Ontario

Ministry of the Environment
Drinking Water Inspection Report

Ingleside Water Treatment Plant

INSPECTION DETAILS	
Location:	14754 County Road 2 Ingleside
Water Works Type:	Treatment With Distribution
Water Works Number:	220001003
Inspection Type:	Announced
Date of Inspection:	December 9, 2003
Date of Previous Inspection:	September 4, 2002
Inspection Number:	426

Municipality/Owner	**Operating Authority**
Township of South Stormont PO Box 340 4949 County Road 14 Ingleside, Ontario K0C 1M0 Attention: Betty de Haan Administrator/Clerk Phone: 613-537-2362 Fax: 613-537-8113	CANEAU Water and Sewage Operations Inc. 15005 County Road 2, RR#3, PO Box 13 Attention: Chris Eamon Operations Manager Phone: 613-537-2719 Fax: 613-537-9468
Inspector: Jan Franssen Cornwall Office Eastern Region 613-933-7402 ext 234	Distribution Date: April 30, 2004

Name and address of other contacts can be found in **Appendix E.**

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APPENDICES

SECTION 1 INTRODUCTION

1.1 INSPECTION OBJECTIVES

The primary focus of this inspection 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. Specifically, this includes a review and assessment of operating practices in relation to the following documents:

- The Safe Drinking Water Act, 2002
- Drinking Water Systems Regulation (O. Reg. 170/03)
- Operator Certification Regulation (Water Works and Sewage Works - O. Reg. 435/93)
- Certificates of Approval
- Permits to Take Water
- Previous Ministry of Environment inspection report dated April 3, 2003
- Engineer's Report dated May, 2001

The Ministry is implementing a rigorous and comprehensive approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as water system management practices.

Table 1 AUTHORIZING AND CONTROL DOCUMENTS REVIEWED

CERTIFICATES OF APPROVAL		
Certificate #	**Date Issued**	**Description**
1137-54BNME	February 8, 2002	Amended Certificate of Approval
PERMIT TO TAKE WATER		
Permit #	**Expiry Date**	**Description**
03-P-4022	January 24, 2013	Permit to Take Water
PREVIOUS ORDERS		
Order #	**Date Issued**	**Description**
P802014	September 20, 2002	Complete PTTW application; compliance with notification requirements

SECTION 2 EXISTING WATER SYSTEM DESCRIPTION

The Ingleside Drinking Water System is owned by the Township of South Stormont and is operated by CANEAU Water and Sewage Operations Inc. (CANEAU). The supply and treatment works are located at 14754 County Road 2, Ingleside. The water system was built in 1956 in conjunction with the construction of the St.Lawrence Seaway Hydropower Project.

2.1 WATER SOURCE

Water is drawn from the St.Lawrence River. The intake structure consists of a concrete housing fastened to a steel plate secured with a piling in each corner. The intake ports are fitted with stainless steel screens. Water is gravity fed from the intake structure through a cast iron pipe into the low lift well located below the water treatment plant. The low lift well has a capacity of 18 cubic meters. Chlorination is provided at the intake structure for zebra mussel control and primary disinfection. Please refer to the Certificate of Approval (CofA) in Appendix A for a detailed description of the intake facilities.

2.2 TREATMENT PROCESSES

Water is chlorinated year-round at the intake structure to maximize the chlorine contact time and provided zebra mussel control. The treatment plant is equipped with two sets (1 duty; 1 standby) of chlorination equipment consisting of: a 68kg cylinder of chlorine gas, weigh scale, vacuum regulator, and a chlorinator consisting of a rotameter and venturi injector. Chlorine gas is injected into treated water (diverted from the distribution main) to form a chlorine solution. The chlorine solution flows to a diffuser situated at the intake structure.

Chlorinated water flows from the intake structure into a low lift well located below the treatment plant. The low lift pumps (2 submersible pumps) draw water from the low lift well into a four-cell chlorine contact tank located underground adjacent to the treatment plant. The chlorine contact chamber has a total capacity of 296 m^3 and a hydraulic capacity of 233 m^3. Water flows through the compartments in the chlorine contact tank and then is gravity fed into the clearwell.

The clearwell is located adjacent to the low lift well. The clearwell has a total capacity of 64 m3 and a hydraulic capacity of 49 m3. The high lift pumps draw water from the clearwell to pump into the distribution system. There are two electric high lift pumps and one diesel standby pump located above the clearwell.

A detailed description of the components of the treatment system is provided in the CofA (Appendix A) and in the Engineer's Report (May 2001). GPS coordinates for the water treatment plant are provided in Appendix C.

2.3 DISTRIBUTION SYSTEM

The distribution system consists of approximately 14km of watermains constructed of cast iron and PVC. The distribution system services all the properties in Ingleside. There are approximately 700 service connections that serve a population of approximately 1755.

A 945 cubic meter steel storage tank is located 0.7 km north of Highway 2 on Dickinson Road. A chart recorder located at the treatment plant records the level of water in the tank. When the water level in the tank drops to a preset limit, the pumps at the treatment plant are activated. There are no chlorination facilities at the elevated tank. An overflow pipe is located on the side of the tank that discharges the overflow to the ground below the tank. GPS coordinates for the storage tank are provided in Appendix C.

2.4 SYSTEM DIAGRAM

A plant schematic supplied by the operating authority is provided in Appendix F.

SECTION 3 INSPECTION FINDINGS

3.1 OPERATIONS

3.1.1 Source/Supply

Water is drawn from the St.Lawrence River. Potential sources of pollution of the source include the sewage treatment plants at Iroquois, Morrisburg, and Ingleside, and industrial discharges from Rohmax Canada in Morrisburg and Kraft Foods in Ingleside.

Chlorine is injected at the intake structure to provide for zebra mussel control. The intake structure was last inspected on June 13, 2002, and it was reported that the system was functioning successfully to prevent the infestation of the intake pipe. As chlorination is provided at the intake structure, and the plant is not equipped with a raw water sampling line, arrangements have been made to allow the operating authority to collect raw water samples from the shoreline adjacent to the water treatment plant. The new water treatment plant will be equipped with a raw water sampling line.

The intake will be decommissioned as part of the upgrade to the new Long Sault-Ingleside waterworks, as water will be provided from the new treatment plant in Long Sault via a transmission line to Ingleside. Please refer to Section 3.1.5 of this report for details regarding the commissioning of the new waterworks.

Permit to Take Water Assessment

General Condition 3A of the PTTW requires the owner to establish and maintain a system for the measurement of the quantities of water taken. In addition, Condition 2.1 of the CofA requires the owner to maintain a sufficient number of flow measuring devises to measure the flow rate and daily quantity of water being taken from the source and conveyed to and through the water treatment plant, and the flow rate of treated water supplied to the distribution system.

The Ingleside Water Treatment Plant is <u>not</u> equipped with a raw water flow meter. An orifice plate measures the volume of treated water discharged from the plant. The treated water flow measurement is likely to approximate the volume of water taken from the source, as the only water utilized in the treatment process is that which is diverted to the chlorination equipment and the online analyzers.

Treated water flow volumes and rates are recorded on a on a 10" chart recorder manufactured by ABB KENT. A review of the calibration logs indicated that the flow meter and recorder were last calibrated on September 17, 2003 by Ken Harris Instrument and Control Limited of Newburgh, Ontario.

The Permit To Take Water (PTTW) states that the rate of taking shall not exceed 13,000 L/min or 4,700,000 L/day. Based on the treated water flow data (to November 2003) the highest maximum daily flow was 3,292,000 L/day.

PERMIT TO TAKE WATER ASSESSMENT				
PERMIT NUMBER	**RENEWAL DATE**	**SOURCE**	**PERMITTED AMOUNT OF TAKING**	**UNITS**
03-P-4022	January 24, 2013	Lake St. Lawrence	4,700,000	L/day

The permit is valid until January 24, 2013 or until such time as there are changes in the rate, amount or method of taking. The owner must amend the permit once the new water treatment plant is operational. Special Condition 13 of the PTTW requires the permit holder to measure and record daily water takings and shall ensure copies of these records are kept at the offices of the Township, and on-site at the water treatment plant. A copy of the PTTW is provided in Appendix B.

3.1.2 Treatment Processes

The inspection revealed that although the treatment equipment is installed as per the description provided in the CofA, it does not comply with the treatment requirements specified in Schedule 2-4 of O.Reg 170/03. Treatment plants that obtain water from a surface water source are required to provide treatment equipment consisting of: chemically assisted filtration and disinfection, or another treatment that is capable of producing water of equal or better quality.

To address this non-compliance issue, Condition 5.2 of the CofA required the owner to implement improvements to meet the treatment requirements by December 31, 2003. In the Fall of 2003 construction began on a new water treatment plant that will be located adjacent to the existing plant. The new plant will supply water to both the Town of Long Sault and the Town of Ingleside. It is anticipated that the new water treatment plant will be operational by the spring of 2005. Details regarding the construction of the new water treatment plant are provided in Section 3.1.5.

Condition 1.2 of the amended CofA specifies that the water treatment plant shall not operate at a rate exceeding the maximum flow rate of 4752 m3/day. A review of flow records indicate that the maximum recorded flow rate from September 2002 through to September 2003 was 4297 m3/day (September 2002), or approximately 90% of the rated capacity of the drinking water system.

Treated water capacity assessment for the previous three years is provided in the following table.

TREATED WATER CAPACITY ASSESSMENT			
ITEM	*2001*	*2002*	*2003*
Avg. Daily Flow (m3/day)	*2754*	*2018*	*1875*
Max. Daily Flow (m3/day)	*11692*	*3365*	*4297*
Rated Capacity (m3/day)	*4700*	*4700*	*4700*
% (Max. Daily / Rated Capacity)	*249%*	*72%*	*91%*

Note: Data obtained from CANEAU

Although the maximum daily flow rates are approaching the rated capacity of the existing water treatment plant, the new water treatment plant has been designed to produce up to 8575 m3/day. In 2003, the combined maximum daily flows for Long Sault and Ingleside totaled 7589 m3/day, or 88% of the anticipated maximum capacity of the new water treatment plant. The Township is in the process of installing meters on all service connections. The design Engineer anticipates that there will be a 10% reduction in water consumption as a result of metering.

The Township does not have any By-law's pertaining to water conservation. To conserve water during times of high demand, the Township requests that consumers restrict the watering of lawns and gardens.

The operating authority indicated that the water treatment plant system operated without interruption since the previous MOE compliance inspection, and that only certified operators made adjustments to treatment equipment.

Disinfection

A chlorine solution is delivered through a diffuser situated at the intake structure. The solution is created by a disinfection system situated in an isolated room at the water treatment plant. The system consists of two sets (1 duty; 1 standby) of chlorination equipment, consisting of: 1 68kg cylinder of chlorine gas, weigh scale, vacuum regulator, and a chlorinator consisting of a rotameter and venturi injector. The system operates on pressure differential and therefore does not require electricity to function. The chlorine solution can also be directed to the retention tank but this system is not currently used.

Condition 5.1 of the amended CofA required the provision of automatic switchover from duty to standby chlorinator by December 31, 2002. The inspection revealed that an automatic switchover regulator has been installed. Condition 5.1 also required the upgrading of rotameter capacity on chlorinator No.2 from 9.1 kg/day to 13.6 kg/day by December 31, 2002.

The operating authority confirmed that the chlorine gas meets the applicable American Water Works Association (AWWA) and American National Standards Institute (ANSI) standards.

A review of the Engineer's Report indicated that the Engineer concluded that a CT of 342 would be needed to achieve the required 3-log removal/inactivation of giardia cysts and a 4-log removal/inactivation of viruses. The Engineer's Report indicated that the calculated CT available at the plant is 25. Therefore, the treatment plant does not comply with the disinfection requirements of Schedule 2-4 of O.Reg 170/03.

The treatment plant is equipped with two chlorine analyzers. One analyzer is configured to sample the water as it enters the treatment plant and the other is configured to sample water on the treated water discharge line. Both analyzers are Hach Model CL17 equipped with circular chart recorders that provide a continuous record of chlorine residuals. The operating authority confirmed that the results are checked at least once every 72 hours. Water discharged from the analyzer is directed to the ground surface.

A review of the operations manual for the Hach CL 17 indicated that the analyzers are factory calibrated and do not require recalibration. Since the manufacture's instructions do not provide a recommended calibration frequency, Schedule 6-5 Section 10 of O.Reg 170/03 applies, requiring the analyzer to be checked and calibrated as often as necessary to ensure that the test results are within 0.05 mg/L at a concentration of 1.0 mg/L or proportionally higher if the concentrations measured are greater then 1.0 mg/L.

A review of the calibration records provided by the operating authority indicated that the chlorine analyzer was calibrated on September 23, 2003 by Ken Harris Instrumentation and Control Ltd. The operating authority indicated that the analyzer is compared with the results from a pocket colorimeter during each site visit and adjusted as required. The Operating Authority provided documentation that showed that the manufacturer calibrated the pocket colorimeter on October 2, 2003.

The chlorine analyzer is equipped with an alarm system that provides electronic notification to the operating authority if the test result indicates that the free chlorine residual is above the maximum alarm setting of 2.0mg/L free chlorine or below the minimum alarm setting of 0.5mg/L free chlorine for treated water discharged to the distribution system, or 3.5 mg/L and 0.2 mg/L free chlorine for water entering the plant from the intake structure. The alarm settings are consistent with the maximum concentration of 4.0 mg/L specified in the MOE document "Procedure for Disinfection of Drinking Water in Ontario" (March 17, 2003). The disinfection system is not equipped with a pump lockout.

The inspection revealed that the treatment plant is equipped with a chlorine gas detector that will alert the operating authority if there is a gas leak. The detector, manufactured by Wallace and Tiernan, was calibrated by Hetek Solutions of London, Ontario on August 19, 2003.

Turbidity Monitoring

Condition 2.1 of the CofA requires the owner to operate and continuously monitor the turbidity of treated water at the entrance to the distribution system. A Hach model 1720C turbidimeter is installed on the treated water discharge line, and provides a continuous measure of turbidity. The turbidity readings are recorded on a 10-inch circular chart recorder. The quality control band for this specific model of turbidimeter is ± 2% (ie: ± 0.02 at 1 NTU). The high alarm setting on the turbidimeter is set at 1.0 NTU.

Schedule 6-5(8) of O.Reg 170/03 requires that continuous monitoring equipment be calibrated in accordance with the manufactures instructions. A review of the 1720C Operations Manual indicated that the manufacturer of this instrument recommends that it is recalibrated using a formazin primary standard after any significant maintenance or repair and at least once every four months of normal operation.

A review of the calibration work orders revealed that the turbidimeter was last serviced and calibrated with a formazin standard on September 23, 2003 by Ken Harris Instrumentation and Control Ltd.

3.1.3 Process Wastewater

Water supplied to the on-line analyzers is discharged to the ground surface. There are no reagents added to the water by either of the analyzers. No other process wastewater is generated by the treatment plant.

3.1.4 Distribution System

The owner provided a copy of the "Leak Detection Survey" report prepared by Canadian Leak Detection of Frankford, Ontario in November 1998. The study identified two main leaks, 6 main valve leaks and 1 service leak.

Maintenance Programs

The operating authority confirmed the existence of plans of the distribution system, and stated that pressure problems have not been encountered in the distribution system.

The Township indicated that there were six watermain breaks in 2003. The Township provided a copy of their 'Emergency Water Main Repair Procedure'. The owner indicated that maintenance repairs of the distribution system are performed by Township employees under the supervision of their operating authority (CANEAU).

The operating authority confirmed that disinfection of repaired distribution system components is undertaken in accordance with the AWWA (American Water Works Association) Standards for Disinfecting Watermains (AWWA C652-92) and Storage Facilities (C653-97).

The operating authority confirmed that the fire hydrants connected to the distribution system are inspected and exercised on a routine basis following the spring and fall flushing events.

Cross Connection and Backflow Prevention

A by-law pertaining to the installation and maintenance of water meters was passed by council on January 14th, 2004. The by-law states that a water meter will be installed at all service connections, that cross connections are not permitted, and that users who have installed chemical systems (ex: water softener, de-chlorination) are required to install an approved backflow preventer.

Water haulers and local contractors obtain water from a water hook up at the treatment plant. The hookup is equipped with backflow prevention. This backflow prevention device was last inspected by Marleau Mechanical of Cornwall, Ontario on June 19, 2003.

Storage Structure Assessment

An 945m3 capacity elevated storage tank is installed in the distribution system. Overflow from the top of the tank is directed to the ground surface directly below the tank. The operating authority indicated that the elevated storage tank was last inspected on May 11, 1990.

The Township confirmed that pesticides are not applied or stored around, over or in the immediate vicinity of the elevated storage tank, nor are private applicators allowed to use hydrants for the mixing of pesticides.

3.1.5 Construction of New Long Sault – Ingleside Water Treatment Plant

The Township completed a Municipal Class Environmental Assessment of the water supplies for both communities of Long Sault and Ingleside in 1998 with the objective of upgrading the level of treatment provided to the both communities. The selected option was to construct a single treatment plant to service both communities.

On September 3, 2003 the Thompson Rosemount Group, on behalf of the Township, submitted a Certificate of Approval application to the Ministry for the construction of a membrane filtration plant and reservoir in Long Sault. Construction began on the new facility in the Fall of 2003 with an anticipated completion date of Spring 2005.

The existing water treatment plant will be abandoned and replaced by the Ingleside High Lift Pumping Station. This station will supply treated water from the Long Sault membrane filtration plant into the Ingleside Distribution System. A 1800 m^3 clearwell will be constructed at the site of the existing Ingleside Water Treatment Plant and will be constructed to act in parallel with the existing 250m^3 clearwell. Treated water will be supplied from Long Sault via the newly constructed transmission main. The booster station will be equipped with three high lift pumps and a disinfection system (ie: sodium hypochlorite injection) and associated instrumentation consisting of a chlorine analyzer, pH meter, temperature gauge and flow meter. Backup power will be provided by a diesel generator.

3.2 *WATER SYSTEM MANAGEMENT PRACTICES*

3.2.1 Operational Manuals

The operations and maintenance manual is located at the water treatment plant and is readily accessible by the operations staff. The manual, last updated in August 2003, contains the following: drawings and process descriptions, sampling schedule and procedures, standard operating procedures for the pumps, the chlorination system, and instrumentation, and notification and corrective actions for adverse conditions. The manual also contains information on safety precautions for operations staff, and procedures for water quality analysis, record keeping, and watermain repair.

3.2.2 Logbooks

The Operations Log is a bound notebook located at the water treatment plant. A review of the logbook indicated that it provided a summary of operating conditions at the plant, and that only certified operators are performing the required tests. The Operating Authority confirmed that the auto analyzer results are checked at a minimum of every 72 hours.

The logbook review also indicated that the operating authority generally performs operational checks at the treatment plant daily and performs site visits when system alarms are triggered. Entries in the logbook are made chronologically, and the operators are providing the dates and times of the site visits and recording information concerning the operation of the facility and any departures from normal operating conditions. A minimum of two years of logbook entries are available at the site.

The Operating Authority visit the site on a daily basis (except weekends and holidays) and perform the following daily plant checks: daily flow, chlorine usage and dosage rate, free chlorine analyzer (min., max. and average), free and total chlorine residual analyses from a portable analyzer, turbidity (displayed and daily average), and chlorine feed rate. Results are recorded in the logbook.

Monthly checks include: test and run standby diesel powered pump, flush/check turbidity analyzer against portable turbidimeter, check clearwell for debris, grease pumps and check packing, test run back-up chlorinator, test intrusion alarm.

3.2.3 Contingency and Emergency Planning

The Ingleside Water Treatment Plant is equipped with a security and alarm system that notifies an on-call service when various alarms are triggered. Alarms at the water treatment plant include: fire, unauthorized entry, low temperature, chlorine leak, low/high clearwell, low/high chlorine residual, and power failure. Additional alarms at the elevated tower include low/high water level and low temperature. When an alarm is triggered the on-call service notifies the operator in charge.

An Environmental Response Plan has been prepared, last updated August 2003, and is kept at the water treatment plant. The Plan includes emergency contact names and numbers, public complaint handling procedure, contingencies for staff injury, fire, spill, health and safety information for the laboratory, PPE and basic First-Aid.

The operating authority has not developed a contingency plan for the position of Operator in Overall Responsibility to ensure that overall operation of the facility is placed with an operator who holds a license that is appropriate for the facility.

The treatment plant is equipped with a diesel powered backup pump. The pump is supplied with fuel from an on-site storage tank. Spill containment is provided for the fuel tank. The operating authority indicated that the storage tank had a capacity of approximately 500 gallons, and that arrangements have been made with the fuel supply company to provide 24hr service if required.

3.2.4 Security

The treatment plant is equipped with an alarm that will notify the operating authority if there is unauthorized entry into the treatment plant.

3.2.5 Communication with Consumers

The operations manual includes procedures for responding to public complaints. Complaints received by employees are recorded on the "Record of Public Complaint" form required to be forwarded to the supervisor within 24hrs. The supervisor investigates the complaints and completes the report form. The operating authority indicated that there were no consumer complaints over the course of the inspection period.

The Township does not have a water conservation by-law, but during periods of high water demand the Township does formally request consumers to restrict the watering of lawns and gardens.

The operating authority confirmed that the following documents are available to the public during normal business hours:

- All of the lab reports on the analysis of water samples required to be taken under O. Reg 170/03
- All of the approvals, orders, and directions related to system
- Annual Compliance Report; and
- The Ontario Drinking Water Quality Standards (Regulation 169/03)
- A copy of O. Reg 170/03
- Copies of Annual Reports and Summary Reports for Municipalities required by O. Reg 170/03
- Copy of the most recent Engineer's Report.

3.2.6 Operator Certification and Training

The operator in overall responsibility for the Ingleside Drinking Water System is Chris Eamon. Mr. Eamon possesses a Class 2 Water Treatment License and a Class 2 Water Distribution License. The Ingleside Water Treatment Plant is classified as a Class 1 Water Treatment System and a Class 2 Distribution System.

The following table provides a list of the operators employed by the operating authority and operators employed by the Township's Public Works Department, and their levels of certification for treatment and distribution systems:

Operator Name	Treatment System Classification	Distribution System Classification
CANEAU Water and Sewage		
Chris Eamon	Class 2	Class 2
Ross Gellately	Class 1	--
Jennifer Lawson	Class 1	--
Troy Brownell	Class 1	--
Clark MacDonnell	Class 1	Class 1
South Stormont Public Works Department		
William Dunlop	Class 1	--
Tim Morgan	--	OT
Edward Cook	--	OT

Note that under O.Reg 435/93 any operator who holds a Class 1 or higher water treatment license is deemed to hold a Class 1 water distribution facility license. As required by O.Reg 435/93 the operator licenses were conspicuously displayed at the offices of the operating authority, and the plant classification certificate was conspicuously displayed at the water treatment plant.

At the time of the inspection all the operations staff possessed an adequate level of certification for this facility. Certification details for each of the operators is provided in Appendix D.

As of the end of 2002, all the operators had received a minimum of 40 hours of annual training as required by O.Reg 435/93 Section 17, and the operating authority indicated that all of the operating staff are aware of the established emergency contingency procedures.

SECTION 4 WATER QUALITY MONITORING & ASSESSMENT

4.1 WATER QUALITY MONITORING

The water quality monitoring requirements for the Ingleside Water Treatment Plant as specified in O. Reg 170/03 are as follows:

Raw Water

- one sample per week for microbiological analyses.

Treated Water

- one sample per week for microbiological analyses;
- one sample per quarter for nitrates/nitrites;
- one sample every 60 months for sodium analysis;
- one sample every 60 months for fluoride analysis;
- one sample per annum for inorganics (Schedule 23); and
- one sample per annum for organics (Schedule 24).

Distribution System

- nine samples per month (at least one per week) for microbiological analyses, including 25% of each batch for a heterotrophic plate count;
- one sample for trihalomethanes per quarter, collected at a point reflecting the maximum residence time in the system; and
- one sample for lead per annum, collected at a point reflecting the maximum residence time in the system.

It is important to note that under Schedule 13-5 of Regulation 170/03, where a test result for an inorganic parameter (Schedule 23), lead, or organic parameter (Schedule 24) exceeds half of the standard prescribed in Schedule 2 of the Ontario Drinking Water Quality Standards (Regulation 169/03), then the frequency of sampling and testing for that parameter must be increased to once sample every three months.

The treatment plant is not equipped with a raw water sampling line. The operating authority has made arrangements with the Ministry to permit the collection of weekly raw water samples from the shoreline, adjacent to the treatment plant, using a sample bottle mounted to a 12-foot swimming pool pole. The operating authority began collecting routine weekly raw water samples on April 28, 2003. The samples are submitted to Caduceon Environmental Laboratories of Ottawa, Ontario for microbial analysis. A discussion of the results of the raw water sampling is provided in Section 4.2 of this report.

The Operating Authority is aware of the requirement to conduct monthly turbidity test on the raw water, and the results of these tests are recorded in the logbook.

The operating authority collects weekly treated water samples at the water treatment plant, and submits them to Caduceon Environmental for microbiological analysis. Samples are currently analyzed for *E.Coli*, Total Coliforms and general bacteria population. However, prior to September 16, 2003 treated water samples were not analyzed as per the requirements of O.Reg 170/03.

Schedule 10-3 states that the owner of a drinking-water system and the operating authority for the system shall ensure that a water sample is taken at least once every week and tested for: *E.coli* or Fecal Coliforms; Total Coliforms; and general bacteria population expressed as background colony counts on the total coliform membrane filter or as colony counts on a heterotrophic plate count. Samples submitted prior to September 16, 2003 were analyzed for *E.Coli* and Total Coliforms, but were not analyzed for general bacteria population.

Treated water samples were submitted to an accredited laboratory for analysis of nitrates/nitrites and organics on November 13, 2002, and February 25 and June 25, 2003 and for nitrates/nitrites on October 14, 2003.

The required samples for inorganics were collected on November 13, 2002 and December 1, 2003. The samples collected on December 1, 2003 were analyzed for all the parameters listed in O. Reg 170/03, Schedule 23.

The operating authority collected a minimum of nine samples per month from the distribution system and submitted them to Caduceon Environmental Laboratories of Ottawa, Ontario for microbiological analyses. All samples were analyzed for *E.Coli*, and Total Coliforms. The required percentage of distribution samples were also analyzed for a heterotrophic plate count.

The required quarterly distribution samples for trihalomethanes, were collected on November 13, 2002, and February 25, June 25, October 14, and December 1, 2003. The required annual distribution sample for lead was collected on December 1, 2003.

All water samples submitted for analyses during the aforementioned period were analyzed by a laboratory accredited for the specific parameter that was analyzed.

A review of the operations log indicated that the operating authority began daily monitoring of the distribution system chlorine residual on July 18, 2003. The daily monitoring of chlorine residual in the distribution system was required as of June 1, 2003 as per Schedule 7-2 of O.Reg 170/03. On July 23, 2003 the Operating Authority provided a letter to the owner providing an explanation as to why the required samples were not taken. A copy of this letter is provide in Appendix I.

A review of the analytical results indicated that chlorine residual measurements are being conducted at the same time as microbiological sampling.

On November 28, 2001 Kim MacDonald signed and submitted the required "Notification of Laboratory Services Provided to Waterworks" form to the MOE's Laboratory Services Branch.

The operating authority confirmed that the laboratory analytical reports are kept for at least five years.

The review of the operations manual indicated that procedures are in place to ensure that, as required by Schedule 6-8 of O.Reg 170/03, samples are collected in accordance with directions from the laboratory.

4.2 WATER QUALITY ASSESSMENT

4.2.1 Bacteriological

Raw water sampling has shown that *E.Coli* and Total Coliforms have been consistently detected in the raw water. *E.Coli* concentrations ranged from 1 to 3700 colony forming units (cfu) per 100mL, with Total Coliform concentrations ranging from 2 to 4000 cfu per 100mL.

There were several local beaches that were closed over the course of the inspection period. The beach closures are summarized in the following table.

SUMMARY OF LO[illegible]
Beach	Dates Closed
Farran Park Beach	July 11, 2003
Lakeview Height	July 11 to 18, 2003 July 21 to August 15, 2003
Glengarry Park	August 5 to 21, 2003
Woodlands Beach	August 15 to 28, 2003
Crysler Beach	August 21 to 29, 2003

A review of the results from weekly treated water sampling at the water treatment indicated that *E.Coli* and Total Coliforms were <u>not</u> detected in any of the samples.

A review of the results from the weekly distribution system sampling indicated that both *E.Coli* and Total Coliforms were <u>not</u> detected in any of the distribution system samples.

Distribution system samples collected on August 11, 2003 and on September 15, 2003 indicated concentrations of >200 background bacteria (cfu/100mL). On both occasions, the operating authority initiated resampling and the samples indicated that the adverse conditions were no longer present.

The Ministry collected samples at the Ingleside Water Treatment Plant on December 9, 2003. The samples were submitted to the MOE Laboratory in Toronto for analyses of the following parameters: Total Coliforms, *E. Coli*, and a heterotrophic plate count. The analytical results indicated that all three bacteriological parameters were absent from the sample.

During the December 9, 2003 site visit, the Inspector collected distribution system samples from the following locations: Tri-County Stainless (2 Railway Street), Our Lady of Good Council School (52 Dickinson Drive), Ingleside Sewage Pumping Station. Chlorine residual was measured at each location and then water samples were collected in laboratory prepared sample bottles containing the preservative sodium thiosulphate, and were submitted to the MOE Laboratory in Toronto for analyses of the following parameters: Total Coliforms, *E. Coli*, and a heterotrophic plate count.

The results from the on-site analyses of chlorine residual are provided in the following table.

Free Chlorine Results
Ingleside Distribution System – December 9, 2003

	Tri-County Stainless	Our Lady of Good Council School	Sewage Pumping Station
Free Chlorine (mg/L)	0.92	0.89	0.77
Total Chlorine (mg/L)	1.08	1.14	0.96

The results of the onsite analyses of free chlorine residual in the distribution system indicated that the free chlorine residual were well above the minimum required concentration of 0.05 mg/L required by O.Reg 170/03 Schedule 1-2.

4.2.2 Physical/Chemical

A review of the analytical results for the sample collected by the operating authority on December 1, 2003 and submitted for inorganic analysis indicated that the O.Reg 170/03 Schedule 23 parameters where either not detectable or well below the Ontario Drinking Water Quality Standards. In addition, the analysis of the sample collected from the distribution system for lead, indicated that the concentration of lead was well below the Ontario Drinking Water Quality Standards.

A review of the analytical results for the sample collected by the operating authority on November 13, 2002, and February 25 and June 25, 2003 and submitted for organic analysis indicated that the O.Reg 170/03 Schedule 24 parameters where not detectable.

A review of the THM data collected over the course of the inspection period indicated that THM concentrations in the distribution system ranged from 0.0145 mg/L to 0.0584 mg/L.

A review of the results from the free chlorine residual monitoring at the treatment plant indicated that, since the last MOE compliance inspection, the minimum recorded free chlorine residual was 0.64 mg/L (March 31 and August 28, 2003), and that the maximum recorded free chlorine residual was 2.00 mg/L (September 9, 2002).

Since the operating authority began collecting daily free chlorine residual in the distribution system on July 18, 2003 the minimum recorded concentration was 0.28 mg/L in a sample analyzed on July 20, 2003 (data to December 9, 2003 reviewed).

On December 9, 2003 the Ministry collected a sample of treated water at the water treatment plant and submitted the sample to the MOE laboratory in Toronto, Ontario for the analysis of both health related and non-health related chemical and physical parameters. The results of these analyses indicated that the health related parameters where either not-detectable or well below the applicable standard. Total Trihalomethanes were detected at a concentration of 0.012 mg/L.

A review of the results for the non-health related chemical and physical parameters indicated that the treated water results were well below the applicable operational and aesthetic objectives.

The Operating Authority reported a total of four turbidity exceedances over the course of the inspection period, all of which were reported in November 2003.

4.2.3 Reporting, Notification & Corrective Action

There were two adverse water quality incidents in the Ingleside drinking water system related to microbiological parameters. In both cases the operating authority initiated the required corrective actions and provided the required notifications in a timely manner. Resampling indicated that the adverse conditions were no longer present.

There were four adverse water quality incidents related to elevated turbidity. In all cases the operating authority provided the required notifications.

The laboratory analytical reports for the regulated samples collected from the Drinking Water System are kept on file at the operating authority's office for a minimum of five years. The Annual Compliance Reports and Engineers Report are also kept at the operating authority's office. These reports are available to the public without charge during normal business hours.

The 2002 Annual Report was submitted to the Township Council and was received and reviewed on April 9, 2003 as required by Condition 4.1 of the CofA. The annual report included a summary listing of treatment chemicals used and a discussion of the quantity of water supplied during the reporting period compared to the design values for the population serviced.

Please note the Annual Compliance Reports necessitated by Certificate of Approval need no longer be prepared as long as the Annual Report and Summary Report for Municipalities necessitated by O.Reg 170/03 are prepared.

SECTION 5 ASSESSMENT OF PREVIOUS INSPECTION ISSUES

5.1 NON COMPLIANCE WITH REGULATORY REQUIREMENTS

The previous MOE inspection revealed that the following non-compliance issues may adversely impact human health.

i) The level of treatment fails to comply with the Regulatory requirements". The owner is required to implement the physical improvements to comply with Procedure B13-3 by December 31, 2003.

The Ingleside Water Treatment Plant is a surface water treatment plant which does not provide chemically assisted filtration. On September 3, 2003 an application for a Certificate of Approval to construct a new water treatment plant was submitted to the Ministry. Construction of the new plant is currently underway.

The previous compliance inspection revealed the following regulatory issues:

ii) Non-compliance with the weekly raw water sampling and analysis requirements. The inspector recommended that a means be provided to collect representative raw water samples.

In an April 30, 2003 letter submitted to the Ministry by the Township of South Stormont, the Township stated that the new Long Sault/Ingleside Water Treatment Plant will be equipped with a raw water sampling line. In the interim the operating authority has stated that they will collect raw water samples from the shoreline adjacent to the treatment plant using a sample bottle mounted to a 12-foot swimming pool pole.

Provincial Officer's Order Number 802014 was issued to the Township of South Stormont via registered mail on September 20, 2002. A copy of the Order is provided in Appendix H. The municipality was required to complete the following work ordered:

1) By no later than October 1, 2002, submit to the MOE a complete Permit To Take Water application under section 34 of the Ontario Water Resources Act.

The Thompson Rosemount Group (TRG) submitted an application for a Permit To Take Water on behalf of the Township of South Stormont on October 1, 2002. Permit To Take Water Number 03-P-4022 for the Ingleside Water Treatment Plant was issued on January 24, 2003.

2) Effective immediately upon service of this Provincial Officer's Order, ensure compliance with the notification requirements as required under Section 8 of Ontario Regulation 459/00 is initiated and is complied with thereafter.

A review of adverse water quality incidents indicated that the operating authority is providing the required notification within the required time frames.

5.2 BEST MANAGEMENT PRACTICES RECOMMENDATIONS

i) It is recommended that the Owner include the average, minimum and maximum values recorded for turbidity and trihalomethanes measured at the water treatment plant and in the distribution system in the quarterly reports.

In an April 30, 2003 letter to the Ministry, the owner confirmed that the requested items would be included in future reporting.

ii) It was advised during the inspection by the operating authority that the raw water intake was inspected on June 13, 2002 and a video was recorded of the inspection. By no later than April 20, 2003, the owner is required to submit an Action Plan to the MOE Inspector committing to evaluate the effectiveness of the existing zebra mussel control system.

In an April 30, 2003 letter to the Ministry, the owner indicated the zebra mussel control system was successfully preventing the infestation of the intake pipe.

Upon completion of the new Long Sault-Ingleside waterworks the intake structure will no longer be used.

SECTION 6 SUMMARY OF NON COMPLIANCE ISSUES & ACTIONS REQUIRED

1. The Ingleside Water Treatment Plant is not equipped with a raw water flow meter to measure the flow rate and daily quantity of water taken from the source as required by Condition 2.1 of the CofA. As the owner is in the process of constructing a new water treatment plant no further action is required to address this issue, provided that the owner ensures that a the new water treatment plant is equipped with a raw water flow meter that will measure the total volume of water taken from the source.

2. The Ingleside Water Treatment Plant does not comply with Schedule 2-4 of O.Reg 170/03 which requires drinking-water systems that draw water from a surface water source, to provide water treatment equipment that is designed to be capable of chemically assisted filtration or other water treatment equipment that is capable of producing water of equal or better quality. As the owner is in the process of constructing a new water treatment plant, designed to satisfy the requirements of Schedule 2-4, no further action is required to address this issue.

3. A review of the laboratory analytical reports indicated that prior to September 16, 2003 treated water samples were analyzed for *E.Coli* and Total Coliforms, but were not analyzed for general bacteria population. Schedule 10-3 states that the owner of a drinking-water system and the operating authority for the system shall ensure that a water sample is taken at least once every week and tested for: *E.coli* or Fecal Coliforms; Total Coliforms; and general bacteria population expressed as background colony counts on the total coliform membrane filter or as colony counts on a heterotrophic plate count. Subsequent to September 16, 2003 all of treated water samples were analyzed as per the requirements of Schedule 10-3.

4. A review of the operations log indicated that the operating authority did not begin collecting the required daily distribution system samples for chlorine residual until July 18, 2003. Schedule 7-2 of O.Reg 170/03 requires that a distribution sample is taken at least once every day and is tested immediately for free chlorine residual. O.Reg 170/03 came into effect on June 1, 2003 therefore the owner was not in compliance with the sampling requirements of O.Reg 170/03 for the period of June 1, 2003 to July 18, 2003. This non-compliance issue has been forwarded to the Ministry's Investigations and Enforcement Branch for review.

Of the four non-compliance issues identified above, Items 1 and 2 will be rectified through the commissioning of the new Long Sault/Ingleside Water Treatment Plant. Items 3 and 4 have already been rectified by the Operating Authority.

SECTION 7 SUMMARY OF BEST PRACTICE RECOMMENDATIONS

Legislated requirements have been identified in the previous section. In the interest of continuous improvement, we provide the following suggestions:

1. The operating authority does not have a formal contingency plan for the position of Operator in Overall Responsibility. A contingency plan should be developed to ensure that this position is held by an operator with the appropriate level of certification.

2. The owner should investigate the benefits of installing isokinetic monitoring stations for routine distribution system sampling.

3. The owner should apply to have the new Long Sault-Ingleside Water Treatment Plant classified in accordance with O.Reg 435/93 to ensure that appropriately classified operators will be available when the new water treatment plant begins operation.

4. The owner should make provisions for routine inspections of the elevated storage tank.

Please provide a response by May 31, 2004 detailing how the owner plans to address these Best Practice Recommendations.

SIGNATURES

Inspected By: Jan Franssen	*Signature: (Inspector):*
Reviewed & Approved By: James Mahoney	*Signature (Supervisor):* for: James Mahoney
Review & Approval Date: (yyyy/mm/dd) *2004/04/30*	

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.

cc: Betty de Haan, Clerk – Township of South Stormont
Chris Eamon, Operations Manager – CANEAU Water and Sewage
Dr. Robert Bourdeau, Medical Officer of Health – Eastern Ontario Health Unit
Mirek Tybinkowski, Specialist: Water and Wastewater – MOE EAAB
Roger Houde, Manager – Raisin River Conservation Authority
District Office File – SI ST CT MO 241

APPENDIX A

CERTIFICATE OF APPROVAL

(AS ATTACHED)

Ontario

Ministry of the Environment **Ministère de l'Environnement**

CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE WATER WORKS
NUMBER 1137-54BNME

The Corporation of the Township of South Stormont
PO Box 340,
Ingleside, Ontario,
K0C 1M0

Site Location: Ingleside Water Treatment Plant
14754 County Road 2
South Stormont Township, United Counties of Stormont, Dundas & Glengarry

You have applied in accordance with Section 52 of the Ontario Water Resources Act for approval of:

a surface water treatment plant serving the Village of Ingleside, located on the south side of Hwy 2, approximately 700m west of Dickinson Road (NAD27: UTM Zone 18: 500400.00m E, 4982000.00m N) rated at a maximum daily flow of 4,700 m^3/d, consisting of the following:

Intake Facilities

- a 1.54m x 1.54m x 2.5m high concrete crib intake structure located in Lake St. Lawrence, equipped with a coarse screen;
- a 1050m long, 406mm diameter raw water intake pipe extending from the intake structure to the water treatment plant;

Water Treatment Plant

- a raw water well/low lift pump well, 1.4m long x 1.8m wide x 7.2m deep;
- two (2) submersible low lift pumps each rated at 54.4L/s at a total dynamic head (TDH) of 5m;
- a gas chlorine disinfection system comprising one (1) two-68kg cylinder weigh scale, two (2) cylinder-mounted gas regulator valves (one duty, one standby) with manual switchover, one (1) primary chlorinator rated at up to 13.6kg/day with a chlorine solution line to the intake inlet with diffuser ring, one (1) standby chlorinator rated at up to 13.6kg/day with a chlorine solution line and diffusers at the contact tank inlets, piping valves and controls;

- a four-cell chlorine contact tank 9.5m long x 8.2m wide x 3.8m total depth with a maximum capacity of 240m^3;

- a high lift pump well, 2.1m long x 4.3m wide x 7.1m total depth with a maximum capacity of 56m^3;

- two (2) vertical turbine high lift pumps each rated at 32.43L/s at a TDH of 71m, equipped with electric motor drives and one (1) vertical turbine fire pump rated at 26.3L/s at a TDH of 66m with diesel engine drive;

- treated water flowmeter, turbidimeter and chlorine residual recorder;

- together with all associated piping, electrical and mechanical equipment, control and alarm systems all housed in a common building;

all in accordance with the Engineer's Report prepared by M.S. Thompson Associates Ltd. and dated May 31, 2001, and any additional information and documentation that may have been provided in support of the Report.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "certificate" means this entire certificate of approval document, issued in accordance with Section 52 of the *Ontario Water Resources Act*, and includes the schedules to it, if any, and any applications for approval for which certificates of approval have previously been issued, and supporting information to the applications;

(2) "Director" means any Ministry employee appointed as Director pursuant to Section 5 of the *Ontario Water Resources Act*;

(3) "Ministry" means the Ontario Ministry of the Environment;

(4) "Owner" means The Corporation of the Township of South Stormont, and includes its successors and assignees;

(5) "works" means the water works described in this certificate and in the supporting documentation included in the Engineer's Report for Water Works, to the extent approved by this certificate;

(6) "water treatment plant" means the entire water treatment system, including the water intake facilities, and any water storage facilities associated with the water treatment plant;

(7) "water treatment or distribution system" means a system for collecting, producing, treating, storing, supplying or distributing water that includes one or more water works;

(8) "quarter" means the three-month period beginning on January 1, April 1, July 1 and October 1 in each year;

(9) "maximum flow rate" means the maximum rate of water flow for which the plant or process unit was designed;

(10) "contact time" means the detention time T_{10} which is the time for 10% of the water (tracer) to pass through the process unit, storage reservoir or pipe;

(11) "operating authority" means Caneau Water and Sewage Operations Inc., hired by the Owner to operate the works, and includes any subsequent operating authority hired by the Owner in the future to operate the works.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. PERFORMANCE

1.1 The Owner shall ensure that, subject to Conditions 3.1 through 3.14, the water treatment or distribution system is operated and maintained in such a manner, and with such facilities that water supplied to the consumers serviced by the system satisfies the requirements of the "Ontario Drinking Water Standards", dated January 2001, as amended from time to time.

1.2 The Owner shall ensure that, subject to Conditions 3.1 through 3.14, the water treatment plant is operated to treat water at a rate not exceeding the maximum flow rate of 4,700 m^3/d.

(a) The Owner shall have a valid Permit To Take Water;

(b) The Owner shall submit an application for an amendment to this certificate when the approved maximum flow rates exceed the flow rates specified in the valid Permit To Take Water.

1.3 The Owner shall ensure that the flows into the water treatment plant do not exceed the maximum flow rate set out in Condition 1.2, except:

(a) where necessary to meet an unusual water demand for fighting a large fire, **or**

(b) where necessary for the purpose of maintenance of the works and essential to its efficient operation,

and provided that the treated water quality satisfies the requirements set out in the Ministry Procedure B13-3 entitled "Chlorination of Potable Water Supplies in Ontario", dated January 2001, as amended from time to time.

1.4 The Owner shall ensure that the disinfection facilities in the water treatment plant are operated and maintained in such a manner and with such facilities as is necessary to be in accordance with the Ministry Procedure B13-3 entitled "Chlorination of Potable Water Supplies in Ontario", dated January 2001, as amended from time to time.

2. MONITORING AND RECORDING

2.1 The Owner shall ensure that the following monitoring program is established and carried out:

(a) Install, maintain and operate a sufficient number of flow measuring devices to measure:

(i) the flow rate and daily quantity of water being taken from the source (intake) and conveyed to and through the water treatment plant, and

(ii) the flow rate of treated water supplied to the distribution system.

(b) Calibrate the flow measuring devices required by clause (a) above at regular intervals not exceeding one year to ensure their accuracy to within plus or minus 5% of actual rate of flow within the range of 10% to 100% of the full scale reading of the measuring devices, or as specified by the instrument manufacturer's instructions.

(c) Record the results of the flow measurements made in accordance with clause (a) above as total daily flow and as daily peak flows.

(d) Record the date, time, duration and cause of each occasion that the flow rate exceeds that specified in Condition 1.2.

(e) Install, maintain and operate continuous water quality analyzers and indicators with alarm systems, calibrated as specified by the instrument manufacturer's instructions or as in "Standard Methods for the Examination of Water and Wastewater" 20th Edition, 1998, or a more recently published edition, to monitor the following parameters at the indicated locations:

(i) free chlorine residual in treated water at the point of entrance to the distribution system (quality control band: $\pm$ 0.05 mg/L at a chlorine concentration of 1.0 mg/L chlorine or a proportionately wider band where the plant stream being monitored routinely contains a higher concentration of chlorine),

(ii) turbidity of treated water at the point of entrance to the distribution system (quality control band: $\pm$ 0.1 NTU),

(f) Samples of raw water and treated water shall be collected and analyzed for parameters at the locations and frequencies in accordance with Regulation 459/00, Drinking Water Protection, Schedule 2, Sampling and Analysis Requirements, as amended from time to time.

NOTE: Works which do continuous monitoring of chlorine residual or turbidity may do so instead of taking and analyzing grab samples as may be required by O. Reg. 459/00.

NOTE: Samples of raw water do not need to be analyzed for heterotrophic plate count or background colonies.

(g) The sampling required by clause (f) above shall be performed in a manner that ensures samples have a composition which is representative of the water stream from which they are taken and also in accordance with the instructions provided by the accredited laboratory engaged to perform the analyses.

2.2 The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring, sampling and analyzing activities required by this certificate.

3. OPERATIONS AND MAINTENANCE

3.1 The Owner, when making decisions within its authority, shall consider the impact of these decisions on the drinking water supply source for water works approved by this Certificate.

3.2 The Owner shall ensure that, subsequent to repairs to the water supply or distribution system, or interruptions in the operation of the water supply resulting in negative pressure conditions in the distribution system, and prior to utilization of the affected parts of the works for the supply of potable water, the affected parts of the water supply or distribution system have been adequately disinfected in accordance with the Ministry Procedure B13-3 entitled "Chlorination of Potable Water Supplies in Ontario", dated January 2001, as amended from time to time.

3.3 The Owner shall ensure that there is an operator who holds a valid licence that is applicable to this type of water treatment plant and that is of the same class as or higher class than the class determined for the water treatment plant in accordance with O. Reg. 435/93, as amended from time to time, and who is responsible for the operation of the water treatment plant.

3.4 The Owner shall exercise due diligence in ensuring that, at all times, the works and the related equipment and appurtenances used to achieve compliance with this certificate are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this certificate and the Act and regulations, adequate laboratory facilities, process controls and alarms, and the use of process chemicals and other substances that come in contact with water being treated, that are suitable for the process, compatible with each other and appropriate for drinking water.

3.5 In addition to the requirements of Condition 3.4, the Owner shall ensure that all chemicals used in the treatment process and all materials contacting the water meet both the American Water Works Association (AWWA) quality criteria as set out in AWWA standards and the American National Standards Institute (ANSI) safety criteria as set out in ANSI standard NSF/60 or NSF/61. For all chemicals used in the water treatment process and all materials contacting the water being treated, the Owner shall have evidence of current chemical and material product registration by a testing institution accredited under the Standards Council of Canada Act or by the ANSI or, documents showing the Ministry is satisfied that the information provided by the product manufacturer indicates the chemical or material product will meet the criteria of the ANSI standards.

3.6 The Owner shall immediately discontinue use of any chemical upon written notice by the Director.

3.7 The Owner shall establish written procedures for the notification of the Medical Officer of Health and the Ministry required by O. Reg. 459/00, and shall ensure that these procedures are followed.

3.8 The Owner shall ensure that contingency plans and procedures are established and adequate equipment and material are available for dealing with emergencies, upset conditions and equipment breakdowns in the works, and that such plans and procedures are implemented.

3.9 The Owner shall ensure that an operations manual that incorporates, at a minimum, the requirements of this certificate, and any adopted operation and maintenance recommendations of the Engineer's Report based on which this certificate has been issued, is prepared within twelve (12) months of issuance of this certificate of approval, and ensure that the operations manual is kept up to date. Upon request, the Owner shall make the manual available for inspection by the Ministry personnel.

3.10 The Owner shall ensure that based on the raw water source characterization and the treatment process, the operations manual includes monitoring and reporting of the necessary raw water and in-process parameters that are essential for control of the treatment process and for the assessment of the performance of the works. The manual shall also contain procedures that are required for adequate operation and maintenance of the monitoring equipment.

3.11 Within one (1) year of substantial completion of construction of the new water works required by this Certificate, the Owner shall ensure that drawings accurately showing the works as constructed (record drawings) are prepared and kept up-to-date, including timely incorporation of all modifications made to the works throughout its operational life.

3.12 The Owner shall ensure that a Process and Instrumentation Diagram (PID) for the entire water treatment plant is prepared and kept up-to-date, including timely incorporation of all modifications made to the works throughout its operational life.

3.13 The Owner shall keep a complete set of up-to-date record drawings and diagrams required to be prepared by Conditions 3.11 and 3.12, and all existing record drawings which are currently in retention throughout the operational life of the water works, and upon request, shall make them readily available for inspection by Ministry staff.

3.14 The Owner shall ensure that procedures are established and followed for receiving, responding to, and recording complaints about any aspects of the works, including recording the steps that were taken, if any, to determine the cause of complaint and the corrective measures taken to alleviate the cause and prevent its reoccurrence.

4. COMPLIANCE REPORT

4.1 (a) The Owner shall ensure that a written report detailing compliance with all terms and conditions of this approval is completed annually ("Compliance Report").

(b) The first Compliance Report shall cover the period from the date of issuance of this Certificate of Approval to the end of the calendar year and shall be completed and made available not later than March 31 of the following year. Each subsequent Compliance Report shall be completed and made available not later than March 31 following the end of the calendar year to which the Compliance Report applies.

(c) A Compliance Report shall include, at a minimum, the following information:

(i) Under a heading of 'Compliance with Terms and Conditions of the Certificate of Approval', a statement as to compliance with all of the terms and conditions of this certificate and a detailed description of the measures taken to ensure compliance with this certificate, including any supporting data or other information;

(ii) In the event of any non-compliance during the reporting period, and under a heading of 'Non-Compliance with Terms and Conditions of the Certificate of Approval', details of the non-compliance as well as details of how and when any non-compliance was corrected;

(iii) A summary and discussion of the quantity of water supplied during the reporting period compared to the rated capacity specified in this certificate of approval, including monthly average and maximum daily flows;

(iv) A summary of records made under Condition 2.1 related to flow rate exceedances, and a summary of analytical results of sampling required by the certificate, including raw water and in-process parameters as specified in the operations manual in accordance with Condition 3.10; and

(v) A summary listing treatment chemicals used, including average dosage rates with special reference to any abnormal usages.

(d) The Compliance Report shall be signed by a person designated by the Council of the municipality that owns the works.

(e) Within three months of completion of the Compliance Report, the Owner shall confirm by a resolution of council that the Compliance Report has been presented to council.

(f) The Owner shall ensure that copies of the Compliance Report are available for inspection by any member of the public during normal business hours without charge and at the same location as that required by s.11 of O.Reg. 459/00 for reports under that regulation. The 4th quarter report required under that regulation shall include information about when the Compliance Report is required to be completed, an outline of the requirements for its contents, and the location where the completed report can be inspected.

5. UPGRADING REQUIREMENTS

5.1 Subject to Condition 5.3 below, by **December 31, 2002,** the Owner shall implement the following physical improvements to the works, in keeping with recommendations of the Engineers' Report and related correspondence:

(a) All works and measures necessary to ensure the effective treatment and integrity of the works, including but not limited to:

(i) provision of automatic switchover from duty to standby chlorinator,

(ii) provision of secondary spill containment for the diesel fuel storage tank and

(iii) upgrading of rotameter capacity on Chlorinator No.2 from 9.1kg/day to 13.6kg/day.

5.2 Subject to Condition 5.3 below, by **December 31, 2003,** the Owner shall implement the following physical improvements to the works, in keeping with recommendations of the Engineers' Report and related correspondence:

(a) All works and measures necessary to meet requirements of the "Procedure B13-3 Chlorination of Potable Water Supplies in Ontario", including but not limited to:

(i) provision of a minimum level of treatment consisting of chemically-assisted filtration and disinection or other treatment capable of producing water of equal or better quality.

5.3 The Owner shall not construct or allow the construction of any portion of the works necessary to comply with the requirements of Conditions 5.1 and 5.2 above for which an approval under the *Ontario Water Resources Act* or the *Environmental Protection Act* is required unless a complete application for approval of such portion of the works, including detailed design drawings, specifications and a design brief containing detailed design calculations, has been submitted to and approved by the Director.

5.4 The Owner shall ensure that a complete application for approval under Section 52 of the *Ontario Water Resources Act,* and if necessary, under Section 9 of the *Environmental Protection Act,* is submitted to the Director for each item listed in Conditions 5.1 and 5.2 above for which an approval is required at a date which will allow the Owner to obtain approval for the required physical upgrades to the works, and implement the upgrades on or before the compliance date stipulated in Conditions 5.1 and 5.2 above.

5.5 The Owner shall submit to the Director complete raw water characterization data, as required by the Terms of Reference for Engineers' Reports for Water Works, dated January 2001 as soon as it is available and not later than the date of submission of application for approval for physical improvements identified in Condition 5.2.

5.6 The Owner shall ensure that, the design of the proposed physical improvements is based on the complete raw water characterization data.

6. SUBSEQUENT ENGINEERS' REPORTS

6.1 The Owner shall ensure that not later than **September 30, 2004** a Second Engineer's Report, prepared in accordance with the Ministry publication "Terms of Reference for Second and Subsequent Engineers' Reports for Water Works" current at the time of the preparation of the Report, is submitted to the Director.

6.2 The Owner shall ensure that each subsequent Engineer's Report, required by O. Reg. 459/00 to be submitted to the Director not later than the third anniversary of the submission of the previous report, is prepared in accordance with the Ministry publication "Terms of Reference for Second and Subsequent Engineers' Reports for Water Works" current at the time of the preparation of the Report.

7. REVOCATION OF EXISTING APPROVALS

7.1 The descriptions of the approved works and conditions of approval in this certificate apply in place of all existing descriptions and conditions in the certificates of approval under the *Ontario Water Resources Act* for water works which are part of the works approved by this certificate.

7.2 Notwithstanding Condition 7.1 above, the original applications for approval, including design calculations, engineering drawings and reports prepared in support of the existing certificate(s) of approval whose descriptions of the approved works and conditions are now replaced pursuant to Condition 7.1 above, shall form part of this certificate.

7.3 Where an existing certificate of approval referred to in Condition 7.1 above applies to works in addition to the works approved by this certificate, it shall continue to apply to those additional works.

8. INFORMATION

8.1 The requirements in this certificate shall not be construed as limiting in any way the ability of the Ministry to request or require the Owner to furnish any information related to compliance with this certificate, as limiting in any way the authority of the Ministry to require certain steps be taken, or as evidence of the fulfillment of the obligation to report or notify of non-compliance where reporting or notification is required by a statute, regulation, order or other approval.

8.2 In the event the Owner provides the Ministry with information, records, documentation or notification in accordance with this certificate ("Information"),

(a) the receipt of the Information by the Ministry;

(b) the acceptance by the Ministry of the Information's completeness or accuracy; or

(c) the failure of the Ministry to prosecute the Owner or to require the Owner to take any action, under this certificate or any statute or regulation in relation to the Information;

shall not be construed as an approval, excuse or justification by the Ministry of any act or omission of the Owner relating to the Information, amounting to non-compliance with the certificate.

9. CHANGE OF OWNERSHIP

9.1 The Owner shall notify the Manager of the local District office of the Ministry in writing of any of the following changes within 30 days of the change occurring:

(a) change of owner or operating authority, or both;

(b) change of address of owner or operating authority or address of new owner or operating authority;

(c) change of partners where the owner or operating authority is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Partnerships Registration Act* shall be included in the notification to the Manager of the local District office of the Ministry;

(d) change of name of the corporation where the owner or operating authority is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current "Initial Notice or Notice of Change" (Form 1, 2 or 3 of O.Reg. 189, R.R.O. 1980, as amended from time to time), filed under the *Corporations Information Act* shall be included in the notification to the Manager of the local District office of the Ministry;

9.2 In the event of any change in ownership of the works, other than change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this certificate, and a copy of such notice shall be forwarded to the Manager of the local District office of the Ministry.

9.3 The Owner shall ensure that all communications made pursuant to Conditions 9.1 and 9.2 will refer to this certificate's number.

10. INTERPRETATION (Severability and Conflicts)

10.1 The requirements of this certificate are severable. If any requirement of this certificate, or the application of any requirement of this certificate to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of this certificate shall not be affected thereby.

10.2 In all matters requiring the interpretation and implementation of this certificate, the conditions of the certificate shall take precedence, followed by the documentation submitted in support of the applications associated with any previously issued certificates of approval for works which are part of the works approved by this certificate.

The reasons for the imposition of these terms and conditions are as follows:

1. Conditions 1.1, and 1.4 are included so that the water quality delivered by the water treatment plant satisfies the current Ontario Drinking Water Standards in order to protect public health and so that the water is aesthetically acceptable.

2. Conditions 1.2 and 1.3 are included so that the flow rate of water through the works is within the approved treatment capacity of the works.

3. Conditions 2.1 and 2.2 related to the flow metering, sampling and monitoring program are imposed so that all pertinent data are available for the works performance evaluation and so that the works is operated and maintained at the level consistent with the design objectives, and is effective in producing water of an acceptable quality at all times.

4. Conditions 3.1 through 3.9 and 3.11 through 3.14 are included so that the works will be operated, maintained, funded, staffed and equipped in a manner enabling compliance with the terms and conditions of this certificate and that the Owner can deal with contingency and/or emergency situations.

5. Condition 3.10 is included so that adequate information is available to allow proper control of the treatment process in order to achieve the desired water quality and efficiency of the treatment process.

6. Condition 4.1 is included so that the Owner will regularly review compliance with the terms and conditions of this certificate, be alerted to its obligations with respect to any non-compliance, and allow the public enhanced participation in monitoring compliance.

7. Conditions 5.1 and 5.2 are included to require the Owner to implement improvements to the works necessary for the works to be capable of providing safe drinking water in accordance with Ontario Regulation 459/00 and Ontario Drinking Water Standards in a consistent and reliable manner.

Note: The requirement to implement the improvements to the works identified in Conditions 5.1 and 5.2 is based on the minimum treatment requirements applicable to all water supplies using surface waters as a source of raw water, and should it at any time be determined that the waters used as a source of raw water by the works have an increased potential for the presence of parasite cysts, the Owner may be required to provide further improvements to the works.

8. Conditions 5.3 and 5.4 are included so that the Owner is aware that Conditions 5.1 and 5.2, which identify the requirements for improvements to the works, do not constitute an approval for the implementation of the improvements, and before undertaking any of the improvements, the Owner must apply for and obtain Director's approval under Section 52 of the *Ontario Water Resources Act.*

9. Conditions 5.5 and 5.6 are included as this consolidated certificate has been issued based on incomplete raw water characterization submitted with the Engineer's Report, and full raw water characterization, as defined in the Terms of Reference for Engineers' Reports for Water Works, needs to be considered in determining the treatment requirements for a particular raw water source.

10. Conditions 6.1 and 6.2 are included to set specific dates for the submission of a second and subsequent engineers' reports, which are required by Ontario Regulation 459/00.

11. Conditions 7.1 through 7.3 are included to stipulate that this certificate replaces all previous approvals for the works being the subject of this certificate, and that the existing approvals remain in force for the purpose of any works which are not subject to this certificate (e.g., a distribution system or its portions, including any in-distribution storage facilities not associated with a water treatment process).

12. Conditions 8.1 and 8.2 are included to emphasize the distinction between the requirements of this certificate and other legal requirements with which the Owner is required to comply.

13. Conditions 9.1 through 9.3 are included so that the Ministry records are kept accurate and current with respect to approved works, and so that subsequent owners of the works are made aware of the certificate and continue to operate the works in compliance with it.

14. Conditions 10.1 and 10.2 are included to clarify how the certificate is to be judicially interpreted, and specifically, to clarify that the requirements of the certificate are severable and that they prevail over supporting documentation.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

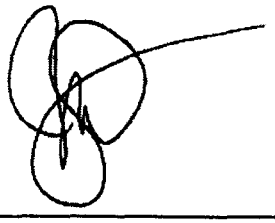
AND

The Director
Section 52, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* **Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted water works are approved under Section 52 of the Ontario Water Resources Act.

DATED AT TORONTO this 8th day of February, 2002



Mohamed Dhalla, P.Eng.
Director
Section 52, *Ontario Water Resources Act*

LP/

c: District Manager, MOE Cornwall
Marco Vincelli, P.Eng., M.S. Thompson & Associates Ltd
Manager, Drinking Water, Wastewater and Watershed Standards Section, Standards Development Branch

APPENDIX B

PERMIT TO TAKE WATER

(AS ATTACHED)

Notice of Terms and Conditions
Section 100, *Ontario Water Resources Act*, R.S.O. 1990, Chapter O.40

Pursuant to Section 34 of the *Ontario Water Resources Act*, R.S.O. 1990, Chapter O.40 permission is hereby granted

TO: Corporation of the Township of South Stormont
P.O. Box 340, 4949 County Road 14
Ingleside, ON
K0C 1M0

for the taking of water from Lake St. Lawrence for the Ingleside water treatment plant located at 14754 County Road 2, Ingleside, Ontario, Township of South Stormont, County of Stormont, Dundas and Glengarry. The rate of taking shall not exceed 13,000 litres per minute, or 4,700,000 litres per day.

Except where modified by this Permit the water taking shall be in accordance with the application dated October 1, 2002, and signed by Betty deHaan.

You are hereby notified that this Permit is issued to you subject to the following Definitions, General Conditions and Special Conditions.

DEFINITIONS

1. (a) "Director" means a Director, Section 34, *Ontario Water Resources Act*, R.S.O. 1990, Chapter O.40.

(b) "District Office" means Kingston, Eastern Region, Ontario Ministry of the Environment.

(c) "District Manager" means District Manager, Kingston, Eastern Region, Ontario Ministry of the Environment.

(d) "Ministry" means Ontario Ministry of the Environment.

(e) "Permit" means this entire Permit to Take Water including its schedules, if any, issued in accordance with Section 34 of the *Ontario Water Resources Act*, R.S.O. 1990, Chapter O.40.

(f) "Permit Holder" means Corporation of the Township of South Stormont.

GENERAL CONDITIONS

2. This Permit shall be kept available at the offices of the Corporation of the Township of South Stormont, P.O. Box 340, 4949 County Road 14, Ingleside, ON, and a copy kept on-site at the water treatment plant for inspection by Ministry staff at all times.

3. The Director may, from time to time, where a situation of interference or anticipated interference with water supplies exists, or in a situation requiring information on water takings for purposes of water resource inventory and planning, give written notice to the Permit Holder to undertake any of the following actions. The Permit Holder shall comply with any such notice:

   (a) To establish and maintain a system for the measurement of the quantities of water taken;
   (b) To operate such a system and to record measurements of the quantities of water taken on forms provided by the Director, with such frequency or for such time periods as the Director may specify;
   (c) To return to the Director records made pursuant to clause 3(b) at such times or with such frequency as the Director may specify; and
   (d) To keep records made pursuant to clause 3(b) available for inspection until such time as they are returned to the Director pursuant to clause 3(c).

4. The Permit Holder shall immediately notify the District Manager of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint.

5. For Surface-Water Takings, the taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that stream flow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

6. For Ground-Water Takings, if the taking of water is forecast to cause any negative impact, or is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent the forecast negative impact or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of so doing.

7. The Permit Holder shall report to the Director any changes of address or telephone number, or change of ownership of the property for which this Permit is issued and shall report to the Director any changes in the general conditions of water taking from those described in the Permit application within thirty days of any such change. The Permit Holder shall not assign his rights under this Permit to another person without the written consent of the Director.

8. No water may be taken under authority of this permit after the expiry date of this Permit, unless the Permit is renewed, or after the expiry date shown on any subsequent renewal of this permit, unless it is likewise renewed.

9. This Permit does not release the Permit Holder from any legal liability or obligation and remains in force subject to all limitations, requirements, and liabilities imposed by law. This Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

10. The Permit Holder must forthwith, upon presentation of credentials, permit Ministry personnel, or a Ministry authorized representative(s) to carry out any and all inspections authorized by Section 15, 16 or 17 of the *Ontario Water Resources Act*, R.S.O. 1990, Chapter O.40, Section 156, 157 or 158 of the *Environmental Protection Act*, R.S.O. 1990 of Section 19 or 20 of the *Pesticides Act*, R.S.O. 1990.

11. The Director may, at times of drought or water shortage in the locality of the taking, give notice to the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director. The suspension or reduction in the taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect the right to appeal the notice to the Environmental Review Tribunal under the *Ontario Water Resources Act*, R.S.O. 1990, Chapter O.40, Subsection 100(3).

12. The Permit does not abrogate the Permit Holder's responsibility to comply with all applicable legislation, including O.Reg. 285/99, which provides, among other things, that no person shall use water by transferring it out of a water basin (as defined in the Regulation) in a container having a volume greater than 20 litres. The Regulation divides Ontario into three water basins, being the Great Lakes-St. Lawrence, the Nelson and Hudson Bay Basins.

SPECIAL CONDITIONS

13. The Permit Holder shall measure and record daily water takings and shall ensure copies of these records are kept at the offices of the Corporation of the Township of South Stormont, P.O. Box 340, 4949 County Road 14, Ingleside, ON, and on-site at the water treatment plant, until this Ministry requests them to be submitted or states otherwise.

14. No water shall be taken under authority of this Permit after January 24, 2013.

The reason for the imposition of Special Condition 13 is to establish a record of water taking.

The reason for the imposition of Special Condition 14 is to ensure that this Ministry has an opportunity to review the continued availability of water to be taken under authorization by this Permit as it relates to interference with other established uses.

You may, by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the *Ontario Water Resources Act*, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each Term or Condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit number;
6. The date of the Permit;
7. The name of the Director;
8. The municipality within which the taking is located;

And the Notice should be signed and dated by the appellant.

This notice must be served upon:

The Secretary
Environmental Review Tribunal
P.O. Box 2382
2300 Yonge Street, 12th Floor
TORONTO, Ontario
M4P 1E4

AND The Director
Section 34, *Ontario Water Resources Act*
Ministry of the Environment
133 Dalton Avenue, Box 820
KINGSTON, Ontario
K7L 4X6

Dated at Kingston this 24th day of January, 2003.

Director
Section 34, Ontario Water Resources Act
Ministry of the Environment

APPENDIX C

GPS COORDINATES

GPS REFERENCING	
ITEM	GLOBAL POSITIONING SYSTEM (GPS) COORDINATES
MAP DATUM:	NAD27
UTM ZONE:	18T
INTAKE	509600 / 4984300 (±100m)
TREATMENT PLANT:	509600 / 4984500 (±100m)
WATER TOWER:	508600 / 4986700 (±100m)
DISTRIBUTION SYSTEM: Tri-County Stainless	508107 / 4986032 (± 10 m)
DISTRIBUTION SYSTEM: Our Lady of Good Council School	508617 / 4986905 (± 10 m)
DISTRIBUTION SYSTEM: Sewage Pumping Station	507679 / 4987089 (± 10 m)

APPENDIX D

PLANT CLASSIFICATION
Plant Name: Village of Ingleside Drinking Water System
Facility Level: Class 1 Water Treatment and Class 2 Water Distribution
Certificate Number: 900 and 901
Date of Issue: 4/12/1989

PLANT PERSONNEL (CANEAU)	
Operator Name: Chris Eamon	**Title:** Operations Manager
Water Treatment Classification: Class 2	**Water Distribution Classification:** Class 2
Certificate Number: 10828	**Certificate Number:** 11229
Expiry Date: September 2006	**Expiry Date:** April 2006
Operator Name: Ross Gellately	**Title:** Operator
Water Treatment Classification: Class 1	**Water Distribution Classification:** OT
Certificate Number: 11386	**Certificate Number:** 5973
Expiry Date: August 2006	**Expiry Date:** January 2002
Operator Name: Jennifer Lawson	**Title:** Operator
Water Treatment Classification: Class 1	**Water Distribution Classification:** na
Certificate Number: 14275	**Certificate Number:**
Expiry Date: May 2006	**Expiry Date:**
Operator Name: Troy Brownell	**Title:** Operator
Water Treatment Classification: Class	**Water Distribution Classification:** na
Certificate Number: 12411	**Certificate Number:**
Expiry Date: November 2004	**Expiry Date:**

Ontario

Ministry of the Environment
Drinking Water Inspection Report

Operator Name: Clark MacDonell	**Title:** Operator
Water Treatment Classification: Class 1	**Water Distribution Classification:** Class 1
Certificate Number: 8002	**Certificate Number:** 8003
Expiry Date: December 2003	**Expiry Date:** December 2003
[redacted]	
Operator Name: William Dunlop	**Title:** Lead Hand
Water Treatment Classification: Class 1	**Water Distribution Classification:** na
Certificate Number: 7998	**Certificate Number:**
Expiry Date: December 2003	**Expiry Date:**
Operator Name: Tim Morgan	**Title:** Lead Hand
Water Treatment Classification: na	**Water Distribution Classification:** OT
Certificate Number:	**Certificate Number:** OT21233
Expiry Date:	**Expiry Date:** August 2006

APPENDIX E

CONTACT INFORMATION

Local Health Unit

Eastern Ontario Health Unit
1000 Pitt Street
Cornwall, ON

Attention: Dr. Bourdeau

Medical Officer of Health:

Dr. Robert Bourdeau

Phone: 613-933-1375
Fax: 613-933-9707

Conservation Authority or Ministry of Natural Resources

Raisin Region Conservation Authority
P.O. Box 429
6589 Boundary Road
Cornwall, ON
K6H 5T2

Attention: Mr. Roger Houde
General Manager

Phone: 613-938-3611
Fax: 613-938-3221

MOE Environmental Assessment and Approvals Branch

Ministry of the Environment
2 St. Clair Avenue West
Floor 12A
Toronto ON M4V 1L5

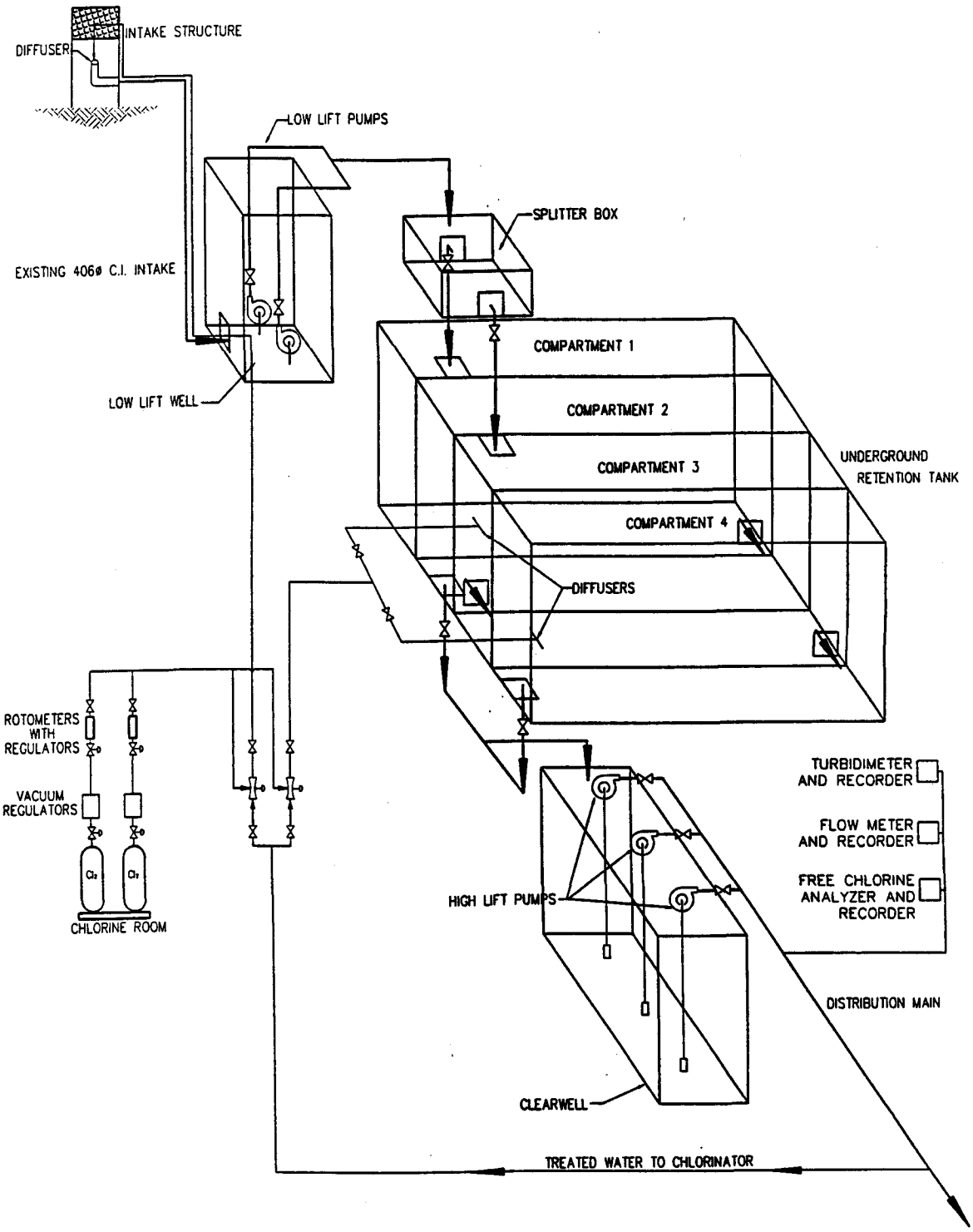
Attention: Mirek Tybinkowski
Water and Wastewater Specialist

Phone: 416-314-8202
Fax: 416-314-6935

APPENDIX F

PLANT SCHEMATIC

(SEE ATTACHED)



M:\2000\005117\inglig3.dwg 04/11/01 09:28:34 AM EDT

M.S. THOMPSON & ASSOCIATES LTD.
consulting engineers
CORNWALL KINGSTON

The THOMPSON ROSEMOUNT Group

TOWNSHIP OF SOUTH STORMONT
INGLESIDE WATER SUPPLY
ENGINEERS' REPORT FOR WATER WORKS

PROCESS FLOW DIAGRAM

scale	N.T.S.
date	MAY 14, 2001
drawn	LMB
job no.	005117
drawing no.	FIG. 3.1

APPENDIX G

MINISTRY AUDIT SAMPLE RESULTS

(SEE ATTACHED)

APPENDIX
Table 1
INGLESIDE WATER TREATMENT PLANT
AUDIT SAMPLE RESULTS - 09-DEC-2003
CHEMICAL / PHYSICAL PARAMETERS - HEALTH RELATED

Sample # 1 - (REG S) TREATED WATER

Parameter	Units	MAC [1]	IMAC [2]	AO [3]	SAMPLE # 1
ANTIMONY, UNFILTERED TOTAL	UG/L		6		.62 +/-0.16
ARSENIC, UNFILTERED TOTAL	UG/L		25		1 +/-0.20
BARIUM, UNFILTERED TOTAL	UG/L	1000			26 +/-2.40
BENZENE C6H6	UG/L	5			.05 <=W
BORON, UNFILTERED TOTAL	UG/L		5000		19 +/-3.00
BROMODICHLOROMETHANE	UG/L				3.8
BROMOFORM	UG/L				.5 <=W
CADMIUM, UNFILTERED TOTAL	UG/L	5			0 +/-0.05
CARBON TETRACHLORIDE	UG/L	5			.2 <=W
CHLOROBENZENE	UG/L	80			.05 <=W
CHLORODIBROMOMETHANE	UG/L				2
CHLOROFORM CHCL3	UG/L				6.1
CHROMIUM, UNFILTERED TOTAL	UG/L	50			.9 +/-0.50
DICHLOROBENZENE 1,2	UG/L	200			.05 <=W
DICHLOROBENZENE 1,4	UG/L	5			.05 <=W
DICHLOROETHANE 1,2	UG/L		5		.05 <=W
DICHLOROETHYLENE 1,1	UG/L	14			.05 <=W
FLUORIDE, UNFILTERED REACTIVE	MG/L	1.5 b			.11
LEAD, UNFILTERED TOTAL	UG/L	10 c			.12 +/-0.12
MERCURY, UNFILTERED TOTAL	UG/L	1			.02 <=W
METHYLENE CHLORIDE	UG/L	50			.2 <=W
NITRATES TOTAL, UNFIL.REAC	MG/L	10 d			.349
NITRITE, UNFILTERED REACTIVE	MG/L	1 d			.001 <=W
SELENIUM, UNFILTERED TOTAL	UG/L	10			0 +/-1.00
TETRACHLOROETHYLENE	UG/L	30			.05 <=W
TRICHLOROETHYLENE C2HCL3	UG/L	50			.05 <=W
TRIHALOMETHANES, TOTAL	UG/L	100 e			12
URANIUM, UNFILTERED TOTAL	UG/L	20			.32 +/-0.05
VINYL CHLORIDE C2H3CL	UG/L	2			.05 <=W

Shortforms:

<T - A measurable trace amount; interpret with caution

<W - No measurable response (zero) : < Reported value

<=W - No measurable response (zero) : < Reported value

< - Actual result is less than reported value

ND - Not detected

!NP - No appropriate procedure available

NA - Result not available

NS - Not sampled

NG/L - Nanograms per litre

UG/L - Micrograms per litre

MG/L - Milligrams per litre

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
INGLESIDE WATER TREATMENT PLANT
AUDIT SAMPLE RESULTS - 09-DEC-2003
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - (REG S) TREATED WATER
Sample # 2 - (REG S) 2 RAILWAY RD TRI-COUNTY STAINLESS STEEL DISTRIBUTION
Sample # 3 - (REG S) 52 DICKINSON DR. OUR LADY OF GOOD COUNCIL SCHOOL DISTRIBUTION
Sample # 4 - (REG S) INGLESIDE SEWAGE PUMPING STATION DISTRIBUTION

Parameter	Units	MAC [1]	AO [2]	SAMPLE # 1	SAMPLE # 2
HETEROTROPH MF 35 C	C/ML	500		10 <	10 <
NT: DETERIORATION INDICATORS	C/100ML		0	NOT DETECTED	NOT DETECTED
NT: ESCHERICHIA COLI	C/100ML	0		ABSENT	ABSENT
NT: TOTAL COLIFORMS	C/100ML	0		ABSENT	ABSENT

APPENDIX
Table 2
INGLESIDE WATER TREATMENT PLANT
AUDIT SAMPLE RESULTS - 09-DEC-2003
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - (REG S) TREATED WATER
Sample # 2 - (REG S) 2 RAILWAY RD TRI-COUNTY STAINLESS STEEL DISTRIBUTION
Sample # 3 - (REG S) 52 DICKINSON DR. OUR LADY OF GOOD COUNCIL SCHOOL DISTRIBUTION
Sample # 4 - (REG S) INGLESIDE SEWAGE PUMPING STATION DISTRIBUTION

Parameter	Units	MAC [1]	AO [2]	SAMPLE # 3	SAMPLE # 4
HETEROTROPH MF 35 C	C/ML	500		10 <	10 <
NT: DETERIORATION INDICATORS	C/100ML		0	NOT DETECTED	NOT DETECTED
NT: ESCHERICHIA COLI	C/100ML	0		ABSENT	ABSENT
NT: TOTAL COLIFORMS	C/100ML	0		ABSENT	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.

APPENDIX
Table 3
INGLESIDE WATER TREATMENT PLANT
AUDIT SAMPLE RESULTS - 09-DEC-2003
CHEMICAL / PHYSICAL PARAMETERS - NOT HEALTH RELATED

Sample # 1 - (REG S) TREATED WATER

Parameter	Units	OBJECTIVE	TYPE OF OBJECTIVE	SAMPLE # 1
ALUMINIUM, UNFILTERED TOTAL	UG/L	100	OG	15.4 +/-1.40
AMMONIUM, TOTAL UNFIL.REAC	MG/L	a	a	.002 <=W
COPPER, UNFILTERED TOTAL	UG/L	1000	AO	10.2 +/-0.90
ETHYLBENZENE C8H10	UG/L	2.4	AO	.05 <=W
IRON, UNFILTERED TOTAL	UG/L	300	AO	39 +/-8.00
MANGANESE,UNFILTERED TOTAL	UG/L	50	AO	1.45 +/-0.63
TOLUENE C7H8	UG/L	24	AO	.05 <=W
TURBIDITY	FTU	5 e	AO	.42
XYLENE-M AND P	UG/L	300	AO	.05 <=W
XYLENE-O C8H10	UG/L	300	AO	.05 <=W
ZINC, UNFILTERED TOTAL	UG/L	5000	AO	2.9 +/-0.90

Shortforms:

<T - A measurable trace amount; interpret with caution
<W - No measurable response (zero) : < Reported value
<=W - No measurable response (zero) : < Reported value
< - Actual result is less than reported value
ND - Not detected
NA - Result not available
NS - Not sampled
DEG - Degree celsius

AO - Aesthetic Objective
OG - Operational Guideline
FTU = NTU - Nephelometric Turbidity Unit
TCU - True Colour Units
NG/L - Nanograms per litre
UG/L - Micrograms per litre
MG/L - Milligrams per litre

Footnotes:

a) No limit has been established for this parameter.

b) Organic Nitrogen = (Total Kjeldahl Nitrogen - Ammonia)

c) The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

d) When sulphate levels exceed 500 mg/L, water may have a laxative effect on some people.

e) Applicable for all water at the point of consumption.

APPENDIX H

PROVINCIAL OFFICER'S ORDER NUMBER 802014

Ministry of the Environment
Ministère de l'Environnement
Ontario

Provincial Officer Order

IDS number:

Environmental Protection Act, s. 157, 157.1,157.2 R.S.O. 1990, c.E.19, as amended
Ontario Water Resources Act, s. 16, 16.1,16.2, 16.3 R.S.O. 1990, c.O.40, as amended
Pesticides Act, s. 26.1, 26.2, R.S.O. 1990, c.P. 11, as amended

Field reference number
P802014

'er ın en francais sur demande

'O *(Name of Person(s) or Company - May be multiple parties, include head office address(or home address),title, phone and fax)*

1
Th Corporation of the Township of South Stormont
P.O. Box 340, 4949 County Rd. 14
In ɜsıde, Ontario K0C 1M0
T((613) 537-2362
Fax (613) 537-8113

2

ɨi Location *(include street address, lot, concession, etc.)*

Ingleside Water Treatment Plant
1[illegible]54 County Road #2
Ir eside, Ontario

Vork Ordered

No	Description:
1	By no later than October 1, 2002, submit to the District Manager, of the Kingston District Office (133 Dalton Avenue, Kingston, Ontario K7L 4X6) a complete Permit To Take Water application under section 34, of the *Ontario Water Resources Act*, Chapter 0.40, R.S.O., 1990, as amended.
2	Effective immediately upon service of this Provincial Officer Order, ensure compliance with the notification requirements, as required under section 8 of Ontario Regulation 459/00, made under the *Ontario Water Resources Act*, Chapter 0.40, R.S.O., 1990 as amended, is initiated and is complied with thereafter.
3	By no later than October 1, 2002, submit to the Area Supervisor, of the Cornwall Area Office (113 Amelia Street, 2nd Floor, Cornwall, Ontario K6H 3P1) in writing, the owners commitment to immediately notify the Ministry of Environment's Spills Action Centre (SAC) and the local Medical Officer of Health of all results which shows that a parameter exceeds the Maximum Acceptable Concentration (MAC) set out for the parameter in Schedule 4 (Chemical/Physical Standards) in Ontario Regulation 459/00.
4	Report back in writing to the Area Supervisor, of the Cornwall Area Office (113 Amelia Street, 2nd Floor, Cornwall, Ontario K6H 3P1) by no later than October 1, 2002, that all corrective actions mentioned in No. 1, 2 and 3 have been completed.
1	While this order is in effect, a copy or copies of this order shall be posted in a conspicuous place.
3	While this order is in effect, report in writing , to the District office, any significant changes of operation, emission, ownership, tenancy or other legal status of the facility or operation.

ɔ nnon Hamilton-Browne r incial Officer (print)	Badge # 802	2002/09/20 Date (YYYY/MM/DD)
[illegible] Hamilton-Browne	Kingston/ Cornwall	(613) 933-7402 Ext. 226
Signature	District/Office	Phone

***See reverse side**

APPENDIX I

LETTER SUBMITTED TO OWNER BY OPERATING AUTHORITY
JULY 23, 2003

CANEAU
water & sewage operations inc.

P.O. Box 13, 15005 County Road 2, R.R. #3, Ingleside, Ontario K0C 1M0
Telephone: 613-537-2719 Fax: 613-537-9468

July 23, 2003

Township of South Stormont
4949 County Road 14,
Ingleside, ON
K0C 1M0
Attn: Betty deHaan

Re: Daily Distribution Sampling

Dear Ms. deHaan,

Caneau operators were following Schedule 7-2(3) of O. Reg. 170/03 for large municipal residential systems, which states "The owner of a drinking-water system that provides secondary disinfection and the operating authority for the system shall ensure that a distribution sample is taken at least once every day and is tested immediately for free chlorine residual, if the system provides chlorination and does not provide chloramination; or combined chlorine residual, if the system provides chloramination".

Caneau operators were not testing the distribution systems previously since none of the systems provide secondary disinfection.

It was brought to our attention by Jan Franssen of the MOE, the definition of secondary disinfection in O. Reg. 170/03:
"secondary disinfection" means a process or series of processes intended to provide and maintain a disinfectant residual in a drinking-water system's distribution system, and in plumbing connected to the distribution system, for the purposes of,

(a) protecting water from microbiological re-contamination,
(b) reducing bacterial regrowth,
(c) controlling biofilm formation, and
(d) serving as an indicator of distribution system integrity,

and includes the use of disinfectant residuals from primary disinfection to provide and maintain a disinfectant residual in a drinking-water system's distribution system for the purposes described in clauses (a) to (d).

Since the Township of South Stormont's distribution systems (Ingleside, Long Sault, St. Andrews/Rosedale, Newington and Osnabruck Center) have disinfectant residuals from primary disinfection, they are considered to have secondary disinfection, according the MOE's definition of "secondary disinfection". Since speaking with Jan Franssen on July 17, 2003, Caneau operators have been checking the daily free chlorine residual in the distribution systems. If you have any questions, please contact me at 537-2719.

Sincerely,

Chris Eamon
Caneau Water and Sewage Operations Inc.