA	NA
03-Sep-2019	1.50	1.39	1.57	1.29	1.42	1.51
04-Sep-2019	1.59	1.47	1.63	1.46	1.46	1.60
05-Sep-2019	1.46	1.47	1.64	1.48	1.49	1.65
06-Sep-2019	1.43	1.48	1.61	1.41	1.45	1.62
07-Sep-2019	NA	NA	NA	NA	NA	NA
08-Sep-2019	NA	NA	NA	NA	NA	NA
09-Sep-2019	1.30	1.31	1.49	1.20	1.26	1.41
10-Sep-2019	1.17	1.25	1.41	1.26	1.18	1.36
11-Sep-2019	1.18	1.21	1.39	1.19	1.19	1.33
12-Sep-2019	1.14	1.21	1.38	1.15	1.15	1.34
13-Sep-2019	1.34	1.45	1.53	1.30	1.35	1.49
14-Sep-2019	NA	NA	NA	NA	NA	NA
15-Sep-2019	NA	NA	NA	NA	NA	NA
16-Sep-2019	1.56	1.56	1.78	1.41	1.44	1.60
17-Sep-2019	1.68	1.58	1.81	1.47	1.47	1.59
18-Sep-2019	1.53	1.45	1.61	1.49	1.50	1.66
19-Sep-2019	1.51	1.59	1.79	1.58	1.57	1.73
20-Sep-2019	1.51	1.46	1.62	1.44	1.46	1.66
21-Sep-2019	NA	NA	NA	NA	NA	NA
22-Sep-2019	NA	NA	NA	NA	NA	NA
23-Sep-2019	1.49	1.49	1.62	1.48	1.40	1.53
24-Sep-2019	1.47	1.49	1.70	1.41	1.45	1.62
25-Sep-2019	1.44	1.49	1.66	1.38	1.48	1.61
26-Sep-2019	1.49	1.50	1.65	1.41	1.48	1.58
27-Sep-2019	1.51	1.53	1.71	1.58	1.50	1.72
28-Sep-2019	NA	NA	NA	NA	NA	NA
29-Sep-2019	NA	NA	NA	NA	NA	NA
30-Sep-2019	1.55	1.45	1.63	1.49	1.55	1.68

Total number of measurements taken, A:

Chlorine Standard for Monitoring Location (mg/L):

Number of measurements meeting standard, B:

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

NS: No Sample NA: Not Analyzed OL: Off-Line

Comments:

Report Compiled By: \_\_\_\_\_ N. Crawford

Authorized By: \_\_\_\_\_ C. Diduck

Date Authorized: \_\_\_\_\_ 7-Oct-19



**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 October 2019

Report Period: September 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/09/2019	1.41	1.34	1.32	1.23
02/09/2019	1.42	1.35	1.30	1.23
03/09/2019	1.49	1.41	1.35	1.19
04/09/2019	1.60	1.35	1.54	1.34
05/09/2019	1.44	1.35	1.46	1.35
06/09/2019	1.49	1.35	1.42	1.31
07/09/2019	1.54	1.37	1.47	1.30
08/09/2019	1.34	1.19	1.28	1.10
09/09/2019	1.24	1.18	1.25	1.10
10/09/2019	1.20	1.16	1.24	1.13
11/09/2019	1.17	1.13	1.17	1.11
12/09/2019	1.21	1.10	1.22	1.11
13/09/2019	1.39	1.27	1.35	1.23
14/09/2019	1.54	1.45	1.49	1.41
15/09/2019	1.60	1.55	1.47	1.36
16/09/2019	1.59	1.53	1.42	1.36
17/09/2019	1.52	1.23	1.37	1.12
18/09/2019	1.46	1.35	1.49	1.30
19/09/2019	1.43	1.10	1.51	1.22
20/09/2019	1.50	1.36	1.44	1.32
21/09/2019	1.44	1.23	1.39	1.14
22/09/2019	1.43	1.36	1.36	1.29
23/09/2019	1.48	1.37	1.43	1.34
24/09/2019	1.47	1.39	1.43	1.35
25/09/2019	1.43	1.32	1.42	1.35
26/09/2019	1.47	1.32	1.45	1.34
27/09/2019	1.50	1.41	1.54	1.48
28/09/2019	1.47	1.39	1.49	1.44
29/09/2019	1.44	1.34	1.44	1.32
30/09/2019	1.54	1.47	1.52	1.45

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

Minimum Free Chlorine Standard: **0.5**      0.5

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

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



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00		Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2			
Licence No. PWS-09-412-01								
Date		Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)	
Date	Analyser	Grab	Grab	Analyser	Grab	Grab	Grab	
01-Oct-2019	1.57	1.50	1.60	1.47	1.48	1.65		
02-Oct-2019	1.56	1.55	1.78	1.54	1.62	1.74		
03-Oct-2019	OL	OL	OL	OL	OL	OL		
04-Oct-2019	1.28	1.33	1.51	1.27	1.33	1.49		
05-Oct-2019	NA	NA	NA	NA	NA	NA		
06-Oct-2019	NA	NA	NA	NA	NA	NA		
07-Oct-2019	1.27	1.32	1.48	1.42	1.38	1.53		
08-Oct-2019	1.25	1.13	1.40	1.30	1.23	1.45		
09-Oct-2019	1.19	1.21	1.37	1.25	1.25	1.40		
10-Oct-2019	1.16	1.18	1.39	1.24	1.26	1.41		
11-Oct-2019	1.16	1.15	1.30	1.22	1.14	1.36		
12-Oct-2019	NA	NA	NA	NA	NA	NA		
13-Oct-2019	NA	NA	NA	NA	NA	NA		
14-Oct-2019	NA	NA	NA	NA	NA	NA		
15-Oct-2019	1.20	1.23	1.41	1.24	1.29	1.46		
16-Oct-2019	1.19	1.29	1.42	1.11	1.41	1.56		
17-Oct-2019	1.33	1.26	1.43	1.37	1.44	1.60		
18-Oct-2019	1.22	1.25	1.44	1.35	1.42	1.55		
19-Oct-2019	NA	NA	NA	NA	NA	NA		
20-Oct-2019	NA	NA	NA	NA	NA	NA		
21-Oct-2019	1.14	1.21	1.33	1.36	1.35	1.45		
22-Oct-2019	1.16	1.11	1.35	1.36	1.33	1.54		
23-Oct-2019	1.34	1.30	1.50	1.35	1.29	1.60		
24-Oct-2019	1.47	1.39	1.53	1.35	1.43	1.54		
25-Oct-2019	1.33	1.29	1.48	1.26	1.28	1.50		
26-Oct-2019	NA	NA	NA	NA	NA	NA		
27-Oct-2019	NA	NA	NA	NA	NA	NA		
28-Oct-2019	1.26	1.19	1.36	1.23	1.21	1.37		
29-Oct-2019	1.23	1.22	1.39	1.19	1.22	1.39		
30-Oct-2019	OL	OL	OL	OL	OL	OL		
31-Oct-2019	1.33	1.32	1.50	1.34	1.36	1.57		
<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

**Comments:**

October 3, 2019: WTP offline for scheduled maintenance 08:00 to 20:50  
 October 30, 2019: WTP offline for scheduled maintenance 06:00 to 21:30

Report Compiled By: \_\_\_\_\_ A. Gordon

Authorized By: \_\_\_\_\_ C. Diduck

Date Authorized: \_\_\_\_\_ 7-Nov-19



**City Of Winnipeg**

Water and Waste Department

Water Services

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

Water System Code: **252.00**

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

Report Created: 01 November 2019

Report Period: October 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/10/2019	1.55	1.47	1.55	1.40
02/10/2019	1.52	1.45	1.53	1.45
03/10/2019	1.85	1.30	1.99	1.27
04/10/2019	1.33	1.16	1.30	1.18
05/10/2019	1.36	1.24	1.47	1.30
06/10/2019	1.26	1.20	1.39	1.29
07/10/2019	1.37	1.24	1.47	1.34
08/10/2019	1.32	1.14	1.35	1.24
09/10/2019	1.17	1.09	1.23	1.09
10/10/2019	1.17	1.01	1.25	1.17
11/10/2019	1.21	0.88	1.28	1.06
12/10/2019	1.29	1.11	1.28	1.11
13/10/2019	1.20	1.12	1.12	1.09
14/10/2019	1.21	1.15	1.15	1.11
15/10/2019	1.15	0.88	1.23	1.14
16/10/2019	1.21	1.10	1.22	1.07
17/10/2019	1.23	1.13	1.33	1.09
18/10/2019	1.20	1.11	1.35	1.26
19/10/2019	1.25	1.14	1.31	1.17
20/10/2019	1.25	1.12	1.29	1.16
21/10/2019	1.15	1.05	1.37	1.30
22/10/2019	1.15	1.09	1.37	1.30
23/10/2019	1.35	1.03	1.36	1.15
24/10/2019	1.40	1.30	1.39	1.29
25/10/2019	1.29	1.20	1.29	1.13
26/10/2019	1.23	1.15	1.24	1.17
27/10/2019	1.21	1.14	1.22	1.15
28/10/2019	1.23	1.16	1.21	1.09
29/10/2019	1.24	1.16	1.21	1.12
30/10/2019	1.35	1.23	1.40	1.24
31/10/2019	1.46	1.25	1.38	1.26

Total Number of Measurements, A: 21601 21602

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21601 21602

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\10-October

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Nov-2019	1.27	1.29	1.47	1.30	1.38	1.54
02-Nov-2019	NA	NA	NA	NA	NA	NA
03-Nov-2019	NA	NA	NA	NA	NA	NA
04-Nov-2019	1.20	1.14	1.35	1.22	1.24	1.43
05-Nov-2019	1.23	1.31	1.48	1.23	1.27	1.45
06-Nov-2019	1.25	1.28	1.44	1.23	1.36	1.47
07-Nov-2019	1.28	1.34	1.47	1.20	1.35	1.46
08-Nov-2019	1.28	1.23	1.39	1.18	1.29	1.41
09-Nov-2019	NA	NA	NA	NA	NA	NA
10-Nov-2019	NA	NA	NA	NA	NA	NA
11-Nov-2019	NA	NA	NA	NA	NA	NA
12-Nov-2019	1.20	1.29	1.48	1.25	1.32	1.41
13-Nov-2019	1.20	1.35	1.51	1.29	1.37	1.52
14-Nov-2019	1.19	1.30	1.51	1.29	1.37	1.46
15-Nov-2019	1.24	1.29	1.35	1.26	1.26	1.46
16-Nov-2019	NA	NA	NA	NA	NA	NA
17-Nov-2019	NA	NA	NA	NA	NA	NA
18-Nov-2019	1.30	1.31	1.40	1.30	1.30	1.47
19-Nov-2019	1.23	1.24	1.45	1.21	1.29	1.47
20-Nov-2019	1.19	1.19	1.36	1.11	1.20	1.39
21-Nov-2019	1.18	1.25	1.44	1.21	1.25	1.45
22-Nov-2019	1.23	1.32	1.51	1.23	1.30	1.52
23-Nov-2019	NA	NA	NA	NA	NA	NA
24-Nov-2019	NA	NA	NA	NA	NA	NA
25-Nov-2019	IM	1.28	1.44	1.28	1.33	1.52
26-Nov-2019	1.23	1.24	1.46	1.31	1.36	1.59
27-Nov-2019	1.16	1.18	1.39	IM	1.25	1.46
28-Nov-2019	1.15	1.14	1.37	1.20	1.21	1.39
29-Nov-2019	1.44	1.37	1.52	1.34	1.31	1.45
30-Nov-2019	NA	NA	NA	NA	NA	NA
<b>Total number of measurements taken, A:</b>						
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		20			20	
<b>Number of measurements meeting standard, B:</b>		0.50			0.50	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>		20			20	
		100%			100%	

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

Comments:

Report Compiled By: A. Gordon

Authorized By: 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 December 2019

Report Period: November 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/11/2019	1.25	1.19	1.30	1.24
02/11/2019	1.24	1.18	1.29	1.24
03/11/2019	1.23	1.18	1.26	1.19
04/11/2019	1.21	1.13	1.22	1.11
05/11/2019	1.23	1.19	1.22	1.18
06/11/2019	1.26	1.22	1.24	1.18
07/11/2019	1.29	1.25	1.21	1.16
08/11/2019	1.25	1.08	1.20	1.01
09/11/2019	1.14	1.07	1.19	1.12
10/11/2019	1.22	1.13	1.27	1.17
11/11/2019	1.21	1.17	1.26	1.23
12/11/2019	1.20	1.17	1.27	1.23
13/11/2019	1.18	1.14	1.28	1.22
14/11/2019	1.22	1.16	1.29	1.24
15/11/2019	1.31	1.23	1.28	1.23
16/11/2019	1.29	1.12	1.25	1.18
17/11/2019	1.14	1.10	1.17	1.14
18/11/2019	1.26	1.11	1.25	1.17
19/11/2019	1.21	1.00	1.17	1.06
20/11/2019	1.16	1.03	1.12	1.06
21/11/2019	1.19	1.10	1.20	1.12
22/11/2019	1.23	1.15	1.23	1.17
23/11/2019	1.26	1.15	1.25	1.21
24/11/2019	1.21	1.11	1.24	1.20
25/11/2019	1.21	1.09	1.25	1.19
26/11/2019	1.24	0.83	1.28	1.22
27/11/2019	1.18	0.99	1.28	1.12
28/11/2019	1.18	0.99	1.30	1.12
29/11/2019	1.29	1.11	1.33	1.20
30/11/2019	1.29	1.15	1.37	1.32

Total Number of Measurements, A: 20901 20905

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 20901 20905

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\11-November

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



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01						
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-2019	NA	NA	NA	NA	NA	NA
02-Dec-2019	1.32	1.40	1.51	1.30	1.30	1.53
03-Dec-2019	1.27	1.27	1.44	1.29	1.36	1.49
04-Dec-2019	1.24	1.30	1.44	1.27	1.31	1.49
05-Dec-2019	1.18	1.19	1.36	1.20	1.21	1.41
06-Dec-2019	1.15	1.13	1.29	1.17	1.19	1.34
07-Dec-2019	NA	NA	NA	NA	NA	NA
08-Dec-2019	NA	NA	NA	NA	NA	NA
09-Dec-2019	1.12	1.14	1.31	1.15	1.21	1.38
10-Dec-2019	1.13	1.15	1.34	1.18	1.20	1.46
11-Dec-2019	1.21	1.24	1.33	1.27	1.35	1.47
12-Dec-2019	1.39	1.37	1.62	1.44	1.45	1.58
13-Dec-2019	1.24	1.16	1.35	1.26	1.29	1.43
14-Dec-2019	NA	NA	NA	NA	NA	NA
15-Dec-2019	NA	NA	NA	NA	NA	NA
16-Dec-2019	1.27	1.20	1.39	1.26	1.28	1.46
17-Dec-2019	1.21	1.26	1.41	1.23	1.24	1.42
18-Dec-2019	1.13	1.19	1.35	1.15	1.17	1.38
19-Dec-2019	1.13	1.13	1.41	1.14	1.18	1.36
20-Dec-2019	1.15	1.19	1.34	1.18	1.19	1.38
21-Dec-2019	NA	NA	NA	NA	NA	NA
22-Dec-2019	1.20	1.17	1.37	1.12	1.13	1.35
23-Dec-2019	1.19	1.13	1.34	1.20	1.17	1.37
24-Dec-2019	1.21	1.15	1.32	1.17	1.17	1.34
25-Dec-2019	NA	NA	NA	NA	NA	NA
26-Dec-2019	NA	NA	NA	NA	NA	NA
27-Dec-2019	1.25	1.29	1.44	1.26	1.27	1.44
28-Dec-2019	NA	NA	NA	NA	NA	NA
29-Dec-2019	NA	NA	NA	NA	NA	NA
30-Dec-2019	1.13	1.11	1.28	1.12	1.19	1.28
31-Dec-2019	1.17	1.15	1.35	1.17	1.18	1.35
<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 IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

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-09-412-01**

Report Created: 01 January 2020

Report Period: December 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/12/2019	1.31	1.17	1.35	1.29
02/12/2019	1.33	1.22	1.32	1.23
03/12/2019	1.28	1.14	1.28	1.22
04/12/2019	1.23	1.10	1.26	1.19
05/12/2019	1.20	1.08	1.23	1.16
06/12/2019	1.13	1.00	1.17	1.07
07/12/2019	1.15	1.01	1.16	1.09
08/12/2019	1.15	1.02	1.19	1.05
09/12/2019	1.15	1.05	1.17	1.10
10/12/2019	1.15	1.05	1.19	1.10
11/12/2019	1.21	1.09	1.23	1.16
12/12/2019	1.34	1.14	1.38	1.19
13/12/2019	1.21	1.14	1.25	1.20
14/12/2019	1.14	1.04	1.18	1.14
15/12/2019	1.14	1.05	1.17	1.12
16/12/2019	1.22	1.11	1.24	1.10
17/12/2019	1.19	1.09	1.22	1.11
18/12/2019	1.14	1.04	1.16	1.11
19/12/2019	1.14	1.04	1.15	1.10
20/12/2019	1.18	1.06	1.17	1.11
21/12/2019	1.22	1.11	1.17	1.09
22/12/2019	1.22	1.12	1.17	1.09
23/12/2019	1.19	1.09	1.20	1.14
24/12/2019	1.20	1.07	1.20	1.15
25/12/2019	1.19	1.11	1.18	1.12
26/12/2019	1.25	1.13	1.24	1.15
27/12/2019	1.26	0.46	1.27	1.22
28/12/2019	1.18	0.51	1.18	1.14
29/12/2019	1.17	1.06	1.14	1.09
30/12/2019	1.16	1.06	1.14	1.01
31/12/2019	1.17	1.07	1.19	1.11

Total Number of Measurements, A: 21600 21599

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21596 21599

COMPLIANCE, C = B/A X 100%: 99.98 100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\12-December

Submitted By (Print): D. Merredew

Signature: Original signed by: D. Merredew

# **2019 MONTHLY TURBIDITY REPORTS**



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT**

Water System Code: 252.00	Turbidity (NTU)																	
	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Jan-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02-Jan-2019	0.44	0.44	0.06	<0.02	0.08	0.08	0.07	0.05	OL	OL	0.11	0.07	0.08	0.05	0.08	0.02	0.08	<0.02
03-Jan-2019	0.45	0.46	0.10	<0.02	OL	OL	0.12	0.06	0.10	0.05	0.09	0.05	0.10	0.05	OL	OL	0.12	0.02
04-Jan-2019	0.46	0.45	0.09	0.02	0.08	0.08	OL	OL	0.09	0.05	0.08	0.05	0.09	0.06	OL	OL	0.07	<0.02
05-Jan-2019	NA	NA	NA	NA	0.09	0.09	NA	OL	OL	NA	NA							
06-Jan-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA
07-Jan-2019	0.47	0.41	0.10	0.02	0.11	0.10	0.10	0.07	0.08	0.05	OL	OL	0.08	0.05	OL	OL	0.09	<0.02
08-Jan-2019	0.48	0.44	0.09	0.02	OL	OL	0.11	0.07	0.09	0.05	0.07	0.04	0.10	0.05	OL	OL	0.09	<0.02
09-Jan-2019	0.48	0.42	0.15	0.04	0.11	0.10	OL	OL	0.13	0.07	0.17	0.05	0.10	0.06	OL	OL	0.08	<0.02
10-Jan-2019	0.44	0.42	OL	OL	0.16	0.09	0.10	0.06	0.12	0.06	0.10	0.06	0.14	0.09	OL	OL	0.10	<0.02
11-Jan-2019	0.47	0.39	0.11	0.03	0.13	0.12	0.12	0.08	OL	OL	0.16	0.10	OL	OL	0.17	0.07	0.15	0.04
12-Jan-2019	NA	NA	OL	OL	NA	0.11	0.05	NA	NA									
13-Jan-2019	NA	NA	OL	OL	NA													
14-Jan-2019	0.48	0.38	OL	OL	0.09	0.09	0.16	0.10	0.12	0.06	0.10	0.06	0.14	0.08	0.12	0.04	OL	OL
15-Jan-2019	0.48	0.38	OL	OL	0.11	0.09	0.08	0.06	OL	OL	0.09	0.06	0.14	0.07	0.10	0.04	0.11	<0.02
16-Jan-2019	0.46	0.37	0.11	0.06	OL	OL	0.10	0.05	0.11	0.05	OL	OL	0.11	0.08	0.13	0.05	0.10	0.02
17-Jan-2019	0.53	0.38	0.10	0.06	0.08	0.09	0.10	0.06	0.09	0.05	0.08	0.06	0.11	0.08	OL	OL	0.10	0.03
18-Jan-2019	0.44	0.38	0.09	0.04	0.10	0.09	OL	OL	0.12	0.07	0.11	0.07	0.15	0.12	0.11	0.04	0.10	<0.02
19-Jan-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20-Jan-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21-Jan-2019	0.43	0.37	0.10	0.06	0.09	0.10	OL	OL	0.12	0.09	0.09	0.06	0.12	0.08	0.11	0.03	OL	OL
22-Jan-2019	0.46	0.36	0.12	0.06	0.12	0.11	0.17	0.10	OL	OL	0.12	0.08	OL	OL	0.10	0.03	0.07	<0.02
23-Jan-2019	0.44	0.38	OL	OL	OL	OL	0.10	0.07	0.10	0.09	0.08	0.05	0.09	0.07	0.13	0.07	0.09	0.02
24-Jan-2019	0.44	0.37	0.09	0.05	0.08	0.09	OL	OL	0.10	0.10	0.09	0.06	0.08	0.09	0.08	0.03	OL	OL
25-Jan-2019	0.45	0.37	0.11	0.05	0.10	0.09	0.18	0.09	OL	OL	0.11	0.07	OL	OL	0.10	0.03	0.09	<0.02
26-Jan-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27-Jan-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28-Jan-2019	0.43	0.35	0.08	0.04	0.08	0.09	OL	OL	0.11	0.16	0.09	0.06	OL	OL	0.09	0.03	0.06	<0.02
29-Jan-2019	0.43	0.37	0.11	0.06	0.13	0.11	0.09	0.04	0.09	0.14	OL	OL	0.08	0.08	0.09	0.04	0.08	<0.02
30-Jan-2019	0.43	0.35	OL	OL	0.08	0.08	0.11	0.05	0.09	0.02	0.08	0.07	0.09	0.08	OL	OL	0.10	<0.02
31-Jan-2019	0.42	0.33	0.10	0.04	0.10	0.08	OL	OL	0.10	0.03	0.09	0.07	OL	OL	0.10	0.02	0.08	<0.02
Total number of measurements taken, A:				17		19		15		17		19		17		15		19
Turbidity Standard for Monitoring Location (NTU):				0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30
Number of measurements meeting standard, B:				17		19		15		17		19		17		15		19
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

Comments:

Filter 7 was offline for scheduled maintenance from January 2 to 11, 2019.

Report Compiled By: H.Demchenko

Authorized in Sample Manager By: C.Diduck

Date Authorized: 7-Feb-19



**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 2019 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
1/01/2019	0.47	0.02	0.06		0.08	0.10	0.04	0.11	0.05	0.11	0.07	0.11	0.05	0.13	0.02	0.08	0.00	0.01
2/01/2019	0.47	0.02	0.05		0.06	0.11	0.04	0.06	0.04	0.08	0.04	0.10	0.04	0.10	0.03	0.07	0.01	0.04
3/01/2019	0.47	0.03	0.04		0.06	0.11	0.05	0.10	0.04	0.11	0.05	0.09	0.04	0.08	OL	OL	0.01	0.04
4/01/2019	0.46	0.03	0.05		0.07	0.14	0.06	0.10	0.05	0.07	0.05	0.08	0.05	0.09	OL	OL	0.01	0.02
5/01/2019	0.44	0.03	0.06		0.07	0.10	0.07	0.12	0.05	0.09	0.05	0.07	0.04	0.08	OL	OL	0.01	0.01
6/01/2019	0.43	0.03	0.08		0.09	0.13	0.06	0.12	0.04	0.09	0.05	0.08	0.04	0.08	OL	OL	0.01	0.01
7/01/2019	0.43	0.03	0.07		0.07	0.12	0.07	0.10	0.04	0.09	0.05	0.08	0.04	0.08	OL	OL	0.01	0.01
8/01/2019	0.43	0.04	0.06		0.07	0.12	0.06	0.13	0.04	0.08	0.04	0.08	0.04	0.06	OL	OL	0.01	0.02
9/01/2019	0.42	0.04	0.06		0.08	0.13	0.06	0.11	0.05	0.08	0.05	0.09	0.05	0.12	OL	OL	0.01	0.02
10/01/2019	0.43	0.03	0.06		0.08	0.10	0.07	0.12	0.05	0.09	0.07	0.08	0.06	0.10	OL	OL	0.01	0.04
11/01/2019	0.42	0.02	0.06		0.07	0.15	0.07	0.12	0.05	0.13	0.05	0.13	0.06	0.16	0.06	0.12	0.01	0.03
12/01/2019	0.40	OL	OL		0.08	0.12	0.07	0.09	0.05	0.11	0.06	0.11	0.06	0.12	0.04	0.09	0.01	0.04
13/01/2019	0.40	OL	OL		0.07	0.12	0.06	0.12	0.05	0.08	0.06	0.11	0.07	0.10	0.05	0.10	0.01	0.04
14/01/2019	0.39	OL	OL		0.07	0.11	0.05	0.12	0.05	0.11	0.07	0.08	0.06	0.12	0.04	0.09	0.01	0.03
15/01/2019	0.38	OL	OL		0.08	0.11	0.05	0.10	0.04	0.09	0.06	0.10	0.06	0.12	0.05	0.07	0.01	0.03
16/01/2019	0.38	0.05	0.11		0.06	0.11	0.05	0.07	0.04	0.09	0.05	0.10	0.05	0.13	0.05	0.09	0.01	0.03
17/01/2019	0.38	0.04	0.10		0.06	0.11	0.06	0.12	0.05	0.08	0.05	0.08	0.08	0.11	0.04	0.09	0.01	0.04
18/01/2019	0.38	0.04	0.07		0.08	0.10	0.05	0.11	0.05	0.10	0.07	0.12	0.05	0.13	0.04	0.07	0.01	0.03
19/01/2019	0.38	0.07	0.11		0.07	0.14	0.04	0.12	0.05	0.11	0.05	0.11	0.04	0.11	0.04	0.06	0.01	0.01
20/01/2019	0.39	0.05	0.11		0.06	0.14	0.07	0.11	0.05	0.08	0.04	0.11	0.06	0.10	0.03	0.07	0.01	0.02
21/01/2019	0.38	0.04	0.12		0.08	0.10	0.06	0.13	0.08	0.12	0.07	0.08	0.05	0.12	0.03	0.07	0.00	0.02
22/01/2019	0.40	0.07	0.12		0.08	0.15	0.07	0.19	0.06	0.12	0.04	0.11	0.04	0.11	0.04	0.05	0.01	0.01
23/01/2019	0.42	0.04	0.29		0.03	0.15	0.05	0.25	0.05	0.23	0.02	0.10	0.05	0.44	0.04	0.49	0.02	0.38
24/01/2019	0.40	0.05	0.08		0.08	0.10	0.05	0.14	0.07	0.12	0.06	0.11	0.05	0.11	0.03	0.07	0.00	0.01
25/01/2019	0.40	0.06	0.10		0.07	0.13	0.04	0.12	0.06	0.14	0.05	0.10	0.04	0.11	0.04	0.05	0.01	0.01
26/01/2019	0.38	0.04	0.10		0.06	0.12	0.06	0.08	0.07	0.15	0.05	0.10	0.05	0.09	0.03	0.07	0.01	0.02
27/01/2019	0.37	0.04	0.09		0.06	0.09	0.04	0.10	0.13	0.15	0.06	0.08	0.06	0.11	0.03	0.06	0.00	0.01
28/01/2019	0.37	0.06	0.12		0.08	0.11	0.04	0.10	0.10	0.18	0.05	0.10	0.05	0.11	0.03	0.05	0.00	0.01
29/01/2019	0.37	0.04	0.10		0.07	0.13	0.05	0.20	0.08	0.16	0.05	0.11	0.05	0.09	0.04	0.07	0.01	0.01
30/01/2019	0.36	0.04	0.09		0.06	0.11	0.04	0.08	0.01	0.03	0.06	0.09	0.08	0.12	0.03	0.07	0.00	0.02
31/01/2019	0.36	0.04	0.06		0.08	0.10	0.03	0.09	0.01	0.05	0.07	0.12	0.05	0.11	0.02	0.05	0.00	0.01

Total Number of Measurements Taken, A: 12666      11059      15091      13320      15791      14705      10156      15030  
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: 12666      11059      15091      13320      15791      14684      10135      15016  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      100.000%      100.000%      100.000%      99.857%      99.793%      99.907%

OL = Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\01-January

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

		WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																	
Water System Code: 252.00		Turbidity (NTU)																	
Licence No. PWS-09-412-01		Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date		Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Feb-2019		0.45	0.35	0.11	0.05	OL	OL	0.11	0.05	0.09	0.02	OL	OL	0.08	0.07	0.10	0.03	0.08	<0.02
02-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
04-Feb-2019		0.42	0.33	0.10	0.06	0.11	0.10	0.17	0.11	OL	OL	0.08	0.14	OL	OL	0.08	0.03	0.07	<0.02
05-Feb-2019		0.44	0.33	0.11	0.06	OL	OL	0.09	0.06	0.09	0.03	OL	OL	0.07	0.11	0.08	0.04	0.08	<0.02
06-Feb-2019		0.41	0.30	OL	OL	0.09	0.09	0.12	0.08	0.09	0.02	0.09	0.15	0.10	0.13	OL	OL	0.10	<0.02
07-Feb-2019		0.42	0.30	0.10	0.03	0.10	0.09	OL	OL	0.12	0.09	0.07	0.05	OL	OL	0.09	0.02	0.07	<0.02
08-Feb-2019		0.40	0.30	0.10	0.03	OL	OL	0.12	0.07	0.16	0.13	OL	OL	0.11	0.07	0.08	0.02	0.07	<0.02
09-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-Feb-2019		0.39	0.29	0.08	<0.02	0.09	0.07	0.17	0.09	OL	OL	0.09	0.05	OL	OL	0.08	0.02	0.07	<0.02
12-Feb-2019		0.38	0.28	0.10	0.03	OL	OL	0.09	0.04	0.08	0.05	OL	OL	0.09	0.07	0.08	0.03	0.07	<0.02
13-Feb-2019		0.41	0.28	0.08	<0.02	0.09	0.06	0.12	0.05	0.10	0.06	0.09	0.07	0.12	0.07	OL	OL	OL	OL
14-Feb-2019		0.39	0.28	0.10	0.02	0.10	0.08	OL	OL	0.15	0.08	0.10	0.08	OL	OL	0.09	0.02	0.08	<0.02
15-Feb-2019		0.39	0.27	0.16	0.05	OL	OL	0.15	0.06	0.14	0.08	OL	OL	0.14	0.08	0.14	0.05	0.12	0.03
16-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19-Feb-2019		0.39	0.27	OL	OL	0.10	0.08	0.13	0.06	0.11	0.12	OL	OL	0.11	0.08	0.13	0.07	0.11	0.02
20-Feb-2019		0.39	0.25	0.11	0.03	0.13	0.09	OL	OL	0.12	0.06	0.09	0.04	0.13	0.10	0.10	0.05	0.16	0.06
21-Feb-2019		0.37	0.27	0.07	<0.02	OL	OL	0.07	0.03	0.09	0.05	0.06	0.03	OL	OL	0.06	0.04	0.06	<0.02
22-Feb-2019		0.37	0.27	0.09	0.02	0.07	0.06	0.08	0.03	OL	OL	0.08	0.05	0.07	0.07	0.08	0.05	0.06	<0.02
23-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24-Feb-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25-Feb-2019		0.34	0.26	0.09	<0.02	OL	OL	0.10	0.02	OL	OL	0.15	0.04	0.21	0.07	0.20	0.07	0.10	<0.02
26-Feb-2019		0.36	0.24	0.06	<0.02	0.07	0.06	0.08	0.03	0.07	0.06	OL	OL	0.08	0.07	OL	OL	0.08	<0.02
27-Feb-2019		0.36	0.22	0.07	<0.02	0.09	0.07	OL	OL	0.08	0.09	0.07	0.03	OL	OL	0.07	0.07	0.07	<0.02
28-Feb-2019		0.36	0.23	0.11	0.02	OL	OL	0.10	0.03	OL	OL	0.10	0.04	0.09	0.06	0.10	0.03	0.09	<0.02
Total number of measurements taken, A:				17		11		15		14		12		13		16		18	
Turbidity Standard for Monitoring Location (NTU):				0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:				17		11		15		14		12		13		16		18	
Compliance with Turbidity Standard, C= B/A X 100%:				100%		100%		100%		100%		100%		100%		100%		100%	

NS: No Sample NA: Not Analyzed OL: Off-Line

Comments:

Report Compiled By: H.Demchenko

Authorized in Sample Manager By: C.Diduck

N:\WQ Data\Routine Water Quality\2019\Turbidity.xls

Date Authorized: 7-Mar-19



**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 2019	Turbidity (NTU)	WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT																	
Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8			
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/02/2019	0.36	0.05	0.09	0.06	0.11	0.05	0.10	0.01	0.05	0.06	0.13	0.05	0.12	0.04	0.06	0.01	0.01		
2/02/2019	0.35	0.04	0.09	0.05	0.11	0.07	0.22	0.01	0.05	0.06	0.14	0.08	0.09	0.03	0.05	0.01	0.01		
3/02/2019	0.35	0.05	0.19	0.07	0.10	0.04	0.25	0.03	0.06	0.12	0.13	0.07	0.13	0.03	0.06	0.00	0.01		
4/02/2019	0.35	0.07	0.10	0.07	0.12	0.06	0.37	0.03	0.13	0.10	0.17	0.07	0.14	0.03	0.05	0.00	0.01		
5/02/2019	0.33	0.05	0.10	0.06	0.13	0.06	0.32	0.02	0.06	0.10	0.19	0.08	0.12	0.03	0.06	0.01	0.01		
6/02/2019	0.32	0.05	0.14	0.06	0.14	0.06	0.12	0.03	0.15	0.13	0.17	0.11	0.16	0.03	0.06	0.00	0.01		
7/02/2019	0.32	0.04	0.11	0.08	0.12	0.05	0.26	0.05	0.11	0.05	0.10	0.04	0.11	0.02	0.05	0.00	0.02		
8/02/2019	0.31	0.03	0.07	0.05	0.11	0.06	0.30	0.04	0.14	0.04	0.09	0.04	0.10	0.03	0.05	0.01	0.01		
9/02/2019	0.32	0.02	0.06	0.04	0.10	0.03	0.08	0.04	0.07	0.04	0.08	0.06	0.08	0.02	0.05	0.01	0.01		
10/02/2019	0.30	0.01	0.03	0.06	0.07	0.02	0.07	0.05	0.08	0.05	0.07	0.05	0.10	0.02	0.05	0.00	0.01		
11/02/2019	0.30	0.02	0.05	0.05	0.10	0.03	0.21	0.04	0.08	0.04	0.09	0.05	0.09	0.02	0.03	0.00	0.01		
12/02/2019	0.30	0.02	0.05	0.04	0.09	0.03	0.05	0.04	0.09	0.04	0.09	0.06	0.16	0.02	0.06	0.01	0.01		
13/02/2019	0.29	0.02	0.06	0.04	0.09	0.03	0.08	0.06	0.10	0.06	0.09	0.06	0.10	0.02	0.05	0.00	0.01		
14/02/2019	0.29	0.03	0.05	0.07	0.08	0.04	0.10	0.05	0.11	0.08	0.12	0.05	0.10	0.02	0.04	0.01	0.04		
15/02/2019	0.28	0.04	0.10	0.06	0.15	0.05	0.08	0.06	0.14	0.07	0.16	0.05	0.09	0.05	0.10	0.01	0.02		
16/02/2019	0.28	0.03	0.10	0.04	0.09	0.06	0.13	0.08	0.11	0.09	0.16	0.09	0.15	0.04	0.11	0.01	0.05		
17/02/2019	0.28	0.04	0.10	0.08	0.14	0.04	0.13	0.09	0.16	0.10	0.14	0.06	0.14	0.03	0.05	0.01	0.04		
18/02/2019	0.27	0.03	0.10	0.05	0.13	0.04	0.07	0.07	0.16	0.10	0.17	0.05	0.14	0.06	0.11	0.01	0.01		
19/02/2019	0.27	0.03	0.10	0.06	0.09	0.06	0.12	0.07	0.12	0.06	0.17	0.07	0.10	0.05	0.11	0.01	0.04		
20/02/2019	0.27	0.03	0.05	0.07	0.13	0.04	0.13	0.05	0.09	0.04	0.08	0.05	0.14	0.04	0.10	0.01	0.04		
21/02/2019	0.27	0.02	0.05	0.04	0.08	0.02	0.07	0.03	0.08	0.04	0.06	0.04	0.09	0.04	0.06	0.00	0.01		
22/02/2019	0.27	0.02	0.05	0.03	0.10	0.03	0.05	0.03	0.08	0.03	0.07	0.04	0.07	0.05	0.07	0.01	0.01		
23/02/2019	0.27	0.02	0.04	0.06	0.09	0.03	0.10	0.04	0.06	0.03	0.07	0.06	0.12	0.04	0.11	0.00	0.02		
24/02/2019	0.27	0.02	0.03	0.04	0.08	0.02	0.06	0.04	0.08	0.04	0.05	0.04	0.09	0.04	0.07	0.00	0.01		
25/02/2019	0.25	0.01	0.04	0.03	0.08	0.02	0.03	0.04	0.09	0.03	0.07	0.04	0.09	0.07	0.09	0.01	0.01		
26/02/2019	0.24	0.01	0.04	0.05	0.06	0.03	0.06	0.04	0.08	0.03	0.07	0.06	0.08	0.05	0.10	0.00	0.01		
27/02/2019	0.24	0.02	0.03	0.04	0.08	0.02	0.07	0.08	0.11	0.03	0.05	0.04	0.08	0.06	0.11	0.00	0.01		
28/02/2019	0.24	0.02	0.05	0.04	0.08	0.03	0.08	0.05	0.14	0.04	0.07	0.04	0.10	0.05	0.10	0.01	0.01		

Total Number of Measurements Taken, A: 12981 9022 12826 11516 13497 12351 12313 13200

Turbidity Standard for Monitoring Location (NTU): 0.3 0.3 0.3 0.3 0.3 0.3 0.3

Number of Measurements Meeting Standard, B: 12981 9022 12820 11516 13497 12351 12313 13

Compliance with Turbidity Standard, C = B/A X 100%: 100.000% 100.000% 99.953% 100.000% 100.000% 100.000% 100.000% 100.000% 100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\02-February

**Submitted By (Print):** D.Merredew

**Signature:** Original signed by D.Merredew



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**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-2019		0.35	0.22	OL	OL	0.07	0.06	0.08	0.04	0.07	0.05	OL	OL	0.07	0.07	0.08	0.04	0.07	<0.02	
02-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	
03-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	
04-Mar-2019		0.34	0.23	0.09	<0.02	OL	OL	0.12	0.06	0.11	0.06	0.08	0.03	OL	OL	0.08	0.02	0.07	<0.02	
05-Mar-2019		0.34	0.22	0.09	0.02	OL	OL	0.08	0.04	0.12	0.04	0.07	0.04	OL	OL	0.07	0.02	0.07	<0.02	
06-Mar-2019		0.34	0.21	0.09	<0.02	0.07	0.06	0.08	0.03	OL	OL	0.08	0.04	OL	OL	0.07	0.02	0.07	<0.02	
07-Mar-2019		0.34	0.20	0.06	<0.02	0.07	0.06	0.08	0.03	0.07	0.04	0.09	0.05	OL	OL	0.09	0.03	0.07	<0.02	
08-Mar-2019		0.33	0.23	0.07	<0.02	0.07	0.06	0.10	0.05	0.07	0.05	0.06	0.03	OL	OL	OL	OL	OL	OL	
09-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10	0.06	NA	NA	
10-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
11-Mar-2019		0.32	0.21	0.07	<0.02	0.08	0.06	0.09	0.04	0.08	0.04	OL	OL	0.08	0.04	OL	OL	0.08	<0.02	
12-Mar-2019		0.33	0.21	0.07	<0.02	0.08	0.06	OL	OL	0.08	0.05	0.06	0.03	0.10	0.05	0.07	<0.02	OL	OL	
13-Mar-2019		0.31	0.20	0.09	<0.02	OL	OL	0.09	0.04	0.11	0.06	0.08	0.04	OL	OL	0.08	<0.02	0.07	<0.02	
14-Mar-2019		0.33	0.21	OL	OL	0.10	0.07	0.12	0.07	OL	OL	0.13	0.07	0.23	0.04	0.22	0.02	0.09	<0.02	
15-Mar-2019		0.34	0.22	0.09	<0.02	0.09	0.07	0.14	0.08	0.09	0.05	0.20	0.03	0.11	0.05	OL	OL	OL	OL	
16-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	
17-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	OL	OL	
18-Mar-2019		0.30	0.19	0.11	0.03	0.08	0.06	0.10	0.08	OL	OL	0.19	0.03	0.23	0.04	0.24	<0.02	OL	OL	
19-Mar-2019		0.30	0.21	0.08	<0.02	0.08	0.06	0.11	0.09	0.08	0.05	OL	OL	0.22	0.04	0.19	0.02	0.10	<0.02	
20-Mar-2019		0.30	0.20	0.08	<0.02	0.09	0.06	0.13	0.12	0.17	0.05	0.26	0.03	0.21	0.04	OL	OL	0.10	<0.02	
21-Mar-2019		0.31	0.22	0.10	<0.02	0.09	0.07	OL	OL	0.15	0.05	0.08	0.04	OL	OL	0.08	0.02	0.08	<0.02	
22-Mar-2019		0.30	0.21	OL	OL	OL	OL	0.10	0.10	OL	OL	0.09	0.04	0.09	0.05	0.09	0.02	0.09	<0.02	
23-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
24-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
25-Mar-2019		0.31	0.22	0.07	<0.02	OL	OL	0.07	0.04	0.09	0.06	0.07	0.04	OL	OL	0.07	<0.02	0.07	<0.02	
26-Mar-2019		0.32	0.22	OL	OL	0.07	0.06	0.08	0.05	OL	OL	0.09	0.05	0.09	0.05	0.09	0.02	0.09	<0.02	
27-Mar-2019		0.34	0.22	0.06	<0.02	0.06	0.06	0.08	0.05	0.08	0.05	OL	OL	0.08	0.05	0.10	0.03	OL	OL	
28-Mar-2019		0.31	0.22	0.19	<0.02	0.22	0.07	OL	OL	0.24	0.05	0.08	0.03	OL	OL	0.08	<0.02	0.07	<0.02	
29-Mar-2019		0.32	0.23	OL	OL	0.12	0.06	0.09	0.05	OL	OL	0.07	0.04	0.08	0.04	0.07	<0.02	0.07	<0.02	
30-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
31-Mar-2019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Total number of measurements taken, A:</b>					16			18		15			17		13		17		16	
<b>Turbidity Standard for Monitoring Location (NTU):</b>					0.30			0.30		0.30			0.30		0.30		0.30		0.30	
<b>Number of measurements meeting standard, B:</b>					16			18		15			17		13		17		16	
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>					100%			100%		100%			100%		100%		100%		100%	

NS: No Sample    NA: Not Analyzed    OL: Off-Line

**Comments:**

Filter 6 was offline for inspection from March 1-8, 2019.

Filter 8 was offline for inspection from March 16-19, 2019.

Report Compiled By: \_\_\_\_\_ H.Demchenko \_\_\_\_\_

Authorized in Sample Manager 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 2019 Turbidity (NTU)

	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
Date	Avg	Avg	Max														
1/03/2019	0.24	0.02	0.05	0.04	0.06	0.04	0.09	0.03	0.09	0.03	0.07	0.05	0.08	0.03	0.06	0.01	0.01
2/03/2019	0.24	0.02	0.05	0.06	0.09	0.04	0.10	0.04	0.08	0.04	0.07	OL	OL	0.04	0.11	0.01	0.01
3/03/2019	0.24	0.02	0.03	0.05	0.10	0.04	0.11	0.05	0.10	0.04	0.07	OL	OL	0.03	0.07	0.01	0.01
4/03/2019	0.23	0.02	0.06	0.05	0.08	0.05	0.11	0.04	0.08	0.04	0.06	OL	OL	0.03	0.06	0.01	0.01
5/03/2019	0.23	0.02	0.05	0.05	0.08	0.03	0.07	0.04	0.08	0.04	0.07	OL	OL	0.03	0.04	0.01	0.01
6/03/2019	0.23	0.01	0.04	0.04	0.07	0.03	0.06	0.04	0.07	0.04	0.07	OL	OL	0.03	0.05	0.01	0.01
7/03/2019	0.23	0.01	0.04	0.04	0.07	0.03	0.05	0.04	0.07	0.04	0.07	OL	OL	0.03	0.05	0.01	0.01
8/03/2019	0.23	0.01	0.05	0.05	0.07	0.03	0.07	0.04	0.07	0.03	0.06	0.04	0.28	0.02	0.05	0.00	0.01
9/03/2019	0.23	0.02	0.03	0.03	0.08	0.03	0.07	0.04	0.08	0.03	0.05	0.02	0.06	0.02	0.03	0.00	0.01
10/03/2019	0.22	0.01	0.04	0.03	0.07	0.03	0.05	0.03	0.07	0.03	0.07	0.02	0.06	0.02	0.04	0.01	0.01
11/03/2019	0.22	0.01	0.04	0.05	0.06	0.03	0.07	0.03	0.07	0.03	0.07	0.04	0.06	0.02	0.04	0.00	0.01
12/03/2019	0.22	0.01	0.03	0.05	0.08	0.03	0.07	0.04	0.07	0.03	0.05	0.03	0.07	0.02	0.04	0.00	0.01
13/03/2019	0.22	0.02	0.04	0.04	0.08	0.03	0.10	0.04	0.08	0.04	0.07	0.02	0.07	0.02	0.03	0.01	0.01
14/03/2019	0.23	0.02	0.08	0.05	0.11	0.06	0.08	0.04	0.11	0.03	0.08	0.03	0.05	0.02	0.04	0.01	0.01
15/03/2019	0.24	0.02	0.09	0.06	0.09	0.05	0.12	0.04	0.07	0.03	0.08	0.04	0.07	0.02	0.04	0.00	0.01
16/03/2019	0.23	0.03	0.05	0.05	0.11	0.05	0.13	0.05	0.12	0.04	0.07	0.03	0.07	0.02	0.06	0.00	0.01
17/03/2019	0.23	0.03	0.08	0.06	0.11	0.06	0.14	0.05	0.10	0.04	0.06	0.03	0.08	0.02	0.05	OL	OL
18/03/2019	0.22	0.02	0.07	0.05	0.10	0.07	0.09	0.05	0.10	0.04	0.08	0.03	0.08	0.02	0.04	OL	OL
19/03/2019	0.23	0.02	0.07	0.04	0.08	0.08	0.14	0.03	0.09	0.03	0.08	0.03	0.05	0.02	0.05	0.00	0.01
20/03/2019	0.22	0.01	0.02	0.05	0.08	0.06	0.12	0.04	0.07	0.03	0.09	0.04	0.07	0.02	0.05	0.00	0.02
21/03/2019	0.22	0.02	0.05	0.04	0.07	0.06	0.13	0.04	0.08	0.04	0.06	0.03	0.09	0.02	0.06	0.01	0.01
22/03/2019	0.23	0.01	0.05	0.04	0.08	0.08	0.11	0.03	0.08	0.04	0.10	0.03	0.10	0.03	0.05	0.01	0.03
23/03/2019	0.23	0.01	0.05	0.04	0.06	0.07	0.16	0.03	0.07	0.03	0.09	0.05	0.07	0.02	0.06	0.00	0.03
24/03/2019	0.23	0.01	0.02	0.05	0.08	0.03	0.08	0.05	0.07	0.03	0.09	0.04	0.10	0.02	0.06	0.00	0.03
25/03/2019	0.23	0.01	0.05	0.04	0.07	0.03	0.08	0.03	0.08	0.04	0.09	0.03	0.10	0.02	0.05	0.01	0.01
26/03/2019	0.24	0.01	0.05	0.04	0.07	0.04	0.06	0.03	0.07	0.03	0.09	0.03	0.10	0.03	0.06	0.01	0.03
27/03/2019	0.24	0.01	0.05	0.04	0.06	0.04	0.08	0.03	0.09	0.03	0.09	0.04	0.09	0.02	0.06	0.00	0.02
28/03/2019	0.25	0.01	0.04	0.03	0.08	0.02	0.08	0.03	0.08	0.03	0.06	0.02	0.07	0.01	0.05	0.00	0.01
29/03/2019	0.25	0.02	0.09	0.04	0.10	0.04	0.07	0.04	0.10	0.04	0.07	0.03	0.10	0.02	0.03	0.01	0.01
30/03/2019	0.26	0.02	0.08	0.05	0.08	0.06	0.12	0.04	0.11	0.04	0.09	0.05	0.09	0.02	0.06	0.00	0.03
31/03/2019	0.27	0.02	0.04	0.06	0.12	0.05	0.13	0.06	0.11	0.03	0.09	0.04	0.11	0.02	0.06	0.00	0.03

Total Number of Measurements Taken, A: 14468      11258      14743      12534      15117      10924      13910      13356  
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: 14468      11258      14743      12534      15117      10924      13910      13356  
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\2019\03-March

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

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-Apr-2019	0.40	0.26	0.10	0.03	OL	OL	0.11	0.06	0.15	0.09	0.10	0.04	OL	OL	0.11	0.02	0.11	<0.02
02-Apr-2019	0.37	0.28	OL	OL	0.09	0.07	0.11	0.06	OL	OL	0.11	0.06	0.09	0.05	0.09	0.02	0.10	<0.02
03-Apr-2019	0.38	0.34	0.07	0.02	0.08	0.07	0.11	0.06	0.08	0.03	OL	OL	0.08	0.06	0.10	0.06	OL	OL
04-Apr-2019	0.40	0.36	0.09	0.03	0.10	0.09	OL	OL	0.11	0.05	0.08	0.04	0.13	0.09	OL	OL	0.08	<0.02
05-Apr-2019	NR	0.37	NR	0.04	OL	OL	NR	0.05	NR	0.08	NR	0.05	OL	OL	NR	0.04	NR	<0.02
06-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08-Apr-2019	NR	0.50	NR	0.03	NR	0.09	NR	OL	NR	0.04	NR	0.04	NR	0.10	OL	OL	NR	<0.02
09-Apr-2019	0.42	0.50	0.11	0.05	OL	OL	0.10	0.05	OL	OL	0.10	0.06	0.09	0.05	0.09	0.04	0.10	<0.02
10-Apr-2019	0.48	0.54	OL	OL	0.08	0.08	0.10	0.06	0.08	0.03	OL	OL	0.10	0.06	0.10	0.06	0.13	0.03
11-Apr-2019	0.55	0.53	0.08	0.03	0.09	0.09	OL	OL	0.09	0.04	0.07	0.04	0.11	0.07	OL	OL	0.07	<0.02
12-Apr-2019	0.53	0.56	0.09	0.03	OL	OL	0.11	0.05	0.12	0.06	0.08	0.05	OL	OL	0.08	0.03	0.09	<0.02
13-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15-Apr-2019	0.60	0.60	0.09	0.03	0.09	0.09	OL	OL	0.10	0.05	0.08	0.04	0.11	0.07	OL	OL	0.08	<0.02
16-Apr-2019	0.56	0.61	0.10	0.03	OL	OL	0.09	0.05	0.12	0.06	0.16	0.05	OL	OL	0.12	0.04	0.09	<0.02
17-Apr-2019	0.56	0.60	OL	OL	0.08	0.03	0.09	0.05	0.08	0.02	OL	OL	0.09	0.04	0.09	0.04	0.09	<0.02
18-Apr-2019	0.53	0.60	0.12	0.02	0.10	0.04	0.16	0.10	0.12	0.04	0.09	<0.02	0.12	0.07	0.13	0.07	0.13	0.04
19-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23-Apr-2019	0.58	0.56	0.08	0.03	0.10	0.05	OL	OL	0.11	0.04	0.09	<0.02	0.16	0.07	0.07	0.03	0.08	0.04
24-Apr-2019	0.51	0.56	OL	OL	0.07	0.03	0.10	0.06	OL	OL	0.10	0.02	0.08	0.04	0.10	0.04	0.09	0.04
25-Apr-2019	0.56	0.56	0.10	<0.02	0.08	0.03	0.10	0.07	0.08	0.03	0.09	<0.02	0.11	0.06	OL	OL	OL	OL
26-Apr-2019	0.56	0.59	0.08	0.03	OL	OL	0.08	0.06	0.10	0.04	0.07	<0.02	OL	OL	0.06	0.03	0.07	0.03
27-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28-Apr-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29-Apr-2019	0.52	0.59	0.08	0.02	0.09	0.03	OL	OL	0.09	0.03	0.08	<0.02	0.09	0.05	OL	OL	0.08	0.03
30-Apr-2019	0.50	0.60	0.09	0.02	OL	OL	0.09	0.06	0.12	0.06	0.08	0.02	OL	OL	0.08	0.04	0.07	0.03
Total number of measurements taken, A:			14		12		13		15		15		13		13		16	
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:			14		12		13		15		15		13		13		16	
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

**Comments:**

No result on April 5 and 8, 2019 due to sample bottle contamination.

Report Compiled By: H.Demchenko

Authorized By: C.Diduck

Date Compiled: 6-May-19



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

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

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

April 2019 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												
1/04/2019	0.28	0.03	0.09	0.05	0.11	0.05	0.14	0.05	0.13	0.05	0.09	0.03	0.10	0.02	0.03	0.01	0.01	
2/04/2019	0.32	0.03	0.08	0.06	5.00	0.05	0.08	0.04	0.10	0.04	0.09	0.03	0.08	0.04	0.06	0.01	0.03	
3/04/2019	0.37	0.03	0.09	0.06	0.10	0.05	0.13	0.02	0.11	0.04	0.10	0.05	0.12	0.03	0.08	0.00	0.01	
4/04/2019	0.40	0.04	0.06	0.07	0.13	0.04	0.13	0.04	0.09	0.04	0.10	0.04	0.12	0.03	0.09	0.00	0.01	
5/04/2019	0.42	0.04	0.10	0.06	0.14	0.04	0.14	0.03	0.11	0.06	0.09	0.04	0.12	0.03	0.06	0.01	0.01	
6/04/2019	0.47	0.03	0.10	0.05	0.13	0.05	0.07	0.03	0.11	0.04	0.11	0.03	0.06	0.05	0.09	0.01	0.02	
7/04/2019	0.50	0.02	0.09	0.09	0.10	0.05	0.13	0.13	0.06	0.04	0.11	0.06	0.13	0.04	0.10	0.00	0.02	
8/04/2019	0.52	0.04	0.06	0.06	0.13	0.04	0.13	0.04	0.10	0.04	0.07	0.04	0.12	0.04	0.09	0.00	0.02	
9/04/2019	0.54	0.03	0.09	0.05	0.13	0.04	0.07	0.03	0.09	0.05	0.11	0.04	0.12	0.04	0.07	0.01	0.01	
10/04/2019	0.56	0.03	0.09	0.05	0.08	0.06	0.12	0.02	0.09	0.04	0.11	0.05	0.08	0.04	0.09	0.00	0.03	
11/04/2019	0.57	0.03	0.05	0.07	0.13	0.04	0.13	0.04	0.07	0.03	0.10	0.04	0.11	0.04	0.09	0.00	0.01	
12/04/2019	0.58	0.04	0.09	0.05	0.12	0.04	0.12	0.03	0.10	0.05	0.08	0.04	0.11	0.03	0.09	0.01	0.01	
13/04/2019	0.60	0.03	0.08	0.05	0.12	0.04	0.06	0.02	0.08	0.04	0.10	0.03	0.11	0.05	0.07	0.01	0.02	
14/04/2019	0.62	0.03	0.08	0.06	0.08	0.05	0.11	0.02	0.08	0.04	0.09	0.05	0.08	0.04	0.08	0.00	0.02	
15/04/2019	0.62	0.03	0.05	0.07	0.11	0.04	0.11	0.04	0.07	0.03	0.10	0.04	0.10	0.04	0.09	0.00	0.03	
16/04/2019	0.62	0.04	0.09	0.04	0.12	0.04	0.12	0.03	0.09	0.06	0.09	0.03	0.11	0.04	0.06	0.01	0.01	
17/04/2019	0.85	0.02	0.11	0.03	0.23	0.05	0.28	0.02	0.23	0.01	0.05	0.03	0.07	0.04	0.09	0.02	0.10	
18/04/2019	0.62	0.03	0.06	0.03	0.08	0.05	0.13	0.04	0.09	0.00	0.01	0.04	0.11	0.04	0.09	0.04	0.11	
19/04/2019	0.62	0.04	0.10	0.03	0.09	0.05	0.13	0.03	0.10	0.01	0.01	0.03	0.10	0.04	0.23	0.04	0.07	
20/04/2019	0.61	0.03	0.08	0.02	0.08	0.04	0.07	0.03	0.08	0.01	0.02	0.03	0.10	0.05	0.07	0.05	0.11	
21/04/2019	0.59	0.03	0.09	0.02	0.05	0.06	0.14	0.02	0.08	0.00	0.02	0.04	0.06	0.04	0.09	0.04	0.10	
22/04/2019	0.59	0.03	0.05	0.03	0.07	0.05	0.12	0.03	0.05	0.00	0.02	0.04	0.09	0.04	0.08	0.04	0.10	
23/04/2019	0.59	0.04	0.09	0.02	0.07	0.04	0.13	0.03	0.08	0.01	0.01	0.03	0.10	0.03	0.09	0.04	0.06	
24/04/2019	0.59	0.02	0.07	0.02	0.06	0.05	0.07	0.02	0.08	0.00	0.02	0.03	0.04	0.05	0.07	0.04	0.10	
25/04/2019	0.60	0.02	0.04	0.02	0.05	0.05	0.12	0.02	0.05	0.00	0.03	0.04	0.09	0.03	0.11	0.03	0.11	
26/04/2019	0.61	0.03	0.07	0.02	0.06	0.04	0.11	0.02	0.08	0.01	0.01	0.02	0.07	0.03	0.07	0.03	0.05	
27/04/2019	0.59	0.02	0.07	0.02	0.06	0.05	0.07	0.02	0.08	0.00	0.02	0.02	0.04	0.05	0.06	0.04	0.08	
28/04/2019	0.59	0.02	0.06	0.02	0.04	0.06	0.11	0.02	0.04	0.00	0.02	0.03	0.06	0.03	0.08	0.03	0.08	
29/04/2019	0.61	0.03	0.05	0.02	0.06	0.05	0.11	0.03	0.07	0.00	0.01	0.02	0.07	0.03	0.08	0.03	0.08	
30/04/2019	0.61	0.03	0.07	0.02	0.06	0.04	0.12	0.02	0.08	0.01	0.02	0.02	0.07	0.04	0.05	0.04	0.05	

Total Number of Measurements Taken, A: 13510 10566 13505 11325 14148 12724 12646 14052  
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: 13510 10565 13505 11325 14148 12724 12646 14052  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000% 99.991% 100.000% 100.000% 100.000% 100.000% 100.000% 100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\04-April

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT**

Water System Code: 252.00	Turbidity (NTU)																	
	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-May-2019	0.61	0.61	OL	OL	0.08	0.03	0.08	0.07	OL	OL	0.09	0.05	0.07	0.04	0.07	0.05	0.10	0.04
02-May-2019	0.51	0.57	0.11	0.02	0.08	0.03	0.12	0.08	0.09	0.02	OL	OL	0.07	0.04	0.09	0.06	OL	OL
03-May-2019	0.53	0.64	0.07	0.03	0.10	0.04	OL	OL	0.09	0.05	0.07	0.03	OL	OL	0.06	0.04	0.06	0.03
04-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06-May-2019	0.60	0.70	0.07	0.02	0.08	0.03	OL	OL	0.08	0.04	0.06	0.07	0.08	0.06	OL	OL	0.06	0.03
07-May-2019	0.59	0.76	0.08	0.03	OL	OL	0.08	0.09	0.11	0.08	0.08	0.09	0.06	0.05	0.07	0.06	0.07	0.04
08-May-2019	0.56	0.70	OL	OL	0.08	0.03	0.10	0.10	0.08	0.03	OL	OL	0.09	0.06	0.09	0.07	0.08	0.05
09-May-2019	0.58	0.76	0.08	0.02	0.08	0.03	0.11	0.12	0.07	0.04	0.06	0.10	0.07	0.08	OL	OL	OL	OL
10-May-2019	0.63	0.78	0.07	0.03	0.09	0.05	OL	OL	0.08	0.06	0.06	0.13	OL	OL	0.06	0.06	0.07	0.04
11-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13-May-2019	0.75	0.79	0.08	0.03	0.09	0.04	OL	OL	0.09	0.08	0.06	<0.02	0.09	0.15	OL	OL	0.08	0.04
14-May-2019	1.05	1.55	0.11	0.03	OL	OL	0.09	0.08	0.12	0.11	0.07	<0.02	OL	OL	0.08	0.09	0.11	0.04
15-May-2019	0.63	1.09	OL	OL	0.06	0.03	0.09	0.09	OL	OL	0.09	<0.02	0.11	0.17	0.07	0.10	0.08	0.05
16-May-2019	1.10	1.12	0.08	0.03	0.10	0.03	OL	OL	0.08	0.02	OL	OL	0.09	0.03	0.10	0.02	0.11	0.04
17-May-2019	0.68	0.89	0.10	0.05	0.11	0.07	0.10	0.11	0.11	0.03	0.07	0.02	0.10	0.04	OL	OL	OL	OL
18-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21-May-2019	0.86	0.64	0.12	0.06	OL	OL	0.11	0.11	0.14	0.07	0.13	0.06	OL	OL	0.09	<0.02	0.07	0.02
22-May-2019	0.71	0.49	0.13	0.08	0.10	0.05	0.13	0.13	0.09	0.03	0.10	0.09	0.09	0.02	0.07	<0.02	0.07	0.03
23-May-2019	0.85	0.86	0.09	0.04	0.10	0.05	OL	OL	0.13	0.02	0.06	0.07	0.09	0.04	0.09	0.02	OL	OL
24-May-2019	0.80	0.45	0.15	0.05	0.12	0.08	0.11	0.11	0.10	0.03	0.10	0.10	0.10	0.06	OL	OL	0.12	0.03
25-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26-May-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27-May-2019	0.89	0.90	0.18	0.05	0.14	0.07	OL	OL	0.15	0.04	OL	OL	0.11	0.11	0.08	<0.02	0.13	0.04
28-May-2019	0.97	1.05	0.07	0.05	0.08	0.06	0.07	0.10	0.09	0.03	0.09	0.02	OL	OL	0.17	0.06	0.09	0.04
29-May-2019	1.05	1.24	0.16	0.12	OL	OL	0.11	0.13	OL	OL	0.12	0.05	0.10	0.02	0.10	0.02	0.10	0.06
30-May-2019	1.03	1.28	OL	OL	0.08	0.04	0.08	0.11	OL	OL	0.09	0.03	0.14	<0.02	0.07	<0.02	0.08	0.03
31-May-2019	0.91	1.26	0.09	0.09	0.11	0.05	OL	OL	0.10	0.06	OL	OL	0.09	0.02	0.13	0.02	0.11	0.07
Total number of measurements taken, A:			18		18		14		18		17		17		17		18	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			18		18		14		18		17		17		17		18	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

NS: No Sample NA: Not Analyzed OL: Off-Line

Comments:

Report Compiled By: H.Demchenko

Authorized in Sample Manager By: C.Diduck

Date Authorized: 6-Jun-19



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

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

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

**May 2019 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
1/05/2019	0.62	0.03	0.07		0.02	0.07	0.07	0.09	0.02	0.09	0.01	0.04	0.02	0.04	0.05	0.08	0.03	0.07
2/05/2019	0.63	0.02	0.08		0.03	0.05	0.06	0.13	0.02	0.04	0.01	0.04	0.03	0.08	0.04	0.08	0.03	0.08
3/05/2019	0.67	0.04	0.06		0.02	0.07	0.06	0.14	0.03	0.08	0.01	0.03	0.02	0.07	0.04	0.09	0.03	0.05
4/05/2019	0.72	0.03	0.08		0.02	0.07	0.06	0.09	0.02	0.09	0.03	0.06	0.02	0.08	0.05	0.07	0.04	0.08
5/05/2019	0.73	0.02	0.08		0.02	0.04	0.08	0.13	0.02	0.04	0.03	0.07	0.04	0.06	0.05	0.10	0.03	0.08
6/05/2019	0.74	0.03	0.05		0.02	0.05	0.06	0.12	0.03	0.09	0.03	0.05	0.03	0.07	0.04	0.12	0.03	0.08
7/05/2019	0.76	0.03	0.07		0.02	0.06	0.06	0.14	0.03	0.12	0.06	0.11	0.03	0.10	0.05	0.07	0.04	0.06
8/05/2019	0.75	0.02	0.07		0.02	0.03	0.10	0.12	0.02	0.10	0.06	0.11	0.05	0.07	0.06	0.12	0.03	0.08
9/05/2019	0.78	0.02	0.04		0.03	0.06	0.08	0.16	0.04	0.07	0.06	0.14	0.06	0.11	0.05	0.13	0.03	0.08
10/05/2019	0.81	0.04	0.08		0.02	0.07	0.09	0.18	0.04	0.11	0.10	0.13	0.06	0.13	0.05	0.12	0.03	0.05
11/05/2019	0.84	0.03	0.09		0.02	0.07	0.08	0.14	0.04	0.13	0.03	0.16	0.06	0.15	0.07	0.09	0.05	0.08
12/05/2019	0.86	0.03	0.10		0.02	0.04	0.08	0.15	0.04	0.14	0.00	0.01	0.10	0.12	0.07	0.14	0.03	0.09
13/05/2019	0.82	0.04	0.22		0.04	0.12	0.07	0.23	0.08	0.30	0.00	0.01	0.10	0.17	0.06	0.15	0.03	0.09
14/05/2019	1.08	0.04	0.11		0.02	0.11	0.05	0.12	0.07	0.18	0.01	0.01	0.10	0.21	0.08	0.15	0.04	0.06
15/05/2019	0.87	0.03	0.08		0.02	0.08	0.07	0.14	0.07	0.18	0.00	0.01	0.12	0.18	0.10	0.12	0.05	0.08
16/05/2019	1.01	0.04	0.14		0.03	0.06	0.08	0.16	0.05	0.13	0.02	0.06	0.07	0.26	0.05	0.20	0.03	0.11
17/05/2019	0.94	0.05	0.08		0.04	0.13	0.07	0.21	0.03	0.08	0.01	0.03	0.01	0.08	0.01	0.10	0.02	0.09
18/05/2019	0.96	0.05	0.12		0.03	0.13	0.10	0.13	0.02	0.16	0.03	0.06	0.01	0.06	0.01	0.06	0.02	0.04
19/05/2019	1.00	0.04	0.13		0.03	0.06	0.09	0.20	0.02	0.14	0.03	0.08	0.01	0.03	0.01	0.03	0.03	0.07
20/05/2019	0.94	0.05	0.07		0.05	0.13	0.07	0.20	0.03	0.06	0.02	0.04	0.02	0.07	0.01	0.07	0.02	0.08
21/05/2019	0.80	0.05	0.13		0.04	0.12	0.11	0.14	0.02	0.15	0.05	0.09	0.02	0.07	0.01	0.07	0.02	0.05
22/05/2019	0.66	0.04	0.14		0.03	0.13	0.09	0.20	0.02	0.14	0.05	0.11	0.02	0.03	0.01	0.03	0.03	0.08
23/05/2019	0.77	0.04	0.14		0.05	0.07	0.08	0.21	0.02	0.04	0.05	0.13	0.03	0.08	0.01	0.07	0.03	0.09
24/05/2019	0.87	0.07	0.10		0.04	0.13	0.08	0.21	0.03	0.14	0.08	0.12	0.03	0.10	0.01	0.09	0.03	0.09
25/05/2019	1.00	0.05	0.13		0.04	0.12	0.11	0.14	0.02	0.12	0.10	0.15	0.04	0.12	0.01	0.06	0.03	0.05
26/05/2019	1.01	0.05	0.13		0.03	0.11	0.09	0.20	0.02	0.12	0.09	0.19	0.06	0.08	0.01	0.03	0.03	0.08
27/05/2019	1.02	0.04	0.10		0.05	0.07	0.09	0.20	0.02	0.04	0.07	0.14	0.06	0.14	0.02	0.06	0.03	0.08
28/05/2019	1.16	0.06	0.13		0.04	0.13	0.06	0.17	0.05	0.15	0.02	0.10	0.01	0.12	0.02	0.15	0.03	0.16
29/05/2019	1.18	0.06	0.15		0.05	0.13	0.12	0.23	0.05	0.18	0.03	0.14	0.01	0.10	0.02	0.12	0.05	0.08
30/05/2019	1.13	0.06	0.12		0.04	0.16	0.08	0.22	0.04	0.15	0.02	0.10	0.00	0.03	0.02	0.07	0.04	0.15
31/05/2019	1.15	0.07	0.14		0.04	0.07	0.08	0.18	0.04	0.31	0.01	0.07	0.01	0.10	0.02	0.13	0.04	0.13

Total Number of Measurements Taken, A: 13574      12123      14089      12412      13652      13143      13465      14574  
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: 13574      12123      14089      12411      13652      13143      13465      14574  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      100.000%      99.992%      100.000%      100.000%      100.000%      100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\05-May

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



Water and Waste  
Eaux et déchets

CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03-Jun-2019	0.64	0.86	0.11	0.09	0.09	0.06	0.10	0.16	OL	OL	0.10	0.02	0.12	0.03	0.14	0.06	OL	OL
04-Jun-2019	0.86	0.94	0.13	0.09	0.09	0.06	0.08	0.19	0.16	0.09	0.12	0.02	OL	OL	0.08	<0.02	0.10	0.04
05-Jun-2019	0.87	1.13	OL	OL	0.12	0.05	0.10	0.10	0.10	0.06	0.13	0.03	0.07	<0.02	0.09	<0.02	0.08	0.04
06-Jun-2019	0.86	1.33	0.08	0.08	0.07	0.04	0.10	0.12	0.12	0.09	OL	OL	0.11	<0.02	0.12	<0.02	0.09	0.04
07-Jun-2019	0.93	1.34	0.08	0.09	0.08	0.05	OL	OL	0.07	0.06	0.07	0.02	0.09	<0.02	0.12	0.02	0.11	0.06
08-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10-Jun-2019	0.79	1.90	OL	OL	0.08	0.05	0.10	0.13	0.10	0.09	0.12	0.05	0.10	<0.02	0.11	0.02	0.10	0.05
11-Jun-2019	0.69	2.32	0.09	0.09	0.09	0.06	0.19	0.19	0.09	0.06	0.11	0.04	0.12	0.03	0.12	0.03	OL	OL
12-Jun-2019	0.74	2.80	0.11	0.08	0.08	0.04	0.08	0.09	0.08	0.08	0.08	0.03	0.12	0.02	OL	OL	OL	OL
13-Jun-2019	0.76	2.62	OL	OL	OL	OL	0.13	0.13	0.12	0.12	0.13	0.05	0.11	0.02	0.12	0.03	0.13	0.06
14-Jun-2019	0.82	0.92	0.09	0.09	0.09	0.05	0.16	0.14	0.15	0.12	OL	OL	0.11	0.02	0.12	0.03	0.13	0.06
15-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17-Jun-2019	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
18-Jun-2019	0.83	1.05	0.09	0.08	OL	OL	0.16	0.16	OL	OL	0.11	0.06	0.12	<0.02	0.11	0.03	0.14	0.07
19-Jun-2019	0.90	1.00	0.10	0.08	0.09	0.05	OL	OL	0.10	0.06	0.12	0.07	0.11	0.02	0.12	0.04	OL	OL
20-Jun-2019	0.95	1.11	0.11	0.09	0.10	0.06	0.11	0.12	0.15	0.08	OL	OL	0.15	0.06	OL	OL	0.10	0.05
21-Jun-2019	0.93	1.18	OL	OL	0.11	0.07	0.10	0.12	0.11	0.07	0.11	0.04	OL	OL	0.11	0.02	0.10	0.04
22-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24-Jun-2019	1.12	2.48	0.09	0.07	0.09	0.05	OL	OL	OL	OL	0.13	0.06	0.13	0.03	0.11	0.05	0.14	0.07
25-Jun-2019	1.02	3.02	0.11	0.08	0.11	0.07	0.10	0.13	OL	OL	OL	OL	0.13	0.05	0.13	0.07	0.10	0.05
26-Jun-2019	1.01	2.33	0.11	0.08	0.11	0.07	0.11	0.14	0.11	0.07	OL	OL	0.18	0.11	OL	OL	0.13	0.02
27-Jun-2019	1.09	2.02	0.12	0.09	OL	OL	0.13	0.07	0.11	0.07	0.12	0.05	OL	OL	0.11	0.05	0.16	0.07
28-Jun-2019	1.15	0.51	OL	OL	0.09	0.06	OL	OL	0.11	0.06	0.10	0.03	0.11	0.06	0.12	0.05	0.14	0.08
29-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Jun-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Total number of measurements taken, A:</b>				14		16		15		15		14		16		16		15
<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>				14		16		15		15		14		16		16		15
<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

**Comments:**

WTP offline for scheduled maintenance on June 17 from 8:00 am to 4:30 pm.

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

Report Compiled By: H.Demchenko

Authorized in Sample Manager By: 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**

June 2019 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/06/2019	1.00	0.07	0.14		0.05	0.11	0.09	0.23	0.05	0.16	0.01	0.06	0.01	0.08	0.02	0.10	0.04	0.13
2/06/2019	0.98	0.08	0.14		0.04	0.11	0.12	0.23	OL	OL	0.01	0.05	0.01	0.07	0.02	0.07	0.05	0.10
3/06/2019	0.95	0.08	0.13		0.04	0.10	0.13	0.24	0.01	0.12	0.01	0.05	0.01	0.07	0.02	0.08	0.05	0.11
4/06/2019	1.04	0.07	0.13		0.04	0.09	0.13	0.20	0.05	0.09	0.02	0.04	0.01	0.06	0.02	0.07	0.04	0.11
5/06/2019	1.13	0.07	0.13		0.04	0.10	0.10	0.13	0.06	0.11	0.02	0.05	0.01	0.05	0.01	0.07	0.04	0.06
6/06/2019	1.25	0.07	0.12		0.04	0.09	0.10	0.17	0.05	0.11	0.02	0.05	0.00	0.05	0.02	0.04	0.05	0.10
7/06/2019	1.37	0.07	0.12		0.04	0.06	0.10	0.18	0.06	0.12	0.02	0.06	0.01	0.04	0.02	0.08	0.05	0.11
8/06/2019	1.61	0.08	0.10		0.05	0.10	0.11	0.19	0.06	0.13	0.02	0.04	0.01	0.06	0.03	0.08	0.05	0.12
9/06/2019	1.80	0.07	0.13		0.05	0.10	0.10	0.13	0.08	0.09	0.03	0.06	0.01	0.07	0.02	0.08	0.05	0.13
10/06/2019	2.07	0.07	0.14		0.04	0.20	0.13	0.18	0.08	0.15	0.03	0.07	0.01	0.08	0.03	0.05	0.06	0.09
11/06/2019	2.41	0.07	0.09		0.04	0.19	0.09	0.23	0.07	0.19	0.03	0.09	0.02	0.04	0.04	0.10	0.06	0.14
12/06/2019	2.67	0.07	0.15		0.04	0.17	0.06	0.20	0.06	0.24	0.03	0.23	0.01	0.09	0.04	0.17	0.04	0.27
13/06/2019	2.66	0.06	0.15		0.04	0.15	0.11	0.15	0.11	0.20	0.03	0.09	0.01	0.11	0.03	0.13	0.05	0.08
14/06/2019	1.91	0.07	0.16		0.04	0.12	0.09	0.21	0.06	0.17	0.03	0.11	0.01	0.08	0.03	0.07	0.06	0.17
15/06/2019	0.99	0.08	0.11		0.04	0.20	0.10	0.20	0.06	0.16	0.03	0.28	0.02	0.09	0.04	0.13	0.05	0.15
16/06/2019	1.10	0.08	0.15		0.04	0.07	0.10	0.21	0.05	0.17	0.04	0.11	0.02	0.11	0.04	0.14	0.05	0.17
17/06/2019	1.18	0.03	0.15		0.03	0.12	0.07	0.20	0.04	0.20	0.02	0.16	0.01	0.16	0.01	0.14	0.03	0.16
18/06/2019	1.08	0.06	0.14		0.04	0.11	0.09	0.21	0.05	0.16	0.04	0.13	0.01	0.03	0.04	0.10	0.05	0.14
19/06/2019	1.07	0.07	0.10		0.03	0.06	0.09	0.20	0.05	0.15	0.03	0.10	0.01	0.09	0.03	0.12	0.04	0.13
20/06/2019	1.16	0.06	0.14		0.05	0.10	0.09	0.18	0.06	0.09	0.03	0.10	0.01	0.08	0.03	0.12	0.04	0.13
21/06/2019	1.35	0.05	0.14		0.04	0.10	0.12	0.20	0.06	0.15	0.03	0.10	0.01	0.09	0.03	0.12	0.04	0.07
22/06/2019	1.85	0.05	0.14		0.03	0.13	0.11	0.21	0.06	0.17	0.04	0.07	0.02	0.11	0.03	0.06	0.06	0.16
23/06/2019	1.81	0.07	0.12		0.04	0.09	0.10	0.18	0.02	0.07	0.04	0.11	0.02	0.11	0.05	0.13	0.05	0.16
24/06/2019	2.98	0.06	0.09		0.04	0.10	0.10	0.21	OL	OL	0.04	0.10	0.03	0.06	0.05	0.11	0.06	0.13
25/06/2019	3.18	0.07	0.24		0.05	0.09	0.10	0.22	0.03	0.15	0.04	0.10	0.03	0.06	0.06	0.09	0.05	0.16
26/06/2019	2.27	0.07	0.13		0.04	0.12	0.13	0.17	0.06	0.17	0.04	0.11	0.04	0.18	0.04	0.17	0.05	0.09
27/06/2019	1.43	0.05	0.14		0.04	0.12	0.07	0.23	0.06	0.11	0.03	0.10	0.04	0.14	0.04	0.13	0.08	0.18
28/06/2019	0.78	0.05	0.13		0.04	0.11	0.02	0.11	0.05	0.14	0.03	0.07	0.05	0.14	0.05	0.08	0.06	0.16
29/06/2019	0.94	0.05	0.13		0.04	0.12	0.02	0.10	0.04	0.12	0.03	0.10	0.05	0.08	0.06	0.14	0.06	0.16
30/06/2019	0.90	0.04	0.11		0.05	0.07	0.02	0.10	0.05	0.14	0.03	0.12	0.06	0.14	0.06	0.15	0.05	0.15

Total Number of Measurements Taken, A: 10857      12361      13874      11127      13072      12547      13651      14601  
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: 10857      12361      13874      11127      13072      12547      13651      14601  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      100.000%      100.000%      100.000%      100.000%      100.000%      100.000%  
OL - Off Line

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\06-June

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



Water and Waste  
Eaux et déchets

CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
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-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02-Jul-2019	1.05	0.90	0.12	0.07	0.14	0.09	0.12	0.06	0.16	0.07	0.13	0.05	OL	OL	OL	OL	0.15	0.08
03-Jul-2019	0.92	0.97	OL	OL	OL	OL	0.13	0.07	0.16	0.06	0.09	0.03	0.10	0.05	0.10	0.05	0.12	0.07
04-Jul-2019	1.10	0.96	0.16	0.08	0.09	0.06	OL	OL	0.11	0.07	0.11	0.04	0.13	0.06	0.14	0.06	0.15	0.09
05-Jul-2019	1.08	0.91	0.09	0.06	0.09	0.06	0.18	0.08	0.14	0.08	0.13	0.05	0.14	0.08	0.14	0.06	OL	OL
06-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08-Jul-2019	1.15	0.99	0.09	0.07	0.10	0.09	0.09	0.05	0.09	0.09	0.10	0.05	OL	OL	0.17	0.10	0.13	0.09
09-Jul-2019	1.14	1.05	0.12	0.09	OL	OL	0.12	0.06	0.11	0.07	0.12	0.05	OL	OL	0.13	0.06	0.14	0.09
10-Jul-2019	1.13	0.98	OL	OL	OL	OL	0.12	0.06	0.12	0.06	0.09	0.03	0.12	0.06	0.11	0.06	0.13	0.08
11-Jul-2019	1.07	1.10	OL	OL	0.08	0.09	OL	OL	0.12	0.07	0.10	0.03	0.11	0.06	0.11	0.06	0.12	0.07
12-Jul-2019	1.03	1.07	0.09	0.07	0.09	0.10	OL	OL	OL	OL	0.16	0.04	0.13	0.06	0.13	0.06	0.15	0.09
13-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15-Jul-2019	1.32	1.19	OL	OL	OL	OL	0.13	0.07	0.11	0.09	0.10	0.04	0.10	0.05	0.10	0.05	0.13	0.05
16-Jul-2019	1.25	8.36	0.09	0.08	0.09	0.15	OL	OL	OL	OL	0.11	0.04	0.11	0.06	0.11	0.06	0.12	0.07
17-Jul-2019	1.38	1.16	0.10	0.08	0.11	0.16	0.11	0.05	0.09	0.08	OL	OL	0.15	0.07	OL	OL	0.12	0.05
18-Jul-2019	1.27	1.16	0.13	0.11	OL	OL	0.14	0.07	0.12	0.11	0.14	0.05	OL	OL	0.15	0.08	0.13	0.06
19-Jul-2019	1.23	1.20	OL	OL	0.12	0.06	OL	OL	0.17	0.16	0.15	0.08	0.13	0.08	0.14	0.10	0.15	0.08
20-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22-Jul-2019	1.25	1.25	0.16	0.18	OL	OL	0.16	0.09	0.14	0.17	0.13	0.10	OL	OL	0.13	0.13	0.14	0.08
23-Jul-2019	1.64	1.34	OL	OL	0.12	0.09	OL	OL	0.18	0.11	0.14	0.07	0.13	0.08	0.14	0.08	0.16	0.09
24-Jul-2019	1.40	1.36	0.12	0.13	0.12	0.10	OL	OL	OL	OL	0.14	0.09	0.13	0.08	0.13	0.07	0.17	0.11
25-Jul-2019	1.65	7.23	0.14	0.20	0.15	0.15	0.16	0.09	0.15	0.08	OL	OL	0.14	0.09	0.14	0.10	OL	OL
26-Jul-2019	1.50	1.36	0.13	0.09	0.14	0.15	0.14	0.08	0.13	0.07	0.12	0.10	0.16	0.10	OL	OL	0.12	0.08
27-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28-Jul-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29-Jul-2019	1.87	1.33	0.10	0.10	0.11	0.19	0.11	0.07	OL	OL	0.11	0.19	0.11	0.09	0.11	0.18	OL	OL
30-Jul-2019	1.58	0.87	0.12	0.12	0.13	0.17	0.13	0.09	0.13	0.07	OL	OL	0.16	0.11	0.17	0.13	0.13	0.10
31-Jul-2019	1.37	1.00	0.16	0.15	OL	OL	0.28	0.11	0.14	0.09	0.15	0.09	OL	OL	0.13	0.13	0.14	0.11

NS: No Sample NA: Not Analyzed OL: Off-Line

**Comments:**

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

Report Compiled By: H.Demchenko

Authorized in Sample Manager By: 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**

July 2019 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
1/07/2019	1.07	0.07	0.15	0.06	0.12	0.03	0.05	0.06	0.12	0.02	0.13	0.05	0.13	0.06	0.14	0.06	0.17	
2/07/2019	0.62	0.05	0.13	0.05	0.13	0.03	0.11	0.05	0.07	0.03	0.10	0.05	0.15	0.05	0.16	0.08	0.13	
3/07/2019	1.46	0.04	0.13	0.04	0.11	0.02	0.10	0.05	0.12	0.02	0.05	0.05	0.13	0.05	0.13	0.07	0.16	
4/07/2019	1.04	0.05	0.11	0.05	0.11	0.02	0.09	0.05	0.12	0.03	0.09	0.05	0.14	0.05	0.08	0.06	0.16	
5/07/2019	1.00	0.04	0.13	0.04	0.12	0.02	0.10	0.04	0.13	0.03	0.12	0.06	0.09	0.07	0.15	0.06	0.19	
6/07/2019	1.03	0.05	0.08	0.06	0.09	0.02	0.11	0.04	0.15	0.03	0.14	0.07	0.25	0.06	0.19	0.07	0.18	
7/07/2019	1.60	0.06	0.13	0.06	0.13	0.02	0.04	0.04	0.14	0.03	0.12	0.05	0.16	0.06	0.17	0.07	0.19	
8/07/2019	1.33	0.05	0.13	0.05	0.13	0.02	0.11	0.04	0.15	0.03	0.17	0.05	0.17	0.05	0.17	0.07	0.21	
9/07/2019	1.18	0.05	0.13	0.07	0.14	0.02	0.11	0.06	0.13	0.03	0.13	0.06	0.16	0.06	0.18	0.08	0.15	
10/07/2019	1.33	0.05	0.13	0.06	0.14	0.01	0.09	0.05	0.13	0.03	0.07	0.05	0.13	0.05	0.15	0.07	0.18	
11/07/2019	1.88	0.05	0.28	0.07	0.14	0.01	0.10	0.05	0.12	0.03	0.10	0.04	0.14	0.06	0.09	0.07	0.17	
12/07/2019	1.60	0.05	0.14	0.07	0.16	0.02	0.07	0.04	0.14	0.03	0.10	0.05	0.10	0.07	0.15	0.06	0.18	
13/07/2019	1.90	0.06	0.09	0.11	0.17	0.02	0.11	0.05	0.14	0.03	0.12	0.05	0.16	0.05	0.16	0.06	0.18	
14/07/2019	2.52	0.08	0.16	0.09	0.19	0.03	0.09	0.06	0.08	0.03	0.12	0.04	0.15	0.05	0.16	0.05	0.09	
15/07/2019	1.61	0.05	0.13	0.09	0.21	0.02	0.10	0.06	0.14	0.03	0.04	0.03	0.12	0.04	0.07	0.06	0.19	
16/07/2019	2.56	0.05	0.13	0.11	0.16	0.02	0.10	0.06	0.13	0.03	0.09	0.05	0.07	0.06	0.13	0.04	0.13	
17/07/2019	2.55	0.08	0.10	0.14	0.20	0.02	0.05	0.06	0.16	0.04	0.10	0.05	0.13	0.06	0.15	0.04	0.15	
18/07/2019	1.33	0.07	0.16	0.07	0.25	0.04	0.13	0.11	0.14	0.04	0.06	0.05	0.16	0.06	0.20	0.06	0.09	
19/07/2019	1.41	0.08	0.18	0.04	0.13	0.04	0.14	0.09	0.18	0.07	0.14	0.05	0.17	0.09	0.12	0.07	0.16	
20/07/2019	1.40	0.07	0.19	0.05	0.08	0.03	0.13	0.10	0.20	0.06	0.16	0.08	0.13	0.11	0.19	0.06	0.16	
21/07/2019	1.82	0.13	0.16	0.06	0.14	0.04	0.06	0.09	0.16	0.06	0.16	0.06	0.16	0.09	0.21	0.06	0.17	
22/07/2019	2.19	0.09	0.22	0.05	0.17	0.04	0.13	0.12	0.23	0.06	0.12	0.06	0.15	0.09	0.16	0.07	0.09	
23/07/2019	1.73	0.10	0.21	0.06	0.18	0.04	0.15	0.06	0.15	0.06	0.14	0.05	0.15	0.07	0.11	0.07	0.17	
24/07/2019	1.99	0.13	0.20	0.08	0.17	0.04	0.10	0.07	0.12	0.06	0.14	0.07	0.14	0.07	0.16	0.06	0.17	
25/07/2019	3.84	0.17	0.20	0.13	0.15	0.04	0.13	0.07	0.14	0.07	0.14	0.07	0.13	0.08	0.14	0.08	0.14	
26/07/2019	4.05	0.12	0.27	0.13	0.28	0.05	0.09	0.07	0.13	0.09	0.16	0.07	0.20	0.10	0.16	0.08	0.16	
27/07/2019	3.34	0.08	0.14	0.14	0.21	0.06	0.12	0.08	0.12	0.11	0.19	0.07	0.13	0.12	0.19	0.08	0.11	
28/07/2019	1.78	0.08	0.14	0.15	0.22	0.05	0.13	0.07	0.13	0.15	0.20	0.07	0.12	0.13	0.22	0.09	0.15	
29/07/2019	1.69	0.08	0.17	0.15	0.20	0.05	0.12	0.06	0.13	0.12	0.22	0.08	0.11	0.16	0.21	0.08	0.15	
30/07/2019	1.42	0.12	0.13	0.16	0.21	0.06	0.08	0.06	0.15	0.07	0.12	0.09	0.15	0.11	0.16	0.09	0.18	
31/07/2019	2.14	0.11	0.20	0.13	0.20	0.08	0.16	0.09	0.12	0.09	0.16	0.10	0.16	0.12	0.22	0.11	0.13	

Total Number of Measurements Taken, A: 11886  
Turbidity Standard for Monitoring Location (NTU): 0.3  
Number of Measurements Meeting Standard, B: 11886  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%

12907 12843 13242 13610 14078 13863 15081  
0.3 0.3 0.3 0.3 0.3 0.3 0.3  
12907 12843 13242 13610 14078 13863 15081  
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\2019\07-July

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



Water and Waste  
Eaux et déchets

CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT**

Water System Code: 252.00	Turbidity (NTU)																	
	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Aug-2019	1.49	1.48	OL	OL	0.15	0.13	0.18	0.14	0.16	0.10	0.12	0.11	0.13	0.10	0.14	0.16	0.14	0.12
02-Aug-2019	1.49	1.49	0.11	0.02	0.12	<0.02	0.12	0.05	OL	OL	0.14	0.06	0.14	0.07	0.15	0.06	0.19	0.10
03-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
04-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
05-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06-Aug-2019	1.71	1.55	0.13	0.03	0.14	<0.02	OL	OL	0.17	0.10	0.13	0.07	0.14	0.07	0.15	0.07	0.16	0.09
07-Aug-2019	1.93	1.72	0.16	0.05	0.16	<0.02	0.17	0.08	0.18	0.08	0.19	0.09	0.20	0.09	0.27	0.15	0.18	0.08
08-Aug-2019	1.98	1.77	0.17	0.05	0.19	0.02	0.17	0.08	0.17	0.08	0.15	0.06	OL	OL	0.16	0.06	0.16	0.08
09-Aug-2019	1.88	1.83	OL	OL	OL	OL	0.20	0.10	0.18	0.10	0.14	0.07	0.15	0.07	0.17	0.07	0.18	0.09
10-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12-Aug-2019	2.37	1.69	0.17	0.06	0.19	0.02	0.17	0.08	0.19	0.09	OL	OL	0.24	0.11	0.19	0.07	0.16	0.08
13-Aug-2019	2.16	1.97	0.18	0.06	OL	OL	0.18	0.08	0.20	0.09	0.15	0.06	0.15	0.08	0.15	0.07	0.17	0.09
14-Aug-2019	2.16	NR	0.14	0.03	0.16	<0.02	OL	OL	0.22	0.14	0.16	0.07	0.14	0.07	0.18	0.06	0.17	0.09
15-Aug-2019	2.09	2.21	0.17	0.04	0.16	<0.02	0.16	0.08	0.15	0.09	0.17	0.08	0.18	0.09	0.20	0.10	OL	OL
16-Aug-2019	2.25	2.66	0.17	0.05	0.18	0.02	0.17	0.09	0.17	0.10	OL	OL	0.21	0.11	0.16	0.07	0.16	0.08
17-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19-Aug-2019	2.42	2.13	0.16	0.05	0.17	0.02	0.19	0.09	0.21	0.09	0.18	0.08	0.16	0.08	0.18	0.09	OL	OL
20-Aug-2019	2.00	2.06	0.19	0.07	0.21	0.05	0.19	0.10	0.18	0.10	0.13	0.08	OL	OL	0.15	0.07	0.16	0.08
21-Aug-2019	2.41	2.08	OL	OL	OL	OL	0.22	0.11	0.21	0.12	0.15	0.07	0.15	0.08	0.16	0.07	0.16	0.09
22-Aug-2019	2.39	2.10	0.17	<0.02	0.18	0.03	0.18	0.09	OL	OL	0.19	0.08	0.18	0.09	0.21	0.10	0.25	0.14
23-Aug-2019	2.01	2.00	0.18	0.07	0.20	0.04	0.20	0.10	0.18	0.10	OL	OL	0.20	0.10	OL	OL	0.16	0.09
24-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26-Aug-2019	1.94	1.84	0.16	0.05	0.17	0.05	0.17	0.09	0.18	0.11	0.15	0.08	0.16	0.08	0.18	0.08	OL	OL
27-Aug-2019	1.93	1.95	0.20	0.06	0.20	0.06	0.18	0.10	0.18	0.10	OL	OL	0.19	0.10	0.17	0.06	0.14	0.07
28-Aug-2019	2.09	1.78	0.20	0.08	OL	OL	0.18	0.10	0.16	0.10	0.14	0.07	0.15	0.08	0.15	0.06	0.15	0.09
29-Aug-2019	1.93	1.76	0.13	0.03	0.14	0.03	0.13	0.08	OL	OL	0.17	0.08	0.16	0.09	0.21	0.08	0.23	0.14
30-Aug-2019	1.76	1.75	0.14	0.04	0.15	0.04	0.14	0.09	0.13	0.09	0.16	0.09	0.16	0.09	OL	OL	0.12	0.07
31-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NS: No Sample NA: Not Analyzed OL: Off-Line

Comments:  
The raw water analyser is cleaned daily during warm water months because it is susceptible to frequent fouling.  
NR-instrument malfunction

Report Compiled By: N. Crawford

Authorized in Sample Manager By: C.Diduck

Date Authorized: 6-Sep-19



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

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

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

August 2019 Turbidity (NTU)

	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
Date	Avg	Avg	Max														
1/08/2019	1.51	0.06	0.14	0.06	0.14	0.06	0.15	0.07	0.15	0.07	0.16	0.07	0.15	0.13	0.19	0.10	0.20
2/08/2019	1.43	0.01	0.07	0.00	0.01	0.03	0.09	0.06	0.12	0.05	0.10	0.06	0.10	0.06	0.11	0.07	0.16
3/08/2019	1.47	0.01	0.04	0.00	0.03	0.03	0.09	0.05	0.12	0.04	0.09	0.05	0.12	0.06	0.11	0.07	0.14
4/08/2019	1.95	0.02	0.07	0.00	0.02	0.04	0.06	0.06	0.08	0.05	0.10	0.05	0.12	0.05	0.12	0.07	0.15
5/08/2019	2.71	0.02	0.10	0.00	0.03	0.04	0.10	0.07	0.13	0.05	0.11	0.05	0.11	0.06	0.08	0.08	0.11
6/08/2019	1.90	0.03	0.10	0.00	0.06	0.05	0.12	0.08	0.15	0.07	0.08	0.06	0.08	0.08	0.13	0.08	0.16
7/08/2019	2.37	0.03	0.06	0.01	0.03	0.05	0.13	0.08	0.16	0.06	0.14	0.08	0.15	0.08	0.16	0.09	0.17
8/08/2019	2.29	0.04	0.11	0.01	0.06	0.06	0.16	0.08	0.12	0.06	0.14	0.07	0.15	0.07	0.16	0.08	0.17
9/08/2019	2.18	0.04	0.11	0.01	0.08	0.06	0.14	0.08	0.17	0.06	0.13	0.07	0.14	0.08	0.11	0.10	0.15
10/08/2019	2.10	0.03	0.09	0.00	0.05	0.04	0.08	0.07	0.15	0.07	0.10	0.07	0.11	0.08	0.15	0.08	0.17
11/08/2019	2.01	0.03	0.04	0.00	0.02	0.04	0.13	0.07	0.16	0.06	0.12	0.08	0.13	0.07	0.16	0.08	0.17
12/08/2019	1.91	0.05	0.10	0.01	0.05	0.05	0.10	0.08	0.16	0.06	0.12	0.07	0.13	0.07	0.16	0.08	0.17
13/08/2019	2.10	0.04	0.11	0.01	0.05	0.05	0.14	0.09	0.14	0.06	0.13	0.07	0.13	0.07	0.14	0.09	0.12
14/08/2019	3.42	0.03	0.06	0.00	0.05	0.04	0.10	0.07	0.18	0.06	0.08	0.06	0.10	0.08	0.12	0.08	0.16
15/08/2019	2.28	0.03	0.05	0.01	0.02	0.05	0.13	0.08	0.22	0.06	0.12	0.08	0.12	0.07	0.15	0.09	0.17
16/08/2019	3.06	0.05	0.10	0.01	0.06	0.06	0.09	0.08	0.17	0.06	0.12	0.07	0.14	0.07	0.14	0.08	0.16
17/08/2019	3.52	0.04	0.09	0.01	0.07	0.06	0.11	0.10	0.17	0.06	0.13	0.07	0.13	0.06	0.16	0.09	0.12
18/08/2019	3.38	0.04	0.11	0.01	0.07	0.06	0.15	0.09	0.16	0.06	0.09	0.06	0.10	0.08	0.12	0.08	0.16
19/08/2019	2.58	0.04	0.06	0.02	0.04	0.06	0.16	0.09	0.18	0.06	0.12	0.08	0.13	0.07	0.16	0.08	0.14
20/08/2019	2.05	0.06	0.12	0.03	0.08	0.07	0.12	0.10	0.14	0.06	0.13	0.07	0.13	0.07	0.16	0.08	0.16
21/08/2019	2.16	0.05	0.12	0.02	0.08	0.06	0.15	0.10	0.18	0.06	0.09	0.07	0.14	0.08	0.10	0.10	0.14
22/08/2019	2.12	0.05	0.12	0.03	0.05	0.06	0.16	0.09	0.18	0.07	0.13	0.09	0.11	0.08	0.17	0.09	0.16
23/08/2019	2.13	0.07	0.09	0.04	0.10	0.07	0.09	0.08	0.19	0.07	0.13	0.08	0.22	0.08	0.16	0.09	0.17
24/08/2019	2.13	0.07	0.14	0.05	0.12	0.09	0.16	0.12	0.17	0.07	0.14	0.08	0.15	0.07	0.10	0.10	0.12
25/08/2019	2.12	0.06	0.14	0.05	0.11	0.08	0.18	0.11	0.20	0.08	0.10	0.07	0.10	0.09	0.18	0.09	0.17
26/08/2019	2.22	0.04	0.08	0.04	0.07	0.06	0.15	0.09	0.17	0.07	0.11	0.08	0.14	0.07	0.14	0.08	0.16
27/08/2019	2.06	0.05	0.11	0.04	0.10	0.07	0.10	0.09	0.12	0.06	0.12	0.07	0.13	0.06	0.13	0.07	0.15
28/08/2019	2.09	0.04	0.09	0.03	0.08	0.06	0.16	0.09	0.18	0.06	0.11	0.07	0.14	0.08	0.09	0.09	0.11
29/08/2019	1.81	0.03	0.09	0.02	0.04	0.05	0.13	0.08	0.16	0.08	0.12	0.08	0.15	0.07	0.15	0.08	0.19
30/08/2019	1.83	0.04	0.06	0.03	0.07	0.06	0.09	0.08	0.10	0.05	0.16	0.07	0.17	0.06	0.13	0.07	0.14
31/08/2019	2.04	0.04	0.11	0.03	0.08	0.07	0.14	0.10	0.16	0.06	0.08	0.06	0.13	0.07	0.08	0.09	0.13

Total Number of Measurements Taken, A: 13104      10163      14338      14990      15449      15758      15488      16910  
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: 13104      10163      14338      14990      15449      15758      15488      16910  
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\2019\08-August

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

		WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																			
Water System Code: 252.00		Turbidity (NTU)																			
Licence No. PWS-09-412-01		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	Grab	Analyser
	01-Sep-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	02-Sep-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	03-Sep-2019	1.78	1.62	0.17	0.05	0.21	0.05	0.15	0.11	OL	OL	0.12	0.08	0.15	0.08	0.15	0.07	0.19	0.10		
	04-Sep-2019	1.89	1.66	0.20	0.08	0.18	0.06	0.17	0.12	0.16	0.13	OL	OL	0.19	0.11	0.14	0.06	0.17	0.08		
	05-Sep-2019	1.86	1.55	OL	OL	0.19	0.07	0.24	0.17	0.22	0.17	0.13	0.11	0.17	0.09	0.14	0.07	0.15	0.09		
	06-Sep-2019	1.60	1.51	0.16	0.05	0.16	0.06	0.17	0.10	0.24	0.16	0.17	0.11	0.15	0.09	0.15	0.10	0.18	0.11		
	07-Sep-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	08-Sep-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	09-Sep-2019	1.56	1.39	0.16	0.05	0.16	0.06	0.17	0.11	OL	OL	0.17	0.12	0.21	0.11	0.20	0.13	0.21	0.13		
	10-Sep-2019	1.46	1.42	0.16	0.06	0.17	0.08	0.17	0.13	0.16	0.11	OL	OL	OL	OL	0.18	0.10	0.16	0.09		
	11-Sep-2019	1.49	1.47	0.21	0.09	OL	OL	0.22	0.16	0.20	0.13	0.20	0.07	OL	OL	0.12	0.08	0.12	0.06		
	12-Sep-2019	1.58	1.52	OL	OL	0.15	0.06	OL	OL	0.19	0.13	0.12	0.07	0.11	0.07	0.12	0.08	0.12	0.07		
	13-Sep-2019	1.41	1.51	0.14	0.05	0.13	0.07	0.14	0.15	OL	OL	0.10	0.06	0.12	0.08	0.14	0.09	OL	OL		
	14-Sep-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	15-Sep-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	16-Sep-2019	1.08	1.14	0.17	0.09	OL	OL	OL	OL	0.16	0.11	0.13	0.08	0.14	0.08	0.12	0.09	0.13	0.07		
	17-Sep-2019	1.11	1.13	0.14	0.03	0.14	0.08	OL	OL	OL	OL	0.14	0.08	0.13	0.08	0.13	0.09	0.15	0.08		
	18-Sep-2019	1.21	1.27	0.12	0.04	0.13	0.10	OL	OL	0.13	0.09	0.16	0.08	0.15	0.09	OL	OL	0.13	0.07		
	19-Sep-2019	1.21	1.29	0.15	0.05	0.15	0.12	OL	OL	0.16	0.11	0.20	0.12	0.19	0.12	OL	OL	0.15	0.09		
	20-Sep-2019	1.29	1.38	0.16	0.05	0.17	0.13	OL	OL	0.18	0.11	OL	OL	0.26	0.12	0.22	0.09	0.17	0.09		
	21-Sep-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA											
	22-Sep-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA											
	23-Sep-2019	1.05	0.96	0.23	0.13	0.17	0.13	OL	OL	0.23	0.12	0.13	0.08	0.13	0.09	0.16	0.09	0.14	0.08		
	24-Sep-2019	1.10	0.99	0.20	0.03	0.13	0.14	OL	OL	0.13	0.09	0.18	0.08	0.15	0.09	0.19	0.10	OL	OL		
	25-Sep-2019	1.06	0.97	0.15	0.09	0.17	0.10	OL	OL	0.14	0.07	0.17	0.07	0.15	0.09	OL	OL	0.14	0.05		
	26-Sep-2019	1.12	0.94	0.14	0.08	0.13	0.09	OL	OL	0.18	0.08	OL	OL	0.19	0.10	0.15	0.05	0.13	0.05		
	27-Sep-2019	1.06	1.01	0.16	0.09	OL	OL	OL	OL	0.15	0.07	0.13	0.06	0.13	0.07	0.13	0.05	0.13	0.06		
	28-Sep-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA											
	29-Sep-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA											
	30-Sep-2019	1.25	0.94	0.16	0.07	0.16	0.07	OL	OL	OL	OL	0.17	0.05	0.13	0.07	0.15	0.06	0.15	0.07		
<b>Total number of measurements taken, A:</b>				18				17		8		15				16		18			
<b>Turbidity Standard for Monitoring Location (NTU):</b>				0.30				0.30		0.30				0.30		0.30				0.30	
<b>Number of measurements meeting standard, B:</b>				18				17		8		15				16		18			
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>				100%				100%		100%				100%		100%		100%			

NS: No Sample NA: Not Analyzed OL: Off-Line

Comments:  
September 17, 2019: filter 3 taken offline for media replacement

Report Compiled By: N. Crawford

Authorized By: C.Diduck

Date Authorized: 7-Oct-19



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

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

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

September 2019 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
1/09/2019	1.82	0.04	0.06		0.04	0.06	0.06	0.10	0.09	0.17	0.06	0.12	0.08	0.11	0.06	0.14	0.07	0.15
2/09/2019	1.71	0.05	0.10		0.04	0.09	0.09	0.15	0.12	0.14	0.06	0.13	0.07	0.14	0.06	0.08	0.08	0.23
3/09/2019	1.72	0.03	0.10		0.04	0.06	0.07	0.16	0.11	0.18	0.08	0.10	0.08	0.09	0.07	0.12	0.07	0.16
4/09/2019	1.68	0.06	0.14		0.06	0.15	0.10	0.18	0.12	0.21	0.06	0.18	0.06	0.15	0.06	0.11	0.07	0.14
5/09/2019	2.04	0.07	0.12		0.07	0.11	0.11	0.23	0.15	0.24	0.09	0.12	0.07	0.13	0.07	0.08	0.09	0.11
6/09/2019	1.56	0.04	0.11		0.06	0.08	0.09	0.15	0.12	0.19	0.10	0.14	0.09	0.31	0.09	0.23	0.07	0.15
7/09/2019	1.90	0.06	0.14		0.07	0.17	0.09	0.16	0.11	0.18	0.07	0.13	0.07	0.13	0.08	0.15	0.07	0.14
8/09/2019	1.42	0.05	0.12		0.06	0.12	0.09	0.17	0.12	0.19	0.07	0.10	0.08	0.17	0.11	0.13	0.09	0.11
9/09/2019	1.07	0.04	0.11		0.06	0.07	0.08	0.17	0.11	0.19	0.11	0.15	0.11	0.13	0.11	0.18	0.10	0.17
10/09/2019	1.47	0.06	0.08		0.07	0.11	0.10	0.13	0.09	0.13	0.07	0.18	0.08	0.17	0.09	0.20	0.08	0.19
11/09/2019	1.55	0.04	0.12		0.05	0.15	0.10	0.22	0.11	0.21	0.06	0.11	0.05	0.15	0.07	0.11	0.07	0.10
12/09/2019	1.56	0.04	0.12		0.05	0.14	0.09	0.23	0.08	0.18	0.06	0.10	0.05	0.13	0.09	0.15	0.06	0.15
13/09/2019	1.57	0.03	0.10		0.06	0.10	0.09	0.23	0.06	0.18	0.06	0.11	0.07	0.13	0.06	0.14	0.04	0.14
14/09/2019	1.43	0.05	0.08		0.07	0.12	0.12	0.16	0.06	0.16	0.05	0.11	0.05	0.13	0.06	0.14	0.05	0.13
15/09/2019	1.57	0.04	0.11		0.06	0.13	0.14	0.23	0.09	0.14	0.05	0.11	0.05	0.13	0.06	0.15	0.06	0.08
16/09/2019	1.46	0.04	0.09		0.07	0.13	0.02	0.15	0.07	0.17	0.06	0.09	0.07	0.12	0.10	0.12	0.07	0.15
17/09/2019	1.14	0.03	0.09		0.07	0.12	OL	OL	0.08	0.15	0.07	0.10	0.07	0.10	0.08	0.13	0.06	0.12
18/09/2019	1.24	0.03	0.08		0.08	0.11	OL	OL	0.09	0.14	0.06	0.11	0.07	0.12	0.08	0.14	0.07	0.12
19/09/2019	1.32	0.04	0.06		0.10	0.14	OL	OL	0.09	0.16	0.08	0.12	0.09	0.13	0.10	0.16	0.08	0.15
20/09/2019	1.50	0.05	0.09		0.10	0.14	OL	OL	0.09	0.16	0.08	0.14	0.09	0.27	0.10	0.15	0.08	0.15
21/09/2019	1.54	0.04	0.09		0.10	0.16	OL	OL	0.11	0.15	0.07	0.13	0.08	0.14	0.09	0.15	0.08	0.11
22/09/2019	1.01	0.03	0.08		0.11	0.16	OL	OL	0.09	0.16	0.07	0.11	0.07	0.13	0.09	0.11	0.08	0.13
23/09/2019	1.28	0.04	0.09		0.11	0.18	OL	OL	0.08	0.16	0.07	0.09	0.07	0.17	0.09	0.14	0.08	0.13
24/09/2019	1.04	0.05	0.14		0.10	0.15	OL	OL	0.08	0.13	0.06	0.12	0.08	0.14	0.07	0.14	0.07	0.11
25/09/2019	1.01	0.07	0.11		0.09	0.13	OL	OL	0.07	0.14	0.06	0.10	0.07	0.12	0.06	0.11	0.06	0.12
26/09/2019	0.99	0.08	0.14		0.07	0.13	OL	OL	0.06	0.10	0.05	0.10	0.06	0.13	0.06	0.11	0.05	0.11
27/09/2019	1.01	0.07	0.12		0.07	0.11	OL	OL	0.07	0.12	0.05	0.10	0.06	0.18	0.05	0.10	0.05	0.08
28/09/2019	0.97	0.07	0.19		0.06	0.11	OL	OL	0.06	0.12	0.04	0.09	0.06	0.11	0.06	0.08	0.06	0.11
29/09/2019	0.98	0.07	0.12		0.06	0.11	OL	OL	0.05	0.12	0.05	0.07	0.06	0.11	0.06	0.10	0.05	0.10
30/09/2019	0.94	0.06	0.12		0.06	0.08	OL	OL	0.05	0.10	0.04	0.09	0.07	0.09	0.05	0.10	0.05	0.10

Total Number of Measurements Taken, A: 11955      12836      6478      13187      14240      14537      14383      15632

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: 11955      12836      6478      13187      14240      14536      14383      15632

Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      100.000%      100.000%      100.000%      99.993%      100.000%      100.000%

Off Line - OL

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\09-September

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT																		
Water System Code: 252.00		Turbidity (NTU)																
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Oct-2019	1.06	0.87	0.13	0.08	0.20	0.08	OL	OL	0.12	0.05	0.22	0.06	0.18	0.08	OL	OL	0.11	0.05
02-Oct-2019	0.96	0.87	0.13	0.08	0.14	0.08	OL	OL	0.21	0.05	OL	OL	0.16	0.09	0.12	0.05	0.12	0.05
03-Oct-2019	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
04-Oct-2019	0.93	0.72	0.16	0.07	0.12	0.06	OL	OL	0.09	0.04	0.15	0.03	0.11	0.06	0.10	0.10	0.09	0.04
05-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
06-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
07-Oct-2019	0.94	0.85	0.21	0.07	0.21	0.07	OL	OL	0.12	0.03	OL	OL	0.12	0.07	0.15	0.03	0.12	0.03
08-Oct-2019	0.91	0.67	0.13	0.09	OL	OL	OL	OL	0.12	0.04	0.11	0.03	0.09	0.06	0.10	0.04	0.13	0.04
09-Oct-2019	0.93	0.89	OL	OL	0.10	0.07	OL	OL	0.14	0.06	0.10	0.03	0.12	0.06	0.10	0.04	0.11	0.04
10-Oct-2019	0.88	0.78	0.10	0.06	0.10	0.06	OL	OL	0.09	0.03	0.09	0.03	0.09	0.07	0.10	0.05	OL	OL
11-Oct-2019	0.82	0.50	0.08	0.07	0.11	0.07	OL	OL	0.09	0.03	0.09	0.03	0.12	0.06	0.11	0.04	OL	OL
12-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15-Oct-2019	0.86	0.87	0.09	0.07	0.07	0.07	OL	OL	OL	OL	0.08	0.03	0.07	0.09	0.09	0.04	0.08	0.04
16-Oct-2019	0.90	0.88	0.10	0.07	0.09	0.07	OL	OL	0.09	0.02	0.09	0.03	0.14	0.08	OL	OL	0.08	0.03
17-Oct-2019	1.06	0.82	0.09	0.07	0.14	0.08	OL	OL	0.11	0.03	0.19	0.00	OL	OL	0.09	0.03	0.09	0.03
18-Oct-2019	0.80	0.84	0.10	0.07	OL	OL	OL	OL	0.10	0.04	0.09	0.00	0.12	0.09	0.09	0.03	0.08	0.03
19-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21-Oct-2019	0.89	0.79	0.10	0.07	0.10	0.08	OL	OL	0.15	0.03	0.20	0.00	0.08	0.11	0.13	0.07	0.10	0.03
22-Oct-2019	0.77	0.80	0.08	0.07	0.09	0.08	OL	OL	0.10	0.03	0.13	0.01	0.13	0.12	OL	OL	0.13	0.05
23-Oct-2019	1.04	0.79	0.17	0.07	0.13	0.08	OL	OL	0.12	0.04	0.17	0.00	OL	OL	0.10	0.06	0.08	0.04
24-Oct-2019	0.82	0.80	0.23	0.08	0.10	0.10	OL	OL	0.12	0.05	0.09	0.00	OL	OL	0.12	0.07	0.12	0.05
25-Oct-2019	0.83	0.80	OL	OL	0.10	0.10	OL	OL	0.11	0.05	0.08	0.00	0.08	0.05	0.07	0.07	0.08	0.05
26-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27-Oct-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28-Oct-2019	0.77	0.75	0.09	0.08	0.10	0.10	OL	OL	0.10	0.04	0.09	0.00	0.08	0.05	0.09	0.10	OL	OL
29-Oct-2019	0.73	0.72	0.08	0.08	0.09	0.11	OL	OL	0.04	0.14	0.11	0.00	0.12	0.05	OL	OL	0.13	0.05
30-Oct-2019	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL
31-Oct-2019	0.73	0.73	0.08	0.08	0.11	0.11	OL	OL	0.09	0.04	0.08	0.00	0.08	0.05	0.08	0.11	0.09	0.06

Total number of measurements taken, A:

18

Turbidity Standard for Monitoring Location (NTU):

0.30

Number of measurements meeting standard, B:

18

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

100%

NS: No Sample NA: Not Analyzed OL: Off-Line

**Comments:**

September 17, 2019: filter 3 taken offline for media replacement

October 3, 2019: WTP offline for scheduled maintenance 08:00 to 20:50

October 30, 2019: WTP offline for scheduled maintenance 06:00 to 21:30

Report Compiled By: A. Gordon

Authorized By: C. Diduck

Date Authorized: 7-Nov-19



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

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

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

October 2019 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
1/10/2019	0.90	0.07	0.09	0.07	0.10	OL	OL	0.04	0.10	0.04	0.08	0.06	0.11	0.05	0.11	0.05	0.10	
2/10/2019	0.88	0.07	0.11	0.06	0.10	OL	OL	0.05	0.07	0.04	0.07	0.06	0.11	0.05	0.09	0.05	0.09	
3/10/2019	0.79	0.03	0.23	0.03	0.08	OL	OL	0.03	0.19	0.02	0.18	0.03	0.19	0.03	0.20	0.03	0.17	
4/10/2019	0.77	0.05	0.07	0.06	0.07	OL	OL	0.03	0.06	0.02	0.04	0.05	0.07	0.04	0.07	0.04	0.06	
5/10/2019	0.78	0.06	0.08	0.05	0.08	OL	OL	0.03	0.06	0.02	0.04	0.04	0.07	0.04	0.26	0.04	0.06	
6/10/2019	0.77	0.06	0.09	0.05	0.16	OL	OL	0.03	0.05	0.02	0.04	0.04	0.07	0.04	0.06	0.03	0.06	
7/10/2019	0.79	0.06	0.09	0.05	0.08	OL	OL	0.03	0.06	0.02	0.04	0.05	0.08	0.04	0.06	0.04	0.05	
8/10/2019	0.79	0.06	0.10	0.05	0.09	OL	OL	0.03	0.06	0.02	0.05	0.05	0.08	0.04	0.05	0.04	0.06	
9/10/2019	0.81	0.06	0.09	0.05	0.09	OL	OL	0.03	0.06	0.02	0.04	0.05	0.09	0.04	0.06	0.04	0.07	
10/10/2019	0.80	0.05	0.09	0.05	0.09	OL	OL	0.03	0.06	0.02	0.04	0.06	0.08	0.04	0.07	0.04	0.07	
11/10/2019	0.68	0.05	0.07	0.06	0.07	OL	OL	0.02	0.06	0.02	0.04	0.05	0.09	0.03	0.06	0.03	0.06	
12/10/2019	1.01	0.06	0.10	0.05	0.09	OL	OL	0.03	0.04	0.01	0.05	0.06	0.09	0.04	0.08	0.03	0.07	
13/10/2019	0.91	0.06	0.11	0.06	0.10	OL	OL	0.03	0.07	0.02	0.05	0.06	0.11	0.04	0.08	0.04	0.06	
14/10/2019	0.90	0.06	0.11	0.06	0.10	OL	OL	0.03	0.07	0.02	0.03	0.07	0.12	0.05	0.08	0.04	0.07	
15/10/2019	0.98	0.05	0.10	0.06	0.09	OL	OL	0.02	0.07	0.02	0.05	0.07	0.10	0.04	0.08	0.03	0.11	
16/10/2019	0.90	0.07	0.08	0.07	0.09	OL	OL	0.02	0.04	0.02	0.03	0.07	0.10	0.04	0.05	0.03	0.20	
17/10/2019	0.86	0.06	0.08	0.06	0.08	OL	OL	0.03	0.05	0.01	0.08	0.07	0.10	0.04	0.05	0.03	0.05	
18/10/2019	0.88	0.06	0.09	0.06	0.09	OL	OL	0.02	0.05	0.00	0.01	0.07	0.10	0.04	0.05	0.04	0.06	
19/10/2019	0.85	0.05	0.08	0.06	0.08	OL	OL	0.02	0.05	0.00	0.01	0.07	0.11	0.04	0.06	0.03	0.05	
20/10/2019	0.81	0.06	0.08	0.07	0.08	OL	OL	0.02	0.05	0.00	0.01	0.09	0.11	0.05	0.07	0.03	0.05	
21/10/2019	0.83	0.06	0.08	0.07	0.09	OL	OL	0.02	0.05	0.00	0.01	0.09	0.12	0.06	0.08	0.03	0.06	
22/10/2019	0.83	0.06	0.07	0.07	0.09	OL	OL	0.02	0.06	0.00	0.01	0.09	0.13	0.06	0.08	0.04	0.13	
23/10/2019	0.82	0.06	0.08	0.07	0.09	OL	OL	0.03	0.05	0.00	0.01	0.10	0.14	0.06	0.09	0.04	0.06	
24/10/2019	0.82	0.06	0.08	0.07	0.10	OL	OL	0.03	0.06	0.00	0.01	0.07	0.14	0.06	0.09	0.05	0.07	
25/10/2019	0.80	0.06	0.09	0.08	0.11	OL	OL	0.03	0.06	0.00	0.01	0.04	0.06	0.07	0.09	0.05	0.07	
26/10/2019	0.77	0.06	0.09	0.08	0.11	OL	OL	0.03	0.06	0.00	0.01	0.04	0.06	0.09	0.11	0.05	0.07	
27/10/2019	0.81	0.06	0.09	0.08	0.11	OL	OL	0.03	0.07	0.00	0.01	0.04	0.05	0.08	0.13	0.04	0.08	
28/10/2019	0.78	0.07	0.10	0.08	0.12	OL	OL	0.03	0.07	0.00	0.01	0.04	0.06	0.09	0.13	0.05	0.07	
29/10/2019	0.75	0.06	0.09	0.10	0.11	OL	OL	0.03	0.06	0.00	0.01	0.04	0.07	0.09	0.13	0.05	0.07	
30/10/2019	0.81	0.04	0.12	0.04	0.14	OL	OL	0.02	0.11	0.00	0.00	0.01	0.07	0.05	0.16	0.02	0.08	
31/10/2019	0.75	0.06	0.09	0.09	0.12	OL	OL	0.03	0.06	0.00	0.02	0.04	0.06	0.10	0.13	0.05	0.07	

Total Number of Measurements Taken, A: 11992      13740      OL      14612      8702      15254      14651      16008  
Turbidity Standard for Monitoring Location (NTU): 0.3      0.3      0.3      0.3      0.3      0.3      0.3  
Number of Measurements Meeting Standard, B: 11992      13740      OL      14612      8702      15254      14651      16008  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      OL      100.000%      100.000%      100.000%      100.000%

Off Line - OL

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\10-October

Submitted By (Print): D.Minor \_\_\_\_\_ Signature\_Original signed by D.Minor\_\_\_\_\_



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

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-Nov-2019	0.85	0.68	0.09	0.08	0.09	0.11	OL	OL	0.10	0.04	0.12	0.00	0.09	0.05	0.09	0.12	0.08	0.05
02-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
03-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
04-Nov-2019	0.73	0.72	0.09	0.09	0.13	0.13	OL	OL	0.11	0.06	0.09	0.00	OL	OL	0.09	0.12	0.08	0.05
05-Nov-2019	0.69	0.65	OL	OL	0.08	0.13	OL	OL	0.10	0.07	0.08	0.00	0.08	0.05	0.09	0.13	0.09	0.05
06-Nov-2019	0.69	0.67	0.08	0.09	0.08	0.13	OL	OL	OL	OL	0.10	0.00	0.09	0.06	0.11	0.14	0.09	0.06
07-Nov-2019	0.73	0.66	0.09	0.10	0.08	0.14	OL	OL	0.09	0.06	0.08	0.00	0.08	0.06	0.12	0.16	OL	OL
08-Nov-2019	0.61	0.65	0.08	0.10	0.10	0.14	OL	OL	0.11	0.07	OL	OL	0.08	0.06	0.07	0.15	0.09	0.05
09-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
10-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
11-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
12-Nov-2019	0.64	0.60	0.10	0.08	0.10	0.08	OL	OL	0.11	0.13	0.09	0.05	0.08	0.06	0.10	0.04	OL	OL
13-Nov-2019	0.63	0.60	0.09	0.07	0.08	0.08	OL	OL	0.08	0.14	OL	OL	0.10	0.08	0.08	0.03	0.10	0.06
14-Nov-2019	0.62	0.56	0.08	0.07	0.09	0.09	OL	OL	0.09	0.17	0.08	0.04	OL	OL	0.08	0.03	0.08	0.05
15-Nov-2019	0.60	0.58	0.10	0.09	OL	OL	OL	OL	0.09	0.03	0.08	0.04	0.08	0.06	0.09	0.04	0.08	0.06
16-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
17-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
18-Nov-2019	0.68	0.60	0.09	0.07	0.13	0.08	OL	OL	0.10	0.03	OL	OL	0.12	0.08	0.11	0.03	0.09	0.06
19-Nov-2019	0.69	0.57	0.11	0.08	OL	OL	OL	OL	0.12	0.04	0.08	0.05	0.08	0.07	0.08	0.04	0.09	0.06
20-Nov-2019	0.62	0.57	0.09	0.07	0.11	0.08	OL	OL	OL	OL	0.09	0.04	0.09	0.07	0.08	0.04	0.09	0.06
21-Nov-2019	0.63	0.55	0.09	0.07	0.09	0.08	OL	OL	0.09	0.03	0.10	0.06	0.10	0.08	OL	OL	0.09	0.05
22-Nov-2019	0.63	0.53	0.10	0.07	0.11	0.08	OL	OL	0.10	0.03	OL	OL	0.12	0.09	0.10	0.04	0.08	0.05
23-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
24-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA									
25-Nov-2019	0.65	0.52	0.09	0.07	0.09	0.08	OL	OL	0.08	0.03	0.09	0.04	0.12	0.09	0.12	0.04	OL	OL
26-Nov-2019	0.68	0.51	0.11	0.07	0.09	0.08	OL	OL	0.08	0.03	OL	OL	0.09	0.09	0.11	0.03	0.08	0.04
27-Nov-2019	0.59	0.51	0.11	0.07	0.09	0.08	0.09	0.09	0.06	0.09	0.03	0.08	0.04	OL	OL	0.08	0.04	0.08
28-Nov-2019	0.65	0.51	OL	OL	0.09	0.07	0.08	0.05	0.10	0.04	0.09	0.05	0.09	0.10	0.08	0.04	0.09	0.05
29-Nov-2019	0.64	0.51	0.12	0.08	0.13	0.09	0.09	0.05	OL	OL	0.14	0.08	0.15	0.13	0.17	0.08	OL	OL
30-Nov-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**Total number of measurements taken, A:**

18

**Turbidity Standard for Monitoring Location (NTU):**

18

**Number of measurements meeting standard, B:**

3

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

17

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

**Comments:**

Filter 3 offline for media replacement from September 17 at 03:35 to November 27, 2019 at 11:00.

Report Compiled By: A. Gordon



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

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

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

November 2019 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max														
1/11/2019	0.72	0.06	0.09	0.09	0.12	OL	OL	0.03	0.06	0.00	0.01	0.04	0.07	0.10	0.13	0.05	0.07
2/11/2019	0.71	0.07	0.08	0.11	0.13	OL	OL	0.04	0.07	0.00	0.01	0.04	0.07	0.11	0.14	0.05	0.08
3/11/2019	0.72	0.08	0.10	0.10	0.14	OL	OL	0.04	0.07	0.00	0.01	0.04	0.07	0.11	0.16	0.05	0.07
4/11/2019	0.72	0.07	0.10	0.10	0.14	OL	OL	0.05	0.08	0.00	0.01	0.04	0.08	0.11	0.16	0.05	0.08
5/11/2019	0.69	0.07	0.11	0.11	0.14	OL	OL	0.05	0.08	0.00	0.01	0.04	0.08	0.14	0.15	0.05	0.08
6/11/2019	0.69	0.07	0.11	0.11	0.16	OL	OL	0.05	0.09	0.00	0.00	0.05	0.08	0.14	0.17	0.05	0.08
7/11/2019	0.67	0.08	0.12	0.12	0.15	OL	OL	0.05	0.09	0.00	0.01	0.05	0.08	0.14	0.19	0.05	0.08
8/11/2019	0.65	0.09	0.10	0.12	0.16	OL	OL	0.06	0.11	0.00	0.05	0.04	0.08	0.14	0.19	0.05	0.08
9/11/2019	0.63	0.06	0.10	0.07	0.10	OL	OL	0.08	0.10	0.00	0.01	0.04	0.13	0.04	0.06	0.05	0.08
10/11/2019	0.63	0.06	0.10	0.07	0.11	OL	OL	0.08	0.12	0.01	0.07	0.05	0.09	0.04	0.05	0.06	0.08
11/11/2019	0.63	0.06	0.10	0.07	0.10	OL	OL	0.09	0.16	0.04	0.07	0.05	0.07	0.04	0.06	0.05	0.08
12/11/2019	0.63	0.06	0.11	0.08	0.09	OL	OL	0.11	0.17	0.03	0.07	0.05	0.08	0.04	0.06	0.05	0.08
13/11/2019	0.62	0.07	0.09	0.07	0.11	OL	OL	0.12	0.16	0.03	0.07	0.04	0.09	0.04	0.07	0.05	0.09
14/11/2019	0.62	0.06	0.09	0.06	0.10	OL	OL	0.11	0.18	0.04	0.07	0.05	0.10	0.04	0.07	0.06	0.08
15/11/2019	0.61	0.06	0.09	0.07	0.12	OL	OL	0.02	0.06	0.03	0.07	0.05	0.09	0.04	0.06	0.06	0.09
16/11/2019	0.61	0.06	0.09	0.06	0.11	OL	OL	0.02	0.06	0.04	0.06	0.05	0.08	0.04	0.08	0.06	0.09
17/11/2019	0.62	0.06	0.09	0.07	0.09	OL	OL	0.02	0.06	0.03	0.07	0.06	0.10	0.04	0.07	0.06	0.09
18/11/2019	0.61	0.07	0.08	0.07	0.10	OL	OL	0.03	0.05	0.03	0.07	0.06	0.10	0.04	0.08	0.06	0.12
19/11/2019	0.60	0.06	0.11	0.06	0.11	OL	OL	0.03	0.07	0.03	0.07	0.06	0.12	0.04	0.06	0.07	0.09
20/11/2019	0.58	0.05	0.09	0.06	0.11	OL	OL	0.03	0.06	0.04	0.05	0.06	0.11	0.04	0.07	0.05	0.23
21/11/2019	0.56	0.06	0.08	0.08	0.10	OL	OL	0.03	0.06	0.04	0.08	0.07	0.11	0.04	0.08	0.05	0.09
22/11/2019	0.55	0.06	0.09	0.06	0.10	OL	OL	0.03	0.04	0.03	0.07	0.06	0.15	0.04	0.07	0.04	0.09
23/11/2019	0.55	0.05	0.09	0.06	0.10	OL	OL	0.03	0.07	0.03	0.07	0.06	0.11	0.04	0.06	0.06	0.07
24/11/2019	0.56	0.05	0.10	0.06	0.10	OL	OL	0.02	0.06	0.04	0.06	0.06	0.11	0.04	0.08	0.05	0.08
25/11/2019	0.54	0.05	0.09	0.06	0.10	OL	OL	0.02	0.06	0.03	0.07	0.08	0.11	0.04	0.07	0.04	0.09
26/11/2019	0.56	0.06	0.07	0.07	0.10	OL	OL	0.02	0.13	0.03	0.08	0.07	0.12	0.04	0.07	0.05	0.08
27/11/2019	0.55	0.06	0.10	0.06	0.10	0.01	0.08	0.03	0.11	0.03	0.08	0.06	0.13	0.03	0.08	0.04	0.10
28/11/2019	0.53	0.05	0.11	0.05	0.11	0.02	0.04	0.03	0.06	0.04	0.06	0.06	0.11	0.05	0.06	0.05	0.08
29/11/2019	0.54	0.06	0.09	0.08	0.10	0.02	0.07	0.04	0.12	0.05	0.13	0.12	0.19	0.05	0.10	0.05	0.12
30/11/2019	0.52	0.08	0.16	0.07	0.16	0.03	0.05	0.03	0.06	0.02	0.14	0.10	0.21	0.06	0.12	0.06	0.13

Total Number of Measurements Taken, A: 12438      14167      1400      14926      10056      15569      14698      16446  
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: 12438      14167      1400      14926      10056      15569      14698      16446  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      100.000%      100.000%      100.000%      100.000%      100.000%      100.000%      100.000%  
Off Line - OL

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\11-November

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

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-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02-Dec-2019	0.60	0.49	OL	OL	0.10	0.08	OL	OL	0.17	0.07	0.13	0.08	0.11	0.16	0.10	0.05	0.10	0.06
03-Dec-2019	0.59	0.51	0.11	0.08	0.11	0.09	0.09	0.05	OL	OL	OL	0.11	0.18	0.13	0.06	0.14	0.08	
04-Dec-2019	0.66	0.49	0.14	NA	0.13	0.11	0.10	0.06	0.11	0.05	0.14	0.07	OL	OL	OL	OL	0.12	0.06
05-Dec-2019	0.55	0.48	OL	OL	OL	OL	0.13	0.07	0.14	0.05	0.11	0.06	0.11	0.07	0.12	0.06	0.10	0.05
06-Dec-2019	0.54	0.47	0.11	0.06	0.11	0.05	0.08	0.05	OL	OL	OL	0.11	0.07	0.12	0.07	0.13	0.06	
07-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
08-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
09-Dec-2019	0.52	0.45	OL	OL	0.07	0.03	0.07	0.04	0.10	0.02	0.08	0.06	0.08	0.06	0.08	0.05	OL	OL
10-Dec-2019	0.57	0.48	0.08	0.05	0.07	0.04	OL	OL	0.11	0.02	0.09	0.06	0.09	0.06	0.08	0.05	OL	OL
11-Dec-2019	0.51	0.52	0.09	0.06	0.10	0.04	0.08	0.04	OL	OL	0.10	0.06	0.08	0.06	0.11	0.05	OL	OL
12-Dec-2019	0.57	0.49	0.09	0.05	0.09	0.04	0.08	0.03	0.09	0.01	OL	OL	0.09	0.06	0.10	0.06	OL	OL
13-Dec-2019	0.52	0.46	0.09	0.06	OL	OL	0.06	0.04	0.09	0.01	0.08	0.05	0.08	0.06	0.08	0.05	0.09	0.03
14-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.04
15-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16-Dec-2019	0.48	0.42	0.09	0.06	0.10	0.05	0.07	0.04	0.08	0.01	0.08	0.05	OL	OL	OL	OL	0.08	0.04
17-Dec-2019	0.49	0.42	0.11	0.07	OL	OL	0.07	0.04	0.09	0.02	0.08	0.06	0.09	0.06	OL	OL	0.09	0.04
18-Dec-2019	0.53	0.42	OL	OL	0.07	0.03	0.07	0.04	0.09	0.02	0.08	0.05	0.10	0.06	OL	OL	0.11	0.05
19-Dec-2019	0.51	0.42	0.08	0.04	0.08	0.04	0.09	0.05	0.09	0.02	0.08	0.05	0.09	0.06	0.10	0.06	OL	OL
20-Dec-2019	0.46	0.53	0.08	0.07	0.08	0.03	0.07	0.02	OL	OL	OL	OL	0.10	0.06	0.09	0.04	0.07	0.03
21-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22-Dec-2019	0.57	0.53	0.12	0.07	0.07	0.02	0.12	0.05	0.09	0.07	OL	OL	0.09	0.06	OL	OL	0.08	0.03
23-Dec-2019	0.45	0.52	0.08	0.08	0.10	0.04	0.08	0.03	OL	OL	0.15	0.08	0.14	0.08	0.13	0.05	0.07	0.03
24-Dec-2019	0.52	0.52	OL	OL	OL	OL	0.07	0.03	0.13	0.05	0.07	0.03	0.12	0.05	0.10	0.04	0.09	0.04
25-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27-Dec-2019	0.50	0.53	0.08	0.07	0.10	0.03	0.07	0.03	0.08	0.06	0.07	0.03	OL	OL	0.09	0.05	0.08	0.04
28-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29-Dec-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30-Dec-2019	0.54	0.52	0.14	0.11	0.17	0.09	0.10	0.06	0.12	0.08	OL	OL	OL	0.10	0.05	0.09	0.04	
31-Dec-2019	0.50	0.51	OL	OL	0.10	0.04	0.10	0.06	0.11	0.08	0.08	0.05	0.12	0.06	0.11	0.07	OL	OL
<b>Total number of measurements taken, A:</b>			15		17		19		16		15		17		17		16	
<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>			15		17		19		16		15		17		17		16	
<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 IM: Instrument Maintenance

**Comments:**

Filter 7 offline for maintenance from December 15 at 17:40 to December 19 at 10:00

Filter 8 offline for maintenance from December 8 at 17:30 to December 12 at 21:55

Report Compiled By: A. Gordon

Authorized By: C. Diduck

Date Authorized: 7-Jan-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**

December 2019 Turbidity (NTU)

Date	Raw		Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/12/2019	0.53	0.06	0.17	0.06	0.16	0.02	0.08	0.05	0.13	0.06	0.08	0.10	0.22	0.04	0.10	0.05	0.08	
2/12/2019	0.52	0.06	0.16	0.06	0.15	0.02	0.07	0.03	0.12	0.05	0.13	0.12	0.16	0.06	0.08	0.06	0.12	
3/12/2019	0.52	0.07	0.09	0.09	0.11	0.02	0.03	0.03	0.14	0.05	0.15	0.15	0.23	0.05	0.11	0.05	0.12	
4/12/2019	0.51	0.06	0.17	0.05	0.16	0.03	0.10	0.04	0.07	0.05	0.08	0.08	0.26	0.05	0.12	0.05	0.11	
5/12/2019	0.50	0.04	0.15	0.03	0.11	0.02	0.08	0.03	0.12	0.06	0.13	0.04	0.16	0.06	0.08	0.06	0.08	
6/12/2019	0.50	0.04	0.07	0.04	0.06	0.02	0.07	0.02	0.10	0.04	0.14	0.07	0.11	0.07	0.12	0.04	0.11	
7/12/2019	0.49	0.06	0.13	0.04	0.12	0.02	0.04	0.02	0.04	0.04	0.12	0.05	0.15	0.05	0.12	0.04	0.11	
8/12/2019	0.48	0.05	0.15	0.04	0.12	0.03	0.08	0.04	0.11	0.06	0.08	0.05	0.15	0.05	0.13	0.04	0.07	
9/12/2019	0.52	0.05	0.09	0.03	0.06	0.01	0.08	0.02	0.11	0.06	0.14	0.06	0.09	0.06	0.09	OL	OL	
10/12/2019	0.51	0.04	0.09	0.03	0.06	0.01	0.03	0.01	0.05	0.04	0.11	0.05	0.10	0.06	0.11	OL	OL	
11/12/2019	0.51	0.05	0.10	0.03	0.06	0.01	0.03	0.01	0.06	0.04	0.08	0.05	0.08	0.05	0.09	OL	OL	
12/12/2019	0.69	0.03	0.09	0.02	0.09	0.00	0.05	0.01	0.09	0.03	0.13	0.04	0.11	0.04	0.12	0.01	0.08	
13/12/2019	0.47	0.03	0.07	0.02	0.05	0.01	0.03	0.01	0.03	0.04	0.06	0.04	0.10	0.05	0.09	0.04	0.06	
14/12/2019	0.46	0.03	0.08	0.02	0.04	0.00	0.02	0.01	0.04	0.05	0.08	0.05	0.08	0.06	0.08	0.03	0.07	
15/12/2019	0.45	0.04	0.06	0.03	0.06	0.00	0.04	0.01	0.05	0.04	0.08	0.05	0.11	0.03	0.09	0.04	0.05	
16/12/2019	0.46	0.04	0.08	0.03	0.06	0.01	0.03	0.01	0.06	0.04	0.08	0.05	0.10	OL	OL	0.04	0.08	
17/12/2019	0.44	0.04	0.09	0.03	0.07	0.01	0.05	0.01	0.03	0.04	0.09	0.05	0.11	OL	OL	0.04	0.08	
18/12/2019	0.45	0.04	0.08	0.03	0.10	0.01	0.04	0.02	0.06	0.04	0.07	0.05	0.11	OL	OL	0.04	0.09	
19/12/2019	0.54	0.03	0.10	0.03	4.59	0.01	0.04	0.03	0.10	0.04	0.09	0.05	0.08	0.02	0.08	0.03	0.08	
20/12/2019	0.55	0.07	0.09	0.02	0.07	0.00	0.05	0.04	0.11	0.02	0.07	0.04	0.10	0.04	0.06	0.04	0.05	
21/12/2019	0.56	0.05	0.11	0.02	0.06	0.03	0.05	0.05	0.09	0.02	0.04	0.03	0.12	0.05	0.09	0.03	0.08	
22/12/2019	0.55	0.05	0.08	0.02	0.05	0.02	0.05	0.04	0.11	0.04	0.09	0.05	0.09	0.04	0.09	0.03	0.08	
23/12/2019	0.55	0.07	0.12	0.02	0.06	0.02	0.06	0.04	0.11	0.02	0.08	0.04	0.11	0.04	0.07	0.04	0.06	
24/12/2019	0.54	0.04	0.10	0.01	0.06	0.03	0.05	0.05	0.07	0.02	0.04	0.03	0.11	0.05	0.09	0.03	0.08	
25/12/2019	0.54	0.04	0.10	0.01	0.04	0.02	0.07	0.05	0.11	0.03	0.07	0.04	0.08	0.04	0.08	0.03	0.08	
26/12/2019	0.54	0.05	0.07	0.02	0.07	0.02	0.06	0.04	0.11	0.02	0.08	0.04	0.12	0.04	0.10	0.03	0.05	
27/12/2019	0.56	0.04	0.10	0.02	0.06	0.02	0.04	0.04	0.12	0.02	0.07	0.04	0.11	0.06	0.08	0.04	0.09	
28/12/2019	0.55	0.05	0.12	0.02	0.07	0.03	0.07	0.07	0.11	0.03	0.05	0.04	0.07	0.04	0.09	0.03	0.09	
29/12/2019	0.54	0.07	0.08	0.04	0.08	0.03	0.10	0.05	0.13	0.03	0.09	0.05	0.12	0.03	0.15	0.03	0.07	
30/12/2019	0.53	0.06	0.15	0.04	0.11	0.04	0.09	0.05	0.13	0.03	0.10	0.04	0.12	0.06	0.14	0.04	0.10	
31/12/2019	0.54	0.05	0.14	0.03	0.09	0.04	0.10	0.08	0.16	0.04	0.06	0.04	0.08	0.04	0.09	0.03	0.09	

Total Number of Measurements Taken, A: 11739      12166      11554      12987      14562      14573      12155      13340  
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: 11739      12165      11554      12987      14562      14573      12155      13340  
Compliance with Turbidity Standard, C = B/A X 100%: 100.000%      99.992%      100.000%      100.000%      100.000%      100.000%      100.000%      100.000%

Off Line - OL

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\12-December

Submitted By Print: D. Merredew

Signature: Original Signed by D. Merredew

# **2019 MONTHLY UV MONITORING REPORTS**



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

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

Report Period: January 2019

Report Created: Friday, February 01, 2019

## 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]				
		Untreated	Below	To	Total	Untreated	Below	To	Total																					
01/01/2019	93.57	0.00	0.00	0.00	0.00	0.00	0.00	72.63	72.63	0.00	0.21	31.71	31.91	0.00	0.00	10.50	10.50	0.00	0.00	65.06	65.06	0.00	0.00	0.00	0.00	0.00	0.21	179.89	180.10	99.88
02/01/2019	93.92	0.00	0.00	0.00	0.00	0.00	0.00	71.95	71.95	0.00	0.00	0.00	0.00	0.00	0.00	42.88	42.88	0.00	0.00	63.11	63.11	0.00	0.00	0.00	0.00	0.00	0.00	177.94	177.94	100.00
03/01/2019	93.95	0.00	0.00	0.00	0.00	0.00	0.00	72.07	72.07	0.00	0.00	0.00	0.00	0.00	0.00	41.97	41.97	0.00	0.00	63.09	63.09	0.00	0.00	0.00	0.00	0.00	0.00	177.14	177.14	100.00
04/01/2019	93.86	0.00	0.00	0.00	0.00	0.00	0.00	72.31	72.31	0.00	0.00	0.00	0.00	0.00	0.00	42.21	42.21	0.00	0.00	63.50	63.50	0.00	0.00	0.00	0.00	0.00	0.00	178.01	178.01	100.00
05/01/2019	93.82	0.00	0.00	0.00	0.00	0.00	0.00	71.88	71.88	0.00	0.00	0.00	0.00	0.00	0.00	42.93	42.93	0.00	0.00	63.17	63.17	0.00	0.00	0.00	0.00	0.00	0.00	177.97	177.97	100.00
06/01/2019	93.79	0.00	0.00	0.00	0.00	0.00	0.00	72.41	72.41	0.00	0.00	0.00	0.00	0.00	0.00	45.17	45.17	0.00	0.00	64.31	64.31	0.00	0.00	0.00	0.00	0.00	0.00	181.89	181.89	100.00
07/01/2019	93.70	0.00	0.00	0.00	0.00	0.00	0.00	71.58	71.58	0.00	0.00	0.00	0.00	0.00	0.00	53.62	53.62	0.00	0.00	65.13	65.13	0.00	0.00	0.00	0.00	0.00	0.00	190.33	190.33	100.00
08/01/2019	93.68	0.00	0.00	0.00	0.00	0.00	0.00	72.47	72.47	0.00	0.00	0.00	0.00	0.00	0.00	54.24	54.24	0.00	0.00	66.26	66.26	0.00	0.00	0.00	0.00	0.00	0.00	192.97	192.97	100.00
09/01/2019	93.62	0.00	0.00	0.00	0.00	0.00	0.00	72.49	72.49	0.00	0.00	0.00	0.00	0.00	0.00	54.09	54.09	0.00	0.00	66.39	66.39	0.00	0.00	0.00	0.00	0.00	0.00	192.97	192.97	100.00
10/01/2019	93.41	0.00	0.00	0.00	0.00	0.00	0.00	71.17	71.17	0.00	0.00	0.00	0.00	0.00	0.00	53.10	53.10	0.00	0.00	64.87	64.87	0.00	0.00	0.00	0.00	0.00	0.00	189.13	189.13	100.00
11/01/2019	93.10	0.00	0.00	0.00	0.00	0.00	0.00	70.54	70.54	0.00	0.00	0.00	0.00	0.00	0.00	52.64	52.64	0.00	0.00	63.82	63.82	0.00	0.00	0.00	0.00	0.00	0.00	187.01	187.01	100.00
12/01/2019	93.25	0.00	0.00	0.00	0.00	0.00	0.00	69.56	69.56	0.00	0.00	0.00	0.00	0.00	0.00	51.87	51.87	0.00	0.00	62.49	62.49	0.00	0.00	0.00	0.00	0.00	0.00	183.93	183.93	100.00
13/01/2019	93.22	0.00	0.00	0.00	0.00	0.00	0.00	69.47	69.47	0.00	0.00	0.00	0.00	0.00	0.00	51.83	51.83	0.00	0.00	62.74	62.74	0.00	0.00	0.00	0.00	0.00	0.00	184.04	184.04	100.00
14/01/2019	93.24	0.00	0.00	0.00	0.00	0.00	0.00	69.39	69.39	0.00	0.00	0.00	0.00	0.00	0.00	51.88	51.88	0.00	0.00	62.73	62.73	0.00	0.00	0.00	0.00	0.00	0.00	184.00	184.00	100.00
15/01/2019	93.34	0.00	0.00	0.00	0.00	0.00	0.00	69.41	69.41	0.00	0.00	0.00	0.00	0.00	0.00	51.91	51.91	0.00	0.00	62.67	62.67	0.00	0.00	0.00	0.00	0.00	0.00	183.99	183.99	100.00
16/01/2019	93.31	0.00	0.00	0.00	0.00	0.00	0.00	69.39	69.39	0.00	0.00	0.00	0.00	0.00	0.00	51.93	51.93	0.00	0.00	62.69	62.69	0.00	0.00	0.00	0.00	0.00	0.00	183.99	183.99	100.00
17/01/2019	93.16	0.00	0.00	0.00	0.00	0.00	0.00	71.98	71.98	0.00	0.00	0.00	0.00	0.00	0.00	47.54	47.54	0.00	0.00	64.47	64.47	0.00	0.00	0.00	0.00	0.00	0.00	183.99	183.99	100.00
18/01/2019	93.16	0.00	0.00	0.00	0.00	0.00	0.00	73.33	73.33	0.00	0.00	0.00	0.00	0.00	0.00	44.24	44.24	0.00	0.00	21.21	21.21	0.00	0.00	43.80	43.80	0.00	0.00	182.58	182.58	100.00
19/01/2019	93.16	0.00	0.00	0.00	0.00	0.00	0.00	72.76	72.76	0.00	0.00	0.00	0.00	0.00	0.00	43.72	43.72	0.00	0.00	0.00	0.00	0.00	0.00	64.07	64.07	0.00	0.00	180.55	180.55	100.00
20/01/2019	93.10	0.00	0.00	0.00	0.00	0.00	0.00	72.49	72.49	0.00	0.00	0.00	0.00	0.00	0.00	43.55	43.55	0.00	0.00	0.00	0.00	0.00	0.00	63.98	63.98	0.00	0.00	180.01	180.01	100.00
21/01/2019	93.06	0.00	0.07	28.95	29.01	0.00	0.00	66.74	66.74	0.00	0.00	1.76	1.76	0.00	0.00	61.92	61.92	0.00	0.00	0.00	0.00	0.00	0.00	21.96	21.96	0.00	0.07	181.32	181.39	99.96
22/01/2019	92.92	0.00	0.00	0.00	0.00	0.00	0.00	79.27	79.27	0.00	0.00	42.58	42.58	0.00	0.00	66.08	66.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.92	187.92	100.00
23/01/2019	92.79	0.00	0.00	0.00	0.00	0.00	0.00	44.83	44.83	0.00	0.00	24.79	24.79	0.00	0.00	41.93	41.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	111.54	111.54	100.00
24/01/2019	93.05	0.00	0.00	0.01	0.01	0.00	0.00	80.82	80.82	0.00	0.00	42.28	42.28	0.00	0.00	76.89	76.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	200.00	200.00	100.00
25/01/2019	93.09	0.00	0.00	0.00	0.00	0.00	0.00	81.14	81.14	0.00	0.00	42.02	42.02	0.00	0.00	76.87	76.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	200.03	200.03	100.00
26/01/2019	93.15	0.00	0.00	0.00	0.00	0.00	0.00	73.72	73.72	0.00	0.00	38.31	38.31	0.00	0.00	69.93	69.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	181.96	181.96	100.00
27/01/2019	93.26	0.00	0.00	0.00	0.00	0.00	0.00	72.09	72.09	0.00	0.00	37.66	37.66	0.00	0.00	68.67	68.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.42	178.42	100.00
28/01/2019	93.25	0.00	0.00	0.00	0.00	0.00	0.00	73.81	73.81	0.00	0.00	38.38	38.38	0.00	0.00	70.57	70.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.75	182.75	100.00
29/01/2019	93.15	0.00	0.00	0.00	0.00	0.00	0.00	73.88	73.88	0.00	0.00	38.46	38.46	0.00	0.00	70.70	70.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.03	183.03	100.00
30/01/2019	93.23	0.00	0.00	0.00	0.00	0.00	0.00	74.20	74.20	0.00	0.00	38.21	38.21	0.00	0.00	70.59	70.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.99	182.99	100.00
31/01/2019	93.38	0.00	0.00	0.00	0.00	0.00	0.00	73.16	73.16	0.00	0.00	40.18	40.18	0.00	0.00	69.67	69.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.01	183.01	100.00

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.00 %

To Dose: 100.00 %

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



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: February 2019

Report Created: Friday, March 01, 2019

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]				
		Untreated	Below	To	Total	Untreated	Below	To	Total																					
01/02/2019	93.25	0.00	0.00	0.00	0.00	0.00	0.00	65.01	65.01	0.00	0.00	50.55	50.55	0.00	0.00	64.99	64.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.55	180.55	100.00		
02/02/2019	93.14	0.00	0.00	0.00	0.00	0.00	0.00	65.00	65.00	0.00	0.00	53.55	53.55	0.00	0.00	64.99	64.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.55	183.55	100.00		
03/02/2019	92.97	0.00	0.00	0.00	0.00	0.00	0.00	64.99	64.99	0.00	0.00	54.00	54.00	0.00	0.00	65.00	65.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.99	183.99	100.00		
04/02/2019	92.91	0.00	0.00	0.00	0.00	0.00	0.00	65.00	65.00	0.00	0.00	53.98	53.98	0.00	0.00	65.03	65.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.01	184.01	100.00		
05/02/2019	92.88	0.00	0.00	0.00	0.00	0.15	0.15	52.00	52.30	0.00	0.00	53.22	53.22	0.00	0.00	64.97	64.97	0.00	0.00	13.51	13.51	0.00	0.00	0.00	0.00	0.15	0.15	183.71	184.02	99.83
06/02/2019	92.79	0.00	0.00	0.00	0.00	0.00	0.00	29.30	29.30	0.00	0.00	55.91	55.91	0.00	0.00	33.75	33.75	0.00	0.00	65.03	65.03	0.00	0.00	0.00	0.00	0.00	0.00	184.00	184.00	100.00
07/02/2019	92.73	0.00	0.00	34.97	34.97	0.00	0.03	26.93	26.96	0.00	0.00	64.24	64.24	0.00	0.00	0.00	0.00	0.00	0.00	22.56	22.56	0.00	0.00	35.04	35.04	0.00	0.03	183.73	183.76	99.98
08/02/2019	92.54	0.00	0.00	56.37	56.37	0.00	0.00	0.00	0.00	0.00	0.00	65.00	65.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.63	62.63	0.00	0.00	184.00	184.00	100.00		
09/02/2019	91.99	0.00	0.00	56.10	56.10	0.00	0.00	0.00	0.00	0.00	0.00	64.37	64.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.90	61.90	0.00	0.00	182.37	182.37	100.00		
10/02/2019	90.95	0.00	0.00	56.54	56.54	0.00	0.00	0.00	0.00	0.00	0.00	64.89	64.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.35	62.35	0.00	0.00	183.78	183.78	100.00		
11/02/2019	91.21	0.00	0.00	56.50	56.50	0.00	0.00	0.00	0.00	0.00	0.00	65.00	65.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.46	62.46	0.00	0.00	183.96	183.96	100.00		
12/02/2019	92.65	0.00	0.00	57.16	57.16	0.00	0.00	0.00	0.00	0.00	0.00	64.57	64.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.21	62.21	0.00	0.00	183.94	183.94	100.00		
13/02/2019	92.82	0.00	0.00	55.32	55.32	0.00	0.00	0.00	0.00	0.00	0.00	63.16	63.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.48	60.48	0.00	0.00	178.96	178.96	100.00		
14/02/2019	93.34	0.00	0.00	54.35	54.35	0.00	0.00	0.00	0.00	0.00	0.00	62.81	62.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.84	59.84	0.00	0.00	177.00	177.00	100.00		
15/02/2019	93.92	0.00	0.00	55.14	55.14	0.00	0.00	0.00	0.00	0.00	0.00	63.33	63.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.44	60.44	0.00	0.00	178.91	178.91	100.00		
16/02/2019	93.65	0.00	0.00	58.19	58.19	0.00	0.00	0.00	0.00	0.00	0.00	64.91	64.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.50	62.50	0.00	0.00	185.60	185.60	100.00		
17/02/2019	93.42	0.00	0.00	58.54	58.54	0.00	0.00	0.00	0.00	0.00	0.00	64.98	64.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.73	62.73	0.00	0.00	186.25	186.25	100.00		
18/02/2019	93.15	0.00	0.00	58.30	58.30	0.00	0.00	0.00	0.00	0.00	0.00	64.66	64.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.46	62.46	0.00	0.00	185.42	185.42	100.00		
19/02/2019	92.68	0.00	0.20	63.02	63.22	0.00	0.00	0.00	0.00	0.00	0.00	59.11	59.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.70	67.70	0.00	0.20	189.83	190.03	99.89		
20/02/2019	91.60	0.00	0.00	55.80	55.80	0.19	0.24	0.00	0.43	0.00	0.00	49.31	49.31	0.00	0.00	10.21	10.21	0.00	0.00	0.00	0.00	0.00	0.00	74.40	74.40	0.19	0.24	189.72	190.15	99.77
21/02/2019	92.19	0.00	0.00	43.55	43.55	0.05	0.05	29.48	29.58	0.00	0.00	45.67	45.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.47	68.47	0.05	0.05	187.18	187.27	99.95		
22/02/2019	93.36	0.00	0.00	0.00	0.00	0.00	0.00	75.53	75.53	0.00	0.00	43.97	43.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.52	66.52	0.00	0.00	186.02	186.02	100.00		
23/02/2019	94.02	0.00	0.00	0.00	0.00	0.00	0.00	73.60	73.60	0.00	0.00	46.53	46.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.86	65.86	0.00	0.00	185.99	185.99	100.00		
24/02/2019	93.27	0.00	0.00	0.00	0.00	0.00	0.00	60.72	60.72	0.00	0.00	64.26	64.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.59	61.59	0.00	0.00	186.57	186.57	100.00		
25/02/2019	93.19	0.00	0.00	21.23	21.23	0.20	0.20	39.82	40.22	0.00	0.00	64.85	64.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.82	62.82	0.20	0.20	188.71	189.11	99.79		
26/02/2019	92.95	0.00	0.00	0.00	0.00	0.00	0.00	63.78	63.78	0.00	0.00	66.06	66.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.44	62.44	0.00	0.00	192.29	192.29	100.00		
27/02/2019	92.79	0.00	0.00	12.73	12.73	0.00	0.00	73.71	73.71	0.00	0.00	59.26	59.26	0.15	0.15	36.89	37.19	0.00	0.00	0.00	0.00	0.00	0.00	16.64	16.65	0.15	0.15	199.23	199.53	99.85
28/02/2019	92.67	0.00	0.00	58.14	58.14	0.00	0.00	43.10	43.10	0.00	0.00	74.02	74.02	0.00	0.00	0.00	0.00	0.00	0.00	26.14	26.14	0.00	0.00	0.00	0.00	0.00	0.00	201.40	201.40	100.00

Water Volume [%]:

Untreated: 0.01 %

Below Dose: 0.02 %

To Dose: 99.97 %

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: March 2019

Report Created: Monday, April 01, 2019

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]					
		Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/03/2019	92.45	0.00	0.00	61.92	61.92	0.00	0.00	0.00	0.00	0.00	0.00	69.34	69.34	0.00	0.00	0.00	0.00	0.00	0.00	68.54	68.54	0.00	0.00	0.00	0.00	0.00	0.00	199.80	199.80	100.00	
02/03/2019	92.49	0.00	0.00	61.72	61.72	0.00	0.00	0.00	0.00	0.00	0.00	69.25	69.25	0.00	0.00	0.00	0.00	0.00	0.00	68.06	68.06	0.00	0.00	0.00	0.00	0.00	0.00	199.03	199.03	100.00	
03/03/2019	92.51	0.00	0.00	61.70	61.70	0.00	0.00	0.00	0.00	0.00	0.00	69.23	69.23	0.00	0.00	0.00	0.00	0.00	0.00	68.06	68.06	0.00	0.00	0.00	0.00	0.00	0.00	198.99	198.99	100.00	
04/03/2019	92.58	0.00	0.00	61.65	61.65	0.00	0.00	0.00	0.00	0.00	0.00	69.16	69.16	0.00	0.00	0.00	0.00	0.00	0.00	68.17	68.17	0.00	0.00	0.00	0.00	0.00	0.00	198.98	198.98	100.00	
05/03/2019	92.86	0.00	0.00	61.67	61.67	0.00	0.00	0.00	0.00	0.00	0.00	68.96	68.96	0.00	0.00	0.00	0.00	0.00	0.00	68.39	68.39	0.00	0.00	0.00	0.00	0.00	0.00	199.01	199.01	100.00	
06/03/2019	93.18	0.00	0.00	60.61	60.61	0.00	0.00	0.00	0.00	0.00	0.00	68.14	68.14	0.00	0.00	0.00	0.00	0.00	0.00	67.00	67.00	0.00	0.00	0.00	0.00	0.00	0.00	195.76	195.76	100.00	
07/03/2019	93.19	0.00	0.00	59.23	59.23	0.00	0.00	0.00	0.00	0.00	0.00	66.01	66.01	0.00	0.00	0.00	0.00	0.00	0.00	64.39	64.39	0.00	0.00	0.00	0.00	0.00	0.00	189.63	189.63	100.00	
08/03/2019	93.05	0.00	0.00	59.57	59.57	0.00	0.00	0.00	0.00	0.00	0.00	66.99	66.99	0.00	0.00	0.00	0.00	0.00	0.00	65.25	65.25	0.00	0.00	0.00	0.00	0.00	0.00	191.80	191.80	100.00	
09/03/2019	92.98	0.00	0.00	59.68	59.68	0.00	0.00	0.00	0.00	0.00	0.00	67.37	67.37	0.00	0.00	0.00	0.00	0.00	0.00	65.92	65.92	0.00	0.00	0.00	0.00	0.00	0.00	192.97	192.97	100.00	
10/03/2019	93.04	0.00	0.00	59.70	59.70	0.00	0.00	0.00	0.00	0.00	0.00	67.37	67.37	0.00	0.00	0.00	0.00	0.00	0.00	65.93	65.93	0.00	0.00	0.00	0.00	0.00	0.00	193.00	193.00	100.00	
11/03/2019	93.06	0.00	0.00	59.78	59.78	0.00	0.00	0.00	0.00	0.00	0.00	67.34	67.34	0.01	0.01	0.14	0.16	0.00	0.00	65.79	65.79	0.00	0.00	0.00	0.01	0.01	0.01	193.05	193.06	99.99	
12/03/2019	93.09	0.00	0.00	60.08	60.08	0.00	0.00	0.00	0.00	0.00	0.00	67.55	67.55	0.00	0.00	0.00	0.00	0.00	0.00	65.42	65.42	0.00	0.00	0.00	0.00	0.00	0.00	193.05	193.05	100.00	
13/03/2019	93.45	0.00	0.00	59.66	59.66	0.00	0.00	0.00	0.00	0.00	0.00	66.50	66.50	0.00	0.00	0.00	0.00	0.00	0.00	64.54	64.54	0.00	0.00	0.00	0.00	0.00	0.00	190.70	190.70	100.00	
14/03/2019	93.96	0.00	0.00	59.58	59.58	0.00	0.00	0.00	0.00	0.00	0.00	66.16	66.16	0.00	0.00	0.00	0.00	0.00	0.00	64.30	64.30	0.00	0.00	0.00	0.00	0.00	0.00	190.04	190.04	100.00	
15/03/2019	93.94	0.00	0.00	60.53	60.53	0.00	0.00	0.00	0.00	0.00	0.00	42.62	42.62	0.00	0.00	23.53	23.53	0.00	0.00	63.31	63.31	0.00	0.00	0.00	0.00	0.00	0.00	189.99	189.99	100.00	
16/03/2019	93.85	0.00	0.00	62.38	62.38	0.00	0.00	0.00	0.00	0.00	0.00	65.97	65.97	0.00	0.00	61.66	61.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.01	190.01	100.00			
17/03/2019	93.74	0.00	0.00	62.51	62.51	0.00	0.00	0.00	0.00	0.00	0.00	65.90	65.90	0.00	0.00	61.62	61.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190.02	190.02	100.00			
18/03/2019	93.87	0.00	0.00	62.40	62.40	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	65.43	65.43	0.00	0.00	61.61	61.61	0.00	0.00	0.00	0.01	0.01	0.01	189.44	189.46	99.99	
19/03/2019	93.84	0.00	0.00	61.67	61.67	0.00	0.00	0.00	0.00	0.00	0.00	64.50	64.50	0.00	0.00	60.83	60.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.00	187.00	100.00			
20/03/2019	93.86	0.00	0.00	62.49	62.49	0.00	0.00	0.00	0.00	0.00	0.00	62.82	62.82	0.00	0.00	61.56	61.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	186.86	186.86	100.00			
21/03/2019	94.20	0.00	0.00	71.58	71.58	0.00	0.00	0.00	0.00	0.00	0.00	46.13	46.13	0.00	0.00	69.28	69.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	186.99	186.99	100.00			
22/03/2019	93.97	0.00	0.00	72.27	72.27	0.00	0.00	0.00	0.00	0.00	0.00	47.20	47.20	0.00	0.00	69.79	69.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.25	189.25	100.00			
23/03/2019	93.86	0.00	0.00	72.85	72.85	0.00	0.00	0.00	0.00	0.00	0.00	48.62	48.62	0.00	0.00	70.95	70.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	192.42	192.42	100.00			
24/03/2019	93.69	0.00	0.00	72.96	72.96	0.00	0.00	0.00	0.00	0.00	0.00	48.75	48.75	0.00	0.00	71.30	71.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	193.01	193.01	100.00			
25/03/2019	93.44	0.00	0.00	22.94	22.94	0.00	0.00	52.07	52.07	0.00	0.00	0.00	0.00	0.00	0.00	47.82	47.82	0.00	0.00	70.19	70.19	0.00	0.00	0.00	0.00	0.00	0.00	193.03	193.03	100.00	
26/03/2019	93.09	0.00	0.00	0.00	0.00	0.00	0.00	78.47	78.47	0.00	0.00	0.00	0.00	0.00	0.00	48.70	48.70	0.00	0.00	72.30	72.30	0.00	0.00	0.00	0.00	0.00	0.00	199.47	199.47	100.00	
27/03/2019	92.56	0.00	0.00	0.00	0.00	0.00	81.24	81.24	0.00	0.00	0.00	0.00	0.00	0.00	49.93	49.93	0.00	0.00	75.17	75.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206.33	206.33	100.00
28/03/2019	91.99	0.00	0.00	0.00	0.00	0.00	53.48	53.48	0.05	0.36	0.58	1.00	0.00	0.04	36.82	36.86	0.09	0.09	26.47	26.66	0.00	0.00	20.24	20.24	0.14	0.50	137.60	138.24	99.54		
29/03/2019	92.23	0.00	0.00	0.00	0.00	0.00	66.17	66.17	0.00	0.00	0.00	0.00	0.00	0.00	65.09	65.09	0.00	0.00	0.00	0.00	0.00	0.00	63.54	63.54	0.00	0.00	194.79	194.79	100.00		
30/03/2019	92.59	0.00	0.00	0.00	0.00	0.00	66.56	66.56	0.00	0.00	0.00	0.00	0.00	0.00	65.63	65.63	0.00	0.00	0.00	0.00	0.00	0.00	62.82	62.82	0.00	0.00	195.01	195.01	100.00		
31/03/2019	92.59	0.00	0.00	0.00	0.00	0.00	66.70	66.70	0.00	0.00	0.00	0.00	0.00	0.00	65.89	65.89	0.00	0.00	0.00	0.00	0.00	0.00	62.43	62.43	0.00	0.00	195.02	195.02	100.00		

Total [ML]: 0.00 0.00 1531.15 1531.15 0.00 0.00 464.69 464.69 0.06 0.37 992.56 992.99 0.01 0.05 918.87 918.93 0.09 0.09 1825.78 1825.97 0.00 0.00 209.02 209.02 0.16 0.51 5942.08 5942.75

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: April 2019

Report Created: Wednesday, May 01, 2019

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]					
		Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/04/2019	94.66	0.00	0.00	30.96	30.96	0.00	0.00	45.12	45.12	0.00	0.73	0.83	1.55	0.00	0.00	30.41	30.41	0.00	0.00	21.14	21.14	0.00	0.00	65.77	65.77	0.00	0.73	194.23	194.95	99.63	
02/04/2019	94.59	0.00	0.00	68.71	68.71	0.00	0.00	0.00	0.00	0.01	0.28	31.54	31.83	0.00	0.05	5.67	5.72	0.00	0.00	54.54	54.54	0.00	0.00	40.48	40.48	0.01	0.33	200.94	201.28	99.83	
03/04/2019	94.49	0.00	0.00	64.31	64.31	0.00	0.00	0.00	0.00	0.00	0.05	34.71	34.75	0.00	0.00	34.53	34.53	0.00	0.00	67.77	67.77	0.00	0.00	0.00	0.00	0.00	0.05	201.32	201.37	99.98	
04/04/2019	94.39	0.00	0.00	63.99	63.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.26	66.26	0.00	0.00	64.49	64.49	0.00	0.00	0.00	0.00	0.00	0.00	194.74	194.74	100.00	
05/04/2019	94.42	0.00	0.00	62.19	62.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.62	64.62	0.00	0.00	63.23	63.23	0.00	0.00	0.00	0.00	0.00	0.00	190.05	190.05	100.00	
06/04/2019	94.39	0.00	0.00	61.03	61.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.31	64.31	0.00	0.00	60.44	60.44	0.00	0.00	0.00	0.00	0.00	0.00	185.78	185.78	100.00	
07/04/2019	94.42	0.00	0.00	60.35	60.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.75	63.75	0.00	0.04	8.71	8.75	0.00	0.00	51.17	51.17	0.00	0.04	183.98	184.02	99.98	
08/04/2019	94.43	0.00	0.00	59.25	59.25	0.00	0.00	0.00	0.00	0.00	0.00	18.88	18.88	0.04	0.04	44.79	44.88	0.00	0.00	0.00	0.00	1.34	1.34	58.79	61.47	1.38	1.38	181.71	184.48	98.50	
09/04/2019	94.50	0.00	0.00	60.36	60.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.00	64.00	0.00	0.00	0.00	0.00	0.00	0.00	59.63	59.63	0.00	0.00	183.99	183.99	100.00	
10/04/2019	94.65	0.00	0.00	60.49	60.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.88	63.88	0.00	0.00	0.00	0.00	0.00	0.00	59.95	59.95	0.00	0.00	184.31	184.31	100.00	
11/04/2019	94.85	0.00	0.00	60.93	60.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.05	64.05	0.00	0.00	0.04	0.04	0.00	0.00	60.23	60.23	0.00	0.00	185.24	185.24	100.00	
12/04/2019	94.75	0.00	0.00	61.22	61.22	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	0.00	0.00	0.00	0.00	0.00	60.54	60.54	0.00	0.00	185.99	185.99	100.00	
13/04/2019	94.62	0.00	0.00	59.98	59.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.54	63.54	0.00	0.00	0.00	0.00	0.00	0.00	59.66	59.66	0.00	0.00	183.17	183.17	100.00	
14/04/2019	94.40	0.00	0.00	59.73	59.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.41	63.41	0.00	0.00	0.00	0.00	0.00	0.00	59.87	59.87	0.00	0.00	183.01	183.01	100.00	
15/04/2019	93.91	0.00	0.00	61.77	61.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.29	65.29	0.00	0.00	0.00	0.00	0.00	0.00	61.37	61.37	0.00	0.00	188.42	188.42	100.00	
16/04/2019	93.32	0.00	0.00	61.65	61.65	0.00	0.00	0.00	0.00	0.00	0.00	28.75	28.75	0.00	0.00	38.00	38.00	0.01	0.01	27.87	27.89	0.00	0.00	36.72	36.72	0.01	0.01	193.00	193.02	99.99	
17/04/2019	92.14	0.01	0.01	43.98	44.00	0.00	0.00	0.00	0.00	0.01	0.01	47.12	47.14	0.02	0.02	0.30	0.33	0.19	0.19	51.61	52.00	0.09	0.09	0.11	0.30	0.33	0.33	143.11	143.77	99.54	
18/04/2019	92.32	0.00	0.00	61.11	61.11	0.00	0.00	0.00	0.00	0.00	0.00	40.07	40.07	0.09	0.12	32.91	33.11	0.00	0.00	50.69	50.69	0.00	0.04	30.92	30.96	0.09	0.15	215.70	215.93	99.89	
19/04/2019	91.59	0.00	0.00	78.32	78.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.61	53.61	0.00	0.00	0.00	0.00	0.00	0.00	76.30	76.30	0.00	0.00	208.23	208.23	100.00	
20/04/2019	90.94	0.00	0.00	69.16	69.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.71	55.71	0.00	0.00	0.00	0.00	0.00	0.00	68.91	68.91	0.00	0.00	193.77	193.77	100.00	
21/04/2019	90.72	0.00	0.00	62.00	62.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.21	65.21	0.00	0.00	0.00	0.00	0.00	0.00	61.21	61.21	0.00	0.00	188.42	188.42	100.00	
22/04/2019	99.94	0.00	0.00	65.81	65.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	53.65	53.71	0.00	0.00	0.00	0.00	0.00	0.00	67.93	67.93	0.00	0.06	187.38	187.44	99.97	
23/04/2019	97.59	0.00	0.05	64.61	64.66	0.00	0.00	0.00	0.00	0.00	0.00	22.15	22.15	0.00	0.00	33.03	33.03	0.00	0.00	0.00	0.00	0.00	0.00	68.16	68.16	0.00	0.05	187.95	187.99	99.98	
24/04/2019	95.72	0.00	0.00	35.44	35.44	0.00	0.00	30.04	30.04	0.00	0.00	0.00	0.00	0.00	0.00	60.85	60.85	0.00	0.00	34.05	34.05	0.00	0.00	27.63	27.63	0.00	0.00	188.02	188.02	100.00	
25/04/2019	95.68	0.00	0.00	0.00	0.00	0.00	0.00	75.08	75.08	0.00	0.00	0.00	0.00	0.00	0.00	57.21	57.21	0.00	0.00	60.30	60.30	0.00	0.00	0.00	0.00	0.00	0.00	192.60	192.60	100.00	
26/04/2019	96.09	0.00	0.00	0.00	0.00	0.00	0.00	79.44	79.44	0.00	0.00	0.00	0.00	0.00	0.00	53.11	53.11	0.00	0.00	60.37	60.37	0.00	0.00	0.00	0.00	0.00	0.00	192.92	192.92	100.00	
27/04/2019	96.17	0.00	0.00	0.00	0.00	0.00	0.00	78.78	78.78	0.00	0.00	0.00	0.00	0.00	0.00	52.69	52.69	0.00	0.00	60.07	60.07	0.00	0.00	0.00	0.00	0.00	0.00	191.54	191.54	100.00	
28/04/2019	96.18	0.00	0.00	0.00	0.00	0.00	0.00	80.70	80.70	0.00	0.00	0.00	0.00	0.00	0.00	53.85	53.85	0.00	0.00	61.45	61.45	0.00	0.00	0.00	0.00	0.00	0.00	196.01	196.01	100.00	
29/04/2019	96.11	0.00	0.00	0.00	0.00	0.00	0.00	80.72	80.72	0.00	0.00	0.00	0.00	0.00	0.00	53.83	53.83	0.00	0.00	61.46	61.46	0.00	0.00	0.00	0.00	0.00	0.00	196.01	196.01	100.00	
30/04/2019	96.11	0.00	0.00	0.00	0.00	0.00	0.00	81.14	81.14	0.00	0.00	0.00	0.00	0.00	0.00	54.09	54.09	0.00	0.00	61.83	61.83	0.00	0.00	0.00	0.00	0.00	0.00	197.05	197.05	100.00	

Water Volume [%]:

Untreated: 0.03 %

Below Dose: 0.05 %

To Dose: 99.91 %

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: May 2019

Report Created: Saturday, June 01, 2019

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]					
		Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/05/2019	96.09	0.00	0.00	23.85	23.85	0.00	0.00	55.42	55.42	0.00	0.00	0.00	0.00	0.00	0.00	54.07	54.07	0.00	0.00	61.82	61.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	195.16	195.16	100.00
02/05/2019	96.14	0.00	0.00	74.40	74.40	0.00	0.00	2.19	2.19	0.00	0.00	17.97	17.97	0.00	0.00	36.40	36.40	0.00	0.00	41.35	41.35	0.00	0.00	22.71	22.71	0.00	0.00	195.01	195.01	100.00	
03/05/2019	96.14	0.00	0.00	74.91	74.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.94	53.94	0.00	0.00	0.00	0.00	0.00	0.00	62.39	62.39	0.00	0.00	191.24	191.24	100.00	
04/05/2019	96.14	0.00	0.00	42.87	42.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.36	61.36	0.00	0.03	16.65	16.68	0.00	0.00	63.18	63.18	0.00	0.03	184.06	184.09	99.98	
05/05/2019	96.12	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	67.99	67.99	0.00	0.00	40.59	40.59	0.00	0.00	73.29	73.29	0.00	0.00	181.87	181.87	100.00	
06/05/2019	95.52	0.00	0.00	0.00	0.00	0.00	0.00	32.30	32.30	0.00	0.00	0.00	0.00	0.00	0.00	56.75	56.75	0.00	0.00	22.52	22.52	0.00	0.10	70.34	70.45	0.00	0.10	181.91	182.01	99.94	
07/05/2019	96.12	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	0.00	44.49	44.49	0.00	0.00	0.00	0.00	0.00	0.00	65.56	65.56	0.00	0.00	182.00	182.00	100.00	
08/05/2019	96.05	0.00	0.00	0.00	0.00	0.00	0.00	74.21	74.21	0.00	0.00	0.00	0.00	0.00	0.00	45.29	45.29	0.00	0.00	0.00	0.00	0.00	0.00	68.75	68.75	0.00	0.00	188.24	188.24	100.00	
09/05/2019	96.04	0.00	0.00	30.00	30.00	0.00	0.00	43.99	43.99	0.00	0.00	30.53	30.53	0.00	0.00	19.07	19.07	0.00	0.38	0.06	0.44	0.00	0.05	69.96	70.00	0.00	0.42	193.61	194.03	99.78	
10/05/2019	96.00	0.00	0.00	60.29	60.29	0.00	0.00	11.80	11.80	0.00	0.00	47.75	47.75	0.00	0.00	0.00	0.00	0.00	0.00	47.10	47.10	0.00	0.00	27.08	27.08	0.00	0.00	194.02	194.02	100.00	
11/05/2019	95.90	0.00	0.00	71.73	71.73	0.00	0.00	0.00	0.00	0.00	0.00	48.00	48.00	0.00	0.00	0.00	0.00	0.00	0.00	74.48	74.48	0.00	0.00	0.00	0.00	0.00	0.00	194.21	194.21	100.00	
12/05/2019	95.90	0.00	0.00	71.83	71.83	0.00	0.00	0.00	0.00	0.00	0.00	48.02	48.02	0.00	0.00	0.00	0.00	0.00	0.00	74.59	74.59	0.00	0.00	0.00	0.00	0.00	0.00	194.43	194.43	100.00	
13/05/2019	95.57	0.00	0.00	23.12	23.12	0.00	0.00	52.73	52.73	0.00	0.00	15.69	15.69	0.00	0.00	31.22	31.22	0.00	0.00	72.23	72.23	0.00	0.00	0.00	0.00	0.00	0.00	194.98	194.98	100.00	
14/05/2019	96.00	0.00	0.00	0.00	0.00	0.00	0.00	78.37	78.37	0.00	0.00	0.00	0.00	0.00	0.00	47.30	47.30	0.00	0.00	71.74	71.74	0.00	0.00	0.00	0.00	0.00	0.00	197.41	197.41	100.00	
15/05/2019	96.01	0.00	0.00	0.00	0.00	0.00	0.00	79.76	79.76	0.00	0.00	0.00	0.00	0.00	0.00	48.97	48.97	0.00	0.00	74.05	74.05	0.00	0.00	0.00	0.00	0.00	0.00	202.79	202.79	100.00	
16/05/2019	95.47	0.00	0.00	0.00	0.00	0.00	0.00	80.41	80.41	0.00	0.00	0.00	0.00	0.00	0.00	49.30	49.30	0.00	0.00	74.95	74.95	0.00	0.00	0.00	0.00	0.00	0.00	204.65	204.65	100.00	
17/05/2019	95.37	0.00	0.00	0.00	0.00	0.00	0.00	79.91	79.91	0.00	0.00	0.00	0.00	0.00	0.00	48.93	48.93	0.00	0.00	74.17	74.17	0.00	0.00	0.00	0.00	0.00	0.00	203.01	203.01	100.00	
18/05/2019	95.88	0.00	0.00	0.00	0.00	0.00	0.00	78.24	78.24	0.00	0.00	0.00	0.00	0.00	0.00	47.99	47.99	0.00	0.00	71.77	71.77	0.00	0.00	0.00	0.00	0.00	0.00	198.00	198.00	100.00	
19/05/2019	95.88	0.00	0.00	0.00	0.00	0.00	0.00	73.25	73.25	0.00	0.00	0.00	0.00	0.00	0.00	44.82	44.82	0.00	0.00	65.91	65.91	0.00	0.00	0.00	0.00	0.00	0.00	183.98	183.98	100.00	
20/05/2019	95.90	0.00	0.00	0.00	0.00	0.00	0.00	69.50	69.50	0.00	0.00	0.00	0.00	0.00	0.00	42.24	42.24	0.00	0.00	61.97	61.97	0.00	0.00	0.00	0.00	0.00	0.00	173.72	173.72	100.00	
21/05/2019	95.87	0.00	0.00	25.79	25.79	0.00	0.00	69.74	69.74	0.00	0.00	0.00	0.00	0.03	0.03	23.47	23.54	0.00	0.00	71.32	71.32	0.00	0.00	0.00	0.00	0.03	0.03	190.32	190.39	99.96	
22/05/2019	95.88	0.00	0.00	55.43	55.43	0.00	0.00	66.88	66.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.40	78.40	0.00	0.00	0.00	0.00	0.00	0.00	200.72	200.72	100.00	
23/05/2019	95.85	0.00	0.00	56.18	56.18	0.00	0.00	67.25	67.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.84	78.84	0.00	0.00	0.00	0.00	0.00	0.00	202.28	202.28	100.00	
24/05/2019	95.73	0.00	0.00	55.48	55.48	0.00	0.00	66.50	66.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.01	78.01	0.00	0.00	0.00	0.00	0.00	0.00	199.99	199.99	100.00	
25/05/2019	95.91	0.00	0.00	55.44	55.44	0.00	0.00	66.55	66.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.01	78.01	0.00	0.00	0.00	0.00	0.00	0.00	200.00	200.00	100.00	
26/05/2019	95.96	0.00	0.00	55.34	55.34	0.00	0.00	66.62	66.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.03	78.03	0.00	0.00	0.00	0.00	0.00	0.00	199.99	199.99	100.00	
27/05/2019	95.77	0.00	0.00	62.49	62.49	0.00	0.00	26.77	26.77	0.00	0.00	33.35	33.35	0.00	0.00	0.71	0.71	0.00	0.00	76.65	76.65	0.00	0.00	0.00	0.00	0.00	0.00	199.98	199.98	100.00	
28/05/2019	94.94	0.00	0.00	64.03	64.04	0.00	0.00	0.00	0.00	0.10	0.10	44.48	44.68	0.00	0.00	0.00	0.00	0.00	0.00	59.83	59.83	0.00	0.00	0.00	0.00	0.10	0.10	168.34	168.54	99.88	
29/05/2019	94.99	0.00	0.00	34.86	34.86	0.00	0.00	47.35	47.35	0.00	0.00	57.43	57.43	0.00	0.00	0.00	0.00	0.00	0.00	70.50	70.50	0.00	0.00	0.00	0.00	0.00	0.00	210.14	210.14	100.00	
30/05/2019	94.80	0.00	0.00	0.00	0.00	0.00	0.00	85.00	85.00	0.00	0.00	60.17	60.17	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	0.00	218.72	218.72	100.00	
31/05/2019	95.22	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	64.12	64.12	0.00	0.00	0.00	0.00	0.00	0.00	77.41	77.41	0.00	0.00	0.00	0.00	0.00	0.00	226.54	226.54	100.00	

Total [ML]: 0.00 0.00 938.03 938.04 0.00 0.00 1531.71 1531.71 0.10 0.10 467.50 467.69 0.03 0.03 824.31 824.38 0.00 0.00 41 1766.53 1766.94 0.00 0.00 15 523.25 52



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: June 2019

Report Created: Monday, July 01, 2019

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]					
		Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/06/2019	94.81	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	62.90	62.90	0.00	0.00	0.00	0.00	0.00	0.00	75.56	75.56	0.00	0.00	0.00	0.00	0.00	0.00	223.47	223.47	100.00	
02/06/2019	94.79	0.00	0.00	0.00	0.00	0.00	0.00	85.02	85.02	0.00	0.00	65.07	65.07	0.00	0.00	0.00	0.00	0.00	0.00	78.01	78.01	0.00	0.00	0.00	0.00	0.00	0.00	228.10	228.10	100.00	
03/06/2019	94.66	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	64.93	64.93	0.00	0.00	0.00	0.00	0.00	0.00	77.80	77.80	0.00	0.00	0.00	0.00	0.00	0.00	227.73	227.73	100.00	
04/06/2019	94.27	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	62.22	62.22	0.00	0.00	0.00	0.00	0.00	0.00	75.28	75.28	0.00	0.00	0.00	0.00	0.00	0.00	222.51	222.51	100.00	
05/06/2019	93.79	0.20	0.20	54.81	55.20	0.00	0.00	27.54	27.54	0.00	0.00	62.38	62.38	0.00	0.00	1.95	1.95	0.00	0.00	75.43	75.43	0.00	0.00	0.00	0.00	0.20	0.20	222.11	222.50	99.82	
06/06/2019	92.90	0.00	0.00	63.43	63.43	0.00	0.00	19.01	19.01	0.00	0.38	47.73	48.11	0.00	0.00	19.98	19.98	0.00	0.00	74.35	74.35	0.00	0.00	0.00	0.00	0.00	0.00	224.50	224.89	99.83	
07/06/2019	95.62	0.00	0.00	0.00	0.00	0.00	0.00	75.25	75.25	0.00	0.00	0.00	0.00	0.00	0.00	81.07	81.07	0.00	0.00	73.67	73.67	0.00	0.00	0.00	0.00	0.00	0.00	229.99	229.99	100.00	
08/06/2019	95.88	0.00	0.00	46.47	46.47	0.00	0.00	81.97	81.97	0.00	0.00	0.00	0.00	0.00	0.00	17.85	17.85	0.00	0.00	82.40	82.40	0.00	0.00	0.00	0.00	0.00	0.00	228.70	228.70	100.00	
09/06/2019	96.00	0.00	0.00	51.15	51.15	0.00	0.00	68.21	68.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.72	84.72	0.00	0.00	0.00	0.00	0.00	0.00	204.08	204.08	100.00	
10/06/2019	95.88	0.00	0.00	49.59	49.59	0.00	0.00	65.57	65.57	0.00	0.08	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	84.77	84.77	0.00	0.00	0.00	0.00	0.08	0.08	199.95	200.03	99.96	
11/06/2019	95.65	0.00	0.00	58.35	58.35	0.00	0.00	33.08	33.08	0.00	0.00	40.70	40.70	0.00	0.00	0.00	0.00	0.00	0.00	79.50	79.50	0.00	0.00	0.00	0.00	0.00	0.00	211.63	211.63	100.00	
12/06/2019	95.02	0.09	0.09	53.89	54.07	0.00	0.00	0.00	0.00	0.00	0.00	49.08	49.08	0.01	0.01	0.00	0.03	0.00	0.00	52.35	52.35	0.00	0.00	0.00	0.00	0.10	0.10	155.32	155.53	99.87	
13/06/2019	95.64	0.00	0.00	82.58	82.58	0.00	0.00	0.00	0.00	0.00	0.00	62.00	62.00	0.00	0.00	0.00	0.00	0.00	0.00	65.50	65.50	0.00	0.00	11.36	11.36	0.00	0.00	221.44	221.44	100.00	
14/06/2019	95.61	0.00	0.00	50.37	50.37	0.00	0.05	34.60	34.65	0.00	0.00	68.61	68.61	0.00	0.00	0.00	0.00	0.00	0.00	83.15	83.15	0.00	0.00	0.00	0.00	0.05	0.05	236.73	236.78	99.98	
15/06/2019	95.55	0.00	0.00	0.00	0.00	0.00	0.00	85.00	85.00	0.00	0.00	70.10	70.10	0.00	0.00	0.00	0.00	0.00	0.00	84.88	84.88	0.00	0.00	0.00	0.00	0.00	0.00	239.98	239.98	100.00	
16/06/2019	95.46	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.49	13.60	14.08	0.00	0.03	58.31	58.34	0.00	0.00	82.59	82.59	0.00	0.00	0.00	0.00	0.52	0.52	239.51	240.03	99.78	
17/06/2019	94.76	0.00	0.00	0.00	0.00	0.02	0.02	48.36	48.40	0.00	0.00	0.00	0.01	0.12	0.16	37.36	37.64	0.00	0.00	41.60	41.60	0.00	0.00	0.00	0.00	0.15	0.18	127.31	127.65	99.74	
18/06/2019	95.67	0.00	1.01	49.02	50.03	0.01	0.01	36.86	36.87	0.00	0.00	0.00	0.00	0.00	0.00	59.15	59.15	0.00	0.00	68.26	68.26	0.00	0.00	0.66	0.67	0.01	1.02	213.95	214.98	99.52	
19/06/2019	95.86	0.00	0.00	83.55	83.55	0.00	0.00	0.00	0.00	0.04	0.06	0.10	0.10	0.00	0.00	60.37	60.37	0.00	0.00	23.93	23.93	0.00	0.05	47.02	47.07	0.00	0.09	214.94	215.02	99.96	
20/06/2019	95.89	0.00	0.00	83.26	83.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.54	60.54	0.00	0.00	0.00	0.00	0.55	0.61	71.15	0.00	0.55	214.41	214.96	99.75		
21/06/2019	95.85	0.00	0.00	84.77	84.77	0.00	0.00	0.00	0.00	0.00	0.00	46.94	46.94	0.00	0.00	21.54	21.54	0.00	0.00	0.00	0.00	6.29	74.87	81.15	0.00	6.29	228.12	234.41	97.32		
22/06/2019	95.82	0.00	0.00	84.96	84.96	0.00	0.00	0.00	0.00	0.00	0.00	62.92	62.92	0.00	0.00	0.00	0.00	0.00	0.00	6.08	72.14	78.22	0.00	6.08	220.02	226.10	97.31				
23/06/2019	95.86	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.00	59.40	59.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.36	68.27	75.63	0.00	7.36	212.69	220.05	96.66		
24/06/2019	95.59	0.26	0.26	77.11	77.64	0.00	0.00	0.00	0.00	0.17	0.17	54.89	55.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	4.91	62.98	68.15	0.70	5.35	194.98	201.03	96.99	
25/06/2019	91.87	0.00	0.00	70.68	70.68	0.00	0.00	0.00	0.00	0.00	0.00	80.14	80.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	73.15	75.40	0.00	2.26	223.96	226.22	99.00		
26/06/2019	96.96	0.00	0.00	72.00	72.00	0.00	0.00	0.00	0.00	0.00	0.00	82.82	82.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	8.12	72.03	80.20	0.06	8.12	226.85	235.03	96.52	
27/06/2019	97.00	0.00	0.52	39.15	39.67	0.00	0.00	35.15	35.15	0.00	0.00	41.89	41.89	0.00	0.00	39.40	39.40	0.00	0.00	0.00	0.00	0.00	0.00	7.40	71.43	78.83	0.00	7.92	227.02	234.95	96.63
28/06/2019	97.09	0.00	0.00	45.27	45.27	0.00	0.00	33.02	33.02	0.00	0.00	0.08	0.08	0.00	0.00	84.22	84.22	0.00	0.04	35.91	36.33	0.00	1.90	41.16	43.05	0.00	2.32	239.66	241.98	99.04	
29/06/2019	97.14	0.00	0.00	78.39	78.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.03	85.03	0.00	0.00	80.60	80.60	0.00	0.00	0.00	0.00	0.00	0.00	244.02	244.02	100.00	
30/06/2019	97.29	0.00	0.00	67.25	67.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.46	73.46	0.00	0.00	67.78	67.78	0.00	0.00	0.00	0.00	0.00	0.00	208.49	208.49	100.00	

Total [ML]: 0.55 2.08 1431.07 1433.70 0.03 0.08 1068.67 1068.78 0.18 1.17 1098.49 1099.83 0.14 0.21 700.23 700.57 0.00 0.42 1548.05 1548.47 0.33 44.91 665.66 710.90 1.22 48.87 6512.16 6562.25

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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

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

Report Period: July 2019

Report Created: Friday, August 02, 2019

## 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]					
	UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/07/2019	97.26	0.00	0.00	66.96	66.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.88	72.88	0.00	0.00	66.21	66.21	0.00	0.00	0.00	0.00	0.00	0.00	206.05	206.05	100.00
02/07/2019	97.21	0.00	0.00	72.44	72.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.20	79.20	0.00	0.00	71.26	71.26	0.00	0.00	0.00	0.00	0.00	0.00	222.90	222.90	100.00
03/07/2019	97.33	0.00	0.00	75.80	75.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.78	83.78	0.00	0.00	76.49	76.49	0.00	0.00	0.00	0.00	0.00	0.00	236.08	236.08	100.00
04/07/2019	97.22	0.00	0.00	76.69	76.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.95	84.95	0.00	0.00	78.32	78.32	0.00	0.00	0.05	0.05	0.00	0.00	240.02	240.02	100.00
05/07/2019	97.09	0.00	0.00	20.83	20.83	0.00	0.00	60.90	60.90	0.00	0.00	51.92	51.92	0.00	0.00	79.46	79.46	0.01	0.18	20.62	20.81	0.00	0.82	6.37	7.19	0.01	1.00	240.09	241.10	99.58	
06/07/2019	97.00	0.00	0.00	0.00	0.00	0.00	0.00	85.03	85.03	0.00	0.05	78.56	78.62	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	248.58	248.63	99.98			
07/07/2019	97.05	0.00	0.00	50.84	50.84	0.00	0.00	34.19	34.19	0.00	0.00	79.86	79.86	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	249.90	249.91	100.00	
08/07/2019	96.56	0.00	0.00	25.01	25.01	0.00	0.00	53.18	53.18	0.00	0.00	61.36	61.36	0.00	0.00	71.33	71.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	210.88	210.88	100.00	
09/07/2019	97.10	0.00	0.00	0.00	0.00	0.00	0.00	84.81	84.81	0.00	0.00	74.31	74.31	0.00	0.00	85.14	85.14	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	244.27	244.27	100.00	
10/07/2019	97.39	0.00	0.00	44.76	44.77	0.00	0.00	84.30	84.30	0.00	0.00	79.62	79.62	0.00	0.00	31.70	31.70	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.00	0.00	240.71	240.71	100.00	
11/07/2019	97.46	0.07	0.07	15.08	15.21	0.00	0.00	74.19	74.19	0.00	0.00	84.52	84.52	0.00	0.00	0.00	0.00	0.15	32.30	32.45	0.00	0.00	30.00	30.00	0.07	0.22	236.09	236.38	99.88		
12/07/2019	97.35	0.00	0.00	0.00	0.00	0.00	0.00	72.88	72.88	0.19	0.19	49.57	49.94	0.00	0.00	27.69	27.69	0.00	0.00	39.91	39.91	0.00	0.00	39.68	39.68	0.19	0.19	229.72	230.09	99.84	
13/07/2019	97.36	0.00	0.00	0.00	0.00	0.00	0.00	71.16	71.16	0.00	0.00	0.00	0.00	0.00	0.00	74.11	74.11	0.00	0.00	0.00	0.00	0.00	0.00	65.97	65.97	0.00	0.00	211.24	211.24	100.00	
14/07/2019	97.44	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	0.00	70.48	70.48	0.00	0.00	0.00	0.00	0.00	0.00	63.37	63.37	0.00	0.00	200.71	200.71	100.00	
15/07/2019	97.77	0.00	0.00	0.00	0.00	0.00	0.00	65.87	65.87	0.00	0.00	0.00	0.00	0.00	0.00	69.92	69.92	0.00	0.00	0.00	0.00	0.00	0.00	63.01	63.01	0.00	0.00	198.81	198.81	100.00	
16/07/2019	97.72	0.00	0.00	0.00	0.00	0.00	0.00	68.61	68.61	0.00	0.00	0.00	0.00	0.00	0.00	72.06	72.06	0.00	0.00	0.00	0.00	0.00	0.00	64.31	64.31	0.00	0.00	204.98	204.98	100.00	
17/07/2019	97.51	0.00	0.00	0.00	0.00	0.00	0.00	68.54	68.54	0.00	0.00	0.00	0.00	0.00	0.00	71.88	71.88	0.00	0.00	0.00	0.00	0.00	0.00	64.01	64.01	0.00	0.00	204.43	204.43	100.00	
18/07/2019	97.07	0.00	0.00	0.00	0.00	0.00	0.00	67.85	67.85	0.00	0.00	0.00	0.00	0.00	0.00	71.47	71.47	0.00	0.00	0.00	0.00	0.00	0.00	63.69	63.69	0.00	0.00	203.01	203.01	100.00	
19/07/2019	96.87	0.00	0.00	0.00	0.00	0.00	0.00	67.65	67.65	0.00	0.00	0.00	0.00	0.00	0.00	71.57	71.57	0.00	0.00	0.00	0.00	0.00	0.00	63.84	63.84	0.00	0.00	203.06	203.06	100.00	
20/07/2019	96.85	0.00	0.00	0.00	0.00	0.00	0.00	67.56	67.56	0.00	0.00	0.00	0.00	0.00	0.00	71.56	71.56	0.00	0.00	0.00	0.00	0.00	0.00	63.91	63.91	0.00	0.00	203.03	203.03	100.00	
21/07/2019	96.85	0.00	0.00	0.00	0.00	0.00	0.00	65.65	65.65	0.00	0.00	0.00	0.00	0.00	0.00	70.18	70.18	0.00	0.00	0.00	0.00	0.00	0.00	63.03	63.03	0.00	0.00	198.86	198.86	100.00	
22/07/2019	96.80	0.00	0.00	0.00	0.00	0.00	0.00	64.73	64.73	0.00	0.00	0.00	0.00	0.00	0.00	69.53	69.53	0.00	0.00	0.00	0.00	0.00	0.00	62.79	62.79	0.00	0.00	197.05	197.05	100.00	
23/07/2019	96.76	0.00	0.00	0.00	0.00	0.00	0.00	71.11	71.11	0.00	0.00	0.00	0.00	0.00	0.00	75.14	75.14	0.00	0.00	0.00	0.00	0.00	0.00	66.98	66.98	0.00	0.00	213.23	213.23	100.00	
24/07/2019	96.88	0.00	0.00	0.00	0.00	0.00	0.00	74.69	74.69	0.00	0.00	0.00	0.00	0.00	0.00	79.94	79.94	0.00	0.00	0.00	0.00	0.00	0.00	71.12	71.12	0.00	0.00	225.75	225.75	100.00	
25/07/2019	96.80	0.00	0.00	0.00	0.00	0.00	0.00	75.46	75.46	0.00	0.04	19.23	19.27	0.00	0.20	57.21	57.41	0.02	0.02	46.40	46.44	0.04	0.27	25.00	25.32	0.06	0.53	223.30	223.90	99.73	
26/07/2019	96.74	0.00	0.00	0.00	0.00	0.00	0.34	55.49	55.83	0.00	0.00	67.56	67.56	0.00	0.08	28.75	28.83	0.00	0.00	45.32	45.32	0.00	0.00	38.40	38.41	0.00	0.42	235.53	235.96	99.82	
27/07/2019	96.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.47	70.47	0.00	0.00	84.06	84.06	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	239.54	239.54	100.00	
28/07/2019	96.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.88	68.88	0.00	0.00	83.12	83.12	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	236.99	236.99	100.00	
29/07/2019	97.02	0.00	0.00	0.14	0.14	0.00	0.00	8.75	8.75	0.00	0.00	57.55	57.55	0.00	0.00	73.58	73.58	0.00	0.00	54.83	54.83	0.00	0.19	26.04	26.23	0.00	0.19	220.90	221.09	99.91	
30/07/2019	96.74	0.00	0.00	48.96	48.96	0.00	0.00	5.69	5.69	0.00	0.04	62.32	62.37	0.00	0.04	21.58	21.62	0.00	0.00	37.26	37.26	0.00	0.00	40.11	40.11	0.00	0.08	215.92	216.01	99.96	
31/07/2019	96.45	0.00	0.00	72.64	72.64	0.00	0.00	0.00	0.00	0.00	0.00	63.62	63.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.71	79.71	0.00	0.00	215.97	215.97	100.00	

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.04 %

To Dose: 99.96 %

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



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: August 2019

Report Created: Sunday, September 01, 2019

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose
		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				
		UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total																				
01/08/2019	96.73	0.00	0.05	43.92	43.97	0.00	0.00	31.85	31.85	0.00	0.04	18.65	18.70	0.00	0.00	44.84	44.84	0.00	0.00	1.68	1.68	0.00	0.39	75.65	76.03	0.00	0.48	216.59	217.07	99.78
02/08/2019	96.80	0.00	0.00	0.00	0.00	0.00	0.00	79.15	79.15	0.00	0.04	41.93	41.98	0.00	0.00	23.27	23.27	0.00	0.00	0.00	0.00	0.00	0.69	80.35	81.04	0.00	0.74	224.70	225.44	99.67
03/08/2019	96.77	0.00	0.00	0.00	0.00	0.00	0.00	81.96	81.96	0.00	0.00	48.18	48.18	0.00	0.00	29.84	29.84	0.00	0.00	0.00	0.00	0.00	0.47	84.52	84.99	0.00	0.47	244.50	244.98	99.81
04/08/2019	96.68	0.00	0.00	0.00	0.00	0.00	0.00	79.46	79.46	0.00	0.00	52.30	52.30	0.00	0.00	17.91	17.91	0.00	0.00	0.00	0.00	0.00	1.89	82.93	84.82	0.00	1.89	232.60	234.49	99.19
05/08/2019	96.53	0.00	0.00	0.00	0.00	0.00	0.00	77.98	77.98	0.00	0.00	63.50	63.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	82.42	82.82	0.00	0.40	223.90	224.30	99.82
06/08/2019	96.30	0.00	0.00	0.00	0.00	0.00	0.00	77.10	77.10	0.00	0.13	63.84	63.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	81.74	81.91	0.00	0.31	222.68	222.98	99.86
07/08/2019	96.16	0.00	0.00	0.00	0.00	0.00	0.00	76.97	76.97	0.00	0.05	64.22	64.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	81.08	81.76	0.00	0.73	222.26	222.99	99.67
08/08/2019	96.30	0.00	0.00	0.00	0.00	0.00	0.00	76.98	76.98	0.00	0.00	64.26	64.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	81.50	81.78	0.00	0.28	222.73	223.02	99.87
09/08/2019	96.09	0.00	0.00	0.00	0.00	0.00	0.00	75.68	75.68	0.00	0.28	73.31	73.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	83.33	83.50	0.00	0.45	232.32	232.77	99.81
10/08/2019	96.24	0.00	0.00	0.00	0.00	0.00	0.00	75.44	75.44	0.00	0.17	81.42	81.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	84.28	84.99	0.00	0.88	241.13	242.02	99.63
11/08/2019	96.42	0.00	0.00	0.00	0.00	0.00	0.00	70.52	70.52	0.00	0.26	75.35	75.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	81.13	81.82	0.00	0.95	227.01	227.96	99.58
12/08/2019	96.28	0.00	0.00	0.00	0.00	0.00	0.00	69.60	69.60	0.00	0.32	74.22	74.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	80.10	80.89	0.00	1.10	223.92	225.02	99.51
13/08/2019	96.35	0.00	0.00	0.00	0.00	0.00	0.00	26.53	26.53	0.00	0.09	65.98	66.07	0.00	0.00	49.04	49.04	0.00	0.00	0.00	0.00	0.00	1.97	81.44	83.41	0.00	2.07	222.98	225.05	99.08
14/08/2019	96.63	0.00	0.00	65.42	65.42	0.00	0.00	49.49	49.49	0.00	1.29	19.76	21.06	0.00	0.06	83.41	83.47	0.00	0.00	0.79	0.79	0.00	0.06	1.19	1.24	0.00	1.41	220.06	221.47	99.36
15/08/2019	96.43	0.00	0.04	67.55	67.59	0.00	0.00	35.31	35.31	0.00	0.00	0.00	0.00	0.00	0.00	74.10	74.10	0.00	0.00	42.75	42.75	0.00	0.04	0.15	0.19	0.00	0.09	219.87	219.95	99.96
16/08/2019	96.39	0.00	0.20	71.36	71.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.96	72.96	0.00	0.00	79.64	79.64	0.00	0.00	0.00	0.01	0.00	0.20	223.96	224.16	99.91
17/08/2019	96.34	0.00	0.25	35.59	35.84	0.00	0.00	36.97	36.97	0.00	0.00	0.00	0.00	0.00	0.00	73.47	73.47	0.00	0.00	79.75	79.75	0.00	0.00	0.00	0.00	0.00	0.25	225.77	226.02	99.89
18/08/2019	96.39	0.00	0.00	0.00	0.00	0.00	0.00	70.15	70.15	0.00	0.00	0.00	0.00	0.00	0.00	69.82	69.82	0.00	0.00	73.67	73.67	0.00	0.00	0.00	0.00	0.00	0.00	213.64	213.64	100.00
19/08/2019	96.56	0.00	0.00	0.00	0.00	0.00	0.00	67.68	67.68	0.00	0.00	0.00	0.00	0.00	0.00	67.95	67.95	0.00	0.00	70.12	70.12	0.00	0.00	0.00	0.00	0.00	0.00	205.75	205.75	100.00
20/08/2019	96.57	0.00	0.10	43.06	43.16	0.00	0.00	25.35	25.35	0.00	0.00	0.00	0.00	0.00	0.00	69.87	69.87	0.00	0.00	72.57	72.57	0.00	0.00	0.00	0.00	0.00	0.00	210.86	210.95	99.95
21/08/2019	96.66	0.00	0.43	45.83	46.26	0.00	0.00	0.00	0.00	0.00	0.00	19.32	19.32	0.00	0.00	72.16	72.16	0.00	0.00	78.23	78.23	0.00	0.00	0.00	0.00	0.00	0.43	215.54	215.98	99.80
22/08/2019	96.63	0.00	0.10	29.62	29.72	0.00	0.00	0.00	0.00	0.00	0.00	33.36	33.36	0.00	0.00	72.95	72.95	0.00	0.16	50.19	50.34	0.06	0.06	30.54	30.66	0.06	0.32	216.66	217.04	99.83
23/08/2019	96.63	0.00	0.29	63.77	64.06	0.00	0.00	36.12	36.12	0.00	0.00	0.00	0.00	0.11	0.11	36.18	36.39	0.01	0.06	0.36	0.43	0.00	0.06	80.77	80.83	0.12	0.51	217.20	217.83	99.71
24/08/2019	96.64	0.00	0.00	59.04	59.04	0.00	0.00	73.94	73.94	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	85.01	85.01	0.00	0.00	218.00	218.00	100.00
25/08/2019	96.99	0.00	0.00	60.14	60.14	0.00	0.00	72.58	72.58	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	86.78	84.84	0.00	0.06	217.50	217.56	99.97
26/08/2019	97.37	0.00	0.00	30.00	30.00	0.00	0.00	79.78	79.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.19	23.19	0.00	0.12	83.14	83.26	0.00	0.12	216.11	216.22	99.95
27/08/2019	97.31	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	0.00	0.00	0.00	0.00	0.00	45.24	45.24	0.00	0.11	81.79	81.90	0.00	0.11	212.02	212.14	99.95
28/08/2019	97.64	0.00	0.00	0.00	0.00	0.00	0.00	80.66	80.66	0.00	0.00	29.25	29.25	0.00	0.00	0.00	0.00	0.14	0.16	14.83	15.13	0.00	0.11	76.01	76.11	0.14	0.27	200.74	201.15	99.79
29/08/2019	97.77	0.00	0.00	0.00	0.00	0.00	0.00	0.16	78.18	78.34	0.00	0.00	44.64	44.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	74.97	75.03	0.00	0.22	197.79	198.01	99.89
30/08/2019	98.15	0.00	0.43	44.16	44.59	0.00	0.27	22.52	22.78	0.00	0.00	42.92	42.92	0.10	0.10	0.00	0.20	0.00	0.04	51.47	51.50	0.00	0.16	22.26	22.42	0.10	1.00	183.31	184.41	99.41
31/08/2019	98.18	0.00	0.25	59.75	60.00	0.00	0.00	0.00	0.00	0.00	0.00	42.66	42.66	0.00	0.00	0.00	0.00	0.00	0.00	74.10	74.10	0.00	0.00	0.00	0.00	0.00	0.25	176.51	176.76	99.86

Total [ML]: 0.00 2.14 719.20 721.34 0.00 0.43 1712.94 1713.37 0.00 2.69 1019.06 1021.75 0.21 0.27 857.78 858.25 0.15 0.42 758.58 759.14 0.06 10.14 1681.07 1691.27 0.42 16.08



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: September 2019

Report Created: Tuesday, October 01, 2019

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% Volume Treated To Dose	
		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total																						
01/09/2019	98.28	0.00	0.00	16.57	16.57	0.00	0.00	47.01	47.01	0.00	0.00	38.51	38.51	0.00	0.00	0.00	0.00	0.00	0.00	69.72	69.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	171.82	171.82	100.00
02/09/2019	98.32	0.00	0.00	0.00	0.00	0.00	0.00	65.21	65.21	0.00	0.00	37.27	37.27	0.00	0.00	0.00	0.00	0.00	0.00	68.52	68.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	171.00	171.00	100.00
03/09/2019	98.51	0.00	0.00	2.92	2.92	0.00	0.00	66.78	66.78	0.00	0.00	25.28	25.28	0.00	0.00	15.01	15.01	0.00	0.04	65.10	65.13	0.00	0.13	0.23	0.36	0.00	0.00	0.16	175.32	175.48	99.91
04/09/2019	97.74	0.00	0.00	0.95	0.95	0.00	0.00	72.61	72.61	0.00	0.00	0.00	0.00	0.00	0.00	41.23	41.23	0.00	0.00	71.16	71.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.95	185.95	100.00
05/09/2019	97.21	0.00	0.00	0.00	0.00	0.00	0.00	77.63	77.63	0.00	0.00	0.00	0.00	0.00	0.00	44.27	44.27	0.00	0.00	73.63	73.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	195.53	195.53	100.00
06/09/2019	98.45	0.00	0.00	0.00	0.00	0.00	0.00	81.03	81.03	0.00	0.00	0.00	0.00	0.00	0.00	46.10	46.10	0.00	0.00	75.57	75.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.70	202.70	100.00
07/09/2019	98.77	0.00	0.00	0.00	0.00	0.00	0.00	82.43	82.43	0.00	0.00	0.00	0.00	0.00	0.00	46.04	46.04	0.00	0.00	75.42	75.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	203.89	203.89	100.00
08/09/2019	98.56	0.00	0.07	4.13	4.20	0.00	0.00	81.00	81.00	0.00	0.00	0.00	0.00	0.00	0.00	48.92	48.92	0.20	0.20	69.55	69.95	0.00	0.00	0.00	0.00	0.20	0.27	0.00	203.59	204.07	99.77
09/09/2019	98.06	0.00	0.04	55.45	55.48	0.00	0.00	68.99	68.99	0.00	0.00	0.00	0.00	0.00	0.00	79.53	79.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	203.97	204.01	99.98		
10/09/2019	98.59	0.00	0.00	55.14	55.14	0.00	0.00	69.04	69.04	0.00	0.00	0.00	0.00	0.00	0.00	79.83	79.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	204.00	204.00	100.00		
11/09/2019	99.69	0.00	0.00	55.11	55.11	0.00	0.00	69.08	69.08	0.00	0.00	0.00	0.00	0.00	0.00	79.83	79.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	204.02	204.02	100.00		
12/09/2019	99.53	0.00	0.00	54.79	54.79	0.00	0.00	69.17	69.17	0.00	0.00	0.00	0.00	0.00	0.00	80.08	80.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	204.04	204.04	100.00		
13/09/2019	99.52	0.00	0.00	54.57	54.57	0.00	0.00	69.10	69.10	0.00	0.00	0.00	0.00	0.00	0.00	80.32	80.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	203.99	203.99	100.00		
14/09/2019	97.82	0.00	0.30	32.85	33.14	0.00	0.04	75.31	75.35	0.00	0.00	14.98	14.98	0.00	0.00	80.31	80.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	203.44	203.77	99.84		
15/09/2019	98.59	0.00	0.00	0.00	0.00	0.00	0.00	84.97	84.97	0.00	0.00	28.35	28.35	0.00	0.00	75.98	75.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.30	189.30	100.00		
16/09/2019	96.78	0.00	0.00	0.00	0.00	0.00	0.00	85.00	85.00	0.00	0.00	25.19	25.19	0.00	0.00	74.75	74.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.94	184.94	100.00		
17/09/2019	97.14	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	25.20	25.20	0.00	0.00	74.80	74.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.99	184.99	100.00		
18/09/2019	97.31	0.00	0.00	0.00	0.00	0.00	0.00	69.24	69.24	0.00	0.04	53.55	53.59	0.22	0.22	13.92	14.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	195.65	196.14	99.75		
19/09/2019	97.37	0.00	0.00	0.00	0.00	0.00	0.29	51.38	51.67	0.00	0.05	51.13	51.17	0.00	0.00	0.00	0.00	0.00	0.00	25.03	25.03	0.00	0.18	75.57	75.74	0.00	0.51	203.10	203.61	99.75	
20/09/2019	97.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.64	60.64	0.00	0.00	0.00	0.00	0.00	0.00	54.48	54.48	0.00	0.17	84.58	84.75	0.00	0.17	199.69	199.87	99.91	
21/09/2019	97.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.50	67.50	0.00	0.00	0.00	0.00	0.00	0.00	43.52	43.52	0.00	0.00	79.24	79.24	0.00	0.00	190.26	190.26	100.00	
22/09/2019	97.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.25	68.25	0.00	0.00	0.00	0.00	0.00	0.00	44.09	44.09	0.00	0.11	80.09	80.20	0.00	0.11	192.42	192.53	99.94	
23/09/2019	97.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.39	68.39	0.00	0.00	0.00	0.00	0.00	0.00	44.17	44.17	0.00	0.22	80.18	80.41	0.00	0.22	192.74	192.96	99.88	
24/09/2019	97.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.45	68.45	0.00	0.00	0.00	0.00	0.00	0.00	44.17	44.17	0.00	0.11	80.25	80.36	0.00	0.11	192.87	192.98	99.94	
25/09/2019	98.30	0.00	0.00	14.24	14.24	0.00	0.00	0.00	0.00	0.00	0.09	63.89	63.98	0.00	0.00	0.00	0.00	0.00	0.00	52.67	52.67	0.00	0.13	59.63	59.76	0.00	0.22	190.43	190.66	99.88	
26/09/2019	98.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.80	50.80	0.00	0.00	31.52	31.52	0.00	0.00	63.36	63.36	0.00	0.05	43.36	43.41	0.00	0.05	189.03	189.09	99.97	
27/09/2019	99.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.78	49.78	0.00	0.00	53.16	53.16	0.00	0.00	84.98	84.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.92	187.92	100.00
28/09/2019	99.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	48.63	0.00	0.00	50.93	50.93	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.55	184.55	100.00
29/09/2019	95.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.12	48.12	0.00	0.00	49.88	49.88	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.02	183.02	100.00
30/09/2019	94.70	0.00	0.00	42.75	42.75	0.00	0.00	0.00	0.00	0.00	0.00	17.83	17.83	0.00	0.00	44.96	44.96	0.00	0.00	77.46	77.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.01	183.01	100.00

Total [ML]:

0.00 0.41 389.46 389.87 0.00 0.33 1369.99 1370.32 0.00 0.18 911.72 911.90 0.22 0.22 1191.35 1191.80 0.20 0.24 1272.61 1273.05 0.00 1.10 642.06 643.16 0.43 2.48 5777.19 5780.10

Submitted By (Print): D.Merredew

Signature: Original signed by D. Merredew



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: October 2019

Report Created: Friday, November 01, 2019

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose
		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				
	UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total																					
01/10/2019	93.65	0.00	0.00	68.04	68.04	0.00	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	41.51	41.51	0.00	0.00	72.99	72.99	0.00	0.04	0.21	0.25	0.00	0.04	182.95	182.99	99.98
02/10/2019	93.41	0.00	0.05	68.85	68.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.72	41.72	0.00	0.00	73.66	73.66	0.00	0.00	0.07	0.07	0.00	0.05	184.30	184.35	99.97
03/10/2019	94.06	0.00	0.35	35.01	35.36	0.01	0.01	14.53	14.55	0.00	0.00	0.00	0.00	0.04	0.07	13.74	13.86	0.04	0.04	39.29	39.36	0.00	0.00	0.00	0.00	0.08	0.46	102.58	103.12	99.47
04/10/2019	94.64	0.00	0.19	55.38	55.58	0.00	0.00	67.29	67.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.99	81.99	0.00	0.00	0.00	0.00	0.00	0.19	204.67	204.86	99.91
05/10/2019	95.02	0.00	0.08	55.86	55.94	0.00	0.00	67.13	67.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.63	79.63	0.00	0.00	0.00	0.00	0.00	0.08	202.62	202.70	99.96
06/10/2019	96.39	0.00	0.00	55.08	55.08	0.00	0.00	65.81	65.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	77.21	77.21	0.00	0.00	0.00	0.00	0.00	0.00	198.09	198.09	100.00
07/10/2019	96.36	0.00	0.00	64.69	64.69	0.00	0.00	21.82	21.82	0.00	0.00	0.00	0.00	0.00	0.00	31.59	31.59	0.00	0.00	76.85	76.85	0.00	0.00	0.00	0.00	0.00	0.00	194.96	194.96	100.00
08/10/2019	96.34	0.00	0.00	69.56	69.56	0.00	0.03	1.43	1.46	0.00	0.00	0.00	0.00	0.00	0.00	48.31	48.31	0.22	0.22	75.33	75.76	0.00	0.00	0.00	0.00	0.22	0.25	194.62	195.09	99.76
09/10/2019	96.28	0.20	0.20	47.31	47.71	0.00	0.00	43.11	43.11	0.00	0.00	16.77	16.77	0.00	0.05	60.79	60.84	0.00	0.00	0.00	0.00	0.00	0.00	25.75	26.75	0.20	0.26	194.72	195.18	99.76
10/10/2019	96.55	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.28	0.00	0.00	53.77	53.77	0.00	0.00	56.74	56.74	0.00	0.00	0.00	0.00	0.00	0.00	84.91	84.91	0.00	0.00	195.69	195.69	100.00
11/10/2019	96.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	50.95	51.01	0.02	0.02	60.35	60.40	0.00	0.00	0.00	0.00	0.02	0.25	71.76	72.03	0.07	0.30	183.07	183.44	99.80
12/10/2019	96.65	0.00	0.00	58.66	58.66	0.01	0.01	0.00	0.01	0.00	0.35	15.34	15.69	0.00	0.00	18.83	18.83	0.00	0.00	24.81	24.81	0.00	0.00	64.05	64.05	0.01	0.36	181.69	182.05	99.80
13/10/2019	96.55	0.00	0.00	82.19	82.19	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	35.27	35.27	0.00	0.09	62.49	62.58	0.00	0.09	179.96	180.05	99.95
14/10/2019	96.48	0.00	0.00	82.05	82.05	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	35.26	35.26	0.00	0.04	62.65	62.69	0.00	0.04	179.96	180.01	99.98
15/10/2019	95.87	0.02	0.11	70.22	70.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	24.25	24.30	0.00	0.03	52.76	52.80	0.00	0.04	23.42	23.46	0.05	0.22	170.65	170.91	99.85
16/10/2019	95.26	0.00	0.41	72.79	73.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.34	45.34	0.00	0.00	70.07	70.07	0.00	0.00	0.00	0.00	0.00	0.41	188.20	188.60	99.78
17/10/2019	95.40	0.00	0.80	70.71	71.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.03	45.03	0.00	0.00	72.48	72.48	0.00	0.00	0.00	0.00	0.00	0.80	188.23	189.02	99.58
18/10/2019	95.32	0.00	0.79	70.57	71.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.76	44.76	0.00	0.00	72.89	72.89	0.00	0.00	0.00	0.00	0.00	0.79	188.22	189.01	99.58
19/10/2019	95.34	0.00	0.46	62.69	63.15	0.00	0.00	27.15	27.15	0.00	0.01	1.61	1.61	0.00	0.00	58.39	58.39	0.01	0.42	37.39	37.82	0.00	0.03	0.88	0.90	0.01	0.91	188.10	189.02	99.51
20/10/2019	95.26	0.00	0.11	53.51	53.63	0.00	0.00	56.53	56.53	0.00	0.00	0.00	0.00	0.00	0.00	73.08	73.08	0.00	0.00	0.00	0.00	0.00	0.05	7.01	7.06	0.00	0.16	190.13	190.30	99.92
21/10/2019	95.48	0.00	0.35	63.40	63.75	0.00	0.00	0.00	0.00	0.00	21.09	21.09	0.00	0.00	35.42	35.42	0.00	0.00	0.00	0.00	0.00	0.05	73.21	73.26	0.00	0.40	193.11	193.52	99.79	
22/10/2019	95.45	0.00	0.63	60.03	60.66	0.00	0.00	0.00	0.00	0.00	28.44	28.44	0.00	0.04	22.25	22.29	0.00	0.00	0.00	0.00	0.00	0.05	78.05	78.11	0.00	0.72	188.77	189.49	99.62	
23/10/2019	95.25	0.00	0.38	43.03	43.41	0.00	0.00	0.00	0.00	0.00	43.88	43.88	0.00	0.00	32.83	32.83	0.00	0.00	31.80	31.80	0.00	0.19	43.29	43.48	0.00	0.57	194.82	195.40	99.71	
24/10/2019	94.95	0.00	0.00	75.71	75.71	0.00	0.00	0.00	0.00	0.00	47.38	47.38	0.00	0.00	0.00	0.00	77.54	77.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	200.63	200.63	100.00	
25/10/2019	94.78	0.00	0.20	67.01	67.21	0.00	0.00	0.00	0.00	0.00	49.85	49.85	0.00	0.00	8.38	8.38	0.00	0.00	79.31	79.31	0.00	0.00	0.07	0.07	0.00	0.20	204.63	204.83	99.90	
26/10/2019	94.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.81	57.81	0.00	0.00	62.19	62.19	0.00	0.00	85.00	85.00	0.00	0.00	0.00	0.00	0.00	0.00	205.00	205.00	100.00		
27/10/2019	94.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.82	57.82	0.00	0.00	62.18	62.18	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.00	205.02	205.02	100.00		
28/10/2019	94.83	0.00	0.11	0.94	1.05	0.00	0.04	56.38	56.42	0.00	0.03	38.29	38.32	0.00	0.00	63.45	63.45	0.00	0.00	45.67	45.67	0.00	0.00	0.00	0.00	0.00	0.18	204.73	204.91	99.91
29/10/2019	94.77	0.00	0.00	41.50	41.50	0.00	0.00	37.65	37.65	0.00	0.00	28.97	28.97	0.00	0.00	59.80	59.80	0.00	0.00	0.00	0.00	0.00	0.00	31.64	31.64	0.00	0.00	199.56	199.56	100.00
30/10/2019	94.84	0.03	0.03	31.86	31.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.90	19.90	0.00	0.00	0.00	0.00	0.00	0.00	29.08	29.08	0.03	0.03	80.84	80.90	99.92
31/10/2019	94.74	0.00	0.00	76.55	76.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	48.63	0.00	0.00	0.04	0.04	0.00	0.00	74.78	74.78	0.00	0.00	200.01	200.01	100.00

Water Volume [%]:

Untreated: 0.01 %

Below Dose: 0.13 %

To Dose: 99.86 %

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

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



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: November 2019

Report Created: Sunday, December 01, 2019

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
	UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total																		
01/11/2019	94.71	0.00	0.00	74.67	74.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	47.43	0.00	0.00	0.00	0.00	0.00	0.00	74.13	74.13	0.00	0.00	196.23	196.23	100.00
02/11/2019	94.59	0.00	0.00	74.03	74.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.11	47.11	0.00	0.00	0.00	0.00	0.00	0.00	73.81	73.81	0.00	0.00	194.95	194.95	100.00
03/11/2019	94.34	0.00	0.00	74.08	74.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.11	47.11	0.00	0.00	0.00	0.00	0.00	0.00	73.81	73.81	0.00	0.00	195.00	195.00	100.00
04/11/2019	94.13	0.00	0.00	36.92	36.92	0.00	0.00	36.12	36.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	44.75	0.00	0.00	0.00	0.00	0.00	0.00	71.35	71.35	0.00	0.00	189.14	189.14	100.00
05/11/2019	93.80	0.00	0.00	0.00	0.00	0.00	0.00	73.20	73.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.19	43.19	0.00	0.00	0.00	0.00	0.00	0.00	69.60	69.60	0.00	0.00	185.98	185.98	100.00
06/11/2019	93.63	0.00	0.00	0.00	0.00	0.00	0.00	73.36	73.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.33	43.33	0.00	0.00	0.00	0.00	0.00	0.00	69.76	69.76	0.00	0.00	186.45	186.45	100.00
07/11/2019	93.45	0.00	0.00	0.00	0.00	0.00	0.00	74.02	74.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.91	43.91	0.00	0.00	0.00	0.00	0.00	0.00	70.06	70.06	0.00	0.00	188.00	188.00	100.00
08/11/2019	93.25	0.00	0.00	0.00	0.00	0.00	0.00	73.19	73.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.44	43.44	0.00	0.00	0.00	0.00	0.00	0.00	69.38	69.38	0.00	0.00	186.01	186.01	100.00
09/11/2019	93.01	0.00	0.00	0.00	0.00	0.00	0.00	70.92	70.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.78	41.78	0.00	0.00	0.00	0.00	0.00	0.00	67.85	67.85	0.00	0.00	180.55	180.55	100.00
10/11/2019	92.68	0.00	0.00	0.00	0.00	0.00	0.00	70.31	70.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.14	41.14	0.00	0.00	0.00	0.00	0.00	0.00	67.57	67.57	0.00	0.00	179.02	179.02	100.00
11/11/2019	92.36	0.00	0.00	0.00	0.00	0.00	0.00	71.11	71.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.83	41.83	0.00	0.00	0.00	0.00	0.00	0.00	68.07	68.07	0.00	0.00	181.01	181.01	100.00
12/11/2019	91.97	0.00	0.00	0.00	0.00	0.00	0.00	71.10	71.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.05	42.05	0.00	0.00	0.00	0.00	0.00	0.00	67.84	67.84	0.00	0.00	181.00	181.00	100.00
13/11/2019	91.60	0.00	0.00	0.00	0.00	0.00	0.00	70.86	70.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.02	42.02	0.00	0.00	0.00	0.00	0.00	0.00	67.54	67.54	0.00	0.00	180.42	180.42	100.00
14/11/2019	91.13	0.00	0.00	0.00	0.00	0.00	0.00	69.78	69.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.13	41.13	0.00	0.00	0.00	0.00	0.00	0.00	66.93	66.93	0.00	0.00	177.85	177.85	100.00
15/11/2019	90.60	0.00	0.00	0.00	0.00	0.00	0.00	79.08	79.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.95	21.95	0.00	0.00	63.66	63.66	0.00	0.21	180.24	180.45	99.88				
16/11/2019	90.41	0.00	0.00	0.00	0.00	0.00	0.00	82.30	82.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.94	33.94	0.00	0.00	60.82	60.82	0.00	0.00	177.06	177.06	100.00				
17/11/2019	92.11	0.00	0.00	0.00	0.00	0.00	0.00	81.78	81.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.52	33.52	0.00	0.00	60.70	60.70	0.00	0.00	176.00	176.00	100.00				
18/11/2019	91.50	0.00	0.00	0.00	0.00	0.00	0.00	57.33	57.33	0.00	0.04	59.29	59.33	0.00	0.00	0.00	59.28	59.28	0.15	0.15	1.48	1.77	0.00	0.15	177.38	177.71	99.81				
19/11/2019	85.73	0.00	0.00	17.86	17.86	0.00	0.00	56.43	56.43	0.00	0.00	35.57	35.57	0.00	0.03	0.04	0.07	0.00	0.00	62.54	62.54	0.00	0.00	0.00	0.00	0.00	0.03	172.45	172.47	99.98	
20/11/2019	95.45	0.00	0.00	44.30	44.30	0.00	0.00	57.04	57.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.74	67.74	0.00	0.00	0.00	0.00	0.00	0.00	169.09	169.09	100.00				
21/11/2019	95.31	0.00	0.00	48.23	48.23	0.00	0.00	32.50	32.50	0.00	0.00	25.03	25.03	0.00	0.00	0.00	64.23	64.23	0.00	0.00	0.00	0.00	0.00	0.00	169.98	169.98	100.00				
22/11/2019	95.51	0.00	0.00	52.92	52.92	0.00	0.00	0.00	0.00	0.00	0.00	57.99	57.99	0.00	0.00	0.00	59.06	59.06	0.00	0.00	0.05	0.05	0.00	0.00	170.02	170.02	100.00				
23/11/2019	95.37	0.00	0.00	52.97	52.97	0.00	0.00	0.00	0.00	0.00	0.00	61.28	61.28	0.00	0.00	0.00	60.28	60.28	0.00	0.00	0.00	0.00	0.00	0.00	174.53	174.53	100.00				
24/11/2019	95.38	0.00	0.00	52.12	52.12	0.00	0.00	51.25	51.25	0.00	0.45	12.70	13.16	0.00	0.00	0.00	64.20	64.20	0.00	0.00	0.00	0.00	0.00	0.00	180.27	180.72	99.75				
25/11/2019	95.41	0.00	0.00	52.66	52.66	0.00	0.00	66.21	66.21	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	64.93	64.93	0.00	0.00	0.00	0.00	0.00	0.00	183.93	183.93	100.00		
26/11/2019	95.43	0.00	0.25	58.03	58.27	0.00	0.00	21.15	21.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.00	43.00	0.00	0.00	62.58	62.58	0.00	0.00	0.00	0.00	0.25	184.75	185.00	99.87	
27/11/2019	95.94	0.00	0.17	59.50	59.66	0.00	0.00	0.00	0.00	0.00	0.00	24.87	24.88	0.00	0.00	38.83	38.83	0.00	0.00	61.65	61.65	0.00	0.00	0.00	0.00	0.17	184.85	185.02	99.91		
28/11/2019	96.31	0.00	0.00	20.58	20.58	0.00	0.00	39.48	39.48	0.00	0.00	41.66	41.66	0.00	0.00	21.53	21.53	0.00	0.00	61.75	61.75	0.00	0.00	0.00	0.00	0.00	0.00	185.01	185.01	100.00	
29/11/2019	97.22	0.00	0.00	19.17	19.17	0.00	0.00	21.52	21.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.36	71.36	0.00	0.00	34.51	34.51	0.00	0.00	42.37	42.37	0.00	0.00	188.93	188.93	100.00
30/11/2019	97.39	0.00	0.00	61.70	61.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.73	63.73	0.00	0.00	0.00	0.00	0.00	0.00	64.55	64.55	0.00	0.00	189.98	189.98	100.00

Total [ML]: 0.00 0.41 799.73 800.14 0.00 0.00 1400.03 1400.03 0.00 0.50 318.39 318.89 0.00 0.24 864.41 864.64 0.00 0.00 812.15 812.15 0.15 0.15 1271.34 1271.63 0.15 0.15 5466.04 5467.48

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.02 %

To Dose: 99.97 %

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

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



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

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

WATER TREATMENT PLANT UV REPORT

Report Period: December 2019

Report Created: Wednesday, January 01, 2020

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total Water Volume [ML]				% Volume Treated To Dose	
		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
		UVTavg	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	
01/12/2019	97.17	0.00	0.00	61.05	61.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.57	187.57	100.00
02/12/2019	97.21	0.00	0.00	61.13	61.13	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	186.99	186.99	100.00
03/12/2019	96.95	0.00	0.00	61.12	61.12	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	186.99	186.99	100.00
04/12/2019	96.57	0.00	0.00	61.14	61.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.00	187.00	100.00
05/12/2019	96.16	0.00	0.00	61.27	61.27	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	186.98	186.98	100.00
06/12/2019	95.71	0.00	0.00	34.92	34.92	0.00	0.00	27.82	27.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	187.02	187.02	100.00
07/12/2019	95.22	0.00	0.00	0.00	0.00	0.00	0.00	66.25	66.25	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	193.33	193.47	99.93
08/12/2019	94.10	0.00	0.00	0.00	0.00	0.00	0.00	75.39	75.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	192.40	192.53	99.93
09/12/2019	93.27	0.00	0.00	0.00	0.00	0.00	0.00	79.93	79.93	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	194.85	194.98	99.93
10/12/2019	91.96	0.00	0.00	0.00	0.00	0.00	0.00	80.22	80.22	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	202.26	202.42	99.92
11/12/2019	93.87	0.00	0.00	0.00	0.00	0.00	0.00	85.00	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	0.00	0.00	0.00	0.00	0.00	223.48	223.70	99.90
12/12/2019	95.71	0.00	0.00	0.00	0.00	0.00	0.00	52.87	52.87	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	0.04	0.14	47.86	48.05	0.04	0.15	143.15	143.34	99.87
13/12/2019	94.73	0.00	0.00	0.00	0.00	0.00	0.00	71.80	71.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	68.45	68.61	0.00	0.15	211.94	212.09	99.93
14/12/2019	94.38	0.00	0.00	0.00	0.00	0.00	0.00	62.03	62.03	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	0.04	59.19	59.23	0.00	0.04	183.20	183.24	99.98
15/12/2019	93.45	0.00	0.00	0.00	0.00	0.00	0.00	62.35	62.35	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	185.02	185.02	100.00
16/12/2019	89.96	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	58.30	58.34	0.00	0.04	184.71	184.75	99.98
17/12/2019	94.34	0.00	0.00	0.00	0.00	0.00	0.00	72.33	72.33	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	0.08	59.67	59.76	0.00	0.08	188.60	188.68	99.96
18/12/2019	94.37	0.00	0.00	0.00	0.00	0.00	0.00	77.85	77.85	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	0.04	59.49	59.53	0.00	0.04	189.94	189.98	99.98
19/12/2019	94.30	0.00	0.00	0.00	0.00	0.00	0.00	75.23	75.23	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	0.08	56.68	56.76	0.00	0.08	182.73	182.82	99.95
20/12/2019	94.33	0.00	0.00	0.00	0.00	0.00	0.00	71.05	71.05	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	0.04	51.50	51.54	0.00	0.04	170.02	170.06	99.98
21/12/2019	94.35	0.00	0.00	0.00	0.00	0.00	0.00	70.99	70.99	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	0.22	51.23	51.45	0.00	0.22	169.65	169.87	99.87
22/12/2019	94.07	0.00	0.00	0.00	0.00	0.00	0.00	71.05	71.05	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	0.11	51.37	51.48	0.00	0.11	169.91	170.02	99.94
23/12/2019	94.04	0.00	0.00	0.00	0.00	0.00	0.00	70.97	70.97	0.00	0.00	0.00	0.00	0.00	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	170.00	170.00	100.00
24/12/2019	94.10	0.00	0.00	0.00	0.00	0.00	0.00	70.99	70.99	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	0.18	51.36	51.54	0.00	0.18	169.87	170.05	99.89
25/12/2019	93.86	0.00	0.00	0.00	0.00	0.00	0.00	73.66	73.66	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	0.19	54.48	54.67	0.00	0.19	177.80	177.99	99.89
26/12/2019	93.79	0.00	0.00	0.00	0.00	0.00	0.00	73.32	73.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	54.41	54.53	0.00	0.12	177.23	177.34	99.93
27/12/2019	93.92	0.00	0.00	0.00	0.00	0.00	0.00	73.62	73.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	55.06	55.22	0.00	0.16	178.66	178.81	99.91
28/12/2019	93.73	0.00	0.00	0.00	0.00	0.00	0.00	73.95	73.95	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	0.12	54.76	54.88	0.00	0.12	178.58	178.69	99.94
29/12/2019	93.69	0.00	0.00	0.00	0.00	0.00	0.00	74.02	74.02	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	0.08	54.87	54.94	0.00	0.08	178.91	178.99	99.96
30/12/2019	93.56	0.00	0.00	0.00	0.00	0.00	0.00	74.34	74.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	51.19	51.19	0.00	0.06	178.92	178.98	99.97
31/12/2019	93.70	0.00	0.00	0.00	0.00	0.00	0.00	71.67	71.67	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	171.55	171.55	100.00

# **2019 CORRECTIVE ACTION REPORTS**



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

**May 6, 2019**

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

**Incident No:** CAR\_01-2019

**Reported to ODW:** April 2, 2019

**Reported by:** Carson Ikonen, Senior Operator

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

**Incident Date:** April 2, 2019

**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: Water Treatment Instrument Technicians were calibrating Filter # 2 Turbidity Analyzer. An error was made when the instrument was calibrated without being placed into 'hold' status. This caused the analyzer to read 5.0 NTU for 4 minutes.

Grab samples taken to verify filter turbidity were within license limits both before and after the maintenance of the turbidity instrument, demonstrating that filter #2 effluent turbidity was below the license limit.

Procedure for maintenance of online turbidity instruments discussed and reviewed with instrumentation staff.

**Test Results:** April 2, 2019:

Prior to maintenance work (12:51 pm) = 0.09 NTU

After maintenance work (12:55 pm) = 0.09 NTU

**LIMS Reference No:** n/a

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

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

June 7, 2019

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

**Incident No:** CAR\_02-2019

**Reported to ODW:** May 9, 2019

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

**Approved by:** Louis Rivard, Superintendent of Water Services

**Incident Date:** May 8, 2019

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

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

**Description of Corrective Actions:**

Water Services:

Contacted ODW and Environmental Standards 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. There was no work in the area of the library that may have resulted in a drop in residual.

Environmental Standards:

Re-sampled original location and tested for; bacteria, turbidity, free/total chlorine, and temperature and confirmed analyzer reading at the time of sampling.

**Test Results:** See attached

**LIMS Reference No:** 202305 & 203240

**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)	Online Analyzer Free Chlorine (mg/L)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
NW02	202305	8-May-19	<1	<1	0.13	0.12	0.27	0.24	3.7	9:43
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.08	N/A	N/A	N/A	N/A	16:20
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	16:25
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	16:30
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.06	N/A	N/A	N/A	N/A	16:35
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.05	N/A	N/A	N/A	N/A	16:40
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.05	N/A	N/A	N/A	N/A	16:45
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.05	N/A	N/A	N/A	N/A	16:50
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.06	N/A	N/A	N/A	N/A	16:55
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.06	N/A	N/A	N/A	N/A	17:00
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	17:05
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	17:10
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	17:15
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	17:20
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.06	N/A	N/A	N/A	N/A	17:25
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.06	N/A	N/A	N/A	N/A	17:30
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.06	N/A	N/A	N/A	N/A	17:35
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	17:40
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.06	N/A	N/A	N/A	N/A	17:45
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.07	N/A	N/A	N/A	N/A	17:50
NW02_Analyzer	N/A	8-May-19	N/A	N/A	0.09	N/A	N/A	N/A	N/A	17:55
NW02_Resample	203240	9-May-19	<1	<1	0.52	0.49	0.65	0.36	3.4	16:26

NOTES/COMMENTS:

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



## Water and Waste Eaux et déchets

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

**July 5, 2019**

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

**Incident No:** CAR\_03-2019

**Reported to ODW:** June 29, 2019

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

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

**Incident Date:** June 28, 2019

**Incident Location:** Winnipeg 3-Dist \_WMCP

**Incident Type:**

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

#### **Description of Corrective Actions:**

##### Environmental Standards:

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

##### Water Services:

Re-flushed the affected sequence prior to follow up sampling.

**Test Results:** See attached

**LIMS Reference No:** Sample ID 218347

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

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
Hydrant Post Flush 1 (Sequence 900)	218347	28-Jun-19	<1	1	0.78	0.88	1.45	14.2	9:25
Hydrant Post Flush 1 Resample	219142	2-Jul-19	<1	<1	0.82	1.05	0.55	15.2	9:45
Hydrant Post Flush 1 Resample Duplicate	219143	2-Jul-19	<1	<1	NA	NA	NA	NA	9:45
Hydrant Post Flush 1 Resample 2	219141	3-Jul-19	<1	<1	0.78	1.06	0.33	16.0	9:11

NOTES/COMMENTS:

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



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

November 4, 2019

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

**Incident No:** CAR\_04-2019

**Reported to ODW:** July 8, 2019

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

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

**Incident Date:** July 7, 2019

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

**Incident Type:**

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

**Description of Corrective Actions:**

Water Services:

Immediately contacted the ODW, flushed both of the isolated areas and re-sampled the original locations as a precaution due to a potential sample mix up on July 7, 2019. Tested both repair locations for bacteria, turbidity, and free chlorine until two consecutive negative bacteria results were obtained 24 hours apart.

**Test Results:** See attached

**LIMS Reference No:** n/a

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

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Sample Name	Work Order Number	Lab Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Turbidity-field (ntu)	Time Sampled (hrs)
Hydrant_Water Main Repair # 1	1908760	L2305296-1	7-Jul-19	<1	<b>1</b>	0.70	4.27	11:30
Hydrant_Water Main Repair # 1 (Resample 1)	1908760	L2305825-1	8-Jul-19	<1	<1	0.87	4.16	14:35
Hydrant_Water Main Repair # 1 (Upstream 1)	1908760	L2305833-1	8-Jul-19	<1	<1	0.73	4.73	14:55
Hydrant_Water Main Repair # 1 (Resample 2)	1908760	L2307831-1	10-Jul-19	<1	<1	0.74	2.18	15:50
Hydrant_Water Main Repair # 1 (Upstream 2)	1908760	L2307831-2	10-Jul-19	<1	<1	0.76	0.95	15:55
Hydrant_Water Main Repair # 2	1908672	L2305296-2	7-Jul-19	<1	<1	0.61	4.41	12:57
Hydrant_Water Main Repair # 2 (Resample 1)	1908672	L2305824-1	8-Jul-19	<1	<1	0.69	3.91	12:00
Hydrant_Water Main Repair # 2 (Resample 2)	1908672	L2305831-1	8-Jul-19	<1	<1	0.73	1.55	16:00
Hydrant_Water Main Repair # 2 (Resample 3)	1908672	L2307831-3	10-Jul-19	<1	<b>1</b>	0.27	0.76	17:15
Hydrant_Water Main Repair # 2 (Resample 4)	1908672	L2309642-1	12-Jul-19	<1	<1	0.71	0.18	16:45
Hydrant_Water Main Repair # 2 (Resample 5)	1908672	L2309646-1	13-Jul-19	<1	<1	0.74	0.66	16:15
Hydrant_Water Main Repair # 2 (Resample 6)	1908672	L2309647-1	14-Jul-19	<1	<1	0.44	0.30	16:10

NOTES/COMMENTS:

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



## Water and Waste Eaux et déchets

Derek Clarke, Drinking Water Officer  
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Gimli, MB R0C 1B0

August 6, 2019

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

**Incident No:** CAR\_05-2019

**Reported to ODW:** July 10, 2019

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

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

**Incident Date:** July 09, 2019

**Incident Location:** Winnipeg 3-Dist (NE03)

**Incident Type:**

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

#### **Description of Corrective Actions:**

#### Environmental Standards:

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

**Test Results:** See attached

**LIMS Reference No:** 221021

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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
NE03	221021	9-Jul-19	<1	1	0.66	0.96	0.14	12.5	13:55
NE03 (Resample)	222127	10-Jul-19	<1	<1	0.55	0.88	0.40	12.4	15:25
NE03 (Resample Duplicate)	222128	10-Jul-19	<1	<1	0.57	0.85	0.38	12.4	15:25
NE03 (Resample 2)	222129	11-Jul-19	<1	<1	0.64	0.83	0.38	12.2	15:33
NE03 (Resample 2 Duplicate)	222130	11-Jul-19	<1	<1	0.64	0.86	0.39	12.2	15:33

NOTES/COMMENTS:

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



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

November 4, 2019

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

**Incident No:** CAR\_06-2019

**Reported to ODW:** July 13, 2019 and July 17, 2019

**Reported by:**

1. Louis Rivard, Superintendent Water Services and
2. Courtney Diduck, Analytical Services Branch Head

**Approved by:** Louis Rivard, Superintendent Water Services

**Incident Date:** July 11, 2019 and July 17, 2019

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

**Incident Type:**

1. Low Positive Total Coliform (<10 per100mL), 3 MR 41/2007
2. Low Disinfectant Residual in Distribution System (<0.1 mg/L free chlorine), 22(1) MR 40/2007

**Description of Corrective Actions:**

Water Services:

Immediately contacted the ODW and Environmental Standards, flushed the isolated area and re-sampled the original location and an upstream location as directed by the ODW. Tested the original location and the upstream location for bacteria, turbidity, and free chlorine until two consecutive negative bacteria results were obtained 24 hours apart.

Environmental Standards:

Immediately contacted the ODW and Water Services, sampled the residence for bacteria, turbidity, free/total chlorine, and temperature. Tested additional locations upstream and outside the isolated area for turbidity, free/total chlorine, and temperature. Performed follow up testing after the isolated area was flushed and returned to normal operation.

**Test Results:** See attached

**LIMS Reference No:** 224157



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**ENVIRONMENTAL STANDARDS DIVISION**  
2230 Main Street, Winnipeg, Manitoba R2V 4T8  
**DIVISION DES NORMES ENVIRONNEMENTALES**  
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Sample Name	Sample Number	Work Order Number	Lab Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
Hydrant_Water Main Repair	N/A	1908919	L2308862-1	11-Jul-19	<1	1	0.64	N/A	4.52	N/A	14:35
Hydrant_Water Main Repair Resample 1	N/A	1908919	L2309643-1	13-Jul-19	<1	<1	0.42	N/A	3.76	N/A	16:15
Hydrant_Water Main Repair Upstream 1	N/A	1908919	L2309643-2	13-Jul-19	<1	<1	0.66	N/A	3.89	N/A	16:45
Hydrant_Water Main Repair Resample 2	N/A	1908919	L2309576-1	14-Jul-19	<1	<1	0.24	N/A	3.72	N/A	15:00
Hydrant_Water Main Repair Upstream 2	N/A	1908919	L2309576-2	14-Jul-19	<1	<1	0.55	N/A	2.08	N/A	15:30
Hydrant_Water Main Repair Resample 3	N/A	1908919	L2310007-2	15-Jul-19	<1	<1	0.44	N/A	4.31	N/A	13:30
Hydrant_Water Main Repair Upstream 3	N/A	1908919	L2310007-1	15-Jul-19	<1	<1	0.32	N/A	1.00	N/A	13:02
Hydrant_Water Main Repair Resample 4	N/A	1908919	L2311034-2	16-Jul-19	<1	<1	0.34	N/A	3.26	N/A	15:15
Hydrant_Water Main Repair Upstream 4	N/A	1908919	L2311034-1	16-Jul-19	<1	<1	0.54	N/A	1.12	N/A	14:16
Residence in Distribution System	224157	N/A	L2311649-1	17-Jul-19	<1	<1	0.02	0.12	0.88	13.5	12:20
Residence in Distribution System Upstream	224294	N/A	N/A	17-Jul-19	N/A	N/A	0.22	0.37	0.51	13.7	12:41
Residence in Distribution System Outside Isolated Zone	224295	N/A	N/A	17-Jul-19	N/A	N/A	0.35	0.52	0.41	13.5	13:04
Residence in Distribution System Resample 1	224296	N/A	N/A	18-Jul-19	N/A	N/A	0.14	0.31	0.24	13.1	14:20

NOTES/COMMENTS:

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



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

November 4, 2019

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

**Incident No:** CAR\_07-2019

**Reported to ODW:** July 20, 2019

**Reported by:** Bill Laudinsky, Supervisor Maintenance Water

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

**Incident Date:** July 18, 2019

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

**Incident Type:**

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

**Description of Corrective Actions:**

Water Services:

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

**Test Results:** See attached

**LIMS Reference No:** n/a

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

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Sample Name	Work Order Number	Lab Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Turbidity-field (ntu)	Time Sampled (hrs)
Hydrant_Water Main Repair	1909103	L2313490-1	18-Jul-19	<1	2	0.57	2.58	17:00
Hydrant_Water Main Repair (Resample)	1909103	L2313982-1	20-Jul-19	<1	<1	0.66	2.82	19:15
Hydrant_Water Main Repair (Resample 2)	1909103	L2313983-1	21-Jul-19	<1	<1	0.58	0.71	8:20

NOTES/COMMENTS:

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



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

**February 14, 2020**

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

**Incident No:** CAR\_08-2019

**Reported to ODW:** September 9, 2019 and September 23, 2019

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

**Approved by:** Nancy Crawford, Compliance Reporting Branch Head

**Incident Date:** September 8, 2019 and September 22, 2019

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

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

Online chlorine analyzer readings were below 0.1 mg/L on:

Sunday, September 8, 2019 at 23:50 to Monday, September 9, 2019 at 00:20

Sunday, September 22, 2019 from 22:05 to 22:40

**Description of Corrective Actions:**

Water Services:

Reported the issue to ODW, collected water samples from nearby hydrants to confirm chlorine levels in the area, and confirmed that the chlorine analyzer was reading accurately.

Reviewed records of water main work - work had been done in the afternoon of September 8 on a feeder main a few blocks away. Although the work resulted in four calls about discoloured water, it is unlikely that it caused the drop in chlorine residual several hours later.

Reviewed chlorine analyzer data - the analyzer is located in the basement of NW02 immediately upstream of an eyewash station. If the continuous water feed to the analyzer is turned off the chlorine level will gradually decrease due to stagnation, but because the decreases occurred overnight this is unlikely to be the cause. A meter was recently installed on the line feeding the analyzer in order to monitor water flow. The low chlorine events do not appear to be related to the daily McPhillips/ Hurst shutdowns and there were no pressure drops in the system during the events.



## Water and Waste Eaux et déchets

### Engineering Services:

Reviewed water meter readings at NW02 and adjacent buildings – although daily water consumption was variable at NW02 and the adjacent buildings during this time period, there was no correlation between water consumption and chlorine levels at NW02.

### Environmental Standards:

Analyzed samples from NW02 for bacteria, turbidity, temperature, and free and total chlorine and confirmed analyzer reading at the time of sampling.

Inspected internal plumbing at NW02 - this location has premise isolation backflow prevention on the incoming water line but does have some unprotected cross connections within the internal plumbing system. Because the low chlorine readings occurred overnight on weekends, we feel it is unlikely that backflow within the internal plumbing system is the cause.

Inspected internal plumbing at an adjacent building with seasonal fluctuations in water usage – this location has premise isolation backflow prevention on all incoming water lines. Backflow of water from this building is not likely the cause of the low chlorine at NW02.

### Next Steps:

Corrosion and scale within the cast iron water main servicing the area, warm water temperature, and seasonal decreases in water consumption may be contributing to the low chlorine at NW02. We will continue to monitor this location and will assess if a long term solution such as replacing the water main is required.

### **Test Results:** See attached

**LIMS Reference No:** 238198, 240542, 242414, and 244301

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Date Sampled	Time Sampled (hrs)	Online Analyzer Free Chlorine (mg/L)	NW02 Tap Free Chlorine (mg/L)	Hydrant #378 Free Chlorine (mg/L)
20-Sep-19	5:10	0.35	0.33	0.74
20-Sep-19	23:50	0.71	0.79	0.52
21-Sep-19	5:10	0.35	0.37	0.31
21-Sep-19	23:30	0.21	0.23	0.26
22-Sep-19	5:10	0.42	0.40	0.52
22-Sep-19	23:28	0.16	0.13	0.39
23-Sep-19	5:05	0.41	0.39	0.48
23-Sep-19	23:38	0.57	0.52	0.49
24-Sep-19	5:01	0.36	0.28	0.43
25-Sep-19	0:00	0.38	0.23	1.35
25-Sep-19	5:00	0.38	0.48	0.58
26-Sep-19	0:00	0.71	0.71	0.81
26-Sep-19	5:00	0.26	0.14	0.84
27-Sep-19	0:40	0.56	0.66	0.40
27-Sep-19	5:10	0.41	0.49	0.40
28-Sep-19	0:00	0.50	0.58	1.26
28-Sep-19	5:10	0.32	0.39	0.76
28-Sep-19	23:30	0.72	0.71	0.88
29-Sep-19	5:10	0.18	0.16	1.18
29-Sep-19	23:40	0.55	0.30	1.68
30-Sep-19	5:00	0.41	0.24	1.31
30-Sep-19	23:29	0.66	0.61	0.26



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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Online Analyzer Free Chlorine (mg/L)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
NW02	238198	4-Sep-19	<1	<1	N/A	0.41	0.56	0.21	15.2	9:47
NW02_Analyzer	N/A	8-Sep-19	N/A	N/A	0.100	N/A	N/A	N/A	N/A	23:45
NW02_Analyzer	N/A	8-Sep-19	N/A	N/A	0.097	N/A	N/A	N/A	N/A	23:50
NW02_Analyzer	N/A	8-Sep-19	N/A	N/A	0.096	N/A	N/A	N/A	N/A	23:55
NW02_Analyzer	N/A	9-Sep-19	N/A	N/A	0.095	N/A	N/A	N/A	N/A	0:00
NW02_Analyzer	N/A	9-Sep-19	N/A	N/A	0.094	N/A	N/A	N/A	N/A	0:05
NW02_Analyzer	N/A	9-Sep-19	N/A	N/A	0.093	N/A	N/A	N/A	N/A	0:10
NW02_Analyzer	N/A	9-Sep-19	N/A	N/A	0.093	N/A	N/A	N/A	N/A	0:15
NW02_Analyzer	N/A	9-Sep-19	N/A	N/A	0.097	N/A	N/A	N/A	N/A	0:20
NW02_Analyzer	N/A	9-Sep-19	N/A	N/A	0.103	N/A	N/A	N/A	N/A	0:25
NW02	240542	11-Sep-19	<1	<1	0.74	0.81	1.02	0.30	16.9	9:32
NW02	242414	18-Sep-19	<1	<1	0.76	0.84	1.04	0.14	16.3	9:42
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.248	N/A	N/A	N/A	N/A	22:00
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.099	N/A	N/A	N/A	N/A	22:05
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.089	N/A	N/A	N/A	N/A	22:10
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.109	N/A	N/A	N/A	N/A	22:15
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.109	N/A	N/A	N/A	N/A	22:20
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.087	N/A	N/A	N/A	N/A	22:25
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.082	N/A	N/A	N/A	N/A	22:30
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.087	N/A	N/A	N/A	N/A	22:35
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.093	N/A	N/A	N/A	N/A	22:40
NW02_Analyzer	N/A	22-Sep-19	N/A	N/A	0.107	N/A	N/A	N/A	N/A	22:45
NW02	244301	25-Sep-19	<1	<1	0.76	0.87	1.07	0.65	16.3	9:37

NOTES/COMMENTS:

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



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

**February 5, 2020**

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

**Incident No:** CAR\_09-2019

**Reported to ODW:** January 6, 2020

**Reported by:** Nancy Crawford, Compliance Reporting Branch Head

**Approved by:** Nancy Crawford, Compliance Reporting Branch Head

**Incident Date:** December 8 – 14, 2019

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

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

Did not obtain three confirmatory grab samples of effluent from Filter 8. The filter was offline for maintenance from December 8 at 17:30 to December 12 at 21:55, grab samples were obtained on December 13 and 14.

**Description of Corrective Actions:**

Environmental Standards and Water Services: Reviewed monitoring requirements with staff and updated maintenance procedures to include obtaining a grab sample prior to and immediately following maintenance activities.

**Test Results:** See attached

**LIMS Reference No:** 265045 and 265201

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Sample Name	Date Sampled	Sample Number	Analyzer Turbidity (NTU)	Grab Turbidity (NTU)	Time Sampled (hrs)
WTP - Filter 8	Sunday, December 8, 2019	N/S	N/S	N/S	N/A
WTP - Filter 8	Monday, December 9, 2019	263878	O/L	N/S	N/A
WTP - Filter 8	Tuesday, December 10, 2019	264171	O/L	N/S	N/A
WTP - Filter 8	Wednesday, December 11, 2019	264480	O/L	N/S	N/A
WTP - Filter 8	Thursday, December 12, 2019	264765	O/L	N/S	N/A
WTP - Filter 8	Friday, December 13, 2019	265045	0.03	0.09	9:24 AM
WTP - Filter 8	Saturday, December 14, 2019	265201	0.04	0.09	5:40 PM

NOTES/COMMENTS:

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

Filter 8 was offline for scheduled maintenance from Sunday, December 8, 2019 at 5:30 PM to Thursday, December 12, 2019 at 9:55 PM



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

**February 10, 2020**

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

**Incident No:** CAR\_10-2019

**Reported to ODW:** January 6, 2020

**Reported by:** Mike Logan, Senior Operator

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

**Incident Date:** December 19, 2019

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

**Incident Type: (choose all that apply)**

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

**Description of Corrective Actions:**

Water Treatment Plant Operator: Water Treatment Instrument Technicians were performing maintenance on the Filter # 2 Turbidity Analyzer. The analyzer was placed into a timed “hold” mode to take the instrument out of service during maintenance, however, the analyzer came out of “hold” mode automatically after the time delay while maintenance was in progress, causing the analyzer to read 4.59 NTU for less than 1 minute. Grab samples were taken to verify filter turbidity were within license limits both before and after the maintenance of the turbidity analyzer, demonstrating that filter #2 effluent turbidity was below the license limit and the analyzer reading above 1 NTU was due to maintenance and not reflective of true process conditions.

**Test Results:** December 19, 2019

Prior to maintenance work: Time 14:21, Grab Sample 0.06 NTU, Analyzer Reading 0.03 NTU

After maintenance work: Time 15:40, Grab Sample 0.08 NTU, Analyzer Reading 0.02 NTU

**LIMS Reference No:** N/A

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

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**Filter # 2 Filter Effluent Turbidity Analyzer Readings (from SCADA):**

<u>Time</u>	<u>Value</u>
12/19/2019 14:23	0.03
12/19/2019 14:25	0.03
12/19/2019 14:27	0.03
12/19/2019 14:29	0.03
12/19/2019 14:31	0.03
12/19/2019 14:33	4.59
12/19/2019 14:35	0.01
12/19/2019 14:37	0.01
12/19/2019 14:39	0.02
12/19/2019 14:41	0.01
12/19/2019 14:43	0.01
12/19/2019 14:45	0.01
12/19/2019 14:47	0.02
12/19/2019 14:51	0.02
12/19/2019 14:53	0.02
12/19/2019 14:55	0.02
12/19/2019 14:57	0.02
12/19/2019 14:59	0.02
12/19/2019 15:05	0.01
12/19/2019 15:09	0.01
12/19/2019 15:11	0.01
12/19/2019 15:13	0.01
12/19/2019 15:15	0.02
12/19/2019 15:17	0.01
12/19/2019 15:19	0.02
12/19/2019 15:21	0.02
12/19/2019 15:23	0.01
12/19/2019 15:25	0.02
12/19/2019 15:27	0.02
12/19/2019 15:31	0.02
12/19/2019 15:33	0.02
12/19/2019 15:35	0.01
12/19/2019 15:37	0.02
12/19/2019 15:39	0.01



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

**February 10, 2020**

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

**Incident No:** CAR\_11-2019

**Reported to ODW:** December 30, 2019

**Reported by:** Dan Wagner, Senior Operator

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

**Incident Date:** December 27, 2019

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

**Incident Type: (choose all that apply)**

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

**Description of Corrective Actions:**

Water Treatment Plant Operator: Branch 1 chlorine analyzer began to drop compared to Branch 2 chlorine analyzer residual. There were no changes to process and no issues with chemical dose when this situation began to occur. Operations staff immediately went to the station to perform a grab sample on the instrument. The grab sample obtained was 1.32 free and 1.49 total. Operations contacted Instrumentation standby to calibrate instrument due to low reading.

**Test Results:** December 27, 2019 @ 21:30 free residual 1.32 total residual 1.49.

**LIMS Reference No:** N/A

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

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# **2019 QUARTERLY FLUORIDE MONITORING REPORTS**



**Water and Waste**  
**Eaux et déchets**

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

**April 18, 2019**

**RE: FIRST QUARTER 2019 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)	171154	7-Jan-19	0.65
	173107	14-Jan-19	0.63
	175016	21-Jan-19	0.70
	176392	28-Jan-19	0.71
	177789	4-Feb-19	0.74
	179584	11-Feb-19	0.69
	181367	19-Feb-19	0.65
	182895	25-Feb-19	0.67
	184735	4-Mar-19	0.65
	186457	11-Mar-19	0.70
	188357	18-Mar-19	0.72
	190100	25-Mar-19	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  
Manager of Environmental Standards

Enclosures

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



## Water and Waste Eaux et déchets

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

**July 5, 2019**

### **RE: SECOND QUARTER 2019 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)	192050	1-Apr-19	0.71
	193881	8-Apr-19	0.70
	195841	15-Apr-19	0.68
	197587	23-Apr-19	0.68
	199092	29-Apr-19	0.70
	201067	6-May-19	0.71
	202978	13-May-19	0.67
	204919	20-May-19	0.70
	206836	27-May-19	0.65
	209086	3-Jun-19	0.62
	211238	10-Jun-19	0.62
	213525	17-Jun-19	0.64
	215839	24-Jun-19	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  
Manager of Environmental Standards

Enclosures

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



**Water and Waste**  
**Eaux et déchets**

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

**November 1, 2019**

**RE: THIRD QUARTER 2019 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)	218056	1-Jul-19	0.67
	219989	8-Jul-19	0.68
	222244	15-Jul-19	0.66
	224456	22-Jul-19	0.65
	226527	29-Jul-19	0.67
	228576	6-Aug-19	0.64
	230612	12-Aug-19	0.66
	232674	19-Aug-19	0.66
	234909	26-Aug-19	0.65
	237191	3-Sep-19	0.66
	239302	9-Sep-19	0.67
	241256	16-Sep-19	0.69
	243142	23-Sep-19	0.70
	245057	30-Sep-19	0.68

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

Yours sincerely,

Original signed by:

R. Grosselle  
Manager of Environmental Standards

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



## Water and Waste Eaux et déchets

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

**January 30, 2020**

### **RE: FOURTH QUARTER 2019 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)	247109	7-Oct-19	0.68
	248999	14-Oct-19	0.67
	250701	21-Oct-19	0.68
	252737	28-Oct-19	0.66
	254517	4-Nov-19	0.67
	256369	12-Nov-19	0.68
	258059	18-Nov-19	0.68
	259686	25-Nov-19	0.68
	261441	2-Dec-19	0.65
	263157	9-Dec-19	0.63
	264784	16-Dec-19	0.69
	266468	23-Dec-19	0.74
	267905	30-Dec-19	0.73

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  
Manager of Environmental Standards

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

**2019 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 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, May 7, 2018	29.5	30.0	30.5	32.5	31.7	31.0
Monday, August 13, 2018	53.5	54.1	56.7	58.4	52.7	55.6
Monday, November 5, 2018	20.6	21.9	18.9	23.9	23.5	22.9
Monday, February 4, 2019	35.1	39.8	39.2	37.4	38.0	41.0
<b>RUNNING AVERAGE THM</b>	<b>34.7</b>	<b>36.5</b>	<b>36.3</b>	<b>38.1</b>	<b>36.5</b>	<b>37.6</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

Date Compiled: \_\_\_\_\_ May 7, 2019



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Trihalomethanes Summary Report

Reporting Period: Quarter 2 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, August 13, 2018	53.5	54.1	56.7	58.4	52.7	55.6
Monday, November 5, 2018	20.6	21.9	18.9	23.9	23.5	22.9
Monday, February 4, 2019	35.1	39.8	39.2	37.4	38.0	41.0
Monday, May 6, 2019	19.8	20.7	21.7	19.9	16.4	20.9
<b>RUNNING AVERAGE THM</b>	<b>32.3</b>	<b>34.1</b>	<b>34.1</b>	<b>34.9</b>	<b>32.6</b>	<b>35.1</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

Date Compiled: \_\_\_\_\_ June 6, 2019



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Trihalomethanes Summary Report

Reporting Period: Quarter 3 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 5, 2018	20.6	21.9	18.9	23.9	23.5	22.9
Monday, February 4, 2019	35.1	39.8	39.2	37.4	38.0	41.0
Monday, May 6, 2019	19.8	20.7	21.7	19.9	16.4	20.9
Tuesday, August 6, 2019	64.0	59.5	49.3	51.4	46.7	58.6
<b>RUNNING AVERAGE THM</b>	<b>34.9</b>	<b>35.5</b>	<b>32.3</b>	<b>33.2</b>	<b>31.2</b>	<b>35.9</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: \_\_\_\_\_ N. Crawford \_\_\_\_\_

Approved by: \_\_\_\_\_ C. Diduck \_\_\_\_\_

Date Compiled: \_\_\_\_\_ September 13, 2019 \_\_\_\_\_



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Trihalomethanes Summary Report

Reporting Period: Quarter 4 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 4, 2019	35.1	39.8	39.2	37.4	38.0	41.0
Monday, May 6, 2019	19.8	20.7	21.7	19.9	16.4	20.9
Tuesday, August 6, 2019	64.0	59.5	49.3	51.4	46.7	58.6
Monday, November 4, 2019	31.1	30.4	30.6	34.6	30.1	32.5
<b>RUNNING AVERAGE THM</b>	<b>37.5</b>	<b>37.6</b>	<b>35.2</b>	<b>35.8</b>	<b>32.8</b>	<b>38.3</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: A. Gordon

Approved by: C.Diduck

Date Compiled: December 4, 2019



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 1 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, May 7, 2018	24.0	26.4	23.3	24.8	24.9	25.3
Monday, August 13, 2018	16.7	29.7	17.0	22.1	30.0	29.9
Monday, November 5, 2018	20.3	26.9	18.8	18.0	20.7	27.3
Monday, February 4, 2019	29.4	30.3	32.7	31.2	29.0	30.6
<b>RUNNING AVERAGE HAA</b>	<b>22.6</b>	<b>28.3</b>	<b>22.9</b>	<b>24.0</b>	<b>26.2</b>	<b>28.3</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

Date Compiled: \_\_\_\_\_ May 7, 2019



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 2 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, August 13, 2018	16.7	29.7	17.0	22.1	30.0	29.9
Monday, November 5, 2018	20.3	26.9	18.8	18.0	20.7	27.3
Monday, February 4, 2019	29.4	30.3	32.7	31.2	29.0	30.6
Monday, May 6, 2019	18.5	25.1	24.7	20.5	19.6	18.6
<b>RUNNING AVERAGE HAA</b>	<b>21.2</b>	<b>28.0</b>	<b>23.3</b>	<b>22.9</b>	<b>24.8</b>	<b>26.6</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

Date Compiled: \_\_\_\_\_ June 6, 2019



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 3 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, November 5, 2018	20.3	26.9	18.8	18.0	20.7	27.3
Monday, February 4, 2019	29.4	30.3	32.7	31.2	29.0	30.6
Monday, May 6, 2019	18.5	25.1	24.7	20.5	19.6	18.6
Tuesday, August 6, 2019	23.7	40.8	22.5	27.3	37.8	38.6
<b>RUNNING AVERAGE HAA</b>	<b>23.0</b>	<b>30.8</b>	<b>24.7</b>	<b>24.3</b>	<b>26.8</b>	<b>28.8</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: \_\_\_\_\_ N. Crawford

Approved by: \_\_\_\_\_ C. Diduck

Date Compiled: \_\_\_\_\_ September 13, 2019



Water and Waste  
Eaux et déchets

## Environmental Standards Division

### Total Haloacetic Acids Summary Report

Reporting Period: Quarter 4 2019

License: PWS-09-412-01

SAMPLE DATE	DISTRIBUTION SYSTEM HAA RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, February 4, 2019	29.4	30.3	32.7	31.2	29.0	30.6
Monday, May 6, 2019	18.5	25.1	24.7	20.5	19.6	18.6
Tuesday, August 6, 2019	23.7	40.8	22.5	27.3	37.8	38.6
Monday, November 4, 2019	29.5	31.4	29.1	22.9	28.9	31.1
<b>RUNNING AVERAGE HAA</b>	<b>25.3</b>	<b>31.9</b>	<b>27.3</b>	<b>25.5</b>	<b>28.8</b>	<b>29.7</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: \_\_\_\_\_ A. Gordon

Approved by: \_\_\_\_\_ C. Diduck

Date Compiled: \_\_\_\_\_ December 4, 2019

# **2019 LEAD LOOP MONITORING REPORT**



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

Water System Code: 252.00

Licence Number: PWS-09-412-01

**2019 Lead Loop System Summary Report**

SAMPLE DATE	Five minute flushed Lead Concentration (mg/L)				
	Lead Loop Cu	Lead Loop Pb	Lead Loop Pb1	Lead Loop Pb2	Lead Loop Pb3
January 18, 2019	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
February 14, 2019	<0.000065	<0.000065	<0.000065	<0.000065	0.000086
March 22, 2019	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
April 10, 2019	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
May 17, 2019	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
June 14, 2019	0.000190	<0.000065	<0.000065	<0.000065	<0.000065
July 19, 2019	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
August 16, 2019	<0.000065	<0.000065	<0.000065	<0.000065	0.000066
September 19, 2019	0.000095	0.000069	0.000075	0.000074	0.000233
October 25, 2019	<0.000065	<0.000065	<0.000065	<0.000065	0.000136
November 22, 2019	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
December 20, 2019	<0.000065	<0.000065	<0.000065	<0.000065	<0.000065
<b>2019 AVERAGE LEAD CONCENTRATION</b>	<b>&lt;0.000065</b>	<b>&lt;0.000065</b>	<b>&lt;0.000065</b>	<b>&lt;0.000065</b>	<b>0.000065</b>

COMMENTS:

Report Compiled By: A. Gordon

Approved By: B. Bradford

Methodology

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

File Location: N:\Compliance Reporting\Lead Loop Annual Report\2019 Lead Loop Annual Report\Lead Loop 2019.xls

**APPENDIX C**

**2019 NEW LEAD TESTING PROGRAM**

**RESULTS**

**City of Winnipeg**  
**Environmental Standards Division**  
**2019 Lead Testing Program Summary**

DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	TEST TYPE	SAMPLED BY	RDT	1 MIN	2 MIN	5 MIN
26-Jul-19	153	St. James	Copper	Lead	Lead Program	Customer	0.005888	0.000811	0.000820	0.000795
14-Aug-19	167	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.000526	0.016909	0.000329	0.000329
15-Aug-19	166	Mynarski	Unknown	Lead	Lead Program	Customer	0.002416	0.009642	0.001944	0.001889
15-Aug-19	168	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.004483	0.001258	0.000246	0.000258
15-Aug-19	169	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.004532	0.002792	0.000610	0.000626
15-Aug-19	170	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.010217	0.006284	0.001728	0.001769
15-Aug-19	177	Mynarski	Copper	Lead	Lead Program	Customer	0.000722	0.000378	0.000307	<0.000065
16-Aug-19	171	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.002789	0.004640	0.001222	0.000524
16-Aug-19	172	River Heights - Fort Garry	Lead	Lead	Lead Program	Customer	0.001639	0.000536	0.000236	0.000242
16-Aug-19	173	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.000563	<0.000065	<0.000065	0.000100
16-Aug-19	174	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.000218	<0.000065	<0.000065	<0.000065
16-Aug-19	175	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001924	0.001051	0.001040	0.001078
16-Aug-19	176	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.003402	0.001652	0.001607	0.001551
16-Aug-19	178	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002060	0.000438	0.000465	0.000485
16-Aug-19	179	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001085	<0.000065	<0.000065	<0.000065
16-Aug-19	180	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002139	0.000872	0.000842	0.000887
16-Aug-19	182	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.010555	0.001365	0.001354	0.001304
16-Aug-19	183	Fort Rouge - East Fort Garry	Unknown	Lead	Lead Program	Customer	0.003134	0.001252	0.001285	0.001277
16-Aug-19	184	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.004952	0.001205	0.000747	0.000776
18-Aug-19	185	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Customer	0.002994	0.000610	0.000267	0.000236
19-Aug-19	186	River Heights - Fort Garry	Lead	Lead	Lead Program	Customer	0.004695	0.001828	0.001275	0.000376
19-Aug-19	187	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000191	0.000065	0.000078	0.000089
19-Aug-19	188	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
19-Aug-19	189	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.005843	0.019694	0.001238	0.001323
19-Aug-19	190	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
19-Aug-19	191	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.001644	0.002417	0.002020	0.000803
19-Aug-19	192	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
19-Aug-19	193	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001349	0.000328	0.000243	0.000301
19-Aug-19	194	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002122	0.000449	0.000188	0.000220
19-Aug-19	195	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.008479	0.002159	0.002081	0.002036
19-Aug-19	196	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.002502	0.003066	<0.000065	0.002123
19-Aug-19	197	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.000406	<0.000065	<0.000065	<0.000065
19-Aug-19	198	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000161	<0.000065	<0.000065	<0.000065
19-Aug-19	199	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
19-Aug-19	200	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001453	0.003956	0.000294	0.000286
19-Aug-19	201	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.001000	0.000892	0.001059	0.000106
19-Aug-19	202	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.002936	0.012885	0.000383	0.000356

**City of Winnipeg**  
**Environmental Standards Division**  
**2019 Lead Testing Program Summary**

DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	TEST TYPE	SAMPLED BY	RDT	1 MIN	2 MIN	5 MIN
19-Aug-19	203	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000125	0.000636	<0.000065	<0.000065
19-Aug-19	221	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Customer	0.001645	0.025716	0.000872	0.000686
20-Aug-19	204	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.002238	0.000212	0.000194	0.000157
20-Aug-19	205	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.002699	0.005957	0.001922	0.001663
20-Aug-19	206	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.008325	0.001700	0.001749	0.001647
20-Aug-19	207	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.006127	0.108220	0.076649	0.001493
20-Aug-19	208	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.002819	0.001149	0.000274	0.000265
20-Aug-19	209	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
20-Aug-19	210	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001732	0.000124	0.000121	0.000093
20-Aug-19	211	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.008672	0.001677	0.001697	0.001471
20-Aug-19	212	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.006551	0.001611	0.001546	0.001486
20-Aug-19	213	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.011174	0.000325	0.000282	0.000279
20-Aug-19	214	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001396	0.000414	0.000450	0.000409
20-Aug-19	215	Point Douglas	Copper	Lead	Lead Program	Lab Staff	0.002168	0.000621	0.000307	0.000319
20-Aug-19	216	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000565	0.000149	0.000153	0.000120
20-Aug-19	217	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000472	0.000130	0.000106	0.000066
20-Aug-19	218	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000314	<0.000065	<0.000065	<0.000065
20-Aug-19	219	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.001830	0.001602	0.000764	0.000764
21-Aug-19	220	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001184	0.001184	0.001154	0.001140
21-Aug-19	222	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.000309	0.000712	0.000259	0.000242
21-Aug-19	223	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Customer	0.002998	0.000890	0.000884	0.000894
21-Aug-19	224	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.000473	0.000873	0.000145	0.000138
21-Aug-19	225	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001026	0.004622	0.000573	0.000548
21-Aug-19	226	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.001750	0.001104	0.001126	0.001145
21-Aug-19	227	River Heights - Fort Garry	Lead	Lead	Lead Program	Customer	0.000980	0.000632	0.000638	0.000642
21-Aug-19	232	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001076	0.001455	0.001057	0.001014
22-Aug-19	228	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002224	0.000518	0.000528	0.000537
22-Aug-19	229	Elmwood - East Kildonan	Lead	Lead	Lead Program	Lab Staff	0.004100	0.010505	0.001637	0.001626
22-Aug-19	230	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000696	0.000963	0.000293	0.000282
22-Aug-19	231	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002657	0.000725	0.002363	0.000718
22-Aug-19	233	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.002795	0.000872	0.000735	0.000717
22-Aug-19	235	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001802	0.000362	0.000418	0.000423
22-Aug-19	236	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.000658	0.001175	0.000493	0.000459
22-Aug-19	237	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.007175	0.003436	0.001060	0.000993
22-Aug-19	238	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.002227	0.000272	0.000270	0.000249
22-Aug-19	239	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.005825	0.000937	0.000941	0.000872
22-Aug-19	240	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.000260	<0.000065	<0.000065	<0.000065

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22-Aug-19	241	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	<0.000065	<0.000065	<0.000065	<0.000065
22-Aug-19	242	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.003293	0.006546	0.001068	0.000894
22-Aug-19	243	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001312	0.001898	0.000461	0.000297
22-Aug-19	244	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.000708	0.000713	0.000724	0.000734
22-Aug-19	245	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002385	0.000751	0.000731	0.000710
22-Aug-19	246	Elmwood - East Kildonan	Copper	Lead	Lead Program	Lab Staff	0.044972	0.003020	0.002790	0.002720
22-Aug-19	247	Elmwood - East Kildonan	Copper	Lead	Lead Program	Lab Staff	0.001183	0.000401	0.000314	0.000375
23-Aug-19	249	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000125	0.000125	0.000075	0.000091
23-Aug-19	250	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003036	0.020645	0.001415	0.001387
23-Aug-19	251	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000318	0.000310	0.000223	0.000202
23-Aug-19	252	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001118	0.000652	0.001030	0.000663
23-Aug-19	253	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000982	0.000917	0.001039	0.000980
23-Aug-19	254	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003363	0.002588	0.000608	0.000544
23-Aug-19	255	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000221	<0.000065	<0.000065	<0.000065
23-Aug-19	256	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002279	0.000719	0.000713	0.000689
23-Aug-19	257	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000084	<0.000065	<0.000065	<0.000065
23-Aug-19	258	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001652	0.000614	0.000538	0.000485
23-Aug-19	259	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000936	0.000561	0.000559	0.000534
23-Aug-19	260	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001719	0.003996	0.000722	0.000666
23-Aug-19	261	Elmwood - East Kildonan	Lead	Lead	Lead Program	Lab Staff	0.000610	0.000459	0.000433	0.000426
23-Aug-19	262	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.002888	0.001236	0.001156	0.001114
23-Aug-19	263	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000670	0.000445	0.002107	0.000398
23-Aug-19	264	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.003059	0.000986	0.001001	0.000972
23-Aug-19	265	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001731	0.000919	0.000839	0.000767
23-Aug-19	266	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.001512	0.000627	0.000653	0.000627
26-Aug-19	268	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000486	0.000386	0.000379	0.000354
26-Aug-19	269	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.011628	0.035617	0.002876	0.002362
26-Aug-19	270	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.000132	0.000084	<0.000065	<0.000065
26-Aug-19	271	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001563	0.001001	0.000763	0.000715
26-Aug-19	272	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.004084	0.002834	0.003106	0.003304
26-Aug-19	273	Mynarski	Lead	Lead	Lead Program	Lab Staff	0.010696	0.002226	0.002140	0.002118
26-Aug-19	274	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.010381	0.012928	0.001401	0.001369
26-Aug-19	275	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.003861	0.001158	0.001159	0.001113
26-Aug-19	276	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.002100	0.001240	0.002590	0.001146
26-Aug-19	277	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002835	0.000866	0.000895	0.000839
26-Aug-19	278	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001567	0.027911	0.001065	0.001026
26-Aug-19	279	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.004857	0.001712	0.001569	0.001506

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26-Aug-19	280	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.012027	0.001355	0.001345	0.001337
26-Aug-19	281	St. James	Unknown	Lead	Lead Program	Lab Staff	0.002188	0.002951	0.002011	0.002046
27-Aug-19	283	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.003998	0.004275	0.000554	0.000500
27-Aug-19	284	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003129	0.001285	0.001275	0.001189
27-Aug-19	285	Mynarski	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
27-Aug-19	286	St. James	Copper	Lead	Lead Program	Lab Staff	0.008572	0.001228	0.000975	0.000973
27-Aug-19	287	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.028998	0.001513	0.001516	0.001428
27-Aug-19	288	St. James	Copper	Lead	Lead Program	Lab Staff	0.011710	0.001181	0.001125	0.001099
27-Aug-19	289	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.017874	0.003498	0.003079	0.002709
27-Aug-19	290	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.002940	0.009281	0.005357	0.000413
27-Aug-19	291	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000878	0.000364	0.000210	0.000198
27-Aug-19	292	Mynarski	Lead	Lead	Lead Program	Lab Staff	0.000131	<0.000065	<0.000065	<0.000065
27-Aug-19	293	St. James	Copper	Lead	Lead Program	Lab Staff	0.008904	0.001199	0.001171	0.001081
27-Aug-19	294	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.014370	0.001785	0.001960	0.001901
27-Aug-19	295	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.003374	0.001585	0.000739	0.000380
28-Aug-19	297	St. Boniface	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
28-Aug-19	298	Transcona	Copper	Lead	Lead Program	Lab Staff	0.002588	0.000782	0.000837	0.000838
28-Aug-19	299	Elmwood - East Kildonan	Lead	Lead	Lead Program	Lab Staff	0.005967	0.001752	0.000536	0.000497
28-Aug-19	300	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000436	0.000326	0.000329	0.000333
28-Aug-19	301	St. Boniface	Copper	Lead	Lead Program	Lab Staff	0.000253	<0.000065	<0.000065	<0.000065
28-Aug-19	302	Elmwood - East Kildonan	Lead	Lead	Lead Program	Lab Staff	0.000559	0.000446	0.000465	0.000439
28-Aug-19	303	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.014615	0.002144	0.001882	0.001870
28-Aug-19	304	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003846	0.000193	0.000247	0.000185
28-Aug-19	305	Transcona	Copper	Lead	Lead Program	Lab Staff	0.003783	0.001737	0.001742	0.001692
28-Aug-19	306	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003153	<0.000065	<0.000065	<0.000065
28-Aug-19	307	Elmwood - East Kildonan	Copper	Lead	Lead Program	Lab Staff	0.006003	0.005800	0.001251	0.001219
28-Aug-19	333	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.000595	0.000559	<0.000065	<0.000065
30-Aug-19	308	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.011167	0.006166	0.002059	0.001689
30-Aug-19	309	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001973	0.000816	0.000840	0.000826
30-Aug-19	310	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001033	0.001816	0.000689	0.000649
30-Aug-19	311	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003750	0.003448	0.000647	0.000718
30-Aug-19	313	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002714	0.001888	0.001843	0.001796
30-Aug-19	314	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.005911	0.000784	0.000835	0.000818
30-Aug-19	315	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.001550	0.001205	0.001131	0.001147
30-Aug-19	316	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.005841	0.001366	0.001092	0.001032
30-Aug-19	317	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.002820	0.001080	0.001104	0.001090
30-Aug-19	318	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.004423	0.000845	0.000665	0.000698

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30-Aug-19	319	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001403	0.001283	0.001257	0.001191
30-Aug-19	320	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000121	<0.000065	<0.000065	<0.000065
30-Aug-19	321	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.017187	0.045937	0.002511	0.002532
1-Sep-19	326	Mynarski	Copper	Lead	Lead Program	Customer	0.000973	<0.000065	<0.000065	<0.000065
3-Sep-19	325	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.007776	0.000548	0.000532	0.000501
3-Sep-19	327	St. James	Copper	Lead	Lead Program	Customer	0.001039	0.000086	<0.000065	<0.000065
3-Sep-19	328	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.002311	0.000456	0.000436	0.000389
3-Sep-19	329	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.005194	0.001802	0.001018	0.000974
3-Sep-19	330	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003336	0.001889	0.001908	0.001804
3-Sep-19	331	Elmwood - East Kildonan	Lead	Lead	Lead Program	Lab Staff	0.000095	<0.000065	<0.000065	<0.000065
3-Sep-19	332	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.003678	0.003203	0.002285	0.002236
3-Sep-19	334	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.005617	0.001397	0.001291	0.001256
3-Sep-19	335	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001645	0.006621	0.000834	0.000805
3-Sep-19	336	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.006108	0.000280	0.000273	0.000284
3-Sep-19	337	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000108	<0.000065	<0.000065	<0.000065
3-Sep-19	338	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
3-Sep-19	339	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.004491	0.000437	0.000433	0.000411
3-Sep-19	340	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.002455	0.000147	0.000142	0.000129
3-Sep-19	341	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.036960	0.003573	0.003509	0.003359
4-Sep-19	342	River Heights - Fort Garry	Lead	Lead	Lead Program	Customer	0.005946	0.004244	0.002653	0.002663
4-Sep-19	343	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.008079	0.004882	0.000636	0.000634
4-Sep-19	344	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.004149	0.005136	0.001154	0.001126
4-Sep-19	345	St. James	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
4-Sep-19	346	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001872	<0.000065	<0.000065	<0.000065
4-Sep-19	347	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.008669	0.001125	0.001009	0.000939
4-Sep-19	348	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000910	<0.000065	<0.000065	<0.000065
4-Sep-19	349	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.002105	0.001013	0.000969	0.000917
4-Sep-19	350	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.001539	0.000946	0.000904	0.000806
4-Sep-19	351	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001906	0.000665	0.000678	0.000662
4-Sep-19	352	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.004412	0.001143	0.000917	0.000865
4-Sep-19	353	Mynarski	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
4-Sep-19	354	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001664	0.001015	0.001025	0.000978
4-Sep-19	355	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.004078	0.000665	0.000510	0.000479
5-Sep-19	357	St. James	Copper	Lead	Lead Program	Customer	0.001347	0.001209	0.001170	0.001136
5-Sep-19	358	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.004762	0.001051	0.001076	0.001079
5-Sep-19	359	River Heights - Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.000855	0.000382	0.000300	0.000311
5-Sep-19	360	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.003922	0.000386	0.000348	0.000348

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5-Sep-19	361	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.003032	0.000411	0.000393	0.000392
5-Sep-19	362	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.001578	0.000501	0.000426	0.000453
5-Sep-19	363	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.006430	0.000596	0.000448	0.000421
5-Sep-19	365	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.001034	0.000994	0.000692	0.000714
5-Sep-19	366	Daniel McIntyre	Copper	Lead	Lead Program	Lab Staff	0.000433	<0.000065	<0.000065	<0.000065
5-Sep-19	367	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.001897	0.001131	0.001021	0.000978
5-Sep-19	368	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003441	0.001348	0.001015	0.000574
5-Sep-19	372	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.000526	0.000885	0.000787	0.000101
6-Sep-19	369	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Lab Staff	0.005036	0.002753	0.002711	0.002665
6-Sep-19	370	River Heights - Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.000416	0.000289	0.000268	0.000372
6-Sep-19	371	Daniel McIntyre	Lead	Lead	Lead Program	Lab Staff	0.001230	0.000966	0.001164	0.000841
6-Sep-19	373	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Lab Staff	0.003895	0.009576	0.000983	0.000709
10-Sep-19	375	St. James	Lead	Lead	Lead Program	Customer	0.002888	0.001568	0.000609	0.000587
12-Sep-19	377	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.002580	0.002165	0.000978	0.000777
12-Sep-19	378	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.001297	0.000572	0.000573	0.000540
13-Sep-19	379	River Heights - Fort Garry	Lead	Lead	Lead Program	Customer	0.004536	0.007291	0.000710	0.000611
16-Sep-19	381	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Customer	0.009714	0.013364	0.005717	0.005657
25-Sep-19	385	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.002410	0.001537	0.000772	0.000513
26-Sep-19	387	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.001588	0.008507	0.005485	0.000285
26-Sep-19	391	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001334	0.000860	0.000864	0.001022
27-Sep-19	392	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001045	0.000833	0.000776	0.000819
27-Sep-19	393	River Heights - Fort Garry	Copper	Lead	Resample (Job 194)	Lab Staff	0.001309	0.000458	0.000449	0.000421
28-Sep-19	412	Mynarski	Copper	Lead	Lead Program	Customer	0.001851	0.004404	0.001045	0.001050
29-Sep-19	399	Daniel McIntyre	Lead	Lead	Lead Program	Customer	0.000306	0.000308	0.000294	0.000294
29-Sep-19	409	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.002412	0.001718	0.000882	0.000755
30-Sep-19	400	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.000534	0.000601	0.000615	0.000577
30-Sep-19	402	Point Douglas	Lead	Lead	Lead Program	Customer	0.013345	0.010054	0.009932	0.009864
30-Sep-19	403	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.003375	0.002506	0.002018	0.002691
30-Sep-19	404	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001496	0.000794	0.000731	0.000685
30-Sep-19	410	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.000711	0.000416	0.000374	0.000352
1-Oct-19	405	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001563	0.000735	0.000644	0.000708
1-Oct-19	406	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.001791	0.001281	0.000835	0.000788
1-Oct-19	407	North Kildonan	Unknown	Lead	Lead Program	Customer	0.002043	0.000504	0.000400	0.000405
1-Oct-19	408	Elmwood - East Kildonan	Lead	Lead	Lead Program	Customer	0.000861	0.000875	0.000830	0.000902
1-Oct-19	411	River Heights - Fort Garry	Lead	Lead	Lead Program	Customer	0.003095	0.004329	0.002807	0.000740
1-Oct-19	413	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.002676	0.007226	0.001454	0.001383
1-Oct-19	418	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.000318	0.000079	<0.000065	<0.000065

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DATE	JOB	WARD	CITY SERVICE LINE MATERIAL	PRIVATE SERVICE LINE MATERIAL	TEST TYPE	SAMPLED BY	RDT	1 MIN	2 MIN	5 MIN
2-Oct-19	414	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	<0.000065	<0.000065	<0.000065	<0.000065
2-Oct-19	416	Fort Rouge - East Fort Garry	Lead	Lead	Lead Program	Customer	0.001887	0.001105	0.000728	0.000694
2-Oct-19	417	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.001303	0.000516	0.000534	0.000541
3-Oct-19	415	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.003461	0.000947	0.000751	0.000704
3-Oct-19	419	Fort Rouge - East Fort Garry	Lead	Lead	Resample (Job 381)	Lab Staff	0.012186	0.002672	0.002428	0.002300
4-Oct-19	420	Point Douglas	Lead	Lead	Lead Program	Customer	0.001589	0.001855	0.001744	0.001631
6-Oct-19	421	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.003460	0.004081	0.000871	0.000799
10-Oct-19	426	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.005150	0.003132	0.002908	0.002653
11-Oct-19	427	Point Douglas	Lead	Lead	Resample (Job 402)	Lab Staff	0.007856	0.009351	0.002418	0.002300
16-Oct-19	428	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.002500	0.002435	0.001830	0.001416
17-Oct-19	429	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.005800	0.003130	0.002347	0.002170
18-Oct-19	430	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.002731	0.000488	0.000399	0.000370
18-Oct-19	431	Mynarski	Copper	Lead	Lead Program	Customer	0.007901	0.000533	0.000546	0.000509
18-Oct-19	432	Point Douglas	Lead	Lead	Lead Program	Customer	0.011155	0.002887	0.002211	0.002682
18-Oct-19	433	Mynarski	Lead	Lead	Lead Program	Lab Staff	0.003519	0.001677	0.000824	0.000802
18-Oct-19	434	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.001148	0.000798	0.000741	0.000455
18-Oct-19	435	Fort Rouge - East Fort Garry	Unknown	Lead	Lead Program	Customer	0.008743	0.002334	0.002150	0.001845
18-Oct-19	436	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.005245	0.004736	0.002586	0.000615
21-Oct-19	437	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.002105	0.003281	0.001615	0.001449
21-Oct-19	439	Mynarski	Copper	Lead	Lead Program	Customer	0.002953	0.003027	0.003056	0.003176
22-Oct-19	440	St. Vital	Unknown	Lead	Lead Program	Lab Staff	0.000087	0.000131	<0.000065	<0.000065
22-Oct-19	441	St. Vital	Copper	Lead	Lead Program	Lab Staff	0.006250	0.005469	0.003124	0.000983
22-Oct-19	442	Elmwood - East Kildonan	Copper	Lead	Lead Program	Lab Staff	0.000396	<0.000065	<0.000065	<0.000065
22-Oct-19	443	Elmwood - East Kildonan	Lead	Lead	Lead Program	Lab Staff	0.017748	0.005017	0.003712	0.003505
22-Oct-19	444	Mynarski	Copper	Lead	Lead Program	Customer	0.000401	0.000613	0.000633	0.000454
22-Oct-19	445	Elmwood - East Kildonan	Lead	Lead	Lead Program	Customer	0.001693	0.001668	0.001676	0.001800
28-Oct-19	448	Elmwood - East Kildonan	Lead	Lead	Lead Program	Customer	0.005165	0.012455	0.005661	0.001288
29-Oct-19	449	Point Douglas	Lead	Lead	Lead Program	Lab Staff	0.001508	0.000577	0.000562	0.000538
29-Oct-19	450	Point Douglas	Lead	Lead	Lead Program	Lab Staff	0.002837	0.001216	0.001159	0.001128
29-Oct-19	451	Point Douglas	Copper	Lead	Lead Program	Lab Staff	0.001233	0.001128	0.000998	0.000913
29-Oct-19	452	Point Douglas	Copper	Lead	Lead Program	Lab Staff	<0.000065	<0.000065	<0.000065	<0.000065
29-Oct-19	453	Point Douglas	Copper	Lead	Lead Program	Lab Staff	0.006254	0.000331	0.000304	0.000292
29-Oct-19	454	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.002247	0.000421	0.000329	0.000292
29-Oct-19	456	Point Douglas	Copper	Lead	Lead Program	Customer	0.001215	0.000862	0.004708	0.000568
30-Oct-19	455	Elmwood - East Kildonan	Copper	Lead	Lead Program	Customer	0.001328	0.002021	0.002174	0.001289
30-Oct-19	458	Mynarski	Copper	Lead	Lead Program	Customer	0.000920	0.001063	0.000677	0.000649
31-Oct-19	459	Point Douglas	Copper	Lead	Lead Program	Lab Staff	0.003868	0.000982	0.000709	0.000832

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31-Oct-19	461	Point Douglas	Copper	Lead	Lead Program	Customer	0.002026	0.003336	0.000980	0.000840
31-Oct-19	462	Mynarski	Copper	Lead	Lead Program	Lab Staff	0.001845	0.000902	0.000826	0.001170
31-Oct-19	463	Mynarski	Lead	Lead	Lead Program	Lab Staff	0.005458	0.008576	0.001143	0.000993
31-Oct-19	464	Fort Rouge - East Fort Garry	Copper	Lead	Lead Program	Customer	0.001524	0.001292	0.001148	0.000934
4-Nov-19	465	Point Douglas	Lead	Lead	Lead Program	Customer	0.005611	0.014751	0.001087	0.004813
6-Nov-19	467	Point Douglas	Copper	Lead	Lead Program	Customer	0.002406	0.000610	0.000557	0.000502
6-Nov-19	468	Elmwood - East Kildonan	Lead	Lead	Lead Program	Lab Staff	0.002238	0.001287	0.001099	0.001026
6-Nov-19	469	Mynarski	Lead	Lead	Lead Program	Lab Staff	0.000555	0.001929	0.000510	0.000408
6-Nov-19	470	Mynarski	Lead	Lead	Lead Program	Lab Staff	0.001617	0.002168	0.001026	0.000984
6-Nov-19	471	Point Douglas	Copper	Lead	Lead Program	Lab Staff	0.001399	0.000362	0.000342	0.000324
6-Nov-19	472	Point Douglas	Copper	Lead	Lead Program	Lab Staff	0.000498	0.000376	0.000337	0.000289
7-Nov-19	460	Elmwood - East Kildonan	Unknown	Lead	Lead Program	Customer	0.000138	<0.000065	<0.000065	<0.000065
19-Nov-19	478	River Heights - Fort Garry	Copper	Lead	Lead Program	Customer	0.001120	0.000514	0.000442	0.000387
29-Nov-19	479	Daniel McIntyre	Copper	Lead	Lead Program	Customer	0.002367	0.001434	0.000899	0.000743