



Water and Waste Department • Service des eaux et des déchets

March 7, 2016

Melanie Betsill
Office of Drinking Water
Manitoba Conservation and Water Stewardship
1007 Century Street
Winnipeg, Manitoba R3H 0W4

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

Dear Ms. Betsill:

**RE: FEBRUARY 2016 WATER QUALITY COMPLIANCE
SUBMISSION FOR THE CITY OF WINNIPEG WATER SUPPLY SYSTEM**

Please find attached on-line and grab turbidity summary reports, on-line and grab chlorine summary reports and the UV summary report for the Water Treatment Plant for February 2016. There are no corrective action reports to be submitted for February 2016.

The February on-line and grab sampling turbidity reports include results obtained for the Water Treatment Plant raw water and the eight filters. The turbidity results for the effluent from the filters met the licence requirements.

The February on-line and grab sampling chlorine reports include results obtained for the Deacon Booster Pumping Station at the Water Treatment Plant. The free chlorine results at the Water Treatment Plant met the licence requirements.

The February UV summary report includes results obtained for the six UV reactors at the Water Treatment Plant. The UV disinfection results met the licence requirements.

Please let me know of any concerns or questions respecting this submission. I may be reached by telephone at 204-986-8359 or by e-mail at rgrosselle@winnipeg.ca.

Yours sincerely,

Original signed by:

R. Grosselle
Manager of Environmental Standards
Attachments

c:(e-mail)

Dr. L. Richards, Winnipeg Regional Health Authority
Dr. H. Chang, Winnipeg Regional Health Authority
Dr. S. Roberecki, Manitoba Health, Healthy Living and Seniors
M. L. Geer, CPA, CA
G. Patton, P.Eng.
T. Shanks, P.Eng.
M. Szmon, P.Eng.
C. Diduck

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CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

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

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

February 2016 Turbidity (NTU)

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

| | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|
| Total Number of Measurements Taken, A: | 13208 | 9847 | 13286 | 11245 | 13954 | 13570 | 10489 | 13437 |
| Turbidity Standard for Monitoring Location (NTU): | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |
| Number of Measurements Meeting Standard, B: | 13208 | 9847 | 13286 | 11245 | 13954 | 13570 | 10489 | 13437 |
| Compliance with Turbidity Standard, C = B/A X 100%: | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

OL: Offline

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

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

| Water System Code: 252.00 | | Turbidity (NTU) | | | | | | | | | | | | | | | | | |
|---|-----------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
| Licence No. PWS-09-412 AA | | | | | | | | | | | | | | | | | | | |
| Date | Raw Water | | Filter 1 | | Filter 2 | | Filter 3 | | Filter 4 | | Filter 5 | | Filter 6 | | Filter 7 | | Filter 8 | | |
| | Grab | Analyser | Grab | Analyser | Grab | Analyser | Grab | Analyser | Grab | Analyser | Grab | Analyser | Grab | Analyser | Grab | Analyser | Grab | Analyser | |
| 01-Feb-2016 | 0.50 | 0.51 | 0.11 | <0.02 | 0.10 | 0.04 | 0.11 | 0.02 | 0.10 | <0.02 | 0.08 | <0.02 | 0.10 | <0.02 | OL | OL | 0.08 | <0.02 | |
| 02-Feb-2016 | 0.53 | 0.48 | 0.11 | 0.02 | 0.09 | 0.04 | 0.13 | 0.03 | 0.12 | 0.02 | 0.07 | <0.02 | 0.08 | <0.02 | OL | OL | 0.15 | <0.02 | |
| 03-Feb-2016 | 0.47 | 0.46 | 0.17 | 0.06 | 0.14 | 0.06 | 0.18 | 0.05 | 0.14 | 0.03 | 0.12 | 0.03 | 0.11 | 0.02 | OL | OL | 0.10 | <0.02 | |
| 04-Feb-2016 | 0.53 | 0.47 | 0.08 | <0.02 | 0.09 | 0.04 | 0.10 | <0.02 | 0.08 | <0.02 | 0.11 | 0.03 | 0.09 | <0.02 | OL | OL | 0.07 | <0.02 | |
| 05-Feb-2016 | 0.54 | 0.47 | 0.07 | <0.02 | 0.08 | 0.02 | 0.11 | <0.02 | 0.11 | <0.02 | 0.08 | <0.02 | 0.09 | <0.02 | 0.14 | 0.04 | 0.10 | <0.02 | |
| 06-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | 0.12 | 0.09 | NS | NS | |
| 07-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 08-Feb-2016 | 0.45 | 0.43 | 0.09 | <0.02 | 0.09 | 0.02 | 0.12 | <0.02 | 0.13 | 0.02 | 0.11 | 0.02 | 0.12 | <0.02 | 0.13 | 0.03 | 0.18 | 0.09 | |
| 09-Feb-2016 | 0.52 | 0.44 | 0.12 | 0.02 | 0.08 | 0.03 | 0.09 | <0.02 | 0.09 | <0.02 | 0.12 | 0.04 | 0.10 | 0.02 | 0.08 | <0.02 | 0.08 | <0.02 | |
| 10-Feb-2016 | 0.50 | 0.44 | 0.09 | <0.02 | OL | OL | 0.12 | <0.02 | 0.12 | <0.02 | 0.11 | 0.02 | 0.12 | <0.02 | 0.13 | 0.02 | OL | OL | |
| 11-Feb-2016 | 0.50 | 0.45 | 0.16 | 0.05 | 0.12 | 0.04 | 0.20 | 0.05 | OL | OL | 0.15 | 0.04 | 0.18 | 0.06 | 0.14 | 0.03 | 0.13 | 0.02 | |
| 12-Feb-2016 | 0.53 | 0.46 | 0.11 | 0.02 | 0.13 | 0.05 | 0.13 | 0.02 | 0.13 | 0.02 | 0.17 | 0.07 | 0.17 | 0.05 | 0.13 | 0.04 | 0.13 | 0.03 | |
| 13-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 14-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 15-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 16-Feb-2016 | 0.50 | 0.45 | 0.15 | 0.04 | 0.15 | 0.05 | 0.22 | 0.06 | 0.21 | 0.07 | 0.16 | 0.04 | 0.14 | 0.02 | OL | OL | OL | OL | |
| 17-Feb-2016 | 0.50 | 0.43 | 0.16 | 0.08 | 0.16 | 0.07 | 0.23 | 0.09 | 0.14 | 0.03 | 0.18 | 0.07 | 0.15 | 0.03 | 0.14 | 0.03 | 0.13 | 0.02 | |
| 18-Feb-2016 | 0.48 | 0.42 | 0.13 | 0.04 | 0.12 | 0.05 | 0.20 | 0.06 | 0.17 | 0.05 | 0.13 | 0.04 | 0.13 | 0.02 | 0.14 | 0.03 | 0.19 | 0.05 | |
| 19-Feb-2016 | 0.50 | 0.43 | 0.11 | <0.02 | 0.10 | 0.03 | 0.16 | 0.04 | 0.11 | <0.02 | 0.11 | 0.02 | 0.09 | <0.02 | 0.09 | <0.02 | 0.08 | <0.02 | |
| 20-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 21-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 22-Feb-2016 | 0.48 | 0.44 | 0.14 | 0.04 | 0.11 | 0.04 | 0.11 | <0.02 | 0.09 | <0.02 | 0.09 | 0.02 | 0.07 | <0.02 | 0.08 | <0.02 | 0.07 | <0.02 | |
| 23-Feb-2016 | 0.54 | 0.44 | 0.08 | <0.02 | OL | OL | 0.11 | 0.02 | 0.16 | <0.02 | 0.12 | <0.02 | 0.11 | <0.02 | 0.07 | <0.02 | 0.09 | <0.02 | |
| 24-Feb-2016 | 0.49 | 0.46 | 0.09 | <0.02 | 0.09 | 0.03 | 0.17 | 0.05 | OL | OL | 0.08 | <0.02 | 0.07 | <0.02 | 0.10 | <0.02 | 0.06 | <0.02 | |
| 25-Feb-2016 | 0.49 | 0.45 | 0.08 | <0.02 | 0.10 | 0.03 | 0.11 | <0.02 | 0.12 | <0.02 | 0.09 | 0.02 | 0.10 | <0.02 | 0.09 | <0.02 | 0.09 | <0.02 | |
| 26-Feb-2016 | 0.50 | 0.46 | 0.08 | <0.02 | 0.07 | 0.02 | 0.11 | <0.02 | 0.11 | 0.02 | 0.07 | <0.02 | 0.09 | <0.02 | 0.10 | <0.02 | 0.08 | <0.02 | |
| 27-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 28-Feb-2016 | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | NS | |
| 29-Feb-2016 | 0.54 | 0.45 | 0.09 | <0.02 | 0.08 | 0.03 | 0.13 | 0.02 | 0.14 | 0.02 | 0.08 | <0.02 | 0.08 | <0.02 | 0.11 | 0.02 | 0.07 | <0.02 | |
| Total number of measurements taken, A: | | | 20 | | 18 | | 20 | | 18 | | 20 | | 20 | | 16 | | 18 | | |
| Turbidity Standard for Monitoring Location (NTU): | | | 0.30 | | 0.30 | | 0.30 | | 0.30 | | 0.30 | | 0.30 | | 0.30 | | 0.30 | | |
| Number of measurements meeting standard, B: | | | 20 | | 18 | | 20 | | 18 | | 20 | | 20 | | 16 | | 18 | | |
| Compliance with Turbidity Standard, C= B/A X 100%: | | | 100% | | 100% | | 100% | | 100% | | 100% | | 100% | | 100% | | 100% | | |

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 4-Mar-16



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

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

Report Period: February 2016

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

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

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

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT

| Water System Code: 252.00 | | Deacon Booster Pumping Station Branch 1 | | | Deacon Booster Pumping Station Branch 2 | | |
|--|----------------------|---|-----------------------|----------------------|---|-----------------------|--|
| Licence No. PWS-09-412 AA | | | | | | | |
| Date | Free Chlorine (mg/L) | | Total Chlorine (mg/L) | Free Chlorine (mg/L) | | Total Chlorine (mg/L) | |
| | Analyser | Grab | Grab | Analyser | Grab | Grab | |
| 01-Feb-2016 | 1.06 | 0.99 | 1.23 | 1.02 | 0.94 | 1.22 | |
| 02-Feb-2016 | 1.00 | 1.03 | 1.22 | 1.05 | 1.05 | 1.24 | |
| 03-Feb-2016 | 1.07 | 1.15 | 1.36 | 1.09 | 1.14 | 1.35 | |
| 04-Feb-2016 | 0.96 | 1.02 | 1.18 | 0.98 | 1.14 | 1.28 | |
| 05-Feb-2016 | 1.10 | 1.15 | 1.29 | 1.01 | 1.10 | 1.28 | |
| 06-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 07-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 08-Feb-2016 | 1.15 | 1.21 | 1.39 | 1.14 | 1.20 | 1.30 | |
| 09-Feb-2016 | 1.13 | 1.16 | 1.32 | 1.17 | 1.20 | 1.37 | |
| 10-Feb-2016 | 1.10 | 1.14 | 1.28 | 1.12 | 1.11 | 1.22 | |
| 11-Feb-2016 | 1.15 | 1.13 | 1.33 | 1.13 | 1.10 | 1.31 | |
| 12-Feb-2016 | 1.17 | 1.25 | 1.37 | 1.15 | 1.19 | 1.34 | |
| 13-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 14-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 15-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 16-Feb-2016 | 1.09 | 1.16 | 1.36 | 1.03 | 1.14 | 1.33 | |
| 17-Feb-2016 | 1.19 | 1.16 | 1.33 | 1.20 | 1.18 | 1.35 | |
| 18-Feb-2016 | 1.22 | 1.22 | 1.39 | 1.12 | 1.20 | 1.40 | |
| 19-Feb-2016 | 1.29 | 1.30 | 1.46 | 1.20 | 1.29 | 1.45 | |
| 20-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 21-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 22-Feb-2016 | 1.19 | 1.24 | 1.40 | 1.12 | 1.19 | 1.35 | |
| 23-Feb-2016 | 1.18 | 1.18 | 1.37 | 1.17 | 1.17 | 1.35 | |
| 24-Feb-2016 | 1.09 | 1.17 | 1.31 | 1.08 | 1.14 | 1.30 | |
| 25-Feb-2016 | 1.14 | 1.14 | 1.30 | 1.11 | 1.12 | 1.29 | |
| 26-Feb-2016 | 1.27 | 1.24 | 1.36 | 1.12 | 1.16 | 1.29 | |
| 27-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 28-Feb-2016 | NS | NS | NS | NS | NS | NS | |
| 29-Feb-2016 | 1.10 | 1.15 | 1.27 | 1.09 | 1.15 | 1.29 | |
| Total number of measurements taken, A: | | 20 | | 20 | | | |
| Chlorine Standard for Monitoring Location (mg/L): | | 0.50 | | 0.50 | | | |
| Number of measurements meeting standard, B: | | 20 | | 20 | | | |
| Compliance with Chlorine Standard, C= B/A X 100%: | | 100% | | 100% | | | |

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 4-Mar-16



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

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

WATER TREATMENT PLANT UV REPORT

Report Period: **February 2016**

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

| Date | Transmittance % | UVR-D100A | | | | UVR-D200A | | | | UVR-D300A | | | | UVR-D400A | | | | UVR-D500A | | | | UVR-D600A | | | | Total | | | | % Volume Treated To Dose | |
|------------|-----------------|-------------------|-------|-------|-------|-------------------|-------|-------|-------|-------------------|-------|-------|-------|-------------------|-------|-------|-------|-------------------|-------|-------|-------|-------------------|-------|-------|-------|-------------------|-------|--------|--------|--------------------------|-----------|
| | | Water Volume [ML] | | | | Water Volume [ML] | | | | Water Volume [ML] | | | | Water Volume [ML] | | | | Water Volume [ML] | | | | Water Volume [ML] | | | | Water Volume [ML] | | | | | |
| | | Untreated | Below | To | Total | Untreated | Below | To | Total | Untreated | Below | To | Total | Untreated | Below | To | Total | Untreated | Below | To | Total | Untreated | Below | To | Total | Untreated | Below | To | Total | | Untreated |
| 01/02/2016 | 95.10 | 0.00 | 0.00 | 37.69 | 37.69 | 0.00 | 0.00 | 39.16 | 39.16 | 0.00 | 0.00 | 14.71 | 14.71 | 0.00 | 0.00 | 49.39 | 49.39 | 0.00 | 0.00 | 37.78 | 37.78 | 0.00 | 0.04 | 0.66 | 0.70 | 0.00 | 0.04 | 179.39 | 179.44 | 99.98 | |
| 02/02/2016 | 94.89 | 0.00 | 0.00 | 44.58 | 44.58 | 0.00 | 0.04 | 56.76 | 56.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 78.52 | 78.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.09 | 0.00 | 0.13 | 179.86 | 179.99 | 99.93 | |
| 03/02/2016 | 94.72 | 0.00 | 0.00 | 44.79 | 44.79 | 0.00 | 0.04 | 56.93 | 56.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 78.21 | 78.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 179.93 | 179.96 | 99.98 | |
| 04/02/2016 | 95.37 | 0.00 | 0.00 | 25.21 | 25.21 | 0.00 | 0.00 | 59.49 | 59.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 68.24 | 68.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 27.01 | 27.06 | 0.00 | 0.04 | 179.95 | 179.99 | 99.98 | |
| 05/02/2016 | 95.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.95 | 63.95 | 0.00 | 0.00 | 24.77 | 24.77 | 0.00 | 0.00 | 30.63 | 30.63 | 0.00 | 0.00 | 38.62 | 38.62 | 0.00 | 0.09 | 25.68 | 25.77 | 0.00 | 0.09 | 183.65 | 183.74 | 99.95 | |
| 06/02/2016 | 95.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 64.71 | 64.71 | 0.00 | 0.00 | 57.49 | 57.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 67.18 | 67.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 189.38 | 189.38 | 100.00 | |
| 07/02/2016 | 95.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.72 | 63.72 | 0.00 | 0.00 | 56.99 | 56.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 66.27 | 66.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 186.98 | 186.98 | 100.00 | |
| 08/02/2016 | 95.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 62.85 | 62.85 | 0.00 | 0.00 | 56.20 | 56.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 65.32 | 65.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 184.37 | 184.37 | 100.00 | |
| 09/02/2016 | 95.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 61.23 | 61.23 | 0.00 | 0.00 | 55.83 | 55.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.88 | 63.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.94 | 180.94 | 100.00 | |
| 10/02/2016 | 95.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 50.97 | 50.97 | 0.12 | 0.12 | 48.77 | 49.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 51.85 | 51.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.12 | 151.59 | 151.83 | 99.85 | |
| 11/02/2016 | 94.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 60.33 | 60.33 | 0.00 | 0.00 | 64.96 | 64.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.71 | 63.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 189.00 | 189.00 | 100.00 | |
| 12/02/2016 | 94.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.83 | 59.83 | 0.00 | 0.00 | 64.26 | 64.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 64.86 | 64.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 188.96 | 188.96 | 100.00 | |
| 13/02/2016 | 94.05 | 0.00 | 0.00 | 3.65 | 3.65 | 0.00 | 0.00 | 60.95 | 60.95 | 0.19 | 0.19 | 60.61 | 61.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.53 | 63.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.19 | 188.74 | 189.13 | 99.80 | |
| 14/02/2016 | 93.85 | 0.00 | 0.00 | 57.49 | 57.49 | 0.00 | 0.00 | 71.50 | 71.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.97 | 59.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 188.96 | 188.96 | 100.00 | |
| 15/02/2016 | 93.65 | 0.00 | 0.00 | 55.14 | 55.14 | 0.00 | 0.00 | 68.75 | 68.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 60.02 | 60.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 183.91 | 183.91 | 100.00 | |
| 16/02/2016 | 93.64 | 0.00 | 0.00 | 44.97 | 44.97 | 0.00 | 0.00 | 57.70 | 57.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 48.09 | 48.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 150.77 | 150.77 | 100.00 | |
| 17/02/2016 | 93.70 | 0.00 | 0.00 | 53.92 | 53.92 | 0.00 | 0.00 | 67.27 | 67.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.77 | 59.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.96 | 180.96 | 100.00 | |
| 18/02/2016 | 93.89 | 0.00 | 0.00 | 53.40 | 53.40 | 0.00 | 0.00 | 66.66 | 66.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.35 | 0.41 | 4.14 | 4.90 | 0.27 | 0.27 | 55.97 | 56.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.63 | 0.68 | 180.18 | 181.49 | 99.28 | |
| 19/02/2016 | 95.22 | 0.00 | 0.00 | 52.24 | 52.24 | 0.00 | 0.00 | 65.21 | 65.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 63.55 | 63.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.99 | 180.99 | 100.00 | |
| 20/02/2016 | 95.15 | 0.00 | 0.00 | 53.89 | 53.89 | 0.00 | 0.00 | 67.11 | 67.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.98 | 59.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.99 | 180.99 | 100.00 | |
| 21/02/2016 | 95.18 | 0.00 | 0.00 | 53.88 | 53.88 | 0.00 | 0.00 | 67.11 | 67.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 60.00 | 60.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.99 | 180.99 | 100.00 | |
| 22/02/2016 | 95.25 | 0.00 | 0.00 | 54.77 | 54.77 | 0.00 | 0.00 | 68.28 | 68.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 60.01 | 60.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 183.06 | 183.06 | 100.00 | |
| 23/02/2016 | 95.20 | 0.00 | 0.00 | 55.14 | 55.14 | 0.00 | 0.00 | 68.84 | 68.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 60.02 | 60.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 184.00 | 184.00 | 100.00 | |
| 24/02/2016 | 95.34 | 0.00 | 0.00 | 55.17 | 55.17 | 0.00 | 0.00 | 68.85 | 68.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.99 | 59.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 184.01 | 184.01 | 100.00 | |
| 25/02/2016 | 95.47 | 0.00 | 0.00 | 55.19 | 55.19 | 0.00 | 0.00 | 68.81 | 68.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.99 | 59.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 184.00 | 184.00 | 100.00 | |
| 26/02/2016 | 95.47 | 0.00 | 0.00 | 55.22 | 55.22 | 0.00 | 0.00 | 68.80 | 68.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.99 | 59.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 184.00 | 184.00 | 100.00 | |
| 27/02/2016 | 95.36 | 0.00 | 0.00 | 53.99 | 53.99 | 0.00 | 0.00 | 67.29 | 67.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 60.00 | 60.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 181.28 | 181.28 | 100.00 | |
| 28/02/2016 | 95.08 | 0.00 | 0.00 | 53.43 | 53.43 | 0.00 | 0.00 | 66.56 | 66.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.99 | 59.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 179.98 | 179.98 | 100.00 | |
| 29/02/2016 | 95.13 | 0.00 | 0.00 | 53.49 | 53.49 | 0.00 | 0.00 | 66.60 | 66.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.95 | 59.95 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 180.04 | 180.04 | 100.00 | |

0.00 0.00 1017.27 1017.27 0.00 0.08 1836.21 1836.29 0.31 0.31 504.60 505.21 0.35 0.41 309.14 309.90 0.27 0.27 1530.30 1530.85 0.00 0.26 53.36 53.62 0.94 1.33 5250.88 5253.14

Water Volume [%]:
 Untreated: 0.02 %
 Below Dose 0.03 %
 To Dose 99.96 %

Submitted By (Print): M.Szmon

Signature: Original signed by M.Szmon