



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

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March 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: FEBRUARY 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 February 2013. There are no corrective action reports to be submitted for February 2013. Please note that the plant was offline for maintenance for most of the day on February 20 so chlorine and turbidity grab samples were not collected on that day. Samples were also not collected on the holiday Monday of that week.

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

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

The UV submission includes a summary report and reports for each reactor for February 2013 in accordance with Section 4.13, Table 2 of the Operating Licence. You will note that all 6 UV reactors are in compliance with the licence requirements.

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

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CITY OF WINNIPEG  
 WATER AND WASTE DEPARTMENT  
 ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00 Licence No. PWS-09-412 A	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				
01-Feb-2013	1.15	1.30	1.25	1.37
02-Feb-2013	NS	NS	NS	NS
03-Feb-2013	NS	NS	NS	NS
04-Feb-2013	1.00	1.20	1.05	1.29
05-Feb-2013	0.94	1.15	0.96	1.18
06-Feb-2013	0.92	1.15	0.91	1.19
07-Feb-2013	1.03	1.29	0.95	1.17
08-Feb-2013	1.01	1.31	0.98	1.15
09-Feb-2013	NS	NS	NS	NS
10-Feb-2013	NS	NS	NS	NS
11-Feb-2013	1.15	1.37	1.16	1.39
12-Feb-2013	1.25	1.38	1.22	1.39
13-Feb-2013	1.10	1.26	1.09	1.27
14-Feb-2013	1.08	1.25	1.18	1.29
15-Feb-2013	1.03	1.27	1.09	1.30
16-Feb-2013	NS	NS	NS	NS
17-Feb-2013	NS	NS	NS	NS
18-Feb-2013	NS	NS	NS	NS
19-Feb-2013	1.10	1.41	1.15	1.34
20-Feb-2013	OL	OL	OL	OL
21-Feb-2013	1.01	1.22	1.02	1.18
22-Feb-2013	1.18	1.36	1.14	1.33
23-Feb-2013	NS	NS	NS	NS
24-Feb-2013	NS	NS	NS	NS
25-Feb-2013	1.26	1.46	1.13	1.31
26-Feb-2013	1.20	1.41	1.11	1.35
27-Feb-2013	1.05	1.32	1.02	1.16
28-Feb-2013	1.23	1.40	1.17	1.31
<b>Total number of measurements taken, A:</b>	18		18	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>	0.50		0.50	
<b>Number of measurements meeting standard, B:</b>	18		18	
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>	100%		100%	

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

**Comments:**

OL: On February 20, 2013 there was a scheduled plant shutdown which resulted in the plant being off-line at the time of sampling.

Report Compiled By: J. Jones

Approved in LIMS By: S. Fletcher

Date Approved: 4-Mar-13



**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 March 2013**

Report Period: February 2013

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/02/2013	1.09	1.00	1.14	1.07
2/02/2013	1.14	1.06	1.19	1.11
3/02/2013	1.10	0.93	1.12	0.96
4/02/2013	1.00	0.94	1.00	0.93
5/02/2013	0.95	0.88	0.90	0.81
6/02/2013	0.95	0.86	0.84	0.77
7/02/2013	1.05	0.94	0.85	0.81
8/02/2013	1.09	1.01	0.88	0.82
9/02/2013	1.13	1.01	0.93	0.88
10/02/2013	1.15	1.08	0.99	0.92
11/02/2013	1.14	1.07	1.03	0.99
12/02/2013	1.08	0.88	1.05	0.87
13/02/2013	0.94	0.81	0.92	0.80
14/02/2013	1.02	0.95	1.00	0.97
15/02/2013	1.03	0.97	1.03	0.98
16/02/2013	1.06	0.97	1.05	0.99
17/02/2013	1.10	1.00	1.07	1.03
18/02/2013	1.14	1.06	1.07	1.02
19/02/2013	1.24	1.15	1.10	1.05
20/02/2013	1.18	0.78	1.01	0.65
21/02/2013	1.17	0.96	1.10	0.88
22/02/2013	1.11	1.01	1.06	0.93
23/02/2013	1.02	0.87	0.92	0.77
24/02/2013	1.19	0.86	1.06	0.76
25/02/2013	1.20	0.85	1.12	0.81
26/02/2013	1.20	1.09	1.14	1.03
27/02/2013	1.17	0.87	1.08	0.87
28/02/2013	1.19	1.13	1.10	1.03

Total Number of Measurements, A:	19441	19441
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	19441	19441
COMPLIANCE, C = B/A X 100%:	100	100

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Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG  
 WATER AND WASTE DEPARTMENT  
 ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT**

Water System Code: 252.00 Licence No. PWS-09-412RR	Turbidity (NTU)								
	Date	Raw Water	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5	Filter 6	Filter 7
01-Feb-2013	0.43	0.08	0.09	OL	0.06	OL	0.10	0.07	0.07
02-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
03-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Feb-2013	0.40	0.06	0.05	0.06	0.08	0.05	OL	0.05	OL
05-Feb-2013	0.40	OL	OL	0.07	0.05	0.05	0.05	0.08	0.05
06-Feb-2013	0.47	0.09	0.06	<0.05	0.07	OL	OL	0.05	0.10
07-Feb-2013	0.52	OL	0.10	0.07	OL	0.07	0.07	0.08	0.08
08-Feb-2013	0.52	0.06	0.10	OL	0.05	0.08	0.06	OL	0.06
09-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
10-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Feb-2013	0.42	0.09	0.09	0.08	0.07	OL	OL	0.15	0.08
12-Feb-2013	0.37	OL	OL	0.10	0.06	0.08	0.09	0.07	0.06
13-Feb-2013	0.41	0.06	0.06	OL	0.10	OL	0.10	0.06	0.07
14-Feb-2013	0.36	OL	0.08	0.12	OL	0.15	0.06	0.08	0.08
15-Feb-2013	0.40	0.09	OL	OL	0.10	0.08	0.08	0.06	0.09
16-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
17-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
18-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
19-Feb-2013	0.30	0.11	0.10	0.09	OL	0.17	0.07	0.14	OL
20-Feb-2013	OL	OL	OL	OL	OL	OL	OL	OL	OL
21-Feb-2013	0.33	0.10	0.07	0.09	0.09	0.10	OL	0.11	0.11
22-Feb-2013	0.30	OL	0.09	0.09	0.09	0.08	0.09	OL	0.12
23-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
24-Feb-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Feb-2013	0.35	0.07	OL	0.11	0.07	0.09	0.08	OL	0.10
26-Feb-2013	0.40	0.15	0.08	0.08	0.09	0.08	OL	0.07	OL
27-Feb-2013	0.34	OL	0.09	0.10	OL	0.29	0.08	0.10	0.08
28-Feb-2013	0.46	0.09	0.08	OL	0.18	0.07	OL	0.10	0.10
<b>Total number of measurements taken, A:</b>		12	14	13	14	14	12	15	15
<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>		12	14	13	14	14	12	15	15
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>		100%	100%	100%	100%	100%	100%	100%	100%

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

**Comments:**

OL: On February 20, 2013 there was a scheduled plant shutdown which resulted in the plant being off-line at the time of sampling.

Report Compiled By: J. Jones

Approved in LIMS By: S. Fletcher

Date Approved: 4-Mar-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**

February 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
1/02/2013	0.41	0.04	0.05	0.00	0.00	0.01	0.06	0.04	0.05	0.03	0.07	0.03	0.06	0.03	0.08	0.01	0.04
2/02/2013	0.39	0.03	0.08	0.00	0.01	0.02	0.03	0.02	0.08	0.03	0.09	0.02	0.07	0.05	0.06	0.01	0.04
3/02/2013	0.39	0.03	0.05	0.00	0.01	0.01	0.06	0.03	0.04	0.04	0.08	0.04	0.06	0.03	0.07	0.01	0.02
4/02/2013	0.38	0.04	0.06	0.00	0.00	0.01	0.03	0.03	0.07	0.03	0.07	0.02	0.06	0.04	0.05	0.01	0.04
5/02/2013	0.37	0.03	0.07	0.00	0.01	0.02	0.05	0.02	0.05	0.05	0.07	0.03	0.05	0.03	0.07	0.01	0.02
6/02/2013	0.36	0.05	0.08	0.00	0.00	0.01	0.05	0.03	0.06	0.03	0.08	0.02	0.06	0.03	0.14	0.01	0.03
7/02/2013	0.35	0.04	0.08	0.00	0.02	0.02	0.03	0.02	0.06	0.04	0.05	0.03	0.04	0.06	0.09	0.00	0.03
8/02/2013	0.34	0.04	0.06	0.00	0.02	0.01	0.05	0.03	0.04	0.03	0.10	0.03	0.05	0.04	0.08	0.01	0.02
9/02/2013	0.34	0.05	0.07	0.01	0.02	0.01	0.02	0.02	0.05	0.03	0.06	0.02	0.06	0.06	0.08	0.00	0.03
10/02/2013	0.33	0.04	0.08	0.01	0.03	0.02	0.05	0.02	0.04	0.05	0.07	0.04	0.09	0.04	0.09	0.01	0.01
11/02/2013	0.32	0.06	0.07	0.01	0.02	0.01	0.03	0.03	0.05	0.03	0.09	0.03	0.06	0.05	0.08	0.01	0.03
12/02/2013	0.32	0.04	0.09	0.01	0.03	0.03	0.06	0.02	0.06	0.05	0.07	0.04	0.05	0.06	0.10	0.00	0.01
13/02/2013	0.31	0.06	0.07	0.01	0.01	0.02	0.06	0.03	0.05	0.04	0.10	0.03	0.17	0.04	0.10	0.01	0.03
14/02/2013	0.31	0.04	0.11	0.01	0.03	0.02	0.03	0.02	0.07	0.04	0.06	0.02	0.05	0.07	0.09	0.00	0.03
15/02/2013	0.30	0.04	0.07	0.01	0.04	0.02	0.07	0.03	0.05	0.05	0.08	0.05	0.06	0.05	0.12	0.01	0.03
16/02/2013	0.30	0.07	0.10	0.01	0.02	0.02	0.04	0.04	0.09	0.04	0.10	0.04	0.09	0.08	0.10	0.02	0.07
17/02/2013	0.30	0.05	0.12	0.02	0.08	0.04	0.09	0.03	0.10	0.07	0.09	0.05	0.08	0.05	0.14	0.01	0.04
18/02/2013	0.30	0.06	0.08	0.01	0.06	0.03	0.07	0.05	0.06	0.04	0.10	0.04	0.09	0.05	0.08	0.02	0.06
19/02/2013	0.30	0.05	0.12	0.01	0.04	0.03	0.05	0.03	0.11	0.04	0.10	0.03	0.07	0.07	0.12	0.02	0.07
20/02/2013	0.28	0.03	0.10	0.01	0.12	0.04	0.15	0.03	0.11	0.04	0.08	0.01	0.03	0.03	0.11	0.01	0.04
21/02/2013	0.27	0.05	0.07	0.01	0.02	0.02	0.04	0.04	0.08	0.03	0.10	0.01	0.08	0.05	0.06	0.01	0.06
22/02/2013	0.26	0.03	0.10	0.02	0.06	0.04	0.09	0.03	0.08	0.05	0.07	0.02	0.03	0.04	0.11	0.01	0.02
23/02/2013	0.26	0.05	0.06	0.01	0.07	0.03	0.09	0.04	0.06	0.04	0.11	0.02	0.07	0.04	0.06	0.02	0.06
24/02/2013	0.26	0.04	0.10	0.02	0.05	0.04	0.06	0.03	0.08	0.04	0.06	0.01	0.02	0.05	0.10	0.01	0.06
25/02/2013	0.28	0.04	0.08	0.01	0.09	0.03	0.10	0.05	0.20	0.04	0.26	0.04	0.31	0.05	0.27	0.03	0.27
26/02/2013	0.32	0.06	0.11	0.01	0.02	0.03	0.11	0.04	0.11	0.05	0.07	0.02	0.07	0.06	0.07	0.02	0.07
27/02/2013	0.31	0.04	0.23	0.03	0.35	0.07	0.37	0.02	0.07	0.05	0.29	0.02	0.06	0.05	0.13	0.02	0.05
28/02/2013	0.31	0.06	0.08	0.01	0.05	0.04	0.11	0.06	0.13	0.04	0.05	0.01	0.07	0.04	0.07	0.03	0.07

Total Number of Measurements Taken, A:	12828	11739	12954	9826	13239	12737	13242	12832
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:	12828	11722	12933	9826	13239	12736	13242	12832
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	99.86%	99.84%	100.00%	100.00%	99.99%	100.00%	100.00%

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Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew









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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: February 2013

Report Created: Friday, March 01, 2013

Reactor: UVR-200A

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>									UV Lamp Status Hours									% Volume Treated to Validate Conditions	Daily Totals 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
1/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2558	2557	2558	2060	1544	4158	2576	2577	2576	OL	0.00	0.00	0.00	0.00
2/02/2013	18.0	68.7	24.4	3.4	64.8	63.3	82.5	65.0	64.4	71.5	80.2	64.3	83.8	64.9	64.5	2560	2560	2560	2062	1546	4160	2578	2579	2579	100.00	0.00	0.00	5.90	5.90
3/02/2013	21.1	24.9	24.4	60.7	65.9	63.3	111.0	65.0	64.9	87.3	95.8	64.9	121.0	65.0	64.9	2584	2584	2584	2086	1570	4184	2602	2603	2603	100.00	0.00	0.00	63.34	63.34
4/02/2013	21.1	25.0	24.4	53.7	69.7	63.8	128.4	65.5	65.5	114.9	106.7	65.4	177.6	65.5	65.6	2608	2608	2608	2110	1594	4208	2626	2627	2627	100.00	0.00	0.00	63.84	63.84
5/02/2013	17.1	34.5	24.2	63.8	69.5	66.9	148.5	99.1	99.1	129.4	109.9	68.0	218.4	98.4	102.4	2632	2632	2632	2116	1600	4214	2650	2651	2651	100.00	0.00	0.00	66.89	66.89
6/02/2013	21.5	24.6	24.1	65.0	69.6	67.2	191.7	107.8	107.9	OL	OL	OL	243.0	107.8	108.0	2656	2656	2656	2116	1600	4214	2674	2675	2675	100.00	0.00	0.00	66.91	66.91
7/02/2013	21.5	25.8	24.1	65.6	90.2	83.7	224.3	133.9	134.2	OL	OL	OL	250.9	133.9	134.3	2680	2680	2680	2116	1600	4214	2698	2699	2699	100.00	0.00	0.00	83.73	83.73
8/02/2013	20.5	24.7	24.1	82.3	87.8	85.0	237.6	135.9	138.4	OL	OL	OL	243.2	135.9	136.1	2704	2704	2704	2116	1600	4214	2722	2723	2723	100.00	0.00	0.00	84.99	84.99
9/02/2013	21.3	24.6	24.1	82.5	87.8	85.0	237.9	135.9	151.5	OL	OL	OL	229.8	136.0	136.0	2728	2728	2728	2116	1600	4214	2746	2747	2747	100.00	0.00	0.00	84.99	84.99
10/02/2013	0.0	31.1	24.0	0.0	87.7	85.0	228.5	135.7	150.1	71.5	70.5	22.9	219.9	135.7	135.7	2748	2748	2748	2116	1600	4214	2766	2767	2766	99.52	0.00	0.34	69.83	70.16
11/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
12/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
13/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
14/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
15/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
16/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
17/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
18/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
19/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
20/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
21/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
22/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
23/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
24/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
25/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
26/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
27/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
28/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2748	2748	2748	2116	1600	4214	2766	2767	2766	OL	0.00	0.00	0.00	0.00
<b>Total [ML]:</b>																								0.00	0.34	590.43	590.76		

Water Volume [%]:

Untreated: 0.00 %  
Below Dose 0.06 %  
To Dose 99.94 %

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: **February 2013**

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

Reactor: **UVR-300A**

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>										UV Lamp Status Hours										% Volume Treated to Validate Conditions	Daily Totals 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		
1/02/2013	20.7	25.8	24.4	62.9	72.5	67.6	92.0	69.1	78.6	105.7	70.9	69.2	69.0	69.1	69.2	3982	3982	3982	4224	4224	4223	4129	4129	4129	100.00	0.00	0.00	67.61	67.61		
2/02/2013	20.8	26.0	24.4	57.7	72.5	68.7	93.3	70.2	83.5	105.7	71.1	70.3	70.1	70.1	70.3	4006	4006	4006	4248	4248	4247	4153	4153	4153	100.00	0.00	0.00	68.68	68.68		
3/02/2013	20.6	25.6	24.4	60.3	67.1	64.6	95.9	66.2	89.7	108.9	72.2	67.7	66.1	66.1	66.2	4030	4030	4030	4272	4272	4271	4177	4177	4177	100.00	0.00	0.00	64.59	64.59		
4/02/2013	0.0	41.9	24.5	0.0	66.5	63.8	99.1	65.5	99.8	111.5	74.2	70.0	65.3	65.3	65.2	4045	4045	4045	4287	4287	4287	4192	4192	4192	100.00	0.00	0.00	40.54	40.54		
5/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4045	4045	4045	4287	4287	4287	4192	4192	4192	OL	0.00	0.00	0.00	0.00		
6/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4045	4045	4045	4287	4287	4287	4192	4192	4192	OL	0.00	0.00	0.00	0.00		
7/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4045	4045	4045	4287	4287	4287	4192	4192	4192	OL	0.00	0.00	0.00	0.00		
8/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4045	4045	4045	4287	4287	4287	4192	4192	4192	OL	0.00	0.00	0.00	0.00		
9/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4045	4045	4045	4287	4287	4287	4192	4192	4192	OL	0.00	0.00	0.00	0.00		
10/02/2013	0.0	73.0	24.9	0.0	89.4	81.7	83.8	80.5	91.6	82.6	82.6	81.0	80.6	81.8	78.0	4046	4046	4046	4288	4288	4287	4193	4193	4192	100.00	0.00	0.00	1.56	1.56		
11/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
12/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
13/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
14/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
15/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
16/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
17/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
18/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
19/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4046	4046	4046	4288	4288	4287	4193	4193	4192	OL	0.00	0.00	0.00	0.00		
20/02/2013	20.7	72.1	24.4	3.4	83.4	67.8	86.6	69.4	98.8	97.1	70.9	69.8	69.5	69.7	69.5	4057	4057	4057	4299	4299	4298	4204	4204	4203	100.00	0.00	0.00	31.25	31.25		
21/02/2013	20.8	25.4	24.4	66.0	73.1	70.1	94.3	71.6	110.8	110.3	76.3	72.5	71.5	71.5	71.7	4081	4081	4081	4323	4323	4322	4228	4228	4227	100.00	0.00	0.00	70.06	70.06		
22/02/2013	18.7	27.3	24.4	32.9	73.0	61.5	97.6	71.4	115.8	112.8	79.4	72.1	71.4	71.4	71.5	4105	4105	4105	4339	4339	4339	4252	4252	4251	100.00	0.00	0.00	61.56	61.56		
23/02/2013	20.9	25.4	24.3	40.2	47.1	43.5	99.7	70.6	118.1	OL	OL	OL	70.5	70.5	70.7	4129	4129	4129	4339	4339	4339	4276	4276	4275	100.00	0.00	0.00	43.54	43.54		
24/02/2013	21.1	25.6	24.3	40.2	46.6	43.4	104.9	70.4	119.2	OL	OL	OL	70.3	70.3	70.5	4153	4153	4153	4339	4339	4339	4300	4300	4299	100.00	0.00	0.00	43.38	43.38		
25/02/2013	18.6	31.8	24.3	30.3	92.3	53.5	109.7	83.2	120.4	90.1	80.5	79.2	83.0	83.2	83.0	4177	4177	4177	4341	4341	4341	4324	4324	4323	100.00	0.00	0.00	53.49	53.49		
26/02/2013	20.9	25.7	24.4	37.2	44.7	40.5	112.7	65.8	119.5	OL	OL	OL	65.8	65.8	65.9	4201	4201	4201	4341	4341	4341	4348	4348	4347	100.00	0.00	0.00	40.52	40.52		
27/02/2013	0.0	75.2	24.3	0.0	103.5	52.2	113.8	84.2	121.1	98.5	92.5	92.1	64.4	64.9	62.6	4224	4224	4224	4357	4357	4357	4355	4355	4355	99.96	0.01	0.01	50.32	50.34		
28/02/2013	0.0	32.4	24.2	0.0	62.0	58.4	116.6	94.0	121.8	115.6	94.0	94.0	OL	OL	OL	4237	4237	4237	4370	4370	4370	4355	4355	4355	100.00	0.00	0.00	31.53	31.53		
<b>Total [ML]:</b>																											0.01	0.01	668.64	668.65	

**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

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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: **February 2013**

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

Reactor: **UVR-400A**

Date	UV Dose mj/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>									UV Lamp Status Hours									% Volume Treated to Validate Conditions	Daily Totals 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
1/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	661	661	421	1127	1126	1127	1090	89	1090	OL	0.00	0.00	0.00	0.00
2/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	661	661	421	1127	1126	1127	1090	89	1090	OL	0.00	0.00	0.00	0.00
3/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	661	661	421	1127	1126	1127	1090	89	1090	OL	0.00	0.00	0.00	0.00
4/02/2013	19.2	63.9	24.4	0.0	64.7	62.0	111.7	79.6	67.5	101.0	63.7	79.7	83.8	90.1	109.6	670	670	429	1136	1135	1136	1099	98	1099	100.00	0.00	0.00	22.74	22.74
5/02/2013	19.9	25.2	24.2	60.2	65.4	62.8	72.6	64.4	64.3	71.9	64.4	64.3	64.5	64.4	65.4	694	694	453	1160	1159	1160	1123	122	1123	100.00	0.00	0.00	62.83	62.83
6/02/2013	19.8	25.1	23.2	60.1	65.3	63.3	65.8	64.9	62.0	65.2	64.8	64.8	64.9	64.8	64.9	718	718	477	1184	1183	1184	1147	146	1147	100.00	0.00	0.00	63.06	63.06
7/02/2013	0.0	37.4	20.1	0.0	65.1	63.0	64.7	64.6	50.4	65.9	65.3	65.1	64.6	64.8	64.7	720	720	479	1185	1185	1186	1148	148	1149	100.00	0.00	0.00	4.50	4.50
8/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
9/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
10/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
11/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
12/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
13/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
14/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
15/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
16/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
17/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
18/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
19/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
20/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
21/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	720	720	479	1185	1185	1186	1148	148	1149	OL	0.00	0.00	0.00	0.00
22/02/2013	20.5	63.9	24.2	5.0	84.2	79.7	81.4	80.8	80.9	81.5	80.9	81.6	81.7	81.4	113.5	728	728	487	1193	1193	1194	1156	156	1157	100.00	0.00	0.00	26.10	26.10
23/02/2013	20.1	25.1	24.1	75.0	82.2	78.5	79.9	79.9	79.8	79.9	79.9	79.9	79.9	79.9	81.9	752	752	511	1217	1217	1218	1180	180	1181	100.00	0.00	0.00	78.46	78.46
24/02/2013	19.9	25.1	23.9	75.1	82.6	78.6	80.1	80.0	79.2	80.1	80.0	80.0	80.0	80.0	80.2	776	776	535	1241	1241	1242	1204	204	1205	100.00	0.00	0.00	78.60	78.60
25/02/2013	15.5	27.7	23.5	35.6	92.0	54.6	57.4	57.1	52.8	59.2	57.1	56.8	67.5	63.3	65.1	800	800	559	1265	1265	1266	1228	228	1229	100.00	0.00	0.00	54.61	54.61
26/02/2013	18.2	28.5	24.7	30.9	39.6	36.7	49.7	47.1	47.1	50.5	39.0	38.9	68.4	78.6	71.8	824	824	583	1281	1281	1282	1252	252	1253	100.00	0.00	0.00	36.73	36.73
27/02/2013	0.0	61.8	24.3	0.0	82.8	62.6	71.3	70.9	70.9	75.9	75.9	75.8	77.7	88.3	98.7	847	847	606	1297	1297	1297	1275	275	1276	99.97	0.01	0.01	60.00	60.02
28/02/2013	20.4	27.1	24.4	53.7	81.8	68.1	70.4	70.4	70.5	77.8	70.4	74.2	82.8	77.4	107.4	871	871	630	1321	1321	1321	1299	299	1300	100.00	0.00	0.00	68.10	68.10
<b>Total [ML]:</b>																									0.01	0.01	555.74	555.75	

**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

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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: February 2013

Report Created: Friday, March 01, 2013

Reactor: UVR-500A

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>									UV Lamp Status Hours									% Volume Treated to Validate Conditions	Daily Totals 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																						
1/02/2013	20.8	26.4	24.0	65.3	72.8	69.1	OL	OL	OL	194.2	110.8	111.4	135.4	111.0	110.8	2906	2561	4667	2880	4460	3313	1466	1466	1466	100.00	0.00	0.00	69.04	69.04																						
2/02/2013	20.9	26.2	24.0	58.6	73.0	69.8	OL	OL	OL	189.4	112.0	112.4	132.9	112.2	112.0	2906	2561	4667	2904	4484	3337	1490	1490	1490	100.00	0.00	0.00	69.82	69.82																						
3/02/2013	20.9	26.7	24.0	62.1	67.7	65.6	OL	OL	OL	191.8	105.3	105.8	136.1	105.6	105.4	2906	2561	4667	2928	4508	3361	1514	1514	1514	100.00	0.00	0.00	65.56	65.56																						
4/02/2013	21.0	26.8	24.0	56.0	67.1	63.9	OL	OL	OL	192.9	103.0	104.3	137.4	102.9	104.0	2906	2561	4667	2952	4532	3385	1538	1538	1538	100.00	0.00	0.00	63.88	63.88																						
5/02/2013	20.9	26.4	24.1	58.2	64.7	61.3	OL	OL	OL	190.0	100.0	103.5	135.7	98.8	102.4	2906	2561	4667	2976	4556	3409	1562	1562	1562	100.00	0.00	0.00	61.31	61.31																						
6/02/2013	21.0	26.5	24.1	58.4	63.9	60.6	OL	OL	OL	192.9	99.7	104.9	137.0	97.7	104.2	2906	2561	4667	3000	4580	3433	1586	1586	1586	100.00	0.00	0.00	60.37	60.37																						
7/02/2013	21.0	34.2	29.3	34.1	63.3	40.6	OL	OL	OL	190.9	97.4	102.3	137.3	86.7	105.3	2906	2561	4667	3024	4604	3457	1610	1610	1610	100.00	0.00	0.00	40.63	40.63																						
8/02/2013	24.1	34.0	29.8	34.7	45.8	40.1	OL	OL	OL	194.2	97.9	103.9	141.1	88.4	109.7	2906	2561	4667	3048	4628	3481	1634	1634	1634	100.00	0.00	0.00	40.07	40.07																						
9/02/2013	24.3	33.0	29.7	34.7	45.9	40.5	OL	OL	OL	192.9	96.1	102.4	141.6	89.4	110.9	2906	2561	4667	3072	4652	3505	1658	1658	1658	100.00	0.00	0.00	40.56	40.56																						
10/02/2013	23.7	32.8	29.3	35.1	46.1	40.9	OL	OL	OL	190.4	94.9	101.0	140.9	88.4	111.0	2906	2561	4667	3096	4676	3529	1682	1682	1682	100.00	0.00	0.00	40.96	40.96																						
11/02/2013	24.1	32.8	29.4	34.8	46.0	40.5	OL	OL	OL	188.2	93.8	99.7	140.4	87.8	110.4	2906	2561	4667	3120	4700	3553	1706	1706	1706	100.00	0.00	0.00	40.55	40.55																						
12/02/2013	24.1	33.0	29.7	33.1	45.3	39.9	OL	OL	OL	186.2	92.9	98.8	139.3	87.8	110.8	2906	2561	4667	3144	4724	3577	1730	1730	1730	100.00	0.00	0.00	40.02	40.02																						
13/02/2013	24.2	33.6	30.7	34.6	45.7	38.4	OL	OL	OL	185.0	95.0	99.5	141.1	88.9	113.8	2906	2561	4667	3168	4748	3601	1754	1754	1754	100.00	0.00	0.00	38.43	38.43																						
14/02/2013	23.8	31.3	28.5	38.5	46.8	42.6	OL	OL	OL	185.6	95.3	100.3	138.1	87.8	113.1	2906	2561	4667	3192	4772	3625	1778	1778	1778	100.00	0.00	0.00	42.57	42.57																						
15/02/2013	23.4	31.2	28.5	39.1	46.6	42.6	OL	OL	OL	186.5	95.4	100.7	137.3	88.3	113.3	2906	2561	4667	3216	4796	3649	1802	1802	1802	100.00	0.00	0.00	42.58	42.58																						
16/02/2013	23.3	30.8	28.1	39.0	48.3	43.0	OL	OL	OL	185.4	93.8	99.7	134.5	86.7	112.4	2906	2561	4667	3240	4820	3673	1826	1826	1826	100.00	0.00	0.00	42.98	42.98																						
17/02/2013	22.4	29.5	27.3	41.0	49.8	44.9	OL	OL	OL	190.5	93.3	104.2	133.2	87.0	113.3	2906	2561	4667	3264	4844	3697	1850	1850	1850	100.00	0.00	0.00	44.91	44.91																						
18/02/2013	20.6	29.1	24.7	41.8	60.7	54.6	OL	OL	OL	200.2	97.9	116.0	134.5	90.5	115.2	2906	2561	4667	3288	4868	3721	1874	1874	1874	100.00	0.00	0.00	54.53	54.53																						
19/02/2013	20.6	26.8	24.2	50.2	60.2	56.0	OL	OL	OL	187.3	92.8	112.2	129.5	90.5	109.2	2906	2561	4667	3312	4892	3745	1898	1898	1898	100.00	0.00	0.00	56.03	56.03																						
20/02/2013	0.0	37.1	24.3	0.0	116.0	54.8	OL	OL	OL	168.8	89.3	107.5	127.6	90.3	109.3	2906	2561	4667	3322	4901	3755	1908	1908	1907	98.65	0.15	0.15	21.26	21.55																						
21/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2906	2561	4667	3322	4901	3755	1908	1908	1907	OL	0.00	0.00	0.00	0.00																						
22/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2906	2561	4667	3322	4901	3755	1908	1908	1907	OL	0.00	0.00	0.00	0.00																						
23/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2906	2561	4667	3322	4901	3755	1908	1908	1907	OL	0.00	0.00	0.00	0.00																						
24/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2906	2561	4667	3322	4901	3755	1908	1908	1907	OL	0.00	0.00	0.00	0.00																						
25/02/2013	20.6	34.4	24.1	8.6	65.1	62.9	OL	OL	OL	123.8	101.6	103.0	150.3	101.2	104.0	2906	2562	4667	3329	4908	3762	1915	1915	1914	100.00	0.00	0.00	18.39	18.39																						
26/02/2013	20.9	26.7	24.1	57.8	65.1	62.0	OL	OL	OL	118.9	100.0	100.0	154.5	99.9	100.3	2906	2562	4667	3353	4932	3786	1939	1939	1938	100.00	0.00	0.00	62.03	62.03																						
27/02/2013	0.0	24.9	24.1	0.0	63.7	61.1	OL	OL	OL	106.3	98.9	98.9	140.6	99.7	99.1	2906	2562	4667	3360	4940	3793	1946	1946	1945	99.77	0.02	0.02	18.36	18.40																						
28/02/2013	0.0	92.5	24.6	0.0	76.4	67.6	109.0	102.4	270.8	127.7	104.8	143.1	139.6	106.8	108.4	2907	2563	4669	3360	4940	3793	1948	1947	1947	100.00	0.00	0.00	4.37	4.37																						
<b>Total [ML]:</b>																								0.17	0.17	1079.20	1079.53																								

Water Volume [%]:

Untreated: 0.02 %  
Below Dose 0.02 %  
To Dose 99.97 %

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: **February 2013**

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

Reactor: **UVR-600A**

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>									UV Lamp Status Hours									% Volume Treated to Validate Conditions	Daily Totals 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
1/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3964	1824	1824	2156	2156	2157	3461	2064	2064	OL	0.00	0.00	0.00	0.00
2/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3964	1824	1824	2156	2156	2157	3461	2064	2064	OL	0.00	0.00	0.00	0.00
3/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3964	1824	1824	2156	2156	2157	3461	2064	2064	OL	0.00	0.00	0.00	0.00
4/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3964	1824	1824	2156	2156	2157	3461	2064	2064	OL	0.00	0.00	0.00	0.00
5/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3964	1824	1824	2156	2156	2157	3461	2064	2064	OL	0.00	0.00	0.00	0.00
6/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3964	1824	1824	2156	2156	2157	3461	2064	2064	OL	0.00	0.00	0.00	0.00
7/02/2013	18.5	91.3	24.3	3.7	71.7	67.2	94.0	68.7	68.7	77.1	75.2	118.5	114.1	68.7	68.7	3986	1847	1847	2179	2178	2179	3483	2086	2086	100.00	0.00	0.00	62.49	62.49
8/02/2013	18.5	25.9	24.3	62.7	71.8	67.9	118.7	69.4	69.4	78.6	78.3	130.1	118.8	69.4	69.4	4010	1871	1871	2203	2202	2203	3507	2110	2110	100.00	0.00	0.00	67.93	67.93
9/02/2013	18.5	26.0	24.3	62.2	71.9	67.5	137.8	68.9	70.2	77.2	77.9	131.0	118.6	68.9	68.9	4034	1895	1895	2227	2226	2227	3531	2134	2134	100.00	0.00	0.00	67.45	67.45
10/02/2013	18.4	26.0	24.3	59.4	71.4	67.1	152.0	68.5	78.1	75.5	77.5	128.5	116.8	68.5	68.5	4058	1919	1919	2251	2250	2251	3555	2158	2158	100.00	0.00	0.00	67.02	67.02
11/02/2013	18.3	26.6	24.4	60.0	71.3	65.3	156.7	67.5	85.3	73.8	76.7	126.2	114.7	66.7	66.7	4082	1943	1943	2275	2274	2275	3579	2182	2182	100.00	0.00	0.00	65.22	65.22
12/02/2013	18.5	26.6	24.4	59.6	76.2	65.1	157.0	68.4	92.6	72.7	75.8	123.6	113.0	66.5	66.5	4106	1967	1967	2299	2298	2299	3603	2206	2206	100.00	0.00	0.00	65.02	65.02
13/02/2013	18.3	26.6	24.3	64.5	79.3	68.6	159.3	73.9	99.7	74.3	77.2	126.7	114.8	70.1	70.1	4130	1991	1991	2323	2322	2323	3627	2230	2230	100.00	0.00	0.00	68.62	68.62
14/02/2013	18.2	25.1	24.2	73.1	79.4	76.4	156.2	77.8	102.5	77.8	77.9	125.5	112.7	77.8	77.8	4154	2015	2015	2347	2346	2347	3651	2254	2254	100.00	0.00	0.00	76.42	76.42
15/02/2013	17.8	25.1	24.2	72.2	79.6	76.4	159.9	77.8	100.8	77.8	77.9	124.0	111.6	77.8	77.8	4178	2039	2039	2371	2370	2371	3675	2278	2278	100.00	0.00	0.00	76.41	76.41
16/02/2013	18.2	25.2	24.2	73.4	82.8	77.2	159.2	78.5	100.4	78.5	78.5	121.6	109.8	78.5	78.5	4202	2063	2063	2395	2394	2395	3699	2302	2302	100.00	0.00	0.00	77.14	77.14
17/02/2013	17.9	25.2	24.2	76.3	86.4	81.0	160.2	82.3	101.0	82.3	82.3	124.2	110.6	82.3	82.3	4226	2087	2087	2419	2418	2419	3723	2326	2326	100.00	0.00	0.00	80.97	80.97
18/02/2013	18.2	25.0	24.1	80.0	89.7	84.7	162.8	86.0	104.1	86.0	86.0	131.0	112.8	86.0	86.0	4250	2111	2111	2443	2442	2443	3747	2350	2350	100.00	0.00	0.00	84.70	84.70
19/02/2013	18.1	25.1	24.1	81.0	88.5	85.0	162.8	86.3	99.7	86.3	86.3	128.6	111.3	86.3	86.3	4274	2135	2135	2467	2466	2467	3771	2374	2374	100.00	0.00	0.00	85.01	85.01
20/02/2013	0.0	94.0	24.2	0.0	119.7	74.4	157.5	84.3	98.9	93.0	93.1	132.0	114.5	91.1	90.9	4286	2147	2147	2487	2487	2488	3792	2395	2394	100.00	0.00	0.00	63.39	63.39
21/02/2013	19.0	24.9	24.0	63.5	68.3	66.0	OL	OL	OL	106.0	106.0	134.7	114.8	106.0	106.0	4286	2147	2147	2511	2511	2512	3816	2419	2418	100.00	0.00	0.00	66.03	66.03
22/02/2013	0.0	24.7	23.9	0.0	68.6	66.0	OL	OL	OL	106.0	106.0	113.9	109.5	106.0	106.0	4286	2147	2147	2527	2527	2528	3832	2435	2434	99.64	0.00	0.16	44.28	44.44
23/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4286	2147	2147	2527	2527	2528	3832	2435	2434	OL	0.00	0.00	0.00	0.00
24/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4286	2147	2147	2527	2527	2528	3832	2435	2434	OL	0.00	0.00	0.00	0.00
25/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4286	2147	2147	2527	2527	2528	3832	2435	2434	OL	0.00	0.00	0.00	0.00
26/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4286	2147	2147	2527	2527	2528	3832	2435	2434	OL	0.00	0.00	0.00	0.00
27/02/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4286	2147	2147	2527	2527	2528	3832	0	2434	OL	0.00	0.00	0.00	0.00
28/02/2013	18.8	62.2	24.4	5.0	72.1	68.1	127.6	75.4	203.5	72.6	84.5	117.3	102.3	69.3	69.4	4296	2157	2157	2537	2537	2537	3842	9	2444	100.00	0.00	0.00	27.03	27.03
<b>Total [ML]:</b>																									0.00	0.16	1145.13	1145.29	

**Water Volume [%]:**  
Untreated: 0.00 %  
Below Dose 0.01 %  
To Dose 99.99 %

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

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