

**City of Meadow Lake
Drinking Water Quality and Compliance
Annual Notice to Consumers 2016**

Introduction

The Water Security Agency requires that at least once each year waterworks owners provide notification to consumers of the quality of water produced and supplied as well as information on the performance of the waterworks in submitting samples as required by a Minister's Order or Permit to Operate a waterworks. The following is a summary of the City of Meadow Lake's water quality and sample submission compliance records for the January 1st to December 31st 2016 time period. This report was completed on January 6, 2017. Readers should refer to Saskatchewan Water Security Agency's "Municipal Drinking Water Quality Monitoring Guidelines, June 2015, EPB 502" for more information on minimum sample submission requirements and the meaning of type of sample. Permit requirements for a specific waterworks may require more sampling than outlined in the department's monitoring guidelines. If consumers need more information on the nature and significance of specific water tests, for example, "what is the significance of selenium in a water supply", more detailed information is available from: Website www.saskh20.ca

Water Quality Standards

Bacteriological Quality

Parameter	Limit	Regular samples required	Regular Samples Submitted	# of Positive samples
Total Bacteria and Background Bacteria	Organisms/100 mL	156	156	0
	Less than 200/100 mL	156	156	0

Water Disinfection – Chlorine Residual in Distribution System for Test Results Submitted with Bacteriological Samples

Parameter	Minimum (mg/L)	Test Range Level	# Tests Performed	# Tests Not Meeting Requirements
Chlorine Residual	0.1 mg/L free or 0.5 mg/L total	0.02 – 3.15 mg/L free	231	5*

*From Public Works Precautionary Drinking Water Advisories

Water Disinfection – Free Chlorine Residual for Water Entering Distribution System – From Water Treatment Plant Records

Parameter	Minimum (mg/L)	Test Range Level	# Tests Performed	# Tests Not Meeting Requirements
Free Chlorine Residual	0.51 mg/L	0.56 – 2.89 mg/L	>365	0

Turbidity

Parameter	Limit (NTU)	Test Level Range (NTU)	# of Tests Not Meeting Requirements	# of Tests
Turbidity	0.3	0.027 – 1.19	1%	Continuous Monitoring

Chemical – Trihalomethanes

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "Trihalomethanes" based on population size. Samples were submitted in January, April, July, and October 2016. Next samples are due in January, April, July, and October 2017.

Parameter	Limit (mg/L)	SampleResult (average)	# Samples Required	# Samples Submitted
Trihalomethanes	0.1	0.198	8	8

(Note: Only water supplies derived from surface water or groundwater under the influence of surface water are required to monitor for trihalomethanes. Waterworks using groundwater sources beyond the influence of surface water do not need to report trihalomethanes, since sampling and analysis will not likely have been performed)

Chemical – Halo Acetic Acid

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "Halo Acetic Acid" based on population size. Samples were submitted in January, April, July, and October 2016. Next samples are due in January, April, July, and October 2017.

Parameter	Limit (mg/L)	SampleResult (average)	# Samples Required	# Samples Submitted
Halo Acetic Acid	0.08	0.173	8	8

(Note: Only water supplies derived from surface water or groundwater under the influence of surface water are required to monitor for halo acetic acid. Waterworks using groundwater sources beyond the influence of surface water do not need to report halo acetic acid, since sampling and analysis will not likely have been performed).

Chemical – Cyanide and Mercury

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "Cyanide and Mercury" category. The frequency of sample submission depends on the number of persons supplied by the waterworks. Samples were submitted in 2016. Next samples are due in 2017.

Parameter	LIMIT MAC (mg/L)	Sample Results (mg/L)	# Samples Exceeding Limit	# Samples Required	# Sample Submitted
Cyanide	0.2	<0.001	None	1	1
Mercury	0.001	0.000002	None	1	1

Chemical – Health Category

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "Chemical Health" based on population size. The "Chemical Health" category includes analysis for arsenic, barium, boron, cadmium, chromium, fluoride, lead, nitrate, selenium and uranium.

Sample results indicated that the provincial drinking water quality standards were not exceeded. Samples were submitted in 2016. Next samples are due in 2017.

Parameter	Limit MAC (mg/L)	Limit IMAC (mg/L)	Sample Results (mg/L)	# Samples Exceeding Limit	# Samples Required	# Sample Submitted
Arsenic	0.025		0.0001	None	1	1
Barium	1.0		0.031	None	1	1
Boron		5.0	0.03	None	1	1
Cadmium	0.005		0.00002	None	1	1
Chromium	0.05		<0.0005	None	1	1
Lead	0.01		0.0007	None	1	1
Nitrate (avg*)	45.0		0.275	None	4	4
Selenium	0.01		<0.0001	None	1	1
Uranium	0.02		0.00025	None	1	1

* Results expressed as average values for communities or waterworks which fluoridate drinking water supplies or those with elevated concentrations of fluoride or nitrates.

General Chemical

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "General Chemical" based on population size. The General Chemical category includes analysis for alkalinity, bicarbonate, calcium, carbonate, chloride, conductivity, hardness (as CaCO₃), magnesium, sodium, sulphate and total dissolved solids. Samples were submitted in January, April, July, October 2016. Next samples are due in January, April, July, October 2017.

Parameter	Aesthetic Objectives* (mg/L)	Sample Results (mg/L)	# Samples Exceeding Limit	# Samples Required	# Sample Submitted
Alkalinity	500	159	None	4	4
Bicarbonate		194	None	4	4
Calcium		35	None	4	4
Carbonate		0	None	4	4
Chloride	250	35.8	None	4	4
Conductivity	2300	438	None	4	4
Hardness	800	174	None	4	4
Magnesium	200	21	None	4	4
pH		7.5	None	4	4
Sodium	300	15	None	4	4
Sulphate	500	17	None	4	4
Total Dissolved Solids	1500	256	None	4	4

Chemical – Radiological

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "Radiological" category. The frequency of sample submission depends on the number of persons supplied by the waterworks. Samples were submitted in 2016. Next samples are due in 2018.

Parameter	LIMIT MAC (Bq/L)	Sample Results (Bq/L)	# Samples Exceeding Limit	# Samples Required	# Sample Submitted
Gross Alpha	0.5	<0.13	None	1	1
Gross Beta	1	0.15	None	1	1

Chemical – Pesticides

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "Pesticides" category. The frequency of sample submission depends on the number of persons supplied by the waterworks. The "Pesticides" category includes analysis for atrazine, bromoxynil, carbofuran, chlorpyrifos, dicamba, 2,4-D, diclofop-methyl, dimethoate, malathion, pentachlorophenol, picloram and trifluralin. Samples were submitted in 2016. Next samples are due in 2018.

Parameter	Limit MAC (mg/L)	Sample Results (mg/L)	# Samples Exceeding Limit	# Samples Required	# Sample Submitted
Atrazine	0.005	<0.0002	None	1	1
Bromoxynil	0.005	<0.0005	None	1	1
Carbofuran	0.09	<0.0002	None	1	1
Chlorpyrifos	0.09	<0.0002	None	1	1
Dicamba	0.12	<0.0005	None	1	1
2,4-D	0.10	<0.0005	None	1	1
Diclofop-Methyl	0.009	<0.003	None	1	1
Dimethoate	0.02	<0.002	None	1	1
Malathion	0.19	<0.0002	None	1	1
Picloram	0.19	<0.001	None	1	1
Trifluralin	0.045	<0.0002	None	1	1
Pentachlorophenol	0.06	<0.002	None	1	1

Chemical – Synthetic Organic Chemicals

All waterworks serving 5000 persons or more are required to submit water samples for Water Security Agency's "Synthetic Organic Chemicals" category. The frequency of sample submission depends on the number of persons supplied by the waterworks. The "Synthetic Organic Chemicals" category includes analysis for Benzene, Benzo(a)pyrene, Carbon tetrachloride, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, Dichloromethane, 2,4-Dichlorophenol, Monochlorobenzene, 2,3,4,6-Tetrachlorophenol, Trichloroethylene, 2,4,6-Trichlorophenol and Vinyl Chloride. Samples were submitted in 2016. Next samples are due in 2018.

Parameter	LIMIT MAC (ug/L)	Sample Results (ug/L)	# Samples Exceeding Limit	# Samples Required	# Sample Submitted
Benzene		<0.4	None	1	1
Benzo(a)pyrene		<0.01	None	1	1
Carbontetrachloride		<0.5	None	1	1
dichlorobenzene		<0.5	None	1	1
1,4-Dichlorobenzene		<0.5	None	1	1
1,2 - Dichloroethane		<0.5	None	1	1
1,1 - Dichloroethylene		<0.5	None	1	1
Dichloromethane		<0.5	None	1	1
2,4 Dichlorophenol		<2.0	None	1	1
Ethylbenzene		<0.4	None	1	1
Monochlorobenzene		<0.5	None	1	1
2,3,4,6 Tetrachlorophenol		<2.0	None	1	1
Toluene		<0.4	None	1	1
Trichloroethylene		<0.5	None	1	1
2,4,6 Trichlorophenol		<2	None	1	1
Vinyl chloride		<0.5	None	1	1
Xylene		<0.8	None	1	1

More information on water quality and sample submission performance may be obtained from:

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