



Water and Waste Department
Environmental Standards Division

2016 Annual Water Report

City of Winnipeg Water Supply System



SUMMARY

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 Guidelines for Canadian Drinking Water Quality.

The City of Winnipeg ensures that the 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 City of Winnipeg's Public Water System Operating Licence, PWS-09-412-01, requires that we regularly monitor the quality of our drinking water and submit an annual report to the regulating authority on or before the 31st of March of each year as set out in subsection 32(2) of *MR 40/2007, Drinking Water Safety Regulation*.

In keeping with this requirement, the City of Winnipeg hereby submits this report which summarizes the results of the City's 2016 Water Quality Monitoring Program.

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1.0 DRINKING WATER SYSTEM AND SOURCE

“Section 32(2) (a) a brief description of the drinking water system, including its water supply source.”

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 Winnipeg’s water system is on Indian Bay on the western end of Shoal Lake, and is only accessible by rail or boat. Water flows from Shoal Lake to Winnipeg by gravity through a 135 kilometer long aqueduct. The water is stored in Deacon Reservoirs, four large reservoirs that can hold 8.8 billion liters, enough water to supply Winnipeg for about one month, depending on consumption demand. Water passes from the Deacon Reservoirs to a Drinking Water Treatment Plant, and then on to three smaller reservoirs and pumping stations in different areas of the city. Each day, an average of 170 million liters of water is billed to approximately 204,000 accounts in Winnipeg.

2.0 DISINFECTION METHODS

“Section 32(2) (b) a description of the disinfection methods used.”

The water passes through several disinfection treatment steps at the Water Treatment Plant including ozonation, chlorination, and UV light disinfection. The water is chlorinated again at the pumping stations before being distributed to homes and businesses.

3.0 DRINKING WATER QUALITY STANDARDS

“Section 32(2) (c) a list of all bacteriological, chemical, physical and microbial drinking water quality standards that apply to the water system.”

The bacteriological, chemical, physical, and microbial drinking water quality standards that apply to the City of Winnipeg’s Public Water System are listed in Operating Licence PWS-09-412-01¹, issued by Manitoba Sustainable Development, under the authority of the *Manitoba Drinking Water Safety Act*² and its associated Regulations: *MR 40/2007, Drinking Water Safety Regulation*³ and *MR 41/2007, Drinking Water Quality Standards Regulation*⁴. Table 1 provides a list of the parameters we analyze and analytical results are provided in Appendix A.

Table 1. Drinking Water Parameters

Parameter	Shoal Lake	Water Treatment Plant – Raw Water	Water Treatment Plant – 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	✓	✓	✓	✓
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		✓	✓	✓

4.0 OCCASIONS OF A RESULT NOT MEETING A DRINKING WATER QUALITY STANDARD AND CORRECTIVE ACTION TAKEN

“Section 32(2) (d) a summary of any incidents of failure to meet a drinking water quality standard, and a description of corrective action.”

Because water quality is so important, 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. Occasionally, test results for some locations do not meet a drinking water quality standard. In these cases, we take corrective action immediately to ensure our water remains safe. Corrective action reports are submitted monthly to the Office of Drinking Water for deviations from the bacteriological and turbidity standards and the minimum required chlorine residuals at the Water Treatment Plant and 39 distribution system Location stipulated in our operating licence. Table 2 lists occasions of a result not meeting a water quality standard and corrective actions taken in 2016.

Table 2. Occasions of a Result not Meeting a Water Quality Standard and Corrective Action Taken

Date	Location	Type of water quality standard not being met	Initial test result	Final test result	Description of corrective actions taken
May 25, 2016	SE05	Total coliform < 1 MPNU/100mL	1	<1	All locations were re-sampled until negative results were found. All samples indicated that the chlorine levels at all locations were normal and provided adequate disinfection.
Aug 16, 2016	NW03	Total coliform < 1 MPNU/100mL	1	<1	
Sep 28, 2016	NE05	Total coliform < 1 MPNU/100mL	1	<1	
Oct 13, 2016	SW01	Total coliform < 1 MPNU/100mL	1	<1	
Oct 24, 2016	WTP – Filter 8	Turbidity < 1.0 NTU	5.0	<1.0 NTU	Technician error during filter calibration. Turbidity spike due to calibration standard, not actual water quality reading.

5.0 MONTHLY COMPLIANCE REPORTING

“Section 32(2) (e) a summary of the information contained in the records made under Section 31.”

As per the monitoring requirements set out in Table 2 of the City of Winnipeg’s Operating Licence, PWS-09-412-01, turbidity, free and total chlorine, UV, and corrective action reports are submitted on a monthly basis. Bacteriological reports and chlorine residual results are sent directly to the Office of Drinking Water by the analytical laboratory that does the bacteriological testing of samples. Monthly compliance reports are provided in Appendix B.

6.0 DRINKING WATER SAFETY ORDERS

“Section 32(2) (f) a description of any drinking water safety orders issued.”

No drinking water safety orders were issued to the City of Winnipeg in 2016.

7.0 BOIL WATER ADVISORIES

“Section 32(2) (g) a description of any boil water advisories issued.”

No boil water advisories were issued to the City of Winnipeg in 2016.

8.0 SUMMARY OF OFFENCES

“Section 32(2) (h) a summary of any charges laid, pending or disposed of for an offence.”

No charges were laid, pending, or disposed of for any offences against the City of Winnipeg in 2016.

9.0 MAJOR EXPENSES

“Section 32(2) (i) a description of any major expenses incurred to repair, replace or install equipment.”

In 2016, the City’s major expenses incurred were as follows:

1. The existing fuel systems at the Shoal Lake Intake Facility were upgraded including new tankage, transfer, piping and control systems.
2. The north-west cell of the Wilkes Reservoir was rehabilitated including replacement of hollow core roof slabs, building envelope and roof beam bearing pads, as well as gel injection to repair a leak in the floor slab.
3. Entrances at the Plinguet Yard and McPhillips Pumping Station were upgraded including construction of light standards, automated security gates and pavement works.
4. Three (3) new 5KV surge arrestors were installed at the MacLean Pumping Station.
5. A new bridge over the Falcon River Diversion was constructed.
6. Water main renewals were completed at 49 locations in the City’s water distribution system.
7. The section of the North Kildonan Feeder Main where it crosses the Red River was replaced with HDPE pipe including the construction of two new valve chambers.

10.0 ADDITIONAL INFORMATION

“Section 32(2) (j) any other information or description of any other activities that the supplier believes should be communicated.”

In 2016, the City retained a consultant to select and test an alternative coagulant with less or preferably no manganese content to address the discolored water issue in the distribution system. An alternative coagulant was selected based on a series of bench-scale tests completed in 2016. Pilot scale tests and analysis on the alternative coagulant started in early 2017 and will continue into 2018.

11.0 REFERENCES

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

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

2. Manitoba Drinking Water Safety Act (2002). Manitoba Water Stewardship.

<http://web2.gov.mb.ca/laws/statutes/2002/c03602e.php>

3. Manitoba Drinking Water Safety Regulation (2007). Manitoba Water Stewardship.

<http://www.gov.mb.ca/sd/waterstewardship/odw/reg-info/acts-regs/040-d101.07.pdf>

4. Manitoba Drinking Water Quality Standards Regulation (2007). Manitoba Water Stewardship.

<http://www.gov.mb.ca/sd/waterstewardship/odw/reg-info/acts-regs/041-d101.07.pdf>

APPENDIX A

WATER QUALITY SUMMARY REPORTS

City of Winnipeg
Environmental Standards Division
2016 Shoal Lake Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Miscellaneous						
Carbon, Dissolved Organic	<i>parts per million</i>	no guideline	10.2	8.1	13.4	-
Carbon, Total Organic	<i>parts per million</i>	no guideline	10.9	8.3	14.4	-
Chlorophyll-a	<i>parts per billion</i>	no guideline	5	2	11	Chlorophyll is found in algae
Colour, True	TCU	no more than 15 *	6	1	13	Raw water - guideline does not apply
Conductivity	<i>microsiemens per centimetre</i>	no guideline	154	145	168	Another measure of dissolved solids
Odour	<i>units</i>	inoffensive	114	75	200	Raw water - guideline does not apply
pH	<i>units</i>	between 6.5 and 8.5	8.20	7.04	8.91	Raw water - guideline does not apply
Plankton (algae) count	<i>cells/mL</i>	no guideline	44,425	700	208,900	Algae contribute to odours and may cause filter clogging
Solids, Total	<i>parts per million</i>	no guideline	113	99	138	-
Solids, Total Dissolved	<i>parts per million</i>	no more than 500 *	99	88	113	Raw water - guideline does not apply
Temperature	<i>degrees Celcius</i>	no more than 15 *	10.3	1.1	22.5	Raw water - guideline does not apply
Turbidity (clearness)	NTU	no guideline	1.26	0.32	4.64	-
Anions and Nutrients						
Alkalinity, Total	<i>parts per million as calcium carbonate</i>	no guideline	71	66	81	-
Hardness, Total	<i>parts per million as calcium carbonate</i>	no guideline	75	70	84	-
Chloride	<i>parts per million</i>	no more than 250 *	1.8	1.5	2.1	Raw water - guideline does not apply
Fluoride	<i>parts per million</i>	no more than 1.5	0.11	0.08	0.14	Raw water - guideline does not apply
Nitrate Nitrogen	<i>parts per million</i>	no more than 10	0.008	<0.003	0.016	Raw water - guideline does not apply
Perchlorate	<i>parts per billion</i>	no guideline	<0.2	<0.2	<0.2	-
Phosphorus, Dissolved Reactive	<i>parts per billion</i>	no guideline	3	<1	<10	-
Phosphorus, Total	<i>parts per billion</i>	no guideline	19.0	6.0	37.4	Phosphorus can contribute to algae growth
Sulphate	<i>parts per million</i>	no more than 500 *	<2	<2	<2	Raw water - guideline does not apply
Total Kjeldahl Nitrogen (TKN)	<i>parts per million</i>	no guideline	0.8	0.4	2.9	TKN is a combination of ammonia and organic nitrogen
Bacteria						
Escherichia Coli	<i>MPN per 100 mL</i>	no guideline	<1	<1	1	Raw water - guideline does not apply
Total Coliforms	<i>MPN per 100 mL</i>	no guideline	87	<1	>200	Raw water - guideline does not apply
Heterotrophic Plate Count	<i>CFU per mL</i>	no guideline	145	6	>300	Raw water - guideline does not apply
Enteric Protozoa						
Cryptosporidium	<i>oocysts per 100 L</i>	no guideline	<0.9	<0.9	<2.0	12 samples taken in 2016
Giardia	<i>cysts per 100 L</i>	no guideline	<0.9	<0.9	<2.0	12 samples taken in 2016
Disinfection By-Products						
Aldehydes	<i>parts per billion</i>	no guideline	3.6	<0.5	7.0	-
Bromodichloromethane	<i>parts per billion</i>	no guideline	<0.4	<0.4	1.0	-
Haloacetic acids	<i>parts per billion</i>	no more than 80	<3	<3	<3	Raw water - guideline does not apply
Trihalomethanes	<i>parts per billion</i>	no more than 100	1.5	<0.9	4.0	Raw water - guideline does not apply
Total Metals						
Aluminum	<i>parts per million</i>	no guideline	0.0081	0.0017	0.0432	-
Antimony	<i>parts per million</i>	no more than 0.006	<0.0005	<0.0005	<0.0005	Raw water - guideline does not apply

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Environmental Standards Division
2016 Shoal Lake Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Arsenic	<i>parts per million</i>	no more than 0.010	0.0010	0.0007	0.0012	Raw water - guideline does not apply
Boron	<i>parts per million</i>	no more than 5	0.0187	0.0074	0.0509	Raw water - guideline does not apply
Cadmium	<i>parts per million</i>	no more than 0.005	<0.0004	<0.0004	<0.0004	Raw water - guideline does not apply
Calcium	<i>parts per million</i>	no guideline	19.7	17.1	22.4	Contributes to hardness
Chromium	<i>parts per million</i>	no more than 0.05	<0.0007	<0.0007	0.0009	Raw water - guideline does not apply
Chromium VI	<i>parts per billion</i>	no guideline	2	<1	<10	-
Copper	<i>parts per million</i>	no more than 1.0 *	0.0005	<0.0003	0.0010	Raw water - guideline does not apply
Iron	<i>parts per million</i>	no more than 0.3 *	0.024	<0.008	0.064	Raw water - guideline does not apply
Lead	<i>parts per million</i>	no more than 0.010	<0.0004	<0.0004	0.0005	Raw water - guideline does not apply
Magnesium	<i>parts per million</i>	no guideline	5.81	5.16	6.83	Contributes to hardness
Manganese	<i>parts per million</i>	no more than 0.05 *	0.0126	0.0024	0.0486	Raw water - guideline does not apply
Mercury	<i>parts per trillion</i>	no more than 1000	0.6	<0.5	0.9	Raw water - guideline does not apply
Nickel	<i>parts per million</i>	no guideline	0.0007	0.0003	0.0018	-
Potassium	<i>parts per million</i>	no guideline	1.18	1.05	1.37	-
Sodium	<i>parts per million</i>	no more than 200 *	2.05	1.59	2.48	Raw water - guideline does not apply
Uranium	<i>parts per million</i>	no more than 0.02	<0.0005	<0.0005	<0.0005	Raw water - guideline does not apply
Zinc	<i>parts per million</i>	no more than 5.0 *	0.0020	<0.0005	0.0061	Raw water - guideline does not apply
Zirconium	<i>parts per million</i>	no guideline	<0.0005	<0.0005	0.0005	-
Pesticides						
Alachlor	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
Aldrin	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
alpha-BHC	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
alpha-Chlordane	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
alpha-Endosulfan	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Atrazine	<i>parts per billion</i>	no more than 5	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Azinphosmethyl	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10	Raw water - guideline does not apply
beta-BHC	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
beta-Endosulfan	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.020	-
Carbofuran	<i>parts per billion</i>	no more than 90	<0.20	<0.20	<0.20	Raw water - guideline does not apply
Chlorpyrifos	<i>parts per billion</i>	no more than 90	<0.10	<0.10	<0.10	Raw water - guideline does not apply
delta-BHC	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Diazinon	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Diclofop-methyl	<i>parts per billion</i>	no more than 9	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Dieldrin	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Dimethoate	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Endrin	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Eptam	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
gamma-Chlordane	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Heptachlor	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Heptachlor Epoxide	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Lindane (gamma-BHC)	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Malathion	<i>parts per billion</i>	no more than 190	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Methoxychlor	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Methyl Parathion	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-

City of Winnipeg
Environmental Standards Division
2016 Shoal Lake Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Metribuzin	<i>parts per billion</i>	no more than 80	<0.20	<0.20	<0.20	Raw water - guideline does not apply
Mirex	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
o,p-DDD	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
o,p-DDE	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
o,p-DDT	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
p,p-DDD	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
p,p-DDE	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
p,p-DDT	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Parathion	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
Propaclor	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
Propanil	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
Propoxur	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
Simazine	<i>parts per billion</i>	no more than 10	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Terbufos	<i>parts per billion</i>	no more than 1	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Triallate	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
Trichlopyr	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Trifluralin	<i>parts per billion</i>	no more than 45	<0.030	<0.030	<0.030	Raw water - guideline does not apply
Polychlorinated Biphenyls						
Arochlor 1016	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1221	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1232	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1242	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1248	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1254	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1260	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Phenoxy Acid Herbicides						
2,4,5-T	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4,5-TP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4-D	<i>parts per billion</i>	no more than 100	<0.050	<0.050	<0.050	Raw water - guideline does not apply
2,4-DB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4-DP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Bromoxynil	<i>parts per billion</i>	no more than 5	<0.020	<0.020	<0.020	Raw water - guideline does not apply
Dicamba	<i>parts per billion</i>	no more than 120	<0.0060	<0.0060	<0.0070	Raw water - guideline does not apply
Dinoseb	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
MCPA	<i>parts per billion</i>	no more than 100	<0.025	<0.025	<0.025	Raw water - guideline does not apply
MCPB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Mecoprop	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Picloram	<i>parts per billion</i>	no more than 190	<0.20	<0.20	<0.20	Raw water - guideline does not apply

*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, October 2014

Note: Pesticides, Polychlorinated Biphenyls, and Phenoxy Acid Herbicides are only analysed from May to October.

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
2016 Water Treatment Plant - Raw Water
Drinking Water Quality Summary**

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Miscellaneous						
Carbon, Dissolved Organic	parts per million	no guideline	9.5	6.9	12.6	-
Carbon, Total Organic	parts per million	no guideline	9.9	7.3	13.4	-
Chlorine, Free	parts per million	no guideline	<0.02	<0.02	0.06	-
Chlorine, Total	parts per million	no guideline	0.02	<0.02	0.07	-
Chlorophyll-a	parts per billion	no guideline	5	<1	13	Chlorophyll is found in algae
Colour, True	TCU	no more than 15 *	5.7	1.0	15.0	Raw water - guideline does not apply
Conductivity	microsiemens per centimetre	no guideline	165	148	183	Another measure of dissolved solids
Langelier Index (4 C)	units	no guideline	-0.56	-0.40	-0.76	-
Langelier Index (60 C)	units	no guideline	0.21	0.02	0.37	-
Microcystin LR	parts per billion	no more than 1.5	<0.2	<0.2	<0.2	Raw water - guideline does not apply
Odour	units	inoffensive	106	75	200	Raw water - guideline does not apply
Oxygen, Dissolved	parts per million	no guideline	10.7	7.7	14.0	-
pH	units	between 6.5 and 8.5	7.98	7.59	8.58	Raw water - guideline does not apply
Plankton (algae) count	cells/mL	no guideline	23,155	<100	100,000	Algae contribute to odours and may cause filter clogging
Solids, Total	parts per million	no guideline	115	96	151	-
Solids, Total Dissolved	parts per million	no more than 500 *	101	73	127	Raw water - guideline does not apply
Temperature	degrees Celcius	no more than 15 *	10.4	0.7	23.4	Raw water - guideline does not apply
Turbidity (clearness)	NTU	no guideline	1.02	0.38	3.34	-
UV Absorbance, Unfiltered	units per centimeter	no guideline	0.130	0.111	0.209	-
UV Transmittance, Filtered	percent transmissivity	no guideline	76.1	71.0	94.8	-
UV Transmittance, Unfiltered	percent transmissivity	no guideline	74.3	61.8	93.7	-
Anions and Nutrients						
Alkalinity, Total	parts per million as calcium carbonate	no guideline	73	66	84	-
Alkalinity, Bicarbonate	parts per million	no guideline	88	84	93	-
Alkalinity, Carbonate	parts per million	no guideline	<0.60	<0.60	<0.60	-
Alkalinity, Hydroxide	parts per million	no guideline	<0.34	<0.34	<0.34	-
Hardness, Total	parts per million as calcium carbonate	no guideline	80	73	89	-
Ammonia	parts per million	no guideline	0.023	<0.010	0.048	-
Bromide	parts per million	no guideline	<0.10	<0.10	<0.10	-
Chloride	parts per million	no more than 250 *	2.6	1.7	6.0	Raw water - guideline does not apply
Fluoride	parts per million	no guideline	0.067	0.059	0.074	-
Nitrate Nitrogen	parts per million	no more than 10	0.0201	<0.0050	0.0483	Raw water - guideline does not apply
Nitrite	parts per million	no guideline	0.0023	<0.0010	0.0026	-
Perchlorate	parts per billion	no guideline	<0.2	<0.2	<0.2	-
Phosphorus, Total	parts per million	no guideline	<0.10	<0.10	<0.10	Phosphorus can contribute to algae growth
Sulphate	parts per million	no more than 500 *	2.3	<2.0	6.0	Raw water - guideline does not apply
Bacteria						
Escherichia Coli	MPN per 100 mL	no guideline	66	<1	>200	-
Total Coliforms	MPN per 100 mL	no guideline	120	<1	>200	-
Heterotrophic Plate Count	CFU per mL	no guideline	129	<1	>300	-
Disinfection By-Products						
Aldehydes	parts per billion	no guideline	3.3	1.3	6.8	-
Bromodichloromethane	parts per billion	no guideline	0.4	<0.4	1.0	-
Haloacetic acids	parts per billion	no more than 80	<3	<3	<3	Raw water - guideline does not apply
Trihalomethanes	parts per billion	no more than 100	1.4	<0.9	4.0	Raw water - guideline does not apply
Enteric Protozoa						

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PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Cryptosporidium	<i>oocysts per 100 L</i>	no guideline	<1.0	<1.0	<2.6	12 samples taken in 2016
Giardia	<i>cysts per 100 L</i>	no guideline	<1.0	<1.0	2.6	12 samples taken in 2016 - 1 positive result
Taste and Odours						
236 TCA - 2,3,6-trichloroanisole	<i>parts per trillion</i>	no guideline	<0.5	<0.49	<0.5	-
246 TCA - 2,4,6-trichloroanisole	<i>parts per trillion</i>	no guideline	<0.5	<0.49	<0.55	-
345 TCV - 3,4,5-trichloroveratrole	<i>parts per trillion</i>	no guideline	0.3	<0.19	<4	-
Geosmin	<i>parts per trillion</i>	no guideline	4.5	1.1	15.2	-
IBMP - 2-isobutyl-3-methoxyxypyrazine	<i>parts per trillion</i>	no guideline	<0.2	<0.19	<0.27	-
IPMP - 2-isopropyl-3-methoxyxypyrazine	<i>parts per trillion</i>	no guideline	<0.2	<0.19	<0.2	-
Methylene Chloride (Dichloromethane)	<i>parts per billion</i>	no more than 50	0.6	<0.5	<2	Raw water - guideline does not apply
MIB - 2-methylisoborneol	<i>parts per trillion</i>	no guideline	<10	<9.7	<10	-
MTBE - methyl tertiary-butyl ether	<i>parts per billion</i>	no more than 15 *	<0.5	<0.5	<0.5	Raw water - guideline does not apply
NDMA - N-nitrosodimethylamine	<i>parts per billion</i>	no more than 0.04	0.0007	<0.0005	0.0010	Raw water - guideline does not apply
Total Metals						
Aluminum	<i>parts per million</i>	no guideline	0.0039	<0.0005	0.0320	-
Antimony	<i>parts per million</i>	no more than 0.006	0.0003	<0.0002	<0.0010	Raw water - guideline does not apply
Arsenic	<i>parts per million</i>	no more than 0.010	0.0009	0.0004	0.0014	Raw water - guideline does not apply
Barium	<i>parts per million</i>	no more than 1	0.0155	0.0143	0.0163	Raw water - guideline does not apply
Beryllium	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Bismuth	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Boron	<i>parts per million</i>	no more than 5	0.009	<0.0005	<0.030	Raw water - guideline does not apply
Cadmium	<i>parts per million</i>	no more than 0.005	0.00019	<0.00001	<0.00040	Raw water - guideline does not apply
Calcium	<i>parts per million</i>	no guideline	21.0	16.6	28.5	Contributes to hardness
Cesium	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Chromium	<i>parts per million</i>	no more than 0.05	<0.0007	<0.0007	0.0053	Raw water - guideline does not apply
Chromium VI	<i>parts per billion</i>	no guideline	2	<1	<10	-
Cobalt	<i>parts per million</i>	no guideline	<0.0002	<0.0002	<0.0002	-
Copper	<i>parts per million</i>	no more than 1.0 *	0.0009	<0.0003	0.0051	Raw water - guideline does not apply
Iron	<i>parts per million</i>	no more than 0.3 *	0.050	<0.008	0.184	Raw water - guideline does not apply
Lead	<i>parts per million</i>	no more than 0.010	0.00020	<0.00009	<0.00100	Raw water - guideline does not apply
Lithium	<i>parts per million</i>	no guideline	0.0025	0.0023	0.0026	-
Magnesium	<i>parts per million</i>	no guideline	6.10	5.12	7.79	Contributes to hardness
Manganese	<i>parts per million</i>	no more than 0.05 *	0.0159	0.0040	0.0494	Raw water - guideline does not apply
Mercury	<i>parts per trillion</i>	no more than 1000	0.5	<0.5	0.8	Raw water - guideline does not apply
Molybdenum	<i>parts per million</i>	no guideline	<0.00020	<0.00020	0.00022	-
Nickel	<i>parts per million</i>	no guideline	0.0008	<0.0003	0.0020	-
Potassium	<i>parts per million</i>	no guideline	1.18	0.85	1.48	-
Rubidium	<i>parts per million</i>	no guideline	0.00182	0.00166	0.00196	-
Selenium	<i>parts per million</i>	no more than 0.05	<0.0010	<0.0010	<0.0010	Raw water - guideline does not apply
Silicon	<i>parts per million</i>	no guideline	2.20	0.98	3.15	-
Silver	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-

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Sodium	<i>parts per million</i>	no more than 200	2.19	1.78	3.03	Raw water - guideline does not apply
Strontium	<i>parts per million</i>	no guideline	0.0399	0.0363	0.0437	-
Tellurium	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Thallium	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Thorium	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Tin	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Titanium	<i>parts per million</i>	no guideline	<0.00050	<0.00050	<0.00050	-
Tungsten	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Uranium	<i>parts per million</i>	no more than 0.02	0.0002	<0.0001	<0.0005	Raw water - guideline does not apply
Vanadium	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Zinc	<i>parts per million</i>	no more than 5.0 *	0.0020	<0.0005	0.0440	Raw water - guideline does not apply
Zirconium	<i>parts per million</i>	no guideline	<0.0004	<0.0004	<0.0010	-
Pesticides						
Alachlor	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
Aldrin	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
alpha-BHC	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
alpha-Chlordane	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
alpha-Endosulfan	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Atrazine	<i>parts per billion</i>	no more than 5	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Azinphosmethyl	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10	Raw water - guideline does not apply
beta-BHC	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
beta-Endosulfan	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Carbofuran	<i>parts per billion</i>	no more than 90	<0.20	<0.20	<0.20	Raw water - guideline does not apply
Chlorpyrifos	<i>parts per billion</i>	no more than 90	<0.10	<0.10	<0.10	Raw water - guideline does not apply
delta-BHC	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Diazinon	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Diclofop-methyl	<i>parts per billion</i>	no more than 9	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Dieldrin	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Dimethoate	<i>parts per billion</i>	no more than 20	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Endrin	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Eptam	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
gamma-Chlordane	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Heptachlor	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Heptachlor Epoxide	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Lindane (gamma-BHC)	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Malathion	<i>parts per billion</i>	no more than 190	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Methoxychlor	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Methyl Parathion	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
Metribuzin	<i>parts per billion</i>	no more than 80	<0.20	<0.20	<0.20	Raw water - guideline does not apply
Mirex	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
o,p-DDD	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
o,p-DDE	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
o,p-DDT	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
p,p-DDD	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
p,p-DDE	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
p,p-DDT	<i>parts per billion</i>	no guideline	<0.010	<0.010	<0.010	-
Parathion	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
Propaclar	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
Propanil	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
Propoxur	<i>parts per billion</i>	no guideline	<0.20	<0.20	<0.20	-
Simazine	<i>parts per billion</i>	no more than 10	<0.10	<0.10	<0.10	Raw water - guideline does not apply
Terbufos	<i>parts per billion</i>	no more than 1	<0.10	<0.10	<0.10	Raw water - guideline does not apply

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Triallate	<i>parts per billion</i>	no guideline	<0.10	<0.10	<0.10	-
Trichlopyr	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Trifluralin	<i>parts per billion</i>	no more than 45	<0.030	<0.030	<0.030	Raw water - guideline does not apply
Polychlorinated Biphenyls						
Arochlor 1016	<i>parts per billion</i>	no guideline	<0.02	<0.02	<0.02	-
Arochlor 1221	<i>parts per billion</i>	no guideline	<0.02	<0.02	<0.02	-
Arochlor 1232	<i>parts per billion</i>	no guideline	<0.02	<0.02	<0.02	-
Arochlor 1242	<i>parts per billion</i>	no guideline	<0.02	<0.02	<0.02	-
Arochlor 1248	<i>parts per billion</i>	no guideline	<0.02	<0.02	<0.02	-
Arochlor 1254	<i>parts per billion</i>	no guideline	<0.02	<0.02	<0.02	-
Arochlor 1260	<i>parts per billion</i>	no guideline	<0.02	<0.02	<0.02	-
Phenoxy Acid Herbicides						
2,4,5-T	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4,5-TP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4-D	<i>parts per billion</i>	no more than 100	<0.050	<0.050	<0.050	Raw water - guideline does not apply
2,4-DB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4-DP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Bromoxynil	<i>parts per billion</i>	no more than 5	<0.020	<0.020	<0.020	Raw water - guideline does not apply
Dicamba	<i>parts per billion</i>	no more than 120	<0.0060	<0.0060	<0.0150	Raw water - guideline does not apply
Dinoseb	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
MCPA	<i>parts per billion</i>	no more than 100	<0.025	<0.025	<0.025	Raw water - guideline does not apply
MCPB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Mecoprop	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Picloram	<i>parts per billion</i>	no more than 190	<0.20	<0.20	<0.20	Raw water - guideline does not apply

*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, October 2014

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.

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Finished Water - Deacon Booster Pumping Station 1 and 2
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PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Miscellaneous						
Carbon, Dissolved Organic	<i>parts per million</i>	no guideline	4.4	2.3	7.5	-
Carbon, Total Organic	<i>parts per million</i>	no guideline	4.5	2.1	8.0	-
Chlorine, Free	<i>parts per million</i>	no guideline	1.16	0.87	2.18	-
Chlorine, Total	<i>parts per million</i>	no guideline	1.33	1.01	2.50	-
Chlorophyll-a	<i>parts per billion</i>	no guideline	<1	<1	<1	Chlorophyll is found in algae
Colour, True	<i>TCU</i>	no more than 15 *	1.2	0.5	4.0	Meets the guideline
Conductivity	<i>microsiemens per centimetre</i>	no guideline	321	290	354	Another measure of dissolved solids
Microcystin LR	<i>parts per billion</i>	no more than 1.5	<0.2	<0.2	<0.2	Meets the guideline
Odour	<i>units</i>	inoffensive	16	5	25	Meets the guideline
Oxygen, Dissolved	<i>parts per million</i>	no guideline	12.1	8.7	15.6	-
pH	<i>units</i>	between 6.5 and 8.5	7.75	7.53	8.03	Meets the guideline
Plankton (algae) count	<i>cells/mL</i>	no guideline	117	<100	700	Algae contribute to odours and may cause filter clogging
Solids, Total	<i>parts per million</i>	no guideline	195	174	228	-
Solids, Total Dissolved	<i>parts per million</i>	no more than 500 *	181	148	202	Meets the guideline
Temperature	<i>degrees Celcius</i>	no more than 15 *	10.8	1.1	23.7	Does not always meet the guideline
Turbidity (clearness)	<i>NTU</i>	no more than 0.3 in 95% of measurements/month, never to exceed 1.0	0.16	0.08	0.29	Meets the guideline
UV Transmittance, Filtered	<i>percent transmissivity</i>	no guideline	95.5	91.9	97.6	-
UV Transmittance, Unfiltered	<i>percent transmissivity</i>	no guideline	94.3	90.0	96.9	-
Anions and Nutrients						
Alkalinity, Total	<i>parts per million as calcium carbonate</i>	no guideline	67	57	80	-
Hardness, Total	<i>parts per million as calcium carbonate</i>	no guideline	80	74	88	-
Chloride	<i>parts per million</i>	no more than 250 *	21	18	26	Meets the guideline
Perchlorate	<i>parts per billion</i>	no guideline	<0.2	<0.2	<0.2	-
Sulphate	<i>parts per million</i>	no more than 500 *	53	41	69	Meets the guideline
Bacteria						
Escherichia Coli	<i>MPN per 100 mL</i>	less than one bacteria detectable per 100 mL	<1	<1	<1	Meets the guideline
Total Coliforms	<i>MPN per 100 mL</i>	less than one bacteria detectable per 100 mL	<1	<1	<1	Meets the guideline
Heterotrophic Plate Count	<i>CFU per mL</i>	no guideline	<1	<1	2	-
Taste and Odours						
236 TCA - 2,3,6-trichloroanisole	<i>parts per trillion</i>	no guideline	<0.50	<0.49	<0.50	-
246 TCA - 2,4,6-trichloroanisole	<i>parts per trillion</i>	no guideline	<0.50	<0.50	<0.76	-
345 TCV - 3,4,5-trichloroveratrole	<i>parts per trillion</i>	no guideline	<0.2	<0.2	<2.3	-
Geosmin	<i>parts per trillion</i>	no guideline	2.0	<1.0	5.0	-
IBMP - 2-isobutyl-3-methoxypyrazine	<i>parts per trillion</i>	no guideline	<0.2	<0.2	<0.4	-
IPMP - 2-isopropyl-3-methoxypyrazine	<i>parts per trillion</i>	no guideline	<0.2	<0.2	<0.2	-
Methylene Chloride (Dichloromethane)	<i>parts per billion</i>	no more than 50	0.6	<0.5	<2.0	Meets the guideline
MIB - 2-methylisoborneol	<i>parts per trillion</i>	no guideline	<9.8	<9.8	<14	-
MTBE - methyl tertiary-butyl ether	<i>parts per billion</i>	no more than 15 *	<0.5	<0.5	<0.5	Meets the guideline
NDMA - N-nitrosodimethylamine	<i>parts per billion</i>	no more than 0.04	0.0008	<0.0005	0.0014	Meets the guideline
Disinfection By-Products						
Aldehydes	<i>parts per billion</i>	no guideline	13.6	3.7	25.7	-
Bromodichloromethane	<i>parts per billion</i>	no guideline	1.3	<1.0	2.3	-
Haloacetic acids	<i>parts per billion</i>	no more than 80	12	5	20	Meets the guideline
Trihalomethanes	<i>parts per billion</i>	no more than 100	10.6	<2.0	17.1	Meets the guideline

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PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Total Metals						
Aluminium	parts per million	no guideline	0.0237	0.0033	0.2660	-
Antimony	parts per million	no more than 0.006	<0.0005	<0.0005	0.0008	Meets the guideline
Arsenic	parts per million	no more than 0.010	0.0005	<0.0003	0.0009	Meets the guideline
Boron	parts per million	no more than 5	0.0104	<0.0005	0.0350	Meets the guideline
Cadmium	parts per million	no more than 0.005	<0.0004	<0.0004	<0.0004	Meets the guideline
Calcium	parts per million	no guideline	20.7	17.0	26.5	Contributes to hardness
Chromium	parts per million	no more than 0.05	0.0009	<0.0007	0.0042	Meets the guideline
Chromium VI	parts per billion	no guideline	2	<1	<10	-
Copper	parts per million	no more than 1.0 *	0.0033	0.0019	0.0056	Meets the guideline
Iron	parts per million	no more than 0.3 *	0.042	<0.004	0.184	Meets the guideline
Lead	parts per million	no more than 0.010	<0.0004	<0.0004	<0.0004	Meets the guideline
Magnesium	parts per million	no guideline	5.99	5.01	7.53	Contributes to hardness
Manganese	parts per million	no more than 0.05 *	0.0285	0.0150	0.0435	Meets the guideline
Mercury	parts per trillion	no more than 1000	<0.5	<0.5	1.3	Meets the guideline
Nickel	parts per million	no guideline	0.0028	0.0013	0.0043	-
Potassium	parts per million	no guideline	1.18	0.94	1.53	-
Sodium	parts per million	no more than 200 *	31.4	24.5	39.8	Meets the guideline
Uranium	parts per million	no more than 0.02	<0.0005	<0.0005	<0.0005	Meets the guideline
Zinc	parts per million	no more than 5.0 *	0.0020	<0.0005	0.0174	Meets the guideline
Zirconium	parts per million	no guideline	0.0013	<0.0005	0.07150	-
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	Meets the guideline
Azinphosmethyl	parts per billion	no more than 20	<0.10	<0.10	<0.10	Meets the guideline
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	-
Carbofuran	parts per billion	no more than 90	<0.20	<0.20	<0.20	Meets the guideline
Chlorpyrifos	parts per billion	no more than 90	<0.10	<0.10	<0.10	Meets the guideline
delta-BHC	parts per billion	no guideline	<0.010	<0.010	<0.010	-
Diazinon	parts per billion	no more than 20	<0.10	<0.10	<0.10	Meets the guideline
Diclofop-methyl	parts per billion	no more than 9	<0.10	<0.10	<0.10	Meets the guideline
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	Meets the guideline
Endrin	parts per billion	no guideline	<0.010	<0.010	<0.010	-
Eptam	parts per billion	no guideline	<0.20	<0.20	<0.20	-
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	Meets the guideline
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	Meets the guideline
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	<0.10	<0.10	<0.10	-
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	Meets the guideline
Terbufos	parts per billion	no more than 1	<0.10	<0.10	<0.10	Meets the guideline
Triallate	parts per billion	no guideline	<0.10	<0.10	<0.10	-

City of Winnipeg
Environmental Standards Division
2016 Water Treatment Plant
Finished Water - Deacon Booster Pumping Station 1 and 2
Drinking Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Trichlopyr	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Trifluralin	<i>parts per billion</i>	no more than 45	<0.030	<0.030	<0.030	Meets the guideline
Polychlorinated Biphenyls						
Arochlor 1016	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1221	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1232	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1242	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1248	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1254	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Arochlor 1260	<i>parts per billion</i>	no guideline	<0.020	<0.020	<0.020	-
Phenoxy Acid Herbicides						
2,4,5-T	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4,5-TP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4-D	<i>parts per billion</i>	no more than 100	<0.050	<0.050	<0.050	Meets the guideline
2,4-DB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
2,4-DP	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Bromoxynil	<i>parts per billion</i>	no more than 5	<0.020	<0.020	<0.020	Meets the guideline
Dicamba	<i>parts per billion</i>	no more than 120	<0.0060	<0.0060	<0.0080	Meets the guideline
Dinoseb	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
MCPA	<i>parts per billion</i>	no more than 100	<0.025	<0.025	<0.025	Meets the guideline
MCPB	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Mecoprop	<i>parts per billion</i>	no guideline	<0.050	<0.050	<0.050	-
Picloram	<i>parts per billion</i>	no more than 190	<0.20	<0.20	<0.20	Meets the guideline

*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, October 2014

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
2016 Winnipeg Distribution System Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Miscellaneous						
Carbon, Dissolved Organic	parts per million	no guideline	2.8	2.5	3.4	-
Carbon, Total Organic	parts per million	no guideline	2.7	2.4	3.2	-
Chlorine, Free	parts per million	no guideline	0.83	<0.02	1.72	-
Chlorine, Total	parts per million	no guideline	1.04	0.06	1.87	-
Colour, True	TCU	no more than 15 *	1.2	0.5	<5.0	Meets the guideline
Conductivity	microsiemens per centimetre	no guideline	306	290	323	Another measure of dissolved solids
Langelier Index (4 C)	units	no guideline	-0.94	-0.89	-1.00	-
Langelier Index (60 C)	units	no guideline	-0.18	-0.12	-0.27	-
Odour	units	inoffensive	11	8	20	Meets the guideline
Oxygen, Dissolved	parts per million	no guideline	12.5	8.3	15.6	-
pH	units	between 6.5 and 8.5	7.45	7.19	7.81	Meets the guideline
Solids, Total Dissolved	parts per million	no more than 500 *	182	154	205	Meets the guideline
Temperature	degrees Celcius	no more than 15 *	11.3	1.1	23.9	Does not always meet the guideline
Turbidity (clearness)	NTU	no guideline	0.32	0.08	20.6	-
UV Transmittance, Unfiltered	percent transmissivity	no guideline	93.4	91.2	96.6	-
Anions and Nutrients						
Alkalinity, Total	parts per million as calcium carbonate	no guideline	66	58	78	-
Alkalinity, Bicarbonate	parts per million	no guideline	79	75	83	-
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	81	74	90	-
Ammonia	parts per million	no guideline	<0.010	<0.010	0.014	-
Bromate	parts per million	no more than 0.01	<0.0050	<0.0050	<0.0050	Meets the guideline
Bromide	parts per million	no guideline	<0.10	<0.10	<0.10	-
Chloride	parts per million	no more than 250 *	22	19	27	Meets the guideline
Fluoride	parts per million	no more than 1.5	0.69	0.54	0.86	Meets the guideline
Nitrate Nitrogen	parts per million	no more than 10	0.0265	0.0077	0.0517	Meets the guideline
Nitrite	parts per million	no guideline	<0.0010	<0.0010	0.0014	-
Perchlorate	parts per billion	no guideline	<0.2	<0.2	<0.2	-
Phosphate, Soluble	parts per million as phosphate	no guideline	1.93	1.69	2.17	Added for Lead Control Program
Phosphorus, Total	parts per million	no guideline	0.64	0.60	0.70	Phosphorus can contribute to algae growth
Sulphate	parts per million	no more than 500 *	52	43	64	Meets the guideline
Bacteria						
Escherichia Coli	MPN per 100 mL	less than one bacteria detectable per 100 mL	<1	<1	<1	Meets the guideline
Total Coliforms	MPN per 100 mL	less than one bacteria detectable per 100 mL	<1	<1	2	All resamples were negative and met the operating licence requirements
Heterotrophic Plate Count	CFU per mL	no guideline	2	<1	>300	-
Disinfection By-Products						
Aldehydes	parts per billion	no guideline	15.2	1.9	25.3	-
Bromodichloromethane	parts per billion	no guideline	2.5	<1.0	5.3	-
Haloacetic acids	parts per billion	no more than 80	25	8	39	Meets the guideline
Trihalomethanes	parts per billion	no more than 100	26	4	56	Meets the guideline
Total Metals						
Aluminum	parts per million	no guideline	0.0175	0.0042	0.1313	-
Antimony	parts per million	no more than 0.006	0.0003	<0.0002	0.0006	Meets the guideline
Arsenic	parts per million	no more than 0.010	0.0006	<0.0003	0.0008	Meets the guideline
Barium	parts per million	no more than 1	0.0153	0.0149	0.0160	Meets the guideline
Beryllium	parts per million	no guideline	<0.00020	<0.00020	<0.00020	-
Bismuth	parts per million	no guideline	<0.00020	<0.00020	<0.00020	-
Boron	parts per million	no more than 5	0.0100	<0.0005	0.0421	Meets the guideline
Cadmium	parts per million	no more than 0.005	0.00020	<0.00001	<0.00040	Meets the guideline
Calcium	parts per million	no guideline	21.0	16.1	28.9	Contributes to hardness

City of Winnipeg
Environmental Standards Division
2016 Winnipeg Distribution System Water Quality Summary

PARAMETER	UNITS	GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Cesium	<i>parts per million</i>	no guideline	<0.00010	<0.00010	0.00017	-
Chromium VI	<i>parts per billion</i>	no guideline	2	<1	<10	-
Chromium	<i>parts per million</i>	no more than 0.05	0.0008	<0.0007	0.0026	Meets the guideline
Cobalt	<i>parts per million</i>	no guideline	<0.00020	<0.00020	0.00028	-
Copper	<i>parts per million</i>	no more than 1.0 *	0.0284	0.0019	0.1010	Meets the guideline
Iron	<i>parts per million</i>	no more than 0.3 *	0.053	<0.008	0.640	Does not always meet the guideline
Lead	<i>parts per million</i>	no more than 0.010	0.00021	<0.00009	0.00092	Meets the guideline
Lithium	<i>parts per million</i>	no guideline	0.0026	0.0023	0.0029	-
Magnesium	<i>parts per million</i>	no guideline	5.95	4.31	7.48	Contributes to hardness
Manganese	<i>parts per million</i>	no more than 0.05 *	0.0252	0.0103	0.1925	Does not always meet the guideline
Mercury	<i>parts per trillion</i>	no more than 1000	0.8	<0.5	15.0	Meets the guideline
Molybdenum	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Nickel	<i>parts per million</i>	no guideline	0.0025	0.0012	0.0061	-
Potassium	<i>parts per million</i>	no guideline	1.18	0.89	1.48	-
Rubidium	<i>parts per million</i>	no guideline	0.00179	0.00164	0.00191	-
Selenium	<i>parts per million</i>	no more than 0.05	<0.0010	<0.0010	<0.0010	Meets the guideline
Silicon	<i>parts per million</i>	no guideline	2.45	1.16	3.46	-
Silver	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Sodium	<i>parts per million</i>	no more than 200 *	31.6	23.4	40.6	Meets the guideline
Strontium	<i>parts per million</i>	no guideline	0.0396	0.0363	0.0426	-
Tellurium	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Thallium	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Thorium	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Tin	<i>parts per million</i>	no guideline	0.00022	<0.00020	0.00058	-
Titanium	<i>parts per million</i>	no guideline	<0.00050	<0.00050	<0.00050	-
Tungsten	<i>parts per million</i>	no guideline	<0.00010	<0.00010	<0.00010	-
Uranium	<i>parts per million</i>	no more than 0.02	0.0002	<0.0001	<0.0005	Meets the guideline
Vanadium	<i>parts per million</i>	no guideline	<0.00020	<0.00020	<0.00020	-
Zinc	<i>parts per million</i>	no more than 5.0 *	0.0047	<0.0005	0.0362	Meets the guideline
Zirconium	<i>parts per million</i>	no guideline	0.0004	<0.0004	0.0020	-

*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, October 2014

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
2016 Winnipeg Distribution System Bacteriological Summary

PARAMETER	REQUIREMENT	OUR TEST RESULTS	COMMENTS
Number of total coliform bacteria tests in year	2028 samples/year	3,141	More testing than required by the operating licence
Number of times that total coliform bacteria show up in a test	less than one bacteria detectable per 100 mL	0.19% (6 positive tests)	All resamples were negative and met the operating licence requirements
Number of Escherichia coli bacteria tests in year	2028 samples/year	3,141	More testing than required by the operating licence
Number of times that Escherichia coli bacteria show up in a test	less than one bacteria detectable per 100 mL	0.00% (0 positive tests)	
Number of heterotrophic (bacteria) plate count (HPC) tests done	no guideline	3,135	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

2016 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 AA						
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Jan-2016	1.13	1.11	1.30	1.08	1.09	1.25
02-Jan-2016	NS	NS	NS	NS	NS	NS
03-Jan-2016	NS	NS	NS	NS	NS	NS
04-Jan-2016	1.06	1.06	1.26	1.05	1.09	1.26
05-Jan-2016	1.05	1.11	1.26	1.07	1.05	1.24
06-Jan-2016	1.00	1.09	1.25	1.07	1.21	1.36
07-Jan-2016	1.05	1.05	1.23	1.09	1.16	1.36
08-Jan-2016	1.01	1.07	1.21	1.02	1.11	1.27
09-Jan-2016	NS	NS	NS	NS	NS	NS
10-Jan-2016	NS	NS	NS	NS	NS	NS
11-Jan-2016	1.17	1.26	1.39	1.10	1.18	1.30
12-Jan-2016	1.06	1.12	1.28	1.21	1.21	1.38
13-Jan-2016	O/L	1.02	1.18	1.15	1.08	1.30
14-Jan-2016	O/L	1.02	1.21	1.15	1.12	1.31
15-Jan-2016	1.09	1.09	1.24	1.13	1.13	1.30
16-Jan-2016	NS	NS	NS	NS	NS	NS
17-Jan-2016	NS	NS	NS	NS	NS	NS
18-Jan-2016	1.00	1.00	1.22	1.08	1.13	1.31
19-Jan-2016	1.11	1.11	1.36	1.13	1.14	1.39
20-Jan-2016	1.07	1.20	1.34	1.11	1.21	1.33
21-Jan-2016	0.88	0.97	1.12	0.91	0.99	1.18
22-Jan-2016	1.03	1.08	1.26	1.05	1.07	1.26
23-Jan-2016	NS	NS	NS	NS	NS	NS
24-Jan-2016	NS	NS	NS	NS	NS	NS
25-Jan-2016	1.06	1.11	1.29	1.12	1.12	1.36
26-Jan-2016	1.16	1.08	1.36	1.17	1.24	1.41
27-Jan-2016	1.09	1.20	1.33	1.12	1.13	1.28
28-Jan-2016	1.06	1.18	1.30	1.07	1.13	1.26
29-Jan-2016	1.01	1.16	1.28	1.02	1.07	1.24
30-Jan-2016	NS	NS	NS	NS	NS	NS
31-Jan-2016	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:		21		21		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		21		21		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

The free chlorine for DBPS I analyser on January 13 and 14 was recorded as offline due to maintenance.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 3-Jan-16

Printed From : N:\WQ Data\Routine Water Quality\2015\Chlorine.xls

File: WQR3

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

Water System Code: **252.00**
Licence Number: **PWS-09-412 AA**
Report Created: 01 February 2016

Report Period: January 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/01/2016	1.09	1.04	1.06	1.02
2/01/2016	1.09	1.07	1.04	1.01
3/01/2016	1.10	1.06	1.02	0.98
4/01/2016	1.03	0.90	1.01	0.86
5/01/2016	1.03	0.98	1.01	0.96
6/01/2016	1.07	1.00	1.06	0.93
7/01/2016	1.04	1.00	1.07	1.02
8/01/2016	1.26	0.94	1.01	0.91
9/01/2016	1.04	0.98	1.00	0.98
10/01/2016	1.08	1.03	1.05	0.98
11/01/2016	1.10	1.01	1.12	1.07
12/01/2016	1.05	0.92	1.17	1.11
13/01/2016	1.13	0.93	1.20	1.14
14/01/2016	1.16	0.94	1.13	1.04
15/01/2016	1.08	0.98	1.09	1.05
16/01/2016	0.99	0.78	1.00	0.82
17/01/2016	0.98	0.91	1.04	0.96
18/01/2016	1.01	0.87	1.17	0.98
19/01/2016	1.08	0.96	1.09	1.02
20/01/2016	1.03	0.87	1.07	0.98
21/01/2016	0.94	0.87	0.98	0.90
22/01/2016	1.01	0.92	1.06	0.97
23/01/2016	1.00	0.91	1.09	1.01
24/01/2016	0.99	0.94	1.10	1.04
25/01/2016	1.08	0.92	1.11	1.05
26/01/2016	1.14	1.05	1.13	1.06
27/01/2016	1.10	1.01	1.14	1.05
28/01/2016	1.05	0.97	1.06	1.00
29/01/2016	1.00	0.93	1.01	0.95
30/01/2016	0.99	0.93	1.00	0.96
31/01/2016	0.95	0.88	1.02	0.95

Total Number of Measurements, A:	21599	21599
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	21599	21599
COMPLIANCE, C = B/A X 100%:	100	100

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2016\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	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412 AA						
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-2016	1.06	0.99	1.23	1.02	0.94	1.22
02-Feb-2016	1.00	1.03	1.22	1.05	1.05	1.24
03-Feb-2016	1.07	1.15	1.36	1.09	1.14	1.35
04-Feb-2016	0.96	1.02	1.18	0.98	1.14	1.28
05-Feb-2016	1.10	1.15	1.29	1.01	1.10	1.28
06-Feb-2016	NS	NS	NS	NS	NS	NS
07-Feb-2016	NS	NS	NS	NS	NS	NS
08-Feb-2016	1.15	1.21	1.39	1.14	1.20	1.30
09-Feb-2016	1.13	1.16	1.32	1.17	1.20	1.37
10-Feb-2016	1.10	1.14	1.28	1.12	1.11	1.22
11-Feb-2016	1.15	1.13	1.33	1.13	1.10	1.31
12-Feb-2016	1.17	1.25	1.37	1.15	1.19	1.34
13-Feb-2016	NS	NS	NS	NS	NS	NS
14-Feb-2016	NS	NS	NS	NS	NS	NS
15-Feb-2016	NS	NS	NS	NS	NS	NS
16-Feb-2016	1.09	1.16	1.36	1.03	1.14	1.33
17-Feb-2016	1.19	1.16	1.33	1.20	1.18	1.35
18-Feb-2016	1.22	1.22	1.39	1.12	1.20	1.40
19-Feb-2016	1.29	1.30	1.46	1.20	1.29	1.45
20-Feb-2016	NS	NS	NS	NS	NS	NS
21-Feb-2016	NS	NS	NS	NS	NS	NS
22-Feb-2016	1.19	1.24	1.40	1.12	1.19	1.35
23-Feb-2016	1.18	1.18	1.37	1.17	1.17	1.35
24-Feb-2016	1.09	1.17	1.31	1.08	1.14	1.30
25-Feb-2016	1.14	1.14	1.30	1.11	1.12	1.29
26-Feb-2016	1.27	1.24	1.36	1.12	1.16	1.29
27-Feb-2016	NS	NS	NS	NS	NS	NS
28-Feb-2016	NS	NS	NS	NS	NS	NS
29-Feb-2016	1.10	1.15	1.27	1.09	1.15	1.29
Total number of measurements taken, A:		20		20		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		20		20		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Printed From : N:\WQ Data\Routine Water Quality\2015\Chlorine.xls

File: WQR3

Date Approved: 4-Mar-16

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

Water System Code: **252.00**
Licence Number: **PWS-09-412 AA**
Report Created: **01 March 2016**

Report Period: **February 2016**

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/02/2016	1.00	0.87	1.06	0.98
02/02/2016	1.04	0.97	1.11	0.99
03/02/2016	1.05	0.94	1.08	0.99
04/02/2016	0.98	0.85	0.97	0.86
05/02/2016	1.15	1.06	1.10	1.00
06/02/2016	1.15	1.08	1.17	1.11
07/02/2016	1.14	1.07	1.15	1.08
08/02/2016	1.14	1.09	1.15	1.10
09/02/2016	1.13	1.07	1.14	1.07
10/02/2016	1.10	0.88	1.07	0.88
11/02/2016	1.20	1.08	1.22	1.09
12/02/2016	1.16	1.11	1.15	1.11
13/02/2016	1.19	1.13	1.20	1.15
14/02/2016	1.17	1.12	1.12	1.05
15/02/2016	1.13	1.06	1.06	1.02
16/02/2016	1.08	0.93	1.00	0.83
17/02/2016	1.20	1.14	1.16	1.07
18/02/2016	1.21	1.14	1.12	1.10
19/02/2016	1.20	1.07	1.12	1.02
20/02/2016	1.15	1.11	1.07	1.02
21/02/2016	1.17	1.13	1.10	1.05
22/02/2016	1.17	1.12	1.11	1.08
23/02/2016	1.14	1.07	1.10	1.06
24/02/2016	1.11	1.07	1.09	1.04
25/02/2016	1.19	1.09	1.08	1.04
26/02/2016	1.17	1.06	1.10	1.07
27/02/2016	1.08	1.03	1.09	1.05
28/02/2016	1.08	1.04	1.07	1.05
29/02/2016	1.09	1.02	1.08	1.02

Total Number of Measurements, A:	20161	20161
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	20161	20161
COMPLIANCE, C = B/A X 100%:	100	100

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2016\02-February

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



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-Mar-2016	1.07	1.05	1.26	1.07	1.07	1.21
02-Mar-2016	1.06	1.16	1.26	1.11	1.12	1.13
03-Mar-2016	1.11	1.20	1.34	1.11	1.11	1.29
04-Mar-2016	1.13	1.12	1.33	1.09	1.08	1.26
05-Mar-2016	NS	NS	NS	NS	NS	NS
06-Mar-2016	NS	NS	NS	NS	NS	NS
07-Mar-2016	1.28	1.29	1.42	1.13	1.19	1.28
08-Mar-2016	1.22	1.27	1.45	1.13	1.09	1.29
09-Mar-2016	1.10	1.14	1.26	1.03	1.06	1.20
10-Mar-2016	1.11	1.19	1.35	1.06	1.07	1.24
11-Mar-2016	1.10	1.24	1.40	1.07	1.15	1.31
12-Mar-2016	NS	NS	NS	NS	NS	NS
13-Mar-2016	NS	NS	NS	NS	NS	NS
14-Mar-2016	1.01	1.17	1.34	1.02	1.06	1.24
15-Mar-2016	1.47	1.75	1.91	1.58	1.62	1.82
16-Mar-2016	1.16	1.11	1.25	1.14	1.12	1.28
17-Mar-2016	1.05	1.10	1.24	1.16	1.12	1.26
18-Mar-2016	1.11	1.16	1.33	1.16	1.22	1.37
19-Mar-2016	NS	NS	NS	NS	NS	NS
20-Mar-2016	NS	NS	NS	NS	NS	NS
21-Mar-2016	1.00	1.10	1.23	1.01	1.07	1.17
22-Mar-2016	0.98	1.05	1.22	1.02	1.04	1.22
23-Mar-2016	1.04	1.10	1.25	1.11	1.13	1.26
24-Mar-2016	0.98	1.04	1.23	1.03	0.98	1.19
25-Mar-2016	NS	NS	NS	NS	NS	NS
26-Mar-2016	NS	NS	NS	NS	NS	NS
27-Mar-2016	NS	NS	NS	NS	NS	NS
28-Mar-2016	NS	NS	NS	NS	NS	NS
29-Mar-2016	1.00	1.06	1.21	1.03	1.02	1.21
30-Mar-2016	0.98	0.97	1.11	1.16	1.09	1.23
31-Mar-2016	1.37	1.38	1.54	1.52	1.55	1.76
Total number of measurements taken, A:		21		21		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		21		21		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Printed From : N:\WQ Data\Routine Water Quality\2015\Chlorine.xls

File: WQR3

Date Approved: 4-Apr-16



City of Winnipeg

Water and Waste Department
Water Services

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

Water System Code: **252.00**
Licence Number: **PWS-09-412-01**
Report Created: 01 April 2016

Report Period: March 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/03/2016	1.07	0.99	1.07	1.03
2/03/2016	1.05	0.98	1.08	1.04
3/03/2016	1.10	1.02	1.10	1.03
4/03/2016	1.13	1.06	1.09	1.00
5/03/2016	1.18	1.10	1.09	1.03
6/03/2016	1.22	1.16	1.12	1.06
7/03/2016	1.24	1.18	1.12	1.09
8/03/2016	1.20	1.09	1.09	0.98
9/03/2016	1.12	1.07	1.03	0.98
10/03/2016	1.11	1.06	1.05	1.00
11/03/2016	1.10	1.04	1.07	1.01
12/03/2016	1.19	1.04	1.11	1.01
13/03/2016	1.15	1.08	1.05	1.00
14/03/2016	1.03	0.91	1.03	1.00
15/03/2016	1.19	0.87	1.37	0.96
16/03/2016	1.09	0.96	1.09	1.01
17/03/2016	1.11	0.99	1.12	1.02
18/03/2016	1.10	1.00	1.14	1.04
19/03/2016	1.05	1.00	1.10	1.04
20/03/2016	1.00	0.98	1.04	1.01
21/03/2016	0.99	0.94	1.02	0.98
22/03/2016	0.98	0.96	1.03	0.98
23/03/2016	0.98	0.98	1.05	1.00
24/03/2016	0.98	0.98	1.04	1.02
25/03/2016	0.98	0.98	1.06	1.04
26/03/2016	0.98	0.98	1.07	0.99
27/03/2016	0.98	0.98	1.14	1.09
28/03/2016	1.02	0.98	1.08	0.99
29/03/2016	1.01	0.95	1.07	0.97
30/03/2016	1.01	0.96	1.16	1.07
31/03/2016	1.23	0.91	1.38	1.01

Total Number of Measurements, A:	21571	21571
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	21571	21571
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)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Apr-2016	1.05	0.95	1.14	1.22	0.99	1.14
02-Apr-2016	NS	NS	NS	NS	NS	NS
03-Apr-2016	NS	NS	NS	NS	NS	NS
04-Apr-2016	0.99	1.04	1.15	0.99	1.04	1.20
05-Apr-2016	1.00	1.03	1.17	1.02	1.02	1.19
06-Apr-2016	1.24	1.15	1.44	1.05	1.05	1.26
07-Apr-2016	1.08	1.04	1.24	1.08	1.01	1.17
08-Apr-2016	1.09	1.15	1.30	1.09	1.14	1.29
09-Apr-2016	NS	NS	NS	NS	NS	NS
10-Apr-2016	NS	NS	NS	NS	NS	NS
11-Apr-2016	1.13	1.20	1.39	1.02	1.06	1.22
12-Apr-2016	1.13	1.21	1.35	1.00	1.00	1.19
13-Apr-2016	1.14	1.24	1.37	1.01	1.07	1.21
14-Apr-2016	1.14	1.25	1.37	0.93	1.03	1.19
15-Apr-2016	1.09	1.17	1.33	1.06	1.03	1.24
16-Apr-2016	NS	NS	NS	NS	NS	NS
17-Apr-2016	NS	NS	NS	NS	NS	NS
18-Apr-2016	1.13	1.17	1.36	1.25	1.21	1.34
19-Apr-2016	1.11	1.19	1.29	1.09	1.19	1.30
20-Apr-2016	1.11	1.16	1.28	1.07	1.15	1.30
21-Apr-2016	1.08	1.18	1.32	1.12	1.19	1.31
22-Apr-2016	1.02	1.05	1.26	1.10	1.13	1.28
23-Apr-2016	NS	NS	NS	NS	NS	NS
24-Apr-2016	NS	NS	NS	NS	NS	NS
25-Apr-2016	1.04	1.08	1.22	1.10	1.14	1.31
26-Apr-2016	1.13	1.06	1.16	0.97	1.07	1.20
27-Apr-2016	1.04	1.07	1.21	1.25	1.06	1.22
28-Apr-2016	0.88	0.87	1.01	0.89	0.89	1.04
29-Apr-2016	0.90	0.97	1.10	0.96	0.98	1.13
30-Apr-2016	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:		21		21		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		21		21		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

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File: WQR3

Date Approved: 6-May-16

**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 2016

Report Period: April 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/04/2016	0.95	0.80	1.07	0.91
2/04/2016	0.88	0.78	0.95	0.88
3/04/2016	0.95	0.93	0.95	0.94
4/04/2016	1.00	0.93	0.98	0.94
5/04/2016	1.14	0.96	1.03	0.98
6/04/2016	1.25	1.03	1.05	1.00
7/04/2016	1.04	0.99	1.03	0.94
8/04/2016	1.11	1.00	1.03	1.00
9/04/2016	1.15	1.03	0.99	0.89
10/04/2016	1.14	1.09	1.02	0.99
11/04/2016	1.16	1.11	1.03	0.99
12/04/2016	1.13	1.10	1.00	0.98
13/04/2016	1.16	1.11	1.01	0.99
14/04/2016	1.16	1.08	1.02	0.92
15/04/2016	1.11	1.05	1.02	0.97
16/04/2016	1.16	1.12	1.00	0.99
17/04/2016	1.18	1.12	1.13	0.99
18/04/2016	1.09	1.05	1.16	1.10
19/04/2016	1.08	1.03	1.08	1.03
20/04/2016	1.07	1.00	1.08	1.05
21/04/2016	1.06	1.03	1.12	1.09
22/04/2016	1.07	1.01	1.10	1.07
23/04/2016	1.09	1.05	1.11	1.08
24/04/2016	1.08	1.03	1.11	1.07
25/04/2016	1.03	0.96	1.05	0.98
26/04/2016	1.04	0.94	0.99	0.94
27/04/2016	0.99	0.89	1.06	0.83
28/04/2016	0.90	0.79	0.95	0.86
29/04/2016	0.93	0.80	1.01	0.92
30/04/2016	0.98	0.86	1.03	0.93

Total Number of Measurements, A:	20853	20873
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	20853	20873
COMPLIANCE, C = B/A X 100%:	100	100

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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-May-2016	NS	NS	NS	NS	NS	NS
02-May-2016	1.02	1.04	1.18	1.06	1.06	1.22
03-May-2016	1.04	1.01	1.19	1.03	1.06	1.23
04-May-2016	1.01	0.95	1.15	1.01	1.01	1.16
05-May-2016	0.97	0.96	1.11	0.96	0.99	1.13
06-May-2016	0.95	1.00	1.15	0.91	0.98	1.12
07-May-2016	NS	NS	NS	NS	NS	NS
08-May-2016	NS	NS	NS	NS	NS	NS
09-May-2016	1.04	1.06	1.19	0.94	0.94	1.07
10-May-2016	1.02	1.03	1.21	0.97	0.98	1.11
11-May-2016	1.04	1.05	1.18	1.28	1.18	1.35
12-May-2016	1.05	1.00	1.17	0.98	0.96	1.12
13-May-2016	0.91	0.97	1.11	0.91	0.94	1.08
14-May-2016	NS	NS	NS	NS	NS	NS
15-May-2016	NS	NS	NS	NS	NS	NS
16-May-2016	1.09	1.09	1.23	1.13	1.17	1.30
17-May-2016	1.13	1.21	1.38	1.22	1.22	1.39
18-May-2016	1.77	1.90	2.09	2.02	2.18	2.50
19-May-2016	1.14	1.15	1.35	0.98	1.02	1.23
20-May-2016	1.00	1.15	1.25	0.89	1.07	1.18
21-May-2016	NS	NS	NS	NS	NS	NS
22-May-2016	NS	NS	NS	NS	NS	NS
23-May-2016	NS	NS	NS	NS	NS	NS
24-May-2016	1.10	1.17	1.31	1.10	1.18	1.29
25-May-2016	0.94	1.07	1.20	0.87	0.97	1.11
26-May-2016	1.13	1.17	1.30	1.17	1.20	1.33
27-May-2016	1.12	1.16	1.34	1.14	1.19	1.32
28-May-2016	NS	NS	NS	NS	NS	NS
29-May-2016	NS	NS	NS	NS	NS	NS
30-May-2016	1.01	1.06	1.23	0.97	1.03	1.17
31-May-2016	1.04	1.03	1.20	0.93	0.91	1.12
Total number of measurements taken, A:		21		21		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		21		21		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Printed From : N:\WQ Data\Routine Water Quality\2015\Chlorine.xls

Date Approved: 6-Jun-16

File: WQR3

**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 June 2016

Report Period: May 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/05/2016	1.00	0.89	1.04	0.96
2/05/2016	1.01	0.91	1.06	0.95
3/05/2016	1.02	0.94	1.02	0.83
4/05/2016	1.01	0.75	0.96	0.75
5/05/2016	0.96	0.86	0.91	0.80
6/05/2016	0.95	0.88	0.92	0.89
7/05/2016	0.98	0.91	0.90	0.87
8/05/2016	0.96	0.90	0.88	0.83
9/05/2016	1.01	0.90	0.92	0.87
10/05/2016	1.03	0.95	1.10	0.90
11/05/2016	1.09	0.96	1.17	0.88
12/05/2016	1.01	0.88	0.93	0.87
13/05/2016	0.98	0.85	1.04	0.88
14/05/2016	1.06	0.84	1.18	1.00
15/05/2016	1.07	0.67	1.13	0.90
16/05/2016	1.07	1.00	1.12	0.94
17/05/2016	1.10	1.03	1.19	1.11
18/05/2016	1.62	1.08	1.72	1.17
19/05/2016	1.05	0.96	1.01	0.94
20/05/2016	1.06	0.96	1.02	0.86
21/05/2016	1.12	0.99	1.06	0.96
22/05/2016	1.03	0.96	0.95	0.88
23/05/2016	1.08	0.93	1.00	0.83
24/05/2016	1.11	0.85	1.11	0.77
25/05/2016	1.04	0.89	1.03	0.86
26/05/2016	1.13	0.96	1.19	1.08
27/05/2016	1.13	1.01	1.05	0.93
28/05/2016	1.07	1.01	0.97	0.91
29/05/2016	1.06	0.98	1.01	0.97
30/05/2016	1.03	0.96	0.96	0.89
31/05/2016	1.03	0.95	0.93	0.83

Total Number of Measurements, A:	21601	21592
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	21601	21592
COMPLIANCE, C = B/A X 100%:	100	100

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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-Jun-2016	1.04	1.05	1.17	0.94	0.98	1.12
02-Jun-2016	1.13	1.15	1.29	0.98	1.07	1.25
03-Jun-2016	1.19	1.17	1.30	1.15	1.20	1.36
04-Jun-2016	NS	NS	NS	NS	NS	NS
05-Jun-2016	NS	NS	NS	NS	NS	NS
06-Jun-2016	1.17	1.20	1.34	1.17	1.14	1.34
07-Jun-2016	1.12	1.15	1.24	1.11	1.20	1.30
08-Jun-2016	0.99	0.98	1.10	0.91	0.99	1.12
09-Jun-2016	0.94	0.93	1.11	0.95	0.98	1.12
10-Jun-2016	1.13	1.15	1.31	1.12	1.18	1.33
11-Jun-2016	NS	NS	NS	NS	NS	NS
12-Jun-2016	NS	NS	NS	NS	NS	NS
13-Jun-2016	1.14	1.15	1.30	1.20	1.20	1.35
14-Jun-2016	1.10	1.15	1.29	1.15	1.16	1.36
15-Jun-2016	1.15	1.17	1.29	1.18	1.20	1.34
16-Jun-2016	1.10	1.14	1.30	1.14	1.14	1.33
17-Jun-2016	0.99	1.08	1.25	1.03	1.13	1.27
18-Jun-2016	NS	NS	NS	NS	NS	NS
19-Jun-2016	NS	NS	NS	NS	NS	NS
20-Jun-2016	0.98	1.14	1.31	1.04	1.21	1.34
21-Jun-2016	1.04	1.08	1.29	1.11	1.15	1.35
22-Jun-2016	0.96	1.04	1.26	0.96	1.04	1.27
23-Jun-2016	1.09	1.18	1.29	1.08	1.16	1.35
24-Jun-2016	1.10	1.19	1.36	1.16	1.20	1.37
25-Jun-2016	NS	NS	NS	NS	NS	NS
26-Jun-2016	NS	NS	NS	NS	NS	NS
27-Jun-2016	1.26	1.28	1.44	1.20	1.26	1.40
28-Jun-2016	1.24	1.26	1.42	1.26	1.28	1.43
29-Jun-2016	1.21	1.17	1.36	1.01	1.04	1.25
30-Jun-2016	1.12	1.11	1.29	1.04	1.04	1.21
Total number of measurements taken, A:		22		22		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		22		22		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

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File: WQR3

Date Approved: 2-Jul-16

**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: 04 July 2016

Report Period: June 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/06/2016	1.04	0.97	0.95	0.91
02/06/2016	1.14	1.04	1.08	0.96
03/06/2016	1.19	1.04	1.16	1.04
04/06/2016	1.17	1.10	1.17	1.10
05/06/2016	1.12	1.04	1.17	1.08
06/06/2016	1.13	1.05	1.15	1.09
07/06/2016	1.06	0.96	1.09	1.00
08/06/2016	0.93	0.85	0.97	0.89
09/06/2016	1.04	0.90	1.04	0.91
10/06/2016	1.15	1.07	1.15	1.06
11/06/2016	1.12	1.05	1.17	1.11
12/06/2016	1.12	1.06	1.19	1.14
13/06/2016	1.12	1.03	1.18	1.09
14/06/2016	1.10	1.04	1.14	1.08
15/06/2016	1.10	0.93	1.12	1.00
16/06/2016	1.08	0.97	1.12	1.04
17/06/2016	1.02	0.95	1.06	0.98
18/06/2016	1.02	0.94	1.06	1.00
19/06/2016	1.09	1.00	1.15	1.04
20/06/2016	1.00	0.94	1.06	0.95
21/06/2016	1.05	0.96	1.10	1.04
22/06/2016	1.00	0.91	1.01	0.92
23/06/2016	1.10	1.00	1.10	1.02
24/06/2016	1.15	1.02	1.17	1.08
25/06/2016	1.20	1.12	1.22	1.16
26/06/2016	1.23	1.14	1.26	1.16
27/06/2016	1.28	1.20	1.24	1.19
28/06/2016	1.23	1.15	1.26	1.16
29/06/2016	1.14	0.72	1.05	0.69
30/06/2016	1.06	0.93	1.01	0.91

Total Number of Measurements, A:	20878	20879
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	20878	20879
COMPLIANCE, C = B/A X 100%:	100	100

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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-Jul-2016	NS	NS	NS	NS	NS	NS	
02-Jul-2016	NS	NS	NS	NS	NS	NS	
03-Jul-2016	NS	NS	NS	NS	NS	NS	
04-Jul-2016	1.08	1.09	1.26	1.08	1.08	1.22	
05-Jul-2016	1.09	1.10	1.22	1.07	1.04	1.19	
06-Jul-2016	1.05	1.11	1.29	0.96	0.98	1.19	
07-Jul-2016	1.27	1.30	1.50	1.25	1.26	1.39	
08-Jul-2016	1.21	1.23	1.42	1.11	1.18	1.32	
09-Jul-2016	NS	NS	NS	NS	NS	NS	
10-Jul-2016	NS	NS	NS	NS	NS	NS	
11-Jul-2016	1.46	1.39	1.59	1.39	1.32	1.54	
12-Jul-2016	1.18	1.20	1.38	1.04	1.09	1.22	
13-Jul-2016	1.61	1.41	1.59	1.26	1.16	1.32	
14-Jul-2016	1.22	1.21	1.43	1.08	1.10	1.28	
15-Jul-2016	1.20	1.25	1.40	1.23	1.16	1.32	
16-Jul-2016	NS	NS	NS	NS	NS	NS	
17-Jul-2016	NS	NS	NS	NS	NS	NS	
18-Jul-2016	1.15	1.16	1.33	1.12	1.10	1.30	
19-Jul-2016	1.47	1.54	1.68	1.51	1.58	1.72	
20-Jul-2016	1.15	1.28	1.50	1.18	1.32	1.55	
21-Jul-2016	1.07	1.29	1.43	1.11	1.23	1.40	
22-Jul-2016	1.11	1.31	1.52	1.14	1.33	1.52	
23-Jul-2016	NS	NS	NS	NS	NS	NS	
24-Jul-2016	NS	NS	NS	NS	NS	NS	
25-Jul-2016	1.15	1.25	1.43	1.14	1.20	1.33	
26-Jul-2016	1.02	1.03	1.25	0.84	0.95	1.15	
27-Jul-2016	1.14	1.22	1.40	0.92	1.07	1.23	
28-Jul-2016	1.22	1.30	1.42	1.21	1.21	1.42	
29-Jul-2016	1.28	1.28	1.45	1.22	1.28	1.49	
30-Jul-2016	NS	NS	NS	NS	NS	NS	
31-Jul-2016	NS	NS	NS	NS	NS	NS	
Total number of measurements taken, A:		20		20			
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50			
Number of measurements meeting standard, B:		20		20			
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%			

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 29-Jul-16

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File: WQR3

**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 2016

Report Period: July 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/07/2016	0.93	0.86	0.92	0.88
02/07/2016	0.94	0.88	0.93	0.84
03/07/2016	0.98	0.93	1.01	0.94
04/07/2016	1.09	1.01	1.08	0.98
05/07/2016	1.11	1.01	1.06	0.99
06/07/2016	1.11	0.82	1.06	0.85
07/07/2016	1.20	1.11	1.14	1.06
08/07/2016	1.04	0.58	1.00	0.59
09/07/2016	1.21	0.95	1.15	0.96
10/07/2016	1.23	1.12	1.21	1.07
11/07/2016	1.29	1.15	1.18	1.04
12/07/2016	1.17	0.90	1.06	0.82
13/07/2016	1.39	1.02	1.19	0.91
14/07/2016	1.17	1.06	1.10	1.00
15/07/2016	1.09	0.86	1.09	0.79
16/07/2016	1.12	1.01	1.10	0.92
17/07/2016	1.17	1.02	1.15	1.01
18/07/2016	1.18	1.06	1.17	1.05
19/07/2016	1.22	1.02	1.25	1.04
20/07/2016	1.12	1.01	1.15	1.05
21/07/2016	1.08	0.93	1.12	1.04
22/07/2016	1.07	1.01	1.12	1.05
23/07/2016	1.13	1.02	1.16	1.05
24/07/2016	1.18	1.08	1.22	1.11
25/07/2016	1.14	0.91	1.08	0.89
26/07/2016	1.11	0.97	0.91	0.82
27/07/2016	1.17	1.04	1.05	0.92
28/07/2016	1.23	1.10	1.19	1.10
29/07/2016	1.27	1.15	1.18	1.06
30/07/2016	1.25	1.18	1.18	1.05
31/07/2016	1.29	1.19	1.22	1.12

Total Number of Measurements, A:	21599	21596
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	21599	21596

COMPLIANCE, C = B/A X 100%:	100	100
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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-Aug-2016	NS	NS	NS	NS	NS	NS
02-Aug-2016	1.09	1.07	1.27	1.02	1.08	1.27
03-Aug-2016	1.22	1.19	1.37	1.14	1.13	1.39
04-Aug-2016	1.02	1.10	1.32	0.93	0.93	1.08
05-Aug-2016	1.16	1.17	1.32	1.02	0.99	1.27
06-Aug-2016	NS	NS	NS	NS	NS	NS
07-Aug-2016	NS	NS	NS	NS	NS	NS
08-Aug-2016	1.24	1.22	1.34	0.97	1.10	1.24
09-Aug-2016	1.17	1.20	1.45	0.99	1.05	1.26
10-Aug-2016	1.96	1.89	2.12	1.68	1.75	1.89
11-Aug-2016	1.09	1.05	1.29	1.12	1.12	1.27
12-Aug-2016	1.07	1.02	1.26	OL	1.23	1.38
13-Aug-2016	NS	NS	NS	NS	NS	NS
14-Aug-2016	NS	NS	NS	NS	NS	NS
15-Aug-2016	1.00	1.10	1.25	1.09	1.12	1.25
16-Aug-2016	0.94	1.04	1.24	1.04	1.00	1.17
17-Aug-2016	1.06	1.16	1.32	1.11	1.12	1.30
18-Aug-2016	0.95	1.02	1.14	0.98	0.99	1.15
19-Aug-2016	0.94	1.00	1.16	0.85	0.94	1.09
20-Aug-2016	NS	NS	NS	NS	NS	NS
21-Aug-2016	NS	NS	NS	NS	NS	NS
22-Aug-2016	1.15	1.22	1.43	1.18	1.28	1.43
23-Aug-2016	1.33	1.31	1.60	1.29	1.31	1.48
24-Aug-2016	1.25	1.38	1.55	1.21	1.31	1.49
25-Aug-2016	1.23	1.33	1.50	1.18	1.28	1.49
26-Aug-2016	1.27	1.26	1.46	1.13	1.18	1.39
27-Aug-2016	NS	NS	NS	NS	NS	NS
28-Aug-2016	NS	NS	NS	NS	NS	NS
29-Aug-2016	1.10	1.11	1.24	1.08	1.13	1.30
30-Aug-2016	1.17	1.13	1.28	1.21	1.13	1.26
31-Aug-2016	1.14	1.18	1.36	1.14	1.18	1.34
Total number of measurements taken, A:		22		22		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		22		22		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

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File: WQR3

Date Approved: 7-Sep-16

**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 2016

Report Period: August 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/08/2016	1.17	1.05	1.12	1.03
02/08/2016	1.11	0.91	1.05	0.90
03/08/2016	1.21	1.02	1.04	0.79
04/08/2016	1.02	0.96	0.94	0.79
05/08/2016	1.17	1.08	1.01	0.94
06/08/2016	1.18	1.06	0.99	0.90
07/08/2016	1.10	1.05	0.91	0.84
08/08/2016	1.30	1.00	0.97	0.81
09/08/2016	1.39	1.13	1.07	0.95
10/08/2016	1.37	0.68	1.36	0.86
11/08/2016	1.10	0.97	1.07	0.94
12/08/2016	1.09	1.01	1.16	1.02
13/08/2016	1.05	0.96	1.13	0.97
14/08/2016	1.06	0.96	1.05	0.96
15/08/2016	0.99	0.86	1.06	0.96
16/08/2016	1.00	0.88	1.08	1.02
17/08/2016	1.04	0.90	1.06	0.97
18/08/2016	0.98	0.88	1.00	0.86
19/08/2016	0.96	0.82	0.92	0.77
20/08/2016	1.13	0.98	1.10	1.02
21/08/2016	1.10	0.97	1.12	1.04
22/08/2016	1.16	1.05	1.19	1.10
23/08/2016	1.27	0.81	1.24	1.05
24/08/2016	1.26	1.00	1.23	1.08
25/08/2016	1.05	0.61	1.08	0.68
26/08/2016	1.02	0.53	1.06	0.85
27/08/2016	1.18	1.09	1.17	1.07
28/08/2016	1.21	1.05	1.26	1.11
29/08/2016	1.07	1.02	1.10	0.99
30/08/2016	1.08	1.02	1.11	1.03
31/08/2016	1.07	0.99	1.09	0.99

Total Number of Measurements, A:	21605	21603
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21605	21603

COMPLIANCE, C = B/A X 100%:	100	100
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Submitted By (Print): D. MinorSignature: 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-Sep-2016	0.92	1.02	1.15	0.94	1.01	1.16	
02-Sep-2016	1.12	1.14	1.30	1.12	1.12	1.31	
03-Sep-2016	NS	NS	NS	NS	NS	NS	
04-Sep-2016	NS	NS	NS	NS	NS	NS	
05-Sep-2016	NS	NS	NS	NS	NS	NS	
06-Sep-2016	1.07	1.10	1.25	1.01	1.08	1.22	
07-Sep-2016	1.40	1.46	1.65	1.32	1.35	1.48	
08-Sep-2016	1.42	1.43	1.66	1.33	1.29	1.53	
09-Sep-2016	1.35	1.35	1.54	1.24	1.24	1.37	
10-Sep-2016	NS	NS	NS	NS	NS	NS	
11-Sep-2016	NS	NS	NS	NS	NS	NS	
12-Sep-2016	1.36	1.34	1.49	1.30	1.30	1.47	
13-Sep-2016	1.41	1.39	1.58	1.29	1.24	1.43	
14-Sep-2016	1.36	1.40	1.59	1.28	1.30	1.53	
15-Sep-2016	1.50	1.48	1.64	1.42	1.39	1.54	
16-Sep-2016	1.15	1.21	1.40	1.43	1.40	1.57	
17-Sep-2016	NS	NS	NS	NS	NS	NS	
18-Sep-2016	NS	NS	NS	NS	NS	NS	
19-Sep-2016	1.27	1.38	1.62	1.25	1.34	1.52	
20-Sep-2016	1.41	1.46	1.66	1.36	1.40	1.57	
21-Sep-2016	1.35	1.47	1.63	1.31	1.36	1.60	
22-Sep-2016	1.32	1.39	1.62	1.25	1.27	1.49	
23-Sep-2016	1.38	1.42	1.56	1.35	1.30	1.46	
24-Sep-2016	NS	NS	NS	NS	NS	NS	
25-Sep-2016	NS	NS	NS	NS	NS	NS	
26-Sep-2016	1.16	1.31	1.48	1.13	1.18	1.36	
27-Sep-2016	1.42	1.45	1.63	1.32	1.34	1.53	
28-Sep-2016	1.38	1.35	1.53	1.22	1.28	1.46	
29-Sep-2016	1.42	1.44	1.57	1.29	1.32	1.45	
30-Sep-2016	1.41	1.52	1.76	1.33	1.42	1.63	
Total number of measurements taken, A:		21		21			
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50			
Number of measurements meeting standard, B:		21		21			
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%			

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

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File: WQR3

Date Approved: _____

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

Report Created: 01 October 2016

Report Period: September 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/09/2016	0.97	0.87	0.99	0.93
2/09/2016	1.07	0.97	1.10	1.00
3/09/2016	1.07	1.00	1.14	1.08
4/09/2016	1.17	1.04	1.22	1.10
5/09/2016	1.01	0.91	1.03	0.94
6/09/2016	1.17	0.97	1.16	1.01
7/09/2016	1.39	1.29	1.30	1.23
8/09/2016	1.38	1.26	1.28	1.14
9/09/2016	1.35	1.24	1.23	1.14
10/09/2016	1.33	1.22	1.21	1.17
11/09/2016	1.25	0.81	1.17	0.81
12/09/2016	1.29	1.18	1.22	1.16
13/09/2016	1.37	1.27	1.28	1.14
14/09/2016	1.41	1.31	1.34	1.23
15/09/2016	1.44	1.21	1.42	1.35
16/09/2016	1.23	1.10	1.39	1.28
17/09/2016	1.38	1.32	1.35	1.29
18/09/2016	1.36	1.25	1.33	1.26
19/09/2016	1.41	1.24	1.30	1.23
20/09/2016	1.37	1.30	1.33	1.25
21/09/2016	1.35	1.25	1.32	1.25
22/09/2016	1.35	1.24	1.28	1.21
23/09/2016	1.35	1.26	1.26	1.16
24/09/2016	1.32	1.25	1.21	1.13
25/09/2016	1.24	1.17	1.20	1.13
26/09/2016	1.24	1.13	1.23	1.11
27/09/2016	1.37	1.23	1.32	1.26
28/09/2016	1.37	1.31	1.24	1.19
29/09/2016	1.37	1.29	1.24	1.17
30/09/2016	1.42	1.33	1.33	1.25

Total Number of Measurements, A:	20879	20879
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	20879	20879
COMPLIANCE, C = B/A X 100%:	100	100

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2016\09-September

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-Oct-2016	NS	NS	NS	NS	NS	NS
02-Oct-2016	NS	NS	NS	NS	NS	NS
03-Oct-2016	1.25	1.36	1.51	1.23	1.34	1.50
04-Oct-2016	1.12	1.17	1.40	1.25	1.26	1.50
05-Oct-2016	1.01	0.99	1.30	1.11	1.16	1.35
06-Oct-2016	1.11	1.12	1.30	1.15	1.15	1.37
07-Oct-2016	1.09	1.10	1.24	1.17	1.26	1.43
08-Oct-2016	NS	NS	NS	NS	NS	NS
09-Oct-2016	NS	NS	NS	NS	NS	NS
10-Oct-2016	NS	NS	NS	NS	NS	NS
11-Oct-2016	1.17	1.22	1.36	1.27	1.31	1.43
12-Oct-2016	1.11	1.16	1.36	1.27	1.32	1.47
13-Oct-2016	1.13	1.24	1.42	1.29	1.31	1.53
14-Oct-2016	1.16	1.26	1.38	1.31	1.35	1.52
15-Oct-2016	NS	NS	NS	NS	NS	NS
16-Oct-2016	NS	NS	NS	NS	NS	NS
17-Oct-2016	1.37	1.35	1.54	1.30	1.34	1.49
18-Oct-2016	1.24	1.31	1.42	1.16	1.22	1.37
19-Oct-2016	1.28	1.29	1.46	1.19	1.20	1.42
20-Oct-2016	1.26	1.27	1.42	1.15	1.23	1.35
21-Oct-2016	1.13	1.21	1.39	1.04	1.06	1.28
22-Oct-2016	NS	NS	NS	NS	NS	NS
23-Oct-2016	NS	NS	NS	NS	NS	NS
24-Oct-2016	1.23	1.22	1.47	1.13	1.12	1.34
25-Oct-2016	1.25	1.31	1.48	1.19	1.16	1.38
26-Oct-2016	1.25	1.31	1.44	1.17	1.17	1.36
27-Oct-2016	1.44	1.44	1.68	1.37	1.42	1.58
28-Oct-2016	1.17	1.18	1.35	1.08	1.17	1.31
29-Oct-2016	NS	NS	NS	NS	NS	NS
30-Oct-2016	NS	NS	NS	NS	NS	NS
31-Oct-2016	1.20	1.20	1.39	1.06	1.09	1.27
Total number of measurements taken, A:		20		20		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		20		20		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

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File: WQR3

Date Approved: 7-Nov-16

**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 2016

Report Period: October 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/10/2016	1.36	1.30	1.31	1.23
2/10/2016	1.33	1.17	1.28	1.11
3/10/2016	1.23	1.07	1.29	1.22
4/10/2016	1.07	1.01	1.20	1.11
5/10/2016	1.02	0.96	1.13	1.06
6/10/2016	1.06	0.97	1.13	1.06
7/10/2016	1.09	0.96	1.16	1.02
8/10/2016	1.12	1.04	1.19	1.08
9/10/2016	1.16	1.11	1.23	1.18
10/10/2016	1.16	1.10	1.24	1.18
11/10/2016	1.14	1.02	1.25	1.14
12/10/2016	1.14	1.09	1.29	1.23
13/10/2016	1.18	1.12	1.33	1.25
14/10/2016	1.19	1.09	1.34	1.25
15/10/2016	1.24	1.17	1.41	1.31
16/10/2016	1.12	1.06	1.29	1.24
17/10/2016	1.23	1.10	1.26	1.13
18/10/2016	1.27	1.19	1.18	1.09
19/10/2016	1.28	1.22	1.19	1.13
20/10/2016	1.21	1.14	1.12	1.04
21/10/2016	1.15	1.06	1.05	0.99
22/10/2016	1.18	1.12	1.05	1.03
23/10/2016	1.21	1.16	1.06	1.01
24/10/2016	1.21	1.11	1.11	0.99
25/10/2016	1.25	1.16	1.18	1.12
26/10/2016	1.23	1.18	1.16	1.11
27/10/2016	1.30	1.08	1.24	1.06
28/10/2016	1.18	1.13	0.99	0.80
29/10/2016	1.16	1.13	1.14	1.06
30/10/2016	1.16	1.12	1.05	1.02
31/10/2016	1.16	1.12	1.05	1.01

Total Number of Measurements, A:	21605	21603
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21605	21603
COMPLIANCE, C = B/A X 100%:	100.00	100.00

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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-Nov-2016	1.11	1.12	1.28	0.97	0.96	1.19
02-Nov-2016	1.11	1.15	1.25	1.11	1.15	1.30
03-Nov-2016	1.07	1.14	1.25	1.09	1.13	1.27
04-Nov-2016	1.14	1.18	1.31	1.15	1.14	1.28
05-Nov-2016	NS	NS	NS	NS	NS	NS
06-Nov-2016	NS	NS	NS	NS	NS	NS
07-Nov-2016	0.99	1.01	1.20	0.96	1.06	1.16
08-Nov-2016	1.02	1.10	1.24	1.02	1.09	1.20
09-Nov-2016	1.39	1.36	1.67	1.43	1.37	1.67
10-Nov-2016	1.04	1.04	1.22	1.07	1.09	1.23
11-Nov-2016	NS	NS	NS	NS	NS	NS
12-Nov-2016	NS	NS	NS	NS	NS	NS
13-Nov-2016	NS	NS	NS	NS	NS	NS
14-Nov-2016	1.05	1.00	1.27	1.08	1.08	1.25
15-Nov-2016	1.08	1.11	1.25	1.05	1.01	1.19
16-Nov-2016	1.05	1.09	1.27	1.05	1.05	1.26
17-Nov-2016	1.08	1.10	1.25	1.03	1.05	1.21
18-Nov-2016	1.08	1.10	1.30	1.03	1.08	1.24
19-Nov-2016	NS	NS	NS	NS	NS	NS
20-Nov-2016	NS	NS	NS	NS	NS	NS
21-Nov-2016	1.11	1.16	1.28	1.06	1.10	1.25
22-Nov-2016	1.06	1.07	1.23	1.04	1.01	1.22
23-Nov-2016	1.00	1.04	1.24	1.04	1.04	1.18
24-Nov-2016	0.95	0.98	1.12	1.00	0.97	1.14
25-Nov-2016	0.99	0.95	1.15	0.96	1.01	1.18
26-Nov-2016	NS	NS	NS	NS	NS	NS
27-Nov-2016	NS	NS	NS	NS	NS	NS
28-Nov-2016	0.96	1.03	1.11	0.99	1.01	1.15
29-Nov-2016	0.95	0.99	1.12	0.96	1.00	1.11
30-Nov-2016	0.95	1.01	1.14	0.96	1.03	1.15
Total number of measurements taken, A:		21		21		
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50		
Number of measurements meeting standard, B:		21		21		
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

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File: WQR3

Date Approved: 7-Dec-16

**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: 02 December 2016

Report Period: November 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/11/2016	1.09	1.04	0.98	0.95
02/11/2016	1.09	1.03	1.06	0.95
03/11/2016	1.11	1.06	1.13	1.08
04/11/2016	1.14	1.08	1.15	1.12
05/11/2016	1.08	1.02	1.08	1.02
06/11/2016	1.03	0.99	1.03	0.99
07/11/2016	0.99	0.94	0.97	0.94
08/11/2016	1.00	0.95	1.02	0.96
09/11/2016	1.10	0.95	1.13	0.98
10/11/2016	1.03	0.98	1.05	0.99
11/11/2016	1.06	1.01	1.03	1.00
12/11/2016	1.02	0.97	1.01	0.98
13/11/2016	1.02	0.97	1.04	1.01
14/11/2016	1.03	0.98	1.07	1.02
15/11/2016	1.02	0.89	1.03	0.92
16/11/2016	1.07	1.00	1.05	0.97
17/11/2016	1.07	1.03	1.02	1.00
18/11/2016	1.06	1.00	1.00	0.96
19/11/2016	1.11	1.02	1.05	0.97
20/11/2016	1.14	1.11	1.08	1.05
21/11/2016	1.18	1.06	1.09	1.04
22/11/2016	1.04	0.68	1.01	0.86
23/11/2016	1.01	0.93	1.02	0.90
24/11/2016	0.96	0.89	0.99	0.93
25/11/2016	1.01	0.93	0.98	0.88
26/11/2016	0.99	0.90	1.04	0.98
27/11/2016	1.00	0.93	1.03	0.99
28/11/2016	0.97	0.82	0.99	0.80
29/11/2016	0.94	0.89	0.96	0.91
30/11/2016	1.01	0.85	0.99	0.84

Total Number of Measurements, A:	20912	20902
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	20912	20902
COMPLIANCE, C = B/A X 100%:	100	100

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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-2016	1.11	1.20	1.31	0.97	1.08	1.21
02-Dec-2016	1.32	1.26	1.43	1.11	1.19	1.31
03-Dec-2016	NS	NS	NS	NS	NS	NS
04-Dec-2016	NS	NS	NS	NS	NS	NS
05-Dec-2016	1.26	1.32	1.50	1.14	1.24	1.36
06-Dec-2016	1.20	1.23	1.42	1.08	1.17	1.30
07-Dec-2016	1.22	1.29	1.43	1.09	1.18	1.30
08-Dec-2016	1.19	1.26	1.38	1.10	1.15	1.28
09-Dec-2016	1.23	1.24	1.44	1.14	1.19	1.33
10-Dec-2016	NS	NS	NS	NS	NS	NS
11-Dec-2016	NS	NS	NS	NS	NS	NS
12-Dec-2016	1.17	1.22	1.33	1.10	1.14	1.28
13-Dec-2016	0.98	1.10	1.23	1.11	1.14	1.25
14-Dec-2016	1.02	1.12	1.24	0.94	1.07	1.19
15-Dec-2016	1.01	1.13	1.22	0.92	1.06	1.20
16-Dec-2016	1.04	1.06	1.21	0.98	1.08	1.19
17-Dec-2016	NS	NS	NS	NS	NS	NS
18-Dec-2016	NS	NS	NS	NS	NS	NS
19-Dec-2016	1.07	1.12	1.29	1.09	1.13	1.27
20-Dec-2016	1.04	1.09	1.24	1.08	1.10	1.25
21-Dec-2016	1.13	1.18	1.32	1.17	1.19	1.34
22-Dec-2016	1.03	1.10	1.31	1.10	1.22	1.38
23-Dec-2016	1.59	1.55	1.68	1.13	1.17	1.33
24-Dec-2016	NS	NS	NS	NS	NS	NS
25-Dec-2016	NS	NS	NS	NS	NS	NS
26-Dec-2016	NS	NS	NS	NS	NS	NS
27-Dec-2016	NS	NS	NS	NS	NS	NS
28-Dec-2016	1.22	1.25	1.42	1.12	1.12	1.28
29-Dec-2016	1.16	1.20	1.36	1.04	1.09	1.26
30-Dec-2016	1.17	1.19	1.33	1.05	1.09	1.23
31-Dec-2016	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:		20			20	
Chlorine Standard for Monitoring Location (mg/L):		0.50			0.50	
Number of measurements meeting standard, B:		20			20	
Compliance with Chlorine Standard, C= B/A X 100%:		100%			100%	

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 4-Jan-17

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File: WQR3

**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: 04 January 2017

Report Period: December 2016

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/12/2016	1.13	0.78	1.05	0.79
02/12/2016	1.26	1.10	1.13	1.05
03/12/2016	1.23	1.13	1.13	1.09
04/12/2016	1.20	1.13	1.12	1.05
05/12/2016	1.22	1.16	1.11	1.05
06/12/2016	1.21	1.15	1.08	0.99
07/12/2016	1.21	1.09	1.08	0.99
08/12/2016	1.20	1.13	1.10	0.93
09/12/2016	1.21	1.10	1.16	1.06
10/12/2016	1.20	1.14	1.17	1.11
11/12/2016	1.17	1.12	1.13	1.08
12/12/2016	1.11	1.00	1.12	1.05
13/12/2016	1.01	0.95	1.04	0.93
14/12/2016	1.01	0.99	0.94	0.90
15/12/2016	1.04	0.98	0.95	0.89
16/12/2016	1.05	0.98	0.98	0.88
17/12/2016	1.08	1.05	1.07	0.99
18/12/2016	1.09	1.06	1.11	1.07
19/12/2016	1.05	0.98	1.07	1.00
20/12/2016	1.07	1.02	1.14	1.03
21/12/2016	1.13	1.06	1.15	1.08
22/12/2016	1.04	0.98	1.11	1.03
23/12/2016	1.16	1.02	1.11	1.01
24/12/2016	1.16	1.06	1.08	1.01
25/12/2016	1.14	0.99	1.08	0.96
26/12/2016	1.14	1.00	1.10	1.02
27/12/2016	1.18	1.14	1.10	1.06
28/12/2016	1.20	1.16	1.11	1.07
29/12/2016	1.18	1.11	1.06	1.02
30/12/2016	1.16	1.11	1.03	0.99
31/12/2016	1.11	1.04	1.00	0.98

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

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

2016 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)																		
Licence No. PWS-09-412 AA																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Jan-2016	0.53	0.55	0.17	0.03	0.14	0.08	0.17	0.06	0.13	0.03	0.18	0.06	0.12	0.06	0.12	<0.02	0.13	0.04	
02-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
03-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.13	0.07	
04-Jan-2016	0.57	0.53	0.11	0.02	0.14	0.08	0.16	0.05	0.12	0.03	0.08	0.02	0.14	0.06	0.10	0.02	O/L	O/L	
05-Jan-2016	0.58	0.52	0.13	0.03	0.17	0.06	0.13	0.03	0.16	0.03	0.11	0.03	0.14	0.10	0.12	<0.02	O/L	O/L	
06-Jan-2016	0.55	0.53	0.14	0.04	0.11	0.06	0.13	0.03	0.17	0.02	0.12	0.03	0.15	0.08	0.17	0.03	O/L	O/L	
07-Jan-2016	0.55	0.52	0.13	0.02	0.20	0.11	0.17	0.05	0.12	0.03	0.09	0.02	0.12	0.09	0.10	0.06	0.16	0.07	
08-Jan-2016	0.59	0.50	0.16	0.05	0.13	0.07	0.15	0.04	0.18	0.05	0.12	0.04	0.18	0.12	0.13	0.02	0.11	0.04	
09-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.09	0.03	
10-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
11-Jan-2016	0.51	0.47	0.10	0.02	0.09	0.05	0.10	<0.02	O/L	O/L	0.09	<0.02	0.10	0.07	0.08	<0.02	0.09	<0.02	
12-Jan-2016	0.54	0.50	0.11	0.03	0.14	0.08	0.15	0.03	O/L	O/L	0.13	0.05	0.13	0.08	0.15	0.03	0.10	0.04	
13-Jan-2016	0.51	0.50	0.13	0.04	0.16	0.09	0.19	0.05	O/L	O/L	0.12	0.03	0.13	0.06	0.12	<0.02	0.14	0.05	
14-Jan-2016	0.49	0.50	0.16	0.06	0.13	0.07	0.24	0.09	0.19	0.16	0.12	0.04	0.20	0.14	0.13	0.02	0.10	0.03	
15-Jan-2016	0.54	0.49	0.12	0.03	0.15	0.09	0.15	0.03	0.14	0.04	0.19	0.08	0.13	0.09	0.17	0.04	0.13	0.04	
16-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	0.15	0.08	NS	NS	NS	NS	NS	NS	NS	NS	
17-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	O/L	O/L	NS	NS	NS	NS	NS	NS	
18-Jan-2016	0.55	0.46	0.13	0.04	0.19	0.10	0.18	0.05	0.17	0.06	O/L	O/L	0.12	0.09	0.11	<0.02	0.15	0.06	
19-Jan-2016	0.49	0.46	0.14	0.04	0.13	0.07	0.23	0.08	0.21	0.09	O/L	O/L	0.14	0.10	0.12	<0.02	0.11	0.03	
20-Jan-2016	0.51	0.48	0.24	0.11	0.22	0.11	0.22	0.07	0.19	0.06	0.18	0.07	0.15	0.10	0.19	0.05	0.16	0.05	
21-Jan-2016	0.57	0.45	0.17	0.05	0.25	0.14	0.24	0.08	0.26	0.09	0.14	0.04	0.11	0.10	0.14	<0.02	0.22	0.06	
22-Jan-2016	0.53	0.46	0.21	0.11	0.17	0.11	0.22	0.12	0.17	0.04	0.14	0.05	0.20	0.09	0.15	0.04	0.13	0.02	
23-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
24-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	O/L	O/L	NS	NS	NS	NS	
25-Jan-2016	0.51	0.49	0.23	0.12	0.18	0.11	0.24	0.11	0.19	0.06	0.15	0.05	O/L	O/L	0.14	0.04	0.13	0.02	
26-Jan-2016	0.53	0.50	0.15	0.07	0.17	0.11	0.19	0.07	0.15	0.04	0.16	0.06	O/L	O/L	0.16	0.06	0.13	0.03	
27-Jan-2016	0.46	0.50	0.14	0.04	0.16	0.07	0.18	0.06	0.15	0.05	0.09	0.02	O/L	O/L	0.09	0.02	0.12	0.03	
28-Jan-2016	0.47	0.50	0.13	0.04	0.11	0.05	0.28	0.15	0.12	0.02	0.08	0.02	0.10	0.02	0.09	<0.02	0.08	<0.02	
29-Jan-2016	0.45	0.47	0.08	<0.02	0.12	0.04	0.11	0.02	0.09	<0.02	0.12	0.05	0.13	0.03	0.10	<0.02	0.08	<0.02	
30-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
31-Jan-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	O/L	O/L	NS	
Total number of measurements taken, A:			21		21		21		19		19		18		21		20		
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
Number of measurements meeting standard, B:			21		21		21		19		19		18		21		20		
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

Approved in LIMS By: C.Diduck

Date Approved: 3-Jan-16



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

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

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

January 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/01/2016	0.56	0.03	0.10	0.05	0.13	0.05	0.14	0.04	0.06	0.03	0.08	0.07	0.09	0.02	0.08	0.02	0.07
2/01/2016	0.55	0.05	0.10	0.05	0.14	0.04	0.15	0.05	0.13	0.03	0.05	0.05	0.14	0.02	0.04	0.01	0.08
3/01/2016	0.55	0.04	0.11	0.08	0.11	0.05	0.07	0.04	0.15	0.04	0.09	0.05	0.14	0.02	0.09	0.01	0.03
4/01/2016	0.54	0.03	0.05	0.06	0.12	0.04	0.11	0.04	0.06	0.03	0.07	0.07	0.10	0.02	0.08	OL	OL
5/01/2016	0.53	0.04	0.10	0.05	0.12	0.03	0.13	0.04	0.12	0.02	0.04	0.08	0.13	0.02	0.03	OL	OL
6/01/2016	0.54	0.03	0.09	0.06	0.08	0.03	0.04	0.04	0.12	0.04	0.07	0.08	0.16	0.02	0.08	OL	OL
7/01/2016	0.53	0.03	0.05	0.05	0.12	0.04	0.13	0.05	0.06	0.02	0.08	0.11	0.13	0.01	0.08	0.02	0.10
8/01/2016	0.51	0.05	0.11	0.06	0.09	0.03	0.18	0.05	0.14	0.04	0.07	0.07	0.18	0.03	0.06	0.02	0.08
9/01/2016	0.51	0.03	0.09	0.06	0.13	0.03	0.05	0.03	0.06	0.03	0.08	0.07	0.10	0.01	0.07	0.02	0.07
10/01/2016	0.49	0.03	0.06	0.04	0.09	0.01	0.13	0.04	0.13	0.02	0.05	0.06	0.15	0.01	0.02	0.01	0.04
11/01/2016	0.49	0.02	0.06	0.04	0.06	0.01	0.08	OL	OL	0.02	0.04	0.06	0.28	0.01	0.04	0.01	0.03
12/01/2016	0.50	0.04	0.12	0.07	0.09	0.02	0.04	OL	OL	0.04	0.07	0.07	0.16	0.02	0.08	0.02	0.03
13/01/2016	0.51	0.05	0.06	0.07	0.12	0.05	0.13	OL	OL	0.03	0.08	0.10	0.12	0.02	0.09	0.02	0.08
14/01/2016	0.51	0.05	0.11	0.06	0.08	0.04	0.14	0.02	0.16	0.04	0.07	0.09	0.17	0.03	0.06	0.01	0.09
15/01/2016	0.49	0.03	0.30	0.08	0.30	0.03	0.05	0.07	0.30	0.03	0.09	0.06	0.11	0.02	0.09	0.03	0.07
16/01/2016	0.49	0.06	0.08	0.05	0.15	0.04	0.18	0.05	0.17	0.03	0.06	0.10	0.18	0.02	0.03	0.02	0.09
17/01/2016	0.48	0.05	0.12	0.08	0.11	0.04	0.15	0.05	0.08	OL	OL	0.08	0.17	0.03	0.12	0.02	0.04
18/01/2016	0.47	0.04	0.13	0.07	0.15	0.05	0.07	0.07	0.15	OL	OL	0.09	0.11	0.02	0.10	0.03	0.09
19/01/2016	0.47	0.07	0.08	0.06	0.10	0.06	0.15	0.07	0.15	OL	OL	0.11	0.17	0.03	0.04	0.02	0.08
20/01/2016	0.47	0.05	0.15	0.10	0.16	0.05	0.14	0.07	0.12	0.04	0.14	0.08	0.19	0.04	0.10	0.03	0.06
21/01/2016	0.48	0.07	0.14	0.07	0.21	0.09	0.19	0.07	0.17	0.03	0.07	0.08	0.13	0.02	0.11	0.02	0.08
22/01/2016	0.48	0.08	0.16	0.09	0.12	0.06	0.19	0.06	0.18	0.06	0.11	0.04	0.13	0.05	0.06	0.01	0.02
23/01/2016	0.48	0.06	0.17	0.09	0.17	0.07	0.09	0.08	0.11	0.04	0.11	0.04	0.07	0.03	0.13	0.02	0.08
24/01/2016	0.47	0.10	0.12	0.09	0.17	0.09	0.19	0.07	0.17	0.04	0.06	OL	OL	0.04	0.14	0.02	0.10
25/01/2016	0.50	0.09	0.19	0.10	0.13	0.09	0.21	0.08	0.19	0.06	0.12	OL	OL	0.05	0.07	0.02	0.09
26/01/2016	0.51	0.08	0.15	0.10	0.20	0.07	0.19	0.06	0.11	0.04	0.11	OL	OL	0.05	0.13	0.02	0.03
27/01/2016	0.52	0.05	0.08	0.05	0.12	0.06	0.11	0.05	0.17	0.03	0.07	OL	OL	0.03	0.07	0.01	0.08
28/01/2016	0.51	0.04	0.10	0.04	0.06	0.03	0.15	0.03	0.10	0.03	0.06	0.01	0.11	0.02	0.04	0.00	0.02
29/01/2016	0.51	0.02	0.07	0.03	0.09	0.01	0.04	0.02	0.05	0.02	0.05	0.01	0.22	0.01	0.05	0.01	0.01
30/01/2016	0.50	0.03	0.04	0.02	0.08	0.03	0.10	0.03	0.09	0.02	0.04	0.01	0.05	0.00	0.02	0.00	0.02
31/01/2016	0.51	0.02	0.06	0.03	0.05	0.02	0.09	0.02	0.08	0.02	0.04	0.01	0.02	OL	OL	0.01	0.02

Total Number of Measurements Taken, A:	15002	10587	15461	10341	14022	13204	13287	13372
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:	15002	10587	15461	10341	14022	13204	13287	13372
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

OL = Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\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 AA																		
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Feb-2016	0.50	0.51	0.11	<0.02	0.10	0.04	0.11	0.02	0.10	<0.02	0.08	<0.02	0.10	<0.02	OL	OL	0.08	<0.02
02-Feb-2016	0.53	0.48	0.11	0.02	0.09	0.04	0.13	0.03	0.12	0.02	0.07	<0.02	0.08	<0.02	OL	OL	0.15	<0.02
03-Feb-2016	0.47	0.46	0.17	0.06	0.14	0.06	0.18	0.05	0.14	0.03	0.12	0.03	0.11	0.02	OL	OL	0.10	<0.02
04-Feb-2016	0.53	0.47	0.08	<0.02	0.09	0.04	0.10	<0.02	0.08	<0.02	0.11	0.03	0.09	<0.02	OL	OL	0.07	<0.02
05-Feb-2016	0.54	0.47	0.07	<0.02	0.08	0.02	0.11	<0.02	0.11	<0.02	0.08	<0.02	0.09	<0.02	0.14	0.04	0.10	<0.02
06-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.12	0.09	NS	NS
07-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Feb-2016	0.45	0.43	0.09	<0.02	0.09	0.02	0.12	<0.02	0.13	0.02	0.11	0.02	0.12	<0.02	0.13	0.03	0.18	0.09
09-Feb-2016	0.52	0.44	0.12	0.02	0.08	0.03	0.09	<0.02	0.09	<0.02	0.12	0.04	0.10	0.02	0.08	<0.02	0.08	<0.02
10-Feb-2016	0.50	0.44	0.09	<0.02	OL	OL	0.12	<0.02	0.12	<0.02	0.11	0.02	0.12	<0.02	0.13	0.02	OL	OL
11-Feb-2016	0.50	0.45	0.16	0.05	0.12	0.04	0.20	0.05	OL	OL	0.15	0.04	0.18	0.06	0.14	0.03	0.13	0.02
12-Feb-2016	0.53	0.46	0.11	0.02	0.13	0.05	0.13	0.02	0.13	0.02	0.17	0.07	0.17	0.05	0.13	0.04	0.13	0.03
13-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
15-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
16-Feb-2016	0.50	0.45	0.15	0.04	0.15	0.05	0.22	0.06	0.21	0.07	0.16	0.04	0.14	0.02	OL	OL	OL	OL
17-Feb-2016	0.50	0.43	0.16	0.08	0.16	0.07	0.23	0.09	0.14	0.03	0.18	0.07	0.15	0.03	0.14	0.03	0.13	0.02
18-Feb-2016	0.48	0.42	0.13	0.04	0.12	0.05	0.20	0.06	0.17	0.05	0.13	0.04	0.13	0.02	0.14	0.03	0.19	0.05
19-Feb-2016	0.50	0.43	0.11	<0.02	0.10	0.03	0.16	0.04	0.11	<0.02	0.11	0.02	0.09	<0.02	0.09	<0.02	0.08	<0.02
20-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-Feb-2016	0.48	0.44	0.14	0.04	0.11	0.04	0.11	<0.02	0.09	<0.02	0.09	0.02	0.07	<0.02	0.08	<0.02	0.07	<0.02
23-Feb-2016	0.54	0.44	0.08	<0.02	OL	OL	0.11	0.02	0.16	<0.02	0.12	<0.02	0.11	<0.02	0.07	<0.02	0.09	<0.02
24-Feb-2016	0.49	0.46	0.09	<0.02	0.09	0.03	0.17	0.05	OL	OL	0.08	<0.02	0.07	<0.02	0.10	<0.02	0.06	<0.02
25-Feb-2016	0.49	0.45	0.08	<0.02	0.10	0.03	0.11	<0.02	0.12	<0.02	0.09	0.02	0.10	<0.02	0.09	<0.02	0.09	<0.02
26-Feb-2016	0.50	0.46	0.08	<0.02	0.07	0.02	0.11	<0.02	0.11	0.02	0.07	<0.02	0.09	<0.02	0.10	<0.02	0.08	<0.02
27-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Feb-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Feb-2016	0.54	0.45	0.09	<0.02	0.08	0.03	0.13	0.02	0.14	0.02	0.08	<0.02	0.08	<0.02	0.11	0.02	0.07	<0.02
Total number of measurements taken, A:			20		18		20		18		20		20		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:			20		18		20		18		20		20		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:

Waiting for confirmation of results for February 5 filter 8 analyser, February 6 filter 7 analyser, and February 8 filter 8 analyser.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 4-Mar-16



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

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

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

February 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/02/2016	0.49	0.02	0.07	0.03	0.07	0.01	0.03	0.02	0.04	0.02	0.04	0.01	0.05	OL	OL	0.01	0.01
2/02/2016	0.50	0.03	0.05	0.03	0.08	0.03	0.11	0.03	0.09	0.02	0.03	0.01	0.06	OL	OL	0.01	0.02
3/02/2016	0.49	0.03	0.09	0.04	0.06	0.02	0.15	0.03	0.08	0.02	0.05	0.02	0.03	OL	OL	0.01	0.01
4/02/2016	0.48	0.01	0.03	0.02	0.07	0.00	0.02	0.02	0.04	0.02	0.04	0.01	0.04	OL	OL	0.01	0.01
5/02/2016	0.47	0.01	0.02	0.02	0.05	0.01	0.06	0.02	0.06	0.01	0.03	0.01	0.06	0.02	0.06	0.00	0.02
6/02/2016	0.47	0.01	0.04	0.02	0.03	0.01	0.06	0.01	0.06	0.02	0.05	0.02	0.03	0.01	0.05	0.00	0.01
7/02/2016	0.48	0.01	0.04	0.02	0.05	0.00	0.01	0.02	0.05	0.01	0.05	0.01	0.06	0.02	0.04	0.01	0.02
8/02/2016	0.46	0.01	0.03	0.01	0.05	0.01	0.06	0.02	0.06	0.02	0.04	0.01	0.03	0.01	0.05	0.00	0.03
9/02/2016	0.47	0.01	0.04	0.03	0.04	0.00	0.05	0.01	0.07	0.02	0.05	0.02	0.06	0.01	0.03	0.01	0.01
10/02/2016	0.47	0.01	0.03	0.02	0.06	0.00	0.03	0.02	0.05	0.01	0.05	0.01	0.04	0.02	0.05	0.01	0.21
11/02/2016	0.45	0.03	0.07	0.04	0.05	0.02	0.10	0.03	0.11	0.04	0.09	0.05	0.11	0.03	0.09	0.01	0.02
12/02/2016	0.47	0.02	0.08	0.03	0.10	0.02	0.04	0.04	0.06	0.03	0.09	0.04	0.11	0.04	0.06	0.02	0.07
13/02/2016	0.48	0.03	0.05	0.03	0.11	0.04	0.10	0.04	0.11	0.03	0.06	0.03	0.11	0.03	0.11	0.01	0.07
14/02/2016	0.46	0.04	0.09	0.05	0.08	0.04	0.14	0.04	0.13	0.04	0.09	0.03	0.05	0.03	0.10	0.00	0.01
15/02/2016	0.47	0.03	0.10	0.04	0.11	0.05	0.15	0.04	0.06	0.04	0.18	0.04	0.11	0.04	0.06	0.01	0.06
16/02/2016	0.46	0.04	0.12	0.04	0.12	0.05	0.16	0.04	0.16	0.04	0.12	0.02	0.04	0.03	0.16	0.01	0.06
17/02/2016	0.44	0.03	0.10	0.05	0.12	0.04	0.14	0.04	0.06	0.03	0.10	0.04	0.10	0.04	0.05	0.01	0.03
18/02/2016	0.44	0.04	0.07	0.03	0.07	0.05	0.13	0.04	0.13	0.03	0.05	0.02	0.10	0.02	0.10	0.01	0.06
19/02/2016	0.45	0.02	0.05	0.03	0.10	0.02	0.08	0.01	0.07	0.02	0.05	0.01	0.03	0.01	0.02	0.01	0.01
20/02/2016	0.46	0.01	0.04	0.02	0.06	0.01	0.03	0.02	0.04	0.01	0.05	0.01	0.06	0.01	0.05	0.01	0.01
21/02/2016	0.46	0.03	0.06	0.03	0.04	0.02	0.09	0.02	0.09	0.02	0.04	0.00	0.01	0.01	0.04	0.00	0.02
22/02/2016	0.46	0.02	0.06	0.03	0.07	0.01	0.09	0.02	0.03	0.01	0.05	0.01	0.04	0.01	0.04	0.01	0.01
23/02/2016	0.46	0.02	0.03	0.02	0.06	0.02	0.03	0.02	0.08	0.01	0.04	0.01	0.05	0.01	0.02	0.00	0.01
24/02/2016	0.46	0.02	0.06	0.03	0.04	0.01	0.09	0.01	0.06	0.02	0.05	0.01	0.01	0.01	0.04	0.00	0.01
25/02/2016	0.46	0.01	0.04	0.02	0.06	0.00	0.06	0.02	0.03	0.01	0.04	0.01	0.04	0.01	0.01	0.01	0.01
26/02/2016	0.46	0.01	0.03	0.01	0.05	0.01	0.05	0.01	0.06	0.01	0.02	0.01	0.04	0.01	0.03	0.00	0.01
27/02/2016	0.46	0.02	0.05	0.03	0.05	0.01	0.07	0.01	0.07	0.02	0.04	0.01	0.02	0.01	0.03	0.00	0.01
28/02/2016	0.46	0.01	0.05	0.02	0.06	0.01	0.02	0.03	0.04	0.01	0.04	0.01	0.04	0.01	0.02	0.01	0.01
29/02/2016	0.46	0.03	0.05	0.02	0.06	0.03	0.08	0.03	0.08	0.02	0.04	0.01	0.07	0.02	0.04	0.01	0.04

Total Number of Measurements Taken, A:	13208	9847	13286	11245	13954	13570	10489	13437
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:	13208	9847	13286	11245	13954	13570	10489	13437
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

OL: Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\02-February

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



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
01-Mar-2016	0.54	0.46	0.20	0.08	0.16	0.08	0.16	0.04	0.15	0.04	0.19	0.08	0.13	0.03	0.10	0.02	0.11	0.02
02-Mar-2016	0.48	0.45	0.12	0.03	OL	OL	0.17	0.05	0.14	0.04	0.07	0.02	0.12	0.04	0.09	0.02	0.12	0.04
03-Mar-2016	0.49	0.45	0.14	0.05	0.23	0.09	0.17	0.17	OL	OL	0.10	0.03	0.11	0.02	0.14	0.05	0.09	0.02
04-Mar-2016	0.50	0.45	OL	OL	0.14	0.07	0.11	0.02	0.11	0.02	0.10	0.03	0.10	0.02	0.07	<0.02	0.07	<0.02
05-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Mar-2016	0.44	0.45	0.10	<0.02	0.14	0.06	0.15	0.03	0.14	0.02	OL	OL	0.16	0.04	0.10	<0.02	0.11	0.02
08-Mar-2016	0.53	0.47	0.10	0.02	0.09	0.03	0.15	0.05	0.14	0.03	0.08	0.02	0.07	<0.02	0.12	0.04	OL	OL
09-Mar-2016	0.56	0.47	0.14	0.05	0.11	0.05	OL	OL	0.11	<0.02	0.14	0.07	0.10	0.02	0.08	<0.02	0.08	<0.02
10-Mar-2016	0.52	0.47	0.10	0.02	OL	OL	0.14	0.04	0.14	0.03	0.08	0.03	0.13	0.04	0.11	0.02	0.13	0.04
11-Mar-2016	0.53	0.47	0.17	0.06	0.14	0.07	0.26	0.12	0.27	0.12	0.12	0.06	0.13	0.03	0.17	0.06	0.11	0.02
12-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Mar-2016	0.53	0.50	0.16	0.06	0.13	0.06	0.25	0.09	0.14	0.03	0.11	0.06	0.12	0.03	0.11	0.02	OL	OL
15-Mar-2016	0.49	0.49	0.09	<0.02	OL	OL	0.11	0.02	0.10	<0.02	OL	OL	0.11	<0.02	0.08	<0.02	0.10	<0.02
16-Mar-2016	0.54	0.50	0.14	0.04	0.13	0.05	0.24	0.11	OL	OL	0.11	0.06	0.11	0.03	0.17	0.08	0.10	0.02
17-Mar-2016	0.65	0.51	OL	OL	0.23	0.13	0.18	0.05	0.14	0.04	0.19	0.07	0.16	0.04	0.10	0.04	0.11	0.03
18-Mar-2016	0.58	0.53	0.10	0.03	0.09	0.05	0.14	0.03	0.16	0.06	0.09	0.02	OL	OL	0.10	0.07	0.10	0.03
19-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Mar-2016	0.50	0.49	0.17	0.06	0.13	0.07	0.22	0.08	0.18	0.07	0.12	0.05	0.13	0.04	0.18	0.09	0.20	0.09
22-Mar-2016	0.54	0.51	0.18	0.07	0.16	0.09	0.29	0.18	0.16	0.06	0.18	0.08	0.14	0.04	0.17	0.05	0.11	0.03
23-Mar-2016	0.51	0.59	0.12	0.02	0.18	0.11	0.17	0.10	0.15	0.06	OL	OL	0.16	0.09	0.10	0.03	0.11	0.03
24-Mar-2016	0.54	0.59	0.15	0.04	0.13	0.06	0.22	0.13	0.17	0.07	0.09	<0.02	0.09	0.04	0.15	0.06	0.20	0.10
25-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Mar-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Mar-2016	0.52	0.59	0.12	0.03	0.17	0.10	0.17	0.08	0.17	0.07	0.12	<0.02	0.11	0.06	0.12	0.04	0.13	0.05
30-Mar-2016	0.53	0.58	0.12	0.03	0.11	0.05	0.19	0.11	0.17	0.07	0.10	0.02	0.11	0.04	0.12	0.05	0.08	0.02
31-Mar-2016	0.53	0.58	OL	OL	0.14	0.08	0.09	0.03	0.08	<0.02	OL	OL	0.08	0.04	0.07	<0.02	0.07	<0.02
Total number of measurements taken, A:			18		18		20		19		17		20		21		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:			18		18		20		19		17		20		21		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:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 4-Apr-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/03/2016	0.47	0.04	0.11	0.06	0.12	0.04	0.17	0.04	0.07	0.03	0.10	0.03	0.06	0.02	0.08	0.01	0.02
2/03/2016	0.47	0.03	0.06	0.04	0.13	0.04	0.07	0.05	0.13	0.02	0.09	0.02	0.08	0.03	0.04	0.01	0.05
3/03/2016	0.46	0.05	0.11	0.05	0.07	0.04	0.15	0.03	0.13	0.04	0.07	0.02	0.04	0.02	0.10	0.01	0.06
4/03/2016	0.46	0.02	0.08	0.03	0.11	0.02	0.12	0.03	0.06	0.02	0.07	0.02	0.10	0.01	0.03	0.01	0.02
5/03/2016	0.46	0.03	0.05	0.02	0.09	0.03	0.07	0.03	0.10	0.01	0.03	0.01	0.07	0.02	0.07	0.00	0.03
6/03/2016	0.47	0.03	0.09	0.04	0.08	0.03	0.13	0.02	0.10	0.03	0.07	0.02	0.03	0.02	0.08	0.01	0.01
7/03/2016	0.47	0.02	0.09	0.03	0.09	0.02	0.05	0.04	0.06	0.02	0.07	0.02	0.08	0.02	0.03	0.01	0.04
8/03/2016	0.48	0.03	0.06	0.03	0.05	0.04	0.13	0.03	0.11	0.03	0.05	0.01	0.08	0.02	0.07	0.01	0.04
9/03/2016	0.49	0.02	0.08	0.04	0.09	0.03	0.13	0.02	0.05	0.03	0.08	0.02	0.05	0.01	0.07	0.01	0.01
10/03/2016	0.49	0.02	0.04	0.03	0.10	0.04	0.09	0.04	0.11	0.03	0.10	0.02	0.09	0.03	0.06	0.01	0.05
11/03/2016	0.48	0.07	0.10	0.05	0.08	0.07	0.23	0.04	0.17	0.07	0.08	0.02	0.13	0.04	0.11	0.01	0.08
12/03/2016	0.48	0.04	0.12	0.06	0.13	0.05	0.19	0.05	0.08	0.05	0.12	0.05	0.12	0.02	0.11	0.01	0.03
13/03/2016	0.50	0.04	0.06	0.04	0.13	0.06	0.11	0.06	0.17	0.04	0.12	0.03	0.13	0.05	0.08	0.02	0.08
14/03/2016	0.51	0.05	0.13	0.05	0.08	0.06	0.20	0.04	0.15	0.07	0.16	0.03	0.05	0.04	0.11	0.01	0.13
15/03/2016	0.45	0.01	0.09	0.01	0.12	0.01	0.06	0.02	0.08	0.02	0.08	0.01	0.13	0.01	0.05	0.01	0.04
16/03/2016	0.52	0.06	0.10	0.06	0.07	0.05	0.15	0.03	0.13	0.05	0.08	0.03	0.05	0.04	0.11	0.01	0.08
17/03/2016	0.52	0.05	0.13	0.05	0.13	0.04	0.26	0.06	0.08	0.03	0.09	0.04	0.11	0.04	0.06	0.02	0.05
18/03/2016	0.52	0.04	0.08	0.04	0.09	0.04	0.11	0.03	0.15	0.02	0.05	0.02	0.08	0.04	0.12	0.01	0.07
19/03/2016	0.51	0.04	0.08	0.05	0.06	0.03	0.09	0.02	0.11	0.03	0.08	0.01	0.03	0.03	0.08	0.00	0.01
20/03/2016	0.52	0.05	0.15	0.05	0.13	0.04	0.06	0.07	0.09	0.03	0.11	0.04	0.10	0.05	0.07	0.02	0.06
21/03/2016	0.51	0.08	0.12	0.05	0.16	0.08	0.19	0.06	0.17	0.04	0.07	0.04	0.15	0.07	0.15	0.02	0.11
22/03/2016	0.56	0.06	0.17	0.09	0.13	0.08	0.21	0.06	0.20	0.05	0.11	0.05	0.07	0.05	0.16	0.01	0.03
23/03/2016	0.60	0.04	0.14	0.06	0.16	0.07	0.13	0.08	0.10	0.03	0.10	0.06	0.19	0.03	0.07	0.02	0.12
24/03/2016	0.60	0.05	0.08	0.04	0.08	0.12	0.25	0.06	0.17	0.02	0.04	0.04	0.18	0.04	0.13	0.01	0.09
25/03/2016	0.61	0.01	0.11	0.04	0.17	0.04	0.12	0.03	0.10	0.01	0.08	0.04	0.08	0.02	0.07	0.01	0.01
26/03/2016	0.62	0.02	0.11	0.04	0.12	0.04	0.07	0.06	0.08	0.02	0.08	0.04	0.12	0.03	0.04	0.01	0.04
27/03/2016	0.62	0.04	0.07	0.04	0.07	0.08	0.19	0.05	0.15	0.02	0.04	0.04	0.15	0.04	0.11	0.01	0.07
28/03/2016	0.60	0.03	0.12	0.06	0.13	0.06	0.20	0.04	0.07	0.03	0.12	0.06	0.08	0.03	0.12	0.01	0.02
29/03/2016	0.60	0.02	0.05	0.05	0.15	0.07	0.10	0.08	0.16	0.02	0.10	0.04	0.15	0.04	0.06	0.01	0.08
30/03/2016	0.60	0.04	0.12	0.04	0.07	0.07	0.21	0.05	0.16	0.03	0.07	0.03	0.06	0.03	0.12	0.01	0.07
31/03/2016	0.60	0.00	0.03	0.01	0.12	0.02	0.07	0.02	0.07	0.00	0.03	0.02	0.15	0.01	0.05	0.00	0.03

Total Number of Measurements Taken, A:	13483	10063	13826	10898	14111	14113	12904	13596
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:	13483	10063	13826	10898	14111	14113	12904	13596
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\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)																	
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
01-Apr-2016	0.50	0.61	0.06	<0.02	0.05	<0.02	0.12	0.05	0.06	<0.02	0.06	<0.02	0.06	<0.02	OL	OL	<0.05	<0.02
02-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
03-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Apr-2016	0.54	0.60	0.13	0.03	0.11	0.05	0.17	0.09	0.11	0.03	0.12	0.02	0.13	0.04	0.15	0.08	0.12	<0.02
05-Apr-2016	0.55	0.60	OL	OL	0.16	0.09	0.11	0.05	0.11	0.03	0.15	0.06	0.12	0.06	0.09	0.03	0.09	0.02
06-Apr-2016	0.51	0.57	0.09	<0.02	0.08	0.03	0.14	0.07	0.16	0.07	0.09	<0.02	OL	OL	0.12	0.05	0.12	0.04
07-Apr-2016	0.50	0.58	0.17	0.04	0.14	0.05	0.18	0.10	0.11	0.02	0.10	<0.02	0.11	0.04	OL	OL	0.09	<0.02
08-Apr-2016	0.51	0.60	0.09	<0.02	0.12	0.06	0.12	0.05	0.12	0.03	0.11	0.03	0.13	0.06	0.10	0.04	0.09	0.02
09-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Apr-2016	0.50	0.58	0.10	<0.02	0.16	0.09	0.13	0.05	0.14	0.04	0.09	<0.02	0.12	0.05	0.12	0.05	0.11	0.03
12-Apr-2016	0.63	0.58	0.10	0.02	0.11	0.04	0.16	0.09	OL	OL	0.09	<0.02	0.09	0.03	OL	OL	0.08	<0.02
13-Apr-2016	0.48	0.58	OL	OL	0.14	0.07	0.13	0.05	0.12	0.03	0.13	0.03	0.12	0.04	0.09	0.05	0.09	0.02
14-Apr-2016	0.48	0.58	0.10	<0.02	0.09	0.04	0.14	0.07	0.10	0.06	0.15	<0.02	OL	OL	0.10	0.07	0.12	0.03
15-Apr-2016	0.53	0.60	0.14	0.04	0.10	0.04	0.17	0.10	0.11	0.02	0.11	0.02	0.11	0.03	OL	OL	0.08	<0.02
16-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
17-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
18-Apr-2016	0.51	0.62	0.09	<0.02	0.09	0.02	0.08	0.02	0.08	<0.02	0.10	<0.02	0.07	<0.02	0.09	0.06	0.09	<0.02
19-Apr-2016	0.44	0.63	0.07	<0.02	0.13	0.06	0.10	0.04	0.10	<0.02	0.08	<0.02	0.09	0.03	0.07	0.04	0.08	0.02
20-Apr-2016	0.57	0.62	0.08	<0.02	0.08	0.02	0.16	0.09	0.13	0.04	0.08	<0.02	0.08	<0.02	0.09	0.06	OL	OL
21-Apr-2016	0.55	0.69	OL	OL	0.08	0.02	0.06	0.02	0.06	<0.02	0.09	<0.02	0.08	0.02	0.09	0.06	0.06	<0.02
22-Apr-2016	0.60	0.70	0.05	<0.02	OL	OL	0.08	0.02	0.08	<0.02	0.07	<0.02	0.08	0.03	0.06	0.04	0.07	<0.02
23-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
24-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Apr-2016	0.50	0.69	0.08	<0.02	0.06	<0.02	0.11	0.04	0.10	<0.02	0.07	<0.02	OL	OL	0.09	0.06	0.10	<0.02
26-Apr-2016	0.56	0.70	0.11	<0.02	0.06	<0.02	OL	OL	0.07	<0.02	0.07	<0.02	0.07	0.02	0.08	0.07	0.09	<0.02
27-Apr-2016	0.64	0.72	0.06	<0.02	0.07	0.02	0.08	0.03	0.07	<0.02	0.11	0.04	0.13	0.05	0.09	0.06	0.09	<0.02
28-Apr-2016	0.56	0.74	0.09	<0.02	0.06	0.02	0.13	0.05	OL	OL	0.09	<0.02	0.09	0.03	0.09	<0.02	OL	OL
29-Apr-2016	0.63	0.74	0.08	<0.02	0.07	0.02	0.07	0.02	0.07	<0.02	0.10	0.02	0.09	0.04	0.13	0.03	0.08	<0.02
30-Apr-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:			18		20		20		19		21		18		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		20		20		19		21		18		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

Approved in LIMS By: C.Diduck

Date Approved: 6-May-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/04/2016	0.63	0.01	0.06	0.02	0.10	0.04	0.11	0.02	0.09	0.01	0.06	0.03	0.04	0.02	0.05	0.00	0.04
2/04/2016	0.63	0.02	0.09	0.04	0.11	0.04	0.16	0.05	0.07	0.02	0.08	0.05	0.12	0.03	0.05	0.01	0.04
3/04/2016	0.62	0.02	0.04	0.03	0.11	0.07	0.12	0.04	0.14	0.01	0.03	0.04	0.15	0.04	0.12	0.01	0.07
4/04/2016	0.61	0.02	0.08	0.04	0.06	0.05	0.15	0.04	0.15	0.03	0.08	0.04	0.07	0.03	0.12	0.00	0.07
5/04/2016	0.60	0.02	0.08	0.03	0.11	0.04	0.15	0.05	0.13	0.02	0.08	0.06	0.14	0.03	0.05	0.01	0.05
6/04/2016	0.60	0.02	0.04	0.02	0.10	0.07	0.11	0.04	0.14	0.01	0.03	0.04	0.13	0.05	0.12	0.01	0.06
7/04/2016	0.60	0.02	0.08	0.04	0.07	0.05	0.15	0.03	0.12	0.02	0.07	0.04	0.06	0.04	0.13	0.00	0.01
8/04/2016	0.60	0.02	0.08	0.03	0.10	0.03	0.15	0.05	0.06	0.01	0.06	0.04	0.12	0.04	0.07	0.01	0.07
9/04/2016	0.59	0.02	0.04	0.02	0.11	0.07	0.13	0.04	0.13	0.01	0.02	0.03	0.12	0.05	0.13	0.01	0.06
10/04/2016	0.58	0.02	0.09	0.05	0.10	0.05	0.16	0.03	0.05	0.02	0.08	0.04	0.06	0.04	0.13	0.01	0.01
11/04/2016	0.58	0.01	0.03	0.03	0.11	0.05	0.09	0.05	0.13	0.01	0.06	0.03	0.11	0.06	0.08	0.01	0.06
12/04/2016	0.60	0.03	0.08	0.03	0.05	0.06	0.15	0.03	0.12	0.01	0.04	0.03	0.05	0.04	0.13	0.01	0.06
13/04/2016	0.60	0.02	0.08	0.04	0.11	0.04	0.16	0.04	0.05	0.02	0.07	0.05	0.12	0.04	0.06	0.01	0.03
14/04/2016	0.60	0.02	0.04	0.03	0.11	0.07	0.10	0.04	0.13	0.01	0.02	0.03	0.15	0.06	0.28	0.01	0.06
15/04/2016	0.61	0.02	0.08	0.04	0.06	0.05	0.15	0.03	0.12	0.02	0.08	0.03	0.05	0.04	0.13	0.00	0.01
16/04/2016	0.61	0.01	0.07	0.03	0.10	0.04	0.07	0.04	0.06	0.01	0.05	0.04	0.12	0.05	0.07	0.01	0.07
17/04/2016	0.63	0.02	0.04	0.01	0.04	0.04	0.14	0.01	0.10	0.01	0.02	0.02	0.07	0.03	0.11	0.00	0.03
18/04/2016	0.62	0.01	0.04	0.02	0.05	0.02	0.10	0.01	0.08	0.00	0.02	0.02	0.04	0.05	0.21	0.01	0.01
19/04/2016	0.62	0.01	0.03	0.02	0.07	0.03	0.06	0.02	0.06	0.01	0.04	0.02	0.09	0.03	0.06	0.01	0.04
20/04/2016	0.65	0.01	0.03	0.01	0.02	0.03	0.13	0.02	0.07	0.00	0.01	0.02	0.09	0.05	0.11	0.00	0.02
21/04/2016	0.69	0.01	0.04	0.01	0.06	0.02	0.10	0.01	0.03	0.00	0.03	0.03	0.05	0.04	0.10	0.01	0.01
22/04/2016	0.69	0.01	0.01	0.01	0.03	0.02	0.04	0.02	0.05	0.00	0.03	0.02	0.07	0.03	0.05	0.00	0.01
23/04/2016	0.68	0.01	0.02	0.00	0.01	0.02	0.09	0.01	0.05	0.01	0.02	0.01	0.03	0.06	0.09	0.00	0.01
24/04/2016	0.70	0.01	0.02	0.01	0.04	0.01	0.03	0.01	0.02	0.00	0.04	0.03	0.08	0.04	0.10	0.01	0.01
25/04/2016	0.71	0.01	0.01	0.01	0.05	0.04	0.10	0.01	0.06	0.00	0.01	0.02	0.09	0.06	0.07	0.00	0.02
26/04/2016	0.73	0.01	0.03	0.01	0.02	0.03	0.11	0.01	0.07	0.01	0.04	0.03	0.05	0.05	0.12	0.00	0.01
27/04/2016	0.73	0.01	0.03	0.01	0.06	0.03	0.07	0.02	0.04	0.01	0.06	0.04	0.10	0.04	0.07	0.01	0.03
28/04/2016	0.74	0.01	0.04	0.01	0.06	0.03	0.11	0.02	0.07	0.01	0.02	0.03	0.11	0.01	0.02	0.01	0.06
29/04/2016	0.74	0.01	0.07	0.02	0.03	0.02	0.11	0.01	0.07	0.02	0.06	0.04	0.06	0.01	0.07	0.00	0.01
30/04/2016	0.73	0.01	0.01	0.01	0.06	0.03	0.04	0.02	0.04	0.01	0.05	0.04	0.11	0.01	0.07	0.01	0.07

Total Number of Measurements Taken, A:	13297	10315	13508	10234	14271	14080	12516	13916
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:	13297	10315	13508	10234	14271	14080	12516	13916
Compliance with Turbidity Standard, C = B/A X 100%:	100%	100%	100%	100%	100%	100%	100%	100%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\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)																	
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
01-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-May-2016	0.81	0.88	0.09	<0.02	0.07	<0.02	OL	OL	0.06	<0.02	0.09	<0.02	0.09	0.03	0.11	<0.02	0.08	<0.02
03-May-2016	0.66	0.81	0.06	<0.02	0.07	0.02	OL	OL	0.10	<0.02	0.08	<0.02	0.09	0.03	0.07	<0.02	0.07	<0.02
04-May-2016	0.73	0.90	0.06	<0.02	0.08	0.02	OL	OL	0.11	<0.02	0.08	<0.02	0.15	0.05	0.09	<0.02	0.07	<0.02
05-May-2016	0.83	0.92	0.08	<0.02	0.07	<0.02	OL	OL	0.11	<0.02	0.09	<0.02	0.12	0.03	0.07	<0.02	0.08	<0.02
06-May-2016	0.84	0.91	0.10	<0.02	0.07	<0.02	OL	OL	0.09	<0.02	0.09	<0.02	0.08	0.03	0.09	<0.02	0.07	<0.02
07-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
09-May-2016	0.75	0.97	0.13	<0.02	0.11	<0.02	0.10	<0.02	OL	OL	0.10	<0.02	0.09	0.05	0.09	<0.02	0.10	0.02
10-May-2016	0.78	0.91	0.16	0.02	0.10	0.02	0.11	0.05	OL	OL	0.17	<0.02	0.10	0.06	0.18	<0.02	0.12	0.02
11-May-2016	0.74	0.93	0.10	0.02	0.07	<0.02	0.14	0.05	OL	OL	0.08	<0.02	0.10	0.03	0.08	<0.02	0.11	0.02
12-May-2016	0.70	0.96	0.10	0.02	0.08	<0.02	0.09	0.05	OL	OL	0.07	<0.02	0.07	0.04	0.08	<0.02	0.08	<0.02
13-May-2016	0.95	1.02	0.14	0.11	0.10	0.04	0.10	0.03	0.10	0.02	0.11	0.05	0.15	0.06	0.08	0.08	0.07	<0.02
14-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	0.08	<0.02	NS	NS	NS	NS	NS	NS	NS	NS
15-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
16-May-2016	0.96	1.10	0.18	0.08	0.07	<0.02	0.07	<0.02	0.07	<0.02	0.12	0.04	0.11	0.05	0.20	0.06	0.08	<0.02
17-May-2016	1.08	1.06	0.14	0.07	0.09	0.02	0.08	<0.02	0.06	<0.02	0.07	0.04	0.16	0.05	0.11	0.08	0.05	<0.02
18-May-2016	1.28	1.33	0.06	0.09	0.09	0.04	0.09	0.03	0.09	<0.02	0.11	0.04	0.10	0.07	0.08	0.06	0.09	<0.02
19-May-2016	1.16	1.16	0.13	0.09	0.08	0.02	0.05	<0.02	0.10	<0.02	0.07	0.04	0.11	0.05	0.08	0.06	0.06	<0.02
20-May-2016	1.02	1.06	0.08	0.08	0.07	0.02	0.06	<0.02	0.10	<0.02	0.08	0.06	0.11	0.07	0.10	0.08	0.06	<0.02
21-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
23-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
24-May-2016	1.27	1.21	0.11	0.03	0.08	0.06	0.07	0.03	0.10	0.06	0.09	0.06	0.08	0.04	0.09	0.03	0.08	0.03
25-May-2016	1.23	1.25	0.11	<0.02	0.09	0.07	0.12	0.05	0.10	0.03	0.11	0.05	0.14	0.06	0.13	0.02	0.14	0.07
26-May-2016	1.09	1.09	0.09	<0.02	0.08	0.06	0.07	0.04	0.10	0.04	0.11	0.05	0.09	0.05	0.09	0.02	0.13	0.10
27-May-2016	1.01	1.11	0.10	<0.02	0.08	0.07	0.10	0.04	0.11	0.05	0.11	0.06	0.10	0.05	0.12	0.05	0.09	0.06
28-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-May-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
30-May-2016	0.70	0.68	0.11	0.03	0.13	0.10	0.13	0.09	0.14	0.07	0.11	0.08	0.10	0.06	0.08	0.02	0.10	0.06
31-May-2016	0.68	0.69	0.13	0.03	0.14	0.11	0.17	0.11	0.11	0.04	0.09	0.06	0.12	0.07	0.09	0.03	0.09	0.07
Total number of measurements taken, A:			21		21		16		18		21		21		21		21	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			21		21		16		18		21		21		21		21	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

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

Comments:

Filter 3 was offline for maintenance from May 2nd until May 6th. Filter 4 was offline for maintenance from May 9th until May 12th.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 6-Jun-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/05/2016	0.84	0.01	0.04	0.01	0.05	0.02	0.10	0.01	0.06	0.01	0.02	0.03	0.10	0.01	0.02	0.01	0.05
2/05/2016	0.86	0.01	0.05	0.01	0.03	OL	OL	0.02	0.05	0.01	0.05	0.03	0.08	0.01	0.05	0.01	0.03
3/05/2016	0.87	0.01	0.04	0.01	0.03	OL	OL	0.01	0.04	0.01	0.04	0.04	0.06	0.01	0.05	0.01	0.01
4/05/2016	0.89	0.01	0.01	0.01	0.04	OL	OL	0.02	0.02	0.01	0.03	0.04	0.07	0.01	0.03	0.01	0.03
5/05/2016	0.95	0.01	0.06	0.01	0.05	OL	OL	0.02	0.05	0.01	0.05	0.04	0.09	0.01	0.01	0.01	0.02
6/05/2016	0.90	0.01	0.05	0.01	0.05	OL	OL	0.02	0.07	0.01	0.03	0.04	0.11	0.01	0.03	0.01	0.04
7/05/2016	0.95	0.01	0.04	0.01	0.03	0.00	0.04	0.01	0.08	0.01	0.05	0.04	0.06	0.01	0.05	0.01	0.08
8/05/2016	0.93	0.01	0.09	0.02	0.06	0.00	0.04	0.02	0.03	0.01	0.05	0.04	0.17	0.01	0.03	0.01	0.02
9/05/2016	0.96	0.02	0.05	0.02	0.07	0.01	0.05	OL	OL	0.01	0.05	0.04	0.08	0.01	0.03	0.01	0.03
10/05/2016	0.94	0.02	0.08	0.02	0.06	0.04	0.12	OL	OL	0.02	0.05	0.05	0.08	0.01	0.03	0.01	0.03
11/05/2016	0.94	0.02	0.09	0.01	0.05	0.05	0.11	OL	OL	0.02	0.05	0.05	0.09	0.01	0.02	0.01	0.02
12/05/2016	1.00	0.07	0.12	0.03	0.08	0.04	0.10	OL	OL	0.04	0.08	0.06	0.11	0.04	0.08	0.01	0.03
13/05/2016	1.06	0.10	0.17	0.04	0.11	0.03	0.05	0.01	0.12	0.06	0.12	0.07	0.13	0.08	0.13	0.01	0.03
14/05/2016	1.29	0.08	0.21	0.03	0.08	0.01	0.09	0.01	0.04	0.04	0.09	0.07	0.11	0.06	0.11	0.01	0.01
15/05/2016	1.15	0.08	0.10	0.02	0.04	0.00	0.03	0.01	0.02	0.04	0.07	0.05	0.09	0.05	0.11	0.01	0.02
16/05/2016	1.08	0.07	0.14	0.02	0.04	0.00	0.03	0.02	0.02	0.04	0.05	0.05	0.11	0.07	0.08	0.01	0.02
17/05/2016	1.14	0.07	0.11	0.02	0.03	0.00	0.01	0.01	0.02	0.04	0.15	0.05	0.07	0.06	0.10	0.01	0.01
18/05/2016	1.10	0.07	0.14	0.02	0.06	0.00	0.03	0.01	0.02	0.03	0.07	0.06	0.14	0.05	0.12	0.01	0.05
19/05/2016	1.13	0.07	0.11	0.01	0.04	0.00	0.02	0.01	0.02	0.04	0.06	0.06	0.10	0.06	0.08	0.01	0.01
20/05/2016	1.13	0.08	0.13	0.02	0.04	0.01	0.01	0.01	0.02	0.05	0.07	0.07	0.13	0.07	0.12	0.01	0.02
21/05/2016	1.13	0.08	0.13	0.02	0.06	0.01	0.05	0.01	0.02	0.05	0.10	0.09	0.11	0.06	0.12	0.01	0.01
22/05/2016	1.16	0.07	0.11	0.04	0.07	0.02	0.07	0.02	0.10	0.06	0.14	0.07	0.14	0.06	0.08	0.03	0.08
23/05/2016	1.22	0.01	0.06	0.05	0.10	0.02	0.08	0.07	0.13	0.05	0.08	0.05	0.11	0.03	0.05	0.06	0.12
24/05/2016	1.19	0.01	0.05	0.05	0.07	0.02	0.04	0.04	0.10	0.05	0.10	0.04	0.07	0.03	0.09	0.04	0.11
25/05/2016	1.15	0.01	0.03	0.05	0.10	0.04	0.08	0.04	0.09	0.05	0.09	0.07	0.11	0.03	0.08	0.06	0.08
26/05/2016	1.15	0.02	0.05	0.04	0.10	0.04	0.10	0.05	0.08	0.05	0.07	0.05	0.12	0.03	0.04	0.05	0.11
27/05/2016	1.05	0.02	0.07	0.07	0.08	0.04	0.05	0.05	0.10	0.06	0.11	0.05	0.07	0.04	0.08	0.05	0.12
28/05/2016	0.89	0.03	0.05	0.08	0.15	0.07	0.14	0.05	0.07	0.06	0.17	0.07	0.13	0.03	0.09	0.06	0.08
29/05/2016	0.83	0.05	0.11	0.07	0.10	0.06	0.16	0.07	0.13	0.07	0.11	0.06	0.13	0.04	0.06	0.05	0.12
30/05/2016	0.70	0.04	0.13	0.09	0.15	0.08	0.11	0.07	0.14	0.06	0.12	0.06	0.08	0.04	0.09	0.05	0.12
31/05/2016	0.76	0.03	0.08	0.08	0.15	0.07	0.16	0.07	0.26	0.05	0.09	0.07	0.14	0.03	0.08	0.06	0.08

Total Number of Measurements Taken, A:	15581	12692	11468	10317	16645	16458	15004	16069
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:	15581	12692	11468	10317	16645	16458	15004	16069
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

OL = Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\05-May

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																		
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-2016	0.69	0.78	0.11	0.03	0.09	0.07	0.10	0.05	0.08	0.03	0.07	0.02	0.11	0.05	0.09	<0.02	0.09	<0.02
02-Jun-2016	0.70	0.82	0.07	<0.02	0.10	0.07	0.08	0.04	0.18	0.05	0.10	0.02	0.09	0.03	0.11	0.02	0.07	0.04
03-Jun-2016	0.67	0.69	0.16	0.05	0.21	0.15	0.21	0.12	0.19	0.06	0.17	0.11	0.15	0.08	0.13	0.02	0.15	0.08
04-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
05-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Jun-2016	0.53	0.82	0.22	0.06	0.23	<0.02	0.23	0.09	0.23	0.06	0.16	0.07	0.14	0.09	0.21	0.09	0.12	0.02
07-Jun-2016	0.91	0.94	0.06	<0.02	0.08	<0.02	0.11	0.02	0.07	<0.02	OL	OL	0.08	0.04	0.06	<0.02	0.06	<0.02
08-Jun-2016	0.85	0.85	0.11	<0.02	0.12	<0.02	0.11	0.03	0.10	<0.02	0.09	0.03	OL	OL	0.10	<0.02	0.07	<0.02
09-Jun-2016	0.67	0.86	OL	OL	0.09	0.02	0.08	0.02	0.10	<0.02	0.09	0.04	0.09	0.05	0.08	<0.02	0.08	<0.02
10-Jun-2016	0.75	1.08	0.09	<0.02	0.12	0.03	0.12	0.03	0.09	<0.02	0.12	0.07	0.11	0.07	0.08	<0.02	0.07	<0.02
11-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Jun-2016	0.84	0.89	0.28	0.13	0.19	0.07	0.22	0.23	0.21	0.06	0.12	0.07	0.12	0.09	OL	OL	0.09	0.02
14-Jun-2016	0.71	0.72	0.24	0.08	0.19	0.06	0.18	0.05	0.26	0.09	0.16	<0.02	0.15	0.07	0.22	0.15	0.14	0.04
15-Jun-2016	0.73	0.70	0.14	0.03	0.25	0.11	0.18	0.07	OL	OL	0.18	0.11	0.20	0.09	0.13	0.02	0.13	0.05
16-Jun-2016	0.67	0.62	0.24	0.08	0.26	0.21	0.26	0.14	0.20	0.06	0.12	0.07	0.26	0.14	0.21	0.06	0.21	0.11
17-Jun-2016	0.79	0.70	0.24	0.12	0.20	0.16	0.27	0.15	0.21	0.07	0.13	0.05	0.13	0.04	0.18	0.06	0.21	0.08
18-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
19-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Jun-2016	1.02	0.85	0.17	0.17	OL	OL	0.23	0.10	0.25	0.03	0.13	<0.02	0.13	0.03	0.13	<0.02	0.13	<0.02
21-Jun-2016	0.71	0.81	0.18	0.06	0.15	0.09	0.19	0.10	0.17	0.03	0.12	<0.02	0.09	<0.02	0.10	<0.02	0.07	<0.02
22-Jun-2016	0.79	0.82	0.19	0.07	0.14	0.11	0.14	0.06	0.16	0.03	0.14	0.04	0.07	<0.02	0.08	<0.02	0.07	<0.02
23-Jun-2016	0.99	0.75	0.12	0.03	0.16	0.11	0.13	0.07	0.11	<0.02	0.16	0.05	0.08	0.02	0.07	<0.02	0.07	<0.02
24-Jun-2016	1.21	0.80	0.11	0.03	0.12	0.07	0.15	0.08	0.09	<0.02	0.06	<0.02	OL	OL	0.08	<0.02	0.08	<0.02
25-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Jun-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Jun-2016	1.12	1.13	0.11	0.02	0.17	0.10	0.14	0.07	0.10	<0.02	0.07	<0.02	0.10	0.03	0.08	<0.02	0.11	0.02
28-Jun-2016	1.18	1.02	0.16	0.05	0.13	0.08	0.14	0.07	0.13	<0.02	0.08	<0.02	0.09	0.02	0.09	<0.02	0.09	<0.02
29-Jun-2016	1.33	1.11	0.12	0.02	0.13	0.10	0.11	0.05	0.13	0.08	0.10	0.05	0.09	0.02	0.07	<0.02	0.07	<0.02
30-Jun-2016	1.22	1.20	0.14	<0.02	0.09	0.08	0.12	0.07	0.09	<0.02	0.07	0.03	0.09	0.04	0.07	0.02	0.08	<0.02
Total number of measurements taken, A:			21			21			22			21			20			22
Turbidity Standard for Monitoring Location (NTU):			0.30			0.30			0.30			0.30			0.30			0.30
Number of measurements meeting standard, B:			21			21			22			21			20			22
Compliance with Turbidity Standard, C= B/A X 100%:			100%			100%			100%			100%			100%			100%

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 2-Jul-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/06/2016	0.82	0.03	0.11	0.06	0.20	0.06	0.11	0.05	0.08	0.03	0.07	0.05	0.09	0.02	0.05	0.04	0.11
2/06/2016	0.89	0.03	0.09	0.07	0.09	0.05	0.07	0.05	0.10	0.04	0.05	0.04	0.12	0.02	0.05	0.03	0.08
3/06/2016	0.76	0.06	0.15	0.11	0.18	0.12	0.17	0.07	0.16	0.07	0.13	0.09	0.11	0.04	0.14	0.04	0.07
4/06/2016	0.84	0.08	0.14	0.11	0.22	0.09	0.23	0.04	0.07	0.05	0.08	0.09	0.18	0.04	0.06	0.02	0.09
5/06/2016	0.90	0.07	0.18	0.08	0.16	0.07	0.20	0.06	0.13	0.08	0.14	0.08	0.18	0.04	0.10	0.02	0.12
6/06/2016	0.94	0.06	0.18	0.08	0.16	0.09	0.15	0.05	0.14	0.07	0.16	0.08	0.12	0.04	0.11	0.01	0.09
7/06/2016	1.02	0.01	0.03	0.00	0.05	0.00	0.06	0.01	0.03	0.02	0.06	0.05	0.19	0.01	0.08	0.01	0.01
8/06/2016	0.90	0.01	0.04	0.00	0.05	0.01	0.06	0.01	0.02	0.02	0.04	0.03	0.09	0.01	0.02	0.00	0.03
9/06/2016	0.90	0.02	0.07	0.01	0.03	0.01	0.08	0.01	0.05	0.04	0.07	0.05	0.07	0.01	0.05	0.00	0.05
10/06/2016	1.02	0.02	0.06	0.02	0.08	0.03	0.06	0.01	0.06	0.03	0.08	0.06	0.11	0.00	0.01	0.01	0.01
11/06/2016	0.93	0.02	0.05	0.01	0.06	0.02	0.07	0.02	0.04	0.04	0.07	0.06	0.11	0.00	0.00	0.01	0.03
12/06/2016	0.92	0.05	0.10	0.04	0.23	0.07	0.14	0.03	0.08	0.05	0.16	0.09	0.21	0.00	0.00	0.02	0.08
13/06/2016	0.97	0.08	0.21	0.06	0.10	0.08	0.23	0.06	0.16	0.08	0.14	0.10	0.24	0.00	0.00	0.03	0.13
14/06/2016	0.74	0.05	0.16	0.06	0.16	0.05	0.20	0.04	0.12	0.07	0.18	0.06	0.12	0.02	0.15	0.02	0.11
15/06/2016	0.67	0.05	0.17	0.05	0.18	0.07	0.14	0.04	0.13	0.06	0.14	0.07	0.18	0.03	0.14	0.03	0.11
16/06/2016	0.81	0.09	0.15	0.08	0.22	0.12	0.21	0.06	0.19	0.06	0.19	0.07	0.19	0.06	0.14	0.04	0.15
17/06/2016	0.72	0.10	0.21	0.11	0.25	0.09	0.24	0.07	0.16	0.04	0.09	0.05	0.14	0.04	0.16	0.02	0.08
18/06/2016	0.66	0.06	0.19	0.12	0.18	0.07	0.23	0.06	0.15	0.04	0.14	0.03	0.06	0.02	0.08	0.01	0.03
19/06/2016	0.70	0.05	0.15	0.10	0.20	0.06	0.11	0.04	0.13	0.03	0.10	0.04	0.09	0.01	0.07	0.01	0.01
20/06/2016	0.83	0.05	0.10	0.08	0.20	0.08	0.19	0.03	0.12	0.02	0.08	0.02	0.11	0.01	0.03	0.00	0.03
21/06/2016	0.85	0.05	0.15	0.07	0.11	0.05	0.17	0.04	0.10	0.01	0.06	0.01	0.07	0.01	0.04	0.00	0.02
22/06/2016	0.83	0.04	0.14	0.09	0.17	0.04	0.17	0.03	0.12	0.01	0.06	0.02	0.03	0.01	0.03	0.00	0.01
23/06/2016	0.82	0.03	0.14	0.07	0.18	0.06	0.09	0.02	0.11	0.01	0.07	0.02	0.13	0.01	0.01	0.01	0.04
24/06/2016	0.88	0.04	0.08	0.06	0.17	0.05	0.15	0.02	0.05	0.01	0.07	0.02	0.12	0.01	0.05	0.00	0.10
25/06/2016	1.03	0.03	0.14	0.07	0.10	0.04	0.15	0.02	0.13	0.02	0.06	0.01	0.10	0.01	0.06	0.00	0.06
26/06/2016	1.08	0.03	0.14	0.07	0.16	0.04	0.07	0.02	0.13	0.02	0.07	0.03	0.05	0.01	0.06	0.01	0.01
27/06/2016	1.16	0.03	0.06	0.05	0.16	0.06	0.17	0.01	0.04	0.01	0.06	0.02	0.11	0.01	0.03	0.00	0.05
28/06/2016	1.11	0.03	0.13	0.07	0.10	0.04	0.16	0.03	0.14	0.01	0.06	0.01	0.07	0.01	0.04	0.00	0.05
29/06/2016	1.22	0.02	0.09	0.07	0.16	0.04	0.07	0.03	0.18	0.03	0.10	0.03	0.08	0.01	0.06	0.01	0.01
30/06/2016	1.29	0.01	0.03	0.06	0.17	0.05	0.16	0.03	0.07	0.04	0.10	0.03	0.17	0.03	0.04	0.01	0.09

Total Number of Measurements Taken, A:	14233	11704	14180	11636	14615	14646	11510	14452
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:	14233	11704	14180	11636	14615	14646	11510	14452
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\06-June

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																		
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-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
03-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Jul-2016	1.38	1.38	0.12	<0.02	0.10	0.08	0.13	0.07	0.11	<0.02	0.07	0.07	0.11	0.05	0.10	0.02	0.08	<0.02
05-Jul-2016	1.33	1.42	0.17	0.05	0.11	0.09	O/L	O/L	0.14	0.05	0.08	0.07	0.07	0.03	0.09	0.03	0.07	<0.02
06-Jul-2016	1.31	1.39	0.10	<0.02	0.12	0.10	O/L	O/L	0.18	0.08	0.13	0.11	0.08	0.04	0.08	0.02	0.07	<0.02
07-Jul-2016	1.27	1.53	0.12	<0.02	0.16	0.11	O/L	O/L	0.11	0.03	0.08	0.08	0.10	0.05	0.07	0.03	0.08	0.02
08-Jul-2016	1.38	1.45	0.13	0.02	0.12	0.09	0.13	0.11	0.13	0.04	0.08	0.08	0.09	0.05	0.11	0.04	O/L	O/L
09-Jul-2016	NS	NS	NS	NS	NS	NS	0.11	0.09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Jul-2016	1.27	1.30	0.11	<0.02	0.09	0.08	0.16	0.10	0.10	0.03	0.13	0.07	0.22	0.10	0.09	0.03	0.11	0.04
12-Jul-2016	1.37	1.26	0.15	0.05	0.10	0.08	0.09	0.07	0.12	0.04	0.10	0.07	0.07	0.04	0.09	0.03	0.06	<0.02
13-Jul-2016	1.23	1.39	0.10	<0.02	0.13	0.10	0.11	0.08	O/L	O/L	0.14	0.09	0.07	0.04	0.06	<0.02	0.07	<0.02
14-Jul-2016	1.58	1.54	0.11	<0.02	0.10	0.08	0.13	0.09	0.09	0.03	0.06	0.06	0.09	0.05	0.07	<0.02	0.09	<0.02
15-Jul-2016	1.37	1.69	0.13	0.03	0.13	0.08	0.09	0.07	0.08	<0.02	0.06	0.06	0.08	0.04	0.09	0.04	O/L	O/L
16-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
17-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
18-Jul-2016	1.45	NR	0.14	0.03	0.13	0.10	0.20	0.14	0.13	0.05	0.11	0.06	0.09	0.04	0.09	0.03	0.11	0.02
19-Jul-2016	1.77	NR	0.20	0.10	0.13	0.10	0.13	0.07	0.15	0.06	0.13	0.09	0.08	0.04	0.08	0.02	0.07	<0.02
20-Jul-2016	1.52	1.48	0.13	0.02	0.17	0.11	0.14	0.09	0.11	0.04	O/L	O/L	0.08	0.06	0.07	0.02	0.08	0.02
21-Jul-2016	1.69	1.61	0.12	0.02	0.11	0.08	0.15	0.09	0.14	0.05	0.07	0.05	O/L	O/L	0.07	0.03	0.08	0.03
22-Jul-2016	1.63	NR	0.14	0.04	0.10	0.06	0.10	0.06	0.10	0.03	0.14	0.05	0.17	0.04	0.13	0.03	0.14	<0.02
23-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
24-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Jul-2016	1.66	1.69	0.11	0.02	0.10	0.07	0.16	0.11	0.12	0.03	0.10	0.06	0.10	0.06	0.11	0.05	0.13	0.04
26-Jul-2016	1.51	1.82	0.16	0.04	0.11	0.08	0.11	0.08	0.14	0.06	0.08	0.05	0.08	0.04	0.08	0.03	0.07	<0.02
27-Jul-2016	1.71	1.86	0.11	0.03	0.14	0.09	0.12	0.10	0.09	0.03	0.11	0.07	0.07	0.05	0.06	<0.02	0.07	0.02
28-Jul-2016	1.73	1.96	0.13	0.04	0.12	0.09	0.22	0.18	0.15	0.06	0.11	0.07	0.09	0.05	0.08	0.03	0.08	0.03
29-Jul-2016	1.54	2.02	0.18	0.08	0.13	0.10	0.13	0.10	0.14	0.07	0.14	0.06	0.08	0.06	0.12	0.04	0.07	0.03
30-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
31-Jul-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:			20		20		18		19		19		19		20		18	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			20		20		18		19		19		19		20		18	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

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

Comments:

There was no result for the raw analyser on July 18th, 19th and 22nd due to instrument error.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 29-Jul-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/07/2016	1.28	0.02	0.10	0.07	0.12	0.05	0.17	0.05	0.14	0.06	0.11	0.03	0.12	0.02	0.08	0.01	0.09
2/07/2016	1.36	0.02	0.11	0.09	0.17	0.04	0.15	0.04	0.15	0.08	0.17	0.04	0.06	0.02	0.09	0.00	0.01
3/07/2016	1.41	0.02	0.09	0.08	0.14	0.05	0.08	0.04	0.11	0.07	0.11	0.04	0.10	0.01	0.07	0.01	0.07
4/07/2016	1.40	0.02	0.04	0.06	0.18	0.06	0.16	0.03	0.06	0.05	0.14	0.03	0.14	0.03	0.04	0.00	0.07
5/07/2016	1.47	0.02	0.12	0.09	0.12	0.02	0.07	0.05	0.17	0.09	0.13	0.04	0.07	0.02	0.08	0.01	0.05
6/07/2016	1.53	0.06	0.27	0.13	0.22	OL	OL	0.10	0.23	0.10	0.21	0.06	0.10	0.03	0.11	0.01	0.05
7/07/2016	1.53	0.02	0.08	0.08	0.15	OL	OL	0.04	0.11	0.08	0.13	0.05	0.10	0.03	0.06	0.01	0.05
8/07/2016	1.40	0.02	0.06	0.05	0.12	0.02	0.20	0.04	0.08	0.06	0.10	0.03	0.22	0.03	0.08	0.01	0.06
9/07/2016	1.58	0.02	0.11	0.08	0.16	0.07	0.14	0.04	0.13	0.06	0.13	0.05	0.09	0.02	0.08	0.01	0.06
10/07/2016	1.43	0.03	0.05	0.07	0.19	0.09	0.19	0.04	0.16	0.06	0.27	0.05	0.13	0.04	0.06	0.02	0.08
11/07/2016	1.50	0.02	0.09	0.05	0.16	0.06	0.16	0.04	0.05	0.05	0.09	0.03	0.14	0.03	0.07	0.01	0.07
12/07/2016	1.51	0.02	0.10	0.07	0.10	0.05	0.18	0.04	0.13	0.08	0.13	0.04	0.08	0.02	0.07	0.01	0.07
13/07/2016	2.44	0.02	0.10	0.06	0.18	0.08	0.14	0.03	0.13	0.05	0.15	0.05	0.08	0.01	0.04	0.01	0.02
14/07/2016	1.58	0.02	0.09	0.06	0.17	0.05	0.18	0.03	0.05	0.04	0.13	0.03	0.13	0.02	0.07	0.01	0.07
15/07/2016	1.60	0.04	0.34	0.09	0.37	0.05	0.16	0.05	0.26	0.07	0.10	0.03	0.06	0.01	0.07	0.00	0.08
16/07/2016	2.82	0.02	0.10	0.07	0.17	0.07	0.09	0.03	0.13	0.05	0.12	0.05	0.14	0.01	0.07	0.00	0.01
17/07/2016	3.25	0.02	0.07	0.06	0.17	0.07	0.17	0.03	0.14	0.05	0.13	0.04	0.12	0.02	0.04	0.01	0.07
18/07/2016	2.68	0.04	0.11	0.06	0.11	0.06	0.18	0.06	0.09	0.06	0.10	0.04	0.14	0.02	0.08	0.01	0.08
19/07/2016	1.92	0.02	0.12	0.09	0.18	0.06	0.09	0.04	0.16	0.06	0.12	0.05	0.06	0.02	0.10	0.01	0.08
20/07/2016	1.76	0.02	0.10	0.06	0.16	0.08	0.17	0.04	0.14	0.05	0.12	0.04	0.12	0.02	0.04	0.01	0.02
21/07/2016	1.74	0.03	0.06	0.06	0.16	0.06	0.17	0.05	0.07	0.04	0.12	0.04	0.13	0.02	0.10	0.01	0.08
22/07/2016	1.94	0.02	0.09	0.07	0.16	0.05	0.16	0.04	0.13	0.06	0.11	0.04	0.06	0.02	0.11	0.01	0.10
23/07/2016	2.53	0.02	0.11	0.06	0.15	0.07	0.09	0.04	0.13	0.04	0.11	0.05	0.12	0.02	0.11	0.00	0.01
24/07/2016	1.86	0.02	0.04	0.05	0.15	0.07	0.19	0.04	0.13	0.04	0.11	0.04	0.16	0.03	0.05	0.01	0.11
25/07/2016	1.88	0.03	0.12	0.05	0.15	0.06	0.18	0.05	0.11	0.05	0.08	0.04	0.16	0.03	0.10	0.01	0.12
26/07/2016	2.10	0.03	0.12	0.07	0.09	0.05	0.20	0.04	0.14	0.05	0.10	0.04	0.06	0.02	0.10	0.01	0.10
27/07/2016	1.99	0.04	0.12	0.08	0.16	0.10	0.13	0.06	0.13	0.05	0.10	0.05	0.12	0.02	0.08	0.01	0.02
28/07/2016	1.93	0.05	0.06	0.08	0.16	0.09	0.18	0.07	0.08	0.05	0.11	0.06	0.13	0.04	0.05	0.02	0.05
29/07/2016	2.03	0.05	0.14	0.09	0.11	0.09	0.20	0.07	0.15	0.07	0.11	0.07	0.08	0.03	0.09	0.02	0.06
30/07/2016	2.07	0.04	0.14	0.09	0.16	0.12	0.15	0.07	0.16	0.06	0.13	0.07	0.13	0.04	0.04	0.02	0.03
31/07/2016	2.30	0.07	0.10	0.08	0.17	0.10	0.19	0.08	0.10	0.06	0.09	0.06	0.13	0.03	0.10	0.02	0.05

Total Number of Measurements Taken, A:	14981	12782	12980	12653	15488	15110	13659	14674
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:	14962	12757	12980	12653	15488	15110	13659	14674
Compliance with Turbidity Standard, C = B/A X 100%:	99.87%	99.80%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

OL: Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\07-July

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																		
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-Aug-2016	1.94	2.30	0.13	0.05	0.19	0.12	0.15	0.12	0.11	0.05	0.13	0.08	0.08	0.07	0.06	0.02	0.07	0.03
03-Aug-2016	1.94	NA	0.12	0.04	0.10	0.07	0.17	0.13	0.10	0.04	0.09	0.07	0.10	0.09	0.11	0.06	0.12	0.07
04-Aug-2016	2.07	2.71	0.16	0.10	0.13	0.09	0.13	0.11	0.13	0.06	0.06	0.05	0.09	0.08	0.09	0.04	0.28	0.03
05-Aug-2016	1.95	NA	0.12	0.08	0.15	0.10	0.14	0.12	0.19	0.04	0.15	0.08	0.08	<0.02	0.12	0.02	0.10	0.03
06-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Aug-2016	2.20	2.61	0.09	0.07	0.11	0.07	0.12	0.10	0.15	0.07	0.10	0.06	0.13	0.08	0.06	0.02	0.06	0.03
09-Aug-2016	2.42	3.12	0.11	0.09	0.13	0.07	0.16	0.13	0.10	0.03	0.08	0.04	0.09	0.10	0.07	0.02	0.09	0.04
10-Aug-2016	2.64	2.99	0.15	0.14	0.12	0.10	0.16	0.14	0.11	0.05	OL	OL	0.09	0.09	OL	OL	0.08	0.03
11-Aug-2016	2.47	3.15	0.09	0.09	0.14	0.08	0.11	0.12	0.11	0.10	0.12	0.07	0.07	0.12	0.06	0.03	0.24	0.05
12-Aug-2016	2.48	3.15	0.10	0.11	0.09	0.06	0.12	0.14	0.27	0.05	0.11	0.06	0.24	0.13	0.27	0.03	0.06	0.05
13-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
15-Aug-2016	2.55	3.34	0.17	0.19	0.22	0.10	0.18	0.17	0.16	0.08	0.18	0.07	0.09	0.16	0.09	0.03	0.08	0.05
16-Aug-2016	2.71	3.09	0.11	0.05	0.11	0.06	0.13	0.09	0.11	0.06	0.29	0.04	0.10	0.02	0.07	0.03	0.07	0.05
17-Aug-2016	2.72	4.68	0.14	0.06	0.14	0.08	0.14	0.09	0.14	0.06	0.06	0.04	0.09	0.02	0.08	0.02	0.09	0.03
18-Aug-2016	2.70	2.92	0.16	0.08	0.13	<0.02	0.14	0.09	0.17	0.07	0.13	0.06	0.08	0.02	0.09	0.02	0.11	0.04
19-Aug-2016	2.76	3.01	0.20	0.10	0.16	0.08	0.14	0.09	0.16	0.08	0.12	0.08	0.09	0.03	0.10	0.02	0.08	0.03
20-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-Aug-2016	3.19	3.13	0.15	0.06	0.10	0.06	0.14	0.07	0.11	0.04	0.11	0.05	0.10	0.02	0.10	0.03	0.07	0.03
23-Aug-2016	2.56	3.20	0.13	0.06	0.14	0.08	0.16	0.10	0.13	0.04	0.10	0.06	0.12	0.05	0.09	0.02	0.10	0.04
24-Aug-2016	3.24	NA	0.16	0.08	0.19	0.12	0.14	0.09	0.14	0.07	0.07	0.05	0.11	0.04	0.12	0.04	0.11	0.05
25-Aug-2016	3.22	NA	0.15	0.08	0.15	0.11	0.16	0.13	0.15	0.08	OL	OL	0.09	0.05	OL	OL	0.09	0.04
26-Aug-2016	3.10	NA	0.18	0.11	0.19	0.12	0.19	0.11	0.16	0.08	0.09	0.06	0.11	0.04	0.11	0.04	0.16	0.10
27-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Aug-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Aug-2016	3.34	3.12	0.14	0.07	0.18	0.10	0.14	0.08	0.14	0.05	0.10	0.03	0.10	0.03	0.11	0.02	0.11	0.02
30-Aug-2016	3.26	3.35	0.12	0.04	0.13	0.08	0.16	0.09	0.15	0.07	0.10	0.04	0.08	0.03	0.10	0.03	0.07	<0.02
31-Aug-2016	3.05	NA	0.13	0.02	0.14	0.06	0.18	0.08	0.15	0.02	0.10	0.03	0.12	0.04	0.13	0.02	0.13	<0.02
Total number of measurements taken, A:			22		22		22		22		20		22		20		22	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			22		22		22		22		20		22		20		22	
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:

Analysers reading was unstable at time of sample collection for the raw on August 3, 5, 24, 25, 26 and 31.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 7-Sep-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/08/2016	2.24	0.06	0.14	0.10	0.15	0.10	0.21	0.07	0.18	0.06	0.12	0.08	0.09	0.03	0.08	0.02	0.07
2/08/2016	2.37	0.06	0.14	0.09	0.16	0.13	0.17	0.07	0.14	0.05	0.11	0.07	0.12	0.03	0.07	0.02	0.03
3/08/2016	2.95	0.08	0.12	0.08	0.15	0.11	0.18	0.06	0.09	0.06	0.12	0.08	0.19	0.04	0.07	0.03	0.07
4/08/2016	2.73	0.10	0.17	0.09	0.14	0.11	0.26	0.09	0.14	0.07	0.11	0.07	0.14	0.03	0.08	0.02	0.07
5/08/2016	2.85	0.09	0.16	0.09	0.16	0.12	0.14	0.07	0.14	0.06	0.11	0.09	0.10	0.03	0.09	0.02	0.08
6/08/2016	2.90	0.10	0.12	0.08	0.16	0.11	0.21	0.06	0.14	0.06	0.11	0.08	0.15	0.04	0.05	0.03	0.08
7/08/2016	1.54	0.10	0.18	0.08	0.11	0.10	0.21	0.08	0.15	0.06	0.10	0.08	0.12	0.03	0.10	0.02	0.09
8/08/2016	1.85	0.08	0.17	0.07	0.12	0.11	0.13	0.05	0.10	0.05	0.08	0.10	0.14	0.02	0.07	0.02	0.03
9/08/2016	3.05	0.11	0.14	0.07	0.14	0.11	0.21	0.05	0.11	0.11	0.07	0.09	0.14	0.03	0.04	0.02	0.06
10/08/2016	2.89	0.07	0.23	0.06	0.30	0.08	0.41	0.03	0.22	OL	OL	0.08	0.22	0.02	0.21	0.01	0.15
11/08/2016	2.60	0.08	0.19	0.05	0.16	0.11	0.19	0.06	0.16	0.05	0.17	0.09	0.17	0.02	0.10	0.02	0.04
12/08/2016	3.00	0.08	0.20	0.05	0.15	0.10	0.23	0.06	0.15	0.04	0.09	0.10	0.19	0.03	0.05	0.03	0.11
13/08/2016	3.10	0.12	0.15	0.05	0.16	0.10	0.25	0.05	0.09	0.04	0.10	0.10	0.21	0.04	0.11	0.03	0.12
14/08/2016	3.27	0.12	0.24	0.07	0.11	0.11	0.27	0.06	0.16	0.04	0.11	0.12	0.16	0.03	0.15	0.03	0.15
15/08/2016	3.55	0.11	0.24	0.06	0.19	0.12	0.18	0.05	0.17	0.06	0.10	0.09	0.23	0.04	0.08	0.04	0.10
16/08/2016	3.20	0.05	0.15	0.07	0.13	0.09	0.16	0.07	0.13	0.05	0.09	0.02	0.06	0.03	0.05	0.02	0.05
17/08/2016	3.26	0.08	0.12	0.03	0.10	0.09	0.18	0.07	0.10	0.06	0.11	0.02	0.07	0.02	0.05	0.01	0.06
18/08/2016	3.41	0.07	0.14	OL	OL	0.08	0.18	0.08	0.14	0.06	0.12	0.02	0.04	0.02	0.04	0.01	0.06
19/08/2016	3.11	0.07	0.16	0.03	0.14	0.07	0.21	0.07	0.15	0.07	0.12	0.03	0.06	0.02	0.06	0.01	0.10
20/08/2016	3.61	0.06	0.15	0.07	0.09	0.10	0.14	0.06	0.14	0.05	0.09	0.03	0.09	0.02	0.07	0.01	0.02
21/08/2016	3.53	0.06	0.09	0.07	0.14	0.07	0.18	0.05	0.08	0.05	0.09	0.02	0.09	0.02	0.03	0.02	0.07
22/08/2016	3.92	0.06	0.14	0.06	0.14	0.07	0.09	0.07	0.13	0.06	0.09	0.03	0.05	0.02	0.10	0.01	0.08
23/08/2016	3.45	0.06	0.17	0.08	0.09	0.10	0.16	0.07	0.16	0.06	0.11	0.04	0.10	0.03	0.04	0.03	0.04
24/08/2016	4.09	0.09	0.10	0.09	0.16	0.09	0.22	0.08	0.11	0.05	0.12	0.04	0.11	0.04	0.11	0.03	0.11
25/08/2016	4.58	0.04	0.24	0.06	0.32	0.08	0.35	0.06	0.29	0.04	0.49	0.04	0.35	0.02	0.18	0.02	0.38
26/08/2016	4.59	0.11	0.20	0.11	0.19	0.11	0.23	0.09	0.20	0.08	0.15	0.05	0.14	0.05	0.07	0.02	0.12
27/08/2016	4.30	0.08	0.18	0.09	0.18	0.10	0.14	0.10	0.15	0.07	0.14	0.05	0.07	0.04	0.13	0.01	0.08
28/08/2016	3.70	0.07	0.10	0.10	0.12	0.11	0.21	0.09	0.18	0.05	0.12	0.04	0.12	0.03	0.10	0.01	0.03
29/08/2016	3.47	0.07	0.18	0.08	0.19	0.09	0.17	0.07	0.12	0.06	0.12	0.03	0.09	0.03	0.07	0.01	0.09
30/08/2016	3.99	0.06	0.14	0.07	0.15	0.09	0.11	0.08	0.16	0.05	0.08	0.04	0.05	0.02	0.08	0.01	0.01
31/08/2016	4.20	0.06	0.10	0.08	0.11	0.09	0.17	0.06	0.17	0.04	0.08	0.04	0.09	0.02	0.03	0.01	0.05

Total Number of Measurements Taken, A:	16251	13102	15870	13099	15651	16256	14893	15885
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:	16251	13099	15866	13099	15650	16255	14893	15883
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	99.98%	99.98%	100.00%	99.99%	99.99%	100.00%	99.99%

OL: Offline

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\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
01-Sep-2016	3.16	3.43	0.21	0.09	0.19	0.12	0.15	0.10	0.16	0.07	0.09	0.04	0.09	0.03	0.09	0.02	0.09	<0.02
02-Sep-2016	2.92	3.42	0.15	0.05	0.17	0.09	0.17	0.11	0.19	0.08	0.10	0.05	0.16	0.04	0.09	0.02	0.08	<0.02
03-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
05-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Sep-2016	2.47	2.78	0.17	0.07	0.17	0.11	0.15	0.09	0.14	0.06	0.09	0.06	0.07	0.05	0.07	0.02	0.06	<0.02
07-Sep-2016	2.48	2.59	0.12	0.04	0.13	0.08	0.14	0.10	0.13	0.09	0.10	0.06	0.10	0.05	0.08	<0.02	0.09	<0.02
08-Sep-2016	2.35	NA	0.11	0.03	0.12	0.07	0.10	0.06	0.09	0.02	0.09	0.04	0.07	0.05	0.07	<0.02	0.08	0.02
09-Sep-2016	2.35	NA	0.09	0.02	0.09	0.05	0.10	0.06	0.09	0.02	0.07	0.04	0.07	0.05	0.08	0.02	0.06	<0.02
10-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12-Sep-2016	1.70	1.81	0.12	0.04	0.12	0.08	0.13	0.10	0.16	0.05	0.07	0.04	0.09	0.08	0.07	0.02	0.08	0.02
13-Sep-2016	1.45	1.75	0.12	0.04	0.13	0.09	0.10	0.07	0.09	0.02	0.06	0.04	0.07	0.06	0.07	0.02	0.09	0.02
14-Sep-2016	1.23	1.97	0.16	0.03	0.12	0.07	0.11	0.08	0.12	0.08	0.08	0.05	0.09	0.06	0.12	0.03	0.08	<0.02
15-Sep-2016	1.18	1.46	0.14	0.06	0.16	0.11	0.20	0.16	0.13	0.07	0.11	0.06	0.07	<0.02	0.08	0.02	0.11	0.02
16-Sep-2016	1.27	1.98	0.18	0.08	0.12	0.09	0.14	0.10	0.15	0.06	0.10	0.07	0.07	0.06	0.08	0.03	0.10	<0.02
17-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
18-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
19-Sep-2016	1.10	1.77	0.18	0.08	OL	OL	0.17	0.12	0.16	0.05	0.14	0.08	0.12	0.07	0.12	0.05	0.08	0.02
20-Sep-2016	1.48	1.51	0.10	0.02	0.10	0.08	0.14	0.11	0.11	0.03	0.11	0.06	0.16	0.09	0.08	0.04	0.12	0.02
21-Sep-2016	1.18	NR	0.12	0.03	0.13	0.09	0.16	0.14	0.13	0.03	0.13	0.05	OL	OL	0.09	0.04	0.13	0.03
22-Sep-2016	1.07	NR	0.17	0.03	0.17	0.15	0.13	0.14	0.14	0.05	0.15	0.14	0.12	0.07	0.13	0.05	0.09	0.04
23-Sep-2016	1.01	1.25	0.10	0.02	0.11	0.08	0.11	0.03	0.11	0.04	0.14	0.11	0.10	0.03	0.07	0.03	0.13	0.04
24-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Sep-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Sep-2016	0.87	1.05	0.09	<0.02	0.09	0.08	0.10	0.02	0.13	0.03	0.09	0.10	0.09	0.02	0.12	0.11	0.07	0.04
27-Sep-2016	0.86	1.08	0.06	<0.02	0.06	0.07	0.08	<0.02	0.07	<0.02	0.06	0.09	0.11	0.03	0.07	0.03	0.08	0.03
28-Sep-2016	0.79	1.01	0.10	<0.02	0.11	0.08	0.07	<0.02	0.07	0.02	0.09	0.09	0.08	<0.02	0.07	0.03	OL	OL
29-Sep-2016	0.72	0.83	0.09	<0.02	0.10	0.07	0.10	<0.02	0.10	0.02	0.08	0.09	0.10	0.02	OL	OL	0.07	0.03
30-Sep-2016	0.77	1.09	0.08	<0.02	0.08	0.07	0.10	<0.02	OL	OL	0.19	0.08	0.10	0.03	0.07	0.03	0.14	0.04
Total number of measurements taken, A:			21			20			21			20			20			20
Turbidity Standard for Monitoring Location (NTU):			0.30			0.30			0.30			0.30			0.30			0.30
Number of measurements meeting standard, B:			21			20			21			20			20			20
Compliance with Turbidity Standard, C= B/A X 100%:			100%			100%			100%			100%			100%			100%

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

Comments:

Analysers reading was unstable at time of sample collection for the raw water on September 8 and 9.
There was no result for the raw water analyser on September 21 and 22 due to maintenance.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 6-Oct-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/09/2016	3.66	0.07	0.14	0.09	0.17	0.09	0.20	0.09	0.11	0.06	0.08	0.04	0.05	0.03	0.08	0.01	0.08
2/09/2016	2.90	0.06	0.15	0.08	0.11	0.12	0.15	0.08	0.18	0.05	0.13	0.04	0.10	0.02	0.08	0.01	0.01
3/09/2016	2.99	0.07	0.11	0.10	0.17	0.10	0.20	0.07	0.16	0.05	0.09	0.04	0.11	0.02	0.03	0.01	0.07
4/09/2016	3.15	0.06	0.13	0.07	0.16	0.10	0.11	0.08	0.10	0.05	0.09	0.05	0.06	0.02	0.09	0.01	0.06
5/09/2016	3.20	0.06	0.08	0.09	0.10	0.09	0.18	0.06	0.16	0.04	0.09	0.05	0.11	0.02	0.03	0.01	0.02
6/09/2016	2.99	0.06	0.13	0.08	0.16	0.08	0.18	0.08	0.10	0.06	0.09	0.05	0.06	0.03	0.09	0.01	0.07
7/09/2016	3.64	0.04	0.09	0.07	0.09	0.09	0.12	0.05	0.14	0.04	0.09	0.05	0.11	0.02	0.08	0.01	0.01
8/09/2016	3.47	0.04	0.11	0.05	0.12	0.06	0.14	0.04	0.05	0.05	0.07	0.05	0.11	0.02	0.03	0.01	0.06
9/09/2016	2.36	0.03	0.09	0.04	0.11	0.06	0.08	0.04	0.09	0.04	0.08	0.06	0.07	0.02	0.07	0.01	0.01
10/09/2016	2.34	0.03	0.05	0.06	0.07	0.05	0.13	0.04	0.09	0.04	0.08	0.05	0.11	0.02	0.03	0.01	0.05
11/09/2016	2.56	0.03	0.14	0.05	0.12	0.05	0.10	0.04	0.07	0.05	0.10	0.06	0.12	0.02	0.08	0.01	0.04
12/09/2016	NR	0.04	0.07	0.07	0.10	0.09	0.16	0.05	0.11	0.04	0.08	0.06	0.11	0.02	0.07	0.01	0.01
13/09/2016	1.97	0.05	0.15	0.06	0.14	0.07	0.16	0.04	0.06	0.05	0.07	0.06	0.11	0.03	0.04	0.01	0.05
14/09/2016	1.68	0.04	0.11	0.06	0.16	0.09	0.11	0.06	0.10	0.05	0.08	0.07	0.08	0.02	0.07	0.01	0.01
15/09/2016	1.67	0.07	0.09	0.11	0.13	0.10	0.20	0.06	0.16	0.04	0.09	0.06	0.11	0.03	0.03	0.01	0.05
16/09/2016	1.31	0.04	0.14	0.07	0.22	0.07	0.11	0.07	0.08	0.06	0.09	0.06	0.08	0.03	0.08	0.01	0.09
17/09/2016	1.64	0.04	0.07	0.08	0.11	0.11	0.27	0.05	0.21	0.04	0.10	0.05	0.15	0.02	0.14	0.01	0.02
18/09/2016	1.48	0.06	0.13	0.08	0.21	0.08	0.24	0.04	0.16	0.04	0.09	0.05	0.16	0.04	0.05	0.01	0.11
19/09/2016	1.73	0.05	0.12	0.07	0.20	0.08	0.15	0.07	0.10	0.06	0.13	0.07	0.09	0.03	0.14	0.01	0.11
20/09/2016	1.81	0.02	0.08	0.06	0.10	0.11	0.26	0.04	0.15	0.04	0.11	0.07	0.17	0.03	0.13	0.01	0.02
21/09/2016	NR	0.04	0.12	0.08	0.15	0.09	0.22	0.04	0.12	0.05	0.12	0.06	0.15	0.04	0.11	0.02	0.11
22/09/2016	NR	0.02	0.11	0.06	0.20	0.09	0.14	0.06	0.08	0.12	0.16	0.06	0.09	0.04	0.12	0.02	0.11
23/09/2016	1.30	0.02	0.09	0.07	0.10	0.07	0.23	0.03	0.13	0.07	0.16	0.04	0.14	0.03	0.12	0.03	0.04
24/09/2016	1.39	0.03	0.05	0.09	0.19	0.02	0.13	0.04	0.12	0.07	0.12	0.02	0.11	0.04	0.05	0.02	0.12
25/09/2016	1.18	0.03	0.09	0.06	0.18	0.02	0.11	0.05	0.07	0.10	0.16	0.02	0.05	0.03	0.12	0.02	0.11
26/09/2016	1.13	0.02	0.07	0.06	0.09	0.02	0.05	0.04	0.11	0.06	0.15	0.03	0.10	0.03	0.12	0.02	0.03
27/09/2016	1.09	0.01	0.03	0.07	0.14	0.00	0.08	0.02	0.09	0.06	0.12	0.02	0.08	0.03	0.05	0.02	0.11
28/09/2016	1.00	0.01	0.04	0.05	0.11	0.00	0.05	0.03	0.04	0.09	0.11	0.01	0.06	0.03	0.09	0.02	0.06
29/09/2016	1.02	0.01	0.03	0.04	0.10	0.00	0.01	0.03	0.17	0.06	0.11	0.04	0.30	0.02	0.08	0.02	0.26
30/09/2016	1.19	0.01	0.02	0.07	0.11	0.01	0.04	0.03	0.08	0.06	0.11	0.02	0.07	0.03	0.06	0.01	0.06

Total Number of Measurements Taken, A:	14828	12618	14459	12381	15422	15194	14109	14919
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:	14828	12618	14459	12381	15422	15194	14109	14919
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%

NR - No Result

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\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)																	
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
01-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
03-Oct-2016	0.89	1.14	0.12	<0.02	0.10	0.08	0.15	0.03	OL	OL	0.11	0.08	0.14	0.05	0.15	0.03	0.10	0.04
04-Oct-2016	0.87	1.15	0.11	0.07	0.11	0.09	0.14	0.05	0.13	0.06	0.12	0.10	0.12	0.04	0.12	0.06	0.16	0.06
05-Oct-2016	0.84	1.08	OL	OL	0.12	0.10	0.13	0.04	0.14	0.06	0.14	0.09	0.11	0.05	0.13	0.07	0.11	0.02
06-Oct-2016	1.05	1.32	0.12	0.04	0.16	0.11	0.16	0.06	0.16	0.06	0.09	0.06	0.14	0.06	0.10	0.05	0.10	0.03
07-Oct-2016	0.81	NR	0.16	0.06	0.19	0.14	OL	OL	0.17	0.06	0.15	0.08	0.11	0.05	0.15	0.07	0.15	0.06
08-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
09-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Oct-2016	0.78	1.06	0.10	0.02	0.09	0.08	0.10	<0.02	0.09	0.04	0.11	0.07	0.09	0.03	OL	OL	0.07	<0.02
12-Oct-2016	0.73	1.09	0.16	0.02	0.13	0.10	0.15	0.03	0.12	0.03	0.10	0.05	0.10	0.04	0.12	0.05	0.18	0.02
13-Oct-2016	0.73	1.06	0.10	0.02	0.18	0.11	0.11	<0.02	0.11	0.04	0.11	0.07	0.12	0.02	0.09	0.05	0.08	<0.02
14-Oct-2016	0.84	0.96	0.09	<0.02	0.10	0.09	0.11	<0.02	0.11	0.04	0.11	0.07	0.10	0.03	0.10	0.07	0.08	<0.02
15-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
16-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
17-Oct-2016	1.04	1.05	0.09	<0.02	0.08	0.09	0.10	<0.02	0.10	0.05	0.09	0.07	0.10	0.04	OL	OL	0.08	0.02
18-Oct-2016	1.02	1.07	0.09	0.02	0.10	0.10	0.14	<0.02	0.08	0.03	0.08	0.06	0.14	0.05	0.08	0.05	0.10	0.04
19-Oct-2016	0.91	1.07	0.12	0.04	0.10	0.10	0.12	<0.02	0.11	0.04	0.09	0.08	0.10	0.03	0.22	0.06	0.29	0.06
20-Oct-2016	0.90	1.03	0.09	<0.02	0.09	0.09	0.12	<0.02	0.12	0.05	0.10	0.08	0.10	0.04	0.08	0.04	0.08	0.03
21-Oct-2016	0.85	0.98	0.10	0.02	0.11	0.11	0.13	<0.02	0.10	0.04	0.09	0.07	0.14	0.05	0.09	0.05	0.12	0.04
22-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
23-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
24-Oct-2016	0.90	0.98	0.08	<0.02	0.09	0.09	0.11	<0.02	0.08	0.03	0.09	0.08	OL	OL	0.11	0.03	0.11	0.05
25-Oct-2016	0.87	1.01	0.09	0.04	0.14	0.10	0.09	<0.02	0.08	0.03	0.10	0.09	0.10	0.04	OL	OL	0.13	0.03
26-Oct-2016	0.96	1.09	0.10	0.03	OL	OL	0.09	<0.02	0.11	0.05	0.11	0.09	0.11	0.03	0.10	0.03	0.09	<0.02
27-Oct-2016	0.90	1.03	0.07	0.02	0.10	0.08	0.15	0.02	OL	OL	0.08	0.07	0.15	0.03	0.09	0.02	0.08	<0.02
28-Oct-2016	1.11	1.21	0.10	0.03	0.10	0.10	OL	OL	0.09	0.03	0.09	0.07	0.09	0.02	0.11	0.04	0.12	<0.02
29-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
30-Oct-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
31-Oct-2016	1.06	1.13	0.09	0.03	0.10	0.13	0.17	0.03	0.09	0.03	0.09	0.08	0.09	0.02	0.13	0.08	0.10	<0.02
Total number of measurements taken, A:			19		19		18		18		20		19		17		20	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			19		19		18		18		20		19		17		20	
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:

Analysers reading was unstable at time of sample collection for the raw water on October 7.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 7-Nov-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/10/2016	1.32	0.03	0.06	0.06	0.15	0.01	0.08	0.04	0.05	0.09	0.11	0.01	0.04	0.04	0.05	0.01	0.06
2/10/2016	1.30	0.02	0.05	0.05	0.14	0.01	0.03	0.04	0.10	0.06	0.11	0.03	0.06	0.03	0.07	0.01	0.02
3/10/2016	1.18	0.03	0.06	0.10	0.11	0.03	0.09	0.04	0.10	0.06	0.14	0.03	0.07	0.03	0.06	0.02	0.06
4/10/2016	1.09	0.04	0.13	0.07	0.21	0.04	0.12	0.06	0.12	0.10	0.14	0.03	0.12	0.06	0.12	0.02	0.09
5/10/2016	1.20	0.04	0.11	0.07	0.20	0.04	0.07	0.06	0.14	0.06	0.12	0.06	0.09	0.05	0.15	0.00	0.01
6/10/2016	1.60	0.04	0.08	0.10	0.12	0.04	0.14	0.05	0.14	0.05	0.12	0.04	0.11	0.04	0.14	0.01	0.08
7/10/2016	1.65	0.06	0.12	0.08	0.19	0.04	0.15	0.05	0.08	0.08	0.11	0.04	0.13	0.08	0.10	0.02	0.12
8/10/2016	1.15	0.04	0.12	0.07	0.20	0.04	0.06	0.08	0.14	0.07	0.12	0.06	0.08	0.05	0.15	0.01	0.02
9/10/2016	1.16	0.02	0.04	0.08	0.11	0.01	0.10	0.03	0.09	0.03	0.08	0.02	0.09	0.03	0.06	0.01	0.08
10/10/2016	1.13	0.02	0.07	0.06	0.15	0.01	0.08	0.05	0.06	0.06	0.08	0.02	0.04	0.05	0.10	0.00	0.03
11/10/2016	1.10	0.02	0.06	0.06	0.09	0.01	0.03	0.04	0.10	0.04	0.09	0.03	0.08	0.03	0.09	0.01	0.01
12/10/2016	1.10	0.03	0.06	0.08	0.15	0.01	0.08	0.03	0.09	0.04	0.10	0.02	0.07	0.04	0.06	0.01	0.03
13/10/2016	1.12	0.02	0.06	0.06	0.14	0.00	0.06	0.05	0.07	0.07	0.08	0.02	0.04	0.05	0.09	0.00	0.03
14/10/2016	1.13	0.02	0.06	0.06	0.10	0.00	0.02	0.04	0.11	0.04	0.08	0.03	0.08	0.03	0.09	0.01	0.01
15/10/2016	1.09	0.03	0.05	0.09	0.14	0.01	0.11	0.04	0.10	0.04	0.09	0.03	0.07	0.04	0.06	0.01	0.03
16/10/2016	1.12	0.03	0.09	0.06	0.14	0.00	0.07	0.05	0.07	0.07	0.09	0.02	0.05	0.05	0.10	0.01	0.05
17/10/2016	1.13	0.02	0.06	0.06	0.10	0.00	0.02	0.04	0.10	0.05	0.09	0.04	0.09	0.04	0.10	0.01	0.01
18/10/2016	1.10	0.03	0.05	0.09	0.14	0.01	0.07	0.04	0.10	0.05	0.08	0.03	0.08	0.05	0.07	0.01	0.04
19/10/2016	1.10	0.03	0.07	0.06	0.15	0.00	0.07	0.06	0.07	0.08	0.10	0.03	0.05	0.05	0.11	0.01	0.05
20/10/2016	1.07	0.02	0.07	0.07	0.10	0.00	0.02	0.04	0.11	0.05	0.10	0.04	0.09	0.04	0.11	0.01	0.02
21/10/2016	1.03	0.04	0.05	0.09	0.14	0.01	0.07	0.04	0.11	0.05	0.09	0.03	0.09	0.05	0.07	0.01	0.06
22/10/2016	1.08	0.03	0.07	0.07	0.15	0.00	0.08	0.06	0.08	0.08	0.11	0.03	0.05	0.06	0.11	0.01	0.06
23/10/2016	1.40	0.02	0.06	0.07	0.11	0.00	0.04	0.04	0.11	0.06	0.13	0.05	0.09	0.04	0.13	0.01	0.02
24/10/2016	1.07	0.02	0.10	0.08	0.14	0.00	0.05	0.03	0.10	0.05	0.10	0.03	0.12	0.03	0.11	0.02	5.00
25/10/2016	1.08	0.03	0.14	0.05	0.14	0.00	0.05	0.05	0.09	0.08	0.12	0.03	0.11	0.02	0.10	0.00	0.04
26/10/2016	1.12	0.02	0.06	0.05	0.13	0.00	0.02	0.03	0.10	0.05	0.30	0.03	0.11	0.03	0.05	0.00	0.03
27/10/2016	1.26	0.02	0.07	0.06	0.12	0.00	0.05	0.03	0.08	0.06	0.12	0.03	0.12	0.03	0.10	0.01	0.03
28/10/2016	1.23	0.04	0.06	0.09	0.14	0.00	0.07	0.03	0.06	0.07	0.09	0.02	0.08	0.02	0.10	0.00	0.02
29/10/2016	1.30	0.03	0.08	0.07	0.23	0.00	0.05	0.05	0.11	0.07	0.12	0.03	0.05	0.02	0.09	0.00	0.03
30/10/2016	1.23	0.03	0.08	0.07	0.12	0.00	0.08	0.04	0.10	0.06	0.12	0.02	0.09	0.04	0.06	0.01	0.01
31/10/2016	1.13	0.04	0.06	0.12	0.18	0.00	0.08	0.03	0.06	0.07	0.09	0.02	0.09	0.03	0.09	0.01	0.03

Total Number of Measurements Taken, A:	13904	11201	11150	10980	14392	14134	12954	14098
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:	13904	11201	11150	10980	14392	14134	12954	14097
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	99.993%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\10-October

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																		
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-2016	1.20	1.26	0.09	0.03	0.10	0.11	0.07	<0.02	0.08	0.02	0.11	0.07	0.08	<0.02	0.08	0.02	OL	OL
02-Nov-2016	0.88	1.08	0.09	<0.02	0.08	0.10	0.09	<0.02	0.08	0.03	0.10	0.10	0.09	0.02	0.10	0.02	0.07	<0.02
03-Nov-2016	1.00	1.07	0.07	<0.02	0.09	0.11	OL	OL	0.08	0.02	0.07	0.07	0.07	<0.02	0.10	0.03	0.08	<0.02
04-Nov-2016	1.06	1.09	OL	OL	OL	OL	0.08	<0.02	0.08	0.03	0.10	0.08	0.09	<0.02	0.07	<0.02	0.07	<0.02
05-Nov-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Nov-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Nov-2016	1.03	1.13	0.18	0.03	OL	OL	0.13	<0.02	0.10	0.04	0.13	0.10	0.11	0.05	0.09	0.03	0.09	<0.02
08-Nov-2016	0.91	1.09	0.14	<0.02	0.10	0.05	0.14	0.02	0.13	<0.02	0.13	0.02	OL	OL	0.11	0.03	0.10	<0.02
09-Nov-2016	0.95	1.04	0.09	<0.02	0.10	0.05	0.09	<0.02	0.11	<0.02	0.09	<0.02	0.10	0.03	0.14	0.03	0.13	0.02
10-Nov-2016	1.08	1.04	OL	OL	0.12	0.05	0.11	<0.02	0.13	<0.02	0.10	0.03	0.13	0.06	0.13	<0.02	0.11	<0.02
11-Nov-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12-Nov-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Nov-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Nov-2016	0.87	0.99	0.08	<0.02	0.09	0.06	0.11	<0.02	OL	OL	0.09	<0.02	0.08	0.03	0.09	0.02	0.10	<0.02
15-Nov-2016	0.97	0.97	0.10	0.02	0.09	0.07	0.08	<0.02	0.08	<0.02	0.09	0.02	0.09	0.03	0.14	0.06	0.07	<0.02
16-Nov-2016	0.82	0.98	0.10	<0.02	0.10	0.05	0.11	<0.02	0.11	<0.02	0.13	0.04	0.10	0.03	0.09	<0.02	0.09	<0.02
17-Nov-2016	0.76	0.94	0.09	<0.02	0.12	0.07	0.12	<0.02	0.09	<0.02	0.09	0.02	0.16	0.03	0.11	0.03	0.10	<0.02
18-Nov-2016	0.91	0.98	0.10	<0.02	0.11	0.08	0.10	<0.02	0.11	<0.02	0.12	0.03	0.14	0.03	0.08	<0.02	0.07	<0.02
19-Nov-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Nov-2016	NS	NS	NS	NS	NS	NS	0.09	<0.02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Nov-2016	0.85	0.91	0.13	0.03	OL	OL	OL	OL	0.11	<0.02	0.11	0.04	0.10	0.03	0.08	<0.02	0.08	<0.02
22-Nov-2016	0.76	0.96	0.08	<0.02	0.11	0.06	OL	OL	0.10	<0.02	0.15	0.03	0.11	0.04	0.08	<0.02	0.07	<0.02
23-Nov-2016	0.83	0.91	0.08	<0.02	0.08	0.06	OL	OL	0.14	<0.02	0.08	<0.02	0.09	0.02	0.11	0.02	0.14	0.02
24-Nov-2016	0.83	0.89	0.11	0.02	0.12	0.08	OL	OL	0.10	<0.02	0.10	0.02	0.11	0.03	0.12	0.03	0.08	<0.02
25-Nov-2016	0.86	0.88	0.12	0.02	0.10	0.06	OL	OL	0.09	<0.02	0.11	0.03	0.10	0.03	0.10	<0.02	0.11	<0.02
26-Nov-2016	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Nov-2016	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Nov-2016	0.82	0.91	0.11	0.03	0.14	0.07	OL	OL	0.11	<0.02	0.10	0.03	0.10	0.03	0.15	0.07	0.08	<0.02
29-Nov-2016	0.84	0.90	0.13	0.02	0.10	0.03	OL	OL	0.11	<0.02	0.14	0.04	0.15	0.05	0.14	0.02	0.12	<0.02
30-Nov-2016	1.05	0.91	0.10	0.02	0.10	0.05	OL	OL	0.12	0.02	0.11	0.02	NS	NS	0.13	0.03	0.12	<0.02
Total number of measurements taken, A:			19		18		13		20		21		19		21		20	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			19		18		13		20		21		19		21		20	
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:

Plant shut down due to electrical problems at Deacon Booster Station. Filter 6 was not sampled before the shutdown. Filter 3 was offline for maintenance from November 23rd to November 30th.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 7-Dec-16



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/11/2016	1.06	0.02	0.05	0.07	0.15	0.00	0.00	0.04	0.09	0.07	0.11	0.02	0.03	0.02	0.08	0.00	0.01
2/11/2016	1.11	0.02	0.05	0.07	0.11	0.00	0.03	0.03	0.07	0.05	0.11	0.02	0.07	0.03	0.05	0.01	0.01
3/11/2016	1.13	0.02	0.04	0.10	0.14	0.00	0.03	0.02	0.04	0.07	0.09	0.01	0.07	0.02	0.07	0.00	0.01
4/11/2016	1.14	0.02	0.05	0.05	0.15	0.00	0.00	0.04	0.08	0.07	0.11	0.02	0.04	0.02	0.03	0.00	0.03
5/11/2016	1.17	0.02	0.03	0.09	0.11	0.00	0.04	0.03	0.09	0.06	0.12	0.02	0.09	0.03	0.10	0.01	0.01
6/11/2016	1.29	0.04	0.07	0.09	0.15	0.00	0.05	0.04	0.09	0.09	0.11	0.02	0.04	0.03	0.10	0.01	0.08
7/11/2016	1.21	0.02	0.07	0.05	0.11	0.00	0.02	0.04	0.08	0.04	0.12	0.05	0.13	0.02	0.05	0.00	0.03
8/11/2016	1.14	0.01	0.02	0.05	0.06	0.01	0.07	0.01	0.06	0.02	0.07	0.03	0.12	0.03	0.10	0.01	0.01
9/11/2016	1.09	0.02	0.06	0.04	0.11	0.00	0.07	0.01	0.02	0.02	0.05	0.04	0.06	0.02	0.06	0.00	0.01
10/11/2016	1.07	0.01	0.06	0.04	0.11	0.00	0.02	0.02	0.05	0.02	0.06	0.05	0.12	0.01	0.03	0.01	0.01
11/11/2016	1.05	0.01	0.03	0.06	0.07	0.01	0.07	0.01	0.06	0.02	0.03	0.03	0.12	0.03	0.09	0.00	0.03
12/11/2016	1.05	0.02	0.06	0.04	0.11	0.00	0.07	0.01	0.02	0.03	0.07	0.05	0.13	0.02	0.21	0.01	0.06
13/11/2016	1.04	0.02	0.07	0.04	0.12	0.00	0.05	0.02	0.06	0.02	0.06	0.04	0.11	0.01	0.03	0.01	0.01
14/11/2016	1.02	0.02	0.06	0.06	0.11	0.00	0.06	0.01	0.06	0.02	0.05	0.03	0.11	0.03	0.09	0.01	0.06
15/11/2016	1.02	0.02	0.05	0.04	0.11	0.00	0.06	0.01	0.02	0.03	0.05	0.04	0.06	0.02	0.08	0.00	0.03
16/11/2016	0.99	0.01	0.05	0.03	0.10	0.00	0.04	0.01	0.06	0.02	0.05	0.03	0.11	0.01	0.03	0.01	0.01
17/11/2016	1.01	0.01	0.03	0.06	0.08	0.00	0.06	0.01	0.05	0.02	0.04	0.03	0.11	0.03	0.08	0.00	0.04
18/11/2016	1.00	0.01	0.05	0.04	0.10	0.00	0.00	0.02	0.02	0.03	0.06	0.04	0.09	0.02	0.07	0.00	0.03
19/11/2016	0.96	0.01	0.05	0.04	0.06	0.00	0.05	0.01	0.06	0.02	0.07	0.03	0.11	0.02	0.04	0.01	0.02
20/11/2016	0.95	0.02	0.05	0.05	0.11	0.00	0.00	0.02	0.06	0.03	0.05	0.04	0.10	0.02	0.08	0.00	0.03
21/11/2016	0.94	0.02	0.06	0.05	0.11	OL	OL	0.02	0.02	0.03	0.07	0.04	0.07	0.02	0.08	0.01	0.02
22/11/2016	0.95	0.02	0.06	0.05	0.11	OL	OL	0.01	0.05	0.02	0.05	0.02	0.09	0.01	0.04	0.01	0.01
23/11/2016	0.95	0.01	0.03	0.05	0.08	OL	OL	0.02	0.05	0.02	0.09	0.04	0.24	0.03	0.31	0.01	0.03
24/11/2016	0.91	0.03	0.06	0.06	0.11	OL	OL	0.02	0.06	0.03	0.05	0.03	0.10	0.03	0.09	0.01	0.03
25/11/2016	0.90	0.03	0.08	0.06	0.11	OL	OL	0.02	0.02	0.02	0.07	0.04	0.10	0.02	0.08	0.01	0.03
26/11/2016	0.91	0.03	0.08	0.06	0.13	OL	OL	0.02	0.06	0.03	0.08	0.04	0.10	0.02	0.04	0.01	0.01
27/11/2016	0.92	0.03	0.05	0.06	0.10	OL	OL	0.02	0.08	0.03	0.08	0.04	0.12	0.04	0.10	0.01	0.04
28/11/2016	0.92	0.04	0.09	0.04	0.09	OL	OL	0.02	0.08	0.04	0.07	0.04	0.06	0.03	0.10	0.01	0.03
29/11/2016	0.92	0.03	0.08	0.04	0.10	OL	OL	0.02	0.04	0.03	0.09	0.05	0.12	0.04	0.11	0.01	0.01
30/11/2016	0.93	0.03	0.11	0.03	0.06	OL	OL	0.02	0.09	0.03	0.09	0.04	0.13	0.04	0.07	0.01	0.05

Total Number of Measurements Taken, A:	14158	11349	5516	11021	14986	14692	13237	14346
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:	14158	11349	5516	11021	14986	14692	13236	14346
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	99.992%	100.000%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\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)																	
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
01-Dec-2016	0.82	0.98	0.08	<0.02	0.10	0.03	OL	OL	0.09	<0.02	0.07	<0.02	0.07	<0.02	0.08	0.02	OL	OL
02-Dec-2016	0.76	0.90	0.13	0.05	0.14	0.07	OL	OL	0.12	<0.02	0.12	0.04	0.11	0.04	0.09	0.02	0.09	<0.02
03-Dec-2016	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Dec-2016	NS	NS	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
05-Dec-2016	0.87	0.86	0.14	0.04	0.13	0.07	OL	OL	0.12	<0.02	0.10	0.03	0.10	0.04	0.14	0.06	0.12	0.02
06-Dec-2016	0.87	0.86	0.14	0.05	0.10	0.05	0.15	0.02	0.12	0.02	0.14	0.06	0.11	0.04	0.10	0.02	0.10	<0.02
07-Dec-2016	0.87	0.87	0.09	<0.02	OL	OL	0.14	<0.02	0.10	<0.02	0.08	0.02	0.13	0.06	0.09	0.02	0.10	<0.02
08-Dec-2016	0.82	0.87	0.11	0.03	OL	OL	0.11	<0.02	0.09	<0.02	0.09	0.02	0.09	0.02	0.11	0.04	0.10	<0.02
09-Dec-2016	0.84	0.86	0.13	0.05	OL	OL	0.12	<0.02	0.12	0.02	0.13	0.06	0.13	0.04	0.10	0.02	0.11	<0.02
10-Dec-2016	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Dec-2016	NS	NS	NS	NS	OL	OL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12-Dec-2016	0.82	0.84	0.13	0.05	OL	OL	0.14	<0.02	0.12	0.02	0.07	<0.02	0.06	<0.02	0.08	0.02	0.07	<0.02
13-Dec-2016	0.83	0.82	0.14	0.05	OL	OL	0.20	0.06	0.18	0.06	0.19	0.09	0.09	0.02	0.07	0.02	0.09	<0.02
14-Dec-2016	0.66	0.84	0.10	0.02	OL	OL	0.14	<0.02	0.13	0.03	0.08	0.02	0.09	0.03	0.06	<0.02	0.06	<0.02
15-Dec-2016	0.67	0.81	0.12	0.04	OL	OL	0.12	<0.02	0.17	0.05	0.09	0.02	0.07	<0.02	0.07	<0.02	0.07	<0.02
16-Dec-2016	0.71	0.82	0.10	0.03	OL	OL	0.10	<0.02	0.09	<0.02	0.10	0.03	0.10	0.03	0.12	0.05	0.08	<0.02
17-Dec-2016	NS	NS	NS	NS	0.14	0.14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
18-Dec-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
19-Dec-2016	0.75	0.81	0.07	<0.02	0.06	0.06	0.07	<0.02	OL	OL	0.06	<0.02	0.06	<0.02	0.08	0.02	0.08	<0.02
20-Dec-2016	0.62	0.78	0.10	0.02	0.07	0.06	0.09	<0.02	0.07	<0.02	0.08	0.06	0.07	<0.02	0.06	<0.02	0.06	<0.02
21-Dec-2016	0.66	0.77	0.08	<0.02	0.11	0.09	0.06	<0.02	0.09	<0.02	0.07	<0.02	0.10	0.03	0.08	0.02	0.08	<0.02
22-Dec-2016	0.69	0.75	0.08	<0.02	0.07	0.05	0.07	<0.02	0.06	<0.02	0.08	<0.02	0.08	<0.02	0.09	0.02	0.10	<0.02
23-Dec-2016	0.68	0.75	<0.05	<0.02	0.05	0.06	0.07	<0.02	0.05	<0.02	OL	OL	<0.05	<0.02	<0.05	<0.02	0.07	<0.02
24-Dec-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Dec-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Dec-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Dec-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Dec-2016	0.60	0.71	0.08	<0.02	0.10	0.06	0.07	<0.02	0.06	<0.02	0.08	<0.02	0.08	<0.02	0.10	<0.02	0.08	<0.02
29-Dec-2016	0.56	0.68	0.06	<0.02	0.07	0.07	0.10	<0.02	0.07	<0.02	0.10	0.02	0.08	<0.02	0.07	<0.02	0.05	<0.02
30-Dec-2016	0.57	0.66	0.07	<0.02	0.09	0.11	0.09	<0.02	0.11	<0.02	0.09	<0.02	0.08	<0.02	0.10	<0.02	0.09	<0.02
31-Dec-2016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:			19		13		17		19		19		19		19		19	
Turbidity Standard for Monitoring Location (NTU):			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30	
Number of measurements meeting standard, B:			19		13		17		19		19		19		19		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:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 4-Jan-17



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 2016 Turbidity (NTU)

Date	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
1/12/2016	0.98	0.01	0.05	0.02	0.07	OL	OL	0.01	0.05	0.01	0.05	0.02	0.09	0.01	0.06	0.00	0.01
2/12/2016	0.93	0.03	0.09	0.04	0.11	OL	OL	0.02	0.03	0.03	0.07	0.04	0.06	0.03	0.09	0.01	0.03
3/12/2016	0.89	0.04	0.10	0.05	0.12	OL	OL	0.03	0.10	0.03	0.09	0.04	0.12	0.03	0.10	0.01	0.01
4/12/2016	0.88	0.03	0.09	0.04	0.06	OL	OL	0.02	0.09	0.03	0.08	0.04	0.12	0.03	0.07	0.01	0.04
5/12/2016	0.89	0.05	0.06	0.06	0.11	OL	OL	0.03	0.10	0.03	0.06	0.04	0.13	0.04	0.10	0.01	0.05
6/12/2016	0.89	0.03	0.12	0.02	0.06	0.02	0.15	0.03	0.05	0.03	0.10	0.05	0.07	0.03	0.11	0.01	0.05
7/12/2016	0.89	0.02	0.05	OL	OL	0.00	0.07	0.02	0.08	0.03	0.09	0.04	0.11	0.03	0.05	0.01	0.01
8/12/2016	0.91	0.04	0.09	OL	OL	0.00	0.00	0.02	0.07	0.03	0.05	0.03	0.11	0.03	0.09	0.01	0.03
9/12/2016	0.87	0.04	0.11	OL	OL	0.00	0.07	0.02	0.09	0.04	0.08	0.04	0.06	0.03	0.10	0.01	0.05
10/12/2016	0.86	0.03	0.10	OL	OL	0.00	0.07	0.03	0.08	0.03	0.08	0.04	0.11	0.03	0.07	0.01	0.01
11/12/2016	0.87	0.04	0.05	OL	OL	0.01	0.09	0.03	0.12	0.02	0.07	0.02	0.07	0.02	0.04	0.01	0.01
12/12/2016	0.85	0.06	0.13	OL	OL	0.00	0.01	0.04	0.14	0.03	0.07	0.01	0.07	0.02	0.06	0.01	0.01
13/12/2016	0.82	0.05	0.16	OL	OL	0.01	0.12	0.04	0.09	0.02	0.11	0.02	0.04	0.01	0.05	0.01	0.01
14/12/2016	0.83	0.04	0.12	OL	OL	0.00	0.09	0.04	0.11	0.03	0.07	0.02	0.07	0.01	0.03	0.01	0.01
15/12/2016	0.82	0.05	0.08	OL	OL	0.00	0.09	0.03	0.13	0.02	0.09	0.03	0.07	0.02	0.06	0.01	0.01
16/12/2016	0.82	0.04	0.11	OL	OL	0.00	0.00	0.02	0.11	0.04	0.09	0.04	0.15	0.04	0.12	0.01	0.05
17/12/2016	0.81	0.02	0.07	0.05	0.15	0.00	0.10	0.02	0.06	0.02	0.07	0.04	0.09	0.02	0.10	0.00	0.03
18/12/2016	0.81	0.01	0.01	0.04	0.12	0.00	0.01	0.01	0.06	0.01	0.04	0.01	0.06	0.01	0.03	0.01	0.03
19/12/2016	0.81	0.01	0.04	0.04	0.08	0.00	0.00	0.01	0.05	0.01	0.03	0.01	0.07	0.01	0.05	0.00	0.01
20/12/2016	0.80	0.01	0.06	0.06	0.11	0.00	0.04	0.01	0.02	0.01	0.05	0.02	0.04	0.01	0.07	0.00	0.01
21/12/2016	0.78	0.01	0.03	0.04	0.11	0.00	0.03	0.01	0.05	0.01	0.04	0.02	0.10	0.02	0.04	0.01	0.03
22/12/2016	0.76	0.01	0.05	0.04	0.06	0.00	0.00	0.01	0.05	0.02	0.05	0.01	0.06	0.01	0.07	0.00	0.03
23/12/2016	0.76	0.01	0.04	0.05	0.09	0.00	0.00	0.02	0.02	0.00	0.02	0.01	0.06	0.00	0.05	0.01	0.01
24/12/2016	0.75	0.01	0.02	0.04	0.10	0.00	0.01	0.01	0.02	0.00	0.02	0.00	0.02	0.01	0.01	0.01	0.01
25/12/2016	0.74	0.01	0.03	0.05	0.22	0.00	0.00	0.01	0.03	0.01	0.03	0.01	0.03	0.00	0.03	0.00	0.01
26/12/2016	0.74	0.01	0.03	0.05	0.08	0.00	0.02	0.01	0.02	0.00	0.02	0.01	0.01	0.00	0.02	0.00	0.01
27/12/2016	0.72	0.01	0.02	0.04	0.08	0.00	0.00	0.01	0.02	0.00	0.02	0.00	0.02	0.01	0.01	0.01	0.01
28/12/2016	0.71	0.01	0.03	0.04	0.07	0.00	0.00	0.01	0.02	0.01	0.02	0.00	0.03	0.00	0.02	0.00	0.01
29/12/2016	0.69	0.01	0.05	0.05	0.08	0.00	0.00	0.02	0.02	0.01	0.03	0.01	0.01	0.01	0.04	0.00	0.01
30/12/2016	0.68	0.01	0.03	0.04	0.10	0.00	0.01	0.01	0.05	0.01	0.02	0.01	0.05	0.01	0.03	0.01	0.01
31/12/2016	0.67	0.02	0.04	0.05	0.07	0.00	0.00	0.01	0.05	0.01	0.05	0.01	0.01	0.01	0.05	0.00	0.01

Total Number of Measurements Taken, A:	14974	7629	6302	11443	15759	15544	13904	15149
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:	14974	7629	6302	11443	15759	15544	13904	15149
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%

Note: OL - Off line

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2016\12-December

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor

2016 Monthly UV Monitoring Reports



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: **January 2016**

Report Created: **Monday, February 01, 2016**

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To	
		Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]					
	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	Dose		
01/01/2016	94.45	0.00	0.00	55.06	55.06	0.00	0.00	0.00	0.00	0.00	0.00	63.61	63.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.36	60.36	0.00	0.00	179.03	179.03	100.00	
02/01/2016	94.37	0.00	0.00	54.52	54.52	0.00	0.00	0.00	0.00	0.00	0.00	62.98	62.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.49	61.49	0.00	0.00	178.99	178.99	100.00	
03/01/2016	94.41	0.00	0.00	54.01	54.01	0.00	0.00	0.00	0.00	0.00	0.00	57.07	57.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.66	60.66	0.00	0.00	171.74	171.74	100.00	
04/01/2016	94.78	0.00	0.00	58.95	58.95	0.00	0.00	0.00	0.00	0.00	0.00	48.80	48.80	0.00	0.00	40.69	40.69	0.00	0.00	0.00	0.00	0.00	0.00	24.12	24.12	0.00	0.00	172.56	172.56	100.00	
05/01/2016	94.78	0.00	0.00	63.04	63.04	0.00	0.00	0.00	0.00	0.00	0.00	45.87	45.87	0.00	0.00	68.04	68.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	176.95	176.95	100.00	
06/01/2016	94.61	0.00	0.00	50.38	50.38	0.00	0.08	36.93	37.01	0.13	0.13	15.80	16.06	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	0.13	0.21	176.77	177.11	99.81
07/01/2016	94.62	0.00	0.00	44.21	44.21	0.00	0.08	56.31	56.39	0.04	0.04	0.01	0.09	0.00	0.00	76.37	76.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	176.90	177.06	99.91
08/01/2016	93.67	0.00	0.00	45.89	45.89	0.00	0.16	57.89	58.05	0.00	0.00	0.00	0.00	0.00	0.00	24.75	24.75	0.00	0.00	50.14	50.14	0.00	0.00	0.00	0.00	0.00	0.00	0.16	178.68	178.84	99.91
09/01/2016	94.63	0.00	0.00	46.54	46.54	0.00	0.08	58.59	58.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.81	73.81	0.00	0.00	0.00	0.00	0.00	0.00	0.08	178.94	179.02	99.95
10/01/2016	93.99	0.00	0.00	46.52	46.52	0.00	0.08	58.57	58.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.82	73.82	0.00	0.00	0.00	0.00	0.00	0.00	0.08	178.91	178.99	99.95
11/01/2016	93.82	0.00	0.00	28.59	28.59	0.16	0.20	52.67	53.03	0.00	0.03	5.90	5.93	0.00	0.00	22.99	22.99	0.00	0.00	68.57	68.57	0.00	0.00	0.00	0.00	0.00	0.16	0.24	178.72	179.12	99.78
12/01/2016	94.29	0.00	0.04	0.02	0.06	0.00	0.00	63.97	63.97	0.00	0.00	29.09	29.09	0.00	0.00	63.21	63.21	0.00	0.00	22.47	22.47	0.00	0.05	0.17	0.22	0.00	0.09	178.92	179.01	99.95	
13/01/2016	94.72	0.00	0.00	0.00	0.00	0.00	0.00	64.35	64.35	0.00	0.00	45.92	45.92	0.00	0.00	68.74	68.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.01	179.01	100.00
14/01/2016	94.64	0.00	0.00	0.00	0.00	0.00	0.00	64.31	64.31	0.00	0.00	45.98	45.98	0.00	0.00	68.68	68.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.97	178.97	100.00
15/01/2016	94.61	0.00	0.00	0.00	0.00	0.00	0.00	64.90	64.90	0.00	0.00	46.09	46.09	0.00	0.00	68.82	68.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.81	179.81	100.00
16/01/2016	94.48	0.00	0.00	0.00	0.00	0.00	0.00	64.70	64.70	0.00	0.00	46.20	46.20	0.00	0.00	69.09	69.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.99	179.99	100.00
17/01/2016	93.77	0.00	0.00	0.00	0.00	0.00	0.00	65.89	65.89	0.00	0.00	45.73	45.73	0.00	0.00	68.38	68.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.01	180.01	100.00
18/01/2016	93.47	0.00	0.00	22.27	22.27	0.00	0.00	43.92	43.92	0.00	0.00	29.31	29.31	0.00	0.00	65.59	65.59	0.00	0.03	0.00	0.03	0.00	0.00	21.61	21.61	0.00	0.03	182.70	182.74	99.98	
19/01/2016	93.13	0.00	0.00	30.47	30.47	0.00	0.00	31.59	31.59	0.00	0.00	0.00	0.00	0.00	0.00	55.38	55.38	0.00	0.00	0.00	0.00	0.00	0.00	62.55	62.55	0.00	0.00	180.00	180.00	100.00	
20/01/2016	92.67	0.00	0.00	0.00	0.00	0.00	0.00	64.49	64.49	0.00	0.00	0.00	0.00	0.00	0.00	52.78	52.78	0.00	0.00	0.00	0.00	0.00	0.00	62.68	62.68	0.00	0.00	179.96	179.96	100.00	
21/01/2016	92.70	0.00	0.00	0.00	0.00	0.00	0.00	62.50	62.50	0.00	0.18	27.26	27.44	0.00	0.00	27.73	27.73	0.00	0.00	44.55	44.55	0.00	0.00	19.32	19.32	0.00	0.18	181.35	181.54	99.90	
22/01/2016	92.64	0.00	0.00	0.00	0.00	0.00	0.00	64.13	64.13	0.00	0.04	37.23	37.27	0.00	0.00	16.85	16.85	0.00	0.00	65.89	65.89	0.00	0.00	0.00	0.00	0.00	0.00	0.04	184.11	184.15	99.98
23/01/2016	92.11	0.00	0.00	0.00	0.00	0.00	0.00	63.04	63.04	0.00	0.00	55.05	55.05	0.00	0.00	0.00	0.00	0.00	0.00	66.97	66.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.05	185.05	100.00
24/01/2016	91.10	0.00	0.00	0.00	0.00	0.00	0.00	62.96	62.96	0.00	0.00	54.97	54.97	0.00	0.00	0.00	0.00	0.00	0.00	67.06	67.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.00	185.00	100.00
25/01/2016	90.28	0.00	0.00	18.18	18.18	0.00	0.00	44.21	44.21	0.00	0.04	54.88	54.92	0.00	0.00	0.00	0.00	0.00	0.00	67.72	67.72	0.00	0.00	0.00	0.00	0.00	0.00	0.04	184.99	185.04	99.98
26/01/2016	92.21	0.00	0.00	0.00	0.00	0.00	0.00	62.91	62.91	0.00	0.00	55.01	55.01	0.00	0.00	0.00	0.00	0.00	0.00	67.09	67.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	185.01	185.01	100.00
27/01/2016	93.30	0.00	0.00	0.00	0.00	0.00	0.09	61.66	61.75	0.00	0.00	54.42	54.42	0.00	0.00	5.35	5.35	0.19	0.23	59.32	59.74	0.00	0.00	0.00	0.00	0.00	0.19	0.31	180.74	181.25	99.72
28/01/2016	95.32	0.00	0.00	0.00	0.00	0.00	0.00	61.00	61.00	0.00	0.00	54.06	54.06	0.00	0.00	0.00	0.00	0.00	0.00	63.26	63.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.32	178.32	100.00
29/01/2016	95.38	0.00	0.00	0.00	0.00	0.00	0.00	59.83	59.83	0.00	0.00	55.07	55.07	0.00	0.00	0.00	0.00	0.00	0.00	63.10	63.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.00	178.00	100.00
30/01/2016	95.10	0.00	0.00	0.00	0.00	0.00	0.00	59.79	59.79	0.00	0.00	54.89	54.89	0.00	0.00	0.00	0.00	0.00	0.00	63.29	63.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.97	177.97	100.00
31/01/2016	95.17	0.00	0.00	0.00	0.00	0.00	0.00	60.03	60.03	0.00	0.00	54.75	54.75	0.00	0.00	0.00	0.00	0.00	0.00	63.24	63.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.02	178.02	100.00
		0.00	0.04	618.67	618.71	0.16	0.77	1511.16	1512.09	0.17	0.46	1145.95	1146.58	0.00	0.00	937.11	937.11	0.19	0.26	980.28	980.73	0.00	0.06	372.96	373.02	0.53	1.59	5566.13	5568.25		

Water Volume [%]:

Untreated: 0.01 %
Below Dose 0.03 %
To Dose 99.96 %

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 AA**

WATER TREATMENT PLANT UV REPORT

Report Period: **February 2016**

Report Created: **Tuesday, March 01, 2016**

Date	Transmittance %	UVR-D100A Water Volume [ML]				UVR-D200A Water Volume [ML]				UVR-D300A Water Volume [ML]				UVR-D400A Water Volume [ML]				UVR-D500A Water Volume [ML]				UVR-D600A Water Volume [ML]				Total Water Volume [ML]				% Volume Treated To Dose
		Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	
01/02/2016	95.10	0.00	0.00	37.69	37.69	0.00	0.00	39.16	39.16	0.00	0.00	14.71	14.71	0.00	0.00	49.39	49.39	0.00	0.00	37.78	37.78	0.00	0.04	0.66	0.70	0.00	0.04	179.39	179.44	99.98
02/02/2016	94.89	0.00	0.00	44.58	44.58	0.00	0.04	56.76	56.80	0.00	0.00	0.00	0.00	0.00	0.00	78.52	78.52	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.13	179.86	179.99	99.93
03/02/2016	94.72	0.00	0.00	44.79	44.79	0.00	0.04	56.93	56.96	0.00	0.00	0.00	0.00	0.00	0.00	78.21	78.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	179.93	179.96	99.98
04/02/2016	95.37	0.00	0.00	25.21	25.21	0.00	0.00	59.49	59.49	0.00	0.00	0.00	0.00	0.00	0.00	68.24	68.24	0.00	0.00	0.00	0.00	0.00	0.04	27.01	27.06	0.00	0.04	179.95	179.99	99.98
05/02/2016	95.37	0.00	0.00	0.00	0.00	0.00	0.00	63.95	63.95	0.00	0.00	24.77	24.77	0.00	0.00	30.63	30.63	0.00	0.00	38.62	38.62	0.00	0.09	25.68	25.77	0.00	0.09	183.65	183.74	99.95
06/02/2016	95.32	0.00	0.00	0.00	0.00	0.00	0.00	64.71	64.71	0.00	0.00	57.49	57.49	0.00	0.00	0.00	0.00	0.00	0.00	67.18	67.18	0.00	0.00	0.00	0.00	0.00	0.00	189.38	189.38	100.00
07/02/2016	95.25	0.00	0.00	0.00	0.00	0.00	0.00	63.72	63.72	0.00	0.00	56.99	56.99	0.00	0.00	0.00	0.00	0.00	0.00	66.27	66.27	0.00	0.00	0.00	0.00	0.00	0.00	186.98	186.98	100.00
08/02/2016	95.25	0.00	0.00	0.00	0.00	0.00	0.00	62.85	62.85	0.00	0.00	56.20	56.20	0.00	0.00	0.00	0.00	0.00	0.00	65.32	65.32	0.00	0.00	0.00	0.00	0.00	0.00	184.37	184.37	100.00
09/02/2016	95.27	0.00	0.00	0.00	0.00	0.00	0.00	61.23	61.23	0.00	0.00	55.83	55.83	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	180.94	180.94	100.00
10/02/2016	95.10	0.00	0.00	0.00	0.00	0.00	0.00	50.97	50.97	0.12	0.12	48.77	49.00	0.00	0.00	0.00	0.00	0.00	0.00	51.85	51.85	0.00	0.00	0.00	0.00	0.12	0.12	151.59	151.83	99.85
11/02/2016	94.12	0.00	0.00	0.00	0.00	0.00	0.00	60.33	60.33	0.00	0.00	64.96	64.96	0.00	0.00	0.00	0.00	0.00	0.00	63.71	63.71	0.00	0.00	0.00	0.00	0.00	0.00	189.00	189.00	100.00
12/02/2016	94.09	0.00	0.00	0.00	0.00	0.00	0.00	59.83	59.83	0.00	0.00	64.26	64.26	0.00	0.00	0.00	0.00	0.00	0.00	64.86	64.86	0.00	0.00	0.00	0.00	0.00	0.00	188.96	188.96	100.00
13/02/2016	94.05	0.00	0.00	3.65	3.65	0.00	0.00	60.95	60.95	0.19	0.19	60.61	61.00	0.00	0.00	0.00	0.00	0.00	0.00	63.53	63.53	0.00	0.00	0.00	0.00	0.19	0.19	188.74	189.13	99.80
14/02/2016	93.85	0.00	0.00	57.49	57.49	0.00	0.00	71.50	71.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.97	59.97	0.00	0.00	0.00	0.00	0.00	0.00	188.96	188.96	100.00
15/02/2016	93.65	0.00	0.00	55.14	55.14	0.00	0.00	68.75	68.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.02	60.02	0.00	0.00	0.00	0.00	0.00	0.00	183.91	183.91	100.00
16/02/2016	93.64	0.00	0.00	44.97	44.97	0.00	0.00	57.70	57.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.09	48.09	0.00	0.00	0.00	0.00	0.00	0.00	150.77	150.77	100.00
17/02/2016	93.70	0.00	0.00	53.92	53.92	0.00	0.00	67.27	67.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.77	59.77	0.00	0.00	0.00	0.00	0.00	0.00	180.96	180.96	100.00
18/02/2016	93.89	0.00	0.00	53.40	53.40	0.00	0.00	66.66	66.66	0.00	0.00	0.00	0.00	0.35	0.41	4.14	4.90	0.27	0.27	55.97	56.52	0.00	0.00	0.00	0.00	0.63	0.68	180.18	181.49	99.28
19/02/2016	95.22	0.00	0.00	52.24	52.24	0.00	0.00	65.21	65.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.55	63.55	0.00	0.00	0.00	0.00	0.00	0.00	180.99	180.99	100.00
20/02/2016	95.15	0.00	0.00	53.89	53.89	0.00	0.00	67.11	67.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.98	59.98	0.00	0.00	0.00	0.00	0.00	0.00	180.99	180.99	100.00
21/02/2016	95.18	0.00	0.00	53.88	53.88	0.00	0.00	67.11	67.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	180.99	180.99	100.00
22/02/2016	95.25	0.00	0.00	54.77	54.77	0.00	0.00	68.28	68.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.01	60.01	0.00	0.00	0.00	0.00	0.00	0.00	183.06	183.06	100.00
23/02/2016	95.20	0.00	0.00	55.14	55.14	0.00	0.00	68.84	68.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.02	60.02	0.00	0.00	0.00	0.00	0.00	0.00	184.00	184.00	100.00
24/02/2016	95.34	0.00	0.00	55.17	55.17	0.00	0.00	68.85	68.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.00	184.01	184.01	100.00
25/02/2016	95.47	0.00	0.00	55.19	55.19	0.00	0.00	68.81	68.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.00	184.00	184.00	100.00
26/02/2016	95.47	0.00	0.00	55.22	55.22	0.00	0.00	68.80	68.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.00	184.00	184.00	100.00
27/02/2016	95.36	0.00	0.00	53.99	53.99	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	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	181.28	181.28	100.00
28/02/2016	95.08	0.00	0.00	53.43	53.43	0.00	0.00	66.56	66.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.99	59.99	0.00	0.00	0.00	0.00	0.00	0.00	179.98	179.98	100.00
29/02/2016	95.13	0.00	0.00	53.49	53.49	0.00	0.00	66.60	66.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.95	59.95	0.00	0.00	0.00	0.00	0.00	0.00	180.04	180.04	100.00
		0.00	0.00	1017.27	1017.27	0.00	0.08	1836.21	1836.29	0.31	0.31	504.60	505.21	0.35	0.41	309.14	309.90	0.27	0.27	1530.30	1530.85	0.00	0.26	53.36	53.62	0.94	1.33	5250.88	5253.14	
Water Volume [%]:																														
Untreated:		0.02 %																												
Below Dose		0.03 %																												
To Dose		99.96 %																												

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



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 2016**

Report Created: **Friday, April 01, 2016**

Date	Transmittance %	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To	
		Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]									
	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	Dose		
01/03/2016	95.71	0.00	0.00	53.86	53.86	0.00	0.00	67.03	67.03	0.00	0.00	0.31	0.31	0.00	0.00	0.00	0.00	0.00	0.00	60.09	60.09	0.00	0.00	0.00	0.00	0.00	0.00	181.29	181.29	100.00	
02/03/2016	95.68	0.00	0.00	44.80	44.80	0.00	0.00	59.64	59.64	0.00	0.00	0.00	0.00	0.00	0.00	26.34	26.34	0.00	0.00	51.10	51.10	0.00	0.00	0.00	0.00	0.00	0.00	181.88	181.88	100.00	
03/03/2016	96.04	0.00	0.00	14.90	14.90	0.00	0.00	67.04	67.04	0.00	0.00	0.00	0.00	0.00	0.00	45.61	45.61	0.00	0.00	54.47	54.47	0.00	0.00	0.00	0.00	0.00	0.00	182.02	182.02	100.00	
04/03/2016	96.72	0.00	0.00	0.00	0.00	0.00	0.00	74.51	74.51	0.00	0.00	0.00	0.00	0.00	0.00	47.48	47.48	0.00	0.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	181.99	181.99	100.00	
05/03/2016	96.79	0.00	0.00	0.00	0.00	0.00	0.00	74.39	74.39	0.00	0.00	0.00	0.00	0.00	0.00	48.71	48.71	0.00	0.00	57.45	57.45	0.00	0.00	0.00	0.00	0.00	0.00	180.55	180.55	100.00	
06/03/2016	96.69	0.00	0.00	0.00	0.00	0.00	0.00	75.67	75.67	0.00	0.00	0.00	0.00	0.00	0.00	52.97	52.97	0.00	0.00	51.35	51.35	0.00	0.00	0.00	0.00	0.00	0.00	179.99	179.99	100.00	
07/03/2016	96.68	0.00	0.00	0.00	0.00	0.00	0.00	80.53	80.53	0.00	0.00	0.00	0.00	0.00	0.00	49.41	49.41	0.00	0.00	49.98	49.98	0.00	0.00	0.00	0.00	0.00	0.00	179.92	179.92	100.00	
08/03/2016	96.70	0.00	0.00	0.00	0.00	0.00	0.00	84.44	84.44	0.00	0.00	0.00	0.00	0.00	0.00	45.55	45.55	0.00	0.00	50.01	50.01	0.00	0.00	0.00	0.00	0.00	0.00	180.01	180.01	100.00	
09/03/2016	96.62	0.00	0.00	0.00	0.00	0.00	0.00	84.82	84.82	0.00	0.00	0.00	0.00	0.00	0.00	51.45	51.45	0.00	0.00	50.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	186.26	186.26	100.00	
10/03/2016	96.34	0.00	0.00	0.00	0.00	0.00	0.00	85.03	85.03	0.00	0.00	0.00	0.00	0.00	0.00	55.00	55.00	0.00	0.00	49.98	49.98	0.00	0.00	0.00	0.00	0.00	0.00	190.01	190.01	100.00	
11/03/2016	95.67	0.00	0.00	0.00	0.00	0.00	0.00	82.97	82.97	0.00	0.00	0.00	0.00	0.00	0.00	57.04	57.04	0.00	0.00	50.02	50.02	0.00	0.00	0.00	0.00	0.00	0.00	190.04	190.04	100.00	
12/03/2016	95.80	0.00	0.33	0.37	0.70	1.06	1.25	17.93	20.24	0.00	0.00	45.84	45.84	0.00	0.07	65.40	65.47	0.08	0.11	25.42	25.61	0.00	0.44	32.51	32.95	1.15	2.19	187.47	190.80	98.25	
13/03/2016	95.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.90	56.90	0.00	0.00	68.04	68.04	0.00	0.00	0.00	0.00	0.00	0.00	65.06	65.06	0.00	0.00	190.00	190.00	100.00	
14/03/2016	95.91	0.00	0.00	0.00	0.00	0.00	0.00	31.19	31.19	0.00	0.00	51.88	51.88	0.00	0.00	65.55	65.55	0.00	0.00	0.00	0.00	0.00	0.09	41.26	41.36	0.00	0.09	189.88	189.97	99.95	
15/03/2016	95.38	0.00	0.00	0.00	0.00	0.00	0.04	40.21	40.25	0.00	0.00	23.45	23.45	0.01	0.03	35.03	35.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	98.69	98.78	99.91
16/03/2016	96.10	0.00	0.00	0.00	0.00	0.00	0.13	63.31	63.44	0.00	0.00	42.28	42.28	0.00	0.00	70.61	70.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	176.20	176.33	99.93
17/03/2016	95.97	0.00	0.00	0.00	0.00	0.00	0.00	63.96	63.96	0.00	0.00	54.34	54.34	0.00	0.00	34.69	34.69	0.00	0.00	0.00	0.00	0.01	0.01	32.03	32.04	0.01	0.01	185.03	185.04	99.99	
18/03/2016	96.39	0.00	0.00	0.00	0.00	0.00	0.04	59.98	60.02	0.00	0.00	64.61	64.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.35	60.35	0.00	0.04	184.94	184.98	99.98	
19/03/2016	96.71	0.00	0.00	0.00	0.00	0.00	0.04	59.96	60.00	0.00	0.00	64.59	64.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.37	60.37	0.00	0.04	184.92	184.96	99.98	
20/03/2016	96.01	0.00	0.00	0.00	0.00	0.00	0.04	59.91	59.95	0.00	0.00	64.63	64.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.44	60.44	0.00	0.04	184.98	185.02	99.98	
21/03/2016	95.47	0.00	0.00	0.00	0.00	0.00	0.00	59.93	59.93	0.00	0.00	64.56	64.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.52	60.52	0.00	0.00	185.00	185.00	100.00	
22/03/2016	95.56	0.00	0.00	0.00	0.00	0.00	0.00	60.33	60.33	0.00	0.00	63.95	63.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.70	60.70	0.00	0.00	184.97	184.97	100.00	
23/03/2016	95.82	0.00	0.00	0.00	0.00	0.00	0.04	67.27	67.31	0.00	0.00	55.35	55.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.71	62.71	0.00	0.04	185.33	185.38	99.98	
24/03/2016	95.84	0.00	0.04	13.67	13.71	0.00	0.00	62.14	62.14	0.00	0.00	47.81	47.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.02	65.02	0.00	0.04	188.64	188.69	99.98	
25/03/2016	96.62	0.00	0.00	0.00	0.00	0.00	0.00	76.87	76.87	0.00	0.00	47.29	47.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.84	68.84	0.00	0.00	193.00	193.00	100.00	
26/03/2016	96.19	0.00	0.00	0.00	0.00	0.00	0.00	77.03	77.03	0.00	0.00	47.96	47.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.98	67.98	0.00	0.00	192.97	192.97	100.00	
27/03/2016	95.94	0.00	0.00	0.00	0.00	0.00	0.00	78.82	78.82	0.00	0.00	53.27	53.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.14	58.14	0.00	0.00	190.23	190.23	100.00	
28/03/2016	95.90	0.00	0.00	0.00	0.00	0.00	0.00	76.40	76.40	0.00	0.00	51.03	51.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.01	55.01	0.00	0.00	182.44	182.44	100.00	
29/03/2016	95.81	0.00	0.00	0.00	0.00	0.00	0.00	75.27	75.27	0.00	0.00	33.42	33.42	0.00	0.00	15.21	15.21	0.00	0.00	23.50	23.50	0.00	0.00	32.62	32.62	0.00	0.00	180.02	180.02	100.00	
30/03/2016	96.00	0.00	0.09	1.06	1.14	0.00	0.00	72.21	72.21	0.00	0.00	0.00	0.00	0.00	0.00	43.49	43.49	0.00	0.00	63.14	63.14	0.00	0.00	0.00	0.00	0.00	0.09	179.89	179.98	99.95	
31/03/2016	95.67	0.00	0.00	0.00	0.00	0.00	0.03	33.77	33.80	0.00	0.00	0.00	0.00	0.00	0.00	16.68	16.68	0.00	0.00	22.19	22.19	0.00	0.00	0.00	0.00	0.00	0.03	72.65	72.68	99.95	
		0.00	0.46	128.65	129.11	1.06	1.62	1972.54	1975.22	0.00	0.00	933.48	933.48	0.01	0.10	894.26	894.37	0.08	0.11	718.70	718.89	0.01	0.53	883.57	884.10	1.16	2.82	5531.20	5535.18		

Water Volume [%]:

Untreated: 0.02 %
Below Dose 0.05 %
To Dose 99.93 %

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 2016**

Report Created: **Sunday, May 01, 2016**

Date	Transmittance %	UVR-D100A Water Volume [ML]				UVR-D200A Water Volume [ML]				UVR-D300A Water Volume [ML]				UVR-D400A Water Volume [ML]				UVR-D500A Water Volume [ML]				UVR-D600A Water Volume [ML]				Total Water Volume [ML]				% Volume Treated To Dose
		Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	
01/04/2016	96.18	0.00	0.00	0.00	0.00	0.00	0.00	82.75	82.75	0.00	0.00	10.72	10.72	0.00	0.00	56.25	56.25	0.00	0.00	25.10	25.10	0.00	0.00	23.45	23.45	0.00	0.00	198.27	198.27	100.00
02/04/2016	96.17	0.00	0.00	0.00	0.00	0.00	0.00	79.01	79.01	0.00	0.00	45.09	45.09	0.03	0.03	4.24	4.30	0.00	0.00	27.85	27.85	0.03	0.03	33.32	33.39	0.06	0.06	189.50	189.63	99.93
03/04/2016	96.25	0.00	0.00	0.00	0.00	0.00	0.00	79.11	79.11	0.00	0.00	49.17	49.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.55	62.55	0.00	0.00	190.83	190.83	100.00
04/04/2016	96.22	0.00	0.16	32.53	32.69	0.00	0.00	45.31	45.31	0.00	0.00	50.54	50.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.44	64.44	0.00	0.16	192.82	192.98	99.92
05/04/2016	96.24	0.00	0.16	56.03	56.19	0.00	0.00	24.27	24.27	0.03	0.03	29.51	29.57	0.00	0.00	0.00	0.00	0.00	0.00	15.16	15.16	0.00	0.00	65.70	65.70	0.03	0.19	190.66	190.88	99.89
06/04/2016	96.41	0.00	0.00	56.52	56.52	0.00	0.00	28.35	28.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.44	37.44	0.00	0.00	67.44	67.44	0.00	0.00	189.74	189.74	100.00
07/04/2016	96.45	0.00	0.00	50.35	50.35	0.00	0.00	26.86	26.86	0.00	0.00	0.00	0.00	0.00	0.00	30.20	30.20	0.00	0.00	60.90	60.90	0.00	0.00	21.71	21.71	0.00	0.00	190.03	190.03	100.00
08/04/2016	96.41	0.00	0.00	72.90	72.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.21	44.21	0.00	0.00	35.78	35.78	0.00	0.00	35.74	35.74	0.00	0.00	188.63	188.64	100.00
09/04/2016	96.51	0.00	0.00	70.91	70.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.44	42.44	0.00	0.00	0.00	0.00	0.00	0.00	67.09	67.09	0.00	0.00	180.43	180.43	100.00
10/04/2016	96.50	0.00	0.00	70.51	70.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.64	42.64	0.00	0.00	0.00	0.00	0.00	0.00	66.81	66.81	0.00	0.00	179.96	179.96	100.00
11/04/2016	96.42	0.00	0.00	70.42	70.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.72	42.72	0.00	0.00	0.00	0.00	0.00	0.05	66.82	66.86	0.00	0.05	179.95	179.99	99.97
12/04/2016	96.51	0.00	0.00	70.60	70.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.22	43.22	0.00	0.00	0.00	0.00	0.00	0.00	66.18	66.18	0.00	0.00	180.00	180.00	100.00
13/04/2016	96.53	0.00	0.00	72.49	72.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.47	49.47	0.00	0.00	0.00	0.00	0.00	0.00	58.02	58.02	0.00	0.00	179.98	179.98	100.00
14/04/2016	96.47	0.00	0.00	74.35	74.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.70	55.70	0.00	0.00	0.00	0.00	0.00	0.00	50.00	50.00	0.00	0.00	180.05	180.05	100.00
15/04/2016	96.58	0.00	0.00	75.45	75.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.24	59.24	0.00	0.00	0.00	0.00	0.00	0.00	46.28	46.28	0.00	0.00	180.96	180.96	100.00
16/04/2016	96.71	0.00	0.00	77.13	77.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.60	63.60	0.00	0.00	0.00	0.00	0.00	0.00	40.30	40.30	0.00	0.00	181.03	181.03	100.00
17/04/2016	97.20	0.00	0.00	74.63	74.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.86	55.86	0.00	0.00	31.95	31.95	0.00	0.00	18.53	18.53	0.00	0.00	180.98	180.98	100.00
18/04/2016	97.19	0.00	0.00	69.56	69.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.50	42.50	0.00	0.00	67.10	67.10	0.00	0.00	0.00	0.00	0.00	0.00	179.16	179.16	100.00
19/04/2016	97.25	0.00	0.00	69.66	69.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.49	42.49	0.00	0.00	65.50	65.50	0.00	0.00	0.00	0.00	0.00	0.00	177.66	177.66	100.00
20/04/2016	97.32	0.00	0.00	69.86	69.86	0.00	0.00	0.00	0.00	0.00	0.00	21.69	21.69	0.00	0.00	21.86	21.86	0.00	0.00	67.57	67.57	0.00	0.00	0.00	0.00	0.00	0.00	180.99	180.99	100.00
21/04/2016	97.77	0.00	0.00	69.21	69.21	0.00	0.00	0.00	0.00	0.00	0.00	44.13	44.13	0.00	0.00	0.00	0.00	0.00	0.00	68.43	68.43	0.00	0.00	0.00	0.00	0.00	0.00	181.77	181.77	100.00
22/04/2016	97.85	0.00	0.00	69.74	69.74	0.00	0.00	0.00	0.00	0.00	0.00	44.72	44.72	0.00	0.00	0.00	0.00	0.00	0.00	69.57	69.57	0.00	0.00	0.00	0.00	0.00	0.00	184.03	184.03	100.00
23/04/2016	97.85	0.00	0.00	69.85	69.85	0.00	0.00	0.00	0.00	0.00	0.00	44.70	44.70	0.00	0.00	0.00	0.00	0.00	0.00	69.45	69.45	0.00	0.00	0.00	0.00	0.00	0.00	184.00	184.00	100.00
24/04/2016	97.71	0.00	0.00	69.90	69.90	0.00	0.00	0.00	0.00	0.00	0.00	44.73	44.73	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	184.02	184.02	100.00
25/04/2016	97.63	0.00	0.00	27.45	27.45	0.00	0.05	45.98	46.04	0.00	0.00	20.16	20.16	0.00	0.00	23.95	23.95	0.00	0.00	68.29	68.29	0.00	0.00	0.00	0.00	0.00	0.05	185.83	185.88	99.97
26/04/2016	97.61	0.00	0.00	0.00	0.00	0.00	0.11	76.46	76.56	0.00	0.00	0.00	0.00	0.00	0.00	44.05	44.05	0.00	0.00	68.87	68.87	0.00	0.00	0.00	0.00	0.00	0.11	189.37	189.48	99.94
27/04/2016	97.56	0.00	0.00	0.00	0.00	0.00	0.05	76.71	76.76	0.00	0.00	0.00	0.00	0.00	0.00	43.99	43.99	0.00	0.00	69.24	69.24	0.00	0.00	0.00	0.00	0.00	0.05	189.94	189.99	99.97
28/04/2016	97.49	0.00	0.00	0.00	0.00	0.00	0.05	76.68	76.73	0.00	0.00	0.00	0.00	0.00	0.00	43.96	43.96	0.00	0.00	69.32	69.32	0.00	0.00	0.00	0.00	0.00	0.05	189.95	190.00	99.97
29/04/2016	97.55	0.00	0.00	0.00	0.00	0.00	0.16	76.52	76.68	0.00	0.00	0.00	0.00	0.00	0.00	43.92	43.92	0.00	0.00	69.39	69.39	0.00	0.00	0.00	0.00	0.00	0.16	189.84	189.99	99.92
30/04/2016	97.53	0.00	0.00	0.00	0.00	0.00	0.05	76.68	76.74	0.00	0.00	0.00	0.00	0.00	0.00	43.93	43.93	0.00	0.00	69.32	69.32	0.00	0.00	0.00	0.00	0.00	0.05	189.94	189.99	99.97
		0.00	0.32	1440.04	1440.36	0.00	0.48	794.69	795.17	0.03	0.03	405.16	405.22	0.03	0.03	940.42	940.48	0.00	0.00	1125.62	1125.62	0.04	0.08	854.38	854.49	0.09	0.94	5560.31	5561.34	

Water Volume [%]:

Untreated: 0.00 %

Below Dose 0.02 %

To Dose 99.98 %

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 2016**

Report Created: **Wednesday, June 01, 2016**

Date	Transmittance	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To
	%	Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				Water Volume [mL]				
		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	
1/05/2016	97.77	0.00	0.00	0.00	0.00	0.00	0.05	78.22	78.28	0.00	0.00	0.00	0.00	0.00	0.00	44.75	44.75	0.00	0.00	71.01	71.01	0.00	0.00	0.00	0.00	0.00	0.05	193.98	194.04	99.97
2/05/2016	97.82	0.00	0.00	0.00	0.00	0.00	0.17	80.12	80.29	0.00	0.00	0.00	0.00	0.00	0.00	45.84	45.84	0.00	0.00	73.12	73.12	0.00	0.00	0.00	0.00	0.00	0.17	199.08	199.24	99.92
3/05/2016	97.84	0.00	0.00	0.00	0.00	0.00	0.06	83.42	83.48	0.00	0.00	0.00	0.00	0.00	0.00	48.40	48.40	0.00	0.00	74.74	74.74	0.00	0.58	1.14	1.72	0.00	0.64	207.70	208.34	99.69
4/05/2016	97.90	0.00	0.34	0.01	0.35	0.00	0.05	80.88	80.93	0.00	0.12	0.02	0.14	0.00	0.00	53.64	53.64	0.02	0.02	49.96	50.00	0.00	0.00	27.02	27.02	0.02	0.53	211.53	212.08	99.74
5/05/2016	97.93	0.00	0.00	11.04	11.04	0.00	0.00	75.36	75.36	0.00	0.00	0.13	0.13	0.00	0.48	54.29	54.77	0.17	0.17	31.21	31.54	0.00	0.00	41.64	41.64	0.17	0.65	213.66	214.48	99.62
6/05/2016	97.95	0.00	0.00	56.16	56.16	0.00	0.00	68.90	68.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.06	88.06	0.00	0.00	213.12	213.12	100.00	
7/05/2016	98.23	0.00	0.00	56.37	56.37	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	0.00	0.00	0.00	87.65	87.65	0.00	0.00	213.18	213.18	100.00	
8/05/2016	98.27	0.00	0.00	56.43	56.43	0.00	0.00	69.23	69.23	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	87.65	87.65	0.00	0.00	213.32	213.32	100.00	
9/05/2016	98.21	0.00	0.00	54.98	54.98	0.00	0.00	67.50	67.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.85	84.85	0.00	0.00	207.34	207.34	100.00	
10/05/2016	98.13	0.00	0.00	53.57	53.57	0.00	0.00	65.90	65.90	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00	45.96	45.96	0.00	0.00	38.02	38.02	0.00	0.04	203.45	203.50	99.98
11/05/2016	98.29	0.00	0.00	52.61	52.61	0.00	0.00	64.83	64.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.89	49.89	0.00	0.00	33.64	33.65	0.00	0.00	200.97	200.97	100.00
12/05/2016	98.26	0.00	0.00	49.88	49.88	0.00	0.04	61.98	62.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	4.44	0.00	0.03	76.77	76.81	0.00	0.07	193.07	193.14	99.96
13/05/2016	98.33	0.00	0.00	20.04	20.04	0.00	0.09	61.64	61.73	0.00	0.00	36.92	36.92	0.00	0.00	5.64	5.64	0.00	0.00	33.05	33.05	0.04	0.04	32.52	32.59	0.04	0.12	189.81	189.97	99.92
14/05/2016	99.06	0.00	0.00	0.00	0.00	0.00	0.04	60.05	60.09	0.00	0.00	64.18	64.18	0.00	0.00	0.00	0.00	0.00	0.00	61.61	61.61	0.00	0.00	0.00	0.00	0.00	0.04	185.84	185.88	99.98
15/05/2016	99.16	0.00	0.00	0.00	0.00	0.00	0.04	57.68	57.73	0.00	0.00	61.12	61.12	0.00	0.00	0.00	0.00	0.00	0.00	58.64	58.64	0.00	0.00	0.00	0.00	0.00	0.04	177.45	177.49	99.98
16/05/2016	97.99	0.00	0.00	0.00	0.00	0.00	0.00	63.51	63.51	0.00	0.00	67.78	67.78	0.00	0.00	0.00	0.00	0.00	0.00	65.23	65.23	0.00	0.00	0.32	0.32	0.00	0.00	196.85	196.85	100.00
17/05/2016	96.43	0.00	0.00	0.00	0.00	0.00	0.00	68.01	68.01	0.00	0.00	73.21	73.21	0.00	0.00	0.00	0.00	0.00	0.00	69.71	69.71	0.00	0.00	0.00	0.00	0.00	0.00	210.93	210.93	100.00
18/05/2016	95.32	0.00	0.00	0.00	0.00	0.00	0.00	58.32	58.32	0.00	0.00	28.56	28.56	0.00	0.00	21.19	21.19	0.00	0.00	51.61	51.61	0.00	0.00	0.00	0.00	0.00	0.00	159.68	159.68	100.00
19/05/2016	96.45	0.00	0.19	14.83	15.02	0.00	0.06	70.32	70.38	0.00	0.00	35.33	35.33	0.00	0.00	34.29	34.29	0.00	0.00	70.10	70.10	0.00	0.00	0.00	0.00	0.00	0.25	224.87	225.12	99.89
20/05/2016	96.31	0.00	0.00	44.12	44.12	0.00	0.00	41.01	41.01	0.00	0.00	67.97	67.97	0.00	0.00	0.33	0.33	0.04	0.04	60.63	60.72	0.00	0.00	15.49	15.49	0.04	0.04	229.55	229.63	99.96
21/05/2016	96.35	0.00	0.00	85.00	85.00	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	77.79	77.79	0.00	0.00	0.00	0.00	0.00	0.00	226.52	226.52	100.00
22/05/2016	96.04	0.00	0.00	85.00	85.00	0.00	0.00	0.00	0.00	0.00	0.00	62.51	62.51	0.00	0.00	0.00	0.00	0.00	0.00	76.43	76.43	0.00	0.00	0.00	0.00	0.00	0.00	223.94	223.94	100.00
23/05/2016	95.94	0.00	0.00	80.21	80.21	0.00	0.00	0.00	0.00	0.00	0.00	54.34	54.34	0.00	0.00	0.00	0.00	0.00	0.00	69.15	69.15	0.00	0.00	0.00	0.00	0.00	0.00	203.70	203.70	100.00
24/05/2016	95.83	0.00	0.42	48.30	48.71	0.00	0.00	13.27	13.27	0.00	0.00	40.30	40.30	0.00	0.00	0.00	0.00	0.00	0.00	41.42	41.42	0.00	0.00	11.93	11.93	0.00	0.42	155.21	155.63	99.73
25/05/2016	95.68	0.00	0.00	8.06	8.07	0.00	0.00	73.84	73.84	0.00	0.00	23.94	23.94	0.00	0.00	23.30	23.30	0.01	0.01	28.26	28.28	0.00	0.00	49.74	49.74	0.01	0.01	207.15	207.17	99.99
26/05/2016	95.96	0.00	0.00	0.00	0.00	0.00	0.12	84.18	84.30	0.00	0.00	1.89	1.89	0.00	0.00	50.06	50.06	0.25	0.25	74.56	75.05	0.00	0.00	0.00	0.00	0.25	0.36	210.69	211.30	99.71
27/05/2016	95.92	0.00	0.00	0.13	0.13	0.00	0.10	74.66	74.76	0.00	0.00	14.68	14.68	0.00	0.00	71.05	71.05	0.00	0.00	4.10	4.10	0.00	0.00	41.79	41.79	0.00	0.10	206.40	206.50	99.95
28/05/2016	95.15	0.00	0.00	0.00	0.00	0.00	0.19	66.98	67.16	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	63.96	63.96	0.00	0.19	194.35	194.53	99.90
29/05/2016	94.57	0.00	0.00	0.00	0.00	0.00	0.00	65.75	65.75	0.00	0.00	0.00	0.00	0.00	0.00	62.40	62.40	0.00	0.00	0.00	0.00	0.00	0.00	61.28	61.28	0.00	0.00	189.43	189.43	100.00
30/05/2016	94.39	0.00	0.00	0.00	0.00	0.00	0.00	66.48	66.48	0.00	0.00	0.00	0.00	0.00	0.00	62.60	62.60	0.00	0.00	0.00	0.00	0.00	0.00	63.49	63.49	0.00	0.00	192.57	192.57	100.00
31/05/2016	94.33	0.00	0.00	0.00	0.00	0.00	0.05	66.70	66.74	0.00	0.00	0.00	0.00	0.00	0.00	62.58	62.58	0.00	0.00	0.00	0.00	0.00	0.00	64.66	64.66	0.00	0.05	193.94	193.98	99.98
		0.00	0.95	776.74	777.69	0.01	1.04	1857.90	1858.95	0.00	0.12	696.60	696.72	0.00	0.53	703.75	704.28	0.49	0.49	1242.62	1243.60	0.04	0.66	971.64	972.34	0.54	3.78	6249.25	6253.57	

Water Volume [%]:

Untreated: 0.01 %

Below Dose 0.06 %

To Dose 99.93 %

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: **June 2016**

Report Created: **Tuesday, July 05, 2016**

Date	Transmittance %	UVR-D100A Water Volume [ML]				UVR-D200A Water Volume [ML]				UVR-D300A Water Volume [ML]				UVR-D400A Water Volume [ML]				UVR-D500A Water Volume [ML]				UVR-D600A Water Volume [ML]				Total Water Volume [ML]				% Volume Treated To
		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	Dose
01/06/2016	94.77	0.00	0.00	0.00	0.00	0.00	0.09	66.68	66.77	0.00	0.00	0.00	0.00	0.00	0.00	62.57	62.57	0.00	0.00	0.00	0.00	0.00	0.00	64.70	64.70	0.00	0.09	193.95	194.04	99.95
02/06/2016	95.12	0.00	0.00	0.00	0.00	0.00	0.04	64.33	64.37	0.00	0.03	45.23	45.25	0.00	0.00	19.18	19.18	0.00	0.00	44.47	44.47	0.00	0.00	20.73	20.73	0.00	0.07	193.93	194.01	99.96
03/06/2016	94.51	0.00	0.00	0.00	0.00	0.00	0.04	65.60	65.64	0.00	0.00	23.34	23.34	0.00	0.00	40.48	40.48	0.00	0.00	64.54	64.54	0.00	0.00	0.00	0.00	0.00	0.04	193.96	194.01	99.98
04/06/2016	94.42	0.00	0.00	0.00	0.00	0.00	0.19	67.17	67.36	0.00	0.00	0.00	0.00	0.00	0.00	63.76	63.76	0.00	0.00	62.92	62.92	0.00	0.00	0.00	0.00	0.00	0.19	193.85	194.04	99.90
05/06/2016	94.17	0.00	0.00	0.00	0.00	0.00	0.00	67.42	67.42	0.00	0.00	0.00	0.00	0.00	0.00	64.04	64.04	0.00	0.00	62.54	62.54	0.00	0.00	0.00	0.00	0.00	0.00	194.00	194.00	100.00
06/06/2016	94.18	0.00	0.00	0.00	0.00	0.00	0.14	67.04	67.18	0.00	0.00	0.00	0.00	0.00	0.00	63.32	63.32	0.00	0.00	63.49	63.49	0.00	0.00	0.00	0.00	0.00	0.14	193.85	193.99	99.93
07/06/2016	95.33	0.00	0.00	0.00	0.00	0.00	0.23	66.96	67.19	0.00	0.00	0.00	0.00	0.00	0.00	63.29	63.29	0.00	0.00	63.51	63.51	0.00	0.00	0.00	0.00	0.00	0.23	193.76	194.00	99.88
08/06/2016	95.43	0.00	0.00	0.00	0.00	0.00	0.14	67.15	67.29	0.00	0.00	0.00	0.00	0.00	0.00	63.67	63.67	0.00	0.00	63.04	63.04	0.00	0.00	0.00	0.00	0.00	0.14	193.86	193.99	99.93
09/06/2016	95.02	0.00	0.00	27.15	27.15	0.00	0.05	38.61	38.66	0.00	0.00	0.00	0.00	0.00	0.00	64.95	64.95	0.00	0.00	63.22	63.22	0.00	0.00	0.00	0.00	0.00	0.05	193.94	193.98	99.98
10/06/2016	94.86	0.00	0.00	40.78	40.78	0.00	0.00	23.72	23.72	0.00	0.00	48.12	48.12	0.00	0.00	21.17	21.17	0.00	0.00	68.50	68.50	0.00	0.00	0.00	0.00	0.00	0.00	202.29	202.29	100.00
11/06/2016	94.91	0.00	0.00	0.00	0.00	0.00	0.05	68.84	68.89	0.00	0.00	70.66	70.66	0.00	0.00	0.00	0.00	0.00	0.00	70.43	70.43	0.00	0.00	0.00	0.00	0.00	0.05	209.93	209.98	99.98
12/06/2016	94.57	0.00	0.00	0.00	0.00	0.00	0.36	65.63	65.99	0.00	0.00	67.91	67.91	0.00	0.00	0.00	0.00	0.00	0.00	68.69	68.69	0.00	0.00	0.00	0.00	0.00	0.36	202.23	202.59	99.82
13/06/2016	94.02	0.00	0.00	0.00	0.00	0.00	0.13	65.70	65.83	0.00	0.00	67.89	67.89	0.00	0.00	0.00	0.00	0.00	0.00	68.77	68.77	0.00	0.00	0.00	0.00	0.00	0.13	202.36	202.49	99.93
14/06/2016	94.07	0.00	0.00	0.00	0.00	0.00	0.05	66.80	66.85	0.00	0.00	68.78	68.78	0.00	0.00	0.00	0.00	0.00	0.00	69.35	69.35	0.00	0.00	0.00	0.00	0.00	0.05	204.94	204.99	99.98
15/06/2016	93.98	0.00	0.00	0.00	0.00	0.00	0.00	67.18	67.18	0.00	0.00	68.96	68.96	0.00	0.00	0.00	0.00	0.00	0.00	69.24	69.24	0.00	0.00	0.00	0.00	0.00	0.00	205.38	205.38	100.00
16/06/2016	93.35	0.00	0.00	0.00	0.00	0.00	0.00	66.86	66.86	0.00	0.00	70.91	70.91	0.00	0.00	0.00	0.00	0.00	0.00	69.07	69.07	0.00	0.00	0.00	0.00	0.00	0.00	206.84	206.84	100.00
17/06/2016	93.24	0.00	0.00	0.00	0.00	0.00	0.05	67.96	68.01	0.00	0.00	72.64	72.64	0.00	0.00	0.00	0.00	0.00	0.00	69.99	69.99	0.00	0.00	0.00	0.00	0.00	0.05	210.59	210.64	99.98
18/06/2016	93.31	0.00	0.00	0.00	0.00	0.00	0.05	68.46	68.50	0.00	0.00	73.19	73.19	0.00	0.00	0.00	0.00	0.00	0.00	70.35	70.35	0.00	0.00	0.00	0.00	0.00	0.05	211.99	212.04	99.98
19/06/2016	93.46	0.00	0.00	0.00	0.00	0.00	0.05	68.48	68.52	0.00	0.00	73.20	73.20	0.00	0.00	0.00	0.00	0.00	0.00	70.27	70.27	0.00	0.00	0.00	0.00	0.00	0.05	211.94	211.99	99.98
20/06/2016	93.58	0.00	0.00	14.75	14.75	0.00	0.05	51.83	51.87	0.00	0.19	55.62	55.80	0.00	0.00	15.32	15.32	0.00	0.00	67.16	67.16	0.00	0.00	0.00	0.00	0.00	0.24	204.66	204.90	99.88
21/06/2016	93.71	0.00	0.00	69.29	69.29	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	62.75	62.75	0.00	0.00	70.75	70.75	0.00	0.00	0.00	0.00	0.00	0.00	202.86	202.86	100.00
22/06/2016	93.75	0.00	0.00	69.44	69.44	0.00	0.00	0.07	0.07	0.01	0.01	20.13	20.14	0.00	0.00	40.79	40.79	0.00	0.00	72.55	72.55	0.00	0.00	0.00	0.00	0.01	0.01	202.98	202.99	99.99
23/06/2016	93.85	0.00	0.00	68.70	68.70	0.00	0.00	0.00	0.00	0.00	0.00	59.82	59.82	0.00	0.00	0.00	0.00	0.00	0.00	74.38	74.38	0.00	0.00	0.00	0.00	0.00	0.00	202.89	202.89	100.00
24/06/2016	94.06	0.00	0.00	40.47	40.47	0.23	0.26	28.99	29.49	0.00	0.00	59.32	59.32	0.00	0.00	0.00	0.00	0.00	0.00	73.85	73.85	0.00	0.00	0.00	0.00	0.23	0.26	202.63	203.12	99.76
25/06/2016	94.02	0.00	0.00	68.70	68.70	0.00	0.00	0.00	0.00	0.00	0.00	59.60	59.60	0.00	0.00	0.00	0.00	0.00	0.00	74.66	74.66	0.00	0.00	0.00	0.00	0.00	0.00	202.96	202.96	100.00
26/06/2016	94.24	0.00	0.00	65.46	65.46	0.00	0.00	0.00	0.00	0.00	0.00	58.04	58.04	0.00	0.00	0.00	0.00	0.00	0.00	71.91	71.91	0.00	0.00	0.00	0.00	0.00	0.00	195.41	195.41	100.00
27/06/2016	94.44	0.00	0.00	71.57	71.57	0.00	0.00	0.00	0.00	0.00	0.00	50.48	50.48	0.00	0.00	0.00	0.00	0.00	0.00	75.52	75.52	0.00	0.00	0.00	0.00	0.00	0.00	197.56	197.56	100.00
28/06/2016	94.50	0.00	0.00	47.93	47.93	0.00	0.00	29.66	29.66	0.00	0.00	47.00	47.00	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	202.59	202.59	100.00
29/06/2016	94.31	0.00	0.11	0.23	0.34	0.01	0.01	75.23	75.25	0.02	0.02	27.95	27.98	0.01	0.01	35.10	35.11	0.17	0.33	29.12	29.62	0.00	0.00	14.32	14.32	0.21	0.47	181.95	182.62	99.63
30/06/2016	94.38	0.00	0.00	0.00	0.00	0.00	0.00	84.63	84.63	0.00	0.00	46.80	46.80	0.00	0.00	71.48	71.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.90	202.90	100.00
Water Volume [%]:		0.00	0.11	584.47	584.58	0.24	1.98	1470.98	1473.20	0.02	0.24	1235.63	1235.89	0.01	0.01	751.86	751.88	0.17	0.33	1870.30	1870.80	0.00	0.00	99.75	99.75	0.45	2.67	6012.99	6016.11	
Untreated:		0.01 %																												
Below Dose		0.04 %																												
To Dose		99.95 %																												

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: **July 2016**

Report Created: **Wednesday, August 03, 2016**

Date	Transmittance %	UVR-D100A Water Volume [ML]				UVR-D200A Water Volume [ML]				UVR-D300A Water Volume [ML]				UVR-D400A Water Volume [ML]				UVR-D500A Water Volume [ML]				UVR-D600A Water Volume [ML]				Total Water Volume [ML]				% Volume Treated To
		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	Dose
01/07/2016	94.30	0.00	0.00	0.00	0.00	0.00	0.00	84.91	84.91	0.00	0.00	48.10	48.10	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	207.04	207.04	100.00
02/07/2016	94.28	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	48.19	48.19	0.00	0.00	74.17	74.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	207.37	207.37	100.00
03/07/2016	94.31	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	46.22	46.22	0.00	0.00	71.04	71.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.28	202.28	100.00
04/07/2016	94.36	0.00	0.00	0.00	0.00	0.00	0.00	81.95	81.95	0.00	0.00	43.02	43.02	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	192.10	192.10	100.00
05/07/2016	94.21	0.00	0.00	43.81	43.81	0.00	0.05	36.34	36.39	0.00	0.00	11.36	11.36	0.00	0.00	60.55	60.55	0.00	0.00	0.00	0.01	0.00	0.00	41.04	41.04	0.00	0.06	193.11	193.16	99.97
06/07/2016	93.75	0.04	0.04	80.25	80.34	0.00	0.00	0.00	0.00	0.00	0.00	23.36	23.36	0.00	0.00	40.60	40.60	0.00	0.00	0.00	0.00	0.00	0.00	50.11	50.11	0.04	0.04	194.33	194.42	99.95
07/07/2016	94.34	0.00	0.00	82.78	82.78	0.00	0.00	0.00	0.00	0.00	0.00	65.84	65.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.98	49.98	0.00	0.00	198.60	198.60	100.00
08/07/2016	94.04	0.03	0.03	66.50	66.55	0.00	0.00	0.00	0.00	0.00	0.04	54.06	54.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.37	39.37	0.03	0.06	159.94	160.02	99.94
09/07/2016	93.50	0.00	0.00	77.32	77.32	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	0.00	0.00	0.00	0.00	47.14	47.14	0.00	0.00	196.95	196.95	100.00
10/07/2016	93.74	0.00	0.00	85.00	85.00	0.00	0.00	0.00	0.00	0.00	0.00	79.00	79.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.99	54.99	0.00	0.00	219.00	219.00	100.00
11/07/2016	94.16	0.00	0.00	84.98	84.98	0.00	0.00	0.00	0.00	0.00	0.00	75.81	75.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.98	54.98	0.00	0.00	215.77	215.77	100.00
12/07/2016	94.25	0.00	0.00	79.79	79.79	0.00	0.00	0.00	0.00	0.00	0.00	21.58	21.58	0.00	0.03	42.70	42.73	0.00	0.00	0.00	0.00	0.00	0.00	52.54	52.54	0.00	0.03	196.61	196.64	99.98
13/07/2016	94.10	0.00	0.00	82.10	82.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.28	65.28	0.00	0.00	0.00	0.00	0.00	0.00	54.98	54.98	0.00	0.00	202.35	202.35	100.00
14/07/2016	94.38	0.00	0.00	79.52	79.52	0.00	0.00	0.00	0.00	0.00	0.00	37.25	37.25	0.00	0.00	20.81	20.81	0.00	0.00	34.08	34.08	0.00	0.00	31.26	31.26	0.00	0.00	202.92	202.92	100.00
15/07/2016	94.07	0.06	0.06	73.68	73.79	0.00	0.00	0.00	0.00	0.11	0.11	41.95	42.17	0.04	0.04	11.39	11.48	0.00	0.00	68.12	68.12	0.00	0.00	0.00	0.00	0.21	0.21	195.15	195.56	99.79
16/07/2016	94.46	0.00	0.00	76.03	76.03	0.00	0.00	0.00	0.00	0.00	0.00	48.88	48.88	0.00	0.00	0.00	0.00	0.00	0.00	79.14	79.14	0.00	0.00	0.00	0.00	0.00	0.00	204.06	204.06	100.00
17/07/2016	94.40	0.00	0.00	72.01	72.01	0.00	0.00	0.00	0.00	0.00	0.00	46.26	46.26	0.00	0.00	0.00	0.00	0.00	0.00	75.15	75.15	0.00	0.00	0.00	0.00	0.00	0.00	193.41	193.41	100.00
18/07/2016	94.17	0.00	0.00	71.92	71.92	0.00	0.00	0.00	0.00	0.00	0.00	45.98	45.98	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	192.98	192.98	100.00
19/07/2016	94.25	0.00	0.00	73.91	73.91	0.00	0.00	0.83	0.83	0.00	0.00	47.42	47.42	0.00	0.00	0.00	0.00	0.00	0.00	77.20	77.20	0.00	0.00	0.00	0.00	0.00	0.00	199.36	199.36	100.00
20/07/2016	94.20	0.00	0.00	74.95	74.95	0.00	0.12	0.01	0.13	0.00	0.00	52.32	52.32	0.00	0.00	0.00	0.00	0.00	0.00	78.05	78.05	0.00	0.00	0.00	0.00	0.00	0.12	205.32	205.44	99.94
21/07/2016	94.16	0.00	0.00	69.22	69.22	0.00	0.05	0.33	0.38	0.00	0.00	59.59	59.59	0.00	0.00	0.00	0.00	0.00	0.00	74.85	74.85	0.00	0.00	0.00	0.00	0.00	0.05	203.99	204.04	99.98
22/07/2016	94.15	0.00	0.00	70.51	70.51	0.00	0.00	0.00	0.00	0.00	0.00	60.45	60.45	0.00	0.00	0.00	0.00	0.00	0.00	76.29	76.29	0.00	0.00	0.00	0.00	0.00	0.00	207.25	207.25	100.00
23/07/2016	94.02	0.00	0.00	72.85	72.85	0.00	0.00	0.00	0.00	0.00	0.00	61.80	61.80	0.00	0.00	0.00	0.00	0.00	0.00	78.75	78.75	0.00	0.00	0.00	0.00	0.00	0.00	213.41	213.41	100.00
24/07/2016	93.90	0.00	0.00	74.16	74.16	0.00	0.00	0.00	0.00	0.00	0.00	61.82	61.82	0.00	0.00	0.00	0.00	0.00	0.00	80.03	80.03	0.00	0.00	0.00	0.00	0.00	0.00	216.02	216.02	100.00
25/07/2016	94.00	0.02	0.02	75.94	75.98	0.00	0.00	0.00	0.00	0.02	0.02	31.99	32.04	0.00	0.04	53.74	53.77	0.16	0.53	6.63	7.32	0.04	0.04	39.60	39.68	0.25	0.65	207.90	208.80	99.57
26/07/2016	94.07	0.00	0.00	79.20	79.20	0.00	0.00	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	49.69	49.69	0.00	0.00	0.00	0.00	0.00	0.00	80.50	80.50	0.00	0.00	209.56	209.56	100.00
27/07/2016	93.79	0.00	0.00	79.66	79.66	0.03	0.03	0.22	0.28	0.00	0.00	0.00	0.00	0.00	0.00	50.31	50.31	0.00	0.00	27.44	27.44	0.00	0.06	53.30	53.36	0.03	0.09	210.93	211.05	99.94
28/07/2016	93.60	0.00	0.00	80.31	80.31	0.05	0.05	0.24	0.33	0.00	0.00	0.00	0.00	0.00	0.00	50.97	50.97	0.00	0.00	80.40	80.40	0.00	0.00	0.00	0.00	0.05	0.05	211.93	212.02	99.96
29/07/2016	93.49	0.00	0.00	76.76	76.76	0.00	0.00	0.32	0.32	0.00	0.00	18.54	18.54	0.00	0.00	30.28	30.28	0.00	0.00	78.26	78.26	0.00	0.00	0.00	0.00	0.00	0.00	204.16	204.16	100.00
30/07/2016	93.48	0.00	0.00	75.22	75.22	0.00	0.00	0.00	0.00	0.00	0.00	48.32	48.32	0.00	0.00	0.00	0.00	0.00	0.00	78.44	78.44	0.00	0.00	0.00	0.00	0.00	0.00	201.98	201.98	100.00
31/07/2016	93.38	0.00	0.00	75.37	75.37	0.00	0.00	0.00	0.00	0.00	0.00	48.24	48.24	0.00	0.00	0.00	0.00	0.00	0.00	78.41	78.41	0.00	0.00	0.00	0.00	0.00	0.00	202.01	202.01	100.00

0.15 0.15 2033.78 2034.08 0.08 0.31 375.33 375.72 0.13 0.17 1299.86 1300.16 0.04 0.11 762.70 762.86 0.16 0.53 1146.31 1147.01 0.04 0.10 649.78 649.92 0.61 1.36 6267.76 6269.74

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: August 2016

Report Created: Thursday, September 01, 2016

Date	Transmittance %	UVR-D100A Water Volume [ML]				UVR-D200A Water Volume [ML]				UVR-D300A Water Volume [ML]				UVR-D400A Water Volume [ML]				UVR-D500A Water Volume [ML]				UVR-D600A Water Volume [ML]				Total Water Volume [ML]				% Volume Treated To Dose
		Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	
01/08/2016	93.46	0.00	0.00	75.46	75.46	0.00	0.00	0.00	0.00	0.00	0.00	48.26	48.26	0.00	0.00	0.00	0.00	0.00	0.00	78.30	78.30	0.00	0.00	0.00	0.00	0.00	0.00	202.02	202.02	100.00
02/08/2016	93.68	0.00	0.00	75.55	75.55	0.00	0.00	0.00	0.00	0.00	0.00	48.34	48.34	0.00	0.00	0.00	0.00	0.00	0.00	78.12	78.12	0.00	0.00	0.00	0.00	0.00	0.00	202.01	202.01	100.00
03/08/2016	93.47	0.00	0.00	75.37	75.37	0.00	0.00	0.00	0.00	0.00	0.00	48.08	48.08	0.00	0.00	0.00	0.00	0.00	0.00	44.01	44.01	0.00	0.05	34.47	34.52	0.00	0.05	201.94	201.99	99.98
04/08/2016	93.13	0.00	0.00	75.03	75.03	0.00	0.00	0.00	0.00	0.00	0.00	47.87	47.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.11	79.11	0.00	0.00	202.01	202.01	100.00
05/08/2016	93.59	0.00	0.00	74.85	74.85	0.00	0.00	0.00	0.00	0.00	0.00	47.96	47.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.22	79.22	0.00	0.00	202.04	202.04	100.00
06/08/2016	93.64	0.00	0.00	75.01	75.01	0.00	0.00	0.00	0.00	0.00	0.00	48.29	48.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.40	79.40	0.00	0.00	202.70	202.70	100.00
07/08/2016	93.59	0.00	0.00	76.81	76.81	0.00	0.00	0.00	0.00	0.00	0.00	49.50	49.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.27	81.27	0.00	0.00	207.58	207.58	100.00
08/08/2016	93.90	0.00	0.00	79.39	79.39	0.00	0.00	0.00	0.00	0.00	0.00	50.64	50.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.01	83.01	0.00	0.00	213.04	213.04	100.00
09/08/2016	93.71	0.00	0.00	79.36	79.36	0.00	0.00	0.00	0.00	0.00	0.00	50.66	50.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.98	82.98	0.00	0.00	213.00	213.00	100.00
10/08/2016	92.63	0.00	0.01	27.89	27.90	0.00	0.00	24.77	24.77	0.00	0.00	40.32	40.32	0.00	0.00	0.00	0.00	0.00	0.10	22.00	22.11	0.14	0.18	28.34	28.66	0.14	0.30	143.31	143.75	99.70
11/08/2016	94.01	0.00	0.00	0.00	0.00	0.00	0.00	74.20	74.20	0.00	0.00	76.76	76.76	0.00	0.00	0.00	0.00	0.00	0.00	75.54	75.54	0.00	0.00	0.00	0.00	0.00	0.00	226.50	226.50	100.00
12/08/2016	94.03	0.00	0.00	0.00	0.00	0.00	0.00	63.58	63.58	0.00	0.00	74.83	74.83	0.00	0.05	9.97	10.02	0.00	0.05	40.99	41.04	0.00	0.00	42.14	42.14	0.00	0.11	231.50	231.61	99.95
13/08/2016	93.92	0.00	0.00	0.00	0.00	0.00	0.00	70.61	70.61	0.00	0.00	72.68	72.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.10	74.10	0.00	0.00	217.39	217.39	100.00
14/08/2016	93.96	0.00	0.00	0.00	0.00	0.00	0.00	68.25	68.25	0.00	0.00	70.77	70.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.98	70.98	0.00	0.00	210.00	210.00	100.00
15/08/2016	93.86	0.00	0.00	0.00	0.00	0.00	0.00	67.72	67.72	0.00	0.00	70.71	70.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.59	71.59	0.00	0.00	210.02	210.02	100.00
16/08/2016	93.74	0.00	0.00	0.00	0.00	0.00	0.00	67.57	67.57	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	71.85	71.85	0.00	0.00	209.99	209.99	100.00
17/08/2016	93.37	0.00	0.00	0.00	0.00	0.00	0.00	67.35	67.35	0.00	0.00	70.49	70.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.17	72.17	0.00	0.00	210.01	210.01	100.00
18/08/2016	93.42	0.00	0.00	0.00	0.00	0.00	0.00	68.55	68.55	0.00	0.00	71.58	71.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.30	72.30	0.00	0.00	212.43	212.43	100.00
19/08/2016	93.39	0.00	0.00	0.00	0.00	0.00	0.00	84.16	84.16	0.00	0.00	49.93	49.93	0.00	0.00	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	81.43	81.43	0.00	0.00	215.75	215.75	100.00
20/08/2016	93.58	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	48.98	48.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.04	82.04	0.00	0.00	216.01	216.01	100.00
21/08/2016	93.68	0.00	0.00	0.00	0.00	0.00	0.00	84.98	84.98	0.00	0.00	48.98	48.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.04	82.04	0.00	0.00	216.01	216.01	100.00
22/08/2016	93.76	0.00	0.00	0.00	0.00	0.00	0.00	85.02	85.02	0.00	0.00	48.92	48.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.09	82.09	0.00	0.00	216.02	216.02	100.00
23/08/2016	93.18	0.12	0.12	59.08	59.32	0.03	0.03	24.42	24.48	0.00	0.00	49.79	49.79	0.00	0.00	0.00	0.00	0.00	0.04	61.75	61.80	0.00	0.00	20.59	20.59	0.15	0.20	215.63	215.97	99.84
24/08/2016	92.81	0.00	0.00	72.28	72.28	0.09	0.09	0.35	0.52	0.00	0.00	62.78	62.78	0.00	0.00	0.00	0.00	0.03	0.03	76.16	76.23	0.00	0.00	0.00	0.00	0.12	0.12	211.58	211.82	99.89
25/08/2016	91.56	0.01	0.01	19.55	19.57	0.00	0.00	22.29	22.29	0.00	0.01	34.94	34.96	0.00	0.00	0.00	0.00	0.00	0.00	37.14	37.14	0.00	0.00	0.00	0.00	0.01	0.02	113.93	113.95	99.98
26/08/2016	92.41	0.00	0.00	8.73	8.73	0.00	0.00	76.20	76.21	0.00	0.09	19.21	19.30	0.00	0.00	24.54	24.54	0.02	0.02	39.54	39.57	0.00	0.00	35.70	35.70	0.02	0.11	203.92	204.05	99.94
27/08/2016	92.94	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	49.71	49.71	0.00	0.00	0.00	0.00	0.00	0.00	80.28	80.28	0.00	0.00	214.97	214.97	100.00
28/08/2016	93.25	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	49.60	49.60	0.00	0.00	0.00	0.00	0.00	0.00	80.39	80.39	0.00	0.00	215.00	215.00	100.00
29/08/2016	93.54	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	49.74	49.74	0.00	0.00	0.00	0.00	0.00	0.00	80.23	80.23	0.00	0.00	214.98	214.98	100.00
30/08/2016	93.81	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	49.64	49.64	0.00	0.00	0.00	0.00	0.00	0.00	80.23	80.23	0.00	0.00	214.87	214.87	100.00
31/08/2016	93.81	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	47.41	47.41	0.00	0.00	0.00	0.00	0.00	0.00	78.64	78.64	0.00	0.00	211.05	211.05	100.00
		0.12	0.14	874.36	874.62	0.12	0.12	1460.04	1460.29	0.00	0.10	1421.85	1421.95	0.00	0.05	280.84	280.89	0.05	0.25	553.55	553.85	0.14	0.23	1806.59	1806.96	0.44	0.89	6397.23	6398.55	

Water Volume [%]:
Untreated: 0.01 %
Below Dose 0.01 %
To Dose 99.98 %

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: September 2016

Report Created: Saturday, October 01, 2016

Date	Transmittance	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume
	%	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Treated To
		Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	
01/09/2016	93.60	0.00	0.00	0.00	0.00	0.00	0.00	79.13	79.13	0.00	0.00	0.00	0.00	0.00	0.00	43.34	43.34	0.00	0.00	0.00	0.00	0.00	0.00	72.73	72.73	0.00	0.00	195.20	195.20	100.00
02/09/2016	93.61	0.00	0.00	0.00	0.00	0.00	0.00	77.00	77.00	0.00	0.00	15.23	15.23	0.00	0.00	27.66	27.66	0.00	0.00	0.00	0.00	0.00	0.00	70.23	70.23	0.00	0.00	190.12	190.12	100.00
03/09/2016	93.60	0.00	0.00	0.00	0.00	0.00	0.00	76.48	76.48	0.00	0.00	43.15	43.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.36	71.36	0.00	0.00	190.99	190.99	100.00
04/09/2016	93.69	0.00	0.00	0.00	0.00	0.00	0.00	76.26	76.26	0.00	0.00	42.92	42.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.83	71.83	0.00	0.00	191.01	191.01	100.00
05/09/2016	93.70	0.00	0.00	0.00	0.00	0.00	0.00	76.11	76.11	0.00	0.00	42.68	42.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.20	72.20	0.00	0.00	190.99	190.99	100.00
06/09/2016	93.65	0.00	0.06	27.66	27.72	0.00	0.00	47.57	47.57	0.00	0.00	44.21	44.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.40	74.40	0.00	0.06	193.84	193.89	99.97
07/09/2016	93.66	0.00	0.00	72.77	72.77	0.00	0.00	0.00	0.00	0.00	0.00	45.94	45.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.32	76.32	0.00	0.00	195.03	195.03	100.00
08/09/2016	93.97	0.00	0.00	72.66	72.66	0.00	0.00	0.00	0.00	0.00	0.00	46.01	46.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.35	76.35	0.00	0.00	195.03	195.03	100.00
09/09/2016	94.12	0.00	0.00	72.59	72.59	0.00	0.00	0.00	0.00	0.00	0.00	46.02	46.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.38	76.38	0.00	0.00	194.98	194.98	100.00
10/09/2016	94.17	0.00	0.00	72.70	72.70	0.00	0.00	0.00	0.00	0.00	0.00	45.90	45.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.39	76.39	0.00	0.00	194.99	194.99	100.00
11/09/2016	93.95	0.00	0.00	64.88	64.88	0.00	0.00	0.00	0.00	0.00	0.00	40.90	40.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.33	66.33	0.00	0.00	172.11	172.11	100.00
12/09/2016	93.29	0.00	0.00	72.46	72.46	0.00	0.00	0.00	0.00	0.00	0.03	46.55	46.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.96	75.96	0.00	0.03	194.96	195.00	99.98
13/09/2016	94.14	0.00	0.00	72.53	72.53	0.00	0.00	0.00	0.00	0.00	0.00	46.62	46.62	0.00	0.00	0.00	0.00	0.00	0.00	29.89	29.89	0.00	0.00	45.97	45.97	0.00	0.00	195.00	195.00	100.00
14/09/2016	93.94	0.00	0.00	72.67	72.67	0.00	0.00	0.00	0.00	0.00	0.00	46.59	46.59	0.00	0.00	0.00	0.00	0.00	0.00	75.74	75.74	0.00	0.00	0.00	0.00	0.00	0.00	195.01	195.01	100.00
15/09/2016	93.34	0.00	0.00	70.45	70.45	0.00	0.00	10.86	10.86	0.00	0.00	51.58	51.58	0.00	0.00	0.00	0.00	0.20	0.20	61.05	61.45	0.00	0.00	0.00	0.00	0.20	0.20	193.95	194.35	99.79
16/09/2016	93.97	0.00	0.00	55.86	55.86	0.00	0.00	40.40	40.40	0.00	0.00	69.85	69.85	0.00	0.00	0.00	0.00	0.00	0.00	28.90	28.90	0.00	0.00	0.00	0.00	0.00	0.00	195.00	195.00	100.00
17/09/2016	93.91	0.00	0.00	58.88	58.88	0.00	0.00	0.00	0.00	0.00	0.00	68.43	68.43	0.00	0.00	0.00	0.00	0.00	0.00	67.67	67.67	0.00	0.00	0.00	0.00	0.00	0.00	194.98	194.98	100.00
18/09/2016	94.00	0.00	0.00	58.98	58.98	0.00	0.00	0.00	0.00	0.00	0.00	68.37	68.37	0.00	0.00	0.00	0.00	0.00	0.00	67.06	67.06	0.00	0.00	0.00	0.00	0.00	0.00	194.41	194.41	100.00
19/09/2016	93.21	0.00	0.00	57.97	57.97	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	66.65	66.65	0.00	0.00	0.00	0.00	0.00	0.00	192.00	192.00	100.00
20/09/2016	93.47	0.00	0.00	59.24	59.24	0.00	0.00	0.00	0.00	0.00	0.00	68.74	68.74	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	195.66	195.66	100.00
21/09/2016	93.55	0.00	0.00	71.79	71.79	0.00	0.00	0.00	0.00	0.00	0.00	59.95	59.95	0.00	0.00	0.00	0.00	0.00	0.00	68.13	68.13	0.00	0.00	0.00	0.00	0.00	0.00	199.86	199.86	100.00
22/09/2016	94.22	0.00	0.00	79.21	79.21	0.00	0.00	0.00	0.00	0.00	0.00	53.13	53.13	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	200.02	200.02	100.00
23/09/2016	94.37	0.00	0.00	69.59	69.59	0.00	0.00	0.00	0.00	0.00	0.00	62.21	62.21	0.00	0.00	0.00	0.00	0.00	0.00	68.24	68.24	0.00	0.00	0.00	0.00	0.00	0.00	200.03	200.03	100.00
24/09/2016	94.32	0.00	0.00	60.57	60.57	0.00	0.00	0.00	0.00	0.00	0.00	70.49	70.49	0.00	0.00	0.00	0.00	0.00	0.00	68.90	68.90	0.00	0.00	0.00	0.00	0.00	0.00	199.96	199.96	100.00
25/09/2016	94.23	0.00	0.00	57.51	57.51	0.00	0.00	0.00	0.00	0.00	0.00	66.63	66.63	0.00	0.00	0.00	0.00	0.00	0.00	65.45	65.45	0.00	0.00	0.00	0.00	0.00	0.00	189.58	189.58	100.00
26/09/2016	93.87	0.00	0.00	57.70	57.70	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	64.78	64.78	0.00	0.00	0.00	0.00	0.00	0.00	188.99	188.99	100.00
27/09/2016	93.66	0.00	0.00	58.01	58.01	0.00	0.00	0.00	0.00	0.00	0.00	66.48	66.48	0.00	0.00	0.00	0.00	0.00	0.00	64.52	64.52	0.00	0.00	0.00	0.00	0.00	0.00	189.01	189.01	100.00
28/09/2016	93.73	0.00	0.00	58.28	58.28	0.00	0.00	0.00	0.00	0.00	0.00	66.95	66.95	0.00	0.00	0.00	0.00	0.00	0.00	64.96	64.96	0.00	0.00	0.00	0.00	0.00	0.00	190.19	190.19	100.00
29/09/2016	93.60	0.00	0.00	58.34	58.34	0.00	0.00	0.00	0.00	0.00	0.00	67.35	67.35	0.00	0.00	0.00	0.00	0.00	0.00	65.78	65.78	0.00	0.00	0.00	0.00	0.00	0.00	191.46	191.46	100.00
30/09/2016	93.88	0.00	0.00	58.12	58.12	0.00	0.00	0.00	0.00	0.00	0.00	66.75	66.75	0.00	0.00	0.00	0.00	0.00	0.00	64.96	64.96	0.00	0.00	0.00	0.00	0.00	0.00	189.83	189.83	100.00
Total [ML]:		0.00	0.06	1591.39	1591.45	0.00	0.00	483.79	483.79	0.00	0.03	1593.49	1593.52	0.00	0.00	71.01	71.01	0.20	0.20	1128.05	1128.45	0.00	0.00	926.46	926.46	0.20	0.29	5794.19	5794.68	

Water Volume [%]:

Untreated: 0.00 %
Below Dose 0.01 %
To Dose 99.99 %

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 2016

Report Created: Tuesday, November 01, 2016

Date	Transmittance	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume
	%	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Treated To
		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	
01/10/2016	94.47	0.00	0.00	58.08	58.08	0.00	0.00	0.00	0.00	0.00	0.00	66.44	66.44	0.00	0.00	0.00	0.00	0.00	0.00	64.48	64.48	0.00	0.00	0.00	0.00	0.00	0.00	188.99	188.99	100.00
02/10/2016	94.54	0.00	0.00	57.42	57.42	0.00	0.00	0.00	0.00	0.00	0.00	65.67	65.67	0.00	0.00	0.00	0.00	0.00	0.00	63.75	63.75	0.00	0.00	0.00	0.00	0.00	0.00	186.84	186.84	100.00
03/10/2016	94.36	0.00	0.00	26.98	26.98	0.00	0.00	32.24	32.24	0.00	0.00	64.21	64.21	0.00	0.00	0.00	0.00	0.00	0.00	62.56	62.56	0.00	0.00	0.00	0.00	0.00	0.00	185.99	185.99	100.00
04/10/2016	93.83	0.00	0.00	0.00	0.00	0.00	0.00	62.63	62.63	0.00	0.00	64.11	64.11	0.00	0.00	0.00	0.00	0.00	0.00	62.77	62.77	0.00	0.00	0.00	0.00	0.00	0.00	189.51	189.51	100.00
05/10/2016	93.97	0.00	0.00	0.00	0.00	0.00	0.00	62.34	62.34	0.00	0.00	63.93	63.93	0.00	0.00	0.00	0.00	0.00	0.00	63.35	63.35	0.00	0.00	0.00	0.00	0.00	0.00	189.62	189.62	100.00
06/10/2016	94.08	0.00	0.00	0.00	0.00	0.00	0.00	61.23	61.23	0.00	0.00	62.75	62.75	0.00	0.00	0.00	0.00	0.00	0.00	61.86	61.86	0.00	0.00	0.00	0.00	0.00	0.00	185.85	185.85	100.00
07/10/2016	94.03	0.00	0.00	0.00	0.00	0.00	0.00	60.44	60.44	0.00	0.00	60.55	60.55	0.00	0.00	0.00	0.00	0.00	0.00	60.07	60.07	0.00	0.00	0.00	0.00	0.00	0.00	181.06	181.06	100.00
08/10/2016	94.10	0.00	0.00	0.00	0.00	0.00	0.00	56.93	56.93	0.00	0.00	57.94	57.94	0.00	0.00	0.00	0.00	0.00	0.00	57.86	57.86	0.00	0.00	0.00	0.00	0.00	0.00	172.74	172.74	100.00
09/10/2016	94.68	0.00	0.00	0.00	0.00	0.00	0.00	56.86	56.86	0.00	0.00	57.60	57.60	0.00	0.00	0.00	0.00	0.00	0.00	57.53	57.53	0.00	0.00	0.00	0.00	0.00	0.00	171.99	171.99	100.00
10/10/2016	94.66	0.00	0.00	0.00	0.00	0.00	0.00	56.47	56.47	0.00	0.00	57.95	57.95	0.00	0.00	0.00	0.00	0.00	0.00	57.59	57.59	0.00	0.00	0.00	0.00	0.00	0.00	172.00	172.00	100.00
11/10/2016	94.57	0.00	0.00	0.00	0.00	0.00	0.00	58.76	58.76	0.00	0.00	56.26	56.26	0.00	0.00	0.00	0.00	0.00	0.00	56.83	56.83	0.00	0.00	0.00	0.00	0.00	0.00	171.86	171.86	100.00
12/10/2016	94.55	0.00	0.00	0.00	0.00	0.00	0.00	75.99	75.99	0.00	0.00	47.21	47.21	0.00	0.00	0.00	0.00	0.00	0.00	59.63	59.63	0.00	0.00	0.00	0.00	0.00	0.00	182.83	182.83	100.00
13/10/2016	94.61	0.00	0.03	0.05	0.09	0.00	0.00	76.33	76.33	0.00	0.00	48.36	48.36	0.00	0.00	0.00	0.00	0.00	0.00	61.22	61.22	0.00	0.00	0.00	0.00	0.00	0.03	185.97	186.00	99.98
14/10/2016	94.59	0.00	0.00	0.00	0.00	0.00	0.00	71.27	71.27	0.00	0.00	48.32	48.32	0.00	0.00	0.00	0.00	0.00	0.00	66.42	66.42	0.00	0.00	0.00	0.00	0.00	0.00	186.00	186.00	100.00
15/10/2016	94.57	0.00	0.00	0.00	0.00	0.00	0.00	64.90	64.90	0.00	0.00	47.60	47.60	0.00	0.00	0.00	0.00	0.00	0.00	73.52	73.52	0.00	0.00	0.00	0.00	0.00	0.00	186.03	186.03	100.00
16/10/2016	94.56	0.00	0.00	0.00	0.00	0.00	0.00	65.03	65.03	0.00	0.00	47.74	47.74	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	186.02	186.02	100.00
17/10/2016	94.60	0.00	0.00	45.18	45.18	0.00	0.00	24.15	24.15	0.00	0.00	46.87	46.87	0.00	0.00	0.00	0.00	0.00	0.00	73.35	73.35	0.00	0.00	0.00	0.00	0.00	0.00	189.55	189.55	100.00
18/10/2016	94.44	0.00	0.00	71.70	71.70	0.00	0.00	0.00	0.00	0.00	0.00	45.91	45.91	0.00	0.00	0.00	0.00	0.00	0.00	73.40	73.40	0.00	0.00	0.00	0.00	0.00	0.00	191.00	191.00	100.00
19/10/2016	94.33	0.00	0.00	71.79	71.79	0.00	0.00	0.00	0.00	0.00	0.00	45.82	45.82	0.00	0.00	0.00	0.00	0.00	0.00	73.40	73.40	0.00	0.00	0.00	0.00	0.00	0.00	191.01	191.01	100.00
20/10/2016	94.34	0.00	0.00	70.16	70.16	0.00	0.00	0.00	0.00	0.00	0.00	44.85	44.85	0.00	0.00	0.00	0.00	0.00	0.00	35.19	35.19	0.00	0.04	36.97	37.02	0.00	0.04	187.17	187.21	99.98
21/10/2016	94.28	0.00	0.00	67.98	67.98	0.00	0.00	0.00	0.00	0.00	0.00	43.54	43.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.35	69.35	0.00	0.00	180.87	180.87	100.00	
22/10/2016	94.24	0.00	0.00	67.46	67.46	0.00	0.00	0.00	0.00	0.00	0.00	43.11	43.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.02	67.02	0.00	0.00	177.59	177.59	100.00	
23/10/2016	94.32	0.00	0.00	68.38	68.38	0.00	0.00	0.00	0.00	0.00	0.00	44.08	44.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.40	69.40	0.00	0.00	181.86	181.86	100.00	
24/10/2016	94.29	0.00	0.00	69.27	69.27	0.00	0.00	0.00	0.00	0.00	0.00	43.97	43.97	0.00	0.00	0.00	0.00	0.00	0.00	42.38	42.38	0.00	0.00	26.40	26.40	0.00	0.00	182.01	182.01	100.00
25/10/2016	94.19	0.00	0.00	70.02	70.02	0.00	0.00	0.00	0.00	0.00	0.00	44.09	44.09	0.00	0.00	0.00	0.00	0.00	0.00	67.93	67.93	0.00	0.00	0.00	0.00	0.00	0.00	182.04	182.04	100.00
26/10/2016	94.17	0.00	0.00	70.06	70.06	0.00	0.00	0.00	0.00	0.00	0.00	44.17	44.17	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	181.96	181.96	100.00
27/10/2016	93.64	0.00	0.36	36.27	36.62	0.01	0.06	33.79	33.87	0.00	0.17	16.34	16.52	0.00	0.00	0.00	0.00	0.01	0.01	38.70	38.71	0.01	0.06	23.45	23.52	0.03	0.66	148.55	149.24	99.54
28/10/2016	94.06	0.00	0.00	0.00	0.00	0.00	0.00	85.08	85.08	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	38.32	38.32	0.00	0.00	64.57	64.57	0.01	0.01	187.97	187.99	99.99
29/10/2016	93.91	0.00	0.00	0.00	0.00	0.00	0.00	85.14	85.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.30	39.30	0.00	0.00	63.54	63.54	0.00	0.00	187.98	187.98	100.00
30/10/2016	93.92	0.00	0.00	0.00	0.00	0.00	0.00	85.35	85.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.52	39.52	0.00	0.00	63.08	63.08	0.00	0.00	187.96	187.96	100.00
31/10/2016	94.08	0.00	0.00	0.00	0.00	0.00	0.00	85.28	85.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.72	39.72	0.00	0.00	62.96	62.96	0.00	0.00	187.96	187.96	100.00
Total [ML]:		0.00	0.39	850.77	851.16	0.01	0.06	1260.21	1260.28	0.01	0.18	1379.41	1379.60	0.00	0.00	0.00	0.00	0.01	0.01	1631.64	1631.65	0.01	0.10	546.75	546.86	0.04	0.74	5668.78	5669.56	

Water Volume [%]:

Untreated: 0.00 %
Below Dose 0.01 %
To Dose 99.99 %

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: November 2016

Report Created: Thursday, December 01, 2016

Date	Transmittance	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume
	%	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Treated To
		Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	
01/11/2016	94.37	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.83	39.83	0.00	0.00	63.17	63.17	0.00	0.00	188.00	188.00	100.00
02/11/2016	94.35	0.00	0.00	0.00	0.00	0.00	0.00	67.10	67.10	0.00	0.00	46.62	46.62	0.00	0.00	0.00	0.00	0.00	0.00	55.84	55.84	0.00	0.00	16.15	16.15	0.00	0.00	185.71	185.71	100.00
03/11/2016	94.30	0.00	0.00	0.00	0.00	0.00	0.00	61.33	61.33	0.00	0.00	62.23	62.23	0.00	0.00	0.00	0.00	0.00	0.00	61.47	61.47	0.00	0.00	0.00	0.00	0.00	0.00	185.03	185.03	100.00
04/11/2016	94.15	0.00	0.00	0.00	0.00	0.00	0.00	59.36	59.36	0.00	0.00	61.52	61.52	0.00	0.00	0.00	0.00	0.00	0.00	60.40	60.40	0.00	0.00	0.00	0.00	0.00	0.00	181.29	181.29	100.00
05/11/2016	94.09	0.00	0.00	0.00	0.00	0.00	0.00	70.15	70.15	0.00	0.00	42.04	42.04	0.00	0.00	53.10	53.10	0.00	0.00	12.77	12.77	0.00	0.00	0.00	0.00	0.00	0.00	178.05	178.05	100.00
06/11/2016	93.97	0.00	0.00	0.00	0.00	0.00	0.00	74.18	74.18	0.00	0.00	37.17	37.17	0.00	0.00	68.48	68.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.84	179.84	100.00
07/11/2016	93.99	0.00	0.00	0.00	0.00	0.00	0.00	66.71	66.71	0.00	0.00	9.87	9.87	0.00	0.00	61.55	61.55	0.00	0.00	0.00	0.00	0.00	0.00	41.87	41.87	0.00	0.00	180.00	180.00	100.00
08/11/2016	94.01	0.00	0.00	0.00	0.00	0.00	0.00	63.50	63.50	0.00	0.00	0.00	0.00	0.00	0.00	59.02	59.02	0.00	0.00	0.00	0.00	0.00	0.00	56.45	56.45	0.00	0.00	178.97	178.97	100.00
09/11/2016	93.70	0.00	0.00	0.00	0.00	0.00	0.00	63.80	63.80	0.00	0.00	0.00	0.00	0.00	0.00	57.87	57.87	0.00	0.00	0.00	0.00	0.00	0.00	56.50	56.50	0.00	0.00	178.17	178.17	100.00
10/11/2016	93.94	0.00	0.00	0.00	0.00	0.00	0.00	65.86	65.86	0.00	0.00	0.00	0.00	0.00	0.00	61.96	61.96	0.00	0.00	0.00	0.00	0.00	0.00	58.17	58.17	0.00	0.00	185.99	185.99	100.00
11/11/2016	93.91	0.00	0.00	0.00	0.00	0.00	0.00	63.74	63.74	0.00	0.00	0.00	0.00	0.00	0.00	60.25	60.25	0.00	0.00	0.00	0.00	0.00	0.00	57.15	57.15	0.00	0.00	181.14	181.14	100.00
12/11/2016	93.92	0.00	0.00	0.00	0.00	0.00	0.00	62.76	62.76	0.00	0.00	0.00	0.00	0.00	0.00	60.11	60.11	0.00	0.00	0.00	0.00	0.00	0.00	57.15	57.15	0.00	0.00	180.02	180.02	100.00
13/11/2016	94.06	0.00	0.00	0.00	0.00	0.00	0.00	62.82	62.82	0.00	0.00	0.00	0.00	0.00	0.00	59.92	59.92	0.00	0.00	0.00	0.00	0.00	0.00	57.26	57.26	0.00	0.00	180.00	180.00	100.00
14/11/2016	93.85	0.00	0.00	0.00	0.00	0.00	0.00	62.59	62.59	0.00	0.00	0.00	0.00	0.00	0.00	59.50	59.50	0.00	0.00	0.00	0.00	0.00	0.00	56.94	56.94	0.00	0.00	179.03	179.03	100.00
15/11/2016	94.05	0.00	0.00	0.00	0.00	0.00	0.00	61.58	61.58	0.00	0.00	0.00	0.00	0.00	0.00	58.14	58.14	0.00	0.00	0.00	0.00	0.00	0.00	56.28	56.28	0.00	0.00	176.00	176.00	100.00
16/11/2016	94.03	0.00	0.00	0.00	0.00	0.00	0.00	68.93	68.93	0.00	0.00	0.00	0.00	0.00	0.00	52.40	52.40	0.00	0.00	0.00	0.00	0.00	0.00	55.03	55.03	0.00	0.00	176.36	176.36	100.00
17/11/2016	94.04	0.00	0.00	0.00	0.00	0.00	0.00	74.24	74.24	0.00	0.00	0.00	0.00	0.00	0.00	48.47	48.47	0.00	0.00	0.00	0.00	0.00	0.00	54.70	54.70	0.00	0.00	177.41	177.41	100.00
18/11/2016	94.08	0.00	0.00	0.00	0.00	0.00	0.00	73.96	73.96	0.00	0.00	0.00	0.00	0.00	0.00	48.03	48.03	0.00	0.00	0.00	0.00	0.00	0.00	53.98	53.98	0.00	0.00	175.97	175.97	100.00
19/11/2016	94.03	0.00	0.00	0.00	0.00	0.00	0.00	74.92	74.92	0.00	0.00	0.00	0.00	0.00	0.00	47.34	47.34	0.00	0.00	0.00	0.00	0.00	0.00	52.34	52.34	0.00	0.00	174.59	174.59	100.00
20/11/2016	93.93	0.00	0.00	0.00	0.00	0.00	0.00	74.86	74.86	0.00	0.00	0.00	0.00	0.00	0.00	47.17	47.17	0.00	0.00	0.00	0.00	0.00	0.00	51.99	51.99	0.00	0.00	174.02	174.02	100.00
21/11/2016	93.96	0.00	0.00	0.00	0.00	0.00	0.00	74.80	74.80	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	52.08	52.08	0.00	0.00	173.99	173.99	100.00
22/11/2016	93.75	0.00	0.00	0.00	0.00	0.02	0.02	67.44	67.48	0.00	0.00	0.00	0.00	0.02	0.02	42.19	42.22	0.00	0.00	0.00	0.00	0.01	0.01	46.97	46.99	0.05	0.05	156.59	156.69	99.94
23/11/2016	93.58	0.00	0.00	0.00	0.00	0.00	0.00	72.10	72.10	0.00	0.00	0.00	0.00	0.00	0.00	40.67	40.67	0.00	0.00	0.00	0.00	0.00	0.00	67.20	67.20	0.00	0.00	179.98	179.98	100.00
24/11/2016	93.78	0.00	0.00	0.00	0.00	0.00	0.00	72.04	72.04	0.00	0.00	0.00	0.00	0.00	0.00	41.23	41.23	0.00	0.00	0.00	0.00	0.00	0.00	66.75	66.75	0.00	0.00	180.02	180.02	100.00
25/11/2016	93.60	0.00	0.06	15.78	15.84	0.00	0.00	53.24	53.25	0.01	0.03	0.00	0.05	0.00	0.00	47.24	47.24	0.00	0.00	0.00	0.00	0.00	0.00	61.34	61.34	0.02	0.10	177.60	177.72	99.93
26/11/2016	93.55	0.00	0.00	0.00	0.00	0.00	0.00	61.94	61.94	0.00	0.00	0.00	0.00	0.00	0.00	58.76	58.76	0.00	0.00	0.00	0.00	0.00	0.00	56.27	56.27	0.00	0.00	176.97	176.97	100.00
27/11/2016	93.42	0.00	0.00	0.00	0.00	0.00	0.00	61.93	61.93	0.00	0.00	0.00	0.00	0.00	0.00	58.68	58.68	0.00	0.00	0.00	0.00	0.00	0.00	56.41	56.41	0.00	0.00	177.03	177.03	100.00
28/11/2016	93.42	0.00	0.00	0.00	0.00	0.00	0.00	63.20	63.20	0.00	0.00	0.00	0.00	0.00	0.00	57.56	57.56	0.00	0.00	0.00	0.00	0.00	0.00	56.29	56.29	0.00	0.00	177.06	177.06	100.00
29/11/2016	93.41	0.00	0.00	0.00	0.00	0.00	0.00	63.91	63.91	0.00	0.00	0.00	0.00	0.00	0.00	57.95	57.95	0.00	0.00	0.00	0.00	0.00	0.00	56.13	56.13	0.00	0.00	177.99	177.99	100.00
30/11/2016	92.82	0.02	0.02	22.32	22.35	0.00	0.00	36.41	36.41	0.02	0.02	1.54	1.58	0.02	0.02	56.61	56.65	0.00	0.00	0.00	0.00	0.03	0.03	54.71	54.76	0.09	0.09	171.58	171.75	99.90
Total [ML]:		0.02	0.08	38.10	38.19	0.02	0.02	1984.42	1984.47	0.03	0.06	260.99	261.08	0.04	0.04	1411.30	1411.37	0.00	0.00	230.32	230.32	0.04	0.04	1419.27	1419.35	0.15	0.24	5344.39	5344.78	

Water Volume [%]:

Untreated: 0.00 %
Below Dose 0.00 %
To Dose 99.99 %

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 2016

Report Created: Wednesday, January 04, 2017

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]								
		Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total					
01/12/2016	92.34	0.01	0.01	43.66	43.68	0.00	0.00	0.00	0.00	0.00	0.00	23.25	23.25	0.10	0.10	21.04	21.25	0.00	0.00	0.00	0.00	0.00	0.00	42.57	42.57	0.11	0.11	130.52	130.75	
02/12/2016	92.91	0.00	0.00	61.34	61.34	0.00	0.00	0.12	0.12	0.00	0.00	69.89	69.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.23	68.23	0.00	0.00	199.57	199.57	
03/12/2016	92.78	0.00	0.00	60.00	60.00	0.00	0.00	0.00	0.00	0.00	0.00	66.89	66.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.19	65.19	0.00	0.00	192.09	192.09	
04/12/2016	92.94	0.00	0.00	56.01	56.01	0.00	0.00	0.00	0.00	0.00	0.00	63.26	63.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.73	60.73	0.00	0.00	180.00	180.00	
05/12/2016	92.67	0.00	0.00	55.47	55.47	0.00	0.00	0.00	0.00	0.00	0.00	63.55	63.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.97	60.97	0.00	0.00	179.99	179.99	
06/12/2016	92.77	0.00	0.00	59.69	59.69	0.00	0.00	0.00	0.00	0.00	0.00	49.94	49.94	0.00	0.00	0.00	0.00	0.00	0.00	26.39	26.39	0.00	0.00	34.14	34.14	0.00	0.00	170.16	170.16	
07/12/2016	93.13	0.00	0.00	60.77	60.77	0.00	0.00	0.00	0.00	0.00	0.00	37.38	37.38	0.00	0.00	0.00	0.00	0.00	0.00	56.83	56.83	0.00	0.00	0.00	0.00	0.00	0.00	154.97	154.97	
08/12/2016	93.20	0.00	0.00	66.74	66.74	0.00	0.00	0.00	0.00	0.00	0.00	39.41	39.41	0.00	0.00	52.18	52.18	0.15	0.15	7.98	8.28	0.00	0.00	0.00	0.00	0.15	0.15	166.30	166.61	
09/12/2016	92.94	0.00	0.00	72.17	72.17	0.00	0.00	0.00	0.00	0.00	0.00	42.44	42.44	0.00	0.00	65.03	65.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	179.63	179.63	
10/12/2016	93.04	0.00	0.00	72.87	72.87	0.00	0.00	0.00	0.00	0.00	0.00	42.66	42.66	0.00	0.00	65.49	65.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	181.03	181.03	
11/12/2016	92.44	0.00	0.00	72.82	72.82	0.00	0.00	0.00	0.00	0.00	0.00	42.64	42.64	0.00	0.00	65.56	65.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	181.01	181.01	
12/12/2016	92.29	0.20	0.20	44.05	44.45	0.00	0.00	30.78	30.78	0.00	0.00	44.55	44.55	0.00	0.00	38.28	38.28	0.00	0.03	23.07	23.10	0.00	0.00	0.00	0.00	0.20	0.23	180.73	181.16	
13/12/2016	92.29	0.00	0.00	0.00	0.00	0.00	0.00	75.21	75.21	0.00	0.00	25.60	25.60	0.00	0.00	22.43	22.43	0.00	0.00	32.50	32.50	0.00	0.03	25.21	25.24	0.00	0.03	180.95	180.98	
14/12/2016	92.43	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	49.26	49.26	0.00	0.00	0.00	0.00	0.00	0.00	56.68	56.68	0.00	0.00	181.01	181.01	
15/12/2016	92.21	0.00	0.00	0.00	0.00	0.00	0.00	75.05	75.05	0.00	0.00	0.00	0.00	0.00	0.00	49.31	49.31	0.00	0.00	0.00	0.00	0.00	0.00	56.61	56.61	0.00	0.00	180.97	180.97	
16/12/2016	92.09	0.00	0.00	0.00	0.00	0.00	0.00	75.64	75.64	0.00	0.00	0.00	0.00	0.00	0.00	49.86	49.86	0.00	0.00	0.00	0.00	0.00	0.00	57.51	57.51	0.00	0.00	183.01	183.01	
17/12/2016	92.17	0.00	0.00	0.00	0.00	0.00	0.00	76.79	76.79	0.00	0.00	0.00	0.00	0.00	0.00	50.64	50.64	0.00	0.00	0.00	0.00	0.00	0.00	58.57	58.57	0.00	0.00	186.01	186.01	
18/12/2016	92.88	0.00	0.00	0.00	0.00	0.00	0.00	76.69	76.69	0.00	0.00	0.00	0.00	0.00	0.00	50.58	50.58	0.00	0.00	0.00	0.00	0.00	0.00	58.73	58.73	0.00	0.00	186.00	186.00	
19/12/2016	92.75	0.00	0.00	0.00	0.00	0.00	0.00	76.73	76.73	0.00	0.06	0.01	0.07	0.00	0.03	50.46	50.49	0.00	0.06	0.06	0.13	0.00	0.00	58.59	58.59	0.00	0.15	185.85	186.00	
20/12/2016	92.61	0.00	0.00	0.00	0.00	0.00	0.00	76.65	76.65	0.00	0.00	22.03	22.03	0.00	0.00	27.51	27.51	0.00	0.00	0.00	0.00	0.00	0.00	59.78	59.78	0.00	0.00	185.98	185.98	
21/12/2016	92.55	0.00	0.00	0.00	0.00	0.00	0.00	68.84	68.84	0.00	0.00	43.84	43.84	0.00	0.00	33.81	33.81	0.17	0.92	0.33	1.42	0.00	0.00	29.99	29.99	0.17	0.92	176.82	177.91	
22/12/2016	92.56	0.00	0.00	7.99	7.99	0.00	0.09	50.57	50.66	0.00	0.00	61.78	61.78	0.00	0.00	49.85	49.85	0.00	0.00	0.00	0.00	0.00	0.00	5.18	5.18	0.00	0.09	175.36	175.45	
23/12/2016	92.27	0.25	1.05	21.35	22.66	0.64	0.95	10.44	12.02	0.38	0.38	57.10	57.85	0.00	0.00	39.98	39.98	0.55	0.65	0.12	1.32	0.00	0.00	41.81	41.81	1.82	3.02	170.79	175.64	
24/12/2016	92.10	0.00	0.00	0.00	0.00	0.00	0.02	11.40	11.43	0.00	0.00	63.18	63.18	0.00	0.00	51.69	51.69	0.12	0.16	0.29	0.57	0.00	0.00	48.56	48.56	0.12	0.19	175.12	175.43	
25/12/2016	92.09	0.00	0.00	0.00	0.00	0.00	0.00	12.12	12.12	0.00	0.00	59.29	59.29	0.00	0.00	58.61	58.61	0.00	0.00	0.00	0.00	0.00	0.00	48.18	48.18	0.00	0.00	178.21	178.21	
26/12/2016	92.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.18	64.18	0.00	0.00	60.56	60.56	0.00	0.00	0.00	0.00	0.00	0.00	54.05	54.05	0.00	0.00	178.78	178.78	
27/12/2016	92.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.25	69.25	0.00	0.00	56.97	56.97	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.00	186.22	186.22	
28/12/2016	92.12	0.00	0.00	0.00	0.00	0.00	0.03	0.52	0.55	0.00	0.00	67.84	67.84	0.00	0.00	56.83	56.83	0.00	0.00	0.00	0.00	0.00	0.00	59.85	59.85	0.00	0.03	185.04	185.07	
29/12/2016	92.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.32	64.32	0.00	0.00	57.10	57.10	0.00	0.00	0.00	0.00	0.00	0.00	59.85	59.85	0.00	0.00	181.27	181.27	
30/12/2016	92.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.60	57.60	0.00	0.00	56.96	56.96	0.00	0.00	0.00	0.00	0.00	0.00	60.00	60.00	0.00	0.00	174.57	174.57	
31/12/2016	92.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.94	55.94	0.00	0.00	57.17	57.17	0.00	0.00	0.00	0.00	0.00	0.00	59.88	59.88	0.00	0.00	173.00	173.00	
Total [ML]:		0.46	1.26	754.93	756.66	0.64	1.08	792.64	794.37	0.38	0.43	1297.84	1298.65	0.10	0.13	1237.13	1237.37	0.99	1.98	147.56	150.53	0.00	0.03	1290.87	1290.89	2.57	4.92	5520.98	5528.47	

Water Volume [%]:

Untreated: 0.05 %
Below Dose 0.09 %
To Dose 99.86 %

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor

2016 Corrective Action Reports



Water and Waste Department • Service des eaux et des déchets

Monday, June 6, 2016

Our Incident/Report No: 01-2016

LIMS Reference No: **46235**

Incident Date: **May 25, 2016**

Ms. Melanie Betsill
Drinking Water Officer
Manitoba Sustainable Development, Office of Drinking Water
1007 Century Street
Winnipeg MB R3H 0W4

RE: CORRECTIVE ACTION REPORT

WATER SYSTEM, CODE	Winnipeg Public Water System, 252.00
LOCATION OF NON-COMPLIANT INCIDENT	Winnipeg 3-Dist SE05
INCIDENT REPORTED BY	Courtney Diduck, Analytical Services Branch Head
TYPE OF NON-COMPLIANT INCIDENT	Low positive Total Coliform (<10 per100mL), 3 MR 41/2007
DESCRIPTION OF CORRECTIVE ACTIONS	<u>Environmental Standards:</u> AS SOON AS POSSIBLE: Re-sampled original location until two consecutive negative results were reported. Also tested for turbidity, free/total chlorine, temperature and contacted the ODW.
TEST RESULTS	See Attached

NOTES/COMMENTS:

1. UP/DOWN STREAM testing performed when EC is >0 /100mL, TC is >10 /100mL or when resample/consecutive sample is positive for EC or TC or as directed by the Manager of Environmental Standards Division and/or the Office of Drinking Water

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

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Water and Waste Department • Service des eaux et des déchets

Sample Name	Sample Number	Date Sampled	bacColiEsch-QT (MPNU/100mL)	bacColiTotal-QT (MPNU/100mL)	bacHPC (cfu/mL)	Chlorine, Free (mg/L)	Chlorine, Total (mg/L)	Temperature (°C)	Turbidity-field (ntu)	Time Sampled (hrs)
SE05	472539	42515	<1	1	<1	0.85	1.01	9.9	0.14	13:47
SE05_Resample 1	473233	42516	<1	<1	<1	0.88	1.10	10.0	0.41	15:20
SE05_Resample 1 Duplicate	473990	42516	<1	<1	<1	NA	NA	NA	NA	15:20
SE05_Resample 2	473234	42517	<1	<1	<1	0.81	1.03	9.5	0.22	15:38
SE05_Resample 2 Duplicate	473991	42517	<1	<1	<1	NA	NA	NA	NA	15:38

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 Department • Service des eaux et des déchets

Wednesday, August 31, 2016

Our Incident/Report No: 02-2016

LIMS Reference No: **47126**

Incident Date: **August 16, 2016**

Ms. Melanie Betsill
Drinking Water Officer
Manitoba Sustainable Development, Office of Drinking Water
1007 Century Street
Winnipeg MB R3H 0W4

RE: CORRECTIVE ACTION REPORT

WATER SYSTEM, CODE	Winnipeg Public Water System, 252.00
LOCATION OF NON-COMPLIANT INCIDENT	Winnipeg 3-Dist NW03
INCIDENT REPORTED BY	Courtney Diduck, Analytical Services Branch Head
TYPE OF NON-COMPLIANT INCIDENT	Low positive Total Coliform (<10 per100mL), 3 MR 41/2007
DESCRIPTION OF CORRECTIVE ACTIONS	<u>Environmental Standards:</u> AS SOON AS POSSIBLE: Re-sampled original location until two consecutive negative results were reported. Also tested for turbidity, free/total chlorine, temperature and contacted the ODW.
TEST RESULTS	See Attached

NOTES/COMMENTS:

1. UP/DOWN STREAM testing performed when EC is >0 /100mL, TC is >10 /100mL or when resample/consecutive sample is positive for EC or TC or as directed by the Manager of Environmental Standards Division and/or the Office of Drinking Water

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

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Water and Waste Department • Service des eaux et des déchets

Sample Name	Sample Number	Date Sampled	bacColiEsch-QT (MPNU/100mL)	bacColiTotal-QT (MPNU/100mL)	bacHPC (cfu/mL)	Chlorine, Free (mg/L)	Chlorine, Total (mg/L)	Temperature (°C)	Turbidity-field (ntu)	Time Sampled (hrs)
NW03	482401	16-Aug-16	<1	1	<1	1.16	1.46	17.1	2.36	09:20
NW03_Resample 1	482992	17-Aug-16	<1	<1	<1	0.77	0.99	16.7	0.95	15:50
NW03_Resample 1 Duplicate	483042	17-Aug-16	<1	<1	<1	NA	NA	NA	NA	NA
NW03_Resample 2	483046	18-Aug-16	<1	<1	<1	0.79	1.02	17.2	0.35	15:56
NW03_Resample 2 Duplicate	483047	18-Aug-16	<1	<1	<1	NA	NA	NA	NA	NA

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 Department • Service des eaux et des déchets

Wednesday, October 5, 2016

Our Incident/Report No: 03-2016

LIMS Reference No: **47529**

Incident Date: **September 28, 2016**

Ms. Melanie Betsill
Drinking Water Officer
Manitoba Sustainable Development, Office of Drinking Water
1007 Century Street
Winnipeg MB R3H 0W4

RE: CORRECTIVE ACTION REPORT

WATER SYSTEM, CODE	Winnipeg Public Water System, 252.00
LOCATION OF NON-COMPLIANT INCIDENT	Winnipeg 3-Dist NE05
INCIDENT REPORTED BY	Courtney Diduck, Analytical Services Branch Head
TYPE OF NON-COMPLIANT INCIDENT	Low positive Total Coliform (<10 per100mL), 3 MR 41/2007
DESCRIPTION OF CORRECTIVE ACTIONS	<u>Environmental Standards:</u> AS SOON AS POSSIBLE: Re-sampled original location until two consecutive negative results were reported. Also tested for turbidity, free/total chlorine, temperature and contacted the ODW.
TEST RESULTS	See Attached

NOTES/COMMENTS:

1. UP/DOWN STREAM testing performed when EC is >0 /100mL, TC is >10 /100mL or when resample/consecutive sample is positive for EC or TC or as directed by the Manager of Environmental Standards Division and/or the Office of Drinking Water

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

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Water and Waste Department • Service des eaux et des déchets

Sample Name	Sample Number	Date Sampled	bacColiEsch-QT (MPNU/100mL)	bacColiTotal-QT (MPNU/100mL)	bacHPC (cfu/mL)	Chlorine, Free (mg/L)	Chlorine, Total (mg/L)	Temperature (°C)	Turbidity-field (ntu)	Time Sampled (hrs)
NE05	486482	28-Sep-16	<1	1	<1	0.71	0.95	17.2	0.29	10:10
NE05_Resample 1	487232	29-Sep-16	<1	<1	<1	0.76	1.05	17.0	0.44	15:03
NE05_Resample 1 Duplicate	487233	29-Sep-16	<1	<1	<1	NA	NA	NA	NA	NA
NE05_Resample 2	487236	30-Sep-16	<1	<1	<1	0.83	1.05	17.3	0.26	15:15
NE05_Resample 2 Duplicate	487237	30-Sep-16	<1	<1	<1	NA	NA	NA	NA	NA

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 Department • Service des eaux et des déchets

Friday, November 4, 2016

Our Incident/Report No: 04-2016

LIMS Reference No: **47656**

Incident Date: **October 13, 2016**

Ms. Melanie Betsill
Drinking Water Officer
Manitoba Sustainable Development, Office of Drinking Water
1007 Century Street
Winnipeg MB R3H 0W4

RE: CORRECTIVE ACTION REPORT

WATER SYSTEM, CODE	Winnipeg Public Water System, 252.00
LOCATION OF NON-COMPLIANT INCIDENT	Winnipeg 3-Dist SW01
INCIDENT REPORTED BY	Courtney Diduck, Analytical Services Branch Head
TYPE OF NON-COMPLIANT INCIDENT	Low positive Total Coliform (<10 per100mL), 3 MR 41/2007
DESCRIPTION OF CORRECTIVE ACTIONS	<u>Environmental Standards:</u> AS SOON AS POSSIBLE: Re-sampled original location until two consecutive negative results were reported. Also tested for turbidity, free/total chlorine, temperature and contacted the ODW.
TEST RESULTS	See Attached

NOTES/COMMENTS:

1. UP/DOWN STREAM testing performed when EC is >0 /100mL, TC is >10 /100mL or when resample/consecutive sample is positive for EC or TC or as directed by the Manager of Environmental Standards Division and/or the Office of Drinking Water

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

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Water and Waste Department • Service des eaux et des déchets

Sample Name	Sample Number	Date Sampled	bacColiEsch-QT (MPNU/100mL)	bacColiTotal-QT (MPNU/100mL)	bacHPC (cfu/mL)	Chlorine, Free (mg/L)	Chlorine, Total (mg/L)	Temperature (°C)	Turbidity-field (ntu)	Time Sampled (hrs)
SW01	487895	13-Oct-16	<1	1	2	0.87	1.05	15.5	0.24	12:17
SW01_Resample 1	488718	14-Oct-16	<1	<1	<1	0.76	1.02	15.3	0.25	16:30
SW01_Resample 1 Duplicate	488719	14-Oct-16	<1	<1	<1	NA	NA	NA	NA	NA
SW01_Resample 2	488720	15-Oct-16	<1	<1	<1	0.77	1.08	15.0	0.28	17:00
SW01_Resample 2 Duplicate	488721	15-Oct-16	<1	<1	<1	NA	NA	NA	NA	NA

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.

CORRECTIVE ACTION REPORT



WATER SYSTEM City of Winnipeg

WATER SYSTEM CODE: 252.00

LOCATION OF NON-COMPLIANCE INCIDENT (ex. Water Plant): City of Winnipeg Deacon WTP

OPERATOR: CARSON IKONEN

Signature: [Signature]

TYPE OF NON-COMPLIANCE INCIDENT:

☐	Low disinfectant residual entering the distribution system, 21(1) MR 40/2007
☐	Low disinfectant residual in the distribution system, 22 MR 40/2007
☒	Filtered water turbidity exceeding the turbidity standard, 6(1) MR 41/2007
☐	Low positive total coliform (<10 CFU/100mL), 3 MR 41/2007
☐	Other

INITIAL TEST RESULTS:

DESCRIPTION OF CORRECTIVE ACTIONS TAKEN (attach additional sheets if required):

10/24/16 DATE

Instrument Tech forgot to place instrument into hold when calibrating Filter 8 Turbidimeter. NTU spiked to 5.00 due to calibration standard. Not actual water quality reading (see attached trend)

TEST RESULTS AFTER CORRECTIVE ACTIONS:

(attach laboratory results if applicable)

None

DATE: 10/24/16

Approved By Operator-In-Charge: Dan MERREVEW Original signed by: [Signature]

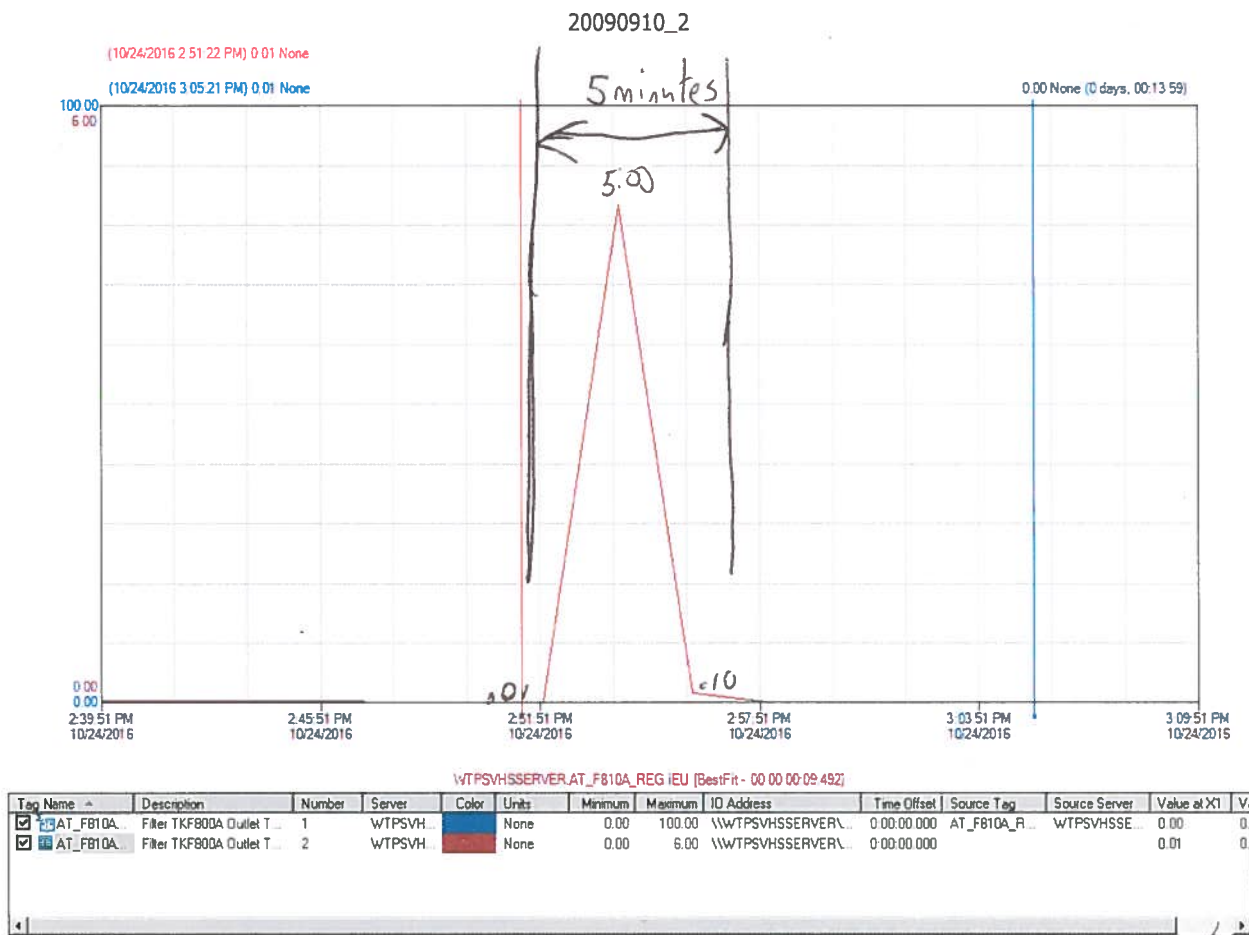
EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER ON SITUATIONS REQUIRING IMMEDIATE REPORTING.

DISTRIBUTION:

FORWARD THE ORIGINAL TO YOUR DRINKING WATER OFFICER WITH YOUR MONTHLY DISINFECTION OR TURBIDITY MONITORING REPORT

RETAIN A COPY FOR YOUR RECORDS

Contact your Drinking Water Officer with any comments, questions or concerns.



14:51 Filter 8 10/24/16

Tech forgot to place
Turb. Meter into Hold for
Calibration. Not actual
water Nth. But an
Instrument Tech Error

2016 Monthly Fluoride Monitoring Reports



Water and Waste Department • Service des eaux et des déchets

February 23, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	458110	January 4, 2016	0.73
	458862	January 11, 2016	0.68
	459555	January 18, 2016	0.71
	460210	January 25, 2016	0.74

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

March 24, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	461003	February 1, 2016	0.71
	461782	February 8, 2016	0.72
	462472	February 16, 2016	0.69
	463129	February 22, 2016	0.67
	463763	February 29, 2016	0.73

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

N:\Compliance Reporting\Submittal Letters\2016\MB Health - Fluoride\2016-02 Fluoride.doc



Water and Waste Department • Service des eaux et des déchets

April 21, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	464492	March 7, 2016	0.70
	465089	March 14, 2016	0.69
	466044	March 21, 2016	0.70
	466542	March 29, 2016	0.70

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

N:\Compliance Reporting\Submittal Letters\2016\MB Health - Fluoride\2016-03 Fluoride.doc



Water and Waste Department • Service des eaux et des déchets

May 19, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	467141	April 4, 2016	0.70
	467833	April 11, 2016	0.72
	468567	April 18, 2016	0.66
	469290	April 25, 2016	0.69

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

July 6, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	469969	May 2, 2016	0.68
	470805	May 9, 2016	0.70
	471704	May 16, 2016	0.66
	472513	May 24, 2016	0.64
	473302	May 30, 2016	0.75

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

July 22, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	474246	June 6, 2016	0.72
	475142	June 13, 2016	0.66
	475966	June 20, 2016	0.71
	476774	June 27, 2016	0.71

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

August 19, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	477438	July 4, 2016	0.71
	478414	July 11, 2016	0.70
	479210	July 18, 2016	0.69
	480048	July 25, 2016	0.72

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

October 6, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	480814	August 2, 2016	0.69
	481628	August 8, 2016	0.71
	482385	August 15, 2016	0.72
	483149	August 22, 2016	0.68
	483814	August 29, 2016	0.69

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

November 9, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	484512	06-Sep-16	0.67
	485095	12-Sep-16	0.62
	485776	19-Sep-16	0.64
	486474	26-Sep-16	0.66

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

December 5, 2016

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	487290	03-Oct-16	0.71
	487860	11-Oct-16	0.69
	488548	17-Oct-16	0.67
	489522	24-Oct-16	0.68
	490294	31-Oct-16	0.68

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

January 4, 2017

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	490969	07-Nov-16	0.64
	491539	14-Nov-16	0.68
	492217	21-Nov-16	0.65
	492821	28-Nov-16	0.68

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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Water and Waste Department • Service des eaux et des déchets

January 12, 2017

Our File: 040-18-18-14-00

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

Dear Dr. Hai-Santiago:

RE: 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.

<u>LOCATION</u>	<u>SAMPLE NUMBER</u>	<u>DATE</u>	<u>RESULT(mg/L F)</u>
Distribution System (Composite – 39 Locations)	493450	05-Dec-16	0.71
	494147	12-Dec-16	0.70
	494744	19-Dec-16	0.75
	495298	28-Dec-16	0.68

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

Yours truly,

Original signed by:

Renée Grosselle
Manager of Environmental Standards

NC/HD

cc: Tim Shanks, P.Eng. Manager of Water Services (e-mail)

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**2016 Quarterly Total Trihalomethane
And Total Haloacetic Acid Summary Reports**

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

Total Trihalomethane Summary Report

Reporting Period: Quarter 1 2016

SAMPLE DATE	DISTRIBUTION SYSTEM THM RESULTS (ug/L)					
	WC-12	WC-06	NW-05	NE-09	SE-07	SW-08
Monday, May 11, 2015	27	25	28	26	27	26
Monday, August 10, 2015	25	26	36	27	37	40
Monday, November 02, 2015	17	15	21	20	19	16
Monday, February 01, 2016	11	10	10	13	11	10
RUNNING AVERAGE THM	20	19	24	22	24	23

COMMENTS:

NS - NO SAMPLE

NR - NO RESULT

Methodology

Trihalomethanes analyzed by GC-ECD, Standard Methods for the Examination of Water and Waste Water, 21st Edition, Method 6232

Report Compiled by: H.Demchenko

Approved in LIMS by: C.Diduck

File: WQR4

Date Approved: February 24, 2016

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

Total Trihalomethane Summary Report

Reporting Period: Quarter 2 2016

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 10, 2015	25	26	36	27	37	40
Monday, November 02, 2015	17	15	21	20	19	16
Monday, February 01, 2016	11	10	10	13	11	10
Monday, May 24, 2016	21	22	24	23	23	21
RUNNING AVERAGE THM	19	18	23	21	23	22

COMMENTS: May 24, 2016 samples were analyzed by contract lab.

NS - NO SAMPLE

NR - NO RESULT

Methodology

Trihalomethanes analyzed by GC-ECD, Standard Methods for the Examination of Water and Waste Water, 21st Edition, Method 6232
Effective May 2016, analysis of Volatile Organic Compounds is by Headspace GC-MS, EPA Methods 5021A and 8260C.

Report Compiled by: H.Demchenko

Approved in LIMS by: C.Diduck

File: WQR4

Date Approved: June 14, 2016

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

Total Trihalomethane Summary Report

Reporting Period: Quarter 3 2016

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 02, 2015	17	15	21	20	19	16
Monday, February 01, 2016	11	10	10	13	11	10
Monday, May 24, 2016	21	22	24	23	23	21
Monday, August 22, 2016	40	49	45	43	43	41
RUNNING AVERAGE THM	22	24	25	25	24	22

COMMENTS: May 24, 2016 and August 22, 2016 samples were analyzed by contract lab.

NS - NO SAMPLE

NR - NO RESULT

Methodology

Trihalomethanes analyzed by GC-ECD, Standard Methods for the Examination of Water and Waste Water, 21st Edition, Method 6232
Effective May 2016, analysis of Volatile Organic Compounds is by Headspace GC-MS, EPA Methods 5021A and 8260C.

Report Compiled by: H.Demchenko

Approved in LIMS by: C.Diduck

File: WQR4

Date Approved: October 5, 2016

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

Total Trihalomethane Summary Report

Reporting Period: Quarter 4 2016

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 01, 2016	11	10	10	13	11	10
Monday, May 24, 2016	21	22	24	23	23	21
Monday, August 22, 2016	40	49	45	43	43	41
Monday, November 7, 2016	17	19	24	21	21	23
RUNNING AVERAGE THM	22	25	26	25	25	24

COMMENTS: May 24, 2016 and August 22, 2016 samples were analyzed by contract lab.

NS - NO SAMPLE

NR - NO RESULT

Methodology

Trihalomethanes analyzed by GC-ECD, Standard Methods for the Examination of Water and Waste Water, 21st Edition, Method 6232
Effective May 2016, analysis of Volatile Organic Compounds is by Headspace GC-MS, EPA Methods 5021A and 8260C.

Report Compiled by: H.Demchenko

Approved in LIMS by: C.Diduck

File: WQR4

Date Approved: December 5, 2016

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

Haloacetic Acids Summary Report

Reporting Period: Quarter 2 2016

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 10, 2015	31	44	32	41	47	46
Monday, November 02, 2015	28	28	32	30	30	31
Monday, February 01, 2016	32	33	31	37	32	37
Monday, May 09, 2016	27	28	27	29	28	28
RUNNING AVERAGE HAA	30	33	31	34	34	36

COMMENTS:

NS - NO SAMPLE

NR - NO RESULT

Methodology

Haloacetic Acids analyzed by GC-ECD, Standard Methods for the Examination of Water and Waste Water, 21'st Edition, Method 6232

Report Compiled by: H.Demchenko

Approved in LIMS by: C.Diduck

File: WQR4

Date Approved: June 8, 2016

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

Haloacetic Acids Summary Report

Reporting Period: Quarter 3 2016

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 02, 2015	28	28	32	30	30	31
Monday, February 01, 2016	32	33	31	37	32	37
Monday, May 09, 2016	27	28	27	29	28	28
Monday, August 8, 2016	31	37	23	29	38	38
RUNNING AVERAGE HAA	30	32	28	31	32	34

COMMENTS:

NS - NO SAMPLE

NR - NO RESULT

Methodology

Haloacetic Acids analyzed by GC-ECD, Standard Methods for the Examination of Water and Waste Water, 21'st Edition, Method 6232

Report Compiled by: H.Demchenko

Approved in LIMS by: C.Diduck

File: WQR4

Date Approved: October 5, 2016

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

Haloacetic Acids Summary Report

Reporting Period: Quarter 4 2016

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 01, 2016	32	33	31	37	32	37
Monday, May 09, 2016	27	28	27	29	28	28
Monday, August 8, 2016	31	37	23	29	38	38
Monday, November 7, 2016	25	27	29	28	29	28
RUNNING AVERAGE HAA	29	31	28	31	32	33

COMMENTS:

NS - NO SAMPLE

NR - NO RESULT

Methodology

Haloacetic Acids analyzed by GC-ECD, Standard Methods for the Examination of Water and Waste Water, 21'st Edition, Method 6232

Report Compiled by: H.Demchenko

Approved in LIMS by: C.Diduck

File: WQR4

Date Approved: December 5, 2016

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2016 Lead Loop Monitoring Report



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

Water System Code: 252.00

Licence Number: PWS-09-01

2016 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 14, 2016	<0.0004	0.0005	<0.0004	0.0009	<0.0004
February 4, 2016	<0.0004	0.0005	<0.0004	0.0006	<0.0004
March 3, 2016	0.0005	<0.0004	<0.0004	<0.0004	<0.0004
April 8, 2016	<0.0004	<0.0004	<0.0004	0.0025	0.0015
May 6, 2016	<0.0004	<0.0004	<0.0004	0.0014	0.0010
June 10, 2016	<0.0004	0.0018	0.0006	0.0025	0.0042
July 8, 2016	<0.0004	0.0032	0.0012	0.0048	0.0089
August 5, 2016	<0.0004	0.0012	<0.0004	0.0006	<0.0004
September 2, 2016	<0.0004	<0.0004	0.0005	0.0018	<0.0004
October 21, 2016	<0.0004	0.0032	0.0076	0.0027	0.0014
November 18, 2016	<0.0004	0.0049	0.0160	0.0036	0.0013
December 9, 2016	<0.0004	0.0015	0.0120	0.0012	0.0010
2016 AVERAGE LEAD CONCENTRATION	<0.0004	0.0015	0.0033	0.0019	0.0017

COMMENTS:

Report Compiled By: H.Demchenko

NS - NO SAMPLE
NR - NO RESULT

Approved in LIMS By: C.Diduck

Date Approved: 5-Jan-17

Methodology

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