



Kale Black, Sr. Drinking Water Officer
Office of Drinking Water, Manitoba Conservation and Climate
309 – 25 Tupper Street North
Portage La Prairie, MB R1N 3K1

January 5, 2024

RE: DECEMBER 2023 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 2023.

The December 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 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 met the licence requirements.

The December 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 204-986-4806 or by e-mail at mmarsland@winnipeg.ca.

Yours sincerely,

M. Marsland
Acting Manager of Environmental Standards

Enclosures

cc: Dr. L. Richards, Winnipeg Regional Health Authority (email)
Dr. H. Chang, Winnipeg Regional Health Authority (email)
Dr. T. Hilderman, Manitoba Health and Seniors Care (email)
T. Shanks, M. Eng., P. Eng. (email)
M. Szmon, P. Eng. (email)
H. Buhler, P. Eng. (email)
L. McCusker, P. Eng. (email)
C. Diduck (email)



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02-A

WATER TREATMENT PLANT TURBIDITY ON-LINE MONITORING REPORT

December 2023 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
1/12/2023	0.76	0.00	0.02	0.04	0.08	0.05	0.28	0.04	0.18	0.05	0.07	0.01	0.04	0.01	0.01	0.00	0.02
2/12/2023	0.74	0.00	0.00	0.03	0.06	0.02	0.10	0.03	0.06	0.05	0.09	0.01	0.04	0.01	0.01	0.00	0.03
3/12/2023	0.74	0.00	0.00	0.04	0.07	0.02	0.13	0.03	0.06	0.05	0.09	0.00	0.04	0.01	0.01	0.00	0.01
4/12/2023	0.74	0.00	0.01	0.03	0.07	0.02	0.05	0.03	0.05	0.05	0.08	0.00	0.03	0.01	0.01	0.00	0.01
5/12/2023	0.73	0.00	0.00	0.03	0.07	0.02	0.07	0.03	0.07	0.04	0.07	0.00	0.04	0.01	0.01	0.00	0.03
6/12/2023	0.72	0.05	0.10	0.03	0.05	0.03	0.13	0.03	0.06	0.05	0.08	0.01	0.05	0.01	0.03	0.01	0.05
7/12/2023	0.72	0.07	0.12	0.04	0.07	0.02	0.07	0.03	0.07	0.05	0.09	0.02	0.06	0.01	0.04	0.01	0.03
8/12/2023	0.68	0.07	0.13	0.03	0.06	0.02	0.08	0.03	0.06	0.04	0.09	0.03	0.05	0.01	0.04	0.01	0.04
9/12/2023	0.66	0.08	0.09	0.03	0.06	0.02	0.10	0.03	0.07	0.04	0.08	0.03	0.05	0.01	0.04	0.01	0.05
10/12/2023	0.65	0.08	0.10	0.03	0.06	0.01	0.05	0.03	0.05	0.05	0.08	0.02	0.05	0.01	0.03	0.01	0.04
11/12/2023	0.65	0.07	0.10	0.04	0.06	0.01	0.05	0.03	0.06	0.05	0.08	0.02	0.06	0.01	0.04	0.01	0.05
12/12/2023	0.64	0.08	0.12	0.04	0.06	0.02	0.06	0.02	0.08	0.04	0.08	0.02	0.05	0.01	0.03	0.02	0.06
13/12/2023	0.65	0.09	0.11	0.04	0.08	0.03	0.08	0.04	0.07	0.05	0.10	0.03	0.07	0.02	0.05	0.03	0.07
14/12/2023	0.65	0.09	0.13	0.05	0.10	0.03	0.07	0.04	0.08	0.06	0.08	0.03	0.08	0.02	0.03	0.03	0.08
15/12/2023	0.72	0.10	0.16	0.07	0.09	0.07	0.22	0.05	0.11	0.06	0.09	0.03	0.09	0.02	0.04	0.03	0.08
16/12/2023	0.74	0.10	0.16	0.06	0.12	0.06	0.10	0.05	0.10	0.05	0.10	0.03	0.06	0.02	0.05	0.05	0.09
17/12/2023	0.72	0.10	0.14	0.06	0.11	0.06	0.12	0.06	0.08	0.06	0.10	0.04	0.09	0.02	0.05	0.05	0.10
18/12/2023	0.69	0.12	0.16	0.06	0.11	0.06	0.14	0.05	0.10	0.06	0.09	0.03	0.08	0.02	0.04	0.05	0.11
19/12/2023	0.67	0.11	0.16	0.06	0.08	0.05	0.11	0.06	0.11	0.06	0.10	0.03	0.07	0.02	0.05	0.06	0.12
20/12/2023	1.01	0.07	0.18	0.06	0.28	0.06	0.28	0.04	0.24	0.04	0.26	0.03	0.12	0.02	0.14	0.06	0.18
21/12/2023	0.74	0.12	0.17	0.06	0.10	0.05	0.15	0.06	0.14	0.06	0.09	0.04	0.08	0.02	0.06	0.08	0.15
22/12/2023	0.62	0.09	0.16	0.05	0.08	0.03	0.07	0.04	0.09	0.06	0.11	0.03	0.07	0.02	0.04	0.08	0.14
23/12/2023	0.60	0.08	0.12	0.05	0.07	0.01	0.05	0.02	0.05	0.05	0.09	0.03	0.07	0.02	0.04	0.09	0.12
24/12/2023	0.60	0.07	0.12	0.04	0.08	0.01	0.04	0.02	0.04	0.05	0.10	0.04	0.06	0.01	0.05	0.10	0.16
25/12/2023	0.61	0.09	0.11	0.05	0.08	0.02	0.05	0.03	0.06	0.06	0.10	0.03	0.07	0.01	0.04	0.11	0.18
26/12/2023	0.64	0.08	0.12	0.05	0.07	0.01	0.04	0.03	0.05	0.08	0.10	0.04	0.07	0.01	0.03	0.12	0.20
27/12/2023	0.65	0.09	0.12	0.06	0.09	0.01	0.05	0.03	0.06	0.08	0.13	0.04	0.08	0.02	0.05	0.17	0.21
28/12/2023	0.65	0.08	0.12	0.06	0.10	0.02	0.05	0.03	0.05	0.08	0.13	0.04	0.17	0.01	0.03	0.08	0.23
29/12/2023	0.66	0.08	0.11	0.06	0.10	0.01	0.04	0.03	0.05	0.09	0.15	0.06	0.09	0.01	0.03	0.03	0.07
30/12/2023	0.66	0.09	0.11	0.07	0.11	0.02	0.07	0.03	0.06	0.12	0.15	0.06	0.10	0.01	0.02	0.04	0.08
31/12/2023	0.63	0.08	0.12	0.08	0.10	0.01	0.04	0.03	0.06	0.12	0.18	0.06	0.11	0.01	0.04	0.04	0.07

Total Number of Measurements Taken, A:	11215	15569	16531	15999	17550	17072	15993	17474
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:	11215	15569	16531	15999	17550	17072	15993	17474
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\2023\12-December

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-09-412-02 A																		
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-Dec-2023	0.55	0.40	0.09	0.09	0.09	0.05	0.11	0.03	0.10	0.05	0.08	0.07	0.09	0.02	0.09	<0.02	0.10	<0.02
02-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
03-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
04-Dec-2023	0.62	0.71	0.09	<0.02	0.09	0.04	0.11	0.03	0.09	0.04	0.08	0.05	0.09	0.02	0.08	<0.02	0.10	<0.02
05-Dec-2023	0.66	0.70	0.10	<0.02	0.09	0.04	0.11	0.03	0.10	0.04	0.10	0.06	0.10	<0.02	0.09	<0.02	0.09	<0.02
06-Dec-2023	0.60	0.70	0.09	<0.02	0.08	0.04	0.12	0.04	0.09	0.05	0.08	0.06	0.08	<0.02	0.08	<0.02	0.09	<0.02
07-Dec-2023	0.62	0.68	0.09	0.09	0.10	0.05	0.10	0.03	0.09	0.03	0.09	0.08	0.09	0.03	0.09	<0.02	0.10	<0.02
08-Dec-2023	0.60	0.66	0.09	0.08	0.09	0.05	0.09	0.02	0.08	0.03	0.08	0.05	0.09	0.03	0.09	<0.02	0.10	<0.02
09-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
10-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
11-Dec-2023	0.57	0.63	0.09	0.10	0.09	0.05	0.09	0.02	0.08	0.03	0.09	0.06	0.09	0.02	0.09	<0.02	0.08	<0.02
12-Dec-2023	0.57	0.64	0.07	0.08	0.09	0.05	0.09	0.03	0.09	0.03	0.09	0.05	0.09	0.05	0.09	<0.02	0.09	<0.02
13-Dec-2023	0.56	0.65	0.10	0.10	0.09	0.05	0.13	0.04	0.09	0.05	0.09	0.07	0.10	0.04	0.09	<0.02	0.11	0.04
14-Dec-2023	0.58	0.62	0.11	0.11	0.09	0.06	0.11	0.04	0.12	0.07	0.09	0.07	0.10	0.05	0.09	<0.02	0.10	0.02
15-Dec-2023	0.58	0.74	0.13	0.13	0.11	0.07	0.18	0.10	0.10	0.05	0.10	0.07	0.09	0.04	0.10	<0.02	0.10	0.02
16-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
17-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
18-Dec-2023	0.50	0.69	0.12	0.12	0.11	0.06	0.17	0.11	0.14	0.07	0.10	0.06	0.14	0.08	0.10	<0.02	0.10	0.05
19-Dec-2023	0.55	0.71	0.16	0.14	0.14	0.07	0.15	0.06	0.16	0.08	0.13	0.09	0.11	0.04	0.12	0.02	0.13	0.06
20-Dec-2023	0.62	0.63	0.12	0.13	0.14	0.09	0.15	0.08	0.11	0.05	0.12	0.08	0.09	0.04	0.11	0.03	0.10	0.07
21-Dec-2023	0.61	0.61	0.15	0.15	0.14	0.09	0.13	0.06	0.14	0.09	0.10	0.07	0.11	0.06	0.09	0.02	0.09	0.06
22-Dec-2023	0.57	0.62	0.12	0.12	0.10	0.06	0.12	0.04	0.13	0.08	0.10	0.07	0.12	0.06	0.10	<0.02	0.10	0.08
23-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
24-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
25-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
26-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
27-Dec-2023	0.53	0.61	0.10	0.11	0.09	0.07	0.09	0.02	0.08	0.03	0.10	0.11	0.09	0.05	0.10	0.02	0.10	0.17
28-Dec-2023	0.54	0.61	0.08	0.09	0.09	0.09	0.09	0.02	0.08	0.04	0.08	0.09	0.08	0.05	0.09	<0.02	0.09	0.10
29-Dec-2023	0.54	0.63	0.08	0.10	0.08	0.08	0.10	0.03	0.10	0.04	0.08	0.11	0.09	0.07	0.08	<0.02	0.09	0.04
30-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
31-Dec-2023	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Total number of measurements taken, A:			19		19		19		19		19		19		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:			19		19		19		19		19		19		19		19	
Compliance with Turbidity Standard, C= B/A X 100%:			100%		100%		100%		100%		100%		100%		100%		100%	

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: January 5, 2024

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

Water System Code: **252.00**
Licence Number: **PWS-09-412-02-A**
Report Created: 01 January 2024

Report Period: December 2023

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/12/2023	1.70	1.62	1.61	1.52
02/12/2023	1.57	1.42	1.47	1.33
03/12/2023	1.38	1.30	1.30	1.22
04/12/2023	1.48	1.39	1.37	1.29
05/12/2023	1.56	1.50	1.45	1.39
06/12/2023	1.59	1.50	1.45	1.38
07/12/2023	1.37	1.15	1.44	1.36
08/12/2023	1.26	1.16	1.37	1.31
09/12/2023	1.31	1.23	1.38	1.31
10/12/2023	1.30	1.18	1.37	1.27
11/12/2023	1.19	1.13	1.27	1.24
12/12/2023	1.17	1.10	1.28	1.23
13/12/2023	1.16	1.12	1.29	1.23
14/12/2023	1.16	1.10	1.29	1.25
15/12/2023	1.15	1.10	1.29	1.23
16/12/2023	1.21	1.11	1.29	1.25
17/12/2023	1.24	1.22	1.31	1.26
18/12/2023	1.21	1.17	1.33	1.28
19/12/2023	1.26	1.21	1.38	1.33
20/12/2023	1.36	1.21	1.39	1.18
21/12/2023	1.26	1.10	1.31	1.26
22/12/2023	1.29	1.13	1.32	1.18
23/12/2023	1.34	1.25	1.29	1.22
24/12/2023	1.30	1.22	1.25	1.18
25/12/2023	1.35	1.31	1.31	1.23
26/12/2023	1.37	1.30	1.35	1.29
27/12/2023	1.49	1.35	1.41	1.33
28/12/2023	1.49	1.26	1.38	1.23
29/12/2023	1.40	1.35	1.31	1.23
30/12/2023	1.36	1.33	1.29	1.20
31/12/2023	1.26	1.23	1.17	1.10

Total Number of Measurements, A:	21601	21601
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21601	21601
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2023\12-December

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew



WATER TREATMENT PLANT CHLORINE GRAB MONITORING REPORT						
Water System Code: 252.00 Licence No. PWS-09-412-02 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)
	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Dec-2023	1.68	1.72	2.01	1.58	1.60	1.90
02-Dec-2023	ns	ns	ns	ns	ns	ns
03-Dec-2023	ns	ns	ns	ns	ns	ns
04-Dec-2023	1.42	1.46	1.75	1.34	1.35	1.65
05-Dec-2023	1.57	1.61	1.96	1.46	1.44	1.80
06-Dec-2023	1.57	1.59	1.93	1.44	1.50	1.80
07-Dec-2023	1.36	1.43	1.77	1.48	1.49	1.80
08-Dec-2023	1.29	1.32	1.61	1.37	1.38	1.68
09-Dec-2023	ns	ns	ns	ns	ns	ns
10-Dec-2023	ns	ns	ns	ns	ns	ns
11-Dec-2023	1.19	1.27	1.44	1.26	1.31	1.61
12-Dec-2023	1.18	1.20	1.49	1.28	1.29	1.60
13-Dec-2023	1.14	1.17	1.47	1.27	1.25	1.57
14-Dec-2023	1.17	1.22	1.49	1.28	1.30	1.58
15-Dec-2023	1.18	1.25	1.55	1.28	1.29	1.58
16-Dec-2023	ns	ns	ns	ns	ns	ns
17-Dec-2023	ns	ns	ns	ns	ns	ns
18-Dec-2023	1.20	1.17	1.47	1.34	1.34	1.61
19-Dec-2023	1.26	1.30	1.55	1.38	1.36	1.66
20-Dec-2023	1.28	1.28	1.60	1.38	1.43	1.74
21-Dec-2023	1.16	1.16	1.47	1.28	1.28	1.57
22-Dec-2023	1.24	1.22	1.52	1.33	1.29	1.60
23-Dec-2023	ns	ns	ns	ns	ns	ns
24-Dec-2023	ns	ns	ns	ns	ns	ns
25-Dec-2023	ns	ns	ns	ns	ns	ns
26-Dec-2023	ns	ns	ns	ns	ns	ns
27-Dec-2023	1.45	1.47	1.76	1.37	1.39	1.68
28-Dec-2023	1.50	1.49	1.77	1.40	1.39	1.64
29-Dec-2023	1.41	1.40	1.69	1.34	1.39	1.64
30-Dec-2023	ns	ns	ns	ns	ns	ns
31-Dec-2023	ns	ns	ns	ns	ns	ns
Total number of measurements taken, A:			19			19
Chlorine Standard for Monitoring Location (mg/L):			0.50			0.50
Number of measurements meeting standard, B:			19			19
Compliance with Chlorine Standard, C= B/A X 100%:			100%			100%

na: not analyzed nr: no result ns: no sample o/l: offline im: instrument maintenance

Comments:

Report Date: January 5, 2024



CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT
 WATER SERVICES

Water System Code: 252.00
 Licence Number: PWS-09-412-02-A

WATER TREATMENT PLANT UV REPORT

Report Period: December 2023

Report Created: Monday, January 01, 2024

Date	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		
01/12/2023	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	36.87	36.87	0.00	0.51	65.62	66.13	0.00	0.51	187.51	188.02	99.73	
02/12/2023	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	85.01	85.01	0.00	0.03	36.92	36.95	0.00	0.92	65.12	66.04	0.00	0.95	187.05	187.99	99.50	
03/12/2023	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	85.00	85.00	0.00	0.03	37.06	37.09	0.00	0.91	64.98	65.89	0.00	0.94	187.04	187.98	99.50	
04/12/2023	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	84.98	84.98	0.00	0.03	37.01	37.03	0.00	0.87	65.22	66.08	0.00	0.89	187.20	188.10	99.52	
05/12/2023	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	85.00	85.00	0.00	0.08	37.67	37.75	0.00	1.09	66.69	67.78	0.00	1.17	189.37	190.54	99.39	
06/12/2023	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	78.18	78.18	0.00	0.08	39.82	39.90	0.00	0.97	69.81	70.78	0.00	1.05	187.81	188.86	99.44	
07/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	36.18	36.28	0.00	0.00	58.28	58.28	0.00	0.06	55.69	55.75	0.00	0.66	38.01	38.68	0.00	0.82	188.17	188.99	99.56
08/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	50.01	50.47	0.00	0.00	53.54	53.54	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.46	188.54	189.00	99.76
09/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	49.35	49.94	0.00	0.00	52.82	52.82	0.00	0.00	85.02	85.02	0.00	0.00	0.00	0.00	0.00	0.59	187.19	187.79	99.68
10/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	49.40	49.64	0.00	0.00	52.33	52.33	0.00	0.00	85.00	85.00	0.00	0.00	0.00	0.00	0.00	0.24	186.73	186.97	99.87
11/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	49.20	49.62	0.00	0.00	52.39	52.39	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	0.42	186.58	187.00	99.78
12/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	49.36	49.67	0.00	0.00	52.41	52.41	0.00	0.00	84.92	84.92	0.00	0.00	0.00	0.00	0.00	0.31	186.68	187.00	99.83
13/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	49.57	49.81	0.00	0.00	52.37	52.37	0.00	0.00	84.82	84.82	0.00	0.00	0.00	0.00	0.00	0.25	186.76	187.00	99.87
14/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	49.31	49.72	0.00	0.00	52.18	52.18	0.00	0.00	86.18	86.18	0.00	0.00	0.00	0.00	0.00	0.41	187.68	188.08	99.78
15/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	51.65	51.87	0.00	0.00	55.03	55.03	0.74	0.78	84.02	85.54	0.00	0.00	0.00	0.00	0.74	1.00	190.70	192.44	99.10
16/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	51.67	52.41	0.00	0.00	55.60	55.60	0.00	0.00	85.32	85.32	0.00	0.00	0.00	0.00	0.00	0.74	192.59	193.32	99.62
17/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	54.14	54.99	0.00	0.04	59.04	59.08	0.00	0.06	85.90	85.96	0.00	0.00	0.00	0.00	0.00	0.96	199.08	200.03	99.52
18/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	56.23	57.03	0.00	0.00	62.22	62.22	0.00	0.00	85.05	85.05	0.00	0.00	0.00	0.00	0.00	0.80	203.50	204.30	99.61
19/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	56.88	57.60	0.00	0.00	63.30	63.30	0.00	0.00	85.37	85.37	0.00	0.00	0.00	0.00	0.00	0.72	205.55	206.27	99.65
20/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	37.37	37.71	0.00	0.00	39.43	39.43	0.00	0.05	58.48	58.53	0.00	0.00	0.00	0.00	0.00	0.39	135.29	135.67	99.71
21/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	55.36	56.43	0.00	0.00	59.31	59.31	0.00	0.00	84.99	84.99	0.00	0.00	0.00	0.00	0.00	1.07	199.66	200.74	99.46
22/12/2023	0.18	0.18	6.13	6.49	0.19	0.19	4.93	5.31	0.00	0.43	58.35	58.78	0.00	0.00	24.82	24.82	0.00	0.00	64.91	64.91	0.00	0.76	41.40	42.16	0.37	1.56	200.53	202.47	99.04	
23/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	67.06	68.16	0.00	0.00	0.00	0.00	0.00	0.00	43.14	43.14	0.00	0.70	75.32	76.02	0.00	1.80	185.51	187.31	99.04
24/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	65.49	66.28	0.00	0.00	0.00	0.00	0.00	0.00	40.96	40.96	0.00	0.61	72.16	72.77	0.00	1.40	178.62	180.01	99.22
25/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	64.82	65.79	0.00	0.00	0.00	0.00	0.00	0.00	41.21	41.21	0.00	0.66	72.33	73.00	0.00	1.62	178.37	179.99	99.10
26/12/2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	66.18	66.97	0.00	0.00	0.00	0.00	0.00	0.00	45.00	45.00	0.00	1.11	72.23	73.34	0.00	1.90	183.41	185.31	98.98
27/12/2023	0.00	0.04	33.95	33.99	0.00	0.21	45.43	45.64	0.27	0.62	25.13	26.02	0.00	0.00	0.00	0.00	0.00	0.00	22.63	22.63	0.15	1.26	67.96	69.36	0.42	2.12	195.10	197.64	98.71	
28/12/2023	0.00	0.21	49.88	50.09	0.00	0.45	73.41	73.86	0.00	0.00	0.00	0.00	0.00	0.00	31.81	31.81	0.00	0.00	0.00	0.00	0.00	0.68	40.67	41.35	0.00	1.35	195.77	197.12	99.32	
29/12/2023	0.00	0.10	49.03	49.13	0.00	0.20	72.47	72.67	0.00	0.00	0.00	0.00	0.00	0.00	76.20	76.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	197.70	198.00	99.85	
30/12/2023	0.00	0.00	50.66	50.66	0.00	0.00	72.81	72.81	0.00	0.00	0.00	0.00	0.00	0.00	24.69	24.69	0.00	0.00	0.00	0.00	0.00	0.58	46.73	47.32	0.00	0.58	194.89	195.48	99.70	
31/12/2023	0.00	0.00	47.69	47.69	0.00	0.00	67.32	67.32	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	1.31	68.68	70.00	0.00	1.31	183.70	185.01	99.29	
Total [ML]:	0.18	0.53	237.35	238.06	0.19	1.05	336.37	337.62	0.27	12.20	1092.71	1105.19	0.00	0.04	1480.95	1480.99	0.74	1.19	1703.95	1705.88	0.15	13.60	992.95	1006.70	1.53	28.63	5844.28	5874.44		

Water Volume [%]:

Untreated: 0.03 %
 Below Dose 0.49 %
 To Dose 99.49 %

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

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-09-412-02-A**

WATER TREATMENT PLANT UV REPORT

Report Period: **December 2023**

Report Created: **Monday, January 01, 2024**

Date	Transmittance (%)				UVR_D100A			UVR_D200A			UVR_D300A			UVR_D400A			UVR_D500A			UVR_D600A			
	Branch 1		Branch 2		UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			UV Dose [mJ/cm]²			
	Avg.	Min.	Avg.	Min.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	
01/12/2023	93.7	92.4	94.2	93.6	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	
02/12/2023	93.8	92.8	94.5	92.3	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	
03/12/2023	93.8	92.4	94.4	93.4	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	
04/12/2023	93.7	92.5	94.5	93.5	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	
05/12/2023	93.9	92.7	94.4	93.6	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	
06/12/2023	94.0	92.4	94.5	93.9	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	OL	
07/12/2023	94.0	92.8	94.3	93.8	OL	OL	OL	OL	OL	OL	OL	17.9	52.4	21.4	18.7	27.1	21.2	0.0	27.7	21.4	0.0	47.7	21.2
08/12/2023	94.1	92.6	94.4	93.8	OL	OL	OL	OL	OL	OL	OL	17.5	22.0	21.2	18.8	22.4	21.3	18.5	22.2	21.1	0.0	0.0	0.0
09/12/2023	94.1	92.9	94.3	94.0	OL	OL	OL	OL	OL	OL	OL	17.6	22.0	21.3	18.7	22.0	21.3	18.5	21.5	21.1	0.0	0.0	0.0
10/12/2023	94.2	92.9	94.5	93.9	OL	OL	OL	OL	OL	OL	OL	17.7	22.1	21.3	18.8	22.0	21.3	18.6	23.3	21.1	OL	OL	OL
11/12/2023	94.1	92.9	94.3	93.4	OL	OL	OL	OL	OL	OL	OL	17.8	22.1	21.3	18.8	21.8	21.3	18.6	21.5	21.1	OL	OL	OL
12/12/2023	94.0	92.9	94.3	93.2	OL	OL	OL	OL	OL	OL	OL	17.4	22.2	21.3	18.8	22.2	21.3	18.4	21.5	21.1	OL	OL	OL
13/12/2023	93.9	92.9	94.1	93.0	OL	OL	OL	OL	OL	OL	OL	17.5	22.0	21.3	18.7	21.9	21.3	18.6	21.5	21.1	OL	OL	OL
14/12/2023	93.7	5.3	93.8	93.0	OL	OL	OL	OL	OL	OL	OL	16.7	25.9	21.3	18.8	22.0	21.3	18.5	21.5	21.1	OL	OL	OL
15/12/2023	93.3	92.5	93.4	92.2	OL	OL	OL	OL	OL	OL	OL	17.7	24.1	21.3	18.5	22.8	21.2	0.0	21.7	21.1	OL	OL	OL
16/12/2023	93.2	92.4	93.4	92.4	OL	OL	OL	OL	OL	OL	OL	17.3	22.2	21.2	18.4	22.4	21.2	18.4	21.8	21.1	OL	OL	OL
17/12/2023	93.0	92.1	93.2	91.8	OL	OL	OL	OL	OL	OL	OL	17.0	29.2	21.3	17.5	23.2	21.2	17.9	21.9	21.1	OL	OL	OL
18/12/2023	93.2	91.8	93.2	92.6	OL	OL	OL	OL	OL	OL	OL	16.6	23.3	21.4	18.4	24.6	21.2	18.3	21.9	21.1	OL	OL	OL
19/12/2023	93.4	92.2	93.2	92.3	OL	OL	OL	OL	OL	OL	OL	17.3	22.0	21.2	18.5	21.9	21.2	18.3	21.5	21.1	OL	OL	OL
20/12/2023	93.8	84.1	93.7	88.0	OL	OL	OL	OL	OL	OL	OL	0.0	65.0	21.2	0.0	89.0	21.3	0.0	36.4	21.2	OL	OL	OL
21/12/2023	93.1	92.4	93.5	92.6	OL	OL	OL	0.0	105.9	83.4	16.2	29.5	21.3	18.5	22.0	21.2	18.4	22.5	21.1	OL	OL	OL	
22/12/2023	93.4	92.5	93.7	93.2	0.0	105.8	70.8	0.0	102.8	54.6	0.0	68.3	21.2	0.0	27.3	21.2	17.9	25.1	21.3	0.0	84.6	21.2	
23/12/2023	93.8	93.3	94.8	93.9	OL	OL	OL	OL	OL	OL	OL	17.1	22.7	21.1	0.0	0.0	0.0	18.2	27.5	21.4	16.0	28.1	21.1
24/12/2023	93.9	93.4	94.3	94.0	OL	OL	OL	OL	OL	OL	OL	17.3	22.8	21.1	OL	OL	OL	18.2	27.0	21.5	16.6	21.9	21.1
25/12/2023	93.9	93.4	94.2	94.0	OL	OL	OL	OL	OL	OL	OL	17.3	22.3	21.1	OL	OL	OL	18.2	27.3	21.4	16.6	22.8	21.2
26/12/2023	93.9	93.4	94.9	94.0	OL	OL	OL	OL	OL	OL	OL	17.4	22.0	21.1	OL	OL	OL	18.0	23.5	21.4	16.2	27.8	21.2
27/12/2023	93.5	92.8	94.4	93.8	0.0	105.9	41.9	12.0	100.5	33.1	0.0	23.0	21.1	OL	OL	OL	0.0	27.2	21.2	0.0	72.5	21.4	
28/12/2023	93.5	93.0	94.1	93.9	0.0	105.7	35.1	11.2	87.6	34.2	OL	OL	OL	16.3	74.8	21.3	OL	OL	OL	0.0	68.4	21.4	
29/12/2023	93.5	93.0	94.2	93.9	15.5	28.3	25.8	13.3	23.5	21.8	OL	OL	OL	18.1	22.2	21.3	OL	OL	OL	OL	OL	OL	
30/12/2023	93.5	93.0	94.5	94.1	20.7	29.1	23.6	19.7	23.2	21.8	OL	OL	OL	0.0	31.3	21.3	OL	OL	OL	15.8	68.6	21.4	
31/12/2023	93.6	93.0	95.1	94.5	20.0	24.7	22.5	19.8	23.1	21.8	OL	OL	OL	OL	OL	OL	OL	OL	OL	15.7	22.1	21.4	

- Notes:**
1. UV Comparative Dose: 18.1 mJ/cm²
 2. OL - Off Line

Submitted By (Print): D.Merredew

Signature: Original signed by D.Merredew