Ontario

Ministry of the Environment
Ministére de l'Environnement

133 Dalton Avenue
Kingston ON
K7L 4X6

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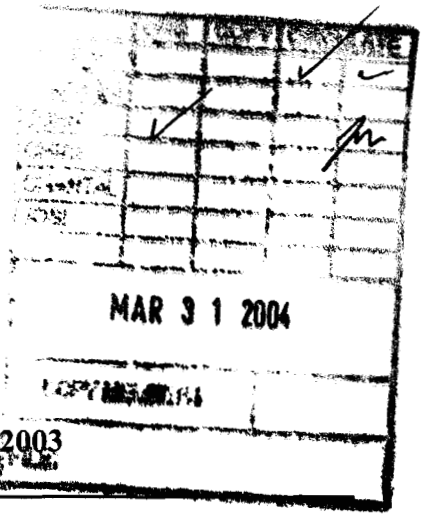


March 25, 2004

Mr. Andre Bachand, Manager - Water Works Department
The Corporation of the Township of North Glengarry
P.O. Box 700, 90 Main Street South
Alexandria, Ontario K0C 1A0

Dear Mr. Bachand:

RE: Ministry of the Environment Drinking Water Inspection - 2003
Glen Robertson Drinking-Water System

The Glen Robertson Drinking-Water System was inspected on September 10, 2003 and September 11, 2003, to assess compliance with applicable Acts, Regulations, and site-specific authorizing and control documents. The report is also based upon a review of in-house and laboratory analytical results for samples collected between August 2002 and September 2003, and interviews held with operational personnel. Enclosed is a copy of the inspection report for your review. A copy will also be sent to Leo Poirier, who is designated as the Clerk for the Corporation of the Township of North Glengarry. Copies will also be sent to the local Medical Officer of Health and the Raisin Region Conservation Authority.

Your attention is directed to Section 6.0 "Summary of Non-Compliance Issues & Actions Required" and Section 7.0 "Summary of Best Practice Recommendations" of the report. Please provide an Action Plan by no later than May 31, 2004, detailing how the municipality plans to address these issues.

Should you have any questions pertaining to the report, please do not hesitate to contact me at this office at extension 2666.

Yours truly,

Shannon Hamilton-Browne

Shannon Hamilton-Browne
Inspector/Provincial Officer
Drinking Water Inspections Program
Eastern Region

SHB
Enclosure

cc: Mr. Leo Poirier, Clerk, The Corporation of the Township of North Glengarry, P.O. Box 700, 90 Main Street South, Alexandria, ON K0C 1A0

Dr. Robert Bourdeau, Medical Officer of Health, Eastern Ontario Health Unit, 1000 Pitt Street, Cornwall, ON K6J 5T1

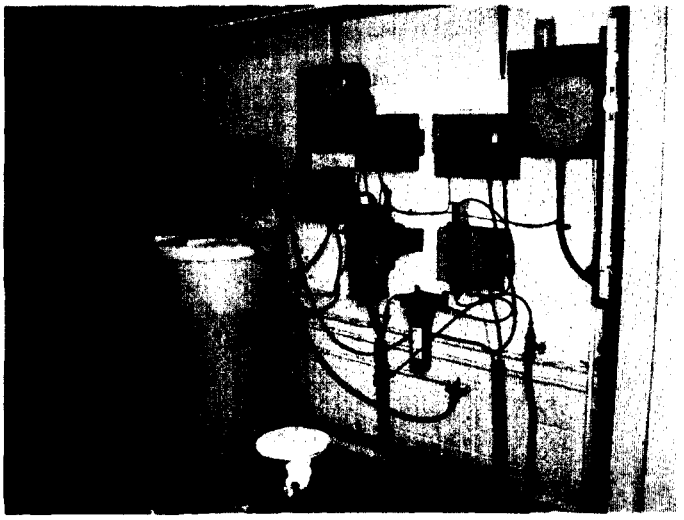
Mr. Mirek Tybinkowski, P. Eng., Water and Wastewater Specialist, Approvals and Licensing Section, Safe Drinking Water Branch, 2 St. Clair Ave, West, Floor 12A, Toronto, ON M4V 1L5

Mr. Roger Hood, General Manager, Raisin Region Conservation Authority, P.O. Box 429, 6589 Boundary Road, Cornwall, ON K6H 5T2

DRINKING WATER INSPECTION REPORT

GLEN ROBERTSON

DRINKING-WATER SYSTEM



COMMUNAL DRINKING WATER

REPORT PREPARED BY THE KINGSTON OFFICE OF THE MINISTRY OF THE ENVIRONMENT, DRINKING WATER INSPECTIONS PROGRAM, EASTERN REGION

Inspected By: Shannon Hamilton-Browne

Inspection Dates: September 10, 2003 and September 11, 2003

Ontario

Ministry of the Environment
Drinking Water Inspection Report

GLEN ROBERTSON DRINKING-WATER SYSTEM INSPECTION REPORT

INSPECTION DETAILS	
Location:	Irwin Street, Glen Robertson, ON
Water Works Type:	Treatment With Distribution
Water Works Number:	220008408
Inspection Type:	Announced
Date of Inspection (yyyy/mm/dd):	2003/09/10 and 2003/09/11
Date of Previous Inspection (yyyy/mm/dd):	2002/08/14
Inspection Number:	331

CONTACT INFORMATION	
Municipality/Owner The Corporation of the Township of North Glengarry, P.O. Box 70, 90 Main Street South, Alexandria, ON K0C 1A0 Attention: Leo Poirier Clerk Phone: 613-525-1110 Fax: 613-525-1649	**Operating Authority** Same as the Municipality/Owner Attention: Andre Bachand Manager of Water Works Department Phone: 613-525-1110 Fax: 613-525-1649
Inspector: Shannon Hamilton-Browne Kingston District Office, Eastern Region 613 549-4000 Ext. 2666	Distribution Date: 2004/03/23

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, but not limited to, the following documents:

- Drinking Water Protection Regulation (O. Reg. 459/00)
- 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
- Provincial Officer's Orders P802012 and P802012-DO
- Previous Ministry inspection report dated August 14, 2002
- Engineer's Report dated March 2001 and prepared by M.S. Thompson & Associates Ltd.

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.

On September 10, 2003 and September 11, 2003, Ministry of the Environment staff visited the Glen Robertson Drinking-Water System for the purpose of performing a drinking-water inspection. The MOE Inspector was accompanied during the inspection by Mr. Andre Bachand, Manager of the Water Works Department for the Township of North Glengarry and Mr. Julien Chartrand, Operator. The Township of North Glengarry is the owner and operating authority for the Glen Robertson Drinking-Water System.

Under Ontario Regulation 170/03, a small municipal-residential system is a municipal drinking-water system that serves a major residential development but serves fewer than 101 private residences. A major residential development is defined in the *Safe Drinking Water Act* as a development of six or more private residences on one or more properties. The Glen Robertson Drinking-Water system serves approximately 55 establishments (53 private residences and 2 commercial establishments), and under the Regulation is therefore considered to be a small municipal-residential system and is subject to the Regulation.

The drinking-water inspection included a physical inspection of the water treatment plant and distribution facilities, and a document review for the period of August 15, 2002 to September 11, 2003. The period of August 15, 2002 to September 11, 2003 is referred to as the "inspection period" in this report. Samples from the raw water, treated water and distribution system were obtained for standard analysis on August 5, 2003 in the accompaniment of Township of North Glengarry staff. As well, field measurements for free and total chlorine residuals were obtained from the drinking-water system at the same time the samples were collected, and during the inspection of the drinking-water system. Plant operators were interviewed to determine their overall perception as to how the system was equipped and is being operated. There were various communications with the municipality and operating authority staff before and after the physical inspection.

Table 1 AUTHORIZING AND CONTROL DOCUMENTS REVIEWED

CERTIFICATES OF APPROVAL		
Certificate #	**Date Issued**	**Description**
6190-5MSUVN	May 27, 2003	Certificate of Approval Air No. 6190-5MSUVN issued for one standby gasoline generator set, having a rating of 10 kilowatts to provide power during emergency situations.
5969-5JHKZN	February 17, 2003	Certificate of Approval No. 5969-5JHKZN was issued for the approval of a ground water supply system with one (1) supply well serving Glen Robertson in the Township of North Glengarry and includes a description of the major works; terms and conditions related to the performance, monitoring and recording, operations and maintenance, compliance reporting and upgrading requirements. Condition 5.1 of the Certificate of Approval outlines that the upgrading requirements were to be completed by July 1, 2003. The upgrading requirements include but are not limited to: (a) All works necessary to ensure that a free chlorine residual of 0.2 mg/L after 15 minutes contact time determined as T_{10} at maximum flow and before the first consumer is maintained in all disinfected water entering the distribution system in accordance with requirements of the "Procedure B13-3 Chlorination of Potable Water Supplies in Ontario", including but not limited to: (i) installation of chlorine contact facility. (b) All works and measures necessary to ensure the effective

Certificate #	Date Issued	Description
		treatment and integrity of the works, including but not limited to: (i) secondary containment for chemical storage tanks; (ii) approved flammable materials storage facility for generator fuel; (iii) assessing surface drainage in vicinity of well, and eliminating surficial ponding as necessary; (iv) assessing susceptibility of wells and reservoir to flooding under 1:100 year storm condition and providing protection as necessary; (v) private wells connected to the distribution system must be physically isolated from the distribution system; (vi) raw water sample ports; and (vii) second hypochlorite solution tank complete with chlorine pump and injection point.

PERMIT TO TAKE WATER

Permit #	Expiry Date	Description
94-P-4048	2004/08/30	Permit To Take Water for one (1) groundwater well. The maximum rate of taking is 224,000 L/day.

PREVIOUS ORDERS

Order #	Date Issued	Description
P802012	2002/08/30	Provincial Officer's Order No. P802012 ordered the owner to comply with the requirements as stipulated under section 98 (2) (3) of the OWRA; comply with the notification requirements under section 8 of O Reg. 459/00; in writing commit to immediately notify the MOE's SAC and the local Medical Officer of Health of all adverse test results.
P802012-DO	2002/09/16	Director's Order No. P802012 was issued confirming work ordered in POO P802012 with amended work ordered item 3 and amended compliance date(s).

SECTION 2 EXISTING WATER SYSTEM DESCRIPTION

2.1 WATER SOURCE

The groundwater system draws water from one well serving the Hamlet of Glen Robertson. The well is located at:

- Well No. 1 located at 3342 Irwin Street

Well No. 1 consists of a 300 mm diameter 18 metre deep drilled groundwater production well, equipped with a submersible well pump, rated at 5.1 L/s with a 50 mm diameter discharge pipe connecting to the pumping station described below in section 2.2.

GPS coordinates for the source can be found in **Appendix C**.

2.2 TREATMENT PROCESSES

The pumping station is comprised of an approximately 17.4 square metre (4.7 m x 3.7 m), brick single storey building housing treatment, pumping and control equipment, including a chlorination system; five pneumatic pressure tanks operating between 275 to 400 kPa; piping, valves, controls and appurtenances; and associated mechanical and electrical equipment.

The chlorine contact chamber is comprised of approximately 52 metres of 300 mm diameter water main (including four (4) PVC pipes located below ground adjacent to the pumping station measuring approximately thirteen (13) metres in length, 0.30 metres in diameter and the pipes are laid approximately one (1) metre apart), complete with a treated water sample line.

The disinfection system is comprised of a sodium hypochlorite disinfection system at the pumping station consisting of a 150 litre-capacity sodium hypochlorite solution storage tank and one chemical metering pump rated at 83 litres per day with a feed line discharging above grade from the well, with one spare 83 litres per day chemical metering pump. For disinfection, a 10-12% sodium hypochlorite solution is diluted to approximately 0.7% in a 150 litre polyethylene tank. The dilute hypochlorite solution is pumped by a diaphragm metering pump to a 10 mm polyethylene line. Hypochlorite solution discharges from the 10 mm line to an open 13 mm polyvinyl chloride (PVC) line which empties to a point in the piping above grade from the 300 mm well casing. The metering pump rate is manually set and the metering pump activation is electrically interlocked with the submersible pump. The treatment plant piping is a combination of 50 mm and 75 mm flanged steel pipe, connected to a 150 mm PVC distribution header.

The well pump discharges through a header with five pneumatic pressure tanks thereby pressurizing the water distribution system. Treated water is supplied to the distribution system by the submersible well pump.

For emergency power, the pumping station is equipped with a 10 kW gasoline powered

emergency generator set. The emergency generator requires manual start-up and connection to power the hypochlorite metering pump and submersible well pump.

Metering and monitoring equipment is comprised of one turbidity meter at the pumping station with chart recorder to continuously monitor the finished water turbidity; one chlorine residual analyzer at the pumping station with chart recorder to continuously monitor the finished water free chlorine residual; and one treated water magnetic flow meter rated at 85 cubic metres per hour with chart recorder.

The upgrades to the pumping station include the installation of two diaphragm sodium hypochlorite metering pumps with a rated capacity of 0.4 L/h at 680 kPa and a new 200 litre sodium hypochlorite storage tank; two diaphragm sodium silicate metering pumps with a rated capacity of 0.4 L/h at 680 kPa and a new 200 litre sodium silicate storage tank.

Upgrades to the standby power include the provision of an approved flammable materials storage facility for generator fuel.

The above description is a culmination of information obtained from previous inspection reports, the Engineer's Report and Certificates of Approval.

Details on the treatment process can be found in the facility C of A, **Appendix A**.

GPS coordinates for the treatment plant can be found in **Appendix C**.

Digital images of various components of the drinking-water system were taken during the physical inspection. These images are presented in **Appendix G**.

2.3 DISTRIBUTION SYSTEM

The well feeds into the pumping station which feeds into the common distribution system. There is no elevated storage within the distribution system. The distribution network consists of approximately 600 metres of 150 mm diameter water mains constructed of various materials including cast iron and PVC. There are no hydrants located within the distribution system. There are approximately 6 valves located within the distribution system. There are no additional disinfection and/or storage facilities within the distribution system.

The Glen Robertson Drinking-Water System serves an estimated population of 100 residents within the Hamlet of Glen Robertson.

SECTION 3 INSPECTION FINDINGS

3.1 OPERATIONS

3.1.1 Source/Supply

The owner was required by Condition No. 5.1 (a) of Certificate of Approval No. 7881-53TK8Q to submit a hydrogeological study to establish whether or not the groundwater source is under the direct influence of surface water. The hydrogeological study report was prepared and submitted to the MOE by Totten Sims Hubicki Associates on June 6, 2002. The report concluded that the Glen Robertson production well is not considered to be a groundwater source under the direct influence of surface water.

The Engineer's Report (M.S. Thompson & Associates, 2001) states that although the well is established in a residential area, the aquifer can be contaminated by other surface sources including agricultural run-off from the adjacent agricultural property, storm run-off, septic systems, and surface spills.

The Township of North Glengarry is participating in the Well Head Protection Study which is being managed by the Raisin Region Conservation Authority (RRCA) and the South Nation Conservation Authority (SNCA). A portion of the study will result in a Well Head Protection Plan being prepared for the Glen Robertson well. This was scheduled to be completed in the Fall of 2002. At the time of the inspection, only a draft copy of the report on the well head protection plan was available. The report entitled "Municipal Groundwater Study Draft Report" prepared for the Eastern Ontario Water Resources Committee by Robinson Consultants Incorporated in February 2003, provides recommendations for future plans including further monitoring. It is recommended that the owner implement the recommendations of the final well head protection plan.

Wellhead Assessment

The inspection revealed that the well cap is sealed and bolted to prevent foreign material from entering the well. The production well is secure within the pumping station building. The well casing extends approximately 24 cm above the constructed floor of the pumping station.

Surface drainage around the well is such that it is unlikely that water could collect or pond around the well.

It could not be determined if the annular space around the well casing is filled with sealed material.

A smooth nozzle raw water sample tap is located in the pumping station and allows for the collection of a sample prior to injection of disinfectant. MOE staff collected a raw water sample from the well and submitted the sample to the MOE's Laboratory Services Branch in Toronto for analyses of Total Coliforms, *E. coli*, and heterotrophic plate count. The results of the laboratory analyses are presented in Section 7.

The well and the immediate watershed area for the pumping station is surrounded by residential and agricultural land. There are private wells and septic systems located in close proximity to the well, and there is a pond located in close proximity to the well. It was reported that pesticides are not used on municipal property. Condition No. 5.1 of Certificate of Approval No. 5969-5JHKZN requires the owner to assess surface drainage in the vicinity of the well, and eliminate surficial ponding as necessary; assess susceptibility of wells and reservoir to flooding under 1:100 year storm condition and providing protection as necessary; and ensure that private wells connected to the distribution system are physically isolated from the distribution system.

Permit to Take Water Assessment

PERMIT TO TAKE WATER ASSESSMENT				
PERMIT NUMBER	**RENEWAL DATE**	**SOURCE**	**PERMITTED AMOUNT OF TAKING**	**UNITS**
94-P-4048	2004/08/30	Well No. 1	224,000	L/day

Permit To Take Water No. 94-P-4048 authorizes the withdrawl of water from a well located on Lot 8, Concession II, Township of North Glengarry. The Permit Holder is subject to the General Conditions and Special Conditions stipulated in the Permit. Special Condition No. 13 requires

that records with respect to the measurement and reporting criteria defined under General Conditions 3(b) and 3(c) listed above shall be kept by the Permit Holder. These records shall be submitted to the Director annually for the previous calendar year of taking on or before the thirty-first day of March during each year of water taking or until the Director has given notice in writing that these submissions are no longer required. The reason for the imposition of Special Condition No. 13 is to establish a record of water taking. The Annual Record of Water Taking for 2002 was not submitted to the Director in accordance with Special Condition No. 13. The owner is required to submit these records of water taking by March 31st during each year of water taking for the previous calendar year. Special Condition No. 14 stipulates that this Permit expires on August 30, 2004. It is recommended that the owner apply for renewal of the Permit at least three months prior to the expiry date.

The Annual Report for 2002 indicates that the maximum flow rate for the well was exceeded in 2002, with a flow of 1,092 cubic metres per day on August 15, 2002. The Monthly Plant Performance Sheets for the period of January to September 2003, indicate that the maximum day flow rate was not exceeded during this period. Condition No. 1.2 (b) of Certificate of Approval No. 5969-5JHKZN requires the owner to submit an application for an amendment to this certificate when the maximum flow rate of the approved well is exceeding the flow rate specified in the valid Permit To Take Water. Condition No. 1.3 of Certificate of Approval No. 5969-5JHKZN requires the owner to ensure that the water treatment plant is operated to treat water at a rate not exceeding the maximum flow rate of 224 cubic metres per day. Condition No. 2.1 (d) of the C of A requires the owner to record the date, time, duration and cause of each occasion that the flow rate exceeds that specified in Condition 1.3. The owner/operating authority did not comply with Condition 2.1 (d) of the C of A for when the flow rate exceeded 224 cubic metres per day on August 15, 2002.

At the pumping station, a single Krohne electromagnetic totalizer type flow meter is installed to measure the treated water from the pumping station. The pumping station is equipped with a chart flow recorder for the treated water flows. Condition No. 2.1 (a) of Certificate of Approval No. 5969-5JHKZN requires the owner to 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 each source (well) and conveyed to and through the water treatment plant, and (ii) the flow rate of treated water supplied to the distribution system. The Glen Robertson Drinking-Water System has only a treated water flow meter. Since there is only the one well, and there is no pump-to-waste system in place, the raw water and treated water flows are the same. Therefore, Condition No. 2.1(a) of the Certificate of Approval is satisfied with the one flow meter that is in place.

The plant is rated at 224 cubic metres per day, in agreement with the PTTW. Well pump capacity exceeds this rated capacity, therefore the hours of pumping needs to be limited by the operator, or a revised Permit is required.

Mr. Bachand advised that the instantaneous flow rate is not being monitored and recorded. At the time of the inspection the flow meter did not have the capacity to record daily peak flows. The average and maximum daily peak flow rates for the well were not recorded on the Annual Report.

According to Mr. Bachand, the operating authority is monitoring the trends in water quantity on their computer system. To date, no significant fluctuations have been identified.

Mr. Bachand indicated that the municipality has not received notices suggesting interference with the water source related to takings associated with the well.

The municipality does have a water conservation plan in place. Mr. Bachand advised that the Township of North Glengarry in cooperation with the Raisin Region Conservation Authority has developed and implemented a water conservation program that includes, but is not limited to, providing residents with low flow shower heads and a "Guide for Household Water Efficiency". As well, the municipality restricts lawn watering during the summer months in order to conserve water.

A copy of the PTTW can be found in **Appendix B**.

3.1.2 Treatment Processes

The treatment facilities, including chemical storage areas, generally appeared to be tidy and well maintained at the time the inspection was completed. At the time of the inspection, the treatment equipment appeared to be installed in accordance with the system description provided in the Certificate of Approval (5969-5JHKZN). The upgrade requirements outlined in Condition 5.1 of the Certificate of Approval were incomplete at the time of the inspection. TSH (Totten Sims Hubicki Ltd.) on behalf of the owner submitted an application dated January 9, 2003, to the Ministry's Environmental Assessment & Approvals Branch (EAAB) requesting an extension of the deadline for implementing the upgrading requirements until June 30, 2004. At the time of the inspection, the application was in the process of being reviewed by EAAB. The chlorine contact chamber was constructed, as well as other upgrades, prior to receiving approval from the MOE.

The owner shall not construct or allow the construction of any portion of the works necessary to comply with the upgrade requirements of Condition No. 5.1 of Certificate of Approval No. 5969-5JHKZN for which an approval under the *Safe Drinking Water Act* is required unless a complete application for approval of such portion of the works has been submitted to and approved by the Director. The owner shall ensure that a complete application for approval is submitted to the Director for each item listed in Condition 5.1 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 Condition 5.1.

An assessment of the well supply's output versus its approved capacity from January 2000 through to December 2002 is provided in the table below.

TREATED WATER CAPACITY ASSESSMENT - Glen Robertson Drinking-Water System			
ITEM	**2000**	**2001**	**2002**
Average Day Flow (m^3/day)	28.2	32.5	37
Maximum Day Flow (m^3/day)	70	85	1,092
Rated Capacity (m^3/day)	224	224	224
% (Maximum Day Flow/Rated Capacity)	31.25%	38%	487%

The average and maximum day flows for the water that was treated were obtained from the Glen Robertson Drinking-Water System's Annual Report and Plant Performance records generated and provided by the Township of North Glengarry. The plant's rated capacity of 224 m^3/d is documented in the Certificate of Approval (5969-5JHKZN). The well's maximum flow rate is documented in the Permit To Take Water (94-P-4048).

Condition No. 1.2 of Certificate of Approval No. 5969-5JHKZN stipulates that the drinking-water system shall not be operated to exceed the rated capacity for maximum flow rate of 224 cubic metres per day.

The maximum flow rate for the well was exceeded in 2002 on August 15, 2002, with a flow rate of 1,092 cubic metres per day. The above table shows that the Glen Robertson Drinking-Water System was operating at 487% of its rated capacity in 2002. The average day flow (37 m^3/day) for 2002 was greater than 2001's (32.5 m^3/day).

For the period of January 1, 2003 to September 9, 2003, the average day flow for the Glen Robertson Drinking-Water System was 43 m^3/day, and the maximum day flow was 133 m^3/day. During this period, the Glen Robertson Drinking-Water System was operating at approximately 59% of its rated capacity. This information was obtained from the Glen Robertson Plant Performance records for 2003 generated and provided by the Township of North Glengarry.

The average and maximum day flow rates were recorded on the Plant Performance/Monthly Summary records.

Condition No. 2.1 (a) of Certificate of Approval No. 5969-5JHKZN requires the owner to install a sufficient number of flow-measuring devices within the drinking-water system to permit the measurement and recording of the flow rate and daily quantity of water conveyed into the treatment system; and the flow rate of water conveyed from the treatment system to the distribution system. Condition No. 2.1 (b) requires the owner to calibrate the flow measuring devices at regular intervals not exceeding one year. At the time of the inspection, there was a treated water flow meter (Krohne Electromagnetic) installed at the pumping station. The Calibration Report for the treated water flow meter was provided to the MOE Inspector by the operating authority during the inspection. The treated water flow meter for Well No. 1 was most recently calibrated on August 5, 2003, by Instrumentation Saint-Laurent Incorporated. The Calibration Report indicates that the treated water flow meter has an accuracy of within plus or minus 5% of actual rate of flow.

Treated water leaving the water treatment plant is monitored for turbidity and free chlorine residual with on-line instrumentation (Hach 1720D Low Range Turbidimeter; and Wallace & Tiernan Depolox 3 Plus Free Chlorine Residual Analyzer). The continuous water quality analyzer used for monitoring and recording the treated water for turbidity and free chlorine residual were most recently calibrated on August 5, 2003, by Instrumentation Saint-Laurent Incorporated. The Calibration Reports indicate that the turbidimeter has an accuracy of +0.04%, and the free chlorine residual analyzer has an accuracy of -0.1 mg/L.

The continuous water quality analyzers used for monitoring and recording the treated water for turbidity and free chlorine residual are checked by comparison on a daily basis by the operators using hand-held instruments (Hach 2100P Turbidimeter and Hach Pocket Colorimeter). Mr. Chartrand advised that the on-line analyzers are adjusted if the readings are off by 0.1 to 0.15 NTU/mg/L. Both the hand-held instruments were most recently calibrated on September 4 and 5, 2003, by Instrumentation Saint-Laurent Inc. The Calibration Report indicates that the free chlorine residual analyzer has an accuracy of +0.4% to +2%.

The comparison checks are recorded in the logbook by the operator and include the date and time of the check and the result of the check.

Based on a review of the equipment manuals, the free chlorine residual analyzer (Wallace & Tiernan Depolox 3 Plus) and turbidimeter (Hach 1720D) for the Glen Robertson Drinking-Water System are capable of achieving the required levels of accuracy of +/- 0.05 mg/L, and +/- 0.1 NTU respectively, as per section 6-5 (1.10) of Schedule 6 (O. Reg. 170/03). The chlorine residual analyzer's accuracy is 0.01 mg/L or +/- 2% full scale (0.02 mg/L). The turbidimeters accuracy is +/- 2% (or 0.02 NTU) of reading. The portable hand-held colorimeter and turbidity meter used to compare the free chlorine residual and turbidity readings against the continuous analyzers are within factory specifications.

Based on a review of the in-house testing, laboratory results and daily reports for chemical use, the Glen Robertson Drinking-Water System appears to be regularly applying treatment chemicals. Based on a review of the chemical procurement records provided by the Township of North Glengarry for the inspection period, regular shipments of chemicals are made to the Glen Robertson Drinking-Water System for sodium hypochlorite.

The Glen Robertson Drinking-Water System uses the following chemical to provide treatment:

- Sodium Hypochlorite supplied by Brenntag Canada Inc. (Toronto, Ontario) and distributed by S & B Distributing (Apple Hill, Ontario).

Documentation from the supplier was provided during the inspection which stated that the sodium hypochlorite used at the Glen Robertson Drinking-Water System meets the ANSI/NSF Standard 60. The above-said documentation does comply with Condition No. 3.5 of C of A No. 5969-5JHKZN which requires the owner to ensure that all chemicals used in the treatment process meet both the AWWA and ANSI standards as set out in ANSI standard NSF/60 or NSF/61.

At the time of the inspection, the continuous water quality analyzers were equipped with an alarm system. Mr. Bachand advised that the continuous chlorine residual analyzer is equipped with a high (2.0 mg/L) and low (0.3 mg/L) residual alarm system to ensure continuous disinfection. The owner shall ensure that the minimum alarm standard for the treated water free chlorine residual is in compliance with Schedule 6-5 (2) of O. Reg. 170/03. Schedule 6-5 (2) of O. Reg. 170/03 should be interpreted to read that the minimum alarm standard for free chlorine residual should be 0.1 mg/L greater than the concentration of free chlorine residual that is required to achieve primary disinfection. Mr. Bachand advised that the continuous turbidity

analyzer is equipped with a high turbidity alarm set at 1.0 NTU. The alarm system for the continuous water quality analyzers is connected to the SCADA system maintained at the offices of the Water Works Department. The SCADA system is connected to an automatic dialer which calls the on-call operator.

Mr. Chartrand indicated that targets for free chlorine residual in treated water leaving the water treatment plant is between 0.7 mg/L and 1.2 mg/L. This goal is not communicated to stakeholders.

Mr. Chartrand indicated that they are not aware of any potential cross-connections at the treatment plant.

It was reported that pesticides are not applied or stored around the immediate vicinity of the water treatment system.

Floor drains are located throughout the well house. Mr. Chartrand indicated that the floor drains discharge below ground to a gravel/rock pit.

Disinfection Procedures

M.S. Thompson & Associates Limited completed CT calculations for the Glen Robertson Drinking-Water System in the "Engineer's Report for Glen Robertson Water Supply" dated March 2001. The calculations were undertaken to determine if the Glen Robertson DWS achieves the required CT to meet the minimum disinfection requirements of MOE Procedure B13-3 "*Chlorination of Potable Water Supplies in Ontario*". Procedure B13-3 requires a water works to achieve a minimum free chlorine residual after 15 minutes contact time determined as T_{10} at maximum flow and before the first consumer of 0.2 mg/L shall be maintained in all disinfected water entering the distribution system. Section 2.1 of the "*Procedure for Disinfection of Drinking Water in Ontario*" which replaces Procedure B13-3, stipulates that for ground water sources the treatment process must achieve a minimum 2-log removal, destruction and/or inactivation of viruses at all times at or before the first consumer's connection. For typical Ontario ground water of pH 7-8 and temperatures 7-10 °C, this requirement can be met by a minimum free chlorine residual after 15 minutes of contact time determined as T_{10} at maximum flow. For a ground water whose conditions are outside this range of pH and temperature, higher CT values will be needed to achieve the required minimum virus inactivation. The Engineer's Report calculated the CT value as less than 10 (mg.minute/L) based on the fact that the nearest

water connection is within 100 metres of the well and the well system has negligible hydraulic retention time. The required CT for the Glen Robertson system is 204. Therefore, the Glen Robertson DWS does not comply with the Chlorination Procedure under present conditions because there is inadequate chlorine contact time to achieve the required disinfection. At the time the calculations were conducted, there was no chlorine contact storage facility constructed at the Glen Robertson DWS. Between July and August 2003, modifications were made to the treatment plant including the construction of a chlorine contact chamber. Therefore, the CT calculations performed in the Engineer's Report no longer accurately reflect the true treatment capabilities of the system. According to O. Reg. 170/03, the second Engineer's Report is not required until March 2006. Calculations were not completed for the new chlorine contact chamber for the purposes of establishing compliance with the *Procedure for Disinfection of Drinking Water in Ontario*. The Township of North Glengarry should ensure that the calculations are completed and updated in the subsequent Engineer's Report.

The operators were aware of the required CT value but do not use the CT value in process calculations and disinfection procedures. Mr. Chartrand indicated that they maintain the concentration of free chlorine leaving the treatment plant between 0.7 mg/L and 1.2 mg/L in order to maintain a minimum free chlorine residual of 0.2 mg/L throughout the distribution system.

The above calculations were completed based on the worst case scenarios for pH and temperature.

3.1.3 Process Wastewater

The Glen Robertson Drinking-Water System does not generate wastewater through the water treatment process. Wastewater is generated through the continuous water quality analyzers and sample sinks. These flows and the floor drains are directed below ground to a gravel/rock pit. If necessary, the overflow from the contact chamber is directed to the adjacent ditch. A five (5) micron sediment filter was installed prior to the continuous free chlorine residual analyzer to remove iron particles from the water to prevent the buildup of and/or blockage within the analyzers. The filters are replaced when they become dirty. There are no requirements for further treatment of the wastewater.

3.1.4 Distribution System

Maintenance Programs

At the time of the inspection, the operating authority did not have detailed plans of the distribution system. It is recommended that the operating authority obtain detailed plans of the distribution system and the plans should include all water mains and valves.

It was reported that all water mains in the distribution system are flushed twice a year in the spring and fall. The water mains are flushed more frequently to remove iron particles. Mr. Bachand indicated that a substance known as "Biopurge" may be used to flush the water mains to remove the biofilm that has built up and to coat the water mains to prevent further buildup. Records for water main flushing are maintained in the logbook. Records show that the entire distribution system was most recently flushed on August 8, 2003. Mr. Bachand indicated that American Water Works Association (AWWA) Standard C651-99 for Disinfecting Water Mains is followed. However, it was understood that after water mains are shock chlorinated, the flushed water is not dechlorinated prior to being discharged to the environment. At the time of the inspection, the Operating Manual did not contain a site-specific written procedure for the operators to provide direction on disinfection of water mains. It is recommended that a procedure for all wastewater discharges from the distribution system be developed.

There are no fire hydrants located within the distribution system. The valves (both service and main line) are inspected and exercised twice a year in the spring and fall. The valves were most recently inspected and exercised in August 2003. Records for valve inspection and exercising are maintained in the logbook. Mr. Bachand advised that pressure readings at the water treatment plant are taken on occasion. No written procedures are followed for inspecting and exercising valves.

Swabbing is not completed on a regular basis in the distribution system.

Based on a review of the plans of the distribution system, it appears that most of the system is constructed of 150 mm diameter cast iron and PVC water mains. The municipality does not have plans to replace and/or reline any of the water mains in the distribution system.

Mr. Bachand indicated that there have not been many concerns raised by consumers about low pressure in the distribution system except for when the operating authority flushes a water main or when a water main break occurs.

The Township of North Glengarry does not have a leak detection program in place. There are no water meters installed within the Hamlet of Glen Robertson. The residents are charged a flat rate of approximately $35 on a bi-monthly basis, while commercial establishments are charged approximately $42 every other month.

Cross Connection and Backflow Prevention

Mr. Bachand advised that there are no known cross connections within the distribution system, and that all private wells within the hamlet have been disconnected. Mr. Bachand indicated that for any future construction and connections to the drinking-water system, a backflow preventer will be installed. The Township of North Glengarry does have a by-law (By-Law No. 3002 dated August 14, 1990) to prohibit cross connections in the distribution system. Section 4 of By-Law No. 3002 relates to cross connections and backflow prevention. The by-law stipulates that buildings which contain potentially high health hazards or where industrial piping systems are often modified or where access by municipal inspectors is limited will require a premises isolation device as approved by the Manager or his representative. A water service installed in a premises for fire protection purposes shall be equipped with a backflow preventer. As well, the consumer occupying property provided with two or more services connected to separate sections of the water distribution system shall, in addition to manually operated valves, install on each service backflow preventers approved by the Manager and maintained in good operating condition. It is recommended that the private wells that were disconnected from the distribution system be abandoned as per Regulation 903.

No backflow preventers are currently installed within the distribution system.

Storage Structure Assessment

There are no storage structure facilities located within the distribution system.

It was reported that pesticides are not applied or stored around or in the immediate vicinity of the distribution system.

3.2 WATER SYSTEM MANAGEMENT PRACTICES

3.2.1 Operational Manuals

The Operating Manual revised in July 2002, is located at the Glen Robertson Water Treatment Plant in a binder. The manual is easily accessible, and upon discussing with the operators, they are aware of the manual, its location and contents. The manual includes a description of the treatment processes and some drawings of the drinking-water system. The process descriptions are up-to-date except for the most recent upgrades made. There is a process in place to ensure that all equipment used in the processes are monitored, inspected and evaluated. This process is part of the daily Operator In Charge (OIC) duties, and related information to this process is recorded in the logbook. At the time of the inspection, the manual did contain a copy of the sampling schedule/plan. Procedures for collection of samples from raw water, treated water and distribution system are done in accordance with directions from the operating authority and with MOE practices.

Up-to-date, as-built plans of the Glen Robertson Drinking-Water System are not available. It is recommended that the owner ensure that once the upgrades are completed, that up-to-date as-built plans are prepared and made available on-site.

At the time of the inspection the operating manual did contain a procedure related to the identification, notifications and corrective actions for adverse conditions. The procedure needs to be updated to reflect the changes in legislation. The procedure shall contain the reporting requirements of O. Reg. 170/03. The procedure should include the use of the notification forms under O. Reg. 170/03, i.e. Section 2 (a) - Written Notice by Drinking-Water System Owner and Section 2 (b) - Notice of Issue Resolution, and should include a copy of the above-stated notification forms. As well, the owner is required to incorporate the procedures from the monitoring and reporting plan (developed by Morris McCormick) into the Operating Manual as ordered by Director's Order Number P802012-DO.

There is a preventative maintenance program in place at the Glen Robertson Drinking-Water System. The manufacturers manuals are maintained at the treatment plant. Records for maintenance activities are kept on-site in the logbook. Preventative and reactive maintenance is performed on all treatment equipment (pumps and continuous water quality analyzers). The equipment is checked, cleaned and/or calibrated, the pumps are greased and the generator is tested. Mr. Bachand advised that there is no formal maintenance schedule in place, instead the operators perform maintenance in accordance with the manufacturers instructions.

Distribution System

A separate Operations Manual has not been compiled for the operation of the distribution system. The Operating Manual for the well supply includes, as detailed in the section above, procedures for the operation and maintenance of the distribution system. As previously mentioned, at the time of the inspection the operating authority did not have detailed plans of the distribution system. In addition, it was reported that the distribution system is maintained in accordance with the AWWA Standard for Disinfecting Water Mains (C651-99).

The operations manual for the distribution system should include formal written procedures developed for maintenance, flushing of water mains, inspection and operation of valves, and a procedure for all wastewater discharges from the distribution system, etc.

3.2.2 Logbooks

The logbook for the water treatment plant is a book with numbered pages that is kept in the water treatment plant. The entries in the logbook were dated, were in chronological order with the time period recorded, but were not always initialed by the operators and the time period was not always recorded. Logbooks are available for greater than two years since the last entry. The operator-in-charge (OIC) is not always clearly identified in the logbook.

Some of the entries in the logbook included changing of the filter; responses to alarms, maintenance on analyzers; operational checks; chemical tank additions; readings of the chlorine analyzer and turbidity analyzer; the collection of samples including resamples, etc. Operators recorded any equipment that was taken out of service or ceased to operate during the shift (generator set), and departures from normal operating procedures that occurred during the shift. Operators recorded instances in which a parameter is an indicator of adverse water quality, but not on a consistent basis. As well, the operators do not always describe the action taken and conclusions drawn about abnormal conditions that occurred during the shift. Prior to the first amendment of O. Reg. 170/03 (O. Reg. 249/03 on June 16, 2003), continuous monitoring equipment was required to be examined every 24 hours. The logbook included documentation of process checks for analyzers on a daily basis prior to June 1, 2003, in accordance with the above noted requirement of Schedule 6-5 (1) of O. Reg. 170/03. Entries made in the logbook do not unambiguously identify the person making an entry. It is recommended that the operators initial each entry they make in the logbook in accordance with section 20 of O. Reg. 435/93. The logbook documents the calibration checks of the continuous analyzers performed by the operators. The owner of the facility shall ensure that an operator-in-charge or a person

authorized by an operator-in-charge record the prescribed information in the logs in respect of each operating shift in accordance with section 20 (5) of O. Reg. 435/93.

The concentration of chlorine residuals for samples collected in the distribution system are recorded on a separate log sheet entitled "Weekly Routine Sampling", in which the date, time, location, operator, free chlorine residual concentration, total chlorine residual concentration, turbidity and laboratory results are recorded. All the required information is being recorded in accordance with Schedule 6-10 of O. Reg. 170/03.

The concentration of free chlorine residuals for samples collected in the distribution system on a daily basis are recorded on a separate log sheet entitled "Daily Distribution Sampling", in which the date, time, location, operator name and the free chlorine residual concentration are recorded. The total chlorine residual concentration and turbidity readings are recorded on occasion. All the required information is being recorded in accordance with Schedule 6-10 of O. Reg. 170/03. The logbook review indicated that the operating authority began daily measurement of disinfectant residuals in the distribution system on June 5, 2003. The daily free chlorine residual was not measured in the distribution system on June 7, 2003, June 8, 2003, June 28, 2003 and June 29, 2003. The owner in accordance with Schedule 7 of O. Reg. 170/03 is required to measure the free chlorine residual in the distribution system on a daily basis, as in seven days per week including holidays.

Information regarding plant performance from April 28, 2003 to May 15, 2003 was recorded on a separate piece of paper instead of the logbook, and should have been incorporated into the logbook. According to Mr. Chartrand, the logbook had been removed from the treatment plant during that time and taken to the offices of the water works department in Alexandria for review and transfer of the data to their computer system. The owner shall ensure that information required to be recorded in the logbook is done so in accordance with O. Reg. 435/93.

3.2.3 Contingency and Emergency Planning

As mentioned previously, the Operating and Contingency Manual was revised in July 2002, and is located at the Glen Robertson Water Treatment Plant in a binder. The binder contained a phone list of all operators for the Township of North Glengarry Water Works Department, including their contact numbers at home and cell phones. Contact names and numbers were listed for the MOE and the MOH. The Contingency Manual includes a site plan, a list of emergency equipment that is available, and procedures for visits from the MOE and media

relations.

Contingency plans were provided for several scenarios, including well pump failure, power failure, contamination of the raw water source, chemical spills, water main break/leak, and vandalism to name a few. Secondary spill containment is not provided for potential spills in the sodium hypochlorite solution storage area. Part of the upgrades required by the Certificate of Approval include the provision of secondary containment for all chemical storage tanks. Secondary containment is provided for the gasoline generator set. However, an approved flammable materials storage facility has not been provided for the generator fuel in accordance with the upgrades required by the C of A. Provisions are in place for clean up of potential spills. The operating authority maintains absorbent material at the offices/garage of the Water Works Department for the clean up of spills. A contingency plan should be developed in the event that the chlorine contact chamber becomes contaminated and should include notifying the MOE, the MOH, and the municipality, along with actions to be taken to isolate the chlorine contact chamber from the distribution system, determining the origin of the contamination and preparing a plan to provide drinking-water to the residents. Procedures for training and/or periodic testing of the contingency plans are not in place. The CN railway runs adjacent to the property of the Glen Robertson Drinking-Water System. This could pose as a possible source of contamination for the water supply if a spill were to occur. It is recommended that the owner develop a contingency plan for such a scenario.

The Glen Robertson Drinking-Water System has available in the event of an emergency, standby critical equipment including a standby 10 kW gasoline generator set at the water treatment plant. Condition No. 5 of Certificate of Approval Air No. 6190-5MSUVN, dated May 27, 2003, requires the owner to prepare, not later than three (3) months after the date of the C of A (i.e. August 30, 2003), a Manual outlining the operating procedures and a maintenance program for the equipment, including routine operating and maintenance procedures, emergency procedures, record keeping procedures for any record keeping activities relating to operation and maintenance of the equipment, and all appropriate measures to minimize noise and odorous emissions from all potential sources. The owner is also required to implement the recommendations of the Manual; and retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the equipment, and make these records available for review by staff of the Ministry upon request. The owner shall comply with the terms and conditions of C of A Air No. 6190-5MSUVN. Mr. Bachand advised that a standby chemical metering pump for the sodium hypochlorite feed system will be installed during the week of September 22, 2003. The gasoline generator set is tested on a weekly basis to ensure that it will operate under normal load conditions. Operators record such tests in the logbook. The generator set failed to operate

during the province-wide power outage that occurred on August 14, 2003, due to a broken fuse. Mr. Bachand advised that the municipality is considering installing an automatic switchover mechanism on the generator set in 2004. Mr. Bachand indicated that they plan to install an automatic switchover mechanism on the sodium hypochlorite metering pumps when the second storage solution tank is installed as part of the upgrades. It is recommended that the municipality do so in the event of a power failure to ensure the continuous delivery of properly disinfected drinking-water into the distribution system.

Mr. Bachand indicated that the Glen Robertson Drinking-Water System is not capable of meeting the required capacity with the largest unit out of service. Mr. Chartrand advised that the operators can allow drinking-water to bypass the chlorine contact chamber by turning valves, and thereby allowing chlorinated water to enter the distribution system without achieving a minimum of 15 minutes of contact time.

Mr. Bachand advised that Mr. Guy Girard is the Operator-in-Overall-Responsibility (OIOR) for the Glen Robertson Drinking-Water System. Mr. Bachand indicated that if Mr. Girard is unable to act, Mr. Julien Chartrand, operator (Class 2 Water Distribution System operator) takes over. The contingency plans did not include written procedures to address this scenario and/or to notify the Director in the event that the OIOR is absent for greater than 60 days (O. Reg. 435/98 s. 13 (4)). Mr. Girard indicated that if he is unable to act as OIOR for more than 60 days then Julien Chartrand is to assume the role, and the Director must be notified of this.

3.2.4 Security

The water treatment plant is not surrounded by security fencing. The door to the water treatment plant is equipped with a lock. The water treatment plant is not alarmed for unauthorized entry. Signage regarding trespassing is not provided at the water treatment plant. The water treatment plant is visited by operators daily. It is recommended that signage regarding trespassing be provided at the water treatment plant. The municipality should also consider surrounding the treatment plant and chlorine contact facility with a locked fence for increased security.

3.2.5 Communication with Consumers

Water quality complaints received by the Glen Robertson Drinking-Water System are logged on a form (Record of Public Complaint) that includes the complainant's name and contact

information, the nature of the complaint, location of the problem, actions taken, the source of the problem (if found), if remedial action is required, and any follow up actions. The forms are filed in a binder located in the office of the waterworks department. The municipal office maintains copies of the complaint form and refers complaints to Mr. Bachand. The waterworks department has not established a written procedure for receiving, responding to, and recording complaints about any aspects of the works as required by Condition No. 3.14 of Certificate of Approval No. 5969-5JHKZN. Depending on the complaint, operators collect a microbiological sample, and perform testing for turbidity and free chlorine residual. The operator(s) check with the waterworks department to verify if any flushing of the distribution system has been conducted. It was reported that calls regarding water quality complaints generally concern dirty and/or coloured water. The owner is required to develop a written procedure for complaints that meets the conditions of the C of A.

All of the analytical results of water samples taken in 2002 and 2003 for microbiological and chemical parameters are available free of charge; a copy of the Certificate of Approval, Provincial Officer's Orders, Engineer's Report, Annual Reports, a copy of the Drinking Water Systems Regulation (O. Reg. 170/03) and a copy of the Ontario Drinking Water Quality Standards (O. Reg. 169/03) are available at the waterworks department's office from which the drinking-water system is managed. All adverse water quality notifications prepared by the Township of North Glengarry's waterworks department were available at the office.

Mr. Bachand indicated that there is no process in place to communicate with users and inform them that reports are available. Section 11 of O. Reg. 170/03 requires the owner of the drinking-water system to ensure that a copy of the annual report for the system is given, without charge, to every person who requests a copy; and every time an annual report is prepared for a drinking-water system, the owner of the system shall ensure that effective steps are taken to advise users of water from the system that copies of the report are available, without charge, and of how a copy may be obtained.

3.2.6 Operator Certification and Training

A list of all operators and their certification details is located in **Appendix D.**

The classification certificate for the Glen Robertson distribution system was displayed within the water treatment plant. The Glen Robertson Drinking-Water System is a Class I water

distribution system. The certificate number for the water treatment/distribution system is 1727, issued on June 4, 1991. It is recommended that the second Engineer's Report include a re-evaluation of the existing classification of the drinking-water system due to the recent upgrades performed at the treatment plant. The municipality should then apply to Ontario Environmental Training Consortium (OETC) for reclassification of the system.

As mentioned previously, Mr. Girard is the Operator-in-Overall-Responsibility (OIOR) for the Glen Robertson drinking-water system. At the time of the inspection, Mr. Girard held a Class 1 Water Treatment System (WTS) certificate and an Operator-In-Training's (OIT) Water Distribution System (WDS) certificate. Therefore, Mr. Girard is <u>not</u> appropriately certified to be OIOR for the Glen Robertson drinking-water system. The licences of each of the licensed operators are displayed at the offices of the waterworks department. Morris McCormick was the previous Manager of the Waterworks Department and was also the OIOR for the Glen Robertson drinking-water system. Mr. McCormick left the positions he held at the Township of North Glengarry in mid-January 2003. Mr. Girard then took over as the OIOR for the Glen Robertson drinking-water system. The owner is required to notify the Director in the event that the OIOR is absent for greater than 60 days (O. Reg. 435/93 s.13 (4)). Mr. Girard indicated that if he is unable to act as OIOR for more than 60 days then Julien Chartrand is to assume the role, and the Director must be notified of this. Since Mr. Girard is not appropriately licenced to act as the OIOR, Mr. Chartrand has assumed the role as OIOR. Mr. Bachand advised the MOE Inspector after the inspection was performed that, as of December 10, 2003, Mr. Chartrand is no longer employed by the Township of North Glengarry. The owner is required to notify the Director that the OIOR is absent or unable to act for more than 60 days.

A review of the certificates for the operators for the treatment plant/distribution system indicated that Mr. Chartrand has a Class 2 WDS certificate, Mr. McDonald has an Operator-In-Training (OIT) WDS certificate and Mr. Bachand also has an OIT WDS certificate, which are one level below the classification of the facility. In accordance with section 13 (2.1) of O. Reg. 435/93, responsibility for the overall operation of the facility cannot be placed with an operator who holds an OIT's licence. Therefore, Mr. Girard cannot be the OIOR for the Glen Robertson Drinking-Water System until he receives his Class 1 WDS certificate. According to OETC, in theory an operator is assumed to have a Class 1 WDS certificate when they receive a Class 1 WTS certificate. However, an operator can only receive a Class 1 WDS certificate if they write and pass the exam for WDS's. The owner of the facility shall ensure that in accordance with section 13 (2.1) of O. Reg. 435/93, responsibility for the overall operation of the facility is not placed with an operator who holds an OIT's licence, and is placed with an operator who holds a Class 1 (or higher) WTS licence.

A review of the training records for 2002 for the operators of the drinking-water system indicated that all of the operators had received 40 hours of training. Records indicated that Mr. Chartrand, Mr. Girard and Mr. McDonald received between 41 hours and 81 hours of training in 2002. The training records included a summary of the dates of training, the duration of each training session, location where the training was held, the subject considered at each training session, and the name of the instructor and/or company who provided the training. The dates of training sessions were not consistently included in the training records. In accordance with Section 17 of O. Reg. 435/93, all operators must receive a minimum of 40 hours of training every year; and records have to be maintained of the training given, including the names and positions of operators who attend training sessions, the dates of training sessions, the duration of each training session and the subjects considered at each training session. Training included recording and reporting test results, continuous water quality analyzers, and a review of the regulations. A review of the training records for 2003 (January to July), indicated that none of the operators had yet to receive the minimum of 40 hours of training. Records indicated that for this period, the operators have received between 9 hours and 27 hours of training. The training records included a summary of the dates of training, number of hours of training, location where the training was held and a description of the material covered in the training session. Training included working in confined spaces, wastewater exam preparation course, legislation training (O. Reg. 170/03), gas monitor use, SCBA training, and line locator training. The operators are not trained in and are not aware of the contingency plans. It is recommended that all the operators receive training on the contingency plans.

SECTION 4 WATER QUALITY MONITORING & ASSESSMENT

4.1 WATER QUALITY MONITORING

Water quality monitoring requirements for the Glen Robertson Drinking-Water System are dictated by O. Reg. 170/03. Certificate of Approval No. 5969-5JHKZN does not stipulate any additional monitoring requirements above and beyond O. Reg. 170/03. The water quality monitoring requirements for the Glen Robertson Drinking-Water System as specified in O. Reg. 170/03 are as follows:

Raw Water

- one sample per month from the raw water (from each well) before any treatment is applied to the water for microbiological analyses (*E. coli* or fecal coliforms and total

coliforms).

Treated Water

- one sample per quarter for nitrate and nitrite;
- one sample every five years for sodium;
- one sample every five years for fluoride;
- one sample every 36 months for inorganics (Schedule 23); and
- one sample every 36 months for organics (Schedule 24).

Distribution System

- at least one sample per week for microbiological analyses (*E. Coli* or fecal coliforms, total coliforms and general bacteria population expressed as colony counts on 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 every twelve months, collected at a point reflecting the maximum residence time in the system.

The inspection period covers from August 15, 2002 to September 11, 2003, thereby including the requirements of O. Reg. 459/00 as well as the requirements of O. Reg. 170/03. The difference in water quality monitoring requirements between the two different Drinking Water Regulations is that the sampling frequency for microbiological parameters, sodium, inorganics and organics has changed in that it is now less stringent under O. Reg. 170/03.

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

Section 7-3 (1) of Schedule 7 in O. Reg. 170/03 specifies that a water sample is taken at least once every month, from a location that is before raw water enters the treatment system, and is tested immediately for turbidity.

Treated water samples were submitted for analysis of nitrate/nitrite, volatile organics, and pesticides and PCBs on August 13, 2002, December 3, 2002, March 11, 2003, May 22, 2003 and September 9, 2003. The samples were analyzed for all the parameters listed in O. Reg. 170/03

Schedule 24, with the exception of benzo(a)pyrene. Benzo(a)pyrene was not included as an organic parameter in O. Reg. 459/00 and/or the Ontario Drinking Water Standards that was applicable at the time of sampling. The owner must submit its first test of benzo(a)pyrene prior to June 1, 2004, as required by Schedule 13-10 (b) of O. Reg. 170/03.

The required sample for inorganics was submitted on May 22, 2003. The sample was analyzed for all the parameters listed in Schedule 23 of O. Reg. 170/03, with the exception of antimony. Antimony was not included as an inorganic parameter in O. Reg. 459/00 and/or the Ontario Drinking Water Standards that was applicable at the time of sampling. The owner must submit its first test of antimony prior to June 1, 2004, as required by Schedule 13-10 (b) of O. Reg. 170/03. Treated water samples were submitted for analysis of fluoride and sodium on May 22, 2003 and July 8, 2003, respectively.

Raw water samples were submitted for analysis of gross alpha, gross beta and tritium on May 26, 2003.

The microbiological results were reviewed during the inspection from August 6, 2002 to September 2, 2003. The owner collected a minimum of eight samples per month from the distribution system (an average of two per week), and a minimum of one sample per week from both the raw and treated waters and submitted them to Accutest Laboratories of Nepean, Ontario for microbiological analyses. All samples from the raw water, treated water and distribution system were analyzed for *E. Coli*, total coliforms and background counts. In accordance with section 11-2 of Schedule 11 (O. Reg. 173/03), the owner and operating authority are required to ensure that each of the samples taken from the distribution system is tested for *E. coli* or fecal coliforms; total coliforms; and general bacteria population expressed as colony counts on a heterotrophic plate count (HPC), and not background colony on the total coliform membrane filter.

The required quarterly distribution samples for trihalomethanes were collected on August 13, 2002, December 3, 2002, March 11, 2003, May 22, 2003 and September 9, 2003. The distribution samples for trihalomethanes were collected from the extremity of the system, which is expected to have an elevated concentration. The required annual distribution sample for lead was collected on May 22, 2003, from the extremity of the system.

Raw water samples at the Glen Robertson Drinking-Water System are collected from a faucet located in the water treatment plant. Treated water samples are collected from a separate faucet located in the water treatment plant. At the time of the inspection, the sampling taps were in

good condition and were not equipped with any sampling hoses that could potentially contaminate the samples. Raw water samples are being taken before any chemicals or disinfectant are added.

The Glen Robertson Drinking-Water System has a continuous water quality analyzer that monitors and records the free chlorine residual of the treated water leaving the water treatment plant and entering the distribution system. At the time of the inspection, the chlorine residual analyzer was showing a concentration of 0.80 mg/L free chlorine residual in the treated water leaving the treatment plant. At the time of the inspection, it was uncertain whether this is the appropriate location for the chlorine residual analyzer, as Schedule 7-2 of O. Reg. 170/03 requires that the free chlorine residual is monitored at or near the location where the intended contact time has just been completed. Since the upgrades have been completed, the owner will now be able to determine where the intended contact time has been completed, and if necessary relocate the chlorine residual analyzer. Distribution sampling locations for both microbiological parameters and chlorine residuals are not being rotated, but the existing sample locations are representative of the distribution system and include the extremities of the system and dead ends. Sampling locations include the extremity of the system. A review of the analytical results indicated that chlorine residual readings are being collected at the same time as microbiological samples.

In-house operational tests are performed daily at the treatment plant for free chlorine residual, total chlorine residual, pH and turbidity in the treated water. The Glen Robertson Drinking-Water System has a continuous water quality analyzer that monitors and records the turbidity of the treated water leaving the water treatment plant and entering the distribution system. At the time of the inspection, the turbidimeter was showing a turbidity reading of 0.220 NTU. The continuous water quality analyzer that monitors and records the free chlorine residual of the treated water leaving the water treatment plant also continuously monitors the pH of the treated water. The remaining operational tests indicated above are performed using hand-held/bench-top analyzers. Section 7-3 (1) of Schedule 7 (O. Reg. 170/03) requires the owner and operating authority to ensure that a water sample is taken at least once every month, from a location that is before raw water enters the treatment system, and is tested immediately for turbidity. The owner/operating authority is not testing the raw water for turbidity on a monthly basis as specified in Schedule 7 of O. Reg. 170/03. The owner/operating authority shall ensure that raw water samples are collected once per month and tested immediately for turbidity.

Based on a review of available monthly plant performance reports, daily and weekly routine sampling records, quarterly reports, annual reports, logs and laboratory analytical results, it

appears that all monitoring required by O. Reg. 170/03 (microbiological sampling, chemical sampling and operational checks) is completed at the Glen Robertson Drinking-Water System, except for the monthly turbidity of the raw water and heterotrophic plate count (HPC) analysis of distribution samples.

On May 20, 2003, Andre Bachand signed and submitted the required "Notification of Laboratory Services Provided to Waterworks" form to the MOE's Laboratory Services Branch. A review of the Standard Council of Canada (SCC) scopes of accreditation for the laboratories indicated on the "Notification of Laboratory Services Provided to Waterworks" form indicated that the subject laboratories are accredited to conduct the test requested by the owner.

The owner confirmed that the laboratory analytical reports are kept for at least five years in accordance with O. Reg. 170/03.

4.2 WATER QUALITY ASSESSMENT

4.2.1 Bacteriological

Raw water microbiological analysis complies with the ODWS.

A review of the weekly raw water data for the period of August 6, 2002 to September 2, 2003, indicated that *E. coli* was not detected in any of the samples, and that Total Coliforms and background colony counts were reoccurring during that period.

A review of the treated water and distribution system data for the period of August 6, 2002 to September 2, 2003, indicated that *E. coli* was not detected in any sample, but Total Coliforms and background colony counts were detected on several occasions. Please refer to section 4.2.3 for more specific details.

Sampling was conducted at the Glen Robertson Drinking-Water System by MOE staff on August 5, 2003. Samples of the raw water from the well, treated water from the water treatment plant, and one (1) sample from the distribution system were collected. All samples were collected as per the "Protocol for Standardized Sampling During the Performance of SWIP Inspections" dated May 1997 and "Practices for the Collection and Handling of Drinking-Water Samples", May 2003. The samples were sent to the MOE's Laboratory Services Branch in Toronto on the same day for analysis. The distribution sample was collected from the following location: Private

residence located at 21969 Main Street. At this location the MOE staff also collected samples for on-site analysis of the free and total chlorine residuals. The MOE staff used a Hach Pocket Colorimeter to perform the analyses. The results from the on-site analysis of the chlorine residuals are provided in the following table.

Chlorine Residual Results
Glen Robertson Drinking-Water System - August 5, 2003

Location	Free Chlorine Residual (mg/L)	Total Chlorine Residual (mg/L)
Glen Robertson Water Treatment Plant	0.35	0.45
21969 Main Street	0.83	0.95

The results of the on-site analyses of the free chlorine residual in the Glen Robertson distribution system indicated that the free chlorine residual was above the minimum required concentration of 0.2 mg/L.

The water quality results for the raw water sample collected by the MOE in August 2003 indicate that *E. coli* was not detected and Total Coliforms were detected in the sample with a result of less than 2 counts per 100 mL. The water quality results for the treated water sample and the distribution system sample collected by the MOE in August 2003 indicate that there were no detections of deterioration indicators, *E. coli* or total coliforms, however heterotrophic bacteria was detected in both samples, but the results were well below the established limits. A copy of the audit results are in **Appendix F**.

4.2.2 Physical/Chemical

The Engineer's Report (March 2001) states that the water supply for the Glen Robertson DWS meets the health-related parameters of the Ontario Drinking Water Standards (ODWS) for a groundwater supply, based on available test records. Test records show consistent water quality. All parameters were below ODWS health-related standards, with the exception of turbidity.

The distribution water is prone to elevated turbidity levels, although the average turbidity is below 1.0 NTU. There is currently no treatment in place to remove turbidity.

The raw water is also characterized by elevated iron, colour, hardness and organic nitrogen. These parameters are all chemical and physical parameters and are not health-related. Iron is not considered to be a health-related parameter, however, a previous MOE Compliance Inspection Report also indicates the presence of iron reducing bacteria in the raw water supply. Colour in the raw water supply fluctuates and is suspected of being caused by iron oxides. The Glen Robertson water supply has hardness concentrations of 350-450 mg/L. Although the hardness level is above the ODWS, hardness is considered an operational guideline and not a health-related parameter.

A review of all analytical results of physical/chemical sampling from August 6, 2002 to September 2, 2003 from the raw water, treated water and distribution system was completed. No exceedances of the Ontario Drinking Water Standards (ODWS) and/or Ontario Drinking Water Quality Standards (ODWQS, O. Reg. 169/03) were noted for the samples collected from the treated water or water from the distribution system, except for elevated concentrations of sodium and low free chlorine residual concentrations. A sample collected on July 7, 2003 from the treated water at the water treatment plant exceeded the concentration of 20 mg/L, with a concentration of 72 mg/L. The aesthetic objective for sodium in drinking-water is 200 mg/L at which it can be detected by a salty taste. However, the local Medical Officer of Health is required to be notified when the sodium concentration exceeds 20 mg/L, so that this information may be passed on to local physicians to inform their patients on sodium-restricted diets.

The maximum acceptable concentration for trihalomethanes in drinking water is 100 ug/L (0.10 mg/L), based on a four quarter moving annual average of test results. The concentration of THMs ranged between 6.1 ug/L and 13.2 ug/L in 2002, and between 4.3 ug/L and 7.3 ug/L in 2003. Based on a review of results from August 2002 to May 2003, the four quarter moving annual average THM concentration in the treated water was 13.3 ug/L. Based on a review of results from August 2002 to May 2003, the four quarter moving annual average THM concentration in the distribution system was 6.3 ug/L. Therefore, the four quarter moving annual average was below the ODWQS (O. Reg. 169/03) of 100 ug/L at the time of the inspection. Trihalomethanes are the most widely occurring synthetic organics found in chlorinated drinking water. Primarily, trihalomethanes in drinking water are produced by the reaction of chlorine and the naturally occurring organics left in the water.

A review of records indicated that the turbidity in the treated water was below 1.0 NTU. For 2002, the average turbidity in the treated water for the water treatment plant was 0.53 NTU, ranging between 0.36 NTU to 0.75 NTU. For the period from January to September 10, 2003, at the water treatment plant the average turbidity level was 0.29 NTU, ranging between 0.16 NTU

to 0.61 NTU. At the time of the inspection, the continuous turbidimeter for the water treatment plant was showing a turbidity reading of 0.220 NTU. Control of turbidity in drinking-water systems is important for both health and aesthetic reasons. The substances and particles that cause turbidity can be responsible for significant interference with disinfection, can be a source of disease-causing organisms and can shield pathogenic organisms from the disinfection process. Turbidity is an important indicator of treatment efficiency. O. Reg. 170/03 prescribes turbidity as an adverse result if the drinking-water system is required to provide filtration, and a result indicates that turbidity exceeds 1.0 NTU in a grab sample of water taken from a filter effluent line; or, the latter of two samples of water from a filter effluent line taken 15 minutes apart and tested by continuous monitoring equipment.

The daily free chlorine residual results for the period of June 5, 2003 to September 11, 2003, indicate that the free chlorine residual in the distribution system ranged between 0.22 mg/L and 2.07 mg/L. The free chlorine residual results for the same period as indicated from the weekly routine sampling records show that the free chlorine residual in the distribution ranged from 0.59 mg/L to 1.34 mg/L. In 2002, the average free chlorine residual in the treated water was 0.51 mg/L, ranging from 0.34 mg/L and 0.57 mg/L. Between January and September 2003, the average free chlorine residual concentration in the treated water was 0.93 mg/L, ranging from 0.33 mg/L and 2.20 mg/L. There were several free chlorine residual concentrations equal to 2.20 mg/L. These recorded values do not accurately reflect the true concentration of the free chlorine residual in the treated water samples taken from the water treatment plant. These readings were measured using a hand-held DPD colorimeter. In the case of a chlorine residual concentration that is equal to 2.20 mg/L, the operator should either dilute and re-test the sample and/or switch to the high range of the colorimeter to get a more accurate concentration (as per the Instruction Manual).

Plant performance data (turbidity, free chlorine residual, flows, etc.) was missing or not available for the following time periods in 2003: January 1 to 15, 2003; 12 days in February; 20 days in March; 20 days in April; May 1 to 14, May 17; and August 20, 2003. According to Mr. Bachand, the flows are recorded on the chart recorder at the treatment plant and is connected to the computer system maintained at the offices of the water works department in Alexandria. However, the results from the continuous water quality analyzers are recorded on a chart recorder at the treatment plant and are not connected to the computer system. The free chlorine residual concentrations and turbidity levels were measured using hand-held analyzers and the results were recorded on the plant performance log sheets maintained at the treatment plant. Mr. Bachand indicated that for a significant period of time (December 14, 2002 to approximately May 2003), the operators were only visiting the treatment plant once per week. The continuous water quality

analyzers were installed in February 2003. As of May 2003, the operators began visiting the treatment plant on a daily basis and measuring and recording the free chlorine residuals and turbidity levels on a daily basis. Mr. Bachand advised that there was a computer malfunction at the offices of the water works department where the plant performance data was not saved for a period of time. The owner has corrected the problem by installing the appropriate software and a backup system. The free chlorine residual concentrations and turbidity levels from the chart recorders should have been used to provide the plant performance data. The average, minimum and maximum values from the on-line analyzers should have been recorded on the plant performance sheets/logbook on a daily basis since the analyzers were installed. Prior to that date, operators should have been measuring the free chlorine residual concentration and turbidity in the treated water once per day in accordance with section 7 of O. Reg. 459/00. Grab samples from the treated water were being taken daily for turbidity and free chlorine residual seven (7) days a week up until December 14, 2002. The operator, Daniel Lalonde, who visited the water treatment plant on a daily basis left his position with the municipality in mid-December 2002. The owner should have ensured that another operator in his place continued to visit the treatment plant on a daily basis. The owner acted in non-compliance with O. Reg. 459/00.

A review of the free chlorine residuals recorded during microbiological sampling and during the daily free chlorine residual in the distribution system indicated that at most locations including dead ends and the extremities in the distribution system, residual levels are consistently above 0.2 mg/L, with the occasional concentration below 0.2 mg/L. There were no chlorine residual detections at or below 0.05 mg/L. However, on July 9, 2003, a free chlorine residual of 0.09 mg/L in the distribution system was reported; and on July 18, 2003, a free chlorine residual of less than 0.05 mg/L in the treated water leaving the plant and entering the distribution system was reported.

No exceedances of the ODWQS (O. Reg. 169/03) were reported for the treated water or distribution system samples collected by the MOE in August 2003. The concentration of THMs in the treated water sample (1 ug/L) and one distribution system sample (10.5 ug/L) were below the ODWQS of 100 ug/L. A copy of the audit results are in **Appendix F**.

At the time of the inspection, the continuous chlorine residual analyzer was showing a free chlorine residual in the treated water leaving the water treatment plant of 0.80 mg/L. At the time of the inspection, chlorine residuals were tested in the distribution system by the MOE Inspector at three (3) locations using a Hach Pocket Colorimeter to perform the analyses. The free chlorine residuals and the sampling locations are included in the table below. Based on the chlorine

residuals provided below, the free chlorine residual in the distribution system was within the range recommended within MOE *Procedure for Disinfection of Drinking Water in Ontario* (0.2 mg/L - 4.0 mg/L).

Sampling Location	Address	Free Chlorine Residual (mg/L)
Private Residence	**21969 Main Street**	**1.39**
Church St. Martin de Tours	**21945 Main Street**	**1.17**
Private Residence	**21905 Main Street**	**0.83**

4.2.3 Reporting, Notification & Corrective Action

The inspection period covers from August 15, 2002 to September 11, 2003, thereby including the requirements of O. Reg. 459/00, as well as the requirements of O. Reg. 170/03. The difference in reporting requirements between the two different Drinking Water Regulations is that the frequency for submitting reports has changed in that owners are no longer required to submit quarterly reports but instead have to submit an annual report.

Notifications Provided to the MOE and MOH

Based on a review of operational checks, laboratory reports, and incident reports (notices of adverse test results and other problems), it appears that all indicators of adverse water quality have been reported as required within the specified time frames. All appropriate corrective actions were taken, including the requirement to submit the notice of issue resolution within seven (7) days of the issue being resolved.

The following table details all the incidents of adverse water quality for the Glen Robertson Drinking-Water System that have occurred since the previous inspection period.

Date of Incident/Notification	Adverse Test Result	Corrective Action Taken
December 10, 2002	Total Coliform = 1 cfu/100 mL	
July 7, 2003	Sodium = 72 mg/L (Water Treatment Plant)	Resampled on July 8, 2003, notified the Medical Officer of Health, no further action required.
July 8, 2003	Sodium = 64 mg/L (Water Treatment Plant)	Resample result from adverse result on July 7, 2003. Issue resolved.
July 9, 2003	Free chlorine residual = 0 mg/L in treated water; free chlorine residual = 0.09 mg/L in distribution sample	Retested and collected microbiological samples from various locations in the system. Notified SAC and MOH; issue resolved.
July 18, 2003	Free chlorine residual <0.05 mg/L in treated water	Chlorination increased, system flushed and microbiological samples collected from various sites. Notified SAC and MOH; issue resolved.
July 24, 2003	Total Coliform = Overgrown, Background > 200 cfu/mL in distribution system	Resampled, issue resolved by July 28, 2003
July 31, 2003	Total Coliform = Overgrown, Background > 200 cfu/mL	Resampled, issue resolved by Aug. 11, 2003
August 14, 2003	Standby diesel generator set failed	Issue resolved by August 26, 2003

Quarterly Reports

Quarterly Reports were prepared and submitted within 30 days of the end of each respective quarter as required during the inspection period. Each of the Quarterly Reports provides a table

summarizing the number of microbiological samples collected from the drinking-water system; flows; the turbidity and free chlorine residual of the treated water. The quarterly reports include all the chemical sampling results for the sampling conducted in accordance with Schedule 2 of Regulation 459/00. The quarterly reports also provide a system description and statement of compliance with the drinking-water standards. The Quarterly Reports also summarize all adverse water quality incidents reported above. The summary tables provided in the reports cite the number of microbiological samples collected and the number of exceedances.

Compliance Report

The 2002 Annual Report for the Glen Robertson Drinking-Water System was completed and included the following information: a statement indicating compliance with all of the terms and conditions of the Certificate of Approval, as required by Condition 4.1 (c) (i) of the Certificate of Approval, the details of the non-compliance issues during the reporting period, as required by Condition 4.1 (c) (ii) of the Certificate of Approval; a summary of the quantity of water supplied during the reporting period; a summary listing treatment chemicals used; and the maximum and average day flows. A summary of analytical results of all samples required by the Regulation was not provided in the Annual Report in accordance with Condition No. 4.1 (c) (iv) of C of A No. 5969-5JHKZN. The summary of the quantity of water supplied during the reporting period did not provide the average day flow in cubic metres per day for 2002. The summary listing the treatment chemicals used, including average dosage rates appeared to be those for the Alexandria Water Treatment Plant and not for the Glen Robertson Water Treatment Plant, as the Glen Roberston Water Treatment Plant does not use Pass 100 and/or activated carbon in the treatment process.

The 2003 Annual Report is due February 28, 2004. At the time of the inspection, the 2002 Annual Report was signed by a person designated by the municipal council and the report was presented to council in accordance with Conditions 4.1 (d) and 4.1 (e). The Annual Report was presented to council and was confirmed by a resolution of council on July 28, 2003 (Resolution No. 2). However, the report should have been presented to council within three months of completion, i.e. by May 31, 2003, in accordance with Condition No. 4.1 (e) of the C of A. The owner shall ensure that the 2004 Annual Report meets the requirements of section 11 of O. Reg. 170/03. The owner should be aware that the annual Compliance Report required to be completed in accordance with the Certificate of Approval, no longer needs to be completed, as long as the municipality prepares the Summary Report for Municipalities required of Schedule 22 (O. Reg. 170/03). A copy of the Annual Report was available at the office of the water works department.

The Approvals and the Regulations are kept at the municipal office and the Reports, Approvals, Orders and Engineer's Reports are kept at the water works department's office, along with a copy of O. Reg. 170/03. These reports are available to the public without charge during normal business hours.

SECTION 5 ASSESSMENT OF PREVIOUS INSPECTION ISSUES

5.1 NON COMPLIANCE WITH REGULATORY REQUIREMENTS

The previous MOE compliance inspection, conducted on August 14, 2002, had the following issue of non-compliance with regulatory requirements. The current status of each is identified in bold.

1) During the compliance inspection, it was observed and noted during a review of the plant logbook/daily operational sheets that in September 2001, there were eight (8) turbidity readings where the operator wrote over the original turbidity result, which was greater than the Maximum Acceptable Concentration (MAC) of 1.0 NTU, with "1.00". It appears that the operator changed the results so as not to exceed the MAC, and to not report the exceedances as required by section 8 of Ontario Regulation 459/00. The turbidity readings in question occurred on September 1st, 2nd, 5th, 26th, 27th, 28th, 29th and 30th.

   An operator-in-charge shall ensure that accurate records are maintained of all analyses of water samples from the water distribution system or a sample of treated water. Section 98 (2) and (3) of the Ontario Water Resources Act stipulates that "No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency in respect of any matter related to this Act or the regulations", and "No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act".

   It was also observed and noted during a review of the plant logbook/daily operational sheets that in October 2001, there were five (5) turbidity readings that exceeded the MAC, but it appears that not all were reported. The turbidity exceedances occurred on October 13th, 14th, 15th, 16th and 17th, with the following readings respectively, 1.18 NTU, 1.28 NTU, 1.41 NTU, 1.40 NTU, and 1.41 NTU. The owner of a water works shall ensure that notice is

given to the local medical officer of health and the Ministry, when an analysis of a water sample from a water distribution system or a sample of treated water shows that a parameter exceeds the MAC set out for the parameter in Schedule 4. The notice must be given immediately and must be confirmed in writing within 24 hours. The owner failed to notify the Ministry of the Environment (MOE) and the local Medical Officer of Health (MOH) of these exceedances. Therefore, the notification requirements of Ontario Regulation 459/00 were not met for these turbidity values.

Provincial Officers Order Number P802012 was issued to the Township of North Glengarry on August 30, 2002. The municipality was ordered to perform the following work:

(1) Effective immediately upon service of this Provincial Officer Order, compliance with the requirements, as stipulated under section 98 (2) (3) of the Ontario Water Resources Act, Chapter 0.40, R.S.O., 1990 as amended, is initiated and is complied with thereafter.

(2) Effective immediately upon service of this Provincial Officers Order, 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 September 9, 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) or 5 (Radiological Standards) in Ontario Regulation 459/00, and their commitment to maintaining accurate records of those results.

(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 September 9, 2002, that all corrective actions mentioned in No. 1, 2 and 3 have been completed.

The municipality requested from the Director a review of Provincial Officer's Order (POO) on September 6, 2002. The Director reviewed the Provincial Officer's Order and accompanying Provincial Officer's Report, and agreed with the work ordered in POO P802012, and issued a Director's Order P802012-DO on September 16, 2002, confirming the work ordered in items 1, 2, and 4, but amended work ordered item 3 such that it reads as follows:

- On or before October 1, 2002, develop and submit to the Area Supervisor, of the Cornwall Area Office (113 Amelia Street, 2nd Floor, Cornwall, Ontario K6H 3P1) a monitoring and reporting plan with respect to the water sampling of the Glen Robertson Water Treatment Plant that includes but is not limited to the following: (1) written procedures for ensuring the notification of the local Medical Officer of Health and the Ministry as required under Ontario Regulation 459/00; (2) written procedures for the assessment of the initial results of analyses; (3) written procedures for corrective action to be taken if the initial results of analyses indicate that the level of any parameter exceeds its MAC or IMAC; (4) written procedures for the collection and analysis of treated water for turbidity and all other operational parameters as specified in "Standard Methods for the Examination of Water and Wastewater" 20th Edition, 1998, or a more recently published edition; (5) written procedures for recording and interpretation of results as specified in "Standard Methods for the Examination of Water and Wastewater" 20th Edition, 1998, or a more recently published edition; and (6) written procedures for validation checks throughout the sampling, analytical and data management procedures, which shall include initialing changes made to the results and an explanation as to why the changes were made.

- On or before October 1, 2002, submit to the Area Supervisor, of the Cornwall Area Office (113 Amelia Street, 2nd Floor, Cornwall, Ontario K6H 3P1) confirmation that the monitoring and reporting plan as identified in Work Ordered Item 3 has been incorporated into the Glen Robertson Water Treatment Plant's Operating and Contingency Manual.

- Ensure that you review and update the Operating and Contingency Manual at least once every two years as stipulated under section 16 (1) and (2) of Ontario Regulation 435/93, made under the Ontario Water Resources Act, Chapter 0.40, R.S.O., 1990 as amended.

- Ensure that all operating staff are aware of and properly trained on the procedures maintained in the Operating and Contingency Manual, and on all the requirements of Ontario Regulation 459/00. The owner's operator training program shall ensure compliance with the requirements as stipulated under section 17 (1) to (4) of Ontario Regulation 435/93, made under the Ontario Water Resources Act, Chapter 0.40, R.S.O., 1990 as amended, is initiated and is complied with thereafter.

- I hereby amend Work Ordered Item 4 such that it is to be complied with by October 7, 2002.

The Township of North Glengarry submitted information in response to the Director's Order on September 30, 2002. The September 30, 2002 submission did not include written procedures required by Work Ordered Item 3 of the Director's Order, and other requirements of Item 3 were

not complied with. In a letter dated December 5, 2002 by the Area Supervisor of the Cornwall Area Office, the issues of non-compliance with the Director's Order were detailed, and the Area Supervisor requested that the municipality complete the work ordered (submit written procedures required by Item 3 and records demonstrating that the operational staff have been trained on the procedures contained in the Operating and Contingency Manual and on Ontario Regulation 459/00) by December 23, 2002. The owner submitted to the Area Supervisor of the Cornwall Area Office the documents required to comply with the work ordered in the Director's Order. The submission however did not include the training records for Daniel Lalonde, who was the operator that visited the Glen Robertson Well Supply on a daily basis, and in turn measured and monitored the free chlorine residual and turbidity of the treated water.

The owner in order to fully comply with the Director's Order, is required by no later than April 30, 2003, provide the MOE Inspector with the 2001 and 2002 training records for Mr. Lalonde.

As of December 2002, Daniel Lalonde is no longer employed by the Township of North Glengarry. The monitoring and reporting plan as identified in Work Ordered Item 3 of the Order has not been incorporated into the Glen Robertson Water Treatment Plant's Operating and Contingency Manual. All operating staff are not aware of and properly trained on the procedures maintained in the Operating and Contingency Manual, and on all the requirements of Ontario Regulation 459/00 (revoked and replaced by O. Reg. 170/03). These issues remain outstanding.

2) The quarterly reports do not include the analytical results for the raw water, treated water and distribution system microbiological sampling. The chlorine residuals measured in the distribution system at the same time and location the microbiological samples are collected, are also not included in the quarterly reports. Section 12 (c) of O. Reg. 459/00 stipulates that the report shall summarize the analytical results obtained during the quarter for water samples taken under section 7. Section 7 (1)(a) refers to sampling and analysis in accordance with Schedule 2, which includes the microbiological samples taken weekly from the raw water and from the treated water, and monthly samples taken in the distribution system, with at least one such sample taken every week. The owner shall include a summary of the microbiological analytical results for all the samples collected from the raw water, treated water and distribution system in the quarterly reports. It is recommended that the owner include the free chlorine residuals measured in the distribution system in the performance reports/quarterly reports, including the average, minimum and maximum values.

The quarterly reports submitted by the owner for the fourth quarter (October to

December) of 2002 and the first quarter (January to March) of 2003 did not address the above-stated actions required as the reports did not include a summary of the microbiological analytical results for all the samples collected from the raw water, treated water and distribution system in the quarterly reports and did not include the free chlorine residuals measured in the distribution system (including the average, minimum and maximum values). Under O. Reg. 170/03, owners are no longer required to submit quarterly reports but instead have to submit an annual report. The owner shall ensure the requirements of section 11 of O. Reg. 170/03 for annual reports are met. This issue is resolved.

3) At the time of the inspection, the Glen Robertson Well Supply did not have continuous water quality analyzers installed to monitor the free chlorine residual and turbidity of the treated water, therefore the owner is non-compliance with the Certificate of Approval. As required by Condition No. 2.1 (e) of Certificate of Approval No. 7881-53TK8Q (and in the previous compliance inspection report), the Owner shall 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 (i) free chlorine residual in treated water at the point(s) of entrance to the distribution system, and (ii) turbidity of treated water at the point(s) of entrance to the distribution system, excluding the periods from well pump start-up to five minutes after each start-up. This Condition is not part of the upgrading requirements and was therefore to have been complied with upon issuance of the Certificate of Approval. The compliance deadline of December 31, 2002 (amended to July 1, 2003) only applies to those upgrading requirements stipulated in Condition No. 5 of the Certificate of Approval. By no later than April 30, 2003, provide the MOE Inspector with an Action Plan committing to complying with the requirement of Condition No. 2.1 (e) of Certificate of Approval No. 7881-53TK8Q (and in the previous compliance inspection report), complete with implementation dates.

Continuous water quality analyzers to monitor the free chlorine residual in treated water and turbidity of treated water at the point of entrance to the distribution system were installed in February of 2003. This issue has been resolved.

4) The Township of North Glengarry responded to the previous compliance inspection report findings in a letter dated April 1, 2002. All of the issues were addressed in the letter except for item number 8 with regards to the elevated iron concentrations. During the August 14, 2002

inspection, Mr. McCormick advised that the issue of the continued elevated iron concentrations was going to be addressed by the upgrades required in that a filtration system was going to be installed. This issue remains outstanding and is required to be addressed by the owner. As well, in the owner's response, it states in item number 1 that "A secondary containment structure has been provided for the sodium hypochlorite solution tank." During the inspection on August 14, 2002, it was observed and noted by the MOE Inspector that this was not the case. There was no containment provided for the sodium hypochlorite solution tank. Mr. McCormick advised that this was going to be addressed by the municipality's engineering consulting firm. Condition No. 5.2 (b)(i) of Certificate of Approval No. 7881-53TK8Q stipulates that the Owner shall provide secondary containment for chemical storage tanks, and (ii) approved flammable materials storage facility for generator fuel by December 31, 2002 (amended to July 1, 2003). The municipality also stated in their response that they will proceed with procuring a Certificate of Approval Air for the emergency generator. At the time of the August 14, 2002 this issue remained outstanding.

By no later than April 30, 2003, provide the MOE Inspector with an Action Plan committing to addressing the remaining outstanding issues from the previous inspection and this inspection, including details on the municipality's plans to comply with Conditions No. 2.1 and 5.2 of Certificate of Approval No. 7881-53TK8Q.

The owner plans to install a sodium silicate feed system at the Glen Robertson Water Treatment Plant to address the issue of elevated iron concentrations. Certificate of Approval Air No. 6190-5MSUVN, dated May 27, 2003, was issued for the 10 kW gasoline generator set. Part of the upgrades include the provision of secondary containment for chemical storage tanks and an approved flammable materials storage facility for generator fuel. The deadline to complete the upgrades has been extended to June 30, 2004. These issues remain outstanding.

5.2 BEST MANAGEMENT PRACTICES RECOMMENDATIONS

The previous MOE compliance inspection, conducted on August 14, 2002, had the following best management practices recommendations. The current status of each is identified in bold.

1) The owner should be advised that Julien Chartrand's licenses expired in September 2002 and November 2002. By no later than April 30, 2003, provide the MOE Inspector with documentation that Mr. Chartrand's operator's licenses were renewed.

Julien Chartrand's licences for both water treatment and water distribution were renewed in 2002, and now expire in November 2005 and April 2006, respectively. This issue has been resolved.

2) The training records for each of the operator's for 2001, and for the period of January to August 2002 were provided by the owner, except for Daniel Lalonde. Mr. Lalonde's training records were not provided by the owner. For the period of January to August 2002, both Mr. McCormick and Mr. MacDonald had already received more than 40 hours of training, while Mr. Girard and Mr. Chartrand had received less than half the minimum required 40 hours of training. All operators shall receive a minimum of forty (40) hours of training per year as required by Section 17(1) of Ontario Regulation 435/93. As required in Item No. 2 in Section 5 of this report, the Owner is required to by no later than April 30, 2003, provide the MOE Inspector with copies of Mr. Lalonde's training records for 2001 and 2002.

Mr. Lalonde is no longer employed by the Township of North Glengarry. A review of the training records for 2002 for the operators of the drinking-water system indicated that all of the operators had received 40 hours of training. This issue has been resolved.

3) Condition No. 4 of Certificate of Approval No. 7881-53TK8Q stipulates that the Owner shall ensure that a written report detailing compliance with all terms and conditions of this approval is completed annually ("Compliance Report"). The first Compliance Report under this approval shall be made available not later than March 31, 2003, and shall cover the period of January 1, 2002 to December 31, 2002. Condition No. 4.1 (d) requires the Compliance Report to be signed by a person designated by the Council of the municipality that owns the works. Condition No. 4.1 (e) requires that 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.

At the time of the inspection, the 2002 Annual Report for the Glen Robertson Drinking-Water System was completed, signed by a person designated by the municipal council and the report was presented to council in accordance with Conditions 4.1 (d) and 4.1 (e). The Annual Report was presented to council and was confirmed by a resolution of council on July 28, 2003 (Resolution No. 2). However, the report should have been presented to council within three months of completion, i.e. by May 31, 2003, in accordance with Condition No. 4.1 (e) of the C of A. The owner shall ensure that the 2004 Annual Report meets the requirements of section 11 of O. Reg. 170/03. This issue has been resolved.

4) The inspection revealed that the Glen Robertson Well Supply is in compliance with the sampling and analysis requirements of O. Reg. 459/00, and the Ontario Drinking Water Standards, except that the owner shall ensure that an annual sample for lead is collected in the distribution system at a point reflecting the maximum residence time in the distribution system, and that microbiological samples are collected from the raw water at least once per week.

A review of the analytical results from August 6, 2002 to September 2, 2003, indicate that the annual sample for lead was collected on May 22, 2003, and that weekly microbiological samples are being collected from the raw water. This issue has been resolved.

SECTION 6 SUMMARY OF NON COMPLIANCE ISSUES & ACTIONS REQUIRED

1. The minimum alarm standard for the free chlorine residual analyzer shall comply with Schedule 6-5 (2) of O. Reg. 170/03. Schedule 6-5 (2) of O. Reg. 170/03 should be interpreted to read that the minimum alarm standard for free chlorine residual should be 0.1 mg/L greater than the concentration of free chlorine residual that is required to achieve primary disinfection. The owner must configure the alarm so that the minimum alarm standard for the free chlorine residual is 0.1 mg/L greater than the concentration of free chlorine residual that is required to achieve primary disinfection. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.

Order Number: Not Applicable (N/A)	Compliance Date: May 31, 2004

2. The Annual Report for 2002 indicates that the maximum flow rate for the well was exceeded in 2002, with a flow of 1,092 cubic metres per day on August 15, 2002. Condition No. 1.2 (b) of Certificate of Approval No. 5969-5JHKZN requires the owner to submit an application for an amendment to this certificate when the maximum flow rate of the approved well is exceeding the flow rate specified in the valid Permit To Take Water. Condition No. 1.3 of Certificate of Approval No. 5969-5JHKZN requires the owner to ensure that the water treatment plant is operated to treat water at a rate not exceeding the maximum flow rate of 224 cubic metres per day. Condition No. 2.1 (d) of the C of A requires the owner to record the date, time, duration and cause of each occasion that the flow rate exceeds that specified in Condition 1.3. The owner/operating authority did not comply with Condition 2.1 (d) of the C of A for when the flow rate exceeded 224 cubic metres per day on August 15, 2002. The owner shall ensure compliance with all terms and conditions of the Permit To Take Water and the C of A. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A | Compliance Date: May 31, 2004

3. Special Condition No. 13 of Permit To Take Water Number 94-P-4048 requires that records with respect to the measurement and reporting criteria defined under General Conditions 3(b) and 3(c) listed above shall be kept by the Permit Holder. These records shall be submitted to the Director annually for the previous calendar year of taking on or before the thirty-first day of March during each year of water taking or until the Director has given notice in writing that these submissions are no longer required. The Annual Record of Water Taking for 2002 was not submitted to the Director in accordance with Special Condition No. 13. Special Condition No. 14 stipulates that this Permit expires on August 30, 2004. It is recommended that the owner apply for renewal of the Permit at least three months prior to the expiry date. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A | Compliance Date: May 31, 2004

4. The upgrade requirements outlined in Condition 5.1 of the Certificate of Approval were incomplete at the time of the inspection. TSH (Totten Sims Hubicki Ltd.) on behalf of the owner submitted an application dated January 9, 2003, to the Ministry's Environmental Assessment & Approvals Branch (EAAB) requesting an extension of the deadline for implementing the upgrading requirements until June 30, 2004. At the time of the inspection, the application was in the process of being reviewed by EAAB. The chlorine contact chamber was constructed, as well as other upgrades, prior to receiving approval from the MOE. The owner shall not construct or allow the construction of any portion of the works necessary to comply with the upgrade requirements of Condition No. 5.1 of Certificate of Approval No. 5969-5JHKZN for which an approval under the *Safe Drinking Water Act* is required unless a complete application for approval of such portion of the works has been submitted to and approved by the Director. The owner shall ensure that a complete application for approval is submitted to the Director for each item listed in Condition 5.1 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 Condition 5.1. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A — Compliance Date: May 31, 2004

5. At the time of the inspection the operating manual did contain a procedure related to the identification, notifications and corrective actions for adverse conditions. The procedure needs to be updated to reflect the changes in legislation. The procedure shall contain the reporting requirements of O. Reg. 170/03. The procedure should include the use of the notification forms under O. Reg. 170/03, i.e. Section 2 (a) - Written Notice by Drinking-Water System Owner and Section 2 (b) - Notice of Issue Resolution, and should include a copy of the above-stated notification forms. As well, the owner is required to incorporate the procedures from the monitoring and reporting plan (developed by Morris McCormick) into the Operating Manual as ordered by Director's Order Number P802012-DO. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A — Compliance Date: May 31, 2004

6. The operating manual/contingency plans for the drinking-water system did not have a written procedure to notify the Director in the event that the Operator-In-Overall-Responsibility is absent for greater than 60 days (O. Reg. 435/98 s. 13 (4)). A procedure, outlining the above requirements shall be developed and should be included in the operating manual/contingency plans. A contingency plan should be developed in the event that the chlorine contact facility becomes contaminated and should include notifying the MOE, the MOH, and the municipality, along with actions to be taken to isolate the chlorine contact facility from the distribution system, determining the origin of the contamination and preparing a plan to provide drinking-water to the residents. The CN railway runs adjacent to the property of the Glen Robertson Drinking-Water System. This could pose as a possible source of contamination for the water supply if a spill were to occur. It is recommended that the owner develop a contingency plan for such a scenario. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A — Compliance Date: May 31, 2004 (*)

7. The entries in the logbook were dated, were in chronological order with the time period recorded, but were not always initialed by the operators and the time period was not always recorded. The operator-in-charge (OIC) is not always clearly identified in the logbook. Operators recorded instances in which a parameter is an indicator of adverse water quality, but not on a consistent basis. As well, the operators do not always describe the action taken and conclusions drawn about abnormal conditions that occurred during the shift. Entries made in the logbook do not unambiguously identify the person making an entry. It is recommended that the operators initial each entry they make in the logbook in accordance with section 20 of O. Reg. 435/93. The owner of the facility shall ensure that an operator-in-charge or a person authorized by an operator-in-charge record the prescribed information in the logs in respect of each operating shift in accordance with section 20 (5) of O. Reg. 435/93. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A — Compliance Date: May 31, 2004 (*)

8. Water quality complaints received by the Glen Robertson Drinking-Water System are logged on a form (Record of Public Complaint) that includes the complainant's name and contact information, the nature of the complaint, location of the problem, actions taken, the source of the problem (if found), if remedial action is required, and any follow up actions. The forms are filed in a binder located in the office of the waterworks department. The municipal office maintains copies of the complaint form and refers complaints to Mr. Bachand. The waterworks department has not established a written procedure for receiving, responding to, and recording complaints about any aspects of the works as required by Condition No. 3.14 of Certificate of Approval No. 5969-5JHKZN. A written procedure, outlining the above requirements shall be developed and included in the Operating Manual. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A — Compliance Date: May 31, 2004

9. A summary of analytical results of all samples required by the Regulation was not provided in the Annual Report in accordance with Condition No. 4.1 (c) (iv) of C of A No. 5969-5JHKZN. The summary of the quantity of water supplied during the reporting period did not provide the average day flow in cubic metres per day for 2002. The summary listing the treatment chemicals used, including average dosage rates appeared to be those for the Alexandria Water Treatment Plant and not for the Glen Robertson Water Treatment Plant, as the Glen Roberston Water Treatment Plant does not use Pass 100 and/or activated carbon in the treatment process. At the time of the inspection, the 2002 Annual Report was signed by a person designated by the municipal council and the report was presented to council in accordance with Conditions 4.1 (d) and 4.1 (e). The Annual Report was presented to council and was confirmed by a resolution of council on July 28, 2003 (Resolution No. 2). However, the report should have been presented to council within three months of completion, i.e. by May 31, 2003, in accordance with Condition No. 4.1 (e) of the C of A. The owner shall ensure that the 2004 Annual Report meets the requirements of section 11 of O. Reg. 170/03. The 2003 Annual Report is due February 28, 2004. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.
Order Number: N/A — Compliance Date: May 31, 2004

10. The owner is required to ensure that a distribution sample is taken at least once every day and is tested immediately for free chlorine residual in accordance with Schedule 7-2 (3) of O. Reg. 170/03. O. Reg. 170/03 came into effect on June 1, 2003. The logbook review indicated that the operating authority began daily measurement of disinfectant residuals in the distribution system on June 5, 2003. The daily free chlorine residual was not measured in the distribution system on June 7, 2003, June 8, 2003, June 28, 2003 and June 29, 2003. The owner in accordance with Schedule 7 of O. Reg. 170/03 is required to measure the free chlorine residual in the distribution system on a daily basis, as in seven days per week including holidays. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.

Order Number: N/A	Compliance Date: May 31, 2004

11. Mr. Bachand indicated that there is no process in place to communicate with users and inform them that reports are available. Section 11 of O. Reg. 170/03 requires the owner of the drinking-water system to ensure that a copy of the annual report for the system is given, without charge, to every person who requests a copy; and every time an annual report is prepared for a drinking-water system, the owner of the system shall ensure that effective steps are taken to advise users of water from the system that copies of the report are available, without charge, and of how a copy may be obtained. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.

Order Number: N/A	Compliance Date: May 31, 2004

12. Section 7-3 (1) of Schedule 7 (O. Reg. 170/03) requires the owner and operating authority to ensure that a water sample is taken at least once every month, from a location that is before raw water enters the treatment system, and is tested immediately for turbidity. The owner/operating authority is not testing the raw water for turbidity on a monthly basis as specified in Schedule 7 of O. Reg. 170/03. The owner/operating authority shall ensure that raw water samples are collected once per month and tested immediately for turbidity. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.

Order Number: N/A	Compliance Date: May 31, 2004

13. The microbiological results were reviewed during the inspection from August 6, 2002 to September 2, 2003. All samples from the raw water, treated water and distribution system were analyzed for *E. coli*, total coliforms and background counts. In accordance with section 11-2 of Schedule 11 (O. Reg. 173/03), the owner and operating authority are required to ensure that each of the samples taken from the distribution is tested for *E. coli* or fecal coliforms; total coliforms; and general bacteria population expressed as colony counts on a heterotrophic plate count (HPC), and not background colony on the total coliform membrane filter. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.

Order Number: N/A	Compliance Date: May 31, 2004

14. At the time of the inspection, Mr. Girard held a Class 1 Water Treatment System (WTS) certificate and an Operator-In-Training's (OIT) Water Distribution System (WDS) certificate. Therefore, Mr. Girard is not appropriately certified to be OIOR for the Glen Robertson drinking-water system. A review of the certificates for the operators for the treatment plant/distribution system indicated that Mr. Chartrand has a Class 2 WDS certificate, Mr. McDonald has an Operator-In-Training (OIT) WDS certificate and Mr. Bachand also has an OIT WDS certificate, which are one level below the classification of the facility. In accordance with section 13 (2.1) of O. Reg. 435/93, responsibility for the overall operation of the facility cannot be placed with an operator who holds an OIT's licence. Therefore, Mr. Girard cannot be the OIOR for the Glen Robertson Drinking-Water System until he receives his Class 1 WDS certificate. The owner of the facility shall ensure that in accordance with section 13 (2.1) of O. Reg. 435/93, responsibility for the overall operation of the facility is not placed with an operator who holds an OIT's licence and is placed with an operator who holds a Class 1 (or higher) WTS licence. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.

Order Number: N/A	Compliance Date: May 31, 2004

15. The Glen Robertson Drinking-Water System has available in the event of an emergency, standby critical equipment including a standby 10 kW gasoline generator set at the water treatment plant. Condition No. 5 of Certificate of Approval Air No. 6190-5MSUVN, dated May 27, 2003, requires the owner to prepare, not later than three (3) months after the date of the C of A (i.e. August 30, 2003), a Manual outlining the operating procedures and a maintenance program for the equipment, including routine operating and maintenance procedures, emergency procedures, record keeping procedures for any record keeping activities relating to operation and maintenance of the equipment, and all appropriate measures to minimize noise and odorous emissions from all potential sources. The owner is also required to implement the recommendations of the Manual; and retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the equipment, and make these records available for review by staff of the Ministry upon request. The owner shall comply with the terms and conditions of C of A Air No. 6190-5MSUVN. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the required action will be addressed.

Order Number: N/A	Compliance Date: May 31, 2004

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 operators are not trained in and are not aware of the contingency plans, and procedures for training and/or periodic testing of the contingency plans are not in place. It is recommended that the owner develop written procedures for training and/or periodic testing of the contingency plans and incorporate the procedures into the Operating Manual and operating training schedule. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

2. At the time of the inspection, the Operating Manual did contain a copy of the sampling schedule/plan. It is recommended that the required sampling plan/schedule be updated to ensure that all of the sampling and analysis requirements of O. Reg. 170/03 are met. By no later than

May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

3. It was understood that the operators of the distribution system follow the AWWA C651-99 Standard for Disinfecting Water Mains. However, after water mains are shock chlorinated, the flushed water is not dechlorinated prior to being discharged to the storm sewer. The owner must ensure that any chlorinated water used in the disinfection of repaired or new water mains, as well as, chlorinated water discharged as the result of flow testing or flushing water mains is not directed to a storm sewer, drain, ditch or any other location that may allow the discharge to enter a water course without prior dechlorination. The owner should ensure that its contractors and consultants are aware of the prohibitions under s. 30. (1) of the Ontario Water Resources Act and s. 14. (1) of the Environmental Protection Act, and practice proper dechlorination methods when disposing or discharging chlorinated water. A written procedure for all wastewater discharges from the distribution system should be developed and included in the operating manual. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

4. The Glen Robertson Drinking-Water System has available in the event of an emergency, standby critical equipment including a standby 10 kW gasoline generator set at the water treatment plant. The generator set failed to operate during the province-wide power outage that occurred on August 14, 2003, due to a broken fuse. Mr. Bachand advised that the municipality is considering installing an automatic switchover mechanism on the generator set in 2004. Mr. Bachand indicated that they plan to install an automatic switchover mechanism on the sodium hypochlorite metering pumps when the second storage solution tank is installed as part of the upgrades. It is recommended that the municipality do so in the event of a power failure and/or metering pump failure to ensure the continuous delivery of properly disinfected drinking-water into the distribution system. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

5. There were several free chlorine residual concentrations equal to 2.20 mg/L. These recorded values do not accurately reflect the true concentration of the free chlorine residual in the treated water samples taken from the water treatment plant. These readings were measured using a hand-held DPD colorimeter. In the case of a chlorine residual concentration that is equal to 2.20 mg/L, the operator should either dilute and re-test the sample and/or switch to the high range of the colorimeter to get a more accurate concentration (as per the Instruction Manual).

By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

6. The previous MOE compliance inspection, conducted on August 14, 2002, had several issues of non-compliance with regulatory requirements. As indicated in section 5.1 of this report, some of those issues remain outstanding. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

7. Treated water samples were last submitted for analysis of volatile organics, pesticides and PCBs and inorganics on May 22, 2003. The samples were analyzed for all the parameters listed in O. Reg. 170/03 Schedule 23 and Schedule 24, with the exception of benzo(a)pyrene and antimony. Benzo(a)pyrene and antimony were not included as parameters in O. Reg. 459/00 and/or the Ontario Drinking Water Standards that was applicable at the time of sampling. The owner must submit its first tests of benzo(a)pyrene and antimony prior to June 1, 2004, as required by Schedule 13-10 (b) of O. Reg. 170/03. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

8. The water treatment plant is not surrounded by security fencing. Signage regarding trespassing is not provided at the water treatment plant. The water treatment plant is visited by operators daily. It is recommended that signage regarding trespassing be provided at the water treatment plant. The municipality should also consider surrounding the treatment plant and chlorine contact facility with a locked fence for increased security. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

9. The upgrading requirements of the C of A (5969-5JHKZN) included the provision of secondary containment for chemical storage tanks; an approved flammable materials storage facility for generator fuel; assess surface drainage around the well and eliminate ponding; assess susceptibility of wells and reservoir to flooding and provide protection; isolate private wells connected to the distribution system; install a second sodium hypochlorite solution tank with chlorine metering pump and injection point. During the inspection it was observed that these upgrading requirements had not been completed. This requirement was to have been completed by July 1, 2003, in accordance with the C of A. TSH (Totten Sims Hubicki Ltd.) on behalf of the owner submitted an application dated January 9, 2003, to the Ministry's Environmental

Assessment & Approvals Branch (EAAB) requesting an extension of the deadline for implementing the upgrading requirements until June 30, 2004. At the time of the inspection, the application was in the process of being reviewed by EAAB. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

10. The Engineer's Report calculated the CT value as less than 10 (mg.minute/L) based on the fact that the nearest water connection is within 100 metres of the well and the well system has negligible hydraulic retention time. The required CT for the Glen Robertson system is 204. Therefore, the Glen Robertson DWS does not comply with the Chlorination Procedure under present conditions because there is inadequate chlorine contact time to achieve the required disinfection. At the time the calculations were conducted, there was no chlorine contact storage facility constructed at the Glen Robertson DWS. Between July and August 2003, modifications were made to the treatment plant including the construction of a chlorine contact chamber. Therefore, the CT calculations performed in the Engineer's Report no longer accurately reflect the true treatment capabilities of the system. According to O. Reg. 170/03, the second Engineer's Report is not required until March 2006. Calculations were not completed for the new chlorine contact chamber for the purposes of establishing compliance with the Procedure for Disinfection of Drinking Water in Ontario. The Township of North Glengarry should ensure that the calculations are completed and updated in the subsequent Engineer's Report.

The operators were aware of the required CT value but do not use the CT value in process calculations and disinfection procedures. In order to comply with the Procedure for Disinfection of Drinking Water in Ontario, the operators need to use the CT value in process calculations and disinfection procedures. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendations will be addressed.

11. The Operating Manual did not have a written procedure for inspecting and exercising valves. A procedure, outlining the water main flushing and valve exercising program should be developed and included in the Operating Manual. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

12. The classification certificates for the Glen Robertson Drinking-Water System (DWS) was displayed within the water treatment plant. The Glen Robertson DWS is a Class I water distribution system. The certificate number for the water treatment/distribution system is 1727,

issued on June 4, 1991. The system is not classified as a water treatment system. With the recent upgrades to the system, it is recommended that the second Engineer's Report include a re-evaluation of the existing classification of the drinking-water system. The municipality should then apply to Ontario Environmental Training Consortium (OETC) for reclassification of the system. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

13. The Township of North Glengarry is participating in the Well Head Protection Study which is being managed by the Raisin Region Conservation Authority (RRCA) and the South Nation Conservation Authority (SNCA). A portion of the study will result in a Well Head Protection Plan being prepared for the Glen Robertson well. This was scheduled to be completed in the Fall of 2002. At the time of the inspection, only a draft copy of the report on the well head protection plan was available. The report entitled "Municipal Groundwater Study Draft Report" prepared for the Eastern Ontario Water Resources Committee by Robinson Consultants Incorporated in February 2003, provides recommendations for future plans including further monitoring. It is recommended that the owner implement the recommendations of the final well head protection plan. The owner is required to confirm that a well head protection plan has been developed and implemented for the Glen Robertson Well Supply. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

14. Up-to-date, as-built plans of the Glen Robertson Drinking-Water System are not available. It is recommended that the owner ensure that once the upgrades are completed, that up-to-date as-built plans are prepared and made available on-site. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

15. The owner is required to update the existing registration of the Glen Robertson Drinking-Water System in the Ministry's Drinking Water Information System (DWIS), which can be accessed from a link on the Ministry's homepage (www.ene.gov.on.ca). The owner should ensure that the facility is categorized as a small municipal residential system under O. Reg. 170/03; that the owner and operating authority's contact information is up-to-date; and that the administrator and treatment sections are up-to-date. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

16. Information regarding plant performance from April 28, 2003 to May 15, 2003 was recorded on a separate piece of paper instead of the logbook, and should have been incorporated into the logbook. According to Mr. Chartrand, the logbook had been removed from the treatment plant during that time and taken to the offices of the water works department in Alexandria for review and transfer of the data to their computer system. The owner shall ensure that information required to be recorded in the logbook is done so in accordance with O. Reg. 435/93. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

17. Plant performance data (turbidity, free chlorine residual, flows, etc.) was missing or not available for the following time periods in 2003: January 1 to 15, 2003; 12 days in February; 20 days in March; 20 days in April; May 1 to 14, May 17; and August 20, 2003. Mr. Bachand indicated that for a significant period of time (December 14, 2002 to approximately May 2003), the operators were only visiting the treatment plant once per week. The continuous water quality analyzers were installed in February 2003. As of May 2003, the operators began visiting the treatment plant on a daily basis and measuring and recording the free chlorine residuals and turbidity levels on a daily basis. Mr. Bachand advised that there was a computer malfunction at the offices of the water works department where the plant performance data was not saved for a period of time. The owner has corrected the problem by installing the appropriate software and a backup system. The free chlorine residual concentrations and turbidity levels from the chart recorders should have been used to provide the plant performance data. The average, minimum and maximum values from the on-line analyzers should have been recorded on the plant performance sheets/logbook on a daily basis since the analyzers were installed. Prior to that date, operators should have been measuring the free chlorine residual concentration and turbidity in the treated water once per day in accordance with section 7 of O. Reg. 459/00. Grab samples from the treated water were being taken daily for turbidity and free chlorine residual seven (7) days a week up until December 14, 2002. The operator, Daniel Lalonde, who visited the water treatment plant on a daily basis left his position with the municipality in mid-December 2002. The owner should have ensured that another operator in his place continued to visit the treatment plant on a daily basis. The owner acted in non-compliance with O. Reg. 459/00. O. Reg. 459/00 has been revoked and replaced by O. Reg. 170/03. The owner shall ensure that the requirements of O. Reg. 170/03 are complied with. By no later than May 31, 2004, provide an action plan to the undersigned Provincial Officer, complete with implementation dates, outlining how the best practice recommendation will be addressed.

SIGNATURES

Inspected By: Shannon Hamilton-Browne	Signature: (Inspector): Shannon Hamilton-Browne
Reviewed & Approved By: Jim Mahoney	Signature (Supervisor): Jim Mahoney
Review & Approval Date: (yyyy/mm/dd) 2004/03/17	

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: Mr. Leo Poirier, Clerk, The Corporation of the Township of North Glengarry
Mr. Andre Bachand, Manager of Waterworks Department, The Corporation of the Township of North Glengarry
Dr. Robert Bourdeau, Medical Officer of Health, Eastern Ontario Health Unit
Mr. Mirek Tybinkowski, Water and Wastewater Specialist, MOE Approvals and Licensing Section, Safe Drinking Water Branch
Mr. Roger Hood, General Manager, Raisin Region Conservation Authority
File SI GL LO IR 510 (Cornwall Area Office)

APPENDIX A

CERTIFICATE OF APPROVAL

(AS ATTACHED)

Ontario

Ministry of the Environment | Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE WATER WORKS
NUMBER 5969-5JHKZN

The Corporation of the Township of North Glengarry
PO Box 700
Alexandria, Ontario
K0C 1A0

Site Location: Glen Robertson Water Works
Irwin Street, Glen Robertson
North Glengarry 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 groundwater supply system serving Glen Robertson in the Township of North Glengarry, consisting of one (1) supply well, rated capacity 224 m^3/d as follows:

Well No. 1 UTM Easting: 538506 UTM Northing: 5022689 (NAD83, Accuracy +/- 10m)

- Well No. 1 is a drilled 300mm diameter groundwater well, located on Irwin Street, equipped with a submersible well pump, rated at 5.1 L/s (67 IGPM) with a 50 mm diameter discharge.

Pumping Station

- Pumping Station is a approximately 17.4 m^2, single storey building housing treatment and control facilities, including:
    - Chlorination system utilizing sodium hypochlorite, consisting of one (1) 150 L capacity sodium hypochlorite solution storage tank and one (1) 83 L/d chemical metering pump with a feed line discharging into the well;
    - One (1) spare 83 L/d chlorine pump;
    - Five (5) 400 L pneumatic pressure tanks operating between 275 to 400 kPa;
    - One (1) treated water magnetic flow meter rated at 85 m3/hr and chart recorder;
    - 10 kW gasoline emergency generator;

- Piping, valves, controls and appurtenances; and

- Associated mechanical and electrical equipment.

all in accordance with the Engineer's Report entitled " Engineers' Report for Water Works, Glen Robertson Water Supply, Township of North Glengarry" prepared by M.S. Thompson & Associates Ltd. and dated March, 2001 (the Engineer's Report) 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 North Glengarry, 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 groundwater wells, 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.

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 Groundwater Well No. 1 has been approved to supply water at the maximum flow rate of 224 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 maximum flow rate of the approved well is exceeding the flow rate specified in the valid Permit To Take Water.

1.3 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 224 m^3/d.

1.4 The Owner shall ensure that the flows into the water treatment plant do not exceed the maximum flow rate(s) set out in Condition 1.3, except 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.

1.5 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 each source (well) 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.

(d) Record the date, time, duration and cause of each occasion that the flow rate exceeds that specified in Condition 1.3.

(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(s) 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), and

(ii) turbidity of treated water at the point(s) of entrance to the distribution system (quality control band: $\pm$ 0.1 NTU), excluding the periods from well pump start-up to five minutes after each start-up.

(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 related to the works existing at the time of the issuance of the certificate, and any adopted operation and maintenance recommendations of the Engineer's Report based on which this certificate has been issued, is prepared, and ensure that the operations manual is kept up to date such that any relevant updates to the manual are completed prior to commissioning of any new works or implementation of any operational changes. 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 For all works constructed after December 2001, including all physical changes to works in existence in December 2001, within one (1) year of substantial completion of the construction of the works/changes, the Owner shall ensure that drawings accurately showing the works/changes 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 incorporations 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 5.2 below, by **July 01, 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 necessary to ensure that a free chlorine residual of 0.2 mg/L after 15 minutes contact time determined as T_{10} at maximum flow and before the first consumer is maintained in all disinfected water entering the distribution system in accordance with requirements of the "Procedure B13-3 Chlorination of Potable Water Supplies in Ontario", including but not limited to:

(i) installation of chlorine contact facility.

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

(i) Secondary containment for chemical storage tanks;

(ii) Approved flammable materials storage facility for generator fuel;

(iii) Assessing surface drainage in vicinity of well, and eliminating surficial ponding as necessary;

(iv) Assessing susceptibility of wells and reservoir to flooding under 1:100 year storm condition and providing protection as necessary;

(v) Private wells connected to the distribution system must be physically isolated from the distribution system;

(vi) Raw water sample ports;

(vii) Second hypochlorite solution tank complete with chlorine pump and injection point;

5.2 The Owner shall not construct, or allow the construction of any portion of the works necessary to comply with the requirements of Condition 5.1 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.

5.3 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 Condition 5.1 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 Condition 5.1 above.

5.4 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 5.1.

5.5 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, 2003** 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 1.5 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, 1.3 and 1.4 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. Condition 5.1 is 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.

9. Conditions 5.2 and 5.3 are included so that the Owner is aware that Condition 5.2, which identifies the requirements for improvements to the works, does 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*.

10. Conditions 5.4 and 5.5 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.

11. 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.

12. 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).

13. 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.

14. 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.

15. 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.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 7881-53TK8Q issued on December 19, 2001

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 17th day of February, 2003

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

MD/

c: District Manager, MOE Cornwall
M. Gundry, P.Eng., Totten Sims Hubicki Associates
Manager, Drinking Water, Wastewater and Watershed Standards Section, Standards Development Branch

APPENDIX B

PERMIT TO TAKE WATER

(AS ATTACHED)

LC 04

AUG 31 1994

23 August 1994

The Township of Lochiel
R.R. #1
ALEXANDRIA, Ontario
K0C 1A0

Attention: R.M. Charbonneau
Clerk-Treasurer

Dear Mr. Charbonneau:

Re: Permit to Take Water
One Well, Lot 8, Concession II, Township of Lochiel

Enclosed please find Permit to Take Water Number 94-P-4048 which authorizes the withdrawal of water from a well located on Lot 8, Concession II in the Township of Lochiel.

The Permit has been issued in accordance with the procedures and amounts stated on the application for the Permit To Take Water. The Permit is subject to the General Conditions and Special Conditions that may be stated on the Permit. The Conditions have been designed to allow for the development of water resources for beneficial purposes, while providing reasonable protection to existing water uses and users.

If changes in the rate, amount or method of water taking are proposed, an application must be submitted to and approved by this Ministry prior to the commencement of the changes. The attached application form must be used to request an amendment to the Permit.

The Permit is valid until August 30, 2004. A renewal application must be submitted to this office at least one month prior to that date to avoid cancellation of the Permit.

Ministry of the Environment and Energy
Ministère de l'Environnement et de l'Énergie
Ontario

PERMIT TO TAKE WATER
Number 94-P-4048

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

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

TO: Township of Lochiel
R.R. #1
Alexandria, Ontario
K0C 1A0

for the taking of water for municipal purposes **from** a well, Lot 8, Concession II, ~~Township of Lochiel~~. **The rate of taking shall not exceed** 224,000 **Litres per day.**

The water taking shall be in accordance with the application dated June 13, 1994, **and signed by** R.M. Charbonneau, Clerk-Treasurer, Township of Lochiel.

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.**

   (b) **"Ministry" means Ontario Ministry of Environment and Energy.**

   (c) **"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.**

   (d) **"Permit Holder" means** Township of Lochiel.

GENERAL CONDITIONS

2. **This Permit shall be kept available at the** Township of Lochiel Municipal Offices **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 Director 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 streamflow 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. Prior to the taking of water under the authority of this Permit to Take Water, the Permit Holder shall ensure that the works complies with Section 52 of the Ontario Water Resources Act, R.S.O. 1990.

8. Prior to the taking of water under the authority of this Permit to Take Water, the Permit Holder shall ensure that the discharge complies with Section 53 of the Ontario Water Resources Act, R.S.O. 1993.

9. 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.

10. 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.

11. 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.

12. 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, 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.

SPECIAL CONDITIONS

13. Records with respect to the measurement and reporting criteria defined under General Conditions 3(b) and 3(c) listed above shall be kept by the Permit Holder. These records shall be submitted to the Director annually for the previous calendar year of taking, beginning in 1995, on or before the thirty-first day of March during each year of water taking or until the Director has given notice in writing that these submissions are no longer required.

14. This Permit expires on August 30, 2004.

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

You may, by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. 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 <u>each</u> 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 Appeal Board
112 St. Clair Avenue West
Suite 502
TORONTO, Ontario
M4V 1N3

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

Dated at Kingston this 23rd day of August, 1994.

THIS IS A TRUE COPY OF THE
ORIGINAL PERMIT MAILED ON
AUG 30 1994
(Signed)

Director
Section 34, Ontario Water Resources Act
Ministry of Environment and Energy.

APPENDIX C

GPS COORDINATES

GPS REFERENCING	
ITEM	GLOBAL POSITIONING SYSTEM (GPS) COORDINATES
MAP DATUM:	NAD 83
UTM ZONE:	Zone 18
WELL NO. 1:	Northing 5022689 m, Easting 538506 m
TREATMENT PLANT:	Northing 5022689 m, Easting 538506 m
STORAGE TANK:	N/A

APPENDIX D

OPERATOR AND FACILITY CERTIFICATION DETAILS

PLANT CLASSIFICATION

Plant Name: Glen Robertson Water Treatment Plant

Facility Level: WDS Class 1

Certificate Number: 1727

Date of Issue: June 4, 1991

PLANT PERSONNEL

OPERATOR 1

Operator Name: Andre Bachand

Title: Manager of Water Works Department

Certificate Number: OT21123

Expiry Date: June 30, 2006

Certification Level: WTS Class OIT; WDS Class OIT

OPERATOR 2

Operator Name: Guy Girard

Title: Operator/Foreman (OIOR)

Certificate Number: OT5613

Expiry Date: January 31, 2002

Certification Level: WTS Class 1; WDS Class OIT

OPERATOR 3

Operator Name: Dean McDonald

Title: Operator

Certificate Number: 13423; OT14990

Expiry Date: October 31, 2005; August 31, 2004

Certification Level: WTS Class 1; WDS Class OIT

OPERATOR 4

Operator Name: Julien Chartrand

Title: Operator

Certificate Number: 9729; 14053

Expiry Date: November 30, 2005; April 30, 2006

Certification Level: WTS Class 2; WDS Class 2

APPENDIX E

CONTACT INFORMATION

Local Health Unit	Medical Officer of Health: Dr. Robert Bourdeau
Eastern Ontario Health Unit **1000 Pitt Street** **Cornwall, ON** **K6J 5T1**	Phone: (613) 933-1375 Fax: (613) 933-7930

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 Hood General Manager	Phone: (613) 938-3611 Fax: (613) 938-3221

MOE Approvals and Licensing Section	
Ministry of the Environment 2 St. Clair Avenue West Floor 12A Toronto ON M4V 1L5 Attention: Mirek Tybinkowski Water and Wastewater Specialist Safe Drinking Water Branch	Phone: (416) 314-8202 Fax: (416) 314-6935

APPENDIX F

MINISTRY AUDIT SAMPLE RESULTS

(SEE ATTACHED)

APPENDIX
Table 1
GLEN ROBERTSON WELL SUPPLY
AUDIT SAMPLE RESULTS - 05-AUG-2003
CHEMICAL / PHYSICAL PARAMETERS - HEALTH RELATED

Sample # 1 - PLANT TREATED
Sample # 2 - DISTRIBUTION (WATER INSPECTION)

Parameter	Units	MAC [1]	IMAC [2]	AO [3]	SAMPLE # 1	SAMPLE # 2
2,3,4,6-TETRACHLOROPHENOL	NG/L	100000			20 <=W	
2,4-DICHLORO PHENOL	NG/L	900000			2000 <=W	
24 DICHLOROPHENOXYACETIC	NG/L		100000		100 <=W	
245 TRICHLOROPHNOXYACETIC	NG/L	280000			50 <=W	
ALDICARB	NG/L	9000			2500 <=W	
ALDRIN	NG/L	700			1 <=W	
ALDRIN+DIELDRIN	NG/L	700			3 <=W	
AMINOMETHYLPHOSPHONIC ACID	UG/L		280		5 <=W	
ANTIMONY, UNFILTERED TOTAL	UG/L		6		.41 +/-0.13	
ARSENIC, UNFILTERED TOTAL	UG/L		25		.8 +/-0.20	
ATRAZINE	NG/L		5000		50 <=W	
ATRAZINE+DE-ALKYLATEDATRAZINE	NG/L		5000		200 <=W	
ATRAZINE,DEETHYLATED	NG/L		5000		200 <=W	
BARBAN	NG/L	90000			2000 <=W	
BARIUM, UNFILTERED TOTAL	UG/L	1000			178 +/-14.00	
BENDIOCARB	NG/L	40000			1500 <=W	
BLADEX	NG/L		10000		100 <=W	
BORON, UNFILTERED TOTAL	UG/L		5000		19 +/-3.00	
BROMOXYNIL	NG/L	5000			50 <=W	
CADMIUM, UNFILTERED TOTAL	UG/L	5			.01 +/-0.05	
CARBOFURAN	NG/L	90000	a		2000 <=W	
CHLORDANE,ALPHA	NG/L	7000			2 <=W	
CHLORDANE,GAMMA	NG/L	7000			2 <=W	
CHROMIUM, UNFILTERED TOTAL	UG/L	50			4.3 +/-0.60	
DDT TOTAL	NG/L	30000			17 <=W	
DIAZINON	UG/L	20			.2 <=W	
DICAMBA	NG/L	120000			50 <=W	
DICLOFOP-METHYL	NG/L	9000			100 <=W	
DIELDRIN	NG/L	700			2 <=W	
DIMETHOATE	UG/L		20		.5 <=W	
DIQUAT	UG/L	70			.1 <=W	
DIURON	NG/L	150000			2000 <=W	
DMDT METHOXYCHLOR	NG/L	900000			5 <=W	
DURSBAN (CHLORPYRIFOS)	UG/L	90			.1 <=W	
FLUORIDE, UNFILTERED REACTIVE	MG/L	1.5 b			.06	
GLYPHOSATE	UG/L		280		2 <=W	
GUTHION	UG/L	20			.05 <=W	
HEPTACHLOR	NG/L	3000			1 <=W	
HEPTACHLOR+HEPT. EPOXIDE	NG/L	3000			3 <=W	
HEPTACHLOREPOXIDE	NG/L	3000			2 <=W	

APPENDIX
Table 1
GLEN ROBERTSON WELL SUPPLY
AUDIT SAMPLE RESULTS - 05-AUG-2003
CHEMICAL / PHYSICAL PARAMETERS - HEALTH RELATED

Sample # 1 - PLANT TREATED
Sample # 2 - DISTRIBUTION (WATER INSPECTION)

Parameter	Units	MAC [1]	IMAC [2]	AO [3]	SAMPLE # 1	SAMPLE # 2
HEXACLOROCYCLOHEX,GAMMA-BHC	NG/L	4000			1 <=W	
LASSO	NG/L		5000		500 <=W	
LEAD, UNFILTERED TOTAL	UG/L	10 c			2.36 +/-0.39	.18 +/-0.18
MALATHION	UG/L	190			.5 <=W	
MERCURY, UNFILTERED TOTAL	UG/L	1			.02 <=W	
METALACHLOR	NG/L		50000		500 <=W	
NITRATES TOTAL, UNFIL.REAC	MG/L	10 d			.287	
NITRITE, UNFILTERED REACTIVE	MG/L	1 d			.001 <=W	
OP-DDT	NG/L	30000			5 <=W	
PARAQUAT	UG/L		10		.1 <=W	
PARATHION	UG/L	50			.1 <=W	
PCB TOTAL	NG/L		3000		20 <=W	
PENTACHLOROPHENOL	NG/L	60000			10 <=W	
PHORATE (THIMET)	UG/L		2		.1 <=W	
PICLORAM	NG/L		190000		100 <=W	
PP-DDD	NG/L	30000			5 <=W	
PP-DDE	NG/L	30000			2 <=W	
PP-DDT	NG/L	30000			5 <=W	
PROMETRYNE	NG/L		1000		50 <=W	
SELENIUM, UNFILTERED TOTAL	UG/L	10			1 +/-1.00	
SENCOR	NG/L	80000			100 <=W	
SIMAZINE	NG/L		10000		50 <=W	
SIMAZINE, DIETHYL	NG/L		10000		200 <=W	
TECH. CHLORDANE (TOTAL)	NG/L	7000			6 <=W	
TEMEPHOS	UG/L		280		.1 <=W	
TERBUFOS	UG/L		1		.2 <=W	
TRIALLATE	NG/L	230000			1500 <=W	
TRICHLOROPHENOL 2,4,6	NG/L	5000			20 <=W	
TRIFLURALIN	NG/L		45000		5 <=W	
TRIHALOMETHANES, TOTAL	UG/L	100 e			1 <T	10.5
URANIUM, UNFILTERED TOTAL	UG/L	20			.53 +/-0.05	
VINYL CHLORIDE C2H3CL	UG/L	2			.05 <=W	

Shortforms:

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

Footnotes:

1 Maximum Acceptable Concentration

2 Interim Maximum Acceptable Concentration

3 Aesthetic Objective

4 Includes *alpha*-chlordane, *gamma*-Chlordane and Oxychlordane

5 Includes *p,p'*-DDE, o,p'-DDT, *p,p'*-DDD and *p,p'*DDT

a) Total toxic equivalents when compared with 2,3,7,8,-TCDD (tetrachlorodibenzo-p-dioxin)

b) Where fluoride is added to drinking water, it is recommended that the concentration be adjusted to 0.5 - 0.8 mg/L, the optimum level for control of tooth decay. Where supplies contain naturally occurring fluoride at levels higher than 1.5 mg/L but less than 2.4 mg/L the Ministry of Health and Long Term Care recommends an approach through local boards of health to raise public and professional awareness to control excessive exposure to fluoride from other sources. Levels above the MAC must be reported to the local Medical Officer of Health.

c) This standard applies to water at the point of consumption. Since lead is a component in some plumbing systems, first flush water may contain higher concentrations of lead than water that has been flushed for five minutes.

d) Where both nitrate and nitrite are present, the total of the two should not exceed 10 mg/L (as nitrogen).

e) The standard is expressed as a running annual average of quarterly samples measured at a point reflecting the maximum residence time in the distribution system.

APPENDIX
Table 2
GLEN ROBERTSON WELL SUPPLY
AUDIT SAMPLE RESULTS - 05-AUG-2003
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - PLANT TREATED
Sample # 2 - DISTRIBUTION (WATER INSPECTION)
Sample # 3 - DISTRIBUTION (WATER INSPECTION)

Parameter	Units	MAC [1]	AO [2]	SAMPLE # 1	SAMPLE # 2
COLIFORM, TOTAL M/F BCKGRD	C/100ML	200			2 <
COLIFORM, TOTAL MF	C/100ML	0			2 <
ESCHERICHIA COLI MF	C/100ML	0			0
HETEROTROPH MF 35 C	C/ML	500		10 <	
NT: DETERIORATION INDICATORS	C/100ML		0	NOT DETECTED	
NT: ESCHERICHIA COLI	C/100ML	0		ABSENT	
NT: TOTAL COLIFORMS	C/100ML	0		ABSENT	

APPENDIX
Table 2
GLEN ROBERTSON WELL SUPPLY
AUDIT SAMPLE RESULTS - 05-AUG-2003
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - PLANT TREATED
Sample # 2 - DISTRIBUTION (WATER INSPECTION)
Sample # 3 - DISTRIBUTION (WATER INSPECTION)

Parameter	Units	MAC [1]	AO [2]	SAMPLE # 3
COLIFORM, TOTAL M/F BCKGRD	C/100ML	200		
COLIFORM, TOTAL MF	C/100ML	0		
ESCHERICHIA COLI MF	C/100ML	0		
HETEROTROPH MF 35 C	C/ML	500		10 <
NT: DETERIORATION INDICATORS	C/100ML		0	NOT DETECTED
NT: ESCHERICHIA COLI	C/100ML	0		ABSENT
NT: TOTAL COLIFORMS	C/100ML	0		ABSENT

Notes:

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

Shortforms:

C/100mL - Count per 100 millilitre

C/mL - Count per millilitre

Footnotes:

1. Maximum Acceptable Concentration
2. Aesthetic Objective

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

1. A result that exceeds any of the standards prescribed by Schedule 1, 2 or 3 to the Ontario Drinking-Water Quality Standards, other than the standard for fluoride, if the result is from a sample of drinking water.

2. A result indicating the presence of Aeromonas spp., Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium spp. or fecal streptococci (Group D streptococci) in a sample of drinking water.

3. A result indicating the presence of a pesticide not listed in Schedule 2 to the Ontario Drinking-Water Quality Standards in a sample of drinking water, at any concentration.

4. A result indicating that the concentration of free chlorine residual is less than 0.05 milligrams per litre in a distribution sample, if the drinking-water system provides chlorination and does not provide chloramination.

5. A result indicating that the concentration of combined chlorine residual is less than 0.25 milligrams per litre in a distribution sample, if the drinking-water system provides chloramination.

6. If the drinking-water system is required to provide filtration and a report under subsection 18 (1) of the Act has not been made in respect of turbidity in the preceding 24 hours, a result indicating that turbidity exceeds 1.0 Nephelometric Turbidity Units (NTU) in,

i. a grab sample of water taken from a filter effluent line, or

ii. two samples of water from a filter effluent line that are tested by continuous monitoring equipment, if the two samples were taken 15 minutes or more apart and the later of the two samples was the first sample that was taken 15 minutes or more after the earlier sample.

7. If an approval or order, including an OWRA order, identifies a parameter as a health-related parameter and establishes a maximum concentration for the parameter, a result indicating that the parameter exceeds the maximum concentration in a sample of drinking water.

8. A result indicating that the concentration of sodium exceeds 20 milligrams per litre in a sample of drinking water, if a report under subsection 18 (1) of the Act has not been made in respect of sodium in the preceding 60 months.

9. A result indicating that the concentration of fluoride exceeds 1.5 milligrams per litre in a sample of drinking water, if,

i. the drinking-water system provides fluoridation and a report under subsection 18 (1) of the Act has not been made in respect of fluoride in the preceding 24 hours, or

ii. the drinking-water system does not provide fluoridation and a report under subsection 18 (1) of the Act has not been made in respect of fluoride in the preceding 60 months.

APPENDIX
Table 3
GLEN ROBERTSON WELL SUPPLY
AUDIT SAMPLE RESULTS - 05-AUG-2003
CHEMICAL / PHYSICAL PARAMETERS - NOT HEALTH RELATED

Sample # 1 - PLANT TREATED

Parameter	Units	OBJECTIVE	TYPE OF OBJECTIVE	SAMPLE # 1
ALUMINIUM, UNFILTERED TOTAL	UG/L	100	OG	.3 +/-0.30
AMMONIUM, TOTAL UNFIL.REAC	MG/L	a	a	.007 <T
COPPER, UNFILTERED TOTAL	UG/L	1000	AO	60.2 +/-5.70
IRON, UNFILTERED TOTAL	UG/L	300	AO	267 +/-45.00
MANGANESE,UNFILTERED TOTAL	UG/L	50	AO	21.6 +/-2.40
TURBIDITY	FTU	5 e	AO	.36
XYLENE-M C8H10	UG/L	300	AO	.1 <T
XYLENE-P C8H10	UG/L	300	AO	.05 <=W
ZINC, UNFILTERED TOTAL	UG/L	5000	AO	9.1 +/-1.10

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 G

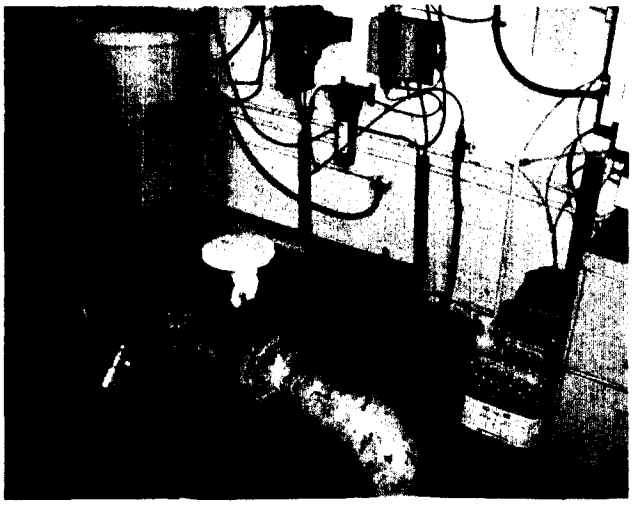
MINISTRY INSPECTION PHOTOGRAPHS

(SEE ATTACHED)

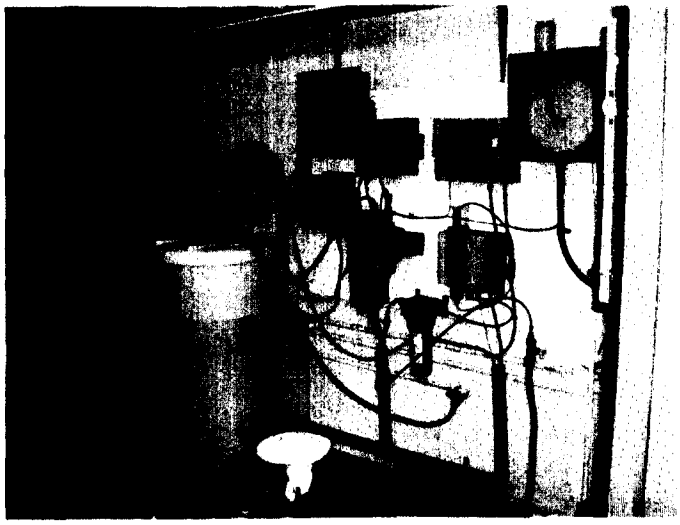
MINISTRY INSPECTION PHOTOGRAPHS - SEPTEMBER 10, 2003

(Photos taken using Ministry's Fujifilm FinePix 2600 Zoom Digital Camera)

Glen Robertson DWS - Chlorine Contact Facility (Underground)



Glen Robertson DWS - Sodium Hypochlorite Solution Storage Tank



Glen Robertson DWS - Sodium Hypochlorite Feed System and Continuous Water Quality Analyzers

Glen Robertson DWS - CN Railway runs adjacent to the property of the well supply