



Conservation and Water Stewardship

Office of Drinking Water
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PWS 49.50

September 5, 2014

Reeve and Council
Rural Municipality of Victoria
Box 40
Holland, MB R0G 0X0

RE: Inspection of the Holland Public Water System

This letter is in follow-up to the August 12, 2014 inspection of the Holland public water system. The primary focus of the inspection was to confirm compliance with the terms and conditions of Holland Public Water System Operating Licence PWS-09-275-01.

Mr. Neil Young, water plant operator, was in attendance.

Compliance:

- A copy of the operating licence was posted at the water treatment plant
- Water samples for bacteriological analysis are being submitted on a bi-weekly basis.
- Chlorate and chlorite samples are being submitted to the lab as required.
- Monthly monitoring report forms are being submitted to this office at the end of each month.

Required for Compliance:

- None required; the water system is currently meeting the terms and conditions of its Operating Licence.

Recommended Actions:

- A well assessment was performed on the date of the inspection. It was noted that the west well was not secure and required replacement of an o-ring. This deficiency should be corrected as soon as possible. - DONE SEPT 10/2014
- It was also noted that the east well (back-up well) is located below grade and could be impacted by surface water. At this time only the west well is being used. If there comes a time where the back-up well need to be used on a frequent basis, the casing should be extended to at least 18 inches above the ground.

During the inspection, water samples were taken for general chemical analysis. The results (attached) indicate that the treated water met all health parameters. However, chlorite levels are still exceeding the health standard, as indicated by the samples that were submitted by Mr. Young on August 11, 2014.

If you have any questions about the inspection or any other drinking water related issues,
please call me at (204) 570-1405.

Sincerely,


Christine Gerardy
Drinking Water Officer

e-copy: Ivan Bruneau, CAO
copy: Neil Young, Operator



Office of Drinking Water
ATTN: CHRISTINE GERARDY
1129 Queens Avenue
Brandon MB R7A 1L9

Date Received: 13-AUG-14
Report Date: 27-AUG-14 14:05 (MT)
Version: FINAL

Client Phone: 204-570-1405

Certificate of Analysis

Lab Work Order #: **L1501298**
Project P.O. #: 28110
Job Reference: HOLLAND - PWS 95.00
C of C Numbers:
Legal Site Desc:

Judy Dalmaijer
Account Manager

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ANALYTICAL REPORT

L1501298 CONTD....

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Physical Tests (WATER)

		ALS ID		L1501298-1	L1501298-2
		Sampled Date		12-AUG-14	12-AUG-14
		Sampled Time		10:45	10:45
		Sample ID		HOLLAND 1 - RAW	HOLLAND 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Colour, True	CU	15	-	<5.0	<5.0
Conductivity	umhos/cm	-	-	1530	1560
Hardness (as CaCO ₃)	mg/L	-	-	138	145
Langelier Index (4 C)	No Unit	-	-	0.59	0.80
Langelier Index (60 C)	No Unit	-	-	1.3	1.6
pH	pH units	6.5-8.5	-	8.16	8.34
Total Dissolved Solids	mg/L	500	-	1010	1040
Transmittance, UV (254 nm)	% T	-	-	91.0	91.4
Turbidity	NTU	-	-	1.82	<0.10

Federal Guidelines for Canadian Drinking Water Quality (AUG, 2012)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Anions and Nutrients (WATER)

		ALS ID		L1501298-1	L1501298-2
		Sampled Date		12-AUG-14	12-AUG-14
		Sampled Time		10:45	10:45
		Sample ID		HOLLAND 1 - RAW	HOLLAND 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Alkalinity, Total (as CaCO ₃)	mg/L	-	-	403	416
Ammonia, Total (as N)	mg/L	-	-	1.05 DLA	0.99 DLA
Bicarbonate (HCO ₃)	mg/L	-	-	492	501
Bromide (Br)	mg/L	-	-	<0.50 DLM	<0.50 DLM
Carbonate (CO ₃)	mg/L	-	-	<12	<12
Chloride	mg/L	250	-	103	123
Fluoride	mg/L	-	1.5	0.26	0.32
Hydroxide (OH)	mg/L	-	-	<6.8	<6.8
Iodide (I)	mg/L	-	-	<2.0	<2.0
Nitrate and Nitrite as N	mg/L	-	10	<0.025	<0.025
Nitrate-N	mg/L	-	10	<0.025 DLM	<0.025 DLM
Nitrite-N	mg/L	-	1	<0.0050 DLM	<0.0050 DLM
Total Kjeldahl Nitrogen	mg/L	-	-	1.20	1.12
Total Nitrogen	mg/L	-	-	1.20	1.12
Sulfate	mg/L	500	-	193	218
Anion Sum	me/L	-	-	15.0	16.2
Cation Sum	me/L	-	-	16.2	17.0
Cation - Anion Balance	%	-	-	4.0	2.2

Federal Guidelines for Canadian Drinking Water Quality (AUG, 2012)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

☐ Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.

☒ Analytical result for this parameter exceeds Guide Limit listed on this report.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Organic / Inorganic Carbon (WATER)

		ALS ID		L1501298-1	L1501298-2
		Sampled Date		12-AUG-14	12-AUG-14
		Sampled Time		10:45	10:45
		Sample ID		HOLLAND 1 - RAW	HOLLAND 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Dissolved Organic Carbon	mg/L	-	-	2.5	3.8
Total Inorganic Carbon	mg/L	-	-	95.3	97.5
Total Organic Carbon	mg/L	-	-	3.7	3.7

Federal Guidelines for Canadian Drinking Water Quality (AUG, 2012)

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ANALYTICAL REPORT

Total Metals (WATER)

		ALS ID		L1501298-1	L1501298-2
		Sampled Date		12-AUG-14	12-AUG-14
		Sampled Time		10:45	10:45
		Sample ID		HOLLAND 1 - RAW	HOLLAND 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Aluminum (Al)-Total	mg/L	0.1	-	<0.0050	<0.0050
Antimony (Sb)-Total	mg/L	-	0.006	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	-	0.01	0.0117	0.00969
Barium (Ba)-Total	mg/L	-	1	0.0144	0.0113
Beryllium (Be)-Total	mg/L	-	-	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L	-	-	<0.00020	<0.00020
Boron (B)-Total	mg/L	-	5	0.757	0.788
Cadmium (Cd)-Total	mg/L	-	0.005	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	-	-	38.7	40.7
Cesium (Cs)-Total	mg/L	-	-	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L	-	0.05	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	-	-	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	1	-	0.00021	0.0767
Iron (Fe)-Total	mg/L	0.3	-	0.28	<0.010
Lead (Pb)-Total	mg/L	-	0.01	<0.000090	0.00101
Lithium (Li)-Total	mg/L	-	-	0.0994	0.103
Magnesium (Mg)-Total	mg/L	-	-	10.1	10.6
Manganese (Mn)-Total	mg/L	0.05	-	0.164	0.00055
Molybdenum (Mo)-Total	mg/L	-	-	0.00849	0.00874
Nickel (Ni)-Total	mg/L	-	-	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L	-	-	0.11	0.10
Potassium (K)-Total	mg/L	-	-	7.03	7.38
Rubidium (Rb)-Total	mg/L	-	-	0.00502	0.00501
Selenium (Se)-Total	mg/L	-	0.01	<0.0010	<0.0010
Silicon (Si)-Total	mg/L	-	-	12.1	12.5
Silver (Ag)-Total	mg/L	-	-	<0.00010	<0.00010
Sodium (Na)-Total	mg/L	200	-	304	317
Strontium (Sr)-Total	mg/L	-	-	0.401	0.405
Tellurium (Te)-Total	mg/L	-	-	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	-	-	<0.00010	<0.00010
Thorium (Th)-Total	mg/L	-	-	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	-	-	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L	-	-	<0.00050	<0.00050

Federal Guidelines for Canadian Drinking Water Quality (AUG, 2012)

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ANALYTICAL REPORT

L1501298 CONTD....

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Total Metals (WATER)

		ALS ID		L1501298-1	L1501298-2
		Sampled Date		12-AUG-14	12-AUG-14
		Sampled Time		10:45	10:45
		Sample ID		HOLLAND 1 - RAW	HOLLAND 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010
Uranium (U)-Total	mg/L	-	0.02	0.00017	0.00017
Vanadium (V)-Total	mg/L	-	-	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	5	-	<0.0020	0.0043
Zirconium (Zr)-Total	mg/L	-	-	<0.00040	<0.00040

Federal Guidelines for Canadian Drinking Water Quality (AUG, 2012)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Dissolved Metals (WATER)

		ALS ID		L1501298-1	L1501298-2
		Sampled Date		12-AUG-14	12-AUG-14
		Sampled Time		10:45	10:45
		Sample ID		HOLLAND 1 - RAW	HOLLAND 2 - TREATED
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Aluminum (Al)-Dissolved	mg/L	0.1	-	<0.0020	<0.0020

Federal Guidelines for Canadian Drinking Water Quality (AUG, 2012)

#1: GCDWQ - Aesthetic Objective

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Volatile Organic Compounds (WATER)

		ALS ID		L1501298-1
		Sampled Date		12-AUG-14
		Sampled Time		10:45
		Sample ID		HOLLAND 1 - RAW
Analyte	Unit	Guide Limit #1	Guide Limit #2	
Benzene	mg/L	-	0.005	<0.00050
1,1-dichloroethene	mg/L	-	0.014	<0.00050
Dichloromethane	mg/L	-	0.05	<0.00050
Ethylbenzene	mg/L	0.0016	0.14	<0.00050
MTBE	mg/L	0.015	-	<0.00050
1,1,1,2-Tetrachloroethane	mg/L	-	-	<0.00050
1,1,2,2-Tetrachloroethane	mg/L	-	-	<0.00050
Tetrachloroethene	mg/L	-	0.01	<0.00050
Toluene	mg/L	0.024	0.06	<0.00050
1,1,1-Trichloroethane	mg/L	-	-	<0.00050
1,1,2-Trichloroethane	mg/L	-	-	<0.00050
Trichloroethene	mg/L	-	0.005	<0.00050
o-Xylene	mg/L	-	-	<0.00050
m+p-Xylenes	mg/L	-	-	<0.00050
Xylenes (Total)	mg/L	0.02	0.09	<0.0015

Federal Guidelines for Canadian Drinking Water Quality (AUG, 2012)

#1: GCDWQ - Aesthetic Objective

GCDWQ - Maximum Acceptable Concentrations (MACs)

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* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
DLA	Detection Limit adjusted for required dilution

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
AL-D-L-MS-WP	Water	Dissolved Aluminum by ICP-MS	APHA 3030B/EPA 6020A -DL

This analysis involves filtration (APHA 3030B) and analysis by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

ALK-TOT-WP	Water	Alkalinity	APHA 2320B
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Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO₃⁻ and H₂CO₃ endpoints indicated electrometrically.

BR-IC-WP	Water	Bromide by Ion Chromatography	EPA 300.1 (Modified)
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Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

C-TC,TIC,TOC-WP	Water	Carbons	APHA 5310 B-INSTRUMENTAL-WP
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This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.
TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

C-TDC,DIC,DOC-WP	Water	Carbons Dissolved	APHA 5310 B-INSTRUMENTAL-WP
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This method is applicable to the analysis of ground water, wastewater, and surface water samples. The form detected depends upon sample pretreatment: Unfiltered sample = TC, 0.45um filtered = TDC. Samples are injected into a combustion tube containing an oxidation catalyst. The carrier gas containing the combustion product from the combustion tube flows through an inorganic carbon reactor vessel and is then sent through a halogen scrubber into a sample cell set in a non-dispersive infrared gas analyzer (NDIR) where carbon dioxide is detected. For total inorganic carbon and dissolved inorganic carbon, the sample is injected into an IC reactor vessel where only the IC component is decomposed to become carbon dioxide.

The peak area generated by the NDIR indicates the TC/TDC or TIC/DIC as applicable. The total organic carbon content of the sample is calculated by subtracting the TIC from the TC.
TOC = TC-TIC, DOC = TDC-DIC, Particulate = Total - Dissolved.

CL-L-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (Modified)
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Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

COLOUR-TRUE-WP	Water	Colour, True	APHA 2120C
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True colour in water is analyzed by discrete analyzer using the platinum-cobalt colourimetric method. Colour is pH dependant; unless otherwise indicated, reported colour results pertain to the pH of the sample as received to within +/- 1 pH unit.

EC-WP	Water	Conductivity	APHA 2510B
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Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

ETL-HARDNESS-TOT-WP	Water	Hardness Calculated	HARDNESS CALCULATED
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ETL-LANGELIER-4-WP	Water	Langelier Index 4C	Calculated
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ETL-LANGELIER-60-WP	Water	Langelier Index 60C	Calculated
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Reference Information

Methods Listed (if applicable):

S Test Code	Matrix	Test Description	Method Reference**
ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-L-IC-WP	Water	Fluoride by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
FE-T-U-MS-WP	Water	Total Iron by ICP-MS	APHA 3030E/EPA 6020A-TU
This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
I-IC-AD	Water	Iodide in Water - Datachem Ohio	SEE SUBLET LAB RESULTS
IONBALANCE-CALC-WP	Water	Ion Balance Calculation	APHA 1030E
MET-T-L-MS-WP	Water	Total Metals by ICP-MS	APHA 3030E/EPA 6020A-TL
This analysis involves preliminary sample treatment by hotblock acid digestion (APHA 3030E). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	Quickchem method 10-107-06-2-E Lachat
Samples are digested with a sulphuric acid solution, cooled, diluted with water, and analyzed for ammonia. Total Kjeldahl nitrogen is the sum of free-ammonia and organic nitrogen compounds which are converted to ammonium sulphate through this digestion process. Analysis is performed by Flow Injection Analysis (FIA). The pH of the digested sample is raised to a known, basic pH by neutralization with a concentrated buffer solution. This neutralization converts the ammonium cation to ammonia. The ammonia produced is heated with salicylate and hypochlorite to produce blue colour which is proportional to the ammonia concentration.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium boropruside and measured colourmetrically.			
NO2+NO3-CALC-L-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-L-IC-WP	Water	Nitrite as N by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
NO3-L-IC-WP	Water	Nitrate as N by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
SOLIDS-TDS-WP	Water	Total Dissolved Solids	APHA 2540 C (modified)
Total dissolved solids in aqueous matrices is determined gravimetrically after evaporation of the filtrate at 180 C.			
TRANSM-UV-WT	Water	Transmittance, UV (254 nm)	APHA 5910 B-Spectrophotometer
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			
VOC+F1-HSMS-WP	Water	VOC plus F1 by GCMS	EPA 8260C / EPA 5021A
In this method samples are analyzed using a headspace autosampler interfaced to a dual column gas chromatograph with MS and Flame Ionization detectors.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Reference Information

Chain of Custody Numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
AD	ALS DATACHEM LABORATORIES
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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