



Water and Waste Department • Service des eaux et des déchets

October 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: SEPTEMBER 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 September 2013.

The September 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 September 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 September 2013 in accordance with Section 4.13, Table 2 of the Operating Licence. UV reactor 400A was off-line for the month of September due to maintenance activities. The UV licence requirement has been met for September.

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

Thanks for your ongoing cooperation and understanding in this matter.

Yours sincerely,  
*Original signed by:*

K.J.T. Kjartanson, P.Eng.  
Manager of Environmental Standards  
KJTK:rg  
Attachments

c:(e-mail)

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

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**WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00	Deacon Booster Pumping Station Branch 1		Deacon Booster Pumping Station Branch 2	
Licence No. PWS-09-412 A	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Free Chlorine (mg/L)	Total Chlorine (mg/L)
Date				
01-Sep-2013	NS	NS	NS	NS
02-Sep-2013	1.19	1.40	1.27	1.45
03-Sep-2013	1.27	1.40	1.31	1.45
04-Sep-2013	1.48	1.66	1.50	1.62
05-Sep-2013	1.19	1.41	1.27	1.47
06-Sep-2013	1.25	1.43	1.23	1.41
07-Sep-2013	NS	NS	NS	NS
08-Sep-2013	NS	NS	NS	NS
09-Sep-2013	1.35	1.48	1.26	1.45
10-Sep-2013	1.28	1.45	1.25	1.43
11-Sep-2013	1.23	1.44	1.23	1.41
12-Sep-2013	1.30	1.46	1.30	1.46
13-Sep-2013	1.41	1.54	1.40	1.52
14-Sep-2013	NS	NS	NS	NS
15-Sep-2013	NS	NS	NS	NS
16-Sep-2013	1.48	1.55	1.42	1.50
17-Sep-2013	1.41	1.63	1.36	1.57
18-Sep-2013	1.33	1.56	1.31	1.49
19-Sep-2013	1.15	1.33	1.20	1.45
20-Sep-2013	1.30	1.50	1.30	1.50
21-Sep-2013	NS	NS	NS	NS
22-Sep-2013	NS	NS	NS	NS
23-Sep-2013	1.34	1.50	1.39	1.52
24-Sep-2013	1.09	1.27	1.11	1.34
25-Sep-2013	1.12	1.26	1.10	1.25
26-Sep-2013	1.05	1.15	1.15	1.22
27-Sep-2013	1.02	1.18	1.05	1.17
28-Sep-2013	NS	NS	NS	NS
29-Sep-2013	NS	NS	NS	NS
30-Sep-2013	1.17	1.31	1.13	1.28
<b>Total number of measurements taken, A:</b>				
21				
<b>Chlorine Standard for Monitoring Location (mg/L):</b>				
0.50				
<b>Number of measurements meeting standard, B:</b>				
21				
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>				
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: 01 October 2013

Report Period: September 2013

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/09/2013	1.15	1.05	1.20	1.01
02/09/2013	1.11	1.01	1.17	1.12
03/09/2013	1.14	1.00	1.21	1.12
04/09/2013	1.23	1.13	1.31	1.15
05/09/2013	1.19	1.11	1.23	1.16
06/09/2013	1.17	1.08	1.19	1.14
07/09/2013	1.14	1.06	1.23	1.13
08/09/2013	1.20	1.15	1.28	1.16
09/09/2013	1.21	1.14	1.26	1.20
10/09/2013	1.15	1.08	1.24	1.18
11/09/2013	1.14	1.09	1.24	1.17
12/09/2013	1.20	1.15	1.32	1.25
13/09/2013	1.20	1.15	1.35	1.29
14/09/2013	1.16	1.09	1.35	1.27
15/09/2013	1.18	1.12	1.37	1.31
16/09/2013	1.24	1.12	1.44	1.36
17/09/2013	1.39	1.21	1.39	1.21
18/09/2013	1.32	1.27	1.20	1.14
19/09/2013	1.11	0.87	1.06	0.75
20/09/2013	1.28	1.21	1.21	1.13
21/09/2013	1.21	1.16	1.19	1.11
22/09/2013	1.30	1.20	1.32	1.21
23/09/2013	1.24	1.06	1.27	1.08
24/09/2013	1.07	1.02	1.12	1.06
25/09/2013	1.03	0.94	1.07	0.95
26/09/2013	1.01	0.94	1.05	0.96
27/09/2013	1.03	0.92	1.06	0.97
28/09/2013	1.19	1.14	1.15	1.08
29/09/2013	1.19	1.09	1.15	1.07
30/09/2013	1.11	1.04	1.10	1.01

Total Number of Measurements, A:	20741	20741
Minimum Free Chlorine Standard:	0.50	0.50
Number of Measurements Meeting Standard, B:	20741	20741
COMPLIANCE, C = B/A X 100%:	100	100

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Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



CITY OF WINNIPEG  
 WATER AND WASTE DEPARTMENT  
 ENVIRONMENTAL STANDARDS DIVISION

**WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT**

Water System Code: 252.00	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-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
02-Sep-2013	NS	0.11	0.09	0.13	0.10	0.07	0.06	0.07	0.08
03-Sep-2013	2.24	0.10	0.14	0.09	0.08	0.07	0.07	0.06	0.05
04-Sep-2013	2.47	0.09	0.09	0.12	0.10	0.11	0.08	0.10	0.09
05-Sep-2013	2.02	0.10	0.11	0.13	0.11	0.07	0.06	0.09	0.08
06-Sep-2013	2.21	0.10	0.11	0.14	0.16	0.12	0.09	0.06	0.11
07-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
08-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
09-Sep-2013	2.76	0.09	0.09	0.08	0.09	0.11	0.09	0.08	0.11
10-Sep-2013	2.92	0.09	0.09	0.15	0.09	0.10	0.11	0.10	0.08
11-Sep-2013	2.13	0.10	0.11	0.13	0.10	0.10	0.12	0.08	0.11
12-Sep-2013	2.23	0.10	0.14	0.10	0.10	0.10	0.08	0.17	0.09
13-Sep-2013	2.79	0.09	0.09	0.09	0.11	0.12	0.12	0.10	0.10
14-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
15-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
16-Sep-2013	2.88	0.11	0.14	0.17	0.10	0.08	0.06	0.11	0.06
17-Sep-2013	2.69	0.09	0.10	0.09	0.08	0.11	0.11	0.09	0.11
18-Sep-2013	2.50	0.11	0.09	0.13	0.12	0.12	0.12	0.12	0.08
19-Sep-2013	1.29	0.08	0.07	0.08	0.10	0.07	0.06	0.06	0.06
20-Sep-2013	2.36	0.07	0.11	0.09	0.08	0.11	0.09	0.08	0.10
21-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
22-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
23-Sep-2013	2.48	0.11	0.13	0.11	0.11	0.09	0.12	0.12	0.11
24-Sep-2013	2.98	0.11	0.10	0.13	0.14	0.13	0.09	0.09	0.12
25-Sep-2013	2.81	0.13	0.11	0.11	0.11	0.13	0.14	0.12	0.10
26-Sep-2013	2.42	0.12	0.12	0.18	0.14	0.11	0.11	0.17	0.12
27-Sep-2013	2.55	0.10	0.13	0.09	0.12	0.13	0.11	0.09	0.13
28-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
29-Sep-2013	NS	NS	NS	NS	NS	NS	NS	NS	NS
30-Sep-2013	2.26	0.12	0.07	0.09	0.08	0.12	0.09	0.10	0.07
<b>Total number of measurements taken, A:</b>	21	21	21	21	21	21	21	21	21
<b>Turbidity Standard for Monitoring Location (NTU):</b>	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
<b>Number of measurements meeting standard, B:</b>	21	21	21	21	21	21	21	21	21
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%

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

Comments:

Report Compiled By: H.Demchenko

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

Date Approved: 3-Oct-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**

September 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
1/09/2013	2.36	0.11	0.16	0.09	0.13	0.10	0.19	0.06	0.12	0.10	0.15	0.08	0.15	0.04	0.09	0.05	0.07
2/09/2013	2.50	0.12	0.15	0.09	0.14	0.08	0.13	0.03	0.14	0.11	0.13	0.08	0.15	0.04	0.08	0.05	0.08
3/09/2013	2.77	0.11	0.16	0.08	0.13	0.08	0.17	0.04	0.09	0.12	0.15	0.10	0.12	0.04	0.06	0.05	0.08
4/09/2013	3.12	0.11	0.24	0.09	0.16	0.11	0.15	0.05	0.09	0.10	0.17	0.09	0.13	0.05	0.09	0.05	0.11
5/09/2013	3.08	0.10	0.18	0.11	0.13	0.12	0.18	0.07	0.10	0.10	0.15	0.10	0.14	0.04	0.08	0.04	0.08
6/09/2013	3.13	0.12	0.16	0.09	0.16	0.10	0.16	0.04	0.08	0.11	0.13	0.09	0.10	0.04	0.12	0.01	0.05
7/09/2013	3.09	0.10	0.17	0.08	0.15	0.12	0.13	0.04	0.06	0.10	0.16	0.11	0.16	0.07	0.08	0.01	0.06
8/09/2013	3.15	0.10	0.13	0.09	0.11	0.10	0.19	0.05	0.11	0.09	0.17	0.08	0.17	0.06	0.14	0.01	0.03
9/09/2013	3.26	0.11	0.14	0.07	0.13	0.10	0.18	0.03	0.10	0.12	0.13	0.10	0.11	0.07	0.08	0.01	0.06
10/09/2013	3.30	0.10	0.17	0.07	0.14	0.13	0.14	0.04	0.05	0.10	0.16	0.09	0.16	0.08	0.12	0.01	0.02
11/09/2013	3.27	0.12	0.13	0.09	0.10	0.12	0.19	0.04	0.10	0.11	0.14	0.09	0.17	0.07	0.13	0.02	0.06
12/09/2013	3.43	0.11	0.18	0.07	0.13	0.12	0.20	0.04	0.10	0.13	0.19	0.11	0.13	0.09	0.10	0.01	0.05
13/09/2013	3.35	0.10	0.14	0.07	0.13	0.15	0.20	0.05	0.06	0.11	0.19	0.10	0.15	0.08	0.15	0.01	0.02
14/09/2013	3.58	0.06	0.08	0.08	0.10	0.14	0.22	0.05	0.09	0.12	0.15	0.09	0.18	0.08	0.15	0.01	0.05
15/09/2013	3.53	0.06	0.12	0.06	0.13	0.16	0.18	0.04	0.12	0.15	0.18	0.11	0.13	0.11	0.12	0.01	0.05
16/09/2013	3.36	0.06	0.08	0.08	0.09	0.13	0.25	0.07	0.09	0.11	0.19	0.09	0.16	0.10	0.17	0.01	0.01
17/09/2013	3.55	0.06	0.12	0.06	0.12	0.07	0.14	0.04	0.11	0.12	0.21	0.12	0.14	0.07	0.14	0.01	0.05
18/09/2013	3.53	0.06	0.12	0.06	0.12	0.09	0.11	0.05	0.06	0.08	0.14	0.12	0.19	0.05	0.09	0.01	0.02
19/09/2013	3.18	0.04	0.13	0.05	0.15	0.04	0.14	0.02	0.15	0.06	0.13	0.10	0.22	0.02	0.07	0.01	0.07
20/09/2013	3.38	0.05	0.12	0.05	0.10	0.08	0.10	0.04	0.05	0.08	0.11	0.12	0.18	0.03	0.07	0.01	0.04
21/09/2013	3.24	0.05	0.06	0.06	0.07	0.06	0.13	0.03	0.08	0.06	0.11	0.12	0.18	0.02	0.07	0.01	0.03
22/09/2013	3.39	0.05	0.09	0.05	0.10	0.05	0.12	0.03	0.08	0.08	0.09	0.10	0.16	0.02	0.04	0.01	0.03
23/09/2013	3.42	0.06	0.14	0.05	0.10	0.09	0.12	0.04	0.10	0.07	0.11	0.05	0.13	0.04	0.08	0.01	0.23
24/09/2013	3.51	0.08	0.10	0.06	0.09	0.08	0.16	0.04	0.12	0.06	0.08	0.04	0.05	0.02	0.09	0.02	0.06
25/09/2013	3.41	0.08	0.15	0.05	0.11	0.10	0.11	0.04	0.06	0.06	0.13	0.06	0.11	0.03	0.05	0.02	0.08
26/09/2013	3.51	0.09	0.21	0.07	0.19	0.10	0.28	0.07	0.21	0.06	0.15	0.05	0.14	0.04	0.12	0.03	0.05
27/09/2013	3.30	0.08	0.14	0.04	0.10	0.07	0.13	0.03	0.10	0.05	0.07	0.03	0.05	0.01	0.02	0.01	0.06
28/09/2013	3.26	0.06	0.14	0.03	0.09	0.09	0.11	0.04	0.05	0.05	0.11	0.03	0.11	0.02	0.08	0.01	0.02
29/09/2013	3.18	0.07	0.09	0.04	0.06	0.07	0.15	0.03	0.10	0.05	0.06	0.02	0.08	0.01	0.08	0.01	0.06
30/09/2013	3.22	0.06	0.14	0.03	0.10	0.08	0.09	0.03	0.04	0.05	0.11	0.04	0.11	0.02	0.03	0.01	0.07

Total Number of Measurements Taken, A:	15625	15605	15751	12793	16123	16155	14728	15879
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:	15625	15605	15751	12793	16123	16155	14728	15879
Compliance with Turbidity Standard, C = B/A X 100%:	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2013\09-September

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **September 2013**

Report Created: **Tuesday, October 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		
1/09/2013	96.15	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	0.00	0.00	0.00	0.00	62.17	62.17	0.00	0.00	84.97	84.97	0.00	0.00	227.13	227.13	100.00	
2/09/2013	96.46	0.00	0.00	80.02	80.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.19	45.19	0.00	0.00	84.80	84.80	0.00	0.00	210.01	210.01	100.00	
3/09/2013	93.58	0.00	0.00	80.02	80.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.70	55.70	0.00	0.00	84.94	84.94	0.00	0.00	220.66	220.66	100.00	
4/09/2013	96.25	0.00	0.00	79.98	79.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.50	63.50	0.00	0.00	85.03	85.03	0.00	0.00	228.52	228.52	100.00	
5/09/2013	96.20	0.00	0.00	79.45	79.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.65	64.65	0.00	0.00	84.70	84.70	0.00	0.00	228.80	228.80	100.00	
6/09/2013	96.15	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	0.00	0.00	0.00	0.00	64.99	64.99	0.00	0.00	85.01	85.01	0.00	0.00	229.98	229.98	100.00	
7/09/2013	95.87	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	0.00	0.00	0.00	0.00	65.02	65.02	0.00	0.00	84.98	84.98	0.00	0.00	229.99	229.99	100.00	
8/09/2013	95.90	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	0.00	0.00	0.00	0.00	61.04	61.04	0.00	0.00	85.03	85.03	0.00	0.00	226.08	226.08	100.00	
9/09/2013	95.99	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	0.00	0.00	0.00	0.00	58.97	58.97	0.00	0.00	85.02	85.02	0.00	0.00	223.97	223.97	100.00	
10/09/2013	95.95	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	0.00	0.00	0.00	0.00	59.02	59.02	0.00	0.00	84.98	84.98	0.00	0.00	223.98	223.98	100.00	
11/09/2013	95.98	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	0.00	0.00	0.00	0.00	58.97	58.97	0.00	0.00	85.00	85.00	0.00	0.00	223.96	223.96	100.00	
12/09/2013	96.02	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	0.00	0.00	0.00	0.00	58.99	58.99	0.00	0.00	84.98	84.98	0.00	0.00	223.99	223.99	100.00	
13/09/2013	96.06	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	0.00	0.00	0.00	0.00	56.34	56.34	0.00	0.00	85.00	85.00	0.00	0.00	221.33	221.33	100.00	
14/09/2013	96.06	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	0.00	0.00	0.00	0.00	55.01	55.01	0.00	0.00	85.00	85.00	0.00	0.00	220.00	220.00	100.00	
15/09/2013	96.12	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	0.00	0.00	0.00	0.00	51.22	51.22	0.00	0.00	85.00	85.00	0.00	0.00	216.23	216.23	100.00	
16/09/2013	96.28	0.00	0.07	49.56	49.64	0.00	0.08	31.77	31.84	0.00	0.05	0.37	0.43	0.00	0.00	0.00	0.00	0.00	0.00	43.93	43.93	0.00	0.00	81.42	81.42	0.00	0.21	207.06	207.26	99.90	
17/09/2013	96.17	0.00	0.00	0.00	0.00	0.00	0.00	84.97	84.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.44	47.44	0.00	0.00	82.81	82.81	0.00	0.00	215.21	215.21	100.00	
18/09/2013	96.22	0.00	0.00	0.00	0.00	0.00	0.00	85.95	85.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.56	48.56	0.00	0.00	85.20	85.20	0.00	0.00	219.72	219.72	100.00	
19/09/2013	94.76	0.00	0.00	32.40	32.40	0.03	0.03	48.12	48.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	3.81	3.90	0.02	0.02	48.77	48.81	0.07	0.12	133.10	133.29	99.86
20/09/2013	95.80	0.00	0.00	57.57	57.57	0.00	0.00	79.27	79.27	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	28.91	28.91	0.00	0.00	54.20	54.20	0.00	0.06	219.95	220.02	99.97	
21/09/2013	96.31	0.00	0.00	57.94	57.94	0.00	0.00	80.10	80.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.81	83.81	0.00	0.00	0.00	0.00	0.00	0.00	221.84	221.84	100.00	
22/09/2013	96.31	0.00	0.00	58.26	58.26	0.00	0.00	80.54	80.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.21	84.21	0.00	0.00	0.00	0.00	0.00	0.00	223.01	223.01	100.00	
23/09/2013	96.12	0.00	0.00	57.75	57.75	0.00	0.00	80.47	80.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.67	83.67	0.00	0.00	0.00	0.00	0.00	0.00	221.89	221.89	100.00	
24/09/2013	96.06	0.00	0.00	57.73	57.73	0.00	0.00	81.24	81.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.04	84.04	0.00	0.00	0.00	0.00	0.00	0.00	223.00	223.00	100.00	
25/09/2013	95.94	0.00	0.00	55.85	55.85	0.00	0.00	76.36	76.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.04	80.04	0.00	0.00	0.00	0.00	0.00	0.00	212.25	212.25	100.00	
26/09/2013	95.79	0.00	0.00	53.33	53.33	0.00	0.00	71.22	71.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.45	75.45	0.00	0.00	0.00	0.00	0.00	0.00	200.00	200.00	100.00	
27/09/2013	96.02	0.00	0.00	52.67	52.67	0.00	0.00	70.60	70.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.70	74.70	0.00	0.00	0.00	0.00	0.00	0.00	197.98	197.98	100.00	
28/09/2013	96.06	0.00	0.00	54.44	54.44	0.00	0.00	72.82	72.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.81	76.81	0.00	0.00	0.00	0.00	0.00	0.00	204.07	204.07	100.00	
29/09/2013	96.19	0.00	0.00	54.19	54.19	0.00	0.00	71.85	71.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	75.98	75.98	0.00	0.00	0.00	0.00	0.00	0.00	202.02	202.02	100.00	
30/09/2013	96.27	0.00	0.00	51.97	51.97	0.00	0.00	68.93	68.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.23	73.23	0.00	0.00	0.00	0.00	0.00	0.00	194.13	194.13	100.00	
		0.00	0.08	1893.09	1893.18	0.03	0.11	1084.19	1084.33	0.00	0.12	0.37	0.49	0.00	0.00	0.00	0.00	0.02	0.07	1845.39	1845.46	0.02	0.02	1626.85	1626.88	0.07	0.39	6449.88	6450.34		

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

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **September 2013**

Report Created: **Tuesday, October 01, 2013**

Reactor: **UVR-100A**

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validate Conditions	Daily Totals			
	mJ/cm <sup>2</sup>			MLD			W/m <sup>2</sup>									Hours										Water Volume [ML]			
	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3		Untreated	Below Dose	To Dose	Total
1/09/2013	18.1	26.3	24.3	74.6	85.2	80.0	116.5	113.2	81.4	174.2	108.7	94.6	258.5	82.7	132.4	3089	2960	3362	1979	4678	4676	3691	2357	5181	100.00	0.00	0.00	80.00	80.00
2/09/2013	17.7	26.0	24.3	74.5	84.5	80.0	115.5	113.8	81.4	174.2	109.6	93.4	257.6	82.6	132.2	3113	2984	3386	2003	4702	4700	3715	2381	5205	100.00	0.00	0.00	80.02	80.02
3/09/2013	18.1	26.9	24.3	74.8	83.8	80.0	114.3	115.3	81.4	174.9	110.2	92.5	260.5	86.6	138.1	3137	3008	3410	2027	4726	4724	3739	2405	5229	100.00	0.00	0.00	80.02	80.02
4/09/2013	18.2	27.2	24.3	75.7	84.7	80.0	113.5	116.6	81.4	176.0	110.1	91.9	261.5	87.2	139.3	3161	3032	3434	2051	4750	4748	3763	2429	5253	100.00	0.00	0.00	79.98	79.98
5/09/2013	18.5	27.6	24.2	75.5	84.5	79.9	120.9	123.3	102.3	162.2	103.4	80.1	262.9	110.0	143.2	3185	3056	3458	2064	4763	4761	3787	2453	5277	100.00	0.00	0.00	79.45	79.45
6/09/2013	18.6	24.8	24.0	74.8	84.9	80.0	128.2	128.0	128.0	OL	OL	OL	258.6	128.0	144.1	3209	3080	3482	2064	4763	4761	3811	2477	5301	100.00	0.00	0.00	79.99	79.99
7/09/2013	18.9	26.9	24.0	75.3	83.9	80.0	128.2	128.0	128.0	OL	OL	OL	248.4	128.0	131.2	3233	3104	3506	2064	4763	4761	3835	2501	5325	100.00	0.00	0.00	79.99	79.99
8/09/2013	19.1	24.8	24.0	75.4	84.2	80.0	128.2	128.0	128.0	OL	OL	OL	249.5	128.0	131.6	3257	3128	3530	2064	4763	4761	3859	2525	5349	100.00	0.00	0.00	80.01	80.01
9/09/2013	19.1	24.8	24.0	75.5	83.9	80.0	128.2	128.0	128.0	OL	OL	OL	246.7	128.0	131.5	3281	3152	3554	2064	4763	4761	3883	2549	5373	100.00	0.00	0.00	79.99	79.99
10/09/2013	19.2	24.8	24.0	75.6	84.3	80.0	128.2	128.0	128.0	OL	OL	OL	246.5	128.0	132.7	3305	3176	3578	2064	4763	4761	3907	2573	5397	100.00	0.00	0.00	79.99	79.99
11/09/2013	19.1	24.7	24.0	75.3	84.3	80.0	128.2	128.0	128.0	OL	OL	OL	247.6	128.0	134.2	3329	3200	3602	2064	4763	4761	3931	2597	5421	100.00	0.00	0.00	80.00	80.00
12/09/2013	19.2	24.7	24.0	75.3	84.5	80.0	128.2	128.0	128.0	OL	OL	OL	247.0	128.0	133.7	3353	3224	3626	2064	4763	4761	3955	2621	5445	100.00	0.00	0.00	80.01	80.01
13/09/2013	18.9	24.7	24.0	76.3	83.9	80.0	128.2	128.0	128.0	OL	OL	OL	244.9	128.0	129.9	3377	3248	3650	2064	4763	4761	3979	2645	5469	100.00	0.00	0.00	79.99	79.99
14/09/2013	19.1	24.8	24.0	76.1	83.9	80.0	128.2	128.0	128.0	OL	OL	OL	247.1	128.0	129.7	3401	3272	3674	2064	4763	4761	4003	2669	5493	100.00	0.00	0.00	79.99	79.99
15/09/2013	18.9	24.9	24.0	75.2	84.5	80.0	128.2	128.0	128.0	OL	OL	OL	250.9	128.0	130.7	3425	3296	3698	2064	4763	4761	4027	2693	5517	100.00	0.00	0.00	80.01	80.01
16/09/2013	0.0	39.0	24.0	0.0	108.4	79.9	127.5	127.1	125.3	162.3	125.0	122.5	238.4	123.4	130.2	3440	3311	3713	2072	4770	4769	4035	2702	5525	99.85	0.00	0.07	49.56	49.64
17/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3440	3311	3713	2072	4770	4769	4035	2702	5525	OL	0.00	0.00	0.00	0.00
18/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	3440	3311	3713	2072	4770	4769	4035	2702	5525	OL	0.00	0.00	0.00	0.00
19/09/2013	0.0	88.4	24.4	0.0	70.7	54.1	94.4	102.9	85.9	151.9	103.6	88.2	182.5	56.4	96.6	3455	3325	3728	2086	4785	4783	4036	2703	5526	99.98	0.00	0.00	32.40	32.40
20/09/2013	18.9	25.8	24.1	45.3	60.1	57.6	101.4	106.8	92.7	173.1	108.8	92.7	OL	OL	OL	3479	3349	3752	2110	4809	4807	4036	2703	5526	100.00	0.00	0.00	57.57	57.57
21/09/2013	19.1	25.6	24.1	55.2	60.5	57.9	101.1	112.3	93.3	186.1	114.3	93.3	OL	OL	OL	3503	3373	3776	2134	4833	4831	4036	2703	5526	100.00	0.00	0.00	57.94	57.94
22/09/2013	19.4	24.9	24.1	55.3	60.6	58.2	95.5	113.4	93.8	187.6	114.8	93.7	OL	OL	OL	3527	3397	3800	2158	4857	4855	4036	2703	5526	100.00	0.00	0.00	58.26	58.26
23/09/2013	19.3	24.9	24.1	53.0	60.2	57.8	93.2	110.9	93.0	182.3	112.4	93.0	OL	OL	OL	3551	3421	3824	2182	4881	4879	4036	2703	5526	100.00	0.00	0.00	57.75	57.75
24/09/2013	19.4	24.8	24.1	55.1	60.1	57.7	93.1	110.7	93.0	182.2	111.9	93.0	OL	OL	OL	3575	3445	3848	2206	4905	4903	4036	2703	5526	100.00	0.00	0.00	57.73	57.73
25/09/2013	19.3	24.8	24.1	51.5	60.2	55.8	90.2	110.0	90.0	183.0	110.5	90.0	OL	OL	OL	3599	3469	3872	2230	4929	4927	4036	2703	5526	100.00	0.00	0.00	55.85	55.85
26/09/2013	19.4	27.2	24.1	51.0	55.2	53.3	86.2	108.9	86.1	182.5	109.4	86.0	OL	OL	OL	3623	3493	3896	2254	4953	4951	4036	2703	5526	100.00	0.00	0.00	53.33	53.33
27/09/2013	19.4	26.5	24.2	39.7	56.4	52.7	86.8	111.8	85.1	190.7	112.5	87.5	OL	OL	OL	3647	3517	3920	2278	4977	4975	4036	2703	5526	100.00	0.00	0.00	52.67	52.67
28/09/2013	19.3	26.3	24.2	52.1	56.4	54.4	88.0	111.6	87.8	193.1	112.7	89.1	OL	OL	OL	3671	3541	3944	2302	5001	4999	4036	2703	5526	100.00	0.00	0.00	54.44	54.44
29/09/2013	19.2	25.0	24.2	52.0	56.2	54.2	87.5	113.0	87.5	194.9	113.8	88.1	OL	OL	OL	3695	3565	3968	2326	5025	5023	4036	2703	5526	100.00	0.00	0.00	54.19	54.19
30/09/2013	19.4	25.4	24.2	49.5	55.7	52.0	86.3	113.0	84.0	195.2	114.2	86.0	OL	OL	OL	3719	3589	3992	2350	5049	5047	4036	2703	5526	100.00	0.00	0.00	51.97	51.97

**Total [ML]:** 0.00 0.08 1893.09 1893.18

**Water Volume [%]:**

Untreated: 0.00 %  
 Below Dose: 0.00 %  
 To Dose: 100.00 %

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

N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\UV\2013\09-September



**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: **September 2013**

Report Created: **Tuesday, October 01, 2013**

Reactor: **UVR-200A**

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>							UV Lamp Status Hours							% Volume Treated to Validate Conditions	Daily Totals Water Volume [ML]								
	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2		2-3	3-1	3-2	3-3	Untreated	Below Dose	To Dose	Total	
1/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
2/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
3/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
4/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
5/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
6/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
7/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
8/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
9/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
10/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
11/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
12/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
13/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
14/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
15/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	0.00	0.00	0.00	0.00
16/09/2013	0.0	107.4	24.1	0.0	114.5	84.8	170.5	128.3	158.2	142.1	138.5	134.4	275.2	131.5	134.0	4091	4091	4091	3734	3217	887	4080	4080	4080	99.75	0.00	0.08	31.77	31.84	
17/09/2013	21.2	24.7	24.1	80.9	90.8	85.0	OL	OL	OL	136.1	136.2	135.9	233.3	136.0	136.0	4091	4091	4091	3758	3241	911	4104	4104	4104	100.00	0.00	0.00	84.97	84.97	
18/09/2013	20.9	24.6	24.1	81.0	89.8	86.0	OL	OL	OL	137.5	137.5	137.4	224.8	137.5	137.4	4091	4091	4091	3782	3265	935	4128	4128	4128	100.00	0.00	0.00	85.95	85.95	
19/09/2013	0.0	101.9	24.7	0.0	98.0	75.8	115.3	77.6	79.7	103.2	83.3	82.4	209.8	82.4	82.7	4105	4105	4106	3797	3281	950	4143	4144	4143	99.87	0.03	0.03	48.12	48.18	
20/09/2013	20.3	24.9	24.2	66.1	82.2	79.3	135.9	80.8	80.9	108.5	81.0	80.7	236.6	80.8	80.7	4129	4129	4130	3821	3305	974	4167	4168	4167	100.00	0.00	0.00	79.27	79.27	
21/09/2013	20.4	24.9	24.2	77.2	83.6	80.1	146.1	81.7	81.7	114.6	81.9	81.6	248.4	81.6	81.6	4153	4153	4154	3845	3329	998	4191	4192	4191	100.00	0.00	0.00	80.10	80.10	
22/09/2013	20.5	25.1	24.2	77.7	83.8	80.5	146.8	82.1	82.1	112.8	82.2	82.0	246.6	82.1	82.0	4177	4177	4178	3869	3353	1022	4215	4216	4215	100.00	0.00	0.00	80.54	80.54	
23/09/2013	20.4	24.9	24.2	70.2	84.3	80.5	142.2	82.1	82.0	107.7	82.2	82.0	238.4	82.0	82.0	4201	4201	4202	3893	3377	1046	4239	4240	4239	100.00	0.00	0.00	80.47	80.47	
24/09/2013	20.1	25.0	24.2	78.3	84.6	81.2	141.3	82.8	82.7	106.2	82.8	82.7	235.8	82.7	82.7	4225	4225	4226	3917	3401	1070	4263	4264	4263	100.00	0.00	0.00	81.24	81.24	
25/09/2013	20.6	25.0	24.2	69.0	84.3	76.4	141.0	78.1	78.1	105.2	78.1	78.0	236.1	77.9	77.9	4249	4249	4250	3941	3425	1094	4287	4288	4287	100.00	0.00	0.00	76.36	76.36	
26/09/2013	20.3	25.0	24.3	69.2	73.8	71.2	140.9	72.9	72.9	104.7	72.9	72.8	243.5	72.8	72.8	4273	4273	4274	3965	3449	1118	4311	4312	4311	100.00	0.00	0.00	71.22	71.22	
27/09/2013	18.0	25.0	24.3	57.3	75.6	70.6	149.6	83.3	88.5	113.0	89.3	82.1	264.0	72.7	72.8	4297	4297	4298	3989	3473	1142	4329	4330	4329	100.00	0.00	0.00	70.60	70.60	
28/09/2013	21.0	24.9	24.1	69.9	76.1	72.8	156.7	116.7	116.8	120.3	116.9	116.8	OL	OL	OL	4321	4321	4322	4013	3497	1166	4329	4330	4329	100.00	0.00	0.00	72.82	72.82	
29/09/2013	21.2	24.6	24.1	70.1	74.5	71.8	160.9	115.2	115.3	123.7	115.4	115.2	OL	OL	OL	4345	4345	4346	4037	3521	1190	4329	4330	4329	100.00	0.00	0.00	71.85	71.85	
30/09/2013	21.2	25.6	24.1	66.5	74.0	68.9	164.1	110.6	110.7	130.5	110.8	110.5	OL	OL	OL	4369	4369	4370	4061	3545	1214	4329	4330	4329	100.00	0.00	0.00	68.93	68.93	
<b>Total [ML]:</b>																										0.03	0.11	1084.19	1084.33	

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

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

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**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: **September 2013**

Report Created: **Tuesday, October 01, 2013**

Reactor: **UVR-300A**

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>									UV Lamp Status Hours									% Volume Treated to Validate Conditions	Daily Totals Water Volume [ML]				
	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3		Untreated	Below Dose	To Dose	Total	
1/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
2/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
3/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
4/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
5/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
6/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
7/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
8/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
9/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
10/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
11/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
12/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
13/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
14/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
15/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1423	1423	OL	0.00	0.00	0.00	0.00	
16/09/2013	0.0	45.4	22.7	0.0	84.0	69.9	74.5	70.4	48.5	81.6	81.2	68.5	75.9	82.8	90.4	1439	1053	1438	1234	1234	1233	1423	1424	1423	87.30	0.00	0.05	0.37	0.43	
17/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1424	1423	OL	0.00	0.00	0.00	0.00	
18/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1424	1423	OL	0.00	0.00	0.00	0.00	
19/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1438	1234	1234	1233	1423	1424	1423	OL	0.00	0.00	0.00	0.00	
20/09/2013	0.0	53.5	19.8	0.0	47.3	31.2	121.8	88.3	134.0	99.1	94.2	16.3	87.9	110.9	107.1	1439	1053	1439	1234	1234	1234	1423	1424	1424	0.00	0.00	0.06	0.00	0.06	
21/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
22/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
23/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
24/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
25/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
26/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
27/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
28/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
29/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
30/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	1439	1053	1439	1234	1234	1234	1423	1424	1424	OL	0.00	0.00	0.00	0.00	0.00
<b>Total [ML]:</b>																									0.00	0.12	0.37	0.49		

**Water Volume [%]:**  
 Untreated: 0.00 %  
 Below Dose: 24.08 %  
 To Dose: 75.92 %

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

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

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

WATER TREATMENT PLANT UV REPORT

Report Period: September 2013

Report Created: Tuesday, October 01, 2013

Reactor: UVR-400A

Date	UV Dose			Reactor Flow			Average UV Lamp Intensity									UV Lamp Status									% Volume Treated to Validate Conditions	Daily Totals			
	mJ/cm <sup>2</sup>			MLD			W/m <sup>2</sup>									Hours										Water Volume [ML]			
	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3		Untreated	Below Dose	To Dose	Total
1/09/2013	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
2/09/2013	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
3/09/2013	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
4/09/2013	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
5/09/2013	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
6/09/2013	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
7/09/2013	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
8/09/2013	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
9/09/2013	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
10/09/2013	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
11/09/2013	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
12/09/2013	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
13/09/2013	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
14/09/2013	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
15/09/2013	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
16/09/2013	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
17/09/2013	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
18/09/2013	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
19/09/2013	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
20/09/2013	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
21/09/2013	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
22/09/2013	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
23/09/2013	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
24/09/2013	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
25/09/2013	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
26/09/2013	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
27/09/2013	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
28/09/2013	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
29/09/2013	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
30/09/2013	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
<b>Total [ML]:</b>																										0.00	0.00	0.00	0.00

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

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

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UVR-400A was offline during September due to maintenance activities



**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: **September 2013**

Report Created: **Tuesday, October 01, 2013**

Reactor: **UVR-500A**

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>							UV Lamp Status Hours							% Volume Treated to Validate Conditions	Daily Totals Water Volume [ML]							
	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2		2-3	3-1	3-2	3-3	Untreated	Below Dose	To Dose	Total
1/09/2013	20.8	26.9	24.2	41.2	82.7	62.1	113.1	100.1	267.0	203.3	110.7	106.4	OL	OL	OL	745	745	1421	830	1318	831	3418	3418	3418	100.00	0.00	0.00	62.17	62.17
2/09/2013	20.5	31.0	24.4	40.8	50.9	45.2	109.5	73.4	266.3	195.3	108.0	100.5	OL	OL	OL	769	769	1445	854	1342	855	3418	3418	3418	100.00	0.00	0.00	45.19	45.19
3/09/2013	20.5	27.0	24.3	40.8	66.8	55.7	112.4	89.9	264.7	200.9	108.6	102.3	OL	OL	OL	793	793	1469	878	1366	879	3418	3418	3418	100.00	0.00	0.00	55.70	55.70
4/09/2013	20.8	26.8	24.2	54.6	72.5	63.6	114.6	102.3	260.8	203.9	108.5	104.4	OL	OL	OL	817	817	1493	902	1390	903	3418	3418	3418	100.00	0.00	0.00	63.50	63.50
5/09/2013	20.8	26.2	24.2	58.2	72.0	65.0	117.4	104.5	263.1	206.2	109.3	105.5	OL	OL	OL	841	841	1517	926	1414	927	3418	3418	3418	100.00	0.00	0.00	64.65	64.65
6/09/2013	20.8	26.4	24.2	59.1	71.9	65.0	118.2	104.5	265.5	205.7	109.4	105.7	OL	OL	OL	865	865	1541	950	1438	951	3418	3418	3418	100.00	0.00	0.00	64.99	64.99
7/09/2013	20.9	26.9	24.1	57.8	72.8	65.0	113.0	104.5	262.2	202.9	107.5	105.1	OL	OL	OL	889	889	1565	974	1462	975	3418	3418	3418	100.00	0.00	0.00	65.02	65.02
8/09/2013	20.9	27.0	24.2	52.8	72.6	61.0	112.9	98.2	264.7	202.8	106.3	102.2	OL	OL	OL	913	913	1589	998	1486	999	3418	3418	3418	100.00	0.00	0.00	61.04	61.04
9/09/2013	20.8	26.6	24.2	52.5	65.3	59.0	111.8	95.0	264.1	199.7	106.0	100.0	OL	OL	OL	937	937	1613	1022	1510	1023	3418	3418	3418	100.00	0.00	0.00	58.97	58.97
10/09/2013	20.9	26.4	24.2	53.0	65.7	59.0	110.9	95.0	269.3	199.3	105.8	99.9	OL	OL	OL	961	961	1637	1046	1534	1047	3418	3418	3418	100.00	0.00	0.00	59.02	59.02
11/09/2013	20.9	26.1	24.2	52.5	65.7	59.0	110.2	95.0	278.3	198.5	105.3	99.9	OL	OL	OL	985	985	1661	1070	1558	1071	3418	3418	3418	100.00	0.00	0.00	58.97	58.97
12/09/2013	20.8	26.4	24.2	52.6	65.4	59.0	108.6	95.0	279.3	195.3	104.4	98.5	OL	OL	OL	1009	1009	1685	1094	1582	1095	3418	3418	3418	100.00	0.00	0.00	58.99	58.99
13/09/2013	20.7	26.9	24.3	48.6	64.8	56.4	107.2	90.9	267.8	191.8	102.5	96.0	OL	OL	OL	1033	1033	1709	1118	1606	1119	3418	3418	3418	100.00	0.00	0.00	56.34	56.34
14/09/2013	20.8	26.8	24.3	49.1	62.0	55.0	107.9	88.7	271.4	193.5	103.3	96.6	OL	OL	OL	1057	1057	1733	1142	1630	1143	3418	3418	3418	100.00	0.00	0.00	55.01	55.01
15/09/2013	20.4	27.4	24.3	41.6	63.8	51.2	108.1	82.8	275.8	194.7	103.4	96.9	OL	OL	OL	1081	1081	1757	1166	1654	1167	3418	3418	3418	100.00	0.00	0.00	51.22	51.22
16/09/2013	20.6	30.3	24.4	32.7	52.7	44.0	105.6	71.4	264.8	189.1	102.9	95.7	OL	OL	OL	1105	1105	1781	1190	1678	1191	3418	3418	3418	100.00	0.00	0.00	43.93	43.93
17/09/2013	20.7	28.5	24.4	37.9	57.7	47.4	103.6	76.9	251.3	188.1	99.4	92.1	OL	OL	OL	1129	1129	1805	1214	1702	1215	3418	3418	3418	100.00	0.00	0.00	47.44	47.44
18/09/2013	20.7	28.1	24.4	43.2	57.2	48.5	102.4	78.6	241.6	186.3	99.7	90.8	OL	OL	OL	1153	1153	1829	1238	1726	1239	3418	3418	3418	100.00	0.00	0.00	48.56	48.56
19/09/2013	0.0	38.7	23.7	0.0	81.3	46.9	89.4	67.7	227.7	160.5	97.8	95.5	81.7	39.7	22.5	1155	1155	1831	1240	1728	1241	3419	3419	3418	97.77	0.02	0.07	3.81	3.90
20/09/2013	20.5	103.2	24.5	0.0	85.0	82.8	114.2	83.9	306.4	214.8	109.7	109.3	191.4	121.1	133.4	1164	1164	1839	1249	1737	1249	3428	3427	3427	100.00	0.00	0.00	28.91	28.91
21/09/2013	19.9	25.6	24.2	80.8	86.9	83.8	87.2	85.2	158.8	161.2	87.1	85.3	242.2	85.8	95.6	1188	1188	1863	1273	1761	1273	3452	3451	3451	100.00	0.00	0.00	83.81	83.81
22/09/2013	20.2	24.8	24.2	81.6	86.4	84.2	85.7	85.6	100.8	152.8	85.7	85.6	240.4	85.7	91.3	1212	1212	1887	1297	1785	1297	3476	3475	3475	100.00	0.00	0.00	84.21	84.21
23/09/2013	20.1	24.8	24.2	75.2	86.0	83.7	85.2	85.0	85.3	146.2	85.4	85.1	239.7	85.2	88.0	1236	1236	1911	1321	1809	1321	3500	3499	3499	100.00	0.00	0.00	83.67	83.67
24/09/2013	20.2	24.9	24.2	81.9	86.0	84.1	85.6	85.4	85.6	146.8	85.5	85.5	238.2	85.6	88.8	1260	1260	1935	1345	1833	1345	3524	3523	3523	100.00	0.00	0.00	84.04	84.04
25/09/2013	20.1	24.9	24.2	73.7	86.0	80.0	81.7	81.5	81.6	147.4	84.0	81.6	240.8	82.7	91.4	1284	1284	1959	1369	1857	1369	3548	3547	3547	100.00	0.00	0.00	80.04	80.04
26/09/2013	20.6	25.7	24.3	73.5	77.1	75.5	77.1	76.9	77.0	149.1	83.0	77.1	244.6	86.3	94.6	1308	1308	1983	1393	1881	1393	3572	3571	3571	100.00	0.00	0.00	75.45	75.45
27/09/2013	20.6	25.5	24.3	58.4	78.6	74.7	77.3	76.2	76.4	159.0	86.7	76.3	246.5	100.6	104.4	1332	1332	2007	1417	1905	1417	3596	3595	3595	100.00	0.00	0.00	74.70	74.70
28/09/2013	20.6	26.4	24.3	74.3	79.0	76.8	78.5	78.3	78.4	164.1	87.8	78.5	246.8	103.8	110.6	1356	1356	2031	1441	1929	1441	3620	3619	3619	100.00	0.00	0.00	76.81	76.81
29/09/2013	20.3	24.9	24.3	73.9	77.8	76.0	78.0	77.5	77.5	166.7	88.9	77.6	248.4	105.5	113.0	1380	1380	2055	1465	1953	1465	3644	3643	3643	100.00	0.00	0.00	75.98	75.98
30/09/2013	20.6	25.0	24.3	71.0	77.6	73.2	79.1	74.8	74.9	171.2	89.3	74.9	249.1	107.3	115.1	1404	1404	2079	1489	1977	1489	3668	3667	3667	100.00	0.00	0.00	73.23	73.23

**Total [ML]:** 0.02 0.07 1845.39 1845.46

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

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

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

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

**WATER TREATMENT PLANT UV REPORT**

Report Period: **September 2013**

Report Created: **Tuesday, October 01, 2013**

Reactor: **UVR-600A**

Date	UV Dose mJ/cm <sup>2</sup>			Reactor Flow MLD			Average UV Lamp Intensity W/m <sup>2</sup>								UV Lamp Status Hours									% Volume Treated to Validate Conditions	Daily Totals Water Volume [ML]					
	Min.	Max.	Avg.	Min.	Max.	Avg.	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2		3-3	Untreated	Below Dose	To Dose	Total	
1/09/2013	18.9	25.5	24.2	78.6	91.2	85.0	96.7	95.9	86.3	86.3	86.3	132.9	111.0	86.3	86.3	2091	1110	1110	1128	1128	1127	1200	2933	2108	100.00	0.00	0.00	84.97	84.97	
2/09/2013	19.0	25.2	24.2	78.9	92.1	84.8	97.3	96.0	86.1	86.1	86.1	132.2	109.7	86.1	86.1	2115	1134	1134	1152	1152	1151	1224	2957	2132	100.00	0.00	0.00	84.80	84.80	
3/09/2013	19.0	25.2	24.2	79.2	93.5	84.9	97.8	96.1	86.2	86.2	86.3	131.0	110.1	86.2	86.2	2139	1158	1158	1176	1176	1175	1248	2981	2156	100.00	0.00	0.00	84.94	84.94	
4/09/2013	18.5	25.2	24.2	78.7	89.9	85.0	96.2	95.6	86.3	86.3	86.3	130.0	109.3	86.3	86.3	2163	1182	1182	1200	1200	1199	1272	3005	2180	100.00	0.00	0.00	85.03	85.03	
5/09/2013	18.9	25.3	24.2	80.1	89.5	85.1	94.5	96.6	86.4	86.4	86.4	130.4	111.4	86.4	86.4	2187	1206	1206	1224	1224	1223	1296	3029	2204	100.00	0.00	0.00	84.70	84.70	
6/09/2013	18.6	25.3	24.2	79.7	90.2	85.0	95.4	96.7	86.3	86.3	86.3	130.7	112.7	86.3	86.3	2211	1230	1230	1248	1248	1247	1320	3053	2228	100.00	0.00	0.00	85.01	85.01	
7/09/2013	18.8	25.1	24.2	80.6	89.6	85.0	92.3	95.2	86.3	86.3	86.3	129.0	108.8	86.3	86.3	2235	1254	1254	1272	1272	1271	1344	3077	2252	100.00	0.00	0.00	84.98	84.98	
8/09/2013	18.6	25.3	24.2	79.0	90.6	85.0	93.1	94.8	86.3	86.3	86.3	129.4	109.1	86.3	86.3	2259	1278	1278	1296	1296	1295	1368	3101	2276	100.00	0.00	0.00	85.03	85.03	
9/09/2013	18.8	25.1	24.2	79.7	89.7	85.0	91.8	94.8	86.3	86.3	86.3	128.1	107.4	86.3	86.3	2283	1302	1302	1320	1320	1319	1392	3125	2300	100.00	0.00	0.00	85.02	85.02	
10/09/2013	18.2	25.2	24.2	79.8	90.0	85.0	91.2	94.6	86.3	86.3	86.3	127.9	106.5	86.3	86.3	2307	1326	1326	1344	1344	1343	1416	3149	2324	100.00	0.00	0.00	84.98	84.98	
11/09/2013	18.5	25.2	24.2	80.6	89.7	85.0	92.0	94.4	86.3	86.3	86.3	128.0	106.0	86.3	86.3	2331	1350	1350	1368	1368	1367	1440	3173	2348	100.00	0.00	0.00	85.00	85.00	
12/09/2013	18.8	25.1	24.2	80.1	89.8	85.0	91.0	93.2	86.3	86.3	86.3	125.9	104.1	86.3	86.3	2355	1374	1374	1392	1392	1391	1464	3197	2372	100.00	0.00	0.00	84.98	84.98	
13/09/2013	18.2	25.1	24.2	79.8	89.8	85.0	87.1	91.8	86.3	86.3	86.3	122.5	102.2	86.3	86.1	2379	1398	1398	1416	1416	1415	1488	3221	2396	100.00	0.00	0.00	85.00	85.00	
14/09/2013	18.4	25.1	24.1	79.8	89.8	85.0	86.8	92.5	86.3	86.3	86.3	123.4	102.6	86.3	86.1	2403	1422	1422	1440	1440	1439	1512	3245	2420	100.00	0.00	0.00	85.00	85.00	
15/09/2013	18.7	25.1	24.2	78.8	91.4	85.0	88.0	92.6	86.3	86.3	86.3	124.8	103.6	86.3	86.0	2427	1446	1446	1464	1464	1463	1536	3269	2444	100.00	0.00	0.00	85.00	85.00	
16/09/2013	18.4	26.0	24.2	63.2	93.5	81.4	86.3	92.1	82.8	82.7	82.8	122.6	102.0	82.8	82.2	2451	1470	1470	1488	1488	1487	1560	3293	2468	100.00	0.00	0.00	81.42	81.42	
17/09/2013	18.4	25.2	24.2	73.5	90.8	82.8	85.5	88.5	84.2	84.1	84.1	114.5	97.2	84.1	79.1	2475	1494	1494	1512	1512	1511	1584	3317	2492	100.00	0.00	0.00	82.81	82.81	
18/09/2013	18.4	25.1	24.2	79.2	90.7	85.2	86.5	86.8	86.5	86.5	86.5	109.1	94.2	86.5	77.5	2499	1518	1518	1536	1536	1535	1608	3341	2516	100.00	0.00	0.00	85.20	85.20	
19/09/2013	0.0	89.4	24.3	0.0	96.5	80.4	82.9	84.7	82.5	82.1	82.5	102.8	93.8	82.4	75.3	2514	1533	1532	1551	1550	1550	1622	3356	2531	99.93	0.02	0.02	48.77	48.81	
20/09/2013	0.0	39.8	24.2	0.0	85.5	83.1	84.4	84.5	84.4	84.4	84.4	105.8	93.7	84.4	76.3	2529	1548	1548	1566	1566	1566	1638	3372	2546	100.00	0.00	0.00	54.20	54.20	
21/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
22/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
23/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
24/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
25/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
26/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
27/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
28/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
29/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
30/09/2013	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	2529	1548	1548	1566	1566	1566	1638	3372	2546	OL	0.00	0.00	0.00	0.00	0.00
<b>Total [ML]:</b>																									0.02	0.02	1626.85	1626.88		

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

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

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