



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

December 6, 2019

RE: NOVEMBER 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 November 2019.

The November 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 November 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 November 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

November 2019 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
1/11/2019	0.72	0.06	0.09	0.09	0.12	OL	OL	0.03	0.06	0.00	0.01	0.04	0.07	0.10	0.13	0.05	0.07
2/11/2019	0.71	0.07	0.08	0.11	0.13	OL	OL	0.04	0.07	0.00	0.01	0.04	0.07	0.11	0.14	0.05	0.08
3/11/2019	0.72	0.08	0.10	0.10	0.14	OL	OL	0.04	0.07	0.00	0.01	0.04	0.07	0.11	0.16	0.05	0.07
4/11/2019	0.72	0.07	0.10	0.10	0.14	OL	OL	0.05	0.08	0.00	0.01	0.04	0.08	0.11	0.16	0.05	0.08
5/11/2019	0.69	0.07	0.11	0.11	0.14	OL	OL	0.05	0.08	0.00	0.01	0.04	0.08	0.14	0.15	0.05	0.08
6/11/2019	0.69	0.07	0.11	0.11	0.16	OL	OL	0.05	0.09	0.00	0.00	0.05	0.08	0.14	0.17	0.05	0.08
7/11/2019	0.67	0.08	0.12	0.12	0.15	OL	OL	0.05	0.09	0.00	0.01	0.05	0.08	0.14	0.19	0.05	0.08
8/11/2019	0.65	0.09	0.10	0.12	0.16	OL	OL	0.06	0.11	0.00	0.05	0.04	0.08	0.14	0.19	0.05	0.08
9/11/2019	0.63	0.06	0.10	0.07	0.10	OL	OL	0.08	0.10	0.00	0.01	0.04	0.13	0.04	0.06	0.05	0.08
10/11/2019	0.63	0.06	0.10	0.07	0.11	OL	OL	0.08	0.12	0.01	0.07	0.05	0.09	0.04	0.05	0.06	0.08
11/11/2019	0.63	0.06	0.10	0.07	0.10	OL	OL	0.09	0.16	0.04	0.07	0.05	0.07	0.04	0.06	0.05	0.08
12/11/2019	0.63	0.06	0.11	0.08	0.09	OL	OL	0.11	0.17	0.03	0.07	0.05	0.08	0.04	0.06	0.05	0.08
13/11/2019	0.62	0.07	0.09	0.07	0.11	OL	OL	0.12	0.16	0.03	0.07	0.04	0.09	0.04	0.07	0.05	0.09
14/11/2019	0.62	0.06	0.09	0.06	0.10	OL	OL	0.11	0.18	0.04	0.07	0.05	0.10	0.04	0.07	0.06	0.08
15/11/2019	0.61	0.06	0.09	0.07	0.12	OL	OL	0.02	0.06	0.03	0.07	0.05	0.09	0.04	0.06	0.06	0.09
16/11/2019	0.61	0.06	0.09	0.06	0.11	OL	OL	0.02	0.06	0.04	0.06	0.05	0.08	0.04	0.08	0.06	0.09
17/11/2019	0.62	0.06	0.09	0.07	0.09	OL	OL	0.02	0.06	0.03	0.07	0.06	0.10	0.04	0.07	0.06	0.09
18/11/2019	0.61	0.07	0.08	0.07	0.10	OL	OL	0.03	0.05	0.03	0.07	0.06	0.10	0.04	0.08	0.06	0.12
19/11/2019	0.60	0.06	0.11	0.06	0.11	OL	OL	0.03	0.07	0.03	0.07	0.06	0.12	0.04	0.06	0.07	0.09
20/11/2019	0.58	0.05	0.09	0.06	0.11	OL	OL	0.03	0.06	0.04	0.05	0.06	0.11	0.04	0.07	0.05	0.23
21/11/2019	0.56	0.06	0.08	0.08	0.10	OL	OL	0.03	0.06	0.04	0.08	0.07	0.11	0.04	0.08	0.05	0.09
22/11/2019	0.55	0.06	0.09	0.06	0.10	OL	OL	0.03	0.04	0.03	0.07	0.06	0.15	0.04	0.07	0.04	0.09
23/11/2019	0.55	0.05	0.09	0.06	0.10	OL	OL	0.03	0.07	0.03	0.07	0.06	0.11	0.04	0.06	0.06	0.07
24/11/2019	0.56	0.05	0.10	0.06	0.10	OL	OL	0.02	0.06	0.04	0.06	0.06	0.11	0.04	0.08	0.05	0.08
25/11/2019	0.54	0.05	0.09	0.06	0.10	OL	OL	0.02	0.06	0.03	0.07	0.08	0.11	0.04	0.07	0.04	0.09
26/11/2019	0.56	0.06	0.07	0.07	0.10	OL	OL	0.02	0.13	0.03	0.08	0.07	0.12	0.04	0.07	0.05	0.08
27/11/2019	0.55	0.06	0.10	0.06	0.10	0.01	0.08	0.03	0.11	0.03	0.08	0.06	0.13	0.03	0.08	0.04	0.10
28/11/2019	0.53	0.05	0.11	0.05	0.11	0.02	0.04	0.03	0.06	0.04	0.06	0.06	0.11	0.05	0.06	0.05	0.08
29/11/2019	0.54	0.06	0.09	0.08	0.10	0.02	0.07	0.04	0.12	0.05	0.13	0.12	0.19	0.05	0.10	0.05	0.12
30/11/2019	0.52	0.08	0.16	0.07	0.16	0.03	0.05	0.03	0.06	0.02	0.14	0.10	0.21	0.06	0.12	0.06	0.13

Total Number of Measurements Taken, A:	12438	14167	1400	14926	10056	15569	14698	16446
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:	12438	14167	1400	14926	10056	15569	14698	16446
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%

Off Line - OL

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2019\11-November

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew



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-Nov-2019	0.85	0.68	0.09	0.08	0.09	0.11	OL	OL	0.10	0.04	0.12	0.00	0.09	0.05	0.09	0.12	0.08	0.05	
02-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
03-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
04-Nov-2019	0.73	0.72	0.09	0.09	0.13	0.13	OL	OL	0.11	0.06	0.09	0.00	OL	OL	0.09	0.12	0.08	0.05	
05-Nov-2019	0.69	0.65	OL	OL	0.08	0.13	OL	OL	0.10	0.07	0.08	0.00	0.08	0.05	0.09	0.13	0.09	0.05	
06-Nov-2019	0.69	0.67	0.08	0.09	0.08	0.13	OL	OL	OL	OL	0.10	0.00	0.09	0.06	0.11	0.14	0.09	0.06	
07-Nov-2019	0.73	0.66	0.09	0.10	0.08	0.14	OL	OL	0.09	0.06	0.08	0.00	0.08	0.06	0.12	0.16	OL	OL	
08-Nov-2019	0.61	0.65	0.08	0.10	0.10	0.14	OL	OL	0.11	0.07	OL	OL	0.08	0.06	0.07	0.15	0.09	0.05	
09-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
11-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
12-Nov-2019	0.64	0.60	0.10	0.08	0.10	0.08	OL	OL	0.11	0.13	0.09	0.05	0.08	0.06	0.10	0.04	OL	OL	
13-Nov-2019	0.63	0.60	0.09	0.07	0.08	0.08	OL	OL	0.08	0.14	OL	OL	0.10	0.08	0.08	0.03	0.10	0.06	
14-Nov-2019	0.62	0.56	0.08	0.07	0.09	0.09	OL	OL	0.09	0.17	0.08	0.04	OL	OL	0.08	0.03	0.08	0.05	
15-Nov-2019	0.60	0.58	0.10	0.09	OL	OL	OL	OL	0.09	0.03	0.08	0.04	0.08	0.06	0.09	0.04	0.08	0.06	
16-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
17-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
18-Nov-2019	0.68	0.60	0.09	0.07	0.13	0.08	OL	OL	0.10	0.03	OL	OL	0.12	0.08	0.11	0.03	0.09	0.06	
19-Nov-2019	0.69	0.57	0.11	0.08	OL	OL	OL	OL	0.12	0.04	0.08	0.05	0.08	0.07	0.08	0.04	0.09	0.06	
20-Nov-2019	0.62	0.57	0.09	0.07	0.11	0.08	OL	OL	OL	OL	0.09	0.04	0.09	0.07	0.08	0.04	0.09	0.06	
21-Nov-2019	0.63	0.55	0.09	0.07	0.09	0.08	OL	OL	0.09	0.03	0.10	0.06	0.10	0.08	OL	OL	0.09	0.05	
22-Nov-2019	0.63	0.53	0.10	0.07	0.11	0.08	OL	OL	0.10	0.03	OL	OL	0.12	0.09	0.10	0.04	0.08	0.05	
23-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
24-Nov-2019	NA	NA	NA	NA	NA	NA	OL	OL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
25-Nov-2019	0.65	0.52	0.09	0.07	0.09	0.08	OL	OL	0.08	0.03	0.09	0.04	0.12	0.09	0.12	0.04	OL	OL	
26-Nov-2019	0.68	0.51	0.11	0.07	0.09	0.08	OL	OL	0.08	0.03	OL	OL	0.09	0.09	0.11	0.03	0.08	0.04	
27-Nov-2019	0.59	0.51	0.11	0.07	0.09	0.08	0.09	0.06	0.09	0.03	0.08	0.04	OL	OL	0.08	0.04	0.08	0.05	
28-Nov-2019	0.65	0.51	OL	OL	0.09	0.07	0.08	0.05	0.10	0.04	0.09	0.05	0.09	0.10	0.08	0.04	0.09	0.05	
29-Nov-2019	0.64	0.51	0.12	0.08	0.13	0.09	0.09	0.05	OL	OL	0.14	0.08	0.15	0.13	0.17	0.08	OL	OL	
30-Nov-2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total number of measurements taken, A:			18		18		3		17		15		17		19		16		
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		18		3		17		15		17		19		16		
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 IM: Instrument Maintenance

Comments:

Filter 3 offline for media replacement from September 17 at 03:35 to November 27, 2019 at 11:00.

Report Compiled By: A. Gordon

Authorized By: C. Diduck

Date Authorized: 6-Dec-19



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 December 2019

Report Period: November 2019

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/11/2019	1.25	1.19	1.30	1.24
02/11/2019	1.24	1.18	1.29	1.24
03/11/2019	1.23	1.18	1.26	1.19
04/11/2019	1.21	1.13	1.22	1.11
05/11/2019	1.23	1.19	1.22	1.18
06/11/2019	1.26	1.22	1.24	1.18
07/11/2019	1.29	1.25	1.21	1.16
08/11/2019	1.25	1.08	1.20	1.01
09/11/2019	1.14	1.07	1.19	1.12
10/11/2019	1.22	1.13	1.27	1.17
11/11/2019	1.21	1.17	1.26	1.23
12/11/2019	1.20	1.17	1.27	1.23
13/11/2019	1.18	1.14	1.28	1.22
14/11/2019	1.22	1.16	1.29	1.24
15/11/2019	1.31	1.23	1.28	1.23
16/11/2019	1.29	1.12	1.25	1.18
17/11/2019	1.14	1.10	1.17	1.14
18/11/2019	1.26	1.11	1.25	1.17
19/11/2019	1.21	1.00	1.17	1.06
20/11/2019	1.16	1.03	1.12	1.06
21/11/2019	1.19	1.10	1.20	1.12
22/11/2019	1.23	1.15	1.23	1.17
23/11/2019	1.26	1.15	1.25	1.21
24/11/2019	1.21	1.11	1.24	1.20
25/11/2019	1.21	1.09	1.25	1.19
26/11/2019	1.24	0.83	1.28	1.22
27/11/2019	1.18	0.99	1.28	1.12
28/11/2019	1.18	0.99	1.30	1.12
29/11/2019	1.29	1.11	1.33	1.20
30/11/2019	1.29	1.15	1.37	1.32

Total Number of Measurements, A:	20901	20905
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	20901	20905
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2019\11-November

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		Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
Licence No. PWS-09-412-01							
Date	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)	
	Analyser	Grab	Grab	Analyser	Grab	Grab	
01-Nov-2019	1.27	1.29	1.47	1.30	1.38	1.54	
02-Nov-2019	NA	NA	NA	NA	NA	NA	
03-Nov-2019	NA	NA	NA	NA	NA	NA	
04-Nov-2019	1.20	1.14	1.35	1.22	1.24	1.43	
05-Nov-2019	1.23	1.31	1.48	1.23	1.27	1.45	
06-Nov-2019	1.25	1.28	1.44	1.23	1.36	1.47	
07-Nov-2019	1.28	1.34	1.47	1.20	1.35	1.46	
08-Nov-2019	1.28	1.23	1.39	1.18	1.29	1.41	
09-Nov-2019	NA	NA	NA	NA	NA	NA	
10-Nov-2019	NA	NA	NA	NA	NA	NA	
11-Nov-2019	NA	NA	NA	NA	NA	NA	
12-Nov-2019	1.20	1.29	1.48	1.25	1.32	1.41	
13-Nov-2019	1.20	1.35	1.51	1.29	1.37	1.52	
14-Nov-2019	1.19	1.30	1.51	1.29	1.37	1.46	
15-Nov-2019	1.24	1.29	1.35	1.26	1.26	1.46	
16-Nov-2019	NA	NA	NA	NA	NA	NA	
17-Nov-2019	NA	NA	NA	NA	NA	NA	
18-Nov-2019	1.30	1.31	1.40	1.30	1.30	1.47	
19-Nov-2019	1.23	1.24	1.45	1.21	1.29	1.47	
20-Nov-2019	1.19	1.19	1.36	1.11	1.20	1.39	
21-Nov-2019	1.18	1.25	1.44	1.21	1.25	1.45	
22-Nov-2019	1.23	1.32	1.51	1.23	1.30	1.52	
23-Nov-2019	NA	NA	NA	NA	NA	NA	
24-Nov-2019	NA	NA	NA	NA	NA	NA	
25-Nov-2019	IM	1.28	1.44	1.28	1.33	1.52	
26-Nov-2019	1.23	1.24	1.46	1.31	1.36	1.59	
27-Nov-2019	1.16	1.18	1.39	IM	1.25	1.46	
28-Nov-2019	1.15	1.14	1.37	1.20	1.21	1.39	
29-Nov-2019	1.44	1.37	1.52	1.34	1.31	1.45	
30-Nov-2019	NA	NA	NA	NA	NA	NA	
Total number of measurements taken, A:		20		20			
Chlorine Standard for Monitoring Location (mg/L):		0.50		0.50			
Number of measurements meeting standard, B:		20		20			
Compliance with Chlorine Standard, C= B/A X 100%:		100%		100%			

NS: No Sample NA: Not Analyzed OL: Off-Line NR: No Result IM: Instrument Maintenance

Comments:

Report Compiled By: A. Gordon

Authorized By: C. Diduck

Date Authorized: 6-Dec-19



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: **November 2019**

Report Created: **Sunday, December 01, 2019**

Date	Transmittance %		UVR-D100A			UVR-D200A			UVR-D300A			UVR-D400A			UVR-D500A			UVR-D600A			Total			% Volume Treated To Dose					
	UVTag	%	Untreated	Below	To	Untreated	Below	To	Untreated	Below	To	Untreated	Below	To	Untreated	Below	To	Untreated	Below	To	Untreated	Below	To						
01/11/2019	94.71	0.00	0.00	0.00	74.67	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	196.23	196.23	100.00			
02/11/2019	94.59	0.00	0.00	0.00	74.03	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	194.95	194.95	100.00		
03/11/2019	94.34	0.00	0.00	0.00	74.08	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	195.00	195.00	100.00		
04/11/2019	94.13	0.00	0.00	0.00	36.92	0.00	0.00	36.12	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	189.14	189.14	100.00		
05/11/2019	93.80	0.00	0.00	0.00	0.00	0.00	0.00	73.20	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	185.98	185.98	100.00		
06/11/2019	93.63	0.00	0.00	0.00	0.00	0.00	0.00	73.36	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	0.00	186.45	186.45	100.00		
07/11/2019	93.45	0.00	0.00	0.00	0.00	0.00	0.00	74.02	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	0.00	188.00	188.00	100.00		
08/11/2019	93.25	0.00	0.00	0.00	0.00	0.00	0.00	73.19	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	186.01	186.01	100.00		
09/11/2019	93.01	0.00	0.00	0.00	0.00	0.00	0.00	70.92	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	180.55	180.55	100.00		
10/11/2019	92.88	0.00	0.00	0.00	0.00	0.00	0.00	70.31	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	179.02	179.02	100.00		
11/11/2019	92.36	0.00	0.00	0.00	0.00	0.00	0.00	71.11	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	181.01	181.01	100.00		
12/11/2019	91.97	0.00	0.00	0.00	0.00	0.00	0.00	71.10	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	181.00	181.00	100.00		
13/11/2019	91.60	0.00	0.00	0.00	0.00	0.00	0.00	70.86	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	180.42	180.42	100.00		
14/11/2019	91.13	0.00	0.00	0.00	0.00	0.00	0.00	69.78	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	177.85	177.85	100.00		
15/11/2019	90.60	0.00	0.00	0.00	0.00	0.00	0.00	79.08	0.00	0.00	0.00	0.00	0.21	15.56	15.77	0.00	0.00	21.95	21.95	0.00	0.00	0.00	0.00	0.21	180.24	180.24	99.88		
16/11/2019	90.41	0.00	0.00	0.00	0.00	0.00	0.00	82.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.94	33.94	0.00	0.00	0.00	0.00	0.00	0.00	177.06	177.06	100.00		
17/11/2019	92.11	0.00	0.00	0.00	0.00	0.00	0.00	81.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.52	33.52	0.00	0.00	0.00	0.00	0.00	0.00	176.00	176.00	100.00		
18/11/2019	91.50	0.00	0.00	0.00	0.00	0.00	0.00	57.33	0.00	0.04	59.29	0.00	0.00	0.00	0.00	0.00	59.28	59.28	0.15	0.15	1.48	1.77	0.15	0.15	177.38	177.71	99.81		
19/11/2019	85.73	0.00	0.00	0.00	17.86	0.00	0.00	56.43	0.00	0.00	35.57	0.00	0.03	0.04	0.07	0.00	62.54	62.54	0.00	0.00	0.00	0.00	0.00	0.00	172.45	172.47	99.98		
20/11/2019	95.45	0.00	0.00	0.00	44.30	0.00	0.00	57.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.74	67.74	0.00	0.00	0.00	0.00	0.00	0.00	169.09	169.09	100.00		
21/11/2019	95.31	0.00	0.00	0.00	48.23	0.00	0.00	32.50	0.00	0.00	25.03	0.00	0.00	0.00	0.00	0.00	64.23	64.23	0.00	0.00	0.00	0.00	0.00	0.00	169.98	169.98	100.00		
22/11/2019	95.51	0.00	0.00	0.00	52.92	0.00	0.00	0.00	0.00	0.00	57.99	0.00	0.00	0.00	0.00	0.00	59.06	59.06	0.00	0.00	0.05	0.05	0.00	0.00	170.02	170.02	100.00		
23/11/2019	95.37	0.00	0.00	0.00	52.97	0.00	0.00	0.00	0.00	0.00	61.28	0.00	0.00	0.00	0.00	0.00	60.28	60.28	0.00	0.00	0.00	0.00	0.00	0.00	174.53	174.53	100.00		
24/11/2019	95.38	0.00	0.00	0.00	52.12	0.00	0.00	51.25	0.00	0.00	12.70	0.00	0.00	0.00	0.00	0.00	64.20	64.20	0.00	0.00	0.00	0.00	0.00	0.45	180.27	180.72	99.75		
25/11/2019	95.41	0.00	0.00	0.00	52.66	0.00	0.00	66.21	0.00	0.00	0.00	0.00	0.13	0.13	0.00	64.93	64.93	0.00	0.00	0.00	0.00	0.00	0.00	183.93	183.93	100.00			
26/11/2019	95.43	0.00	0.25	58.03	58.27	0.00	0.00	21.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.58	62.58	0.00	0.00	0.00	0.00	0.00	0.00	0.25	184.75	185.00	99.87		
27/11/2019	95.94	0.00	0.17	59.50	59.66	0.00	0.00	39.48	0.00	0.00	24.87	0.00	0.00	38.83	38.83	0.00	61.65	61.65	0.00	0.00	0.00	0.00	0.00	0.17	184.85	185.02	99.91		
28/11/2019	96.31	0.00	0.00	20.58	20.58	0.00	0.00	0.00	0.00	0.00	41.66	0.00	0.00	21.53	21.53	0.00	61.75	61.75	0.00	0.00	0.00	0.00	0.00	0.00	185.01	185.01	100.00		
29/11/2019	97.22	0.00	0.00	19.17	19.17	0.00	0.00	21.52	0.00	0.00	0.00	0.00	0.00	71.36	71.36	0.00	34.51	34.51	0.00	0.00	0.00	0.00	0.00	0.00	188.93	188.93	100.00		
30/11/2019	97.39	0.00	0.00	61.70	61.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.73	63.73	0.00	64.55	64.55	0.00	0.00	0.00	0.00	0.00	0.00	189.98	189.98	100.00		
Total [ML]:		0.00	0.41	795.73	800.14	0.00	0.00	1400.03	1400.03	0.00	0.50	318.39	318.89	0.00	0.24	864.64	864.64	0.00	0.00	812.15	812.15	0.00	0.00	0.15	1271.34	1271.63	1.30	5466.04	5467.48

Water Volume [%]:

Untreated: 0.00 %

Below Dose: 0.02 %

To Dose: 99.97 %

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

Submitted By (Print): D. Merredew

Signature: Original signed by D. Merredew