



Ministry of the Environment

**CAMP MANITOU (WHITEFISH FALLS) WATER TREATMENT PLANT
Drinking Water System Inspection Report**

DWS Number:	260071461
Inspection Number:	1-7KZM3
Date of Inspection:	Jul 29, 2009
Inspected By:	Maureen Spinney

OWNER INFORMATION:

Company Name: THE INCORPORATED SYNOD OF THE DIOCESE OF ALGOMA
Street Number: **Unit Identifier:**
Street Name:
City: SIOUX STE MARIE
Province: ON **Postal Code:** P6A 5N7

INSPECTION DETAILS:

DWS Name: CAMP MANITOU (WHITEFISH FALLS) WATER TREATMENT PLANT
DWS Address:
County/District: Sables-Spanish Rivers
District/Area Office: Moe Sudbury District
DWS Category: Small Non-Municipal Non-Residential
DWS Number: 260071461
Inspection Type: Announced
Inspection Number: 1-7KZM3
Date of Inspection: Jul 29, 2009
Date of Previous Inspection:

DRINKING WATER SYSTEM COMPONENTS DESCRIPTION

Site (Name): Camp Manitou(Whitefish Falls) Water Treatment Plant
Type: Source **Sub Type:** Surface Water

Comments:

The source water for this camp is Georgian Bay. The intake is located approximately 100 feet off shore at a depth of approximately 18 feet. The intake line is removed each September for the winter months.

Site (Name): Camp Manitou(Whitefish Falls) Water Treatment Plant
Type: Other **Sub Type:** Treatment Facility

Comments:

The treatment system draws surface water to the pumphouse, where filtration, UV treatment and chlorination are applied, then pumps treated water to the storage reservoir. The distribution system is gravity fed.

One piston pump is rated at 1/2 HP electric with a maximum output of 12gpm. As backup or as fire protection, the second piston pump is rated at 5.5 HP gas with a maximum output of 12gpm. The operator indicates that the two pumps cannot operate at one time, establishing the firm treatment capacity of 12gpm.

Filtration is provided through the use of 5 micron then 1 micron nominal inline cartridge filters. A 20 micron filter is in place for backwashing filters.

A Trojan UV (ANSI/NSF 55A) system has been installed complete with alarm system to provide primary disinfection. The chlorination system also provides some inactivation of viruses, with contact time being achieved during travel time in 140 metres of 1.5 inch pipe.

Secondary disinfection is achieved through the use of chlorination. A Prominent dosing pump injects sodium hypochlorite just prior to water leaving the pump house and entering the 140m of pipe. Treated water then enters one of two reservoirs which sit high atop the camp.

The existing ungalvanized storage tanks (2 x 1800L) are due to be replaced with fibreglass or polyethylene.

A pressure tank provides protection from water hammer in the distribution system.

Site (Name): Camp Manitou(Whitefish Falls) Water Treatment Plant

Type: Other

Sub Type: Other

Comments:

The camp's distribution system provides water to a maximum of 80 persons. The treatment system is said to be turned on approximately once per day, causing the storage tanks to be filled. Treated water is then provided for the rest of the day from the storage tanks. Drinking water is not provided to individual sleeping cabins but rather to the main hall(kitchen and dining), two wash stations and the manager's cabin.

INSPECTION SUMMARY

INTRODUCTION

- * The primary focus of these inspections is to confirm compliance with Ministry of the Environment legislation and control documents, as well as conformance with Ministry drinking water related policies for the inspection period. The Ministry has taken a multi-barrier approach in the inspection of this water system focusing on the water source, treatment and distribution components, monitoring programs, and response to adverse water quality incidents.

This inspection does not in any way suggest that all applicable legislation and regulations were evaluated. It is, and remains the responsibility of the owner, to ensure compliance with all applicable legislative and regulatory requirements.

SOURCE

- * The drinking-water system was registered with the Ministry of the Environment.
- * The owner had updated the drinking-water system registration information to reflect pertinent changes to the profile.
- * There were no obvious potential sources of pollution in or around the source that could impair source water quality.

TREATMENT PROCESSES

- * The system is capable of providing the required minimum level of treatment, as confirmed by a statement prepared by a Professional Engineer, or an exemption from Schedule 2 of O.Reg. 170/03.

The Engineering Evaluation Report (EER) has not actually been completed with the associated "Declaration" of the engineer - however the treatment system as designed by the engineer has been installed and is operational.

The following table summarizes removal credits assigned to treatment equipment:

Equipment	Crypto	Giardia	Virus
Cart. Filtration	2	2	0
UV System	0	3	1
Chlorination	0	0	3
Design Totals	2	5	4
Required	2	3	4

TREATMENT PROCESSES

- * **An Engineering Evaluation Report was not prepared as required by Schedule 21 of O. Reg. 170/03.**

As described above the EER has not been completed and submitted to the Ministry. Please see the "Required Actions" section.

However most of the information required in an EER has been included in a letter to the Camp. The engineer's recommendation have been followed and the treatment system appears to function well. The Camp Director should note that a completed EER should contain a maintenance schedule and a sampling plan.

- * **On the date of the inspection, all treatment specified within the Engineering Evaluation Report was in place and being used.**

LOGBOOKS

- * **Logs or other record keeping mechanisms were provided to record information concerning the drinking-water system.**

The operators are recording monitoring results in a makeshift log. Following a meeting held with the Camp Director to discuss matters, a formalized logbook was designed and has been put in use. The new logbook requires operators to enter monitoring results for specific parameters at specific locations and at specific intervals (eg daily) this greatly assists the camp in maintaining the required information. The Camp Director is reminded that all work performed in the drinking water system must be logged. For instance the replacement of UV bulbs needs to be logged.

CONSUMER RELATIONS

- * **Required documents were not made available free-of-charge during normal business hours at a location accessible to the public.**

Section 12, O.Reg 170 requires that the following information be made available, free of charge, at the facility:

Every sample result,

Annual reports,

Orders,

EER,

A copy of Regulation 170.

The Camp Director indicates that should anyone ask for such information, he would make it available free of charge. Please see the "Required Actions" section.

CERTIFICATION AND TRAINING

- * **All operators and trained persons did possess the required certification.**

The Camp Director provided the names of 5 operators for the camp. It has been verified with the Walkerton Clean Water Centre that training was provided to all five. It is highly recommended that the Camp Director maintain copies of the training certificates and ensure that certificates for working operators have not expired.

WATER QUALITY MONITORING

WATER QUALITY MONITORING

- * **All microbiological water quality monitoring requirements for distribution samples have not been met.**

Samples have not been taken for this site. Please see the "Required Actions" section. Following a meeting held with the Camp Director to discuss matters, samples were taken and lab results provided.

It is noted that the Camp is required to provide the following microbiological sampling:

If the Camp system meets engineering requirements then at least 1 sample per month must be taken in the distribution system and sampled for ecoli, total coliform and heterotrophic plate count (general bacterial population). Clear samples are required prior to seasonal start up.

- * **All physical/chemical water quality monitoring requirements prescribed by legislation were not being met.**

Sample results were not submitted during the inspection. Please see the "Required Actions" section.

Consulting engineers may have such sampling data.

It is noted that the Camp is required to provide the following physical/chemical sampling:

Inorganic/organic chemical suite is required once every 60 months.

Sodium testing is required once every 60 months.

Fluoride testing is required once every 60 months.

Lead testing is required once every 12 months.

Nitrates and THM's testing is required once every 3 months.

Free chlorine residual at least once per day at a point where primary disinfection has just been completed, though this can be reduced if system is using UV as treatment (dose of 40mJ/cm²), with functioning cartridge filters - please contact the district office.

Free chlorine residual in the distribution system at least twice per week, 48 hours apart.

Turbidity monitoring on filter effluent line is required daily, though this can be reduced if the system is using UV treatment with an auto shut off feature - please contact the district office.

- * **All sampling requirements for lead prescribed by schedule 15.2 of O. Reg. 170/03 were not met.**

Sample results were not submitted during the inspection. It is noted that the consulting engineers may have such sampling data. Please see the "Required Actions" section.

- * **Disinfectant residual was not being monitored in accordance with the legislation.**

Free chlorine residual at the manager's cabin is monitored but not always daily. Please see the "Required Actions" section.

The Camp Director has indicated that the operator will now take samples daily. As noted above this requirement can be reduced if UV treatment is used. Please contact the district office for further information.

- * **The owner and operating authority has ensured that the UV system was equipped with an alarm or shut-off, and maintained to ensure adequate primary disinfection.**

The UV system is equipped with an alarm. The Camp Director indicates that a policy is in place requiring operators to stay inside the pumphouse while the system is on, which allows the operator to hear and to respond to alarms.

WATER QUALITY MONITORING

- * **Chlorine monitoring for secondary disinfection was not being done in accordance with regulatory requirements.**

Free chlorine residual testing is sometimes performed at the wash stations in the distribution system but not consistently. Please see the "Required Actions" section.

Note it is important to write down the location where the sample was taken.

- * **Chlorine monitoring was being done with an appropriate device.**

A new Hanna kit was available which performed turbidity and chlorine residual testing. Though there were very few reagent packets, which would render the kit useless, the Camp Director provided confirmation that more reagents had been ordered.

- * **Turbidity monitoring was not being carried out in accordance with regulatory requirements.**

Turbidity monitoring on filter effluent line is required daily, though this can be reduced if the system is using UV treatment with an auto shut off feature - please contact the district office.

Currently daily turbidity monitoring is not always accomplished. Please see the "Required Actions" section.

WATER QUALITY ASSESSMENT

- * **Records show that the water provided by the system met the requirements of the prescribed Ontario Drinking-Water Quality Standards.**

REPORTING & CORRECTIVE ACTIONS

- * **All required notifications of adverse water quality incidents were provided to the Spills Action Centre and to the Medical Officer of Health.**

It is difficult to ascertain if all required notifications were made to the Ministry of Environment and the Health Unit due to the absence of sampling. However logbook information suggests relatively high free chlorine residual rates. It was noted in July of 2008 that results went to 0.05mg/l free chlorine residual- which is of concern since any value less than .05mg/l is considered to be adverse and reportable.

It is recommended that the Camp Director speak to operators about chlorine residual targets and conversely adverse levels of chlorine. Warning signs and reporting forms were provided during the inspection but are also available on the Ministry's website - www.ene.gov.on.ca .

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

1. An Engineering Evaluation Report was not prepared as required by Schedule 21 of O. Reg. 170/03.

The EER has not been completed and submitted to the Ministry as required by Schedule 21, O.Reg 170.

Action(s) Required:

Though the EER has not been completed, the engineer's recommendation have been followed and the treatment system appears to function well. The Camp Director should note that a completed EER should contain a maintenance schedule and a sampling plan.

By October 30, 2009, the owner is required to provide a completed EER to the undersigned.

2. Required documents were not made available free-of-charge during normal business hours at a location accessible to the public.

Section 12, O.Reg 170 requires that the following information be made available, free of charge, at the facility:

Every sample result,

Annual reports,

Orders,

EER,

A copy of Regulation 170.

The Camp Director indicates that should anyone ask for such information, he would make it available free of charge.

Action(s) Required:

By October 30, 2009, the owner of the camp is required to provide to the undersigned, written confirmation that during the next operating season, copies of required documents will be available at the camp facility.

3. All microbiological water quality monitoring requirements for distribution samples have not been met.

Samples have not been taken for this site.

Action(s) Required:

Following a meeting held with the Camp Director to discuss matters, samples were taken and lab results provided.

By October 30, 2009, the owner of the camp is required to provide to the undersigned a written sampling plan for microbiological (bacti) and chemical(metal, pesticides, etc) and physical(turbidity) parameters.

4. All physical/chemical water quality monitoring requirements prescribed by legislation were not being met.

Sample results were not submitted during the inspection.

Action(s) Required:

Though sample results were not submitted during the inspection, the consulting engineers may have such sampling data.

By October 30, 2009, the camp owner is required to provide to the undersigned, copies of sampling results for Schedule 23 and Schedule 24(O.Regulation 170), parameters.

5. All sampling requirements for lead prescribed by schedule 15.2 of O. Reg. 170/03 were not met.

Sample results were not submitted during the inspection.

Action(s) Required:

Though sample results were not submitted during the inspection, the consulting engineers may have such sampling data.

By October 30, 2009, in accordance with Schedule 15.2, O.Regulation 170, the camp owner is required to provide to the undersigned, copies of sampling results for lead.

6. Disinfectant residual was not being monitored in accordance with the legislation.

Free chlorine residual at the manager's cabin is taken but not always daily. The Camp Director has indicated that the operator will now take samples daily. As noted above this requirement can be reduced if UV treatment is used. Please contact the district office for further information.

Action(s) Required:

By October 30, 2009, in accordance with Schedule 9, O. Regulation 170, the camp owner is required to provide to the undersigned, a sampling plan which must include sampling for free chlorine residual.

7. Chlorine monitoring for secondary disinfection was not being done in accordance with regulatory requirements.

Free chlorine residual testing is sometimes performed at the wash stations in the distribution system but not consistently.

Action(s) Required:

By October 30, 2009, in accordance with Schedule 9, O. Regulation 170, the camp owner is required to provide to the undersigned, a sampling plan which must include sampling for free chlorine residual.

8. Turbidity monitoring was not being carried out in accordance with regulatory requirements.

Turbidity monitoring on filter effluent line is required daily, though this can be reduced if the system is using UV treatment with an auto shut off feature - please contact the district office.

Currently daily turbidity monitoring is not always accomplished.

Action(s) Required:

By October 30, 2009, in accordance with Schedule 9, O. Regulation 170, the camp owner is required to provide to the undersigned, a sampling plan which must include sampling for turbidity.

SUMMARY OF BEST PRACTICE ISSUES AND RECOMMENDATIONS

This section provides a summary of all best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. Best Management Practices are recommendations and not mandatory requirements, but may lead to safe drinking water for the consumer.

In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following practices and consider measures to implement them so that all drinking water systems continuously improve their processes.

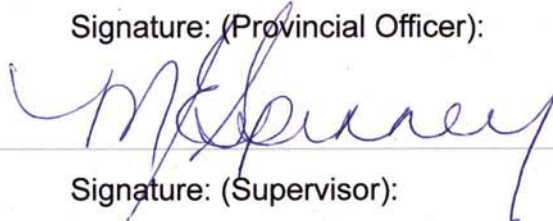
Not Applicable

SIGNATURES

Inspected By:

Maureen Spinney

Signature: (Provincial Officer):



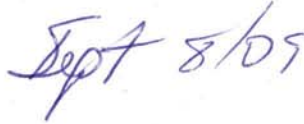
Reviewed & Approved By:

Brian McMahon

Signature: (Supervisor):



Review & Approval Date:



Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.

Appendix I

Ministry Audit Sample Results

APPENDIX

Table 1

**CAMP MANITOU (WHITEFISH FALLS) WATER TREATMENT PLANT
AUDIT SAMPLE RESULTS - 29-JUL-2009
CHEMICAL / PHYSICAL PARAMETERS - HEALTH RELATED**

Sample # 1 - TREATED WATER

Parameter	Units	MAC ¹	IMAC ²	AO ³	SAMPLE
					# 1
NITRATES TOTAL, UNFIL.REAC	MG/L	10 d			.066
NITRITE, UNFILTERED REACTIVE	MG/L	1 d			.001 <=W

Shortforms:

- | | | | | | |
|-----|---|---|------|---|----------------------|
| <T | - | A measurable trace amount; interpret with caution | NA | - | Result not available |
| <W | - | No measurable response (zero) : < Reported value | NS | - | Not sampled |
| <=W | - | No measurable response (zero) : < Reported value | NG/L | - | Nanograms per litre |
| < | - | Actual result is less than reported value | UG/L | - | Micrograms per litre |
| ND | - | Not detected | MG/L | - | Milligrams per litre |
| !NP | - | No appropriate procedure available | | | |

Footnotes:

- 1 Maximum Acceptable Concentration
- 2 Interim Maximum Acceptable Concentration
- 3 Aesthetic Objective
- 4 Includes *alpha*-chlordane, *gamma*-Chlordane and Oxychlordane
- 5 Includes *p,p'*-DDE, *o,p'*-DDT, *p,p'*-DDD and *p,p'*DDT
 - a) Total toxic equivalents when compared with 2,3,7,8,-TCDD (tetrachlorodibenzo-p-dioxin)
 - b) Where fluoride is added to drinking water, it is recommended that the concentration be adjusted to 0.5 - 0.8 mg/L, the optimum level for control of tooth decay.

Where supplies contain naturally occurring fluoride at levels higher than 1.5 mg/L but less than 2.4 mg/L the Ministry of Health and Long Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources.

Levels above the MAC must be reported to the local Medical Officer of Health.
 - c) This standard applies to water at the point of consumption. Since lead is a component in some plumbing systems, first flush water may contain higher concentrations of lead than water that has been flushed for five minutes.
 - d) Where both nitrate and nitrite are present, the total of the two should not exceed 10 mg/L (as nitrogen).
 - e) The standard is expressed as a running annual average of quarterly samples measured at a point reflecting the maximum residence time in the distribution system.

APPENDIX
Table 2
CAMP MANITOU (WHITEFISH FALLS) WATER TREATMENT PLANT
AUDIT SAMPLE RESULTS - 29-JUL-2009
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - TREATED WATER

Parameter	Units	MAC ¹	AO ²	SAMPLE
				# 1
NT: DETERIORATION INDICATORS	C/100ML		0	NOT DETECTED
NT: ESCHERICHIA COLI	C/100ML	0		ABSENT
NT: TOTAL COLIFORMS	C/100ML	0		ABSENT

Notes:

- Escherichia coli is a more definitive indicator of fecal contamination than fecal coliforms or total coliforms.
- At elevated levels, the general bacterial population may interfere with the detection of coliforms. This general population can be estimated from either background colony counts on the total coliform membrane filters or heterotrophic plate counts (HPC).

Shortforms:

- C/100mL - Count per 100 millilitre
- C/mL - Count per millilitre

Footnotes:

1. Maximum Acceptable Concentration
2. Aesthetic Objective

According to section 16-3 of O.Reg. 170/03, the following are prescribed as adverse results of a drinking-water test for the purpose of section 18 of the Safe Drinking Water Act 2002:

1. A result that exceeds any of the standards prescribed by Schedule 1, 2 or 3 to the Ontario Drinking-Water Quality Standards, other than the standard for fluoride, if the result is from a sample of drinking water.
2. A result indicating the presence of *Aeromonas* spp., *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Clostridium* spp. or fecal streptococci (Group D streptococci) in a sample of drinking water.
3. A result indicating the presence of a pesticide not listed in Schedule 2 to the Ontario Drinking-Water Quality Standards in a sample of drinking water, at any concentration.
4. A result indicating that the concentration of free chlorine residual is less than 0.05 milligrams per litre in a distribution sample, if the drinking-water system provides chlorination and does not provide chloramination.
5. A result indicating that the concentration of combined chlorine residual is less than 0.25 milligrams per litre in a distribution sample, if the drinking-water system provides chloramination.
6. If the drinking-water system is required to provide filtration and a report under subsection 18 (1) of the Act has not been made in respect of turbidity in the preceding 24 hours, a result indicating that turbidity exceeds 1.0 Nephelometric Turbidity Units (NTU) in,
 - i. a grab sample of water taken from a filter effluent line, or
 - ii. two samples of water from a filter effluent line that are tested by continuous monitoring equipment, if the two samples were taken 15 minutes or more apart and the later of the two samples was the first sample that was taken 15 minutes or more after the earlier sample.
7. If an approval or order, including an OWRA order, identifies a parameter as a health-related parameter and establishes a maximum concentration for the parameter, a result indicating that the parameter exceeds the maximum concentration in a sample of drinking water.
8. A result indicating that the concentration of sodium exceeds 20 milligrams per litre in a sample of drinking water, if a report under subsection 18 (1) of the Act has not been made in respect of sodium in the preceding 60 months.
9. A result indicating that the concentration of fluoride exceeds 1.5 milligrams per litre in a sample of drinking water, if,
 - i. the drinking-water system provides fluoridation and a report under subsection 18 (1) of the Act has not been made in respect of fluoride in the preceding 24 hours, or
 - ii. the drinking-water system does not provide fluoridation and a report under subsection 18 (1) of the Act has not been made in respect of fluoride in the preceding 60 months.