



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

**November 7, 2019**

**RE: OCTOBER 2019 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 October 2019.

The October 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 filter effluent met the licence requirements.

The October 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 October 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 can be reached by telephone at 204-986-8359 or by e-mail at [rgrosselle@winnipeg.ca](mailto:rgrosselle@winnipeg.ca).

Yours sincerely,

*Original signed by:*

R. Grosselle  
Manager of Environmental Standards

Enclosures

cc: Dr. L. Richards, Winnipeg Regional Health Authority (email)  
Dr. H. Chang, Winnipeg Regional Health Authority (email)  
Dr. S. Roberecki, Manitoba Health, Seniors and Active Living (email)  
M. L. Geer, CPA, CA (email)  
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C. Diduck (email)



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

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

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

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

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

Off Line - OL

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



**WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT**

| Water System Code: 252.00                                 |           | Turbidity (NTU) |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
|---|-----------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
| Licence No. PWS-09-412-01                                 |           |                 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Date  | Raw Water |                 | Filter 1 |          | Filter 2 |          | Filter 3 |          | Filter 4 |          | Filter 5 |          | Filter 6 |          | Filter 7 |          | Filter 8 |          |  |
|   | Grab      | Analyser        | Grab     | Analyser | Grab     | Analyser | Grab     | Analyser | Grab     | Analyser | Grab     | Analyser | Grab     | Analyser | Grab     | Analyser | Grab     | Analyser |  |
| 01-Oct-2019   | 1.06      | 0.87            | 0.13     | 0.08     | 0.20     | 0.08     | OL       | OL       | 0.12     | 0.05     | 0.22     | 0.06     | 0.18     | 0.08     | OL       | OL       | 0.11     | 0.05     |  |
| 02-Oct-2019   | 0.96      | 0.87            | 0.13     | 0.08     | 0.14     | 0.08     | OL       | OL       | 0.21     | 0.05     | OL       | OL       | 0.16     | 0.09     | 0.12     | 0.05     | 0.12     | 0.05     |  |
| 03-Oct-2019   | OL        | OL              | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       |  |
| 04-Oct-2019   | 0.93      | 0.72            | 0.16     | 0.07     | 0.12     | 0.06     | OL       | OL       | 0.09     | 0.04     | 0.15     | 0.03     | 0.11     | 0.06     | 0.10     | 0.10     | 0.09     | 0.04     |  |
| 05-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 06-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 07-Oct-2019   | 0.94      | 0.85            | 0.21     | 0.07     | 0.21     | 0.07     | OL       | OL       | 0.12     | 0.03     | OL       | OL       | 0.12     | 0.07     | 0.15     | 0.03     | 0.12     | 0.03     |  |
| 08-Oct-2019   | 0.91      | 0.67            | 0.13     | 0.09     | OL       | OL       | OL       | OL       | 0.12     | 0.04     | 0.11     | 0.03     | 0.09     | 0.06     | 0.10     | 0.04     | 0.13     | 0.04     |  |
| 09-Oct-2019   | 0.93      | 0.89            | OL       | OL       | 0.10     | 0.07     | OL       | OL       | 0.14     | 0.06     | 0.10     | 0.03     | 0.12     | 0.06     | 0.10     | 0.04     | 0.11     | 0.04     |  |
| 10-Oct-2019   | 0.88      | 0.78            | 0.10     | 0.06     | 0.10     | 0.06     | OL       | OL       | 0.09     | 0.03     | 0.09     | 0.03     | 0.09     | 0.07     | 0.10     | 0.05     | OL       | OL       |  |
| 11-Oct-2019   | 0.82      | 0.50            | 0.08     | 0.07     | 0.11     | 0.07     | OL       | OL       | 0.09     | 0.03     | 0.09     | 0.03     | 0.12     | 0.06     | 0.11     | 0.04     | OL       | OL       |  |
| 12-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 13-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 14-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 15-Oct-2019   | 0.86      | 0.87            | 0.09     | 0.07     | 0.07     | 0.07     | OL       | OL       | OL       | OL       | 0.08     | 0.03     | 0.07     | 0.09     | 0.09     | 0.04     | 0.08     | 0.04     |  |
| 16-Oct-2019   | 0.90      | 0.88            | 0.10     | 0.07     | 0.09     | 0.07     | OL       | OL       | 0.09     | 0.02     | 0.09     | 0.03     | 0.14     | 0.08     | OL       | OL       | 0.08     | 0.03     |  |
| 17-Oct-2019   | 1.06      | 0.82            | 0.09     | 0.07     | 0.14     | 0.08     | OL       | OL       | 0.11     | 0.03     | 0.19     | 0.00     | OL       | OL       | 0.09     | 0.03     | 0.09     | 0.03     |  |
| 18-Oct-2019   | 0.80      | 0.84            | 0.10     | 0.07     | OL       | OL       | OL       | OL       | 0.10     | 0.04     | 0.09     | 0.00     | 0.12     | 0.09     | 0.09     | 0.03     | 0.08     | 0.03     |  |
| 19-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 20-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 21-Oct-2019   | 0.89      | 0.79            | 0.10     | 0.07     | 0.10     | 0.08     | OL       | OL       | 0.15     | 0.03     | 0.20     | 0.00     | 0.08     | 0.11     | 0.13     | 0.07     | 0.10     | 0.03     |  |
| 22-Oct-2019   | 0.77      | 0.80            | 0.08     | 0.07     | 0.09     | 0.08     | OL       | OL       | 0.10     | 0.03     | 0.13     | 0.01     | 0.13     | 0.12     | OL       | OL       | 0.13     | 0.05     |  |
| 23-Oct-2019   | 1.04      | 0.79            | 0.17     | 0.07     | 0.13     | 0.08     | OL       | OL       | 0.12     | 0.04     | 0.17     | 0.00     | OL       | OL       | 0.10     | 0.06     | 0.08     | 0.04     |  |
| 24-Oct-2019   | 0.82      | 0.80            | 0.23     | 0.08     | 0.10     | 0.10     | OL       | OL       | 0.12     | 0.05     | 0.09     | 0.00     | OL       | OL       | 0.12     | 0.07     | 0.12     | 0.05     |  |
| 25-Oct-2019   | 0.83      | 0.80            | OL       | OL       | 0.10     | 0.10     | OL       | OL       | 0.11     | 0.05     | 0.08     | 0.00     | 0.08     | 0.05     | 0.07     | 0.07     | 0.08     | 0.05     |  |
| 26-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 27-Oct-2019   | NA        | NA              | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       | NA       |  |
| 28-Oct-2019   | 0.77      | 0.75            | 0.09     | 0.08     | 0.10     | 0.10     | OL       | OL       | 0.10     | 0.04     | 0.09     | 0.00     | 0.08     | 0.05     | 0.09     | 0.10     | OL       | OL       |  |
| 29-Oct-2019   | 0.73      | 0.72            | 0.08     | 0.08     | 0.09     | 0.11     | OL       | OL       | 0.04     | 0.14     | 0.11     | 0.00     | 0.12     | 0.05     | OL       | OL       | 0.13     | 0.05     |  |
| 30-Oct-2019   | OL        | OL              | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       | OL       |  |
| 31-Oct-2019   | 0.73      | 0.73            | 0.08     | 0.08     | 0.11     | 0.11     | OL       | OL       | 0.09     | 0.04     | 0.08     | 0.00     | 0.08     | 0.05     | 0.08     | 0.11     | 0.09     | 0.06     |  |
| <b>Total number of measurements taken, A:</b>             |           |                 | 18       |          | 18       |          | OL       |          | 19       |          | 18       |          | 17       |          | 16       |          | 17       |          |  |
| <b>Turbidity Standard for Monitoring Location (NTU):</b>  |           |                 | 0.30     |          | 0.30     |          | 0.30     |          | 0.30     |          | 0.30     |          | 0.30     |          | 0.30     |          | 0.30     |          |  |
| <b>Number of measurements meeting standard, B:</b>        |           |                 | 18       |          | 18       |          | OL       |          | 19       |          | 18       |          | 17       |          | 16       |          | 17       |          |  |
| <b>Compliance with Turbidity Standard, C= B/A X 100%:</b> |           |                 | 100%     |          | 100%     |          | OL       |          | 100%     |          | 100%     |          | 100%     |          | 100%     |          | 100%     |          |  |

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

**Comments:**

September 17, 2019: filter 3 taken offline for media replacement  
 October 3, 2019: WTP offline for scheduled maintenance 08:00 to 20:50  
 October 30, 2019: WTP offline for scheduled maintenance 06:00 to 21:30

Report Compiled By: A. Gordon

Authorized By: C. Diduck

Date Authorized: 7-Nov-19



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

Water System Code: **252.00**  
Licence Number: **PWS-09-412-01**  
Report Created: 01 November 2019

Report Period: October 2019

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

|   |            |            |
|---|------------|------------|
| Total Number of Measurements, A:            | 21601      | 21602      |
| Minimum Free Chlorine Standard:             | 0.5        | 0.5        |
| Number of Measurements Meeting Standard, B: | 21601      | 21602      |
| <br>COMPLIANCE, C = B/A X 100%:             | <br>100.00 | <br>100.00 |

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

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



CITY OF WINNIPEG  
WATER AND WASTE DEPARTMENT  
ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

| Water System Code: 252.00<br>Licence No. PWS-09-412-01   | Deacon Booster Pumping Station Branch 1 |          |                       | Deacon Booster Pumping Station Branch 2 |          |                       |
|--|---|----------|-----------------------|---|----------|-----------------------|
|  | Free Chlorine (mg/L)                    |          | Total Chlorine (mg/L) | Free Chlorine (mg/L)                    |          | Total Chlorine (mg/L) |
|  | Date                                    | Analyser | Grab                  | Grab                                    | Analyser | Grab                  |
| 01-Oct-2019  | 1.57                                    | 1.50     | 1.60                  | 1.47                                    | 1.48     | 1.65                  |
| 02-Oct-2019  | 1.56                                    | 1.55     | 1.78                  | 1.54                                    | 1.62     | 1.74                  |
| 03-Oct-2019  | OL                                      | OL       | OL                    | OL                                      | OL       | OL                    |
| 04-Oct-2019  | 1.28                                    | 1.33     | 1.51                  | 1.27                                    | 1.33     | 1.49                  |
| 05-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 06-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 07-Oct-2019  | 1.27                                    | 1.32     | 1.48                  | 1.42                                    | 1.38     | 1.53                  |
| 08-Oct-2019  | 1.25                                    | 1.13     | 1.40                  | 1.30                                    | 1.23     | 1.45                  |
| 09-Oct-2019  | 1.19                                    | 1.21     | 1.37                  | 1.25                                    | 1.25     | 1.40                  |
| 10-Oct-2019  | 1.16                                    | 1.18     | 1.39                  | 1.24                                    | 1.26     | 1.41                  |
| 11-Oct-2019  | 1.16                                    | 1.15     | 1.30                  | 1.22                                    | 1.14     | 1.36                  |
| 12-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 13-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 14-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 15-Oct-2019  | 1.20                                    | 1.23     | 1.41                  | 1.24                                    | 1.29     | 1.46                  |
| 16-Oct-2019  | 1.19                                    | 1.29     | 1.42                  | 1.11                                    | 1.41     | 1.56                  |
| 17-Oct-2019  | 1.33                                    | 1.26     | 1.43                  | 1.37                                    | 1.44     | 1.60                  |
| 18-Oct-2019  | 1.22                                    | 1.25     | 1.44                  | 1.35                                    | 1.42     | 1.55                  |
| 19-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 20-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 21-Oct-2019  | 1.14                                    | 1.21     | 1.33                  | 1.36                                    | 1.35     | 1.45                  |
| 22-Oct-2019  | 1.16                                    | 1.11     | 1.35                  | 1.36                                    | 1.33     | 1.54                  |
| 23-Oct-2019  | 1.34                                    | 1.30     | 1.50                  | 1.35                                    | 1.29     | 1.60                  |
| 24-Oct-2019  | 1.47                                    | 1.39     | 1.53                  | 1.35                                    | 1.43     | 1.54                  |
| 25-Oct-2019  | 1.33                                    | 1.29     | 1.48                  | 1.26                                    | 1.28     | 1.50                  |
| 26-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 27-Oct-2019  | NA                                      | NA       | NA                    | NA                                      | NA       | NA                    |
| 28-Oct-2019  | 1.26                                    | 1.19     | 1.36                  | 1.23                                    | 1.21     | 1.37                  |
| 29-Oct-2019  | 1.23                                    | 1.22     | 1.39                  | 1.19                                    | 1.22     | 1.39                  |
| 30-Oct-2019  | OL                                      | OL       | OL                    | OL                                      | OL       | OL                    |
| 31-Oct-2019  | 1.33                                    | 1.32     | 1.50                  | 1.34                                    | 1.36     | 1.57                  |
| <b>Total number of measurements taken, A:</b>            |   | 20       |                       |   | 20       |                       |
| <b>Chlorine Standard for Monitoring Location (mg/L):</b> |   | 0.50     |                       |   | 0.50     |                       |
| <b>Number of measurements meeting standard, B:</b>       |   | 20       |                       |   | 20       |                       |
| <b>Compliance with Chlorine Standard, C= B/A X 100%:</b> |   | 100%     |                       |   | 100%     |                       |

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

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

[N:\Compliance Reporting\Submittal Letters\WTP Chlorine Data](#)

**Report Compiled By:** A. Gordon

**Authorized By:** C. Diduck

**Date Authorized:** 7-Nov-19



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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **October 2019**

Report Created: **Friday, November 01, 2019**

| Date               | Transmittance | UVR-D100A         |       |         |         | UVR-D200A         |       |        |        | UVR-D300A         |       |        |        | UVR-D400A         |       |         |         | UVR-D500A         |       |         |         | UVR-D600A         |       |        |        | Total             |        |         |         | % Volume Treated To Dose |
|--------------------|---------------|-------------------|-------|---------|---------|-------------------|-------|--------|--------|-------------------|-------|--------|--------|-------------------|-------|---------|---------|-------------------|-------|---------|---------|-------------------|-------|--------|--------|-------------------|--------|---------|---------|--------------------------|
|                    | %             | Water Volume [ML] |       |         |         | Water Volume [ML] |       |        |        | Water Volume [ML] |       |        |        | Water Volume [ML] |       |         |         | Water Volume [ML] |       |         |         | Water Volume [ML] |       |        |        | Water Volume [ML] |        |         |         |                          |
|                    | UVTag         | Untreated         | Below | To      | Total   | Untreated         | Below | To     | Total  | Untreated         | Below | To     | Total  | Untreated         | Below | To      | Total   | Untreated         | Below | To      | Total   | Untreated         | Below | To     | Total  | Untreated         | Below  | To      | Total   |                          |
| 01/10/2019         | 93.65         | 0.00              | 0.00  | 68.04   | 68.04   | 0.00              | 0.00  | 0.20   | 0.20   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 41.51   | 41.51   | 0.00              | 0.00  | 72.99   | 72.99   | 0.00              | 0.04  | 0.21   | 0.25   | 0.00              | 0.04   | 182.95  | 182.99  | 99.98                    |
| 02/10/2019         | 93.41         | 0.00              | 0.05  | 68.85   | 68.90   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 41.72   | 41.72   | 0.00              | 0.00  | 73.66   | 73.66   | 0.00              | 0.00  | 0.07   | 0.07   | 0.00              | 0.05   | 184.30  | 184.35  | 99.97                    |
| 03/10/2019         | 94.06         | 0.00              | 0.35  | 35.01   | 35.36   | 0.01              | 0.01  | 14.53  | 14.55  | 0.00              | 0.00  | 0.00   | 0.00   | 0.04              | 0.07  | 13.74   | 13.86   | 0.04              | 0.04  | 39.29   | 39.36   | 0.00              | 0.00  | 0.00   | 0.00   | 0.08              | 0.46   | 102.58  | 103.12  | 99.47                    |
| 04/10/2019         | 94.64         | 0.00              | 0.19  | 55.38   | 55.58   | 0.00              | 0.00  | 67.29  | 67.29  | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 81.99   | 81.99   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.19   | 204.67  | 204.86  | 99.91                    |
| 05/10/2019         | 95.02         | 0.00              | 0.08  | 55.86   | 55.94   | 0.00              | 0.00  | 67.13  | 67.13  | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 79.63   | 79.63   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.08   | 202.62  | 202.70  | 99.96                    |
| 06/10/2019         | 96.39         | 0.00              | 0.00  | 55.08   | 55.08   | 0.00              | 0.00  | 65.81  | 65.81  | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 77.21   | 77.21   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00   | 198.09  | 198.09  | 100.00                   |
| 07/10/2019         | 96.36         | 0.00              | 0.00  | 64.69   | 64.69   | 0.00              | 0.00  | 21.82  | 21.82  | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 31.59   | 31.59   | 0.00              | 0.00  | 76.85   | 76.85   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00   | 194.96  | 194.96  | 100.00                   |
| 08/10/2019         | 96.34         | 0.00              | 0.00  | 69.56   | 69.56   | 0.00              | 0.03  | 1.43   | 1.46   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 48.31   | 48.31   | 0.22              | 0.22  | 75.33   | 75.76   | 0.00              | 0.00  | 0.00   | 0.00   | 0.22              | 0.25   | 194.62  | 195.09  | 99.76                    |
| 09/10/2019         | 96.28         | 0.20              | 0.20  | 47.31   | 47.71   | 0.00              | 0.00  | 43.11  | 43.11  | 0.00              | 0.00  | 16.77  | 16.77  | 0.00              | 0.05  | 60.79   | 60.84   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 26.75  | 26.75  | 0.20              | 0.26   | 194.72  | 195.18  | 99.76                    |
| 10/10/2019         | 96.55         | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 0.27   | 0.28   | 0.00              | 0.00  | 53.77  | 53.77  | 0.00              | 0.00  | 56.74   | 56.74   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 84.91  | 84.91  | 0.00              | 0.00   | 195.69  | 195.69  | 100.00                   |
| 11/10/2019         | 96.46         | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 0.00   | 0.00   | 0.03              | 0.03  | 50.95  | 51.01  | 0.02              | 0.02  | 60.35   | 60.40   | 0.00              | 0.00  | 0.00    | 0.00    | 0.02              | 0.25  | 71.76  | 72.03  | 0.07              | 0.30   | 183.07  | 183.44  | 99.80                    |
| 12/10/2019         | 96.65         | 0.00              | 0.00  | 58.66   | 58.66   | 0.01              | 0.01  | 0.00   | 0.01   | 0.00              | 0.35  | 15.34  | 15.69  | 0.00              | 0.00  | 18.83   | 18.83   | 0.00              | 0.00  | 24.81   | 24.81   | 0.00              | 0.00  | 64.05  | 64.05  | 0.01              | 0.36   | 181.69  | 182.05  | 99.80                    |
| 13/10/2019         | 96.55         | 0.00              | 0.00  | 82.19   | 82.19   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 35.27 | 35.27   | 0.00    | 0.09              | 62.49 | 62.58  | 0.00   | 0.09              | 179.96 | 180.05  | 99.95   |                          |
| 14/10/2019         | 96.48         | 0.00              | 0.00  | 82.05   | 82.05   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 35.26 | 35.26   | 0.00    | 0.04              | 62.65 | 62.69  | 0.00   | 0.04              | 179.96 | 180.01  | 99.98   |                          |
| 15/10/2019         | 95.87         | 0.02              | 0.11  | 70.22   | 70.35   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.02              | 0.03  | 24.25   | 24.30   | 0.00              | 0.03  | 52.76   | 52.80   | 0.00              | 0.04  | 23.42  | 23.46  | 0.05              | 0.22   | 170.65  | 170.91  | 99.85                    |
| 16/10/2019         | 95.26         | 0.00              | 0.41  | 72.79   | 73.19   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 45.34   | 45.34   | 0.00              | 0.00  | 70.07   | 70.07   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.41   | 188.20  | 188.60  | 99.78                    |
| 17/10/2019         | 95.40         | 0.00              | 0.80  | 70.71   | 71.51   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 45.03   | 45.03   | 0.00              | 0.00  | 72.48   | 72.48   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.80   | 188.23  | 189.02  | 99.58                    |
| 18/10/2019         | 95.32         | 0.00              | 0.79  | 70.57   | 71.37   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 44.76   | 44.76   | 0.00              | 0.00  | 72.89   | 72.89   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.79   | 188.22  | 189.01  | 99.58                    |
| 19/10/2019         | 95.34         | 0.00              | 0.46  | 62.69   | 63.15   | 0.00              | 0.00  | 27.15  | 27.15  | 0.00              | 0.01  | 1.61   | 1.61   | 0.00              | 0.00  | 58.39   | 58.39   | 0.01              | 0.42  | 37.39   | 37.82   | 0.00              | 0.03  | 0.88   | 0.90   | 0.01              | 0.91   | 188.10  | 189.02  | 99.51                    |
| 20/10/2019         | 95.26         | 0.00              | 0.11  | 53.51   | 53.63   | 0.00              | 0.00  | 56.53  | 56.53  | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 73.08   | 73.08   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.05  | 7.01   | 7.06   | 0.00              | 0.16   | 190.13  | 190.30  | 99.92                    |
| 21/10/2019         | 95.48         | 0.00              | 0.35  | 63.40   | 63.75   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 21.09  | 21.09  | 0.00              | 0.00  | 35.42   | 35.42   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.05  | 73.21  | 73.26  | 0.00              | 0.40   | 193.11  | 193.52  | 99.79                    |
| 22/10/2019         | 95.45         | 0.00              | 0.63  | 60.03   | 60.66   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 28.44  | 28.44  | 0.00              | 0.04  | 22.25   | 22.29   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.05  | 78.05  | 78.11  | 0.00              | 0.72   | 188.77  | 189.49  | 99.62                    |
| 23/10/2019         | 95.25         | 0.00              | 0.38  | 43.03   | 43.41   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 43.88  | 43.88  | 0.00              | 0.00  | 32.83   | 32.83   | 0.00              | 0.00  | 31.80   | 31.80   | 0.00              | 0.19  | 43.29  | 43.48  | 0.00              | 0.57   | 194.82  | 195.40  | 99.71                    |
| 24/10/2019         | 94.95         | 0.00              | 0.00  | 75.71   | 75.71   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 47.38  | 47.38  | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 77.54   | 77.54   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00   | 200.63  | 200.63  | 100.00                   |
| 25/10/2019         | 94.78         | 0.00              | 0.20  | 67.01   | 67.21   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 49.85  | 49.85  | 0.00              | 0.00  | 8.38    | 8.38    | 0.00              | 0.00  | 79.31   | 79.31   | 0.00              | 0.00  | 0.07   | 0.07   | 0.00              | 0.20   | 204.63  | 204.83  | 99.90                    |
| 26/10/2019         | 94.80         | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 57.81  | 57.81  | 0.00              | 0.00  | 62.19   | 62.19   | 0.00              | 0.00  | 85.00   | 85.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00   | 205.00  | 205.00  | 100.00                   |
| 27/10/2019         | 94.76         | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 57.82  | 57.82  | 0.00              | 0.00  | 62.18   | 62.18   | 0.00              | 0.00  | 85.02   | 85.02   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00   | 205.02  | 205.02  | 100.00                   |
| 28/10/2019         | 94.83         | 0.00              | 0.11  | 0.94    | 1.05    | 0.00              | 0.04  | 56.38  | 56.42  | 0.00              | 0.03  | 38.29  | 38.32  | 0.00              | 0.00  | 63.45   | 63.45   | 0.00              | 0.00  | 45.67   | 45.67   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.18   | 204.73  | 204.91  | 99.91                    |
| 29/10/2019         | 94.77         | 0.00              | 0.00  | 41.50   | 41.50   | 0.00              | 0.00  | 37.65  | 37.65  | 0.00              | 0.00  | 28.97  | 28.97  | 0.00              | 0.00  | 59.80   | 59.80   | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 0.00  | 31.64  | 31.64  | 0.00              | 0.00   | 199.56  | 199.56  | 100.00                   |
| 30/10/2019         | 94.84         | 0.03              | 0.03  | 31.86   | 31.93   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 19.90 | 19.90   | 0.00    | 0.00              | 0.00  | 0.00    | 0.00    | 0.00              | 29.08 | 29.08  | 0.03   | 0.03              | 80.84  | 80.90   | 99.92   |                          |
| 31/10/2019         | 94.74         | 0.00              | 0.00  | 76.55   | 76.55   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 0.00   | 0.00   | 0.00              | 0.00  | 48.63   | 48.63   | 0.00              | 0.00  | 0.04    | 0.04    | 0.00              | 0.00  | 74.78  | 74.78  | 0.00              | 0.00   | 200.01  | 200.01  | 100.00                   |
| <b>Total [ML]:</b> |               | 0.26              | 5.26  | 1603.20 | 1608.72 | 0.02              | 0.08  | 459.33 | 459.43 | 0.03              | 0.42  | 511.95 | 512.40 | 0.08              | 0.21  | 1079.48 | 1079.77 | 0.27              | 0.71  | 1382.26 | 1383.23 | 0.02              | 0.83  | 734.31 | 735.16 | 0.68              | 7.51   | 5770.52 | 5778.71 |                          |

**Water Volume [%]:**  
 Untreated: 0.01 %  
 Below Dose 0.13 %  
 To Dose 99.86 %

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

Submitted By (Print):   D.Minor  

Signature:   Original signed by D.Minor