

Ministry of
the Environment
Safe Drinking Water
Branch

Peterborough District Office
Robinson Pl South Tower
300 Water St
Peterborough ON K9J 8M5

Ministère de
l'Environnement
Direction du contrôle de la qualité de
l'eau potable
Bureau du district de Peterborough
Place Robinson, Tour Sud
300, rue Water
Peterborough (Ontario) K9J 8M5



April 21, 2011

Ms Janice Lavalley
Chief Administrative Officer
The Corporation of the Township of Smith-Ennismore-Lakefield
1310 Centre Line Road
Bridgenorth, ON K0L 1H0

Dear Ms Lavalley:

**RE: Lakefield Drinking Water System
2010/11 Compliance Inspection Report 1-8FE6S
MOE File: SI PB LA WA 540**

Please find attached the Ministry of the Environment's inspection report for the above facility. The report details the findings of the inspection that began on February 14, 2011

Please note that Appendix D of the document contains the Inspection Report Rating report based on the non-compliance items identified during the inspection.

"Recommended Actions" convey information that the owner or operating authority should consider implementing in order to advance efforts already in place to address such issues as emergency preparedness, the fulsome availability of information to consumers, and conformance with existing and emerging industry standards. Please note that items which appear as recommended actions do not, in themselves, constitute violations.

Please note, you will find in the report that bullets are shown in bold print and are the consistent and standard responses to the information gathered during the inspection. Statements shown in regular font provide additional site-specific details.

Thank you for the assistance afforded to me during the conduct of the compliance assessment. Please do not hesitate to call me at 705-755-4333 or Ms. Jacqueline Fuller, Supervisor, Safe Drinking Water Branch (705-755-4328), should you have any questions or concerns regarding the above.

Yours truly,

A handwritten signature in black ink that reads "Candy Gibson".

Candy Gibson
Provincial Officer
Drinking Water Program Inspector
Eastern Region, Safe Drinking Water Branch
Ministry of Environment

Enclosure (1)

c: Meredith Carter, Manager, Environmental Projects – Otonabee Region Conservation Authority
James Hunt, Source Water Protection Committee Chair – Trent Conservation Coalition
Dr. Rosana Pellizzari, Medical Officer of Health – Peterborough City-County Health Unit
Lane Vance, Manager of Financial Services and Treasurer – Township of Smith-Ennismore-Lakefield
Wayne Stiver, Vice President – Peterborough Utilities Services Inc.
Kevan Light, Superintendent, Peterborough Water Treatment Plant - Peterborough Utilities Services Inc.



Ministry of the Environment

**LAKEFIELD DRINKING WATER SYSTEM
Drinking Water System Inspection Report**

DWS Number:	220000488
Inspection Number:	1-8FE6S
Date of Inspection:	Feb 14, 2011
Inspected By:	Candy Gibson

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OWNER INFORMATION:

Company Name: SMITH-ENNISMORE-LAKEFIELD, THE CORPORATION OF THE TOWNSHIP OF
Street Number: 1310 **Unit Identifier:**
Street Name: CENTRE Line N
City: BRIDGENORTH
Province: ON **Postal Code:** K0L 1H0

CONTACT INFORMATION

Type: Conservation Authority **Name:** Meredith Carter
Phone: (705) 745-5791 **Fax:** (705) 745-7488
Email: mcarter@otonabee.com
Title: Manager, Environmental Projects

Type: Other-Source water Protection **Name:** James Hunt
Phone: (613) 394-3915 x252 **Fax:** (613) 394-5226
Email: info@trentsourceprotection.on.ca
Title: Source Water Protection Committee Chair, Trent Conservation Coalition

Type: Owner **Name:** Janice Lavalley
Phone: (705) 292-9507 **Fax:** (705) 292-8964
Email: lavalley@nexicom.net
Title: CAO, Township of Smith-Ennismore-Lakefield

Type: Operating Authority **Name:** Kevan Light
Phone: (705) 748-9301 x2310 **Fax:** (705) 748-3138
Email: klight@peterboroughutilities.ca
Title: Superintendent, Peterborough Water Treatment Plant

Type: MOH - Peterborough County-City **Name:** Dr. Rosana Pellizzari
Phone: (705) 743-1000 **Fax:** (705) 743-2897
Email: pellizzari@pcchu.ca
Title: Medical Officer of Health, Peterborough County-City Health Unit

Type: Operating Authority **Name:** Wayne Stiver
Phone: (705) 748-9301 x1237 **Fax:** (705) 748-0120
Email: wstiver@peterboroughutilities.ca
Title: Vice President, Peterborough Utilities Services Inc.

Type: Owner **Name:** Lane Vance
Phone: (705) 292-9507 **Fax:** (705) 292-8964
Email: rl Vance@nexicom.net
Title: Manager of Financial Services & Treasurer, Township of Smith-Ennismore-Lakefield

INSPECTION DETAILS:

DWS Name: LAKEFIELD DRINKING WATER SYSTEM
DWS Address: 13 WATER ST N
County/District: Smith-Ennismore-Lakefield
District/Area Office: Peterborough District
DWS Category: Large Municipal Residential
DWS Number: 220000488
Inspection Type: Announced
Inspection Number: 1-8FE6S
Date of Inspection: Feb 14, 2011
Date of Previous Inspection: Jan 13, 2010

DRINKING WATER SYSTEM COMPONENTS DESCRIPTION

Site (Name): Raw Water
Type: Source **Sub Type:** Surface

Comments:

Raw water for the Lakefield Water Treatment Plant is obtained from the Otonabee River. According to the Engineer's Report for the Lakefield Water Treatment Plant, the raw water quality is generally low in turbidity with moderate alkalinity, colour and pH. The communities of Burleigh Falls and Young's Point are located upstream of the Lakefield Treatment Plant. These communities are on private septic systems. The closest municipal sewage outfall upstream of the Lakefield Water Treatment Plant is from the Village of Bobcaygeon, which is approximately 50 km away.

The Otonabee River is part of the Trent Severn Waterway and, as a result, experiences extensive recreational activities (boating and cottages) during the summer months.

The raw water intake consists of dual 350 mm HDPE intake pipes (one duty and one standby) extending into the Otonabee River. The inlet pipes terminate in an intake crib that is located approximately 15 m from the shore. Both inlet pipes are equipped with zebra mussel control systems, air supply lines (for dislodging weeds), and raw water sample lines. Raw water from the intake is directed to a chamber located on the bank of the Otonabee River. A single 350 mm HDPE pipe directs water from the chamber into the Lakefield Water Treatment Plant.

Site (Name): Treatment Plant
Type: Treated Water POE **Sub Type:** Treatment Facility

Comments:

The Lakefield Water Treatment Plant is a surface water treatment plant which utilizes an Actiflo (floc/clarification) process followed by rapid sand/anthracite filtration and disinfection.

Raw water from the Otonabee River is drawn into the Lakefield Water Treatment Plant through a bar screen via three vertical turbine low lift pumps (each rated at 20.8 L/s). A coagulant (aluminum sulphate) is added to the raw water at the low lift discharge header which is then directed to an in-line static mixer. The water is then directed to a flow splitting chamber which directs the water into two in-parallel ballasted floc/clarification trains (Actiflo®). Each Actiflo train contains a sand and polymer (Magnafloc LT22S) injection chamber with a hydrocyclone for sand/sludge separation, a maturation tank and a settling tank equipped with 60 degree tube settlers. The water is then directed to one of three dual media sand/anthracite filters (each with a design filtration rate of 6.4 m/hr). Each filter is

equipped with filter-to-waste capability, air scour, flow measurement, head measurement, and effluent turbidimeter. A granular activated carbon (GAC) contactor is also provided for seasonal taste and odour control. When taste and odour control is not required, the GAC contactor is bypassed discharged directly into the clearwell.

Sodium hypochlorite disinfectant is added to the filtered water (after filtration) at the head of the 1,000 m³, dual-celled clearwell. A solution of caustic soda is injected into the high lift pump chamber for pH adjustment. Treated water is pumped into the Lakefield distribution system through a common 300 mm discharge header via three vertical turbine high lift pumps (each rated at 29 L/s at 63.4 m TDH).

Site (Name): Clearwell

Type: Other

Sub Type: Pumphouse

Comments:

The Lakefield Water Treatment Plant is equipped with two independent and interconnected baffled clearwells with a total capacity of 1,000 m³ and a minimum level of 0.6 m. Under normal operations, treated water entering Clearwell 1 is directed into Clearwell 2, then into Pump Chamber 2 and finally into Pump Chamber 1. Each clearwell and pump chamber are interconnected and valved to facilitate isolation of each unit for cleaning and maintenance. Pump Chamber 1 is equipped with two vertical turbine high lift pumps (each rated at 29 L/s at 63.4 m TDH) and Pump Chamber 2 is equipped with a single vertical turbine high lift pump (rated at 29 L/s at 63.4 m TDH). All three high lift pumps direct treated water into the distribution system via a common 300 mm discharge conduit.

Site (Name): Wastewater Clarifier

Type: Other

Sub Type: Other

Comments:

The wastewater disposal system at Lakefield WTP receives Actiflo clarifier sludge and filter backwash. The system consists of a surge tank and an expansion chamber, a wastewater clarifier, and a wastewater pumping chamber.

The sludge generated from the settling tanks is re-circulated to the hydrocyclones where the sand is separated from the sludge. The recovered sand is reintroduced into the Actiflo process and the sludge is directed to the wastewater settling tank. Wastewater generated from filter backwashing is directed to the backwash tank and then into the wastewater clarifier where the supernatant (once subject to sodium bisulphate dechlorination) is discharged to the Otonabee River. The dewatered sludge is directed to the sanitary sewers for treatment at the Lakefield Sewage Lagoons.

Site (Name): Distribution

Type: Other

Sub Type:

Comments:

The Lakefield Water Treatment Plant and Distribution System serves approximately 3,100 people through 1,100 service connections. The distribution system in the Village of Lakefield includes approximately 22,000 m of cast iron, ductile iron, PVC, and asbestos cement watermains and 115 hydrants.

There are two pressure zones within the Village of Lakefield Distribution System. The primary pressure zone serves most of the Village and receives treated water from the treatment plant's high lift pumps or the standpipe. The primary pressure zone extends north of the Village, to the Lakefield College School (located in the Township of Douro-Dummer). A second, much smaller pressure zone serves Rolston Street and Aldrich Court and receives treated water from a below ground pressure boosting station located at the intersection of Rolliston Street and Strickland Street.

Site (Name): Standpipe

Type: Treated Water POE

Sub Type: Reservoir

Comments:

The Lakefield Water Treatment Plant has a single standpipe located east of the intersection of Strickland and Rolliston Streets (in the northeast portion of the distribution system) to balance peak demand flows and provide firefighting flows. Treated water enters and exits the reservoir through a common 300 mm conduit. The standpipe is equipped with a pressure monitoring system that transmits a signal (indicating the reservoir storage volume) to the water treatment plant through telephone lines. The 2001 Engineer's Report produced by RAL Engineering Ltd. (Newmarket, ON) states that the stand pipe has an effective volume of approximately 900 cubic metres.

INSPECTION SUMMARY

INTRODUCTION

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

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

This report is based on a "focused" inspection of your system. Although the inspection involved fewer activities than those normally undertaken by a detailed inspection, it contained most of the elements required to assess key compliance issues.

Your system was chosen for a focused inspection during this inspection cycle because inspection findings over the past three years were such that the number of violations were minimal or non-existent, there were few or no orders issued to you that were of significance in the maintenance of water potability and there were no deficiencies as defined in O. Reg. 172/03. The undertaking of a focused inspection at your drinking water system during this year's inspection cycle does not ensure that a similar type of inspection will be conducted at any point in the future.

On February 14, 2011, the Ministry of the Environment conducted the 2010/2011 Drinking Water Compliance Inspection of the Lakefield Drinking Water System. The "Focused" Inspection was announced.

The Inspector was accompanied by Mr. Chris Norman of Peterborough Utility Services Inc.

Additional sample documents were provided and reviewed on April 7th, 2011.

Audit samples were collected on February 14, 2011.

SOURCE

- * Measures were in place to protect the water source in accordance with a Permit, Licence or Approval issued under Part V of the SDWA.

CAPACITY ASSESSMENT

- * There was sufficient monitoring of flow as required by the Permit, Licence or Approval issued under Part V of the SDWA
- * The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Permit, Licence or Approval issued under Part V of the SDWA.

TREATMENT PROCESSES

- * **The owner had ensured that all equipment was installed in accordance with the Permit, Licence or Approval issued under Part V of the SDWA.**

It was noted in the 2009/2010 compliance inspection that the in-line static mixer had been removed due to maintenance issues and that the change should be reflected in the Drinking Water System Works Permit, when issued. As the Works Permit has not been issued to date, this item is noted to as a reminder to ensure that the change is addressed in the document, when issued.

- * **Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Permit, Licence or Approval issued under Part V of the SDWA at all times that water was being supplied to consumers.**

Based on the information provided during the document review, it appears that the Lakefield Drinking Water System was operated in a manner to achieve the design capabilities required under Ontario Regulation 170/03. The inspector reviewed primary disinfection chlorine residuals, daily flows, log books, pH, temperatures and daily CT calculations and Certificate of Approval.

- * **Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.**
- * **The Operator-in-Charge had ensured that all equipment used in the processes was monitored, inspected, and evaluated.**

DISTRIBUTION SYSTEM

- * **Backflow preventers were not installed at each service connection to Industrial/Commercial/Institutional and agricultural process that were considered high hazard facilities.**

However, backflow prevention is installed at approximately 4 locations.

OPERATIONS MANUALS

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

Of particular note are the drawings and plans for the valve locations in the system. Great care was taken to identify the exact location of each valve and create drawing for each location. It was reported that these drawings are very helpful when making distribution repairs.

- * **The operations and maintenance manuals did meet the requirements of the Permit, Licence or Approval issued under Part V of the SDWA.**

LOGBOOKS

- * **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**

CONTINGENCY/EMERGENCY PLANNING

CONTINGENCY/EMERGENCY PLANNING

- * The contingency/emergency plan was available for reference by all staff as required by the Permit, Licence or Approval issued under Part V of the SDWA.

SECURITY

- * All storage facilities were completely covered and secure.
- * Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens.
- * The owner had provided security measures to protect components of the drinking-water system.

CERTIFICATION AND TRAINING

- * The overall responsible operator had been designated for each subsystem.
- * Operators in charge had been designated for all subsystems which comprised the drinking-water system.
- * Only certified operators made adjustments to the treatment equipment.

WATER QUALITY MONITORING

- * All microbiological water quality monitoring requirements for distribution samples were being met.
- * All microbiological water quality monitoring requirements for treated samples were being met.
- * All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.
Samples were collected on August 17, 2010.
- * All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.
Samples were collected on August 17, 2010.
- * All trihalomethanes water quality monitoring requirements prescribed by legislation were conducted within the required frequency.
Samples were collected on February 9, May 18, August 24, and November 30, 2010 and February 8, 2011.

WATER QUALITY MONITORING

- * All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.

Samples were collected on February 9, May 18, August 24, and November 30, 2010 and February 8, 2011.
- * All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Samples were collected on February 9, May 18, August 24, and November 30, 2010.
- * All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

A sample was most recently collected on August 17, 2010.
- * All water quality monitoring requirements imposed by the Permit, Licence or Approval issued under Part V of the SDWA were being met.
- * All sampling requirements for lead prescribed by schedule 15.1 of O. Reg. 170/03 were being met.
- * All sampling requirements for alkalinity and pH prescribed by schedule 15.1 of O. Reg. 170/03 were being met.
- * All continuous monitoring equipment utilized for sampling and testing required by O.Reg.170/03, or approval or order, were equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6.
- * All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.
- * Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.
- * Primary disinfection chlorine monitoring was being conducted at a location approved by Permit, Licence or Approval issued under Part V of the SDWA, or at/near a location where the intended CT had just been achieved.
- * The secondary disinfectant residual was measured as required for the distribution system.
- * Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.
- * Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03.

WATER QUALITY MONITORING

- * All continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was recording data with the prescribed format.
- * Continuous monitoring of each filter effluent line was being performed for turbidity.
- * Testing for parameters required by legislation, Order, or a Permit, Licence or Approval issued under Part V of the SDWA was conducted by laboratories in Ontario licenced to test for that parameter, or by eligible laboratories outside Ontario.

WATER QUALITY ASSESSMENT

- * The inspector collected audit samples during the inspection.
- * Records show that all water sample results taken during the review period met the Ontario Drinking Water Quality Standards (O.Reg. 169/03).

REPORTING & CORRECTIVE ACTIONS

- * Corrective actions (as per Schedule 17) were taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.

There was one adverse water quality event during the inspection period. During AWQI #94907 it was reported that chlorine dosing to achieve primary disinfection was lower than the CT tables used by the operators for approximately 1 hour on May 26, 2010. Corrective actions were taken as required and the DWS was able to demonstrate that primary disinfection had been achieved during the event.

- * All required notifications of adverse water quality incidents were immediately provided as per O.Reg. 170/03 16-6.
- * Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

Not Applicable

SUMMARY OF BEST PRACTICE ISSUES AND RECOMMENDATIONS

This section provides a summary of all best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. Best Management Practices are recommendations and not mandatory requirements, but may lead to safe drinking water for the consumer.

In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following practices and consider measures to implement them so that all drinking water systems continuously improve their processes.

1. Backflow preventers were not installed at each service connection to Industrial/Commercial/Institutional and agricultural process that were considered high hazard facilities.

Recommendation:

SIGNATURES

Inspected By:

Candy Gibson

Signature: (Provincial Officer):




Reviewed & Approved By:

Jackie Fuller

Signature: (Supervisor):

Review & Approval Date:

 *april 21/11*

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.



DRINKING WATER SYSTEM COMPONENT LOCATION DETAILS

DRINKING WATER SYSTEM COMPONENTS DESCRIPTION

Name: Raw Water
Station Id #: 2200004887004
Type: Source
Sub Type: Surface

Street Number: 13 **Street Name:** Water Street North

Lot: **Concession:**
Part: **Reference Plan:**

Map Datum: NAD 83
Geo-Referencing Method: GPS
Accuracy Estimate: 1-10 Meters (Good Quality GPS)
Location Reference: Near Object **UTM Zone:** 17
UTM Northing: 4923139 **UTM Easting:** 717353
Latitude: **Longitude:**

Name: Treatment Plant
Station Id #: 2200004887801
Type: Treated Water POE
Sub Type: Treatment Facility

Street Number: 13 **Street Name:** Water Street North

Lot: **Concession:**
Part: **Reference Plan:**

Map Datum: NAD 83
Geo-Referencing Method: GPS
Accuracy Estimate: 1-10 Meters (Good Quality GPS)
Location Reference: Near Object **UTM Zone:** 17
UTM Northing: 4923139 **UTM Easting:** 717353
Latitude: **Longitude:**

Name: Clearwell
Station Id #: 2200004887801
Type: Other
Sub Type: Pumphouse

Street Number: 13 **Street Name:** Water Street North

Lot: **Concession:**
Part: **Reference Plan:**

Map Datum: NAD 83
Geo-Referencing Method: GPS
Accuracy Estimate: 1-10 Meters (Good Quality GPS)
Location Reference: Near Object
UTM Northing: 4923139
Latitude:
UTM Zone: 17
UTM Easting: 717353
Longitude:

Name: Wastewater Clarifier
Station Id #: 2200004887801
Type: Other
Sub Type: Other

Street Number: 13 Street Name: Water Street North
Lot: Concession:
Part: Reference Plan:

Map Datum: NAD 83
Geo-Referencing Method: GPS
Accuracy Estimate: 1-10 Meters (Good Quality GPS)
Location Reference: Near Object
UTM Northing: 4923139
Latitude:
UTM Zone: 17
UTM Easting: 717353
Longitude:

Name: Distribution
Station Id #: 2200004888001
Type: Other
Sub Type:

Street Number: Street Name:
Lot: Concession:
Part: Reference Plan:

Map Datum: NAD 83
Geo-Referencing Method: GPS
Accuracy Estimate: 1-10 Meters (Good Quality GPS)
Location Reference: Near Object
UTM Northing:
Latitude:
UTM Zone:
UTM Easting:
Longitude:

Name: Standpipe
Station Id #: 2200004888001
Type: Treated Water POE
Sub Type: Reservoir

Street Number:	Street Name:	Strickland Street
Lot:	Concession:	
Part:	Reference Plan:	
Map Datum:	NAD 83	
Geo-Referencing Method:	GPS	
Accuracy Estimate:	1-10 Meters (Good Quality GPS)	
Location Reference:	Near Object	UTM Zone: 17
UTM Northing:	4923385	UTM Easting: 718195
Latitude:		Longitude:



CERTIFICATE OF APPROVAL



Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
MUNICIPAL DRINKING WATER SYSTEMS
NUMBER 6714-6JCQ6Y
Issue Date: November 30, 2005

The Corporation of the Township of Smith-Ennismore-Lakefield
1310 Centre Line, PO Box 270
Bridgenorth, Ontario
K0L 1H0

Site Location: Lakefield Water Treatment Plant
13 Water Street North, Lakefield
Smith-Ennismore-Lakefield Township, County of Peterborough

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

The Corporation of the Township of Smith-Ennismore-Lakefield
1310 Centre Line, PO Box 270
Bridgenorth, Ontario
K0L 1H0

PART 1 - DRINKING-WATER SYSTEM DESCRIPTION

1.1 for a drinking-water system serving the community of Lakefield, rated as set out in Part 4, consisting of the following:

Proposed Water Works

(as per Application for Approval dated July 14, 2005)

New Water Intake Construction

- removal of the existing 300 mm diameter intake structure and pipe;
- construction of a new water intake for the plant consisting of the following:
 - a new 350 mm diameter pipe running from the existing plant raw water well to a new 1,800 mm diameter raw water isolation manhole located as shown on the contract drawings;
 - a twin intake arrangement consisting of two (2) (one duty and one standby) 350 mm diameter intake pipes each with a screened intake crib located approximately

15 m from the bank of the Otonabee River;

- two (2) 15 mm diameter chlorine feed lines (one duty, one standby) for each intake for zebra mussel control;
- two (2) 40 mm air supply lines, one line per intake, for the purpose of dislodging weeds and debris from the screen;
- two (2) 25 mm diameter raw water sampling lines (one duty, one standby) for each intake.

Proposed Water Works

(as per Application for Approval dated April 8, 2003)

Removals

The following components of the existing water treatment plant are to be removed and/or relocated:

Rapid Sand Filters

- removal of all existing filter media, underdrains, and piping as shown on the contract drawings.

Low Lift Pumping Area

- removal/relocation of chemical feed systems located in the low lift pumping room as shown on the contract drawings.

Monitoring and Control Equipment

- removal and/or relocation of monitoring and control equipment from the existing building to the new plant expansion as shown on the contract drawings.

High Lift Pumping Area

- removal of all high lift pumps and associated piping, valves, and control equipment from the high lift area as shown on the contract drawings;
- high lift well to be converted to an additional wastewater holding tank.

Clearwell

- existing clearwell to be converted to an additional wastewater holding tank.

Laboratory Area

- the washroom in the laboratory area including all fixtures and walls to be removed.

Upgrades/Additions

The following components to the water treatment plant will be implemented within the existing treatment plant building or the new 19 m long by 16 wide (approximate dimensions) building expansion to be constructed on the north side of the existing plant:

New Dual Media Filters

- construction of three (3) new dual media (anthracite/sand) filters within the plant expansion, each filter approximately 2.0 m by 4.1 m long, with a total rated capacity of 3,770 m³/d at a filtration rate of 6.4 m/hr (all three filters in operation), each filter complete with all associated piping, valves, filter-to-waste capability, air scour, flow measurement, loss of head measurement, and turbidimeter.

New GAC Filter

- construction of one (1) new granular activated carbon (GAC) filter within the plant expansion for control of taste and odour problems, filter dimensions are approximately 2.0 m wide by 4.1 m long with a rated capacity of 3,770 m³/d, complete with all associated piping, valves, filter-to-waste capability, air scour, flow measurement, loss of head measurement, and turbidimeter;
- feed water for the GAC filter shall be pumped (via two (2) variable speed submersible pumps rated at 30 L/s at 5.4 m TDH) from a new 54 m³ transfer cell located beside the new clearwell/reservoir that contains water already filtered by the new dual media filters.

Clearwell/Reservoir

- construction of a two-celled baffled clearwell within the plant expansion with a total capacity of 1,000 m³ for the purpose of providing a minimum of 0.5-log *Giardia* cyst inactivation after the filters under maximum flow, limiting raw water conditions; and a minimum clearwell level of 0.6 m.

Backwash/Wastewater Facilities

- installation of two (2) variable speed vertical turbine pumps within the new clearwell (one pump per cell) for the purpose of backwashing the filters, each pump rated at 91.2 L/s at 24 m TDH, complete with all associated piping and controls;
- modifications to wastewater holding facilities including conversion of old clearwell and high lift storage cells into additional wastewater surge tanks, addition of piping to interconnect all wastewater holding tanks;
- installation of a wastewater transfer pump within the converted clearwell tank to recirculate wastewater within the holding tanks, rated at 8.2 L/s at 3.8 m TDH.

Primary Coagulant (Alum) Feed System

- conversion of existing filter boxes to bulk liquid alum storage tanks (total volume 25,300 L complete with spill containment and leak detection, installation of one 2,000 L day tank complete with spill containment, two (2) chemical metering pumps (one duty, one standby) rated at 23 L/h, complete with chemical feed lines connected to the low lift discharge header prior to the in-line static mixer.

Sodium Hypochlorite Feed Systems

- installation (within the plant expansion) provision for bulk sodium hypochlorite storage, one (1) 615 L day tank, four (4) chemical metering pumps (two duty, two standby) rated at 9.0 L/h with chemical feed lines connected to the filter effluent line and distribution header, complete with chlorine residual analyzer and spill containment;
- installation (within the existing chlorine feed room) of a zebra mussel control system consisting of one (1) 225 L tank, two (2) chemical metering pumps (one duty, one shelved standby) rated at 2.0 L/h with chemical feed lines connected to the raw water intake, complete with spill containment.

Coagulant Aid (Polymer) Feed System

- installation (within existing plant building) of a coagulant aid feed system consisting of two (2) 1,225 L solution tanks (one duty, one standby), three (3) chemical metering pumps (two duty, one shelved standby) rated at 39.6 L/h with chemical feed lines to the coagulation tank, complete with spill containment.

pH Adjustment Feed System

- installation (within the plant expansion) of a post-disinfection pH adjustment system consisting of two (2) 5,400 L bulk caustic soda storage tanks, one (1) 2,000 L day tank, two (2) chemical metering pumps (one duty, one standby) rated at 19.0 L/h with chemical feed lines connected to the high lift wet well, complete with spill containment.

Dechlorination System

- installation (within existing plant building) of a dechlorination system consisting of one (1) 100 L sodium bisulphite storage tanks, two (2) chemical metering pumps (one duty, one standby) rated at 2.0 L/h with chemical feed lines connected to the wastewater discharge to the Otonabee River, complete spill containment.

High Lift Pumping Area

- construction (within the plant expansion) of two high lift wells connected to the new clearwell with three (3) vertical turbine pumps (two duty, one standby) each rated at 29 L/s at 63.4 m TDH, all pumps connected to a common 300 mm diameter discharge header to the distribution system.

Monitoring and Control Area

- installation (within existing plant building) a new SCADA system consisting of duplex PLCs (duty and hot standby) complete with HMI and additional controls for both remote and local monitoring and control of plant operations.

Administration, Laboratory, Workshop, and Storage Areas

- accommodation for new administration (office), laboratory, workshop, and storage areas within the plant expansion complete with all necessary furnishings, water quality analyzers, and equipment.

Existing Water Works

(as per the First Engineer's Report entitled "Township of Smith-Ennismore-Lakefield Water Works", dated January, 2001, prepared by RAL Engineering Ltd. and any additional information and documentation that may have been provided in support of the report.)

Raw Water Intake

- a 300 mm diameter raw water intake pipe extending 50 m to a flared elbow intake 15 m from the south bank of the Otonabee River into the Low Lift Pumping Station.
- a 12 mm diameter chlorine feed line installed inside the intake pipe to a diffuser at the intake.

Water Treatment Plant

- a surface water treatment plant located at the north end of Water Street on the south bank of the Otonabee River in the community of Lakefield (NAD83: UTM Zone 17: 717320.00 m E., 4922980.00 m N.) consisting of an approximately 19.8 m long by 11.7 m wide by 5.6 m high enclosed building housing the following treatment, pumping and support facilities:

Low Lift Pumping Station

- a manually cleaned inlet screen with a 12 mm mesh opening size;
- a raw water wet well with overall dimensions of 1.7 m by 3.4 m by 1.5 m side water depth;
- three (3) vertical turbine, low lift pumps, (two duty, one standby), each rated at 20.8 L/s at a total dynamic head (TDH) of 7.93 m. Each pump driven by a 3.73 kw electric motor;
- a Low Lift Discharge Pipe containing one (1) magnetic flow meter and pump control valves;
- a 150 mm diameter, in-line static mixer;

Clarifiers

- one (1) flow splitting chamber 1.87 m by 0.99 m by 1.7 m side water depth;
- two (2) sand injection chambers with hydrocyclone for sand/sludge separation, each 0.99 m by 0.99 m by 1.7 m side water depth;
- two (2) maturation chambers with flocculation mixer each 2.02 m by 1.67 m by 1.7 m side water depth;
- two (2) sand/sludge recirculation pumps, each 1.11 L/s at a TDH of 10.0 m;
- one (1) turbidimeter on each clarifier effluent line;
- one (1) pH meter on the combined clarifier effluent;
- a PLC control system to control the operation of the clarifier system;

Rapid Sand Filters

- two (2) dual media (anthracite/sand) rapid sand filters, one filter having dimension 3.05 m by 2.74 m by 0.91 m deep and the other filter 2.74 m by 1.83 m by 1.04 m side water depth, each complete with a hydraulic surface wash system and together rated at 3,594 m³/d at a filtration rate of 11.2 m/hr;
- two (2) filter effluent discharge pipe assemblies, complete with magnetic flow meters, control valves and a turbidimeter to continuously record filter effluent turbidity;

Clearwell

- one (1) baffled clearwell under the plant with dimensions of 9.20 m by 3.16 m by 2.11 m side water depth, providing a total volume of 61.3 m³;

Chemical Systems

- a sodium hypochlorite feed system consisting of three (3) chemical metering pumps (one pre, one post and one standby) each with a capacity of 3.2 L/hr, two (2) polyethylene storage tanks, with a capacity of 100 L and 200 L and feed lines to the intake for zebra mussel control and to the filter effluent line;
- a primary coagulant feed system consisting of two (2) chemical metering pumps (one duty, one standby), each with a capacity of 30 L/hr, two (2) polyethylene mixing tanks, each with a mixer and feed lines to the Low Lift discharge prior to the in-line mixer;
- a coagulant aid feed system consisting of two (2) chemical metering pumps (one duty, one standby) each with a capacity of 30 L/hr, two (2) polyethylene storage tanks, one (1) dry polymer mixing tank and feed lines to each coagulation tank;
- a pH adjustment feed system for use with caustic soda or soda ash, consisting of two (2) chemical metering pumps (one duty, one standby) each with a capacity of 3 L/hr and a feed line to the high lift wet well;

High Lift Pumping Station

- a high lift wet well with dimensions of 3.88 m by 3.55 m by 3.89 m side water depth providing a volume of 53.6 m³;
- three (3) vertical turbine high lift pumps (two duty, one standby) each rated at 20.8 L/s at a TDH of 70.0 m. Each pump driven by a 30 kw electric motor;
- one treated water discharge header with a magnetic flow meter and pump control valves;
- one (1) turbidimeter and one (1) chlorine residual analyzer on the treated water discharge;
- a control alarm system and autodialer capable of providing an off-site alarm and plant shut-down on pump failure or high turbidity;

Standby Power Facility

- one (1) standby 125 kW diesel generator set capable of running the plant at design capacity and located in a separate room within the plant building;

Wastewater Treatment

- a backwash wastewater holding tank having dimensions of 4.30 m by 9.50 m by 3.30 m side water depth, complete with a 1.67 L/s at 5.50 m TDH wastewater transfer pump to transfer backwash wastewater to the wastewater clarifier;
- a wastewater clarifier receiving backwash wastewater and clarifier having dimensions of 4.04 m by 4.34 m by 1.7 m deep with a supernatant discharge line to the Otonabee River and sludge discharge line to the municipal sewer through a 100 mm forcemain;
- a sludge storage tank having dimensions of 1.70 m by 2.0 m by 3.30 m deep with two (2) sludge transfer pumps (one duty, one standby) each with a capacity of 3.70 L/s at 4.8 m TDH;
- a turbidimeter on the supernatant discharge to continuously record supernatant turbidity and close down the discharge on a high turbidity alarm.

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

PART 2 - DEFINITIONS AND INFORMATION

- 2.1 Words and phrases not defined in this approval shall be given the same meaning as those set out in the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32 and any regulations made in accordance with that act, unless the context requires otherwise.

- 2.2 In this approval

"adverse effect", "contaminant", "impairment" and "natural environment" shall have the same meanings as in the *Environmental Protection Act*, R.S.O.1990, c. E.19 and the *Ontario Water Resources Act*, R.S.O.1990, c. O.40;

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

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

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

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

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

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

2.3 The following information is applicable to this approval:

- i. "Owner" is The Corporation of the Township of Smith-Ennismore-Lakefield, its successors and assigns.
- ii. "Operating Authority" is the Peterborough Utilities Services Inc., its successors and assigns.

PART 3 - GENERAL

Compliance

- 3.1 The owner and operating authority shall operate the drinking-water system in accordance with the *SDWA* , any applicable regulations made thereunder, and this approval.
- 3.2 Despite any condition of this approval to the contrary, the owner and operating authority set out in Part 2 are jointly and severally liable to comply with all conditions of this approval.
- 3.3 The owner and operating authority shall ensure that any person authorized to carry out work on or operate any aspect of the drinking-water system has been informed of the *SDWA* , all applicable regulations made in accordance with that act, and this approval and shall take all reasonable measures to ensure any such person complies with the same.
- 3.4 A copy of this approval shall be kept in a conspicuous place so that it is available for reference by all persons responsible for all or part of the operation of the drinking-water system.

Build, etc. in Accordance

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

Interpretation

- 3.6 Where there is a conflict between the provisions of this approval and any other document, the following hierarchy shall be used to determine the provision that takes precedence:
- i. The *SDWA* ;
 - ii. a condition imposed in this approval in accordance with s. 38 of the *SDWA* ;
 - iii. any regulation made under the *SDWA* ;
 - iv. this approval;
 - v. any application documents listed in Schedule "A" from most recent to earliest; and
 - vi. all other documents listed in Schedule "A" from most recent to earliest.
- 3.7 The requirements of this approval are severable. If any requirement of this approval, or the application of any requirement of this approval to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this approval shall not be affected thereby.
- 3.8 Nothing in this approval shall be read to provide relief from the need for strict compliance with the *Environmental Assessment Act*, R.S.O. 1990, c E.18.

Other Legal Obligations

- 3.9 The issuance of, and compliance with the conditions of, this approval does not:
- i. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
 - ii. limit in any way the authority of the Ministry to require certain steps be taken or to require the owner to furnish any further information related to compliance with this approval.
- 3.10 For greater clarity, nothing in this approval shall be read to provide relief from regulatory requirements in accordance with section 38 of the *SDWA* , except as provided in Part 9.

Adverse Effects

- 3.11 Nothing in this approval shall be read as to permit: i) the discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or ii) the discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.
- 3.12 All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of

the drinking-water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

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

Change of Owner

- 3.14 The owner or the operating authority, as the case may be, shall notify the Director, in writing, of any of the following changes within 30 days of the change occurring:
- i. change of owner or operating authority;
 - ii. change of address;
 - iii. change of partners where the owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B17; or
 - iv. change of name of the corporation where the owner or operating authority is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C.39.
- 3.15 In the event of any change in ownership of the drinking-water system, other than change to a successor municipality, the owner shall notify the successor of and provide the successor with a copy of this approval, and the owner shall provide a copy of the notification to the district manager of the local office of the Ministry and the Director.

Inspections

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

Information

- 3.17 Any information requested, by the Ministry, concerning the drinking-water system and its operation under this approval, including but not limited to any records required to be kept by this approval shall be provided to the Ministry, upon request.
- 3.18 Records required by or created in accordance with this approval, unless specifically referenced in s. 12 of O. Reg. 170/03, shall be retained for at least 5 years in a location where a provincial officer who is inspecting the treatment system can conveniently view them.

PART 4 - PERFORMANCE

Rated Capacity

4.1 The drinking-water system shall not be operated to exceed the rated capacity for the maximum flow rate into the treatment system of 41.6 L/s.

Increase to Rated Capacity

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

- i. the maintenance of the drinking-water system.

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

Management of Residue

4.4 The annual average concentration of suspended solids in the effluent discharged from the backwash wastewater facilities shall not exceed 25 mg/L.

PART 5 - MONITORING AND RECORDING

Flow measuring devices

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

- i. the flow rate and daily volume of water conveyed into the treatment system; and
- ii. the flow rate and daily volume of water conveyed from the treatment system to the distribution system.

5.2 Records shall be maintained that set out the parameters recorded in accordance with condition 5.1, and where a measured flow rate into a treatment system, train, or stage exceeds the maximum flow rate set out for that treatment system, train, or stage in Part 4, the amount, date, time and duration of the exceedence shall also be recorded.

Calibration of flow measuring devices

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

5.4 If the manufacturer's instructions do not indicate how often to check and calibrate the flow measuring devices, the equipment must be checked and calibrated at least once every year during

which the drinking-water system is in operation.

Additional Sampling - Management of Residue

- 5.5 In addition to any other sampling and analysis that may be required, sampling and analysis shall be undertaken for the parameters listed in Table 5.1 at the listed frequencies and locations.

Table 5.1: Management of Residue Sampling

<u>Parameter</u>	<u>Frequency</u>	<u>Location</u>
Suspended solids (composite)	Monthly	Point of discharge

- 5.6 For the purposes of Table 5.1, composite means the mean of three samples taken during the discharge event, with at least one sample taken immediately following the commencement of the discharge, one sample taken approximately at the mid-point of the discharge event and one sample taken immediately before the discharge ceases.

PART 6 - OPERATIONS AND MAINTENANCE

Chemical standards

- 6.1 All chemicals and materials used in the operation of the drinking-water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60 and NSF/61.
- 6.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution shall be available at all times for each chemical and material used in the operation of the drinking-water system that comes into contact with water within the system.
- 6.3 Condition 6.2 does not apply in the context of any particular chemical or material where the Owner has written documentation signed by the Director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking-water system and that chemical or material is only used as permitted by the documentation.

Operations manual

- 6.4 An up-to-date operations manual shall be maintained and available for reference by all persons responsible for all or part of the operation of the drinking-water system.
- 6.5 The operations manual shall include at a minimum:
- i. the requirements of this approval and associated procedures;

- ii. the operation and maintenance recommendations from the most recent engineers' report;
 - iii. procedures for the monitoring and recording of in-process parameters necessary for the control of the treatment system and assessing the performance of the drinking-water system;
 - iv. procedures for the operation and maintenance of monitoring equipment;
 - v. contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset and equipment breakdown;
 - vi. procedures for the dealing with complaints related to the drinking-water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;
- 6.6 Procedures necessary to the operation of any physical alterations of the drinking-water system shall be incorporated into the operations manual prior to the alterations coming into operation.

Drawings

- 6.7 Up-to-date Process Flow Diagrams (PFD) and Process and Instrumentation Diagrams (P&ID) for the treatment system shall be kept on site at the drinking water system.
- 6.8 All drawings and diagrams in the possession of the owner or operating authority that show the treatment system as constructed shall be retained.
- 6.9 An alteration to the treatment system shall be incorporated into Process Flow Diagrams (PFD), Process and Instrumentation Diagrams (P&ID), and record drawings and diagrams within one year of the substantial completion of the alteration and shall be retained and shall be made readily available for inspection by Ministry staff.

PART 7 - FUTURE ALTERATIONS

Approved future alterations

7.1 *Not Applicable*

Certificate of compliance

7.2 *Not Applicable*

PART 8 - STUDIES AND UPGRADES REQUIRED

8.1 Subject to Condition 8.2 below, by **December 31, 2004**, the Owner shall implement the following physical improvements to the works, in keeping with recommendations of the Engineer's Report and related correspondence:

- (a) All works and measures necessary to ensure that appropriate free chlorine residual and associated contact time calculated at the plant rated capacity with the unit processes providing contact time at a minimum operating level and under limiting temperature and pH conditions meet requirements of the "O. Reg. 170/03 and Procedure for Disinfection of Drinking Water in Ontario", including but not limited to:
 - (i) all works necessary to ensure that the effective chlorine contact time, or equivalent disinfection processes, downstream of the filters is sufficient to provide 0.5-log inactivation of *Giardia* cysts and 2.0-log inactivation of viruses,
 - (ii) provision of an additional chlorine injection point on the high lift discharge from the plant,
 - (iii) provision of a control system to close down the high lift pumps in the event of a low chlorine alarm from the treated water chlorine analyser,
- (b) All works and measures necessary to ensure the effective treatment and integrity of the works, including but not limited to:
 - (i) Sufficient treated water storage, over and above storage provided for disinfection, to properly backwash filters and for use in proper control of pumps and filters,
 - (ii) a backwash pump for the filters,
 - (iii) a filter to waste provision for each filter,
 - (iv) filter capacity to ensure that the filtration rate is less than 18 m/Hr with any one filter out of service and
 - (v) a chemical storage and handling area to adequately contain all chemicals and permit safe operation.
- (c) The Owner shall during the interim period up to **December 31, 2004**, operate and apply appropriate measures to enhance and optimize the disinfection processes, including but not limited to:
 - (i) free chlorine residual of at least 0.2 mg/L to be maintained throughout the distribution system;
 - (ii) maintaining a full clearwell, when possible, to maximize chlorine contact time within the existing plant.

Requirement not an approval

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

PART 9 - RELIEF FROM REGULATORY REQUIREMENTS

Relief from regulatory requirements

- 9.1 *Not Applicable*

Conditions in exchange for relief from regulatory requirements

- 9.2 *Not Applicable*

SCHEDULE - A

The following supporting documents form part of this approval.

1. Application dated July 14, 2005
 - Design brief, drawings, and specifications dated July 2005 prepared RAL Engineering Ltd.
 - Notice of Completion regarding Environmental Assessment for Intake Replace dated October 3, 2005 prepared by RAL Engineering Ltd.
2. Application dated April 8, 2003
 - Drawings (Version: Issued for Tender) and Technical Specifications dated June, 2003 for the Lakefield WTP Upgrades prepared by RAL Engineering Ltd.
 - Design Report entitled "Township of Smith-Ennismore-Lakefield, Lakefield WTP Up-Grades" dated April 2003, prepared by RAL Engineering Ltd.
 - Document entitled "Lakefield WTP Upgrades Township of Smith-Ennismore-Lakefield, Ontario, Contract Documents" dated April 2003, prepared by RAL Engineering Ltd.
 - Correspondence dated November 19, 2002 and April 14, 2003 from RAL to MOE Re: Lakefield WTP Upgrade Project.
3. The original applications for approval, including design calculations, engineering drawings and reports, and other supporting documents prepared in support of any previous certificate(s) of approval issued for any works now approved and replaced by this approval, unless this approval states otherwise.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 0362-5PYPBX issued on

August 11, 2003

All or part of this decision may be reviewable in accordance with the provisions of Part X of the SDWA. In accordance with Section 129(1) of the Safe Drinking Water Act, Chapter 32 Statutes of Ontario, 2002, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 129(2) sets out a procedure upon which the 15 days may be extended by the Tribunal. Section 129(3) of the Safe Drinking Water Act, Chapter 32 Statutes of Ontario, 2002, provides that the Notice requiring the hearing shall state:

1. The aspect of the decision, including the portion of the permit, licence, approval, order or notice of administrative penalty in respect of which the hearing is required; and
2. The grounds for review to be relied on by the person at the hearing

Except with leave of the Tribunal, a person requiring a hearing in relation to a reviewable decision is not entitled to,

- (a) a review of an aspect of the decision other than that stated in the notice requiring the hearing or
- (b) a review of the decision other than on the grounds stated in the notice

The Notice should also include:

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

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

This Notice must be served upon:

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


AND

The Director
Part V, *Safe Drinking Water Act, 2002*
Ministry of Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

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

The above noted water works are approved under Part V of the Safe Drinking Water Act.

DATED AT TORONTO this 30th day of November, 2005



Nadir Sunderji, P.Eng.
Director
Part V of the Safe Drinking Water Act,
2002

GZ/

c: District Manager, MOE Peterborough
Drinking Water Supervisor, MOE Peterborough
Manager, DWWSS, Standards Development Branch
Robert LeCraw, RAL Engineering

PERMIT TO TAKE WATER



Ministry of the Environment
Ministère de l'Environnement

PERMIT TO TAKE WATER
Surface Water
NUMBER 6203-7X7L5J

Pursuant to Section 34 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

The Corporation of the Township of Smith-Ennismore-Lakefield
Post Office Box 270
Bridgenorth, Ontario
K0L 1H0
Canada

For the water taking from: Otonabee River

Located at: 13 Water St N Lakefield, Plan 24, Lots 3 & 4
Smith-Ennismore-Lakefield, County of Peterborough

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

- (a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34, OWRA.
- (b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.
- (c) "Ministry" means Ontario Ministry of the Environment.
- (d) "District Office" means the Peterborough District Office.
- (e) "Permit" means this Permit to Take Water No. 6203-7X7L5J including its Schedules, if any, issued in accordance with Section 34 of the OWRA.
- (f) "Permit Holder" means The Corporation of the Township of Smith-Ennismore-Lakefield.
- (g) "OWRA " means the *Ontario Water Resources Act*, R.S.O. 1990, c. O. 40, as amended.

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

TERMS AND CONDITIONS

1. Compliance with Permit

- 1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated June 24, 2009 and signed by Janice Lavalley, and all Schedules included in this Permit.
- 1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.
- 1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.
- 1.4 This Permit is not transferable to another person.
- 1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.
- 1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.
- 1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.

2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

- (a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or
- (b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

- (a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or
- (b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

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

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **October 26, 2019**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Otonabee River	River	Municipal	Water Supply	2,500	24	3,594,000	365	17 717299 4923204
							Total Taking:	3,594,000	

4. Monitoring

- 4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The total amounts of water pumped shall be measured using a flowmeter and totalizer.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings

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

6. **Director May Amend Permit**

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act*, Section 100 (4).

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

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.
2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.
3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

*In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written notice served upon me, the Environmental Review Tribunal and the Environmental Commissioner, **Environmental Bill of Rights**, R.S.O. 1993, Chapter 28, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a hearing shall state:*

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

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

*The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5*

AND

*The Environmental Commissioner
1075 Bay Street
6th Floor, Suite 605
Toronto, Ontario M5S 2W5*

AND

*The Director, Section 34
Ministry of the Environment
1259 Gardiners Rd, PO Box
22032
Kingston, ON
K7P 3J6*

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

by telephone at (416) 314-4600

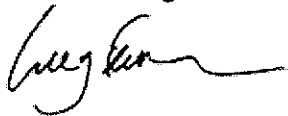
by fax at (416) 314-4506

by e-mail at www.ert.gov.on.ca

*This instrument is subject to Section 38 of the **Environmental Bill of Rights** that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.*

This Permit cancels and replaces Permit Number 6010-67VQDT, issued on 2004/12/22.

Dated at Kingston this 27th day of October, 2009.



*Greg Faaren
Director, Section 34
Ontario Water Resources Act , R.S.O. 1990*

Schedule A

This Schedule "A" forms part of Permit To Take Water 6203-7X7L5J, dated October 27, 2009.

MINISTRY AUDIT SAMPLE RESULTS

FINAL REPORT(manager)

Print Date: Feb. 25, 2011 09:37 AM By REPORTADMIN

**** REPRINTED ****

in: C183182

am Code 130072301

Program: MOE OPERATIONS DIVISION
Study: WATER, COMMUNAL
Project: EASTERN REG.- PETERBOROUGH DIS
Activity: WTP MUNIC INSPECT/ADVERS NOTIF
Organization: District Manager Peterborough

Org. Id: 4617

Mail this copy to :

GIBSON, CANDICE
MOE - PETERBOROUGH DISTRICT OFFICE
300 WATER STREET, 2ND FLOOR, SOUTH TOWER
PETERBOROUGH,ONT
K9J 8M5

al reports to : GIBSON, CANDICE

proved for release by : RUSTY MOODY Manager, Spectroscopy Section

Approved date : Feb. 25, 2011

Inquires to : RUSTY MOODY
PETER DROUIN

Telephone : 416-235-5863
Telephone : 416-235-5850

IN DESCRIPTION: 220000488 LAKEFIELD WS CANDY GIBSON 705-755-4333

esults relate only to items tested.

rovide customer service feedback on this report and/or other services provided by LaSB, please contact the LaSB HelpDesk at 416-235-6030 or the Customer Service Manager at 416-235-5831

Ontario Ministry of Environment
 Laboratory Services Branch - 125 Resources Road
 Etobicoke, Ontario M9P 3V6

FINAL REPORT(manager)

Print Date: Feb. 25, 2011 09:37 AM By REPORTADMIN

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Login: C183182

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
2011-LDWS-T	2200004887404	13 WATER ST. N. TREATED	14 FEB 2011	13:00	5	
	Sample ID C183182-0001	Sample Comment Description				

MOE*LIMS Products Requested:

WD E3226A PA3226

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
2011-LDWS-D	2200004888002	123 STRICKLAND ST. STANDPIPE DISTRIBUTION	14 FEB 2011	13:20	5	
	Sample ID C183182-0002	Sample Comment Description				

MOE*LIMS Products Requested:

WD E3226A PA3226

Field Id	Station ID	Sample Location Description	Sampling Date	Time	Zone	Sampler Information
2011-LDWS-DE	2200004888002	LAKEFIELD COLLEGE SCHOOL DISTRIBUTION	14 FEB 2011	13:30	5	
	Sample ID C183182-0003	Sample Comment Description				

MOE*LIMS Products Requested:

WD E3144B VOL3144

WD E3226A PA3226

WD E3473 PB3473

FINAL REPORT(manager)

Print Date: Feb. 25, 2011 09:37 AM By REPORTADMIN

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n: C183182

Field ID: 2011-LDWS-T
 Sample ID: C183182-0001
 MOE*LIMS ID: 2011WD7-00023
 Station ID: 2200004887404
 Collect Date: 14 FEB 2011
 Sample Location Description: 13 WATER ST. N. TREATED

2011-LDWS-D
 C183182-0002
 2011WD7-00024
 2200004888002
 14 FEB 2011
 123 STRICKLAND ST. STANDPIPE
 DISTRIBUTION

2011-LDWS-DE
 C183182-0003
 2011WD7-00025
 2200004888002
 14 FEB 2011
 LAKEFIELD COLLEGE SCHOOL
 DISTRIBUTION

Sample Comments Description:

l	Parmname	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1
L1	Chloroethene					.05	ug/L	<=W					
	1,1-dichloroethene					.05	ug/L	<=W					
	Dichloromethane					.2	ug/L	<=W					
	Tert-butyl methyl ether					.05	ug/L	<=W					
	trans-1,2-dichloroethene					.05	ug/L	<=W					
	Diisopropylether					.05	ug/L	<=W					
	1,1-dichloroethane					.05	ug/L	<=W					
	cis-1,2-dichloroethene					.05	ug/L	<=W					
	Chloroform					48.1	ug/L						
	1,1,1-trichloroethane					.05	ug/L	<=W					
	Carbon tetrachloride					.2	ug/L	<=W					
	1,2-dichloroethane					.05	ug/L	<=W					
	Benzene					.05	ug/L	<=W					
	Trichloroethene					.05	ug/L	<=W					
	1,2-dichloropropane					.05	ug/L	<=W					
	Bromodichloromethane					3.4	ug/L						
	Dichloroacetonitrile					2.5	ug/L	<T					
	Toluene					.05	ug/L	<=W					
	1,1,2-trichloroethane					.1	ug/L	<=W					
	Tetrachloroethene					.05	ug/L	<=W					
	Dibromochloromethane					.2	ug/L	<=W					
	1,2-dibromoethane					.1	ug/L	<=W					
	Chlorobenzene					.05	ug/L	<=W					
	Ethylbenzene					.05	ug/L	<=W					
	m- and p-xylene					.05	ug/L	<=W					
	o-xylene					.05	ug/L	<=W					
	Styrene					.05	ug/L	<=W					
	Bromoform					.5	ug/L	<=W					
	1,1,2,2-tetrachloroethane					.2	ug/L	<=W					
	1,3-dichlorobenzene					.05	ug/L	<=W					
	1,4-dichlorobenzene					.05	ug/L	<=W					
	1,2-dichlorobenzene					.05	ug/L	<=W					
	Trihalomethanes; total					51.5	ug/L						
L1	NT: Total Coliforms	See Non-Target Textual result				See Non-Target Textual result				See Non-Target Textual result			
L3	Lead					.1	ug/L	+/-0.16					

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

NON-TARGET TEXTUAL RESULT

Sample ID: C183182-0001	Listid : 3226L1	Parmname : NT: Total Coliforms	Value:	Units: c/100mL	Qual: NDAT	Remarks:
Absent						
Sample ID: C183182-0001	Listid : 3226L1	Parmname : NT: Escherichia coli	Value:	Units: c/100mL	Qual: NDAE	Remarks:
Absent						
Sample ID: C183182-0001	Listid : 3226L1	Parmname : NT: Deterioration Indicators	Value:	Units: c/100mL	Qual: NDDN	Remarks:
Not Detected						
Sample ID: C183182-0002	Listid : 3226L1	Parmname : NT: Total Coliforms	Value:	Units: c/100mL	Qual: NDAT	Remarks:
Absent						
Sample ID: C183182-0002	Listid : 3226L1	Parmname : NT: Escherichia coli	Value:	Units: c/100mL	Qual: NDAE	Remarks:
Absent						
Sample ID: C183182-0002	Listid : 3226L1	Parmname : NT: Deterioration Indicators	Value:	Units: c/100mL	Qual: NDDN	Remarks:
Not Detected						
Sample ID: C183182-0003	Listid : 3226L1	Parmname : NT: Total Coliforms	Value:	Units: c/100mL	Qual: NDAT	Remarks:
Absent						
Sample ID: C183182-0003	Listid : 3226L1	Parmname : NT: Escherichia coli	Value:	Units: c/100mL	Qual: NDAE	Remarks:
Absent						
Sample ID: C183182-0003	Listid : 3226L1	Parmname : NT: Deterioration Indicators	Value:	Units: c/100mL	Qual: NDDN	Remarks:
Not Detected						

TEXT COMMENT

FINAL REPORT(manager)

in: C183182

Print Date: Feb. 25, 2011 09:37 AM By REPORTADMIN

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duct Completion

Sample ID	Matrix	Method	Product	Analytical Department	Completion Date
C183182-0001	WD	E3226A	PA3226	6510	17-FEB-11
C183182-0002	WD	E3226A	PA3226	6510	17-FEB-11
C183182-0003	WD	E3144B	VOL3144	4410	24-FEB-11
C183182-0003	WD	E3226A	PA3226	6510	17-FEB-11
C183182-0003	WD	E3473	PB3473	6410	22-FEB-11

nd of Report ***

INSPECTION REPORT RATING

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2010-2011)

DWS Name: LAKEFIELD DRINKING WATER SYSTEM
DWS Number: 220000488
DWS Owner: Smith-Ennismore-Lakefield, The Corporation Of The Township Of
Municipal Location: Smith-Ennismore-Lakefield

Regulation: O.REG 170/03

Category: Large Municipal Residential System

Type Of Inspection: Focused

Inspection Date: February 14, 2011

Ministry Office: Peterborough District

Maximum Question Rating: 553

Inspection Module	Non-Compliance Rating
Source	0 / 14
Capacity Assessment	0 / 30
Treatment Processes	0 / 77
Operations Manuals	0 / 28
Logbooks	0 / 14
Contingency/Emergency Planning	0 / 7
Certification and Training	0 / 28
Water Quality Monitoring	0 / 289
Reporting & Corrective Actions	0 / 66
TOTAL	0 / 553

Inspection Risk Rating	0.00%
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FINAL INSPECTION RATING:	100.00%
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2010-2011)

DWS Name: LAKEFIELD DRINKING WATER SYSTEM
DWS Number: 220000488
DWS Owner: Smith-Ennismore-Lakefield, The Corporation Of The Township Of
Municipal Location: Smith-Ennismore-Lakefield

Regulation: O.REG 170/03**Category:** Large Municipal Residential System**Type Of Inspection:** Focused**Inspection Date:** February 14, 2011**Ministry Office:** Peterborough District**Maximum Question Rating:** 553

Inspection Risk Rating	0.00%
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FINAL INSPECTION RATING:	100.00%
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