COMPLIANCE INSPECTION REPORT

CRYSLER
WATER TREATMENTPLANT

COMMUNAL DRINKING WATER

Ministry of the Environment

113 Amelia Street
Cornwall ON K6H 3P1
Telephone: (613) 933-7402
Fax: (613) 933-6402

Ministère de l'Environnement

113 rue Amelia
Cornwall ON K6H 3P1
Téléphone: (613)933-7402
Télécopieur: (613)933-6402

Ontario

2004-NST-MD

DATE: JAN 21 2004							
	TO	INTO	COPY		TO	INTO	COPY
Dennis		✓		Chantal			
Alain				Josée			
Planning				Pat			
Roy				Ronda			
Angela				Richard			
Chris				Jennifer	✓	JH	
Danielle				Lyman			
Ed							

January 16, 2004

Mr. Rheal Charbonneau, Clerk-Treasurer
Township of North Stormont
PO Box 99
2 Victoria Street
Berwick, Ontario K0C 1G0

Dear Sir:

Re: Compliance Inspection - 2003/2004
Crysler Water Treatment Plant

The Crysler Water Treatment Plant was inspected on September 16, 2003, by Jan Franssen, Inspector, Drinking Water Inspection Program, Eastern Region. Enclosed is a copy of the inspection report.

Also enclosed is a Provincial Officer's Order (No.4802-5T9M2R) and associated Report, that requires the Township to submit a workplan that describes how and when the continuous chlorine analyzer at the Water Treatment Plant will be reconfigured so that it complies with Schedule 7-2 of Ontario Regulation 170/03.

A copy of the Compliance Inspection Report will be sent to Mr. Blair Henderson, who is designated as the Operations Manager for the waterworks. Copies will also be sent to Dr. Robert Bourdeau, Medical Officer of Health for the Eastern Ontario Health Unit, Mr. Mirek Tybinkowski, MOE Environmental and Approvals Branch, and Mr. Richard Pilon of the South Nation Conservation Authority.

Your attention is directed to Section 6 "Summary of Non-Compliance Issues and Required Actions" and Section 7 "Summary of Best Practice Recommendations" of this report. **Please provide a response by February 29, 2004** detailing how the Township plans to address the recommendations provided in Section 7.

Should you have any questions pertaining to the Compliance Inspection Report, the Provincial Officer's Order or associated Report, please do not hesitate to contact me at (613) 933-7402 extension 234.

Yours truly,

Jan Franssen
Inspector
Drinking Water Inspection Program
Eastern Region

cc:dhm
enclosure

cc: Mr. Blair Henderson, Operations Manager-Chesterville Hub, Ontario Clean Water Agency
Dr. Robert Bourdeau, Medical Officer of Health
Mr. Mirek Tybinkowski, Director of Environmental Assessment and Approvals Branch
Mr. Richard Pilon, South Nation Conservation Authority
Cornwall District File - SI ST FI 241

Ontario

Ministry of the Environment
Drinking Water Inspection Report

Crysler Water Treatment Plant

INSPECTION DETAILS	
Location:	Concession 9, Lot 20 Crysler
Water Works Type:	Treatment With Distribution
Water Works Number:	220008649
Inspection Type:	Announced
Date of Inspection:	September 16, 2003
Date of Previous Inspection:	July 24, 2002
Inspection Number:	340

CONTACT INFORMATION	
Municipality/Owner Township of North Stormont PO Box 99 2 Victoria Street Berwick, Ontario K0C 1G0 Attention: Rheal Charbonneau Clerk-Treasurer Phone: 613-984-2821 Fax: 613-984-2908	**Operating Authority** Ontario Clean Water Agency (OCWA) Chesterville Hub 5 Industrial Drive Chesterville, Ontario K0C 1H0 Attention: Blair Henderson Operations Manager Phone: 613-448-3098 Fax: 613-448-1616
Inspector: Jan Franssen Cornwall Office Eastern Region 613-933-7402 ext 234	Distribution Date: January 16, 2004

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

TABLE OF CONTENTS

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 as they relate to the following documents:

- The Safe Drinking Water Act, 2002
- Drinking Water Systems Regulation (O. Reg. 170/03)
- The Well Regulation (Wells - O. Reg. 903)
- Operator Certification Regulation (Water Works and Sewage Works - O. Reg. 435/93)
- Certificates of Approval
- Permits to Take Water
- Previous Ministry inspection report
- Engineer's Report dated March, 2001

The ministry has implemented a rigorous and comprehensive approach to the inspection of water systems that focuses on source, treatment, and distribution components as well as water system management practices.

Table 1 AUTHORIZING AND CONTROL DOCUMENTS REVIEWED

CERTIFICATES OF APPROVAL		
Certificate #	**Date Issued**	**Description**
4011-5QVPDL	September 8, 2003	Amended Certificate of Approval
PERMIT TO TAKE WATER		
Permit #	**Expiry Date**	**Description**
93-P-4006	June 26, 2013	Permit to Take Water
PREVIOUS ORDERS		
Order #	**Date Issued**	**Description**
--	--	None Issued

SECTION 2 EXISTING WATER SYSTEM DESCRIPTION

The Crysler Drinking Water System is owned by the Township of North Stormont and is operated by the Ontario Clean Water Agency (OCWA). The supply and treatment works are located at 15642 County Road 13, approximately 5 km east of the Village of Crysler. The water system was designed by Kostuch Engineering Limited of Ottawa, ON and was brought into service in 1996.

The system was designed to supply a population of 1,500 with an average consumption of 450 L/day, with an average daily demand of 674 m^3/day and a maximum daily demand of 1,685 m^3/day.

2.1 WATER SOURCE

The production wells are located in Lot 20, Concession 9 of the former Township of Finch, now the Township of North Stormont. The well site is situated on a buried esker ridge consisting of sand and gravel deposits, and is located approximately 5.5 km east of the Village of Crysler. A detailed description of the hydrogeological setting is provided in the GUDI Well Assessment Report (April 2002) prepared by Water and Earth Science Associates (WESA) of Carp, Ontario. The conclusion of the GUDI Well Assessment and subsequent particle count studies indicate that the source is a GUDI system with effective in situ filtration.

Water is drawn from the aquifer by two (2) drilled groundwater wells; one production well and one standby well. The production well (Well No. 1) is situated below the floor of the treatment plant. The standby well (Well No. 2) is situated approximately 20 m south of the production well. Well construction details were provided in the above referenced GUDI report and have been provided in Appendix H for reference.

Each well is equipped with a submersible well pump, rated at 19.5 liters per second at 85 m Total Dynamic Head (TDH), that discharges to a common header located in the water treatment plant. The wells are equipped with water level sensors.

2.2 TREATMENT PROCESSES

Raw water is treated with both sodium hypochlorite and hydrofluosilicic acid which are injected downstream of a common header. To date, only water from the production well has been directed through the treatment process. Standby well water has been discharged via a bypass line onto the ground surface adjacent to the treatment plant.

The disinfection system consists of one 100 L sodium hypochlorite solution storage tank, two chemical metering pumps (one duty, one standby), and a feed line discharging to the well pump header inside the water treatment plant. The fluoridation system consists of one 100 L capacity chemical solution storage tank, a weigh scale, two chemical metering pumps (one duty, one standby) and a feed line discharging to the well pump header inside the water treatment plant. Instrumention at this facility includes: turbidimeter, fluoride and chlorine analyzers on the treated water outlet, and a magnetic flow meter and pressure gauge on the treated water line. A detailed description of the components of the treatment system are provided in Part 1 of the amended CofA (Appendix A). GPS coordinates for the water treatment plant are provided in **Appendix C**.

2.3 DISTRIBUTION SYSTEM

The distribution system consists of approximately 10.9 km of watermains. The system supplies water to 210 service connections that serve a population of approximately 600. Approximately 56 dry-barrel hydrants are installed on the system. The distribution system water mains are constructed of PVC pipe that range in diameter from 6 inches to 12 inches.

A 1,238 cubic meter steel storage tank mounted on a concrete pedestal is located on the north side of County Road 13 to the east of the village. GPS coordinates for the storage tank are provided in **Appendix C**.

2.4 SYSTEM DIAGRAM

The system diagram supplied by the operating authority is provided in Appendix F.

SECTION 3 INSPECTION FINDINGS

3.1 OPERATIONS

3.1.1 Source/Supply

The well site is situated in a secured area located at the end of a dirt road south of County Road 13. The wells draw water from an unconfined aquifer. The conclusion of the GUDI Well Assessment and subsequent particle count studies indicate that the source is a GUDI system with effective in situ filtration. The areas to the west, south and east of the site are occupied by an active commercial sand and gravel pit. Agricultural land is located north of the site.

The hydrogeology of the site and the proximity of the source well to the active sand and gravel pit is a concern that was highlighted in the GUDI Well Assessment. To address the issue of surface water influence on the source wells, the CofA has been amended and provides the owner with two options for system upgrades. The first option is for the owner to install filtration and primary disinfection appropriate for a surface water raw water supply (see CofA Part 8 – Upgrade List B). The deadline for this upgrade option is November 1, 2004.

The second option is for the owner to delineate all wellhead protection areas in accordance with the latest version of the Ministry protocol titled *"Delineation of Wellhead Protection Areas For Municipal Groundwater Supply Wells Under Direct Influence of Surface Water"*. Additionally, the owner must submit a report to the Director prepared in accordance with the latest version of the Ministry document titled *"Development of Microbial Contamination Control Plans for Municipal Groundwater Supply Wells under Direct Influence of Surface Water with Effective In-situ Filtration"*. The submission deadline for these reports is November 1, 2004.

Additionally, regardless of which of the two upgrade options the owner elects to pursue, the amended CofA requires the owner to install, by November 1, 2004, a sufficient number of particle counters to continuously monitor and record particle counts in the raw water from both wells.

The CofA also requires the owner to submit a report prepared by a licensed well contractor detailing any deficiencies from the construction standards for both wells. This report must be submitted to the MOE by March 31, 2004, and the owner is to correct any deficiencies outlined in the well driller's report or abandon the well in accordance with O.Reg 903.

An additional requirement of the amended CofA is for the owner to develop a well inspection and maintenance plan by December 8, 2003.

Wellhead Assessment

The inspection revealed that the well cap on the standby well is sealed and locked to prevent foreign material from entering the well. The operating authority stated that the standby well has never been used to supply water to the distribution system. The production well is secure within the water treatment plant building. The well casing for both wells extends at least 30 cm above the treatment plant floor, in the case of the production well, and above ground surface in the case of the standby well.

Surface drainage around the standby well is such that it is unlikely that water could pond around the well. The operating authority indicated that the standby well is equipped with a pitless adapter.

The Inspector was unable to determine the condition of the annular space around each of the well casings. The operating authority indicated that water levels are monitored with a pressure transducer installed in each well.

A smooth nozzle raw water sample tap is located in the water treatment plant and allows for the collection of a sample prior to injection of disinfectant. The MOE Inspector collected a raw water sample from this tap and submitted to the sample to the MOE Laboratory 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 Inspector did not collect a sample from the standby well. The operating authority had previously collected samples from the standby well by directing water via a bypass line on to a concrete splash pad located next to the water treatment plant. The GUDI Well Assessment concluded that this well flushing and sampling procedure created a sudden large influx of surface infiltration that could potentially introduce surface contaminants into the production well. The hydrogeologist recommended that water from the bypass be directed offsite via a surge tank and discharge line. During the site visit, the Inspector observed that the discharge line was under construction.

Permit to Take Water Assessment

A single totalizing magnetic type flow meter is installed to measure the combined raw water flow from both the production well and the standby well. At the time of the inspection the flow meter did not have the capacity to record total daily flows or daily peak flows as required by Condition 2.1 of the CofA. The owner was in the process of addressing this non compliance issue prior to the Inspection, and following the Inspection the operating authority confirmed that the SCADA system has been upgraded so that total daily flow and peak daily flow are now recorded.

A review of an equipment work order provided by the operating authority indicated that the flow meter was last calibrated on July 25, 2003. The equipment work order does not provide a clear summary of the calibration event. The operating authority indicated that they are in the process of improving their calibration documentation.

Since the volume of water directed to the bypass line was never recorded, the owner was not in compliance with the amended CofA. The owner is aware of this compliance issue and has contracted a consultant to install a flow meter on the bypass line. The new flow meter was observed at the water treatment plant although it had not yet been installed. Subsequent to the Inspection, the operating authority indicated that the flow meter was successfully installed.

The Permit To Take Water (PTTW) states that the rate of taking shall not exceed a combined total of 1,170 L/min or 1,684,800 L/day from the production well (Well 1) and the standby well (Well 2). A review of the Annual Records of Water Taking for 2002 and 2003 (to August) indicated that the highest maximum daily flow was calculated to be 450,000 L/day.

PERMIT TO TAKE WATER ASSESSMENT				
PERMIT NUMBER	**RENEWAL DATE**	**SOURCE**	**PERMITTED AMOUNT OF TAKING**	**UNITS**
93-P-4006	June26, 2013	Groundwater (2 Wells)	1,684,800	L/day

A copy of the PTTW is provided in **Appendix B**.

There are no water conservation by-laws that apply to the Village of Crysler.

3.1.2 Treatment Processes

The treatment equipment is installed in accordance with the description provided in the amended CofA. The inspection revealed that the facility and equipment appear to be well maintained. The operating authority indicated that the system operated without interruption since the previous MOE compliance inspection, and that only certified operators made adjustments to treatment equipment.

The treated water and raw water flow meters at this facility are the same device. Treated water capacity assessment for the previous three years is provided in the following table.

TREATED WATER CAPACITY ASSESSMENT			
ITEM	*2000*	*2001*	*2002*
Avg. Daily Flow (m3/day)	*181*	*210*	*215*
Max. Daily Flow (m3/day)	*399*	*507*	*419*
Rated Capacity (m3/day)	*1,685*	*1,685*	*1,685*
% (Max. Daily / Rated Capacity)	*24%*	*30%*	*25%*

Note: Data obtained from OCWA's performance assessment reports

Condition 4.1 of the amended CofA specifies the following maximum flow rates and volume of water through the treatment system: 19.5 L/sec or 1,685 m3/day as measured at the water treatment plant. A review of OCWA's performance assessment reports indicate that the maximum recorded flow rate from July 2002 through to August 2003 was 419 m3/day, or approximately 25% of the rated capacity of the drinking water system.

Disinfection

The disinfection system is contained within a dedicated room at the water treatment plant. The system consists of a solution tank, two metering pumps (1 duty, 1 standby) manufactured by Wallace and Tiernan. A 12% solution of sodium hypochlorite is pumped to an injection point on the treated water line at the pumping station. Sodium hypochlorite can be directly injected into each well, but the operating authority indicated that this feature is not used due to the raw water sampling requirements.

The operating authority provided documentation confirming that the sodium hypochlorite used at the Crysler Water Treatment Plant meets the applicable American Water Works Association (AWWA) and American National Standards Institute (ANSI) standards.

A review of the Engineer's Report contact time calculations indicated that the Engineer concluded that there was 51 minutes of contact time before the first consumer connection. The contact time is based on a velocity of 37m/min through the 200mm diameter water main over a distance of 1,900 m to the first service connection.

The Inspector observed that spill containment for the sodium hypochlorite solution tank is not provided. Replacement solution tanks with containment were observed at the site but had not yet been installed. Upgrade requirements of the amended CofA require the owner to provide standby sodium hypochlorite solution storage tank with automatic switch-over by November 1, 2004.

Water from the treated water discharge line is directed to a Wallace and Tiernan Depolox 3 continuous chlorine analyzer. The disinfectant injection point and the sampling point for the chlorine analyzer are situated on the same length of pipe at the treatment plant. There is very minimal contact time between where the disinfectant is applied and where the treated water is sampled. Schedule 7-2 of O.Reg 170/03 requires that free chlorine residual is monitored at or near the location where the intended contact time has been completed.

Water discharged from the analyzer is directed into the production well. This type of analyzer does not add reagents to the water.

The analyzer is connected to a SCADA system that provides a continuous record of the chlorine residuals in the treated water as it is discharged from the plant. The operating authority confirmed that the results are checked at least once every 72 hours. The chlorine analyzer is equipped with an alarm system that provides electronic notification to the operating authority if the test result indicates that the free chlorine residual is above the maximum alarm setting of 2.9 mg/L free chlorine or below the minimum alarm setting of 0.30 mg/L free chlorine. The disinfection system is equipped with a pump lockout that is activated when the low level alarm is triggered. The alarm settings are consistent with the maximum concentration of 4.0 mg/L specified in the MOE document "Procedure for Disinfection of Drinking Water in Ontario" (March 17, 2003)

The manufacture's instructions do not provide a recommended calibration schedule, therefore Schedule 6-5 Section 10 of O.Reg 170/03 applies and the analyzer is required to be operated at an accuracy that is within the specified margins of error. The margins of error for a free chlorine analyzer is 0.05 mg/L if the concentrations measured are less than or equal to 1.0 mg/L and proportionally higher if the concentrations usually measured are greater than 1.0 mg/L. The accuracy range for the Depolox 3 analyzer is +/- 5% (ie: +/- 0.05 mg/L at 1.0 mg/L). A review of the equipment work orders provided by the operating authority indicated that the chlorine analyzer was calibrated by Jean Veilleux on August 5, 2003 and September 24, 2003.

The operating authority indicated that the analyzer is compared with the results from a Hach pocket colorimeter during each site visit. The Operating Authority provided documentation that showed that the manufacturer calibrated the pocket colorimeter in May 2003.

Fluoridation

The Fluorodation system is contained within a dedicated room at the water treatment plant. The system consists of a weigh scale, and two diaphragm metering pumps manufactured by Wallace and Tiernan. The metering pumps draw the fluorosilicic acid directly from the 65 kg carboys supplied by the manufacturer.

Fluorosilicic acid with a concentration of 25% is injected into the treated water discharge line at the water treatment plant. The operating authority provided documentation confirming that the fluorosilicic acid meets the applicable American Water Works Association (AWWA) and American National Standards Institute (ANSI) standards.

Spill containment for fluorosilicic acid carboys consists of a concrete lip that isolates a portion of the concrete floor where the carboys are stored. An emergency eye wash station is located inside the fluoridation room. A supply of sodium bicarbonate, used to neutralize spilled fluorosilic acid, is maintained at the treatment plant.

Water from the treated water discharge line is directed to a Wallace and Tiernan continuous fluoride analyzer equipped with a Fluoride Probe manufactured by Orion Research Incorporated. The probe has a reproducibility of +/- 2%. Water directed to the probe is discharged into the production well.

The analyzer is equipped with a high alarm set at 0.8 mg/L. If the high alarm is triggered the well pump is automatically shut down and an alarm activated. The operating authority submits monthly updates on the average monthly fluoride levels to the Eastern Ontario Health Unit. Since January 2002, the average monthly fluoride levels have ranged from 0.5 mg/L to 0.7 mg/L. The Ontario Drinking Water Quality Standard for fluoride is 1.5 mg/L.

The analyzer is connected to a SCADA system that provides a continuous record of the fluoride in the treated water as it is discharged from the plant.

The operating authority indicated that the analyzer is checked at each site visit with a fluoride test performed with the Hach DR700 Spectrophotometer. The Hach DR700 was calibrated by the manufacture in May 2003.

Turbidity Monitoring

A Hach model 1720D turbidimeter is installed on the treated water discharge line and provides a continuous measure of turbidity. The quality control band for this specific model of turbidimeter is ± 2% (ie: ± 0.02 at 1 NTU). The high alarm setting on the turbidimeter is set at 0.90 NTU.

Schedule 6-5 Section 8 of O.Reg 170/03 requires that continuous monitoring equipment be calibrated in accordance with the manufactures instructions. A review of the 1720D Operations Manual indicated that the manufacturer of this instrument recommends that it is recalibrated using a formazin primary standard after any significant maintenance or repair and at least once every four months of normal operation. A review of the calibration work orders revealed that the turbidimeter was last serviced and calibrated with a formazin standard on September 24, 2003 by Jean Veilleux.

3.1.3 Process Wastewater

Waste water from the floor drain and water treatment plant sink is discharged to an underground holding tank located adjacent to the water treatment plant. Treated water fed to the online analyzers is discharged back down the well.

A surge tank and discharge line is in the process of being installed to direct water discharged from the bypass line away from the site. The outlet for the bypass discharge line is situated in a drainage ditch located adjacent to the site. The bypass discharge line will include an air gap to prevent the backflow of water into the treatment plant.

3.1.4 Distribution System

The Operating Authority stated that there were no active leak detection programs undertaken on the distribution system.

Until the upgrade requirements of Part 8 of the amended CofA are fulfilled, Condition 8.4 requires the operating authority to maintain a free chlorine residual of at least 0.2 mg/L throughout the distribution system.

Maintenance Programs

The operating authority confirmed the existence of plans of the distribution system, and stated that pressure problems have not been encountered in the distribution system. The operating authority indicated that there is no active program to rebuild/replace any portion of the distribution system, and that components of the distribution system are repaired/replaced as required.

There has been was only one watermain break since the previous MOE compliance inspection. The operating authority indicated that repairs are performed by certified operators as required by O.Reg 435/93 Section 19. The Inspector noted that the repairs are documented in the logbook. The operating authority indicated that the owner excavates the breakage and OCWA operators perform the repair.

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

The operating authority confirmed that the fire hydrants connected to the distribution system are inspected and exercised on a routine basis in accordance with AWWA standards. Hydrants are inspected during the routine spring and fall flushing activities. The most recent fall and spring

flushing events took place on October 8 and 9, 2002 and May 6 and 7, 2003. Hydrants are pumped dry each Fall to avoid damage caused by freezing.

Cross Connection and Backflow Prevention

There are no by-laws pertaining to cross connections that are applicable to this facility. Inspections were conducted when the service connections were connected to the distribution system. These inspections included a search for cross connections.

Storage Structure Assessment

The operating authority indicated that the elevated storage tank has not been inspected since it was brought into service in 1996.

The Engineer's Report recommended that the owner consider the risks associated with the blow-out disc on the elevated storage tank which could permit the entry of foreign material into the tank. The Operating Authority indicated that the blow-out disc has since been replaced with a vacuum breaker that addresses the Engineer's concerns.

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

3.2 WATER SYSTEM MANAGEMENT PRACTICES

3.2.1 Operational Manuals

The operations and maintenance manuals are located in the water treatment plant. The manuals contain the following: plans, drawings and process descriptions, sampling schedule and procedures, notification and corrective actions for adverse conditions, and procedures for disinfection and repair of watermains.

3.2.2 Logbooks

The Operations Log is a bound notebook is located at the water treatment plant. A review of the logbook indicated that it provided an excellent summary of operating conditions at the plant. The logbook review indicated that the operating authority began daily measurement of disinfection residuals in the distribution system on June 1, 2003.

The logbook review also indicated that the operating authority generally performs operational checks at the treatment several times a week and performs site visits when system alarms are

triggered. Entries in the logbook are made chronologically, and the operators are providing the dates and times of the site visits and recording information concerning the operation of the facility and any departures from normal operating conditions. A minimum of two years of logbook entries are available at the site.

3.2.3 Contingency and Emergency Planning

The Crysler Water Treatment Plant is equipped with security and alarm system capable of remote notification of the Operator in Charge in the event of an alarm condition. If an alarm is triggered the Operator in Charge will receive notification via the on-call pager and/or the operator's cell phone. If the Operator in Charge does not respond to the on-call pager within a specified period of time then backup operators will be notified until one is contacted.

Alarms at the water treatment plant include: power failure; intrusion, fluoride lockout, chlorine high and low alarms, fluoride high alarm, and turbidity high alarm. Additional alarms at the elevated tower include power failure, high and low tower level, and intrusion.

An Environmental Contingency Plan has been developed for the facility. The Plan includes separate contingencies which include: disinfection system failure, contaminated raw water, power failure, water main break, pump failure, and spills. Also included in the Contingency Plan is a procedure for responding to an adverse water quality incident, which includes written procedures for the notification of the Medical Officer of health and the MOE as required by Condition 3.7 of the amended CofA. The Environmental Contingency Plan is kept at the water treatment plant.

Although the system is not equipped with a standby power source, the elevated storage tank ensures that positive pressure is maintained in the distribution system should a power outage occur. For extended power outages, the operating authority has a mobile generator unit that can be mobilized to the site as required.

The operating authority has developed a contingency plan for the position of Operator in Overall Responsibility to ensure that overall operation of the facility is placed with an operator who holds a license that is applicable to the facility.

3.2.4 Security

The treatment plant and standby well are located within an area secured by six foot barbed wire security fencing and a locked access gate. All three doors into the treatment plant building are locked and equipped with alarms.

The water tower is also located within an area secured by six foot barbed wire security fencing and a locked access gate. Operators access the water tower by unlocking a security door and by deactivation of the alarm system with a numeric touch pad. The operating authority indicated that operators must always accompany visitors to the water tower.

3.2.5 Communication with Consumers

The operating authority manages and responds to customer complaints using the OPEX Incident Reporting System; a database that OCWA uses to record and report a wide range of incidents including community complaints. Over the course of the inspection period, OCWA recorded one consumer complaint. On January 31, 2003 a resident complained of the taste of chlorine in the water. OCWA advised the resident that the free chlorine residual in the distribution system was within the 0.9 to 1.0 mg/L range.

The operating authority confirmed that the following documents are available to the public during normal business hours at OCWA's Chesterville Office:

- All of the lab reports on the analysis of water samples taken under section 7 of O. Reg. 170/03;
- All of the approvals, orders, and directions related to the system;
- Annual Compliance Reports; and,
- The Ontario Drinking Water Standards (Ontario Regulation 169/03).

3.2.6 Operator Certification and Training

The operator in overall responsibility for the Crysler Drinking Water System is Mr. Blair Henderson. Mr. Henderson possesses a Class 2 Water Treatment License and a Class 3 Water Distribution License. The Crysler Water Treatment Plant is classified as a Class 1 Water Treatment System and a Class 2 Distribution System.

The following table provides a list of the operators who work at the Crysler Water Treatment Plant and their levels of certification for treatment and distribution systems:

Operator Name	Treatment System Classification	Distribution System Classification
Dave Markell	Class 2	Class 3
William Michels	Class 2	Class 2
Jean Veilleux	Class 3	Class 3
Andrew Barrie	Class 2	Class 2
Tony Kelly	Class 3	Class 3
Mark Lauzon	Operator in Training	Operator in Training
Brian Huskinson	Class 2	Class 2
Lisa Bortolussi	Operator in Training	Operator in Training
James Roach	Operator in Training	Operator in Training

As required by O.Reg 435/93 the operator licenses were conspicuously displayed at OCWA's office in Chesterville, and the plant classification certificate was conspicuously displayed at the Water Treatment Plant.

Certification details for each of the operators is provided in **Appendix D**.

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

SECTION 4 WATER QUALITY MONITORING & ASSESSMENT

4.1 WATER QUALITY MONITORING

The water quality monitoring requirements for the Chrysler Water Supply as specified in Regulation 170/03 are as follows:

Raw Water

- one sample per week from each well for microbiological analyses; and
- one sample per month tested immediately for turbidity.

Treated Water

- one sample per week for microbiological analyses;
- one sample per quarter for nitrates/nitrites;
- one sample every three years for inorganics (Schedule 23);
- one sample every three years for organics (Schedule 24); and
- one sample every five years for sodium and fluoride analysis;

Distribution System

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

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

As discussed in Section 3.1.1 the operating authority is currently not collecting the required weekly raw water samples from the standby well. The operating authority has confirmed that weekly sampling will resume once the construction of the bypass surge tank and discharge line has been completed.

The operating authority collects weekly treated water samples at the treatment plant, and submits them to Caduceon Environmental Laboratories of Ottawa, Ontario for microbiological analysis. Samples are analyzed for *E.Coli*, Total Coliforms and heterotrophic plate count.

Treated water samples were submitted for analysis of nitrates/nitrites, volatile organics, and pesticides and PCBs on August 8 and October 21, 2002 and January 20, and April 24, 2003. The samples were analyzed for all the parameters listed in Regulation 170/03 Schedule 24 with the exception of Benzo(a)pyrene. Benzo(a)pyrene was not included as an organic parameter in the legislation that was applicable (Regulation 459/00) at the time of the sampling. The operating authority must submit its first test of Benzo(a)pyrene prior to June 1, 2004 as required by Schedule 13-10 (b) of Regulation 170/03.

The required sample for inorganics was submitted on January 20, 2003. The sample was analyzed for all the parameters listed in Regulation 170/03 Schedule 23 with the exception of Antimony. Antimony was not included as an inorganic parameter in the legislation that was applicable (Regulation 459/00) at the time of the sampling. The operating authority must submit its first test of Antimony prior to June 1, 2004 as required by Schedule 13-10 (b) of Regulation 170/03.

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

The required quarterly distribution samples for trihalomethanes, were collected on August 8 and October 21, 2002 and January 20, and April 24, 2003. The required annual distribution sample for lead was collected on January 20, 2003.

A review of the sampling schedule and laboratory analytical reports indicated that from July 24, 2002 (date of previous MOE inspection) until September 17, 2003, the Crysler Drinking Water System operated in compliance with the water quality sampling requirements of Condition 2.1 of the amended CofA. All water samples submitted for analyses during the aforementioned period were analyzed by a laboratory accredited for the specific parameter that was analyzed.

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

A review of the operations log indicated that the operating authority began daily monitoring of the distribution system chlorine residual on June 1, 2003. A review of the analytical results indicated that chlorine residual readings are being collected at the same time as microbiological samples.

On March 3, 2003 Dave Markell signed and submitted the required "Notification of Laboratory Services Provided to Waterworks" form to the MOE's Laboratory Services Branch. A review of the Standards 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 operating authority.

The operating authority confirmed that the laboratory analytical reports are kept for required periods of time directed within O. Reg. 170/03. The operating authority indicated that there have been no historical fluctuations in water quality.

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

4.2 WATER QUALITY ASSESSMENT

4.2.1 Bacteriological

A review of the weekly raw water data for the production well, for the period of July 24, 2002 to September 9, 2003, indicated the *E.Coli* was not detected in any sample, and that Total Coliforms were reoccurring from October 28, 2002 to January 30, 2003 with concentrations ranging from 1 colony forming unit (cfu) per 100mL to 12 cfu/100 mL.

A review of the raw water quality data from the standby well (samples collected up until May 26, 2003) indicated that there were no Total Coliforms or *E.Coli* detected in any of the samples.

During the September 16, 2003 site visit, the Inspector collected a raw water sample from the production well and a treated water sample from the discharge line. The Inspector also collected distribution system samples at the following locations: Crysler Sewage Treatment Plant, Home Hardware, Crysler Post Office. At all three locations the Inspector also collected samples for the onsite analyses of total and free chlorine residual. The Inspector used a Hach Pocket Colorimeter to perform the analyses. Water samples were collected in laboratory prepared sample bottles containing the preservative sodium thiosulphate, and were subsequently submitted to the MOE Laboratory in Toronto for analyses of the following parameters: Total Coliforms, *E. Coli*, and a heterotrophic plate count.

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

Free Chlorine Results Crysler Distribution System - September 4 to 7, 2003			
	Crysler STP	Home Hardware	Crysler Post Office
Free Chlorine (mg/L)	0.93	0.88	0.54
Total Chlorine (mg/L)	0.96	1.03	0.77

The results of the onsite analyses of free chlorine residual in the Crysler distribution system indicated that the free chlorine residuals were well above the minimum required concentration of 0.2 mg/L required by the amended CofA.

4.2.2 Physical/Chemical

A review of the results from the free chlorine residual monitoring at the treatment plant indicated that, since the last MOE compliance inspection, the minimum recorded free chlorine residual was 0.29 mg/L.

Since the operating authority began collecting daily free chlorine residual in the distribution system on June 1, 2003 the minimum recorded concentration was 0.8 mg/L (data to August 31, 2003).

As required by O.Reg 170/03 Schedule 13-3 and 13-6, the operating authority collects its lead and THM samples at the extremities of the system. A review of the THM data indicated that elevated THMs are not an issue in the Crysler distribution system. A review of the analytical results for the sample collected by the operating authority on January 20, 2003 indicated that all the Schedule 23 inorganic parameters were well below the Ontario Drinking Water Quality Standards, with the exception of Antimony which was not analyzed. A review of the analytical results indicated that Pesticides and PCBs were not detected.

4.2.3 Reporting, Notification & Corrective Action

There was one adverse water quality incident in the Crysler drinking water system over the course of the inspection period. A sample collected on August 5, 2003 at the treatment plant had a concentration of >500 colonies on a Heterotropic Plate Count. The operating authority was notified on August 8, 2003 and collected a resample the same day. The results of the resampling

showed that the adverse condition was no longer present. The operating authority provided the required notifications within the specified time frames.

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

The 2002 Annual Report was submitted to the Township Council and was received and reviewed on April 8, 2003. The annual report included a summary listing of treatment chemicals used and a discussion of the quantity of water supplied during the reporting period compared to the design values for the population serviced.

SECTION 5 ASSESSMENT OF PREVIOUS INSPECTION ISSUES

5.1 NON COMPLIANCE WITH REGULATORY REQUIREMENTS

The previous MOE inspection did not reveal any known or suspected violations which could cause a human health impact or environmental impairment. The inspection did reveal the following regulatory issues:

i) Weekly raw water samples were not being collected from each well as required by O.Reg. 459/00.

A review of the laboratory analytical reports indicated that the operating authority collected weekly raw water samples from both the production and standby well from January 28, 2003 through to May 26, 2003.

During this period, water pumped from the standby well was not directed to the common header, but was discharged via a bypass line to a splash pad located adjacent to the water treatment plant. The operating authority indicated that the activation of the standby well was temporarily ceased, at the recommendation of the consulting hydrogeologist, due to concerns regarding the practice of discharging well water onto the ground surface adjacent to the water treatment plant. The hydrologist stated in the GUDI Well Assessment report, that the sudden large influx of surface infiltration could potentially introduce surface contaminants into the production well.

As a remedy for this situation, the consultant recommended the installation of a water collection tank and discharge line that would direct the water away from the site. During the inspection, the inspector observed that this water collection system was under construction.

The operating authority indicated that there is approximately 3 days of water stored in the elevated tower. If the production well were to malfunction, there would be sufficient time for the operating authority to collect and receive microbiological test results from the standby well prior to using it as the source well.

A review of the raw water quality data from the standby well collected up until May 26, 2003, indicated that there were no Total Coliforms or *E.Coli* detected in any of the samples collected from this well. Nonetheless, the operating authority understands that under no circumstances shall water from the standby well be

directed to the distribution system prior the receipt of laboratory results confirming the water meets the Regulatory Standards.

Until the by-pass water collection system has been successfully installed, the Inspector concurs that the required raw water samples need not be collected, with the understanding that the owner and operating authority shall make every effort to ensure the timely completion of the water collection system and the resumption of weekly raw water sampling from the standby well.

ii) Insufficient flow measuring devices to measure the flow rate and daily quantity of water being taken from each well.

During the site visit the Inspector noted that a new magnetic flow meter was at the water treatment plant but had not yet been installed. Subsequent to the inspection, the Inspector was notified that the flow meter was installed on the bypass water line and that the SCADA system was updated to allow for the measurement of the volume of water drawn from each well, and for the daily maximum flow rate and maximum daily volume of water conveyed into the treatment system.

iii) The owner was required to submit a hydrogeological study to establish whether or not the ground water source is under the direct influence of surface water.

A GUDI Well Assessment Report was prepared by Water and Earth Science Associates of Carp, Ontario in April 2002. The report concluded that there was no immediate need for the installation of filtration equipment, but that the source wells should be managed as GUDI wells.

5.2 BEST MANAGEMENT PRACTICES RECOMMENDATIONS

There were no best management practice recommendation provided in the previous MOE Compliance Inspection Report.

SECTION 6 SUMMARY OF NON COMPLIANCE ISSUES & ACTIONS REQUIRED

1. The current configuration of the continuous chlorine analyzer on the treated water discharge line does not comply with Schedule 7-2 of O.Reg 170/03. The owner must submit a workplan that describes in detail what steps will be taken, and the date those steps will be taken, to ensure that the continuous chlorine analyzer is reconfigured to comply with Schedule 7-2.	
Order Number: 4802-5T9M2R	Compliance Date: February 6, 2004

A copy of the Order, along with a Provincial Officer's Report, can be found in **Appendix I.**

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 owner should conduct an inspection of the interior of the elevated storage tank. The interior of the tank has not been inspected since it was brought into service. Routine tank inspections are crucial in order to determine the condition of the interior coating and the extent of corrosion and debris buildup within the tank.

2. Fluorosilicic acid is a very corrosive and very hazardous chemical. If fluorosilicic acid comes in contact with the skin it must by washed off immediately. First aid requirements for fluorosilicic acid exposed skin include flushing the affected area for at least 15 minutes. The Crysler Water Treatment Plant is not equipped with an emergency shower. The owner should install a shower so that the operators can administer the required first aid.

3. Spill containment for the fluorosilicic acid is provided by a concrete berm that isolates a portion of the concrete floor in the fluoride chemical room. As stated above, fluorosilicic acid is very corrosive. If fluorosilicic acid is spilled onto the concrete floor then there is the potential for the acid to dissolve the concrete and breach the containment. The owner should install a corrosion resistant liner in the fluorosilicic acid containment area so that potential spills are adequately contained.

4. The owner should direct discharge water for the online analyzers and sample tap to a location other then the production well. Although there is no addition of reagents by the analyzer, this water has been treated with both sodium hypochlorite and fluorosilicic acid and may impact the raw water sampling program.

Please provide a response by February 29, 2004 detailing how the owner plans to address these Best Practice Recommendations.

SIGNATURES

Inspected By: Jan Franssen	*Signature: (Inspector):*
Reviewed & Approved By: James Mahoney	*Signature (Supervisor):* for: Jim Mahoney
Review & Approval Date: (yyyy/mm/dd) 2004·01·16	

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. Rheal Charbonneau, Clerk-Treasurer – Township of North Stormont
Mr. Blair Henderson, Water System Manager – OCWA Chesterville Hub
Dr. Robert Bourdeau, Medical Officer of Health – Eastern Ontario Health Unit
Mr. Mirek Tybinkowski, Specialist: Water and Wastewater – MOE EAAB
Mr. Richard Pilon, Director of Planning & Engineering –
South Nation Conservation Authority

District Office File – SI ST FI 241

Ontario

APPENDIX A

CERTIFICATE OF APPROVAL

(AS ATTACHED)

Ontario

Ministry of the Environment | Ministère de l'Environnement

CERTIFICATE OF APPROVAL
MUNICIPAL DRINKING WATER SYSTEMS
NUMBER [redacted]

The Corporation of the Township of North Stormont
PO Box 99
Berwick, Ontario
K0C 1G0

Site Location: Crysler Water Treatment Plant
15642 County Road 13
North Stormont Township, United Counties of Stormont, Dundas & Glengarry

Pursuant to the Safe Drinking Water Act, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, this approval is issued under Part V of the Safe Drinking Water Act, 2002, S.O. 2002, c.32 to:

The Corporation of the Township of North Stormont
PO Box 99
Berwick, Ontario
K0C 1G0

PART 1 - DRINKING-WATER SYSTEM DESCRIPTION

1.1 for a drinking-water system serving the community of Crysler in the Township of North Stormont, located on North Part Lot 20, Concession 9, Parts 1, 2 and 3 of RP52R-3079 in the Township of North Stormont, United Counties of Stormont, Dundas and Glengarry, rated as set out in Part 4 consisting of the following:

Proposed Water Works
(as per Application for Approval, dated August 07, 2002)

Pumphouse

- addition of one (1) 100 L capacity hypochlorite solution tank with automatic tank switchover system;

- installation of polyethylene secondary containment basin for duty and standby solution tanks;

- installation of continuous monitoring turbidity analyzer;

- installation of 100 mm diameter turbine flow meter and backflow preventer on the pump to waste piping.

Existing Water Works
(as per the First Engineer's Report, entitled "Village of Crysler Water System Engineers' Report for Water Works" dated dated March, 2001 (Revised May 29, 2001), prepared by Kostuch Engineering Limited and any additional information and documentation that may have been provided in support of the report.)

Well No. 1

- a 250 mm diameter 12.2 m deep drilled groundwater production well with sealed well head (NAD 27: UTM Zone 18, 492500.00 m E. and 5008790.00 m N.), equipped with a submersible deep well pump rated at 19.5 L/s at 85 m total dynamic head (TDH), discharging to a pump header in the pumphouse described below;

Well No. 2

- a 250 mm diameter 13.4 m deep drilled groundwater standby well with sealed well head (NAD 27: UTM Zone 18, 492519.00 m E. and 5008770.00 m N.), equipped with a submersible deep well pump rated at 19.5 L/s at 85 m TDH, discharging to a pump header in the adjacent pumphouse described below;

Pumphouse

- a 7 m by 9.2 m masonry pumphouse (NAD 27: UTM Zone 18, 492500.00 m E. and 5008790.00 m N.), that houses treatment and control facilities including:

    - a sodium hypochlorite disinfection system, consisting of one (1) 100 L capacity sodium hypochlorite solution storage tank, two (2) chemical metering pumps (one duty, one standby) capable of delivering a minimum of 1.95 L/hr into the well pump header via a feedline inside the pumphouse; and

    - a hydrofluosilicic acid system for fluoridation (operation optional), consisting of: one (1) 100 L capacity chemical solution storage tank, a weigh scale, two (2) 0.9 L/hr chemical metering pumps (one duty, one standby) and a feed line discharging to the well pump header inside the pumphouse;

    - together with all associated piping, electrical and mechanical equipment, ventilation, monitoring, control, metering, alarm system and instrumentation, including a Supervisory Control and Data Acquisition System (SCADA);

1.2 all in accordance with the applications and plans and other supporting documents listed in Schedule "A", and all other Schedules, which are attached to, and form part of this approval, except as specified in the conditions contained herein.

PART 2 - DEFINITIONS AND INFORMATION

2.1 In this approval, unless the context otherwise requires, words and phrases shall be given the same meaning as those set out in the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32 and any regulations made in accordance with that act.

2.2 In this approval

"approval" means this entire approval document, issued in accordance with section 36 of the SDWA, and includes any schedules to it

"director" means a director appointed pursuant to s. 6 of the SDWA for the purposes of Part V of the SDWA

"drinking-water system" includes the works set out in Part 1

"provincial officer" means a provincial officer appointed pursuant to s. 8 of the SDWA

"rated capacity" means the maximum flow rate and maximum daily volume of water which can be treated when operating the drinking-water system under design conditions.

"SDWA" means the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32, as amended

2.3 The following information is applicable to this approval:

i. "Owner" is The Corporation of the Township of North Stormont, its successors and assigns,

ii. "Operating Authority" is The Ontario Clean Water Agency (OCWA), its successors and assigns,

PART 3 - GENERAL

Compliance

3.1 The owner and operating authority shall operate the drinking-water system in accordance with the SDWA, any applicable regulations made thereunder, and this approval.

3.2 Despite any condition of this approval to the contrary, the owner and operating authority set out

in Part 2 are jointly and severally liable to comply with all conditions of this approval.

3.3 The owner and operating authority shall ensure that any person authorized to carry out work on or operate any aspect of the drinking-water system has been informed of the SDWA, all applicable regulations made in accordance with that act, and this approval and shall take all reasonable measures to ensure any such person complies with the same.

3.4 A copy of this approval shall be kept in a conspicuous place so that it is available for reference by all persons responsible for all or part of the operation of the drinking-water system.

Build, etc. in Accordance

3.5 Except as otherwise provided by this approval, the drinking-water system shall be designed, developed, built, operated and maintained in accordance with Part 1 above and the documentation listed in Schedule "A".

Interpretation

3.6 Where there is a conflict between the provisions of this approval and any other document, the following hierarchy shall be used to determine the provision that takes precedence:

i. The SDWA;

ii. a condition imposed in this approval in accordance with s. 38 of the SDWA;

iii. any regulation made under the SDWA;

iv. this approval;

v. any application documents listed in Schedule "A" from most recent to earliest; and

vi. all other documents listed in Schedule "A" from most recent to earliest.

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

3.8 Nothing in this approval shall be read to provide relief from the need for strict compliance with the *Environmental Assessment Act*.

Other Legal Obligations

3.9 The issuance of, and compliance with the conditions of, this approval does not:

i. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or

ii. limit in any way the authority of the ministry to require certain steps be taken or to require the owner to furnish any further information related to compliance with this approval.

3.10 For greater clarity, nothing in this approval shall be read to provide relief from regulatory requirements in accordance with section 38 of the SDWA, except as provided in Part 9.

Adverse Effects

3.11 Nothing in this approval shall be read as to permit: i) the discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or ii) the discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.

3.12 All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking-water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

3.13 Fulfillment of one or more conditions imposed by this approval does not eliminate the requirement to fulfill any other condition of this approval or the requirements of any applicable statute, regulation, or other legal requirement resulting from any act or omission that causes or is likely to cause an adverse effect on the natural environment or the impairment of water quality.

Change of Owner

3.14 The owner or the operating authority, as the case may be, shall notify the director, in writing, of any of the following changes within 30 days of the change occurring:

i. change of owner or operating authority;

ii. change of address;

iii. change of partners where the owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B17; or

iv. change of name of the corporation where the owner or operating authority is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C.39.

3.15 In the event of any change in ownership of the drinking-water system, other than change to a successor municipality, the owner shall notify the successor of and provide the successor with a copy of this approval, and the owner shall provide a copy of the notification to the district

manager of the local office of the ministry and the director.

Inspections

3.16 No person shall hinder or obstruct a provincial officer in the performance of their duties, including any and all inspections authorized by the SDWA.

Information

3.17 Any information requested, by the ministry, concerning the drinking-water system and its operation under this approval, including but not limited to any records required to be kept by this approval shall be provided to the Ministry, upon request.

3.18 Records required by or created in accordance with this approval, unless specifically referenced in s. 12 of O. Reg. 170/03, shall be retained for at least 5 years in a location where a provincial officer who is inspecting the treatment system can conveniently view them.

3.19 The receipt of any information by the ministry or the failure of the ministry to prosecute any person or to require any person to take any action, under this approval or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:

i. an approval, waiver, or justification by the ministry of any act or omission of any person that contravenes any term or condition of this approval or any statute, regulation or other legal requirement; or

ii. acceptance by the ministry of the information's completeness or accuracy.

PART 4 - PERFORMANCE

Rated Capacity

4.1 The drinking-water system shall not be operated to exceed the rated capacity for maximum flow rate and maximum volume set out below:

Treatment System	Maximum Flow Rate (L/sec)	Maximum Daily Volume (m^3/d)
Pumphouse	19.5	1,685

Increase to Rated Capacity

4.2 Despite condition 4.1, the drinking water system may be operated at a rate above the rated capacity set out in condition 4.1 where necessary for:

i. fighting a large fire; or

ii. the maintenance of the drinking-water system.

4.3 Condition 4.2 shall not be construed to allow drinking-water to be supplied that does not meet all other applicable standards and legal requirements.

PART 5 - MONITORING AND RECORDING

Flow measuring devices

5.1 Install a sufficient number of flow-measuring devices within the drinking-water system to permit the measurement and recording of:

i. the daily maximum flow rate and maximum daily volume of water conveyed into the treatment system; and

5.2 Records shall be maintained that set out the parameters recorded in accordance with condition 5.1, and where the parameters measured exceed the daily peak flow rate and daily maximum volume set out in Part 1, the amount, date, time and duration of the exceedence shall also be recorded.

Calibration of flow measuring devices

5.3 All flow measuring devices must be checked and calibrated in accordance with the manufacturer's instructions.

5.4 If the manufacturer's instructions do not indicate how often to check and calibrate the flow measuring devices, the equipment must be checked and calibrated at least once every year during which the drinking-water system is in operation.

PART 6 - OPERATIONS AND MAINTENANCE

Chemical standards

6.1 All chemicals and materials used in the operation of the drinking-water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60 and NSF/61.

6.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution shall be available at all times for each chemical and material used in the

operation of the drinking-water system that comes into contact with water within the system.

6.3 Condition 6.2 does not apply in the context of any particular chemical or material where the Owner has written documentation signed by the director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking-water system and that chemical or material is only used as permitted by the documentation.

Operations manual

6.4 An up-to-date operations manual shall be maintained and made available at the drinking-water system for reference to all persons.

6.5 The operations manual shall include at a minimum:

i. the requirements of this approval and associated procedures;

ii. the operation and maintenance recommendations from the most recent engineers' report;

iii. procedures for the monitoring and recording of in-process parameters necessary for the control of the treatment system and assessing the performance of the drinking-water system;

iv. procedures for the operation and maintenance of monitoring equipment;

v. contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset and equipment breakdown;

vi. procedures for the dealing with complaints related to the drinking-water system, including the recording of the nature of the complaint and any investigation and corrective action taken that in respect of the complaint.

6.6 Procedures necessary to the operation of any physical alterations of the drinking-water system shall be incorporated into the operations manual prior to the alterations coming into operation.

Drawings

6.7 An up-to-date Process and Instrumentation Diagram for the treatment system shall be kept on site at the drinking water system.

6.8 All drawings and diagrams in the possession of the owner or operating authority that show the treatment system as constructed shall be retained.

6.9 An alteration to the treatment system shall be incorporated into Process and Instruction Diagrams and record drawings and diagrams within one year of the substantial completion of the alteration and shall be retained and shall be made readily available for inspection by Ministry staff.

Well Inspection and Maintenance

6.10 A well inspection and maintenance plan shall be developed and implemented within (3) months of the issuance of this Certificate of Approval. The plan shall include:

i. scheduled inspection frequency for all on-site wells (including all production wells, standby wells, test wells and monitoring wells) by appropriately qualified professional, and

ii. defined well inspection and maintenance procedures for the entire well structure including all above and below grade well components, and

iii. remedial action plans to be implemented where inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

PART 7 - FUTURE ALTERATIONS

Approved future alterations

7.1 None.

Certificate of compliance

7.2 None.

PART 8 - STUDIES AND UPGRADES REQUIRED

8.1 For the purpose of this Part, the following upgrade lists shall apply:

Upgrade List A

i. Provide treatment appropriate for a groundwater supply that is under direct influence of surface water and has effective *in-situ* filtration, in accordance with O. Reg. 170/03, Schedule 1, section 1-4; and

ii. Delineate all wellhead protection areas in accordance with the latest version of the Ministry protocol titled "*Delineation of Wellhead Protection Areas For Municipal Groundwater Supply Wells Under Direct Influence of Surface Water*" and provide copies of the resulting reports to the Director; and

iii. Submit a report to the Director prepared in accordance with the latest version of the Ministry document titled "*Development of Microbial Contamination Control Plans for Municipal Groundwater Supply Wells under Direct Influence of Surface Water with Effective In-situ Filtration*".

Upgrade List B

i. Provide filtration and primary disinfection appropriate for a surface water raw water supply in accordance with O. Reg. 170/03, Schedule 1, section 1-4.

8.2 In accordance with O. Reg. 170/03, for Well No. 1 and Well No. 2, the Owner shall implement the requirements set out in one of Upgrade List A or B by **November 1, 2004**.

8.3 By **November 1, 2004** or date otherwise specified, the Owner shall implement the following works and measures:

i. install standby sodium hypochlorite solution storage tank with automatic switch-over when connected tank is empty or alternative approved by the Ministry;

ii. install a sufficient number of particle counters to continuously monitor and record the particle counts of the raw water from both wells;

iii. submit a report to the Director that is prepared by a licensed well contractor detailing any deficiencies from the construction standards set out in sections 12 through 14 of O. Reg. 903 for all production wells, test wells, monitoring wells, and observation wells owned or operated by the Owner (March 31, 2004); and

iv. correct any deficiencies outlined in the report required by 8.3(iii) or abandon the appropriate well(s) in accordance with O. Reg. 903;

8.4 The Owner shall during the interim period up to **November 1, 2004,** operate and apply appropriate measures to enhance and optimize disinfection processes, including but not limited to:

(i) free chlorine residual of at least 0.2 mg/L to be maintained throughout the distribution system.

8.5 In lieu of one or more of the requirements of condition 8.2, the Owner may construct an alternative to one or more parts of the drinking-water system provided all necessary approvals are obtained and the alternative part is fully operational on or before **November 1, 2004**.

Requirement not an approval

8.6 The Owner shall not construct any works required by this part until all associated approvals, licenses and permits have been obtained from the Ministry.

PART 9 - RELIEF FROM REGULATORY REQUIREMENTS

Relief from regulatory requirements

9.1 None.

Conditions in exchange for relief from regulatory requirements

9.2 None.

SCHEDULE A

The following supporting documents form part of this approval.

1. Application dated July 7, 2003
   - Supplementary Review of the Township of North Stormont Hydrogeological Study for the Crysler Water Treatment Plant Wells, dated April 16, 2003, prepared by MOE.
   - Correspondence from Genivar Consultants to MOE, dated July 24, 2003, Re: Deadline Extension for Crysler WSS.
   - Correspondence from Genivar Consultants to MOE, dated August 28, 2003, Re: Deadline Extension for Crysler WSS.

2. The original applications for approval, including design calculations, engineering drawings and reports, and other supporting documents prepared in support of any previous certificate(s) of approval issued for any works now approved and replaced by this approval, unless this approval states otherwise.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 5599-5MSH8W issued on May 29, 2003.

All or part of this approval may be reviewable with the provisions of Part X of the SDWA. In accordance with Section 129(1) of the Safe Drinking Water Act, Chapter 32 Statutes of Ontario, 2002, 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 129(2) sets out a procedure upon which the 15 days may be extended by the Tribunal. Section 129(3) of the Safe Drinking Water Act, Chapter 32 Statutes of Ontario, 2002, provides that the Notice requiring the hearing shall state:

1. The aspect of the decision, including the portion of the permit, licence, approval, order or notice of administrative penalty in respect of which the hearing is required; and

2. The grounds for review to be relied on by the person at the hearing.

Except with leave of the Tribunal, a person requiring a hearing in relation to a reviewable decision is not entitled to,
(a) a review of an aspect of the decision other than that stated in the notice requiring the hearing; or
(b) a review of the decision other than on the grounds stated in the notice

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
Part V, *Safe Drinking Water Act*
Ministry of 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 Part V of the Safe Drinking Water Act

DATED AT TORONTO this 8th day of September, 2003

Indra Prashad, P.Eng.
Director
Part V *of the Safe Drinking Water Act, 2002*

GZ/
c: District Manager, MOE Cornwall
James C. Johnston, Genivar Consulting Group
Manager, Drinking Water, Wastewater, and Watershed Standards Section, Standards Development Branch

Ontario

APPENDIX B

PERMIT TO TAKE WATER

(AS ATTACHED)

Ontario

Ministry of the Environment
P.O. Box 820
Kingston, Ontario
K7L 4X6
613/549-4000 or 1-800/267-0974
Fax: 613/548-6908

Ministère de l'Environnement
C.P. 820
Kingston (Ontario)
K7L 4X6
613/549-4000 ou 1-800/267-0974
Fax: 613/548-6908

26 June 2003

Township of North Stormont
2 Victoria Street
Berwick, ON K0C 1G0

Attention: Rheal Charbonneau, Clerk Treasurer

Dear Mr. Charbonneau:

Re: Permit to Take Water 93-P-4006

Enclosed please find Permit to Take Water Number 93-P-4006 which authorizes the taking of water from two (2) wells located on Lot 20, Concession IX, Township of North Stormont (formerly Finch Township), County of Stormont, Dundas and Glengarry.

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.

The Permit is valid until June 26, 2013, or until such time as there are changes in the rate, amount or method of water taking. If changes occur, 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. Please submit applications for renewal of the Permit at least 60 days prior to the expiry date to allow for processing of the application.

The Permit should be reviewed carefully prior to water taking. Compliance with the Conditions of the Permit is the responsibility of the Permit Holder. Any person taking water under the authority of this Permit must be familiar with the Conditions.

It has been brought to my attention that from time to time your area may experience drought or water shortage conditions and therefore General Condition 11 has been added to the Permit. This General Condition is necessary to ensure equitable access to the water supply and to provide protection for the natural resources. This condition does not affect the right to appeal the Director's Notice to the Environmental Review Tribunal under the *Ontario Water Resources Act*, R.S.O. 1990, Chapter O.40, Subsection 100(3).

If you have any questions regarding your Permit please contact Nicholas Murphy at this office.

Yours truly,

Clyde Hammond

Clyde Hammond, Director
Section 34, R.S.O. 1990
Ontario Water Resources Act, R.S.O. 1990, Chapter O.40
Ministry of the Environment
GM/gl

Enclosure

c: ✓ Blair Henderson, Operations Manager, Chesteville Hub, Ontario Clean Water Agency, 5 Industrial Drive, Chesterville, ON K0C 1H0

PERMIT TO TAKE WATER
Number 93-P-4006

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

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

TO: Township of North Stormont
2 Victoria Street
Berwick, ON
K0C 1G0

for the taking of water from two (2) wells located on Lot 20, Concession IX, Township of North Stormont (formerly Finch Township), County of Stormont, Dundas and Glengarry for municipal water supply for the Village of Crysler. The rate of taking shall not exceed a combined total of 1,170 litres per minute, or 1,684,800 litres per day from Well #1 and Well #2.

Except where modified by this Permit the water taking shall be in accordance with the application dated January 7, 2003, and signed by Blair Henderson, Ontario Clean Water Agency, as agent on behalf of the Permit Holder.

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

DEFINITIONS

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

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

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

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

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

(f) "Permit Holder" means Township of North Stormont.

GENERAL CONDITIONS

2. This Permit shall be kept available at the offices of Township of North Stormont, 2 Victoria Street, Berwick, ON, with a copy to be kept on-site at the Village of Crysler water treatment facility for inspection by Ministry staff at all times.

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

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

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

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

6. For Ground-Water Takings, if the taking of water is forecast to cause any negative impact, or is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water

taking, the Permit Holder shall take such action necessary to make available to those affected a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent the forecast negative impact or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of so doing.

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

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

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

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

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

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

SPECIAL CONDITIONS

13. The Permit Holder shall measure and record daily amount and duration of each water taking event and shall ensure copies of these records are kept at the offices of Township of North Stormont, 2 Victoria Street, Berwick, ON, with a copy to be kept on-site at the Village of Crysler water treatment facility until this Ministry requests them to be submitted or states otherwise.

14. No water shall be taken under authority of this Permit after June 26, 2013.

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

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

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

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

The Notice should also include:

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

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

This notice must be served upon:

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

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

Dated at Kingston this 26th day of June, 2003.

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

Ontario

APPENDIX C

GPS COORDINATES

GPS REFERENCING	
ITEM	GLOBAL POSITIONING SYSTEM (GPS) COORDINATES
MAP DATUM:	NAD83
UTM ZONE:	18T
TREATMENT PLANT:	0492508 / 5009050 (±6.8m)
WATER TOWER:	0488704 / 5007272 (±7.6m)
DISTRIBUTION SYSTEM: Sewage Pumping Station	0488050 / 5007280 (±5.5m)
DISTRIBUTION SYSTEM: Home Hardware	0488552 / 5006709 (±7.3m)
DISTRIBUTION SYSTEM: Post Office	0488259 / 5006868 (±6.7m)

Ontario

APPENDIX D

OPERATOR AND FACILITY CERTIFICATION DETAILS

PLANT CLASSIFICATION
Plant Name: Village of Crysler Drinking Water System
Facility Level: Class 1 Water Treatment and Class 2 Water Distribution
Certificate Number: 2608 and 2609
Date of Issue: June 12, 1997

PLANT PERSONNEL	
Operator Name: Blair Henderson	**Title:** Operations Manager
Water Treatment Classification: Class 2	**Water Distribution Classification:** Class 3
Certificate Number: 3695	**Certificate Number:** 3643
Expiry Date: October 31, 2005	**Expiry Date:** October 31, 2005

Operator Name: Dave Markell	**Title:** Process/Compliance Technician
Water Treatment Classification: Class 2	**Water Distribution Classification:** Class 3
Certificate Number: 9396	**Certificate Number:** 7807
Expiry Date: November 30, 2004	**Expiry Date:** September 30, 2005

Ministry of the Environment
Drinking Water Inspection Report

Ontario

Operator Name: William Michels	**Title:** Operator
Water Treatment Classification: Class 2	**Water Distribution Classification:** Class 2
Certificate Number: 13519	**Certificate Number:** 14646
Expiry Date: September 30, 2006	**Expiry Date:** September 30, 2006

Operator Name: Jean Veilleux	**Title:** Operator
Water Treatment Classification: Class 3	**Water Distribution Classification:** Class 3
Certificate Number: 7171	**Certificate Number:** 7172
Expiry Date: May 31, 2006	**Expiry Date:** May 31, 2006

Operator Name: Andrew Barrie	**Title:** Operator
Water Treatment Classification: Class 2	**Water Distribution Classification:** Class 2
Certificate Number: 11395	**Certificate Number:** 11396
Expiry Date: October 31, 2005	**Expiry Date:** January 31, 2005

Operator Name: Tony Kelly	**Title:** Operator
Water Treatment Classification: Class 3	**Water Distribution Classification:** Class 3
Certificate Number: 9394	**Certificate Number:** 7805
Expiry Date: November 30, 2004	**Expiry Date:** November 30, 2003

Ontario

Operator Name: Mark Lauzon	**Title:** Operator
Water Treatment Classification: OIT	**Water Distribution Classification:** OIT
Certificate Number: OT18272	**Certificate Number:** OT18273
Expiry Date: September 30, 2005	**Expiry Date:** September 30, 2005

Operator Name: Brian Huskinson	**Title:** Operator
Water Treatment Classification: Class 2	**Water Distribution Classification:** Class 2
Certificate Number: 13539	**Certificate Number:** 2225
Expiry Date: October 31, 2005	**Expiry Date:** August 31, 2005

Operator Name: Lisa Bortolussi	**Title:** Operator in Training
Water Treatment Classification: OIT	**Water Distribution Classification:** OIT
Certificate Number:	**Certificate Number:**
Expiry Date: June 30, 2006	**Expiry Date:** June 23, 2006

Operator Name: James Roach	**Title:** Operator in Training
Water Treatment Classification: OIT	**Water Distribution Classification:** OIT
Certificate Number:	**Certificate Number:**
Expiry Date: March 31, 2005	**Expiry Date:** November 30, 2005

Ontario

APPENDIX E

CONTACT INFORMATION

Local Health Unit

Eastern Ontario Health Unit
1000 Pitt Street
Cornwall, ON

Attention: Dr. Bourdeau

Medical Officer of Health:

Dr. Robert Bourdeau

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

Conservation Authority or Ministry of Natural Resources

South Nation Conservation Authority
15 Union Street
Berwick, Ontario
K0C 1G0

Attention: Richard E. Pilon

Phone: 613-984-2948
Fax: 613-984-2872

MOE Environmental Assessment and Approvals Branch

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

Attention: Mirek Tybinkowski
Water and Wastewater Specialist

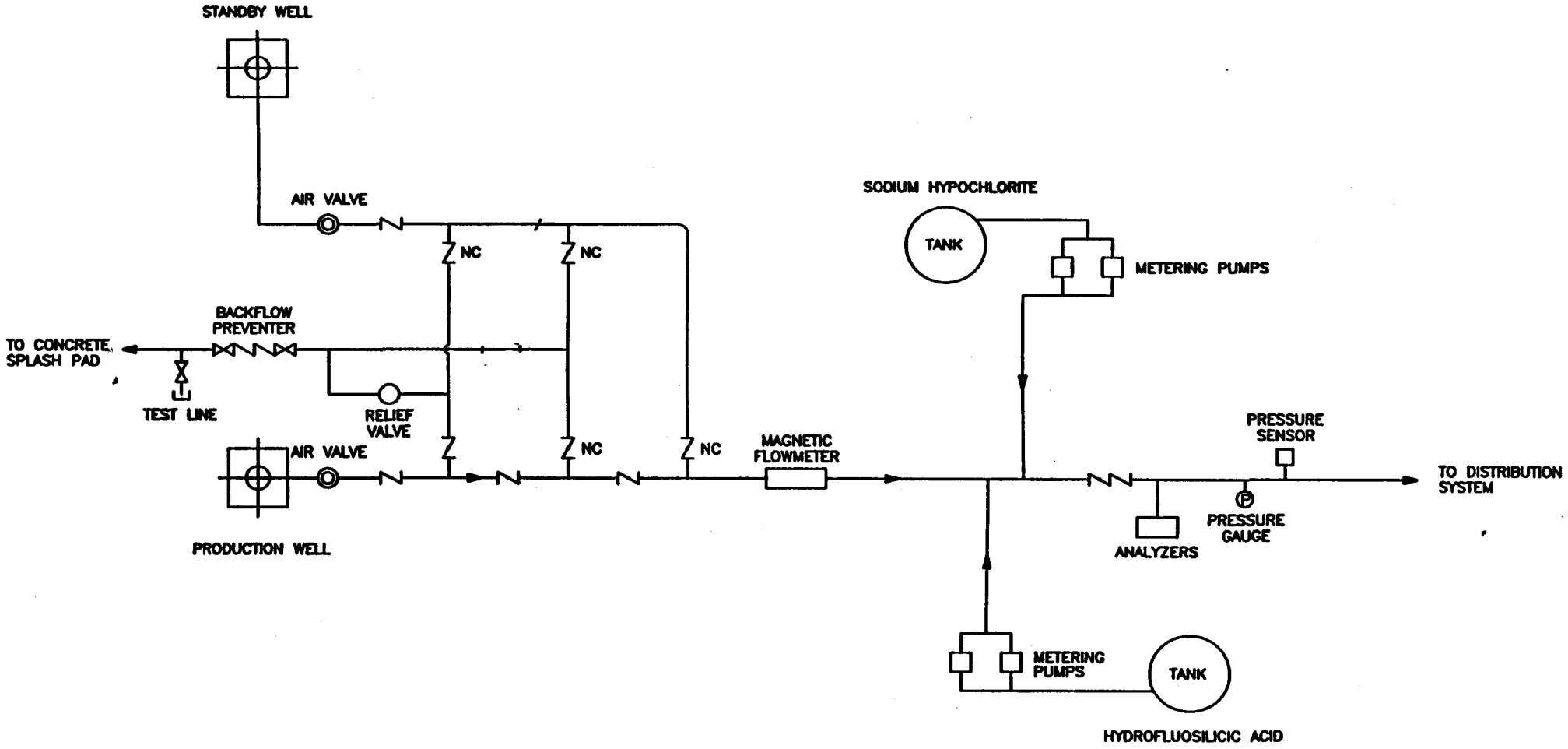
Phone: 416-314-8202
Fax: 416-314-6935

Ontario

APPENDIX F

PLANT SCHEMATIC

(SEE ATTACHED)



SCHEMATIC PROCESS FLOW DIAGRAM FOR CRYSLER WATER SYSTEM

Ontario

APPENDIX G

MINISTRY AUDIT SAMPLE RESULTS

(SEE ATTACHED)

APPENDIX
Table 1
CRYSLER WELL SUPPLY
AUDIT SAMPLE RESULTS - 16-SEP-2003
CHEMICAL / PHYSICAL PARAMETERS - HEALTH RELATED

Sample # 1 - TREATED WATER

Parameter	Units	MAC [1]	IMAC [2]	AO [3]	SAMPLE # 1
ANTIMONY, UNFILTERED TOTAL	UG/L		6		.71 +/-0.17
ARSENIC, UNFILTERED TOTAL	UG/L		25		.2 +/-0.10
BARIUM, UNFILTERED TOTAL	UG/L	1000			92.4 +/-7.40
BENZENE C6H6	UG/L	5			.05 <=W
BORON, UNFILTERED TOTAL	UG/L		5000		8 +/-3.00
BROMODICHLOROMETHANE	UG/L				.2 <=W
BROMOFORM	UG/L				.5 <=W
CADMIUM, UNFILTERED TOTAL	UG/L	5			-.02 +/-0.05
CARBON TETRACHLORIDE	UG/L	5			.2 <=W
CHLOROBENZENE	UG/L	80			.05 <=W
CHLORODIBROMOMETHANE	UG/L				.2 <=W
CHLOROFORM CHCL3	UG/L				.8 <T
CHROMIUM, UNFILTERED TOTAL	UG/L	50			2 +/-0.50
DICHLOROBENZENE 1,2	UG/L	200			.05 <=W
DICHLOROBENZENE 1,4	UG/L	5			.05 <=W
DICHLOROETHANE 1,2	UG/L		5		.05 <=W
DICHLOROETHYLENE 1,1	UG/L	14			.05 <=W
FLUORIDE, UNFILTERED REACTIVE	MG/L	1.5 b			.72
LEAD, UNFILTERED TOTAL	UG/L	10 c			.2 +/-0.20
MERCURY, UNFILTERED TOTAL	UG/L	1			.02 <=W
METHYLENE CHLORIDE	UG/L	50			.2 <=W
NITRATES TOTAL, UNFIL.REAC	MG/L	10 d			.117
NITRITE, UNFILTERED REACTIVE	MG/L	1 d			.001 <=W
SELENIUM, UNFILTERED TOTAL	UG/L	10			1 +/-1.00
TETRACHLOROETHYLENE	UG/L	30			.05 <=W
TRICHLOROETHYLENE C2HCL3	UG/L	50			.05 <=W
TRIHALOMETHANES, TOTAL	UG/L	100 e			1 <T
URANIUM, UNFILTERED TOTAL	UG/L	20			1 +/-0.08
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
CRYSLER WELL SUPPLY
AUDIT SAMPLE RESULTS - 16-SEP-2003
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - WELL 1 RAW
Sample # 2 - TREATED WATER
Sample # 3 - DISTRIBUTION (WATER INSPECTION)
Sample # 4 - DISTRIBUTION (WATER INSPECTION)
Sample # 5 - 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		0	
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
CRYSLER WELL SUPPLY
AUDIT SAMPLE RESULTS - 16-SEP-2003
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - WELL 1 RAW
Sample # 2 - TREATED WATER
Sample # 3 - DISTRIBUTION (WATER INSPECTION)
Sample # 4 - DISTRIBUTION (WATER INSPECTION)
Sample # 5 - DISTRIBUTION (WATER INSPECTION)

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

APPENDIX
Table 2
CRYSLER WELL SUPPLY
AUDIT SAMPLE RESULTS - 16-SEP-2003
MICROBIOLOGICAL PARAMETERS - HEALTH RELATED

Sample # 1 - WELL 1 RAW
Sample # 2 - TREATED WATER
Sample # 3 - DISTRIBUTION (WATER INSPECTION)
Sample # 4 - DISTRIBUTION (WATER INSPECTION)
Sample # 5 - DISTRIBUTION (WATER INSPECTION)

Parameter	Units	MAC [1]	AO [2]	SAMPLE # 5
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
CRYSLER WELL SUPPLY
AUDIT SAMPLE RESULTS - 16-SEP-2003
CHEMICAL / PHYSICAL PARAMETERS - NOT HEALTH RELATED

Sample # 1 - TREATED WATER

Parameter	Units	OBJECTIVE	TYPE OF OBJECTIVE	SAMPLE # 1	
ALUMINIUM, UNFILTERED TOTAL	UG/L	100	OG	.6	+/-0.60
AMMONIUM, TOTAL UNFIL.REAC	MG/L	a	a	.002	<=W
COPPER, UNFILTERED TOTAL	UG/L	1000	AO	33.8	+/-3.00
ETHYLBENZENE C8H10	UG/L	2.4	AO	.05	<=W
IRON, UNFILTERED TOTAL	UG/L	300	AO	5	+/-6.00
MANGANESE,UNFILTERED TOTAL	UG/L	50	AO	6.5	+/-0.79
TOLUENE C7H8	UG/L	24	AO	.05	<=W
TURBIDITY	FTU	5 e	AO	.07	<T
XYLENE-M C8H10	UG/L	300	AO	.05	<=W
XYLENE-O C8H10	UG/L	300	AO	.05	<=W
XYLENE-P C8H10	UG/L	300	AO	.05	<=W
ZINC, UNFILTERED TOTAL	UG/L	5000	AO	9.7	+/-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.

Ontario

APPENDIX H

WELL CONSTRUCTION DETAILS

FIGURE: 3

AS-BUILT DIAGRAM

PROJECT: Crysler Production Well

PROJECT NO.: 3013

DESIGNATION: PW1

COMPLETION DATE: May 19, 1993

DRILLING METHODS: Cable Tool (Churn Drill)

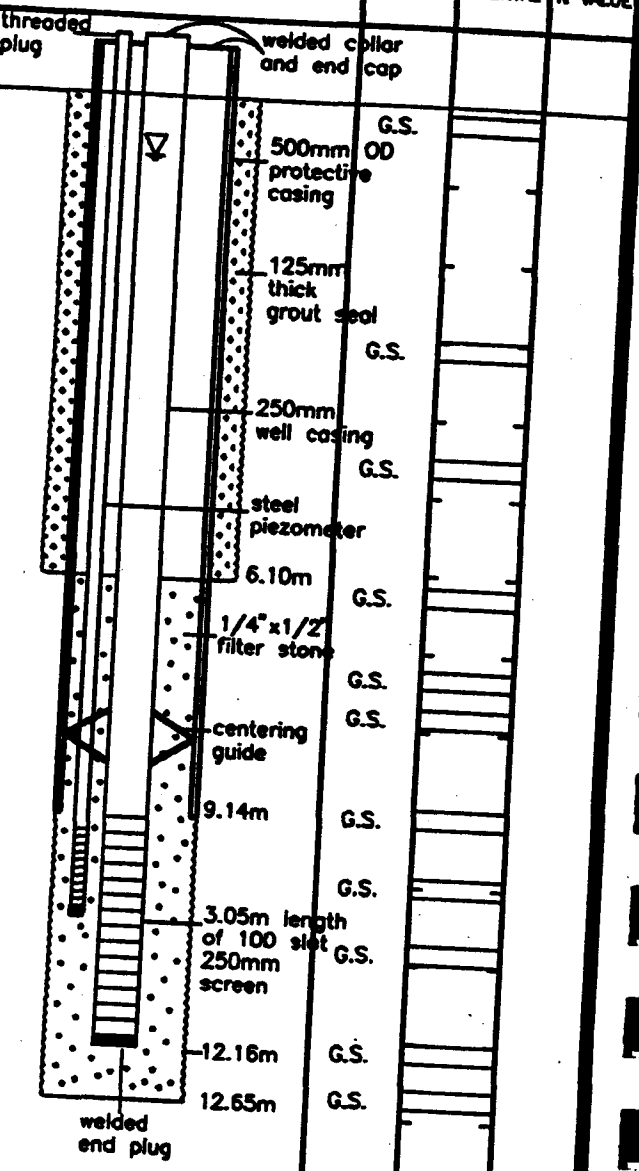
SUPERVISOR: R. Hillier

DRILLING CONTRACTOR: Olympic Drilling Co. Ltd.

DEPTH METRES	ELEVATION METRES	STRATIGRAPHY
0	72.89 masl	
1–3		0 – 3.0m Sand – light brown medium to fine grained
3–4		3.0 – 4.6m Sand – minor clay layer
4–6		4.6 – 6.1m Grey Sand – pebbles & cobbles
6–7		6.1 – 7.6m Sand, gravel, stones
7–8		7.6 – 8.5m Sand, medium grained
8–12		8.5 – 12.5m Gravel – stones, some coarse sand
12–13		12.5 – 12.8m Till – silty sand matrix
13		12.8m End of Hole
15		

LOG

INSTRUMENTATION



TYPE	INTERVAL	N VALUE

WATER AND EARTH SCIENCE ASSOCIATES LTD.
P.O.BOX 430 CARP, ONTARIO. KOA 1LO

Ontario

APPENDIX I

PROVINCIAL OFFICER'S ORDER & REPORT

Ministry of the Environment

Ministère de l'Environnement

Ontario

Provincial Officer's Order

Environmental Protection Act, R.S.O. 1990, c.E 19 (EPA)
Ontario Water Resources Act, R.S.O. 1990, c. O. 40 (OWRA)
Pesticides Act, R.S.O. 1990, c. P11 (PA)
Safe Drinking Water Act, S.O. 2002, c.32 (SDWA)

Order Number
4802-5T9M2R

To: The Corporation of the Township of North Stormont
PO Box 99
Berwick, Ontario, K0C 1G0
Canada

Site: 15642 County Road 13
North Stormont, United Counties of Stormont, Dundas & Glengarry

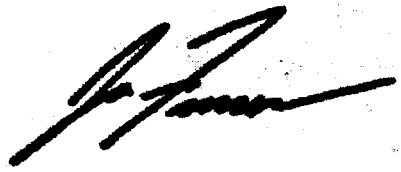
Work Ordered

On or before February 6, 2004 submit to the issuing Provincial Officer, a workplan that describes in detail what steps will be taken, and the date those steps will be taken, to ensure that the continuous chlorine analyzer at the Crysler Water Treatment Plant is reconfigured so that is complies with Schedule 7-2 of Ontario Regulation 170/03.

A. While this Order is in effect, a copy or copies of this order shall be posted in a conspicuous place.

B. While this Order is in effect, report in writing , to the District or Area office, any significant changes of operation, emission, ownership, tenancy or other legal status of the facility or operation.

Issued at Cornwall this 14th day of January, 2004.



Jan Franssen
Badge No: 939
Cornwall Area Office
Tel: (613) 933-7402 Ext. 234

APPEAL/REVIEW INFORMATION

REQUEST FOR REVIEW

You may request that this order be reviewed by the Director. Your request must be made in writing (or orally with written confirmation) within seven days of service of this order and sent by mail or fax to the Director at the address below. In the written request or written confirmation you must,

- specify the portions of this order that you wish to be reviewed;
- include any submissions to be considered by the Director with respect to issuance of the order to you or any other person and with respect to the contents of the order;
- apply for a stay of this order, if necessary; and provide an address for service by one of the following means:
  1. mail 2. fax

The Director may confirm, alter or revoke this order. If this order is revoked by the Director, you will be notified in writing. If this order is confirmed or amended by order of the Director, the Director's order will be served upon you. The Director's order will include instructions for requiring a hearing before the Environmental Review Tribunal.

DEEMED CONFIRMATION OF THIS ORDER

If you do not receive oral or written notice of the Director's decision within seven days of receipt of your request, this order is deemed to be confirmed by order of the Director and deemed to be served upon you.

You may require a hearing before the Environmental Review Tribunal if, within 15 days of service of the confirming order deemed to have been made by the Director, you serve written notice of your appeal on the Environmental Review Tribunal and the Director. Your notice must state the portions of the order for which a hearing is required and the grounds on which you intend to rely at the hearing. Except by leave of the Environmental Review Tribunal , you are not entitled to appeal a portion of the order or to rely on grounds of appeal that are not stated in the notice requiring the hearing. Unless stayed by the Environmental Review Tribunal , the order is effective from the date of service.

Written notice requiring a hearing must be served personally or by mail upon:

The Secretary
Environmental Review Tribunal
P.O. Box 2382
2300 Yonge Street, Suite 1201
Toronto, ON M4P 1E4

and

Director (Provincial Officer Orders)
Ministry of the Environment
Kingston District Office
133 Dalton Ave
Kingston ON K7L 4X6
Fax: (613)548-6908
Tel: (613)549-4000

Where service is made by mail, it is deemed to be made on the fifth day after the date of mailing and the time for requiring a hearing is not extended by choosing service by mail.

Further information on the Environmental Review Tribunal 's requirements for an appeal can be obtained directly from the Tribunal by:

Tel: (416) 314-4600 Fax: (416) 314-4506 www.ert.gov.on.ca

FOR YOUR INFORMATION

- Unless stayed by the Director or the Environmental Review Tribunal , this order is effective from the date of service. Non-compliance with the requirements of this order constitutes an offence.
- The requirements of this order are minimum requirements only and do not relieve you from complying with the following:
  - any applicable federal legislation;
  - any applicable provincial requirements that are not addressed in the order; and
  - any applicable municipal law.
- The requirements of this order are severable. If any requirement of this order or the application of any requirement to any circumstance is held invalid, the application of such requirement to other circumstances and the remainder of the order are not affected.
- Further orders may be issued in accordance with the legislation as circumstances require.
- The procedures to request a review by the Director and other information provided above are intended as a guide. The legislation should be consulted for additional details and accurate reference.

Ministry of the Environment
Ministère de l'Environnement
Ontario

Provincial Officer's Report

Order Number
4802-5T9M2R

The Corporation of the Township of North Stormont
PO Box 99
Berwick, Ontario, K0C 1G0
Canada

Site
15642 County Road 13
North Stormont, United Counties of Stormont, Dundas & Glengarry

Observations

On 2003/09/14, I visited the above site(s) and made the following observations:

The continuous chlorine analyzer on the treated water discharge line at the Crysler Water Treatment Plant is not configured to monitor free chlorine residual at or near the location where the intended contact time has been completed.

The Crysler Water Treatment Plant, owned by the Township of North Stormont, is classified as a large municipal residential system and is therefore subject to Schedule 7 of Ontario Regulation 170/03. Schedule 7-2 of Ontario Regulation 170/03 states:

"The owner of a drinking-water system that provides chlorination for primary disinfection shall ensure that sampling and testing for free chlorine residual is carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry's *Procedure for Disinfection of Drinking Water in Ontario*."

The owner is not in compliance with Schedule 7-2 of Ontario Regulation 170/03.

The purpose of the accompanying Provincial Officer's Order is to bring this non compliance situation to the attention of the owner, and to require the owner to develop a workplan that describes how the owner will reconfigure the chlorine

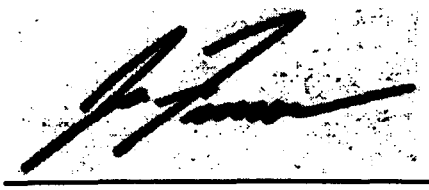
analyzer so that is complies with Schedule 7-2.

The owner is reminded that subsection 117(3) of the Safe Drinking Water Act applies and states:

"For greater certainty, a person remains subject to prosecution or a penalty in respect of a contravention of a requirement under this Act that occurred or was continuing to occur immediately before the order was issued"

Offence(s)

Suspected Violation(s)/Offence(s):	
Act - Regulation - Section, Description (General Offence) 1) Safe Drinking Water Act - Reg. 170 - 1, Failure to comply with Schedule 7-2 of O.Reg 170/03 0	



Jan Franssen
Provincial Officer
Badge Number: 939
Date: 2004/01/14
District Office: Cornwall Area Office