



**Water and Waste Department • Service des eaux et des déchets**

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November 7, 2013

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

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

Dear Ms. Betsill:

**RE: OCTOBER 2013 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 reports for the Water Treatment Plant for October 2013. We have also included one corrective action report for positive total coliforms and E. coli in the distribution system.

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 effluent from the filters are in compliance with 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 have met the licence requirements.

The UV submission includes a summary report and reports for each reactor for October 2013 in accordance with Section 4.13, Table 2 of the Operating Licence. The UV licence requirement has been met for October.

On October 7, positive total coliform results were reported [REDACTED]

[REDACTED] In addition to the positive total coliforms [REDACTED] the samples were reported positive for E. coli. As a result, the Winnipeg Regional Health Authority issued a precautionary Boil Water Advisory on October 8, for the area south of Bishop Grandin Boulevard to the Perimeter, and east of the Red River to the Seine River. On October 7, 8 and 9, all locations were resampled, samples at some locations were collected from upstream and downstream locations and additional samples were taken in the area. All results were reported to be negative. Our sampling also indicated that the chlorine levels at the locations were normal and provided adequate disinfection. The Advisory was subsequently rescinded on October 9, when the first set of resamples were reported negative for bacteria.

Please let me know of any concerns or questions respecting this submission. I may be reached at the below address, by telephone at 204-986-4807 or by e-mail at [kkjartanson@winnipeg.ca](mailto:kkjartanson@winnipeg.ca).

Thanks for your ongoing cooperation and understanding in this matter.

Yours sincerely,

*Original signed by:*

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

KJTK:rg  
Attachments

c:(e-mail)

Dr. L. Richards, Winnipeg Regional Health Authority  
Dr. S. Roberecki, Manitoba Health  
D.P. Sacher, P.Eng.  
G. Patton, P.Eng.  
T. Josephson, P.Eng.  
A. J. Weremy, P.Eng.  
S. Fletcher

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**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 A	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Free Chlorine (mg/L)	Total Chlorine (mg/L)
Date				
01-Oct-2013	1.09	1.30	1.16	1.31
02-Oct-2013	1.31	1.48	1.27	1.47
03-Oct-2013	1.31	1.47	1.18	1.36
04-Oct-2013	1.27	1.45	1.19	1.34
05-Oct-2013	NS	NS	NS	NS
06-Oct-2013	NS	NS	NS	NS
07-Oct-2013	1.29	1.47	1.17	1.32
08-Oct-2013	1.10	1.26	1.17	1.35
09-Oct-2013	1.14	1.28	1.03	1.22
10-Oct-2013	1.29	1.39	1.19	1.27
11-Oct-2013	1.17	1.34	1.13	1.30
12-Oct-2013	NS	NS	NS	NS
13-Oct-2013	NS	NS	NS	NS
14-Oct-2013	NS	NS	NS	NS
15-Oct-2013	1.25	1.39	1.17	1.29
16-Oct-2013	1.13	1.26	1.19	1.31
17-Oct-2013	1.19	1.31	1.07	1.26
18-Oct-2013	1.19	1.32	1.13	1.25
19-Oct-2013	NS	NS	NS	NS
20-Oct-2013	NS	NS	NS	NS
21-Oct-2013	1.36	1.49	1.27	1.35
22-Oct-2013	1.31	1.50	1.21	1.40
23-Oct-2013	1.29	1.42	1.26	1.43
24-Oct-2013	1.23	1.31	1.15	1.28
25-Oct-2013	1.13	1.27	1.13	1.28
26-Oct-2013	NS	NS	NS	NS
27-Oct-2013	NS	NS	NS	NS
28-Oct-2013	1.74	1.84	1.39	1.54
29-Oct-2013	1.25	1.39	1.30	1.42
30-Oct-2013	1.24	1.42	1.27	1.46
31-Oct-2013	1.21	1.31	1.23	1.48
<b>Total number of measurements taken, A:</b>	22		22	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>	0.50		0.50	
<b>Number of measurements meeting standard, B:</b>	22		22	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>	100%		100%	

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: A.Vanderstel/S.Fletcher



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

Water System Code: **252.00**  
Licence Number: **PWS-09-412 A**  
Report Created: 01 November 2013

Report Period: October 2013

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/10/2013	1.14	1.09	1.17	1.10
02/10/2013	1.23	1.15	1.21	1.11
03/10/2013	1.30	1.20	1.18	1.14
04/10/2013	1.21	1.17	1.16	1.12
05/10/2013	1.19	1.10	1.13	1.05
06/10/2013	1.19	1.15	1.13	1.07
07/10/2013	1.17	1.04	1.21	1.13
08/10/2013	1.12	1.00	1.19	1.08
09/10/2013	1.34	1.21	1.12	1.07
10/10/2013	1.42	1.25	1.25	1.04
11/10/2013	1.35	1.24	1.24	1.15
12/10/2013	1.31	1.22	1.27	1.14
13/10/2013	1.21	1.11	1.08	0.99
14/10/2013	1.21	1.07	1.08	0.96
15/10/2013	1.19	1.11	1.07	0.91
16/10/2013	1.20	1.09	1.21	1.12
17/10/2013	1.11	1.04	1.21	1.09
18/10/2013	1.10	1.04	1.19	1.09
19/10/2013	1.08	1.01	1.14	1.06
20/10/2013	1.12	1.05	1.11	1.04
21/10/2013	1.21	1.13	1.24	1.07
22/10/2013	1.27	1.22	1.23	1.14
23/10/2013	1.27	1.18	1.20	1.05
24/10/2013	1.15	1.01	1.07	0.88
25/10/2013	1.15	1.06	1.06	0.98
26/10/2013	1.17	1.07	1.07	0.98
27/10/2013	1.20	1.13	1.11	1.05
28/10/2013	1.30	1.02	1.18	1.06
29/10/2013	1.06	1.00	1.16	1.09
30/10/2013	1.05	1.00	1.20	1.12
31/10/2013	1.26	1.03	1.26	1.11

Total Number of Measurements, A:	21602	21599
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	21602	21599
COMPLIANCE, C = B/A X 100%:	100	100

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2013\10-October

Submitted By (Print): A.Weremy

Signature: Original signed by A.Weremy



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 A	Raw Water	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5	Filter 6	Filter 7	Filter 8
Date	Raw Water	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5	Filter 6	Filter 7	Filter 8
01-Oct-2013	2.29	0.08	0.09	0.12	0.11	0.09	0.08	0.08	0.10
02-Oct-2013	3.27	0.11	0.09	0.08	0.07	0.08	0.09	0.07	0.06
03-Oct-2013	2.56	0.09	0.10	0.12	0.09	0.21	0.10	0.10	0.10
04-Oct-2013	2.92	0.14	0.10	0.11	0.10	0.11	0.08	0.07	0.08
05-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
06-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
07-Oct-2013	2.16	0.08	0.08	0.15	0.09	0.08	0.10	0.07	0.08
08-Oct-2013	3.18	0.07	0.06	0.09	0.11	0.19	0.06	0.08	0.07
09-Oct-2013	2.39	0.08	0.09	0.10	0.06	0.07	0.08	0.07	0.09
10-Oct-2013	2.07	0.05	0.07	0.07	0.09	0.07	0.09	0.10	0.09
11-Oct-2013	2.15	0.08	0.07	0.07	0.10	0.08	0.06	0.09	0.08
12-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
13-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
14-Oct-2013	1.88	0.07	0.05	0.08	0.10	0.06	0.06	0.05	0.07
15-Oct-2013	1.75	0.10	0.11	0.09	0.09	0.13	0.13	0.10	0.06
16-Oct-2013	3.21	0.07	0.07	0.08	0.12	0.07	0.07	0.06	0.09
17-Oct-2013	5.78	0.14	0.13	0.15	0.15	0.13	0.13	0.10	0.11
18-Oct-2013	2.94	0.11	0.11	0.12	0.11	0.10	0.13	0.12	0.09
19-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
21-Oct-2013	2.67	0.14	0.11	0.17	0.16	0.16	0.14	0.14	0.11
22-Oct-2013	2.66	0.09	0.09	0.12	0.11	0.10	0.15	0.12	0.11
23-Oct-2013	2.04	0.14	0.11	0.11	0.21	0.12	0.12	0.12	0.13
24-Oct-2013	2.34	0.12	0.12	0.12	0.10	0.12	0.10	0.09	0.09
25-Oct-2013	2.11	0.12	0.07	0.11	0.09	0.11	0.09	0.10	0.08
26-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
27-Oct-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
28-Oct-2013	1.67	0.10	0.08	0.10	0.06	0.13	0.06	0.07	0.08
29-Oct-2013	2.28	0.11	0.12	0.07	0.06	0.07	0.06	0.09	0.07
30-Oct-2013	2.05	0.07	0.08	0.09	0.12	0.09	0.10	0.10	0.08
31-Oct-2013	1.93	0.08	0.07	0.09	0.10	0.07	NS	0.06	0.08
<b>Total number of measurements taken, A:</b>	23	23	23	23	23	23	22	23	23
<b>Turbidity Standard for Monitoring Location (NTU):</b>	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
<b>Number of measurements meeting standard, B:</b>	23	23	23	23	23	23	22	23	23
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

**Comments:**

There was no sample for filter 6 on October 31<sup>st</sup> due to a technician error.

**Report Compiled By:** H.Demchenko

**Approved in LIMS By:** A.Vanderstel/S.Fletcher

**Date Approved:** 5-Nov-13



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

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

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

October 2013 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
1/10/2013	3.41	0.07	0.08	0.04	0.05	0.07	0.15	0.04	0.10	0.04	0.06	0.03	0.10	0.01	0.07	0.01	0.04
2/10/2013	3.48	0.06	0.14	0.03	0.15	0.08	0.09	0.03	0.04	0.05	0.11	0.04	0.06	0.01	0.03	0.01	0.06
3/10/2013	3.46	0.06	0.08	0.03	0.04	0.07	0.15	0.04	0.10	0.04	0.09	0.03	0.09	0.01	0.07	0.01	0.03
4/10/2013	3.67	0.08	0.13	0.03	0.09	0.06	0.08	0.03	0.09	0.05	0.07	0.03	0.04	0.01	0.02	0.01	0.05
5/10/2013	3.79	0.06	0.11	0.02	0.07	0.08	0.13	0.03	0.05	0.04	0.09	0.03	0.07	0.01	0.07	0.01	0.02
6/10/2013	3.66	0.06	0.08	0.03	0.05	0.06	0.13	0.03	0.08	0.04	0.05	0.02	0.07	0.01	0.06	0.02	0.05
7/10/2013	3.50	0.06	0.12	0.03	0.07	0.07	0.08	0.02	0.07	0.04	0.08	0.03	0.05	0.01	0.02	0.01	0.05
8/10/2013	3.32	0.06	0.07	0.03	0.04	0.07	0.13	0.04	0.09	0.03	0.10	0.03	0.08	0.02	0.07	0.02	0.03
9/10/2013	3.10	0.06	0.13	0.02	0.07	0.05	0.12	0.03	0.08	0.04	0.07	0.03	0.05	0.01	0.03	0.02	0.07
10/10/2013	2.87	0.05	0.10	0.02	0.07	0.07	0.09	0.03	0.04	0.03	0.08	0.03	0.07	0.02	0.07	0.02	0.03
11/10/2013	2.81	0.06	0.07	0.03	0.05	0.06	0.12	0.03	0.08	0.03	0.04	0.02	0.08	0.01	0.06	0.03	0.07
12/10/2013	2.75	0.05	0.10	0.03	0.07	0.06	0.08	0.02	0.06	0.04	0.08	0.03	0.05	0.01	0.02	0.02	0.06
13/10/2013	2.65	0.04	0.10	0.03	0.04	0.07	0.11	0.03	0.04	0.03	0.07	0.02	0.07	0.01	0.06	0.03	0.03
14/10/2013	2.26	0.06	0.07	0.04	0.07	0.05	0.12	0.03	0.06	0.03	0.05	0.03	0.04	0.01	0.02	0.03	0.06
15/10/2013	2.10	0.05	0.12	0.03	0.09	0.08	0.10	0.03	0.16	0.04	0.11	0.04	0.10	0.03	0.07	0.04	0.05
16/10/2013	3.19	0.08	0.10	0.06	0.09	0.08	0.17	0.05	0.09	0.04	0.07	0.04	0.13	0.03	0.09	0.07	0.09
17/10/2013	3.67	0.08	0.16	0.04	0.09	0.09	0.12	0.06	0.13	0.08	0.21	0.07	0.09	0.05	0.06	0.06	0.08
18/10/2013	3.39	0.06	0.14	0.03	0.04	0.08	0.14	0.07	0.09	0.06	0.13	0.04	0.11	0.04	0.11	0.03	0.04
19/10/2013	3.22	0.08	0.10	0.03	0.08	0.07	0.14	0.07	0.13	0.06	0.12	0.04	0.10	0.04	0.09	0.03	0.10
20/10/2013	3.12	0.07	0.13	0.03	0.08	0.07	0.15	0.06	0.15	0.07	0.12	0.05	0.07	0.04	0.06	0.03	0.08
21/10/2013	3.12	0.07	0.14	0.02	0.07	0.08	0.11	0.06	0.13	0.06	0.12	0.05	0.11	0.05	0.10	0.03	0.08
22/10/2013	2.99	0.05	0.12	0.01	0.03	0.07	0.13	0.07	0.10	0.05	0.10	0.04	0.10	0.04	0.09	0.02	0.03
23/10/2013	2.92	0.07	0.09	0.01	0.05	0.06	0.15	0.06	0.12	0.05	0.06	0.03	0.11	0.03	0.11	0.02	0.07
24/10/2013	2.87	0.06	0.14	0.01	0.06	0.06	0.12	0.06	0.14	0.05	0.12	0.03	0.06	0.03	0.08	0.01	0.08
25/10/2013	3.02	0.06	0.10	0.01	0.05	0.06	0.08	0.05	0.07	0.04	0.09	0.03	0.08	0.03	0.06	0.01	0.06
26/10/2013	2.65	0.04	0.07	0.00	0.02	0.03	0.12	0.05	0.12	0.03	0.05	0.01	0.04	0.01	0.08	0.01	0.03
27/10/2013	2.40	0.03	0.09	0.00	0.00	0.03	0.07	0.03	0.07	0.02	0.10	0.01	0.04	0.01	0.04	0.01	0.02
28/10/2013	2.33	0.04	0.07	0.00	0.01	0.03	0.05	0.03	0.08	0.06	0.08	0.01	0.01	0.01	0.06	0.01	0.02
29/10/2013	2.13	0.04	0.08	0.00	0.01	0.03	0.09	0.04	0.19	0.05	0.09	0.01	0.03	0.01	0.02	0.01	0.02
30/10/2013	2.19	0.04	0.09	0.00	0.00	0.05	0.09	0.05	0.07	0.04	0.09	0.01	0.06	0.02	0.05	0.01	0.01
31/10/2013	2.17	0.03	0.06	0.00	0.05	0.02	0.10	0.03	0.10	0.03	0.06	0.01	0.02	0.01	0.02	0.00	0.06

Total Number of Measurements Taken, A:	16215	15375	16145	12519	16878	16811	15223	16509
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:	16215	15375	16145	12519	16878	16811	15223	16509
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2013\10-October

Submitted By (Print): A.Weremy

Signature: Original signed by A.Weremy



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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **October 2013**

Report Created: **Friday, November 01, 2013**

Date	Transmittance %	UVR-D100A Water Volume [ML]				UVR-D200A Water Volume [ML]				UVR-D300A Water Volume [ML]				UVR-D400A Water Volume [ML]				UVR-D500A Water Volume [ML]				UVR-D600A Water Volume [ML]				Total Water Volume [ML]				% Volume Treated To Dose
		Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	
1/10/2013	96.28	0.00	0.00	52.49	52.49	0.00	0.00	69.44	69.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.76	73.76	0.00	0.00	0.00	0.00	0.00	0.00	195.68	195.68	100.00
2/10/2013	96.33	0.00	0.00	45.65	45.65	0.00	0.00	71.29	71.29	0.00	0.00	0.00	0.00	0.00	0.00	6.97	6.97	0.00	0.00	72.08	72.08	0.00	0.00	0.00	0.00	0.00	0.00	195.99	195.99	100.00
3/10/2013	96.48	0.00	0.00	0.00	0.00	0.00	0.00	83.82	83.82	0.00	0.00	0.00	0.00	0.00	0.00	53.17	53.17	0.00	0.00	62.11	62.11	0.00	0.00	0.00	0.00	0.00	0.00	199.11	199.11	100.00
4/10/2013	96.48	0.00	0.00	0.00	0.00	0.00	0.00	84.55	84.55	0.00	0.00	0.00	0.00	0.00	0.00	55.34	55.34	0.00	0.00	64.66	64.66	0.00	0.00	0.00	0.00	0.00	0.00	204.55	204.55	100.00
5/10/2013	96.50	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	55.43	55.43	0.00	0.00	64.79	64.79	0.00	0.00	0.00	0.00	0.00	0.00	205.20	205.20	100.00
6/10/2013	96.55	0.00	0.00	0.00	0.00	0.00	0.00	84.98	84.98	0.00	0.00	0.00	0.00	0.00	0.00	55.25	55.25	0.00	0.00	64.64	64.64	0.00	0.00	0.00	0.00	0.00	0.00	204.87	204.87	100.00
7/10/2013	96.59	0.00	0.05	0.34	0.39	0.00	0.20	53.55	53.75	0.00	0.21	0.00	0.21	0.00	0.00	61.25	61.25	0.00	0.00	61.10	61.10	0.00	0.00	30.51	30.51	0.00	0.46	206.76	207.22	99.78
8/10/2013	96.54	0.00	0.00	39.84	39.84	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.21	0.00	0.00	65.48	65.48	0.00	0.00	27.69	27.69	0.00	0.00	79.03	79.03	0.00	0.21	212.04	212.25	99.90
9/10/2013	96.46	0.00	0.00	80.00	80.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.58	61.58	0.00	0.00	0.00	0.00	0.00	0.00	73.84	73.84	0.00	0.00	215.41	215.41	100.00	
10/10/2013	96.40	0.00	0.00	80.02	80.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.25	62.25	0.00	0.00	47.47	47.47	0.00	0.00	26.28	26.28	0.00	0.00	216.01	216.02	100.00	
11/10/2013	96.30	0.00	0.00	79.62	79.62	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.09	56.56	56.65	0.00	0.00	71.03	71.03	0.00	0.00	8.45	8.45	0.00	0.30	215.67	215.97	99.86
12/10/2013	96.01	0.00	0.00	79.98	79.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.16	61.16	0.00	0.00	71.43	71.43	0.00	0.00	0.00	0.00	0.00	0.00	212.58	212.58	100.00	
13/10/2013	96.56	0.00	0.00	76.53	76.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.36	54.36	0.00	0.00	63.33	63.33	0.00	0.00	0.00	0.00	0.00	0.00	194.22	194.22	100.00	
14/10/2013	96.61	0.00	0.48	76.04	76.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.80	24.32	0.00	0.00	44.53	44.53	0.00	0.00	41.86	41.86	0.00	1.01	186.22	187.22	99.46	
15/10/2013	96.55	0.00	0.00	31.15	31.15	0.00	0.00	0.00	0.00	0.00	0.00	34.66	34.66	0.00	0.00	45.61	45.61	0.00	0.00	43.85	43.85	0.00	0.00	33.26	33.26	0.00	0.00	188.54	188.54	100.00
16/10/2013	96.18	0.05	0.39	31.36	31.80	0.00	0.00	0.00	0.00	0.00	0.04	51.87	51.90	0.00	0.00	56.06	56.06	0.00	0.00	45.82	45.82	0.00	0.00	4.36	4.36	0.05	0.42	189.46	189.93	99.75
17/10/2013	95.57	0.00	0.00	62.92	62.92	0.00	0.00	37.36	37.36	0.00	0.00	19.21	19.21	0.00	0.00	69.73	69.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	189.22	189.22	100.00
18/10/2013	95.68	0.00	0.00	49.40	49.40	0.00	0.00	68.39	68.39	0.00	0.00	0.76	0.76	0.00	0.00	26.23	26.23	0.00	0.00	0.65	0.65	0.00	0.09	47.13	47.22	0.00	0.09	192.57	192.66	99.95
19/10/2013	95.63	0.00	0.00	25.26	25.26	0.00	0.00	74.58	74.58	0.00	0.00	3.05	3.05	0.00	0.00	19.13	19.13	0.00	0.00	0.00	0.00	0.00	0.00	72.97	72.97	0.00	0.00	195.00	195.00	100.00
20/10/2013	95.71	0.00	0.00	0.00	0.00	0.00	0.00	80.10	80.10	0.00	0.00	0.00	0.00	0.00	0.00	48.04	48.04	0.00	0.00	0.00	0.00	0.00	0.00	66.84	66.84	0.00	0.00	194.99	194.99	100.00
21/10/2013	95.96	0.00	0.00	0.00	0.00	0.00	0.00	80.00	80.00	0.00	0.00	0.00	0.00	0.00	0.00	47.84	47.84	0.00	0.00	25.28	25.28	0.00	0.00	41.87	41.87	0.00	0.00	194.99	194.99	100.00
22/10/2013	96.16	0.00	0.00	0.00	0.00	0.00	0.00	80.77	80.77	0.00	0.00	0.00	0.00	0.00	0.00	50.88	50.88	0.00	0.00	0.00	0.00	0.00	0.00	63.32	63.32	0.00	0.00	194.97	194.97	100.00
23/10/2013	96.28	0.00	0.00	10.05	10.05	0.00	0.00	15.97	15.97	0.00	0.00	46.05	46.05	0.00	0.00	57.91	57.91	0.00	0.00	0.00	0.00	0.00	0.00	64.37	64.37	0.00	0.00	194.35	194.35	100.00
24/10/2013	96.36	0.00	0.00	75.72	75.72	0.00	0.00	0.00	0.00	0.00	0.00	51.48	51.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	64.89	64.98	0.00	0.09	192.08	192.18	99.95
25/10/2013	96.50	0.00	0.32	75.47	75.79	0.00	0.00	0.00	0.00	0.00	0.00	39.14	39.14	0.00	0.00	12.64	12.64	0.00	0.00	0.00	0.00	0.00	0.00	64.46	64.46	0.00	0.32	191.71	192.03	99.83
26/10/2013	96.82	0.00	0.58	75.58	76.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.38	53.38	0.00	0.00	0.00	0.00	0.00	0.00	62.45	62.45	0.00	0.58	191.40	191.98	99.70	
27/10/2013	97.01	0.00	1.64	74.57	76.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.33	53.33	0.00	0.00	0.00	0.00	0.00	0.52	61.93	62.45	0.00	2.16	189.83	191.99	98.87	
28/10/2013	96.53	0.00	0.00	4.53	4.53	0.00	0.00	45.03	45.03	0.00	0.00	49.74	49.74	0.00	0.03	26.97	26.99	0.00	0.00	61.68	61.68	0.00	0.14	3.88	4.02	0.00	0.16	191.84	192.00	99.91
29/10/2013	96.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.31	59.31	0.00	0.00	59.98	59.98	0.00	0.00	70.01	70.01	0.00	0.00	0.00	0.00	0.00	0.00	189.31	189.31	100.00
30/10/2013	96.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.99	62.99	0.00	0.00	60.01	60.01	0.00	0.00	69.99	69.99	0.00	0.00	0.00	0.00	0.00	0.00	192.98	192.99	100.00
31/10/2013	95.70	0.00	0.00	19.99	19.99	0.00	0.00	0.00	0.00	0.00	0.25	24.60	24.85	0.00	0.03	38.97	39.01	0.00	0.00	44.01	44.01	0.00	0.00	0.00	0.00	0.00	0.28	127.58	127.86	99.78
		0.05	3.46	1146.53	1150.04	0.00	0.20	1014.83	1015.03	0.00	0.92	442.85	443.77	0.00	0.67	1399.30	1399.98	0.00	0.00	1149.90	1149.90	0.00	0.84	911.70	912.54	0.06	6.09	6065.11	6071.26	

Water Volume [%]:  
 Untreated: 0.00 %  
 Below Dose: 0.10 %  
 To Dose: 99.90 %

Submitted By (Print): A.Weremy

Signature: Original signed by A.Weremy



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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **October 2013**

Report Created: **Friday, November 01, 2013**

Reactor: **UVR-100A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity										UV Lamp Status										% Volume Treated	Daily Totals				
	mJ/cm <sup>2</sup>			MLD			W/m <sup>2</sup>										Hours											to Validate Conditions	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	Untreated	Below Dose			To Dose	Total		
1/10/2013	19.2	26.7	24.2	50.1	54.3	52.5	87.6	112.3	84.8	195.8	113.7	84.7	OL	OL	OL	3743	3613	4016	2374	5073	5071	4036	2703	5526	100.00	0.00	0.00	52.49	52.49			
2/10/2013	0.0	33.0	24.2	0.0	54.6	52.6	85.5	112.6	85.1	195.3	112.9	84.9	OL	OL	OL	3763	3634	4037	2395	5094	5092	4036	2703	5526	100.00	0.00	0.00	45.65	45.65			
3/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3763	3634	4037	2395	5094	5092	4036	2703	5526	OL	0.00	0.00	0.00	0.00			
4/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3763	3634	4037	2395	5094	5092	4036	2703	5526	OL	0.00	0.00	0.00	0.00			
5/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3763	3634	4037	2395	5094	5092	4036	2703	5526	OL	0.00	0.00	0.00	0.00			
6/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3763	3634	4037	2395	5094	5092	4036	2703	5526	OL	0.00	0.00	0.00	0.00			
7/10/2013	0.0	79.8	25.3	0.0	84.0	69.7	77.6	87.7	80.6	143.5	86.8	81.6	61.8	70.4	13.0	3764	3634	4037	2395	5094	5092	4037	2703	5527	87.30	0.00	0.05	0.34	0.39			
8/10/2013	0.0	92.8	24.2	0.0	89.7	79.9	82.0	110.0	81.6	182.2	113.8	84.4	209.7	81.3	80.3	3776	3646	4049	2407	12	12	4049	2715	12	100.00	0.00	0.00	39.84	39.84			
9/10/2013	17.7	34.0	24.1	74.7	85.4	80.0	84.1	109.7	82.0	178.2	127.4	126.0	227.9	126.0	126.0	3777	3648	4050	2431	36	36	4073	2739	36	100.00	0.00	0.00	80.00	80.00			
10/10/2013	19.8	32.4	24.1	75.0	85.3	80.0	OL	OL	OL	165.7	128.0	128.1	226.7	128.0	128.0	3777	3648	4050	2455	60	60	4097	2763	60	100.00	0.00	0.00	80.02	80.02			
11/10/2013	19.9	32.0	24.1	58.7	90.3	79.6	OL	OL	OL	161.3	127.6	127.5	227.1	127.4	127.4	3777	3648	4050	2479	84	84	4121	2787	84	100.00	0.00	0.00	79.62	79.62			
12/10/2013	19.7	31.1	24.1	75.3	84.7	80.0	OL	OL	OL	162.5	128.0	128.1	229.9	128.0	128.0	3777	3648	4050	2503	108	108	4145	2811	108	100.00	0.00	0.00	79.98	79.98			
13/10/2013	19.8	28.5	24.1	71.8	84.0	76.5	OL	OL	OL	158.3	122.5	122.6	226.2	122.5	122.6	3777	3648	4050	2527	132	132	4169	2835	132	100.00	0.00	0.00	76.53	76.53			
14/10/2013	0.0	60.8	24.0	0.0	90.8	77.0	9.1	24.1	20.2	157.1	123.1	122.9	224.7	122.9	122.9	3777	3648	4050	2551	156	156	4193	2859	156	99.37	0.00	0.48	76.04	76.52			
15/10/2013	0.0	51.5	24.1	0.0	74.3	71.4	61.9	128.1	108.5	158.3	116.2	113.5	224.4	111.3	117.7	3778	3649	4051	2562	166	167	4203	2870	166	100.00	0.00	0.00	31.15	31.15			
16/10/2013	0.0	102.3	24.0	0.0	84.4	79.9	78.5	125.4	103.1	164.7	128.4	121.3	202.1	117.9	129.2	3781	3652	4054	2572	176	177	4213	2880	176	98.63	0.05	0.39	31.36	31.80			
17/10/2013	17.8	34.4	24.1	42.3	84.5	62.9	112.8	82.3	78.2	96.6	79.9	78.4	158.8	79.1	79.0	3793	3664	4066	2596	200	201	4237	2904	200	100.00	0.00	0.00	62.92	62.92			
18/10/2013	17.9	35.0	24.4	31.3	55.8	49.4	77.3	57.6	51.6	87.4	74.9	62.4	166.1	69.6	69.0	3808	3679	4082	2620	224	225	4261	2928	224	100.00	0.00	0.00	49.40	49.40			
19/10/2013	0.0	36.1	24.5	0.0	51.3	49.7	79.1	58.0	51.3	94.5	74.1	51.3	168.2	61.8	61.3	3821	3691	4094	2632	237	237	4273	2940	236	100.00	0.00	0.00	25.26	25.26			
20/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3821	3691	4094	2632	237	237	4273	2940	236	OL	0.00	0.00	0.00	0.00			
21/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3821	3691	4094	2632	237	237	4273	2940	236	OL	0.00	0.00	0.00	0.00			
22/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3821	3691	4094	2632	237	237	4273	2940	236	OL	0.00	0.00	0.00	0.00			
23/10/2013	16.5	62.2	24.1	6.0	79.0	75.8	78.6	78.6	77.6	88.9	76.9	76.1	159.2	77.0	77.0	3824	3695	4097	2635	240	240	4276	2943	239	100.00	0.00	0.00	10.05	10.05			
24/10/2013	17.6	24.9	23.5	73.3	78.6	75.7	77.3	77.3	77.1	95.3	77.4	74.0	174.2	77.1	77.1	3848	3719	4121	2659	264	264	4300	2967	263	100.00	0.00	0.00	75.72	75.72			
25/10/2013	17.2	24.0	22.7	73.0	78.0	75.8	77.4	77.4	76.8	94.7	77.3	70.8	165.5	77.2	77.2	3872	3743	4145	2683	288	288	4324	2991	287	99.58	0.00	0.32	75.47	75.79			
26/10/2013	16.6	23.4	22.1	73.3	78.3	76.2	77.7	77.7	73.0	94.8	77.8	68.9	172.8	77.5	77.5	3896	3767	4169	2707	312	312	4348	3015	311	99.24	0.00	0.58	75.58	76.16			
27/10/2013	16.2	22.4	21.4	73.7	78.5	76.2	77.8	77.7	66.4	93.8	77.6	66.4	171.8	77.6	77.6	3920	3791	4193	2731	336	336	4372	3039	335	97.85	0.00	1.64	74.57	76.21			
28/10/2013	0.0	45.1	21.2	0.0	77.9	75.6	77.2	77.0	64.7	93.0	77.4	64.5	170.2	77.0	77.1	3921	3792	4195	2732	337	337	4374	3040	337	100.00	0.00	0.00	4.53	4.53			
29/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3921	3792	4195	2732	337	337	4374	3040	337	OL	0.00	0.00	0.00	0.00			
30/10/2013	OL	OL	OL	OL	9.8	2.5	OL	OL	OL	OL	OL	OL	OL	OL	OL	3921	3792	4195	2732	337	337	4374	3040	337	OL	0.00	0.00	0.00	0.00			
31/10/2013	18.8	106.4	24.2	3.4	92.6	79.6	116.6	110.1	89.4	184.9	127.3	125.6	229.8	125.6	131.9	3922	3792	4195	2739	343	344	4380	3047	343	100.00	0.00	0.00	19.99	19.99			
<b>Total [ML]:</b>																									0.05	3.46	1146.53	1150.04				

**Water Volume [%]:**

Untreated: 0.00 %  
 Below Dose: 0.30 %  
 To Dose: 99.69 %

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

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\10-October





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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **October 2013**

Report Created: **Friday, November 01, 2013**

Reactor: **UVR-200A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validate Conditions	Daily Totals				
	mJ/cm <sup>2</sup>			MLD			W/m <sup>2</sup>									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		Untreated	Below Dose	To Dose	Total	
1/10/2013	21.3	25.5	24.1	67.3	71.6	69.4	167.2	111.4	111.5	137.5	111.7	111.4	OL	OL	OL	4393	4393	4394	4085	3569	1238	4329	4330	4329	100.00	0.00	0.00	69.44	69.44	
2/10/2013	20.1	24.6	24.1	63.8	84.2	71.3	165.8	114.3	114.5	138.0	114.6	114.3	OL	OL	OL	4417	4417	4418	4109	3593	1262	4329	4330	4329	100.00	0.00	0.00	71.29	71.29	
3/10/2013	21.1	24.5	24.1	80.7	86.4	83.8	162.9	134.0	134.2	135.2	134.2	134.0	OL	OL	OL	4441	4441	4442	4133	3617	1286	4329	4330	4329	100.00	0.00	0.00	83.82	83.82	
4/10/2013	21.0	24.5	24.1	82.2	87.5	84.5	161.6	135.2	135.3	135.5	135.4	135.2	OL	OL	OL	4465	4465	4466	4157	3641	1310	4329	4330	4329	100.00	0.00	0.00	84.55	84.55	
5/10/2013	20.9	24.5	24.1	82.8	87.2	85.0	161.6	135.9	136.0	136.2	136.1	135.9	OL	OL	OL	4489	4489	4490	4181	3665	1334	4329	4330	4329	100.00	0.00	0.00	84.99	84.99	
6/10/2013	20.8	25.7	24.1	82.7	87.4	85.0	161.8	135.9	136.0	136.1	136.1	135.9	OL	OL	OL	4513	4513	4514	4205	3689	1358	4329	4330	4329	100.00	0.00	0.00	84.98	84.98	
7/10/2013	0.0	25.8	24.0	0.0	87.2	84.9	158.7	135.8	136.1	136.9	137.0	135.9	OL	OL	OL	4529	4528	4529	4220	3704	1373	4329	4330	4329	99.63	0.00	0.20	53.55	53.75	
8/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1373	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
9/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1373	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
10/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1373	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
11/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1373	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
12/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1373	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
13/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1373	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
14/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1374	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
15/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1374	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
16/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4529	0	4529	4221	3704	1374	4329	4330	4329	OL	0.00	0.00	0.00	0.00	0.00
17/10/2013	19.5	56.3	24.5	4.1	67.7	65.4	130.3	76.4	78.5	115.9	75.6	68.7	225.3	66.8	65.0	4542	14	4542	4234	3718	1387	4343	4344	4343	100.00	0.00	0.00	37.36	37.36	
18/10/2013	20.8	27.2	24.5	44.8	81.3	68.4	157.6	84.2	92.2	129.7	88.3	74.9	255.3	69.9	70.0	4566	38	4566	4258	3742	1411	4367	4368	4367	100.00	0.00	0.00	68.39	68.39	
19/10/2013	21.0	27.5	24.4	62.9	81.1	74.6	168.3	87.7	104.0	132.3	91.9	79.3	264.9	76.1	76.1	4590	62	4590	4282	3766	1435	4391	4392	4391	100.00	0.00	0.00	74.58	74.58	
20/10/2013	20.9	24.8	24.3	77.3	82.4	80.1	176.2	89.4	92.5	129.8	92.2	81.5	267.1	81.6	81.6	4614	86	4614	4306	3790	1459	4415	4416	4415	100.00	0.00	0.00	80.10	80.10	
21/10/2013	20.9	24.8	24.3	76.7	82.2	80.0	176.0	87.4	81.5	123.0	87.3	81.4	262.5	81.5	81.5	4638	110	4638	4330	3814	1483	4439	4440	4439	100.00	0.00	0.00	80.00	80.00	
22/10/2013	20.5	25.3	23.8	61.6	90.4	80.8	173.4	84.9	80.4	116.8	82.9	82.3	258.2	82.2	82.2	4662	134	4662	4354	3838	1507	4463	4464	4463	100.00	0.00	0.00	80.77	80.77	
23/10/2013	0.0	38.4	20.5	0.0	83.2	81.0	171.5	83.1	66.4	112.7	82.5	82.4	254.1	82.9	83.0	4667	139	4667	4359	3843	1512	4468	4468	4468	100.00	0.00	0.00	15.97	15.97	
24/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4667	139	4667	4359	3843	1512	4468	4468	4468	OL	0.00	0.00	0.00	0.00	0.00
25/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4667	139	4667	4359	3843	1512	4468	4468	4468	OL	0.00	0.00	0.00	0.00	0.00
26/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4667	139	4667	4359	3843	1512	4468	4468	4468	OL	0.00	0.00	0.00	0.00	0.00
27/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4667	139	4667	4359	3843	1512	4468	4468	4468	OL	0.00	0.00	0.00	0.00	0.00
28/10/2013	0.0	105.2	24.0	0.0	84.9	79.9	178.3	113.6	132.2	137.4	120.8	120.0	162.6	80.8	83.2	4681	152	4681	4373	3856	1526	4473	4474	4473	100.00	0.00	0.00	45.03	45.03	
29/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4681	152	4681	4373	3856	1526	4473	4474	4473	OL	0.00	0.00	0.00	0.00	0.00
30/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4681	152	4681	4373	3856	1526	4473	4474	4473	OL	0.00	0.00	0.00	0.00	0.00
31/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4681	152	4681	4373	3856	1526	4473	4474	4473	OL	0.00	0.00	0.00	0.00	0.00
<b>Total [ML]:</b>																										0.00	0.20	1014.83	1015.03	

**Water Volume [%]:**

Untreated: 0.00 %  
 Below Dose: 0.02 %  
 To Dose: 99.98 %

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

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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **October 2013**

Report Created: **Friday, November 01, 2013**

Reactor: **UVR-300A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validate Conditions	Daily Totals			
	mJ/cm <sup>2</sup>			MLD			W/m <sup>2</sup>									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		Untreated	Below Dose	To Dose	Total
1/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
2/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
3/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
4/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
5/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
6/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
7/10/2013	0.0	8.7	2.9	0.0	59.3	47.2	136.1	78.4	128.5	61.6	108.5	4.3	90.2	112.7	110.5	1439	1053	1439	1234	1234	1234	1423	1424	1424	0.00	0.00	0.21	0.00	0.21
8/10/2013	0.0	4.4	1.2	0.0	61.5	48.5	122.2	67.3	112.0	125.5	100.1	1.9	88.1	108.8	105.2	1439	1053	1439	1235	1234	1234	1423	1424	1424	0.00	0.00	0.21	0.00	0.21
9/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1235	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
10/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1235	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00
11/10/2013	0.0	2.5	0.6	0.0	61.2	42.4	90.2	57.7	96.5	109.2	76.1	1.1	79.7	94.2	99.0	1440	1053	1439	1235	1234	1234	1424	1424	1424	0.00	0.00	0.22	0.00	0.22
12/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1440	1053	1439	1235	1234	1234	1424	1424	1424	OL	0.00	0.00	0.00	0.00
13/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1440	1053	1439	1235	1234	1234	1424	1424	1424	OL	0.00	0.00	0.00	0.00
14/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1440	1053	1439	1235	1234	1234	1424	1424	1424	OL	0.00	0.00	0.00	0.00
15/10/2013	19.4	96.0	26.5	0.0	77.9	54.8	151.3	97.4	112.3	124.2	104.5	123.2	39.4	129.0	120.8	1455	1069	1454	1250	1250	1249	1424	1425	1424	100.00	0.00	0.00	34.66	34.66
16/10/2013	0.0	84.5	24.2	0.0	84.6	52.2	97.0	84.4	84.4	92.1	85.1	85.3	53.3	59.1	48.7	1479	1093	1478	1274	1274	1273	1424	1425	1425	99.93	0.00	0.04	51.87	51.90
17/10/2013	0.0	28.4	24.3	0.0	47.4	44.6	86.7	72.3	72.3	84.2	72.8	77.1	OL	OL	OL	1489	1103	1489	1284	1284	1284	1424	1425	1425	100.00	0.00	0.00	19.21	19.21
18/10/2013	0.0	77.6	25.4	0.0	75.9	68.0	77.0	70.8	68.5	69.9	69.5	74.9	71.4	69.8	65.6	1489	1103	1489	1285	1284	1284	1424	1425	1425	100.00	0.00	0.00	0.76	0.76
19/10/2013	0.0	71.0	24.5	0.0	46.4	43.6	79.1	68.0	66.3	71.6	69.6	75.3	62.6	65.6	49.8	1491	1105	1491	1286	1286	1286	1425	1426	1425	100.00	0.00	0.00	3.05	3.05
20/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1491	1105	1491	1286	1286	1286	1425	1426	1425	OL	0.00	0.00	0.00	0.00
21/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1491	1105	1491	1286	1286	1286	1425	1426	1425	OL	0.00	0.00	0.00	0.00
22/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1491	1105	1491	1286	1286	1286	1425	1426	1425	OL	0.00	0.00	0.00	0.00
23/10/2013	19.1	57.8	24.5	1.2	62.9	57.3	68.4	59.1	59.0	76.4	59.9	66.9	65.9	76.7	58.9	1510	1124	1510	1306	1305	1305	1444	1445	1445	100.00	0.00	0.00	46.05	46.05
24/10/2013	20.8	29.4	24.6	49.1	53.7	51.5	70.6	53.2	53.1	82.0	58.0	67.7	64.7	79.2	53.2	1534	1148	1534	1330	1329	1329	1468	1469	1469	100.00	0.00	0.00	51.48	51.48
25/10/2013	0.0	38.4	24.6	0.0	53.5	51.3	73.4	53.1	52.9	83.2	54.8	68.2	64.5	79.7	53.1	1553	1167	1552	1348	1348	1347	1487	1487	1487	100.00	0.00	0.00	39.14	39.14
26/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1553	1167	1552	1348	1348	1347	1487	1487	1487	OL	0.00	0.00	0.00	0.00
27/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1553	1167	1552	1348	1348	1347	1487	1487	1487	OL	0.00	0.00	0.00	0.00
28/10/2013	19.2	51.7	24.6	3.7	65.6	53.1	71.6	55.1	54.9	80.3	58.8	66.3	64.8	79.5	54.9	1575	1189	1575	1370	1370	1370	1509	1510	1510	100.00	0.00	0.00	49.74	49.74
29/10/2013	20.5	25.8	24.5	54.2	67.0	59.3	74.0	61.0	60.8	83.1	61.0	67.2	67.5	81.7	61.0	1599	1213	1599	1394	1394	1394	1533	1534	1534	100.00	0.00	0.00	59.31	59.31
30/10/2013	20.2	25.7	24.3	59.7	67.5	63.0	71.7	64.6	63.9	80.7	64.5	65.0	66.1	79.2	64.6	1623	1237	1623	1418	1418	1418	1557	1558	1558	100.00	0.00	0.00	62.99	62.99
31/10/2013	0.0	40.3	23.6	0.0	77.9	58.7	67.7	60.7	53.6	75.1	60.8	62.4	63.8	75.7	59.9	1634	1247	1633	1429	1429	1428	1567	1568	1568	99.01	0.00	0.25	24.60	24.85
<b>Total [ML]:</b>																									0.00	0.92	442.85	443.77	

**Water Volume [%]:**

Untreated: 0.00 %  
 Below Dose: 0.21 %  
 To Dose: 99.79 %

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

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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **October 2013**

Report Created: **Friday, November 01, 2013**

Reactor: **UVR-500A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validate Conditions	Daily Totals			
	mJ/cm <sup>2</sup>			MLD			W/m <sup>2</sup>									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		Untreated	Below Dose	To Dose	Total
1/10/2013	20.6	26.9	24.3	71.4	75.5	73.8	80.5	75.3	75.4	175.0	89.3	75.4	249.3	108.7	117.4	1428	1428	2103	1513	2001	1513	3692	3691	3691	100.00	0.00	0.00	73.76	73.76
2/10/2013	20.6	25.7	24.3	57.6	75.5	72.1	79.6	73.6	73.7	176.5	88.3	73.7	248.9	104.0	113.9	1452	1452	2127	1537	2025	1537	3716	3715	3715	100.00	0.00	0.00	72.08	72.08
3/10/2013	20.6	25.3	24.4	58.9	64.1	62.1	78.7	63.7	63.8	177.2	88.4	63.8	248.3	100.4	114.0	1476	1476	2151	1561	2049	1561	3740	3739	3739	100.00	0.00	0.00	62.11	62.11
4/10/2013	20.5	26.1	24.4	59.6	69.8	64.7	78.8	66.3	66.4	181.4	88.7	66.4	248.2	101.0	115.4	1500	1500	2175	1585	2073	1585	3764	3763	3763	100.00	0.00	0.00	64.66	64.66
5/10/2013	20.6	25.3	24.4	61.7	69.2	64.8	79.2	66.4	66.5	186.4	88.9	66.5	248.6	103.1	117.1	1524	1524	2199	1609	2097	1609	3788	3787	3787	100.00	0.00	0.00	64.79	64.79
6/10/2013	20.7	27.0	24.4	61.1	66.7	64.6	80.0	66.3	66.3	193.6	89.3	66.4	248.6	104.2	120.3	1548	1548	2223	1633	2121	1633	3812	3811	3811	100.00	0.00	0.00	64.64	64.64
7/10/2013	20.3	29.5	24.5	41.7	92.8	61.1	79.3	62.4	63.6	196.8	89.1	64.9	248.6	103.6	123.8	1572	1572	2247	1657	2145	1657	3836	3835	3835	100.00	0.00	0.00	61.10	61.10
8/10/2013	0.0	82.3	24.6	0.0	63.0	55.4	81.3	57.2	60.0	201.6	89.8	60.9	216.9	105.9	130.6	1584	1584	2259	1669	2157	1669	3848	3847	3847	100.00	0.00	0.00	27.69	27.69
9/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1584	1584	2259	1669	2157	1669	3848	3847	3847	OL	0.00	0.00	0.00	0.00
10/10/2013	18.3	67.6	24.3	3.5	76.5	73.5	75.6	74.9	75.2	187.6	84.2	75.0	227.7	98.5	130.4	1599	1599	2275	1685	2172	1685	3863	3863	3863	100.00	0.00	0.00	47.47	47.47
11/10/2013	19.0	33.1	24.4	34.3	84.7	71.0	78.4	72.7	73.0	197.0	90.3	74.5	232.9	106.8	138.7	1623	1623	2299	1709	2196	1709	3887	3887	3886	100.00	0.00	0.00	71.03	71.03
12/10/2013	20.5	25.8	24.3	68.0	76.0	71.4	81.1	72.9	73.0	202.4	92.2	73.1	247.9	110.3	142.7	1647	1647	2323	1733	2220	1733	3911	3911	3910	100.00	0.00	0.00	71.43	71.43
13/10/2013	20.6	25.5	24.4	57.2	74.0	63.3	80.1	64.9	65.0	201.4	92.7	65.1	247.5	108.5	140.9	1671	1671	2347	1757	2244	1757	3935	3935	3934	100.00	0.00	0.00	63.33	63.33
14/10/2013	17.5	32.9	24.4	22.9	62.0	44.4	80.4	59.7	60.8	204.9	95.4	62.1	52.0	109.1	142.7	1695	1695	2371	1781	2268	1781	3944	3944	3943	100.00	0.00	0.00	44.53	44.53
15/10/2013	20.6	34.0	24.5	22.1	85.7	43.8	86.1	59.4	63.3	210.3	98.8	68.6	36.3	102.4	139.5	1719	1719	2395	1805	2292	1805	3952	3951	3951	100.00	0.00	0.00	43.85	43.85
16/10/2013	0.0	78.8	24.4	0.0	100.0	71.8	86.4	74.4	74.8	204.3	97.5	76.2	187.0	102.7	140.3	1735	1735	2410	1820	2308	1820	3967	3966	3966	100.00	0.00	0.00	45.82	45.82
17/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1735	1735	2410	1820	2308	1820	3967	3966	3966	OL	0.00	0.00	0.00	0.00
18/10/2013	0.0	74.9	25.4	0.0	74.6	66.4	84.9	64.7	70.7	155.2	93.3	83.3	52.3	97.2	110.1	1735	1735	2410	1820	2308	1820	3967	3966	3966	100.00	0.00	0.00	0.65	0.65
19/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1735	1735	2410	1820	2308	1820	3967	3966	3966	OL	0.00	0.00	0.00	0.00
20/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1735	1735	2410	1820	2308	1820	3967	3966	3966	OL	0.00	0.00	0.00	0.00
21/10/2013	0.0	64.4	24.4	0.0	73.4	70.4	76.4	71.6	72.2	178.4	87.7	72.4	211.8	96.6	124.6	1744	1744	2419	1829	2317	1829	3976	3975	3975	100.00	0.00	0.00	25.28	25.28
22/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1744	1744	2419	1829	2317	1829	3976	3975	3975	OL	0.00	0.00	0.00	0.00
23/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1744	1744	2419	1829	2317	1829	3976	3975	3975	OL	0.00	0.00	0.00	0.00
24/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1744	1744	2419	1829	2317	1829	3976	3975	3975	OL	0.00	0.00	0.00	0.00
25/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1744	1744	2419	1829	2317	1829	3976	3975	3975	OL	0.00	0.00	0.00	0.00
26/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1744	1744	2419	1829	2317	1829	3976	3975	3975	OL	0.00	0.00	0.00	0.00
27/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1744	1744	2419	1829	2317	1829	3976	3975	3975	OL	0.00	0.00	0.00	0.00
28/10/2013	18.1	48.0	24.4	3.2	87.2	65.5	73.7	66.9	66.9	168.1	80.0	67.5	231.7	86.6	124.7	1766	1766	2442	1852	2339	1852	3998	3998	3997	100.00	0.00	0.00	61.68	61.68
29/10/2013	20.5	25.5	24.3	66.9	72.9	70.0	76.7	71.5	71.5	174.7	86.3	71.6	246.8	89.5	132.5	1790	1790	2466	1876	2363	1876	4022	4022	4021	100.00	0.00	0.00	70.01	70.01
30/10/2013	20.5	26.6	24.3	67.1	73.1	70.0	76.9	71.5	71.5	171.2	85.8	71.6	246.6	89.9	131.3	1814	1814	2490	1900	2387	1900	4046	4046	4045	100.00	0.00	0.00	69.99	69.99
31/10/2013	0.0	64.4	24.4	0.0	81.6	67.8	72.5	69.1	69.1	160.3	81.7	69.8	227.4	84.4	121.6	1830	1830	2505	1915	2403	1915	4062	4061	4061	100.00	0.00	0.00	44.01	44.01

**Total [ML]:** 0.00 0.00 1149.90 1149.90

**Water Volume [%]:**  
 Untreated: 0.00 %  
 Below Dose 0.00 %  
 To Dose 100.00 %

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

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\10-October



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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **October 2013**

Report Created: **Friday, November 01, 2013**

Reactor: **UVR-600A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validate Conditions	Daily Totals			
	mJ/cm <sup>2</sup>			MLD			W/m <sup>2</sup>									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		Untreated	Below Dose	To Dose	Total
1/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00
2/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00
3/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00
4/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00
5/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00
6/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00
7/10/2013	18.9	78.3	24.2	5.8	90.5	84.9	86.2	86.2	86.1	86.1	86.0	107.9	94.7	86.2	79.3	2538	1557	1557	1575	1575	1574	1647	3380	2555	100.00	0.00	0.00	30.51	30.51
8/10/2013	18.6	25.9	24.2	66.4	95.1	79.0	80.5	85.3	80.6	80.5	80.5	108.7	95.0	80.5	75.9	2562	1581	1581	1599	1599	1598	1671	3404	2579	100.00	0.00	0.00	79.03	79.03
9/10/2013	17.7	25.2	24.0	70.1	77.4	73.8	75.2	83.2	74.4	75.2	75.2	107.4	94.2	75.2	75.2	2586	1605	1605	1623	1623	1622	1695	3428	2603	100.00	0.00	0.00	73.84	73.84
10/10/2013	0.0	38.8	24.2	0.0	76.4	73.8	75.4	82.0	75.4	75.4	75.4	106.2	92.7	75.4	75.2	2595	1613	1613	1631	1631	1631	1703	3437	2611	99.99	0.00	0.00	26.28	26.28
11/10/2013	0.0	43.2	24.4	0.0	90.7	82.1	84.5	112.5	167.8	83.4	82.1	148.1	150.7	83.5	82.0	2597	1616	1616	1634	1634	1633	1706	3439	2614	100.00	0.00	0.00	8.45	8.45
12/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2597	1616	1616	1634	1634	1633	1706	3439	2614	OL	0.00	0.00	0.00	0.00
13/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2597	1616	1616	1634	1634	1633	1706	3439	2614	OL	0.00	0.00	0.00	0.00
14/10/2013	17.1	78.7	24.3	4.1	73.7	65.2	67.0	72.8	196.8	66.9	66.9	82.6	75.5	67.1	55.9	2613	1631	1631	1649	1649	1649	1721	3455	2629	100.00	0.00	0.00	41.86	41.86
15/10/2013	0.0	35.1	24.3	0.0	77.7	51.1	52.9	56.4	155.3	52.8	52.9	60.6	53.6	53.0	47.1	2628	1647	1647	1665	1665	1664	1737	3470	2645	100.00	0.00	0.00	33.26	33.26
16/10/2013	0.0	62.2	24.4	0.0	78.1	67.8	66.7	68.5	124.0	69.7	69.1	68.3	68.8	69.7	42.1	2630	1649	1648	1667	1666	1666	1738	3472	2647	100.00	0.00	0.00	4.36	4.36
17/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2630	1649	1648	1667	1666	1666	1738	3472	2647	OL	0.00	0.00	0.00	0.00
18/10/2013	0.0	58.5	23.7	0.0	86.1	74.7	73.5	76.1	102.0	76.1	76.0	76.1	76.0	76.1	43.2	2645	1664	1664	1682	1682	1681	1754	3487	2662	99.81	0.00	0.09	47.13	47.22
19/10/2013	16.6	25.2	23.1	65.7	77.1	73.0	69.7	74.3	88.8	74.4	74.3	74.3	74.3	74.3	44.3	2669	1688	1688	1706	1706	1705	1778	3511	2686	100.00	0.00	0.00	72.97	72.97
20/10/2013	17.0	25.3	23.8	62.0	73.8	66.8	66.2	68.3	84.7	68.3	68.3	68.3	68.3	68.3	44.0	2693	1712	1712	1730	1730	1729	1802	3535	2710	100.00	0.00	0.00	66.84	66.84
21/10/2013	0.0	94.8	23.9	0.0	73.5	64.8	123.1	91.2	133.1	88.0	90.9	99.9	80.7	68.2	52.0	2709	1728	1727	1746	1745	1745	1809	3543	2717	100.00	0.00	0.00	41.87	41.87
22/10/2013	17.9	30.4	24.2	46.9	68.9	63.3	99.8	85.4	106.8	85.0	85.6	85.4	64.2	63.1	29.3	2733	1752	1751	1770	1769	1769	1821	3555	2729	100.00	0.00	0.00	63.32	63.32
23/10/2013	16.8	27.2	24.2	54.7	85.7	64.4	66.9	65.9	65.8	65.9	65.8	65.8	65.9	65.9	32.9	2757	1776	1775	1794	1793	1793	1845	3579	2753	100.00	0.00	0.00	64.37	64.37
24/10/2013	16.9	25.3	24.2	62.1	67.3	65.0	66.5	66.5	66.5	66.5	66.5	66.5	66.4	66.4	45.6	2781	1800	1799	1818	1817	1817	1869	3603	2777	99.86	0.00	0.09	64.89	64.98
25/10/2013	17.7	25.2	24.2	59.8	67.3	64.4	66.0	65.9	65.3	65.9	65.9	65.9	65.9	65.9	58.1	2805	1824	1823	1842	1841	1841	1893	3627	2801	100.00	0.00	0.00	64.46	64.46
26/10/2013	17.7	25.2	23.8	59.4	65.1	62.5	64.0	63.9	62.3	63.9	63.9	63.9	63.9	63.9	59.7	2829	1848	1847	1866	1865	1865	1917	3651	2825	100.00	0.00	0.00	62.45	62.45
27/10/2013	16.4	24.1	22.2	59.7	65.1	62.5	64.0	63.9	56.2	63.9	64.0	63.9	63.9	63.9	59.3	2853	1872	1871	1890	1889	1889	1941	3675	2849	99.16	0.00	0.52	61.93	62.45
28/10/2013	0.0	38.2	22.1	0.0	72.4	62.4	64.5	64.1	54.5	63.8	64.3	64.0	63.8	63.7	57.5	2854	1873	1873	1891	1891	1890	1942	3676	2851	96.56	0.00	0.14	3.88	4.02
29/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2854	1873	1873	1891	1891	1890	1942	3676	2851	OL	0.00	0.00	0.00	0.00
30/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2854	1873	1873	1891	1891	1890	1942	3676	2851	OL	0.00	0.00	0.00	0.00
31/10/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2854	1873	1873	1891	1891	1890	1942	3676	2851	OL	0.00	0.00	0.00	0.00
<b>Total [ML]:</b>																									0.00	0.84	911.70	912.54	

**Water Volume [%]:**

Untreated: 0.00 %  
 Below Dose: 0.09 %  
 To Dose: 99.91 %

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

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Water and Waste Department • Service des eaux et des déchets

Tuesday, October 15, 2013

**Our Incident/Report No: 09-2013**  
LIMS Reference No: 37263

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

## **RE: CORRECTIVE ACTION REPORT**

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<b>WATER SYSTEM</b>	Winnipeg Public Water System
<b>WATER SYSTEM CODE</b>	252.00
<b>LOCATION OF NON-COMPLIANT INCIDENT</b>	<b>Winnipeg 3-Dist SE05; SE07; SE08; SW07</b>
<b>OPERATOR IN CHARGE</b>	NA
<b>INCIDENT REPORTED BY</b>	Steve Fletcher, Supervisor of Analytical Services Branch
<b>TYPE OF NON-COMPLIANT INCIDENT</b>	1. Treated (or distribution system) water sample contains E. coliform >0 per100mL, 3 MR 41/2007 2. Low positive Total Coliform (<10 per100mL), 3 MR 41/2007
<b>INCIDENT DATE</b>	October 07, 2013
<b>DESCRIPTION OF CORRECTIVE ACTIONS</b>	IMMEDIATELY: Re-sampled original locations tested additional samples upstream/downstream of original locations as well as other locations in the area for; turbidity, free/total chlorine, temperature and contacted the ODW. The Winnipeg Regional Health Authority issued a precautionary Boil Water Advisory on October 8, 2013, for the area south of Bishop Grandin Blvd. to the Perimeter, and east of the Red River to the Seine River. The Advisory was subsequently rescinded on October 9, 2013, when the first round of re-samples tested negative for bacteria.
<b>TEST RESULTS</b>	See Attached

**NOTES/COMMENTS:**

1. All microbiological tests performed by contract laboratory.
2. UP/DOWN STREAM testing performed when EC is >0 /100mL, TC is >10 /100mL or when resample/consecutive sample is positive for EC or TC or as directed by the Manager of Environmental Standards Division and/or the Office of Drinking Water
3. INITIAL chlorine, turbidity and temperature only tested at the required 39 sample locations.
4. NR-No Result due to laboratory/analyst error.
5. NA-Not Analyzed.

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

**DISTRIBUTION**

FORWARD THE ORIGINAL TO THE DRINKING WATER OFFICER WITH THE MONTHLY COMPLIANCE SUBMISSIONS.

**Contact the Drinking Water Officer for any comments, questions or concerns**

REFERENCE: ODW-RF-016

*Embrace the spirit • Vivez l'esprit*

Environmental Standards Division • Division des normes environnementales  
2230 Main Street. • 2230, rue Main • Winnipeg • Manitoba R2V 4T8  
fax/téléc. (204) 339-2147 • www.winnipeg.ca

Sample Name	Sample Number	Date Sampled	TimeSpled (hrs)	E. Coli-QT (MPNU/100 mL)	Total Coliform-QT (MPNU/100 mL)	Chlorine, Free (mg/L)	Chlorine, Total (mg/L)	Temperature (°C)	Turbidity (ntu)
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**POSITIVE TOTAL COLIFORM & E. COLIFORM RE-SAMPLES**

SE05	374944	07-Oct-13	14:43	<1	3	0.67	0.91	15.9	0.26
SE07	374946	07-Oct-13	14:30	2	4	0.38	0.60	13.9	0.13
SE08	374947	07-Oct-13	14:12	3	8	0.57	0.73	16.3	0.20
SW07	374959	07-Oct-13	13:00	<1	3	0.74	0.96	16.3	0.26
SE05	375453	08-Oct-13	14:50	<1	<1	0.74	0.91	15.4	0.22
SE07	375456	08-Oct-13	15:35	<1	<1	0.68	0.85	16.0	0.30
SE07	375454	08-Oct-13	15:20	<1	<1	0.70	0.83	13.6	0.13
SE07	375455	08-Oct-13	15:30	<1	<1	0.66	0.78	17.0	0.11
SE08	375459	08-Oct-13	16:07	<1	<1	0.70	0.87	15.4	0.18
SE08	375457	08-Oct-13	15:52	<1	<1	0.65	0.80	16.3	0.17
SE08	375458	08-Oct-13	16:25	<1	<1	0.73	0.85	15.3	0.12
SW07	375460	09-Oct-13	10:45	<1	<1	0.82	0.97	15.9	0.27
SE05	375516	09-Oct-13	17:33	<1	<1	0.88	1.01	15.5	0.12
SE07	375510	09-Oct-13	16:55	<1	<1	0.62	0.80	15.9	0.11
SE07	375512	09-Oct-13	16:39	<1	<1	0.41	0.60	15.2	0.13
SE07	375511	09-Oct-13	17:15	<1	<1	0.69	0.83	16.8	0.32
SE08	375513	09-Oct-13	16:34	<1	<1	0.71	0.89	16.5	0.17
SE08	375515	09-Oct-13	16:49	<1	<1	0.76	0.90	15.6	0.17
SE08	375514	09-Oct-13	17:00	<1	<1	0.65	0.80	15.6	0.14

**ADDITIONAL MONITORING REQUESTED BY ODW**

(nr SE05)	375469	09-Oct-13	9:55	<1	<1	0.61	0.77	15.5	0.19
(nr SE07)	375465	09-Oct-13	10:10	<1	<1	0.58	0.81	15.2	0.21
(nr SE08)	375466	09-Oct-13	10:50	<1	<1	0.78	1.00	15.3	0.19
(nr SE08)	375467	09-Oct-13	10:32	<1	<1	0.75	0.88	16.3	0.25
(nr SE09)	375468	09-Oct-13	10:25	<1	<1	0.84	1.11	15.3	0.20

**NON-COMPLIANCE MONITORING**

NE03	374923	08-Oct-13	12:40	<1	<1	NA	NA	NA	NA
NE04	374924	09-Oct-13	9:18	<1	<1	NA	NA	NA	NA
NE08	374928	08-Oct-13	13:22	<1	<1	NA	NA	NA	NA
NE10	374930	08-Oct-13	13:35	<1	<1	NA	NA	NA	NA
NW02	374932	08-Oct-13	9:12	<1	<1	NA	NA	NA	NA
NW04	374934	08-Oct-13	8:48	<1	<1	NA	NA	NA	NA
NW07	374937	08-Oct-13	9:24	<1	<1	NA	NA	NA	NA
NW08	374938	08-Oct-13	9:01	<1	<1	NA	NA	NA	NA
SE06	374945	08-Oct-13	11:36	<1	<1	NA	NA	NA	NA
SE09	374948	08-Oct-13	11:52	<1	<1	NA	NA	NA	NA
SE10	374949	08-Oct-13	12:04	<1	<1	NA	NA	NA	NA
SE12	374951	08-Oct-13	12:15	<1	<1	NA	NA	NA	NA
SW02	374954	08-Oct-13	10:26	<1	<1	NA	NA	NA	NA
SW09	374961	08-Oct-13	11:11	<1	<1	NA	NA	NA	NA
SW15	374966	08-Oct-13	10:52	<1	<1	NA	NA	NA	NA
WC03	374971	08-Oct-13	9:40	<1	<1	NA	NA	NA	NA
WC07	374975	08-Oct-13	10:12	<1	<1	NA	NA	NA	NA
WC09	374977	08-Oct-13	9:58	<1	<1	NA	NA	NA	NA