



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

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January 7, 2015

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: DECEMBER 2014 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 summary report for the Water Treatment Plant for December 2014. There are no corrective action reports to be submitted for December 2014.

The December on-line and grab sampling turbidity reports include results obtained for the Water Treatment Plant raw water and the eight filters. You will note that the grab sample result for filter 4 on December 19 was reported as 0.39 NTU however, the maximum result for the on-line sample was 0.22 NTU. The high grab sample result could not be explained. The turbidity results for the effluent from the filters are in compliance with the licence requirements. On December 22, filter 8 was taken out of service for maintenance issues and will likely remain out of service until we have determined the cause for the issues experienced during backwashing. There is currently no impact on any of the treatment process at this time.

The December 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 the summary report for December 2014 in accordance with Section 4.13, Table 2 of the Operating Licence. The UV licence requirement has been met for December.

Please let me know of any concerns or questions respecting this submission. I may be reached by telephone at 204-986-8359 or by e-mail at [rgrosselle@winnipeg.ca](mailto:rgrosselle@winnipeg.ca).

Thanks for your ongoing cooperation and understanding in this matter.

Yours sincerely,

*Original signed by:*

R. Grosselle  
Manager of Environmental Standards

Attachments

c:(e-mail)

Dr. L. Richards, Winnipeg Regional Health Authority  
Dr. H. Chang, Winnipeg Regional Health Authority  
Dr. S. Roberecki, Manitoba Health  
D.P. Sacher, P.Eng  
G. Patton, P.Eng.  
T. Shanks, P.Eng.  
A. J. Weremy, P.Eng.  
C. Diduck

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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 Licence No. PWS-09-412 A	Turbidity (NTU)									
	Date	Raw Water	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5	Filter 6	Filter 7	Filter 8
01-Dec-2014	0.83	0.13	0.11	0.13	0.16	0.17	0.10	0.10	0.11	
02-Dec-2014	0.58	0.11	0.14	0.15	0.12	0.11	0.12	OL	0.12	
03-Dec-2014	0.67	0.12	0.13	0.22	0.13	0.14	0.13	0.13	0.14	
04-Dec-2014	0.75	0.15	0.14	0.14	0.17	0.12	0.12	0.21	0.20	
05-Dec-2014	0.70	0.22	0.17	OL	0.14	0.14	0.16	0.13	0.16	
06-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
07-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
08-Dec-2014	0.66	0.18	0.14	0.17	0.12	0.20	0.15	0.13	0.11	
09-Dec-2014	0.71	0.12	0.12	0.18	0.17	0.20	0.12	0.15	0.14	
10-Dec-2014	0.60	0.11	0.09	0.11	0.13	0.17	0.11	0.14	0.14	
11-Dec-2014	0.68	0.14	0.15	0.13	0.19	0.11	0.19	0.12	0.10	
12-Dec-2014	0.63	0.18	0.13	0.17	0.17	0.14	0.14	0.13	0.12	
13-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
14-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
15-Dec-2014	0.70	0.17	0.14	0.15	0.10	0.11	0.12	0.09	0.09	
16-Dec-2014	0.61	0.15	0.09	0.18	0.16	0.13	0.13	0.14	0.12	
17-Dec-2014	0.67	0.16	0.13	0.13	0.18	0.09	0.12	0.14	0.21	
18-Dec-2014	0.63	OL	0.19	0.14	0.10	0.10	0.10	0.10	0.10	
19-Dec-2014	0.68	0.17	0.12	0.14	0.39	0.11	0.17	0.13	OL	
20-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
21-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
22-Dec-2014	0.61	0.15	0.14	0.15	0.21	0.11	0.14	0.11	OL	
23-Dec-2014	0.67	0.19	0.14	0.21	0.14	0.12	0.17	0.16	OL	
24-Dec-2014	0.80	0.13	0.13	0.27	0.21	0.16	0.13	0.15	OL	
25-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
26-Dec-2014	0.93	0.16	0.14	0.16	OL	0.12	0.15	0.12	OL	
27-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
28-Dec-2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	
29-Dec-2014	0.61	0.21	0.19	0.20	0.24	0.14	0.19	0.15	OL	
30-Dec-2014	0.64	0.26	0.22	0.23	0.17	0.15	0.19	0.15	OL	
31-Dec-2014	0.87	0.20	0.19	0.28	0.22	0.19	0.14	0.16	OL	
Total number of measurements taken, A:	21	22	21	21	22	22	21	14		
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:	21	22	21	20	22	22	21	14		
Compliance with Turbidity Standard, C= B/A X 100%:	100%	100%	100%	95%	100%	100%	100%	100%		

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

**Comments:**

Effective, December 22, 2014, filter 8 has been put offline for maintenance issues.

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck

Date Approved: 6-Jan-15



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

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

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

December 2014 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	Avg	Max
1/12/2014	0.79	0.11	0.20	0.06	0.08	0.06	0.12	0.07	0.19	0.06	0.17	0.05	0.17	0.08	0.10	0.04	0.16		
2/12/2014	0.78	0.09	0.19	0.06	0.14	0.10	0.18	0.07	0.15	0.06	0.10	0.07	0.10	0.00	0.07	0.04	0.11		
3/12/2014	0.80	0.08	0.22	0.06	0.17	0.09	0.21	0.07	0.11	0.09	0.13	0.06	0.15	0.09	0.14	0.05	0.07		
4/12/2014	0.81	0.14	0.19	0.10	0.12	0.09	0.22	0.10	0.21	0.07	0.20	0.06	0.26	0.08	0.21	0.05	0.18		
5/12/2014	0.82	0.10	0.21	0.10	0.18	0.04	0.22	0.10	0.22	0.11	0.13	0.15	0.20	0.09	0.12	0.03	0.18		
6/12/2014	0.82	0.05	0.09	0.07	0.17	0.10	0.22	0.09	0.13	0.08	0.22	0.08	0.26	0.10	0.24	0.06	0.13		
7/12/2014	0.81	0.07	0.14	0.09	0.12	0.10	0.15	0.08	0.22	0.07	0.20	0.07	0.23	0.07	0.21	0.04	0.16		
8/12/2014	0.81	0.04	0.15	0.06	0.17	0.09	0.20	0.07	0.19	0.09	0.12	0.11	0.21	0.07	0.11	0.03	0.11		
9/12/2014	0.83	0.03	0.12	0.05	0.15	0.07	0.18	0.06	0.09	0.07	0.18	0.06	0.21	0.09	0.21	0.04	0.07		
10/12/2014	0.80	0.04	0.09	0.05	0.09	0.07	0.22	0.08	0.19	0.06	0.18	0.06	0.18	0.07	0.19	0.03	0.11		
11/12/2014	0.77	0.04	0.11	0.08	0.14	0.09	0.12	0.06	0.19	0.07	0.10	0.08	0.20	0.06	0.20	0.03	0.12		
12/12/2014	0.75	0.04	0.13	0.06	0.15	0.08	0.18	0.06	0.09	0.09	0.19	0.07	0.21	0.10	0.13	0.03	0.12		
13/12/2014	0.72	0.03	0.05	0.05	0.14	0.06	0.17	0.09	0.20	0.06	0.20	0.09	0.12	0.07	0.20	0.03	0.14		
14/12/2014	0.71	0.04	0.12	0.08	0.10	0.07	0.10	0.06	0.20	0.05	0.18	0.07	0.20	0.06	0.19	0.02	0.13		
15/12/2014	0.72	0.03	0.11	0.06	0.14	0.08	0.16	0.06	0.20	0.09	0.14	0.06	0.21	0.08	0.11	0.01	0.03		
16/12/2014	0.72	0.03	0.12	0.06	0.15	0.07	0.17	0.09	0.11	0.05	0.17	0.07	0.10	0.07	0.19	0.03	0.22		
17/12/2014	0.73	0.05	0.08	0.09	0.11	0.07	0.11	0.08	0.22	0.04	0.18	0.09	0.20	0.06	0.19	0.03	0.14		
18/12/2014	0.81	0.00	0.04	0.02	0.20	0.04	0.19	0.04	0.20	0.03	0.15	0.03	0.09	0.04	0.17	0.01	0.10		
19/12/2014	0.74	0.06	0.11	0.11	0.13	0.10	0.16	0.08	0.22	0.05	0.08	0.08	0.21	0.08	0.19	0.02	0.14		
20/12/2014	0.74	0.05	0.15	0.09	0.21	0.09	0.20	0.08	0.15	0.08	0.16	0.07	0.23	0.09	0.11	0.05	0.24		
21/12/2014	0.73	0.06	0.17	0.11	0.23	0.12	0.22	0.14	0.25	0.08	0.18	0.11	0.14	0.09	0.18	0.00	0.06		
22/12/2014	0.71	0.07	0.12	0.13	0.16	0.11	0.22	0.13	0.25	0.07	0.19	0.10	0.22	0.10	0.21	OL	OL		
23/12/2014	0.72	0.06	0.17	0.14	0.23	0.12	0.16	0.12	0.26	0.07	0.10	0.10	0.22	0.09	0.20	OL	OL		
24/12/2014	0.71	0.06	0.17	0.13	0.25	0.11	0.22	0.14	0.16	0.08	0.19	0.09	0.22	0.11	0.15	OL	OL		
25/12/2014	0.71	0.07	0.10	0.13	0.17	0.10	0.22	0.13	0.26	0.07	0.17	0.12	0.18	0.09	0.21	OL	OL		
26/12/2014	0.73	0.10	0.18	0.12	0.25	0.11	0.15	0.10	0.18	0.06	0.16	0.11	0.16	0.08	0.17	OL	OL		
27/12/2014	0.74	0.14	0.26	0.09	0.20	0.13	0.22	0.09	0.22	0.11	0.16	0.13	0.26	0.10	0.11	OL	OL		
28/12/2014	0.73	0.12	0.25	0.08	0.18	0.12	0.24	0.12	0.21	0.09	0.19	0.15	0.20	0.09	0.20	OL	OL		
29/12/2014	0.76	0.15	0.25	0.12	0.13	0.13	0.17	0.12	0.25	0.09	0.17	0.11	0.27	0.10	0.22	OL	OL		
30/12/2014	0.78	0.11	0.23	0.12	0.23	0.18	0.25	0.12	0.25	0.11	0.14	0.09	0.18	0.09	0.22	OL	OL		
31/12/2014	0.79	0.11	0.25	0.13	0.25	0.12	0.25	0.15	0.17	0.11	0.22	0.09	0.23	0.12	0.18	OL	OL		

Total Number of Measurements Taken, A: 14713      14750      11404      11605      15096      14645      13441      9160  
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: 14713      14750      11404      11605      15096      14645      13441      9160  
Compliance with Turbidity Standard, C = B/A X 100%: 100%      100%      100%      100%      100%      100%      100%      100%

OL: Offline

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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 CHLORINE GRAB MONITORING REPORT**

Water System Code: 252.00 Licence No. PWS-09-412 A	Deacon Booster Pumping Station Branch 1		Deacon Booster Pumping Station Branch 2		
	Date	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Free Chlorine (mg/L)	Total Chlorine (mg/L)
01-Dec-2014		1.11	1.29	1.10	1.25
02-Dec-2014		1.24	1.44	1.25	1.40
03-Dec-2014		1.26	1.39	1.19	1.34
04-Dec-2014		1.21	1.39	1.18	1.33
05-Dec-2014		1.15	1.39	1.14	1.34
06-Dec-2014		NS	NS	NS	NS
07-Dec-2014		NS	NS	NS	NS
08-Dec-2014		1.21	1.39	1.14	1.34
09-Dec-2014		1.20	1.43	1.15	1.40
10-Dec-2014		1.25	1.34	1.23	1.35
11-Dec-2014		1.15	1.32	1.14	1.37
12-Dec-2014		1.19	1.34	1.12	1.34
13-Dec-2014		NS	NS	NS	NS
14-Dec-2014		NS	NS	NS	NS
15-Dec-2014		1.10	1.30	1.18	1.28
16-Dec-2014		1.25	1.44	1.19	1.40
17-Dec-2014		1.12	1.30	1.17	1.39
18-Dec-2014		1.23	1.41	1.26	1.42
19-Dec-2014		1.20	1.37	1.27	1.50
20-Dec-2014		NS	NS	NS	NS
21-Dec-2014		NS	NS	NS	NS
22-Dec-2014		1.13	1.30	1.17	1.42
23-Dec-2014		1.22	1.40	1.12	1.34
24-Dec-2014		1.25	1.36	1.17	1.34
25-Dec-2014		NS	NS	NS	NS
26-Dec-2014		1.22	1.36	1.14	1.24
27-Dec-2014		NS	NS	NS	NS
28-Dec-2014		NS	NS	NS	NS
29-Dec-2014		1.34	1.49	1.30	1.42
30-Dec-2014		1.30	1.48	1.31	1.53
31-Dec-2014		1.22	1.33	1.20	1.39
<b>Total number of measurements taken, A:</b>	22		22		
<b>Chlorine Standard for Monitoring Location (mg/L):</b>	0.50		0.50		
<b>Number of measurements meeting standard, B:</b>	22		22		
<b>Compliance with Chlorine Standard, C= B/A X 100%:</b>	100%		100%		

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

Comments:

Report Compiled By: H.Demchenko

Approved in LIMS By: C.Diduck



**City of Winnipeg**

Water and Waste Department

Water Services

**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 January 2015**

Report Period: December 2014

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
1/12/2014	1.13	1.03	1.14	1.04
2/12/2014	1.22	1.15	1.18	1.13
3/12/2014	1.22	1.16	1.18	1.11
4/12/2014	1.19	1.12	1.16	1.10
5/12/2014	1.17	1.08	1.13	1.07
6/12/2014	1.16	1.10	1.12	1.09
7/12/2014	1.12	1.06	1.08	1.03
8/12/2014	1.15	0.99	1.12	1.02
9/12/2014	1.19	1.11	1.11	1.05
10/12/2014	1.17	1.07	1.08	0.96
11/12/2014	1.14	1.08	1.08	1.01
12/12/2014	1.15	1.08	1.10	1.05
13/12/2014	1.11	1.05	1.10	1.05
14/12/2014	1.08	1.03	1.06	1.01
15/12/2014	1.12	0.98	1.10	1.01
16/12/2014	1.14	1.04	1.14	1.00
17/12/2014	1.10	1.00	1.13	1.04
18/12/2014	1.12	1.08	1.11	1.09
19/12/2014	1.24	1.07	1.18	1.04
20/12/2014	1.11	0.99	1.07	0.92
21/12/2014	1.14	1.07	1.13	1.10
22/12/2014	1.14	1.05	1.12	1.06
23/12/2014	1.14	1.04	1.13	1.09
24/12/2014	1.17	1.05	1.07	0.99
25/12/2014	1.17	1.09	1.05	1.01
26/12/2014	1.18	1.07	1.01	0.96
27/12/2014	1.14	1.07	0.94	0.87
28/12/2014	1.23	1.13	0.99	0.90
29/12/2014	1.30	1.22	1.18	1.09
30/12/2014	1.28	1.19	1.24	1.16
31/12/2014	1.19	1.13	1.21	1.17

Total Number of Measurements, A: 21580 21578

Minimum Free Chlorine Standard: 0.50 0.50

Number of Measurements Meeting Standard, B: 21580 21578

COMPLIANCE, C = B/A X 100%: 100 100

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2014\12-December

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



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

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

## WATER TREATMENT PLANT UV REPORT

Report Period: **December 2014**

Report Created: Thursday, January 01, 2015

Date	Transmittance	UVR-D100A				UVR-D200A				UVR-D300A				UVR-D400A				UVR-D500A				UVR-D600A				Total				% Volume Treated To Dose	
	%	Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]				Water Volume [ML]					
		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		
1/12/2014	93.37	0.00	0.00	58.35	58.35	0.00	0.00	0.00	0.00	0.00	0.00	67.05	67.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.78	63.78	0.00	0.00	189.19	189.19	100.00	
2/12/2014	93.37	0.00	0.00	58.74	58.74	0.00	0.00	0.00	0.00	0.00	0.00	67.39	67.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.87	63.87	0.00	0.00	190.00	190.00	100.00	
3/12/2014	92.64	0.00	0.00	58.78	58.78	0.00	0.00	0.00	0.00	0.00	0.00	67.43	67.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.81	63.81	0.00	0.00	190.02	190.02	100.00	
4/12/2014	93.16	0.00	0.00	58.58	58.58	0.00	0.00	0.00	0.00	0.00	0.00	67.34	67.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.09	64.09	0.00	0.00	190.02	190.02	100.00	
5/12/2014	93.07	0.00	0.00	58.95	58.95	0.00	0.00	0.00	0.00	0.00	0.00	67.86	67.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.62	64.62	0.00	0.00	191.42	191.42	100.00	
6/12/2014	93.10	0.00	0.13	59.88	60.00	0.00	0.00	0.00	0.00	0.00	0.00	68.95	68.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	65.29	65.33	0.00	0.17	194.11	194.28	99.91	
7/12/2014	93.49	0.00	0.48	41.62	42.09	0.00	0.00	0.00	0.00	0.00	0.00	66.63	66.63	0.00	0.04	25.37	25.41	0.00	0.00	0.00	0.00	0.00	0.00	66.55	66.55	0.00	0.52	200.17	200.69	99.74	
8/12/2014	93.69	0.00	0.00	36.90	36.90	0.00	0.00	0.00	0.00	0.00	0.00	64.25	64.25	0.00	0.00	46.98	46.98	0.00	0.00	0.00	0.00	0.00	0.14	57.17	57.31	0.00	0.14	205.30	205.43	99.93	
9/12/2014	93.52	0.00	0.00	66.28	66.28	0.00	0.00	0.00	0.00	0.00	0.00	23.31	23.31	0.00	0.00	50.28	50.28	0.00	0.00	0.00	0.00	0.00	0.00	67.11	67.11	0.00	0.00	206.98	206.98	100.00	
10/12/2014	93.21	0.00	0.00	67.31	67.31	0.00	0.00	0.00	0.00	0.00	0.00	73.30	73.30	0.00	0.00	28.37	28.37	0.00	0.00	38.02	38.02	0.00	0.00	207.00	207.00	100.00					
11/12/2014	93.17	0.00	0.00	58.76	58.76	0.00	0.00	0.00	0.00	0.00	0.00	75.50	75.50	0.00	0.00	63.38	63.38	0.00	0.00	8.66	8.66	0.00	0.00	206.30	206.30	100.00					
12/12/2014	94.28	0.00	0.00	67.03	67.03	0.00	0.00	0.00	0.00	0.00	0.00	72.95	72.95	0.00	0.00	67.05	67.05	0.00	0.00	0.00	0.00	0.00	0.00	207.03	207.03	100.00					
13/12/2014	95.59	0.00	0.00	67.02	67.02	0.00	0.00	0.00	0.00	0.00	0.00	72.85	72.85	0.00	0.00	67.17	67.17	0.00	0.00	0.00	0.00	0.00	0.00	207.03	207.03	100.00					
14/12/2014	95.77	0.00	0.00	66.92	66.92	0.00	0.00	0.00	0.00	0.00	0.00	72.82	72.82	0.00	0.00	67.26	67.26	0.00	0.00	0.00	0.00	0.00	0.00	207.00	207.00	100.00					
15/12/2014	95.75	0.00	0.00	64.44	64.44	0.00	0.00	0.00	0.00	0.00	0.00	52.43	52.43	0.00	0.00	20.39	20.39	0.00	0.00	69.73	69.73	0.00	0.00	0.00	0.00	0.00	0.00	206.99	206.99	100.00	
16/12/2014	95.98	0.04	0.04	36.97	37.06	0.00	0.00	0.00	0.00	0.00	0.00	78.19	78.19	0.00	0.00	0.00	0.00	0.00	0.00	58.61	58.61	0.06	0.06	32.24	32.36	0.10	0.10	206.01	206.21	99.90	
17/12/2014	95.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	41.13	41.13	0.00	0.00	75.64	75.64	0.00	0.00	201.76	201.76	100.00	
18/12/2014	89.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	35.56	35.74	0.05	0.05	0.20	0.29	0.00	0.00	17.42	17.42	0.00	0.00	30.02	30.02	0.14	0.14	83.20	83.48	99.67		
19/12/2014	95.26	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	0.00	0.00	0.00	0.00	42.37	42.37	0.00	0.00	77.52	77.52	0.00	0.00	204.89	204.89	100.00		
20/12/2014	95.51	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	0.00	0.00	0.00	0.00	40.48	40.48	0.00	0.00	72.04	72.04	0.00	0.00	197.53	197.53	100.00		
21/12/2014	95.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.00	40.39	40.39	0.00	0.00	69.66	69.66	0.00	0.00	195.05	195.05	100.00		
22/12/2014	95.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.92	84.92	0.00	0.00	0.00	0.00	0.00	0.00	40.16	40.16	0.00	0.00	68.77	68.77	0.00	0.00	193.85	193.85	100.00		
23/12/2014	95.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.86	35.86	0.00	0.00	43.65	43.65	0.00	0.00	38.49	38.49	0.00	0.00	62.92	62.92	0.00	0.00	180.91	180.91	100.00		
24/12/2014	95.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.81	32.81	0.00	0.00	66.66	66.66	0.01	0.01	12.46	12.48	0.00	0.00	64.05	64.05	0.01	0.01	175.98	176.00	99.99		
25/12/2014	95.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.44	50.44	0.00	0.00	60.53	60.53	0.00	0.00	0.00	0.00	0.05	0.05	67.11	67.11	0.00	0.05	178.03	178.08	99.97		
26/12/2014	95.55	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	49.97	49.97	0.00	0.00	0.00	0.00	0.00	0.00	70.00	70.00	0.00	0.00	184.96	184.96	100.00		
27/12/2014	94.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	69.43	69.43	0.00	0.00	45.55	45.55	0.00	0.00	0.00	0.00	0.00	0.00	70.00	70.00	0.00	0.00	184.97	184.97	100.00		
28/12/2014	94.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.10	76.10	0.00	0.18	26.75	26.94	0.00	0.00	15.07	15.07	0.00	0.10	67.38	67.48	0.00	0.28	185.30	185.59	99.85		
29/12/2014	94.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.55	47.55	0.00	0.00	38.83	38.83	0.00	0.00	51.23	51.23	0.00	0.20	50.15	50.35	0.00	0.20	187.76	187.96	99.89		
30/12/2014	93.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.24	43.24	0.00	0.00	31.79	31.79	0.00	0.00	53.26	53.26	0.00	0.00	30.20	30.20	0.00	0.00	188.03	188.03	100.00		
31/12/2014	93.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	63.97	64.01	0.00	0.00	0.00	0.00	0.00	0.00	65.74	65.74	0.00	0.00	0.00	0.00	0.05	0.05	187.89	187.94	99.98		

### Water Volume [%]:

Untreated: 0.00 %

### Below Dose

To Dose 99.97 %

**Submitted By (Print):** D.Merredew

**Signature:** Original signed by D.Merredew