



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

*Environmental Standards Division • Division des Normes Environnementales*

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January 29, 2019

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

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

Dear Mr. Clarke:

**RE: REVISED DECEMBER 2018 WATER QUALITY COMPLIANCE  
SUBMISSION FOR THE CITY OF WINNIPEG WATER SUPPLY SYSTEM**

Please find attached the revised December 2018 Water Quality Compliance submission for the City of Winnipeg Water Supply System. The original submission on January 7, 2019 contained a corrective action report (CAR) for a missed compliance sample; upon review, the incident was not deemed a non-compliant event and a CAR was not required. On-line and grab turbidity summary reports, on-line and grab chlorine summary reports, the UV summary report for the Water Treatment Plant, and one CAR for a positive total coliform in the distribution system for December 2018 are attached.

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 effluent from the filters 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.

A sample collected following a water main repair on December 10 tested positive for total coliforms. A localized boil water advisory was issued on December 12, 2018 to affected residents, and was rescinded on December 14, 2018, after two consecutive re-samples tested negative for bacteria. Please see the attached corrective action report for additional details.

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 204-986-8359 or by e-mail at [rgrosselle@winnipeg.ca](mailto:rgrosselle@winnipeg.ca).

Yours sincerely,

*Original signed by R. Grosselle*

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**

December 2018 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
1/12/2018	0.71	0.05	0.07	0.06	0.10	0.06	0.14	0.04	0.10	0.04	0.10	0.05	0.13	0.05	0.11	0.01	0.06
2/12/2018	0.70	0.04	0.10	0.07	0.13	0.06	0.11	0.03	0.10	0.04	0.11	0.04	0.13	0.04	0.11	0.01	0.03
3/12/2018	0.68	0.04	0.10	0.06	0.14	0.07	0.15	0.03	0.06	0.05	0.07	0.06	0.12	0.03	0.12	0.01	0.05
4/12/2018	0.67	0.04	0.06	0.05	0.08	0.06	0.16	0.05	0.10	0.04	0.11	0.04	0.12	0.04	0.07	0.01	0.06
5/12/2018	0.65	0.05	0.10	0.08	0.13	0.06	0.09	0.03	0.10	0.04	0.12	0.04	0.13	0.04	0.11	0.01	0.02
6/12/2018	0.62	0.04	0.11	0.06	0.13	0.08	0.16	0.04	0.12	0.04	0.07	0.06	0.09	0.02	0.06	0.01	0.06
7/12/2018	0.59	0.03	0.06	0.06	0.15	0.07	0.15	0.04	0.07	0.06	0.12	0.06	0.12	0.04	0.10	0.01	0.06
8/12/2018	0.59	0.06	0.11	0.08	0.12	0.06	0.17	0.06	0.13	0.04	0.12	0.05	0.13	0.03	0.10	0.00	0.01
9/12/2018	0.60	0.04	0.10	0.07	0.14	0.07	0.15	0.04	0.12	0.02	0.08	0.05	0.12	0.04	0.07	0.01	0.06
10/12/2018	0.58	0.06	0.13	0.08	0.15	0.08	0.11	0.05	0.13	OL	OL	0.06	0.14	0.05	0.10	0.01	0.06
11/12/2018	0.56	0.06	0.13	0.09	0.17	0.10	0.21	0.06	0.14	OL	OL	0.07	0.10	0.05	0.15	0.01	0.08
12/12/2018	0.55	0.06	0.13	0.08	0.16	0.09	0.19	0.07	0.11	OL	OL	0.07	0.15	0.05	0.13	0.01	0.08
13/12/2018	0.54	0.07	0.11	0.08	0.11	0.09	0.19	0.07	0.16	OL	OL	0.07	0.16	0.05	0.13	0.01	0.09
14/12/2018	0.53	0.04	0.10	0.08	0.16	0.06	0.17	0.05	0.13	0.05	0.15	0.05	0.12	0.03	0.07	0.01	0.03
15/12/2018	0.50	0.03	0.14	0.07	0.16	0.10	0.13	0.06	0.16	0.05	0.15	0.06	0.09	0.06	0.12	0.01	0.09
16/12/2018	0.49	0.08	0.11	0.07	0.17	0.08	0.20	0.06	0.10	0.04	0.08	0.07	0.16	0.04	0.12	0.01	0.09
17/12/2018	0.58	0.06	0.14	0.09	0.13	0.08	0.21	0.07	0.15	0.08	0.14	0.06	0.16	0.04	0.13	0.01	0.02
18/12/2018	0.53	0.05	0.14	0.09	0.17	0.08	0.12	0.06	0.15	0.06	0.16	0.06	0.17	0.06	0.10	0.02	0.09
19/12/2018	0.52	0.05	0.09	0.07	0.18	0.10	0.21	0.05	0.16	0.06	0.15	0.08	0.11	0.06	0.14	0.02	0.09
20/12/2018	0.52	0.07	0.13	0.06	0.17	0.08	0.19	0.08	0.12	0.07	0.10	0.07	0.17	0.05	0.14	0.02	0.11
21/12/2018	0.52	0.04	0.15	0.11	0.17	0.06	0.19	0.06	0.17	0.08	0.16	0.06	0.18	0.06	0.08	0.03	0.04
22/12/2018	0.51	0.05	0.08	0.07	0.17	0.11	0.17	0.06	0.19	0.07	0.17	0.10	0.14	0.08	0.16	0.03	0.13
23/12/2018	0.50	0.07	0.14	0.07	0.11	0.07	0.21	0.11	0.14	0.09	0.22	0.09	0.24	0.07	0.19	0.04	0.15
24/12/2018	0.49	0.05	0.16	0.11	0.17	0.07	0.12	0.09	0.20	0.08	0.17	0.07	0.19	0.07	0.12	0.04	0.08
25/12/2018	0.48	0.06	0.09	0.08	0.18	0.12	0.21	0.07	0.13	0.06	0.17	0.10	0.13	0.07	0.15	0.03	0.12
26/12/2018	0.48	0.07	0.16	0.09	0.12	0.08	0.21	0.14	0.21	0.09	0.11	0.07	0.18	0.05	0.14	0.01	0.11
27/12/2018	0.48	0.05	0.14	0.09	0.18	0.08	0.14	0.10	0.22	0.06	0.16	0.06	0.18	0.07	0.09	0.03	0.11
28/12/2018	0.47	0.06	0.10	0.07	0.19	0.09	0.20	0.09	0.16	0.06	0.18	0.10	0.15	0.05	0.15	0.02	0.12
29/12/2018	0.48	0.05	0.12	0.11	0.13	0.07	0.21	0.09	0.15	0.10	0.13	0.07	0.17	0.05	0.14	0.01	0.03
30/12/2018	0.47	0.03	0.07	0.11	0.18	0.09	0.12	0.06	0.16	0.07	0.17	0.09	0.19	0.07	0.11	0.03	0.11
31/12/2018	0.47	0.06	0.14	0.07	0.19	0.08	0.19	0.06	0.11	0.06	0.16	0.09	0.13	0.05	0.15	0.01	0.11

Total Number of Measurements Taken, A:	14367	11474	14668	12211	12535	13810	13348	14887
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:	14367	11474	14668	12211	12535	13810	13348	14887
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%

OL - Off Line

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Turbidity\2018\12-December

Submitted By (Print): D.Merredew

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-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
02-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
03-Dec-2018	0.63	0.66	OL	OL	OL	OL	0.16	0.09	0.14	0.05	0.13	0.05	0.15	0.07	0.14	0.03	0.15	0.04	
04-Dec-2018	0.64	0.65	0.12	0.04	0.12	0.08	OL	OL	0.14	0.05	0.13	0.05	OL	OL	0.13	0.04	0.11	0.02	
05-Dec-2018	0.68	0.65	0.13	0.05	0.12	0.08	0.12	0.07	OL	OL	0.11	0.03	0.12	0.06	OL	OL	0.11	0.02	
06-Dec-2018	0.60	0.58	OL	OL	0.19	0.13	0.16	0.09	0.15	0.05	0.13	0.06	0.13	0.07	OL	OL	0.14	0.03	
07-Dec-2018	0.62	0.59	0.13	0.03	0.12	0.07	0.19	0.11	0.15	0.05	0.13	0.05	0.15	0.08	0.15	0.06	OL	OL	
08-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
09-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10-Dec-2018	0.57	0.58	OL	OL	0.19	0.12	0.16	0.09	0.15	0.06	OL	OL	0.15	0.07	0.14	0.04	0.14	0.03	
11-Dec-2018	0.54	0.55	0.13	0.05	OL	OL	0.18	0.10	0.16	0.07	OL	OL	0.16	0.07	0.16	0.06	0.19	0.07	
12-Dec-2018	0.54	0.53	0.15	0.05	0.14	0.09	0.19	0.12	0.16	0.07	OL	OL	0.17	0.10	OL	OL	0.14	0.02	
13-Dec-2018	0.52	0.51	0.15	0.05	0.14	0.10	OL	OL	0.17	0.08	OL	OL	0.19	0.11	0.14	0.04	0.13	0.03	
14-Dec-2018	0.53	0.51	OL	OL	0.15	0.10	0.14	0.08	OL	OL	OL	OL	0.15	0.07	0.14	0.04	0.13	0.03	
15-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
16-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
17-Dec-2018	0.54	0.51	0.20	0.09	0.16	0.11	OL	OL	0.18	0.09	0.13	0.06	OL	OL	0.13	0.04	0.13	0.03	
18-Dec-2018	0.51	0.51	OL	OL	0.17	0.12	0.18	0.10	OL	OL	0.19	0.11	0.15	0.08	0.15	0.05	0.15	0.04	
19-Dec-2018	0.51	0.51	0.17	0.06	OL	OL	0.18	0.11	0.16	0.07	OL	OL	0.16	0.09	0.18	0.07	0.21	0.10	
20-Dec-2018	0.51	0.49	0.17	0.07	0.16	0.10	OL	OL	0.17	0.08	0.14	0.07	0.21	0.12	OL	OL	0.15	0.03	
21-Dec-2018	0.52	0.50	OL	OL	0.17	0.12	0.17	0.10	OL	OL	0.19	0.10	0.16	0.09	0.16	0.06	0.17	0.05	
22-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
23-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
24-Dec-2018	0.50	0.48	OL	OL	0.19	0.13	0.18	0.11	OL	OL	0.20	0.12	0.18	0.10	0.18	0.07	0.18	0.06	
25-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
26-Dec-2018	NA	NA	0.21	0.09	NA	NA	NA	NA	0.19	0.14	NA	NA	NA	NA	NA	NA	NA	NA	
27-Dec-2018	0.48	0.46	0.16	0.05	0.20	0.12	0.18	0.10	0.23	0.18	0.18	0.10	0.17	0.09	0.17	0.07	0.17	0.06	
28-Dec-2018	0.46	0.46	0.16	0.07	0.14	0.13	0.20	0.12	0.17	0.14	0.14	0.08	0.18	0.11	0.24	0.13	0.23	0.10	
29-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
30-Dec-2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
31-Dec-2018	0.48	0.45	0.15	0.06	OL	OL	0.18	0.12	0.16	0.09	0.14	0.09	0.16	0.11	0.20	0.11	OL	OL	
<b>Total number of measurements taken, A:</b>			13		15		15		15		13		17		15		17		
<b>Turbidity Standard for Monitoring Location (NTU):</b>			0.30		0.30		0.30		0.30		0.30		0.30		0.30		0.30		
<b>Number of measurements meeting standard, B:</b>			13		15		15		15		13		17		15		17		
<b>Compliance with Turbidity Standard, C= B/A X 100%:</b>			100%		100%		100%		100%		100%		100%		100%		100%		

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

**Comments:**

Filter 5 was offline for scheduled maintenance from December 9 to 14, 2018.

Report Compiled By: H.Demchenko

Authorized in Sample Manager By: C.Diduck

Date Authorized: 7-Jan-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 January 2019

Report Period: December 2018

Date	BRANCH 1 [mg/L]		BRANCH 2 [mg/L]	
	Average	Minimum	Average	Minimum
01/12/2018	1.13	1.09	1.26	1.21
02/12/2018	1.08	1.04	1.18	1.12
03/12/2018	1.14	1.02	1.11	1.02
04/12/2018	1.16	1.07	1.03	0.98
05/12/2018	1.17	1.12	1.11	1.02
06/12/2018	1.15	1.07	1.08	1.02
07/12/2018	1.18	1.09	1.08	1.03
08/12/2018	1.16	1.06	1.06	0.98
09/12/2018	1.14	1.06	1.01	0.96
10/12/2018	1.22	1.13	1.07	0.99
11/12/2018	1.13	1.06	1.06	0.94
12/12/2018	1.12	1.05	1.19	1.10
13/12/2018	1.11	1.05	1.12	0.98
14/12/2018	1.15	1.03	1.14	1.05
15/12/2018	1.16	1.11	1.17	1.10
16/12/2018	1.11	1.05	1.09	1.00
17/12/2018	1.11	0.99	1.11	0.99
18/12/2018	1.09	0.99	1.16	0.93
19/12/2018	1.10	0.99	1.19	1.09
20/12/2018	1.12	1.02	1.12	1.00
21/12/2018	1.13	1.01	1.10	1.01
22/12/2018	1.12	1.02	1.11	1.02
23/12/2018	1.14	1.04	1.13	1.03
24/12/2018	1.10	0.98	1.10	1.03
25/12/2018	1.10	1.00	1.12	1.05
26/12/2018	1.13	1.02	1.13	1.04
27/12/2018	1.08	0.94	1.06	0.97
28/12/2018	1.05	0.92	1.02	0.94
29/12/2018	1.07	0.97	1.04	0.97
30/12/2018	1.00	0.90	0.94	0.88
31/12/2018	0.99	0.90	0.95	0.89

Total Number of Measurements, A:	21605	21604
Minimum Free Chlorine Standard:	0.5	0.5
Number of Measurements Meeting Standard, B:	21605	21604
COMPLIANCE, C = B/A X 100%:	100.00	100.00

File Path: N:\Water Treatment Branch\Administration\Reports\Regulatory Submissions\Chlorine\2018\12-December

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-09-412-01	Deacon Booster Pumping Station Branch 1			Deacon Booster Pumping Station Branch 2		
	Free Chlorine (mg/L)		Total Chlorine (mg/L)	Free Chlorine (mg/L)		Total Chlorine (mg/L)
Date	Analyser	Grab	Grab	Analyser	Grab	Grab
01-Dec-2018	NA	NA	NA	NA	NA	NA
02-Dec-2018	NA	NA	NA	NA	NA	NA
03-Dec-2018	1.22	1.16	1.38	1.13	1.16	1.28
04-Dec-2018	1.15	1.08	1.28	1.01	1.06	1.20
05-Dec-2018	1.20	1.22	1.37	1.18	1.14	1.31
06-Dec-2018	1.15	1.13	1.33	1.07	1.13	1.22
07-Dec-2018	1.17	1.21	1.39	1.09	1.14	1.31
08-Dec-2018	NA	NA	NA	NA	NA	NA
09-Dec-2018	NA	NA	NA	NA	NA	NA
10-Dec-2018	1.27	1.29	1.51	1.12	1.23	1.42
11-Dec-2018	1.09	1.13	1.32	0.95	1.04	1.19
12-Dec-2018	1.12	1.18	1.38	1.16	1.20	1.37
13-Dec-2018	1.14	1.22	1.38	1.07	1.21	1.36
14-Dec-2018	1.16	1.21	1.42	1.13	1.21	1.40
15-Dec-2018	NA	NA	NA	NA	NA	NA
16-Dec-2018	NA	NA	NA	NA	NA	NA
17-Dec-2018	1.15	1.13	1.31	1.12	1.13	1.35
18-Dec-2018	1.05	1.04	1.26	1.03	1.05	1.21
19-Dec-2018	1.13	1.15	1.31	1.21	1.23	1.41
20-Dec-2018	1.09	1.11	1.33	1.16	1.24	1.42
21-Dec-2018	1.14	1.21	1.40	1.12	1.20	1.40
22-Dec-2018	NA	NA	NA	NA	NA	NA
23-Dec-2018	NA	NA	NA	NA	NA	NA
24-Dec-2018	1.10	1.17	1.34	1.11	1.15	1.38
25-Dec-2018	NA	NA	NA	NA	NA	NA
26-Dec-2018	NA	NA	NA	NA	NA	NA
27-Dec-2018	1.10	1.16	1.34	1.09	1.12	1.33
28-Dec-2018	1.04	1.13	1.31	1.01	1.07	1.30
29-Dec-2018	NA	NA	NA	NA	NA	NA
30-Dec-2018	NA	NA	NA	NA	NA	NA
31-Dec-2018	1.00	1.07	1.27	0.92	1.05	1.17
<b>Total number of measurements taken, A:</b>		19			19	
<b>Chlorine Standard for Monitoring Location (mg/L):</b>		0.50			0.50	
<b>Number of measurements meeting standard, B:</b>		19			19	
<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

Authorized By: C.Diduck

Date Authorized: 7-Jan-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: **December 2018**

Report Created: **Tuesday, January 01, 2019**

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		Untreated
01/12/2018	93.95	0.00	0.00	60.39	60.39	0.00	0.00	0.00	0.00	0.00	0.00	49.95	49.95	0.00	0.00	0.00	0.00	0.00	0.00	73.67	73.67	0.00	0.00	0.00	0.00	0.00	0.00	184.01	184.01	100.00	
02/12/2018	93.86	0.00	0.00	54.39	54.39	0.00	0.00	0.00	0.00	0.00	0.00	53.80	53.80	0.00	0.00	0.00	0.00	0.00	0.00	75.78	75.78	0.00	0.00	0.00	0.00	0.00	0.00	183.97	183.97	100.00	
03/12/2018	93.53	0.00	0.00	16.78	16.78	0.00	0.00	0.00	0.00	0.00	0.00	62.20	62.20	0.00	0.00	0.00	0.00	0.00	0.00	53.71	53.71	0.00	0.00	51.32	51.32	0.00	0.00	184.01	184.01	100.00	
04/12/2018	93.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.38	65.38	0.00	0.00	0.00	0.00	0.00	0.00	42.19	42.19	0.00	0.00	76.35	76.35	0.00	0.00	183.92	183.92	100.00	
05/12/2018	92.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.29	65.29	0.00	0.00	0.00	0.00	0.00	0.00	42.27	42.27	0.00	0.00	76.37	76.37	0.00	0.00	183.93	183.93	100.00	
06/12/2018	91.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.40	65.40	0.00	0.00	0.00	0.00	0.00	0.00	42.26	42.26	0.00	0.00	76.37	76.37	0.00	0.00	184.04	184.04	100.00	
07/12/2018	96.66	0.00	0.00	12.62	12.62	0.00	0.00	0.00	0.00	0.00	0.19	50.86	51.04	0.00	0.00	0.00	0.00	0.00	0.00	45.70	45.70	0.00	0.00	74.49	74.49	0.00	0.19	183.67	183.85	99.90	
08/12/2018	94.44	0.00	0.00	58.28	58.28	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	59.29	59.29	0.00	0.00	69.01	69.01	0.00	0.00	186.58	186.58	100.00		
09/12/2018	94.66	0.00	0.00	58.93	58.93	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	60.23	60.23	0.00	0.00	69.84	69.84	0.00	0.00	189.01	189.01	100.00		
10/12/2018	94.38	0.00	0.00	58.93	58.93	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	60.13	60.13	0.00	0.00	69.87	69.87	0.00	0.00	188.94	188.94	100.00		
11/12/2018	94.14	0.00	0.00	55.73	55.73	0.00	0.00	0.00	0.00	0.00	0.00	8.48	8.48	0.00	0.00	0.00	0.00	0.00	0.00	57.55	57.55	0.00	0.00	67.20	67.20	0.00	0.00	188.96	188.96	100.00	
12/12/2018	94.01	0.00	0.00	56.96	56.96	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	47.19	47.19	0.00	0.00	84.82	84.82	0.00	0.00	188.96	188.96	100.00		
13/12/2018	93.96	0.00	0.00	57.02	57.02	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	47.82	47.82	0.00	0.00	84.16	84.16	0.00	0.00	188.99	188.99	100.00		
14/12/2018	94.10	0.00	0.00	57.00	57.00	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	47.77	47.77	0.00	0.00	84.21	84.21	0.00	0.00	188.97	188.97	100.00		
15/12/2018	94.08	0.00	0.00	57.03	57.03	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	47.79	47.79	0.00	0.00	84.19	84.19	0.00	0.00	189.01	189.01	100.00		
16/12/2018	94.03	0.00	0.00	57.05	57.05	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	47.77	47.77	0.00	0.00	84.18	84.18	0.00	0.00	189.00	189.00	100.00		
17/12/2018	93.94	0.00	0.00	46.27	46.27	0.00	0.00	0.00	0.00	0.00	0.00	42.51	42.51	0.00	0.00	0.11	0.11	0.00	0.00	16.06	16.06	0.00	0.00	83.11	83.11	0.00	0.00	188.06	188.06	100.00	
18/12/2018	93.66	0.00	0.00	40.53	40.53	0.00	0.00	0.00	0.00	0.00	0.00	63.79	63.79	0.00	0.00	0.17	0.17	0.00	0.00	42.91	42.91	0.00	0.00	38.16	38.16	0.00	0.00	185.56	185.56	100.00	
19/12/2018	93.78	0.00	0.00	40.19	40.19	0.00	0.00	0.14	0.14	0.00	0.00	62.51	62.51	0.00	0.00	0.00	0.00	0.00	0.00	81.44	81.44	0.00	0.00	0.00	0.00	0.00	0.00	184.27	184.27	100.00	
20/12/2018	93.67	0.00	0.00	17.14	17.14	0.00	0.00	41.11	41.11	0.00	0.00	50.60	50.60	0.00	0.00	0.00	0.00	0.00	0.00	71.95	71.95	0.00	0.00	0.09	0.09	0.00	0.00	180.88	180.88	100.00	
21/12/2018	93.53	0.00	0.00	0.00	0.00	0.00	0.00	71.74	71.74	0.00	0.00	41.45	41.45	0.00	0.00	0.00	0.00	0.00	0.00	64.49	64.49	0.00	0.00	0.00	0.00	0.00	0.00	177.68	177.68	100.00	
22/12/2018	93.36	0.00	0.00	0.00	0.00	0.00	0.00	69.72	69.72	0.00	0.00	39.56	39.56	0.00	0.00	0.00	0.00	0.00	0.00	61.29	61.29	0.00	0.00	0.00	0.00	0.00	0.00	170.57	170.57	100.00	
23/12/2018	93.17	0.00	0.00	0.00	0.00	0.00	0.00	68.68	68.68	0.00	0.00	38.92	38.92	0.00	0.00	0.00	0.00	0.00	0.00	59.39	59.39	0.00	0.00	0.00	0.00	0.00	0.00	166.98	166.98	100.00	
24/12/2018	93.26	0.00	0.00	0.00	0.00	0.00	0.00	68.60	68.60	0.00	0.00	38.83	38.83	0.00	0.00	0.00	0.00	0.00	0.00	59.56	59.56	0.00	0.00	0.00	0.00	0.00	0.00	167.00	167.00	100.00	
25/12/2018	93.43	0.00	0.00	0.00	0.00	0.00	0.00	68.39	68.39	0.00	0.00	38.67	38.67	0.00	0.00	0.00	0.00	0.00	0.00	59.91	59.91	0.00	0.00	0.00	0.00	0.00	0.00	166.97	166.97	100.00	
26/12/2018	93.53	0.00	0.00	0.00	0.00	0.00	0.00	68.19	68.19	0.00	0.00	38.59	38.59	0.00	0.00	0.00	0.00	0.00	0.00	60.20	60.20	0.00	0.00	0.00	0.00	0.00	0.00	166.98	166.98	100.00	
27/12/2018	93.61	0.00	0.00	0.00	0.00	0.00	0.00	68.22	68.22	0.00	0.00	38.57	38.57	0.00	0.00	0.00	0.00	0.00	0.00	60.19	60.19	0.00	0.00	0.00	0.00	0.00	0.00	166.98	166.98	100.00	
28/12/2018	93.70	0.00	0.00	0.00	0.00	0.00	0.00	68.27	68.27	0.00	0.00	38.58	38.58	0.00	0.00	0.00	0.00	0.00	0.00	60.15	60.15	0.00	0.00	0.00	0.00	0.00	0.00	167.00	167.00	100.00	
29/12/2018	93.93	0.00	0.00	0.00	0.00	0.00	0.00	69.40	69.40	0.00	0.00	39.47	39.47	0.00	0.00	0.00	0.00	0.00	0.00	61.61	61.61	0.00	0.00	0.00	0.00	0.00	0.00	170.48	170.48	100.00	
30/12/2018	93.69	0.00	0.00	0.00	0.00	0.00	0.00	69.97	69.97	0.00	0.00	39.81	39.81	0.00	0.00	0.00	0.00	0.00	0.00	62.21	62.21	0.00	0.00	0.00	0.00	0.00	0.00	171.99	171.99	100.00	
31/12/2018	93.73	0.00	0.00	0.00	0.00	0.00	0.00	70.18	70.18	0.00	0.00	39.81	39.81	0.00	0.00	0.00	0.00	0.00	0.00	62.00	62.00	0.00	0.00	0.00	0.00	0.00	0.00	171.99	171.99	100.00	
<b>Total [ML]:</b>		0.00	0.00	805.24	805.24	0.00	0.00	802.60	802.60	0.00	0.19	1073.03	1073.22	0.00	0.00	0.27	0.28	0.00	0.00	1734.47	1734.47	0.00	0.00	1173.73	1173.73	0.00	0.19	5589.35	5589.55		

**Water Volume [%]:**  
 Untreated: 0.00 %  
 Below Dose 0.00 %  
 To Dose 100.00 %

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

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



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Monday, January 7, 2019

**Our Incident/Report No: 10-2018**  
LIMS Reference No: Job\_103  
Incident Date: **December 10, 2018**

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

## RE: CORRECTIVE ACTION REPORT

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<b>WATER SYSTEM, CODE</b>	Winnipeg Public Water System, 252.00
<b>LOCATION OF NON-COMPLIANT INCIDENT</b>	<b>Winnipeg 3-Dist WS_REPAIR</b>
<b>INCIDENT REPORTED BY</b>	Louis Rivard, Superintendent of Water Distribution Operations
<b>TYPE OF NON-COMPLIANT INCIDENT</b>	1. High positive Total Coliform (>10 per100mL), 3 MR 41/2007
<b>DESCRIPTION OF CORRECTIVE ACTIONS</b>	<p><u>Water Services:</u> IMMEDIATELY: Contacted the ODW and Environmental Standards, flushed the isolated area.</p> <p><u>Environmental Standards:</u> IMMEDIATELY: Re-sampled original location and tested additional samples upstream and downstream of original location for; bacteria, turbidity, free/total chlorine, and temperature.</p> <p>The City of Winnipeg issued a localized boil water advisory to residents in the impacted area on December 12, 2018. The boil water advisory was rescinded on December 14, 2018, after two consecutive sets of re-samples taken a day apart tested negative for bacteria.</p>
<b>TEST RESULTS</b>	See Attached

### NOTES/COMMENTS:

1. UP/DOWN STREAM testing performed when EC is >0 /100mL, TC is >10 /100mL or when resample/consecutive sample is positive for EC or TC or as directed by the Manager of Environmental Standards Division and/or the Office of Drinking Water

**EMERGENCY REPORTING IS REQUIRED WHERE A POTENTIAL HEALTH RISK IS INVOLVED. FOLLOW THE INSTRUCTIONS OF YOUR DRINKING WATER OFFICER ON SITUATIONS REQUIRING IMMEDIATE REPORTING**

N:\Environmental Standards\Analytical Services\Government Agencies\Office of Drinking Water\Corrective Action Reports



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Sample Name	Sample Number	Date Sampled	E Coli (MPNU/100mL)	Total Coliform (MPNU/100mL)	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Turbidity-field (ntu)	Temperature (°C)	Time Sampled (hrs)
Hydrant (Work Order # 1816188)	NA	10-Dec-18	<1	>200	0.26	NA	4.14	NA	14:35
Hydrant (Resample 1)	165653	12-Dec-18	<1	<1	0.60	0.74	4.71	4.0	19:29
Hydrant (Resample 1 Duplicate)	165654	12-Dec-18	<1	<1	NA	NA	NA	NA	19:29
Upstream 1	165656	12-Dec-18	<1	<1	0.26	0.48	4.65	7.7	16:55
Downstream 1	165655	12-Dec-18	<1	<1	0.40	0.62	4.44	4.6	18:25
Hydrant (Resample 2)	165830	13-Dec-18	<1	<1	0.49	0.74	2.44	5.6	17:10
Hydrant (Resample 2 Duplicate)	165831	13-Dec-18	<1	<1	NA	NA	NA	NA	17:10
Upstream 2	165833	13-Dec-18	<1	<1	0.53	0.70	2.74	7.5	18:04
Downstream 2	165832	13-Dec-18	<1	<1	0.35	0.57	3.45	5.3	17:41

NOTES/COMMENTS:

1. All microbiological tests performed by contract laboratory.
2. N/R-No Result due to laboratory/analyst error.
3. N/A-Not Analyzed.