Ontario

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Ministère de l'Environnement
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February 23, 2004

The Corporation of the Township of South Glengarry
6 Oak Street, PO Box 220
Lancaster, ON K0C 1N0

Attention: Mr. Marcel Lapierre
Administrator & Coordinator

Dear Mr. Lapierre:

Re: Compliance Inspection Report - Glen Walter Water Treatment Plant

The enclosed report documents findings of an inspection performed on August 28 and September 2, 2003, at the Glen Walter Water Treatment Plant and its associated distribution system.

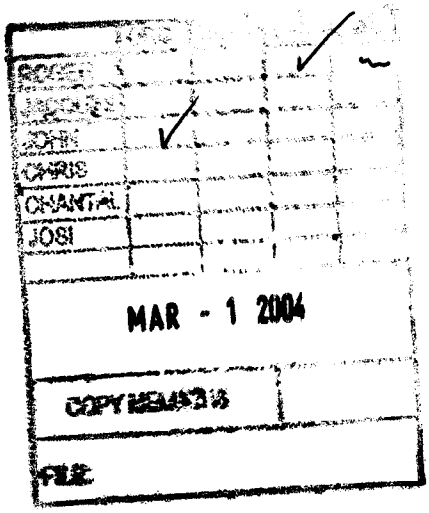
Please note that a number of regulatory requirements and best management recommendations cited in sections 6 and 7 of the enclosed report stipulate required actions. The report directs that an action plan be submitted to the Inspector by March 31, 2004.

Thank you for the assistance that your staff afforded to the Inspector during the performance of the compliance assessment. The professionalism and dedication to excellence displayed by your staff are held in high regard.

If you have any questions or wish to meet to discuss inspection findings, please do not hesitate to contact me.

Yours truly,

Jim Mahoney
Supervisor
Drinking Water Inspections Program
Kingston & Ottawa District Offices
Eastern Region
JDM/sh



Enclosure

c: Mr. Shawn Killoran, Operations Manager, Glen Walter Water Treatment Plant, 18352 County Road 2 (Hwy. 2 East), Glen Walter, ON K6H 5R5

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

Mr. Roger Hood, General Manager, Raisin Region Conservation Authority, PO Box 429, 6589 Boundary Road, Cornwall, ON K6H 5T5

Ontario

Ministry of the Environment
Drinking Water Inspection Report

COMPLIANCE INSPECTION REPORT

GLEN WALTER WATER TREATMENT PLANT - TOWNSHIP OF SOUTH GLENGARRY

INSPECTION DATE: **AUGUST 28 & SEPTEMBER 2, 2003**
REPORT DATE: **JANUARY 30, 2004**

Ontario

Ministry of the Environment
Drinking Water Inspection Report

GLEN WALTER - TOWNSHIP OF SOUTH GLENGARRY WATER TREATMENT PLANT INSPECTION REPORT

INSPECTION DETAILS

Location:	The water treatment plant is located on the south side of Highway No. 2 in the community of Glen Walter at NAD 27; UTM Zone 18; 528700.00 m E.; 4986500.00 m N.
Water Works Type:	Treatment With Distribution
Water Works Number:	210001861
Inspection Type:	Announced
Date of Inspection:	August 28 and September 2, 2003
Date of Previous Inspection:	September 11, 2002
Inspection Number:	1032

CONTACT INFORMATION

Municipality / Owner	**Operating Authority**
Township of South Glengarry P.O. Box 220 6 Oak Street Lancaster, ON K0C 1N0	Township of South Glengarry Glen Walter Water Treatment Plant 18352 County Road 2 Glen Walter, ON K6H 5R5
Attention: Mr. Marcel Lapierre, Administrator/Coordinator	Attention: Mr. Shawn Killoran, Operations Manager
Phone: (613) 347-1166 Fax: (613) 347-3411	Phone: (613) 931-3036 Fax: (613) 931-3340
Inspector: Jim Mahoney Kingston & Ottawa District Offices, Eastern Region (613) 549-4000 ext. 2672	Distribution Date: January 30, 2004

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APPENDICES

SECTION 1 INTRODUCTION

1.1 INSPECTION OBJECTIVES

The primary focus of this inspection is to confirm compliance with Ministry of the Environment legislation and control documents, as well as conformance with Ministry drinking-water related policies. This compliance evaluation will concentrate on the time frame spanning from the date of the preceding inspection (September 11, 2002) to the date of the inspection that is the subject of this report (August 28 and September 2, 2003).

Specifically, this compliance evaluation will include a review and assessment of operating practices as they relate to the following documents:

- Drinking Water Systems Regulation (O. Reg. 170/03) which came into force on June 1, 2003; and its predecessor the Drinking Water Protection Regulation (O. Reg. 459/00) which was in force between August 26, 2000 and May 31, 2003;
- Operator Certification Regulation (O. Reg. 435/93);
- Certificate of Approval No. 0737-5MJPGM, dated May 26, 2003;
- Certificate of Approval No. 0120-5CXQQV, dated August 13, 2002, which was in effect until revoked by Certificate of Approval No. 0737-5MJPGM;
- Permit to Take Water No. 88-P-4054, dated June 11, 1993;
- Preceding Ministry inspection report dated September 11, 2002;
- Engineer's Report dated May 2001; and,
- Documents, records, and correspondence contained within files maintained at the Ministry's Cornwall Area Office and the Eastern Regional Office in Kingston.

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 management practices.

Table 1 AUTHORIZING AND CONTROL DOCUMENTS REVIEWED

CERTIFICATES OF APPROVAL		
Certificate #	**Date Issued**	**Description**
0737-5MJPGM	May 26, 2003	This approval documents the existing physical components of the drinking-water system; sets capacity and performance limits as well as monitoring requirements for the drinking-water system; and sets a deadline of July 31, 2003 for upgrades to the water works. The approval replaces and revokes Certificate of Approval No. 0120-5CXQQV issued on August 13, 2002.
0120-5CXQQV	August 13, 2002	In effect from August 13, 2002 until it was revoked by Certificate of Approval No. 0737-5MJPGM on May 26, 2003, this approval described the water works; imposed monitoring requirements in addition to those prescribed by O. Reg. 459/00; and dictated reporting requirements.
PERMIT TO TAKE WATER		
Permit #	**Expiry Date**	**Description**
88-P-4054	June 30, 2003	Issued on June 11, 1993, this permit imposed a water taking limit of 656 litres per minute and 945,000 litres per day. On August 26, 2003, the Ministry received an application for a new Permit To Take Water from the Township of South Glengarry. A permit had yet to be issued as of the date on which this report was finalized.
PREVIOUS ORDERS		
Order #	**Date Issued**	**Description**
		There were no Orders in effect on the date the drinking-water system was inspected.

A copy of the two above-cited Certificates of Approval are provided in Appendix "A".

A copy of expired Permit To Take Water No. 88-P-4054 is provided in Appendix "B".

SECTION 2 EXISTING WATER SYSTEM DESCRIPTION

2.1 WATER SOURCE

Township of South Glengarry Operations Manager Shawn Killoran accompanied the writer during the assessment of the physical components of the treatment works performed on August 28, 2003. The writer was advised by Shawn Killoran that a diver was retained in the autumn of 2002 to assess the condition of the raw water intake. The diver reportedly observed few zebra mussels in the vicinity of the intake; thus suggesting that the chlorine-based zebra mussel control system has been effective in controlling mollusk infestation.

Vegetation and other debris swept along by the St. Lawrence River and drawn through the raw water intake is prevented from gaining access to, and possibly damaging, treatment processes through the sieving action of two inlet screens. The Operations Manager reported that the removable inlet screens are lifted at least annually for inspection and cleaning.

A review of analyses amassed between September 4, 2002 and July 28, 2003 suggests that raw water drawn from the St. Lawrence River frequently contains indicators of bacteriological contamination. All but one of the forty-five weekly raw water samples collected over this time frame contained detections of either E. Coli or Total Coliform bacteria with the maximum E. Coli count being 36 colony forming units/100 mL and the maximum Total Coliform count being 800 colony forming units/100 mL with the Total Coliform count frequently being reported by the laboratory as "overgrown". Detections of indicators of bacteriological contamination are not unexpected for a raw surface water supply; thus attesting to the significance of the role of the water treatment works in protecting public health.

2.2 TREATMENT PROCESSES

What follows is a description of the water treatment system extracted from the report prepared subsequent to the Ministry's 2002 inspection, augmented by observations made during the August 28 and September 2, 2003 inspection; descriptions provided within Certificate of Approval No. 0737-5MJPGM; and information relayed in the M.S. Thompson & Associates Limited report entitled *"Report for Water Works, Glen Walter*

Water Works, Township of South Glengarry" (May 2001).

A schematic diagram of the exiting treatment plant, extracted from the M.S. Thompson & Associates Limited report, is enclosed as Appendix "F".

Water Treatment Plant

Raw water is drawn through a 2.5 m section of upturned 1500 mm diameter concrete intake pipe fitted with aluminum bars located 380 m offshore in the St. Lawrence River.

Raw water traverses the distance between the intake and the low lift well through a 390 m length of 300 mm diameter polyethylene (PE) pipe. As previously noted a set of parallel removable coarse mesh screens intercept raw water flow as it passes into the 4.5 m long by 2.0 m wide by 3.9 m deep low lift pump well.

Two vertical turbine pumps manufactured by Worthington-Dresser, each rated to deliver 11.52 L/s at a Total Dynamic Head (TDH) of 31.6 m, transfer raw water from the low lift well to a common 100 mm diameter steel pipe discharging into a single 2.7 m diameter by 3.5 m high pressurized flocculator tank. On route to the pressurized flocculator tank, coagulant is injected into the 100 mm diameter steel pipe at a point just upstream of a stainless steel static in-line mixer.

The Clar+ion (polyquaternary ammonium homopolymer) coagulant is withdrawn from a horizontally oriented drum by two diaphragm type metering pumps (one standby and one duty pump). The chemical feed drum, the metering pumps, and the dosage calibration tube are all enclosed within a spill containment berm into which a metal sluice gate has been fitted to provide access.

Floc formation within the flocculation tank is promoted through gentle mixing supplied by a mechanically driven paddle mixer. The variable speed mixer was set at 10 rpm on the date the inspection was performed. Shawn Killoran noted that the flocculator tank is drained annually to the adjacent sewage treatment plant so that the tank can be thoroughly cleaned and inspected.

While valving exists to bypass the flocculator tank through a length of 150 mm diameter pipe, Shawn Killoran reported that bypassing has never taken place. The treatment plant is shut-down during annual cleaning and inspection cycles.

Water that has passed through the flocculator tank is conveyed through piping to two multi media filters that are fed in parallel. The two 1.8 m diameter pressurized filters, labeled F-1 and F-2, each measure 2.7 m in height. Filter media consists of layers of coarse garnet, fine garnet, silica sand, and anthracite set in a total bed depth of 959 mm. Backwash filter-to-waste modifications necessitated by Condition 5.1 of Certificate of Approval No. 0737-5MJPGM have been installed. Minor modifications to the filter-to-waste system were scheduled to be made shortly after the inspection was performed in order to minimize the occurrence of splash-back being experienced at the air-gap.

Each of the multi media filters has been equipped with effluent turbidity meters, effluent flow meters, and differential pressure monitors. Backwashing of the multi media filters can be initiated automatically based on effluent turbidity, differential pressure across a filter, or 30 hours of elapsed time since the preceding backwashing cycle. Alternatively, backwashing cycles can be initiated manually. A single vertical turbine pump manufactured by Worthington-Dresser having a rated capacity of 57.75 L/s at the TDH of 22.4 m draws treated water from the clear well for use in backwashing the dual media filters and granular activated carbon contactors. Process wastewater is discharged into a wastewater sump measuring 10 m x 2.4 m x 4.5 m positioned adjacent to the low lift well and high lift reservoir. A 100 mm diameter gravity fed pipe connects the water treatment plant process wastewater tank to the neighboring sewage treatment plant's wet well.

The output from the two multi media filters feeds a common 100 mm diameter pipe that conveys filtered water to two pressurized granular activated carbon contactors fed in series. The contactors, labeled T-3 and T-4, each measuring 2.6 m in diameter and 3.2 m in height, primarily serve to minimize objectionable taste and odours. When one of the contactors is being backwashed, the other remains in service. Backwashing is initiated manually based on differential pressure across the contactor or 40 hours of elapsed time since the preceding backwash cycle.

Treated water emerging from the granular activated carbon contactors is released into a two-celled clear well having a total capacity of 623 m^3. The two celled clear well is connected to a high lift well over which is positioned two vertical turbine high lift pumps, each rated to deliver 16.44 L/s at a TDH of 52.27 m.

Disinfectant fed to zebra mussel control, pre-treatment, and post-treatment application points is supplied through the use of a model V10K chlorinator manufactured by US Filter / Wallace & Tiernan which draws chlorine gas from 68 kg cylinders. Automatic

switch-over devices are assigned to the chlorine cylinders that sit atop the Wallace & Tiernan series 55-350 weigh scale.

Wall mounted rotometers influence chlorine solution dosages applied to zebra mussel, pre-treatment, and post-treatment disinfectant application points.

A 110 kW diesel generator set that is reportedly tested monthly under load will power all treatment processes, heating, lighting, and electrical outlets with the exception of electrical outlets located within the garage. In 1999, an in-floor diesel fuel line failed resulting in the slow leakage of fuel to the underlying treated water storage reservoir. The diesel fuel lines have been relocated to the surface of the floor and are protected from damage by metal ramps.

Since there is no elevated water storage structure within the community, the high lift pump(s) must operate continuously to pressurize the distribution system. Water discharged from the high lift pump(s) in excess of what is necessary to pressurize the distribution system is re-circulated back to the clear well. Valving exists that would permit the re-circulation water to be routed to the raw water well.

Details on the treatment process can be found in the facility's Certificate of Approval enclosed as Appendix "A".

2.3 DISTRIBUTION SYSTEM

In its 1st Quarter 2003 Report, the Corporation of the Township of South Glengarry cites the design population for the water treatment plant as being 1,080 people. The 2002 compliance inspection report identifies the serviced population as being approximately 650.

Due to the absence of elevated storage within the community the ten hydrants cannot be used for fire suppression since that would result in severe low pressure that could lead to contamination of the distribution system. The hydrants are currently used solely for the purpose of flushing the distribution network. Although dead-ends are reportedly flushed on a weekly basis there is no set schedule for flushing all ten of the hydrants.

There are no bulk water transfer stations associated with the water works. The 2001 Engineer's Report prepared by M.S. Thompson & Associates Limited describes the distribution system as consisting of approximately 3.8 km of PVC series 160 water main ranging in diameter from 50 to 300 mm.

SECTION 3 INSPECTION FINDINGS

3.1 OPERATIONS

3.1.1 Source/Supply

Condition 3.1 of Certificate of Approval No. 0737-5MJPGM dictates that: *"The Owner, when making decisions within its authority, shall consider the impact of these decisions on the drinking water supply source for the water works approved by this Certificate."*

The writer was advised by the Operations Manager that the raw water intake was last dived in the autumn of 2002. That subsurface inspection yielded no evidence of encrustation of the intake with zebra mussels. It was reported that there is no set frequency for inspecting the intake.

It is recommended that the Owner ensure that the water intake is visually inspected by a qualified diver at least once every five years in order to assess the structural integrity of the intake and to evaluate the intake's susceptibility to zebra mussel infestation.

The writer was informed that the zebra mussel control system is used only when the raw water temperature exceeds 12 degrees Celsius. In order to collect raw water samples during the zebra mussel control season it is necessary to shut-down the chlorine feed to the intake until the chlorine residual drops below a measurable concentration before the sample is gathered.

Located approximately 4 km west of the Community of Glen Walter, the City of Cornwall possesses a primary sewage treatment plant, combined sewer overflows, and an industrial economic base featuring a major paper mill and organic chemical manufacturers. Other communities located within approximately 20 km upstream of the Glen Walter intake include Long Sault and Ingleside.

The intake extends approximately 380 m into the St. Lawrence River; a major transportation and recreational corridor linking the Canadian and American Great Lakes industrial heartlands to the Atlantic Ocean.

A review of analyses amassed between September 4, 2002 and July 28, 2003 suggests that raw water drawn from the St. Lawrence River frequently contains indicators of bacteriological contamination. All but one of the forty-five weekly raw water samples collected over this time frame contained detections of either E. Coli or Total Coliform bacteria with the maximum E. Coli count being 36 colony forming units/100 mL and the maximum Total Coliform count being 800 colony forming units/100 mL with the Total Coliform count frequently being reported by the laboratory as "overgrown".

In the ministry report entitled *"Charlottenburgh Water Treatment Plant, Drinking Water Surveillance Program Report for 1993, 1994, and 1995"* it is indicated that all 39 raw water samples gathered in the years spanning from 1993 through 1995 (inclusive) and submitted to the ministry laboratory in Etobicoke yielded "below detection limit" findings for chloroaromatics. All 26 raw water samples submitted for chlorophenol analyses and all 39 raw water samples submitted for pesticides analyses during the same time period also yielded findings of "below detection limit". The water works continues to participate in the ministry's Drinking Water Surveillance Program (DWSP) with the Owner submitting raw, treated, and distribution system samples to the ministry's laboratory thrice annually. Raw water analyses amassed since 1996 have yielded results consistent with those cited in the 1993, 1994, and 1995 report.

Permit to Take Water Assessment

PERMIT TO TAKE WATER ASSESSMENT				
PERMIT NUMBER	**RENEWAL DATE**	**SOURCE**	**PERMITTED AMOUNT OF TAKING**	**UNITS**
88-P-4054	**June 30, 2003**	**St. Lawrence River**	**656 and 945,000**	**litres/min. litres/day**

PERMIT TO TAKE WATER EXCEEDANCES		
DATE	FLOW M3/DAY	LOCATION
Jan. 2002	13.02 L/s (781 L/min.)	Raw Water
Feb. 2002	13.08 L/s (785 L/min.)	Raw Water
Mar. 2002	12.89 L/s (773 L/min.)	Raw Water
Apr. 2002	12.36 L/s (742 L/min.)	Raw Water
May 2002	13.08 L/s (785 L/min.)	Raw Water
Jun. 2002	13.90 L/s (834 L/min.)	Raw Water
Jul. 2002	13.89 L/s (833 L/min.)	Raw Water
Aug. 2002	15.04 L/s (902 L/min.)	Raw Water
Sept. 2002	13.2 L/s (792 L/min.)	Raw Water
Oct. 2002	13.7 L/s (822 L/min.)	Raw Water
Nov. 2002	12.8 L/s (768 L/min.)	Raw Water
Dec. 2002	13.6 L/s (816 L/min.)	Raw Water
Jan. 2003	13.15 L/s (789 L/min.)	Raw Water
Feb. 2003	13.02 L/s (781 L/min.)	Raw Water
Mar. 2003	13.07 L/s (784 L/min.)	Raw Water
Apr. 2003	13.07 L/s (784 L/min.)	Raw Water
May 2003	13.09 L/s (785 L/min.)	Raw Water
Jun. 2003	13.05 L/s (783 L/min.)	Raw Water
Jul. 2003	12.55 L/s (753 L/min.)	Raw Water

Permit to Take Water 88-P-4054 expired on June 30, 2003. On April 8, 2003, the Corporation of the Township of South Glengarry requested that the ministry reissue the Permit. The ministry responded to the Township's April 8, 2003 request in a letter dated April 28, 2003 in which the Township was advised that since Permit to Take Water 88-P-4054 was issued to the former Township of Charlottenburgh, it would be necessary to apply for a new Permit to Take Water. The Township of South Glengarry has duly submitted an application to the ministry for a new Permit to Take Water and that application continues to be reviewed by the ministry.

Annual Records of Water Taking prepared by Shawn Killoran for the period from January 2002 through July 2003 indicate that the maximum instantaneous rate of taking has consistently exceeded the 656 litre per minute maximum allowable taking stipulated within Permit to Take Water 88-P-4054. The Township of South Glengarry should ensure that the rate of taking that is cited in the application for Permit to Take Water that

is currently being reviewed by the ministry will not be exceeded by actual takings. Exceeding permitted rates of taking is a violation of the Ontario Water Resources Act.

Documents provided to the writer by the Township of South Glengarry confirm that flow measurement devices assigned to the treated water, filter effluent, backwash water, and raw water monitoring points were last calibrated on October 15, 2002.

Condition 2.1 (b) of Certificate of Approval No. 0737-5MJPGM dictates that flow measuring devices must be calibrated at regular intervals not exceeding one year to ensure their accuracy to within plus or minus 5% of actual rate of flow within the range of 10% to 100% of the full scale reading of the measuring devices.

The October 15, 2002 calibrations undertaken by Ken Harris Instrumentation & Control Limited (Newburgh, Ontario) confirm that magnetic flow meters assigned to the treated water, filter effluent, and backwash water streams performed well within the tolerances required by the Certificate of Approval.

A copy of PTTW 88-P-4054 can be found in Appendix "B".

3.1.2 Treatment Processes

It was indicated by the Operations Manager that the adsorption capacity of the granular activated carbon contactors is assessed by having monthly grab samples of contactor effluent submitted to a laboratory for phenol analysis. The Owner / Operating Authority reasons that if phenols are detected in the contactor effluent then the media has reached its capacity to adsorb organic contaminants. This method of assessing the viability of contactor media is not recommended since it is based on running the media to failure before replacing it.

Shawn Killoran indicated that approximately one month before the inspection was initiated his staff collected a sample of contactor media but was having difficulty finding a laboratory that could analyze the media and report upon the media's remaining adsorption capacity. It is recommended that the Owner contact the granular activated carbon manufacturer (Calgon Carbon Corporation of Pittsburgh, Pennsylvania) to determine the recommended frequency of replacement or reconditioning of the contactor media.

Through conversations with operating staff it was confirmed that coagulant is applied throughout the year. A flow, water quality analysis, and chemical usage summary report supplied by Shawn Killoran indicates that 696 litres of coagulant and 201 kg of chlorine were used in the production of 83,249 cubic metres of treated water between January 1, 2003 and July 31, 2003. Quarterly Reports prepared by the Owner in compliance with O. Reg. 459/00 consistently documented both the quantity and dosage rates of coagulant and disinfectant used in the production of treated water. The 2002 4th Quarter Report cites the total volume of coagulant used in 2002 as being 1,034 litres with the average dosage rate being 4.6 mg/L. The 2002 4th Quarter Report documents the use of 391.86 kg of chlorine gas in 2002, at an average dosage of 2.7 mg/L.

The Clar+ion coagulant is withdrawn from a horizontally oriented drum by two diaphragm type metering pumps (one standby and one duty pump). There is currently no automatic switch-over device associated with the coagulant feed system that would activate the standby chemical feed pump in the event of a mechanical failure of the duty pump. It is recommended that the Owner install and operate an automatic switch-over system for the coagulant feed pumps. Such an arrangement would safeguard against the possibility of lengthy process upsets and resultant deterioration of treated water quality if a coagulant feed pump fails.

Condition 5.1 of Certificate of Approval No. 0737-5MJPGM requires that the Owner implement physical improvements to the water works by July 31, 2003. Those physical improvements include: works necessary to ensure the effective treatment and integrity of the works including but not limited to modifications to the mixed media filter piping and controls to provide for a filter-to-waste cycle prior to return to service after backwashing.

During the course of the inspection the required filter-to-waste modifications were confirmed to have been made.

Condition 6.1 of the Certificate of Approval directs that the next due date for the submission of an Engineer's Report to the ministry is September 30, 2005. In a letter sent to all Municipal Heads of Council on February 19, 2003, Assistant Deputy Minister Doug Barnes advised councils that: *"In accordance with the attached Update, if you are required to submit a second Engineer's Report, that report will not be due on the date specified in Condition 6 of your Consolidated Certificate of Approval or specified by O. Reg. 459, but will instead be due within five years of your original Engineer's Report submission date"*. The ministry's February 19, 2003 correspondence therefore resets the

due date for the next Engineer's Report for the Glen Walter Water Treatment Plant to May 2006.

The Engineer's Report prepared by M.S. Thompson & Associates Limited identifies operational procedures for achieving adequate CT values. The consultant recommends that the treated water reservoirs be operated in series at all times. It is advised by the consultant that should it ever become necessary to bypass the north reservoir, water supply to the distribution system should be restricted to increase hydraulic retention time and chlorine residual increased to improve CT. No guidelines are provided with respect to at what flow rate treated water should be restricted to or to what concentration chlorine residual should be increased if it ever becomes necessary to bypass the north reservoir.

Currently, the reservoirs are always operated in parallel and the Certificate of Approval did not require upgrades to the disinfection system. CT calculations are not performed as part of the day-to-day operation of the water works.

All existing treatment equipment described in Certificate of Approval No. 0737-5MJPGM was found to exist.

WATER TREATMENT CAPACITY ASSESSMENT			
ITEM	**2000**	**2001**	**2002**
Average Day Flow (m^3/d)	316	360.83	396
Maximum Day Flow (m^3/d)	544	801	898
Rated Capacity (m^3/d)	995	995	995
% Max. Day / Rated Capacity	54.67 %	80.5 %	90.2 %

2002 flow data used in this calculation was extracted from Quarterly Reports the preparation of which were required by Section 11 of O. Reg. 459/00.

Condition 1.2 of Certificate of Approval No. 0737-5MJPGM directs that: *"The Owner shall ensure that, subject to Conditions 3.1 through 3.14, the water treatment plant is operated to treat water at a rate not exceeding the maximum flow rate of 995 m3/d"*

Condition 1.3 of the Approval clarifies that the capacity limits are based on flows into the treatment plant (i.e. raw water flows). The summation of flows registered by the two filter effluent magnetic flow meters represents raw water flow. Please note that when

providing information to the ministry to document compliance with limits imposed in Permits To Take Water and Certificates of Approval, it is generally raw water flow data that should be used.

Over the past three calendar years average day and maximum day flow rates have continued to climb. Marginally in 2001, but substantially in 2002, the maximum day flows exceeded 80% of the treatment plant's design capacity. This is a strong indicator of the Owner's need to either expand the capacity of the treatment works or to implement significant water conservation measures before treated water demand outstrips the capacity for the works to supply drinking-water. It is noted that in a July 17, 2003 circulation the Mayor of the Township of South Glengarry advised residents of the availability of free water conservation retrofit devices (taps, shower heads, and toilets) through a program that was administered by the Raisin Region Conservation Authority.

Condition 3.5 of Certificate of Approval No. 0737-5MJPGM requires that the Owner ensure that all chemicals used in the treatment process and all materials contacting the water meet both the American Water Works Association (AWWA) quality criteria as set out in AWWA standards and the American National Standards Institute (ANSI) safety criteria set out in ANSI standard NSF/60 or NSF/61.

Condition 2.1 (e) of Certificate of Approval No. 0737-5MJPGM speaks to the installation, maintenance, and operation of continuous water quality monitors.

The Approval requires the installation of a treated water disinfectant residual monitor and a turbidity monitor at the point of discharge from each filter. Furthermore, Section 6-5 of Schedule 6 of O. Reg. 170/03 prescribes minimum testing frequencies and alarm standards for continuous monitors.

Continuous disinfectant monitoring of raw and treated water is provided by analyzers reading free chlorine residual. It was reported by the Operations Manager that the alarm trigger points for the treated water free chlorine residual analyzer are 0.5 mg/L and 2.0 mg/L, respectively. On the date of the inspection the treated water free chlorine residual was indicated to be 1.02 mg/L.

Continuous monitoring of each filter's effluent is achieved through the use of Hach model 1720C (reading filter F2) & 1720D (reading filter F1) turbidimeters. On the date of the inspection the read-out for the 1720C unit was not operating so a temporary "work-

around" using an AquaTrend model device manufactured by Hach was in use. Ken Harris Instrumentation & Control Limited has apparently been contacted to provide a permanent replacement for the aging Hach model 1720C turbidimeter.

The manufacturer's manual stipulates that the model 1720C low range turbidimeters have a resolution of 0.001 NTU, a repeatability better than +/- 0.002 NTU, an accuracy of +/- 2% from 0-30 NTUs, and a response time varying with flow rate. Manufacturer's specifications comply with standards dictated by Schedule 6 of O. Reg. 170/03. Furthermore, the instrument complies with the Section 6-6 of Schedule 6, O. Reg. 170/03 requirement that turbidity meters measure turbidity in Nephelometric Turbidity Units (NTU). The high level alarm for both turbidity monitors was reportedly set at 1.0 NTU. On August 28, 2003 the two continuous turbidity monitors read 0.192 NTU and 0.157 NTU; both well below the O. Reg. 170/03 notification level of 1.0 NTU (for events of at least 15 minutes in duration).

Circular chart recorders that document readings collected from the on-line chlorine residual and turbidity monitors are reportedly reviewed weekly when the charts are replaced. Clause 3 of Subsection 6-5 of Schedule 6 of O. Reg. 170/03 requires that the results of continuous monitoring must be examined within 72 hours after the tests are conducted. Therefore, the Township of South Glengarry must institute a system to ensure that continuous monitoring chart recorder information is reviewed at least once every three days.

Continuous analyzer and building security alarms are conveyed to Alarm Central (Ottawa). A pager system is used by the alarm company to advise the on-call operator of an incident at the water works. If the pager system fails to result in an operator response, the alarm company works its way through a call-down list of Township operating staff until an operator can be secured to address the alarm.

3.1.3 Process Wastewater

All process wastewater (filter backwash water, filter-to-waste water, and flocculator tank solids) is discharged to a common process wastewater holding tank having dimensions of 10 m x 2.4 m x 4.5 m positioned adjacent to the low lift well and high lift reservoir. A 100 mm diameter gravity fed pipe connects the water treatment plant process wastewater tank to the neighboring sewage treatment plant's wet well. The Certificate of Approval imposes no monitoring or quality requirements for process wastewater discharged to the

neighbouring sewage treatment plant.

3.1.4 Distribution System

Maintenance Programs

Although dead-ends in the distribution system are reportedly flushed on a weekly basis there is no scheduled program in place to ensure that all ten hydrants are flushed over a specific time frame.

Largely installed in 1989 when the water treatment plant was constructed, the distribution system is relatively new. Furthermore, since there is no elevated storage, pressure booster stations, or re-chlorination facilities associated with the existing distribution system its maintenance needs are relatively simple. It was reported that pesticide applicators are not provided access to hydrants to mix chemicals or wash equipment.

A copy of AWWA Standard C651-99 (Disinfecting Water Mains) has been incorporated directly into the facility's Contingency Plans.

On July 23, 2003, operators commenced measuring and documenting free and total chlorine residuals measured in the distribution system. The Distribution System Chlorine Residual Sheets identify the date the measurements were made, the results of the measurements (free and total chlorine residuals), the operator's initials, the location, and the time that the measurements were collected. As of the date of the inspection the operators were not collecting daily chlorine residual values in the distribution system on weekends. When advised that Subsection 7-2(3) of Schedule 7 of O. Reg. 170/03 necessitates the collection of at least one free chlorine residual measurement in the distribution system daily, Shawn Killoran implemented a program to ensure that distribution system chlorine residual readings are collected every day. The Township of South Glengarry was to investigate the possibility of securing and maintaining a continuous free chlorine residual analyzer to be positioned in the distribution system as an alternative to having operators collect chlorine residual readings manually. The writer has been verbally notified that a continuous chlorine residual analyzer has been placed in the Bray Street sewage pumping station for the purpose of monitoring distribution system free chlorine residual. Normally, the water treatment plant is staffed five, not seven days a week.

Cross Connection and Backflow Prevention

There are no bulk water transfer stations located within the drinking-water system. Interviewed operators reported that pesticides (herbicides, insecticides, and rodenticides) are not used within the water treatment plant or on the grounds on which the treatment plant and process wastewater storage ponds are located.

There appears to be no regularly scheduled evaluation of the integrity of the backflow preventer located at the water treatment plant. It is recommended that the Owner retain the services of a plumber or other similarly qualified individual to perform an annual assessment of the integrity of the backflow preventer.

Storage Structure Assessment

There are no elevated treated water storage structures associated with the distribution system. In the absence of elevated storage one or more high lift pumps must operate continuously to maintain distribution system pressure.

3.2 WATER SYSTEM MANAGEMENT PRACTICES

3.2.1 Operational Manuals

A review of the water works Operations Manual confirmed that it contains process flow diagrams extracted from ministry DWSP and inspection reports; instructions respecting how to manually backwash the filters; design specifications supplied by Napier-Reid Limited; physical descriptions of major components; Material Safety Data Sheets; filter media installation instructions; and pump curves.

The Operations Manual should be reviewed and updated. For example, the document contains at least one reference to a 2000 L aluminum sulphate storage tank that no longer is used. Section 16(1) of O. Reg. 435/93 directs that the Owner of a drinking-water system shall ensure that operators and maintenance personnel have ready access to comprehensive operations and maintenance manuals that contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the facility. Furthermore, Section 16(2) of O. Reg. 435/93 dictates that the Owner shall ensure that the manuals are reviewed and

updated at least once every two years.

Certificate of Approval No. 0737-5MJPGM defines minimum requirements for the water works' Operations Manual that are in addition to those contained within O. Reg. 435/93. Condition 3.9 of the approval stipulates that:

"The Owner shall ensure that an operations manual that incorporates, at a minimum, the requirements of this certificate related to the works existing at the time of the issuance of the certificate, and any adopted operation and maintenance recommendations of the Engineer's Report based on which this certificate has been issued, is prepared, and ensure that the operations manual is kept up to date such that any relevant updates to the manual are completed prior to commissioning of any new works or implementation of any operational changes. Upon request, the Owner shall make the manual available for inspection by the Ministry personnel."

Operations Manuals must be readily available to operations staff, must be reviewed regularly and kept up to date, and must incorporate at least the following components:

- Plans, drawings and process descriptions;
- A process to ensure that all equipment used in the processes is monitored, inspected and evaluated;
- A sampling plan. (schedule, procedures, etc). The sampling plan should include varying the schedule such that sampling is not performed only during optimal conditions (e.g. low demand periods);
- Guidance as to how often sediments within the flocculator should be removed and how often the levels of sediment should be checked;
- Criteria used by operators to determine when a filter requires backwashing;
- Procedures for newly backwashed filters that are brought back into service at low rates and are gradually increased (ramped-up) in order to minimize post-backwash turbidity spikes; and,
- Procedures for disinfection and repair of water mains.

The existing Operations Manual does not include a detailed sampling plan.

3.2.2 Logbooks

One of the activities undertaken during the course of the August 28, 2003 inspection of the water works' physical components was an evaluation of the completeness of logbook entries.

The Township of South Glengarry has instituted the use of a bound journal with consecutively numbered pages to log significant daily occurrences. Seven entries chosen at random were scrutinized: October 16, 2001; November 28, 2001; February 25, 2002; April 16, 2002; July 22, 2002; March 20, 2003; and August 1, 2003.

Log book entries invariably include the date, the initials of operators on duty during the shift, and a synopsis of significant operations and maintenance activities performed. Typical entries cite the collection of daily performance readings, the performance of in-house analyses, the occurrence of alarms and actions taken in response to the alarms, and the performance of instrumentation calibrations and assessments.

In respect of the following, the logbooks maintained by the Township of South Glengarry were confirmed to comply with requirements dictated within O. Reg. 435/93 and to conform with the ministry's minimum expectations for best management practices:

- The status of operations during each operating shift is logged;
- Records are made chronologically with the date, time period, and number/ designation of the shift recorded;
- Identification of the operator-in-charge and any personnel authorized to make an entry by the owner or an operator-in-charge is noted;
- All entries are made exclusively by the above-noted personnel such that each person making an entry can be unambiguously identified;
- The names of all Operators on duty during the shift is duly recorded;

- Any departures from normal operating procedures that occurred during the shift and the time they occurred is recorded;
- Any special instructions that were given during the shift to depart from normal operating procedures and the person who gave the instructions is documented;
- Situations in which any unusual or abnormal conditions were observed are recorded, complete with action taken and any conclusions drawn from the observations; and,
- Any equipment that was taken out of service or ceased to operate during the shift, and any action taken to maintain or repair the equipment is cited.

3.2.3 Contingency and Emergency Planning

Condition 3.8 of Certificate of Approval No. 0737-5MJPGM dictates that: *"The Owner shall ensure that contingency plans and procedures are established and adequate equipment and material are available for dealing with emergencies, upset conditions and equipment breakdowns in the works, and that such plans and procedures are implemented."*

The Glen Walter WTP Contingency Plan includes a contact list bearing a stamp identifying it as last being reviewed on March 10, 2003. The contact list provides home and cell phone numbers of operations staff; telephone numbers for the ministry's Cornwall Area Office and the Spills Action Centre; telephone contacts for the Eastern Ontario Health Unit; and contact information for various process chemical suppliers, contractors, and key service providers.

Contingency instructions exist for power failure, diesel malfunction, chlorine gas leaks, high lift sump discharge low level, high lift pump discharge high level, filter system malfunction, illegal entry, PLC malfunction, water main break, backwash pump failure, raw water intake contamination, treated water reservoir contamination, and adverse water quality. The framework for the contingency instructions appears to be derived from a ministry Utility Operations Section initiative dating back to the late 1980's. Generally, the contingency instructions are quite limited in terms of detail and consideration should be given to supplying staff with instructions that are more specifically tailored to the Glen Walter WTP.

As previously noted, the Contingency Plans include a copy of AWWA Standard C651-99 (Disinfecting Water Mains). It is recommended that a copy of AWWA Standard C653-97 (Disinfection of Water Treatment Plants) be secured and incorporated within the Contingency Plan or the Operations Manual.

The Contingency Plan includes a detailed procedure for responding to adverse drinking water quality tests. References to O. Reg. 459/00 need to be replaced with O. Reg. 170/03. The notification form included in the existing Contingency Plan was superceded by a more recent document when O. Reg. 459/00 was revoked and replaced by O. Reg. 170/03. Instruction specific to the preparation and submission of Notices of Issue Resolution need to included in the adverse drinking water quality test segment of the Contingency Plan.

It is recommended that the Contingency Plan incorporate requirements specified in Condition 3.14 of Certificate of Approval No. 0737-5MJPGM. The approval requires the establishment and implementation of procedures for receiving, responding to, and recording complaints about any aspects of the works.

3.2.4 Security

Landward facing sections of the water treatment plant and adjacent sewage treatment plant property are enclosed within security fencing that is reportedly closed and padlocked when the facilities are not staffed. Intruder alarms are assigned to the metal skinned doors.

Continuous analyzer and building security alarms are conveyed to Alarm Central (Ottawa). A pager system is used by the alarm company to advise the on-call operator of an incident at the water works. If the pager system fails to result in an operator response, the alarm company works its way through a call-down list of Township operating staff until an operator can be secured to address the alarm.

3.2.5 Communication with Consumers

Quarterly Reports that had been required by O. Reg. 459/00 were duly prepared by Shawn Killoran and copies were sent to the ministry and to the Township Office in Lancaster where they were retained in a binder made accessible to the public upon request. When visiting the Township Office on September 2, 2003, the writer confirmed that the Owner has complied with the O. Reg. 459/00 requirement to prepare quarterly reports and to have

them available, free of charge, to the public.

Publicly accessible records are organized within a binder entitled "Water - Glen Walter WTP". Each of the Township's municipally owned drinking-water systems has its own public records binder. The Glen Walter WTP binder contained a copy of O. Reg. 170/03 complete with backgrounder, overview and compendium documents; copies of quarterly reports; and limited analytical records. This publically accessible information falls short of what is required by Subsection 12(1) of O. Reg. 170/03 in the following ways:

- The information to be available to the public did not include every test result obtained in respect of a test required under O. Reg. 170/03 (i.e. every analytical report supplied by laboratories);

- A copy of every approval that applies to the system and is still in effect was not included in the binder; and,

- The copy of O. Reg. 170/03 provided in the public information binder did not include amendments introduced by O. Reg. 249/03 and O. Reg. 269/03.

While the Township does possess all of the analytical results, certificates of approval, and Engineer's Reports necessary to comply with Subsection 12(1) of O. Reg. 170/03, not all of the necessary information has been inserted into the binder created specifically to comply with the Regulation.

The requirement to prepare quarterly reports under O. Reg. 459/00 has been replaced by the preparation of annual reports under O. Reg. 170/03. Subsection 11(3) of O. Reg. 170/03 directs that annual reports for Large Municipal Residential Systems must cover the period from January 1 to December 31 and must be given to the ministry not later than February 28 of the following year. Please note that copies of annual reports and Engineer's Reports prepared in compliance with Schedule 20 of O. Reg. 170/03 must also be included in the information available to the public as detailed in Subsection 12(1) of O. Reg. 170/03. Subsection 11(12) of the Regulation specifies that the first annual report, due February 28, 2004, shall cover the period from April 1, 2003 to December 31, 2003.

It is recommended that in addition to the requirements stipulated in the Regulation, the public information should include the results of all Clostridium perfinges and general chemistry analyses.

Please note that Subsection 11(9.1) of O. Reg. 170/03 requires that every time an Annual Report is prepared for a drinking-water system, the Owner of the system shall ensure that effective steps are taken to advise users of water from the system that copies of the report are available, without charge, and how a copy may be obtained. The required contents of these Annual Reports is detailed in Subsection 11(6) of the regulation.

A notice posted on the Township's website (www.southglengarry.com) advises that water works quarterly reports are available for viewing at the Township Office and the Glen Walter Water Treatment Plant.

3.2.6 Operator Certification and Training

The Township of South Glengarry relies on three staff to provide operations and management support for the water treatment plant. They are:

- Shawn Killoran, Operator in Overall Responsibility and Operations Manager who possesses a Class 2 WATER TREATMENT operator's certificate (no. 6882) and a Class 2 WATER DISTRIBUTION operator's certificate (no. 6883), both expiring in September 2005;

- John Cameron who possesses a Class 2 WATER TREATMENT operator's certificate (no. 12408) expiring in July 2005 and a Class 2 WATER DISTRIBUTION certificate (no. 12978) expiring January 2004; and,

- George Romanko who possesses a Class 1 WATER TREATMENT operator's certificate (no. 11215) expiring in April 2006 and a Class 2 WATER DISTRIBUTION certificate (no. 5569).

Given that the water works are acknowledged to consist of a Class 2 Water Treatment Plant and a Class 2 Water Distribution System, the type and level of Shawn Killoran's operator certifications are adequate to serve as Operator In Overall Responsibility for the treatment plant and the water distribution system.

Since O. Reg. 435/93 permits an individual having one classification level below that of the facility to serve for a limited period of time as Operator in Overall Responsibility; John Cameron or George Romanko could be used to fulfill the Operator in Overall Responsibility role for the water treatment plant and the distribution system if, for

whatever reason, Shawn Killoran was not available to act in that capacity.

On the date of the inspection copies of operator certificates were conspicuously displayed in the office and the facility classifications were conspicuously displayed in the laboratory; all in compliance with what is required by Section 9 of O. Reg. 435/93.

The writer was provided with documentation attesting to the amount of training each of the three operations staff had been provided in the first eight months of 2003. As of the date of the inspection Shawn Killoran had amassed 25 hours of training; John Cameron had amassed 31 hours of training; and George Romanko had amassed 22 hours of training. Subsection 17(1) of O. Reg. 435/93 dictates that the Owner of a facility shall ensure that every operator employed in the facility is given at least forty hours of training every year.

SECTION 4 WATER QUALITY MONITORING & ASSESSMENT

4.1 WATER QUALITY MONITORING

Sampling and testing requirements for Large Municipal Residential Systems are cited within Schedules 6, 7, 10, and 13 of O. Reg. 170/03.

What follows are three tables in which operational checks, bacteriological sampling, and chemical sampling requirements for the water works are summarized. For greater certainty and detail refer directly to O. Reg. 170/03.

OPERATIONAL CHECKS

PARAMETER	MONITORING REQUIREMENT
TURBIDITY SECTION 7-3 (2) OF SCHEDULE 7, O. REG. 170/03	For surface water sources employing filtration: continuous monitoring on each filter effluent line.

PARAMETER	MONITORING REQUIREMENT
CHLORINE RESIDUAL SECTION 6-3 (1)(a) OF SCHEDULE 6, O. REG. 170/03. SECTION 7-2 (1) & (3) OF SCHEDULE 7, O. REG. 170/03	Where this Regulation, an approval, or order requires the collection of a water sample for a microbiological parameter, another sample is to be taken at the same time and location for free chlorine residual. Where chlorination is used for primary disinfection: continuous monitoring for free residual near the end of the contact time required to achieve required CT. Where secondary disinfection is provided, a distribution system sample is to be taken at least once every day and tested immediately for free chlorine residual if the system provides chlorination and does not provide chloramination.

MICROBIOLOGICAL TESTING

SAMPLE POINT	MONITORING REQUIREMENT
DISTRIBUTION SYSTEM Total Coliforms, E. coli or fecal coliforms, HPC or background count SECTION 10-2 OF SCHEDULE 10, O. REG. 170/03	Up to 100,000 population, minimum of 8+1/1000 taken monthly, with at least one sample taken each week. 25% of samples to be analyzed for HPC or background on a total coliform membrane filter analysis.
TREATED WATER Total Coliforms, E. coli or fecal coliforms, HPC or background count SECTION 10-3 OF SCHEDULE 10, O. REG. 170/03	Weekly sampling from point at which treated water enters the distribution system.
RAW WATER Total Coliforms, E. coli or fecal coliforms SECTION 10-3 OF SCHEDULE 10, O. REG. 170/03	Weekly sampling from the raw water source before any treatment is applied.

CHEMICAL TESTING

PARAMETER	MONITORING REQUIREMENT
NITRATE AND NITRITE SECTION 13-7 OF SCHEDULE 13, O. REG. 170/03	Quarterly in treated water.
ORGANICS SECTION 13-4 OF SCHEDULE 13, O. REG. 170/03	Annually (treated water). Samples are to be tested for every parameter identified in Schedule 24 of O. Reg. 170/03. If a test result exceeds half the standard prescribed in Schedule 2 of O. Reg. 169/03, the frequency of sampling and testing for that parameter is increased to quarterly until four consecutive quarterly samples yield values of less than or equal to half the standard prescribed in Schedule 2 of O. Reg. 169/03.
TRIHALOMETHANES SECTION 13-6 OF SCHEDULE 13, O. REG. 170/03 CONDITION 2.1(g)(i) OF THE CERT. OF APPROVAL.	Quarterly in the distribution system from a point that is likely to have an elevated potential for the formation of trihalomethanes. Quarterly in a sample of treated water from the point of entrance to the distribution system.
INORGANICS SECTION 13-2 OF SCHEDULE 13, O. REG. 170/03 CONDITION 2.1(g)(i) OF THE CERT. OF APPROVAL	Annually (treated water). Samples are to be tested for every parameter identified in Schedule 23 of O. Reg. 170/03. If a test result exceeds half the standard prescribed in Schedule 2 of O. Reg. 169/03, the frequency of sampling and testing for that parameter is increased to quarterly until four consecutive quarterly samples yield values of less than or equal to half the standard prescribed in Schedule 2 of O. Reg. 169/03. Quarterly for iron in a sample of treated water from the point of entrance to the distribution system.
LEAD SECTION 13-3 OF SCHEDULE 13, O. REG. 170/03	Annually from a point in the distribution system, or in plumbing that is connected to the drinking-water system, that is likely to have an elevated concentration of lead. If a test result exceeds half the standard prescribed in Schedule 2 of O. Reg. 169/03, the frequency of sampling and testing for that parameter is increased to quarterly until four consecutive quarterly samples yield values of less than or equal to half the standard prescribed in Schedule 2 of O. Reg. 169/03.
FLUORIDE SECTION 13-9 OF SCHEDULE 13, O. REG. 170/03	Every 60 months (treated water)

PARAMETER	MONITORING REQUIREMENT
SODIUM SECTION 13-8 OF SCHEDULE 13, O. REG. 170/03	Every 60 months (treated water).

A review of analytical records maintained at the water treatment plant has led the writer to conclude that the Owner has, with a few exceptions, complied with legally binding monitoring requirements.

It appears that raw water samples were not included in the weekly bacteriological sample submissions made on October 28, 2002 and January 29, 2003. Bacteriological sample results provided to the writer did not include information for the week commencing May 19, 2003, however, 2003 summary information supplied by the Operations Manager suggests that bacteriological samples required for the week of May 19, 2003 may indeed have been submitted.

Two parameters required to be analyzed under O. Reg. 170/03 but for which analyses were not required under the previous regulation (i.e. O. Reg. 459/00) do not appear to have been included in analyses performed as of the date of the inspection. Please note that Subsection 13-10(b) of Schedule 13 of O. Reg. 170/03 necessitates that the first samples for antimony (Schedule 23 of O. Reg. 170/03) an benzo(a)pyrene (Schedule 24 of O. Reg. 170/03) must be taken and tested by June 1, 2004. The Operations Manager has verbally notified the writer that the required samples were collected and submitted for analyses in January 2004.

Quarterly Reports prepared by the Operations Manager in 2002 and the first quarter of 2003 indicate that samples were submitted and Total Trihalomethanes (THM) analyses performed every month with the exception of November 2002.

Reports of Analysis provided to the Operations Manager by Accutest Laboratories Limited confirm that required fluoride, lead, ammonia and nitrate nitrogen analyses have been performed.

The Township of South Glengarry collects samples and participates in monitoring programs that exceed the requirements dictated within O. Reg. 170/03. On a monthly basis, raw and treated water samples are submitted to Accutest Laboratories Limited where

analyses are undertaken for the following process control parameters: alkalinity, colour, nitrite, nitrate, pH, turbidity, aluminum, and phenols. In addition, the Township continues to participate in the ministry's Drinking Water Surveillance Program through which samples are gathered from raw water, treated water, and distribution system sources and analyzed thrice annually for approximately 173 tests.

Monthly raw and treated water analyses for Clostridium perfinges, an indicator organism used to suggest the potential presence of cryptosporidium, is provided by GAP EnviroMicrobial Services of London, Ontario.

In-house tests are performed at the water treatment plant using the following bench-top instruments:

- Hach Ratio Turbidimeter (turbidity)
- Hach DR-2010 Spectrophotometer (chlorine residual, colour, and aluminum)
- Hach SensIon 4 (pH)

While there appears to be no minimum set frequency for the performance of in-house tests a review of laboratory records suggests that tests are generally performed two or three times every week.

Continuous disinfectant monitoring of raw and treated water is provided by analyzers reading free chlorine residual. Continuous monitoring of each filter's effluent is achieved through the use of Hach model 1720C and 1720D turbidimeters.

In order to collect raw water samples during the zebra mussel control season it is necessary to shut-down the chlorine feed to the intake until the chlorine residual drops below a measurable concentration before the sample is gathered.

There are few locations in the distribution system where access can be readily obtained for the purpose of collecting samples. A review of analytical records amassed since September 2002 reveals that bacteriological sampling focuses exclusively on three locations: the Blue Anchor Restaurant, the Bray Street sewage pumping station, and the Olco Gas Bar. Although these three locations are well dispersed near the peripheries of the distribution network, bacteriological monitoring locations should be rotated to provide greater coverage of streets within the network. It is recommended that the Owner consider the acquisition and installation of a network of isokinetic sampling stations in the

distribution system to provide greater and more representative coverage of bacteriological and residual disinfectant conditions throughout the distribution system.

4.2 WATER QUALITY ASSESSMENT

4.2.1 Bacteriological

The writer reviewed all analytical results associated with bacteriological sampling conducted between September 1, 2002 and July 31, 2003. During the time frame analyzed, all treated water and distribution system bacteriological test results complied with the Schedule 1 microbiological standards prescribed by the Ontario Drinking Water Quality Standards (O. Reg. 169/03, made under *The Safe Drinking Water Act*).

On September 2, 2003, the writer collected bacteriological samples of raw water and treated water at the treatment facility and gathered samples from four distribution system locations (the Blue Anchor Restaurant, the Bray Street Sewage Pumping Station, the Olco gas bar, and the Cornwall Golf Club). All samples were submitted to the ministry's laboratory in Etobicoke for analyses.

The raw water sample was determined to contain total coliform, heterotrophic plate count, and Escherichia coli counts of 4/100 mL, greater than 200/100 mL, and 0/100 mL, respectively. Treated and distribution system samples were determined not to contain total coliform bacteria

Ministry bacteriological audit sample results are affixed to this report as Appendix "G".

4.2.2 Physical/Chemical

The Glen Walter water works has been a participant in the ministry's Drinking Water Surveillance Program (DWSP) since 1991. Through DWSP, thrice annual samples of raw water, treated water, and samples gathered from the distribution system are analyzed for approximately one hundred and eighty parameters including volatile organics, radionuclides, metals, dioxins and furans, chlorophenols, chloroaromatics, general chemistry analytes, and pesticides.

In its most recently published DWSP report the ministry concludes that: *"Raw and treated water at the plant and at two locations in the distribution system were sampled. A total of 2,125 tests were performed on up to 200 inorganic, organic, and radiological parameters. No health related ODWOs were exceeded. The South Glengarry-Glen Walter water treatment plant, for the sample years 1998 and 1999 produced good quality water and this was maintained in the distribution system."* DWSP analyses performed since 1999 continue to indicate that the water supplied to consumers conforms with the province's drinking-water quality standards.

On August 28, 2003, the writer reviewed analytical records maintained at the water treatment plant. That review focused on samples collected by the Township of South Glengarry between September 1, 2002 and July 31, 2003. Records of readings collected using continuous monitors indicate that average filter effluent turbidity rarely exceeds 0.09 NTU and the average free chlorine residual in treated water has ranged from 1.05 mg/L to 1.26 mg/L.

Records of free chlorine residual measurements collected within the distribution system denote a minimum value of 0.55 mg/L being registered in January 2003. That value is well above the 0.05 mg/L adverse drinking water notification trigger cited in O. Reg. 170/03.

Certificates of analyses provided by Accutest Laboratories Limited indicate that THM values in the distribution system are consistently well below the Ontario Drinking Water Quality Standard of 100 µg/L expressed as a running average of four quarterly samples.

In conclusion, samples analyzed through DWSP, routine monitoring programs delivered by the Township, and audit samples gathered by the writer consistently yielded results indicating that treated water meets Ontario Drinking Water Quality Standards.

Ministry chemistry audit sample results are affixed to this report as Appendix "G".

4.2.3 Reporting, Notification & Corrective Action

Since there were no adverse drinking water quality events that occurred during the period between the date of the preceding inspection and the date of the inspection that is the subject of this report there were no mandatory notifications of adverse drinking water quality required and none are on record.

The writer has confirmed that Quarterly Reports, formerly required to be prepared by Section 12 of O. Reg. 459/00, were indeed compiled for the first, second, third, and fourth quarter of 2002 and the opening quarter of 2003.

When O. Reg. 459/00 was replaced by O. Reg. 170/03, the requirement to prepare Quarterly Reports was replaced by Annual Reports and Summary Reports for Municipalities necessitated by Section 11 and Schedule 22 of O. Reg. 170/03, respectively. The first Annual Report, required to be given to the Director of the Ministry's Environmental Monitoring and Reporting Branch by February 28, 2004, shall cover the period from April 1, 2003 to December 31, 2003. Thereafter, Annual Reports must cover the period from January 1 to December 31 in the year that is the subject of the report and must be given to the Director not later than February 28 of the year following that which is the subject of the report.

Schedule 22 Summary Reports For Municipalities must be prepared for the preceding calendar year by no later than March 31 of each year after 2003. The summary report must be given to the members of the municipal council. Section 22-3 of Schedule 22 stipulates that a Compliance Report required to be prepared by a Certificate of Approval need not be prepared if the Owner of the drinking-water system prepares the Summary Report for Municipalities as necessitated by O. Reg. 170/03.

The writer did not evaluate the Owner's state of compliance with Condition 4 of Certificate of Approval No. 0737-5MJPGM. That Condition necessitates the preparation of a Compliance Report. As stated in the preceding paragraph, the Owner is obligated to prepare a Summary Report for Municipalities under the provisions of O. Reg. 170/03 and by fulfilling that obligation will no longer be required to produce the Compliance Report defined within the Certificate of Approval.

As required by Subsection 6-9 (4) of Schedule 6, O. Reg. 170/03, the Director of the Ministry's Laboratory Services Branch has been duly notified by the Township of the identity of laboratories conducting tests required by the Regulation and relevant Certificates of Approval.

SECTION 5 ASSESSMENT OF PREVIOUS INSPECTION ISSUES

5.1 NON COMPLIANCE WITH REGULATORY REQUIREMENTS

The preceding inspection report which documents the findings of the September 11, 2002 assessment of the water works identifies five "Actions Required"

Action Required No. 1

The Annual Record of Water Taking for 2001 was submitted by the Township of South Glengarry to the MOE on January 25, 2002. The Record Indicates that the permitted amount of taking, 945 cubic metres per day, as stipulated by the Permit was not exceeded during 2001. However, the instantaneous rate of taking of 10.93 L/s (656 L/min) was exceeded for every month in 2001. It is recommended that the Owner include the average, minimum, maximum and total raw water flows for each month for the Glen Walter Water Treatment Plant. As well, it is recommended that the Annual Record of Water Taking include the instantaneous rate of taking in litres per minute, to demonstrate that the permitted maximum rate of taking of 656 litres per minute was not exceeded as required by the Permit.

Status of Issue Resolution

Marcel Lapierre, Administrator & Co-ordinator, Township of South Glengarry, in a letter dated May 29, 2003, responded to the action items identified in the preceding inspection report. While Mr. Lapierre points out that the existing ministry record of water taking form does not accommodate entries for minimum, maximum, and average day flow he does not specifically address the instantaneous rate of taking non-compliance with Permit to Take Water No. 88-P-4054.

Annual Records of Water Taking prepared by Shawn Killoran for the period from January 2002 through July 2003 indicate that the maximum instantaneous rate of taking has consistently exceeded the 656 litre per minute maximum allowable taking stipulated within Permit to Take Water 88-P-4054. The Township of South Glengarry should ensure that the rate of taking that is cited in the application for Permit to Take Water that is currently being reviewed by the ministry will not be exceeded by actual takings. Exceeding permitted rates of taking is a violation of the Ontario Water Resources Act.

Action Required No. 2

The Permit is valid until June 30, 2003. A renewal application must be submitted to the Permit to Take Water Coordinator in the Kingston Regional Office at least one month prior to that date to avoid cancellation of the Permit.

Status of Issue Resolution

Permit to Take Water 88-P-4054 expired on June 30, 2003. On April 8, 2003, the Corporation of the Township of South Glengarry requested that the ministry reissue the Permit. The ministry responded to the Township's April 8, 2003 request in a letter dated April 28, 2003 in which the Township was advised that since Permit to Take Water 88-P-4054 was issued to the former Township of Charlottenburgh, it would be necessary to apply for a new Permit to Take Water. The Township of South Glengarry has duly submitted an application to the ministry for a new Permit to Take Water and that application continues to be reviewed by the ministry.

Action Required No. 3

Condition No. 5.1 of Certificate of Approval No. 0120-5CXQQV stipulates the upgrading requirements that the Owner shall implement by July 1, 2003, and includes but is not limited to modifications to the mixed media filter piping and controls to provide for a filter-to-waste cycle prior to return to service after backwashing.

Status of Issue Resolution

Condition 5.1 of Certificate of Approval No. 0737-5MJPGM requires that the Owner implement physical improvements to the water works by July 31, 2003. Those physical improvements include: works necessary to ensure the effective treatment and integrity of the works including but not limited to modifications to the mixed media filter piping and controls to provide for a filter-to-waste cycle prior to return to service after backwashing.

During the course of the inspection the required filter-to-waste modifications were confirmed to have been made.

Action Required No. 4

The Township of South Glengarry is not complying with all of the reporting requirements of Ontario Regulation 459/00. The quarterly reports do not include the analytical results for the raw water, treated water and distribution system microbiological sampling. The third quarter reports for 2001 and 2002 only include the microbiological sample results collected from the raw water, treated water and distribution system on September 10, 2001 and July 8, 2002, respectively. Section 12 of Ontario Regulation 459/00 stipulates that the report shall summarize the analytical results obtained during the quarter for water samples taken under section 7. Section 7(1)(a) refers to sampling and analysis in accordance with Schedule 2, which includes the microbiological samples taken weekly from the raw water and from the treated water, and monthly samples taken in the distribution system, with at least one such sample taken every week. The Owner shall include a summary of the microbiological analytical results for all the samples collected from the raw water, treated water and distribution system in the Quarterly Reports as required by section 12 c).

Status of Issue Resolution

The requirement to prepare quarterly reports under O. Reg. 459/00 has been replaced by the preparation of annual reports under O. Reg. 170/03. Subsection 11(3) of O. Reg. 170/03 directs that annual reports for Large Municipal Residential Systems must cover the period from January 1 to December 31 and must be given to the ministry not later than February 28 of the following year. Subsection 11(12) of the Regulation specifies that the first annual report, due February 28, 2004, shall cover the period from April 1, 2003 to December 31, 2003.

5.2 BEST MANAGEMENT PRACTICES RECOMMENDATIONS

The preceding inspection report identified four "Other Inspection Findings".

Other Inspection Finding No. 1

Please note that although the flow limitations imposed by the Permit to Take Water and the Certificate of Approval are being complied with, it is recommended that water works owners investigate options to conserve water and/or expand treatment capacity when maximum treated water flows reach 80% of a treatment plant's rated capacity. At

maximum day flow conditions, the Glen Walter Water Treatment Plant is operating at 90% of its rated capacity, therefore triggering the need to consider water conservation and/or capacity expansion options. Potential in-plant water conservation measures could be investigated as one means of delaying the need to expand the water treatment plant's rated capacity.

In Mr. Lapierre's aforementioned May 29, 2003 written response to the preceding inspection report it is indicated that the Township has placed water metres on all users.

Over the past three calendar years average day and maximum day flow rates have continued to climb. Marginally in 2001, but substantially in 2002, the maximum day flows exceeded 80% of the treatment plant's design capacity. This is a strong indicator of the Owner's need to either expand the capacity of the treatment works or to implement significant water conservation measures before treated water demand outstrips the capacity for the works to supply drinking-water.

Other Inspection Finding No. 2

The logbook documents the daily readings/checks; and abnormal operations but includes information for both the Water Treatment Plant and the Water Pollution Control Plant. It is recommended that separate logbooks be maintained for each facility.

Status of Issue Resolution

In his May 29, 2003 letter Mr. Lapierre indicates that a separate logbooks were initiated on May 1, 2003 for the sewage and water works. During the course of his inspection, the writer confirmed that separate logbooks are being maintained for the sewage and the water works.

Other Inspection Finding No. 3

During a review of the quarterly reports for the period of July 2001 to September 2002, it could not be determined if Table C (inorganics) had been sampled and analyzed for in 2001. They had not been sampled for to date in 2002. The Owner is required to sample for the parameters in Table C (Inorganics) annually. The Owner is required to provide documentation confirming that the parameters in Table C (Inorganics) were sampled for in 2001 and 2002.

Status of Issue Resolution

The Township of South Glengarry provided the preceding Inspector with evidence that the required sampling was indeed performed. As previously noted, the sampling regimen that had formerly been dictated by O. Reg. 459/00 is now directed by O. Reg. 170/03.

Other Inspection Finding No. 4

The training records for all the operators were reviewed during the inspection. All operators received the required 40 hours of training in 2001. For the period of January to September 2002, the operators have received 8.5 hours and 12.5 hours of training. The

Owner must ensure that all operators receive a minimum 40 hours of training every year, as required by Section 17(1) of Ontario Regulation 435/93/

Status of Issue Resolution

In his May 29, 2003 response to the preceding inspection report Mr. Lapierre confirms that all operators received the required hours of training in 2002.

SECTION 6 SUMMARY OF NON COMPLIANCE ISSUES & ACTIONS REQUIRED

1. Annual Records of Water Taking prepared by Shawn Killoran for the period from January 2002 through July 2003 indicate that the maximum instantaneous rate of taking has consistently exceeded the 656 litre per minute maximum allowable taking stipulated within Permit to Take Water 88-P-4054. Shawn Killoran has indicated that the recently compiled Annual Record of Water Taking for 2003 shows that the instantaneous rate of taking has declined. The Township of South Glengarry should ensure that the rate of taking that is cited in the application for Permit to Take Water that is currently being reviewed by the ministry will not be exceeded by actual takings. Exceeding permitted rates of taking is a violation of the Ontario Water Resources Act.

2. Circular chart recorders that document readings collected from the on-line chlorine residual and turbidity monitors are reportedly reviewed weekly when the charts are replaced. Clause 3 of Subsection 6-5 of Schedule 6 of O. Reg. 170/03 requires that the

results of continuous monitoring must be examined within 72 hours after the tests are conducted. Therefore, the Township of South Glengarry must institute a system to ensure that continuous monitoring chart recorder information is reviewed at least once every three days.

3. On July 23, 2003, operators commenced measuring and documenting free and total chlorine residuals measured in the distribution system. The Distribution System Chlorine Residual Sheets identify the date the measurements were made, the results of the measurements (free and total chlorine residuals), the operator's initials, the location, and the time that the measurements were collected. As of the date of the inspection the operators were not collecting daily chlorine residual values in the distribution system on weekends. When advised that Section 7-2(3) of Schedule 7 of O. Reg. 170/03 necessitates the collection of at least one free chlorine residual measurement in the distribution system daily, Shawn Killoran implemented a program to ensure that distribution system chlorine residual readings are collected every day. The Township of South Glengarry was to investigate the possibility of securing and maintaining a continuous free chlorine residual analyzer to be positioned in the distribution system as an alternative to having operators collect chlorine residual readings manually. The writer has been verbally notified by the Operations Manager that a continuous monitor has been installed at the Bray Street sewage pumping station.

By no later than Friday March 31, 2004, provide the undersigned Provincial Officer with an Action Plan that specifies how the Owner/Operator intends to address the three above cited issues in a manner that ensures they will not be repeated, complete with implementation dates.

SECTION 7 SUMMARY OF BEST PRACTICE RECOMMENDATIONS

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

1. The writer was advised by Shawn Killoran that a diver was retained in the autumn of 2002 to assess the condition of the raw water intake. It is recommended that the Owner ensure that the water intake is visually inspected by a qualified diver at least once every five years in order to assess the structural integrity of the intake and to evaluate the intake's susceptibility to zebra mussel infestation.

2. It was indicated by the Operations Manager that the adsorption capacity of the granular activated carbon contactors is assessed by having monthly grab samples of contactor effluent submitted to a laboratory for phenol analysis. The Owner / Operating Authority reasons that if phenols are detected in the contactor effluent then the media has reached its capacity to adsorb organic contaminants. This method of assessing the viability of contactor media is not recommended since it is based on running the media to failure before replacing it.

   Shawn Killoran indicated that approximately one month before the inspection was initiated his staff collected a sample of contactor media but was having difficulty finding a laboratory that could analyze the media and report upon the media's remaining adsorption capacity. It is recommended that the Owner contact the granular activated carbon manufacturer (Calgon Carbon Corporation of Pittsburgh, Pennsylvania) to determine the recommended frequency of replacement or reconditioning of the contactor media.

3. The Clar+ion coagulant is withdrawn from a horizontally oriented drum by two diaphragm type metering pumps (one standby and one duty pump). There is currently no automatic switch-over device associated with the coagulant feed system that would activate the standby chemical feed pump in the event of a mechanical failure of the duty pump. It is recommended that the Owner install and operate an automatic switch-over system for the coagulant feed pumps. Such an arrangement would safeguard against the possibility of lengthy process upsets and resultant deterioration of treated water quality if a coagulant feed pump fails.

4. The Engineer's Report prepared by M.S. Thompson & Associates Limited identifies operational procedures for achieving adequate CT values. The consultant recommends that the treated water reservoirs be operated in series at all times. It is advised by the consultant that should it ever become necessary to bypass the north reservoir, water supply to the distribution system should be restricted to increase hydraulic retention time and chlorine residual increased to improve CT. No guidelines are provided with respect to at what flow rate treated water should be restricted to or to what concentration chlorine residual should be increased if it ever becomes necessary to bypass the north reservoir.

The Township of South Glengarry should ascertain what CT value is required at the treatment plant to meet the ministry's disinfection guidelines and should incorporate CT assessment into its operating procedures. There should be a written procedure in place within the Operations Manual that instructs staff how to meet CT requirements if it becomes necessary to bypass the north reservoir.

5. Over the past three calendar years average day and maximum day flow rates have continued to climb. Marginally in 2001, but substantially in 2002, the maximum day flows exceeded 80% of the treatment plant's design capacity. This is a strong indicator of the Owner's need to either expand the capacity of the treatment works or to implement significant water conservation measures before treated water demand outstrips the capacity for the works to supply drinking-water.

6. There appears to be no regularly scheduled evaluation of the integrity of the backflow preventer located at the water treatment plant. It is recommended that the Owner retain the services of a plumber or other similarly qualified individual to perform an annual assessment of the integrity of the backflow preventer.

7. The existing Operations Manual does not include a detailed sampling plan.

8. The Contingency Plan includes a detailed procedure for responding to adverse drinking water quality tests. References to O. Reg. 459/00 need to be replaced with O. Reg. 170/03. The notification form included in the existing Contingency Plan was superceded by a more recent document when O. Reg. 459/00 was revoked and replaced by O. Reg. 170/03. Instruction specific to the preparation and submission of Notices of Issue Resolution need to included in the adverse drinking water quality test segment of the Contingency Plan. Furthermore, it is recommended that the Contingency Plan incorporate requirements specified in Condition 3.14 of Certificate of Approval No. 0737-5MJPGM. The approval requires the establishment and implementation of procedures for receiving, responding to, and recording complaints about any aspects of the works.

9. Publicly accessible records are organized within a binder entitled "Water - Glen Walter WTP". Each of the Township's municipally owned drinking-water systems has its own public records binder. The Glen Walter WTP binder contained a copy of O. Reg. 170/03 complete with backgrounder, overview and compendium documents; copies of quarterly reports; and limited analytical records. This publically accessible information falls short of what is required by Subsection 12(1) of O. Reg. 170/03 in the following ways:

- The information to be available to the public did not include every test result obtained in respect of a test required under O. Reg. 170/03 (i.e. every analytical report supplied by laboratories);

- A copy of every approval that applies to the system and is still in effect was not included in the binder; and,

- The copy of O. Reg. 170/03 provided in the public information binder did not include amendments introduced by O. Reg. 249/03 and O. Reg. 269/03.

While the Township does possess all of the analytical results, certificates of approval, and Engineer's Reports necessary to comply with Subsection 12(1) of O. Reg. 170/03, not all of the necessary information has been inserted into the binder created specifically to comply with the Regulation. Furthermore, it is recommended that in addition to the requirements stipulated in the Regulation, the public information should include the results of all Clostridium perfinges and general chemistry analyses.

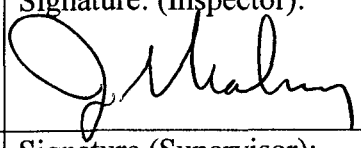
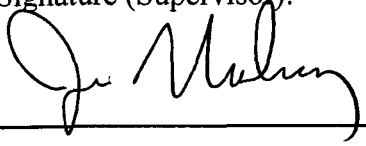
10. Two parameters required to be analyzed under O. Reg. 170/03 but for which analyses were not required under the previous regulation (i.e. O. Reg. 459/00) do not appear to have been included in analyses performed as of the date of the inspection. Please note that Subsection 13-10(b) of Schedule 13 of O. Reg. 170/03 necessitates that the first samples for antimony (Schedule 23 of O. Reg. 170/03) and benzo(a)pyrene (Schedule 24 of O. Reg. 170/03) must be taken and tested by June 1, 2004. Shawn Killoran has verbally informed the writer that the required tests were performed in January 2004.

11. There are few locations in the distribution system where access can be readily obtained for the purpose of collecting samples. A review of analytical records amassed since September 2002 reveals that bacteriological sampling focuses exclusively on three locations: the Blue Anchor Restaurant, the Bray Street sewage pumping station, and the Olco Gas Bar. Although these three locations are well dispersed near the peripheries of the distribution network, bacteriological monitoring locations should be rotated to provide greater coverage of streets within the network. It is recommended that the Owner consider the acquisition and installation of a network of isokinetic sampling stations in the distribution system to provide greater and more representative coverage of bacteriological and residual disinfectant conditions throughout the distribution system.

12. The high level alarm for both turbidity monitors was reportedly set at 1.0 NTU. It is recommended that the high level turbidity alarms be re-set to a value somewhat below the adverse drinking water notification value so that staff are alerted to treatment process upset conditions prior to the point where treated water quality becomes significantly compromised.

By no later than Friday March 31, 2004, provide the undersigned Provincial Officer with an Action Plan that specifies how the Owner/Operator intends to address the twelve above cited recommendations, complete with implementation dates.

SIGNATURES

Inspected By: Jim Mahoney	Signature: (Inspector): 
Reviewed & Approved By: Jim Mahoney	Signature (Supervisor): 
Review & Approval Date: (yyyy/mm/dd) 2004/01/30	

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

cc: Mr. Marcel Lapierre, Administrator & Coordinator, Township of South Glengarry
Mr. Shawn Killoran, Operations Manager, Township of South Glengarry
Dr. Bourdeau, Medical Officer of Health, Eastern Ontario Health Unit
Mirek Tybinkowski, Safe Drinking Water Branch
Mr. Roger Hood, General Manager, Raisin Region Conservation Authority
Cornwall Area Office File SI-GL-CH-510 - Glen Walter Water Treatment Plant

APPENDIX "A"

CERTIFICATE OF APPROVAL

Ontario

Ministry of the Environment | Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE WATER WORKS
NUMBER 0737-5MJPGM

The Corporation of the Township of South Glengarry
PO Box 220
Lancaster, Ontario
K0C 1N0

Site Location: Glen Walter Water Treatment Plant
18352 County Road 2
South Glengarry Township, United Counties of Stormont, Dundas & Glengarry
K6H 5R5

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

a surface water treatment plant serving the community of Glen Walter in the Township of South Glengarry located on the south side of Hwy No.2, approximately 375m west of Page Drive (NAD27: UTM Zone 18: 528700.00m E, 4986500.00m N), rated at a maximum daily flow of 995m^3/day, consisting of the following:

PROPOSED WATER WORKS
(as per application for Approval dated April 23, 2003)

- modification of the existing piping and controls to provide filter to waste capability for each of the two multi-media pressure filters including all necessary instrumentation, controls and appurtenances:

all in accordance with the plans and specifications submitted by Stantec, Consulting Ltd. and any other information that may have been provided in support of the application.

EXISTING WATER WORKS
(Approved under Certificate of Approval No. 0120-5CXQQV dated August 13, 2002.

Intake Facilities

- a 1500mm diameter by 2.5m high concrete pipe intake structure equipped with an aluminum bar screen , located 380m offshore in the St. Lawrence river;
- a 390m long, 300mm diameter raw water intake pipe extending from the intake structure to the water treatment plant;

Water Treatment Plant

- a low lift pump well 4.5m long by 2.0m wide by 3.9m deep equipped with two removable inlet screens;
- two (2) vertical turbine low lift pumps (one duty, one standby), each rated at 11.52L/s at a total dynamic head (TDH) of 31.6m;
- coagulant feed system consisting of two (2) diaphragm metering pumps (one duty, one standby), rated at 3.8L/hr and 18.9L/hr respectively, which pump directly from chemical drums to one (1) 100mm diameter by 400mm long in-line static mixer, installed in the low lift pump discharge header;

- one (1) 2.7m diameter by 3.5m high pressurized flocculator tank, equipped with one(1) variable speed paddle mixer, adjustable from 1-15rpm;
- two (2) 1.8m diameter by 2.7m high multi-media pressure filters, connected in parallel,each equipped with a differential pressure monitor, effluent flowmeter and effluent turbidimeter;
- two (2) 2.6m diameter by 3.2m pressurized Granular Activated Carbon columns, connected in series, each equipped with a differential pressure monitor;
- one (1) vertical turbine filter backwash pump rated at 57.75L/s at a TDH of 22.4m;
- a gas chlorine disinfection system comprising one (1) two-68kg cylinder weigh scale; two cylinder-mounted gas regulator valves (one duty, one standby) with automatic switchover; three chlorinators rated at 2kg/day (pre-chlorinator), 4.6kg/day (post-chlorinator) and 1.3kg/day (final chlorinator) respectively; chlorine solution lines to the low lift pumpwell diffuser (pre-chlorinator), reservoir inlet (post-chlorinator) and high lift pumpwell diffuser (final chlorinator); piping valves and controls, residual recorder and alarms;
- a zebra mussel control system comprising one (1) chlorinator rated at 9kg/day and chlorine solution line to the mouth of the intake pipe;
- a 623m^3 capacity treated water storage reservoir comprising two cells in series, the north cell 15.3m long by 12.2m wide by 3.9m overall depth, the south cell 5.1m long by 12.2m wide by 3.9m overall depth;
- a high lift pump well 2.3m long by 7.2m wide by 3.9m overall depth;
- two (2) vertical turbine high lift pumps (one duty, one standby), each rated at 16.44L/s at a TDH of 52.27m;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TERMS AND CONDITIONS

1. PERFORMANCE

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

1.2 The Owner shall ensure that, subject to Conditions 3.1 through 3.14, the water treatment plant is operated to treat water at a rate not exceeding the maximum flow rate of $995m^3/d$.

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

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

1.3 The Owner shall ensure that the flows into the water treatment plant do not exceed the maximum flow rate set out in Condition 1.2, except where necessary for the purpose of maintenance of the works and essential to its efficient operation, and provided that the treated water quality satisfies the requirements set out in the Ministry Procedure B13-3 entitled "Chlorination of Potable Water Supplies in Ontario", dated January 2001, as amended from time to time.

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

2. MONITORING AND RECORDING

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

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

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

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

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

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

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

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

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

(ii) turbidity of filtered water at the point of discharge from each filter (quality control band: $\pm$ 0.1 NTU),

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

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

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

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

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

3. OPERATIONS AND MAINTENANCE

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

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

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

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

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

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

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

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

3.9 The Owner shall ensure that an operations manual that incorporates, at a minimum, the requirements of this certificate related to the works existing at the time of the issuance of the certificate, and any adopted operation and maintenance recommendations of the Engineer's Report based on which this certificate has been issued, is prepared, and ensure that the operations manual is kept up to date such that any relevant updates to the manual are completed prior to commissioning of any new works or implementation of any operational changes. Upon request, the Owner shall make the manual available for inspection by the Ministry personnel.

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

3.11 For all works constructed after December 31, 2001, including all physical changes to any works in existence on December 31, 2001, within one (1) year of substantial completion of construction of the works/changes, the Owner shall ensure that drawings accurately showing the works/changes as constructed (record drawings) are prepared and kept up-to-date, including timely incorporation of all modifications made to the works throughout its operational life.

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

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

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

4. COMPLIANCE REPORT

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

(b) The first Compliance Report shall cover a period commencing not later than February 8, 2002, to the end of the calendar year in which the certificate is issued and shall be completed and made available not later than later than March 31 following the end of the calendar year to which the Compliance Report applies.

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

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

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

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

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

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

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

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

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

5. UPGRADING REQUIREMENTS

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

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

(i) modifications to the mixed media filter piping and controls to provide for a filter-to-waste cycle prior to return to service after backwashing.

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

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

6. ENGINEERS' REPORTS

6.1 This approval was granted in response, in part, to the first Engineer's Report submitted by the owner. A second Engineer's Report shall be submitted in accordance with Section 13 of Ontario Regulation 495/00, as amended, to the Director not later than **September 30, 2005.**

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

7. REVOCATION OF EXISTING APPROVALS

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

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

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

8. INFORMATION

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

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

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

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

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

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

9. CHANGE OF OWNERSHIP

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

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

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

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

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

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

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

10. INTERPRETATION (Severability and Conflicts)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 0120-5CXQQV issued on August 13, 2002

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

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

The Notice should also include:

3. The name of the appellant;

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

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

This Notice must be served upon:

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

AND

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

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

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

DATED AT TORONTO this 26th day of May, 2003

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

DF/

c: District Manager, MOE Cornwall
Gregory Chochlinksi, P.Eng., Stantec Consulting Ltd.
Manager, Drinking Water, Wastewater and Watershed Standards Section, Standards Section, Standards Development Branch

Ontario

Ministry of the Environment
Drinking Water Inspection Report

APPENDIX "B"

PERMIT TO TAKE WATER

SIGLCH C1220
(32216)

The Corporation of the Township of South Glengarry

6 Oak Street, P.O. Box 220, Lancaster, Ontario K0C 1N0

FAX

Date: **June 18, 2003**

Number of pages including cover sheet: **2**

To: Ministry of the Environment Kingston

Attention: Nicholas Murphy

Re: Renewal Permit to Take Water #88-P-4054

Fax phone: 1-613-548-6908

CC: Clyde Hammond, Director

Shawn Killoran Operations Manager

Mike Seguin – Ministry of the Environment Cornwall

From: Marcel J. Lapierre

Administrator & Co-ordinator

Phone: 613-347-1166

Fax phone: 613-347-3411

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

Further to the subject matter the exchange of correspondence of April 8 and 28, 2003 and our subsequent fax of May 5, 2003 (copy attached), we do not appear to have received a response.

We wish to ensure that we are operating within the requirements of the Ministry of the Environment and seek to resolve this issue.

I await your response.

The Corporation of the
Township of South Glengarry

6 Oak Street, P.O. Box 220,
Lancaster, Ontario K0C 1N0

FAX

Date: May 5, 2003
Number of pages including cover sheet: 1

To: Ministry of the Environment
Kingston
Attention: Nicholas Murphy
Re: Renewal Permit to Take Water
#88-P-4054
Fax phone: 1-613-548-6908
CC: Clyde Hammond, Director
Shawn Killoran Operations Manager

From: Marcel J. Lapierre
Administrator & Co-ordinator
Phone: 613-347-1166
Fax phone: 613-347-3411

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

Subject to the above our letter of April 8, 2003 (Shawn Killoran) and your response of April 28, 2003 I wish to draw to your attention that the request does not constitute a transfer. The original certificate was taken out by the Township of Charlottenburgh since the date of issuance and subsequent renewals. An Amalgamation Order Dated 1997 effective January 1, 1998 created South Glengarry being composed of the former townships of Lancaster, Charlottenburgh, and Lancaster Village.

Your review and re-evaluation is requested.

ATT: MARCEL

SIGL CH C1220
(32216)

April 28, 2003

The Corporation of the Township of South Glengarry
6 Oak Street, PO Box 220
Lancaster, ON K0C 1N0

Attention: Shawn Killoran

Dear Mr. Killoran:

Re: Your Request for the Renewal of Permit To Take Water 88-P-4054

I am writing in response to your letter of April 8, 2003 in order to provide information with respect to applying for a Permit To Take Water. Based on the content of your letter and a review of our files I provide the following comments.

The Permit To Take Water that your April 8th, 2003 letter refers to was in fact issued to Charlottenburgh Township on August 2nd, 1988 and was renewed on June 11th, 1993. However, since your municipality wishes to assume the rights, privileges and responsibilities afforded by the Permit and since Permits To Take Water are not transferable, the municipality must complete and submit an application for a new Permit To Take Water to this office for review. This future submission should cross reference the existing permit number so that possible confusion caused by your second, similar application may be avoided.

To aid you in successfully completing the Permit To Take Water application process I have enclosed a copy of the Guide For Applying For Approval Of Permit To Take Water (Interim Guide), which includes:

- General Instructions for applying for a Permit To Take Water
- Step by step details on how to properly complete the application
- The Ontario Water Resources Act - Section 34 and Section 98
- Regulation 285/99
- MOE Regional Offices Maps and Addresses
- General Conditions on all Permits
- Application for Permit To Take Water

I trust this information will be of aid to you throughout this process.

I am however obligated to inform you that if at any time your water taking will exceed 50,000 litres in a day, then you will require a Permit. Please submit your application at least 60 days prior to commencing any taking of greater than 50,000 litres a day. Please be advised that the taking, storage, or diversion of greater than 50,000 litres of water in a day without a Permit To Take Water is a contravention of Section 34 of the *Ontario Water Resources Act*, R.S.O. 1990, and may be subject to penalties under the Act.

If you wish to engage in pre-submission consultation please contact Mr. Nicholas Murphy at (613) 549-4000, extension 2627 during our regular business hours.

Yours sincerely,

Original Signed by
C. HAMMOND

Clyde Hammond, Director
Section 34, *Ontario Water Resources Act*, R.S.O. 1990
Technical Support Section
Eastern Region
Ministry of the Environment
NM/sh

Enclosure

bc: Cornwall Area Office
PTTW File 88-P-4054
PTTW General File

The Corporation of the
South Glengarry

6 Oak Street
P.O. Box 220
Lancaster, Ontario K0C 1N0

South Glengarry
Water/ Wastewater Treatment
Phone 613-931-3036
Fax 613-931-3340

April 8, 2003
Ministry of the Environment
Kingston Regional Office
133 Dalton Ave.
Kingston, Ont.
K7L 4X6

Att: Permit To Take Water Co-coordinator

Dear Sir/Madam:

On behalf of the Corporation of the Township of South Glengarry I wish to apply for a renewal for the "Permit To Take Water" for the South Glengarry Township, Glen Walter Water Treatment Plant, formerly referred to as the Charlottenburgh Water Treatment Plant. The existing Permit To Take Water number is 88-P-4054.

If you have any questions on the above information, please do not hesitate to contact me.

Yours truly,

Shawn Killoran
Operations Manager
Cc: Marcel Lapierre
Administrator & Co-Ordinator

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

Southeastern Region
Région du Sud-Est
1-800/267-0974 Fax: 613/548-6908

Mailing Address
PO Box 820
Kingston, Ontario
K7L 4X5

Adresse postale
CP 820
Kingston (Ontario)
K7L 4X5

133 Dalton Avenue
Kingston, Ontario
K7K 6C2
613 / 549-4000
1 / 800 / 267-0974
Fax No. 613 / 548-6908

133, avenue Dalton
Kingston (Ontario)
K7K 6C2
613 / 549-4000
1 / 800 / 267-0974
Télécopieur: 613 / 548-6908

11 June 1993

Mr. Patrick Newland
Ministry of Environment and Energy
c/o Charlottenburgh Water Treatment Plant
P.O. Box 906
CORNWALL, Ontario
K6H 5V1

CH 04 0000_

Dear Sir:

Re: Permit to Take Water
St. Lawrence River
Lot 6, Concession I
Township of Charlottenburgh

Enclosed please find Permit to Take Water Number 88-P-4054 which authorizes the withdrawal of water from the St. Lawrence River fronting Lot 6, Concession I, Township of Charlottenburgh.

The Permit has been issued in accordance with the procedures and amounts stated on the application portion of the Permit and is subject to the General Terms and Conditions of issuance as well as those Special Conditions which may be stated on the Permit or the attached Notice.

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

The Permit is valid until June 30, 2003. A renewal application must be submitted to this office at least one month prior to that date to avoid cancellation of the Permit.

Compliance with the Terms and Conditions of the Permit is the responsibility of the permittee. Any person taking water under the authority of this Permit must be familiar with the Terms and Conditions.

If you have any questions regarding your Permit please contact Penny Sutcliffe at this office.

Yours truly,

P. Farnsworth, Director
Section 34, R.S.O. 1990
Ontario Water Resources Act
Ministry of the Environment
PS/km
Enclosure

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

PERMIT TO TAKE WATER
Number 88-P-4054

TO: Her Majesty the Queen in Right of Ontario as Represented by
the Minister of Environment and Energy
c/o Charlottenburgh Water Treatment Plant
P.O. Box 906
Cornwall, Ontario
K6H 5V1

has applied in accordance with Section 34 of the Ontario Water Resources Act for approval of:

the taking of water for municipal purposes **from** the St. Lawrence River on Lot 6, Concession I in the Township of Charlottenburgh. **This will be effective until** June 30, 2003, **with the rate of taking not to exceed** 656 litres **per minute, or** 945,000 litres **per day,**

all in accordance with the application dated June 1, 1993, **and signed by** Patrick Newland, Ministry of Environment and Energy.

You are hereby notified that this Permit is issued to you subject to the General Terms and Conditions in Schedule A, and subject to the Special Conditions listed here.

SPECIAL TERMS AND CONDITIONS

1) Measurement and Reporting under General Terms and Conditions 2 clauses (b) and (c). Records to be submitted to the Director annually.

The reason for the imposition of this condition is as follows:

1) The reason for Condition 1 is to establish a record of water taking.

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

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

The Notice should also include:

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

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

This notice must be served upon:

The Secretary
Environmental Appeal Board
112 St. Clair Avenue West
Suite 502
TORONTO, Ontario
M4V 1N3

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

Dated at Kingston this 11th day of June, 1993.

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

Schedule A - General Terms and Conditions

These Terms and Conditions have been designed to allow for the development of water resources for beneficial purposes while providing reasonable protection to existing water uses and to public interests in water.

1. **Permit**

This permit shall be kept available at all times for inspection.

2. **Measurement and Reporting of Water Taking**

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 2(b) at such times or with such frequency as the Director may specify;
d) To keep records made pursuant to clause 2(b) available for inspection until such time as they are returned to the Director pursuant to clause 2(c).

3. **Interference with Other Water Supplies**

The Permit holder shall immediately notify the Director of any complaint arising from the taking of water authorized by this Permit and shall report upon any action which has been taken or is proposed with regard to such complaint.

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 the streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

For Ground-Water Takings, if the taking of water is forecast to interfere seriously, or is observed to interfere seriously with 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 as will 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 so as to prevent the forecast interference or alleviate the observed interference. 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.

4. **Reporting of Changes**

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/her rights under this Permit to another person without the written consent of the Director.

5. **Expiry**

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

6. **Liability**

This Permit does not release the permittee 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 estopping 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 permittee, its officers, employees, agents, and contractors.

7. **Inspection**

It is a condition of this Permit that the permittee must forthwith on request permit provincial officers to carry out inspections authorized by Section 15, 15a or 15b of the Ontario Water Resources Act, Section 156, 156a or 157 of the Environmental Protection Act or Section 19 or 20 of the Pesticides Act of any place, other than any room actually used as a dwelling, to which the permit relates.

(52216)

The Corporation of the

6 Oak Street
P.O. Box 220
Lancaster, Ontario K0C 1N0

South Glengarry
Water/Wastewater Treatment
Phone 613-931-3036
Fax 613-931-3340

January 25, 2002

Ministry of the Environment
Kingston Regional Office
133 Dalton Avenue
P.O. Box 820
Kingston, Ontario
K7L 4X6
Attention: Mr. Hammond

SUBJECT: Annual Permit To Take Water

Mr. Hammond:

This letter is to inform the Ministry of the Environment of the Annual Record of Water Taking. Enclosed are the records for the facilities operated by the Township of South Glengarry. The Lancaster W.T.P. Permit # 00-P-4046, Glen Walter W.T.P. Permit # 88-P-4054 and Redwood Estates Permit # 93-P-4078. Please note that the hours of taking and rate of taking for Redwood Estates are not completed due to the fact that this facility has no hour meters on line.

Could you please verify that the requests for amendments of Permit to take Water for the Redwood Estates and Glen Walter W.T.P. are being processed. The changes were for Redwood Estates requested on January 8, 2001 to comply with the inspection report completed on August 23,2000. Mr. Jeff Columbus Environmental Officer (Cornwall area) noted that the Permit (93-P- 4078) should be changed, Occurrence Report # 9940005591. The request for change was also requested for Glen Walter W.T.P. on October 11 2000 to Mr. Lusk from your office.

The amendment for the Water Taking Permit issued to Ewen Kennedy of R.R. #1 Bainsville,Ontario, be changed to read The Corporation of the Township of South Glengarry, 6 Oak St. P.O. Box 220 Lancaster Ontario K0C 1N0.

The amendment for the Water Taking Permit for Glen Walter W.T.P. should now read The Corporation of the Township of South Glengarry (Glen Walter Water Treatment Facility) 6 Oak St. P.O. Box 220 Lancaster Ontario K0C 1N0

If you require any further information concerning this matter please do not hesitate to contact me.

Yours truly,

Shawn Killoran
Operations Manager

c.c Marcel Lapierre, Administrator/ Coordinator, Township of South Glengarry
Jeff Columbus, M.O.E. Cornwall

Ministry of the Environment
Ontario

Ministère de l'Environnement

Annual Record of Water Tal
Relevé annuel des prises d'

Personal information contained on this form is collected under the authority of the Ontario Water Resources Act, Section 20. The purpose of the form is to record details and information about the taking of water annually. Questions should be directed to the Ministry of the Environment's Regional Office in your area.

Les renseignements personnels qui figurent dans le présent formulaire sont recueillis en vertu de l'article 20 de la Loi sur les ressources en eau de l'Ontario. Le présente sert à consigner aux dossiers les détails et les renseignements concernant la prise d'eau annuelle. Prière d'adresser toute question au bureau régional du ministère de l'Environnement le plus proche.

. See examples on the reverse side for instructions on completing form.
. *Voir les exemples au verso pour remplir la formule.*

Permit No. / N° de permis	Year / Année
88-12-7054	2001

Source (Separate record to be kept for each source) / *(Faire un relevé distinct pour chaque source)*
Surface Water St Lawrence River
W.W.# 210001861

Name of Permittee / *Nom du titulaire du permis*
Township of South Glengarry (Glen Walter W.T.P.)

Mailing Address / *Adresse postale*
6 Oak St P.O. Box 220 Lancaster ON K0C 1N0

Location of Taking / *Lieu de la prise d'eau* — Twp. or Municipality / *Canton ou municipalité* — Concession — Lot
Glen Walter Ont — South Glengarry

(1) Date of Taking / *Date de la prise d'eau*	(2) Hours of Taking / *Heure*	(3) Rate of Taking / *Débit de prise d'eau* (☐ Imp gpm Gal./min ☐ U.S. gpm Gal./min ☑ Litres/sec Litres/sec)	(4) Amount of Taking / *Volume des prises d'eau par* (☐ Day/jour ☐ Week/semaine ☑ Month/mois)	(5) Remarks / *Observations*
Jan 2001	248.00	12.17	11226 m3	
Feb 2001	216.80	11.90	9950 m3	
March 2001	233.0	11.96	10735 m3	
April 2001	240.50	12.61	11255 m3	
May 2001	300.20	12.05	13428 m3	
June 2001	321.90	13.72	15429 m3	
July 2001	374.30	12.55	16914 m3	
Aug 2001	361.70	12.62	16354 m3	
Sept 2001	275.00	12.52	12402 m3	
Oct 2001	232.50	11.94	10042 m3	
Nov 2001	199.40	13.00	9327 m3	
Dec 2001	224.40	13.07	10557	

I certify that the above information is true, complete and accurate. / *J'atteste que les renseignements ci-dessus sont vrais, complets et exacts.*
Shawn Killoran — Signature — Date: Jan 24/02

1141 (01/91) Front

APPENDIX "C"

GPS COORDINATES

GPS REFERENCING	
ITEM	GLOBAL POSITIONING SYSTEM (GPS) COORDINATES
MAP DATUM:	**NAD27**
UTM ZONE:	**18**
TREATMENT PLANT:	**528700.00 m E, 4986500.00 m N**

Ontario

Ministry of the Environment
Drinking Water Inspection Report

APPENDIX "D"

OPERATOR AND FACILITY CERTIFICATION DETAILS

PLANT CLASSIFICATION

Plant Name: Glen Walter WTP

Facility Level: Water Treatment Class 2, Water Distribution Class 2

PLANT PERSONNEL

OPERATOR 1

Operator Name: Shawn Killoran

Title: Operations Manager

Certificate Number: 6882, 6883

Expiry Date: September 2005

Certification Level: WT2, WD2

OPERATOR 2

Operator Name: John Cameron

Title: Operator

Certificate Number: 12408, 12978

Expiry Date: July 2005, January 2004

Certification Level: WT2, OIT WDS

OPERATOR 3

Operator Name: George Ramanko

Title: Operator

Certificate Number: 11215, 5569

Expiry Date: April 2006, March 2006

Certification Level: WT1, OIT WDS

APPENDIX "E"

CONTACT INFORMATION

Eastern Ontario Health Unit

1000 Pitt Street
Cornwall, ON
K6J 5T1

Medical Officer of Health: Dr. Bourdeau

Phone: (613) 933-1375
Fax: (613) 933-7930

Raisin Region Conservation Authority

P.O. Box 429
6589 Boundary Road
Cornwall, ON
K6H 5T2

Attention: Mr. Roger Hood
General Manager

Safe Drinking Water Branch

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

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

Attention: Mirek Tybinkowski
Water and Wastewater
Specialist

Township of South Glengarry

Marcel Lapierre
Administrator & Coordinator
6 Oak Street
P.O. Box 220
Lancaster, ON
K0C 1N0

Shawn Killoran
Operations Manager
Glen Walter WTP
18352 County Road 2 (Hwy. 2 East)
Glen Walter, ON
K6H 5R5

APPENDIX "F"

PLANT SCHEMATIC

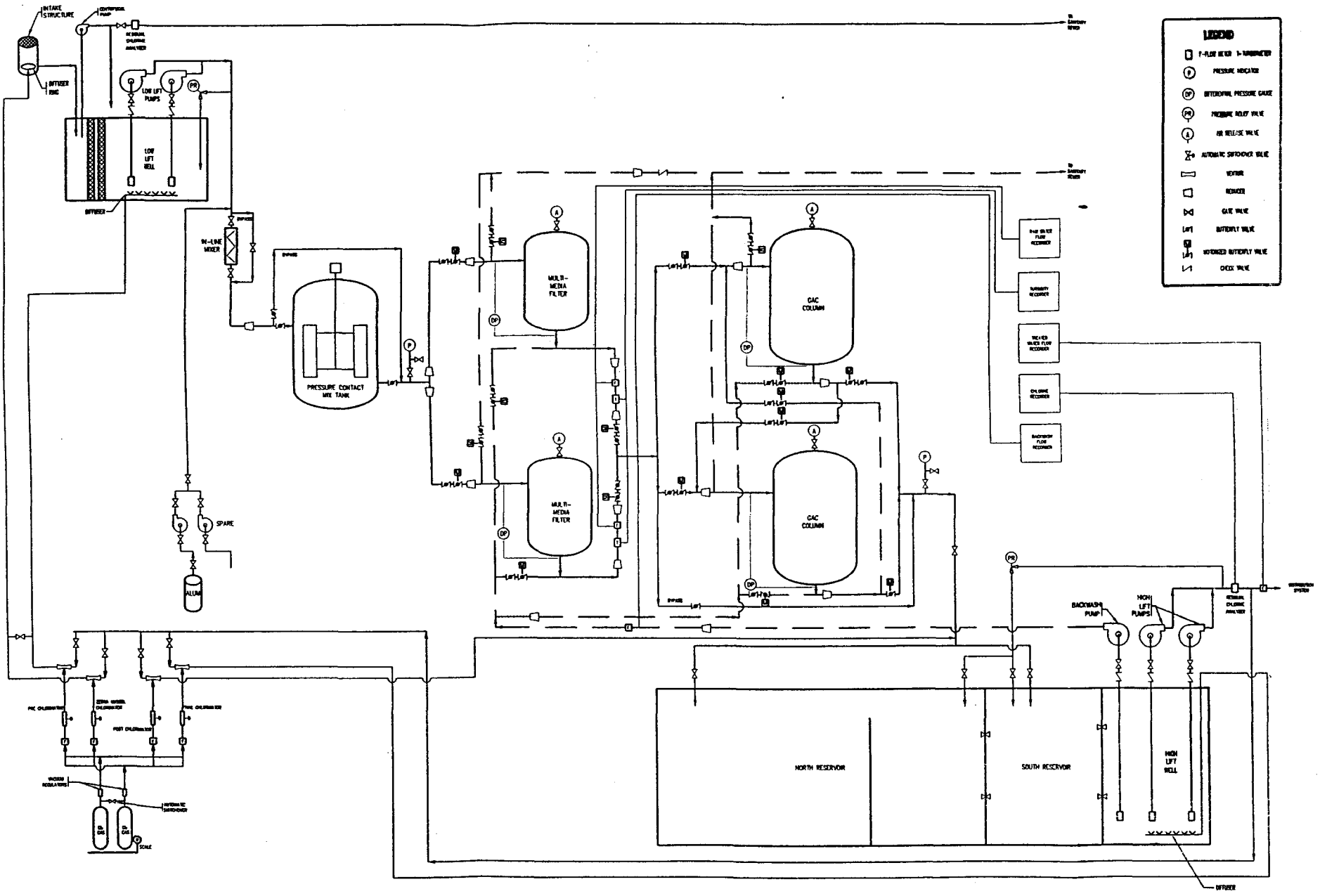
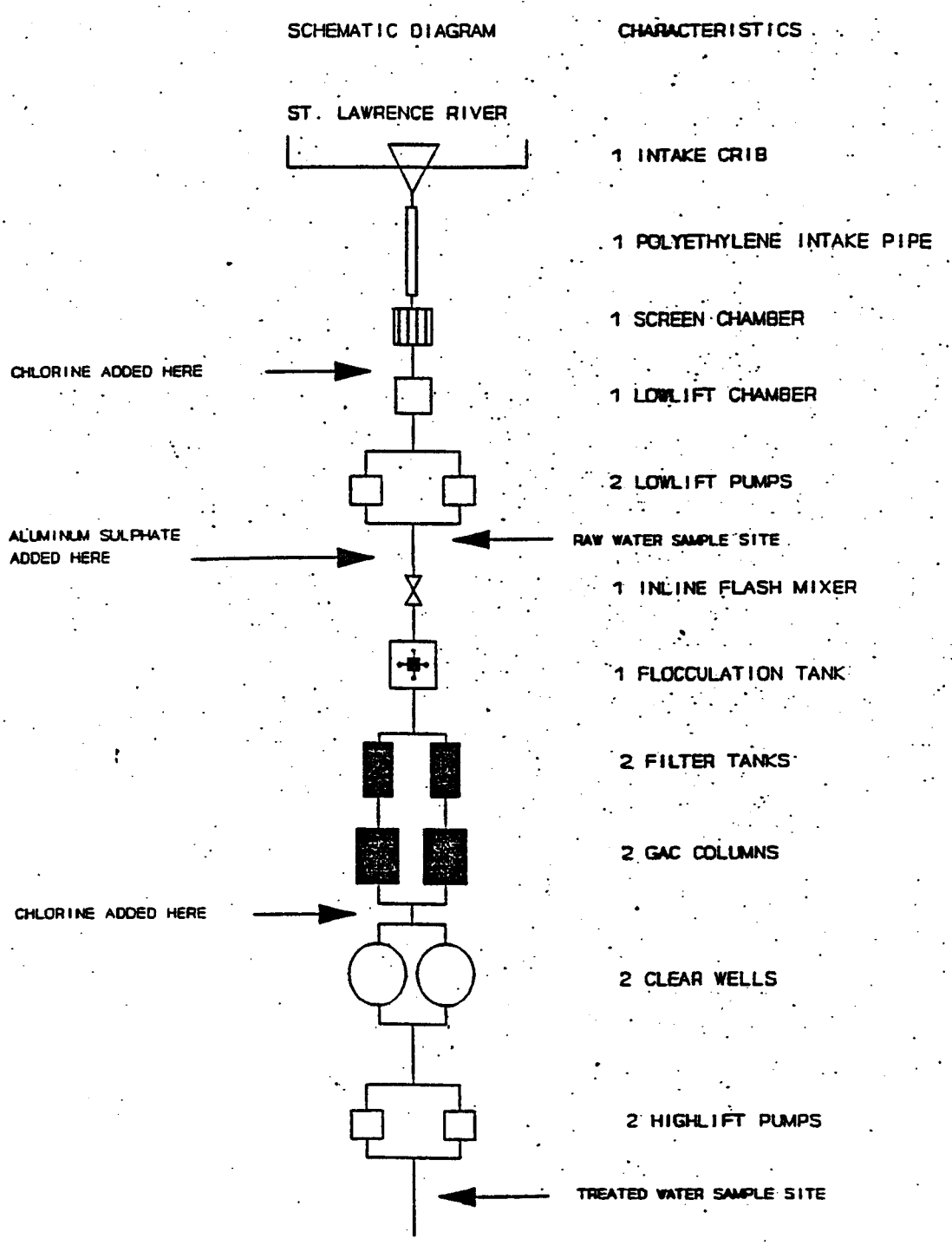

INTAKE STRUCTURE
CENTRIFUGAL PUMP
RESIDUAL CHLORINE ANALYZER
BYPASS
LOW LIFT PUMPS
LOW LIFT WELL
BYPASS
IN-LINE MIXER
PRESSURE CONTACT MIX TANK
SPARE
ALUM
MULTI-MEDIA FILTER
MULTI-MEDIA FILTER
CAC COLUMN
CAC COLUMN
PRE-WATER FLOW RECORDER
TURBIDITY RECORDER
TOTALIZER FLOW RECORDER
CHLORINE RECORDER
BACKWASH FLOW RECORDER
BACKWASH PUMP
HIGH LIFT PUMPS
RESIDUAL CHLORINE ANALYZER
NORTH RESERVOIR
SOUTH RESERVOIR
HIGH LIFT WELL
BYPASS
LEGEND
PRESSURE INDICATOR
DIFFERENTIAL PRESSURE GAUGE
PRESSURE RELIEF VALVE
AIR RELEASE VALVE
AUTOMATIC SWITCHOVER VALVE
VENTURI
REDUCER
GATE VALVE
BUTTERFLY VALVE
MOTORIZED BUTTERFLY VALVE
CHECK VALVE

FIGURE 1

CHARLOTTENBURGH WATER TREATMENT PLANT



APPENDIX "G"

MINISTRY AUDIT SAMPLE RESULTS

Ontario Ministry of Environment
Central Laboratory - Resources Road
FINAL REPORT(manager.rdf)
Sep. 08, 2003 09:44 AM

Login: **C108577**

Program Code 130072201

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

Org. Id: 4602

Mail this copy to :

MAHONEY, JIM
MOE - KINGSTON REGIONAL OFFICE
133 DALTON AVENUE
KINGSTON,ONT
K7L 4X6

Final reports to : MAHONEY, JIM

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

LOGIN DESCRIPTION: 210001861 SOUTH GLENGARRY-GLEN WALTER WP JIM MAHONEY 613-549-4000X2672

Login: **C108577**

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
JDM03	2100018618011	(REG) BLUE ANCHOR REST. DISTRIBUTION	02 SEP 2003	09:55	5	

Sample ID: C108577-0001

Sample Comment Description: 18 529209E 4986725N GPS NAD83 7.8M

MOE*LIMS Products Requested:

WD	E3226A	PA3226	WD	E3408A	PC3408

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
JDM04	2100018618011	(REG) BRAY ST SPS DISTRIBUTION	02 SEP 2003	10:05	5	

Sample ID: C108577-0002

Sample Comment Description: 18 528197E 4987120N GPS NAD83 5.3M

MOE*LIMS Products Requested:

WD	E3226A	PA3226	WD	E3408A	PC3408

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
JDM05	2100018618011	(REG) OLCO GASOLINE STN DISTRIBUTION	02 SEP 2003	10:25	5	

Sample ID: C108577-0003

Sample Comment Description: 18 528198E 4986927N GPS NAD83 11.7M

MOE*LIMS Products Requested:

WD	E3226A	PA3226	WD	E3408A	PC3408

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
JDM06	2100018618011	(REG) CORNWALL GOLF CLUB DISTRIBUTION	02 SEP 2003	10:35	5	

Sample ID: C108577-0004

Sample Comment Description: 18 527434E 4986882N GPS NAD83 9.2M

MOE*LIMS Products Requested:

WD	E3226A	PA3226	WD	E3408A	PC3408

Login: **C108577**

Field ID:		JDM03				JDM04				JDM05			
Sample ID:		C108577-0001				C108577-0002				C108577-0003			
MOE*LIMS ID:		2003WD36-00047				2003WD36-00048				2003WD36-00049			
Station ID:		2100018618011				2100018618011				2100018618011			
Collect Date:		02 SEP 2003				02 SEP 2003				02 SEP 2003			
Sample Location Description:		(REG) BLUE ANCHOR REST. DISTRIBUTION				(REG) BRAY ST SPS DISTRIBUTION				(REG) OLCO GASOLINE STN DISTRIBUTION			
Sample Comments Description:		18 529209E 4986725N GPS NAD83 7.8M				18 528197E 4987120N GPS NAD83 5.3M				18 528198E 4986927N GPS NAD83 11.7M			
Listid	Parmname	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1
3226L1	NT: Total Coliforms	See Non-Target Textual result				See Non-Target Textual result				See Non-Target Textual result			
3408L1	Heterotrophic bacteria (HB35)	10.	c/mL	<		10.	c/mL	<		10.	c/mL	<	

Login: **C108577**

Field ID:	JDM06
Sample ID:	C108577-0004
MOE*LIMS ID:	2003WD36-00050
Station ID:	2100018618011
Collect Date:	02 SEP 2003
Sample Location Description:	(REG) CORNWALL GOLF CLUB DISTRIBUTION
Sample Comments Description:	18 527434E 4986882N GPS NAD83 9.2M

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

Login: **C108577**

CODE	DESCRIPTION
<	ACTUAL RESULT IS LESS THAN THE REPORTED VALUE
NDAE	NO DATA: ABSENT NT: ESCHERICHIA COLI
NDAT	NO DATA: ABSENT NT: TOTAL COLIFORMS
NDDN	NO DATA: NOT DETECTED NT: DETERIORATION INDICATORS

Login: **C108577**

NON-TARGET TEXTUAL RESULT

Sample ID	Listid	Parmname	Value:	Qual:	Remarks
C108577-0001	3226L1	NT: Total Coliforms		NDAT	
Absent					
C108577-0001	3226L1	NT: Escherichia coli		NDAE	
Absent					
C108577-0001	3226L1	NT: Deterioration Indicators		NDDN	
Not Detected					
C108577-0002	3226L1	NT: Total Coliforms		NDAT	
Absent					
C108577-0002	3226L1	NT: Escherichia coli		NDAE	
Absent					
C108577-0002	3226L1	NT: Deterioration Indicators		NDDN	
Not Detected					
C108577-0003	3226L1	NT: Total Coliforms		NDAT	
Absent					
C108577-0003	3226L1	NT: Escherichia coli		NDAE	
Absent					
C108577-0003	3226L1	NT: Deterioration Indicators		NDDN	
Not Detected					
C108577-0004	3226L1	NT: Total Coliforms		NDAT	
Absent					
C108577-0004	3226L1	NT: Escherichia coli		NDAE	
Absent					
C108577-0004	3226L1	NT: Deterioration Indicators		NDDN	

Login: **C108579**

Field ID:	JDM01
Sample ID:	C108579-0001
MOE*LIMS ID:	2003WD36-00052
Station ID:	2100018617011
Collect Date:	02 SEP 2003
Sample Location Description:	RAW WATER
Sample Comments Description:	18 528826E 4986743N GPS NAD83 20M

Listid	Parmname	Value	Units	Qual	Rmk1
3371L7	Total coliform	4.0	c/100mL		
	Total Coliform Background	200	c/100mL	>	
	Escherichia coli	0.0	c/100mL		

Login: **C108579**

CODE	DESCRIPTION
>	ACTUAL RESULT GREATER THAN THE REPORTED VALUE
A2C	BACKGROUND COUNTS GREATER THAN 200

Login: **C108580**

Field ID:	JDM02
Sample ID:	C108580-0001
MOE*LIMS ID:	2003WD36-00053
Station ID:	2100018617412
Collect Date:	02 SEP 2003
Sample Location Description:	(REG) TREATED WATER
Sample Comments Description:	18 528826E 4986743N GPS NAD83 20M

Listid	Parmname	Value	Units	Qual	Rmk1
3051L1	Copper	.7	ug/L	+/-0.50	
	Nickel	1.1	ug/L	+/-0.40	
	Zinc	2.6	ug/L	+/-0.80	
	Cadmium	-.02	ug/L	+/-0.05	
	Chromium	1.2	ug/L	+/-0.50	
	Lead	.02	ug/L	+/-0.05	
	Iron	0	ug/L	+/-6.00	
	Manganese	.56	ug/L	+/-0.56	
	Aluminum	114	ug/L	+/-10.00	
	Vanadium	.62	ug/L	+/-0.09	
	Molybdenum	1.41	ug/L	+/-0.23	
	Silver	.02	ug/L	+/-0.05	
	Barium	23.7	ug/L	+/-2.30	
	Beryllium	0	ug/L	+/-0.05	
	Strontium	173	ug/L	+/-17.00	
	Titanium	.2	ug/L	+/-0.50	
	Thallium	.01	ug/L	+/-0.05	
	Uranium	.22	ug/L	+/-0.05	
	Boron	29	ug/L	+/-4.00	
	Arsenic	.6	ug/L	+/-0.10	
	Selenium	1	ug/L	+/-1.00	
	Antimony	.63	ug/L	+/-0.16	
	Cobalt	.04	ug/L	+/-0.04	
3060L1	Mercury	.02	ug/L	<=W	
3144L1	Chloroethene	.05	ug/L	<=W	
	1,1-dichloroethene	.05	ug/L	<=W	
	Dichloromethane	.2	ug/L	<=W	
	Tert-butyl methyl ether	0.10	ug/L	<T	
	trans-1,2-dichloroethene	.05	ug/L	<=W	
	1,1-dichloroethane	.05	ug/L	<=W	
	cis-1,2-dichloroethene	.05	ug/L	<=W	
	Chloroform	15.0	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	

Login: **C108580**

Field ID:	JDM02
Sample ID:	C108580-0001
MOE*LIMS ID:	2003WD36-00053
Station ID:	210001861741 2
Collect Date:	02 SEP 2003
Sample Location Description:	(REG) TREATED WATER
Sample Comments Description:	18 528826E 4986743N GPS NAD83 20M

Listid	Parmname	Value	Units	Qual	Rmk1
3144L1	Trichloroethene	.05	ug/L	<=W	
	Bromodichloromethane	9.0	ug/L		
	Toluene	.05	ug/L	<=W	
	1,2-dibromoethane	.1	ug/L	<=W	
	1,1,2-trichloroethane	.1	ug/L	<=W	
	Dibromochloromethane	4.6	ug/L		
	Tetrachloroethene	.05	ug/L	<=W	
	Chlorobenzene	.05	ug/L	<=W	
	Ethylbenzene	.05	ug/L	<=W	
	m-xylene	.05	ug/L	<=W	
	p-xylene	.05	ug/L	<=W	
	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	28.5	ug/L		
3172L3	Fluoride	0.10	mg/L		
3226L1	NT: Total Coliforms	See Non-Target Textual result			
3311L1	Turbidity	0.21	FTU	<T	
3364L1	Nitrogen; ammonia+ammonium	.002	mg/L	<=W	
	Nitrogen; nitrite	.001	mg/L	<=W	
	Nitrogen; nitrate+nitrite	0.214	mg/L		
	Phosphorus; phosphate	.0005	mg/L	<=W	
3408L1	Heterotrophic bacteria (HB35)	10.	c/mL	<	

Login: **C108580**

CODE	DESCRIPTION
<	ACTUAL RESULT IS LESS THAN THE REPORTED VALUE
<=W	NO MEASURABLE RESPONSE (ZERO): <REPORTED VALUE
<T	A MEASURABLE TRACE AMOUNT:INTERPRET WITH CAUTION
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: **C108580**

NON-TARGET TEXTUAL RESULT

Sample ID	Listid	Parmname	Value:	Qual:	Remarks
C108580-0001	3226L1	NT: Total Coliforms		NDAT	

Absent

Sample ID	Listid	Parmname	Value:	Qual:	Remarks
C108580-0001	3226L1	NT: Escherichia coli		NDAE	

Absent

Sample ID	Listid	Parmname	Value:	Qual:	Remarks
C108580-0001	3226L1	NT: Deterioration Indicators		NDDN	

Not Detected

TEXT COMMENTS

** End of Report **

Login: **C108578**

Field ID:	JDM07
Sample ID:	C108578-0001
MOE*LIMS ID:	2003WD36-00051
Station ID:	2100018618011
Collect Date:	02 SEP 2003
Sample Location Description:	(REG) CORNWALL GOLF CLUB DISTRIBUTION
Sample Comments Description:	18 527434E 4986882N GPS NAD83 9.2M

Listid	Parmname	Value	Units	Qual	Rmk1
3051L3	Lead	.07	ug/L	+/-0.07	
3144L1	Chloroethene	.05	ug/L	<=W	
	1,1-dichloroethene	.05	ug/L	<=W	
	Dichloromethane	.2	ug/L	<=W	
	Tert-butyl methyl ether	0.10	ug/L	<T	
	trans-1,2-dichloroethene	.05	ug/L	<=W	
	1,1-dichloroethane	.05	ug/L	<=W	
	cis-1,2-dichloroethene	.05	ug/L	<=W	
	Chloroform	15.5	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	
	Bromodichloromethane	9.2	ug/L		
	Toluene	.05	ug/L	<=W	
	1,2-dibromoethane	.1	ug/L	<=W	
	1,1,2-trichloroethane	.1	ug/L	<=W	
	Dibromochloromethane	4.6	ug/L		
	Tetrachloroethene	.05	ug/L	<=W	
	Chlorobenzene	.05	ug/L	<=W	
	Ethylbenzene	.05	ug/L	<=W	
	m-xylene	.05	ug/L	<=W	
	p-xylene	.05	ug/L	<=W	
	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	29.5	ug/L		
3226L1	NT: Total Coliforms	See Non-Target Textual result			
3408L1	Heterotrophic bacteria (HB35)	10.	c/mL	<	

Login: **C108578**

CODE	DESCRIPTION
<	ACTUAL RESULT IS LESS THAN THE REPORTED VALUE
<=W	NO MEASURABLE RESPONSE (ZERO): <REPORTED VALUE
<T	A MEASURABLE TRACE AMOUNT:INTERPRET WITH CAUTION
NDAE	NO DATA: ABSENT NT: ESCHERICHIA COLI
NDAT	NO DATA: ABSENT NT: TOTAL COLIFORMS
NDDN	NO DATA: NOT DETECTED NT: DETERIORATION INDICATORS

Login: **C108578**

NON-TARGET TEXTUAL RESULT

Sample ID	Listid	Parmname	Value:	Qual:	Remarks
C108578-0001	3226L1	NT: Total Coliforms		NDAT	

Absent

Sample ID	Listid	Parmname	Value:	Qual:	Remarks
C108578-0001	3226L1	NT: Escherichia coli		NDAE	

Absent

Sample ID	Listid	Parmname	Value:	Qual:	Remarks
C108578-0001	3226L1	NT: Deterioration Indicators		NDDN	

Not Detected

TEXT COMMENTS

* End of Report **