



Water and Waste Department • Service des eaux et des déchets

2009

ANNUAL REPORT

**CITY OF WINNIPEG
WATER SUPPLY SYSTEM**



Water and Waste Department • Service des eaux et des déchets

March 31, 2010

Our File: 040-18-18-55-00

Ms. Kim Philip
Office of Drinking Water
Manitoba Water Stewardship
1007 Century Street
Winnipeg, Manitoba
R3H 0W4

Dear Ms. Philip:

RE: ANNUAL REPORT - CITY OF WINNIPEG WATER SUPPLY SYSTEM FOR 2009

Please find enclosed the Annual Report for the City of Winnipeg Water Supply System for 2009 in accordance with Operating Licence PWS-09-412 Section 5.11 and the Drinking Water Safety Act, Manitoba Regulation 40/2007, Section 32.

This annual report covers the following requirements described in Section 32 of the Drinking Water Safety Act. The content is noted below:

1. Changes to the annual report.

On October 1, 2009 the City of Winnipeg was issued a Public Drinking Water System Operating Licence. To further comply with the requirements of the licence, the format of our compliance submissions has changed as of November 2009.

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

Provided therein.

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

Provided therein.

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

The test results are found in Appendix A.

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

Included in this report is a table that summarizes all the occasions where test results did not meet the guideline and a description of the corrective actions taken in 2009.

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Environmental Standards Division • Division des normes environnementales
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6. “*Section 32(2)(e) a summary of the information contained in the records made under Section 31.*”

Monthly compliance reports are found in Appendix B.

7. “*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 2009.

8. “*Section 32(2)(g) a description of any boil water advisories issued.*”
No boil water advisories were issued to the City of Winnipeg in 2009.

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

No charges laid, pending or disposed of for any offences were issued to the City of Winnipeg in 2009.

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

Provided therein.

11. “*Section 32(2)(j) any other information or description of any other activities.*”
The City of Winnipeg does not have any additional information to be submitted.

In accordance with Section 5.13 of the Operating Licence and Section 34 of the Drinking Water Safety Act, a copy of this annual report will be posted on the departmental website as soon as practicable.

As per the monitoring requirements set out in Table 2. of the City of Winnipeg’s operating licence, turbidity, free and total chlorine, UV and corrective action compliance reports are being submitted on an ongoing monthly basis. Bacteriological reports and chlorine residual results are sent directly to your office by the analytical laboratory that does the bacteriological testing of samples.

Please let me know of any concerns or questions respecting this submission. I may be reached at the above address, by telephone at 986-4807 or by e-mail at kkjartanson@winnipeg.ca.

Thanks for your ongoing cooperation and understanding in this matter.

Yours sincerely,

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards
KJTK/RG

Enclosures
c: B.D. MacBride, P.Eng.
D.P. Sacher, P.Eng.
M.A. Shkolny, P.Eng

Dr. M. Routledge, Winnipeg Regional Health Authority
Dr. S. Roberecki, Manitoba Health

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CHANGES TO THE ANNUAL REPORT

On October 1, 2009 the City of Winnipeg was issued a Public Drinking Water System Operating Licence. As per the requirements of the new licence several reporting requirements have changed. Free and total chlorine residual results for the distribution system are reported on the bacteriological chain of custody forms and are submitted to the Office of Drinking water by the contract laboratory. The chain of custody forms have replaced the chlorine residual monitoring reports submitted as of November 1, 2009. As of November 2009, reports for the on-line total chlorine results for the three pumping stations are being submitted while we install and test the free chlorine analysers to further comply with the requirements of the licence. As of December 2009, grab sampling reports for free and total chlorine and on-line UV reports for each treatment chamber are being submitted on an on-going monthly basis in accordance with the licence. Turbidity reports have also changed as of December 2009. In addition to the Deacon Outlet results, the reports include turbidity results taken at the three regional pumping stations.

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 kilometres. The intake for Winnipeg's water system is on Indian Bay on the western end of Shoal Lake, and is only accessible

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City of Winnipeg Water Supply System

by rail or boat. Water flows from Shoal Lake to Winnipeg by gravity through a 135 kilometre long aqueduct. The water is stored in Deacon Reservoir, a large reservoir that can hold 8.8 billion litres, enough water to supply Winnipeg for about 30 days. Water passes from Deacon Reservoir to a Drinking Water Treatment Plant (as of December 9, 2009), and then on to three smaller reservoirs and pumping stations in different areas of the city. Each day, an average of 221 million litres of water is delivered to approximately 270,000 Winnipeg homes and businesses.

DISINFECTION METHODS

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

Before December 9, 2009, the City of Winnipeg used a UV light system at Deacon Reservoir as primary means of disinfection. The City of Winnipeg also used chlorine gas to disinfect the water. The chlorine was added at three different places before the water reached homes and business in Winnipeg – Shoal Lake, Deacon Reservoir and the pumping station that serves the area the water is entering.

On December 9, 2009 the City of Winnipeg’s new Drinking Water Treatment Plant began sending treated water to the city. The water now passes through several treatment steps which include ozonation and chlorination to help disinfect the water. Chlorine continues to be added at three different places- Shoal Lake, the Drinking Water Treatment Plant and the pumping stations before reaching homes and businesses. In addition to the treatment steps the UV disinfection remains an essential part of the disinfection process.

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DRINKING WATER PARAMETERS

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

Winnipeg water is intensively monitored on a routine basis to ensure that the water is safe and that regulatory requirements are met. Table 1 provides a list of all the parameters analysed by the City of Winnipeg. The results of these tests are found in Appendix A. We measure how water quality changes within the distribution system and the quality of water delivered to customers with these tests. We also respond to customer inquiries and complaints about water quality.

OCCASIONS OF A RESULT NOT MEETING A 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, our level of monitoring and sampling exceeds regulatory requirements. The City of Winnipeg ensures that a high quality of water is delivered to customers and actions are taken to continuously improve water quality. Table 2 includes all occasions of a result not meeting a water quality standard and corrective action taken in 2009.

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Table 1. Drinking Water Parameters

Analyses Conducted by City of Winnipeg		Analyses Conducted by Contract Labs	
Parameter		Parameter	
Plankton Count		Chloride	
Chlorophyll a		Sulphate	
Threshold Odour Number		Giardia	
pH		Cryptosporidium	
Turbidity		Total Coliform	
Fluoride		Fecal Coliform	
Apparent Colour		Esherichia Coli	
Total Solids		Heterotrophic Plate Count	
Total Dissolved Solids		Taste and Odour	
Total Alkalinity		- IPMP	
Total Hardness		- IBMP	
Specific Conductance		- MIB	
Total Organic Carbon		- 246TCA	
Soluble Organic Carbon		- 236TCA	
Free Chlorine		- Geosmin	
Total Chlorine		- 345TCV	
Temperature		Microcystin LR	
Dissolved Oxygen		Mercury	
Transparency		NDMA	
Trihalomethanes (Total)		MTBE	
Bromodichloromethanes			
Haloacetic Acids			
Aldehydes			
Zinc			
Aluminum			
Arsenic			
Boron			
Calcium			
Cadmium			
Chromium			
Copper			
Iron			
Potassium			
Magnesium			
Manganese			
Sodium			
Nickel			
Lead			
Nitrate Nitrogen			
Total Kjeldahl Nitrogen (by contract lab as of May 11, 2009)			
Total Phosphorus (by contract lab as of June 8, 2009)			
Filtered Reactive (Ortho) Phosphorus (by contract lab as of August 31, 2009)			

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

Date	Location	Type of result not meeting a water quality standard	Initial test result	Description of corrective actions taken
Jan 27, 09	[REDACTED]	Turbidity exceeding 1 NTU	2.57	High turbidities of the distribution samples are a result of the quality of the incoming water supply and/or localized disturbances.
May 26, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.27	
Jun 17, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.46	
Jul 14, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.51	
Aug 26, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.17	
Sep 15, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.19	
Sep 22, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.35	
Sep 22, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.01	The background levels are higher than normal during the summer and fall months due to the high algae levels.
Sep 22, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.30	
Oct 26, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.20	
Nov 3, 09	[REDACTED]	Turbidity exceeding 1 NTU	1.26	
Jan 5, 09	[REDACTED]	Total coliform >1 MPNU/100mL	8	All locations were resampled until two consecutive negative results were found.
Jan 5, 09	[REDACTED]	Total coliform >1 MPNU/100mL	1	
Jan 6, 09	[REDACTED]	Total coliform >1 MPNU/100mL	118	
Mar 3, 09	[REDACTED]	Total coliform >1 MPNU/100mL	1	
Apr 15, 09	[REDACTED]	Total coliform >1 MPNU/100mL	2	There were no instances of consecutive positive results.
May 4, 09	[REDACTED]	Total coliform >1 MPNU/100mL	70	
Aug 20, 09	[REDACTED]	Total coliform >1 MPNU/100mL	14	
Sep 22, 09	[REDACTED]	Free chlorine residual <0.10 mg/L	0.07	All locations were resampled.
Oct 13, 09	[REDACTED]	Free chlorine residual <0.10 mg/L	0.08	
				Chlorine set points were adjusted to ensure that the target level of disinfection was met.
				It was determined that the low chlorine on Oct 13, 09 was not accurate and was due to a technician error.

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MAJOR EXPENSES

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

1. Drinking Water Treatment Plant project. The construction of the new \$300 M drinking water treatment plant was completed in 2009. The drinking water treatment plant started producing water for the City December 9, 2009. The treatment process includes:
 1. enhanced coagulation
 2. dissolved air floatation
 3. ozone
 4. biologically active carbon filters
 5. UV disinfection
2. Two natural gas engine drives for water pumping at the McPhillips Pump Station were rebuilt.
3. One existing natural gas engine drive for water pumping at the MacLean Pump Station was replaced with a new engine.
4. Water mains renewals were completed at 31 locations in the City's water distribution system.

APPENDIX A
WATER QUALITY SUMMARY REPORTS

City of Winnipeg
Environmental Standards Division
2009 Shoal Lake Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Odour	units	Inoffensive	115	60	200	Raw water - guideline does not apply
Geosmin	parts per trillion	no guideline	3.3	<1.0	6.0	Common taste and odour compound
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
MIB - 2-methylisoborneol	parts per trillion	no guideline	4.5	<0.5	6.4	Common taste and odour compound
246 TCA - 2,4,6-trichloroanisole	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
236 TCA - 2,3,6-trichloroanisole	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
345 TCV - 3,4,5-trichloroveratrole	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
MTBE - methyl tertiary-butyl ether	parts per million	0.015	<0.0008	<0.0005	0.001	Raw water - guideline does not apply
NDMA - N-nitrosodimethylamine	parts per billion	under review	<2	<0.8	<5	Guideline under review by Health Canada
Plankton (algae) count	cells/ml	no guideline	39,661	2,000	316,900	Algae contributes to odours and may cause filter clogging
Chlorophyll-a	parts per billion	no guideline	3	<1	7	Chlorophyll is found in algae
Microcystin LR	parts per billion	1.5	<0.2	<0.2	0.2	Raw water - guideline does not apply
Cryptosporidium	oocysts per 100 L	no guideline	<1	<1	<1	13 samples taken in 2009 - no positive results
Giardia	cysts per 100 L	no guideline	<1	<1	<1	13 samples taken in 2009 - one positive results
Turbidity (clearness)	n.t.u.	1.0	0.79	0.26	1.70	Raw water - guideline does not apply
Colour, Apparent	units	≤15	2.7	2.5	5.0	Coloured water may be offensive
Total Dissolved Solids	parts per million	≤500	97	73	169	Raw water - guideline does not apply
Conductivity	microsiemens per centimetre	no guideline	141	122	159	Another measure of dissolved solids
pH	units	6.5-8.5	8.13	7.80	8.69	Raw water - guideline does not apply
						Raw water - guideline

City of Winnipeg
Environmental Standards Division
2009 Shoal Lake Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Fluoride	<i>parts per million</i>	1.5	0.08	<0.08	0.20	Raw water - guideline does not apply
Nitrate Nitrogen	<i>parts per million</i>	10	0.014	<0.003	0.037	Raw water - guideline does not apply
Chloride	<i>parts per million</i>	≤250	<9	<9	<9	Raw water - guideline does not apply
Sulphate	<i>parts per million</i>	≤500	<9	<9	<9	Raw water - guideline does not apply
Trihalomethanes	<i>parts per billion</i>	100	<0.5	<0.5	1.5	Raw water - guideline does not apply
Bromodichlormethane	<i>parts per billion</i>	16	<0.5	<0.5	<0.5	Raw water - guideline does not apply
Haloacetic acids	<i>parts per billion</i>	80	<2	<2	<10	Raw water - guideline does not apply
Aldehydes	<i>parts per billion</i>	no guideline	5	3	7	-
Calcium	<i>parts per million</i>	no guideline	20.7	18.6	23.0	Contributes to hardness
Magnesium	<i>parts per million</i>	no guideline	6.02	5.51	6.91	Contributes to hardness
Sodium	<i>parts per million</i>	≤200	2.1	1.9	2.4	Raw water - guideline does not apply
Potassium	<i>parts per million</i>	no guideline	1.22	1.07	1.38	Raw water - guideline does not apply
Iron	<i>parts per million</i>	≤0.3	0.01	<0.01	0.03	Raw water - guideline does not apply
Copper	<i>parts per million</i>	≤1.0	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Lead	<i>parts per million</i>	0.01	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Aluminum	<i>parts per million</i>	0.1	0.003	0.001	0.006	Raw water - guideline does not apply
Arsenic	<i>parts per million</i>	0.010	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Chromium	<i>parts per million</i>	0.05	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Nickel	<i>parts per million</i>	no guideline	<0.001	<0.001	<0.001	-
Cadmium	<i>parts per million</i>	0.005	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Manganese	<i>parts per million</i>	≤0.05	0.004	0.001	0.007	Raw water - guideline does not apply
Zinc	<i>parts per million</i>	≤5.0	0.001	<0.001	0.003	Raw water - guideline does not apply
Mercury	<i>parts per million</i>	0.001	9.3E-06	1.1E-06	2.8E-05	Raw water - guideline does not apply

Guidelines from 'Summary of Guidelines for Canadian Drinking Water Quality' by Health Canada, revised March 1, 2010

City of Winnipeg
Environmental Standards Division
2009 Deacon Reservoir Outlet
Drinking Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Odour	units	Inoffensive	115	60	200	Raw water - guideline does not apply
Geosmin	parts per trillion	no guideline	5.5	<0.6	20	Common taste and odour compound
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	no guideline	<0.6	<0.5	<4	Common taste and odour compound
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	no guideline	<0.6	<0.5	<4	Common taste and odour compound
MIB - 2-methylisoborneol	parts per trillion	no guideline	3.5	<0.5	<20	Common taste and odour compound
246 TCA - 2,4,6-trichloroanisole	parts per trillion	no guideline	<0.6	<0.5	<4	Common taste and odour compound
236 TCA - 2,3,6-trichloroanisole	parts per trillion	no guideline	<0.7	<0.5	2.2	Common taste and odour compound
345 TCV - 3,4,5-trichloroveratrole	parts per trillion	no guideline	<0.6	<0.5	<4	Common taste and odour compound
MTBE - methyl tertiary-butyl ether	parts per million	0.015	<0.8	<0.5	<1	Raw water - guideline does not apply
NDMA - N-nitrosodimethylamine	parts per billion	under review	<2	<1	<5	Guideline under review by Health Canada
Plankton (algae) count	cells/ml	no guideline	13,668	1,200	49,500	Algae contributes to odours and may cause filter clogging
Chlorophyll-a	parts per billion	no guideline	3	<1	7	Chlorophyll is found in algae
Microcystin LR	parts per billion	1.5	<0.2	<0.2	0.2	Raw water - guideline does not apply
Cryptosporidium	oocysts per 100 L	no guideline	<1	<1	<1	18 samples taken in 2009 - no positive results
Giardia	cysts per 100 L	no guideline	<1	<1	<1	18 samples taken in 2009 - no positive results
Turbidity (clearness)	n.t.u.	1.0	0.69	0.27	1.27	Raw water - guideline does not apply
Colour, True	units	≤15	5	5	6	Raw water - guideline does not apply
Total Dissolved Solids	parts per million	≤500	104	88	114	Raw water - guideline does not apply
Conductivity	microsiemens per centimetre	no guideline	157	144	176	Another measure of dissolved solids
pH	units	6.5-8.5	7.99	7.70	8.28	Raw water - guideline does not apply
Temperature	°C	≤15	10.4	0.0	20.5	Raw water - guideline does not apply
Total Alkalinity	parts per million as calcium carbonate	no guideline	73.0	63.9	83.6	-
Total Hardness	parts per million as calcium carbonate	80-100	81.8	76.8	89.0	80 to 100 parts per million is recommended
Total Organic Carbon	parts per million	no guideline	9.7	8.0	17.0	-
Total Inorganic Carbon	parts per million	no guideline	16.2	14.8	19.0	-

City of Winnipeg
Environmental Standards Division
2009 Deacon Reservoir Outlet
Drinking Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Total Phosphorus	parts per million	no guideline	<0.2	<0.03	<0.2	Phosphorus can contribute to algae growth
Ammonia Dissolved	parts per million	no guideline	0.049	0.007	0.144	-
Nitrate Nitrogen	parts per million	10	0.011	<0.005	0.011	Raw water - guideline does not apply
Chloride	parts per million	≤250	5.62	3.72	9.70	Raw water - guideline does not apply
Sulphate	parts per million	≤500	3.9	2.9	5.4	Raw water - guideline does not apply
Chlorine (total)	parts per million	3	0.09	<0.05	0.21	Raw water - guideline does not apply
Chlorine (free)	parts per million	no guideline	0.03	<0.02	0.09	-
Trihalomethanes	parts per billion	100	48	17	87	Raw water - guideline does not apply
Bromodichlormethane	parts per billion	16	4	1	8	Raw water - guideline does not apply
Haloacetic acids	parts per billion	80	41	22	70	Raw water - guideline does not apply
Aldehydes	parts per billion	no guideline	12	4	21	-
Carbofuran	parts per billion	90	<0.2	<0.2	<0.2	Meets the guideline
Propoxur	parts per billion	0.7	<0.2	<0.2	<0.2	Meets the guideline
Aldrin	parts per billion	0.7	<0.01	<0.01	<0.01	Meets the guideline
Lindane (gamma-BHC)	parts per billion	no guideline	<0.01	<0.01	<0.01	-
alpha-Chlordane	parts per billion	no guideline	<0.01	<0.01	<0.01	-
gamma-Chlordane	parts per billion	no guideline	<0.01	<0.01	<0.01	-
p,p-DDT	parts per billion	no guideline	<0.01	<0.01	<0.01	-
Dieldrin	parts per billion	0.7	<0.01	<0.01	<0.01	Meets the guideline
Heptachlor	parts per billion	no guideline	<0.01	<0.01	<0.01	-
Heptachlor Epoxide	parts per billion	no guideline	<0.01	<0.01	<0.01	-
Methoxychlor	parts per billion	900	<0.01	<0.01	<0.04	Meets the guideline
alpha-BHC	parts per billion	no guideline	<0.01	<0.01	<0.02	-
beta-BHC	parts per billion	no guideline	<0.01	<0.01	<0.03	-
delta-BHC	parts per billion	no guideline	<0.01	<0.01	<0.01	-
Captan	parts per billion	no guideline	<10	<10	<10	-
p,p-DDD	parts per billion	no guideline	<0.01	<0.01	<0.03	-
p,p-DDE	parts per billion	no guideline	<0.01	<0.01	<0.01	-
Endosulfan I	parts per billion	no guideline	<0.01	<0.01	<0.01	-
Endrin	parts per billion	no guideline	<0.01	<0.01	<0.02	-
Mirex	parts per billion	no guideline	<0.01	<0.01	<0.02	-
Simazine	parts per billion	10	<0.1	<0.1	<0.1	Meets the guideline
Alachlor	parts per billion	no guideline	<0.1	<0.1	<0.2	-
Atrazine	parts per billion	5	<0.1	<0.1	<0.1	Meets the guideline
Bromacil	parts per billion	no guideline	<0.2	<0.2	<0.2	-
Metribuzin	parts per billion	80	<0.2	<0.2	<0.2	Meets the guideline
Azinphosmethyl	parts per billion	20	<0.1	<0.1	<1	Meets the guideline
Chlorpyrifos	parts per billion	90	<0.1	<0.02	<0.1	Meets the guideline
Diazinon	parts per billion	20	<0.1	<0.03	<0.1	Meets the guideline
Dimethoate	parts per billion	20	<0.1	<0.1	<0.2	Meets the guideline
Malathion	parts per billion	190	<0.1	<0.1	<0.2	Meets the guideline
Parathion	parts per billion	50	<0.1	<0.1	<0.2	Meets the guideline
Terbufos	parts per billion	1	<0.1	<0.1	<0.5	Meets the guideline
Methyl Parathion	parts per billion	no guideline	<0.1	<0.1	<0.2	-

City of Winnipeg
Environmental Standards Division
2009 Deacon Reservoir Outlet
Drinking Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
2,4-D	parts per billion	100	<0.05	<0.05	<0.05	Meets the guideline
2,4-DB	parts per billion	no guideline	<0.05	<0.05	<0.05	-
2,4-DP	parts per billion	no guideline	<0.05	<0.05	<0.05	-
2,4,5-T	parts per billion	no guideline	<0.05	<0.05	<0.05	-
2,4,5-TP	parts per billion	no guideline	<0.05	<0.05	<0.05	-
Bromoxynil	parts per billion	5	<0.02	<0.02	<0.02	Meets the guideline
Dicamba	parts per billion	120	<0.006	<0.006	<0.02	Meets the guideline
Dinoseb	parts per billion	10	<0.05	<0.05	<0.05	Meets the guideline
MCPA	parts per billion	no guideline	<0.025	<0.025	<0.05	-
MCPB	parts per billion	no guideline	<0.05	<0.05	<0.05	-
MCPP	parts per billion	no guideline	<0.05	<0.05	<0.05	-
Trichlopyr	parts per billion	no guideline	<0.05	<0.05	<0.05	-
Deltamethrin	parts per billion	no guideline	<0.04	<0.04	<0.04	-
Diclofop-methyl	parts per billion	9	<0.1	<0.1	<0.1	Meets the guideline
Eptam	parts per billion	no guideline	<0.2	<0.2	<0.2	-
Ethafluralin	parts per billion	no guideline	<0.02	<0.02	<0.02	-
Propaclar	parts per billion	no guideline	<0.2	<0.2	<0.2	-
Propanil	parts per billion	no guideline	<0.2	<0.2	<0.2	-
Triallate	parts per billion	no guideline	<0.1	<0.1	<0.1	-
Trifluralin	parts per billion	45	<0.03	<0.02	<0.03	Meets the guideline
Atrazine desethyl	parts per billion	no guideline	<0.1	<0.1	<0.1	-
Cyanazine	parts per billion	10	<0.5	<0.5	<0.5	Meets the guideline
Chlorthalonil	parts per billion	no guideline	<0.06	<0.06	<0.06	-
Arochlor 1016	parts per billion	no guideline	<0.02	<0.02	<0.1	-
Arochlor 1221	parts per billion	no guideline	<0.02	<0.02	<0.1	-
Arochlor 1232	parts per billion	no guideline	<0.02	<0.02	<0.1	-
Arochlor 1242	parts per billion	no guideline	<0.02	<0.02	<0.1	-
Arochlor 1248	parts per billion	no guideline	<0.02	<0.02	<0.1	-
Arochlor 1254	parts per billion	no guideline	<0.02	<0.02	<0.1	-
Arochlor 1260	parts per billion	no guideline	<0.02	<0.02	<0.1	-

City of Winnipeg
Environmental Standards Division
2009 Deacon Reservoir Outlet
Drinking Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Calcium	parts per million	no guideline	21.4	20.2	23.4	Contributes to hardness
Magnesium	parts per million	no guideline	6.03	5.72	6.66	Contributes to hardness
Sodium	parts per million	≤200	2.1	2.0	2.3	Raw water - guideline does not apply
Potassium	parts per million	no guideline	1.20	1.12	1.31	-
Iron	parts per million	≤0.3	0.05	0.04	0.06	Raw water - guideline does not apply
Copper	parts per million	≤1.0	0.003	<0.001	0.008	Raw water - guideline does not apply
Lead	parts per million	0.01	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Aluminum	parts per million	0.1	0.004	0.002	0.006	Raw water - guideline does not apply
Arsenic	parts per million	0.010	<0.001	<0.001	0.001	Raw water - guideline does not apply
Chromium	parts per million	0.05	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Nickel	parts per million	no guideline	<0.001	<0.001	0.001	-
Cadmium	parts per million	0.005	<0.001	<0.001	<0.001	Raw water - guideline does not apply
Manganese	parts per million	≤0.05	0.007	0.002	0.015	Raw water - guideline does not apply
Zinc	parts per million	≤5.0	0.009	<0.001	0.015	Raw water - guideline does not apply
Mercury	parts per million	0.001	<1.0E-06	1.0E-06	3.0E-06	Raw water - guideline does not apply
Antimony	parts per million	0.006	0.00033	<0.0002	0.00044	Raw water - guideline does not apply
Barium	parts per million	1	0.0171	0.0166	0.0181	Raw water - guideline does not apply
Beryllium	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Bismuth	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Boron	parts per million	5	<0.01	<0.01	0.012	Raw water - guideline does not apply
Cesium	parts per million	no guideline	<0.0001	<0.0001	<0.0001	-
Cobalt	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Lithium	parts per million	no guideline	0.00281	0.00240	0.00322	-
Molybdenum	parts per million	no guideline	<0.0002	<0.0001	<0.0002	-
Selenium	parts per million	0.01	<0.001	<0.0002	<0.001	Raw water - guideline does not apply
Silicon	parts per million	no guideline	0.46	<0.3	0.79	-
Silver	parts per million	no guideline	<0.0001	<0.00005	<0.001	-
Strontium	parts per million	no guideline	0.0412	0.0381	0.0450	-
Tellurium	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Thallium	parts per million	no guideline	<0.0001	<0.00002	<0.0001	-
Thorium	parts per million	no guideline	<0.0001	<0.0001	<0.0001	-
Tin	parts per million	no guideline	<0.0006	<0.0002	<0.0006	-
Titanium	parts per million	no guideline	<0.0009	<0.0002	0.00111	-
Uranium	parts per million	0.02	<0.0001	<0.0001	<0.0001	Raw water - guideline does not apply
Vanadium	parts per million	no guideline	0.00028	<0.0002	0.00043	-
Zirconium	parts per million	0.1	<0.0004	<0.0004	<0.002	Raw water - guideline does not apply

Guidelines from 'Summary of Guidelines for Canadian Drinking Water Quality' by Health Canada, revised March 1, 2010

City of Winnipeg
Environmental Standards Division

2009 Winnipeg Distribution System Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Odour	units	Inoffensive	80	60	150	Does not always meet the guideline
Geosmin	parts per trillion	no guideline	3.9	0.5	10.0	Common taste and odour compound
IPMP - 2-isopropyl-3-methoxypyrazine	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
IBMP - 2-isobutyl-3-methoxypyrazine	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
MIB - 2-methylisoborneol	parts per trillion	no guideline	5.4	<0.5	16.6	Common taste and odour compound
246 TCA - 2,4,6-trichloroanisole	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
236 TCA - 2,3,6-trichloroanisole	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
345 TCV - 3,4,5-trichloroveratrole	parts per trillion	no guideline	<0.8	<0.5	<5	Common taste and odour compound
MTBE - methyl tertiary-butyl ether	parts per million	0.015	<0.8	<0.5	<1	Meets the guideline
NDMA - N-nitrosodimethylamine	parts per billion	under review	57	<5	179	Guideline under review by Health Canada
Chlorophyll-a	parts per billion	no guideline	<1	<1	1	Chlorophyll is found in algae
Microcystin LR	parts per billion	1.5	<0.2	<0.2	0.3	Meets the guideline
Turbidity (clearness)	n.t.u.	1.0	0.53	0.14	2.57	Does not always meet the guideline
Colour, True	units	≤15	5	<5	5	Meets the guideline
Total Dissolved Solids	mg/L	≤500	104	96	112	Meets the guideline
Conductivity	microsiemens per centimetre	no guideline	162	150	180	Another measure of dissolved solids
pH	units	6.5-8.5	7.48	7.00	7.73	Meets the guideline
Temperature	°C	≤15	9.4	1.9	21.5	Does not always meet the guideline
Total Alkalinity	parts per million as calcium carbonate	no guideline	70	53	85	-
Total Hardness	parts per million as calcium carbonate	80-100	81	72	97	Does not always meet the guideline
Total Organic Carbon	parts per million	no guideline	7.7	6.0	10.0	-
Total Inorganic Carbon	parts per million	no guideline	15.4	13.5	19.0	-
Fluoride	parts per million	1.5	0.84	0.76	0.94	Meets the guideline
Nitrate Nitrogen	parts per million	10	0.013	<0.01	<0.05	Meets the guideline

City of Winnipeg
Environmental Standards Division

2009 Winnipeg Distribution System Water Quality Summary

PARAMETER	UNITS	GUIDELINES for CANADIAN DRINKING WATER QUALITY	AVERAGE	MINIMUM	MAXIMUM	COMMENTS
Calcium	parts per million	no guideline	21.4	19.2	23.9	Contributes to hardness
Magnesium	parts per million	no guideline	6.04	5.59	6.81	Contributes to hardness
Sodium	parts per million	≤200	2.1	1.9	2.3	Meets the guideline
Potassium	parts per million	no guideline	1.20	1.05	1.32	-
Iron	parts per million	≤0.3	0.04	0.03	0.05	Meets the guideline
Copper	parts per million	≤1.0	<0.001	<0.001	<0.001	Meets the guideline
Lead*	parts per million	0.01	<0.001	<0.001	<0.001	Meets the guideline
Aluminum	parts per million	0.1	0.003	0.002	0.007	Meets the guideline
Arsenic	parts per million	0.010	<0.001	<0.001	<0.001	Meets the guideline
Chromium	parts per million	0.05	<0.001	<0.001	<0.001	Meets the guideline
Nickel	parts per million	no guideline	<0.001	<0.001	<0.001	-
Cadmium	parts per million	0.005	<0.001	<0.001	<0.001	Meets the guideline
Manganese	parts per million	≤0.05	0.006	0.002	0.012	Meets the guideline
Zinc	parts per million	≤5.0	<0.001	<0.001	0.007	Meets the guideline
Mercury	parts per million	0.001	<1.0E-06	<5.0E-07	1.4E-06	Meets the guideline
Antimony	parts per million	0.006	0.00031	<0.0002	0.00041	Meets the guideline
Barium	parts per million	1	0.0166	0.0160	0.0181	Meets the guideline
Beryllium	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Bismuth	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Boron	parts per million	5	<0.01	<0.01	0.012	Meets the guideline
Cesium	parts per million	no guideline	<0.0001	<0.0001	<0.0001	-
Cobalt	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Lithium	parts per million	no guideline	0.00232	0.00230	0.00234	-
Molybdenum	parts per million	no guideline	<0.0002	<0.0001	<0.0002	-
Selenium	parts per million	0.01	<0.001	<0.0002	<0.001	Meets the guideline
Silicon	parts per million	no guideline	0.74	0.36	1.06	-
Silver	parts per million	no guideline	<0.0001	<0.00005	<0.0001	-
Strontium	parts per million	no guideline	0.042	0.037	0.047	-
Tellurium	parts per million	no guideline	<0.0002	<0.0002	<0.0002	-
Thallium	parts per million	no guideline	<0.0001	<0.00002	<0.0001	-
Thorium	parts per million	no guideline	<0.0001	<0.0001	<0.0001	-
Tin	parts per million	no guideline	<0.0006	<0.0002	0.00066	-
Titanium	parts per million	no guideline	<0.0009	0.0002	<0.0009	-
Uranium	parts per million	0.02	<0.0001	<0.0001	<0.0001	Meets the guideline
Vanadium	parts per million	no guideline	0.00028	<0.0002	0.00038	-
Zirconium	parts per million	0.1	<0.0004	<0.0004	<0.002	Meets the guideline

* Does not include the results from our monthly household monitoring

City of Winnipeg
Environmental Standards Division

2009 Winnipeg Distribution System Water Quality Summary

What is being measured	Guideline	Our test results	Comments
Number of total coliform bacteria tests in year	1820 samples	3,061	More testing than required by the guideline/provincial regulation
Number of times that total coliform bacteria show up in a test	no more than 10% of samples with positive total coliform or no consecutive positives from the same site.	0.2 % (7 positive tests)	All resamples were negative and met the guideline/provincial regulation
Number of Escherichia coli bacteria tests in year	1820 samples	3,061	More testing than required by the guideline/provincial regulation
Number of times that Escherichia coli bacteria show up in a test	no bacteria present in the sample	0.0 % (no positive tests)	All samples were negative and met the guideline/provincial regulation
Number of heterotrophic (bacteria) plate count (HPC) tests done	no guideline	3,061	Heterotrophic plate count is not required under the new provincial regulations.

Guidelines from 'Summary of Guidelines for Canadian Drinking Water Quality' by Health Canada, revised March 1, 2010

APPENDIX B

COMPLIANCE SUBMISSION REPORTS

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: January 12, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON	216909	0.18	0.54	2.9	0.32	2.5	INTAKE
DEACON PRECHLORINATION CELL #1	216910	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3	216911	NS	NS	NS	NS		
AQUEDUCT BRANCH 1. @ McPHILLIPS	216914	0.96	1.33	1.9	0.29	2.0	DEACON
AQUEDUCT BRANCH 2 @ HURST	216915	1.18	1.53	1.5	0.30	2.0	DEACON
MACLEAN STATION DISCHARGE	216919	0.84	1.28	1.4	0.33	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION	216616	0.69	1.08	1.0			
HURST STATION DISCHARGE	216920	0.93	1.27	1.7	0.30	1.2	HURST
HURST STATION-PRECHLORINATION	216917	0.51	0.85	1.2			
McPHILLIPS STATION DISCHARGE	216921	0.86	1.21	1.9	0.31	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	216918	0.29	0.65	5.4			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: January 13, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP. 1.		216926	0.55	0.92	6.6	0.31	
McP. 2.		216930	0.63	0.99	4.5	0.31	
McP. 3.		216934	0.26	0.58	8.2	0.34	
McP. 4.		216936	0.73	1.02	5.5	0.35	
MacL. 5.		216938	0.74	1.07	3.9	0.41	
MacL. 6.		216940	0.71	1.11	4.8	0.32	
MacL. 7.		216941	0.52	0.90	8.8	0.31	
MacL. 8.		216946	0.43	0.75	6.7	0.34	
MacL. 9.		216950	0.70	1.05	6.0	0.33	
MacL. 10.		216951	0.67	1.01	5.7	0.30	
MacL. 11.		216954	0.34	0.69	5.8	0.32	
Hrst 12.		216964	0.42	0.76	6.7	0.39	
Hrst 13.		216966	0.62	1.00	5.9	0.35	
Hrst 14.		216968	0.73	1.09	2.6	0.32	
Hrst 15.		216970	0.64	1.02	6.4	0.31	
Hrst 16.		216973	0.61	0.98	7.1	0.32	
Hrst 17.		216979	0.63	1.00	6.9	0.36	
McP. 18.		216983	0.19	0.55	6.8	0.37	
McP. 19.		216985	0.61	0.95	6.0	0.32	
		MEAN	0.56	0.92	6.0	0.34	
		MINIMUM	0.19	0.55	2.6	0.30	
		MAXIMUM	0.74	1.11	8.8	0.41	
		Maclean Area Average	0.59	0.94	6.0	0.33	
		Hurst Area Average	0.61	0.98	5.9	0.34	
		McPhillip's Area Average	0.50	0.84	6.3	0.33	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER:		FLUORIDE:		0.83	mg/L		
		ORTHO PHOSPHORUS:		1.94	mg/L-PO4		

COMMENTS:

There was no sample for Cell 3 because the sample pump was frozen.

= Not Analyzed

NS = No Sample

OL = Off Line

Distribution List

E-mail:

Barry MacBride Director Water and Waste Department

Kelly Kjartanson Manager Environmental Standards Division

Diane Sacher Manager Water Services Division

Andy Weremy Water Treatment Systems Engineer Water Services Division

Doug Sulymka Water Treatment Operations Supervisor Water Services Division

CC:

N:\WQ\Data\Routine Water Quality\2009\Residual\[2009-01.xls]17-JAN-09

Monthly Water Quality Report

LIMS REF# 22072/22073

FILE: WQR2

REPORT COMPILED BY: J. Jones

Compliance Reporting Technician

APPROVED FOR DISTRIBUTION BY: A. Vanderstel

Supervisor of Analytical Services (Acting)

Date Approved: 19-Jan-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: January 26, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON	217925	0.13	0.42	3.0	0.30	2.5	INTAKE
DEACON PRECHLORINATION CELL #1	217926	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3	217927	<0.05	<0.05	0.7	0.27		
AQUEDUCT BRANCH 1. @ McPHILLIPS	217930	0.84	1.18	1.7	0.26	2.0	DEACON
AQUEDUCT BRANCH 2 @ HURST	217931	1.07	1.45	1.3	0.26	2.0	DEACON
MACLEAN STATION DISCHARGE	217935	0.89	1.28	1.4	0.27	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION	217932	0.52	0.84	0.8			
HURST STATION DISCHARGE	217936	0.97	1.32	1.7	0.26	1.2	HURST
HURST STATION-PRECHLORINATION	217933	0.50	0.84	1.0			
McPHILLIPS STATION DISCHARGE	217937	0.87	1.21	1.8	0.29	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	217934	0.33	0.63	5.4			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: January 27, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP.	1.	217942	0.62	1.04	3.8	0.27	
McP.	2.	217946	0.70	1.03	2.6	0.56	
McP.	3.	217950	0.38	0.75	6.6	0.31	
McP.	4.	217952	0.65	1.02	3.9	0.28	
MacL.	5.	217954	0.89	1.29	4.0	0.29	
MacL.	6.	217956	0.66	1.00	4.5	0.29	
MacL.	7.	217957	0.64	0.98	6.0	0.33	
MacL.	8.	217962	0.52	0.88	7.0	0.31	
MacL.	9.	217966	0.69	1.10	6.9	0.28	
MacL.	10.	217967	0.79	1.16	4.7	0.28	
MacL.	11.	217970	0.47	0.85	5.4	0.30	
Hrst	12.	217980	0.58	0.91	6.1	2.57	
Hrst	13.	217982	0.78	1.21	5.1	0.29	
Hrst	14.	217984	0.90	1.29	3.8	0.29	
Hrst	15.	217986	0.72	1.05	6.9	0.30	
Hrst	16.	217989	0.61	0.97	5.2	0.40	
Hrst	17.	217995	0.76	1.16	5.0	0.30	
McP.	18.	217999	0.30	0.63	5.8	0.39	
McP.	19.	218001	0.62	1.00	5.5	0.34	
		MEAN	0.65	1.02	5.2	0.44	
		MINIMUM	0.30	0.63	2.6	0.27	
		MAXIMUM	0.90	1.29	7.0	2.57	
		Maclean Area Average	0.67	1.04	5.5	0.30	
		Hurst Area Average	0.73	1.10	5.4	0.69	
		McPhillip's Area Average	0.55	0.91	4.7	0.36	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 217938			FLUORIDE:	0.84	mg/L		
			ORTHO PHOSPHORUS:	1.98	mg/L-PO4		

COMMENTS: The high turbidity result [REDACTED] (2.57 NTU) could not be explained so this location was resampled on January 28 and acceptable results were obtained (0.30 NTU).

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

Distribution List

E-mail:

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Diane Sacher Manager Water Services Division

Andy Weremy Water Treatment Systems Engineer Water Services Division

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CC:

N:\WQ\Data\Routine Water Quality\2009\Residual\[2009-01.xls]31-JAN-09

Monthly Water Quality Report

LIMS REF# 22165/22166

FILE: WQR2

REPORT COMPILED BY: J. Jones

Compliance Reporting Technician

APPROVED FOR DISTRIBUTION BY:

A. Vanderstel

Supervisor of Analytical Services (Acting)

Date Approved: 3-Feb-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: February 9, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	219058		0.06	0.50	2.6	0.32	2.5 INTAKE
DEACON PRECHLORINATION CELL #1	219059		OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	219060		<0.05	<0.05	0.5	0.36	
AQUEDUCT BRANCH 1. @ McPHILLIPS	219063		0.99	1.41	1.1	0.26	2.0 DEACON
AQUEDUCT BRANCH 2 @ HURST	219064		1.15	1.52	0.9	0.31	2.0 DEACON
MACLEAN STATION DISCHARGE	219068		0.92	1.29	1.0	0.25	1.2 MACLEAN
MACLEAN STATION-PRECHLORINATION	219065		0.55	0.91	0.5		
HURST STATION DISCHARGE	219069		0.86	1.25	1.4	0.24	1.2 HURST
HURST STATION-PRECHLORINATION	219066		0.51	0.85	0.7		
McPHILLIPS STATION DISCHARGE	219070		0.95	1.31	1.6	0.25	1.2 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	219067		0.46	0.82	4.7		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: February 10, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP.	1.	219549	0.59	0.99	4.5	0.25
McP.	2.	219553	0.60	0.99	2.8	0.27
McP.	3.	219557	0.29	0.68	7.9	0.41
McP.	4.	219559	0.61	0.95	2.9	0.25
MacL.	5.	219561	0.65	1.10	2.6	0.27
MacL.	6.	219563	0.70	1.15	3.8	0.26
MacL.	7.	219564	0.52	0.93	5.9	0.34
MacL.	8.	219569	0.48	0.87	5.5	0.27
MacL.	9.	219573	0.59	1.04	3.3	0.28
MacL.	10.	219574	0.67	1.03	4.8	0.27
	11.	219577	0.51	0.85	4.3	0.30
Hrst	12.	219587	0.30	0.76	6.1	0.29
Hrst	13.	219589	0.60	1.00	6.3	0.30
Hrst	14.	219591	0.83	1.18	2.1	0.26
Hrst	15.	219593	0.63	1.03	4.1	0.26
Hrst	16.	219596	0.52	0.90	5.9	0.26
Hrst	17.	219602	0.66	1.05	4.0	0.29
McP.	18.	219606	0.28	0.70	5.5	0.31
McP.	19.	219608	0.68	1.06	4.2	0.27
		MEAN	0.56	0.96	4.6	0.28
		MINIMUM	0.28	0.68	2.1	0.25
		MAXIMUM	0.83	1.18	7.9	0.41
		Maclean Area Average	0.59	1.00	4.3	0.28
		Hurst Area Average	0.59	0.99	4.8	0.28
		McPhillip's Area Average	0.51	0.90	4.6	0.29
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 219545			FLUORIDE:	0.82	mg/L	
			ORTHO PHOSPHORUS:	1.98	mg/L-PO4	

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-02.xls]14-FEB-09

LIMS REF# 22276/22315

FILE WQR2

APPROVED FOR DISTRIBUTION BY: A. Vanderstel
 Supervisor of Analytical Services (Acting)

Date Approved: 13-Feb-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: February 23, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION	SAMPLE NO	mg/L	mg/L	°C	n.t.u.	mg/L	OL	INTAKE
AQUEDUCT @ DEACON	220173	OL	OL	OL	OL		OL	
DEACON PRECHLORINATION CELL #1	OL	NS	NS	NS	NS			
DEACON PRECHLORINATION CELL #3	220179	<0.05	<0.05	0.9	0.32			
AQUEDUCT BRANCH 1. @ MCPHILLIPS	220183	0.89	1.22	1.3	0.28	2.0	DEACON	
AQUEDUCT BRANCH 2 @ HURST	220184	1.08	1.41	1.4	0.31	2.0	DEACON	
MACLEAN STATION DISCHARGE	220188	0.95	1.33	1.4	0.35	1.2	MACLEAN	
MACLEAN STATION-PRECHLORINATION	220185	0.48	0.83	1.2				
HURST STATION DISCHARGE	220189	0.87	1.22	1.9	0.36	1.2	HURST	
HURST STATION-PRECHLORINATION	220186	0.44	0.77	1.4				
McPHILLIPS STATION DISCHARGE	220190	0.88	1.24	1.8	0.35	1.2	McPHILLIPS	
McPHILLIPS STATION-PRECHLORINATION	220187	0.43	0.78	5.9				

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: February 24, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO	mg/L	mg/L	°C	n.t.u.	
McP. 1.	[REDACTED]	220201	0.73	1.07	3.0	0.30	
McP. 2.		220205	0.71	0.95	2.4	0.34	
McP. 3.		220209	0.39	0.67	7.8	0.35	
McP. 4.		220211	0.74	1.00	2.9	0.34	
MacL. 5.		220213	0.46	0.88	2.8	0.35	
MacL. 6.		220215	0.68	1.08	3.7	0.35	
MacL. 7.		220216	0.46	0.85	7.4	0.34	
MacL. 8.		220221	0.69	1.00	4.2	0.34	
MacL. 9.		220225	0.45	0.80	6.5	0.37	
MacL. 10.		220226	0.65	0.90	4.7	0.34	
MacL. 11.		220229	0.56	0.78	4.1	0.40	
Hrst 12.		220239	0.40	0.71	5.6	0.38	
Hrst 13.		220241	0.54	0.92	5.6	0.33	
Hrst 14.		220243	0.70	1.02	2.1	0.32	
Hrst 15.		220245	0.60	0.93	5.3	0.35	
Hrst 16.		220248	0.64	0.94	4.8	0.37	
Hrst 17.		220254	0.58	0.93	3.3	0.35	
McP. 18.		220258	0.34	0.66	4.9	0.37	
McP. 19.		220260	0.43	0.75	3.8	0.40	
		MEAN	0.57	0.89	4.5	0.35	
		MINIMUM	0.34	0.66	2.1	0.30	
		MAXIMUM	0.74	1.08	7.8	0.40	
		Maclean Area Average	0.56	0.90	4.8	0.36	
		Hurst Area Average	0.58	0.91	4.5	0.35	
		McPhillip's Area Average	0.56	0.85	4.1	0.35	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 220197				FLUORIDE:	0.80	mg/L	
				ORTHO PHOSPHORUS:	2.01	mg/L-PO4	

COMMENTS:

The Intake was shut down this week due to a water quality incident.
There was no sample for Aqueduct at Deacon (Cell 4) because there was no flow into the Aqueduct at Deacon due to the Intake shutdown.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-02.xls]28-FEB-09

LIMS REF# 22371/22374

FILE: WQR2

APPROVED FOR DISTRIBUTION BY: A. Vanderstel
Supervisor of Analytical Services (Acting)

Date Approved: 9-Mar-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: March 9, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	221348		0.08	0.49	1.7	0.58	2.5
DEACON PRECHLORINATION CELL #1	221350		<0.05	0.10	1.7	0.57	
DEACON PRECHLORINATION CELL #3	OL	OL	OL	OL	OL	OL	
AQUEDUCT BRANCH 1. @ McPHILLIPS	221354		0.73	1.12	2.4	0.55	2.0
AQUEDUCT BRANCH 2 @ HURST	221355		0.77	1.15	2.3	0.50	2.0
MACLEAN STATION DISCHARGE	221359		0.76	1.15	2.3	0.50	1.2
MACLEAN STATION-PRECHLORINATION	221356		0.33	0.70	1.7		
HURST STATION DISCHARGE	221360		0.81	1.19	2.7	0.52	1.2
HURST STATION-PRECHLORINATION	221357		0.29	0.67	2.1		
McPHILLIPS STATION DISCHARGE	221361		0.83	1.11	2.6	0.49	1.2
McPHILLIPS STATION-PRECHLORINATION	221358		0.26	0.63	6.3		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: March 10, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP.	1.	221366	0.48	0.97	3.2	0.45
McP.	2.	221370	0.57	1.00	2.8	0.50
McP.	3.	221374	0.31	0.55	6.9	0.48
McP.	4.	221376	0.70	0.99	3.2	0.48
MacL.	5.	221378	0.58	0.89	2.7	0.50
MacL.	6.	221380	0.69	1.06	4.2	0.47
MacL.	7.	221381	0.24	0.84	6.7	0.46
MacL.	8.	221386	0.60	0.87	4.7	0.46
MacL.	9.	221390	0.53	0.90	5.3	0.47
MacL.	10.	221391	0.55	0.96	4.9	0.47
MacL.	11.	221394	0.34	0.76	3.8	0.61
Hrst	12.	221404	0.23	0.59	4.1	0.55
Hrst	13.	221406	0.71	1.00	5.1	0.53
Hrst	14.	221408	0.73	1.01	2.6	0.52
Hrst	15.	221410	0.49	0.90	5.4	0.52
Hrst	16.	221413	0.44	0.80	4.9	0.54
Hrst	17.	221419	0.61	0.96	4.2	0.52
McP.	18.	221423	0.35	0.73	5.1	0.57
McP.	19.	221425	0.56	1.00	5.1	0.49
		MEAN	0.51	0.88	4.5	0.50
		MINIMUM	0.23	0.55	2.6	0.45
		MAXIMUM	0.73	1.06	6.9	0.61
		Maclean Area Average	0.50	0.90	4.6	0.49
		Hurst Area Average	0.54	0.88	4.4	0.53
		McPhillip's Area Average	0.50	0.87	4.4	0.50
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 221362			FLUORIDE:	0.78	mg/L	
			ORTHO PHOSPHORUS:	1.91	mg/L-PO4	

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-03.xls]14-MAR-09

LIMS REF# 22489/22490

FILE WQR2

APPROVED FOR DISTRIBUTION BY: A. Vanderstel
 Supervisor of Analytical Services (Acting)

Date Approved: 17-Mar-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: March 23, 2009		SAMPLE NO	CHLORINE RESIDUAL FREE mg/L	CHLORINE RESIDUAL TOTAL mg/L	TEMPERATURE °C	TURBIDITY n.t.u.	CHLORINE SET POINT mg/L	
SAMPLE LOCATION								
AQUEDUCT @ DEACON		222497	0.07	0.50	1.2	0.34	2.5	INTAKE
DEACON PRECHLORINATION CELL #1		222499	<0.05	0.19	1.0	0.42		
DEACON PRECHLORINATION CELL #3		OL	OL	OL	OL	OL		
AQUEDUCT BRANCH 1. @ MCPHILLIPS		222501	0.54	0.88	2.6	0.40	1.8	DEACON
AQUEDUCT BRANCH 2 @ HURST		222502	0.67	1.12	2.2	0.40	1.8	DEACON
MACLEAN STATION DISCHARGE		222506	0.77	1.08	2.1	0.44	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION		222503	0.32	0.54	1.3			
HURST STATION DISCHARGE		222507	0.80	1.02	2.4	0.42	1.2	HURST
HURST STATION-PRECHLORINATION		222504	0.28	0.52	1.4			
McPHILLIPS STATION DISCHARGE		222508	0.93	1.20	1.9	0.40	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		222505	0.08	0.54	5.8			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: March 24 and 25, 2009		SAMPLE NO	CHLORINE RESIDUAL FREE mg/L	CHLORINE RESIDUAL TOTAL mg/L	TEMPERATURE °C	TURBIDITY		
P.Stn.	SAMPLE LOCATION							
McP.	1.	222515	0.57	0.88	4.0	0.35		
McP.	2.	222519	0.67	0.94	3.0	0.34		
McP.	3.	222523	0.24	0.65	5.9	0.42		
McP.	4.	222525	0.60	0.98	1.9	0.44		
MacL.	5.	222527	0.53	1.01	2.5	0.39		
MacL.	6.	222529	0.66	1.01	4.1	0.35		
MacL.	7.	222530	0.50	0.96	6.0	0.36		
MacL.	8.	222535	0.40	0.82	5.8	0.37		
MacL.	9.	222539	NS	NS	NS	NS		
MacL.	10.	222540	0.58	0.96	3.2	0.45		
MacL.	11.	222543	0.51	0.87	4.0	0.37		
Hrst	12.	222553	0.19	0.60	3.8	0.44		
Hrst	13.	222555	0.55	0.94	4.9	0.38		
Hrst	14.	222557	0.74	1.09	2.5	0.37		
Hrst	15.	222559	0.64	0.88	4.0	0.37		
Hrst	16.	222562	0.42	0.83	5.8	0.40		
Hrst	17.	222568	0.56	0.93	3.6	0.44		
McP.	18.	222572	0.11	0.51	4.0	0.46		
McP.	19.	222574	0.63	1.02	5.0	0.37		
		MEAN	0.51	0.88	4.1	0.39		
		MINIMUM	0.11	0.51	1.9	0.34		
		MAXIMUM	0.74	1.09	6.0	0.46		
		Maclean Area Average	0.53	0.94	4.3	0.38		
		Hurst Area Average	0.52	0.88	4.1	0.40		
		McPhillip's Area Average	0.47	0.83	4.0	0.40		
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)								
SAMPLE NUMBER:			FLUORIDE:	0.87	mg/L			
			ORTHO PHOSPHORUS:	1.90	mg/L-PO4			

COMMENTS: Effective March 27 2009 at 1415 hours the chlorine dosage at the Intake was increased from 2.5 mg/L to 3.0 mg/L the chlorine dosage at Branch I and Branch II was increased from 1.8 mg/L to 2.0 mg/L and the chlorine dosage at all three pumping stations was increased from 1.2 mg/L to 1.4 mg/L

There is no sample for [REDACTED] because the technician could not access the sample location (the building was locked)

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-03.xls]28-MAR-09

LIMS REF# 22601/22602

FILE: WQR2

APPROVED FOR DISTRIBUTION BY: S. Fletcher
 Supervisor of Analytical Services

Date Approved: 2-Apr-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: April 6, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		223599	0.19	0.65	1.3	0.45	3.0	INTAKE
DEACON PRECHLORINATION CELL #1		223601	<0.05	0.13	0.9	0.40		
DEACON PRECHLORINATION CELL #3		OL	OL	OL	OL	OL		
AQUEDUCT BRANCH 1. @ McPHILLIPS		223605	0.80	1.15	2.8	0.42	2.0	DEACON
AQUEDUCT BRANCH 2 @ HURST		223606	0.84	1.22	1.4	0.44	2.0	DEACON
MACLEAN STATION DISCHARGE		223610	1.04	1.40	1.5	0.42	1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION		223607	0.41	0.80	1.4			
HURST STATION DISCHARGE		223611	0.93	1.35	1.7	0.41	1.4	HURST
HURST STATION-PRECHLORINATION		223608	0.39	0.79	2.1			
McPHILLIPS STATION DISCHARGE		223612	1.02	1.38	2.1	0.40	1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		223609	0.24	0.63	5.9			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: April 7, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY		
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.		
McP.	1.	223617	0.79	1.18	7.0	0.37		
McP.	2.	223621	0.81	1.25	2.0	0.40		
McP.	3.	223625	0.35	0.81	4.5	0.42		
McP.	4.	223627	0.82	1.20	2.5	0.36		
MacL.	5.	223629	0.61	1.09	3.0	0.38		
MacL.	6.	223631	0.99	1.33	3.5	0.38		
MacL.	7.	223632	0.47	0.87	5.5	0.41		
MacL.	8.	223637	0.62	1.07	4.0	0.39		
MacL.	9.	223641	0.56	0.95	4.5	0.40		
MacL.	10.	223642	0.80	1.05	3.0	0.40		
MacL.	11.	223645	0.55	0.98	3.0	0.35		
Hrst	12.	223655	0.44	0.83	4.0	0.42		
Hrst	13.	223657	0.78	1.16	4.5	0.39		
Hrst	14.	223659	0.86	1.25	2.0	0.39		
Hrst	15.	223661	0.75	1.15	3.0	0.44		
Hrst	16.	223664	0.67	1.10	4.0	0.38		
Hrst	17.	223670	0.72	1.09	4.5	0.40		
McP.	18.	223674	0.40	0.81	4.0	0.45		
McP.	19.	223676	0.70	1.12	5.0	0.41		
		MEAN	0.67	1.07	3.9	0.40		
		MINIMUM	0.35	0.81	2.0	0.35		
		MAXIMUM	0.99	1.33	7.0	0.45		
		Maclean Area Average	0.66	1.05	3.8	0.39		
		Hurst Area Average	0.70	1.10	3.7	0.40		
		McPhillip's Area Average	0.65	1.06	4.2	0.40		
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)								
SAMPLE NUMBER: 223613			FLUORIDE:		0.91	mg/L		
			ORTHO PHOSPHORUS:		1.96	mg/L-PO4		

COMMENTS:

Effective Thursday April 9 2009 at 1130 hours the chlorine dosage at all three pumping stations was decreased from 1.4 mg/L to 1.2 mg/L.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-04.xls]11-APR-09

LIMS REF# 22703/22704

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 04/14/09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: April 20, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON	224836	0.16	0.56	2.5	0.66	3.0	INTAKE
DEACON PRECHLORINATION CELL #1	224838	<0.05	0.09	2.2	0.47		
DEACON PRECHLORINATION CELL #3	OL	OL	OL	OL	OL		
AQUEDUCT BRANCH 1. @ McPHILLIPS	224842	0.59	0.94	3.8	0.45	2.0	DEACON
AQUEDUCT BRANCH 2 @ HURST	224843	0.71	1.04	2.2	0.47	2.0	DEACON
MACLEAN STATION DISCHARGE	224847	0.84	1.15	2.3	0.40	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION	224844	0.30	0.68	2.2			
HURST STATION DISCHARGE	224848	0.76	1.07	2.4	0.41	1.2	HURST
HURST STATION-PRECHLORINATION	224845	0.35	0.68	2.8			
McPHILLIPS STATION DISCHARGE	224849	0.88	1.27	2.4	0.40	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	224846	0.23	0.62	5.8			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: April 21, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP.	1.	224854	0.69	1.05	3.0	0.38	
McP.	2.	224858	0.80	1.13	3.5	0.37	
McP.	3.	224862	0.45	0.77	4.5	0.40	
McP.	4.	224864	0.73	1.05	3.0	0.50	
MacL.	5.	224866	0.60	0.92	4.0	0.39	
MacL.	6.	224868	0.87	1.23	4.9	0.41	
MacL.	7.	224869	0.63	0.96	6.0	0.43	
MacL.	8.	224874	0.45	0.88	4.0	0.33	
MacL.	9.	224878	0.36	0.74	4.0	0.43	
MacL.	10.	224879	0.49	0.88	6.0	0.35	
MacL.	11.	224882	0.48	0.80	4.0	0.30	
Hrst	12.	224892	0.42	0.82	5.0	0.40	
Hrst	13.	224894	0.43	0.90	6.0	0.35	
Hrst	14.	224896	0.58	1.00	4.0	0.38	
Hrst	15.	224898	0.51	0.89	6.0	0.44	
Hrst	16.	224901	0.43	0.83	5.0	0.36	
Hrst	17.	224907	0.54	0.92	3.8	0.42	
McP.	18.	224911	0.20	0.66	4.0	0.37	
McP.	19.	224913	0.53	0.92	5.9	0.40	
		MEAN	0.54	0.91	4.6	0.39	
		MINIMUM	0.20	0.66	3.0	0.30	
		MAXIMUM	0.87	1.23	6.0	0.50	
		Maclean Area Average	0.55	0.92	4.7	0.38	
		Hurst Area Average	0.49	0.89	5.0	0.39	
		McPhillip's Area Average	0.57	0.93	4.0	0.40	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 224850			FLUORIDE:	0.88	mg/L		
			ORTHO PHOSPHORUS:	1.97	mg/L-PO4		

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-04.xls]25-APR-09

LIMS REF# 22814/22815

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
 Supervisor of Analytical Services

Date Approved: 04/27/2009

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: April 27, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		225424	0.17	0.60	5.0	0.53	3.0	INTAKE
DEACON PRECHLORINATION CELL #1		225426	<0.05	0.07	4.0	0.54		
DEACON PRECHLORINATION CELL #3		OL	OL	OL	OL	OL		
AQUEDUCT BRANCH 1. @ McPHILLIPS		225430	0.62	0.94	4.0	0.46	2.0	DEACON
AQUEDUCT BRANCH 2 @ HURST		225431	0.71	0.97	3.5	0.53	2.0	DEACON
MACLEAN STATION DISCHARGE		225435	0.88	1.18	4.0	0.51	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION		225432	0.34	0.69	3.5			
HURST STATION DISCHARGE		225436	1.02	1.39	4.0	0.42	1.2	HURST
HURST STATION-PRECHLORINATION		225433	0.24	0.63	3.0			
McPHILLIPS STATION DISCHARGE		225437	0.86	1.25	4.0	0.31	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		225434	0.32	0.65	5.0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: April 28, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP. 1.		225442	0.60	0.98	3.0	0.34	
McP. 2.		225446	0.77	1.04	4.0	0.45	
McP. 3.		225450	0.41	0.76	6.0	0.36	
McP. 4.		225452	0.64	0.99	3.0	0.56	
MacL. 5.		225454	0.75	1.02	4.0	0.37	
MacL. 6.		225456	0.65	0.99	7.0	0.41	
MacL. 7.		225457	0.50	0.82	7.0	0.35	
MacL. 8.		225462	0.64	0.92	4.0	0.36	
MacL. 9.		225466	0.48	0.83	7.0	0.56	
MacL. 10.		225467	0.62	1.01	5.0	0.37	
MacL. 11.		225470	0.53	0.79	4.0	0.35	
Hrst 12.		225480	0.49	0.79	5.0	0.37	
Hrst 13.		225482	0.56	0.95	10.0	0.40	
Hrst 14.		225484	0.84	1.10	5.0	0.40	
Hrst 15.		225486	0.70	1.03	5.0	0.45	
Hrst 16.		225489	0.68	0.89	5.0	0.35	
Hrst 17.		225495	0.55	0.94	5.0	0.37	
McP. 18.		225499	0.34	0.66	5.0	0.37	
McP. 19.		225501	0.57	0.95	5.0	0.40	
		MEAN	0.60	0.92	5.2	0.40	
		MINIMUM	0.34	0.66	3.0	0.34	
		MAXIMUM	0.84	1.10	10.0	0.56	
		Maclean Area Average	0.60	0.91	5.4	0.40	
		Hurst Area Average	0.64	0.95	5.8	0.39	
		McPhillip's Area Average	0.56	0.90	4.3	0.41	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 225438			FLUORIDE:	0.81	mg/L		
			ORTHO PHOSPHORUS:	2.01	mg/L-PO4		

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H. Demchenko
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-04.xls]02-MAY-09

LIMS REF# 22877/22878

APPROVED FOR DISTRIBUTION BY: S. Fletcher
Supervisor of Analytical Services

FILE WQR2

Date Approved: 8-May-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: May 4, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON		225967	0.24	0.54	6.0	0.79	3.0 INTAKE
DEACON PRECHLORINATION CELL #1		225969	<0.05	0.08	6.0	0.69	
DEACON PRECHLORINATION CELL #3		OL	OL	OL	OL	OL	
AQUEDUCT BRANCH 1. @ McPHILLIPS		225973	0.56	0.88	5.0	0.57	2.0 DEACON
AQUEDUCT BRANCH 2 @ HURST		225974	0.77	1.03	6.0	0.69	2.0 DEACON
MACLEAN STATION DISCHARGE		225978	0.88	1.24	5.0	0.52	1.2 MACLEAN
MACLEAN STATION-PRECHLORINATION		225975	0.26	0.60	4.0		
HURST STATION DISCHARGE		225979	0.92	1.25	5.0	0.51	1.2 HURST
HURST STATION-PRECHLORINATION		225976	0.30	0.63	4.0		
McPHILLIPS STATION DISCHARGE		225980	0.84	1.16	5.0	0.49	1.2 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		225977	0.35	0.62	5.0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: May 5, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP.	1.	225985	0.59	0.87	4.0	0.37
McP.	2.	225989	0.56	0.99	5.0	0.44
McP.	3.	225993	0.37	0.64	6.0	0.38
McP.	4.	225995	0.60	0.93	4.0	0.41
MacL.	5.	225997	0.55	0.88	6.0	0.37
MacL.	6.	225999	0.83	1.07	6.0	0.40
MacL.	7.	226000	0.45	0.71	8.0	0.40
MacL.	8.	226005	0.43	0.74	5.0	0.36
MacL.	9.	226009	0.41	0.97	5.0	0.42
MacL.	10.	226010	0.52	0.78	7.0	0.39
MacL.	11.	226013	0.43	0.64	4.0	0.38
Hrst	12.	226023	0.37	0.68	5.0	0.45
Hrst	13.	226025	0.58	0.88	11.0	0.49
Hrst	14.	226027	0.81	0.94	5.0	0.47
Hrst	15.	226029	0.46	0.72	6.0	0.39
Hrst	16.	226032	0.55	0.77	5.0	0.39
Hrst	17.	226038	0.57	0.87	5.0	0.46
McP.	18.	226042	0.40	0.64	4.0	0.40
McP.	19.	226044	0.53	0.79	4.5	0.41
		MEAN	0.53	0.82	5.6	0.41
		MINIMUM	0.37	0.64	4.0	0.36
		MAXIMUM	0.83	1.07	11.0	0.49
		Maclean Area Average	0.52	0.83	5.9	0.39
		Hurst Area Average	0.56	0.81	6.2	0.44
		McPhillip's Area Average	0.51	0.81	4.6	0.40
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 225981			FLUORIDE:	0.87	mg/L	
			ORTHO PHOSPHORUS:	1.99	mg/L-PO4	

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-05.xls]09-MAY-09

LIMS REF# 22930/22931

APPROVED FOR DISTRIBUTION BY: S.Fletcher

FILE WQR2

Supervisor of Analytical Services

Date Approved: 8-May-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: May 11, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		226504	0.24	0.61	7.5	0.68	3.0	INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3		226506	0.02	0.03	7.4	0.57		
AQUEDUCT BRANCH 1. @ McPHILLIPS		226509	0.38	0.69	7.0	0.49	2.0	DEACON
AQUEDUCT BRANCH 2 @ HURST		226510	0.50	0.84	7.2	0.54	2.0	DEACON
MACLEAN STATION DISCHARGE		226514	0.81	1.19	7.3	0.51	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION		226511	0.28	0.59	7.1			
HURST STATION DISCHARGE		226515	0.68	1.16	7.0	0.44	1.2	HURST
HURST STATION-PRECHLORINATION		226512	0.12	0.42	6.9			
McPHILLIPS STATION DISCHARGE		226516	0.84	1.17	7.0	0.49	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		226513	0.16	0.44	7.5			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: May 12, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP. 1.		226521	0.49	0.74	4.0	0.39	
McP. 2.		226525	0.60	0.88	6.0	0.54	
McP. 3.		226529	0.32	0.58	7.0	0.44	
McP. 4.		226531	0.57	0.90	5.0	0.43	
MacL. 5.		226533	0.64	0.95	6.0	0.38	
MacL. 6.		226535	0.68	1.07	8.0	0.45	
MacL. 7.		226536	0.55	0.73	9.0	0.45	
MacL. 8.		226541	0.33	0.57	6.0	0.47	
MacL. 9.		226545	0.54	0.83	8.0	0.47	
MacL. 10.		226546	0.58	0.90	7.0	0.48	
MacL. 11.		226549	0.37	0.67	4.0	0.40	
Hrst 12.		226559	0.27	0.57	7.0	0.40	
Hrst 13.		226561	0.59	0.87	11.0	0.43	
Hrst 14.		226563	0.79	1.07	7.0	0.46	
Hrst 15.		226565	0.62	0.92	8.0	0.49	
Hrst 16.		226568	0.55	0.84	6.0	0.44	
Hrst 17.		226574	0.51	0.88	6.0	0.50	
McP. 18.		226578	0.38	0.66	4.0	0.43	
McP. 19.		226580	0.56	0.86	5.0	0.47	
		MEAN	0.52	0.82	6.5	0.45	
		MINIMUM	0.27	0.57	4.0	0.38	
		MAXIMUM	0.79	1.07	11.0	0.54	
		Maclean Area Average	0.53	0.82	6.9	0.44	
		Hurst Area Average	0.56	0.86	7.5	0.45	
		McPhillip's Area Average	0.49	0.77	5.2	0.45	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 226517			FLUORIDE:	0.94	mg/L		
			ORTHO PHOSPHORUS:	1.96	mg/L-PO4		

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: _____ H.Demchenko

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-05.xls]16-MAY-09

LIMS REF# 22990/22991

APPROVED FOR DISTRIBUTION BY: _____ S.Fletcher

FILE WQR2

Date Approved: _____ 05/15/09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: May 19/20, 2009			CHLORINE RESIDUAL FREE	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON 2	227178	0.12	0.48	8.0	1.19	3.0 INTAKE
DEACON PRECHLORINATION CELL #1	227179	<0.02	0.02	8.50	0.87	
DEACON PRECHLORINATION CELL #3	227068	OL	OL	OL	OL	
AQUEDUCT BRANCH 1 @ MCPHILLIPS	227071	0.38	0.75	9.0	1.03	2.2 DEACON
AQUEDUCT BRANCH 2 @ HURST	227072	0.73	1.05	9.0	0.79	2.2 DEACON
MACLEAN STATION DISCHARGE	227076	0.91	1.20	9.0	0.73	1.2 MACLEAN
MACLEAN STATION-PRECHLORINATION	227073	0.45	0.71	8.5		
HURST STATION DISCHARGE	227077	0.93	1.25	9.0	0.73	1.2 HURST
HURST STATION-PRECHLORINATION	227074	0.25	0.55	8.0		
MCPHILLIPS STATION DISCHARGE	227078	0.87	1.23	9.0	0.76	1.2 MCPHILLIPS
MCPHILLIPS STATION-PRECHLORINATION	227075	0.21	0.50	9.0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: May 19, 2009			CHLORINE RESIDUAL FREE	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP.	1.	227083	0.57	0.90	5.0	0.49
McP.	2.	227087	0.59	0.96	5.0	0.74
McP.	3.	227091	0.35	0.69	7.0	0.52
McP.	4.	227093	0.49	0.83	5.0	0.49
MacL.	5.	227095	0.63	0.93	6.0	0.46
MacL.	6.	227097	0.72	1.00	8.0	0.46
MacL.	7.	227098	0.30	0.64	8.0	0.48
MacL.	8.	227103	0.32	0.69	6.0	0.60
MacL.	9.	227107	0.53	0.86	6.0	0.62
MacL.	10.	227108	0.59	0.92	8.0	0.48
MacL.	11.	227111	0.34	0.67	6.0	0.52
Hrst	12.	227121	0.36	0.62	6.0	0.48
Hrst	13.	227123	0.63	0.89	9.0	0.42
Hrst	14.	227125	0.73	0.99	8.0	0.46
Hrst	15.	227127	0.15	0.35	9.0	0.23
Hrst	16.	227130	0.51	0.83	6.0	0.52
Hrst	17.	227136	0.55	0.82	7.0	0.57
McP.	18.	227140	0.29	0.52	5.0	0.45
McP.	19.	227142	0.47	0.77	9.0	0.49
		MEAN	0.48	0.78	6.8	0.50
		MINIMUM	0.15	0.35	5.0	0.23
		MAXIMUM	0.73	1.00	9.0	0.74
		Maclean Area Average	0.49	0.82	6.9	0.52
		Hurst Area Average	0.49	0.75	7.5	0.45
		McPhillip's Area Average	0.46	0.78	6.0	0.53
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 227079		FLUORIDE:		0.76	mg/L	
		ORTHO PHOSPHORUS:		2.04	mg/L-PO4	

COMMENTS:

Cell 1 and 2 were sampled on May 20 2009.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: _____ H.Demchenko _____

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-05.xls]23-MAY-09

LIMS REF# 23040/23041

APPROVED FOR DISTRIBUTION BY: _____ S.Fletcher _____

FILE WQR2

Date Approved: _____ 11-Jun-09 _____

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: May 25, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	227655		0.11	0.46	9.0	0.98	3.0 INTAKE
DEACON PRECHLORINATION CELL #1	227657		<0.02	0.04	10.0	0.79	
DEACON PRECHLORINATION CELL #3	OL		OL	OL	OL	OL	
AQUEDUCT BRANCH 1. @ McPHILLIPS	227661		0.56	0.83	10.0	0.74	2.2 DEACON
AQUEDUCT BRANCH 2 @ HURST	227662		0.61	0.80	10.0	0.84	2.2 DEACON
MACLEAN STATION DISCHARGE	227666		0.89	1.12	10.0	0.68	1.2 MACLEAN
MACLEAN STATION-PRECHLORINATION	227663		0.36	0.57	9.0		
HURST STATION DISCHARGE	227667		0.92	1.09	9.0	0.71	1.2 HURST
HURST STATION-PRECHLORINATION	227664		0.24	0.46	9.0		
McPHILLIPS STATION DISCHARGE	227668		0.96	1.18	9.0	0.67	1.2 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	227665		0.29	0.53	10.0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: May 26, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		227673	0.44	0.72	5.0	0.60
McP. 2.		227677	0.68	0.97	8.0	0.72
McP. 3.		227681	0.37	0.68	6.0	0.60
McP. 4.		227683	0.70	1.01	6.0	1.27
MacL. 5.		227685	0.73	1.02	7.0	0.62
MacL. 6.		227687	0.75	1.09	9.0	0.69
MacL. 7.		227688	0.45	0.68	7.0	0.65
MacL. 8.		227693	0.47	0.72	6.0	0.60
MacL. 9.		227697	0.40	0.77	6.0	0.62
MacL. 10.		227698	0.66	0.96	8.0	0.62
MacL. 11.		227701	0.46	0.71	5.0	0.60
Hrst 12.		227711	0.49	0.72	6.0	0.58
Hrst 13.		227713	0.56	0.88	11.0	0.59
Hrst 14.		227715	0.73	1.11	9.0	0.71
Hrst 15.		227717	0.61	0.88	9.0	0.63
Hrst 16.		227720	0.58	0.89	6.0	0.64
Hrst 17.		227726	0.61	0.86	8.0	0.63
McP. 18.		227730	0.33	0.65	5.0	0.53
McP. 19.		227732	0.59	0.87	8.0	0.61
		MEAN	0.56	0.85	7.1	0.66
		MINIMUM	0.33	0.65	5.0	0.53
		MAXIMUM	0.75	1.11	11.0	1.27
		Maclean Area Average	0.56	0.85	6.9	0.63
		Hurst Area Average	0.60	0.89	8.2	0.63
		McPhillip's Area Average	0.52	0.82	6.3	0.72
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 227669			FLUORIDE:	0.83	mg/L	
			ORTHO PHOSPHORUS:	1.93	mg/L-PO4	

COMMENTS: The high turbidity (1.27 NTU) [REDACTED] was due to construction in the area therefore the location was resampled on May 29 2009 and an acceptable result was obtained (0.61 NTU).

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-05.xls]30-May-09

LIMS REF# 23092/23093

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 1-Jun-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: June 1, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON		228316	0.08	0.41	12 0	0.95	3.5 INTAKE
DEACON PRECHLORINATION CELL #1		228318	0.03	0.07	13 0	0.81	
DEACON PRECHLORINATION CELL #3		OL	OL	OL	OL	OL	
AQUEDUCT BRANCH 1. @ McPHILLIPS		228322	0.47	0.78	12 0	0.65	2.2 DEACON
AQUEDUCT BRANCH 2 @ HURST		228323	0.58	0.92	12 0	0.93	2.2 DEACON
MACLEAN STATION DISCHARGE		228327	0.91	1.18	21 0	0.70	1.2 MACLEAN
MACLEAN STATION-PRECHLORINATION		228324	0.14	0.45	11 5		
HURST STATION DISCHARGE		228328	0.80	1.17	12 0	0.78	1.2 HURST
HURST STATION-PRECHLORINATION		228325	0.11	0.41	11 0		
McPHILLIPS STATION DISCHARGE		228329	0.85	1.22	12 0	0.69	1.2 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		228326	0.09	0.42	12 0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: June 2, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		228334	0.54	0.86	6.0	0.60
McP. 2.		228338	0.64	0.93	9.0	0.68
McP. 3.		228342	0.32	0.66	8.0	0.57
McP. 4.		228344	0.63	0.95	7.0	0.59
MacL. 5.		228346	0.58	0.88	9.0	0.58
MacL. 6.		228348	0.79	1.10	9.0	0.66
MacL. 7.		228349	0.26	0.54	8.0	0.71
MacL. 8.		228354	0.36	0.64	7.0	0.62
MacL. 9.		228358	0.45	0.78	6.0	0.63
MacL. 10.		228359	0.49	0.82	9.0	0.63
MacL. 11.		228362	0.35	0.64	6.0	0.65
Hrst 12.		228372	0.35	0.64	6.0	0.62
Hrst 13.		228374	0.32	0.59	12 0	0.73
Hrst 14.		228376	0.78	1.09	10 0	0.65
Hrst 15.		228378	0.54	0.83	10 0	0.83
Hrst 16.		228381	0.49	0.85	6.0	0.59
Hrst 17.		228387	0.47	0.81	6.0	0.64
McP. 18.		228391	0.29	0.61	6.0	0.58
McP. 19.		228393	0.54	0.82	9.0	0.66
		MEAN	0.48	0.79	7.8	0.64
		MINIMUM	0.26	0.54	6.0	0.57
		MAXIMUM	0.79	1.10	12 0	0.83
		Maclean Area Average	0.47	0.77	7.7	0.64
		Hurst Area Average	0.49	0.80	8.3	0.68
		McPhillip's Area Average	0.49	0.81	7.5	0.61
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 228330		FLUORIDE:		0.87	mg/L	
		ORTHO PHOSPHORUS:		1.98	mg/L-PO4	

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-06.xls]06-JUNE-09

LIMS REF# 23150/23151

APPROVED FOR DISTRIBUTION BY: S.Fletcher
 Supervisor of Analytical Services

FILE WQR2

Date Approved: 10-Jun-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: June 8, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON	228870	OL	OL	OL	OL	OL	INTAKE
DEACON PRECHLORINATION CELL #1	228872	<0.02	0.06	12.5	0.72		
DEACON PRECHLORINATION CELL #3	OL	OL	OL	OL	OL		
AQUEDUCT BRANCH 1. @ MCPHILLIPS	228876	0.71	1.06	12.0	0.80	2.4	DEACON
AQUEDUCT BRANCH 2 @ HURST	228877	0.90	1.17	12.5	0.77	2.4	DEACON
MACLEAN STATION DISCHARGE	228881	0.83	1.20	13.0	0.73	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION	228878	0.32	0.55	12.0			
HURST STATION DISCHARGE	228882	0.84	1.13	13.0	0.62	1.2	HURST
HURST STATION-PRECHLORINATION	228879	0.20	0.42	12.5			
McPHILLIPS STATION DISCHARGE	228883	0.91	1.20	12.5	0.59	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	228880	0.17	0.41	12.0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: June 9, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP.	1.	228888	0.47	0.78	7.0	0.55
McP.	2.	228892	0.61	0.89	9.0	0.62
McP.	3.	228896	0.32	0.62	8.0	0.55
McP.	4.	228898	0.58	0.92	7.0	0.54
MacL.	5.	228900	0.49	0.79	9.0	0.55
MacL.	6.	228902	0.48	0.75	11.0	0.55
MacL.	7.	228903	0.37	0.66	8.0	0.58
MacL.	8.	228908	0.38	0.71	8.0	0.56
MacL.	9.	228912	0.54	0.82	9.0	0.61
MacL.	10.	228913	0.54	0.77	11.0	0.59
MacL.	11.	228916	0.31	0.60	8.0	0.60
Hrst	12.	228926	0.34	0.59	7.0	0.56
Hrst	13.	228928	0.30	0.57	14.0	0.64
Hrst	14.	228930	0.68	1.02	11.0	0.66
Hrst	15.	228932	0.53	0.81	11.0	0.56
Hrst	16.	228935	0.60	0.85	8.0	0.65
Hrst	17.	228941	0.49	0.81	10.0	0.64
McP.	18.	228945	0.24	0.58	6.0	0.86
McP.	19.	228947	0.47	0.76	10.0	0.68
		MEAN	0.46	0.75	9.1	0.61
		MINIMUM	0.24	0.57	6.0	0.54
		MAXIMUM	0.68	1.02	14.0	0.86
		Maclean Area Average	0.44	0.73	9.1	0.58
		Hurst Area Average	0.49	0.78	10.2	0.62
		McPhillip's Area Average	0.45	0.76	7.8	0.63
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 228884			FLUORIDE:	0.88	mg/L	
			ORTHO PHOSPHORUS:	1.95	mg/L-PO4	

COMMENTS: The Shoal Lake Aqueduct was shut down for an inspection therefore there was no Intake or Aqueduct at Deacon sample on June 8 2009.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-06.xls]13-JUNE-09

LIMS REF# 23207/23208

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 17-Jun-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: June 15, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON	229522		0.36	0.74	13 0	0.72	4.0	INTAKE
DEACON PRECHLORINATION CELL #1	229524		0.02	0.06	15 0	0.59		
DEACON PRECHLORINATION CELL #3	OL		OL	OL	OL	OL		
AQUEDUCT BRANCH 1 @ MCPHILLIPS	229528		0.68	0.93	14 0	0.61	2.4/2.6	DEACON
AQUEDUCT BRANCH 2 @ HURST	229529		0.79	0.96	14 0	0.70	2.4/2.6	DEACON
MACLEAN STATION DISCHARGE	229533		0.93	1.20	13 0	0.55	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION	229530		0.27	0.50	13 0			
HURST STATION DISCHARGE	229534		0.95	1.16	14 0	0.55	1.2	HURST
HURST STATION-PRECHLORINATION	229531		0.12	0.36	13 0			
McPHILLIPS STATION DISCHARGE	229535		0.89	1.16	13 0	0.56	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	229532		0.09	0.32	13 0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: June 17, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY		
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.		
McP.	1.	229540	0.28	0.56	8.0	0.42		
McP.	2.	229544	0.50	0.74	10 0	0.49		
McP.	3.	229548	0.28	0.61	9.0	0.49		
McP.	4.	229550	0.61	0.89	10 0	0.56		
MacL.	5.	229552	0.58	0.90	10 0	0.43		
MacL.	6.	229554	0.73	1.03	13 0	0.55		
MacL.	7.	229555	0.24	0.45	10 0	0.43		
MacL.	8.	229560	0.38	0.66	10 0	0.50		
MacL.	9.	229564	0.39	0.71	10 0	0.46		
MacL.	10.	229565	0.53	0.85	12 0	0.47		
MacL.	11.	229568	0.37	0.70	9.0	1.46		
Hrst	12.	229578	0.35	0.60	9.0	0.61		
Hrst	13.	229580	0.22	0.43	16 0	0.56		
Hrst	14.	229582	0.65	0.94	14 0	0.52		
Hrst	15.	229584	0.48	0.77	13 0	0.43		
Hrst	16.	229587	0.42	0.72	8.0	0.49		
Hrst	17.	229593	0.46	0.81	12 0	0.50		
McP.	18.	229597	0.15	0.46	8.0	0.48		
McP.	19.	229599	0.42	0.68	11 0	0.66		
DISTRIBUTION SYSTEM		MEAN	0.42	0.71	10 6	0.55		
		MINIMUM	0.15	0.43	8.0	0.42		
		MAXIMUM	0.73	1.03	16 0	1.46		
Maclean Area Average		0.46	0.76	10 6	0.61			
Hurst Area Average		0.43	0.71	12 0	0.52			
McPhillip's Area Average		0.37	0.66	9.3	0.52			
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)								
SAMPLE NUMBER: 229536		FLUORIDE:		0.90	mg/L			
		ORTHO PHOSPHORUS:		1.95	mg/L-PO4			

COMMENTS:

The high turbidity (1.46 NTU) [REDACTED] was due to construction in the area.
 Effective June 19 2009 at 0800 hours the chlorine dosage for Branch I and II was increased from 2.4 mg/L to 2.6 mg/L.

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: _____
 H.Demchenko
 Compliance Reporting Technician

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LIMS REF# 23267/23268

FILE WQR2

APPROVED FOR DISTRIBUTION BY: _____
 S.Fletcher
 Supervisor of Analytical Services

Date Approved: _____ 6/30/2009

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: June 22, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		230217	0.10	0.45	18 0	0.62	4.0/4.5	INTAKE
DEACON PRECHLORINATION CELL #1		230219	0.02	0.05	19 0	0.46		
DEACON PRECHLORINATION CELL #3		OL	OL	OL	OL	OL		
AQUEDUCT BRANCH 1. @ McPHILLIPS		230223	0.73	1.10	17 0	0.47	2.6/3.0	DEACON
AQUEDUCT BRANCH 2 @ HURST		230224	0.89	1.23	18 0	0.50	2.6/3.0	DEACON
MACLEAN STATION DISCHARGE		230228	0.79	1.09	17 0	0.42	1.2	MACLEAN
MACLEAN STATION-PRECHLORINATION		230225	0.23	0.56	17 0			
HURST STATION DISCHARGE		230229	0.81	1.12	17 0	0.42	1.2	HURST
HURST STATION-PRECHLORINATION		230226	0.15	0.39	17 0			
McPHILLIPS STATION DISCHARGE		230230	0.87	1.13	16 0	0.43	1.2	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		230227	0.12	0.34	17 0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: June 23, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP.	1.	230235	0.59	0.86	11 0	0.44	
McP.	2.	230239	0.69	0.96	12 0	0.54	
McP.	3.	230243	0.32	0.60	11 0	0.41	
McP.	4.	230245	0.62	0.88	10 0	0.67	
MacL.	5.	230247	0.62	0.89	13 0	0.54	
MacL.	6.	230249	0.65	0.99	14 0	0.45	
MacL.	7.	230250	0.14	0.37	10 0	0.47	
MacL.	8.	230255	0.51	0.80	11 0	0.44	
MacL.	9.	230259	0.28	0.62	9.0	0.43	
MacL.	10.	230260	0.48	0.83	14 0	0.46	
MacL.	11.	230263	0.45	0.76	12 0	0.52	
Hrst	12.	230273	0.36	0.72	9.0	0.42	
Hrst	13.	230275	0.30	0.59	17 0	0.60	
Hrst	14.	230277	0.63	0.99	15 0	0.46	
Hrst	15.	230279	0.47	0.81	14 0	0.71	
Hrst	16.	230282	0.36	0.68	8.0	0.40	
Hrst	17.	230288	0.42	0.77	13 0	0.49	
McP.	18.	230292	0.26	0.52	9.0	0.48	
McP.	19.	230294	0.46	0.75	13 0	0.45	
		DISTRIBUTION SYSTEM	MEAN	0.45	0.76	11 8	0.49
			MINIMUM	0.14	0.37	8.0	0.40
			MAXIMUM	0.69	0.99	17 0	0.71
			Maclean Area Average	0.45	0.75	11.9	0.47
			Hurst Area Average	0.42	0.76	12.7	0.51
			McPhillip's Area Average	0.49	0.76	11 0	0.50
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 230231				FLUORIDE:	0.87	mg/L	
				ORTHO PHOSPHORUS:	1.93	mg/L-PO4	

COMMENTS: Effective June 23 2009 at 1015 hours the chlorine dosage at the Intake was increased from 4.0 mg/L to 4.5 mg/L and the chlorine dosage for Branch I and II was increased from 2.6 mg/L to 3.0 mg/L.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

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LIMS REF# 23332/23333

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

FILE WQR2

Date Approved: 6/30/2009

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: June 29, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON		230931	0.10	0.51	20 5	0.90	4.5/5.0 INTAKE
DEACON PRECHLORINATION CELL #1	OL	OL	OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	230933	0.03	0.04	18 5	0.65		
AQUEDUCT BRANCH 1. @ MCPHILLIPS	230936	0.80	1.11	18 5	0.54	3.0/3.4	DEACON
AQUEDUCT BRANCH 2 @ HURST	230937	0.97	1.25	18 0	0.72	3.0/3.4	DEACON
MACLEAN STATION DISCHARGE	230941	0.90	1.13	18 5	0.61	1.2/1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION	230938	0.11	0.39	18 5			
HURST STATION DISCHARGE	230942	0.88	1.13	19 0	0.55	1.2/1.4	HURST
HURST STATION-PRECHLORINATION	230939	0.06	0.37	18 5			
McPHILLIPS STATION DISCHARGE	230943	0.87	1.13	18 5	0.47	1.2/1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	230940	0.08	0.27	17 5			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: June 30, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		230948	0.49	0.79	11 0	0.41
McP. 2.		230952	0.55	0.90	14 0	0.45
McP. 3.		230956	0.29	0.59	15 0	0.58
McP. 4.		230958	0.44	0.77	12 0	0.38
MacL. 5.		230960	0.44	0.75	15 0	0.35
MacL. 6.		230962	0.62	0.95	16 0	0.54
MacL. 7.		230963	0.21	0.47	11 0	0.42
MacL. 8.		230968	0.20	0.49	14 0	0.43
MacL. 9.		230972	0.44	0.76	9.0	0.50
MacL. 10.		230973	0.45	0.76	15 0	0.46
MacL. 11.		230976	0.41	0.70	12 0	0.51
Hrst 12.		230986	0.24	0.51	11 0	0.53
Hrst 13.		230988	0.33	0.60	17 0	0.68
Hrst 14.		230990	0.68	0.99	18 0	0.49
Hrst 15.		230992	0.60	0.85	15 0	0.43
Hrst 16.		230995	0.37	0.69	10 0	0.61
Hrst 17.		231001	0.43	0.70	14 0	0.54
McP. 18.		231005	0.16	0.45	8.0	0.43
McP. 19.		231007	0.44	0.77	14 0	0.53
		MEAN	0.41	0.71	13 2	0.49
		MINIMUM	0.16	0.45	8.0	0.35
		MAXIMUM	0.68	0.99	18 0	0.68
		Maclean Area Average	0.40	0.70	13.1	0.46
		Hurst Area Average	0.44	0.72	14.2	0.55
		McPhillip's Area Average	0.40	0.71	12.3	0.46
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 230944			FLUORIDE:	0.88	mg/L	
			ORTHO PHOSPHORUS:	1.97	mg/L-PO4	

COMMENTS: Effective Tuesday June 30 2009 at 1435 hours the chlorine dosage for the Intake was increased from 4.5 mg/L to 5.0 mg/L. The chlorine dosage for Branch I and II was increased from 3.0 mg/L to 3.4 mg/L and the chlorine dosage for MacLean McPhillips and Hurst was increased from 1.2 mg/L to 1.4 mg/L.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

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LIMS REF# 23400/23401

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 7-Jul-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: July 6, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		231536	0.53	0.87	19.5	0.71	5.0	INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3		231538	0.02	0.07	20.0	0.58		
AQUEDUCT BRANCH 1. @ McPHILLIPS		231541	1.01	1.32	19.0	4.32	3.4	DEACON
AQUEDUCT BRANCH 2 @ HURST		231542	1.18	1.58	19.5	0.61	3.4	DEACON
MACLEAN STATION DISCHARGE		231546	1.01	1.31	19.0	0.48	1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION		231543	0.35	0.63	18.5			
HURST STATION DISCHARGE		231547	1.00	1.32	19.0	0.52	1.4	HURST
HURST STATION-PRECHLORINATION		231544	0.23	0.54	18.5			
McPHILLIPS STATION DISCHARGE		231548	1.06	1.32	18.5	0.49	1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		231545	0.02	0.28	18.0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: July 7, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY		
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.		
McP.	1.	231553	0.64	0.95	11.0	0.48		
McP.	2.	231557	0.73	1.07	14.0	0.44		
McP.	3.	231561	0.47	0.75	11.0	0.49		
McP.	4.	231563	0.78	1.12	13.0	0.51		
MacL.	5.	231565	0.80	1.15	14.0	0.48		
MacL.	6.	231567	1.02	1.33	16.0	0.50		
MacL.	7.	231568	0.46	0.69	12.0	0.60		
MacL.	8.	231573	0.58	0.87	11.0	0.44		
MacL.	9.	231577	0.59	0.88	7.0	0.45		
MacL.	10.	231578	0.69	1.00	16.0	0.45		
MacL.	11.	231581	0.44	0.75	13.0	0.47		
Hrst	12.	231591	0.34	0.67	11.0	0.52		
Hrst	13.	231593	0.54	0.87	20.0	0.66		
Hrst	14.	231595	0.80	1.12	18.0	0.54		
Hrst	15.	231597	0.62	0.97	15.0	0.54		
Hrst	16.	231600	0.64	0.93	9.0	0.49		
Hrst	17.	231606	0.54	0.79	15.0	0.54		
McP.	18.	231610	0.33	0.64	11.0	0.52		
McP.	19.	231612	0.68	0.94	14.0	0.45		
		MEAN	0.62	0.92	13.2	0.50		
		MINIMUM	0.33	0.64	7.0	0.44		
		MAXIMUM	1.02	1.33	20.0	0.66		
		Maclean Area Average	0.65	0.95	12.7	0.48		
		Hurst Area Average	0.58	0.89	14.7	0.55		
		McPhillip's Area Average	0.61	0.91	12.3	0.48		
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)								
SAMPLE NUMBER: 231549			FLUORIDE:		0.86	mg/L		
			ORTHO PHOSPHORUS:		2.04	mg/L-PO4		

COMMENTS:

The high turbidity (4.32 NTU) at Aqueduct Branch 1. at McPhillips was due to disruptions to the sample line at Branch 1-Gallagher by Water Services staff who were performing work shortly before the initial sample was collected. The disruption was temporary and the water quality has returned to normal levels. A low chlorine residual of 0.02 mg/L was reported at McPhillips Station Prechlorination during routine testing. Water Services staff with the assistance of Analytical Services are investigating.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: _____
H.Demchenko
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-07.xls]11-JULY-09

LIMS REF# 23457/23458

FILE WQR2

APPROVED FOR DISTRIBUTION BY: _____
S.Fletcher
Supervisor of Analytical Services

Date Approved: _____
16-Jul-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: July 13, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		232152	0.40	0.82	20 0	0.70	5.0	INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3		232154	<0.02	0.07	20 5	0.62		
AQUEDUCT BRANCH 1. @ McPHILLIPS		232155	1.02	1.38	18 5	0.61	3.4	DEACON
AQUEDUCT BRANCH 2 @ HURST		232156	1.23	1.63	19 0	0.63	3.4	DEACON
MACLEAN STATION DISCHARGE		232162	0.99	1.34	20 0	0.53	1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION		232159	0.39	0.74	20 0			
HURST STATION DISCHARGE		232163	1.07	1.41	19 0	0.52	1.4	HURST
HURST STATION-PRECHLORINATION		232160	0.21	0.63	18 0			
McPHILLIPS STATION DISCHARGE		232164	1.12	1.39	19 0	0.46	1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		232161	0.03	0.30	18 0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: July 14, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY		
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.		
McP.	1.	232169	0.60	0.92	12 0	0.45		
McP.	2.	232173	0.54	0.85	14 0	1.51		
McP.	3.	232177	0.31	0.67	11 6	0.44		
McP.	4.	232179	0.72	1.01	12 0	0.80		
MacL.	5.	232181	0.68	0.96	15 0	0.46		
MacL.	6.	232183	0.69	1.05	18 0	0.46		
MacL.	7.	232184	0.36	0.68	11 0	0.44		
MacL.	8.	232189	0.48	0.80	11 0	0.48		
MacL.	9.	232193	0.49	0.94	9.4	0.50		
MacL.	10.	232194	0.68	0.99	16 0	0.46		
MacL.	11.	232197	0.42	0.72	13 0	0.41		
Hrst	12.	232207	0.45	0.83	12 2	0.50		
Hrst	13.	232209	0.49	0.80	17 0	0.63		
Hrst	14.	232211	0.84	1.16	18 0	0.53		
Hrst	15.	232213	0.60	0.93	15 0	0.48		
Hrst	16.	232216	0.51	0.84	10 0	0.47		
Hrst	17.	232222	0.52	0.87	NR	0.53		
McP.	18.	232226	0.27	0.59	8.0	0.45		
McP.	19.	232228	0.55	0.94	16 0	0.49		
		MEAN	0.54	0.87	12 6	0.55		
		MINIMUM	0.27	0.59	8.0	0.41		
		MAXIMUM	0.84	1.16	18 0	1.51		
		Maclean Area Average	0.54	0.88	13 3	0.46		
		Hurst Area Average	0.57	0.91	12 0	0.52		
		McPhillip's Area Average	0.50	0.83	12 3	0.69		
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)								
SAMPLE NUMBER: 232165				FLUORIDE:	0.80	mg/L		
				ORTHO PHOSPHORUS:	1.95	mg/L-PO4		

COMMENTS: The high turbidity (1.51 NTU) reported [REDACTED] could not be explained therefore the location was resampled on July 17 2009 and an acceptable result was obtained (0.55 NTU). There was no temperature result for [REDACTED] because the thermometer was broken on site.

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-07.xls]18-JULY-09

LIMS REF# 23520/23521

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
 Supervisor of Analytical Services

Date Approved: 07/17/09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: July 20, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		232842	0.63	0.99	18 0	0.81	5.0	INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3		232844	0.03	0.07	18 5	0.67		
AQUEDUCT BRANCH 1. @ McPHILLIPS		232847	1.33	1.68	18 0	0.84	3.4	DEACON
AQUEDUCT BRANCH 2 @ HURST		232848	1.14	1.51	18 5	0.76	3.4	DEACON
MACLEAN STATION DISCHARGE		232852	1.01	1.35	18 0	0.59	1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION		232849	0.43	0.75	18 0			
HURST STATION DISCHARGE		232853	1.00	1.34	18 0	0.62	1.4	HURST
HURST STATION-PRECHLORINATION		232850	0.38	0.71	17 5			
McPHILLIPS STATION DISCHARGE		232854	1.10	1.39	18 5	0.56	1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		232851	0.58	0.88	18 0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: July 21, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP.	1.	232859	0.45	0.77	14 0	0.50	
McP.	2.	232863	0.60	0.95	16 0	0.62	
McP.	3.	232867	0.34	0.67	12 0	0.59	
McP.	4.	232869	0.75	1.04	13 0	0.62	
MacL.	5.	232871	0.72	1.00	14 0	0.61	
MacL.	6.	232873	0.89	1.22	17 0	0.61	
MacL.	7.	232874	0.35	0.62	13 0	0.59	
MacL.	8.	232879	0.55	0.90	12 0	0.53	
MacL.	9.	232883	0.52	0.85	9.0	0.56	
MacL.	10.	232884	0.64	0.98	15 0	0.58	
MacL.	11.	232887	0.49	0.77	14 0	0.45	
Hrst	12.	232897	0.30	0.63	12 0	0.61	
Hrst	13.	232899	0.59	0.92	18 0	0.59	
Hrst	14.	232901	0.88	1.16	17 0	0.58	
Hrst	15.	232903	0.24	0.57	14 0	0.33	
Hrst	16.	232906	0.62	0.95	10 0	0.60	
Hrst	17.	232912	0.42	0.74	12 0	0.53	
McP.	18.	232916	0.33	0.62	11 0	0.54	
McP.	19.	232918	0.57	0.88	16 0	0.51	
		MEAN	0.54	0.85	13 6	0.56	
		MINIMUM	0.24	0.57	9.0	0.33	
		MAXIMUM	0.89	1.22	18 0	0.62	
		Maclean Area Average	0.59	0.91	13.4	0.56	
		Hurst Area Average	0.51	0.83	13.8	0.54	
		McPhillip's Area Average	0.51	0.82	13.7	0.56	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 232855			FLUORIDE:	0.87	mg/L		
			ORTHO PHOSPHORUS:	1.97	mg/L-PO4		

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-07.xls]25-JULY-09

LIMS REF# 23586/23587

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
 Supervisor of Analytical Services

Date Approved: 4-Aug-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: July 27, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		233605	0.52	0.95	19 0	0.77	5.0	INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3		233607	0.04	0.08	20 0	0.66		
AQUEDUCT BRANCH 1. @ McPHILLIPS		233610	1.27	1.64	19 0	0.88	3.4	DEACON
AQUEDUCT BRANCH 2 @ HURST		233611	1.32	1.76	19 5	0.75	3.4	DEACON
MACLEAN STATION DISCHARGE		233615	1.11	1.45	19 0	0.60	1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION		233612	0.56	0.87	19 0			
HURST STATION DISCHARGE		233616	1.02	1.39	19 0	0.56	1.4	HURST
HURST STATION-PRECHLORINATION		233613	0.44	0.76	18 5			
McPHILLIPS STATION DISCHARGE		233617	1.14	1.51	19 0	0.55	1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		233614	0.24	0.63	18 5			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: July 28, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP. 1.		233622	0.51	0.79	13 0	0.46	
McP. 2.		233626	0.65	0.99	16 0	0.50	
McP. 3.		233630	0.36	0.67	12 0	0.48	
McP. 4.		233632	0.73	1.02	15 0	0.56	
MacL. 5.		233634	0.82	1.11	15 0	0.56	
MacL. 6.		233636	0.97	1.30	18 0	0.57	
MacL. 7.		233637	0.20	0.49	14 0	0.50	
MacL. 8.		233642	0.61	0.93	13 0	0.48	
MacL. 9.		233646	0.56	0.89	10 0	0.47	
MacL. 10.		233647	0.65	0.96	16 0	0.46	
MacL. 11.		233650	0.42	0.70	14 0	0.53	
Hrst 12.		233660	0.36	0.74	13 0	0.52	
Hrst 13.		233662	0.60	0.90	17 0	0.49	
Hrst 14.		233664	0.84	1.18	18 0	0.65	
Hrst 15.		233666	0.38	0.66	13 0	0.47	
Hrst 16.		233669	0.56	0.86	10 0	0.45	
Hrst 17.		233675	0.42	0.73	16 0	0.59	
McP. 18.		233679	0.34	0.67	12 0	0.50	
McP. 19.		233681	0.74	1.02	15 0	0.49	
		MEAN	0.56	0.87	14 2	0.51	
		MINIMUM	0.20	0.49	10 0	0.45	
		MAXIMUM	0.97	1.30	18 0	0.65	
		Maclean Area Average	0.60	0.91	14 3	0.51	
		Hurst Area Average	0.53	0.85	14 5	0.53	
		McPhillip's Area Average	0.56	0.86	13 8	0.50	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 233618			FLUORIDE:	0.84	mg/L		
			ORTHO PHOSPHORUS:	2.02	mg/L-PO4		

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

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LIMS REF# 23651/23652

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 6-Aug-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: August 4, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	234130	OL	0.39	0.84	19 0	0.77	5.0 INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	234132		0.02	0.06	18 5	0.55	
AQUEDUCT BRANCH 1. @ McPHILLIPS	234135		0.99	1.36	19 0	0.59	3.4 DEACON
AQUEDUCT BRANCH 2 @ HURST	234136		1.39	1.78	18 0	0.59	3.4 DEACON
MACLEAN STATION DISCHARGE	234140		0.95	1.34	18 5	0.54	1.4 MACLEAN
MACLEAN STATION-PRECHLORINATION	234137		0.46	0.82	18 0		
HURST STATION DISCHARGE	234141		0.94	1.36	18 5	0.55	1.4 HURST
HURST STATION-PRECHLORINATION	234138		0.46	0.84	18 0		
McPHILLIPS STATION DISCHARGE	234142		1.19	1.42	19 0	0.45	1.4 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	234139		0.20	0.56	18 0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: August 5, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		234147	0.68	0.94	14 0	0.41
McP. 2.		234151	0.66	0.96	16 0	0.58
McP. 3.		234155	0.31	0.62	14 0	0.43
McP. 4.		234157	0.81	1.12	15 0	0.43
MacL. 5.		234159	0.80	1.10	16 0	0.55
MacL. 6.		234161	0.74	1.05	17 0	0.58
MacL. 7.		234162	0.21	0.52	15 0	0.46
MacL. 8.		234167	0.61	0.90	13 0	0.45
MacL. 9.		234171	0.51	0.84	11 0	0.83
MacL. 10.		234172	0.62	0.90	16 0	0.44
MacL. 11.		234175	0.32	0.65	13 0	0.42
Hrst 12.		234185	0.42	0.73	14 0	0.75
Hrst 13.		234187	0.26	0.57	20 0	0.74
Hrst 14.		234189	0.83	1.11	18 0	0.59
Hrst 15.		234191	0.58	0.90	16 0	0.49
Hrst 16.		234194	0.55	0.86	11 0	0.42
Hrst 17.		234200	0.41	0.69	14 0	0.88
McP. 18.		234204	0.31	0.64	12 0	0.45
McP. 19.		234206	0.63	0.95	16 0	0.48
		MEAN	0.54	0.84	14 8	0.55
		MINIMUM	0.21	0.52	11 0	0.41
		MAXIMUM	0.83	1.12	20 0	0.88
		Maclean Area Average	0.54	0.85	14.4	0.53
		Hurst Area Average	0.51	0.81	15.5	0.65
		McPhillip's Area Average	0.57	0.87	14.5	0.46
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 234143			FLUORIDE:	0.88	mg/L	
			ORTHO PHOSPHORUS:	2.09	mg/L-PO4	

COMMENTS:

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-08.xls]08-AUG-09

LIMS REF# 23711/23712

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
 Supervisor of Analytical Services

Date Approved: 8/24/09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: August 10, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		234695	0.35	0.83	19 0	0.70	5.0	INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3		234697	0.05	0.10	19 0	0.62		
AQUEDUCT BRANCH 1. @ MCPHILLIPS		234700	1.19	1.61	18 0	0.57	3.4	DEACON
AQUEDUCT BRANCH 2 @ HURST		234701	1.20	1.56	19 0	0.70	3.4	DEACON
MACLEAN STATION DISCHARGE		234705	1.06	1.43	19 0	0.48	1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION		234702	0.46	0.87	18 0			
HURST STATION DISCHARGE		234706	0.96	1.33	18 5	0.49	1.4	HURST
HURST STATION-PRECHLORINATION		234703	0.46	0.75	18 0			
McPHILLIPS STATION DISCHARGE		234707	1.16	1.44	18 5	0.42	1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		234704	0.08	0.42	18 0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: August 11, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP. 1.	[REDACTED]	234712	0.57	0.90	13 0	0.42	
McP. 2.	[REDACTED]	234716	0.66	0.98	16 0	0.51	
McP. 3.	[REDACTED]	234720	0.30	0.63	15 0	0.48	
McP. 4.	[REDACTED]	234722	0.71	1.03	15 0	0.59	
MacL. 5.	[REDACTED]	234724	0.80	1.11	17 0	0.70	
MacL. 6.	[REDACTED]	234726	0.93	1.21	18 0	0.67	
MacL. 7.	[REDACTED]	234727	0.23	0.51	14 0	0.49	
MacL. 8.	[REDACTED]	234732	0.68	0.99	15 0	0.45	
MacL. 9.	[REDACTED]	234736	0.43	0.75	11 0	0.46	
MacL. 10.	[REDACTED]	234737	0.63	0.94	17 0	0.50	
MacL. 11.	[REDACTED]	234740	0.39	0.70	14 0	0.49	
Hrst 12.	[REDACTED]	234750	0.38	0.68	15 0	0.74	
Hrst 13.	[REDACTED]	234752	0.41	0.74	20 0	0.69	
Hrst 14.	[REDACTED]	234754	0.84	1.16	18 0	0.65	
Hrst 15.	[REDACTED]	234756	0.64	0.93	17 0	0.54	
Hrst 16.	[REDACTED]	234759	0.62	0.92	14 0	0.48	
Hrst 17.	[REDACTED]	234765	0.33	0.65	16 0	0.68	
McP. 18.	[REDACTED]	234769	0.31	0.60	13 0	0.49	
McP. 19.	[REDACTED]	234771	0.60	0.92	16 0	0.46	
		MEAN	0.55	0.86	15 5	0.55	
		MINIMUM	0.23	0.51	11 0	0.42	
		MAXIMUM	0.93	1.21	20 0	0.74	
		Maclean Area Average	0.58	0.89	15.1	0.54	
		Hurst Area Average	0.54	0.85	16.7	0.63	
		McPhillip's Area Average	0.53	0.84	14.7	0.49	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 234708			FLUORIDE:	0.84	mg/L		
			ORTHO PHOSPHORUS:	1.99	mg/L-PO4		

COMMENTS: A low chlorine of 0.08 mg/L was found at the McPhillips pre-chlorination location. The low result was due to low water usage and low pumping demand at McPhillips.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-08.xls]15-AUG-09

LIMS REF# 23768/23769

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 8/28/2009

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: August 17, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	235256	OL	0.13	0.56	20 5	0.83	5.0 INTAKE
DEACON PRECHLORINATION CELL #1	235258	OL	<0.02	0.05	20 0	0.91	
DEACON PRECHLORINATION CELL #3	235261	OL	1.00	1.39	20 0	0.77	3.4 DEACON
AQUEDUCT BRANCH 1. @ McPHILLIPS	235262	OL	1.29	1.65	20 0	0.94	3.4 DEACON
MACLEAN STATION DISCHARGE	235266	OL	1.03	1.38	20 0	0.67	1.4 MACLEAN
MACLEAN STATION-PRECHLORINATION	235263	OL	0.45	0.81	19 0		
HURST STATION DISCHARGE	235267	OL	0.96	1.31	20 0	0.68	1.4 HURST
HURST STATION-PRECHLORINATION	235264	OL	0.32	0.67	19 5		
McPHILLIPS STATION DISCHARGE	235268	OL	1.10	1.39	20 0	0.55	1.4 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	235265	OL	0.03	0.36	19 0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: August 18, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		235273	0.54	0.86	15 0	0.70
McP. 2.		235277	0.73	1.00	17 0	0.69
McP. 3.		235281	0.20	0.53	14 0	0.49
McP. 4.		235283	0.69	1.01	16 0	0.69
MacL. 5.		235285	0.59	0.89	17 0	0.68
MacL. 6.		235287	0.85	1.15	18 0	0.51
MacL. 7.		235288	0.39	0.70	16 0	0.52
MacL. 8.		235293	0.60	0.91	14 0	0.55
MacL. 9.		235297	0.65	1.00	15 0	0.67
MacL. 10.		235298	0.64	0.97	17 0	0.56
MacL. 11.		235301	0.29	0.61	15 0	0.63
Hrst 12.		235311	0.31	0.61	15 0	0.49
Hrst 13.		235313	0.49	0.81	21 0	0.73
Hrst 14.		235315	0.91	1.19	19 0	0.70
Hrst 15.		235317	0.58	0.91	17 0	0.67
Hrst 16.		235320	0.57	0.86	13 0	0.55
Hrst 17.		235326	0.58	1.02	17 0	0.57
McP. 18.		235330	0.21	0.52	13 0	0.60
McP. 19.		235332	0.55	0.88	16 5	0.49
		MEAN	0.55	0.86	16.1	0.60
		MINIMUM	0.20	0.52	13 0	0.49
		MAXIMUM	0.91	1.19	21 0	0.73
		Maclean Area Average	0.57	0.89	16 0	0.59
		Hurst Area Average	0.57	0.90	17 0	0.62
		McPhillip's Area Average	0.49	0.80	15 3	0.61
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 235269			FLUORIDE:	0.86	mg/L	
			ORTHO PHOSPHORUS:	1.97	mg/L-PO4	

COMMENTS: A low chlorine of 0.03 mg/L was found at the McPhillips pre-chlorination location. The low result was due to low water usage and low pumping demand at McPhillips.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
 Compliance Reporting Technician

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LIMS REF# 23831/23832

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
 Supervisor of Analytical Services

Date Approved: 8/28/2009

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: August 24, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	235953		0.28	0.67	20 0	0.90	5.0 INTAKE
DEACON PRECHLORINATION CELL #1	OL	OL	OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	235955		0.03	0.05	20 0	1.16	
AQUEDUCT BRANCH 1. @ MCPHILLIPS	235958		1.14	1.52	19 0	1.29	3.4 DEACON
AQUEDUCT BRANCH 2 @ HURST	235959		1.37	1.70	19 0	1.28	3.4 DEACON
MACLEAN STATION DISCHARGE	235963		1.02	1.39	19 5	0.85	1.4 MACLEAN
MACLEAN STATION-PRECHLORINATION	235960		0.42	0.77	19 0		
HURST STATION DISCHARGE	235964		1.10	1.50	19 0	0.88	1.4 HURST
HURST STATION-PRECHLORINATION	235961		0.36	0.74	19 0		
MCPHILLIPS STATION DISCHARGE	235965		1.06	1.43	20 0	0.75	1.4 MCPHILLIPS
MCPHILLIPS STATION-PRECHLORINATION	235962		0.14	0.52	19 0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: August 25, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		235970	0.52	0.80	14 0	0.57
McP. 2.		235974	0.76	1.07	17 0	0.62
McP. 3.		235978	0.23	0.52	13 0	0.58
McP. 4.		235980	0.71	0.99	15 0	0.76
MacL. 5.		235982	0.71	1.04	16 0	0.62
MacL. 6.		235984	0.84	1.16	17 0	0.98
MacL. 7.		235985	0.32	0.50	15 0	0.70
MacL. 8.		235990	0.58	0.87	15 0	0.59
MacL. 9.		235994	0.42	0.69	11 0	0.66
MacL. 10.		235995	0.66	0.99	17 0	0.82
MacL. 11.		235998	0.31	0.60	14 0	0.51
Hrst 12.		236008	0.35	0.64	15 0	1.17
Hrst 13.		236010	0.34	0.67	20 0	0.64
Hrst 14.		236012	0.56	1.15	19 0	0.97
Hrst 15.		236014	0.58	0.86	15 0	0.52
Hrst 16.		236017	0.51	0.78	12 0	0.54
Hrst 17.		236023	0.40	0.72	17 0	0.95
McP. 18.		236027	0.31	0.59	15 0	0.82
McP. 19.		236029	0.59	0.90	15 0	0.59
		MEAN	0.51	0.82	15.4	0.72
		MINIMUM	0.23	0.50	11 0	0.51
		MAXIMUM	0.84	1.16	20 0	1.17
		Maclean Area Average	0.55	0.84	15 0	0.70
		Hurst Area Average	0.46	0.80	16 3	0.80
		McPhillip's Area Average	0.52	0.81	14 8	0.66
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 235966		FLUORIDE:		0.82	mg/L	
		ORTHO PHOSPHORUS:		1.99	mg/L-PO4	

COMMENTS: On August 25 there was a watermain break [REDACTED] The sample for that location was taken on August 26 and due to this disturbance a high turbidity of 1.17 NTU was reported.

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

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LIMS REF# 23903/23904

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 10-Sep-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: August 31, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	236533		0.30	0.71	20 0	0.86	5.0 INTAKE
DEACON PRECHLORINATION CELL #1	OL	OL	OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	236535		0.04	0.09	19 0	0.81	
AQUEDUCT BRANCH 1. @ McPHILLIPS	236538		1.16	1.56	19 0	0.89	3.4 DEACON
AQUEDUCT BRANCH 2 @ HURST	236539		1.31	1.78	19 0	0.85	3.4 DEACON
MACLEAN STATION DISCHARGE	236543		0.99	1.33	19 0	0.75	1.4 MACLEAN
MACLEAN STATION-PRECHLORINATION	236540		0.51	0.84	19 0		
HURST STATION DISCHARGE	236544		1.11	1.50	19 0	0.74	1.4 HURST
HURST STATION-PRECHLORINATION	236541		0.38	0.75	19 0		
McPHILLIPS STATION DISCHARGE	236545		1.06	1.30	19 0	0.81	1.4 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	236542		0.04	0.35	18 5		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: September 1, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		236550	0.60	0.93	14 0	0.70
McP. 2.		236554	0.71	1.02	17 0	0.68
McP. 3.		236558	0.24	0.54	14 0	0.67
McP. 4.		236560	0.71	1.01	16 0	0.56
MacL. 5.		236562	0.74	1.02	15 0	0.61
MacL. 6.		236564	0.91	1.23	17 0	0.85
MacL. 7.		236565	0.21	0.50	16 0	0.54
MacL. 8.		236570	0.51	0.80	15 0	0.51
MacL. 9.		236574	0.43	0.74	14 0	0.71
MacL. 10.		236575	0.65	0.93	16 0	0.72
MacL. 11.		236578	0.20	0.52	15 0	0.51
Hrst 12.		236588	0.42	0.70	16 0	0.66
Hrst 13.		236590	0.44	0.75	19 0	0.63
Hrst 14.		236592	0.90	1.21	19 0	0.92
Hrst 15.		236594	0.42	0.75	16 0	0.51
Hrst 16.		236597	0.64	0.92	13 0	0.55
Hrst 17.		236603	0.66	0.96	16 0	0.91
McP. 18.		236607	0.26	0.59	14 0	0.53
McP. 19.		236609	0.44	0.77	16 0	0.55
		MEAN	0.53	0.84	15.7	0.65
		MINIMUM	0.20	0.50	13 0	0.51
		MAXIMUM	0.91	1.23	19 0	0.92
		Maclean Area Average	0.52	0.82	15.4	0.64
		Hurst Area Average	0.58	0.88	16 5	0.70
		McPhillip's Area Average	0.49	0.81	15 2	0.62
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 236546			FLUORIDE:	0.82	mg/L	
			ORTHO PHOSPHORUS:	1.96	mg/L-PO4	

COMMENTS: A low chlorine of 0.04 mg/L was reported at the McPhillips Prechlorination station on August 31. The low result is due to low water usage and low pumping demand at McPhillips.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: H.Demchenko
Compliance Reporting Technician

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LIMS REF# 23963/23964

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S.Fletcher
Supervisor of Analytical Services

Date Approved: 11-Sep-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: September 8, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	237126	OL	0.30	0.71	20 0	0.75	5.0 INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	237128		0.03	0.08	20 0	0.74	
AQUEDUCT BRANCH 1. @ McPHILLIPS	237131		0.99	1.40	19 0	0.76	3.4 DEACON
AQUEDUCT BRANCH 2 @ HURST	237132		1.09	1.50	19 0	0.95	3.4 DEACON
MACLEAN STATION DISCHARGE	237136		1.00	1.40	19 5	0.60	1.4 MACLEAN
MACLEAN STATION-PRECHLORINATION	237133		0.41	0.73	19 0		
HURST STATION DISCHARGE	237137		1.04	1.44	19 5	0.66	1.4 HURST
HURST STATION-PRECHLORINATION	237134		0.47	0.79	19 0		
McPHILLIPS STATION DISCHARGE	237138		1.02	1.34	19 0	0.65	1.4 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	237135		0.10	0.45	19 0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: September 8, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		237143	0.53	0.84	14 0	0.74
McP. 2.		237147	0.57	0.86	16 0	0.63
McP. 3.		237151	0.16	0.47	14 0	0.63
McP. 4.		237153	0.60	0.92	15 0	0.71
MacL. 5.		237155	0.57	0.89	16 0	0.65
MacL. 6.		237157	0.79	1.12	16 0	0.97
MacL. 7.		237158	0.20	0.49	17 0	0.90
MacL. 8.		237163	0.39	0.71	16 0	0.50
MacL. 9.		237167	0.48	0.76	14 0	0.80
MacL. 10.		237168	0.65	0.98	16 0	0.77
MacL. 11.		237171	0.13	0.42	15 0	0.65
Hrst 12.		237181	0.27	0.58	16 0	0.84
Hrst 13.		237183	0.54	0.87	20 0	0.80
Hrst 14.		237185	0.99	1.31	19 0	0.71
Hrst 15.		237187	0.36	0.68	16 0	0.56
Hrst 16.		237190	0.66	0.97	12 0	0.51
Hrst 17.		237196	0.50	0.81	16 0	0.75
McP. 18.		237200	0.14	0.44	13 0	0.59
McP. 19.		237202	0.46	0.76	15 0	0.58
		MEAN	0.47	0.78	15 6	0.70
		MINIMUM	0.13	0.42	12 0	0.50
		MAXIMUM	0.99	1.31	20 0	0.97
		Maclean Area Average	0.46	0.77	15.7	0.75
		Hurst Area Average	0.55	0.87	16.5	0.70
		McPhillip's Area Average	0.41	0.72	14.5	0.65
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 237139			FLUORIDE:	0.88	mg/L	
			ORTHO PHOSPHORUS:	2.03	mg/L-PO4	

COMMENTS: The low free chlorine result of 0.13 mg/L reported at St. Mary's and Coniston on September 8 2009 was due to construction in the area.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-09.xls]12-Sep-09

LIMS REF# 24030/24031

APPROVED FOR DISTRIBUTION BY: S. Fletcher
 Supervisor of Analytical Services

FILE WQR2

Date Approved: 2-Oct-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: September 14, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE °C	TURBIDITY n.t.u.	CHLORINE SET POINT mg/L	
SAMPLE LOCATION	SAMPLE NO		mg/L	mg/L				
AQUEDUCT @ DEACON	237662		0.30	0.62	21.0	0.94	5.0	INTAKE
DEACON PRECHLORINATION CELL #1	OL		OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3	237664		0.04	0.11	20.0	0.88		
AQUEDUCT BRANCH 1. @ MCPHILLIPS	237667		1.15	1.51	19.5	0.94	3.4	DEACON
AQUEDUCT BRANCH 2 @ HURST	237668		1.29	1.68	20.0	1.02	3.4	DEACON
MACLEAN STATION DISCHARGE	237672		1.11	1.48	19.0	0.71	1.4	MACLEAN
MACLEAN STATION-PRECHLORINATION	237669		0.38	0.74	19.0			
HURST STATION DISCHARGE	237673		1.12	1.44	19.0	0.74	1.4	HURST
HURST STATION-PRECHLORINATION	237670		0.41	0.78	19.0			
McPHILLIPS STATION DISCHARGE	237674		1.04	1.39	19.0	0.69	1.4	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	237671		0.20	0.54	19.0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: September 15, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE °C	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO	mg/L	mg/L	°C	n.t.u.	
McP. 1.	[REDACTED]	237679	0.59	0.91	13.0	0.58	
McP. 2.	[REDACTED]	237683	0.58	0.90	16.0	0.72	
McP. 3.	[REDACTED]	237687	0.14	0.42	14.0	0.61	
McP. 4.	[REDACTED]	237689	0.54	0.87	16.0	0.68	
MacL. 5.	[REDACTED]	237691	0.49	0.81	17.0	0.62	
MacL. 6.	[REDACTED]	237693	0.34	0.63	15.0	0.60	
MacL. 7.	[REDACTED]	237694	0.24	0.51	17.0	0.59	
MacL. 8.	[REDACTED]	237699	0.42	0.71	14.0	0.51	
MacL. 9.	[REDACTED]	237703	0.50	0.83	11.0	0.99	
MacL. 10.	[REDACTED]	237704	0.61	0.93	17.0	0.68	
MacL. 11.	[REDACTED]	237707	0.21	0.49	15.0	0.60	
Hrst. 12.	[REDACTED]	237717	0.23	0.55	16.0	0.63	
Hrst. 13.	[REDACTED]	237719	0.36	0.67	18.0	0.76	
Hrst. 14.	[REDACTED]	237721	0.77	1.06	18.0	0.79	
Hrst. 15.	[REDACTED]	237723	0.49	0.79	16.0	1.19	
Hrst. 16.	[REDACTED]	237726	0.64	0.93	14.0	0.65	
Hrst. 17.	[REDACTED]	237732	0.68	0.98	15.0	0.99	
McP. 18.	[REDACTED]	237736	0.21	0.50	13.0	0.89	
McP. 19.	[REDACTED]	237738	0.48	0.79	16.0	0.64	
		MEAN	0.45	0.75	15.3	0.72	
		MINIMUM	0.14	0.42	11.0	0.51	
		MAXIMUM	0.77	1.06	18.0	1.19	
		Maclean Area Average	0.40	0.70	15.1	0.66	
		Hurst Area Average	0.53	0.83	16.2	0.84	
		McPhillip's Area Average	0.42	0.73	14.7	0.69	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 237675		FLUORIDE:		0.85	mg/L		
		ORTHO PHOSPHORUS:		1.88	mg/L-PO4		

COMMENTS:

The high turbidity of 1.02 NTU at Branch II at Hurst is due to the quality of the incoming water supply
The high turbidity of 1.19 NTU [REDACTED] could not be explained and was not resampled due to a lab error

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-09.xls]19-Sep-09

LIMS REF# 24086/24087

FILE: WQR2

APPROVED FOR DISTRIBUTION BY: S. Fletcher
Supervisor of Analytical Services

Date Approved: 2-Oct-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: September 21, 2009			CHLORINE RESIDUAL	TEMPERATURE	TURBIDITY	CHLORINE	
SAMPLE LOCATION	SAMPLE NO		FREE mg/L	TOTAL mg/L	°C	n.t.u.	SET POINT mg/L
AQUEDUCT @ DEACON	238186	OL	0.23	0.51	21.5	1.11	5.0 INTAKE
DEACON PRECHLORINATION CELL #1	OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3	238188		0.08	0.12	20.0	1.27	
AQUEDUCT BRANCH 1. @ MCPHILLIPS	238191		1.03	1.39	20.0	1.28	3.4 DEACON
AQUEDUCT BRANCH 2 @ HURST	238192		1.26	1.68	20.0	1.56	3.4 DEACON
MACLEAN STATION DISCHARGE	238196		1.08	1.40	20.0	0.84	1.4 MACLEAN
MACLEAN STATION-PRECHLORINATION	238193		0.47	0.78	19.5		
HURST STATION DISCHARGE	238197		1.16	1.38	20.0	1.03	1.4 HURST
HURST STATION-PRECHLORINATION	238194		0.32	0.70	20.0		
McPHILLIPS STATION DISCHARGE	238198		1.07	1.40	20.0	0.81	1.4 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	238195		0.08	0.33	19.5		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: September 22, 2009			CHLORINE RESIDUAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO	FREE mg/L	TOTAL mg/L	°C	n.t.u.
McP. 1.	[REDACTED]	238203	0.50	0.83	15.3	0.68
McP. 2.	[REDACTED]	238207	0.48	0.78	18.1	0.93
McP. 3.	[REDACTED]	238211	0.07	0.41	15.0	0.68
McP. 4.	[REDACTED]	238213	0.56	0.85	17.9	0.84
MacL. 5.	[REDACTED]	238215	0.57	0.89	18.4	0.83
MacL. 6.	[REDACTED]	238217	0.37	0.70	16.8	0.67
MacL. 7.	[REDACTED]	238218	0.21	0.52	18.5	0.92
MacL. 8.	[REDACTED]	238223	0.44	0.76	16.3	0.69
MacL. 9.	[REDACTED]	238227	0.44	0.87	13.0	1.30
MacL. 10.	[REDACTED]	238228	0.52	0.81	18.6	0.99
MacL. 11.	[REDACTED]	238231	0.23	0.55	17.3	0.71
Hrst. 12.	[REDACTED]	238241	0.27	0.64	16.2	0.75
Hrst. 13.	[REDACTED]	238243	0.22	0.56	19.4	0.68
Hrst. 14.	[REDACTED]	238245	0.86	1.17	20.1	0.92
Hrst. 15.	[REDACTED]	238247	0.75	1.06	18.7	1.35
Hrst. 16.	[REDACTED]	238250	0.53	0.85	14.1	0.69
Hrst. 17.	[REDACTED]	238256	0.47	0.90	17.8	1.01
McP. 18.	[REDACTED]	238260	0.24	0.57	14.5	0.72
McP. 19.	[REDACTED]	238262	0.44	0.82	17.1	0.88
		MEAN	0.43	0.77	17.0	0.85
		MINIMUM	0.07	0.41	13.0	0.67
		MAXIMUM	0.86	1.17	20.1	1.35
		Maclean Area Average	0.40	0.73	17.0	0.87
		Hurst Area Average	0.52	0.86	17.7	0.90
		McPhillip's Area Average	0.38	0.71	16.3	0.79
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER:		FLUORIDE:	0.83	mg/L		
		ORTHO PHOSPHORUS:	1.89	mg/L-PO4		

The low free chlorine of 0.08 mg/L at McPhillips Station Prechlorination is due to low water usage and low pumping demand at McPhillips.

COMMENTS: The high turbidities in the supply system are due to the quality of the incoming water supply.

A low free chlorine of 0.07 mg/L was obtained [REDACTED]. The location was sampled the following week on September 28 and a free chlorine result of 0.15 mg/L was obtained.

The high turbidities (>10 NTU) [REDACTED] are likely due to the quality of the incoming water supply. All locations were resampled on September 24 and the turbidities were below 1.0 NTU.

Effective Thursday September 24, 2009 at 1120 hours, the chlorine dosage at Branch I and Branch II was increased from 3.4 mg/L to 3.5 mg/L and the chlorine dosage at MacLean and McPhillips Pumping Stations was increased from 1.4 mg/L to 1.6 mg/L.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: _____ J. Jones _____

Compliance Reporting Technician

N:\WQ\Routine Water Quality\2009\Residual\[2009-09.xls]26-Sep-09

LIMS REF# 24139/24140

FILE: WQR2

APPROVED FOR DISTRIBUTION BY: _____ S. Fletcher _____

Supervisor of Analytical Services

Date Approved: _____ 2-Oct-09 _____

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: September 28, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	238815	OL	0.23	0.66	20 0	1.12	5.0 INTAKE
DEACON PRECHLORINATION CELL #1	238817	OL	0.03	0.08	18 0	1.14	
DEACON PRECHLORINATION CELL #3	238818	OL	1.10	1.50	18 0	1.18	3.5 DEACON
AQUEDUCT BRANCH 1. @ MCPHILLIPS	238819	OL	1.30	1.70	18 0	1.38	3.5 DEACON
MACLEAN STATION DISCHARGE	238825	OL	1.21	1.53	18 5	0.98	1.6 MACLEAN
MACLEAN STATION-PRECHLORINATION	238822	OL	0.40	0.74	18 5		
HURST STATION DISCHARGE	238826	OL	1.09	1.43	18 5	1.02	1.4 HURST
HURST STATION-PRECHLORINATION	238823	OL	0.26	0.63	18 5		
McPHILLIPS STATION DISCHARGE	238827	OL	1.17	1.55	19 0	0.97	1.6 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	238824	OL	0.18	0.55	18 0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: September 29, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		238832	0.64	0.96	16 5	0.69
McP. 2.		238836	0.73	1.01	17.7	0.88
McP. 3.		238840	0.16	0.46	15 3	0.90
McP. 4.		238842	0.65	0.96	17 8	0.84
MacL. 5.		238844	0.78	1.07	18 6	0.87
MacL. 6.		238846	0.40	0.72	17 6	0.78
MacL. 7.		238847	0.20	0.54	16.9	0.95
MacL. 8.		238852	0.46	0.78	15 5	0.65
MacL. 9.		238856	0.57	0.87	13 5	0.79
MacL. 10.		238857	0.50	0.83	18 2	0.98
MacL. 11.		238860	0.25	0.55	17 0	0.90
Hrst 12.		238870	0.27	0.58	17 0	0.91
Hrst 13.		238872	0.29	0.60	17 3	0.73
Hrst 14.		238874	0.94	1.23	19.1	0.76
Hrst 15.		238876	0.29	0.61	18.9	0.77
Hrst 16.		238879	0.51	0.83	14 5	0.81
Hrst 17.		238885	0.50	0.84	18 3	0.96
McP. 18.		238889	0.15	0.44	14 2	0.91
McP. 19.		238891	0.61	0.95	17 6	0.81
		MEAN	0.47	0.78	16.9	0.84
		MINIMUM	0.15	0.44	13 5	0.65
		MAXIMUM	0.94	1.23	19.1	0.98
		Maclean Area Average	0.45	0.77	16 8	0.85
		Hurst Area Average	0.47	0.78	17 5	0.82
		McPhillip's Area Average	0.49	0.80	16 5	0.84
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 238828			FLUORIDE:	0.83	mg/L	
			ORTHO PHOSPHORUS:	1.95	mg/L-PO4	

COMMENTS:

The high turbidities in the supply system are due to the quality of the incoming water supply.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-09.xls]3-Oct-09

LIMS REF# 24207/24208

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S. Fletcher
 Supervisor of Analytical Services

Date Approved: 5-Oct-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: October 5, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT	
SAMPLE LOCATION		SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON		239410	0.43	0.86	14 0	1.25	5.0	INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3		239412	0.03	0.09	14 0	1.00		
AQUEDUCT BRANCH 1. @ McPHILLIPS		239415	1.27	1.66	13 0	1.16	3.5	DEACON
AQUEDUCT BRANCH 2 @ HURST		239416	1.44	1.87	13 0	1.19	3.5	DEACON
MACLEAN STATION DISCHARGE		239420	1.25	1.57	15 0	0.91	1.6	MACLEAN
MACLEAN STATION-PRECHLORINATION		239417	0.54	0.80	14 0			
HURST STATION DISCHARGE		239421	1.23	1.53	14 0	0.99	1.4	HURST
HURST STATION-PRECHLORINATION		239418	0.53	0.95	14 0			
McPHILLIPS STATION DISCHARGE		239422	1.29	1.60	16 0	0.86	1.6	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION		239419	0.08	0.42	16 0			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: October 6, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY		
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.		
McP. 1.		239427	0.60	0.91	15 3	0.76		
McP. 2.		239431	0.71	1.02	16 8	0.80		
McP. 3.		239435	0.11	0.38	15 3	0.64		
McP. 4.		239437	0.81	1.13	16 6	0.80		
MacL. 5.		239439	0.81	1.14	17 3	0.98		
MacL. 6.		239441	0.43	0.77	17 8	0.84		
MacL. 7.		239442	0.75	1.07	15 5	0.81		
MacL. 8.		239447	0.51	0.89	16.1	0.74		
MacL. 9.		239451	0.48	0.77	12.7	0.90		
MacL. 10.		239452	0.66	0.96	16.1	0.81		
MacL. 11.		239455	0.31	0.66	16.1	0.66		
Hrst 12.		239465	0.32	0.63	16 3	0.66		
Hrst 13.		239467	0.49	0.78	14 8	0.74		
Hrst 14.		239469	0.95	1.28	17.9	0.77		
Hrst 15.		239471	0.79	1.15	15.4	0.97		
Hrst 16.		239474	0.61	0.95	13 8	0.85		
Hrst 17.		239480	0.60	0.93	16 0	0.93		
McP. 18.		239484	0.20	0.49	15.7	0.76		
McP. 19.		239486	0.59	0.90	16 0	0.99		
		MEAN	0.56	0.88	15.9	0.81		
		MINIMUM	0.11	0.38	12.7	0.64		
		MAXIMUM	0.95	1.28	17.9	0.99		
		Maclean Area Average	0.56	0.89	15.9	0.82		
		Hurst Area Average	0.63	0.95	15.7	0.82		
		McPhillip's Area Average	0.50	0.81	16 0	0.79		
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)								
SAMPLE NUMBER: 239423			FLUORIDE:		0.87	mg/L		
			ORTHO PHOSPHORUS:		1.89	mg/L-PO4		

COMMENTS: The low free chlorine of 0.08 mg/L at McPhillips Station Prechlorination is due to low water usage and low pumping demand at McPhillips.

The high turbidities in the supply system are due to the quality of the incoming water supply.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-10.xls]10-OCT-09

LIMS REF# 24265/24266

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S. Fletcher
 Supervisor of Analytical Services

Date Approved: 15-Oct-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: October 13, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	mg/L	
AQUEDUCT @ DEACON	240018	0.84	1.29	9.0	2.07	5.0	INTAKE
DEACON PRECHLORINATION CELL #1	OL	OL	OL	OL	OL		
DEACON PRECHLORINATION CELL #3	240020	<0.02	0.09	8.0	0.85		
AQUEDUCT BRANCH 1. @ McPHILLIPS	240023	1.53	2.00	9.0	1.31	3.5	DEACON
AQUEDUCT BRANCH 2 @ HURST	240024	1.70	2.09	9.0	1.10	3.5	DEACON
MACLEAN STATION DISCHARGE	240028	1.17	1.57	11.0	0.83	1.6	MACLEAN
MACLEAN STATION-PRECHLORINATION	240025	0.82	1.15	11.0			
HURST STATION DISCHARGE	240029	1.03	1.42	10.5	0.73	1.4	HURST
HURST STATION-PRECHLORINATION	240026	0.81	1.22	10.5			
McPHILLIPS STATION DISCHARGE	240030	1.16	1.54	11.5	0.70	1.6	McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	240027	0.60	0.94	11.5			

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: October 13, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.	
McP. 1.	[REDACTED]	240035	0.69	1.03	14.4	0.41	
McP. 2.	[REDACTED]	240039	0.69	1.04	13.9	0.38	
McP. 3.	[REDACTED]	240043	0.08	0.45	14.4	0.55	
McP. 4.	[REDACTED]	240045	0.89	1.20	14.8	0.31	
MacL. 5.	[REDACTED]	240047	0.92	1.21	14.6	0.40	
MacL. 6.	[REDACTED]	240049	0.45	0.76	15.0	0.25	
MacL. 7.	[REDACTED]	240050	0.76	1.08	14.5	0.39	
MacL. 8.	[REDACTED]	240055	0.64	0.97	13.6	0.39	
MacL. 9.	[REDACTED]	240059	0.62	0.95	12.1	0.47	
MacL. 10.	[REDACTED]	240060	0.62	0.94	14.2	0.50	
MacL. 11.	[REDACTED]	240063	0.68	0.94	14.3	0.64	
Hrst 12.	[REDACTED]	240073	0.24	0.54	14.8	0.45	
Hrst 13.	[REDACTED]	240075	0.27	0.59	14.9	0.48	
Hrst 14.	[REDACTED]	240077	0.90	1.24	11.8	0.62	
Hrst 15.	[REDACTED]	240079	0.74	1.06	13.9	0.97	
Hrst 16.	[REDACTED]	240082	0.59	0.91	13.0	0.41	
Hrst 17.	[REDACTED]	240088	0.61	0.95	14.9	0.39	
McP. 18.	[REDACTED]	240092	0.16	0.48	14.4	0.67	
McP. 19.	[REDACTED]	240094	0.83	1.13	14.9	0.44	
		MEAN	0.60	0.92	14.1	0.48	
		MINIMUM	0.08	0.45	11.8	0.25	
		MAXIMUM	0.92	1.24	15.0	0.97	
		Maclean Area Average	0.67	0.98	14.0	0.43	
		Hurst Area Average	0.56	0.88	13.9	0.55	
		McPhillip's Area Average	0.56	0.89	14.5	0.46	
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)							
SAMPLE NUMBER: 240031			FLUORIDE:	0.81	mg/L		
			ORTHO PHOSPHORUS:	1.97	mg/L-PO4		

COMMENTS: The high turbidities (>1.0 NTU) in the supply system are due to the quality of the incoming water supply.
The low free chlorine of 0.08 mg/L at [REDACTED] was due to a technician error. The location was resampled on October 15 and the free chlorine result was 0.15 mg/L.

Effective Friday October 16 2009 at 0900 hours the chlorine dosage at the Intake was decreased from 5.0 mg/L to 4.5 mg/L.

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-10.xls]17-OCT-09

LIMS REF# 24328/24329

APPROVED FOR DISTRIBUTION BY: S. Fletcher
Supervisor of Analytical Services

FILE WQR2

Date Approved: 22-Oct-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: October 19, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	240493		0.70	1.16	9.0	1.15	4.5 INTAKE
DEACON PRECHLORINATION CELL #1	OL	OL	OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	240495		0.03	0.13	8.0	0.66	
AQUEDUCT BRANCH 1. @ MCPHILLIPS	240498		1.75	2.11	9.0	0.86	3.5 DEACON
AQUEDUCT BRANCH 2 @ HURST	240499		1.57	2.06	9.0	0.90	3.5 DEACON
MACLEAN STATION DISCHARGE	240503		1.07	1.54	9.5	0.81	1.6 MACLEAN
MACLEAN STATION-PRECHLORINATION	240500		0.94	1.42	9.0		
HURST STATION DISCHARGE	240504		1.02	1.52	9.5	0.99	1.4 HURST
HURST STATION-PRECHLORINATION	240501		1.02	1.41	9.0		
McPHILLIPS STATION DISCHARGE	240505		1.42	1.71	9.5	0.80	1.6 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	240502		0.98	1.40	9.0		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: October 20, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.		240510	0.72	1.09	12.5	0.49
McP. 2.		240514	0.68	1.07	12.5	0.60
McP. 3.		240518	0.14	0.49	14.0	0.76
McP. 4.		240520	0.89	1.29	15.0	0.61
MacL. 5.		240522	0.86	1.35	11.0	0.62
MacL. 6.		240524	0.61	1.01	14.0	0.52
MacL. 7.		240525	0.92	1.22	14.0	0.52
MacL. 8.		240530	0.71	1.03	12.5	0.79
MacL. 9.		240534	0.59	0.91	11.5	0.84
MacL. 10.		240535	0.71	1.09	12.5	0.51
MacL. 11.		240538	0.72	1.07	13.0	0.51
Hrst 12.		240548	0.46	0.79	14.0	0.56
Hrst 13.		240550	0.37	0.63	20.5	0.86
Hrst 14.		240552	1.03	1.31	9.5	0.79
Hrst 15.		240554	0.74	1.06	14.5	0.72
Hrst 16.		240557	0.67	1.11	12.5	0.54
Hrst 17.		240563	0.72	1.12	11.0	0.64
McP. 18.		240567	0.27	0.66	13.5	0.85
McP. 19.		240569	0.85	1.25	15.0	0.60
		MEAN	0.67	1.03	13.3	0.65
		MINIMUM	0.14	0.49	9.5	0.49
		MAXIMUM	1.03	1.35	20.5	0.86
		Maclean Area Average	0.73	1.10	12.6	0.62
		Hurst Area Average	0.67	1.00	13.7	0.69
		McPhillip's Area Average	0.59	0.98	13.8	0.65
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 240506			FLUORIDE:	0.76	mg/L	
			ORTHO PHOSPHORUS:	1.82	mg/L-PO4	

COMMENTS: Effective Thursday October 22 2009 at 1030 hours the chlorine dosage at the Intake was decreased from 4.5 mg/L to 4.0 mg/L the chlorine dosage at Branch I and Branch II was decreased from 3.5 mg/L to 3.2 mg/L the chlorine dosage at Maclean and McPhillips was decreased from 1.6 mg/L to 1.5 mg/L and the chlorine dosage at Hurst was increased from 1.4 to 1.5 mg/L.

= Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
 Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-10.xls]24-OCT-09

LIMS REF# 24370/24371

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S. Fletcher
 Supervisor of Analytical Services

Date Approved: 27-Oct-09

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER SUPPLY & DISTRIBUTION SYSTEM CHLORINE RESIDUAL MONITORING

WATER SUPPLY SYSTEM DATA

SAMPLE DATE: October 26, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY	CHLORINE SET POINT
SAMPLE LOCATION	SAMPLE NO.		mg/L	mg/L	°C	n.t.u.	mg/L
AQUEDUCT @ DEACON	241312	OL	0.66	1.08	8.0	1.18	4.0 INTAKE
DEACON PRECHLORINATION CELL #1		OL	OL	OL	OL	OL	
DEACON PRECHLORINATION CELL #3	241314		0.04	0.21	8.0	0.83	
AQUEDUCT BRANCH 1. @ McPHILLIPS	241317		1.45	1.71	8.0	0.96	3.2 DEACON
AQUEDUCT BRANCH 2 @ HURST	241318		1.57	1.92	8.0	0.90	3.2 DEACON
MACLEAN STATION DISCHARGE	241322		1.01	1.45	8.0	0.68	1.5 MACLEAN
MACLEAN STATION-PRECHLORINATION	241319		0.90	1.35	8.0		
HURST STATION DISCHARGE	241323		1.10	1.44	8.5	0.72	1.5 HURST
HURST STATION-PRECHLORINATION	241320		1.03	1.29	8.0		
McPHILLIPS STATION DISCHARGE	241324		1.13	1.54	9.0	0.67	1.5 McPHILLIPS
McPHILLIPS STATION-PRECHLORINATION	241321		0.90	1.22	8.5		

DISTRIBUTION SYSTEM DATA

SAMPLE DATE: October 26, 27 and 28, 2009			CHLORINE RESIDUAL FREE	CHLORINE RESIDUAL TOTAL	TEMPERATURE	TURBIDITY
P.Stn.	SAMPLE LOCATION	SAMPLE NO.	mg/L	mg/L	°C	n.t.u.
McP. 1.	[REDACTED]	241326	0.64	1.00	12.5	0.47
McP. 2.	[REDACTED]	241330	0.60	1.00	11.5	0.59
McP. 3.	[REDACTED]	241334	0.14	0.47	13.5	0.50
McP. 4.	[REDACTED]	241336	0.85	1.20	12.0	0.59
MacL. 5.	[REDACTED]	241338	0.89	1.31	10.0	0.64
MacL. 6.	[REDACTED]	241340	0.72	1.02	13.5	0.88
MacL. 7.	[REDACTED]	241341	0.74	1.10	13.5	1.20
MacL. 8.	[REDACTED]	241346	0.73	0.99	12.0	0.61
MacL. 9.	[REDACTED]	241350	0.59	0.93	12.0	0.69
MacL. 10.	[REDACTED]	241351	0.84	1.18	11.0	0.48
MacL. 11.	[REDACTED]	241354	0.88	1.20	11.5	0.70
Hrst 12.	[REDACTED]	241364	0.44	0.84	14.0	0.54
Hrst 13.	[REDACTED]	241366	0.28	0.54	21.5	0.73
Hrst 14.	[REDACTED]	241368	1.01	1.34	9.0	0.64
Hrst 15.	[REDACTED]	241370	0.78	1.18	11.5	0.68
Hrst 16.	[REDACTED]	241373	0.67	0.92	12.0	0.54
Hrst 17.	[REDACTED]	241379	0.70	1.13	12.5	0.52
McP. 18.	[REDACTED]	241383	0.23	0.61	13.0	0.50
McP. 19.	[REDACTED]	241385	0.97	1.40	13.5	0.61
		MEAN	0.67	1.02	12.6	0.64
		MINIMUM	0.14	0.47	9.0	0.47
		MAXIMUM	1.01	1.40	21.5	1.20
		Maclean Area Average	0.77	1.10	11.9	0.74
		Hurst Area Average	0.65	0.99	13.4	0.61
		McPhillip's Area Average	0.57	0.95	12.7	0.54
DISTRIBUTION SYSTEM COMPOSITE (LOCATIONS 1-19)						
SAMPLE NUMBER: 341322			FLUORIDE:	0.78	mg/L	
			ORTHO PHOSPHORUS:	2.03	mg/L-PO4	

COMMENTS: Effective Thursday October 29 2009 at 0900 hours the chlorine dosage at the intake was decreased from 4.0 mg/L to 3.5 mg/L and the chlorine dosage at Branch I and Branch II was decreased from 3.2 mg/L to 3.0 mg/L.

The high turbidity (1.20 NTU) [REDACTED] could not be explained so the location was resampled and the resample turbidity was below 1.0 NTU.

[REDACTED] = Not Analyzed

NS = No Sample

OL = Off Line

REPORT COMPILED BY: J. Jones
Compliance Reporting Technician

N:\WQ Data\Routine Water Quality\2009\Residual\[2009-10.xls]31-OCT-09

LIMS REF# 24450/24451

FILE WQR2

APPROVED FOR DISTRIBUTION BY: S. Fletcher
Supervisor of Analytical Services

Date Approved: 4-Nov-09

City of Winnipeg
Monthly Total Chlorine Residual Report

Run Date: 01-Dec-2009 13:21

For Month: November/2009

Date	McPhillips (mg/L)				Hurst (mg/L)				MacLean (mg/L)			
	Analyzer 1 (PMC_820_AT)		Analyzer 2 (PMC_821_AT)		Analyzer 1 (HMC_820_AT)		Analyzer 2 (HMC_821_AT)		Analyzer 1 (LMC_820_AT)		Analyzer 2 (LMC_821_AT)	
1	1.50	1.31	1.52	1.31	1.50	1.44	1.53	1.47	1.60	1.44	1.51	1.40
2	1.51	1.37	1.54	1.42	1.50	1.43	1.51	1.43	1.58	1.43	1.51	1.39
3	1.52	1.44	1.56	1.48	1.50	1.43	1.48	1.41	1.55	1.37	1.51	1.39
4	1.53	1.47	1.57	1.51	1.50	1.44	1.49	1.42	1.57	1.39	1.52	1.40
5	1.53	1.45	1.55	1.47	1.50	1.44	1.49	1.42	1.59	1.40	1.52	1.39
6	1.52	1.45	1.52	1.45	1.50	1.44	1.50	1.43	1.56	1.41	1.52	1.39
7	1.52	1.30	1.52	1.31	1.50	1.44	1.50	1.42	1.54	1.37	1.52	1.40
8	1.52	1.29	1.51	1.29	1.50	1.42	1.52	1.44	1.54	1.37	1.52	1.40
9	1.52	1.43	1.52	1.44	1.50	1.42	1.53	1.45	1.53	1.32	1.51	1.40
10	1.52	1.39	1.52	1.40	1.50	1.42	1.53	1.46	1.54	1.37	1.52	1.40
11	1.51	1.29	1.50	1.30	1.50	1.44	1.54	1.47	1.54	1.38	1.51	1.40
12	1.52	1.47	1.52	1.47	1.50	1.42	1.54	1.47	1.55	1.35	1.52	1.38
13	1.52	1.46	1.51	1.46	1.50	1.28	1.56	1.33	1.55	1.34	1.51	1.40
14	1.52	1.34	1.51	1.33	1.50	1.44	1.54	1.47	1.58	1.41	1.52	1.40
15	1.51	1.31	1.51	1.34	1.50	1.41	1.48	1.38	1.57	1.40	1.51	1.39
16	1.52	1.43	1.51	1.44	1.50	1.43	1.46	1.40	1.58	1.41	1.52	1.40
17	1.52	1.45	1.53	1.46	1.51	1.44	1.49	1.39	1.55	1.41	1.52	1.39
18	1.53	1.47	1.54	1.49	1.50	1.34	1.48	1.34	1.52	1.39	1.52	1.40
19	1.52	1.47	1.52	1.47	1.50	1.44	1.50	1.44	1.52	1.38	1.52	1.40
20	1.52	1.45	1.52	1.46	1.50	1.44	1.52	1.46	1.53	1.38	1.52	1.41
21	1.52	1.39	1.52	1.39	1.50	1.45	1.51	1.45	1.53	1.39	1.52	1.33
22	1.52	1.47	1.53	1.47	1.50	1.43	1.50	1.43	1.53	1.38	1.51	1.40
23	1.52	1.39	1.51	1.43	1.50	1.41	1.55	1.42	1.54	1.40	1.51	1.40
24	1.53	1.42	1.52	1.41	1.50	1.44	1.53	1.43	1.55	1.03	1.53	1.33
25	1.51	1.38	1.55	1.38	1.50	1.44	1.48	1.42	1.53	1.36	1.52	1.40
26	1.46	1.35	1.53	1.43	1.46	1.36	1.45	1.36	1.46	1.35	1.47	1.38
27	1.42	1.35	1.49	1.43	1.40	1.33	1.42	1.36	1.40	1.25	1.42	1.28
28	1.43	1.36	1.47	1.39	1.40	1.33	1.42	1.34	1.42	1.24	1.41	1.31
29	1.41	1.17	1.42	1.20	1.40	1.34	1.42	1.36	1.44	1.27	1.41	1.29
30	1.42	1.37	1.42	1.37	1.40	1.33	1.43	1.36	1.41	1.22	1.42	1.28

NOTE: McPhillips values represent only the time period 07:00 to 22:59 for each day, due to nightly station shutdowns

Monthly Chlorination Report - Portable Instruments

Pumping Station: Maclean

Month: December

Year: 2009

Licence Number: PWS-09-412

Water System Code: 252.00



Date	Time	Operators Initials	Chlorine Residual in mg/L		Comments
			Free Chlorine	Total Chlorine	
1.	13:25	D.R.	0.98	1.41	
2.	14:30	D.R.	1.06	1.41	
3.	9:43	R.J.	1.10	1.46	CL2 setpoint changed from 1.4 to 1.2
4.	11:43	R.J.	0.89	1.18	
5.	14:05	C.P.	0.89	1.18	
6.	20:30	M.F.	0.78	1.19	
7.	8:30	D.R.	0.86	1.22	
8.	9:00	D.R.	0.84	1.26	
9.	13:35	R.J.	0.97	1.18	
10.	9:40	D.R.	1.04	1.23	
11.	11:25	D.R.	0.99	1.18	
12.	14:05	M.M.	0.95	1.20	
13.	11:30	M.M.	1.11	1.26	
14.	12:05	R.J.	0.96	1.19	
15.	9:05	G.C.	1.19	1.30	
16.	14:20	D.R.	1.05	1.26	
17.	13:10	D.R.	0.91	1.16	
18.	10:30	D.R.	1.05	1.18	CL2 setpoint change 1.2 to 1.0
19.	15:20	R.P.	0.89	1.04	
20.	11:30	MM	0.81	0.98	
21.	14:00	D.R.	0.84	0.98	
22.	9:00	M.M.	0.80	0.95	
23.	10:30	M.M.	0.75	0.95	
24.	11:15	D.R.	0.84	1.03	CL2 setpoint change 1.0 to 0.9
25.	11:40	G.C.	0.74	0.91	
26.	13:15	G.C.	0.71	0.92	
27.	12:35	G.C.	0.71	0.94	
28.	9:00	G.C.	0.70	0.88	
29.	11:15	D.R.	0.68	0.86	
30.	9:00	G.C.	0.73	0.90	
31.	14:25	G.C.	0.78	0.91	

Total Number of Measurements, A: 31

Minimum Free Chlorine Standard: 0.5 mg/L

Number Meeting Standard, B: 31 Submitted by: _____ G. Methot

COMPLIANCE, C = B/A x 100% 100.0

Number of Days in Month, D: 31

City of Winnipeg
Monthly Total Chlorine Residual Report
MacLean Pumping Station

Run Date: 01-Jan-2010 04:20

For Month: December/2009

Analyzer 1 (LMC_820_AT)

Analyzer 2 (LMC_821_AT)

Date	Average Readings of Total Chlorine in mg/L	Minimum Readings of Total Chlorine in mg/L	Average Readings of Total Chlorine in mg/L	Minimum Readings of Total Chlorine in mg/L
1	1.42	1.22	1.41	1.29
2	1.48	1.31	1.41	1.32
3	1.34	1.09	1.35	1.18
4	1.17	1.02	1.23	1.13
5	1.18	1.01	1.21	1.11
6	1.20	1.01	1.21	1.09
7	1.21	1.00	1.22	1.07
8	1.21	1.05	1.21	1.11
9	1.19	1.03	1.21	1.10
10	1.28	1.06	1.22	1.11
11	1.26	1.11	1.21	1.10
12	1.21	-1.25	1.21	1.11
13	1.22	1.09	1.21	1.10
14	1.18	-1.25	1.22	1.09
15	1.14	0.95	1.22	1.10
16	1.18	1.03	1.21	1.09
17	1.17	0.71	1.19	0.68
18	1.09	0.98	1.10	0.96
19	1.02	0.94	1.02	0.92
20	0.99	0.89	1.01	0.92
21	0.97	0.83	1.02	0.91
22	0.95	0.86	1.02	0.91
23	0.94	0.86	1.01	0.93
24	0.93	0.86	0.96	0.86
25	0.92	0.81	0.92	0.82
26	0.91	0.83	0.91	0.82
27	0.90	0.75	0.91	0.82
28	0.90	0.80	0.91	0.82
29	0.89	0.78	0.91	0.82
30	0.88	0.77	0.92	0.82
31	0.87	0.77	0.91	0.82

NOTE: Samples logged on change of 0.01 mg/L.

NOTE: Negative values due to analyzer probe failure and maintenance.

C:\DNAREports\Monthly_Total_Chlorine_Residual\MacLean\moncl2residtotal 01-01-2010.xls

Monthly Chlorination Report - Portable Instruments

Pumping Station: Hurst

Month: December

Year: 2009

Licence Number: PWS-09-412

Water System Code: 252.00



Date	Time	Operators Initials	Chlorine Residual in mg/L		Comments
			Free Chlorine	Total Chlorine	
1.	11:10	D.R.	1.07	1.42	
2.	11:55	D.R.	1.13	1.45	
3.	12:50	D.R.	1.06	1.43	CL2 setpoint change 1.4 to 1.2
4.	14:25	D.R.	0.93	1.29	
5.	15:15	C.P.	0.77	1.18	
6.	21:00	M.F.	0.70	1.23	
7.	14:35	D.R.	0.97	1.31	
8.	11:12	R.J.	1.01	1.18	
9.	11:37	R.J.	0.83	1.25	
10.	11:40	G.C.	0.87	1.24	
11.	13:45	R.J.	0.87	1.17	
12.	15:00	D.W.	1.01	1.14	
13.	10:10	M.M.	0.93	1.09	
14.	12:30	G.C.	0.89	1.16	
15.	13:05	R.J.	1.01	1.11	
16.	12:45	D.R.	1.17	1.29	
17.	8:25	D.R.	1.02	1.21	
18.	10:50	D.R.	0.90	1.15	CL2 setpoint change 1.2 to 1.0
19.	13:10	R.P.	0.73	0.97	
20.	10:10	M.M.	0.76	0.97	
21.	10:30	D.R.	0.78	0.97	
22.	9:50	M.M.	0.77	1.00	
23.	13:00	M.M.	0.83	1.01	
24.	10:00	M.M.	0.90	1.05	CL2 setpoint change 1.0 to 0.9
25.	9:40	D.R.	0.78	0.94	
26.	10:30	D.R.	0.78	0.97	
27.	10:35	G.C.	0.79	0.90	
28.	12:00	D.R.	0.79	0.95	
29.	12:35	D.R.	0.67	0.87	
30.	11:55	D.R.	0.75	0.92	
31.	12:30	D.R.	0.65	0.87	

Total Number of Measurements, A: 31

Minimum Free Chlorine Standard: 0.5 mg/L

Number Meeting Standard, B: 31 Submitted by: _____ G. Methot

COMPLIANCE, C = B/A x 100% 100.0

Number of Days in Month, D: 31

City of Winnipeg
Monthly Total Chlorine Residual Report
Hurst Pumping Station

Run Date: 01-Jan-2010 04:15

For Month: December/2009

Analyzer 1 (HMC_820_AT)

Analyzer 2 (HMC_821_AT)

Date	Average Readings of Total Chlorine in mg/L	Minimum Readings of Total Chlorine in mg/L	Average Readings of Total Chlorine in mg/L	Minimum Readings of Total Chlorine in mg/L
1	1.40	1.33	1.44	1.36
2	1.40	1.33	1.45	1.38
3	1.32	1.16	1.38	1.23
4	1.20	1.14	1.25	1.18
5	1.20	1.15	1.22	1.15
6	1.20	1.13	1.24	1.17
7	1.20	1.13	1.23	1.14
8	1.20	1.12	1.20	1.14
9	1.20	1.12	1.18	1.11
10	1.21	1.13	1.14	0.88
11	1.21	0.84	1.12	0.82
12	1.20	1.13	1.10	0.97
13	1.20	1.10	1.12	0.97
14	1.20	1.10	1.19	1.09
15	1.19	1.06	1.24	1.04
16	1.21	1.13	1.37	1.06
17	1.20	0.89	1.12	0.88
18	1.10	0.94	1.08	0.97
19	1.00	0.93	1.03	0.96
20	1.00	0.95	0.98	0.94
21	1.00	0.93	1.02	0.93
22	1.00	0.93	1.06	0.99
23	1.00	0.95	1.07	0.99
24	0.94	0.83	0.99	0.89
25	0.90	0.83	0.97	0.90
26	0.90	0.85	0.96	0.89
27	0.90	0.84	0.96	0.88
28	0.90	0.85	0.96	0.79
29	0.90	0.79	0.87	0.77
30	0.90	0.84	0.96	0.90
31	0.91	0.86	0.89	0.83

Monthly Chlorination Report - Portable Instruments

Pumping Station: McPhillips

Month: December

Year: 2009

Licence Number: PWS-09-412

Water System Code: 252.00



Date	Time	Operators Initials	Chlorine Residual in mg/L		Comments
			Free Chlorine	Total Chlorine	
1.	10:30	D.R.	0.97	1.39	
2.	9:25	D.R.	1.11	1.40	
3.	11:32	D.R.	1.01	1.36	CL2 setpoint changed from 1.4 to 1.2
4.	13:01	D.R.	1.04	1.38	
5.	16:25	C.P.	0.76	1.13	
6.	23:00	M.F.	0.76	1.20	
7.	12:25	D.R.	0.81	1.19	
8.	12:25	D.R.	0.79	1.18	
9.	10:35	D.R.	0.95	1.24	
10.	11:00	G.C.	0.93	1.20	
11.	8:38	R.J.	0.93	1.23	
12.	15:45	D.W.	0.78	1.15	
13.	10:50	D.W.	1.11	1.26	
14.	11:05	D.R.	1.08	1.25	
15.	13:35	D.R.	1.15	1.25	
16.	9:45	D.R.	1.01	1.22	
17.	9:17	D.R.	1.08	1.28	
18.	13:35	D.R.	1.09	1.18	CL2 setpoint change 1.2 to 1.0
19.	10:55	R.P.	0.97	1.04	
20.	NR	M.M.	0.91	1.05	No result for time taken
21.	12:00	D.R.	0.88	1.07	
22.	12:00	M.M.	0.82	1.07	
23.	11:50	D.R.	0.87	1.02	
24.	9:50	M.M.	0.85	1.00	CL2 setpoint change 1.0 to 0.9
25.	11:00	D.R.	0.71	0.96	
26.	11:25	D.R.	0.79	1.03	
27.	11:35	D.R.	0.73	0.93	
28.	10:40	D.R.	0.73	0.87	
29.	13:40	D.R.	0.74	0.90	
30.	13:10	D.R.	0.75	0.89	
31.	11:30	D.R.	0.74	0.89	

Total Number of Measurements, A: 31

Minimum Free Chlorine Standard: 0.5 mg/L

Number Meeting Standard, B: 31 Submitted by: _____ G. Methot

COMPLIANCE, C = B/A x 100% 100.0

Number of Days in Month, D: 31

City of Winnipeg
Monthly Total Chlorine Residual Report
McPhillips Pumping Station

Run Date: 01-Jan-2010 04:10

For Month: December/2009

Analyzer 1 (PMC_820_AT)

Analyzer 2 (PMC_821_AT)

Date	Average Readings of Total Chlorine in mg/L	Minimum Readings of Total Chlorine in mg/L	Average Readings of Total Chlorine in mg/L	Minimum Readings of Total Chlorine in mg/L
1	1.42	1.34	1.42	1.36
2	1.42	1.33	1.43	1.36
3	1.29	1.14	1.29	1.15
4	1.23	1.14	1.22	1.14
5	1.22	1.15	1.21	1.13
6	1.22	1.10	1.21	1.05
7	1.22	1.15	1.22	1.15
8	1.22	1.16	1.22	1.17
9	1.22	1.17	1.22	1.17
10	1.22	1.15	1.23	1.17
11	1.22	1.17	1.25	1.19
12	1.22	1.10	1.29	1.13
13	1.21	1.02	1.26	1.13
14	1.22	1.15	1.28	1.19
15	1.22	1.15	1.26	1.21
16	1.22	1.13	1.26	1.16
17	1.22	1.14	1.19	1.13
18	1.12	0.97	1.11	0.99
19	1.02	0.93	1.02	0.92
20	1.01	0.84	1.00	0.86
21	1.02	0.93	1.01	0.92
22	1.02	0.98	1.00	0.96
23	1.02	0.97	1.00	0.94
24	0.94	0.83	0.91	0.81
25	0.92	0.80	0.93	0.83
26	0.92	0.82	0.93	0.83
27	0.92	0.85	0.93	0.84
28	0.92	0.82	0.92	0.83
29	0.92	0.85	0.92	0.85
30	0.92	0.85	0.91	0.83
31	0.92	0.85	0.90	0.83

NOTE: McPhillips values represent only the time period 07:00 to 22:59 for each day, due to nightly station shutdowns
NOTE: Samples logged on change of 0.01 mg/L.

C:\DNAReports\Monthly_Total_Chlorine_Residual\McPhillips\moncl2residtotal 01-01-2010.xls

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

January 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 3 1-Jan-09	0.18	0.16	0.21
Deacon Prechlorination	Cell 3 2-Jan-09	0.18	0.16	0.20
Deacon Prechlorination	Cell 3 3-Jan-09	0.16	0.14	0.18
Deacon Prechlorination	Cell 3 4-Jan-09	0.16	0.13	0.20
Deacon Prechlorination	Cell 3 5-Jan-09	0.15	0.14	0.16
Deacon Prechlorination	Cell 3 6-Jan-09	0.17	0.15	0.18
Deacon Prechlorination	Cell 3 7-Jan-09	0.17	0.16	0.19
Deacon Prechlorination	Cell 3 8-Jan-09	0.18	0.16	0.18
Deacon Prechlorination	Cell 3 9-Jan-09	0.16	0.14	0.18
Deacon Prechlorination	Cell 3 10-Jan-09	0.15	0.14	0.17
Deacon Prechlorination	Cell 3 11-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 12-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 13-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 14-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 15-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 16-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 17-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 18-Jan-09	NS	NS	NS
Deacon Prechlorination	Cell 3 19-Jan-09	0.26	0.24	0.30
Deacon Prechlorination	Cell 3 20-Jan-09	0.23	0.16	0.78
Deacon Prechlorination	Cell 3 21-Jan-09	0.16	0.15	0.18
Deacon Prechlorination	Cell 3 22-Jan-09	0.18	0.17	0.20
Deacon Prechlorination	Cell 3 23-Jan-09	0.20	0.19	0.20
Deacon Prechlorination	Cell 3 24-Jan-09	0.20	0.19	0.21
Deacon Prechlorination	Cell 3 25-Jan-09	0.19	0.17	0.21
Deacon Prechlorination	Cell 3 26-Jan-09	0.16	0.15	0.17
Deacon Prechlorination	Cell 3 27-Jan-09	0.13	0.10	0.16
Deacon Prechlorination	Cell 3 28-Jan-09	0.11	0.10	0.12
Deacon Prechlorination	Cell 3 29-Jan-09	0.12	0.11	0.13
Deacon Prechlorination	Cell 3 30-Jan-09	0.13	0.11	0.14
Deacon Prechlorination	Cell 3 31-Jan-09	0.14	0.13	0.15

Deacon Outlet Statistics	Monthly Average Result =	0.17
	Minimum Reported Result =	0.10
	Maximum Reported Result =	0.78

Comments: The above results for Cell 3 are calculated from an on-line, continuous flow turbidity meter. The results for January 10 are calculated from data collected from 0014 hours to 2059 hours, and the results for January 19 are calculated from data collected from 1225 hours to 2355 hours. The data obtained from the meter after 2059 hours on January 10 until 1225 hours on January 1 gave unrepresentative results because the pump supplying the flow to the meter was frozen. Due to the pump malfunction, grab samples could not be collected either.

Prepared By: J. Jones Approved By: A. Vanderstel
Compliance Reporting Technician *Supervisor of Analytical Services (Acting)*

FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

February 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 3 1-Feb-09	0.14	0.13	0.15
Deacon Prechlorination	Cell 3 2-Feb-09	0.13	0.12	0.14
Deacon Prechlorination	Cell 3 3-Feb-09	0.13	0.12	0.14
Deacon Prechlorination	Cell 3 4-Feb-09	0.12	0.11	0.13
Deacon Prechlorination	Cell 3 5-Feb-09	0.11	0.10	0.13
Deacon Prechlorination	Cell 3 6-Feb-09	0.12	0.12	0.13
Deacon Prechlorination	Cell 3 7-Feb-09	0.12	0.11	0.13
Deacon Prechlorination	Cell 3 8-Feb-09	0.13	0.11	0.14
Deacon Prechlorination	Cell 3 9-Feb-09	0.13	0.12	0.14
Deacon Prechlorination	Cell 3 10-Feb-09	0.12	0.12	0.13
Deacon Prechlorination	Cell 3 11-Feb-09	0.12	0.11	0.13
Deacon Prechlorination	Cell 3 12-Feb-09	0.12	0.12	0.13
Deacon Prechlorination	Cell 3 13-Feb-09	0.12	0.11	0.13
Deacon Prechlorination	Cell 3 14-Feb-09	0.10	0.10	0.12
Deacon Prechlorination	Cell 3 15-Feb-09	0.10	0.09	0.11
Deacon Prechlorination	Cell 3 16-Feb-09	0.12	0.10	0.13
Deacon Prechlorination	Cell 3 17-Feb-09	0.13	0.12	0.14
Deacon Prechlorination	Cell 3 18-Feb-09	0.13	0.12	0.16
Deacon Prechlorination	Cell 3 19-Feb-09	0.13	0.12	0.13
Deacon Prechlorination	Cell 1 19-Feb-09	NR	NR	NR
Deacon Prechlorination	Cell 1 20-Feb-09	0.45	NR	NR
Deacon Prechlorination	Cell 1 21-Feb-09	0.46	NR	NR
Deacon Prechlorination	Cell 3 21-Feb-09	NR	NR	NR
Deacon Prechlorination	Cell 3 22-Feb-09	NR	NR	NR
Deacon Prechlorination	Cell 3 23-Feb-09	0.32	NR	NR
Deacon Prechlorination	Cell 3 24-Feb-09	NR	NR	NR
Deacon Prechlorination	Cell 3 25-Feb-09	0.27	NR	NR
Deacon Prechlorination	Cell 3 26-Feb-09	NR	NR	NR
Deacon Prechlorination	Cell 3 27-Feb-09	0.29	NR	NR
Deacon Prechlorination	Cell 3 28-Feb-09	NR	NR	NR

Deacon Outlet Statistics	Monthly Average Result =	0.17
	Minimum Reported Result =	0.09
	Maximum Reported Result =	0.46

Comments: The above results for Cell 3 from February 1 to February 19 are calculated from an on-line, continuous flow turbidity meter.
Effective February 19, 2009 at 1400 hours, Cell 1 was placed online and Cell 3 was isolated.
The results for Cell 3 for February 19 are calculated from data collected from 0006 hours to 1351 hours.
There are no results for Cell 1 on February 19 because the meter was being moved from Cell 3 to Cell 1. The results for Cell 1 on February 20 and 21 are from grab samples.
Effective February 21, 2009 at 1200 hours, Cell 3 was placed online and Cell 1 was isolated due to a water quality incident.
The results for Cell 3 from February 22 to February 28 are from grab samples. There are no on-line, continuous flow meter results for Cell 3 because the meter was being moved from Cell 3 to Cell 1 before the water quality incident.

Prepared By: J. Jones Approved By: A. Vanderstel
Compliance Reporting Technician *Supervisor of Analytical Services (Acting)*

FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

March 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 1 1-Mar-09	0.55	0.44	0.61
Deacon Prechlorination	Cell 1 2-Mar-09	0.39	0.35	0.44
Deacon Prechlorination	Cell 1 3-Mar-09	0.37	0.35	0.39
Deacon Prechlorination	Cell 1 4-Mar-09	0.41	0.37	0.48
Deacon Prechlorination	Cell 1 5-Mar-09	0.47	0.45	0.49
Deacon Prechlorination	Cell 1 6-Mar-09	0.45	0.40	0.48
Deacon Prechlorination	Cell 1 7-Mar-09	0.34	0.31	0.41
Deacon Prechlorination	Cell 1 8-Mar-09	0.35	0.31	0.40
Deacon Prechlorination	Cell 1 9-Mar-09	0.38	0.34	0.41
Deacon Prechlorination	Cell 1 10-Mar-09	0.39	0.36	0.46
Deacon Prechlorination	Cell 1 11-Mar-09	0.37	0.31	0.46
Deacon Prechlorination	Cell 1 12-Mar-09	0.43	0.40	0.47
Deacon Prechlorination	Cell 1 13-Mar-09	0.45	0.42	0.49
Deacon Prechlorination	Cell 1 14-Mar-09	0.45	0.41	0.50
Deacon Prechlorination	Cell 1 15-Mar-09	0.40	0.39	0.42
Deacon Prechlorination	Cell 1 16-Mar-09	0.39	0.35	0.42
Deacon Prechlorination	Cell 1 17-Mar-09	0.36	0.32	0.40
Deacon Prechlorination	Cell 1 18-Mar-09	0.32	0.30	0.34
Deacon Prechlorination	Cell 1 19-Mar-09	0.32	0.28	0.37
Deacon Prechlorination	Cell 1 20-Mar-09	0.23	0.20	0.28
Deacon Prechlorination	Cell 1 21-Mar-09	0.20	0.17	0.25
Deacon Prechlorination	Cell 1 22-Mar-09	0.28	0.26	0.31
Deacon Prechlorination	Cell 1 23-Mar-09	0.28	0.25	0.32
Deacon Prechlorination	Cell 1 24-Mar-09	0.29	0.26	0.34
Deacon Prechlorination	Cell 1 25-Mar-09	0.31	0.28	0.36
Deacon Prechlorination	Cell 1 26-Mar-09	0.35	0.29	0.45
Deacon Prechlorination	Cell 1 27-Mar-09	0.32	0.28	0.37
Deacon Prechlorination	Cell 1 28-Mar-09	0.31	0.28	0.36
Deacon Prechlorination	Cell 1 29-Mar-09	0.36	0.35	0.39
Deacon Prechlorination	Cell 1 30-Mar-09	0.37	0.35	0.39
Deacon Prechlorination	Cell 1 31-Mar-09	0.38	0.36	0.41

Deacon Outlet Statistics	Monthly Average Result =	0.36
	Minimum Reported Result =	0.17
	Maximum Reported Result =	0.61

Comments: The above results for Cell 1 are calculated from an on-line, continuous flow turbidity meter.

Prepared By: H.Demchenko
Compliance Reporting Technician

Approved By: S.Fletcher
Supervisor of Analytical Services (Acting)

FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

April 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 1 1-Apr-09	0.33	0.28	0.39
Deacon Prechlorination	Cell 1 2-Apr-09	0.32	0.25	0.39
Deacon Prechlorination	Cell 1 3-Apr-09	0.34	0.29	0.38
Deacon Prechlorination	Cell 1 4-Apr-09	0.34	0.33	0.37
Deacon Prechlorination	Cell 1 5-Apr-09	0.32	0.29	0.36
Deacon Prechlorination	Cell 1 6-Apr-09	0.31	0.30	0.35
Deacon Prechlorination	Cell 1 7-Apr-09	0.33	0.31	0.36
Deacon Prechlorination	Cell 1 8-Apr-09	0.33	0.30	0.36
Deacon Prechlorination	Cell 1 9-Apr-09	0.29	0.25	0.32
Deacon Prechlorination	Cell 1 10-Apr-09	0.28	0.26	0.31
Deacon Prechlorination	Cell 1 11-Apr-09	0.26	0.23	0.32
Deacon Prechlorination	Cell 1 12-Apr-09	0.26	0.23	0.29
Deacon Prechlorination	Cell 1 13-Apr-09	0.34	0.28	0.42
Deacon Prechlorination	Cell 1 14-Apr-09	0.42	0.39	0.47
Deacon Prechlorination	Cell 1 15-Apr-09	0.38	0.35	0.44
Deacon Prechlorination	Cell 1 16-Apr-09	0.42	0.36	0.46
Deacon Prechlorination	Cell 1 17-Apr-09	0.45	0.43	0.49
Deacon Prechlorination	Cell 1 18-Apr-09	0.50	0.45	0.59
Deacon Prechlorination	Cell 1 19-Apr-09	NR	NR	NR
Deacon Prechlorination	Cell 1 20-Apr-09	0.47	NR	NR
Deacon Prechlorination	Cell 1 21-Apr-09	NR	NR	NR
Deacon Prechlorination	Cell 1 22-Apr-09	0.50	NR	NR
Deacon Prechlorination	Cell 1 23-Apr-09	NR	NR	NR
Deacon Prechlorination	Cell 1 24-Apr-09	0.47	NR	NR
Deacon Prechlorination	Cell 1 25-Apr-09	NR	NR	NR
Deacon Prechlorination	Cell 1 26-Apr-09	NR	NR	NR
Deacon Prechlorination	Cell 1 27-Apr-09	0.54	NR	NR
Deacon Prechlorination	Cell 1 28-Apr-09	NR	NR	NR
Deacon Prechlorination	Cell 1 29-Apr-09	0.41	0.37	0.45
Deacon Prechlorination	Cell 1 30-Apr-09	0.50	0.41	0.58

Deacon Outlet Statistics	Monthly Average Result = 0.38
	Minimum Reported Result = 0.23
	Maximum Reported Result = 0.59

Comments: The above results for Cell 1 are calculated from an on-line, continuous flow turbidity meter. The results for Cell 1 from April 19 to April 28 are from grab samples. There are no on-line, continuous flow meter results because the meter was not working properly.

Prepared By: H.Demchenko Approved By: S.Fletcher
Compliance Reporting Technician *Supervisor of Analytical Services*

FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

May 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 1 1-May-09	0.62	0.53	0.75
Deacon Prechlorination	Cell 1 2-May-09	0.69	0.59	0.79
Deacon Prechlorination	Cell 1 3-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 4-May-09	0.69	NR	NR
Deacon Prechlorination	Cell 1 5-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 6-May-09	0.55	NR	NR
Deacon Prechlorination	Cell 3 7-May-09	NR	NR	NR
Deacon Prechlorination	Cell 3 8-May-09	0.51	NR	NR
Deacon Prechlorination	Cell 3 9-May-09	1.06	0.95	1.23
Deacon Prechlorination	Cell 3 10-May-09	1.09	0.99	1.64
Deacon Prechlorination	Cell 3 11-May-09	0.93	0.75	1.35
Deacon Prechlorination	Cell 3 12-May-09	0.73	0.59	2.20
Deacon Prechlorination	Cell 3 13-May-09	0.71	0.61	1.07
Deacon Prechlorination	Cell 3 14-May-09	0.64	0.58	0.70
Deacon Prechlorination	Cell 1 15-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 16-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 17-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 18-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 19-May-09	0.61	NR	NR
Deacon Prechlorination	Cell 1 20-May-09	0.87	NR	NR
Deacon Prechlorination	Cell 1 21-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 22-May-09	0.28	0.27	0.30
Deacon Prechlorination	Cell 1 23-May-09	0.26	0.24	0.28
Deacon Prechlorination	Cell 1 24-May-09	0.27	0.25	0.32
Deacon Prechlorination	Cell 1 25-May-09	0.21	0.19	0.30
Deacon Prechlorination	Cell 1 26-May-09	0.23	0.21	0.25
Deacon Prechlorination	Cell 1 27-May-09	0.25	0.18	0.44
Deacon Prechlorination	Cell 1 28-May-09	0.46	0.23	0.87
Deacon Prechlorination	Cell 1 29-May-09	0.74	0.68	0.76
Deacon Prechlorination	Cell 1 30-May-09	NR	NR	NR
Deacon Prechlorination	Cell 1 31-May-09	NR	NR	NR

Deacon Outlet Statistics	Monthly Average Result =	0.59
	Minimum Reported Result =	0.18
	Maximum Reported Result =	2.20

Comments: The above results for Cell 1 and 3 are calculated from an on-line, continuous flow turbidity meter and grab samples.

The results for Cell 1 on May 1 are calculated from an on-line, continuous flow turbidity meter.

The results for Cell 1 on May 2 are calculated from data collected from 0013 hours to 1743 hours.

The results from May 3 to 8 for Cell 1 and 3 are taken from grab samples due to a meter malfunction.

Effective May 7, 2009 at 1053 hours, Cell 3 was placed online and Cell 1 was isolated.

The results from May 9 to May 13 are calculated from an on-line, continuous flow turbidity meter.

Effective May 14, 2009 at 1130 hours, Cell 1 was placed online and Cell 3 was isolated.

The results for Cell 3 for May 14 are calculated from data collected from 0000 hours to 1130 hours.

There are no on-line results for Cell 1 from May 15 to May 21 because the meter had not been moved from Cell 3 to Cell 1.

The results for Cell 1 on May 19 and 20 are from grab samples.

The results for Cell 1 from May 22 at 1214 hours to May 29 are calculated from an on-line, continuous flow turbidity meter. There are no results for May 30 and 31 due to a meter malfunction.

Prepared By: H.Demchenko Approved By: S.Fletcher
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FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

June 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 1 1-Jun-09	0.81	NR	NR
Deacon Prechlorination	Cell 1 2-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 3-Jun-09	0.98	NR	NR
Deacon Prechlorination	Cell 1 4-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 5-Jun-09	0.88	NR	NR
Deacon Prechlorination	Cell 1 6-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 7-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 8-Jun-09	0.72	NR	NR
Deacon Prechlorination	Cell 1 9-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 10-Jun-09	0.69	NR	NR
Deacon Prechlorination	Cell 1 11-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 12-Jun-09	0.55	NR	NR
Deacon Prechlorination	Cell 1 13-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 14-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 15-Jun-09	0.59	NR	NR
Deacon Prechlorination	Cell 1 16-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 17-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 1 18-Jun-09	0.47	0.44	0.65
Deacon Prechlorination	Cell 1 19-Jun-09	0.34	0.31	0.46
Deacon Prechlorination	Cell 1 20-Jun-09	0.30	0.27	0.37
Deacon Prechlorination	Cell 1 21-Jun-09	0.34	0.31	0.43
Deacon Prechlorination	Cell 1 22-Jun-09	0.30	0.23	0.43
Deacon Prechlorination	Cell 1 23-Jun-09	0.28	0.24	0.42
Deacon Prechlorination	Cell 1 24-Jun-09	0.27	0.22	0.35
Deacon Prechlorination	Cell 1 25-Jun-09	0.30	0.27	0.46
Deacon Prechlorination	Cell 3 26-Jun-09	0.56	NR	NR
Deacon Prechlorination	Cell 3 27-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 3 28-Jun-09	NR	NR	NR
Deacon Prechlorination	Cell 3 29-Jun-09	0.65	NR	NR
Deacon Prechlorination	Cell 3 30-Jun-09	NR	NR	NR

Deacon Outlet Statistics	Monthly Average Result =	0.53
	Minimum Reported Result =	0.22
	Maximum Reported Result =	0.65

Comments: The above results for Cell 1 and 3 are calculated from an on-line, continuous flow turbidity meter and grab samples.

The results from June 1 to 15 for Cell 1 are taken from grab samples due to a meter malfunction.

The results for Cell 1 for June 18 are calculated from an on-line, continuous flow turbidity meter from 1200 hours to 2355 hours.

The results from June 19 to 25 are calculated from an on-line, continuous flow turbidity meter.

Effective June 25, 2009 at 1228 hours, Cell 3 was placed online and Cell 1 was isolated.

The results for Cell 1 for June 25 are calculated from data collected from 0000 hours to 1225 hours.

There are no on-line results for Cell 3 from June 26 to June 30. The results from June 26 to 30 for Cell 3 are taken from grab samples due to a planned power outage on June 26.

The on-line meter was not reset after the power outage until July 2, 2009.

Prepared By: H. Demchenko Approved By: S. Fletcher
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FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

July 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 3 1-Jul-09	NR	NR	NR
Deacon Prechlorination	Cell 3 2-Jul-09	0.44	0.41	0.47
Deacon Prechlorination	Cell 3 3-Jul-09	0.48	0.34	0.66
Deacon Prechlorination	Cell 3 4-Jul-09	0.50	0.45	0.57
Deacon Prechlorination	Cell 3 5-Jul-09	0.50	0.43	0.60
Deacon Prechlorination	Cell 3 6-Jul-09	0.59	0.50	0.70
Deacon Prechlorination	Cell 3 7-Jul-09	0.59	0.54	0.67
Deacon Prechlorination	Cell 3 8-Jul-09	0.52	0.48	0.58
Deacon Prechlorination	Cell 3 9-Jul-09	0.58	0.49	0.72
Deacon Prechlorination	Cell 3 10-Jul-09	0.70	0.64	0.80
Deacon Prechlorination	Cell 3 11-Jul-09	0.75	0.68	0.81
Deacon Prechlorination	Cell 3 12-Jul-09	0.81	0.75	0.94
Deacon Prechlorination	Cell 3 13-Jul-09	0.80	0.75	0.86
Deacon Prechlorination	Cell 3 14-Jul-09	0.73	0.67	0.98
Deacon Prechlorination	Cell 3 15-Jul-09	0.72	0.66	0.85
Deacon Prechlorination	Cell 3 16-Jul-09	0.85	0.75	0.93
Deacon Prechlorination	Cell 3 17-Jul-09	0.90	0.80	1.05
Deacon Prechlorination	Cell 3 18-Jul-09	0.86	0.79	1.04
Deacon Prechlorination	Cell 3 19-Jul-09	0.74	0.65	0.94
Deacon Prechlorination	Cell 3 20-Jul-09	0.72	0.60	1.00
Deacon Prechlorination	Cell 3 21-Jul-09	0.71	0.65	0.96
Deacon Prechlorination	Cell 3 22-Jul-09	0.55	0.42	0.86
Deacon Prechlorination	Cell 3 23-Jul-09	0.45	0.38	0.95
Deacon Prechlorination	Cell 3 24-Jul-09	0.48	0.38	0.88
Deacon Prechlorination	Cell 3 25-Jul-09	0.51	0.45	0.97
Deacon Prechlorination	Cell 3 26-Jul-09	0.58	0.45	0.85
Deacon Prechlorination	Cell 3 27-Jul-09	0.78	0.64	0.91
Deacon Prechlorination	Cell 3 28-Jul-09	0.65	0.59	1.00
Deacon Prechlorination	Cell 3 29-Jul-09	0.58	0.48	0.91
Deacon Prechlorination	Cell 3 30-Jul-09	0.47	0.40	0.96
Deacon Prechlorination	Cell 3 31-Jul-09	0.50	0.41	0.82

Deacon Outlet Statistics	Monthly Average Result =	0.63
	Minimum Reported Result =	0.34
	Maximum Reported Result =	1.05

Comments: The above results for Cell 3 are calculated from an on-line, continuous flow turbidity meter.

There are no results for Cell 3 before July 2 due to a power failure.

The results for Cell 3 on July 2 are calculated from data collected from 1305 hours to 2355 hours.

Prepared By: H.Demchenko
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Approved By: S.Fletcher
Supervisor of Analytical Services

FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

August 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 3 1-Aug-09	0.60	0.53	0.66
Deacon Prechlorination	Cell 3 2-Aug-09	0.66	0.57	0.85
Deacon Prechlorination	Cell 3 3-Aug-09	0.83	0.73	0.94
Deacon Prechlorination	Cell 3 4-Aug-09	0.75	0.68	0.90
Deacon Prechlorination	Cell 3 5-Aug-09	0.68	0.62	0.80
Deacon Prechlorination	Cell 3 6-Aug-09	0.75	0.67	0.91
Deacon Prechlorination	Cell 3 7-Aug-09	0.70	0.44	0.92
Deacon Prechlorination	Cell 3 8-Aug-09	0.55	0.47	0.92
Deacon Prechlorination	Cell 3 9-Aug-09	0.70	0.60	0.82
Deacon Prechlorination	Cell 3 10-Aug-09	0.89	0.79	1.04
Deacon Prechlorination	Cell 3 11-Aug-09	0.71	0.62	0.97
Deacon Prechlorination	Cell 3 12-Aug-09	0.83	0.70	1.05
Deacon Prechlorination	Cell 3 13-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 14-Aug-09	0.84	NR	NR
Deacon Prechlorination	Cell 3 15-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 16-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 17-Aug-09	0.91	NR	NR
Deacon Prechlorination	Cell 3 18-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 19-Aug-09	0.90	NR	NR
Deacon Prechlorination	Cell 3 20-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 21-Aug-09	1.00	NR	NR
Deacon Prechlorination	Cell 3 22-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 23-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 24-Aug-09	1.16	NR	NR
Deacon Prechlorination	Cell 3 25-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 26-Aug-09	0.93	NR	NR
Deacon Prechlorination	Cell 3 27-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 28-Aug-09	1.00	NR	NR
Deacon Prechlorination	Cell 3 29-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 30-Aug-09	NR	NR	NR
Deacon Prechlorination	Cell 3 31-Aug-09	0.81	NR	NR

Deacon Outlet Statistics	Monthly Average Result =	0.81
	Minimum Reported Result =	0.44
	Maximum Reported Result =	1.05

Comments: The above results for Cell 3 are calculated from an on-line, continuous flow turbidity meter and grab samples.
The results from August 1 to 12 for Cell 3 are taken from an on-line, continuous flow turbidity meter.
The results from August 13 to 31 for Cell 3 are taken from grab samples due to a meter malfunction.

Prepared By: H.Demchenko
Compliance Reporting Technician

Approved By: S.Fletcher
Supervisor of Analytical Services

FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

September 2009

Location (Deacon Outlet)	Date	Turbidity (NTU)		
		Mean	Min	Max
Deacon Prechlorination	Cell 3 1-Sep-09	NR	NR	NR
Deacon Prechlorination	Cell 3 2-Sep-09	1.10	0.94	2.00
Deacon Prechlorination	Cell 3 3-Sep-09	1.15	1.04	1.27
Deacon Prechlorination	Cell 3 4-Sep-09	0.97	0.75	1.71
Deacon Prechlorination	Cell 3 5-Sep-09	1.06	0.97	1.17
Deacon Prechlorination	Cell 3 6-Sep-09	1.20	1.07	1.36
Deacon Prechlorination	Cell 3 7-Sep-09	1.16	0.99	1.35
Deacon Prechlorination	Cell 3 8-Sep-09	1.14	0.82	1.49
Deacon Prechlorination	Cell 3 9-Sep-09	1.08	0.88	2.00
Deacon Prechlorination	Cell 3 10-Sep-09	1.22	1.10	1.33
Deacon Prechlorination	Cell 3 11-Sep-09	1.28	1.00	1.75
Deacon Prechlorination	Cell 3 12-Sep-09	1.29	1.18	1.49
Deacon Prechlorination	Cell 3 13-Sep-09	1.44	1.26	1.78
Deacon Prechlorination	Cell 3 14-Sep-09	1.55	1.18	1.86
Deacon Prechlorination	Cell 3 15-Sep-09	1.53	1.35	1.78
Deacon Prechlorination	Cell 3 16-Sep-09	1.18	0.43	2.00
Deacon Prechlorination	Cell 3 17-Sep-09	0.52	0.35	1.99
Deacon Prechlorination	Cell 3 18-Sep-09	1.05	0.53	2.00
Deacon Prechlorination	Cell 3 19-Sep-09	1.38	1.15	1.68
Deacon Prechlorination	Cell 3 20-Sep-09	1.80	1.52	2.00
Deacon Prechlorination	Cell 3 21-Sep-09	1.73	1.15	2.00
Deacon Prechlorination	Cell 3 22-Sep-09	1.03	0.50	2.00
Deacon Prechlorination	Cell 3 23-Sep-09	0.42	0.33	0.83
Deacon Prechlorination	Cell 3 24-Sep-09	0.34	0.32	0.73
Deacon Prechlorination	Cell 3 25-Sep-09	0.75	0.28	1.52
Deacon Prechlorination	Cell 3 26-Sep-09	1.47	1.31	1.98
Deacon Prechlorination	Cell 3 27-Sep-09	1.33	1.19	1.58
Deacon Prechlorination	Cell 3 28-Sep-09	1.02	0.74	1.42
Deacon Prechlorination	Cell 3 29-Sep-09	1.00	0.84	1.25
Deacon Prechlorination	Cell 3 30-Sep-09	1.00	0.91	1.11

Deacon Outlet Statistics	Monthly Average Result =	1.14
	Minimum Reported Result =	0.28
	Maximum Reported Result =	2.00

Comments: The above results for Cell 3 are calculated from an on-line, continuous flow turbidity meter. There are no results for Cell 3 for September 1 due to a meter malfunction. The results for Cell 3 on September 2 are calculated from data collected from 0955 hours to 2355 hours. There are no results for Cell 3 from 0005 hours to 0950 hours on September 2 due to a meter malfunction.

Prepared By: _____ J. Jones _____ Approved By: _____ S. Fletcher _____
Compliance Reporting Technician *Supervisor of Analytical Services*

FILE: WQR2

CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

October 2009

Location (Deacon Outlet)	Date	Sple No.	Turbidity (NTU)
Deacon Prechlorination Cell 3	2-Oct-09	239356	1.47
Deacon Prechlorination Cell 3	5-Oct-09	239412	1.00
Deacon Prechlorination Cell 3	7-Oct-09	239923	0.83
Deacon Prechlorination Cell 3	9-Oct-09	239960	0.70
Deacon Prechlorination Cell 3	13-Oct-09	240020	0.85
Deacon Prechlorination Cell 3	16-Oct-09	240483	0.91
Deacon Prechlorination Cell 3	19-Oct-09	240495	0.66
Deacon Prechlorination Cell 3	21-Oct-09	241113	0.73
Deacon Prechlorination Cell 3	23-Oct-09	241260	0.84
Deacon Prechlorination Cell 3	26-Oct-09	241314	0.83
Deacon Prechlorination Cell 3	28-Oct-09	241434	0.80
Deacon Prechlorination Cell 3	30-Oct-09	241808	0.77

Deacon Outlet Monthly Statistics	Average	0.87
	Minimum	0.66
	Maximum	1.47

Comments: The above results were all obtained from grab samples. There were no continuous flow turbidity meter results because the meter was producing non-representative results.

Prepared By: J. Jones
Compliance Reporting Technician

Approved By: S. Fletcher
Supervisor of Analytical Services

FILE: WQR2

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CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

November 2009

Location (Deacon Outlet)	Date	Sple No.	Turbidity (NTU)
Deacon Prechlorination Cell 3	2-Nov-09	241845	0.79
Deacon Prechlorination Cell 3	3-Nov-09	241948	0.89
Deacon Prechlorination Cell 3	6-Nov-09	242373	0.78
Deacon Prechlorination Cell 3	9-Nov-09	242410	0.67
Deacon Prechlorination Cell 3	12-Nov-09	242866	0.73
Deacon Prechlorination Cell 3	16-Nov-09	242943	0.70
Deacon Prechlorination Cell 3	18-Nov-09	243365	0.66
Deacon Prechlorination Cell 3	20-Nov-09	243387	0.59
Deacon Prechlorination Cell 3	23-Nov-09	243393	0.56
Deacon Prechlorination Cell 3	25-Nov-09	244062	0.63
Deacon Prechlorination Cell 3	27-Nov-09	244113	0.58
Deacon Prechlorination Cell 3	30-Nov-09	244144	0.50

Deacon Outlet Monthly Statistics	Average	0.67
	Minimum	0.50
	Maximum	0.89

Comments: The above results were all obtained from grab samples. There were no continuous flow turbidity meter results because the meter was producing non-representative results.

Prepared By: J. Jones
Compliance Reporting Technician

Approved By: S. Fletcher
Supervisor of Analytical Services

FILE: WQR2

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CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION

MONTHLY TURBIDITY REPORT

December 2009

Location (Deacon Outlet)	Date	Spie No.	Turbidity (NTU)
Deacon Prechlorination Cell 3	2-Dec-09	244297	0.57
Deacon Prechlorination Cell 3	4-Dec-09	244653	0.56
Deacon Prechlorination Cell 3	7-Dec-09	244724	0.71
Deacon Prechlorination Cell 3	9-Dec-09	245211	0.55
Deacon Prechlorination Cell 3	11-Dec-09	245237	0.87
Deacon Prechlorination Cell 3	14-Dec-09	245243	1.27
Deacon Prechlorination Cell 3	16-Dec-09	245944	0.47
Deacon Prechlorination Cell 3	18-Dec-09	246042	0.64
Deacon Prechlorination Cell 3	21-Dec-09	246070	0.48
Deacon Prechlorination Cell 3	23-Dec-09	246584	0.51
Deacon Prechlorination Cell 3	30-Dec-09	247107	0.43
Deacon Outlet Monthly Statistics		Average	0.64
		Minimum	0.43
		Maximum	1.27

November and December 2009

Location (Pumping Station)	Date	Spie No.	Turbidity (NTU)
Maclean Station Discharge	2-Nov-09	241853	0.65
Hurst Station Discharge	2-Nov-09	241854	0.67
McPhillips Station Discharge	2-Nov-09	241855	0.59
Maclean Station Discharge	9-Nov-09	242418	0.65
Hurst Station Discharge	9-Nov-09	242419	0.43
McPhillips Station Discharge	9-Nov-09	242420	0.70
Maclean Station Discharge	16-Nov-09	242951	0.73
Hurst Station Discharge	16-Nov-09	242952	0.72
McPhillips Station Discharge	16-Nov-09	242953	0.75
Maclean Station Discharge	23-Nov-09	242401	0.50
Hurst Station Discharge	23-Nov-09	243402	0.51
McPhillips Station Discharge	23-Nov-09	243403	0.66
Maclean Station Discharge	30-Nov-09	244152	0.49
Hurst Station Discharge	30-Nov-09	244153	0.52
McPhillips Station Discharge	30-Nov-09	244154	0.51
Maclean Station Discharge	7-Dec-09	244732	0.70
Hurst Station Discharge	7-Dec-09	244733	0.67
McPhillips Station Discharge	7-Dec-09	244734	0.66
Maclean Station Discharge	14-Dec-09	245251	1.54
Hurst Station Discharge	14-Dec-09	245252	0.87
McPhillips Station Discharge	14-Dec-09	245253	0.87
Maclean Station Discharge	21-Dec-09	246078	0.15
Hurst Station Discharge	21-Dec-09	246079	0.16
McPhillips Station Discharge	21-Dec-09	246080	0.12
Maclean Station Discharge	29-Dec-09	247115	0.19
Hurst Station Discharge	29-Dec-09	247116	0.18
McPhillips Station Discharge	29-Dec-09	247117	0.18

Comments: The above results were all obtained from grab samples.

There were no continuous flow turbidity meter results at Deacon because the meter was producing non-representative results.

The high turbidity at Maclean Station Discharge on December 14 could not be explained.

Prepared By: J. Jones
Compliance Reporting Technician

Approved By: S. Fletcher
Supervisor of Analytical Services

FILE: WQR2

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Winnipeg

Water and Waste Department • Service des eaux et des déchets

February 2, 2009

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

Dental Consultant
Environment Unit - Public Health Branch
4th Floor, 100-300 Carlton Street
Winnipeg, Manitoba
R3B 3M9

Dear Sir/Madam:

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT (mg/L F)
Distribution System (Composite – 19 Locations)	216396	January 8, 2009	0.83
	216922	January 13, 2009	0.83
	217424	January 22, 2009	0.80
	217938	January 27, 2009	0.84

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,



K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Water and Waste Department • Service des eaux et des déchets

March 12, 2009

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

Dental Consultant
Environment Unit - Public Health Branch
4th Floor, 100-300 Carlton Street
Winnipeg, Manitoba
R3B 3M9

Dear Sir/Madam:

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT(mg/L F)
Distribution System (Composite – 19 Locations)	218580	February 5, 2009	0.81
	219545	February 10, 2009	0.82
	219661	February 18, 2009	0.83
	220197	February 24, 2009	0.80

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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April 7, 2009

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

Dental Consultant
Environment Unit - Public Health Branch
4th Floor, 100-300 Carlton Street
Winnipeg, Manitoba
R3B 3M9

Dear Sir/Madam:

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT (mg/L F)
Distribution System (Composite – 19 Locations)	220840	March 3/09	0.82
	221362	March 10/09	0.78
	221919	March 18/09	0.85
	222511	March 24/09	0.87
	223094	March 31/09	0.83

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Water and Waste Department • Service des eaux et des déchets

May 8, 2009

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

Dental Consultant
Environment Unit - Public Health Branch
4th Floor, 100-300 Carlton Street
Winnipeg, Manitoba
R3B 3M9

Dear Sir/Madam:

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT (mg/L F)
Distribution System (Composite – 19 Locations)	223613	April 7, 2009	0.91
	224111	April 15, 2009	0.84
	224850	April 21, 2009	0.88
	225438	April 28, 2009	0.81

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,

A handwritten signature in black ink.

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Water and Waste Department • Service des eaux et des déchets

June 1, 2009

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

Dental Consultant
Environment Unit - Public Health Branch
4th Floor, 100-300 Carlton Street
Winnipeg, Manitoba
R3B 3M9

Dear Sir/Madam:

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT(mg/L F)
Distribution System (Composite – 19 Locations)	225981	May 5, 2009	0.87
	226517	May 12, 2009	0.94
	227079	May 19, 2009	0.76
	227669	May 26, 2009	0.83

On May 14, 2009 at 16:15 hrs, operational staff identified a problem with the Fluoride *monitoring system* at Deacon Chemical Feed Facility. As a precaution, the Fluoride *dosing system* was placed offline while operational and technical staff worked to verify the accuracy of the monitoring system. The cause of the problem was traced to a faulty chemical solution used in the monitoring system. This problem was later corrected by operational staff. On May 15, 2009 at 08:15 hrs, the Fluoride dosing system was placed back online and Environmental Standards staff confirmed the operation of the dosing system by collecting and analyzing grab samples. This issue resulted in a lower than normal fluoride result for the sample collected on May 19.

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services
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Winnipeg

Water and Waste Department • Service des eaux et des déchets

July 16, 2009

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

Dental Consultant
Environment Unit - Public Health Branch
4th Floor, 100-300 Carlton Street
Winnipeg, Manitoba
R3B 3M9

Dear Sir/Madam:

RE: CITY OF WINNIPEG FLUORIDE MONITORING DATA

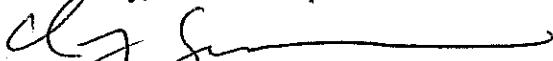
As a participant in the Provincial Water Fluoridation Program, the City of Winnipeg Water and Waste Department hereby submits the following fluoride monitoring data on analyses conducted by the Environmental Standards Division.

LOCATION	SAMPLE NUMBER	DATE	RESULT(mg/L F)
Distribution System (Composite – 19 Locations)	228330	June 2, 2009	0.87
	228884	June 9, 2009	0.88
	229536	June 16, 2009	0.90
	230231	June 23, 2009	0.87
	230944	June 30, 2009	0.88

On May 14, 2009 at 16:15 hrs, operational staff identified a problem with the Fluoride *monitoring system* at Deacon Chemical Feed Facility. As a precaution, the Fluoride *dosing system* was placed offline while operational and technical staff worked to verify the accuracy of the monitoring system. The cause of the problem was traced to a faulty chemical solution used in the monitoring system. This problem was later corrected by operational staff. On May 15, 2009 at 08:15 hrs, the Fluoride dosing system was placed back online and Environmental Standards staff confirmed the operation of the dosing system by collecting and analyzing grab samples. This issue resulted in a lower than normal fluoride result for the sample collected on May 19.

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,



K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services
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Water and Waste Department • Service des eaux et des déchets

August 6, 2009

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

Dental Consultant
Environment Unit - Public Health Branch
4th Floor, 100-300 Carlton Street
Winnipeg, Manitoba
R3B 3M9

Dear Sir/Madam:

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT(mg/L F)
Distribution System (Composite – 19 Locations)	218580	July 7, 2009	0.86
	219545	July 14, 2009	0.80
	219661	July 21, 2009	0.87
	220197	July 31, 2009	0.84

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Water and Waste Department • Service des eaux et des déchets

September 9, 2009

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

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT(mg/L F)
Distribution System (Composite – 19 Locations)	234143	August 4, 2009	0.88
	234708	August 11, 2009	0.84
	235269	August 18, 2009	0.86
	235966	August 25, 2009	0.82

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Winnipeg

Water and Waste Department • Service des eaux et des déchets

October 1, 2009

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

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT (mg/L F)
Distribution System (Composite – 19 Locations)	236546	Sept. 1/09	0.82
	237139	Sept. 8/09	0.88
	237675	Sept. 15/09	0.85
	238199	Sept. 22/09	0.83
	238828	Sept. 29/09	0.83

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,



K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Winnipeg

Water and Waste Department • Service des eaux et des déchets

November 2, 2009

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

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT (mg/L F)
Distribution System (Composite – 19 Locations)	239423	Oct. 6/09	0.87
	240031	Oct. 13/09	0.81
	240506	Oct. 20/09	0.76
	241322	Oct. 29/09	0.78

You will note that the fluoride results for October 20 and 29 were below the minimum target of 0.80 mg/L F. The chemical feed facilities at Deacon have been intermittently off-line to facilitate Water Treatment Plant commissioning work which has contributed to the lower than normal levels.

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,



K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

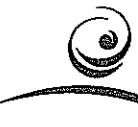
RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Winnipeg

Water and Waste Department • Service des eaux et des déchets

December 1, 2009

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

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

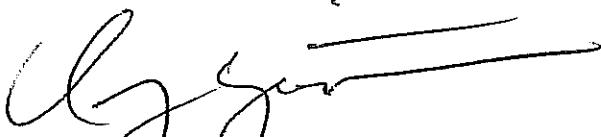
As a participant in the Provincial Water Fluoridation Program, the City of Winnipeg Water and Waste Department hereby submits the following fluoride monitoring data on analyses conducted by the Environmental Standards Division.

LOCATION	SAMPLE NUMBER	DATE	RESULT(mg/L F)
Distribution System (Composite – 19 Locations)	241856	Nov. 3/09	0.78
	242421	Nov. 9/09	0.87
	242875	Nov. 17/09	0.83
	243405	Nov. 24/09	0.77

You will note that the fluoride results for November 3 and 24 were below the minimum target of 0.80 mg/L F. The chemical feed facilities at Deacon have been intermittently off-line to facilitate Water Treatment Plant commissioning work which has contributed to the lower than normal levels.

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,



K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 7, 2010

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

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.

LOCATION	SAMPLE NUMBER	DATE	RESULT (mg/L F)
Distribution System (Composite – 19 Locations)	244155	Dec. 1/09	0.84
	244736	Dec. 8/09	0.87
	245279	Dec. 15/09	NR
	246081	Dec. 22/09	0.81
	246603	Dec. 29/09	0.83

On December 15 there was no result due to a technician error.

If you have any questions on the foregoing, please call Mrs. Renée Grosselle, Supervisor of Compliance Reporting, at 986-8359.

Yours truly,



K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards Division

RG/pr

c: Diane Sacher, P.Eng., Manager of Water Services

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CITY OF WINNIPEG
ENVIRONMENTAL STANDARDS DIVISION
Water Supply and Distribution System

2009 Disinfection By-Products Summary Report (ug/L)

SAMPLE LOCATIONS	Total Trihalomethanes (µg/L)			Bromodichloromethane (µg/L)			Total Haloacetic Acids (µg/L)			Total Aldehydes (µg/L)		
	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
INTAKE @ SHOAL LAKE	<0.5	2	<0.5	<0.5	<0.5	<0.5	<2	<10	<2	3	7	5
AQUEDUCT @ DEACON	74	180	105	6	14	9	50	105	76	10	22	16
DEACON OUTLET **	17	87	48	1	8	4	22	70	41	4	21	12
BRANCH 1 @ McPHILLIPS	26	94	71	3	9	7	38	111	70	13	28	20
BRANCH 2 @ HURST	26	97	68	3	9	7	35	107	68	17	21	18
MACLEAN STATION OUTLET	33	119	83	4	11	8	45	138	81	15	24	20
HURST STATION OUTLET	28	115	83	3	10	8	39	131	78	22	26	24
MCPHILLIPS STATION OUTLET	33	124	89	4	11	9	44	134	80	16	31	24
YEARLY DISTRIBUTION SYSTEM	38	125	93	5	11	9	48	121	84	15	29	21
	31	133	94	4	12	9	40	152	89	13	24	19
	42	140	96	5	13	9	46	142	85	20	41	26
	45	137	95	5	12	9	16	99	71	20	26	24
	46	134	93	6	12	9	23	108	76	18	27	24
	35	139	95	4	12	9	26	111	82	26	32	29
	31	140	94	4	13	9	16	152	81	13	41	24

COMMENTS:

NS - NO SAMPLE

NR - NO RESULTS

OL - OFFLINE

* Distribution System sampling locations

** Deacon Outlet Cell 1 (Apr, May, Jun)

Cell 3 (Jan, Feb, Mar, Jul, Aug, Sep, Oct, Nov, Dec)

Methodology

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

Haloacetic Acids analyzed by GC-ECD according to EPA 552.1

Aldehydes analyzed by GC-ECD according to EPA 554

Water System Code: **252.00**
License Number: **PWS-09-412**

Report Period: December 2009

Date	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose					
	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]									
	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total						
12/1/2009	0.00	1.52	56.42	57.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	59.44	60.46	0.00	0.69	30.28	30.97	0.00	0.81	35.10	35.91	0.00	4.04	181.23	185.27	97.8					
12/2/2009	0.00	1.58	70.20	71.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	61.90	62.57	0.00	1.11	64.97	66.08	0.00	0.00	0.00	0.00	0.00	3.35	197.08	200.43	98.3					
12/3/2009	0.00	0.62	26.62	27.24	0.00	0.52	45.26	45.78	0.00	0.00	0.00	0.00	0.00	0.73	60.94	61.67	0.00	1.19	63.89	65.08	0.00	0.00	0.00	0.00	0.00	3.06	196.70	199.77	98.5					
12/4/2009	0.00	0.00	0.00	0.00	0.00	1.47	71.12	72.59	0.00	0.00	0.00	0.00	0.00	0.75	62.86	63.61	0.00	0.17	10.02	10.19	0.00	1.15	56.15	57.30	0.00	3.54	200.15	203.69	98.3					
12/5/2009	0.00	0.00	0.00	0.00	0.00	1.26	77.55	78.81	0.00	0.00	0.00	0.00	0.00	0.73	70.03	70.76	0.00	1.71	68.84	70.55	0.00	0.03	1.49	1.52	0.00	3.72	217.92	221.64	98.3					
12/6/2009	0.00	0.00	0.00	0.00	0.00	1.22	71.76	72.98	0.00	0.00	0.00	0.00	0.00	0.81	64.31	65.12	0.00	4.78	61.86	66.63	0.00	0.00	0.00	0.00	0.00	6.81	197.93	204.74	96.7					
12/7/2009	0.00	0.00	0.00	0.00	0.00	0.92	73.27	74.19	0.00	0.00	0.00	0.00	0.00	0.55	65.56	66.11	0.00	7.38	41.71	49.08	0.00	0.38	18.25	18.63	0.00	9.23	198.79	208.02	95.6					
12/8/2009	0.00	0.65	26.81	27.46	0.00	0.78	42.28	43.06	0.01	0.00	0.00	0.01	0.00	0.78	51.26	52.04	0.04	7.37	18.35	25.75	0.00	0.00	0.00	0.05	0.00	9.58	138.69	148.32	93.5					
12/9/2009	0.00	0.32	40.66	40.98	0.00	1.10	76.59	77.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	117.25	118.68	98.8					
12/10/2009	0.00	0.00	57.26	57.26	0.00	0.00	76.02	76.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	206.78	206.78	100.0					
12/11/2009	0.00	0.00	64.54	64.54	0.00	0.00	83.04	83.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	232.59	232.59	100.0				
12/12/2009	0.00	0.00	63.21	63.21	0.00	0.00	83.21	83.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	231.39	231.39	100.0				
12/13/2009	0.00	0.00	62.09	62.09	0.00	0.00	82.96	82.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	230.06	230.06	100.0				
12/14/2009	0.00	0.00	60.80	60.80	0.00	0.00	81.47	81.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.97	68.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	227.29	227.29	100.0		
12/15/2009	0.00	0.00	55.01	55.01	0.00	0.00	73.68	73.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.64	84.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	213.34	213.34	100.0		
12/16/2009	0.00	0.00	51.63	51.63	0.00	0.00	67.73	67.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.72	80.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	200.08	200.08	100.0		
12/17/2009	0.00	0.00	51.25	51.25	0.00	0.00	67.07	67.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.02	81.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	199.34	199.34	100.0		
12/18/2009	0.00	0.00	49.72	49.72	0.00	0.00	66.71	66.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.90	76.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	193.33	193.33	100.0		
12/19/2009	0.00	0.00	49.94	49.94	0.00	0.00	68.44	68.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.48	80.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	198.85	198.85	100.0		
12/20/2009	0.00	0.00	48.75	48.75	0.00	0.00	67.72	67.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.99	83.99	0.00	0.00	1.53	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.00	202.00	100.0		
12/21/2009	0.00	0.00	0.00	0.00	0.07	0.00	66.57	66.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.87	64.87	0.00	0.00	66.68	66.68	0.00	0.00	0.00	0.00	0.07	0.00	0.00	198.12	198.19	100.0			
12/22/2009	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	0.00	0.00	65.73	65.73	0.00	0.00	68.30	68.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.80	202.80	100.0		
12/23/2009	0.00	0.00	0.00	0.00	0.00	0.00	74.31	74.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.43	59.43	0.00	0.00	69.15	69.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.90	202.90	100.0		
12/24/2009	0.00	0.00	0.00	0.00	0.00	0.00	81.46	81.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.09	51.09	0.00	0.00	70.47	70.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	203.01	203.01	100.0		
12/25/2009	0.00	0.00	0.00	0.00	0.00	0.00	82.09	82.09	0.00	0.00	0.00	0.00	0.00	14.83	14.83	0.00	0.00	57.72	57.72	0.00	0.00	48.05	48.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.69	202.69	100.0
12/26/2009	0.00	0.00	0.00	0.00	0.00	0.00	82.22	82.22	0.00	0.00	0.00	0.00	0.00	45.50	45.50	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	198.44	198.44	100.0		
12/27/2009	0.00	0.00	0.00	0.00	0.00	0.00	83.40	83.40	0.00	0.00	0.00	0.00	0.00	47.36	47.36	0.00	0.00	72.83	72.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	203.59	203.59	100.0		
12/28/2009	0.00	0.00	0.00	0.00	0.00	0.00	75.77	75.77	0.00	0.00	0.00	0.00	0.00	45.55	45.55	0.00	0.00	81.33	81.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	202.65	202.65	100.0		
12/29/2009	0.00	0.00	0.00	0.00	0.00	0.00	83.17	83.17	0.00	0.00	0.00	0.00	0.00	47.20	47.20	0.00	0.00	72.70	72.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	203.07	203.07	100.0		
12/30/2009	0.00	0.00	0.00	0.00	0.00	0.00	82.26	82.26	0.00	0.00	0.00	0.00	0.00	46.56	46.56	0.00	0.00	71.84	71.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	200.66	200.66	100.0		
12/31/2009	0.00	0.00	0.00	0.00	0.00	0.00	80.29	80.29	0.00	0.00	0.00	0.00	0.00	24.03	24.03	0.00	0.00	61.01	61.01	0.00	0.00	33.73	33.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	199.06	199.06	100.0

Report Created: Sunday March 21 2010

Water Volume - Untreated	0.0%
Water Volume - Below Dose	0.5%
Water Volume - To Dose	99.5%

Notes: 1. UV Comparative Dose: 27.4 mi/cm² (Dec. 1 to Dec. 9 - Pre WTP Startup) 18.1 mi/cm² (Dec. 10 to Dec. 31 - Post WTP Startup)

Water System Code: **252.00**
License Number: **PWS-09-412**

Date	Transmittance	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validated Conditions	Daily Totals					
		mJ/cm2			MLD			W/m2									Hours										Water Volume [ML]					
		Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3		Not Treated	Below Dose	To Dose	Total		
12/1/2009	NA	0.0	40.1	28.3	0.8	81.8	70.3	86.7	86.5	86.9	87.7	86.7	87.7	87.5	87.2	87.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.3	0.00	2.15	55.79	57.93		
12/2/2009	NA	22.8	29.0	28.3	67.0	76.4	72.4	89.3	89.2	89.4	89.3	89.1	89.4	89.3	89.3	89.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.2	0.00	2.02	69.76	71.78		
12/3/2009	NA	22.9	33.6	28.3	14.4	73.4	71.1	88.0	87.9	88.3	87.6	87.5	87.5	88.0	88.0	88.2	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.4	0.00	0.70	26.54	27.24		
12/4/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/5/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/6/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/7/2009	79.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/8/2009	NA	21.8	41.3	28.7	2.2	84.5	53.6	67.9	67.0	36.6	130.2	92.9	120.6	109.9	93.8	119.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	94.5	0.00	1.50	25.96	27.46		
12/9/2009	93.4	24.2	34.0	30.0	35.5	92.2	41.0	0.0	0.1	0.4	189.2	91.3	171.1	146.8	99.3	170.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.3	0.00	1.13	39.86	40.98		
12/10/2009	98.2	23.4	29.4	28.2	40.5	80.3	57.2	0.0	0.1	0.3	162.2	116.7	138.7	125.8	116.8	148.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	92.8	0.00	4.09	53.16	57.26		
12/11/2009	92.8	23.3	28.8	28.2	57.0	73.9	64.5	0.0	0.0	0.2	161.2	130.9	134.0	135.2	131.0	154.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	91.6	0.00	5.43	59.11	64.54		
12/12/2009	93.6	23.5	28.8	28.2	52.1	71.8	63.2	0.0	0.0	0.1	150.6	128.2	128.2	129.0	128.2	146.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	91.0	0.00	5.69	57.52	63.21		
12/13/2009	93.8	23.6	28.9	28.2	59.1	64.7	62.1	0.0	0.0	0.1	157.4	125.9	125.9	129.1	126.0	155.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	91.7	0.00	5.15	56.94	62.09		
12/14/2009	95.0	23.3	28.9	28.2	54.8	64.8	60.8	0.0	0.0	0.3	158.6	123.3	123.3	133.2	123.4	160.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	89.7	0.00	6.25	54.54	60.80		
12/15/2009	95.1	23.7	28.9	28.2	49.5	60.8	55.0	0.0	0.0	0.5	150.1	111.8	111.9	137.6	112.0	166.6	NR	NR	NR	NR	NR	NR	NR	NR	NR	91.6	0.00	4.63	50.38	55.01		
12/16/2009	NA	23.5	31.0	28.2	26.0	91.8	51.7	117.2	99.1	4.3	121.9	104.3	104.4	129.7	105.5	156.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	93.0	0.00	3.64	48.00	51.63		
12/17/2009	93.0	22.6	41.9	28.4	23.7	56.5	51.2	156.6	112.6	101.7	89.6	83.9	84.0	119.9	92.3	140.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	95.5	0.00	2.32	48.93	51.25		
12/18/2009	95.1	22.2	42.8	28.6	24.8	87.5	51.2	166.3	128.2	195.1	66.2	63.7	63.9	121.2	81.3	148.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.6	0.00	0.71	49.01	49.72		
12/19/2009	94.6	21.7	41.5	28.6	26.1	64.5	49.9	163.6	129.8	195.5	62.3	62.0	62.3	121.2	80.8	152.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.3	0.00	0.83	49.11	49.94		
12/20/2009	94.0	21.9	40.2	28.3	20.1	59.0	49.9	161.9	128.1	194.1	62.0	61.1	62.1	118.5	81.1	153.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	80.6	0.00	9.45	39.30	48.75		
12/21/2009	94.7	0.0	0.0	0.0	0.0	0.0	0.0	90.3	116.1	92.3	0.3	0.0	0.2	119.4	97.8	90.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/22/2009	92.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/23/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/24/2009	91.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/25/2009	92.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/26/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/27/2009	93.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/28/2009	95.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/29/2009	91.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/30/2009	92.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		
12/31/2009	92.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1291	2660	1292	1869	1868	1869	1869	1869	1869	0.0	0.00	0.00	0.00	0.00		

Total [ML]: **0.00** **55.68** **783.92** **839.60**

Water Volume - Untreated **0.0 %**
Water Volume - Outside of validated conditions **6.6 %**
Water Volume - Within validated conditions **93.4 %**

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Notes:
 1. UV Dosage Set-Point is

Water System Code: **252.00**
License Number: **PWS-09-412**

Date	Transmittance	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validated Conditions	Daily Totals					
		mJ/cm2			MLD			W/m2									Hours											Water Volume [ML]				
		Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3		Not Treated	Below Dose	To Dose	Total		
12/1/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/2/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00		
12/3/2009	NA	24.7	40.4	28.3	5.1	75.4	74.0	91.4	91.2	91.7	106.5	91.3	91.3	91.3	91.1	91.2	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.2	0.00	0.83	44.95	45.78		
12/4/2009	NA	25.0	28.9	28.3	60.3	82.6	72.6	89.5	89.4	89.5	107.2	89.4	89.4	89.5	89.5	89.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.2	0.00	2.02	70.57	72.59		
12/5/2009	NA	24.8	28.7	28.3	76.2	83.8	78.8	96.9	96.9	97.1	105.6	96.9	96.9	97.0	97.0	97.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.1	0.00	1.53	77.28	78.81		
12/6/2009	NA	25.0	28.8	28.3	62.5	86.7	73.0	90.0	89.9	90.1	104.0	89.9	90.0	90.0	89.9	90.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.7	0.00	1.65	71.33	72.98		
12/7/2009	79.3	24.1	28.7	28.3	69.3	86.1	78.3	96.3	96.3	96.4	101.4	96.3	96.3	96.4	96.3	96.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.2	0.00	1.33	72.86	74.19		
12/8/2009	NA	0.0	41.5	28.3	2.5	81.2	74.0	91.2	90.6	80.3	113.8	99.0	99.5	102.8	99.0	101.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	94.3	0.00	2.47	40.59	43.06		
12/9/2009	93.4	24.7	33.5	28.0	58.3	103.3	77.7	0.0	0.1	0.7	219.0	156.8	163.0	181.0	156.9	175.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	68.0	0.00	24.85	52.84	77.69		
12/10/2009	98.2	25.1	39.6	28.3	55.5	89.6	76.0	153.0	89.2	66.4	215.0	133.9	145.2	173.0	134.3	154.8	NR	NR	NR	NR	NR	NR	NR	NR	NR	82.6	0.00	13.19	62.83	76.02		
12/11/2009	92.8	24.9	29.8	28.3	78.1	88.8	83.0	163.9	104.9	90.5	219.1	134.1	151.5	180.5	131.4	157.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	79.7	0.00	16.86	66.17	83.04		
12/12/2009	93.6	25.1	30.9	28.3	70.8	90.9	83.2	161.0	103.8	106.1	219.1	124.1	144.0	177.7	122.5	150.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	87.6	0.00	10.33	72.88	83.21		
12/13/2009	93.8	25.1	38.8	28.2	79.8	86.8	82.9	158.0	103.8	53.5	219.1	148.7	157.8	180.5	146.4	161.6	NR	NR	NR	NR	NR	NR	NR	NR	NR	75.9	0.00	19.97	62.99	82.96		
12/14/2009	95.0	21.9	31.9	28.4	74.5	86.9	81.4	161.9	107.8	46.7	219.1	150.3	158.5	180.7	147.8	163.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	73.3	0.00	21.73	59.74	81.47		
12/15/2009	95.1	25.4	28.9	28.1	67.0	80.6	73.7	0.0	0.0	0.4	219.1	149.0	154.7	180.9	149.1	166.8	NR	NR	NR	NR	NR	NR	NR	NR	NR	69.4	0.00	22.57	51.11	73.68		
12/16/2009	NA	25.3	39.7	28.2	32.4	99.7	67.8	121.7	107.3	2.7	219.1	137.6	147.7	179.9	137.7	156.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	84.2	0.00	10.71	57.02	67.73		
12/17/2009	93.0	25.6	37.2	28.1	33.4	77.6	67.0	0.0	0.0	0.4	219.1	135.8	136.0	180.5	136.2	138.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	84.2	0.00	10.62	56.45	67.07		
12/18/2009	95.1	25.2	34.7	28.1	38.1	95.4	68.7	103.6	94.6	2.9	219.1	138.6	139.5	179.4	138.9	144.8	NR	NR	NR	NR	NR	NR	NR	NR	NR	86.5	0.00	9.01	57.69	66.71		
12/19/2009	94.6	25.6	35.6	28.1	35.8	88.1	68.4	0.0	0.0	0.4	219.1	138.6	139.4	179.3	139.0	146.2	NR	NR	NR	NR	NR	NR	NR	NR	NR	89.6	0.00	7.13	61.30	68.44		
12/20/2009	94.0	25.3	36.1	28.1	33.8	86.7	67.7	0.0	0.0	0.4	219.1	137.2	137.4	178.5	137.6	144.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	88.5	0.00	7.77	59.95	67.72		
12/21/2009	94.7	0.0	43.5	28.1	62.1	70.1	66.6	134.8	134.4	81.5	265.1	134.8	135.2	116.5	105.1	142.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	95.0	0.07	3.23	63.34	66.64		
12/22/2009	92.9	25.5	56.2	28.2	31.2	89.2	68.7	150.5	138.1	149.2	309.0	138.2	138.6	124.9	37.5	90.2	NR	NR	NR	NR	NR	NR	NR	NR	NR	92.0	0.00	5.50	63.28	68.77		
12/23/2009	NA	25.0	40.3	28.1	51.3	90.4	74.3	158.4	147.5	153.6	307.8	147.5	148.1	66.8	27.5	100.3	568	568	569	777	778	778	721	720	720	90.5	0.00	7.03	67.28	74.31		
12/24/2009	91.6	20.8	41.4	28.1	78.6	85.9	81.4	162.7	156.2	161.5	309.0	156.3	158.1	33.8	25.1	100.8	592	592	593	801	802	802	724	724	723	89.3	0.00	8.71	72.74	81.46		
12/25/2009	92.1	20.4	38.9	28.1	79.4	87.9	82.1	158.1	141.2	152.2	304.6	141.2	144.0	64.7	49.8	103.5	616	616	617	825	826	826	733	733	732	92.7	0.00	5.98	76.11	82.09		
12/26/2009	95.1	20.7	43.2	28.1	43.6	93.3	82.2	160.3	150.2	157.5	298.8	150.2	151.4	38.8	32.2	111.5	640	640	641	849	850	850	739	739	739	87.2	0.00	10.50	71.72	82.22		
12/27/2009	93.2	24.0	30.2	28.3	81.0	87.5	83.4	151.1	111.3	132.8	296.7	111.3	115.5	146.7	90.0	127.0	664	664	665	873	874	874	760	760	759	96.0	0.00	3.30	80.10	83.40		
12/28/2009	95.3	20.6	40.4	28.1	47.2	93.3	75.8	151.9	148.0	150.6	291.7	148.0	148.6	34.2	31.5	123.1	688	688	689	897	898	898	762	762	761	76.7	0.00	17.66	58.11	75.77		
12/29/2009	91.4	21.3	41.7	28.3	80.7	88.2	83.1	143.6	107.4	120.5	281.0	107.3	110.1	148.6	95.3	115.3	712	712	713	921	922	922	784	784	784	96.7	0.00	2.74	80.43	83.17		
12/30/2009	92.1	21.3	29.6	28.1	79.1	86.0	82.2	158.8	145.1	150.4	298.4	144.8	146.6	62.5	44.7	124.5	736	736	737	945	946	946	792	792	792	91.4	0.00	7.04	75.23	82.26		
12/31/2009	92.9	25.2	29.0	28.1	73.9	85.5	80.3	161.6	160.8	161.5	300.6	161.0	161.2	124.5	5.0	103.4	760	760	761	969	970	970	793	792	792	92.1	0.00	6.36	73.93	80.29		

Water System Code: **252.00**
License Number: **PWS-09-412**

Date	Transmittance	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validated Conditions	Daily Totals				
		mJ/cm2			MLD			W/m2									Hours										Water Volume [ML]				
		%	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	Not Treated	Below Dose	To Dose	Total	
12/1/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/2/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/3/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/4/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/5/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/6/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/7/2009	79.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/8/2009	NA	0.0	0.0	0.0	0.0	1.8	3.9	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.01	0.00	0.00	0.01								
12/9/2009	93.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/10/2009	98.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/11/2009	92.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/12/2009	93.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/13/2009	93.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/14/2009	95.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/15/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/16/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/17/2009	93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/18/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/19/2009	94.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/20/2009	94.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/21/2009	94.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/22/2009	92.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NR	0.0	0.00	0.00	0.00	0.00								
12/23/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1724	1724	1724	1834	1834	1835	1836	1836	1837	0.0	0.00	0.00	0.00	0.00
12/24/2009	91.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1724	1724	1724	1834	1834	1835	1836	1836	1837	0.0	0.00	0.00	0.00	0.00
12/25/2009	92.1	24.8	33.9	28.3	11.1	50.3	46.6	107.6	105.2	94.7	125.2	94.7	112.7	0.2	0.0	0.1	1732	1732	1731	1842	1842	1842	1836	1836	1837	80.5	0.00	2.89	11.94	14.83	
12/26/2009	95.1	24.8	35.4	28.3	25.4	52.3	45.5	110.9	110.5	93.2	134.5	93.6	107.1	0.1	0.1	0.1	1756	1756	1755	1866	1866	1866	1836	1836	1837	81.3	0.00	8.53	36.98	45.50	
12/27/2009	93.2	24.8	29.6	28.3	42.9	51.6	47.4	114.8	115.3	96.8	138.8	96.7	119.6	0.1	0.0	0.1	1780	1780	1779	1890	1890	1890	1836	1836	1837	79.5	0.00	9.69	37.67	47.36	
12/28/2009	95.3	24.4	39.3	28.3	24.6	59.7	45.6	113.7	116.1	93.3	136.8	93.5	121.3	0.0	0.0	0.1	1804	1804	1803	1914	1914	1914	1836	1836	1837	78.9	0.00	9.62	35.93	45.55	
12/29/2009	91.4	25.1	29.8	28.3	43.1	50.9	47.2	109.0	109.9	96.5	133.8	96.3	115.8	0.0	0.0	0.1	1828	1828	1827	1938	1938	1938	1836	1836	1837	79.5	0.00	9.70	37.50	47.20	
12/30/2009	92.1	24.9	29.8	28.3	41.6	50.6	46.6	114.2	110.5	95.2	141.7	95.2	116.9	0.0	0.0	0.1	1852	1852	1851	1962	1962	1962	1836	1836	1837	80.6	0.00	9.01	37.55	46.56	
12/31/2009	92.9	24.8	39.7	28.3	3.5	50.3	46.4	113.6	109.5	94.7	141.3	95.0	117.3	0.0	0.0	0.1	1864	1864	1864	1975	1974	1975	1836	1836	1837	78.4	0.00	5.18	18.85	24.03	

Total [ML]: **0.01** **54.61** **216.42** **271.04**

Water Volume - Untreated **0.0 %**
Water Volume - Outside of validated conditions **20.2 %**
Water Volume - Within validated conditions **79.8 %**

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Notes:

1. UV Dosage Set-Point is 28.0 mJ/cm2
- 2

Water System Code: **252.00**
License Number: **PWS-09-412**

Date	Transmittance	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validated Conditions	Daily Totals				
		mJ/cm2			MLD			W/m2									Hours										Water Volume [ML]				
		%	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3		Not Treated	Below Dose	To Dose	Total
12/1/2009	NA	23.1	40.1	28.4	4.8	84.4	63.0	78.8	78.9	79.1	79.0	79.2	78.8	78.3	78.4	78.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.2	0.00	1.72	58.74	60.46
12/2/2009	NA	24.8	29.0	28.4	57.3	67.7	63.1	78.0	78.1	78.2	78.2	78.2	78.1	77.9	77.9	77.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.7	0.00	0.78	61.78	62.57
12/3/2009	NA	24.6	29.0	28.4	54.1	64.2	61.7	76.2	76.3	76.4	76.4	76.4	76.3	76.4	76.4	76.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.5	0.00	0.93	60.74	61.67
12/4/2009	NA	24.8	29.3	28.4	58.7	72.3	63.6	78.5	78.6	78.7	78.6	78.6	78.6	78.7	78.7	78.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.5	0.00	0.95	62.66	63.61
12/5/2009	NA	24.8	28.8	28.4	66.6	74.9	70.7	87.1	87.2	87.3	87.3	87.2	87.3	87.3	87.3	87.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.9	0.00	0.78	69.98	70.76
12/6/2009	NA	24.8	29.1	28.4	56.2	76.8	65.1	80.3	80.4	80.5	80.5	80.5	80.4	80.5	80.6	80.6	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.4	0.00	1.03	64.09	65.12
12/7/2009	79.3	25.0	29.1	28.4	62.5	75.1	69.7	85.9	86.0	86.1	86.1	86.1	86.1	85.9	85.9	85.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	98.9	0.00	0.71	65.40	66.11
12/8/2009	NA	4.6	40.6	28.4	3.6	90.8	67.8	92.8	94.3	106.1	102.2	102.5	96.8	71.8	70.5	89.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.9	0.00	1.59	50.45	52.04
12/9/2009	93.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00
12/10/2009	98.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00
12/11/2009	92.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00
12/12/2009	93.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00
12/13/2009	93.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00
12/14/2009	95.0	26.0	40.4	28.3	4.9	94.8	85.0	104.6	104.5	148.5	133.8	132.6	112.4	136.0	115.6	170.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.1	0.00	2.66	66.31	68.97
12/15/2009	95.1	27.5	32.0	28.4	80.5	88.1	84.6	103.9	103.9	155.1	138.7	138.1	117.5	142.5	120.0	175.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.6	0.00	2.07	82.58	84.64
12/16/2009	NA	25.6	42.7	28.2	12.9	86.6	81.5	138.7	138.9	160.0	152.8	153.0	145.1	87.7	62.0	174.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	80.6	0.00	15.67	65.05	65.72
12/17/2009	93.0	25.4	28.8	28.1	52.8	86.5	81.0	163.6	163.6	163.7	163.4	163.5	163.6	0.0	0.1	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	87.2	0.00	10.35	70.67	81.02
12/18/2009	95.1	24.8	38.8	28.1	12.9	83.8	80.4	162.0	162.0	162.2	162.0	162.1	162.1	0.0	0.1	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	88.2	0.00	9.10	67.80	76.90
12/19/2009	94.6	23.9	32.2	28.2	52.0	107.6	80.5	145.9	145.8	152.2	150.0	150.1	146.1	112.0	103.6	100.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	90.9	0.00	7.36	73.12	80.48
12/20/2009	94.0	20.4	39.8	28.3	53.3	105.0	83.9	108.5	108.6	130.7	123.4	123.5	109.3	110.8	95.6	109.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.9	0.00	2.57	81.42	83.99
12/21/2009	94.7	25.5	28.9	28.2	61.9	68.7	64.9	131.5	131.4	131.5	131.5	131.5	0.1	0.1	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	86.4	0.00	8.83	56.04	64.87	
12/22/2009	92.9	22.3	32.6	28.2	27.4	76.7	65.7	132.3	132.3	133.5	133.5	133.7	132.9	90.3	12.4	83.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	85.3	0.00	9.65	56.08	65.73
12/23/2009	NA	25.3	30.6	28.2	28.6	69.6	59.4	120.6	120.6	125.4	126.5	127.8	120.8	0.0	0.1	0.0	932	3618	3618	3859	3860	2012	3408	3408	3409	3409	86.5	0.00	8.01	51.43	59.43
12/24/2009	91.6	25.6	29.4	28.3	46.8	53.7	51.1	104.1	104.1	111.8	116.0	118.5	104.1	0.0	0.0	0.0	956	3642	3642	3883	3884	2036	3408	3408	3409	3409	90.1	0.00	5.05	46.04	51.09
12/25/2009	92.1	25.5	29.2	28.2	45.4	75.5	57.7	117.3	117.3	119.9	124.0	126.7	117.4	0.0	0.0	0.0	980	3666	3666	3907	3908	2060	3408	3408	3409	3409	87.1	0.00	7.45	50.27	57.72
12/26/2009	95.1	25.4	32.1	28.1	41.0	78.4	70.7	143.1	143.1	143.1	143.3	143.5	143.1	0.0	0.0	0.0	1004	3690	3690	3931	3932	2084	3408	3408	3409	3409	82.6	0.00	12.31	58.40	70.71
12/27/2009	93.2	25.5	29.3	28.1	69.4	78.0	72.8	147.4	147.3	147.4	147.4	147.5	147.4	0.0	0.0	0.0	1028	3714	3714	3955	3956	2108	3408	3408	3409	3409	83.6	0.00	11.92	60.91	72.83
12/28/2009	95.3	20.5	33.5	28.3	43.9	97.6	81.4	103.2	103.2	106.3	116.6	121.8	103.4	117.3	101.0	134.9	1052	3738	3738	3979	3980	2132	3431	3431	3431	3431	92.8	0.00	5.87	75.46	81.33
12/29/2009	91.4	25.4	29.0	28.1	68.4	76.3	72.7	147.0	147.0	147.1	147.1	147.1	0.1	0.1	0.0	1076	3762	3762	4003	4004	2156	3431	3431	3431	3431	83.5	0.00	12.02	60.68	72.70	
12/30/2009	92.1	25.5	28.8	28.1	67.4	76.1	71.8	145.3	145.3	145.3	145.4	145.4	0.0	0.1	0.0	1100	3786	3786	3986	4027	2180	3431	3431	3431	3431	84.0	0.00	11.52	60.32	71.84	
12/31/2009	92.9	25.6	29.1	28.2	46.9	74.1	61.0	123.8	123.7	123.8	130.4	133.8	123.9	0.0	0.0	0.0	1124	3810													

Water System Code: **252.00**
License Number: **PWS-09-412**

Date	Transmittance	UV Dose			Reactor Flow			Average UV Lamp Intensity										UV Lamp Status										% Volume Treated to Validated Conditions	Daily Totals				
		mJ/cm2			MLD			W/m2										Hours												Water Volume [ML]			
		Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	Not Treated	Below Dose	To Dose	Total	Not Treated	Below Dose	To Dose	Total
12/1/2009	NA	23.6	32.0	28.4	3.6	91.5	67.0	96.4	84.0	83.9	84.5	83.1	83.9	98.5	84.3	90.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.3	0.00	1.13	29.84	30.97			
12/2/2009	NA	24.6	29.2	28.4	60.0	71.4	66.7	99.4	82.5	85.4	82.5	82.2	82.4	102.4	82.4	91.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.9	0.00	1.40	64.68	66.08			
12/3/2009	NA	24.2	29.2	28.4	56.8	67.7	65.1	98.3	80.5	102.6	80.6	80.3	80.5	101.1	80.4	90.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.7	0.00	1.47	63.61	65.08			
12/4/2009	NA	24.6	38.2	28.4	14.4	66.3	64.5	97.8	79.4	117.2	81.5	79.4	80.9	101.0	79.4	90.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.6	0.00	0.25	9.95	10.19			
12/5/2009	NA	21.3	29.3	28.3	13.5	75.5	72.0	99.2	89.1	89.3	89.8	88.5	89.2	101.1	88.8	92.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.6	0.00	2.41	68.14	70.55			
12/6/2009	NA	24.1	29.2	28.2	57.0	77.9	66.6	104.1	82.4	82.4	91.3	81.3	82.4	101.9	82.3	92.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	74.8	0.00	16.80	49.83	66.63			
12/7/2009	79.3	20.7	43.5	28.0	16.0	76.5	70.9	101.6	88.0	87.7	88.8	85.3	87.7	96.9	87.3	90.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	60.0	0.00	19.63	29.45	49.08			
12/8/2009	NA	0.0	38.2	27.5	11.1	83.4	69.4	102.5	88.3	87.5	92.4	81.2	87.3	99.2	87.6	93.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	66.4	0.04	8.60	17.11	25.75			
12/9/2009	93.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/10/2009	98.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/11/2009	92.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/12/2009	93.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/13/2009	93.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/14/2009	95.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/15/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/16/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/17/2009	93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/18/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/19/2009	94.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.0	0.00	0.00	0.00	0.00			
12/20/2009	94.0	26.9	28.7	28.2	29.2	69.8	66.3	227.7	154.2	164.3	158.5	124.0	143.6	0.2	0.2	0.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	86.0	0.00	0.21	1.32	1.53			
12/21/2009	94.7	24.9	29.3	28.4	63.6	70.6	66.7	235.1	118.5	103.8	211.3	99.8	110.3	200.4	93.9	154.0	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.0	0.00	2.69	63.99	66.68			
12/22/2009	92.9	24.8	31.8	28.4	45.6	87.3	68.3	221.9	105.7	84.1	201.9	84.1	86.1	205.1	106.7	150.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.3	0.00	1.87	66.43	68.30			
12/23/2009	NA	24.7	32.0	28.4	51.4	81.3	69.1	221.9	111.6	85.2	197.9	85.2	108.2	205.9	110.3	201.4	1262	2494	1261	1262	72	1262	1527	3849	1527	96.3	0.00	2.58	66.58	69.15			
12/24/2009	91.6	24.5	29.2	28.4	67.3	73.3	70.5	223.3	117.5	86.8	100.5	86.8	122.1	205.9	110.8	209.3	1286	2518	1285	1286	96	1286	1551	3873	1551	98.0	0.00	1.37	69.09	70.47			
12/25/2009	92.1	23.1	39.3	28.1	31.9	73.2	70.4	217.4	117.0	86.7	85.4	86.5	118.8	205.8	107.8	195.5	1302	2534	1302	1302	113	1303	1567	3890	1568	87.9	0.00	5.82	42.23	48.05			
12/26/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1302	2534	1302	1302	113	1303	1567	3890	1568	0.0	0.00	0.00	0.00	0.00			
12/27/2009	93.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1302	2534	1302	1302	113	1303	1567	3890	1568	0.0	0.00	0.00	0.00	0.00			
12/28/2009	95.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1302	2534	1302	1302	113	1303	1567	3890	1568	0.0	0.00	0.00	0.00	0.00			
12/29/2009	91.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1302	2534	1302	1302	113	1303	1567	3890	1568	0.0	0.00	0.00	0.00	0.00			
12/30/2009	92.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1302	2534	1302	1302	113	1303	1567	3890	1568	0.0	0.00	0.00	0.00	0.00			
12/31/2009	92.9	24.8	39.5	28.2	16.8	72.3	69.8	189.3	141.9	141.6	144.9	141.0	141.9	0.2	0.2	0.0	1314	2546	1313	1314	124	1314	1567	3890	1568	89.8	0.00	3.45	30.28	33.74			

Total [ML]: **0.04** **69.71** **672.52** **742.27**

Report Period: **December 2009**

Report Created: **January 5, 2010**

Water Volume - Untreated **0.0 %**

Water System Code: **252.00**
License Number: **PWS-09-412**

Date	Transmittance	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validated Conditions	Daily Totals					
		mJ/cm2			MLD			W/m2									Hours											Water Volume [ML]				
		%	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	Not Treated	Below Dose	To Dose	Total		
12/1/2009	NA	22.2	40.0	28.4	13.8	96.1	67.3	83.6	83.4	83.4	83.4	82.8	83.1	83.6	83.3	83.4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.0	0.00	1.09	34.82	35.91	
12/2/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	0.0	0.00	0.00	0.00	0.00									
12/3/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	0.0	0.00	0.00	0.00	0.00									
12/4/2009	NA	21.4	37.3	28.3	17.2	74.6	68.0	84.0	83.8	83.9	83.8	83.7	83.8	83.9	83.7	83.8	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.5	0.00	1.41	55.88	57.30	
12/5/2009	NA	25.9	39.4	28.5	18.8	74.3	72.0	87.8	87.5	87.6	88.6	87.6	87.8	87.8	87.5	87.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	94.9	0.00	0.08	1.44	1.52	
12/6/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	0.0	0.00	0.00	0.00	0.00									
12/7/2009	79.3	21.8	37.4	28.3	14.0	74.1	72.3	89.5	88.8	89.1	89.4	88.5	89.3	90.3	89.7	89.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.9	0.00	0.58	18.05	18.63	
12/8/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/9/2009	93.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/10/2009	98.2	21.8	41.3	28.3	21.0	88.1	79.2	135.4	101.8	99.7	147.3	102.3	142.5	129.2	103.3	124.9	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	95.2	0.00	3.50	70.01	73.51	
12/11/2009	92.8	22.2	29.6	28.3	82.5	88.2	85.0	156.1	108.9	110.6	157.4	104.2	151.0	141.2	105.3	132.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.2	0.00	2.36	82.65	85.01	
12/12/2009	93.6	22.1	29.1	28.3	77.8	88.5	84.9	149.1	105.7	112.8	155.9	104.1	149.7	133.8	104.1	124.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	96.4	0.00	3.02	81.95	84.97	
12/13/2009	93.8	22.1	29.2	28.3	81.6	87.4	85.0	156.0	110.0	117.9	157.4	104.2	151.1	140.2	104.6	131.1	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.3	0.00	2.32	82.69	85.02	
12/14/2009	95.0	22.7	47.6	28.3	38.9	86.8	84.9	162.3	112.7	122.6	157.2	104.0	150.8	145.5	106.0	135.3	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	97.6	0.00	0.38	15.68	16.06	
12/15/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/16/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/17/2009	93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/18/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/19/2009	94.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/20/2009	94.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/21/2009	94.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/22/2009	92.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NR	NR	0.0	0.00	0.00	0.00	0.00								
12/23/2009	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/24/2009	91.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/25/2009	92.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/26/2009	95.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/27/2009	93.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/28/2009	95.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/29/2009	91.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/30/2009	92.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	
12/31/2009	92.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2998	2997	2997	3000	2999	3000	2964	2964	2964	0.0	0.00	0.00	0.00	0.00	

Total [ML]: **0.00** **14.76** **443.17** **457.93**

Notes: 1. UV Dosage Set-Point is