



Water and Waste Eaux et déchets

Derek Clarke, Drinking Water Officer
Office of Drinking Water, Manitoba Sustainable Development
Box 6000
Gimli, MB R0C 1B0

September 6, 2019

RE: AUGUST 2019 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 August 2019.

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 filter effluent met 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 met the licence requirements.

The August 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 can 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

August 2019 Turbidity (NTU)

	Raw	Filter #1		Filter #2		Filter #3		Filter #4		Filter #5		Filter #6		Filter #7		Filter #8	
Date	Avg	Avg	Max														
1/08/2019	1.51	0.06	0.14	0.06	0.14	0.06	0.15	0.07	0.15	0.07	0.16	0.07	0.15	0.13	0.19	0.10	0.20
2/08/2019	1.43	0.01	0.07	0.00	0.01	0.03	0.09	0.06	0.12	0.05	0.10	0.06	0.10	0.06	0.11	0.07	0.16
3/08/2019	1.47	0.01	0.04	0.00	0.03	0.03	0.09	0.05	0.12	0.04	0.09	0.05	0.12	0.06	0.11	0.07	0.14
4/08/2019	1.95	0.02	0.07	0.00	0.02	0.04	0.06	0.06	0.08	0.05	0.10	0.05	0.12	0.05	0.12	0.07	0.15
5/08/2019	2.71	0.02	0.10	0.00	0.03	0.04	0.10	0.07	0.13	0.05	0.11	0.05	0.11	0.06	0.08	0.08	0.11
6/08/2019	1.90	0.03	0.10	0.00	0.06	0.05	0.12	0.08	0.15	0.07	0.08	0.06	0.08	0.08	0.13	0.08	0.16
7/08/2019	2.37	0.03	0.06	0.01	0.03	0.05	0.13	0.08	0.16	0.06	0.14	0.08	0.15	0.08	0.16	0.09	0.17
8/08/2019	2.29	0.04	0.11	0.01	0.06	0.06	0.16	0.08	0.12	0.06	0.14	0.07	0.15	0.07	0.16	0.08	0.17
9/08/2019	2.18	0.04	0.11	0.01	0.08	0.06	0.14	0.08	0.17	0.06	0.13	0.07	0.14	0.08	0.11	0.10	0.15
10/08/2019	2.10	0.03	0.09	0.00	0.05	0.04	0.08	0.07	0.15	0.07	0.10	0.07	0.11	0.08	0.15	0.08	0.17
11/08/2019	2.01	0.03	0.04	0.00	0.02	0.04	0.13	0.07	0.16	0.06	0.12	0.08	0.13	0.07	0.16	0.08	0.17
12/08/2019	1.91	0.05	0.10	0.01	0.05	0.05	0.10	0.08	0.16	0.06	0.12	0.07	0.13	0.07	0.16	0.08	0.17
13/08/2019	2.10	0.04	0.11	0.01	0.05	0.05	0.14	0.09	0.14	0.06	0.13	0.07	0.13	0.07	0.14	0.09	0.12
14/08/2019	3.42	0.03	0.06	0.00	0.05	0.04	0.10	0.07	0.18	0.06	0.08	0.06	0.10	0.08	0.12	0.08	0.16
15/08/2019	2.28	0.03	0.05	0.01	0.02	0.05	0.13	0.08	0.22	0.06	0.12	0.08	0.12	0.07	0.15	0.09	0.17
16/08/2019	3.06	0.05	0.10	0.01	0.06	0.06	0.09	0.08	0.17	0.06	0.12	0.07	0.14	0.07	0.14	0.08	0.16
17/08/2019	3.52	0.04	0.09	0.01	0.07	0.06	0.11	0.10	0.17	0.06	0.13	0.07	0.13	0.06	0.16	0.09	0.12
18/08/2019	3.38	0.04	0.11	0.01	0.07	0.06	0.15	0.09	0.16	0.06	0.09	0.06	0.10	0.08	0.12	0.08	0.16
19/08/2019	2.58	0.04	0.06	0.02	0.04	0.06	0.16	0.09	0.18	0.06	0.12	0.08	0.13	0.07	0.16	0.08	0.14
20/08/2019	2.05	0.06	0.12	0.03	0.08	0.07	0.12	0.10	0.14	0.06	0.13	0.07	0.13	0.07	0.16	0.08	0.16
21/08/2019	2.16	0.05	0.12	0.02	0.08	0.06	0.15	0.10	0.18	0.06	0.09	0.07	0.14	0.08	0.10	0.10	0.14
22/08/2019	2.12	0.05	0.12	0.03	0.05	0.06	0.16	0.09	0.18	0.07	0.13	0.09	0.11	0.08	0.17	0.09	0.16
23/08/2019	2.13	0.07	0.09	0.04	0.10	0.07	0.09	0.08	0.19	0.07	0.13	0.08	0.22	0.08	0.16	0.09	0.17
24/08/2019	2.13	0.07	0.14	0.05	0.12	0.09	0.16	0.12	0.17	0.07	0.14	0.08	0.15	0.07	0.10	0.10	0.12
25/08/2019	2.12	0.06	0.14	0.05	0.11	0.08	0.18	0.11	0.20	0.08	0.10	0.07	0.10	0.09	0.18	0.09	0.17
26/08/2019	2.22	0.04	0.08	0.04	0.07	0.06	0.15	0.09	0.17	0.07	0.11	0.08	0.14	0.07	0.14	0.08	0.16
27/08/2019	2.06	0.05	0.11	0.04	0.10	0.07	0.10	0.09	0.12	0.06	0.12	0.07	0.13	0.06	0.13	0.07	0.15
28/08/2019	2.09	0.04	0.09	0.03	0.08	0.06	0.16	0.09	0.18	0.06	0.11	0.07	0.14	0.08	0.09	0.09	0.11
29/08/2019	1.81	0.03	0.09	0.02	0.04	0.05	0.13	0.08	0.16	0.08	0.12	0.08	0.15	0.07	0.15	0.08	0.19
30/08/2019	1.83	0.04	0.06	0.03	0.07	0.06	0.09	0.08	0.10	0.05	0.16	0.07	0.17	0.06	0.13	0.07	0.14
31/08/2019	2.04	0.04	0.11	0.03	0.08	0.07	0.14	0.10	0.16	0.06	0.08	0.06	0.13	0.07	0.08	0.09	0.13

Total Number of Measurements Taken, A: 13104 10163 14338 14990 15449 15758 15488 16910
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: 13104 10163 14338 14990 15449 15758 15488 16910
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%

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\08-August

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



Water and Waste
Eaux et déchets

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENVIRONMENTAL STANDARDS DIVISION

WATER TREATMENT PLANT TURBIDITY GRAB MONITORING REPORT

Water System Code: 252.00	Turbidity (NTU)																	
	Raw Water		Filter 1		Filter 2		Filter 3		Filter 4		Filter 5		Filter 6		Filter 7		Filter 8	
Date	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser	Grab	Analyser
01-Aug-2019	1.49	1.48	OL	OL	0.15	0.13	0.18	0.14	0.16	0.10	0.12	0.11	0.13	0.10	0.14	0.16	0.14	0.12
02-Aug-2019	1.49	1.49	0.11	0.02	0.12	<0.02	0.12	0.05	OL	OL	0.14	0.06	0.14	0.07	0.15	0.06	0.19	0.10
03-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
04-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
05-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
06-Aug-2019	1.71	1.55	0.13	0.03	0.14	<0.02	OL	OL	0.17	0.10	0.13	0.07	0.14	0.07	0.15	0.07	0.16	0.09
07-Aug-2019	1.93	1.72	0.16	0.05	0.16	<0.02	0.17	0.08	0.18	0.08	0.19	0.09	0.20	0.09	0.27	0.15	0.18	0.08
08-Aug-2019	1.98	1.77	0.17	0.05	0.19	0.02	0.17	0.08	0.17	0.08	0.15	0.06	OL	OL	0.16	0.06	0.16	0.08
09-Aug-2019	1.88	1.83	OL	OL	OL	OL	0.20	0.10	0.18	0.10	0.14	0.07	0.15	0.07	0.17	0.07	0.18	0.09
10-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
11-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
12-Aug-2019	2.37	1.69	0.17	0.06	0.19	0.02	0.17	0.08	0.19	0.09	OL	OL	0.24	0.11	0.19	0.07	0.16	0.08
13-Aug-2019	2.16	1.97	0.18	0.06	OL	OL	0.18	0.08	0.20	0.09	0.15	0.06	0.15	0.08	0.15	0.07	0.17	0.09
14-Aug-2019	2.16	NR	0.14	0.03	0.16	<0.02	OL	OL	0.22	0.14	0.16	0.07	0.14	0.07	0.18	0.06	0.17	0.09
15-Aug-2019	2.09	2.21	0.17	0.04	0.16	<0.02	0.16	0.08	0.15	0.09	0.17	0.08	0.18	0.09	0.20	0.10	OL	OL
16-Aug-2019	2.25	2.66	0.17	0.05	0.18	0.02	0.17	0.09	0.17	0.10	OL	OL	0.21	0.11	0.16	0.07	0.16	0.08
17-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
18-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
19-Aug-2019	2.42	2.13	0.16	0.05	0.17	0.02	0.19	0.09	0.21	0.09	0.18	0.08	0.16	0.08	0.18	0.09	OL	OL
20-Aug-2019	2.00	2.06	0.19	0.07	0.21	0.05	0.19	0.10	0.18	0.10	0.13	0.08	OL	OL	0.15	0.07	0.16	0.08
21-Aug-2019	2.41	2.08	OL	OL	OL	OL	0.22	0.11	0.21	0.12	0.15	0.07	0.15	0.08	0.16	0.07	0.16	0.09
22-Aug-2019	2.39	2.10	0.17	<0.02	0.18	0.03	0.18	0.09	OL	OL	0.19	0.08	0.18	0.09	0.21	0.10	0.25	0.14
23-Aug-2019	2.01	2.00	0.18	0.07	0.20	0.04	0.20	0.10	0.18	0.10	OL	OL	0.20	0.10	OL	OL	0.16	0.09
24-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
25-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
26-Aug-2019	1.94	1.84	0.16	0.05	0.17	0.05	0.17	0.09	0.18	0.11	0.15	0.08	0.16	0.08	0.18	0.08	OL	OL
27-Aug-2019	1.93	1.95	0.20	0.06	0.20	0.06	0.18	0.10	0.18	0.10	OL	OL	0.19	0.10	0.17	0.06	0.14	0.07
28-Aug-2019	2.09	1.78	0.20	0.08	OL	OL	0.18	0.10	0.16	0.10	0.14	0.07	0.15	0.08	0.15	0.06	0.15	0.09
29-Aug-2019	1.93	1.76	0.13	0.03	0.14	0.03	0.13	0.08	OL	OL	0.17	0.08	0.16	0.09	0.21	0.08	0.23	0.14
30-Aug-2019	1.76	1.75	0.14	0.04	0.15	0.04	0.14	0.09	0.13	0.09	0.16	0.09	0.16	0.09	OL	OL	0.12	0.07
31-Aug-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total number of measurements taken, A:			18		17		19		18		17		19		19		18	
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:			18		17		19		18		17		19		19		18	
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: The raw water analyser is cleaned daily during warm water months because it is susceptible to frequent fouling.

NR: instrument malfunction

Report Compiled By: N. Crawford

Authorized in Sample Manager By: C. Diduck

Date Authorized: 6-Sep-19



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-09-412-01**

Report Created: 01 September 2019

Report Period: August 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/08/2019	1.48	1.34	1.46	1.38
02/08/2019	1.42	1.21	1.32	1.13
03/08/2019	1.31	1.18	1.25	1.13
04/08/2019	1.48	1.38	1.41	1.32
05/08/2019	1.37	1.26	1.31	1.20
06/08/2019	1.29	1.22	1.25	1.17
07/08/2019	1.39	1.30	1.33	1.26
08/08/2019	1.42	1.35	1.35	1.30
09/08/2019	1.48	1.33	1.43	1.29
10/08/2019	1.58	1.48	1.52	1.40
11/08/2019	1.47	1.35	1.41	1.34
12/08/2019	1.40	1.31	1.42	1.36
13/08/2019	1.35	1.21	1.45	1.36
14/08/2019	1.37	1.23	1.41	1.27
15/08/2019	1.38	1.25	1.51	1.40
16/08/2019	1.30	1.22	1.42	1.34
17/08/2019	1.34	1.24	1.38	1.32
18/08/2019	1.31	1.21	1.38	1.30
19/08/2019	1.34	1.23	1.38	1.30
20/08/2019	1.24	1.11	1.34	1.29
21/08/2019	1.39	1.20	1.48	1.31
22/08/2019	1.63	1.32	1.68	1.30
23/08/2019	1.40	1.27	1.49	1.38
24/08/2019	1.27	1.12	1.34	1.21
25/08/2019	1.33	1.02	1.37	1.12
26/08/2019	1.37	1.21	1.44	1.28
27/08/2019	1.28	1.19	1.38	1.32
28/08/2019	1.36	1.29	1.42	1.32
29/08/2019	1.43	1.37	1.51	1.45
30/08/2019	1.27	1.04	1.35	1.14
31/08/2019	1.23	0.99	1.25	1.07

Total Number of Measurements, A: 21599 21599

Minimum Free Chlorine Standard: 0.5 0.5

Number of Measurements Meeting Standard, B: 21599 21599

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

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\08-August

Submitted By (Print): D. Minor

Signature: Original signed by D. Minor



Water and Waste
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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		
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Aug-2019	1.48	1.48	1.6	1.52	1.51	1.69
02-Aug-2019	1.53	1.45	1.65	1.42	1.44	1.6
03-Aug-2019	NA	NA	NA	NA	NA	NA
04-Aug-2019	NA	NA	NA	NA	NA	NA
05-Aug-2019	NA	NA	NA	NA	NA	NA
06-Aug-2019	1.33	1.37	1.54	1.29	1.34	1.54
07-Aug-2019	1.37	1.43	1.68	1.29	1.47	1.63
08-Aug-2019	1.39	1.5	1.7	1.33	1.47	1.66
09-Aug-2019	1.44	1.45	1.69	1.35	1.45	1.65
10-Aug-2019	NA	NA	NA	NA	NA	NA
11-Aug-2019	NA	NA	NA	NA	NA	NA
12-Aug-2019	1.38	1.42	1.61	1.41	1.47	1.6
13-Aug-2019	1.34	1.45	1.67	1.47	1.53	1.64
14-Aug-2019	1.41	1.48	1.66	1.36	1.53	1.68
15-Aug-2019	1.47	1.54	1.72	1.54	1.57	1.74
16-Aug-2019	1.36	1.47	1.66	1.48	1.58	1.74
17-Aug-2019	NA	NA	NA	NA	NA	NA
18-Aug-2019	NA	NA	NA	NA	NA	NA
19-Aug-2019	1.4	1.47	1.63	1.44	1.49	1.65
20-Aug-2019	1.21	1.25	1.43	1.31	1.37	1.53
21-Aug-2019	1.24	1.35	1.49	1.35	1.45	1.58
22-Aug-2019	1.75	1.44	1.57	1.75	1.46	1.61
23-Aug-2019	1.3	1.32	1.49	1.41	1.48	1.65
24-Aug-2019	NA	NA	NA	NA	NA	NA
25-Aug-2019	NA	NA	NA	NA	NA	NA
26-Aug-2019	1.29	1.32	1.52	1.37	1.44	1.56
27-Aug-2019	1.25	1.41	1.59	1.41	1.46	1.62
28-Aug-2019	1.33	1.38	1.58	1.38	1.55	1.67
29-Aug-2019	1.48	1.45	1.63	1.54	1.56	1.73
30-Aug-2019	1.38	1.3	1.5	1.42	1.49	1.62
31-Aug-2019	NA	NA	NA	NA	NA	NA
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: N. Crawford

Authorized By: C.Diduck



Report Period: August 2019

Report Created: Sunday, September 01, 2019

Date	Transmittance %	UVR-D100A			UVR-D200A			UVR-D300A			UVR-D400A			UVR-D500A			UVR-D600A			Total										
		UV/Tang	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total	Untreated	Below	To	Total								
01/08/2019	96.73	0.00	0.05	43.92	43.97	0.00	0.00	31.85	31.85	0.00	0.04	18.65	18.70	0.00	0.00	44.84	44.84	0.00	0.00	1.68	1.68	0.00	0.39	75.65	76.03	0.00	0.48	216.59	217.07	99.78
02/08/2019	96.80	0.00	0.00	0.00	0.00	0.00	0.00	79.15	79.15	0.00	0.04	41.93	41.98	0.00	0.00	23.27	23.27	0.00	0.00	0.69	0.69	0.00	0.35	81.04	81.04	0.00	0.74	224.70	225.44	99.67
03/08/2019	96.77	0.00	0.00	0.00	0.00	0.00	0.00	81.96	81.96	0.00	0.00	48.18	48.18	0.00	0.00	29.84	29.84	0.00	0.00	0.47	84.52	84.99	0.00	0.47	244.50	244.98	99.81			
04/08/2019	96.68	0.00	0.00	0.00	0.00	0.00	0.00	79.46	79.46	0.00	0.00	52.30	52.30	0.00	0.00	17.91	17.91	0.00	0.00	1.89	82.93	84.82	0.00	0.40	232.60	234.49	99.19			
05/08/2019	96.53	0.00	0.00	0.00	0.00	0.00	0.00	77.98	77.98	0.00	0.00	63.50	63.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	223.90	224.30	99.82			
06/08/2019	96.30	0.00	0.00	0.00	0.00	0.00	0.00	77.10	77.10	0.00	0.00	63.84	63.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	222.68	222.98	99.86			
07/08/2019	96.16	0.00	0.00	0.00	0.00	0.00	0.00	76.97	76.97	0.00	0.05	64.22	64.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	222.26	222.99	99.67			
08/08/2019	96.30	0.00	0.00	0.00	0.00	0.00	0.00	76.98	76.98	0.00	0.00	64.26	64.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	222.73	223.02	99.87			
09/08/2019	96.09	0.00	0.00	0.00	0.00	0.00	0.00	75.68	75.68	0.00	0.28	73.31	73.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	232.32	232.77	99.81			
10/08/2019	96.24	0.00	0.00	0.00	0.00	0.00	0.00	75.44	75.44	0.00	0.17	81.42	81.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	241.13	242.02	99.63			
11/08/2019	96.42	0.00	0.00	0.00	0.00	0.00	0.00	70.52	70.52	0.00	0.26	75.35	75.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	227.01	227.96	99.58			
12/08/2019	96.28	0.00	0.00	0.00	0.00	0.00	0.00	69.60	69.60	0.00	0.32	74.22	74.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	223.92	225.02	99.51			
13/08/2019	96.35	0.00	0.00	0.00	0.00	0.00	0.00	76.53	76.53	0.00	0.09	65.98	66.07	0.00	0.00	49.04	49.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	223.98	225.05	99.98	
14/08/2019	96.63	0.00	0.00	65.42	65.42	0.00	0.00	49.49	49.49	0.00	1.29	19.76	21.06	0.00	0.06	83.41	83.47	0.00	0.00	0.79	0.79	0.00	0.06	1.19	1.24	0.00	1.41	220.06	221.47	99.36
15/08/2019	96.43	0.00	0.04	67.55	67.59	0.00	0.00	35.31	35.31	0.00	0.00	0.00	0.00	0.00	0.00	74.10	74.10	0.00	0.00	42.75	42.75	0.00	0.04	0.15	0.19	0.00	0.09	219.87	219.95	99.96
16/08/2019	96.39	0.00	0.20	71.36	71.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.96	72.96	0.00	0.00	79.64	79.64	0.00	0.00	0.01	0.00	0.20	223.96	224.16	99.91	
17/08/2019	96.34	0.00	0.25	35.59	35.84	0.00	0.00	36.97	36.97	0.00	0.00	0.00	0.00	0.00	0.00	73.47	73.47	0.00	0.00	79.75	79.75	0.00	0.00	0.00	0.00	0.25	225.77	226.02	99.89	
18/08/2019	96.39	0.00	0.00	70.15	70.15	0.00	0.00	0.00	0.00	0.00	0.00	69.82	69.82	0.00	0.00	73.67	73.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	213.84	213.64	100.00	
19/08/2019	96.56	0.00	0.00	67.68	67.68	0.00	0.00	0.00	0.00	0.00	0.00	67.95	67.95	0.00	0.00	70.12	70.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	205.75	205.75	100.00	
20/08/2019	96.57	0.00	0.10	43.06	43.16	0.00	0.00	25.35	25.35	0.00	0.00	0.00	0.00	0.00	0.00	69.87	69.87	0.00	0.00	72.57	72.57	0.00	0.00	0.00	0.00	0.10	210.86	210.95	99.95	
21/08/2019	96.66	0.00	0.43	45.83	46.26	0.00	0.00	0.00	0.00	0.00	0.00	19.32	19.32	0.00	0.00	72.16	72.16	0.00	0.00	78.23	78.23	0.00	0.00	0.00	0.00	0.43	215.64	215.98	99.80	
22/08/2019	96.63	0.00	0.10	29.62	29.72	0.00	0.00	0.00	0.00	0.00	0.00	33.36	33.36	0.00	0.00	72.95	72.95	0.00	0.16	50.19	50.34	0.06	0.06	30.54	30.66	0.32	216.66	217.04	99.93	
23/08/2019	96.63	0.00	0.29	63.77	64.06	0.00	0.00	36.12	36.12	0.00	0.00	0.11	0.11	36.18	36.39	0.01	0.06	0.36	0.43	0.00	0.06	80.77	80.83	0.12	0.51	217.20	217.83	99.71		
24/08/2019	96.64	0.00	0.00	59.04	59.04	0.00	0.00	73.94	73.94	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	0.00	0.00	0.00	218.00	218.00	100.00	
25/08/2019	96.09	0.00	0.00	60.14	60.14	0.00	0.00	72.58	72.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.78	84.84	0.00	0.06	217.50	217.56	99.97				
26/08/2019	97.37	0.00	0.00	30.00	30.00	0.00	0.00	79.78	79.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.19	23.19	0.00	0.12	83.14	83.26	0.00	0.12	216.11	216.22	99.95	
27/08/2019	97.31	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	0.00	0.00	0.00	45.24	45.24	0.00	0.11	81.79	81.90	0.00	0.11	212.02	212.14	99.95	
28/08/2019	97.64	0.00	0.00	0.00	0.00	0.00	0.00	80.66	80.66	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.16	14.83	15.13	0.00	0.11	76.01	76.11	0.14	0.27	200.74	201.15	99.79		
29/08/2019	97.77	0.00	0.00	0.00	0.00	0.00	0.00	78.18	78.34	0.00	0.00	44.64	44.64	0.00	0.00	0.00	0.00	0.00	0.00	0.05	74.97	75.03	0.00	0.22	197.79	198.01	99.89			
30/08/2019	98.15	0.00	0.43	44.16	44.59	0.00	0.27	22.52	22.78	0.00	0.10	0.00	0.00	0.00	0.00	51.47	51.50	0.00	0.16	22.26	22.42	0.10	1.00	183.31	184.41	99.41				
31/08/2019	98.18	0.00	0.25	59.75	60.00	0.00	0.00	0.00	0.00	0.00	0.00	42.66	42.66	0.00	0.00	74.10	74.10	0.00	0.00	0.00	0.00	0.00	0.00	0.25	176.51	176.76	99.86			

Total [ML]: 0.00 2.14 719.20 721.34 0.00 0.43 1712.94 1713.37 0.00 0.27 957.78 958.25 0.15 0.42 758.58 759.14 0.06 10.14 1681.07 1691.27 0.42 16.08 674.62 675.12 99.86

Water Volume [%]:

Untreated: 0.01 %

Below Dose: 0.24 %

To Dose: 99.76 %

Notes: 1. UV Comparative Dose: 18.1 mJ/cm²

Signature: Original Signed by D. Minor