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Ontario

Ministry of the Environment

L'ORIGNAL DISTRIBUTION SYSTEM

Drinking Water System Inspection Report

DWS Number:	260037102
Inspection Number:	1-47WQ0
Date of Inspection:	Jul 19, 2005
Inspected By:	Don Munro

Submitted to Council
Sept. 4/05

Ministry of the Environment

Safe Drinking Water Branch

Cornwall Area Office
113 Amelia Street, 1st floor
Cornwall ON K6H 3P1

Ministère de l'Environnement

Direction du contrôle de la qualité de l'eau potable

Bureau du secteur de Cornwall
113, rue Amelia, rez-de-chaussée
Cornwall (Ontario) K6H 3P1

Ontario

August 31, 2005

The Corporation of the Township of Champlain
948 Pleasant Corner's Road
Vankleek Hill, ON K0B 1R0

Attention: Mr. Robert Lefebvre, Clerk-Treasurer

Dear Mr. Lefebvre:

Re: Compliance Inspection – 2004/2005
Township of Champlain - Vankleek Hill and L'Orignal Water Distribution Systems

The Township of Champlain Water Distribution Systems for the communities of Vankleek Hill and L'Orignal were inspected on July 19, 2005 by Donald Munro, Inspector, Drinking Water Inspection Program, Eastern Region. Enclosed are copies of the respective inspection reports.

A copy of the enclosed reports will also be sent to Mr. Jacques Breen, who is designated as the Water System Manager for the water distribution system; Dr. Robert Bourdeau, Medical Officer of Health for the Eastern Ontario Health Unit; Mr. Mirek Tybinkowski, P. Eng., Water and Wastewater Specialist, Ministry of the Environment, Safe Drinking Water Branch; Mr. William Knight, P. Eng., The Thompson Rosemount Group Inc., Architects and Engineers; and Mr. Art Currie, Regional Manager, Ministry of Natural Resources.

Your attention is directed to the sections "Actions Required" and "Summary of Best Practice Issues" found on pages 16 and 17 of the Vankleek Hill Water Distribution System Inspection Report and pages 17 and 18 of the L'Orignal Water Distribution System Inspection Report. Compliance of these water distribution systems are assessed against O. Reg. 170/03. Please respond by September 30, 2005 detailing how the municipality plans to address these issues. Should you have any questions pertaining to the report, please do not hesitate to contact Don Munro at (613) 933-7402 ext. 231.

Yours truly,

James Mahoney
Supervisor
Drinking Water Inspection Program
Kingston District/Eastern Region
DM/cd

Enclosure

c: Mr. Jacques Breen, Water System Manager, Township of Champlain
Dr. Robert Bourdeau, Medical Officer of Health, Eastern Ontario Health Unit
Mr. Mirek Tybinkowski, P. Eng., Water and Wastewater Specialist, Ministry of the Environment, Safe Drinking Water Branch
Mr. Art Currie, Ministry of Natural Resources
Mr. William Knight, The Thompson Rosemount Group Inc., Architects and Engineers

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Table of Contents:

OWNER INFORMATION:

Company Name: CHAMPLAIN, THE CORPORATION OF THE TOWNSHIP OF
Street Number: 948 **Unit Identifier:**
Street Name: PLEASANT CORNERS Rd E
County/District:
District/Area Office:
City: VANKLEEK HILL
Province: ON **Postal Code:** K0B 1R0

INSPECTION DETAILS:

DWS Name: L'ORIGNAL DISTRIBUTION SYSTEM
DWS Address:
DWS Category: Large Municipal Residential
DWS Number: 260037102
Inspection Type: Unannounced
Inspection Number: 1-47WQ0
Date of Inspection: Jul 19, 2005
Date of Previous Inspection: Sep 28, 2004

DRINKING WATER SYSTEM COMPONENTS DESCRIPTION

Site (Name): L'Original Metering Chamber
Type: Source **Sub Type:** Surface
Comments:
The Village of L'Orignal distribution system receives treated water from the Hawkesbury Water Treatment Plant. Sodium Hypochlorite is added to the water as it enters the current Village of L'Orignal standpipe to provide and maintain a chlorine residual in the distribution system which supplies water to L'Orignal.

[illegible] located [illegible] Champlain Township [illegible] the water flow to the L'Orignal Booster station using an Endress and Hauser 150 mm I.D. electromagnetic flow meter, to house remotely operated butterfly and gate valves to isolate the Hawkesbury water supply, to house a check valve to prevent backflow into the Hawkesbury water supply, to contain three pressure gauges and trunnion supports to maintain the assembly elevated.

Site (Name): L'Original Elevated Tower
Type: Treated Water POE **Sub Type:** Surface
Comments:
Treated disinfected water is pumped from the Hawkesbury Water Treatment Plant by a 300 mm diameter I.D. insulated concrete pressure pipe (transmission Main) through a metering chamber near the Hawkesbury/Champlain Border to the L'Orignal booster station located at the L'Orignal elevated standpipe. The transmission main consists of several valve chambers, each chamber having air/vacuum relief protection and main gate valve. The transmission line runs parallel to County Road No. 4 on the south side and switching to the north side after the junction of Front Road and County Road No. 4.

Disinfected treated water from the transmission line is pumped directly to the standpipe located on Arcand Street in L'Orignal through a flow meter chamber. The standpipe provides a rated capacity of 1, 715 m^3.

The distribution system consists of approximately 9.0 km of distribution piping. The distribution system is reported to be flushed twice a year by the operating authority. Approximately 1, 950 people are supplied with treated water from the L'Orignal Distribution system

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Site (Name): L'Original Booster Station

Type: Treated Water POE **Sub Type:** Surface

Comments:

The Village of L'Orignal Booster Station is located just north of the existing Village standpipe east of Arcand Street, south of Front Road. The booster station consists of a single story building equipped with four horizontal water booster pumps (three duty and one standby), each rated at 61.5 litres per second at a varying head, a chlorine injection system with three chemical feed pumps, a 100 L capacity chlorine solution tank, a chlorine analyzer, a pressure relief valve, a pressure sustaining valve, a flow meter and a diesel generator set.

The booster pumps are activated by a pressure differential of less than 370 kPa in the discharge header. The pump control panel will control the speed and number of pumps operating to maintain this pressure at the demand of the system.

The system also includes three motorized remotely operated butterfly valves; two 200 mm diameter valves located in the L'Orignal booster station and one 300 mm diameter valve located in the metering chamber near the Hawkesbury/Champlain Township Border. The valves are controlled by the pump control panel and will be opened or closed depending on the operating mode of the booster station. Treatment here consists of disinfectant boosting by sodium hypochlorite solution. A 10-12% sodium hypochlorite solution is pumped by three diaphragm metering pumps (one duty, one standby and one fire flow pump) with rated capacities of 17 L/d for the duty and standby chemical metering pumps and a rated capacity of 29 L/d for the fire flow pump. The hypochlorite is stored in a 100 litre polyethylene tank in front of the chemical feed equipment.

For standby power, the L'Orignal booster station is equipped with a 100 kW diesel generator set to provide enough power to supply backup power to the building and equipment in case of a power failure. The generator provides ample power to meet fire fighting requirements as well as normal flows during power outages.

INSPECTION SUMMARY

INTRODUCTION

* **The primary focus of this inspection is to confirm compliance with Ministry of the Environment legislation and authorizing documents such as Orders and Certificates of Approval, as well as evaluating conformance with Ministry drinking water related policies and guidelines during the inspection period.**

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

This report is based on an inspection of a "stand alone connected distribution system". This type of system receives treated water from a separately owned "donor" system. This report contains all of the elements required to assess key compliance and conformance issues associated with a "receiver" system to ensure that the system was not being operated or managed in a "deficient" condition, as defined under O. Reg. 172/03. The report does not contain items associated with the inspection of the donor system, such as source waters, intakes/wells and treatment facilities.

Our inspection included a review of the following documents

- The Drinking Water Protection Regulation (O. Reg 170/03)
- The Operator Certification Regulation (Water Works and Sewage Works - O. Reg 128/04)
- Certificate of Approval Number 7886-5L2TWN
- Champlain Township/Town of Hawkesbury Water Supply Agreement
- Ministry Inspection Report Dated September, 2004
- Leak detection Services Survey 2003.
- Engineer's Report dated November 2000, July 2001 and August, 2002
- Water Works Design Report February, 2003
- L'Original Operations Manual
- OCWA Contingency Plan
- Township of Champlain By-Law No. 2001-039
- L'Original Process Flow Diagram
- All associated operating documents, chemical records, microbiological and chemical analyses, process and flow data sheets, calibration records, log books, SOPs, and other associated summary reports and documents.

CAPACITY ASSESSMENT

* **The owner was monitoring demand and population trends in order to monitor the need to upgrade or expand the system.**

TREATMENT PROCESSES

* **The owner complied with the requirement to seek changes to the Certificate of Approval where required, when changes were made.**

TREATMENT PROCESSES

* **The owner had up-to-date plans for the drinking-water system in accordance with the Certificate of Approval.**

  There are recent plans for this water system. The engineering consultant is currently revising these with a recently issued change order for the Analyzer discharge to the exterior of the Booster Station. A copy of this order in maintained on file.

* **The Operator-in-Charge ensured that all equipment used in the processes was monitored, inspected, tested and evaluated.**

  The operating authority provided us with calibration certiificates for the appropriate equipment confirming that these tests are conducted routinely and evidence of dosage adjustments and equipment repairs were observed in the operations log. The use of the WMS Hansen Program also confirms that this work is being performed.

* **The works profile information in the Ministry's Drinking Water Information System (DWIS) compared favourably to known information.**

DISTRIBUTION SYSTEM

* **The owner did not have up-to-date plans for the distribution system.**

* **Backflow preventers were installed at each lateral connection to major industries.**

  At the time of our last inspection in September, 2004 a backflow preventor unit was being installed in the Ivaco Industries water pipe under the supervision of a consulting engineer October, 2004. This work has now been completed and a copy of the Consultant's Inspection report documents documents have been retained on file.

* **No cross connections with other water sources such as wells, cisterns or surface water were known to exist at the time of this inspection.**

  No cross-connections are reported on the L'Original water distribution system. A study of the water distribution system was completed in 1992/93 to determine any potential problems. Any issues were identified and duly corrected. A By-Law (No. 2001-039, section 28) prohibits cross-connections to such sources as wells and cisterns.

* **There was a by-law in place to prohibit potential cross connections.**

* **A maintenance and repair record system existed for the distribution system.**

  Currently, all operational and maintenance repairs, leak detection, valve exercising, etc. are recorded in the computer based WMS Hansen Program or hard copy and kept on file.

  These records are now the responsibility of the operating authority and include such items as hydrant flushing and leak detection. Leak detection studies are usually done every two years. A study was completed on the L'Original water distribution system in 2003.

* **There was a system for recording maintenance and repairs, leak detection surveys and scheduled inspection/clean-out of water storage structures.**

  Currently, all operational and maintenance repairs, leak detection, valve exercising etc. are recorded in the WMS Hansen Program or hard copy and kept on file. Information on equipment repairs and distribution maintenance can be printed when required.

DISTRIBUTION SYSTEM

* **Repairs to the distribution system were overseen by authorized personnel.**

  All repairs to the system or equipment are either completed by a certified operator or overseen by a certified operator (such as in the case of a repair contractor).

* **The disinfection of new or repaired water mains or facilities was conducted in accordance with procedures equivalent to the applicable AWWA standards.**

* **A program for the routine replacement of water mains did not exist.**

* **The owner maintained the integrity of the system by using standards or procedures for design and material selection and by using plumbing code requirements.**

  The Township generally employs qualified Consulting Engineers to prepare the design standards to repair and maintain their water plant equipment and water distribution system using either AWWA, MOE or OPSS standards for the re-construction work.

* **There was a program for the flushing and/or swabbing of watermains as per AWWA standards or equivalent.**

  Currently, all operational and maintenance repairs, leak detection, valve exercising, flushing and swabbing etc. are recorded in the computer based WMS Hansen Maintenance Program or hard copy and kept on file. The water distribution system is flushed twice annually and swabbing is done only on an as required basis.

* **There was a program for inspecting and exercising valves.**

* **Fire hydrants were regularly inspected and operated.**

  The operating authority (OCWA) for the water distribution system uses a computer based preventive maintenance system (HANSEN) for all the ongoing maintenance of water supply equipment and appurtenances (such as valves and hydrants). This ensures that the hydrants are inspected annually as required by the Ontario Fire Code.

* **Hydrants were maintained to prevent entry of backflow contaminants.**

  The owner has a by-law in place which requires that no one is allowed to use any hydrants

  agreements) are assigned specific areas to obtain their water and must have check valves on their tanker vehicles which prevents backsiphonage of any water from the tanker vehicle to the water distribution system. No private pesticide applicators are allowed to use any of the community's hydrants for the mixing of pesticides.

* **A by-law was in place limiting access to hydrants.**

* **There were no private applicators of pesticides using water from the owner's hydrants for the mixing of pesticides.**

* **Consumer water use was fully metered.**

* **More than 90% of the total amount of water distributed by the system was accounted for.**

DISTRIBUTION SYSTEM

* **The owner had a proactive leak detection program in place.**

  Leak detection surveys are usually done every two years. If a problem with leaks arises, it is either detected through the complaint process or as a result of the monitoring of the difference between the metered water consumption and the water record from the booster station/elevated tower.

* **The log identified the frequency and location of pressure readings in the system.**

  The system generally has good pressure and if problems do occur, they are infrequent. These problems are usually identified through the complaint process and acted upon at that time.

* **Based on information provided, the owner was able to maintain proper pressures in the distribution system.**

  The operating authority reports that pressure in the distribution system is closely contolled by the booster pumps and elevated storage tank operation. Pressure in the distribution system must be between 350 and 550 KPa to meet max day and peak hour demands. The minimum allowable pressure is 275 KPa under typical conditions.

* **The donor agreed, in writing, to ensure that they would maintain secondary disinfection in the receiver and that they would sample and test the water in the receiver as though it was part of the donor's system.**

  A formal agreement exists betweem the Town of Hawkesbury and Champlain Township.

* **The receiver was monitoring the treated water as required.**

* **The donor provided the Annual Report to the receiver within the appropriate time frames.**

OPERATIONS MANUALS

* **Operators and maintenance personnel had ready access to comprehensive operations and maintenance manuals.**

* **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

  The L'Original Operations Plan Manual (OCWA version) is now under revision by OCWA and they are currently in the process of developing SOPs for the water supply equipment.

  An operations manual was also developed by the engineering consultant for the booster station operation in 2003 and is located at the booster station. The engineer's report will need to be revised to include recent upgrades and engineering change orders at the station. This issue was discussed in our 2004 report but a revised Operations Manual has not yet been completed. It is anticipated that a revised manual will be done. A future inspection will confirm that this is done.

* **The operations and maintenance manual contained a sampling plan.**

OPERATIONS MANUALS

* **The operations and maintenance manuals contained instructions pertaining to the identification of adverse drinking water conditions, as well as prescribed notification and corrective actions.**

  Both the adverse sample procedures and the reporting/notification actions are maintained by OCWA as Standard Operating Procedure (SOP). The adverse water quality procedure is kept in the Contingency Plan rather than the Operations Manual. The reporting/notification actions however, are retained in the Operations Manual.

* **The operations and maintenance manuals met the requirements of the Certificate of Approval.**

  The L'Original Operations Plan Manual (OCWA version) is now under revision by OCWA and they are currently in the process of developing SOPs for the water supply equipment.

  An operations manual was also developed by the engineering consultant for the booster station operation in 2003. The Engineer's Report will need to be revised to include recent upgrades and engineering change orders at the station.

LOGBOOKS

* **Logs or other record keeping mechanisms were provided to record information concerning the subsystems.**

  Log books are maintained at the L'Original booster station.

* **Logbook entries were made in chronological order.**

  This was confimed by our review of the log books during the inspection.

* **The record system allowed the reader to unambiguously identify the person who made the logbook entry.**

* **Entries in the logbook were made only by appropriate and authorized personnel.**

  This was confirmed by our review of the operator's log book during the inspection.

* **For each operating shift, the log or other record keeping mechanisms identified the names of all operators who were on duty during the shift.**

* **Records were maintained of the amount of time each operator worked as Operator-in-Charge.**

  The time each operator works as an operator - in - charge (OIC) is recorded in the operator's log book and rolled up manually on an annual basis for each operator working on the system as required in Section 27 of O. Reg. 128/04.

* **Log books confirm that only certified operators or water quality analysts were conducting operational tests that were not being performed by continuous monitoring equipment.**

  Our review of the log books at the time of inspection confirmed this.

* **For every required operational test and for every required sample, a record was made of the date, time location and name of the person who performed the test and the result of the analysis.**

  The operating authority uses daily work sheets

LOGBOOKS

* **Unusual or abnormal conditions observed at the facility were recorded in the logbook along with the action taken.**

* **Departures from normal operating procedures were documented along with the time they occurred.**

  Our inspection of the operator's log for the L'ORIGINAL water booster station revealed that all departures from normal operating procedures are documented along with the time that they occurred.

* **If equipment was taken out of service or equipment ceased to operate during the shift, the event was recorded in the logbook along with the action taken to maintain or repair the equipment.**

  Several observations of this being done and the equipment being placed back into service was noted during the log book inspection.

* **Where required, logbooks identify special instructions that were given to depart from normal operating conditions.**

* **The operator-in-charge ensured that records were maintained of all adjustments made to the processes within his or her responsibility.**

  Our review of the operating logs confirmed that records of dosage changes were duly recorded there and on the daily sheets.

* **There was consistency between the information contained in adverse reports, logs, and Annual/Summary Reports.**

* **Logs or other record keeping mechanisms were available for at least five (5) years.**

  This was confirmed at the time of inspection.

CONTINGENCY/EMERGENCY PLANNING

* **The owner had developed a written contingency/emergency plan as required by the Certificate of Approval.**

* **The contingency/emergency plan was available for reference by all staff as required by the Certificate of Approval.**

* **A system contingency procedure was in place for periods of time when the overall responsible operator was absent or unable to act.**

  A Standard Operating Procedure (SOP) has been prepared by the operating authority (OCWA) to deal with this circumstance and is contained in the Contingency Plan.

* **The contingency/emergency plan provided for key equipment to be made available in the event of an emergency or upset condition.**

* **Procedures existed for the periodic testing of the contingency/emergency plan.**

CONTINGENCY/EMERGENCY PLANNING

* **The contingency/emergency plan addressed spill scenarios.**

  A section on Chemical spill/Hypochlorite spill is contained in the Contingency Plan.

* **Clean-up equipment and materials were in place for the clean up of spills.**

  A clean-up kit is located at the booster station.

* **Standby equipment was available for critical treatment processes where required.**

  Standby equipment is maintained at the Hawkesbury WPCP the home office of the operating authority for this purpose. Other equipment can be rented from nearby rental agencies on an as required basis.

* **Back-up power was available as required by Certificate of Approval or other direction.**

* **Standby power generators were tested under normal load conditions.**

  Standby gnerators are tested monthly and are included on the WMS Hansen maintenance program.

SECURITY

* **All storage facilities were completely covered and secure.**

  All storage facilities are completely covered, secure and located inside perimeter fencing with lockable gates.

* **Air vents associated with reservoirs and elevated storage structures were equipped with screens.**

  All storage facilities are completely covered, secure and located inside perimeter fencing with lockable gates. All air vents are screened.

* **The system had appropriately spaced signage regarding restrictions on access such as no trespassing signs.**

* **The owner had provided adequate security measures to protect components of the drinking water system.**

* **Security measures were not in place and the facility was visited by system personnel at least daily.**

CONSUMER RELATIONS

* **Water conservation was being practiced by the owner or operating authority.**

  All homes are equipped with water meters.

* **A documented system existed to record consumer complaints, steps taken to determine the cause of the issue, and corrective measures taken to alleviate the cause and prevent its reoccurrence.**

CONSUMER RELATIONS

* **Required documents were available free-of-charge during normal business hours at a location accessible to the public.**

  Information of the L'Original water system is available on the Township web site.

* **The owner took effective steps to advise users of the water system of the availability of Annual Reports.**

  Annual reports are placed on the Township website when they are approved by Council.

* **The drinking-water system served more than 10 000 people and the owner had posted the Annual Reports on the internet.**

  Even though the population of the municipality is less than 10, 000, the Township keeps the annual report information on their web site for use by the public.

CERTIFICATION AND TRAINING

* **The overall responsible operator had been designated and he/she possessed a certificate that was of the same class or higher than the class of the subsystem.**

* **The operator designated as the overall responsible operator was not a grand-parented operator who had failed to obtain a satisfactory mark in an examination by May 14, 2005.**

* **Operators in charge had been designated for all subsystems which comprised the drinking-water system.**

* **Personnel at the drinking-water system were under the supervision of persons who had the prescribed qualifications.**

* **All operators possessed the required certification.**

* **Operator certificates were displayed in a conspicuous location at the workplace or at the premises from which the subsystem was managed.**

  They are displayed in the main lobby of the Hawkesbury Central Office facility and at the L'Original WPCP.

* **Water quality analyst certificates were displayed in a conspicuous location at the workplace or at the premises from which the subsystem was managed.**

* **The owner had filed an application for the determination of the type and class of each type of subsystem in the drinking-water system.**

* **The classification certificates of the subsystems were conspicuously displayed at the workplace or at premises from which the subsystem was managed.**

  The classification certificate for L'Original is located in the L'ORIGINAL booster station.

* **In instances where the overall responsible operator was unable to act, an adequately licenced operator was designated to act in place of the overall responsible operator.**

  The operating authority (OCWA) has prepared a Standard Operating Procedure (SOP) for this circumstance and it is included in the Emergency and Contingency Plan. A copy of this procedure has been placed on our files.

CERTIFICATION AND TRAINING

* **Every operator and water quality analyst employed in the subsystem had received the annual number of hours of training relative to that subsystem.**

* **For that portion of the training consisting of on the job practical training, records were retained for five (5) years.**

* **For that portion of the training consisting of on the job practical training, records included the names of the trainees and instructors, the dates of the training sessions, the method used for training, and the duration of each training session and subjects covered.**

  Our review of the training records confirms these elements are being recorded. Copies of these are retained on file.

* **Operators were regularly trained with respect to the contents of the operations and maintenance manual and Contingency/Emergency Plan.**

WATER QUALITY MONITORING

* **Relief from water quality monitoring requirements had not been granted.**

* **All microbiological water quality monitoring required by the legislation was being conducted.**

  Our review of the microbiological records from September, 2004 to the present reveals that all microbiological water quality requirements for the L'Original stand-alone water distribution system are being met. Since September, 2004 118 microbiological samples have been collected over the 11 month period or an average of 3 samples a week which satisfies the sampling requirements for the water distribution system required in Schedule 10 of Ontario Regulation 170/03. No adverse microbiological samples were recorded during this period.

* **All the water quality monitoring required by the Certificate of Approval was being conducted.**

  Our review of the water quality records from September, 2004 to the present reveals that all water quality requirements described in the Certificate of Approval for the L'Original stand-alone water distribution system were being conducted. We observed no omissions since September, 2004 in our review of the records.

* **Trihalomethane samples were being taken as required from a location representing the longest residence time.**

* **Samples for lead analysis were being collected from a point in the distribution system or the connected plumbing system that was likely to have an elevated concentration of lead.**

  Our review of the water quality data from September, 2004 to June, 2005 revealed that the sample for lead analysis was collected in April, 2005.

* **There were no additional monitoring requirements beyond those required by O. Reg. 170/03.**

* **Additional sampling was being conducted and the information pertaining to these samples was being included in the reports required by legislation or authorizing documents.**

WATER QUALITY MONITORING

* **Samples for chlorine residual analysis were tested using continuous monitoring equipment, or an acceptable portable device.**

* **Monitoring equipment was capable of measuring chlorine residuals with the required accuracy.**

* **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**

* **The disinfectant residual was measured and recorded daily for the distribution system.**

* **Records indicated that in all cases the chlorine residual levels in the distribution system were above 0.05 mg/L free or 0.25 mg/L combined.**

  There were no instances of free chlorine residuals of less than 0.05 mg/L recorded in the L'Original water distribution system between September, 2004 and June, 2005. Our audit inspection revealed the following chlorine residuals recorded during this time period ranged from a low of 0.14 mg/L to a high of 2.08 mg/L for Free Chlorine residuals and from a low of 0.25 mg/L to a high of 1.93 mg/L for the Total Chlorine residuals. Our audit inspection showed a range of Free Chlorine residuals from a low of 0.05 mg/L to a high of 0.37 mg/L and a low of 0.15 mg/L to a high of 0. 43 mg/L of Total Chlorine residuals at three sample locations on the distribution system. The low free chlorine residual of 0.05 mg/L was recorded at Fresko's Restaurant, a location in the extreme west end of the distribution system. Adverse samples have been recorded at this site previously. This location should be monitored routinely by operating staff to ensure the residual does not drop below 0.05 mg/L.

* **Records confirmed that the maximum free chlorine residual in the distribution system was less than 4.0 mg/L or that the combined chlorine residual was less than 3.0 mg/L.**

* **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

  Our review of the records during the inspection confirmed this was happening.

* **Records confirmed that disinfectant residuals were routinely checked at the extremities and "dead ends" of the distribution system.**

* **Testing for parameters required by legislation, Certificate of Approval or Order was being conducted by laboratories accredited to test for that parameter.**

* **The drinking-water system owner had submitted all written notices to the Director and the notices provided the names of laboratories that were conducting tests for parameters required by legislation, Certificate of Approval or Order.**

* **Based on information provided by the owner/operator, samples were being taken and handled in accordance with instructions provided by the drinking-water system's laboratories.**

WATER QUALITY MONITORING

* The owner indicated that the required records have been kept and will be kept for five (5) years.

* The owner indicated that the required records will be kept for fifteen (15) years.

WATER QUALITY ASSESSMENT

* Treated water audit samples were collected during the inspection.

* The results of Ministry audit sampling showed compliance with Ontario Drinking-Water Quality Standards (O. Reg. 169/03).

* The owner's monitoring results were comparable to the results of the Ministry's audit samples.

* A review of monitoring data provided by the operating authority confirmed that the water provided by the system met the requirements of the prescribed Ontario Drinking-Water Quality Standards.

REPORTING & CORRECTIVE ACTIONS

* Corrective actions, including any other steps that were directed by the Medical Officer of Health, were taken to address exceedances.

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

* In instances where written notice of issue resolution was required by regulation, the notice of issue resolution was provided within seven (7) days of the issue being resolved.

* Notices of issue resolution contained a summary of the actions taken and results achieved.

* When alarms for continuous monitoring equipment sounded, appropriate actions were taken in a timely manner by a qualified person.

* When no one was at the location where/when an alarm sounded, a qualified person was promptly dispatched.

* When qualified persons were dispatched for alarms, they arrived at the location as soon as possible.

REPORTING & CORRECTIVE ACTIONS

* **The Annual Report was prepared and submitted by February 28.**

  Information is provided on the Township web site for the consumers.

* **Summary Reports were completed on time and distributed in accordance with the regulatory requirements.**

  The summary report was issued February 21, 2005.

* **All written notices, warning notices and reports were issued by the owner in a form provided by or approved by the Director.**

OTHER INSPECTION FINDINGS

*

* **The owner/operator complied with all Orders or other control documents issued between the date of the previous inspection and the date of this inspection.**

* **The owner/operator implemented those recommendations issued between the date of the previous inspection and the date of this inspection.**

NON COMPLIANCE WITH REGULATORY REQUIREMENTS

Not Applicable

ACTIONS REQUIRED

This section provides further detail regarding the non compliance items listed on the previous page, as well as actions required to address each issue.

1 Our audit inspection showed a range of Free Chlorine residuals from a low of 0.05 mg/L to a high of 0.37 mg/L and a low of 0.15 mg/L to a high of 0. 43 mg/L of Total Chlorine residuals at three sample locations on the distribution system. The low free chlorine residual of 0.05 mg/L was recorded at Fresko's Restaurant, a location in the extreme west end of the distribution system. Adverse samples with respect to low chlorine residuals have been recorded at this site previously. This location should be monitored routinely by operating staff to ensure that the residual does not drop below 0.05 mg/L. An action plan to resolve this issue and other occurrences of low chlorine residuals should be prepared, placed in the Plant Contingency Plan and confirmed in writing that the issue will be addressed in responding to this report.

2 The Engineer's Report will need to be revised to include recent upgrades and engineering change orders at the station. This issue was discussed in our 2004 report but a revised Operations Manual has not yet been completed. It is anticipated that a revised manual will be done. Written confirmation that this issue will be resolved should be provided when responding to this inspection report.

SUMMARY OF BEST PRACTICE ISSUES

This section provides a summary of all best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. The address of these practices, while not yet mandatory, will lead to safer drinking water for the consumer.

* The owner did not have up-to-date plans for the distribution system.

* A program for the routine replacement of water mains did not exist.

RECOMMENDED ACTIONS

This section provides a summary of recommended actions to address best practice issues identified on the previous page. Owners and operators should develop an awareness of these practices and take measures to implement them so that all drinking water systems continuously improve their processes. In the interest of continuous improvement, we provide the following suggestions:

Not Applicable

SIGNATURES

Inspected By:	Signature: (Provincial Officer):
Don Munro	Don Munro
Reviewed & Approved By:	Signature: (Supervisor):
James Mahoney	J Mahoney
Review & Approval Date:	AUGUST 30, 2005

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.

Ministry of the Environment
Drinking Water Inspection Report

APPENDIX A
INSPECTION AUDIT SAMPLE RESULTS

Ontario Ministry of Environment
Central Laboratory - Resources Road
FINAL REPORT(manager.rdf)
Jul. 29, 2005 02:55 PM

Login: **C128004**

Program Code 130072201

Program: MOE OPERATIONS DIVISION
Study: WATER, COMMUNAL
Project: EASTERN REGION - KINGSTON DIST
Activity: WTP MUNIC INSPECT/ADVERS NOTIF
Organization: District Manager Cornwall

Org. Id: 4615

Mail this copy to :

MUNRO, DON
MOE - CORNWALL AREA OFFICE
113 AMELIA STREET
CORNWALL,ONT
K6H 3P1

Final reports to : MUNRO, DON

Inquires to: RUSTY MOODY Telephone : 416-235-5863
PAUL YANG Telephone : 416-235-6004

LOGIN DESCRIPTION: 210001086 L'ORIGINAL DISTRIBUTION SYSTEM DON MUNRO 613-933-7402

Ontario Ministry of Environment
Central Laboratory - Resources Road
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Login: **C128004**

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
DM104	2100010868006	WPCP 550 FRONT RD. DISTRIBUTION	19 JUL 2005	01:00	5	

Sample ID: C128004-0001

Sample Comment Description:

MOE*LIMS Products Requested:

WD	E3051A	MET3051	WD	E3144B	VOL3144	WD	E3172A	F3172	WD	E3196A	IBC3196
WD	E3226A	PA3226	WD	E3274A	LIC3274	WD	E3364A	DISNUT3364	WD	E3408A	PC3408

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
DM106	2100010868006	COURTHOUSE 59 COURT AVE. DISTRIBUTION	19 JUL 2005	01:30	5	

Sample ID: C128004-0002

Sample Comment Description:

MOE*LIMS Products Requested:

WD	E3226A	PA3226	WD	E3408A	PC3408

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
DM107	2100010868006	FREKO'S HWY 17 DISTRIBUTION	19 JUL 2005	02:00	5	

Sample ID: C128004-0003

Sample Comment Description:

MOE*LIMS Products Requested:

WD	E3226A	PA3226	WD	E3408A	PC3408

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
DM105	2100010868006	O'OROGINAL BOOSTER STATION DISTRIBUTION	19 JUL 2005	12:00	5	

Sample ID: C128004-0004

Sample Comment Description:

MOE*LIMS Products Requested:

WD	E3226A	PACONF3226	WD	E3408A	PC3408

Login: **C128004**

Field ID:	DM104	DM106	DM107
Sample ID:	C128004-0001	C128004-0002	C128004-0003
MOE*LIMS ID:	2005WD29-00129	2005WD29-00130	2005WD29-00131
Station ID:	2100010868006	2100010868006	2100010868006
Collect Date:	19 JUL 2005	19 JUL 2005	19 JUL 2005
Sample Location Description:	WPCP 550 FRONT RD. DISTRIBUTION	COURTHOUSE 59 COURT AVE. DISTRIBUTION	FREKO'S HWY 17 DISTRIBUTION
Sample Comments Description:			

Listid	Parmname	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1
3051L1	Copper	4.7	ug/L	+/-0.60									
	Nickel	.3	ug/L	+/-0.30									
	Zinc	3.5	ug/L	+/-0.90									
	Cadmium	.02	ug/L	+/-0.05									
	Chromium	.9	ug/L	+/-0.50									
	Lead	.61	ug/L	+/-0.36									
	Iron	0	ug/L	+/-6.00									
	Manganese	13.5	ug/L	+/-1.20									
	Aluminum	62.8	ug/L	+/-5.60									
	Vanadium	.51	ug/L	+/-0.09									
	Molybdenum	.27	ug/L	+/-0.20									
	Silver	0	ug/L	+/-0.05									
	Barium	14.3	ug/L	+/-1.30									
	Beryllium	.01	ug/L	+/-0.05									
	Strontium	68.6	ug/L	+/-5.50									
	Titanium	.6	ug/L	+/-0.50									
	Thallium	0	ug/L	+/-0.05									
	Uranium	.02	ug/L	+/-0.05									
	Boron	8	ug/L	+/-3.00									
	Arsenic	.5	ug/L	+/-0.10									
	Selenium	0	ug/L	+/-1.00									
	Antimony	.85	ug/L	+/-0.20									
	Cobalt	.18	ug/L	+/-0.04									
3144L1	Chloroethene	.05	ug/L	<=W									
	1,1-dichloroethene	.05	ug/L	<=W									
	Dichloromethane	.2	ug/L	<=W									
	Tert-butyl methyl ether	.05	ug/L	<=W									
	trans-1,2-dichloroethene	.05	ug/L	<=W									
	1,1-dichloroethane	.05	ug/L	<=W									
	cis-1,2-dichloroethene	.05	ug/L	<=W									
	Chloroform	98.9	ug/L										
	1,1,1-trichloroethane	.05	ug/L	<=W									
	1,2-dichloroethane	.05	ug/L	<=W									
	Carbon tetrachloride	.2	ug/L	<=W									
	Benzene	.05	ug/L	<=W									
	1,2-dichloropropane	.05	ug/L	<=W									
	Trichloroethene	.05	ug/L	<=W									

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Login: **C128004**

Field ID:	DM104	DM106	DM107
Sample ID:	C128004-0001	C128004-0002	C128004-0003
MOE*LIMS ID:	2005WD29-00129	2005WD29-00130	2005WD29-00131
Station ID:	2100010868006	2100010868006	2100010868006
Collect Date:	19 JUL 2005	19 JUL 2005	19 JUL 2005
Sample Location Description:	WPCP 550 FRONT RD. DISTRIBUTION	COURTHOUSE 59 COURT AVE. DISTRIBUTION	FREKO'S HWY 17 DISTRIBUTION
Sample Comments Description:			

Listid	Parmname	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1
3144L1	Bromodichloromethane	5.0	ug/L										
	Toluene	.05	ug/L	<=W									
	1,2-dibromoethane	.1	ug/L	<=W									
	1,1,2-trichloroethane	.1	ug/L	<=W									
	Dibromochloromethane	0.2	ug/L	<T									
	Tetrachloroethene	.05	ug/L	<=W									
	Chlorobenzene	.05	ug/L	<=W									
	Ethylbenzene	.05	ug/L	<=W									
	m- and p-xylene	0.05	ug/L	<T									
	Bromoform	.5	ug/L	<=W									
	Styrene	.05	ug/L	<=W									
	o-xylene	.05	ug/L	<=W									
	1,1,2,2-tetrachloroethane	.2	ug/L	<=W									
	1,4-dichlorobenzene	.05	ug/L	<=W									
	1,3-dichlorobenzene	.05	ug/L	<=W									
	1,2-dichlorobenzene	.05	ug/L	<=W									
	Trihalomethanes; total	104.	ug/L										
3172L3	Fluoride	0.51	mg/L										
3226L1	NT: Total Coliforms	See Non-Target Textual result				See Non-Target Textual result				See Non-Target Textual result			
3364L1	Nitrogen; ammonia+ammonium	0.006	mg/L	<T									
	Nitrogen; nitrite	.001	mg/L	<=W									
	Nitrogen; nitrate+nitrite	0.183	mg/L										
	Phosphorus; phosphate	0.0051	mg/L										
3408L1	Heterotrophic bacteria (HB35)	10.	c/mL	<		30.	c/mL	<=>		160	c/mL		

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Central Laboratory - Resources Road
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Jul. 29, 2005 02:55 PM

Login: **C128004**

Field ID:	DM105
Sample ID:	C128004-0004
MOE*LIMS ID:	2005WD29-00132
Station ID:	2100010868006
Collect Date:	19 JUL 2005
Sample Location Description:	O'OROGINAL BOOSTER STATION DISTRIBUTION
Sample Comments Description:	

Listid	Parmname	Value	Units	Qual	Rmk1
3226L2	NT: Presence/absence	See Non-Target Textual result			
3408L1	Heterotrophic bacteria (HB35)	10.	c/mL	<=>	

Login: **C128004**

CODE	DESCRIPTION
48P	P-A BOTTLEPOSITIVE AFTER 48 HOURS(2 DAYS)
<	ACTUAL RESULT IS LESS THAN THE REPORTED VALUE
<=>	APPROXIMATE RESULT
<=W	NO MEASURABLE RESPONSE (ZERO): <REPORTED VALUE
<T	A MEASURABLE TRACE AMOUNT:INTERPRET WITH CAUTION
APS	ADDITIONALPEAK,SMALL,NOTPRIORITYPOLLUTANT
NDAE	NO DATA: ABSENT NT: ESCHERICHIA COLI
NDAT	NO DATA: ABSENT NT: TOTAL COLIFORMS
NDDN	NO DATA: NOT DETECTED NT: DETERIORATION INDICATORS
NDID	NO DATA: INSUFFICIENT DATA TO PERFORM CALC.

Login: **C128004**

NON-TARGET TEXTUAL RESULT

Sample ID C128004-0001	Listid : 3226L1	Parmname	NT: Total Coliforms	Value:	Qual: NDAT	Remarks
Absent						
Sample ID C128004-0001	Listid : 3226L1	Parmname	NT: Escherichia coli	Value:	Qual: NDAE	Remarks
Absent						
Sample ID C128004-0001	Listid : 3226L1	Parmname	NT: Deterioration Indicators	Value:	Qual: NDDN	Remarks
Not Detected						
Sample ID C128004-0002	Listid : 3226L1	Parmname	NT: Total Coliforms	Value:	Qual: NDAT	Remarks
Absent						
Sample ID C128004-0002	Listid : 3226L1	Parmname	NT: Escherichia coli	Value:	Qual: NDAE	Remarks
Absent						
Sample ID C128004-0002	Listid : 3226L1	Parmname	NT: Deterioration Indicators	Value:	Qual: NDDN	Remarks
Not Detected						
Sample ID C128004-0003	Listid : 3226L1	Parmname	NT: Total Coliforms	Value:	Qual: NDAT	Remarks
Absent						
Sample ID C128004-0003	Listid : 3226L1	Parmname	NT: Escherichia coli	Value:	Qual: NDAE	Remarks
Absent						
Sample ID C128004-0003	Listid : 3226L1	Parmname	NT: Deterioration Indicators	Value:	Qual: NDDN	Remarks
Not Detected						
Sample ID C128004-0004	Listid : 3226L2	Parmname	NT: Presence/absence	Value:	Qual:	Remarks 48P
Acid						
Sample ID C128004-0004	Listid : 3226L2	Parmname	NT: Total Coliforms	Value:	Qual: NDAT	Remarks
Absent						
Sample ID C128004-0004	Listid : 3226L2	Parmname	NT: Escherichia coli	Value:	Qual: NDAE	Remarks

Login: **C128004**

Absent

Sample ID C128004-0004	Listid : 3226L2	Parmname	NT: Aeromonas spp.	Value:	Qual: NDDN	Remarks

Not Detected

Sample ID C128004-0004	Listid : 3226L2	Parmname	NT: Staphylococcus aureus	Value:	Qual: NDDN	Remarks

Not Detected

Sample ID C128004-0004	Listid : 3226L2	Parmname	NT: Pseudomonas aeruginosa	Value:	Qual: NDDN	Remarks

Not Detected

Sample ID C128004-0004	Listid : 3226L2	Parmname	NT: Fecal streptococcus	Value:	Qual: NDDN	Remarks

Not Detected

TEXT COMMENTS

Sample ID C128004-0001	Matrix : Drinking Water	Method : E3144B	Product: VOL3144	Parameter: Bromodichloromethane

Mass spectrometric analysis has provisionally identified dichloroacetonitrile in this sample.

** End of Report **