

February 25, 2016

Town of Moosonee
P.O. Box 727
5 First Avenue
Moosonee, ON
P0L 1Y0

Attention: Shannon McGillivray, Chief Administrative Officer

**RE: Moosonee Drinking Water System
2015 Annual Report**

Dear Shannon,

Please find attached the 2015 Annual Operations Report for the Moosonee drinking water system, in accordance with Section 11(1) of O. Reg. 170/03. This report covers the period from January 1 to December 31 and meets the requirement of being prepared by February 28 of this year.

Please ensure that a copy of this report is given, without charge, to every person who requests a copy. In addition, please make certain that effective steps are taken to advise residents that copies of the report are available, and of how a copy can be obtained.

Finally, as per Schedule 22 of O. Reg. 170/03, please ensure that a copy of the report is given to the members of municipal council no later than March 31, 2016.

If you have any questions regarding the report, we would be pleased to address them and you should contact the undersigned accordingly.

Sincerely,

AMERICAN WATER CANADA CORP.



Greg Prangley
Project Manager, Ontario Regional Projects

c. T. Keefe, AW Canada- Moosonee operations

2015 ANNUAL REPORT FOR WATER SYSTEMS

Part 1 – ANNUAL REPORT (as required by O. Reg. 170/03, Section 11)

Drinking-Water System Number:	260007114
Drinking-Water System Name:	Moosonee Drinking Water System
Drinking-Water System Owner:	Corporation of the Town of Moosonee
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1-December 31, 2015

Complete if your Category is Large Municipal Residential or Small Municipal Residential	Complete for all other Categories
Does your Drinking-Water System serve more than 10,000 people? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number of Designated Facilities served: n/a
Is your annual report available to the public at no charge on a web site on the Internet? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Did you provide a copy of your annual report to all Designated Facilities you serve? <input type="checkbox"/> Yes <input type="checkbox"/> No
Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection. Municipal Office 5 First Avenue Moosonee, ON Tel: (705)336-2993	Number of Designated Facilities served: n/a Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? <input type="checkbox"/> Yes <input type="checkbox"/> No

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
n/a	

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

n/a

Indicate how you notified system users that your annual report is available, and is free of charge.

<input type="checkbox"/> Public access/notice via the web	<input checked="" type="checkbox"/> Public access/notice via Government Office	<input checked="" type="checkbox"/> Public access/notice via a newspaper
<input checked="" type="checkbox"/> Public access/notice via Public Request	<input type="checkbox"/> Public access/notice via a Public Library	<input checked="" type="checkbox"/> Public access/notice via other method local bulletin boards and the community television channel_

Describe your Drinking Water System

Surface water supply from the Moose River. Water treatment plant rated at 3000 m ³ /day consisting of a dual train package unit with in-line flash mixing, two-stage flocculation, upflow solids contact clarifier with automatic sludge withdrawal, and dual media filters with air scour/water backwash. There are

separate chemical feed systems for primary coagulant, coagulant aid, disinfection and pH adjustment. Sludge is gravity settled in the clarifier then thickened and dewatered in a sludge bagging system for disposal at the local landfill. There is a 2140 m³ reservoir for treated water storage.

List all water treatment chemicals used over this reporting period

Coagulant - polyaluminum chloride
Coagulant aid - polymer
Disinfection – sodium hypochlorite
pH adjustment – caustic soda

Please provide a brief description and a breakdown of monetary expenses incurred

ODS Marine Clean and Inspect River Intake \$46,000
Overhaul 40 hp Vertical US Motors Pump \$1,300
Recondition to Goulds Backwash pump \$13,090
Install High Lift Backwash Pump \$15,000
Purchase of Emergency Raw Intake Pump \$7,300

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Corrective Action	Corrective Action Date
May 19, 2015	Zero Pressure in distribution system	Backup High Lift Pumps being repaired that day onsite.	Report to Spills Action Centre and Health Unit. Pressure restored. PBWA issued. PBWA lifted once two consecutive microbiological sample results from lab.	May 24, 2015
Oct 20, 2015	Sodium	25800 µg/l	Report to Spills Action Centre and MOE Inspector	Nov 3 2015
Oct 28, 2015	Total Coliforms (during main break)	45CFU/100mL	Re sampled at result site. Samples collected upstream and Downstream of original site. Contacted Health Unit and Spills Action Centre	Analysis Completed Nov 3, 2015

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period

	Number of Samples	Range of E.Coli Results (min #) - (max #)	Range of Total Coliform Results (min #) - (max #)	Number of HPC Samples	Range of HPC Results (min #) - (max #)
Raw	52	0-300	0-585	n/a	n/a
Treated	53	0	0	52	<10-520
Distribution	147	0	0	55	<10-10

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report

	Number of Grab Samples	Range of Results (min #) – (max #)	Units
Filter #1 effluent turbidity	8760	0.00-2.00*	NTU
Filter #2 effluent turbidity	8760	0.00-2.00*	NTU
Chlorine (POE)	8760	0.19-3.72**	mg/L
Chlorine (distribution)	476	0.11-1.83	mg/L
Fluoride (If the DWS	n/a	n/a	

provides fluoridation)			
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* There were no incidents of water exceeding the regulatory limit (1.0NTU) entering the distribution system. All occurrences of greater than 1.0NTU were due to backwashing and calibrations. This flow goes to waste

** The one instance where the POE chlorine dropped below 0.50mg/L was only for two minutes, which is less than the regulatory requirement of 5 minutes.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
None				

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	10/20/2015	<0.5	µg/L	No
Arsenic	10/20/2015	<1	µg/L	No
Barium	10/20/2015	11.2	µg/L	No
Boron	10/20/2015	18.1	µg/L	No
Cadmium	10/20/2015	<0.1	µg/L	No
Chromium	10/20/2015	<1	µg/L	No
Lead-see results below				
Mercury	10/20/2015	<0.1	µg/L	No
Selenium	10/20/2015	<1	µg/L	No
Sodium	10/20/2015	25.8	mg/L	Yes
Uranium	10/20/2015	<1	µg/L	No
Fluoride	10/22/2013	<0.1	mg/L	No
Nitrite	01/06/2015	<0.05	mg/L	No
Nitrate	01/06/2015	<0.10	mg/L	No
Nitrite	04/07/2015	<0.03	mg/L	No
Nitrate	04/07/2015	0.32	mg/L	No
Nitrite	07/14/2015	<0.03	mg/L	No
Nitrate	07/14/2015	0.11	mg/L	No
Nitrite	10/20/2015	<0.03	mg/L	No
Nitrate	10/20/2015	0.13	mg/L	No

Summary of Lead Results during this reporting period (Winter: Dec. 15/14-April 15/15; Summer: June 15-Oct. 15/15)

Sampling Period	Range of Results (µg/L) from Residential Samples (# of Samples taken)	Non-residential locations	Distribution System	Any Adverse Water Quality Incidents?
Winter	No samples required	n/a	n/a	No
Summer	No samples required	n/a	n/a	No

Only Alkalinity analysis was required in 2015. Lead sampling will be required in 2016

Summary of Organic parameters tested during this reporting period or the most recent sample results

Summary of Organic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	10/20/2015	ND	µg/L	NO
Aldicarb	10/20/2015	ND	µg/L	NO
Aldrin + Dieldrin	10/20/2015	ND	µg/L	NO
Atrazine + N-dealkylated metabolites	10/20/2015	ND	µg/L	NO
Azinphos-methyl	10/20/2015	ND	µg/L	NO
Bendiocarb	10/20/2015	ND	µg/L	NO
Benzene	10/20/2015	ND	µg/L	NO
Benzo(a)pyrene	10/20/2015	ND	µg/L	NO
Bromoxynil	10/20/2015	ND	µg/L	NO
Carbaryl	10/20/2015	ND	µg/L	NO
Carbofuran	10/20/2015	ND	µg/L	NO
Carbon Tetrachloride	10/20/2015	ND	µg/L	NO
Chlordane (Total)	10/20/2015	ND	µg/L	NO
Chlorpyrifos	10/20/2015	ND	µg/L	NO
Cyanazine	10/20/2015	ND	µg/L	NO
Diazinon	10/20/2015	ND	µg/L	NO
Dicamba	10/20/2015	ND	µg/L	NO
1,2-Dichlorobenzene	10/20/2015	ND	µg/L	NO
1,4-Dichlorobenzene	10/20/2015	ND	µg/L	NO
Dichlorodiphenyltrichloroethane (DDT) + metabolites	10/20/2015	ND	µg/L	NO
1,2-Dichloroethane	10/20/2015	ND	µg/L	NO
1,1-Dichloroethylene (vinylidene chloride)	10/20/2015	ND	µg/L	NO
Dichloromethane	10/20/2015	ND	µg/L	NO
2,4-Dichlorophenol	10/20/2015	ND	µg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	10/20/2015	ND	µg/L	NO
Diclofop-methyl	10/20/2015	ND	µg/L	NO
Dimethoate	10/20/2015	ND	µg/L	NO
Dinoseb	10/20/2015	ND	µg/L	NO
Diquat	10/20/2015	ND	µg/L	NO
Diuron	10/20/2015	ND	µg/L	NO
Glyphosate	10/20/2015	ND	µg/L	NO
Heptachlor + Heptachlor Epoxide	10/20/2015	ND	µg/L	NO
Lindane (Total)	10/20/2015	ND	µg/L	NO
Malathion	10/20/2015	ND	µg/L	NO
Methoxychlor	10/20/2015	ND	µg/L	NO
Metolachlor	10/20/2015	ND	µg/L	NO
Metribuzin	10/20/2015	ND	µg/L	NO
Monochlorobenzene	10/20/2015	ND	µg/L	NO
Paraquat	10/20/2015	ND	µg/L	NO
Parathion	10/20/2015	ND	µg/L	NO
Pentachlorophenol	10/20/2015	ND	µg/L	NO

Summary of Organic parameters tested during this reporting period or the most recent sample results

Phorate	10/20/2015	ND	µg/L	NO
Picloram	10/20/2015	ND	µg/L	NO
Polychlorinated Biphenyls(PCB)	10/20/2015	ND	µg/L	NO
Prometryn	10/20/2015	ND	µg/L	NO
Simazine	10/20/2015	ND	µg/L	NO
THM (NOTE: show latest annual average)	Q1-Q4 2015	51.4	µg/L	NO
Temephos	10/20/2015	ND	µg/L	NO
Terbufos	10/20/2015	ND	µg/L	NO
Tetrachloroethylene	10/20/2015	ND	µg/L	NO
2,3,4,6-Tetrachlorophenol	10/20/2015	ND	µg/L	NO
Triallate	10/20/2015	ND	µg/L	NO
Trichloroethylene	10/20/2015	ND	µg/L	NO
2,4,6-Trichlorophenol	10/20/2015	ND	µg/L	NO
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	10/20/2015	ND	µg/L	NO
Trifluralin	10/20/2015	ND	µg/L	NO
Vinyl Chloride	10/20/2015	ND	µg/L	NO

ND=Non-detect (below measurable limit)

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Sample Date	Result Value	Unit of Measure	ODWS Criteria
Total THMs (annual avg.)	2015 (Q1-Q4)	51.4	µg/L	100

Part 2 – SUMMARY REPORT (as required by O. Reg. 170/03, Schedule 22)

Non-Compliance with Legislations, Regulations, Approvals & Orders

During this period, the Facility was operated in full compliance with the Act, the regulations and the Facility's approval, save and except for the following:

- 1) Continuous monitoring equipment being utilized to fulfill O. Reg. 170/03 requirements was not performing tests for the parameters with at least the minimum frequency specified in Schedule 6 and/or was not recording data with the prescribed format
Actions Required: a) identify status of budget allocations towards rectifying the computer software issues and the activities planned for 2016 to address the ongoing loss of continuous data at the WTP
 b) identify a plan for completing the necessary software and hardware upgrades with expected completion dates
- 2) All microbiological water quality monitoring requirements for treated samples were not being met
Actions Required: Prepare sampling calendar for weekly, monthly and annual samples
- 3) Anthracite filter media was not disinfected as required
Actions Required: follow specific disinfection requirements set out by Subsection 2.3 of Schedule B to DWWP No. 232-201
- 4) Raw water sample was not collected during the week of Nov. 30-Dec. 6, 2014
Actions Required: see #2

System Capability Assessment			
Comparison of Flow Rates (m ³ /d):			
Month	Average Flow	Maximum Flow	Max Instantaneous flow (L/s)
January	825	922	11.6
February	904	986	25.1
March	905	970	12.9
April	908	1064	13.2
May	857	1049	29.6
June	813	962	12.9
July	736	906	12.3
August	756	974	25.1
September	787	932	13.6
October	742	902	25.0
November	752	934	23.9
December	763	867	12.0
AVERAGE	811	n/a	n/a
MAXIMUM	905	1064	29.6
SYSTEM CAPACITY	2998	2998	34.7 L/s
% CAPACITY	27.1%	35.5%	n/a