



Water and Waste Department • Service des eaux et des déchets

September 6, 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: AUGUST 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 August 2013.

We have also included one corrective action report for positive total coliforms in the distribution system on July 29. This corrective action report was not included in the July 2013 submission because the contract laboratory did not advise us of the positive results before August 6 at which time the July submission was completed and had been sent to the Office of Drinking Water. The Office of Drinking Water was notified of the incident and resamples were not taken for these samples because we were already in the process of collecting the next set of weekly samples. The corrective action report is completed with reference to the “no callout received” incident by the contract laboratory. On July 29, positive total coliform results were reported

On August 6, the locations were sampled as part of the routine weekly sampling and the results were reported to be negative. Our sampling also indicated that the chlorine levels at the locations were normal and provided adequate disinfection.

The August 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 August 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 August 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.

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)

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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-Aug-2013	1.68	0.09	0.07	0.08	0.08	0.08	0.08	0.10	0.05
02-Aug-2013	1.55	0.08	0.08	0.13	0.10	0.06	0.07	0.10	0.08
03-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
04-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
05-Aug-2013	1.88	0.06	0.07	0.10	0.08	0.05	0.08	0.13	0.07
06-Aug-2013	1.80	0.11	0.09	0.10	0.07	0.08	0.09	0.05	0.10
07-Aug-2013	4.59	0.18	0.06	0.10	0.11	0.06	0.05	0.07	0.06
08-Aug-2013	1.73	0.06	0.05	0.06	0.05	<0.05	0.05	0.05	0.11
09-Aug-2013	1.85	0.08	0.09	0.08	0.08	0.08	0.08	0.07	0.08
10-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
11-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
12-Aug-2013	1.65	0.10	0.12	0.08	0.10	0.07	0.06	0.06	0.06
13-Aug-2013	1.60	0.08	0.07	0.10	0.08	0.08	0.09	0.10	0.05
14-Aug-2013	1.79	0.07	0.06	0.11	0.11	0.06	0.06	0.05	0.06
15-Aug-2013	1.44	0.11	0.08	0.07	0.07	0.08	0.06	0.06	<0.05
16-Aug-2013	1.57	0.06	0.07	0.09	0.07	0.05	0.05	0.09	0.06
17-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
18-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
19-Aug-2013	1.33	0.06	0.13	0.07	0.08	0.11	0.08	0.06	0.05
20-Aug-2013	1.36	0.07	0.07	0.14	0.09	0.07	0.09	0.09	0.07
21-Aug-2013	1.30	0.09	0.08	0.09	0.08	0.07	0.06	0.07	0.06
22-Aug-2013	1.33	0.07	0.07	0.09	0.06	0.08	0.10	0.07	0.06
23-Aug-2013	1.31	0.10	0.09	0.07	0.09	0.07	0.05	0.05	0.09
24-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
25-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
26-Aug-2013	1.46	0.10	0.11	0.08	0.08	0.07	0.08	0.09	0.10
27-Aug-2013	1.70	0.12	0.12	0.10	0.08	0.09	0.11	0.08	0.06
28-Aug-2013	1.62	0.10	0.12	0.14	0.09	0.08	0.12	0.11	0.09
29-Aug-2013	1.47	0.07	0.10	0.07	0.13	0.06	0.14	0.06	0.06
30-Aug-2013	1.51	0.15	0.13	0.11	0.09	0.07	0.07	0.07	0.05
31-Aug-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total number of measurements taken, A:	22	22	22	22	22	21	22	22	21
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:	22	22	22	22	22	21	22	22	21
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/ A.Vanderstel

Date Approved: 5-Sep-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

August 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
1/08/2013	2.32	0.05	0.09	0.08	0.15	0.10	0.11	0.04	0.06	0.10	0.16	0.09	0.12	0.04	0.05	0.01	0.04
2/08/2013	2.24	0.05	0.09	0.07	0.12	0.07	0.15	0.04	0.08	0.09	0.17	0.06	0.12	0.02	0.09	0.01	0.03
3/08/2013	2.40	0.05	0.07	0.05	0.08	0.05	0.11	0.02	0.07	0.08	0.10	0.06	0.07	0.01	0.04	0.01	0.05
4/08/2013	2.38	0.04	0.09	0.03	0.09	0.06	0.07	0.02	0.03	0.07	0.13	0.07	0.11	0.01	0.03	0.01	0.01
5/08/2013	2.31	0.05	0.06	0.04	0.05	0.05	0.11	0.02	0.07	0.08	0.09	0.05	0.11	0.01	0.05	0.01	0.04
6/08/2013	2.37	0.04	0.09	0.03	0.08	0.05	0.06	0.01	0.02	0.09	0.13	0.06	0.08	0.01	0.02	0.01	0.04
7/08/2013	2.56	0.04	0.06	0.04	0.05	0.06	0.11	0.03	0.06	0.06	0.12	0.05	0.10	0.01	0.04	0.01	0.02
8/08/2013	2.40	0.07	0.25	0.05	0.28	0.05	0.24	0.03	0.12	0.08	0.15	0.06	0.09	0.01	0.03	0.01	0.06
9/08/2013	2.52	0.06	0.11	0.05	0.09	0.07	0.09	0.03	0.04	0.08	0.11	0.06	0.09	0.02	0.05	0.01	0.04
10/08/2013	2.36	0.06	0.11	0.05	0.07	0.07	0.12	0.04	0.09	0.07	0.12	0.05	0.10	0.01	0.04	0.01	0.02
11/08/2013	2.15	0.07	0.09	0.06	0.10	0.07	0.13	0.03	0.08	0.08	0.09	0.05	0.09	0.01	0.04	0.01	0.04
12/08/2013	2.00	0.05	0.10	0.04	0.09	0.06	0.08	0.02	0.07	0.09	0.12	0.06	0.08	0.01	0.02	0.01	0.03
13/08/2013	1.96	0.04	0.09	0.03	0.05	0.07	0.12	0.03	0.05	0.07	0.11	0.05	0.10	0.01	0.05	0.01	0.01
14/08/2013	1.84	0.05	0.07	0.04	0.08	0.05	0.11	0.02	0.07	0.08	0.09	0.05	0.07	0.01	0.05	0.01	0.04
15/08/2013	1.42	0.05	0.09	0.04	0.09	0.06	0.07	0.02	0.03	0.07	0.12	0.06	0.09	0.01	0.02	0.01	0.04
16/08/2013	1.75	0.05	0.08	0.04	0.05	0.05	0.12	0.03	0.07	0.08	0.11	0.05	0.10	0.01	0.04	0.01	0.02
17/08/2013	1.97	0.05	0.06	0.04	0.07	0.05	0.10	0.02	0.05	0.07	0.12	0.05	0.10	0.01	0.03	0.01	0.03
18/08/2013	2.00	0.05	0.09	0.03	0.08	0.04	0.08	0.02	0.05	0.08	0.11	0.05	0.08	0.02	0.04	0.01	0.05
19/08/2013	1.78	0.05	0.10	0.04	0.08	0.07	0.11	0.02	0.04	0.08	0.12	0.06	0.10	0.03	0.06	0.01	0.02
20/08/2013	1.42	0.06	0.07	0.05	0.07	0.06	0.10	0.02	0.06	0.08	0.13	0.06	0.11	0.03	0.06	0.01	0.04
21/08/2013	1.69	0.05	0.10	0.03	0.11	0.04	0.08	0.02	0.06	0.08	0.11	0.06	0.08	0.02	0.03	0.01	0.04
22/08/2013	1.81	0.05	0.10	0.04	0.09	0.07	0.11	0.02	0.04	0.08	0.13	0.06	0.10	0.03	0.06	0.01	0.02
23/08/2013	1.72	0.07	0.09	0.06	0.08	0.06	0.12	0.02	0.06	0.09	0.11	0.06	0.10	0.02	0.07	0.01	0.05
24/08/2013	1.70	0.06	0.11	0.05	0.10	0.07	0.18	0.02	0.05	0.08	0.13	0.07	0.10	0.03	0.04	0.01	0.05
25/08/2013	1.78	0.07	0.13	0.06	0.13	0.08	0.15	0.04	0.07	0.09	0.14	0.07	0.12	0.03	0.08	0.02	0.04
26/08/2013	1.63	0.09	0.11	0.07	0.12	0.08	0.16	0.03	0.08	0.11	0.12	0.07	0.09	0.03	0.07	0.02	0.07
27/08/2013	1.81	0.08	0.12	0.06	0.11	0.09	0.10	0.03	0.08	0.09	0.15	0.09	0.13	0.04	0.06	0.02	0.07
28/08/2013	1.87	0.07	0.15	0.07	0.09	0.10	0.16	0.04	0.07	0.09	0.15	0.07	0.14	0.03	0.09	0.03	0.04
29/08/2013	1.97	0.09	0.14	0.07	0.11	0.07	0.16	0.03	0.07	0.09	0.14	0.06	0.11	0.03	0.06	0.03	0.07
30/08/2013	1.33	0.10	0.16	0.08	0.13	0.08	0.18	0.04	0.08	0.12	0.14	0.08	0.10	0.03	0.04	0.03	0.07
31/08/2013	2.07	0.10	0.15	0.09	0.16	0.10	0.14	0.03	0.11	0.11	0.14	0.08	0.14	0.05	0.09	0.04	0.08

Total Number of Measurements Taken, A:	16152	16047	16140	13116	16644	16596	16010	16447
Turbidity Standard for Monitoring Location (NTU):	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of Measurements Meeting Standard, B:	16152	16047	16140	13116	16644	16596	16010	16447
Compliance with Turbidity Standard, C = B/A X 100%:	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

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Submitted By (Print): A.Weremy

Signature: Original signed by A.Weremy



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-Aug-2013	1.29	1.44	1.16	1.28
02-Aug-2013	1.23	1.41	1.19	1.39
03-Aug-2013	NS	NS	NS	NS
04-Aug-2013	NS	NS	NS	NS
05-Aug-2013	NS	NS	NS	NS
06-Aug-2013	1.27	1.47	1.24	1.38
07-Aug-2013	1.31	1.53	1.38	1.50
08-Aug-2013	1.10	1.21	1.19	1.35
09-Aug-2013	1.29	1.48	1.35	1.51
10-Aug-2013	NS	NS	NS	NS
11-Aug-2013	NS	NS	NS	NS
12-Aug-2013	1.43	1.54	1.34	1.50
13-Aug-2013	1.35	1.53	1.36	1.48
14-Aug-2013	1.34	1.54	1.34	1.51
15-Aug-2013	1.32	1.57	1.25	1.48
16-Aug-2013	1.35	1.51	1.38	1.48
17-Aug-2013	NS	NS	NS	NS
18-Aug-2013	NS	NS	NS	NS
19-Aug-2013	1.27	1.45	1.30	1.45
20-Aug-2013	1.34	1.60	1.30	1.49
21-Aug-2013	1.36	1.55	1.31	1.47
22-Aug-2013	1.26	1.42	1.31	1.42
23-Aug-2013	1.26	1.41	1.27	1.44
24-Aug-2013	NS	NS	NS	NS
25-Aug-2013	NS	NS	NS	NS
26-Aug-2013	1.31	1.52	1.35	1.52
27-Aug-2013	1.39	1.57	1.40	1.54
28-Aug-2013	1.36	1.54	1.43	1.55
29-Aug-2013	1.43	1.60	1.44	1.56
30-Aug-2013	1.19	1.32	1.19	1.34
31-Aug-2013	NS	NS	NS	NS
Total number of measurements taken, A:	21		21	
Chlorine Standard for Monitoring Location (mg/L):	0.50		0.50	
Number of measurements meeting standard, B:	21		21	
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/ A.Vanderstel



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: 03 September 2013

Report Period: August 2013

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/08/2013	1.23	1.13	1.18	1.07
02/08/2013	1.32	1.16	1.29	1.21
03/08/2013	1.16	0.92	1.18	0.97
04/08/2013	1.19	1.10	1.17	1.11
05/08/2013	1.20	1.15	1.18	1.11
06/08/2013	1.24	1.12	1.26	1.04
07/08/2013	1.31	1.23	1.31	1.25
08/08/2013	1.24	0.94	1.29	1.13
09/08/2013	1.30	1.23	1.28	1.22
10/08/2013	1.34	1.28	1.32	1.25
11/08/2013	1.37	1.30	1.32	1.25
12/08/2013	1.43	1.29	1.33	1.27
13/08/2013	1.30	1.24	1.21	1.09
14/08/2013	1.29	1.24	1.15	1.09
15/08/2013	1.31	1.20	1.16	1.09
16/08/2013	1.21	1.12	1.11	0.89
17/08/2013	1.21	1.14	1.12	1.07
18/08/2013	1.32	1.17	1.07	0.88
19/08/2013	1.41	1.18	1.34	1.20
20/08/2013	1.22	1.17	1.22	1.12
21/08/2013	1.14	0.73	1.19	0.83
22/08/2013	1.14	1.02	1.21	1.12
23/08/2013	1.14	1.05	1.22	1.15
24/08/2013	1.11	1.07	1.20	1.17
25/08/2013	1.20	1.05	1.22	1.18
26/08/2013	1.28	1.21	1.33	1.24
27/08/2013	1.31	1.26	1.27	0.96
28/08/2013	1.29	0.96	1.28	1.07
29/08/2013	1.16	0.80	1.09	0.82
30/08/2013	1.52	1.09	1.12	0.75
31/08/2013	1.17	1.07	1.19	0.94

Total Number of Measurements, A:	12587	21439
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	21587	21439
COMPLIANCE, C = B/A X 100%:	100	100

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Submitted By (Print): A.Weremy

Signature: Original signed by A.Weremy



Water and Waste Department • Service des eaux et des déchets

Tuesday, August 13, 2013

Our Incident/Report No: 08-2013

LIMS Reference No: **36622**

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 SE07; NW05
OPERATOR IN CHARGE	NA
INCIDENT REPORTED BY	Steve Fletcher, Supervisor of Analytical Services Branch
TYPE OF NON-COMPLIANT INCIDENT	Low positive Total Coliform (<10 per100mL), 3 MR 41/2007
INCIDENT DATE	July 29, 2013
DESCRIPTION OF CORRECTIVE ACTIONS	No re-samples were collected/tested due to mis-communication between the contract laboratory and the City (internal corrective action(s) is/are being taken in response to this incident). Since the following week's samples were already collected and submitted, the test results for samples collected on August 6 th have been included with the test results from the incident date for information only.
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	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)
NW05_	368033	29-Jul-13	9:25	<1	1	0.90	1.03	20.5	0.12
SE07_	368044	29-Jul-13	14:15	<1	1	0.48	0.61	12.2	0.19
NW05_	368713	06-Aug-13	9:26	<1	<1	1.23	1.40	19.9	0.15
SE07_	368724	06-Aug-13	13:48	<1	<1	0.78	0.90	13.2	0.14



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: **August 2013**

Report Created: **Tuesday, September 03, 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	
1/08/2013	96.73	0.04	0.04	0.15	0.23	0.00	0.00	81.16	81.16	0.00	0.00	18.20	18.20	0.00	0.10	37.43	37.53	0.00	0.00	0.00	0.00	0.00	0.00	77.80	77.80	0.04	0.14	214.74	214.92	99.92
2/08/2013	96.78	0.00	0.00	0.11	0.11	0.00	0.00	70.53	70.53	0.00	0.00	70.89	70.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.44	73.44	0.00	0.00	214.98	214.98	100.00
3/08/2013	96.91	0.00	0.00	0.00	0.00	0.00	0.00	69.98	69.98	0.00	0.00	71.14	71.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.15	73.15	0.00	0.00	214.26	214.26	100.00
4/08/2013	96.96	0.00	0.00	0.00	0.00	0.00	0.00	66.11	66.11	0.00	0.00	68.09	68.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.00	71.00	0.00	0.00	205.19	205.19	100.00
5/08/2013	96.99	0.00	0.00	0.00	0.00	0.00	0.00	62.59	62.59	0.00	0.00	65.24	65.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.37	67.37	0.00	0.00	195.20	195.20	100.00
6/08/2013	96.94	0.00	0.00	40.18	40.18	0.00	0.00	27.35	27.35	0.00	0.00	23.02	23.02	0.00	0.00	45.71	45.71	0.00	0.00	44.58	44.58	0.00	0.00	24.48	24.48	0.00	0.00	205.31	205.31	100.00
7/08/2013	96.85	0.00	0.00	69.43	69.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.14	71.14	0.00	0.00	69.42	69.42	0.00	0.00	0.00	0.00	0.00	0.00	209.99	209.99	100.00
8/08/2013	96.24	0.03	0.03	64.60	64.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.58	52.58	0.00	0.00	58.93	58.93	0.00	0.00	0.00	0.00	0.03	0.03	176.11	176.18	99.96
9/08/2013	96.82	0.00	0.00	80.00	80.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.66	50.66	0.00	0.00	79.32	79.32	0.00	0.00	0.00	0.00	0.00	0.00	209.97	209.97	100.00
10/08/2013	96.82	0.00	0.00	80.00	80.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.67	50.67	0.00	0.00	79.31	79.31	0.00	0.00	0.00	0.00	0.00	0.00	209.98	209.98	100.00
11/08/2013	96.82	0.00	0.00	79.99	79.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.70	50.70	0.00	0.00	79.29	79.29	0.00	0.00	0.00	0.00	0.00	0.00	209.98	209.98	100.00
12/08/2013	96.89	0.00	0.00	80.01	80.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.72	50.72	0.00	0.00	79.30	79.30	0.00	0.00	0.00	0.00	0.00	0.00	210.02	210.02	100.00
13/08/2013	96.88	0.00	0.00	23.94	23.94	0.00	0.00	59.25	59.25	0.00	0.00	0.00	0.00	0.00	0.08	51.93	52.02	0.13	0.43	29.62	30.18	0.00	0.00	51.34	51.34	0.13	0.51	216.09	216.73	99.70
14/08/2013	96.82	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	54.30	54.30	0.00	0.00	0.00	0.00	0.00	0.00	84.29	84.29	0.00	0.00	223.59	223.59	100.00
15/08/2013	96.71	0.00	0.00	0.00	0.00	0.00	0.00	84.95	84.95	0.00	0.00	0.00	0.00	0.00	0.00	62.30	62.30	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	232.24	232.24	100.00
16/08/2013	96.73	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	69.80	69.80	0.00	0.00	0.00	0.00	0.00	0.00	84.98	84.98	0.00	0.00	239.77	239.77	100.00
17/08/2013	96.84	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	73.01	73.01	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	243.01	243.01	100.00
18/08/2013	96.61	0.00	0.00	0.00	0.00	0.04	0.04	69.58	69.65	0.00	0.00	0.00	0.00	0.01	0.01	53.04	53.06	0.00	0.00	0.00	0.00	0.00	0.00	65.85	65.86	0.05	0.05	188.48	188.57	99.95
19/08/2013	96.84	0.00	0.00	0.00	0.00	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.00	65.75	65.75	0.00	0.00	0.00	0.00	0.00	0.00	85.02	85.02	0.00	0.00	235.79	235.79	100.00
20/08/2013	96.80	0.00	0.00	0.00	0.00	0.00	0.00	84.94	84.94	0.00	0.00	0.00	0.00	0.00	0.00	70.71	70.71	0.00	0.00	0.00	0.00	0.00	0.00	84.02	84.02	0.00	0.00	239.68	239.68	100.00
21/08/2013	96.36	0.00	0.00	35.44	35.44	0.00	0.00	32.46	32.46	0.00	0.00	46.04	46.04	0.00	0.00	10.73	10.73	0.00	0.00	0.00	0.00	0.00	0.00	63.98	63.98	0.00	0.00	188.65	188.66	100.00
22/08/2013	96.83	0.00	0.00	79.78	79.78	0.08	0.08	0.27	0.44	0.00	0.00	59.17	59.17	0.05	0.05	15.36	15.47	0.00	0.00	0.00	0.00	0.00	0.00	84.83	84.83	0.13	0.13	239.42	239.69	99.89
23/08/2013	96.57	0.00	0.00	80.00	80.00	0.00	0.00	0.00	0.00	0.00	0.00	74.66	74.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.01	85.01	0.00	0.00	239.67	239.67	100.00
24/08/2013	94.69	0.00	0.00	79.99	79.99	0.00	0.00	0.00	0.00	0.00	0.00	70.20	70.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.64	83.64	0.00	0.00	233.83	233.83	100.00
25/08/2013	93.10	0.00	0.00	80.02	80.02	0.00	0.00	0.00	0.00	0.00	0.00	67.02	67.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.94	82.94	0.00	0.00	229.97	229.97	100.00
26/08/2013	93.48	0.00	0.00	80.03	80.03	0.00	0.00	0.00	0.00	0.00	0.00	67.11	67.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.86	82.86	0.00	0.00	229.99	229.99	100.00
27/08/2013	96.51	0.00	0.00	80.01	80.01	0.00	0.00	0.00	0.00	0.00	0.00	72.71	72.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.26	84.26	0.00	0.00	236.97	236.97	100.00
28/08/2013	96.24	0.03	0.03	62.48	62.53	0.03	0.03	37.14	37.20	0.02	0.02	58.58	58.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	72.34	72.39	0.11	0.11	230.54	230.75	99.91
29/08/2013	96.20	0.00	0.00	48.33	48.33	0.00	0.03	56.80	56.83	0.00	0.06	47.56	47.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	71.87	71.87	0.00	0.09	224.56	224.65	99.96
30/08/2013	95.25	0.00	0.00	55.09	55.09	0.00	0.00	71.10	71.10	0.00	0.00	49.56	49.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.63	83.63	0.00	0.00	259.39	259.39	100.00
31/08/2013	95.94	0.00	0.00	71.47	71.47	0.00	0.00	19.61	19.61	0.00	0.00	14.04	14.04	0.00	0.00	0.00	0.00	0.00	0.00	47.05	47.05	0.01	0.01	80.49	80.51	0.01	0.01	232.65	232.68	99.99
		0.10	0.10	1271.04	1271.25	0.15	0.18	1233.83	1234.16	0.02	0.08	943.23	943.34	0.06	0.25	936.56	936.87	0.13	0.43	566.80	567.36	0.03	0.03	1888.57	1888.64	0.51	1.08	6840.03	6841.62	

Water Volume [%]:
 Untreated: 0.01 %
 Below Dose: 0.02 %
 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: **August 2013**

Report Created: **Tuesday, September 03, 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
1/08/2013	0.0	79.9	41.6	0.0	46.2	35.7	129.5	69.2	99.0	145.1	92.4	105.5	167.8	67.0	111.0	2653	2524	2926	1705	4404	4402	3319	1986	4809	66.37	0.04	0.04	0.15	0.23	
2/08/2013	0.0	106.7	50.9	0.0	35.8	29.0	154.4	63.6	118.1	176.8	114.9	124.2	61.0	72.9	139.2	2653	2524	2926	1705	4404	4402	3319	1986	4810	100.00	0.00	0.00	0.11	0.11	
3/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2653	2524	2926	1705	4404	4402	3319	1986	4810	OL	0.00	0.00	0.00	0.00	
4/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2653	2524	2926	1705	4404	4402	3319	1986	4810	OL	0.00	0.00	0.00	0.00	
5/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2653	2524	2926	1705	4404	4402	3319	1986	4810	OL	0.00	0.00	0.00	0.00	
6/08/2013	0.0	106.5	24.4	3.0	71.9	69.1	189.3	149.2	133.9	173.5	111.8	86.2	266.8	110.5	165.8	2667	2538	2941	1706	4404	4403	3334	2000	4824	100.00	0.00	0.00	40.18	40.18	
7/08/2013	19.3	27.6	24.1	65.1	72.2	69.4	184.5	120.6	122.3	OL	OL	OL	253.1	111.4	137.9	2691	2562	2965	1706	4404	4403	3358	2024	4848	100.00	0.00	0.00	69.43	69.43	
8/08/2013	0.0	105.2	24.3	0.0	82.4	71.8	133.9	119.4	116.0	141.9	30.1	93.1	232.2	115.1	120.7	2713	2584	2986	1706	4405	4403	3379	2046	4869	99.90	0.03	0.03	64.60	64.67	
9/08/2013	19.2	24.6	24.0	77.3	81.9	80.0	128.4	128.0	128.1	OL	OL	OL	248.8	128.0	128.0	2737	2608	3010	1706	4405	4403	3403	2070	4893	100.00	0.00	0.00	80.00	80.00	
10/08/2013	18.6	27.3	24.0	77.3	82.0	80.0	128.0	128.0	128.1	OL	OL	OL	245.4	128.0	128.1	2761	2632	3034	1706	4405	4403	3427	2094	4917	100.00	0.00	0.00	80.00	80.00	
11/08/2013	18.9	24.6	24.0	77.3	82.1	80.0	128.1	128.0	128.1	OL	OL	OL	243.4	128.0	128.0	2785	2656	3058	1706	4405	4403	3451	2118	4941	100.00	0.00	0.00	79.99	79.99	
12/08/2013	18.4	24.6	24.0	77.4	81.9	80.0	128.2	128.0	128.1	OL	OL	OL	241.7	128.0	128.0	2809	2680	3082	1706	4405	4403	3475	2142	4965	100.00	0.00	0.00	80.01	80.01	
13/08/2013	0.0	34.2	24.0	0.0	82.4	79.9	128.7	127.9	128.0	OL	OL	OL	244.9	127.8	127.9	2816	2687	3089	1706	4405	4403	3482	2149	4972	100.00	0.00	0.00	23.94	23.94	
14/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2816	2687	3089	1706	4405	4403	3482	2149	4972	OL	0.00	0.00	0.00	0.00	
15/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2816	2687	3089	1706	4405	4403	3482	2149	4972	OL	0.00	0.00	0.00	0.00	
16/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2816	2687	3089	1706	4405	4403	3482	2149	4972	OL	0.00	0.00	0.00	0.00	
17/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2816	2687	3089	1706	4405	4403	3482	2149	4972	OL	0.00	0.00	0.00	0.00	
18/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2816	2687	3089	1706	4405	4403	3482	2149	4972	OL	0.00	0.00	0.00	0.00	
19/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2816	2687	3089	1706	4405	4403	3482	2149	4972	OL	0.00	0.00	0.00	0.00	
20/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2816	2687	3089	1706	4405	4403	3482	2149	4972	OL	0.00	0.00	0.00	0.00	
21/08/2013	0.0	85.6	24.3	0.0	86.3	75.5	103.8	110.1	79.9	143.2	99.8	79.8	232.1	80.1	113.5	2828	2698	3101	1717	4416	4414	3493	2160	4983	100.00	0.00	0.00	35.44	35.44	
22/08/2013	17.0	31.5	24.2	29.2	85.6	79.8	116.3	116.8	81.2	161.4	107.1	81.3	260.9	82.0	121.8	2852	2722	3125	1741	4440	4438	3517	2184	5007	100.00	0.00	0.00	79.78	79.78	
23/08/2013	18.0	25.6	24.2	73.8	86.0	80.0	115.8	116.6	81.4	162.5	107.0	81.5	259.3	82.3	121.7	2876	2746	3149	1765	4464	4462	3541	2208	5031	100.00	0.00	0.00	80.00	80.00	
24/08/2013	17.2	25.5	24.2	75.0	85.8	80.0	115.1	115.6	81.4	165.4	105.8	81.5	259.6	83.1	123.1	2900	2770	3173	1789	4488	4486	3565	2232	5055	100.00	0.00	0.00	79.99	79.99	
25/08/2013	17.3	25.5	24.2	75.0	85.2	80.0	112.8	113.9	81.4	162.5	104.7	81.5	254.6	81.8	120.4	2924	2794	3197	1813	4512	4510	3589	2256	5079	100.00	0.00	0.00	80.02	80.02	
26/08/2013	17.4	25.4	24.2	74.6	84.7	80.0	109.8	112.5	81.4	159.4	103.8	81.5	248.5	81.4	117.8	2948	2818	3221	1837	4536	4534	3613	2280	5103	100.00	0.00	0.00	80.03	80.03	
27/08/2013	16.7	25.4	24.2	75.2	86.1	80.0	107.3	110.8	81.4	157.3	102.6	81.5	245.3	81.4	116.3	2972	2842	3245	1861	4560	4558	3637	2304	5127	100.00	0.00	0.00	80.01	80.01	
28/08/2013	0.0	76.2	24.2	0.0	85.8	66.3	103.9	109.4	83.9	156.4	101.3	84.5	244.9	78.6	116.7	2994	2865	3267	1884	4583	4581	3648	2315	5138	99.91	0.03	0.03	62.48	62.53	
29/08/2013	0.0	67.1	24.3	0.0	94.2	50.4	106.8	112.2	77.8	159.1	104.1	81.4	214.3	72.7	115.0	3017	2888	3290	1907	4606	4604	3651	2317	5141	99.99	0.00	0.00	48.33	48.33	
30/08/2013	19.0	25.7	24.1	46.8	65.6	55.1	104.9	111.2	88.8	158.4	102.4	89.7	OL	OL	OL	3041	2912	3314	1931	4630	4628	3651	2317	5141	100.00	0.00	0.00	55.09	55.09	
31/08/2013	0.0	93.5	24.2	0.0	87.8	72.2	112.3	111.9	84.6	166.0	105.7	92.0	240.8	81.2	123.8	3065	2936	3338	1955	4654	4652	3667	2333	5157	99.99	0.00	0.00	71.47	71.47	
Total [ML]:																									0.10	0.10	1271.04	1271.25		

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\08-August



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: **August 2013**

Report Created: **Tuesday, September 03, 2013**

Reactor: **UVR-200A**

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
1/08/2013	21.2	29.2	24.4	60.9	89.6	81.2	238.3	132.4	133.6	198.6	218.6	167.5	OL	OL	OL	3921	3921	3921	3366	2850	519	3818	3819	3818	100.00	0.00	0.00	81.16	81.16	
2/08/2013	20.9	31.3	25.1	53.6	76.7	70.5	233.0	119.4	123.1	195.3	211.6	160.6	OL	OL	OL	3945	3945	3945	3390	2874	543	3818	3819	3818	100.00	0.00	0.00	70.53	70.53	
3/08/2013	21.7	31.4	25.3	65.0	74.7	70.0	233.7	120.5	120.8	196.0	211.9	159.2	OL	OL	OL	3969	3969	3969	3414	2898	567	3818	3819	3818	100.00	0.00	0.00	69.98	69.98	
4/08/2013	22.5	31.8	26.3	61.5	71.7	66.1	232.7	120.1	120.3	194.4	210.3	158.6	OL	OL	OL	3993	3993	3993	3438	2922	591	3818	3819	3818	100.00	0.00	0.00	66.11	66.11	
5/08/2013	23.2	33.2	27.0	59.9	66.2	62.6	229.8	118.1	122.7	189.9	208.5	158.6	OL	OL	OL	4017	4017	4017	3462	2946	615	3818	3819	3818	100.00	0.00	0.00	62.59	62.59	
6/08/2013	0.0	52.0	26.4	0.0	73.6	64.9	227.3	117.9	124.2	188.9	207.7	159.0	OL	OL	OL	4027	4027	4028	3472	2956	625	3818	3819	3818	100.00	0.00	0.00	27.35	27.35	
7/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4027	4027	4028	3472	2956	625	3818	3819	3818	OL	0.00	0.00	0.00	0.00	
8/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4027	4027	4028	3472	2956	625	3818	3819	3818	OL	0.00	0.00	0.00	0.00	
9/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4027	4027	4028	3472	2956	625	3818	3819	3818	OL	0.00	0.00	0.00	0.00	
10/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4027	4027	4028	3472	2956	625	3818	3819	3818	OL	0.00	0.00	0.00	0.00	
11/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4027	4027	4028	3472	2956	625	3818	3819	3818	OL	0.00	0.00	0.00	0.00	
12/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4027	4027	4028	3472	2956	625	3818	3819	3818	OL	0.00	0.00	0.00	0.00	
13/08/2013	17.6	61.7	24.1	3.7	97.0	84.5	155.9	114.8	107.5	182.1	188.8	140.0	271.6	132.2	132.2	4029	4028	4029	3489	2973	642	3835	3835	3835	100.00	0.00	0.00	59.25	59.25	
14/08/2013	21.2	24.8	24.0	82.8	87.2	85.0	OL	OL	OL	177.3	189.0	136.6	274.0	135.9	136.0	4029	4028	4029	3513	2997	666	3859	3859	3859	100.00	0.00	0.00	85.00	85.00	
15/08/2013	21.0	30.7	24.0	40.0	94.9	84.9	OL	OL	OL	173.8	185.0	136.1	268.0	135.8	135.9	4029	4028	4029	3537	3021	690	3883	3883	3883	100.00	0.00	0.00	84.95	84.95	
16/08/2013	21.2	24.6	24.0	81.8	88.0	85.0	OL	OL	OL	172.4	181.9	136.1	265.5	136.0	136.0	4029	4028	4029	3561	3045	714	3907	3907	3907	100.00	0.00	0.00	84.99	84.99	
17/08/2013	21.2	27.3	24.0	81.8	88.2	85.0	OL	OL	OL	173.1	180.9	136.0	266.9	136.0	136.0	4029	4028	4029	3585	3069	738	3931	3931	3931	100.00	0.00	0.00	85.01	85.01	
18/08/2013	0.0	86.9	24.2	0.0	88.8	80.9	84.7	78.6	49.0	167.5	172.1	131.2	260.0	129.9	130.6	4029	4029	4029	3606	3090	759	3952	3952	3952	99.90	0.04	0.04	69.58	69.65	
19/08/2013	20.8	24.7	24.1	81.8	87.6	85.0	OL	OL	OL	168.4	175.8	135.9	269.3	136.0	136.0	4029	4029	4029	3630	3114	783	3976	3976	3976	100.00	0.00	0.00	85.02	85.02	
20/08/2013	21.0	33.5	24.1	19.6	104.0	84.9	OL	OL	OL	157.3	166.1	135.9	266.4	135.9	135.9	4029	4029	4029	3654	3138	807	4000	4000	4000	100.00	0.00	0.00	84.94	84.94	
21/08/2013	0.0	29.3	24.1	0.0	89.0	82.0	OL	OL	OL	151.9	161.2	131.5	266.7	131.5	131.6	4029	4029	4029	3664	3147	817	4009	4010	4009	100.00	0.00	0.00	32.46	32.46	
22/08/2013	0.0	42.9	24.5	0.0	88.8	64.2	95.1	77.5	57.9	147.4	168.7	86.2	178.2	88.1	82.3	4029	4029	4029	3664	3147	817	4009	4010	4009	62.68	0.08	0.08	0.27	0.44	
23/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4029	4029	4029	3664	3147	817	4009	4010	4009	OL	0.00	0.00	0.00	0.00	
24/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4029	4029	4029	3664	3147	817	4009	4010	4009	OL	0.00	0.00	0.00	0.00	
25/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4029	4029	4029	3664	3147	817	4009	4010	4009	OL	0.00	0.00	0.00	0.00	
26/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4029	4029	4029	3664	3147	817	4009	4010	4009	OL	0.00	0.00	0.00	0.00	
27/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	4029	4029	4029	3664	3147	817	4009	4010	4009	OL	0.00	0.00	0.00	0.00	
28/08/2013	0.0	70.9	24.2	0.0	86.7	76.3	124.2	78.3	78.1	170.8	179.9	79.5	251.7	78.8	78.7	4041	4040	4041	3675	3159	828	4021	4021	4021	99.83	0.03	0.03	37.14	37.20	
29/08/2013	0.0	63.5	24.1	0.0	83.8	78.9	154.5	86.2	78.8	155.9	166.1	81.8	251.7	80.9	81.1	4058	4058	4058	3693	3176	846	4038	4039	4038	99.95	0.00	0.03	56.80	56.83	
30/08/2013	18.2	26.5	23.4	57.0	82.9	71.1	203.5	106.4	68.1	124.0	135.1	77.3	265.0	73.4	78.6	4082	4082	4082	3717	3200	870	4062	4063	4062	100.00	0.00	0.00	71.10	71.10	
31/08/2013	0.0	36.5	24.6	0.0	62.6	59.0	217.0	111.8	60.9	118.8	126.8	87.8	277.6	67.6	82.2	4090	4090	4090	3725	3208	878	4070	4071	4070	99.98	0.00	0.00	19.61	19.61	
Total [ML]:																										0.15	0.18	1233.83	1234.16	

Water Volume [%]:

Untreated: 0.01 %
 Below Dose 0.01 %
 To Dose 99.97 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 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: **August 2013**

Report Created: **Tuesday, September 03, 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
1/08/2013	17.9	86.3	24.3	4.0	73.4	70.1	139.5	111.3	112.9	135.3	113.4	112.1	92.5	91.6	100.1	1280	894	1280	899	899	898	1193	1194	1194	100.00	0.00	0.00	18.20	18.20	
2/08/2013	22.9	25.7	24.2	51.4	75.1	70.9	134.6	113.6	114.1	135.5	114.0	113.7	OL	OL	OL	1304	918	1304	923	923	922	1193	1194	1194	100.00	0.00	0.00	70.89	70.89	
3/08/2013	23.5	25.3	24.2	65.4	75.5	71.1	127.5	114.0	114.0	122.6	114.0	114.0	OL	OL	OL	1328	942	1328	947	947	946	1193	1194	1194	100.00	0.00	0.00	71.14	71.14	
4/08/2013	23.6	25.2	24.2	61.2	72.4	68.1	118.2	109.2	109.5	111.7	109.2	109.2	OL	OL	OL	1352	966	1352	971	971	970	1193	1194	1194	100.00	0.00	0.00	68.09	68.09	
5/08/2013	23.6	25.0	24.2	61.4	68.6	65.2	111.8	104.8	105.0	105.7	104.8	104.8	OL	OL	OL	1376	990	1376	995	995	994	1193	1194	1194	100.00	0.00	0.00	65.24	65.24	
6/08/2013	0.0	34.0	24.2	0.0	70.9	65.8	109.2	105.6	106.3	105.9	105.6	105.6	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	100.00	0.00	0.00	23.02	23.02	
7/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
8/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
9/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
10/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
11/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
12/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
13/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
14/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
15/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
16/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
17/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
18/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
19/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
20/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1385	999	1384	1003	1003	1003	1193	1194	1194	OL	0.00	0.00	0.00	0.00	
21/08/2013	0.0	88.8	24.4	0.0	78.4	66.9	88.6	60.9	72.3	112.1	107.7	107.3	107.2	108.0	108.0	1386	1000	1385	1020	1020	1019	1210	1211	1211	100.00	0.00	0.00	46.04	46.04	
22/08/2013	0.0	88.0	24.2	0.0	78.5	74.6	102.3	71.0	79.3	119.3	119.0	118.7	118.9	119.0	119.1	1386	1000	1386	1039	1039	1038	1229	1230	1230	100.00	0.00	0.00	59.17	59.17	
23/08/2013	23.6	24.8	24.2	70.7	78.6	74.7	OL	OL	OL	119.6	119.6	119.6	119.6	119.6	119.6	1386	1000	1386	1063	1063	1062	1253	1254	1254	100.00	0.00	0.00	74.66	74.66	
24/08/2013	23.6	24.9	24.2	64.7	78.2	70.2	OL	OL	OL	115.0	112.5	112.5	112.6	112.6	112.5	1386	1000	1386	1087	1087	1086	1277	1278	1278	100.00	0.00	0.00	70.20	70.20	
25/08/2013	23.5	24.8	24.2	64.4	70.1	67.0	OL	OL	OL	108.8	107.6	107.6	107.6	107.6	107.6	1386	1000	1386	1111	1111	1110	1301	1302	1302	100.00	0.00	0.00	67.02	67.02	
26/08/2013	23.6	24.8	24.2	64.3	70.2	67.1	OL	OL	OL	107.7	107.7	107.7	107.7	107.7	107.7	1386	1000	1386	1135	1135	1134	1325	1326	1326	100.00	0.00	0.00	67.11	67.11	
27/08/2013	23.5	24.7	24.2	64.3	78.5	72.7	OL	OL	OL	116.5	116.5	116.5	116.5	116.5	116.5	1386	1000	1386	1159	1159	1158	1349	1350	1350	100.00	0.00	0.00	72.71	72.71	
28/08/2013	0.0	25.5	24.2	0.0	80.4	62.7	OL	OL	OL	110.0	101.3	101.4	101.0	101.2	100.9	1386	1000	1386	1181	1181	1181	1371	1372	1372	99.92	0.02	0.02	58.58	58.63	
29/08/2013	0.0	62.3	24.6	0.0	85.4	55.8	72.3	59.5	59.5	103.6	81.2	69.9	70.9	80.4	83.8	1407	1021	1406	1202	1202	1201	1391	1392	1391	99.88	0.00	0.06	47.56	47.62	
30/08/2013	22.5	30.8	24.7	39.5	57.2	49.6	69.6	51.3	51.0	103.4	80.2	65.5	69.0	80.1	83.0	1431	1045	1430	1226	1226	1225	1415	1416	1415	100.00	0.00	0.00	49.56	49.56	
31/08/2013	0.0	39.7	24.8	0.0	47.3	43.5	69.8	45.2	44.7	104.6	81.8	66.0	71.2	83.3	84.5	1439	1053	1438	1234	1234	1233	1423	1423	1423	100.00	0.00	0.00	14.04	14.04	
Total [ML]:																										0.02	0.08	943.23	943.34	

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

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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: **August 2013**

Report Created: **Tuesday, September 03, 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
1/08/2013	0.0	41.0	24.4	0.0	81.3	50.6	51.4	52.5	56.5	52.3	52.6	58.3	80.8	79.0	52.1	995	995	2139	2674	2674	2674	2974	1974	2975	99.73	0.00	0.10	37.43	37.53	
2/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	995	995	2139	2674	2674	2674	2974	1974	2975	OL	0.00	0.00	0.00	0.00	
3/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	995	995	2139	2674	2674	2674	2974	1974	2975	OL	0.00	0.00	0.00	0.00	
4/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	995	995	2139	2674	2674	2674	2974	1974	2975	OL	0.00	0.00	0.00	0.00	
5/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	995	995	2139	2674	2674	2674	2974	1974	2975	OL	0.00	0.00	0.00	0.00	
6/08/2013	17.7	78.6	24.2	5.1	74.5	70.2	148.2	108.3	108.8	64.2	68.8	74.0	109.9	110.7	128.5	1010	1010	2155	2676	2676	2677	2990	1990	2990	100.00	0.00	0.00	45.71	45.71	
7/08/2013	21.5	24.8	24.1	68.3	74.2	71.1	120.8	114.0	114.0	OL	OL	OL	114.0	114.0	126.1	1034	1034	2179	2676	2676	2677	3014	2014	3014	100.00	0.00	0.00	71.14	71.14	
8/08/2013	0.0	78.6	24.3	0.0	74.0	59.8	105.5	96.5	96.3	81.6	81.8	81.5	111.7	112.0	120.7	1056	1055	2200	2688	2687	2688	3024	2024	3025	100.00	0.00	0.00	52.58	52.58	
9/08/2013	23.5	25.1	24.3	48.2	53.7	50.7	90.4	81.8	81.8	81.8	82.0	81.8	OL	OL	OL	1080	1079	2224	2712	2711	2712	3024	2024	3025	100.00	0.00	0.00	50.66	50.66	
10/08/2013	23.6	25.1	24.3	48.2	53.3	50.7	81.9	81.8	81.8	81.8	82.0	81.8	OL	OL	OL	1104	1103	2248	2736	2735	2736	3024	2024	3025	100.00	0.00	0.00	50.67	50.67	
11/08/2013	23.5	25.1	24.3	48.3	53.7	50.7	81.9	81.9	81.9	81.9	82.0	81.9	OL	OL	OL	1128	1127	2272	2760	2759	2760	3024	2024	3025	100.00	0.00	0.00	50.70	50.70	
12/08/2013	23.5	25.1	24.3	48.2	53.3	50.7	81.9	82.0	81.9	81.9	82.0	81.9	OL	OL	OL	1152	1151	2296	2784	2783	2784	3024	2024	3025	100.00	0.00	0.00	50.72	50.72	
13/08/2013	17.0	35.1	24.5	45.7	125.9	52.0	70.4	66.1	65.5	69.3	66.1	68.6	69.5	76.7	54.4	1176	1175	2320	2808	2807	2808	3039	2039	3040	99.84	0.00	0.08	51.93	52.02	
14/08/2013	23.7	25.6	24.6	50.0	58.8	54.3	56.3	56.0	55.9	57.4	56.1	56.3	66.4	72.0	56.1	1200	1199	2344	2832	2831	2832	3063	2063	3064	100.00	0.00	0.00	54.30	54.30	
15/08/2013	22.9	44.9	24.5	25.3	68.3	62.3	64.1	63.9	63.9	64.5	64.1	63.9	68.0	71.1	64.1	1224	1223	2368	2856	2855	2856	3087	2087	3088	100.00	0.00	0.00	62.30	62.30	
16/08/2013	23.4	25.3	24.4	62.0	77.6	69.8	71.5	71.4	71.2	71.3	71.5	71.3	72.6	73.4	72.4	1248	1247	2392	2880	2879	2880	3111	2111	3112	100.00	0.00	0.00	69.80	69.80	
17/08/2013	23.5	25.4	24.4	68.1	77.4	73.0	74.5	74.4	74.4	74.4	74.5	74.4	74.4	74.4	77.6	1272	1271	2416	2904	2903	2904	3135	2135	3136	100.00	0.00	0.00	73.01	73.01	
18/08/2013	0.0	62.2	24.4	0.0	77.3	62.1	83.7	80.5	80.6	71.8	74.0	74.0	81.5	82.6	98.4	1292	1292	2436	2914	2913	2914	3156	2156	3156	99.96	0.01	0.01	53.04	53.06	
19/08/2013	21.4	25.5	24.2	56.5	74.4	65.8	105.5	105.7	105.6	OL	OL	OL	105.7	105.6	117.3	1316	1316	2460	2914	2913	2914	3180	2180	3180	100.00	0.00	0.00	65.75	65.75	
20/08/2013	20.5	53.4	24.1	0.0	83.7	70.7	73.9	74.5	74.4	86.8	72.3	72.2	74.9	75.7	109.0	1340	1340	2484	2937	2936	2937	3204	2204	3204	100.00	0.00	0.00	70.71	70.71	
21/08/2013	0.0	40.5	20.8	0.0	74.5	71.8	59.9	73.3	73.3	80.7	74.6	73.6	73.7	73.7	98.1	1344	1344	2488	2940	2940	2940	3207	2207	3208	100.00	0.00	0.00	10.73	10.73	
22/08/2013	0.0	78.6	24.6	0.0	78.8	74.9	140.1	76.5	109.0	123.0	89.7	95.1	83.5	89.3	147.3	1349	1349	2493	2945	2945	2945	3212	2212	3213	99.32	0.05	0.05	15.36	15.47	
23/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
24/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
25/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
26/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
27/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
28/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
29/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
30/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
31/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1349	1349	2493	2945	2945	2945	3212	2212	3213	OL	0.00	0.00	0.00	0.00	
Total [ML]:																									0.06	0.25	936.56	936.87		

Water Volume [%]:

Untreated: 0.01 %
 Below Dose: 0.03 %
 To Dose: 99.97 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 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: **August 2013**

Report Created: **Tuesday, September 03, 2013**

Reactor: **UVR-500A**

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
1/08/2013	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	
2/08/2013	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	
3/08/2013	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	
4/08/2013	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	
5/08/2013	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	
6/08/2013	18.0	92.0	24.3	2.9	72.0	69.5	107.5	84.0	277.1	208.6	107.4	116.5	160.8	59.4	105.5	557	557	1232	642	1130	642	3417	3417	3416	100.00	0.00	0.00	44.58	44.58	
7/08/2013	21.1	25.0	24.1	65.6	72.3	69.4	119.5	111.4	282.7	219.8	112.1	113.2	OL	OL	OL	581	581	1256	666	1154	666	3417	3417	3416	100.00	0.00	0.00	69.42	69.42	
8/08/2013	0.0	110.1	24.2	0.0	81.7	73.6	123.9	117.5	268.0	211.3	119.3	119.3	OL	OL	OL	600	600	1275	685	1173	685	3417	3417	3417	100.00	0.00	0.00	58.93	58.93	
9/08/2013	21.0	25.9	24.1	76.6	81.8	79.3	127.0	127.0	280.0	221.2	127.0	127.4	OL	OL	OL	624	624	1299	709	1197	709	3417	3417	3417	100.00	0.00	0.00	79.32	79.32	
10/08/2013	21.0	26.3	24.1	76.4	82.0	79.3	127.0	127.0	273.6	217.0	127.0	127.3	OL	OL	OL	648	648	1323	733	1221	733	3417	3417	3417	100.00	0.00	0.00	79.31	79.31	
11/08/2013	21.0	24.7	24.1	76.2	81.8	79.3	126.9	126.9	266.2	214.0	126.9	127.2	OL	OL	OL	672	672	1347	757	1245	757	3417	3417	3417	100.00	0.00	0.00	79.29	79.29	
12/08/2013	21.0	24.8	24.1	76.4	81.7	79.3	126.9	127.0	259.6	211.0	126.9	127.2	OL	OL	OL	696	696	1371	781	1269	781	3417	3417	3417	100.00	0.00	0.00	79.30	79.30	
13/08/2013	0.0	51.4	24.0	0.0	88.6	79.3	126.9	126.6	256.6	211.9	127.0	127.4	177.5	7.6	82.2	705	705	1380	790	1278	790	3418	3417	3417	98.13	0.13	0.43	29.62	30.18	
14/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
15/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
16/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
17/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
18/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
19/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
20/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
21/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
22/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
23/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
24/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
25/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
26/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
27/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
28/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
29/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
30/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	705	705	1380	790	1278	790	3418	3417	3417	OL	0.00	0.00	0.00	0.00	
31/08/2013	19.5	71.9	24.2	2.6	80.1	69.9	113.7	111.5	245.6	189.0	114.1	114.2	87.3	57.8	46.5	721	721	1397	806	1294	807	3418	3418	3418	100.00	0.00	0.00	47.05	47.05	
Total [ML]:																										0.13	0.43	566.80	567.36	

Water Volume [%]:

Untreated: 0.02 %
 Below Dose: 0.08 %
 To Dose: 99.90 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²
 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: **August 2013**

Report Created: **Tuesday, September 03, 2013**

Reactor: **UVR-600A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validate	Daily Totals				
	mJ/cm ²			MLD			W/m ²									Hours										Conditions	Water Volume [ML]			
	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3			Untreated	Below Dose	To Dose	Total
1/08/2013	19.2	28.1	24.3	61.5	86.7	77.7	184.2	98.1	217.1	79.1	79.7	139.4	114.9	79.1	79.1	1529	548	547	566	565	565	639	2373	1547	100.00	0.00	0.00	77.80	77.80	
2/08/2013	19.1	26.4	24.4	53.1	78.9	73.4	181.0	97.2	221.7	74.8	79.3	138.1	111.9	74.8	74.8	1553	572	571	590	589	589	663	2397	1571	100.00	0.00	0.00	73.44	73.44	
3/08/2013	18.9	25.7	24.4	66.3	77.0	73.2	182.3	97.5	232.2	74.6	77.9	137.9	111.9	74.6	74.5	1577	596	595	614	613	613	687	2421	1595	100.00	0.00	0.00	73.15	73.15	
4/08/2013	18.7	25.5	24.4	64.3	75.0	71.0	181.9	97.7	216.7	72.4	72.8	138.6	112.0	72.4	72.4	1601	620	619	638	637	637	711	2445	1619	100.00	0.00	0.00	71.00	71.00	
5/08/2013	18.9	25.7	24.4	62.7	71.4	67.4	179.9	97.4	215.9	68.8	74.9	137.9	110.5	68.8	68.8	1625	644	643	662	661	661	735	2469	1643	100.00	0.00	0.00	67.37	67.37	
6/08/2013	0.0	46.2	24.4	0.0	72.6	68.1	179.4	97.1	214.5	69.6	79.9	138.3	109.6	69.6	69.5	1633	652	652	670	670	670	743	2477	1652	100.00	0.00	0.00	24.48	24.48	
7/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1633	652	652	670	670	670	743	2477	1652	OL	0.00	0.00	0.00	0.00	0.00
8/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1633	652	652	670	670	670	743	2477	1652	OL	0.00	0.00	0.00	0.00	0.00
9/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1633	652	652	670	670	670	743	2477	1652	OL	0.00	0.00	0.00	0.00	0.00
10/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1633	652	652	670	670	670	743	2477	1652	OL	0.00	0.00	0.00	0.00	0.00
11/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1633	652	652	670	670	670	743	2477	1652	OL	0.00	0.00	0.00	0.00	0.00
12/08/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1633	652	652	670	670	670	743	2477	1652	OL	0.00	0.00	0.00	0.00	0.00
13/08/2013	0.0	93.5	24.4	4.2	90.9	82.6	167.5	99.3	226.8	83.6	83.8	132.6	113.7	83.7	83.2	1648	667	667	685	685	685	759	2492	1667	100.00	0.00	0.00	51.34	51.34	
14/08/2013	18.4	25.1	24.2	79.3	88.1	84.3	173.6	98.1	216.8	85.6	85.6	132.4	115.4	85.6	85.6	1672	691	691	709	709	709	783	2516	1691	100.00	0.00	0.00	84.29	84.29	
15/08/2013	18.4	33.8	24.2	49.1	93.9	84.9	170.7	97.3	208.0	86.2	86.3	128.0	112.8	86.3	86.2	1696	715	715	733	733	733	807	2540	1715	100.00	0.00	0.00	84.99	84.99	
16/08/2013	18.1	25.1	24.2	81.3	88.7	85.0	165.6	96.5	196.3	86.3	86.3	124.5	110.5	86.3	86.3	1720	739	739	757	757	757	831	2564	1739	100.00	0.00	0.00	84.98	84.98	
17/08/2013	18.7	25.1	24.2	81.0	89.0	85.0	142.7	95.9	179.4	86.3	86.3	122.2	110.2	86.3	86.3	1744	763	763	781	781	781	855	2588	1763	100.00	0.00	0.00	84.99	84.99	
18/08/2013	0.0	89.0	24.4	0.0	88.7	82.0	114.7	95.0	159.7	83.7	85.3	117.9	109.3	84.3	83.2	1764	783	782	801	800	800	874	2608	1782	99.99	0.00	0.00	65.85	65.86	
19/08/2013	18.7	25.2	24.2	81.0	88.7	85.0	112.4	97.3	162.7	86.3	86.3	123.0	112.7	86.3	86.3	1788	807	806	825	824	824	898	2632	1806	100.00	0.00	0.00	85.02	85.02	
20/08/2013	18.9	58.7	24.3	8.3	95.0	84.0	100.7	96.5	143.7	85.3	85.4	121.6	110.1	85.4	85.3	1812	831	830	849	848	848	922	2656	1830	100.00	0.00	0.00	84.02	84.02	
21/08/2013	0.0	93.7	24.3	0.0	89.6	80.8	90.6	94.2	129.9	82.3	85.0	118.3	108.6	83.5	82.3	1831	850	849	868	867	867	941	2675	1849	100.00	0.00	0.00	63.98	63.98	
22/08/2013	18.5	25.2	24.2	60.2	88.2	84.8	93.8	97.4	127.2	86.1	86.4	124.6	112.8	86.1	86.1	1855	874	873	892	891	891	965	2699	1873	100.00	0.00	0.00	84.83	84.83	
23/08/2013	18.8	25.0	24.2	81.3	89.3	85.0	93.3	97.7	120.1	86.3	86.6	125.4	112.6	86.3	86.3	1879	898	897	916	915	915	989	2723	1897	100.00	0.00	0.00	85.01	85.01	
24/08/2013	19.0	25.0	24.3	80.1	89.3	83.7	92.9	97.2	115.8	85.0	86.1	127.3	112.9	85.0	85.0	1903	922	921	940	939	939	1013	2747	1921	100.00	0.00	0.00	83.64	83.64	
25/08/2013	19.1	25.1	24.2	79.8	85.8	83.0	90.4	96.0	105.4	84.3	85.2	124.6	111.3	84.3	84.3	1927	946	945	964	963	963	1037	2771	1945	100.00	0.00	0.00	82.94	82.94	
26/08/2013	18.9	25.0	24.2	79.8	86.4	82.9	87.1	94.9	98.7	84.2	84.5	121.7	108.4	84.2	84.2	1951	970	969	988	987	987	1061	2795	1969	100.00	0.00	0.00	82.86	82.86	
27/08/2013	18.7	25.0	24.2	79.5	88.7	84.2	86.1	93.7	96.4	85.6	85.6	120.4	106.5	85.5	85.5	1975	994	993	1012	1011	1011	1085	2819	1993	100.00	0.00	0.00	84.26	84.26	
28/08/2013	0.0	25.4	24.3	0.0	88.7	77.3	83.6	91.4	93.6	79.0	83.1	120.7	105.3	79.0	79.3	1997	1016	1016	1034	1034	1033	1107	2841	2016	99.94	0.02	0.02	72.34	72.39	
29/08/2013	0.0	94.2	24.3	0.0	101.7	77.2	83.6	93.7	85.8	81.0	84.2	121.7	106.4	81.3	80.6	2020	1039	1038	1056	1056	1056	1128	2862	2037	100.00	0.00	0.00	71.87	71.87	
30/08/2013	18.5	25.1	24.2	76.1	90.1	83.7	87.0	92.9	86.9	85.0	85.2	122.5	104.1	85.0	84.4	2044	1063	1062	1080	1080	1080	1152	2886	2061	100.00	0.00	0.00	83.63	83.63	
31/08/2013	0.0	94.7	24.2	0.0	96.9	82.3	90.3	94.2	85.6	83.9	85.0	127.7	107.1	84.0	83.9	2067	1086	1086	1104	1104	1103	1176	2909	2084	99.98	0.01	0.01	80.49	80.51	
Total [ML]:																									0.03	0.03	1888.57	1888.64		

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

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