



Water and Waste Department • Service des eaux et des déchets
Environmental Standards Division • Division des Normes Environnementales

February 7, 2017

Marc Balcaen
Office of Drinking Water
Manitoba Sustainable Development
1007 Century Street
Winnipeg, Manitoba R3H 0W4

Our File: 040-18-18-55-00

Dear Mr. Balcaen:

RE: JANUARY 2017 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 January 2017. There are no corrective actions reports to be submitted for January 2017.

The January 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 met the licence requirements.

The January 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 met the licence requirements.

The January UV summary report includes results obtained for the six UV reactors at the Water Treatment Plant. The UV disinfection results met the licence requirements.

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.

Yours sincerely,

Original signed by:

R. Grosselle
Manager of Environmental Standards

Enclosures

cc: Dr. L. Richards, Winnipeg Regional Health Authority (email)
Dr. H. Chang, Winnipeg Regional Health Authority (email)
Dr. S. Roberecki, Manitoba Health, Seniors and Active Living (email)
M. L. Geer, CPA, CA (email)
G. Patton, P.Eng. (email)
T. Shanks, P.Eng. (email)
M. Szmon, P.Eng. (email)
C. Diduck (email)





CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: **252.00**
 Licence Number: **PWS-09-412-01**

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

January 2017 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
1/01/2017	0.66	0.02	0.06	0.06	0.11	0.00	0.03	0.02	0.02	0.01	0.05	0.01	0.06	0.01	0.06	0.00	0.01
2/01/2017	0.65	0.02	0.03	0.05	0.13	0.00	0.05	0.01	0.05	0.01	0.03	0.01	0.08	0.02	0.05	0.01	0.03
3/01/2017	0.64	0.03	0.09	0.07	0.09	0.00	0.00	0.01	0.08	0.03	0.07	0.01	0.03	0.02	0.08	0.00	0.04
4/01/2017	0.62	0.01	0.04	0.05	0.13	0.00	0.00	0.02	0.02	0.01	0.03	0.01	0.09	0.00	0.03	0.01	0.01
5/01/2017	0.62	0.01	0.02	0.04	0.09	0.00	0.00	0.01	0.03	0.00	0.02	0.00	0.03	0.01	0.03	0.00	0.01
6/01/2017	0.61	0.01	0.03	0.06	0.07	0.00	0.00	0.01	0.02	0.01	0.04	0.01	0.01	0.01	0.03	0.00	0.01
7/01/2017	0.61	0.01	0.02	0.04	0.09	0.00	0.00	0.02	0.03	0.00	0.03	0.01	0.03	0.01	0.01	0.01	0.01
8/01/2017	0.61	0.01	0.03	0.04	0.09	0.00	0.00	0.01	0.03	0.01	0.03	0.00	0.03	0.01	0.05	0.00	0.01
9/01/2017	0.61	0.01	0.05	0.06	0.08	0.00	0.00	0.01	0.02	0.00	0.02	0.01	0.01	0.01	0.03	0.00	0.01
10/01/2017	0.59	0.01	0.04	0.04	0.10	0.00	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.01	0.02	0.01	0.01
11/01/2017	0.58	0.02	0.03	0.04	0.09	0.00	0.00	0.01	0.04	0.01	0.02	0.01	0.03	0.02	0.04	0.00	0.01
12/01/2017	0.68	0.01	0.04	0.06	0.09	0.00	0.01	0.01	0.02	0.01	0.03	0.01	0.01	0.01	0.06	0.00	0.01
13/01/2017	0.59	0.01	0.02	0.04	0.09	0.00	0.02	0.01	0.03	0.01	0.04	0.01	0.04	0.02	0.04	0.01	0.01
14/01/2017	0.57	0.01	0.02	0.05	0.07	0.00	0.00	0.01	0.04	0.01	0.03	0.01	0.05	0.02	0.06	0.00	0.01
15/01/2017	0.56	0.01	0.02	0.05	0.09	0.00	0.04	0.02	0.02	0.01	0.05	0.01	0.02	0.02	0.06	0.00	0.01
16/01/2017	0.55	0.01	0.01	0.04	0.08	0.00	0.04	0.01	0.04	0.01	0.03	0.01	0.05	0.03	0.05	0.01	0.01
17/01/2017	0.56	0.01	0.02	0.05	0.06	0.00	0.01	0.01	0.04	0.01	0.03	0.01	0.01	0.02	0.05	0.00	0.01
18/01/2017	0.59	0.01	0.02	0.05	0.09	0.01	0.06	0.02	0.02	0.01	0.05	0.01	0.05	0.02	0.07	0.01	0.01
19/01/2017	0.57	0.01	0.01	0.04	0.09	0.00	0.06	0.01	0.05	0.01	0.03	0.01	0.05	0.03	0.05	0.01	0.01
20/01/2017	0.56	0.02	0.07	0.03	0.07	0.01	0.04	0.01	0.03	0.01	0.04	0.01	0.03	0.01	0.03	0.00	0.01
21/01/2017	0.57	0.01	0.02	0.01	0.04	0.00	0.00	0.02	0.02	0.00	0.03	0.01	0.05	0.01	0.01	0.01	0.01
22/01/2017	0.57	0.02	0.05	0.01	0.02	0.00	0.00	0.01	0.03	0.01	0.02	0.01	0.05	0.01	0.02	0.00	0.01
23/01/2017	0.57	0.01	0.04	0.01	0.04	0.00	0.00	0.01	0.02	0.00	0.05	0.01	0.02	0.00	0.02	0.00	0.01
24/01/2017	0.57	0.01	0.03	0.01	0.04	0.00	0.00	0.01	0.03	0.00	0.02	0.01	0.04	0.01	0.01	0.01	0.01
25/01/2017	0.57	0.02	0.04	0.01	0.02	0.00	0.00	0.01	0.02	0.00	0.02	0.01	0.04	0.00	0.02	0.00	0.01
26/01/2017	0.56	0.02	0.06	0.02	0.16	0.00	0.00	0.01	0.02	0.00	0.02	0.01	0.02	0.00	0.01	0.00	0.01
27/01/2017	0.56	0.01	0.03	0.01	0.04	0.00	0.00	0.01	0.03	0.00	0.01	0.01	0.03	0.01	0.01	0.01	0.01
28/01/2017	0.55	0.02	0.05	0.01	0.03	0.00	0.00	0.01	0.02	0.00	0.01	0.01	0.03	0.00	0.02	0.00	0.01
29/01/2017	0.56	0.02	0.05	0.02	0.05	0.00	0.01	0.01	0.02	0.01	0.03	0.01	0.02	0.00	0.03	0.00	0.01
30/01/2017	0.55	0.02	0.04	0.02	0.06	0.00	0.02	0.01	0.04	0.00	0.01	0.01	0.05	0.01	0.01	0.01	0.01
31/01/2017	0.56	0.03	0.06	0.02	0.04	0.00	0.00	0.01	0.04	0.01	0.03	0.01	0.05	0.00	0.03	0.00	0.08

Total Number of Measurements Taken, A:	14084	10951	6647	10291	14601	14415	12955	14308
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:	14084	10951	6647	10291	14601	14415	12955	14308
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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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-09-412-01																			
Date	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8		
	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	
01-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
02-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
03-Jan-2017	0.57	0.63	0.10	0.03	0.10	0.08	0.10	<0.02	0.08	<0.02	0.09	0.02	0.10	<0.02	0.12	0.04	0.14	0.03	
04-Jan-2017	0.51	0.61	0.06	<0.02	0.06	0.06	0.09	<0.02	0.06	<0.02	0.09	0.02	0.07	<0.02	0.06	<0.02	0.05	<0.02	
05-Jan-2017	0.53	0.59	0.07	<0.02	0.06	0.06	0.07	<0.02	0.06	<0.02	0.07	<0.02	0.09	0.02	0.08	<0.02	0.07	<0.02	
06-Jan-2017	0.52	0.63	0.07	<0.02	0.06	0.06	0.07	<0.02	0.06	<0.02	0.08	<0.02	0.08	<0.02	0.07	<0.02	0.08	<0.02	
07-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
08-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
09-Jan-2017	0.55	0.59	0.09	<0.02	0.06	0.06	0.06	<0.02	0.06	<0.02	0.06	<0.02	0.07	<0.02	0.07	<0.02	0.06	<0.02	
10-Jan-2017	0.47	0.59	0.08	<0.02	0.09	0.08	0.09	<0.02	0.08	<0.02	O/L	O/L	0.09	<0.02	0.06	<0.02	0.06	<0.02	
11-Jan-2017	0.52	0.56	0.06	<0.02	O/L	O/L	0.06	<0.02	0.10	<0.02	0.06	<0.02	O/L	O/L	0.07	<0.02	0.07	<0.02	
12-Jan-2017	0.70	1.01	0.06	<0.02	0.06	0.06	0.07	<0.02	0.07	<0.02	0.07	<0.02	0.07	<0.02	O/L	O/L	0.06	<0.02	
13-Jan-2017	0.59	0.57	0.06	<0.02	0.07	0.07	O/L	O/L	0.06	<0.02	0.06	<0.02	0.10	<0.02	0.06	<0.02	0.07	<0.02	
14-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
15-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
16-Jan-2017	0.54	0.53	0.06	<0.02	O/L	O/L	0.06	<0.02	0.10	<0.02	0.06	<0.02	0.08	<0.02	0.07	0.02	0.08	<0.02	
17-Jan-2017	0.50	0.54	0.08	<0.02	0.06	0.06	0.07	<0.02	0.06	<0.02	0.07	<0.02	0.09	<0.02	0.07	0.03	O/L	O/L	
18-Jan-2017	0.50	0.54	0.06	<0.02	0.07	0.06	0.09	<0.02	0.08	<0.02	0.09	0.03	0.08	<0.02	0.07	0.02	0.06	<0.02	
19-Jan-2017	0.49	0.56	0.06	<0.02	O/L	O/L	0.06	<0.02	0.09	<0.02	0.08	<0.02	0.10	<0.02	0.07	0.03	0.08	<0.02	
20-Jan-2017	0.53	0.54	0.08	0.02	0.06	<0.02	0.07	<0.02	0.06	<0.02	0.08	<0.02	0.08	<0.02	O/L	O/L	O/L	O/L	
21-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
22-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
23-Jan-2017	0.49	0.55	0.08	0.02	0.08	<0.02	0.07	<0.02	0.06	<0.02	0.08	<0.02	0.07	<0.02	0.07	<0.02	0.09	<0.02	
24-Jan-2017	0.51	0.55	0.07	<0.02	0.09	0.02	0.11	<0.02	0.08	<0.02	0.08	<0.02	0.11	<0.02	0.07	<0.02	0.09	<0.02	
25-Jan-2017	0.53	0.54	0.07	<0.02	0.07	<0.02	0.07	<0.02	0.11	<0.02	0.08	<0.02	0.07	<0.02	0.08	<0.02	0.09	<0.02	
26-Jan-2017	0.52	0.54	0.08	0.02	0.06	0.02	0.08	<0.02	0.07	<0.02	0.07	<0.02	0.08	<0.02	0.07	<0.02	0.08	<0.02	
27-Jan-2017	0.51	0.55	0.06	<0.02	0.07	0.02	O/L	O/L	0.07	<0.02	0.07	<0.02	0.08	<0.02	0.07	<0.02	0.06	<0.02	
28-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
29-Jan-2017	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
30-Jan-2017	0.54	0.53	0.07	0.02	0.11	0.04	0.09	<0.02	0.08	<0.02	0.07	<0.02	0.11	0.03	0.07	<0.02	0.07	<0.02	
31-Jan-2017	0.47	0.53	0.10	0.02	0.07	0.02	0.08	<0.02	0.07	<0.02	0.08	<0.02	0.08	<0.02	0.08	<0.02	0.09	<0.02	
Total number of measurements taken, A:			21		18		19		21		20		20		19		19		
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		18		19		21		20		20		19		19		
Compliance with Turbidity Standard, C= B/A X 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: C.Diduck

Date Approved: 6-Feb-17



WATER TREATMENT PLANT FREE CHLORINE ON-LINE MONITORING REPORT
Deacon Booster Pumping Station

Water System Code: 252.00
Licence Number: PWS-09-412-01
Report Created: 01 February 2017

Report Period: January 2017

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/01/2017	1.12	1.04	1.03	0.97
02/01/2017	1.12	1.08	1.01	0.95
03/01/2017	1.14	1.07	1.02	0.97
04/01/2017	1.15	1.09	1.19	1.01
05/01/2017	1.22	1.10	1.30	1.17
06/01/2017	1.29	1.23	1.26	1.21
07/01/2017	1.28	1.21	1.20	1.11
08/01/2017	1.31	1.26	1.22	1.17
09/01/2017	1.31	1.29	1.23	1.20
10/01/2017	1.28	1.23	1.19	1.15
11/01/2017	1.24	1.20	1.21	1.14
12/01/2017	1.23	1.08	1.24	1.15
13/01/2017	1.11	1.08	1.34	1.29
14/01/2017	1.12	1.08	1.30	1.25
15/01/2017	1.14	1.11	1.26	1.22
16/01/2017	1.12	1.06	1.23	1.16
17/01/2017	1.10	1.07	1.20	1.17
18/01/2017	1.13	1.09	1.19	1.14
19/01/2017	1.14	1.11	1.18	1.14
20/01/2017	1.14	1.11	1.18	1.15
21/01/2017	1.16	1.12	1.20	1.15
22/01/2017	1.18	1.14	1.23	1.19
23/01/2017	1.19	1.15	1.22	1.17
24/01/2017	1.21	1.13	1.20	1.14
25/01/2017	1.37	1.20	1.42	1.12
26/01/2017	1.44	1.14	1.55	1.25
27/01/2017	1.22	1.14	1.25	1.18
28/01/2017	1.20	1.13	1.24	1.04
29/01/2017	1.21	1.13	1.28	1.20
30/01/2017	1.19	1.09	1.29	1.14
31/01/2017	1.16	1.09	1.30	1.20

Total Number of Measurements, A:	21599	21600
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21599	21600

COMPLIANCE, C = B/A X 100%: 100.00 100.00

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Submitted By (Print): D.Carr

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		Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01		Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analysers	Grab	Grab	Analysers	Grab	Grab	
01-Jan-2017	NS	NS	NS	NS	NS	NS	
02-Jan-2017	NS	NS	NS	NS	NS	NS	
03-Jan-2017	1.14	1.16	1.32	1.02	1.05	1.23	
04-Jan-2017	1.13	1.28	1.45	1.17	1.22	1.43	
05-Jan-2017	1.13	1.28	1.42	1.36	1.38	1.56	
06-Jan-2017	1.25	1.35	1.47	1.25	1.22	1.46	
07-Jan-2017	NS	NS	NS	NS	NS	NS	
08-Jan-2017	NS	NS	NS	NS	NS	NS	
09-Jan-2017	1.31	1.30	1.54	1.22	1.21	1.42	
10-Jan-2017	1.30	1.37	1.54	1.22	1.23	1.38	
11-Jan-2017	1.25	1.24	1.42	1.28	1.22	1.44	
12-Jan-2017	1.24	1.20	1.50	1.20	1.23	1.40	
13-Jan-2017	1.11	1.18	1.31	1.35	1.35	1.49	
14-Jan-2017	NS	NS	NS	NS	NS	NS	
15-Jan-2017	NS	NS	NS	NS	NS	NS	
16-Jan-2017	1.12	1.22	1.35	1.23	1.29	1.48	
17-Jan-2017	1.10	1.18	1.36	1.20	1.26	1.38	
18-Jan-2017	1.15	1.22	1.35	1.19	1.27	1.45	
19-Jan-2017	1.13	1.20	1.33	1.19	1.29	1.45	
20-Jan-2017	1.14	1.17	1.33	1.18	1.27	1.43	
21-Jan-2017	NS	NS	NS	NS	NS	NS	
22-Jan-2017	NS	NS	NS	NS	NS	NS	
23-Jan-2017	1.19	1.23	1.42	1.23	1.32	1.54	
24-Jan-2017	1.13	1.23	1.39	1.16	1.30	1.46	
25-Jan-2017	1.18	1.26	1.48	1.35	1.38	1.60	
26-Jan-2017	1.51	1.58	1.80	1.59	1.61	1.96	
27-Jan-2017	1.22	1.23	1.39	1.26	1.30	1.50	
28-Jan-2017	NS	NS	NS	NS	NS	NS	
29-Jan-2017	NS	NS	NS	NS	NS	NS	
30-Jan-2017	1.23	1.34	1.49	1.33	1.41	1.63	
31-Jan-2017	1.14	1.21	1.40	1.24	1.33	1.49	
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: C.Diduck

Date Approved: 6-Feb-17



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
Licence Number: PWS-09-412-01

WATER TREATMENT PLANT UV REPORT

Report Period: January 2017

Report Created: Wednesday, February 01, 2017

Date	Transmittance %	UVR-D100A			UVR-D200A			UVR-D300A			UVR-D400A			UVR-D500A			UVR-D600A			Total			% Volume Treated To Dose			
		Untreated	Below	Total	Untreated	Below	Total	Untreated	Below	Total	Untreated	Below	Total	Untreated	Below	Total	Untreated	Below	Total	Untreated	Below	Total				
01/01/2017	92.55	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	173.00	100.00		
02/01/2017	92.45	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	172.99	100.00		
03/01/2017	92.19	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	174.66	100.00		
04/01/2017	91.84	0.00	0.20	2.56	0.00	49.58	49.58	0.00	0.00	0.00	0.00	18.86	18.86	0.00	0.00	18.65	18.65	0.00	0.00	0.00	0.00	0.20	175.99	99.88		
05/01/2017	91.56	0.00	0.00	25.25	0.00	40.18	40.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	45.18	0.00	0.00	0.00	0.00	0.00	175.30	100.00		
06/01/2017	91.36	0.00	0.00	69.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.05	58.05	0.00	0.00	0.00	0.00	0.00	175.01	100.00		
07/01/2017	91.57	0.00	0.00	69.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.96	43.96	0.00	0.00	0.00	0.00	0.00	174.99	100.00		
08/01/2017	91.66	0.00	0.00	69.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.56	58.56	0.00	0.00	0.00	0.00	0.00	174.97	100.00		
09/01/2017	91.77	0.00	0.00	69.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.46	58.46	0.00	0.00	0.00	0.00	0.00	174.99	100.00		
10/01/2017	91.62	0.00	0.00	69.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.48	58.48	0.00	0.00	0.00	0.00	0.00	175.00	100.00		
11/01/2017	92.50	0.00	0.00	69.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.88	31.88	0.00	0.00	0.00	0.00	0.00	175.02	100.00		
12/01/2017	93.17	0.00	0.00	68.62	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	0.00	0.00	0.00	0.00	175.09	99.69		
13/01/2017	93.28	0.00	0.00	47.66	0.00	47.66	47.66	0.00	0.00	0.00	0.00	29.16	29.16	0.00	0.00	26.36	26.36	0.00	0.00	0.00	0.00	0.00	174.73	99.84		
14/01/2017	93.12	0.00	0.00	47.17	0.00	47.17	47.17	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	0.00	174.98	100.00		
15/01/2017	93.16	0.00	0.00	46.98	0.00	46.98	46.98	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	0.00	174.97	100.00		
16/01/2017	93.16	0.00	0.00	48.82	0.00	48.82	48.82	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	0.00	175.03	100.00		
17/01/2017	93.28	0.00	0.00	47.82	0.00	47.82	47.82	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	0.00	178.00	100.00		
18/01/2017	93.18	0.00	0.00	48.02	0.00	48.02	48.02	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	0.00	177.86	100.00		
19/01/2017	93.16	0.00	0.00	46.58	0.00	46.58	46.58	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	0.00	178.01	100.00		
20/01/2017	93.20	0.00	0.00	46.66	0.00	46.66	46.66	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	0.00	177.97	100.00		
21/01/2017	93.20	0.00	0.00	46.79	0.00	46.79	46.79	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	0.00	178.02	100.00		
22/01/2017	93.27	0.00	0.00	46.85	0.00	46.85	46.85	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	0.00	180.49	100.00		
23/01/2017	93.27	0.00	0.00	47.55	0.00	47.55	47.55	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	0.00	180.49	100.00		
24/01/2017	93.27	0.00	0.00	48.36	0.00	48.36	48.36	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	0.00	183.02	100.00		
25/01/2017	93.32	0.00	0.00	48.37	0.00	48.37	48.37	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	0.00	183.02	100.00		
26/01/2017	93.28	0.00	0.00	49.75	0.00	49.75	49.75	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	0.00	188.25	100.00		
27/01/2017	93.27	0.00	0.00	50.96	0.00	50.96	50.96	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	0.00	192.64	99.83		
28/01/2017	93.08	0.00	0.00	47.80	0.00	47.80	47.80	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	0.00	181.04	99.82		
29/01/2017	93.08	0.00	0.00	47.38	0.00	47.38	47.38	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	0.00	179.99	100.00		
30/01/2017	92.96	0.00	0.00	47.40	0.00	47.40	47.40	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	0.00	180.01	100.00		
31/01/2017	92.90	0.00	0.00	46.81	0.00	46.81	46.81	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	0.00	178.52	100.00		
Total (mL):		0.00	0.20	1420.27	0.00	1289.36	1289.36	0.00	0.00	1386.13	1386.13	0.21	0.28	222.20	222.69	0.04	0.93	713.79	714.76	0.00	0.00	478.96	478.96	1.42	5510.70	5512.38

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

Submitted By (Print): D. Carr

Signature: D. Merredew