



Water and Waste Department • Service des eaux et des déchets

August 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: JULY 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 July 2013. We have also included two corrective action reports for positive total coliforms in the distribution system.

The July on-line and grab sampling turbidity reports include results obtained for the Water Treatment Plant raw water and the eight filters. There are no on-line turbidity results for raw water on July 1 and 2 because the meter was not working properly due to a maintenance issue. The meter has been cleaned and serviced and the issue appears to have been resolved. The turbidity results for the effluent from the filters are in compliance with the licence requirements.

The July on-line and grab sampling chlorine reports include results obtained for the Deacon Boster 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 July 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.

On July 2, a positive total coliform result was reported [REDACTED]. On July 5, the location was resampled and upstream and downstream locations were sampled. The results were reported to be negative and our resampling also indicated that the chlorine levels at the locations were normal and provided adequate disinfection.

On July 8, a positive total coliform result was reported [REDACTED]. On July 10, the location was resampled and the results were reported to be negative. Our resampling also indicated that the chlorine levels at the location were normal and provided adequate disinfection.

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.

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 (e-mail)
A. J. Weremy, P.Eng
S. Fletcher (e-mail)

N:\Compliance Reporting\Submittal Letters\2013\ODW- Letters\Betsill Water July 2013.doc



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-Jul-2013	1.45	0.15	0.12	0.10	0.17	0.13	0.07	0.06	0.07
02-Jul-2013	1.25	0.12	0.10	0.12	0.12	0.07	0.10	0.09	0.09
03-Jul-2013	1.45	0.11	0.08	0.12	0.09	0.10	0.13	0.12	0.08
04-Jul-2013	1.41	0.12	0.13	0.10	0.13	0.08	0.12	0.09	0.12
05-Jul-2013	1.28	0.14	0.13	0.11	0.14	0.12	0.09	0.10	0.08
06-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
07-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
08-Jul-2013	1.31	0.13	0.12	0.11	0.17	0.10	0.12	0.10	0.14
09-Jul-2013	1.29	0.17	0.12	0.15	0.18	0.13	0.12	0.11	0.10
10-Jul-2013	1.34	0.12	0.15	0.15	0.12	0.09	0.09	0.13	0.11
11-Jul-2013	1.47	0.14	0.14	0.15	0.09	0.09	0.09	0.16	0.14
12-Jul-2013	1.52	0.16	0.11	0.14	0.12	0.13	0.11	0.13	0.10
13-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
14-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
15-Jul-2013	1.40	0.10	0.10	0.12	0.13	0.11	0.13	0.15	0.08
16-Jul-2013	1.53	0.10	0.11	0.10	0.12	0.07	0.09	0.06	0.08
17-Jul-2013	1.57	0.09	0.07	0.08	0.08	0.08	0.08	0.07	0.06
18-Jul-2013	1.53	0.08	0.13	0.11	0.09	0.06	0.10	0.14	0.07
19-Jul-2013	1.60	0.06	0.09	0.06	0.11	0.07	0.05	0.10	0.07
20-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
21-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
22-Jul-2013	1.62	0.10	0.12	0.10	0.08	0.09	0.18	0.07	0.09
23-Jul-2013	1.96	0.10	0.11	0.11	0.09	0.11	0.08	0.08	0.10
24-Jul-2013	1.64	0.10	0.10	0.14	0.13	0.08	0.06	0.06	0.07
25-Jul-2013	1.61	0.12	0.10	0.16	0.10	0.09	0.07	0.06	0.06
26-Jul-2013	1.79	0.08	0.08	0.12	0.09	0.11	0.06	0.10	0.08
27-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
28-Jul-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA
29-Jul-2013	1.72	0.08	0.13	0.09	0.07	0.07	0.06	0.06	0.09
30-Jul-2013	2.39	0.07	0.06	0.08	0.09	0.08	0.11	0.07	0.09
31-Jul-2013	1.83	0.09	0.08	0.09	0.10	0.06	0.08	0.08	0.08
Total number of measurements taken, A:	23	23	23	23	23	23	23	23	23
Turbidity Standard for Monitoring Location (NTU):	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Number of measurements meeting standard, B:	23	23	23	23	23	23	23	23	23
Compliance with Turbidity Standard, C= B/A X 100%:	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: S.Fletcher/G.Levesque

Date Approved: 7-Aug-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

July 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
1/07/2013	NR	0 08	0 17	0 08	0 19	0 06	0 19	0 04	0 12	0 11	0 15	0 06	0 10	0 01	0 04	0 07	0 17
2/07/2013	NR	0 05	0 14	0 05	0 17	0 10	0 13	0 05	0 08	0 06	0 17	0 08	0 15	0 03	0 09	0 05	0 13
3/07/2013	1.74	0 04	0 07	0 06	0 07	0 06	0 18	0 04	0 11	0 05	0 15	0 04	0 15	0 01	0 08	0 01	0 08
4/07/2013	1.71	0 07	0 12	0 08	0 16	0 06	0 17	0 03	0 13	0 08	0 10	0 05	0 07	0 01	0 05	0 01	0 10
5/07/2013	1.63	0 05	0 15	0 06	0 15	0 08	0 12	0 04	0 13	0 10	0 18	0 07	0 16	0 02	0 05	0 01	0 10
6/07/2013	1.54	0 05	0 16	0 05	0 19	0 10	0 21	0 05	0 08	0 06	0 18	0 05	0 17	0 03	0 10	0 01	0 03
7/07/2013	1.57	0 07	0 10	0 09	0 11	0 07	0 22	0 04	0 14	0 07	0 14	0 05	0 18	0 02	0 12	0 02	0 18
8/07/2013	1.56	0 09	0 14	0 09	0 15	0 09	0 19	0 07	0 12	0 11	0 13	0 08	0 11	0 02	0 09	0 03	0 07
9/07/2013	1.67	0 08	0 16	0 09	0 18	0 12	0 14	0 07	0 09	0 10	0 16	0 07	0 15	0 04	0 07	0 02	0 08
10/07/2013	1.71	0 08	0 21	0 10	0 12	0 10	0 20	0 08	0 13	0 09	0 16	0 07	0 17	0 03	0 09	0 03	0 05
11/07/2013	1.77	0 08	0 14	0 09	0 16	0 08	0 17	0 05	0 10	0 11	0 13	0 08	0 10	0 03	0 05	0 03	0 09
12/07/2013	1.86	0 06	0 13	0 08	0 14	0 09	0 12	0 05	0 07	0 09	0 13	0 07	0 15	0 03	0 08	0 02	0 08
13/07/2013	1.81	0 07	0 09	0 09	0 10	0 08	0 16	0 06	0 10	0 08	0 14	0 06	0 14	0 02	0 07	0 03	0 05
14/07/2013	1.88	0 08	0 13	0 08	0 15	0 07	0 17	0 05	0 12	0 10	0 12	0 07	0 12	0 02	0 03	0 02	0 08
15/07/2013	1.80	0 06	0 14	0 08	0 11	0 11	0 13	0 06	0 08	0 08	0 15	0 07	0 13	0 03	0 07	0 02	0 04
16/07/2013	1.83	0 08	0 11	0 10	0 17	0 07	0 17	0 04	0 11	0 10	0 13	0 06	0 10	0 02	0 08	0 02	0 07
17/07/2013	1.81	0 05	0 10	0 07	0 11	0 06	0 08	0 03	0 08	0 08	0 13	0 07	0 19	0 02	0 04	0 01	0 07
18/07/2013	1.72	0 05	0 10	0 06	0 12	0 07	0 15	0 03	0 07	0 08	0 12	0 06	0 13	0 02	0 05	0 01	0 03
19/07/2013	1.87	0 06	0 10	0 07	0 12	0 06	0 11	0 02	0 39	0 07	0 10	0 05	0 11	0 01	0 04	0 01	0 05
20/07/2013	2.00	0 07	0 11	0 06	0 10	0 06	0 08	0 02	0 10	0 09	0 12	0 07	0 13	0 01	0 02	0 01	0 05
21/07/2013	1.92	0 08	0 16	0 09	0 10	0 12	0 16	0 06	0 08	0 08	0 15	0 07	0 15	0 02	0 06	0 02	0 04
22/07/2013	2.08	0 13	0 15	0 08	0 15	0 08	0 17	0 04	0 12	0 11	0 13	0 08	0 13	0 01	0 03	0 02	0 07
23/07/2013	2.07	0 10	0 17	0 08	0 14	0 11	0 13	0 05	0 07	0 08	0 15	0 06	0 15	0 02	0 06	0 02	0 04
24/07/2013	1.99	0 14	0 16	0 11	0 13	0 09	0 17	0 05	0 12	0 10	0 12	0 05	0 10	0 02	0 06	0 04	0 07
25/07/2013	2.04	0 12	0 20	0 08	0 15	0 10	0 11	0 04	0 06	0 09	0 29	0 07	0 16	0 02	0 03	0 02	0 08
26/07/2013	2.33	0 12	0 17	0 09	0 11	0 09	0 17	0 07	0 11	0 09	0 16	0 06	0 14	0 03	0 09	0 02	0 05
27/07/2013	2.44	0 11	0 14	0 08	0 15	0 09	0 12	0 05	0 11	0 13	0 15	0 08	0 11	0 04	0 05	0 01	0 05
28/07/2013	2.31	0 08	0 14	0 10	0 11	0 11	0 17	0 06	0 08	0 10	0 16	0 07	0 17	0 03	0 08	0 01	0 02
29/07/2013	2.20	0 10	0 13	0 11	0 15	0 08	0 16	0 05	0 11	0 12	0 14	0 08	0 11	0 03	0 04	0 01	0 06
30/07/2013	2.12	0 07	0 13	0 08	0 13	0 10	0 12	0 05	0 06	0 09	0 17	0 07	0 15	0 04	0 07	0 01	0 01
31/07/2013	2.21	0 05	0 08	0 10	0 13	0 08	0 15	0 04	0 09	0 12	0 13	0 07	0 09	0 03	0 07	0 01	0 06

Total Number of Measurements Taken, A:	16052	15853	15895	13230	16750	16690	16433	16311
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:	16052	15853	15895	13227	16750	16690	16433	16311
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	99.98%	100.00%	100.00%	100.00%	100.00%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2013\07-July

NR = No result due to analyser maintenance requirements

Submitted By (Print): _____

Signature: _____



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-Jul-2013	NA	NA	NA	NA
02-Jul-2013	1.22	1.34	1.19	1.34
03-Jul-2013	1.22	1.44	1.21	1.46
04-Jul-2013	1.27	1.39	1.25	1.39
05-Jul-2013	1.06	1.24	1.03	1.28
06-Jul-2013	NA	NA	NA	NA
07-Jul-2013	NA	NA	NA	NA
08-Jul-2013	1.13	1.28	1.04	1.26
09-Jul-2013	1.22	1.37	1.20	1.34
10-Jul-2013	1.12	1.36	1.27	1.33
11-Jul-2013	1.13	1.25	1.00	1.23
12-Jul-2013	1.10	1.25	1.16	1.28
13-Jul-2013	NA	NA	NA	NA
14-Jul-2013	NA	NA	NA	NA
15-Jul-2013	1.19	1.33	1.22	1.37
16-Jul-2013	1.17	1.33	1.16	1.31
17-Jul-2013	1.27	1.43	1.30	1.46
18-Jul-2013	1.26	1.40	1.25	1.38
19-Jul-2013	1.37	1.46	1.16	1.41
20-Jul-2013	NA	NA	NA	NA
21-Jul-2013	NA	NA	NA	NA
22-Jul-2013	1.18	1.42	1.10	1.31
23-Jul-2013	1.45	1.59	1.34	1.50
24-Jul-2013	1.23	1.45	1.14	1.29
25-Jul-2013	1.24	1.35	1.16	1.34
26-Jul-2013	1.24	1.39	1.22	1.40
27-Jul-2013	NA	NA	NA	NA
28-Jul-2013	NA	NA	NA	NA
29-Jul-2013	1.27	1.42	1.09	1.28
30-Jul-2013	1.22	1.43	1.11	1.29
31-Jul-2013	1.18	1.37	1.10	1.28
Total number of measurements taken, A:	22		22	
Chlorine Standard for Monitoring Location (mg/L):	0.50		0.50	
Number of measurements meeting standard, B:	22		22	
Compliance with Chlorine Standard, C= B/A X 100%:	100%		100%	

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: S.Fletcher/G.Levesque



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 August 2013**

Report Period: **July 2013**

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/07/2013	1.24	1.13	1.14	1.00
02/07/2013	1.15	1.05	1.11	1.02
03/07/2013	1.07	0.97	1.16	1.09
04/07/2013	1.03	0.96	1.08	0.98
05/07/2013	0.99	0.84	1.04	0.86
06/07/2013	1.10	1.01	1.17	1.08
07/07/2013	1.04	0.80	1.05	0.96
08/07/2013	1.14	1.04	1.07	1.00
09/07/2013	1.18	1.08	1.20	1.07
10/07/2013	1.16	1.05	1.26	0.90
11/07/2013	1.05	0.94	1.03	0.87
12/07/2013	1.04	0.96	1.14	0.90
13/07/2013	1.11	0.96	1.10	0.98
14/07/2013	1.16	1.07	1.12	0.62
15/07/2013	1.17	1.07	1.12	1.00
16/07/2013	1.16	1.06	1.15	0.97
17/07/2013	1.27	0.99	1.28	1.11
18/07/2013	1.30	0.90	1.21	1.05
19/07/2013	1.55	1.23	1.30	1.06
20/07/2013	1.30	1.14	1.16	0.96
21/07/2013	1.10	0.99	1.05	0.93
22/07/2013	1.12	0.86	1.05	0.79
23/07/2013	1.23	0.91	1.13	0.88
24/07/2013	1.13	1.06	1.07	0.96
25/07/2013	1.17	1.09	1.14	1.09
26/07/2013	1.17	1.11	1.13	1.07
27/07/2013	1.19	1.12	1.15	1.10
28/07/2013	1.23	1.13	1.16	1.10
29/07/2013	1.21	1.12	1.11	1.06
30/07/2013	1.18	1.13	1.08	1.02
31/07/2013	1.18	1.11	1.08	1.04

Total Number of Measurements, A:	21598	21523
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	21598	21523
COMPLIANCE, C = B/A X 100%:	100	100

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2013\07-July

Submitted By (Print): A.Weremy

Signature: Original signed by A.Weremy



Water and Waste Department • Service des eaux et des déchets

Friday, July 26, 2013

Our Incident/Report No: 06-2013

LIMS Reference No: **36363**

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

RE: CORRECTIVE ACTION REPORT

WATER SYSTEM	Winnipeg Public Water System
WATER SYSTEM CODE	252.00
LOCATION OF NON-COMPLIANT INCIDENT	Winnipeg 3-Dist WC11
OPERATOR IN CHARGE	NA
INCIDENT REPORTED BY	Steve Fletcher, Supervisor of Analytical Services Branch
TYPE OF NON-COMPLIANT INCIDENT	High positive Total Coliform (>10 per100mL), 3 MR 41/2007
INCIDENT DATE	July 2, 2013
DESCRIPTION OF CORRECTIVE ACTIONS	IMMEDIATELY: Re-sampled original locations, also tested additional samples upstream/downstream where Total Coliform >10 per 100 mL was reported. All additional samples tested for turbidity, free/total chlorine and temperature. The ODW was contacted.
TEST RESULTS	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	TimeSpeld (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)
WC11		365108	02-Jul-13	16:11	<1	21	0.71	0.91	14.7	0.29
WC11		365759	05-Jul-13	9:45	<1	<1	0.37	0.52	15.2	0.30
WC11		365760	05-Jul-13	10:00	<1	<1	0.52	0.70	16.7	0.28
WC11		365761	05-Jul-13	10:15	<1	<1	0.84	1.05	20.0	0.31



Water and Waste Department • Service des eaux et des déchets

Wednesday, August 7, 2013

Our Incident/Report No: 07-2013
LIMS Reference No: **36427**

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

RE: CORRECTIVE ACTION REPORT

WATER SYSTEM	Winnipeg Public Water System
WATER SYSTEM CODE	252.00
LOCATION OF NON-COMPLIANT INCIDENT	Winnipeg 3-Dist SW-14
OPERATOR IN CHARGE	NA
INCIDENT REPORTED BY	Gerry Levesque, Supervisor of Analytical Services Branch, acting
TYPE OF NON-COMPLIANT INCIDENT	Positive Total Coliform (3 per100mL), 3 MR 41/2007 No Fecal Coliform and No HPC present.
INCIDENT DATE	July 8, 2013
DESCRIPTION OF CORRECTIVE ACTIONS	IMMEDIATELY: Re-sampled original location, and repeat testing for turbidity, free/total chlorine and temperature. The ODW was contacted.
TEST RESULTS	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/télé. (204) 339-2147 • www.winnipeg.ca

Sample Name	Sample Number	Date Sampled	Time Spled (hrs)	E. Coli-QT (MPNU/100 mL)	Total Coliform-QT (MPNU/100 mL)	HPC (cfu/mL)	Chlorine, Free (mg/L)	Chlorine, Total (mg/L)	Turbidity (ntu)	Temperature (°C)
SW14		08-Jul-13	12:30	<1	3	<10	0.54	0.70	0.45	15.9
SW14		10-Jul-13	9:30	<1	<1	<10	0.56	0.71	0.26	16.2



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: **July 2013**

Report Created: **Thursday, August 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	
1/07/2013	96.31	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	54.52	54.52	0.00	0.00	0.00	0.00	0.00	0.00	70.49	70.49	0.00	0.00	0.00	0.00	0.00	0.00	210.02	210.02	100.00
2/07/2013	96.25	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	57.74	57.74	0.00	0.00	0.00	0.00	0.00	0.00	74.25	74.25	0.00	0.00	0.00	0.00	0.00	0.00	216.98	216.98	100.00
3/07/2013	95.89	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.00	67.34	67.34	0.00	0.00	0.00	0.00	0.00	0.00	83.58	83.58	0.00	0.00	0.00	0.00	0.00	0.00	235.95	235.95	100.00
4/07/2013	95.81	0.00	0.00	84.97	84.97	0.00	0.00	0.00	0.00	0.00	0.00	67.55	67.55	0.00	0.00	0.00	0.00	0.00	0.00	84.27	84.27	0.00	0.00	0.00	0.00	0.00	0.00	236.79	236.79	100.00
5/07/2013	95.74	0.00	0.00	81.07	81.07	0.00	0.00	60.20	60.20	0.00	0.00	79.98	79.98	0.00	0.00	0.00	0.00	0.00	0.00	22.50	22.50	0.00	0.00	0.00	0.00	0.00	0.00	243.75	243.75	100.00
6/07/2013	95.70	0.00	0.00	41.18	41.18	0.00	0.00	85.02	85.02	0.00	0.00	82.56	82.56	0.00	0.00	0.00	0.00	0.00	0.00	41.25	41.25	0.00	0.00	0.00	0.00	0.00	0.00	250.00	250.00	100.00
7/07/2013	95.80	0.00	0.10	55.97	56.07	0.05	0.10	80.90	81.06	0.03	0.12	17.38	17.52	0.00	0.00	0.00	0.00	0.08	0.08	19.72	19.87	0.00	0.00	63.89	63.89	0.16	0.39	237.85	238.41	99.77
8/07/2013	95.69	0.00	0.00	48.10	48.10	0.00	0.00	84.97	84.97	0.00	0.00	28.97	28.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	247.03	247.03	100.00
9/07/2013	95.72	0.00	0.00	0.00	0.00	0.00	0.00	84.97	84.97	0.12	0.18	27.52	27.82	0.00	0.00	49.10	49.10	0.00	0.00	0.00	0.00	0.00	0.00	84.94	84.94	0.12	0.18	246.54	246.83	99.88
10/07/2013	95.89	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	75.42	75.42	0.00	0.00	0.00	0.00	0.00	0.00	85.02	85.02	0.00	0.00	245.45	245.45	100.00
11/07/2013	96.01	0.00	0.00	0.00	0.00	0.00	0.00	85.00	85.00	0.00	0.00	0.00	0.00	0.00	0.00	73.00	73.00	0.00	0.00	0.00	0.00	0.00	0.00	85.00	85.00	0.00	0.00	243.01	243.01	100.00
12/07/2013	96.12	0.00	0.00	59.29	59.29	0.00	0.00	25.71	25.71	0.00	0.00	0.00	0.00	0.00	0.00	72.99	72.99	0.00	0.00	60.30	60.30	0.00	0.00	24.73	24.73	0.00	0.00	243.01	243.01	100.00
13/07/2013	96.20	0.00	0.00	24.90	24.90	0.00	0.00	60.10	60.10	0.00	0.00	0.00	0.00	0.00	0.00	72.97	72.97	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	242.96	242.96	100.00
14/07/2013	96.27	0.00	0.00	61.91	61.91	0.00	0.00	22.50	22.50	0.00	0.00	0.00	0.00	0.00	0.00	61.81	61.81	0.00	0.00	83.90	83.90	0.00	0.00	0.00	0.00	0.00	0.00	230.13	230.13	100.00
15/07/2013	96.29	0.00	0.00	84.64	84.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.92	53.92	0.00	0.00	20.94	20.94	0.00	0.00	63.34	63.34	0.00	0.00	222.84	222.84	100.00
16/07/2013	96.35	0.00	0.00	85.01	85.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.87	56.87	0.00	0.00	0.00	0.00	0.00	0.00	84.97	84.97	0.00	0.00	226.85	226.85	100.00
17/07/2013	96.55	0.00	0.12	84.87	84.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.76	61.76	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.12	231.62	231.74	99.95
18/07/2013	96.46	0.00	0.00	82.84	82.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.21	67.21	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	235.04	235.04	100.00
19/07/2013	96.57	0.00	0.00	22.32	22.32	0.00	0.00	61.37	61.37	0.00	0.00	0.00	0.00	0.00	0.00	64.90	64.90	0.00	0.00	0.00	0.00	0.00	0.00	84.94	84.94	0.00	0.00	233.52	233.52	100.00
20/07/2013	96.69	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	50.42	50.42	0.00	0.00	0.00	0.00	0.00	0.00	79.61	79.61	0.00	0.00	215.01	215.01	100.00
21/07/2013	96.66	0.00	0.00	0.00	0.00	0.00	0.00	83.64	83.64	0.00	0.00	0.00	0.00	0.00	0.00	47.25	47.25	0.00	0.00	0.00	0.00	0.00	0.00	75.11	75.11	0.00	0.00	206.00	206.00	100.00
22/07/2013	96.68	0.00	0.00	0.77	0.77	0.00	0.00	82.49	82.49	0.00	0.00	0.00	0.00	0.00	0.00	46.98	46.98	0.00	0.00	0.00	0.00	0.00	0.00	74.79	74.79	0.00	0.00	205.03	205.03	100.00
23/07/2013	96.69	0.00	0.00	23.49	23.49	0.00	0.00	56.63	56.63	0.00	0.00	0.00	0.00	0.00	0.00	47.23	47.23	0.00	0.00	0.00	0.00	0.00	0.00	74.69	74.69	0.00	0.00	202.04	202.04	100.00
24/07/2013	96.67	0.00	0.00	76.40	76.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.51	48.51	0.00	0.00	0.00	0.00	0.00	0.00	76.11	76.11	0.00	0.00	201.02	201.02	100.00
25/07/2013	96.73	0.00	0.00	76.24	76.24	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	0.00	0.00	0.00	0.00	76.11	76.11	0.00	0.00	200.98	200.98	100.00
26/07/2013	96.79	0.00	0.00	75.98	75.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.83	48.83	0.00	0.00	0.00	0.00	0.00	0.00	76.20	76.20	0.00	0.00	201.01	201.01	100.00
27/07/2013	96.84	0.00	0.00	76.54	76.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.38	49.38	0.00	0.00	0.00	0.00	0.00	0.00	76.90	76.90	0.00	0.00	202.82	202.82	100.00
28/07/2013	96.82	0.00	0.18	35.57	35.75	0.00	0.00	44.29	44.29	0.00	0.00	0.00	0.00	0.00	0.00	48.09	48.09	0.00	0.00	0.00	0.00	0.00	0.00	75.78	75.78	0.00	0.18	203.72	203.90	99.91
29/07/2013	96.79	0.00	0.00	0.00	0.00	0.00	0.00	83.04	83.04	0.00	0.00	0.00	0.00	0.00	0.00	46.91	46.91	0.00	0.00	0.00	0.00	0.00	0.00	74.50	74.50	0.00	0.00	204.45	204.45	100.00
30/07/2013	96.78	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	47.98	47.98	0.00	0.00	0.00	0.00	0.00	0.00	75.71	75.71	0.00	0.00	208.24	208.24	100.00
31/07/2013	96.77	0.00	0.00	0.00	0.00	0.00	0.00	85.00	85.00	0.00	0.00	0.00	0.00	0.00	0.00	49.56	49.56	0.00	0.00	0.00	0.00	0.00	0.00	77.86	77.86	0.00	0.00	212.42	212.42	100.00
		0.00	0.40	1437.08	1437.49	0.05	0.10	1340.37	1340.52	0.15	0.29	483.55	484.00	0.00	0.00	1289.73	1289.73	0.08	0.08	646.18	646.34	0.00	0.00	1745.15	1745.15	0.28	0.87	6942.06	6943.23	

Water Volume [%]:
 Untreated: 0.00 %
 Below Dose: 0.01 %
 To Dose: 99.98 %

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: **July 2013**

Report Created: **Thursday, August 01, 2013**

Reactor: **UVR-100A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated	Daily Totals				
	mJ/cm ²			MLD			W/m ²									Hours										to Validate	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			Conditions	Untreated	Below Dose	To Dose
1/07/2013	19.6	26.6	23.9	79.6	90.1	85.0	265.2	135.9	135.9	203.1	135.9	135.9	OL	OL	OL	2252	2122	2525	1424	4123	4121	3027	1694	4517	100.00	0.00	0.00	85.01	85.01	
2/07/2013	19.4	26.8	23.9	80.5	90.5	85.0	264.5	135.9	135.9	202.8	136.0	135.9	OL	OL	OL	2276	2146	2549	1448	4147	4145	3027	1694	4517	100.00	0.00	0.00	84.99	84.99	
3/07/2013	19.7	24.7	23.9	81.1	89.1	85.0	262.6	135.9	135.9	195.3	135.9	135.9	OL	OL	OL	2300	2171	2574	1473	4171	4170	3027	1694	4517	100.00	0.00	0.00	85.02	85.02	
4/07/2013	19.7	27.1	23.9	80.5	89.7	85.0	262.0	135.9	135.9	192.7	135.9	135.9	OL	OL	OL	2324	2195	2598	1497	4195	4194	3027	1694	4517	100.00	0.00	0.00	84.97	84.97	
5/07/2013	19.6	26.0	24.0	60.8	104.7	81.1	262.5	129.7	129.7	192.2	129.8	129.7	OL	OL	OL	2348	2219	2622	1521	4219	4218	3027	1694	4517	100.00	0.00	0.00	81.07	81.07	
6/07/2013	0.0	45.0	24.0	0.0	83.7	79.9	261.6	128.0	128.0	193.6	128.0	128.0	OL	OL	OL	2361	2232	2634	1533	4232	4230	3027	1694	4517	100.00	0.00	0.00	41.18	41.18	
7/07/2013	0.0	67.6	25.9	0.0	81.2	75.8	256.8	107.3	101.5	192.3	118.4	107.9	249.9	82.1	53.6	2379	2249	2652	1551	4250	4248	3045	1712	4535	99.82	0.00	0.10	55.97	56.07	
8/07/2013	0.0	39.9	26.5	0.0	81.0	76.9	161.9	111.4	108.7	199.5	118.3	106.5	254.6	98.2	88.0	2394	2264	2667	1563	4262	4260	3060	1727	4550	100.00	0.00	0.00	48.10	48.10	
9/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2394	2264	2667	1563	4262	4260	3060	1727	4550	OL	0.00	0.00	0.00	0.00	
10/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2394	2264	2667	1563	4262	4260	3060	1727	4550	OL	0.00	0.00	0.00	0.00	
11/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2394	2264	2667	1563	4262	4260	3060	1727	4550	OL	0.00	0.00	0.00	0.00	
12/07/2013	17.8	105.5	24.3	4.1	101.5	85.0	97.1	116.1	110.9	180.9	119.4	109.1	266.3	100.9	96.1	2410	2281	2684	1577	4275	4274	3077	1743	4567	100.00	0.00	0.00	59.29	59.29	
13/07/2013	0.0	44.4	24.3	0.0	90.5	84.9	86.2	108.3	107.8	204.4	119.4	110.0	255.9	92.7	86.3	2417	2288	2691	1584	4282	4281	3084	1750	4574	100.00	0.00	0.00	24.90	24.90	
14/07/2013	17.6	103.0	24.3	4.1	99.4	84.2	85.6	107.4	102.9	196.8	117.6	108.9	269.1	89.2	85.5	2435	2306	2708	1601	4300	4298	3101	1768	4591	100.00	0.00	0.00	61.91	61.91	
15/07/2013	16.0	26.2	24.3	79.9	88.3	84.6	85.9	104.9	101.6	199.6	114.7	105.5	256.6	89.7	86.0	2459	2330	2732	1625	4324	4322	3125	1792	4615	100.00	0.00	0.00	84.64	84.64	
16/07/2013	16.3	25.8	24.2	80.4	87.9	85.0	86.0	104.1	100.2	199.0	113.6	103.9	256.0	89.5	86.3	2483	2354	2756	1649	4348	4346	3149	1816	4639	100.00	0.00	0.00	85.01	85.01	
17/07/2013	16.9	25.5	23.5	78.3	89.7	85.0	82.6	101.6	94.2	195.8	110.8	100.4	255.8	87.3	86.3	2507	2378	2780	1673	4372	4370	3173	1840	4663	99.86	0.00	0.12	84.87	84.99	
18/07/2013	17.5	25.2	23.3	74.5	90.3	82.8	79.6	98.4	91.1	191.7	109.2	98.3	255.4	86.3	84.2	2531	2402	2804	1697	4396	4394	3197	1864	4687	100.00	0.00	0.00	82.84	82.84	
19/07/2013	0.0	40.8	22.0	0.0	85.7	79.8	71.1	98.5	91.8	194.1	109.7	98.2	253.0	87.3	81.3	2538	2409	2811	1704	4403	4401	3204	1871	4694	100.00	0.00	0.00	22.32	22.32	
20/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2538	2409	2811	1704	4403	4401	3204	1871	4694	OL	0.00	0.00	0.00	0.00	
21/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2538	2409	2811	1704	4403	4401	3204	1871	4694	OL	0.00	0.00	0.00	0.00	
22/07/2013	0.0	65.7	24.1	0.0	80.8	71.6	63.4	99.5	80.1	161.1	103.3	95.7	239.2	74.8	75.3	2538	2409	2811	1704	4403	4401	3204	1871	4694	100.00	0.00	0.00	0.77	0.77	
23/07/2013	17.9	106.6	24.2	0.0	78.3	76.2	249.3	127.7	140.1	194.9	106.5	132.5	238.2	120.8	168.4	2546	2416	2819	1705	4404	4402	3212	1879	4702	99.99	0.00	0.00	23.49	23.49	
24/07/2013	19.7	27.1	24.0	73.1	80.1	76.4	221.4	122.5	136.7	OL	OL	OL	258.1	122.3	148.4	2570	2440	2843	1705	4404	4402	3236	1903	4726	100.00	0.00	0.00	76.40	76.40	
25/07/2013	19.0	24.9	24.0	72.1	79.9	76.3	165.3	122.1	123.1	OL	OL	OL	246.8	122.1	126.2	2594	2464	2867	1705	4404	4402	3260	1927	4750	100.00	0.00	0.00	76.24	76.24	
26/07/2013	19.3	24.8	24.0	72.5	79.8	76.0	149.3	121.7	121.7	OL	OL	OL	244.8	121.7	125.2	2618	2488	2891	1705	4404	4402	3284	1951	4774	100.00	0.00	0.00	75.98	75.98	
27/07/2013	19.2	27.5	24.0	72.9	80.6	76.6	142.6	122.6	122.6	OL	OL	OL	246.5	122.6	125.5	2642	2512	2915	1705	4404	4402	3308	1975	4798	100.00	0.00	0.00	76.54	76.54	
28/07/2013	0.0	24.7	23.9	0.0	80.4	76.9	139.3	123.3	123.7	OL	OL	OL	249.0	123.3	129.3	2653	2524	2926	1705	4404	4402	3319	1986	4809	99.49	0.00	0.18	35.57	35.75	
29/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2653	2524	2926	1705	4404	4402	3319	1986	4809	OL	0.00	0.00	0.00	0.00	
30/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2653	2524	2926	1705	4404	4402	3319	1986	4809	OL	0.00	0.00	0.00	0.00	
31/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2653	2524	2926	1705	4404	4402	3319	1986	4809	OL	0.00	0.00	0.00	0.00	
Total [ML]:																									0.00	0.40	1437.08	1437.49		

Water Volume [%]:
 Untreated: 0.00 %
 Below Dose 0.03 %
 To Dose 99.97 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\07-July



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: **July 2013**

Report Created: **Thursday, August 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 ²			MLD			W/m ²									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
1/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3610	3609	3610	2960	2444	113	3654	3655	3654	OL	0.00	0.00	0.00	0.00
2/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3610	3609	3610	2960	2444	113	3654	3655	3654	OL	0.00	0.00	0.00	0.00
3/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3610	3609	3610	2960	2444	113	3654	3655	3654	OL	0.00	0.00	0.00	0.00
4/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3610	3609	3610	2960	2444	113	3654	3655	3654	OL	0.00	0.00	0.00	0.00
5/07/2013	18.4	96.2	24.2	7.1	108.5	82.2	158.3	84.0	83.7	221.5	163.1	97.1	295.7	83.6	85.0	3627	3627	3627	2978	2462	131	3672	3672	3672	100.00	0.00	0.00	60.20	60.20
6/07/2013	20.4	25.3	24.2	75.8	99.8	85.0	179.5	86.4	86.5	229.9	182.5	107.5	309.4	86.3	109.2	3651	3651	3651	3002	2486	155	3696	3696	3696	100.00	0.00	0.00	85.02	85.02
7/07/2013	0.0	108.4	24.4	0.0	101.8	84.7	210.2	90.7	104.5	229.0	206.6	136.3	297.1	86.4	116.2	3674	3674	3674	3025	2509	178	3717	3718	3717	99.81	0.05	0.10	80.90	81.06
8/07/2013	21.1	30.6	24.2	62.3	90.9	85.0	236.6	135.8	141.9	223.8	227.2	195.6	OL	OL	OL	3698	3698	3698	3049	2533	202	3717	3718	3717	100.00	0.00	0.00	84.97	84.97
9/07/2013	20.9	33.3	24.2	62.8	92.4	85.0	243.2	135.9	175.8	217.0	229.3	216.0	OL	OL	OL	3722	3722	3722	3073	2557	226	3717	3718	3717	100.00	0.00	0.00	84.97	84.97
10/07/2013	21.0	32.5	24.2	81.5	88.1	85.0	240.9	135.9	182.0	213.4	228.3	209.0	OL	OL	OL	3746	3746	3746	3097	2581	250	3717	3718	3717	100.00	0.00	0.00	85.01	85.01
11/07/2013	21.1	31.9	24.2	81.9	88.7	85.0	240.7	135.9	175.5	212.3	228.5	205.0	OL	OL	OL	3770	3770	3770	3121	2605	274	3717	3718	3717	100.00	0.00	0.00	85.00	85.00
12/07/2013	0.0	52.7	24.2	0.0	87.9	84.9	243.4	135.8	175.7	213.0	232.2	209.3	OL	OL	OL	3777	3777	3778	3128	2612	281	3717	3718	3717	100.00	0.00	0.00	25.71	25.71
13/07/2013	18.2	100.5	24.2	5.4	104.1	85.0	176.7	126.6	153.5	204.7	213.0	191.4	292.3	131.7	131.8	3779	3779	3779	3145	2629	298	3734	3735	3734	100.00	0.00	0.00	60.10	60.10
14/07/2013	0.0	34.8	24.2	0.0	88.0	84.9	OL	OL	OL	202.7	212.8	193.0	296.8	135.7	135.7	3779	3779	3779	3152	2635	305	3741	3741	3741	100.00	0.00	0.00	22.50	22.50
15/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3779	3779	3779	3152	2635	305	3741	3741	3741	OL	0.00	0.00	0.00	0.00
16/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3779	3779	3779	3152	2635	305	3741	3741	3741	OL	0.00	0.00	0.00	0.00
17/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3779	3779	3779	3152	2635	305	3741	3741	3741	OL	0.00	0.00	0.00	0.00
18/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3779	3779	3779	3152	2635	305	3741	3741	3741	OL	0.00	0.00	0.00	0.00
19/07/2013	18.9	107.3	24.3	3.5	99.9	85.0	199.8	119.9	150.5	198.2	199.4	178.5	279.0	125.8	128.4	3783	3782	3783	3169	2653	322	3758	3759	3758	100.00	0.00	0.00	61.37	61.37
20/07/2013	21.3	28.5	24.2	82.1	88.3	85.0	OL	OL	OL	196.9	196.4	176.3	289.3	135.9	136.0	3783	3782	3783	3193	2677	346	3782	3783	3782	100.00	0.00	0.00	84.98	84.98
21/07/2013	21.3	28.3	24.2	81.3	87.7	83.7	OL	OL	OL	199.4	198.7	170.0	294.9	133.8	133.9	3783	3782	3783	3217	2701	370	3806	3807	3806	100.00	0.00	0.00	83.64	83.64
22/07/2013	0.0	102.7	24.2	0.0	85.7	83.2	220.3	132.6	145.2	202.3	206.8	167.2	294.5	130.8	131.7	3796	3795	3796	3241	2724	394	3817	3818	3817	100.00	0.00	0.00	82.49	82.49
23/07/2013	0.0	50.0	24.2	0.0	85.6	81.7	234.2	130.7	144.5	203.8	213.6	168.9	OL	OL	OL	3812	3812	3813	3257	2741	410	3817	3818	3817	100.00	0.00	0.00	56.63	56.63
24/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3812	3812	3813	3257	2741	410	3817	3818	3817	OL	0.00	0.00	0.00	0.00
25/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3812	3812	3813	3257	2741	410	3817	3818	3817	OL	0.00	0.00	0.00	0.00
26/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3812	3812	3813	3257	2741	410	3817	3818	3817	OL	0.00	0.00	0.00	0.00
27/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3812	3812	3813	3257	2741	410	3817	3818	3817	OL	0.00	0.00	0.00	0.00
28/07/2013	17.7	107.4	24.2	2.4	85.0	82.6	231.3	131.5	140.1	205.7	212.0	169.0	230.4	83.8	86.7	3825	3825	3825	3270	2754	423	3818	3819	3818	100.00	0.00	0.00	44.29	44.29
29/07/2013	21.3	29.6	24.1	80.8	86.9	83.1	240.8	132.8	137.7	204.9	221.0	173.7	OL	OL	OL	3849	3849	3849	3294	2778	447	3818	3819	3818	100.00	0.00	0.00	83.04	83.04
30/07/2013	21.2	29.2	24.1	80.5	87.9	84.5	242.5	135.2	135.4	203.2	223.9	175.2	OL	OL	OL	3873	3873	3873	3318	2802	471	3818	3819	3818	100.00	0.00	0.00	84.55	84.55
31/07/2013	21.2	29.6	24.1	81.0	89.0	85.0	242.3	135.8	135.9	202.1	223.1	173.2	OL	OL	OL	3897	3897	3897	3342	2826	495	3818	3819	3818	100.00	0.00	0.00	85.00	85.00
Total [ML]:																									0.05	0.10	1340.37	1340.52	

Water Volume [%]:

Untreated: 0.00 %
 Below Dose: 0.01 %
 To Dose: 99.99 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\07-July



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: **July 2013**

Report Created: **Thursday, August 01, 2013**

Reactor: **UVR-300A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated	Daily Totals				
	mJ/cm ²			MLD			W/m ²									Hours										to Validate	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			Conditions	Untreated	Below Dose	To Dose
1/07/2013	21.4	25.1	24.2	51.1	58.7	54.5	87.9	87.9	93.8	OL	OL	OL	95.3	87.9	114.2	1151	765	1151	874	874	874	1087	1088	1088	100.00	0.00	0.00	54.52	54.52	
2/07/2013	21.2	25.1	24.2	51.8	64.6	57.7	93.1	92.9	117.2	OL	OL	OL	97.2	93.0	113.9	1154	768	1154	874	874	874	1090	1091	1091	100.00	0.00	0.00	57.74	57.74	
3/07/2013	21.4	24.9	24.1	58.5	73.6	67.4	108.1	108.1	119.8	OL	OL	OL	108.1	108.1	111.0	1179	793	1178	874	874	874	1115	1116	1116	100.00	0.00	0.00	67.34	67.34	
4/07/2013	21.5	25.0	24.1	62.3	73.2	67.5	108.4	108.4	113.5	OL	OL	OL	108.4	108.4	108.8	1203	817	1202	874	874	874	1139	1140	1140	100.00	0.00	0.00	67.55	67.55	
5/07/2013	20.3	25.1	24.1	62.4	97.3	80.0	128.2	128.2	129.7	OL	OL	OL	128.1	128.2	128.1	1227	841	1226	874	874	874	1163	1164	1164	100.00	0.00	0.00	79.98	79.98	
6/07/2013	21.3	25.2	24.1	62.6	88.8	82.6	132.1	132.1	132.1	OL	OL	OL	132.1	132.1	132.1	1251	865	1250	874	874	874	1187	1188	1188	100.00	0.00	0.00	82.56	82.56	
7/07/2013	0.0	37.0	23.9	0.0	83.1	76.0	125.7	122.8	126.9	41.3	10.0	16.8	124.3	123.8	125.7	1256	870	1256	875	875	874	1193	1193	1193	99.16	0.03	0.12	17.38	17.52	
8/07/2013	19.4	91.2	24.3	0.0	81.6	76.8	163.4	121.8	189.0	154.7	122.6	136.1	94.2	99.3	111.3	1265	879	1265	884	884	883	1193	1194	1194	100.00	0.00	0.00	28.97	28.97	
9/07/2013	0.0	24.9	24.1	0.0	81.4	76.5	152.4	123.2	159.2	155.1	123.2	123.6	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	98.93	0.12	0.18	27.52	27.82	
10/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
11/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
12/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
13/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
14/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
15/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
16/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
17/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
18/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
19/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
20/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
21/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
22/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
23/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
24/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
25/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
26/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
27/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
28/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
29/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
30/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
31/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1274	888	1274	892	892	892	1193	1194	1194	OL	0.00	0.00	0.00	0.00	0.00
Total [ML]:																										0.15	0.29	483.55	484.00	

Water Volume [%]:

Untreated: 0.03 %
 Below Dose: 0.06 %
 To Dose: 99.91 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\07-July



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: July 2013

Report Created: Thursday, August 01, 2013

Reactor: UVR-400A

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated	Daily Totals				
	mJ/cm ²			MLD			W/m ²									Hours										to Validate	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			Conditions	Untreated	Below Dose	To Dose
1/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
2/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
3/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
4/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
5/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
6/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
7/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
8/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	434	433	1578	2257	2256	2257	2413	1413	2414	OL	0.00	0.00	0.00	0.00	
9/07/2013	19.0	78.6	24.5	3.4	81.2	76.8	121.6	94.2	93.9	106.8	78.3	85.3	100.2	104.0	102.7	449	449	1593	2272	2272	2272	2429	1428	2429	100.00	0.00	0.00	49.10	49.10	
10/07/2013	17.7	34.5	24.3	67.5	81.4	75.4	108.6	98.3	95.7	85.8	78.2	78.2	105.6	104.9	101.0	473	473	1617	2287	2287	2288	2453	1452	2453	100.00	0.00	0.00	75.42	75.42	
11/07/2013	21.3	25.0	24.1	68.1	78.1	73.0	117.0	117.0	116.4	OL	OL	OL	117.0	117.0	117.0	497	497	1641	2287	2287	2288	2477	1476	2477	100.00	0.00	0.00	73.00	73.00	
12/07/2013	21.2	25.1	24.1	61.1	78.5	73.0	117.0	116.9	116.4	OL	OL	OL	116.9	116.9	117.0	521	521	1665	2287	2287	2288	2501	1500	2501	100.00	0.00	0.00	72.99	72.99	
13/07/2013	21.2	25.5	24.1	61.2	77.9	73.0	117.0	117.0	116.5	OL	OL	OL	117.0	116.9	117.0	545	545	1689	2287	2287	2288	2525	1524	2525	100.00	0.00	0.00	72.97	72.97	
14/07/2013	21.3	25.2	24.2	48.4	76.8	61.8	99.4	99.5	98.8	OL	OL	OL	103.4	99.5	99.6	569	569	1713	2287	2287	2288	2549	1548	2549	100.00	0.00	0.00	61.81	61.81	
15/07/2013	21.3	25.2	24.2	48.3	58.1	54.0	87.1	87.0	87.0	OL	OL	OL	89.0	87.0	87.0	593	593	1737	2287	2287	2288	2573	1572	2573	100.00	0.00	0.00	53.92	53.92	
16/07/2013	21.3	33.8	24.3	51.2	63.6	56.9	79.1	83.5	83.4	94.4	63.0	70.9	90.8	86.5	79.1	617	617	1761	2297	2296	2297	2597	1596	2597	100.00	0.00	0.00	56.87	56.87	
17/07/2013	21.1	26.1	24.5	56.7	70.7	61.8	63.4	68.8	68.2	90.8	64.7	72.6	90.8	80.7	63.3	641	641	1785	2321	2320	2321	2621	1620	2621	100.00	0.00	0.00	61.76	61.76	
18/07/2013	20.9	26.2	24.4	60.8	75.2	67.2	68.8	69.3	68.7	83.2	68.9	71.2	78.9	79.2	68.7	665	665	1809	2345	2344	2345	2645	1644	2645	100.00	0.00	0.00	67.21	67.21	
19/07/2013	23.0	26.1	24.5	50.9	74.7	64.9	66.6	67.0	66.5	72.6	66.7	66.9	71.1	77.5	66.5	689	689	1833	2369	2368	2369	2669	1668	2669	100.00	0.00	0.00	64.90	64.90	
20/07/2013	23.7	25.9	24.7	47.6	55.1	50.4	52.1	57.3	52.0	63.3	52.2	57.3	70.9	77.7	52.0	713	713	1857	2393	2392	2393	2693	1692	2693	100.00	0.00	0.00	50.42	50.42	
21/07/2013	23.8	26.1	24.8	44.1	53.0	47.3	49.0	54.6	50.1	56.1	51.2	56.8	75.5	80.4	48.9	737	737	1881	2417	2416	2417	2717	1716	2717	100.00	0.00	0.00	47.25	47.25	
22/07/2013	23.4	27.6	24.8	44.2	51.2	47.0	48.7	51.8	51.8	52.8	53.6	58.3	78.1	83.1	48.6	761	761	1905	2441	2440	2441	2741	1740	2741	100.00	0.00	0.00	46.98	46.98	
23/07/2013	23.0	26.1	24.7	43.2	50.9	47.2	48.9	49.4	52.4	50.5	53.0	58.1	78.3	82.7	48.9	785	785	1929	2465	2464	2465	2765	1764	2765	100.00	0.00	0.00	47.23	47.23	
24/07/2013	23.7	25.8	24.7	45.5	51.1	48.5	50.1	50.2	53.2	50.4	53.6	58.5	78.6	83.1	50.1	809	809	1953	2489	2488	2489	2789	1788	2789	100.00	0.00	0.00	48.51	48.51	
25/07/2013	23.6	25.9	24.7	45.8	51.0	48.6	50.3	50.3	53.6	50.4	53.5	58.5	79.3	83.1	50.2	833	833	1977	2513	2512	2513	2813	1812	2813	100.00	0.00	0.00	48.63	48.63	
26/07/2013	23.5	25.8	24.7	46.1	51.5	48.8	50.5	50.5	54.2	50.6	53.4	58.7	78.6	82.7	50.4	857	857	2001	2537	2536	2537	2837	1836	2837	100.00	0.00	0.00	48.83	48.83	
27/07/2013	23.7	25.7	24.7	46.6	52.3	49.4	51.0	51.0	54.9	51.2	53.2	59.0	78.7	82.1	51.0	881	881	2025	2561	2560	2561	2861	1860	2861	100.00	0.00	0.00	49.38	49.38	
28/07/2013	23.4	26.0	24.7	40.0	52.2	48.1	49.7	49.9	55.1	49.9	52.6	58.6	79.8	81.1	49.7	905	905	2049	2585	2584	2585	2885	1884	2885	100.00	0.00	0.00	48.09	48.09	
29/07/2013	23.7	25.9	24.7	44.3	50.0	46.9	48.5	48.7	55.5	48.7	52.2	58.3	80.0	80.4	48.5	929	929	2073	2609	2608	2609	2909	1908	2909	100.00	0.00	0.00	46.91	46.91	
30/07/2013	23.7	25.9	24.7	44.4	51.6	48.0	49.5	49.8	56.0	49.8	52.4	58.6	81.1	80.1	49.6	953	953	2097	2633	2632	2633	2933	1932	2933	100.00	0.00	0.00	47.98	47.98	
31/07/2013	23.7	25.7	24.7	46.0	55.1	49.6	51.2	51.4	56.7	51.4	53.1	58.7	81.5	80.0	51.2	977	977	2121	2657	2656	2657	2957	1956	2957	100.00	0.00	0.00	49.56	49.56	
Total [ML]:																											0.00	0.00	1289.73	1289.73

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

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\07-July



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: **July 2013**

Report Created: **Thursday, August 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 ²			MLD			W/m ²									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
1/07/2013	21.1	26.7	24.1	67.0	74.6	70.5	113.1	113.0	253.5	199.9	113.1	113.4	OL	OL	OL	394	394	1069	479	967	479	3318	3318	3317	100.00	0.00	0.00	70.49	70.49
2/07/2013	21.1	24.8	24.1	67.9	81.6	74.2	119.0	119.0	253.8	209.3	119.0	119.4	OL	OL	OL	397	397	1072	482	970	482	3318	3318	3317	100.00	0.00	0.00	74.25	74.25
3/07/2013	20.8	24.7	24.0	76.3	88.3	83.6	133.7	133.7	242.9	208.0	133.7	134.0	OL	OL	OL	422	421	1097	507	994	507	3318	3318	3317	100.00	0.00	0.00	83.58	83.58
4/07/2013	21.0	24.6	24.0	80.5	88.6	84.3	134.7	134.7	241.6	216.2	134.7	135.1	OL	OL	OL	446	445	1121	531	1018	531	3318	3318	3317	100.00	0.00	0.00	84.27	84.27
5/07/2013	0.0	40.6	24.1	0.0	89.7	83.7	133.9	133.9	243.3	225.8	134.1	135.2	OL	OL	OL	452	452	1127	537	1025	537	3318	3318	3317	100.00	0.00	0.00	22.50	22.50
6/07/2013	19.0	82.9	24.3	2.4	92.0	84.9	117.1	86.2	248.2	225.7	109.5	101.8	180.2	86.1	84.9	464	464	1139	549	1037	549	3330	3330	3329	100.00	0.00	0.00	41.25	41.25
7/07/2013	0.0	109.4	25.4	0.0	87.4	76.8	129.8	86.7	260.3	237.1	111.3	109.9	177.6	86.8	89.6	470	470	1145	555	1043	555	3335	3335	3334	99.21	0.08	0.08	19.72	19.87
8/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	470	470	1145	555	1043	555	3335	3335	3334	OL	0.00	0.00	0.00	0.00
9/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	470	470	1145	555	1043	555	3335	3335	3334	OL	0.00	0.00	0.00	0.00
10/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	470	470	1145	555	1043	555	3335	3335	3334	OL	0.00	0.00	0.00	0.00
11/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	470	470	1145	555	1043	555	3335	3335	3334	OL	0.00	0.00	0.00	0.00
12/07/2013	20.1	107.1	24.3	5.7	96.7	85.0	132.2	86.3	276.0	235.9	113.1	123.4	230.5	86.4	102.4	487	487	1162	572	1060	572	3352	3352	3351	100.00	0.00	0.00	60.30	60.30
13/07/2013	20.0	25.1	24.3	78.1	90.9	85.0	135.6	86.3	282.1	232.2	112.8	127.4	247.4	86.5	106.5	511	511	1186	596	1084	596	3376	3376	3375	100.00	0.00	0.00	84.99	84.99
14/07/2013	20.4	27.3	24.3	78.6	90.6	83.9	126.2	85.2	281.3	223.8	110.8	123.9	247.1	85.4	107.1	535	535	1210	620	1108	620	3400	3400	3399	100.00	0.00	0.00	83.90	83.90
15/07/2013	0.0	46.8	24.3	0.0	84.6	82.1	124.3	83.7	281.1	224.4	110.2	118.9	241.3	84.1	108.9	541	541	1217	626	1114	627	3406	3406	3405	100.00	0.00	0.00	20.94	20.94
16/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
17/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
18/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
19/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
20/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
21/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
22/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
23/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
24/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
25/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
26/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
27/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
28/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
29/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
30/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
31/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	541	541	1217	626	1114	627	3406	3406	3405	OL	0.00	0.00	0.00	0.00
Total [ML]:																									0.08	0.08	646.18	646.34	

Water Volume [%]:

Untreated: 0.01 %
 Below Dose: 0.01 %
 To Dose: 99.98 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\07-July



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: **July 2013**

Report Created: **Thursday, August 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 ²			MLD			W/m ²								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
1/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	981	981	0	18	18	18	92	1825	1000	OL	0.00	0.00	0.00	0.00
2/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	981	981	0	18	18	18	92	1825	1000	OL	0.00	0.00	0.00	0.00
3/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	981	981	0	18	18	18	92	1825	1000	OL	0.00	0.00	0.00	0.00
4/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	981	0	0	18	18	18	92	1825	1000	OL	0.00	0.00	0.00	0.00
5/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	981	0	0	18	18	18	92	1825	1000	OL	0.00	0.00	0.00	0.00
6/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	981	0	0	18	18	18	92	1825	1000	OL	0.00	0.00	0.00	0.00
7/07/2013	19.2	94.8	24.4	4.4	94.6	84.5	177.4	119.9	219.7	86.0	99.8	151.8	168.3	93.7	85.7	1000	19	18	37	36	36	110	1844	1018	100.00	0.00	0.00	63.89	63.89
8/07/2013	18.6	27.9	24.3	67.8	88.7	85.0	183.1	101.6	227.9	86.3	100.0	145.2	162.4	87.0	86.3	1024	43	42	61	60	60	134	1868	1042	100.00	0.00	0.00	84.99	84.99
9/07/2013	18.6	26.1	24.2	56.9	91.1	85.0	174.4	98.2	224.2	86.3	86.3	141.0	161.1	86.9	86.2	1048	67	66	85	84	84	158	1892	1066	100.00	0.00	0.00	84.94	84.94
10/07/2013	18.8	25.4	24.2	81.1	89.1	85.0	175.4	98.6	223.2	86.3	86.3	142.0	160.1	87.8	86.3	1072	91	90	109	108	108	182	1916	1090	100.00	0.00	0.00	85.02	85.02
11/07/2013	17.5	25.6	24.2	81.4	88.5	85.0	178.9	100.3	224.0	86.3	86.3	144.9	160.2	88.6	86.3	1096	115	114	133	132	132	206	1940	1114	100.00	0.00	0.00	85.00	85.00
12/07/2013	0.0	53.1	24.3	0.0	89.0	84.9	182.3	100.4	221.8	86.2	86.3	150.6	161.9	88.9	86.2	1103	122	121	140	139	139	213	1947	1121	100.00	0.00	0.00	24.73	24.73
13/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1103	122	121	140	139	139	213	1947	1121	OL	0.00	0.00	0.00	0.00
14/07/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1103	122	121	140	139	139	213	1947	1121	OL	0.00	0.00	0.00	0.00
15/07/2013	18.7	93.3	24.3	4.5	88.6	84.9	173.7	100.9	213.6	86.2	86.3	145.4	155.7	89.2	86.2	1121	140	139	158	157	157	231	1965	1139	100.00	0.00	0.00	63.34	63.34
16/07/2013	18.7	25.7	24.2	81.7	88.4	85.0	180.8	100.7	224.7	86.3	86.3	147.8	153.6	88.7	86.3	1145	164	163	182	181	181	255	1989	1163	100.00	0.00	0.00	84.97	84.97
17/07/2013	18.8	25.3	24.2	80.8	89.0	85.0	176.9	99.1	220.3	86.3	86.3	140.3	131.3	87.1	86.3	1169	188	187	206	205	205	279	2013	1187	100.00	0.00	0.00	84.99	84.99
18/07/2013	18.4	25.3	24.2	80.2	89.4	85.0	172.3	96.9	216.0	86.3	86.3	134.2	110.2	86.5	86.3	1193	212	211	230	229	229	303	2037	1211	100.00	0.00	0.00	84.99	84.99
19/07/2013	18.6	26.5	24.2	69.3	89.7	85.0	171.4	96.2	234.2	86.3	86.3	131.4	105.9	86.4	86.3	1217	236	235	254	253	253	327	2061	1235	100.00	0.00	0.00	84.94	84.94
20/07/2013	19.2	25.9	24.3	76.4	85.7	79.6	173.0	97.0	234.9	80.9	81.0	132.7	107.7	83.9	81.0	1241	260	259	278	277	277	351	2085	1259	100.00	0.00	0.00	79.61	79.61
21/07/2013	19.1	26.5	24.4	71.3	81.9	75.1	177.4	99.3	232.4	76.5	76.5	138.5	113.0	78.6	76.5	1265	284	283	302	301	301	375	2109	1283	100.00	0.00	0.00	75.11	75.11
22/07/2013	19.1	27.8	24.4	71.4	79.4	74.8	179.9	100.7	216.0	76.2	76.4	141.5	115.6	80.6	76.2	1289	308	307	326	325	325	399	2133	1307	100.00	0.00	0.00	74.79	74.79
23/07/2013	18.9	26.9	24.4	70.3	78.6	74.7	180.1	100.0	216.1	76.1	76.5	141.0	115.5	81.2	76.1	1313	332	331	350	349	349	423	2157	1331	100.00	0.00	0.00	74.69	74.69
24/07/2013	19.0	26.7	24.3	72.8	78.8	76.1	180.2	100.2	215.8	77.4	77.5	140.4	115.7	79.7	77.4	1337	356	355	374	373	373	447	2181	1355	100.00	0.00	0.00	76.11	76.11
25/07/2013	19.1	25.2	24.3	73.1	78.9	76.1	181.7	99.9	215.8	77.5	77.5	141.5	115.5	77.5	77.5	1361	380	379	398	397	397	471	2205	1379	100.00	0.00	0.00	76.11	76.11
26/07/2013	18.9	25.2	24.3	73.2	79.0	76.2	180.8	99.9	215.6	77.5	77.5	140.6	114.4	77.5	77.5	1385	404	403	422	421	421	495	2229	1403	100.00	0.00	0.00	76.20	76.20
27/07/2013	19.1	25.2	24.3	73.5	80.2	76.9	181.8	100.0	215.6	78.2	78.2	140.4	114.4	78.2	78.2	1409	428	427	446	445	445	519	2253	1427	100.00	0.00	0.00	76.90	76.90
28/07/2013	19.1	25.7	24.3	60.6	80.4	75.8	183.2	99.1	215.2	77.1	77.2	139.3	115.6	77.2	77.1	1433	452	451	470	469	469	543	2277	1451	100.00	0.00	0.00	75.78	75.78
29/07/2013	19.0	25.2	24.3	71.1	78.8	74.5	183.5	98.6	215.9	75.9	75.9	139.8	115.5	75.9	75.9	1457	476	475	494	493	493	567	2301	1475	100.00	0.00	0.00	74.50	74.50
30/07/2013	19.1	25.2	24.3	71.9	79.5	75.7	185.3	98.5	215.7	77.1	77.1	140.3	116.8	77.1	77.1	1481	500	499	518	517	517	591	2325	1499	100.00	0.00	0.00	75.71	75.71
31/07/2013	19.0	25.2	24.3	73.1	83.3	77.9	186.4	98.8	215.5	79.2	79.2	140.9	117.0	79.2	79.2	1505	524	523	542	541	541	615	2349	1523	100.00	0.00	0.00	77.86	77.86
Total [ML]:																									0.00	0.00	1745.15	1745.15	

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

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\07-July