

Ministry of the Environment

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June 24th, 2013

The City of Markham
Waterworks Department
101 Town Centre Boulevard
Markham, Ontario L3R 9W3

Peter Loukes, Director, Environmental Services

**RE: Markham Distribution System (220004162)
Drinking Water Inspection Report**
File: SI YO MA TO 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 May 7th, and 10th 2013.

For the 2013-2014 inspection period, the Appendix section of the inspection report has been changed. The new Stakeholder Appendix A provides links to key reference and guidance materials available on the Ministry of the Environment's (MOE) website. Appendix B contains the MOE audit sample results and Appendix C contains the inspection rating record and an updated risk methodology memo.

Please note the attached IRR methodology memo describing how the risk rating model has improved to better reflect the health related and administrative non-compliance found in an inspection report. IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspectors' Annual Report.

In the inspection report, any "*Actions Required*" are linked to incidents of non-compliance with regulatory requirements contained within the Act, a regulation, or site-specific approvals, licenses, permits, orders or instructions. Such violations could result in the issuance of mandatory abatement instruments including Orders, tickets, penalties, or referrals to the ministry's Investigations and Enforcement Branch.

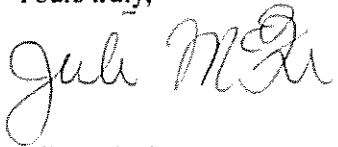
"*Recommended Actions*" convey information that the owner or operating authority should consider implementing in order to advance efforts already in place to address such issues as emergency preparedness, the availability of information to consumers, and conformance with existing and emerging industrial 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.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "*Taking Care of Your Drinking Water: A guide for members of municipal council*" found under "Resources" on the Drinking Water Ontario website at www.ontario.ca/drinkingwater.

I would like to thank the City of Markham staff for the assistance afforded to me during this compliance assessment. If you have any questions or concerns please contact myself or Demetra Koros, Drinking Water Program Supervisor, Central Region at 905-427-5630.

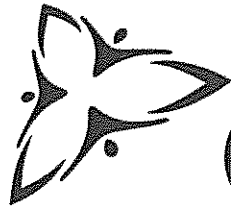
Yours truly,



Julie McKeiver
Water Inspector
Safe Drinking Water Branch
Ministry of Environment
Phone: (905) 427-5614

cc:

Eddy Wu, Manager, Operations & Maintenance
Peter Solymos, Supervisor, Water Quality
Ernie Ting, Manager, Infrastructure
Daphne Ross, Manager, Business Compliance
Stefan Ulman, Water Quality Coordinator
Dr. Karim Kurji, Medical Officer of Health
Adelina Urbanski, Commissioner of Health Services
Bernard Mayer, Manager of Environmental Health, York Region Health Department
Joe La Marca, Director of Health Protection, York Region Health Department
Marion Young, Administrative Clerk, York Region Health Department
Adele Freeman, Director, Watershed Management, Toronto Region Conservation Authority
Demetra Koros, Water Supervisor, York Durham District Office
York-Durham District Office, MOE



Ontario

Ministry of the Environment

MARKHAM DISTRIBUTION SYSTEM

Inspection Report

Site Number:	220004162
Inspection Number:	1-AON17
Date of Inspection:	May 07, 2013
Inspected By:	Julie McKeiver



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2. Drinking Water System Inspection Report

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- C. Inspection Rating Record

OWNER INFORMATION:

Company Name: MARKHAM, THE CORPORATION OF THE CITY OF
Street Number: 101 **Unit Identifier:**
Street Name: TOWN CENTRE Blvd N
City: MARKHAM
Province: ON **Postal Code:** L3R 9W3

CONTACT INFORMATION

Type: Director **Name:** Peter Loukes
Phone: (905) 477-7000 **Fax:** (905) 479-7772
Email: ploukes@markham.ca
Title: Director, Environmental Services

Type: Manager **Name:** Eddy S. Y. Wu
Phone: (905) 477-7000 x2445 **Fax:** (905) 479-7772
Email: ewu@markham.ca
Title: Manager, Operations and Maintenance, Waterworks Department

Type: Supervisor **Name:** Peter Solymos
Phone: (905) 477-7000 x2830 **Fax:** (905) 475-4732
Email: psolymos@markham.ca
Title: Supervisor, Water Quality, Waterworks Department

Type: Other - specify **Name:** Stefan Ulman
Phone: (905) 477-7000 x2449 **Fax:** (905) 479-7772
Email: sulman@markham.ca
Title: Water Quality Coordinator

INSPECTION DETAILS:

Site Name: MARKHAM DISTRIBUTION SYSTEM
Site Address: 101 TOWN CENTRE BLVD N MARKHAM L3R 9W3
County/District: Markham
MOE District/Area Office: York-Durham District
Health Unit: YORK REGION HEALTH SERVICES DEPARTMENT
Conservation Authority: N/A
MNR Office: N/A
Category: Large Municipal Residential

Site Number: 220004162
Inspection Type: Announced
Inspection Number: 1-AON17
Date of Inspection: May 07, 2013
Date of Previous Inspection: Apr 11, 2012

COMPONENTS DESCRIPTION

Site (Name): MOE DWS Mapping
Type: DWS Mapping Point **Sub Type:**
Comments:
Not Applicable

Site (Name): Markham Operation Office
Type: Other **Sub Type:** Other
Comments:

The Markham Distribution System is owned and operated by the City of Markham, and receives treated water from the City of Toronto and the Region of Peel. The trunk transmission lines, pumping stations, and water storage facilities located within the City of Markham are owned and operated by the Region of York. The Region of York measures and monitors the distribution water flows and volumes directed to the City of Markham through the use of nineteen (19) flow meters located along the Richmond Hill, Vaughan, Stouffville, Toronto and Markham boundaries.

The Markham Distribution System provides potable water to approximately 310,000 residents of Markham and consists of approximately 1006 km of watermains, 7,999 hydrants, 7,820 valves, and 74,382 service connections.

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.

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

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg.170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

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.

Provincial Officer Julie McKeiver conducted an announced inspection of the Markham Distribution System (The System) on May 7th and 10th, 2013. The inspection included a compliance assessment with applicable legal documents. The documents reviewed in association with this report include Municipal Drinking Water Licence Number 021-101, Issue Number 3 (The Licence) and Drinking Water Works Permit Number 021-201 (The Permit). Additional documentation maintained by the owner/operating authority covering the time period from April 11th, 2012 to May 7th, 2013, was also reviewed.

The City of Markham (The City) receives treated Lake Ontario water from the City of Toronto and Region of Peel. The Region of York (The Region) provides water storage and pressure boosting to the City and acts as a wholesaler of water to the System. The City of Toronto, Region of Peel, and Region of York treatment and distribution systems were inspected separately from the Markham Distribution System.

TREATMENT PROCESSES

- * The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.

The System description contained within Schedule A of the Permit indicates that the System consists of three primary pressure districts and approximately 955 kilometers of watermains and transmission mains. Minor modifications to the System have been documented on "Record of Watermains Authorized as a Future Alteration Form 1" forms that were available for review at the time of the inspection.

TREATMENT PROCESSES

- * **The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period.**

At the time of the inspection Form 1 documents were available for review. Form 1 documents were used by the System to document watermain additions, modifications, replacements and extensions that do not require a Schedule C application.

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

At the time of the inspection documentation was available to demonstrate that the colorimeters, pH meters, and turbidity meters were calibrated annually by an outside vendor. In addition to the colorimeters being calibrated annually by an outside vendor, the Supervisor of Water provides a monthly check of the colorimeters.

TREATMENT PROCESS MONITORING

- * **The secondary disinfectant residual was measured as required for the distribution system.**

The secondary disinfectant residual was measured daily in the distribution system during the inspection review period. The System also collected several additional chlorine residuals in various locations in the distribution system.

DISTRIBUTION SYSTEM

- * **Existing parts of the distribution system that were taken out of service for inspection, repair or other activities that may lead to contamination, and all new parts of the distribution system that came in contact with drinking water, were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.**

Condition 2.3 of the Permit requires all parts of the system in contact with drinking water which are added, modified, replaced, extended, or taken out of service for inspection, repair or other activities that may lead to contamination, be disinfected before being put into service in accordance with the provisions of the AWWA C651 - Standard for Disinfecting Watermains, or an equivalent procedure.

Watermain break and commissioning records demonstrating that applicable disinfection procedures were followed were provided for review at the time of the inspection.

- * **Based on the records available the owner was able to maintain proper pressures in the distribution system.**

Pressure is monitored annually during spring hydrant inspections. Based on the records provided for review at the time of the inspection, proper pressure was maintained.

OPERATIONS MANUALS

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

Plans and drawing were available for review at the time of the inspection. The drawings included watermains, valves, hydrants, and other appurtenances associated with the distribution system. It was reported that the plans are printed every year to ensure that the most up to date versions are available, the plans were last updated in 2012.

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

Condition 16 of the Licence requires the Operations and Maintenance Manual include at a minimum:

- The requirements of the Licence and associated procedures;
- The requirements of the Permit;

OPERATIONS MANUALS

- Procedures for monitoring and recording in-process parameters necessary for the control of any treatment subsystem and for assessing performance of the System;
- Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown; and,
- Procedures for 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 response to the complaint.

On November 1st, 2011, the Licence was amended to include regulatory relief for lead sampling. The Licence outlined the requirements to collect lead samples from ten (10) locations in the distribution system between the dates of:

December 15th, 2011 to April 15th, 2012
June 15th, 2012 to October 15th, 2012
December 15th, 2012 to April 15th, 2013
June 15th, 2013 to October 15th, 2013
December 15th, 2013 to April 15th, 2014
June 15th, 2014 to October 15th, 2014
December 15th, 2014 to April 15th, 2015
June 15th, 2015 to October 15th, 2015
December 15th, 2015 to April 15th, 2016
June 15th, 2016 to October 15th, 2016

At the time of the inspection the Operations and Maintenance Manual was provided for review. The lead sampling procedure contained within the manual had been archived and an updated version of the lead sampling procedure had not been created as required by condition 16.2.1 of Schedule B of the Licence.

On May 27th, 2013, the City of Markham provided a copy of an updated version of a Standard Operating Procedure for the Community Lead Testing Program.

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.**

SECURITY

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

Sampling stations are locked to prevent unauthorized entry and anti-tampering devices are installed on hydrants in areas of new development to reduce water theft and unauthorized use of hydrants.

CERTIFICATION AND TRAINING

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.

WATER QUALITY MONITORING

- * All microbiological water quality monitoring requirements for distribution samples were being met.

Microbiological water quality monitoring for the System exceeded the requirements of Ontario Regulation 170/03.

- * All trihalomethanes water quality monitoring requirements prescribed by legislation were conducted within the required frequency.

Trihalomethane water quality monitoring for the system exceeded the requirements of Ontario Regulation 170/03.

- * All water quality monitoring requirements imposed by the Permit and Licence or Approval issued under Part V of the SDWA were not being met.

On November 1st, 2011, the System received relief from regulatory requirements for lead sampling as required by Schedule 15.1 of Ontario Regulation 170/03. Table two (2) and four (4) of Schedule D of the Licence outlines the lead sampling requirements for the System. The owner/operator is required to collect lead samples from ten (10) locations in the distribution system between the dates of:

December 15th, 2011 to April 15th, 2012;
June 15th, 2012 to October 15th, 2012;
December 15th, 2012 to April 15th, 2013;
June 15th, 2013 to October 15th, 2013;
December 15th, 2013 to April 15th, 2014;
June 15th, 2014 to October 15th, 2014;
December 15th, 2014 to April 15th, 2015;
June 15th, 2015 to October 15th, 2015;
December 15th, 2015 to April 15th, 2016; and,
June 15th, 2016 to October 15th, 2016.

At the time of the inspection, lead sample results were provided for review. The System collected lead samples from ten (10) different locations in the distribution system on November 6th, 2012, and lead samples from ten (10) different locations in the distribution system on February 4th, 2013.

Tables two (2) and four (4) of Schedule D of the Licence requires the System collect lead samples from ten (10) different locations in the distribution system between the dates of June 15th, 2012 and October 15th, 2012. The lead samples were collected on November 6th, 2012, outside the required sampling period.

WATER QUALITY MONITORING

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

WATER QUALITY ASSESSMENT

- * The audit samples collected by the inspector met the applicable Ontario Drinking Water Quality Standards and/or the aesthetic objectives or operation guidelines. The results of the audit sampling are summarized as follows:

A sample collected from a sampling station opposite of 22 Ryan Crescent On May 7th, 2013, did not contain the presence of Total Coliform (TC) or E coli (EC).

A sample collected from a sampling station at 260 Fred McLaren Boulevard on May 7th, 2013, did not contain the presence of TC or EC.

A sample collected from 210 Russell Jarvis Drive on May 7th, 2013, did not contain the presence of TC or EC.

A sample collected from a sampling station opposite of 45 Willowbrook Road on May 7th, 2013, did not contain the presence of TC or EC.

- * Records show that water sample results taken during the review period met the Ontario Drinking Water Quality Standards (O. Reg. 169/03), with the following exceptions:

A sample collected on June 18th, 2012, from 122 Drakefield Road contained the presence of TC. The system was flushed and re-samples were collected on June 19th, 2012 and June 20th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

A sample collected from a sampling station located at 210 Russell Jarvis Drive on June 25th, 2012, contained the presence of TC. The system was flushed and re-samples were collected on June 26th, 2012 and June 27th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

A sample collected from a sampling station located opposite of 16 Coppard Avenue on June 25th, 2012 contained the presence of TC. The system was flushed and re-samples were collected on June 26th, 2012 and June 27th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

A sample collected from a sampling station opposite of 34 Sanders Drive on June 25th, 2012 contained the presence of TC. The system was flushed and re-samples were collected on June 26th, 2012 and June 27th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

A sample collected from a sampling station located on Castlemore Avenue contained the presence of TC. The system was flushed and re-samples were collected on June 26th, 2012 and June 27th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

WATER QUALITY ASSESSMENT

A sample collected on October 13th, 2012, at 8:30 am from a sampling station across from 33 Hughson Drive contained a combined chlorine residual of 0.16 mg/L. The system was flushed and by 9:15 am the combined chlorine residual had been restored to 0.64 mg/L. No further action was required.

A sample collected from a hydrant located at 20 Morgan Avenue on October 23rd, 2012, contained 10 TC. The system was flushed and re-samples were collected on October 24th and 25th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

A sample collected from a hydrant located at 28 Willowbrook Road on October 25th, 2012, contained 5 TC. The system was flushed and re-samples were collected October 27th, and 28th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

A sample collected from a hydrant located at 28 Willowbrook Road on October 26th, 2012, contained 6 TC. The system was flushed and re-samples were collected October 27th, and 28th, 2012. There was no indication of an adverse test result in the re-samples required. No further actions was required.

REPORTING & CORRECTIVE ACTIONS

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

The System often exceeded the requirements specified in Schedule 17 of Ontario Regulation 170/03, by collecting two consecutive re-samples in response to AWQIs and by returning to the site of an AWQI to conduct additional monitoring in response to a low chlorine residual.

- * **All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6.**

Adverse Water Quality Incident (AWQI) No. 106702 was verbally reported to the System from the York Durham Regional Environmental Laboratory at 14:40 on June 26th, 2012.

The System did not provide oral notification to the Local Medical Officer of Health until 9:53 am on June 27th, 2012, and did not provide oral notification to Spills Action Centre until 10:01 am on June 27th, 2012.

More than nineteen (19) hours passed before verbal notification was provided to the Local Medical Officer of Health and the Ministry of the Environment Spills Action Centre.

Verbal notification is required to be provided immediately after the owner/operating authority becomes aware of the adverse condition.

- * **All changes to the system registration information were provided within ten (10) days of the change.**

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.

1. All water quality monitoring requirements imposed by the Permit and Licence or Approval issued under Part V of the SDWA were not being met.

On November 1st, 2011, the System received relief from regulatory requirements for lead sampling as required by Schedule 15.1 of Ontario Regulation 170/03. Table two (2) and four (4) of Schedule D of the Licence outlines the lead sampling requirements for the System. The owner/operator is required to collect lead samples from ten (10) locations in the distribution system between the dates of:

December 15th, 2011 to April 15th, 2012;
June 15th, 2012 to October 15th, 2012;
December 15th, 2012 to April 15th, 2013;
June 15th, 2013 to October 15th, 2013;
December 15th, 2013 to April 15th, 2014;
June 15th, 2014 to October 15th, 2014;
December 15th, 2014 to April 15th, 2015;
June 15th, 2015 to October 15th, 2015;
December 15th, 2015 to April 15th, 2016; and,
June 15th, 2016 to October 15th, 2016.

At the time of the inspection, lead sample results were provided for review. The System collected lead samples from ten (10) different locations in the distribution system on November 6th, 2012, and lead samples from ten (10) different locations in the distribution system on February 4th, 2013.

Tables two (2) and four (4) of Schedule D of the Licence required the System collect lead samples from ten (10) different locations in the distribution system between the dates of June 15th, 2012 and October 15th, 2012. The lead samples were collected on November 6th, 2012, outside the required sampling period.

Action(s) Required:

The owner/operator shall ensure that water quality monitoring requirements imposed by the Licence or Permit are being met.

On May 27th, 2013, the City of Markham provided the undersigned Provincial Officer with a copy of an updated Standard Operating Procedure for the Community Lead Testing Program as well as work instructions for lead sampling. No further action is required.

2. All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6.

Duty to Report an Adverse Test Result, Section 18(1) of the Safe Drinking Water Act

Each of the following persons shall report every prescribed adverse result of a drinking water test conducted on any waters from a municipal drinking water system or a regulated non-municipal drinking water system to the Ministry and the medical officer of health immediately after the adverse test result is obtained:

1. The accredited operating authority responsible for the system or, if there is no accredited operating authority responsible for the system, the owner of the system.

Duty to Report under Section 18 of the Act, Section 16-3 of Ontario Regulation 170/03

(1) The following are prescribed as adverse test results of a drinking water test for the purpose of section 18 of the Act:

1. A result that exceeds any of the standards prescribed by Schedule 1, 2, or 3 to the Ontario Drinking Water Quality Standards.

Ontario Regulation 170/03, Manner of making immediate report

16-6(1) A person who is required to report immediately under section 18 of the Act shall do so in accordance with this section and section 16-8.

(2) An immediate report required under section 16-4 or 16-5 or under subsection 18 (1) of the Act must be given by speaking in person or by telephone with a person referred to in subsection (3).

(3) For the purpose of subsection (2), the immediate report must be given,

(a) to a medical officer of health, by speaking with a person at the office of the medical officer of health or, if the office is closed, by speaking with a person at the on-call system of the health unit;

(b) to the Ministry, by speaking with a person at the Ministry's Spills Action Centre

Action(s) Required:

The owner/operator shall ensure that every prescribed adverse test result is reported to the Ministry of the Environment Spills Action Centre and the Medical Officer of Health immediately after the adverse test result is obtained.

On May 27th, 2013, the City of Markham provided the undersigned Provincial Officer with documentation describing the action taken to ensure that an immediate verbal report of a prescribed adverse test result is made to the appropriate authorities in the future.

A) The City of Markham revised Standard Operating Procedure 16b - Responding to Adverse Water Quality Test Results to include a double check process to ensure that verbal notice is provided immediately.

B) An adverse notification quick reference checklist (currently in draft format) has been developed. The quick reference checklist will be used to ensure that all steps have been taken in response to an adverse water quality incident.

C) The Business Compliance and Training Section will be arranging annual "on-the-job" refresher training to all water operators and engineering staff.

The owner/operator shall ensure that applicable staff receive training regarding the policies, procedures, and legislative requirements relevant to adverse water quality response notification. The owner/operator shall also ensure that measures are in place to ensure that new staff responsible for adverse water quality response receive adequate training.

The undersigned provincial officer shall be provided with additional documentation pertaining to the training content and delivery by no later than August 15th, 2013.

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

Not Applicable

SIGNATURES

Inspected By:

Julie McKeiver

Signature: (Provincial Officer):



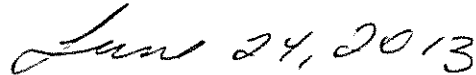
Reviewed & Approved By:

Demetra Koros

Signature: (Supervisor):



Review & Approval Date:



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.



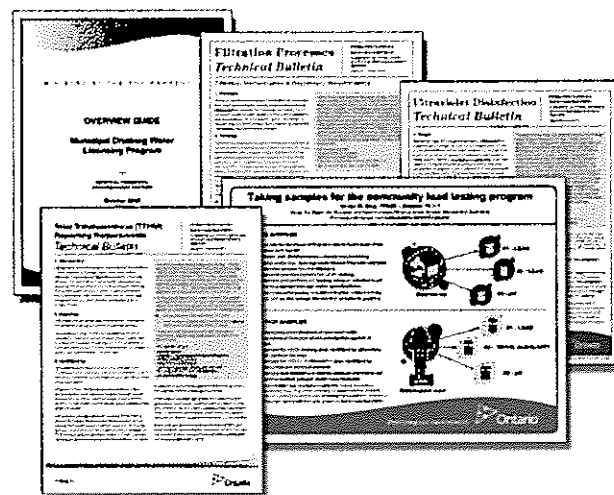
APPENDIX A
STAKEHOLDER APPENDIX

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are posted on the Ministry of the Environment's Drinking Water Ontario website at www.ontario.ca/drinkingwater to help in the operation of your drinking water system.

Below is a list of key materials frequently used by owners and operators of municipal drinking water systems. To read or download these materials, go to Drinking Water Ontario and search in the **Resources** section by **Publication Number**.

Visit Drinking Water Ontario for more useful materials. Contact the Public Information Centre if you need assistance or have questions at 1-800-565-4923/416-325-4000 or picemail.moe@ontario.ca.



PUBLICATION NUMBER	PUBLICATION TITLE
4448e01	Procedure for Disinfection of Drinking Water in Ontario
7152e	Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids
7467	Filtration Processes Technical Bulletin
7685	Ultraviolet Disinfection Technical Bulletin
8215	Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (February 2011)
2601e	Overview Guide: Municipal Drinking Water Licensing Program
0000	Municipal Drinking Water Licensing Program Bulletin, Issue 1, January 2011
0000	Certification Guide for Operators and Water Quality Analysts
6560e	Taking Samples for the Community Lead Testing Program
7423e	Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption
7128e	Drinking Water System Contact List
4449e01	Technical Support Document for Ontario Drinking Water Quality Standards

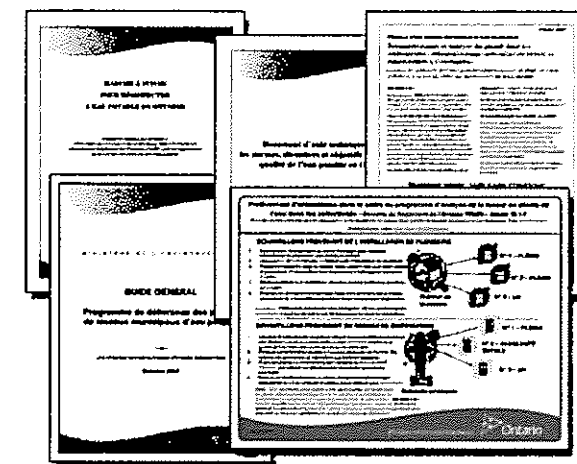
ontario.ca/drinkingwater

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

Beaucoup de documentation sur le fonctionnement d'un réseau d'eau potable se trouve sur le site Web du ministère de l'Environnement.

Vous trouverez ci-dessous la liste des principaux documents que les propriétaires et les exploitants de réseaux municipaux d'eau potable utilisent fréquemment. Pour lire ou télécharger ces documents, allez sur le site Web du Ministère, et effectuez une recherche par numéro de publication dans la section RESSOURCES.

Consultez le site d'Eau potable Ontario pour obtenir d'autre documentation. Communiquez avec le Centre d'information du public au 1 800 565-4923



ou au 416 325-4000, ou encore à picemail.moe@ontario.ca si vous avez des questions ou besoin d'aide.

NUMÉRO DE PUBLICATION	TITRE DE LA PUBLICATION
4448f01	Marche à suivre pour désinfecter l'eau potable en Ontario
7152e	Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids (en anglais seulement)
7467	Filtration Processes Technical Bulletin (en anglais seulement)
7685	Ultraviolet Disinfection Technical Bulletin (en anglais seulement)
8215	Total Trihalomethane (TTHM) Reporting Requirements Technical Bulletin (février 2011) (en anglais seulement)
2601f	Guide général - Programme de délivrance des permis de réseaux municipaux d'eau potable
0000	Bulletin du Programme des permis de réseaux municipaux d'eau potable, numéro 1, janvier 2011
0000	Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable
6560f	Prélèvement d'échantillons dans le cadre du programme d'analyse de la teneur en plomb de l'eau dans les collectivités
7423f	Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption
7128f	Liste des personnes-ressources du réseau d'eau potable
4449f01	Document d'aide technique pour les normes, directives et objectifs associés à la qualité de l'eau potable en Ontario

ontario.ca/drinkingwater



APPENDIX B
MOE AUDIT SAMPLE
RESULTS

Login: C202200

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Program Code 130071401

Program: MOE OPERATIONS DIVISION
Study: WATER, COMMUNAL
Project: CENTRAL REG. - YORK-DURHAM DIS
Activity: WTP MUNIC INSPECT/ADVERS NOTIF
Organization: District Manager York-Durham

Org. Id: 4514

MCKEIVER, JULIE

Mail this copy to :

AJAX,ONT

Final reports to : SAFEDRINKINGWATERBRANCH.CALENDAR.MOE
MCKEIVER, JULIE

Approved for release by : DAVE MORSE Manager, Organic Contaminants Section

Approved date : May, 14, 2013

Inquiries to : TERESA SWITZER
PETER DROUIN

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

LOGIN DESCRIPTION: 220004162 MARKHAM DISTRIBUTION SYSTEM JULIE MCKEIVER 905-427-5614

The results relate only to items tested.

To provide 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

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Login: C202200

Field Id JM-MA-1 Station ID 220004162
 Sample ID C202200-0001
 MOE*LIMS Products Requested:
 WD E3226A PA3226

UTM:
 Zone Easting Northing Collection Method Map Datum Accuracy
 17 632234 4861126 GPS NAD83 6-10M

Sample Location Description
 SSJ11, OPP, 22 RYAN CRES. DISTRIBUTION
 Sample Comment Description

Field Id JM-MA-2 Station ID 220004162
 Sample ID C202200-0002
 MOE*LIMS Products Requested:
 WD E3226A PA3226

UTM:
 Zone Easting Northing Collection Method Map Datum Accuracy
 17 638571 4862665 GPS NAD83 2-5M

Sample Location Description
 SSH12, 260 FRED MCLAREN BLVD.
 DISTRIBUTION
 Sample Comment Description

Field Id JM-MA-3 Station ID 220004162
 Sample ID C202200-0003
 MOE*LIMS Products Requested:
 WD E3226A PACONF3226

UTM:
 Zone Easting Northing Collection Method Map Datum Accuracy
 17 640965 4858467 GPS NAD83 6-10M

Sample Location Description
 SSI09, 210 RUSSELL JARVIS DR.
 DISTRIBUTION
 Sample Comment Description

Login: C202200

Print Date: May 14, 2013 10:10 AM By REPORTADMIN

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Field Id: JM-MA-4 Station ID: 220004162
 Sample ID: C202200-0004

MOE*LIMS Products Requested:
 WD E3226A PA3226

UTM:
 Zone Easting Northing Method Map Datum Accuracy
 17 628760 4854171 GPS NAD83 6-10M

Sample Location Description: SSA13, OPP, 45 WILLOWBROOK RD.
 DISTRIBUTION

Sample Comment Description:

Sampling Date: 07 MAY 2013
 Time: 12:30
 Zone: 5

Sampler Information:

Login: C202200

Print Date: May 14, 2013 10:10 AM By REPORTADMIN

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Field ID: JM-MA-1
 Sample ID: C202200-0001
 MOE-LIMS ID: 2013WD18-00085
 Station ID: 220004162
 Collect Date: 07 MAY 2013
 Sample Location Description: SSJ11, OPP, 22 RYAN CRES. DISTRIBUTION

Field ID: JM-MA-2
 Sample ID: C202200-0002
 MOE-LIMS ID: 2013WD18-00086
 Station ID: 220004162
 Collect Date: 07 MAY 2013
 Sample Location Description: SSH12, 260 FRED MCLAREN BLVD. DISTRIBUTION

Field ID: JM-MA-3
 Sample ID: C202200-0003
 MOE-LIMS ID: 2013WD18-00087
 Station ID: 220004162
 Collect Date: 07 MAY 2013
 Sample Location Description: SS109, 210 RUSSELL JARVIS DR. DISTRIBUTION

Sample Comments Description:

Listid	Parmname	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1	Value	Units	Qual	Rmk1
3226L1	NT: Total Coliforms												
3226L2	NT: Presence/absence												

See Non-Target Textual result

See Non-Target Textual result

See Non-Target Textual result 48P

Login: C202200

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**** REPRINTED ****

Field ID: JM-MA-4
Sample ID: C202200-0004
MOE*LIMS ID: 2013WD18-00088
Station ID: 220004162
Collect Date: 07 MAY 2013
Sample Location Description: SSA13, OPP, 45 WILLOWBROOK RD.
DISTRIBUTION

Sample Comments Description:

Listid	Paramname	Value	Units	Qual	Rnk1
3226L1	NT: Total Coliforms	See Non-Target	Textual result		

Login: C202200

CODE DESCRIPTION

NDAT NO DATA: ABSENT NT: TOTAL COLIFORMS
 NDDN NO DATA: NOT DETECTED NT: DETERIORATION INDICATORS
 >10C RECD>10C. DATA MAY NOT REFLECT THAT OF ORIG.SAMPLE
 48P P-A BOTTLE POSITIVE AFTER 48 HOURS(2 DAYS)
 NDAE NO DATA: ABSENT NT: ESCHERICHIA COLI

NON-TARGET TEXTUAL RESULT

Sample ID: C202200-0001	Listid : 3226L1	Paramname : NT: Total Coliforms	Value:	Units: c/100mL	Qual: NDAT	Remarks:
Absent						
Sample ID: C202200-0001	Listid : 3226L1	Paramname : NT: Escherichia coli	Value:	Units: c/100mL	Qual: NDAE	Remarks:
Absent						
Sample ID: C202200-0001	Listid : 3226L1	Paramname : NT: Deterioration Indicators	Value:	Units: c/100mL	Qual: NDDN	Remarks:
Not Detected						
Sample ID: C202200-0002	Listid : 3226L1	Paramname : NT: Total Coliforms	Value:	Units: c/100mL	Qual: NDAT	Remarks:
Absent						
Sample ID: C202200-0002	Listid : 3226L1	Paramname : NT: Escherichia coli	Value:	Units: c/100mL	Qual: NDAE	Remarks:
Absent						
Sample ID: C202200-0002	Listid : 3226L1	Paramname : NT: Deterioration Indicators	Value:	Units: c/100mL	Qual: NDDN	Remarks:
Not Detected						
Sample ID: C202200-0003	Listid : 3226L2	Paramname : NT: Presence/absence	Value:	Units: c/100mL	Qual:	Remarks: 48P
Acid						
Sample ID: C202200-0003	Listid : 3226L2	Paramname : NT: Total Coliforms	Value:	Units: c/100mL	Qual: NDAT	Remarks: >10C
Absent						
Sample ID: C202200-0003	Listid : 3226L2	Paramname : NT: Escherichia coli	Value:	Units: c/100mL	Qual: NDAE	Remarks: >10C
Absent						
Sample ID: C202200-0003	Listid : 3226L2	Paramname : NT: Aeromonas spp.	Value:	Units: c/100mL	Qual: NDDN	Remarks: >10C
Absent						

Login: C202200

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NON-TARGET TEXTUAL RESULT

Not Detected						
Sample ID: C202200-0003	Listid: 3226L2	Parmname: NT: Staphylococcus aureus	Value:	Units: c/100mL	Qual: NDDN	Remarks: >10C
Not Detected						
Sample ID: C202200-0003	Listid: 3226L2	Parmname: NT: Pseudomonas aeruginosa	Value:	Units: c/100mL	Qual: NDDN	Remarks: >10C
Not Detected						
Sample ID: C202200-0003	Listid: 3226L2	Parmname: NT: Fecal streptococcus	Value:	Units: c/100mL	Qual: NDDN	Remarks: >10C
Not Detected						
Sample ID: C202200-0004	Listid: 3226L1	Parmname: NT: Total Coliforms	Value:	Units: c/100mL	Qual: NDAE	Remarks:
Absent						
Sample ID: C202200-0004	Listid: 3226L1	Parmname: NT: Escherichia coli	Value:	Units: c/100mL	Qual: NDDN	Remarks:
Absent						
Sample ID: C202200-0004	Listid: 3226L1	Parmname: NT: Deterioration Indicators	Value:	Units: c/100mL	Qual: NDDN	Remarks:
Not Detected						

TEXT COMMENT

Product Completion

Sample ID	Matrix	Method	Product	Analytical Department	Completion Date
C202200-0001	WD	E3226A	PA3226	6510	13-MAY-13
C202200-0002	WD	E3226A	PA3226	6510	13-MAY-13
C202200-0003	WD	E3226A	PACONF3226	6510	13-MAY-13
C202200-0004	WD	E3226A	PA3226	6510	13-MAY-13

LaSB Method Summary

Method	Method Description	Status	Status Description

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

LogIn: C202200

Print Date: May. 14, 2013 10:10 AM By REPORTADMIN

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E3226A	THE DETECTION OF COLIFORM BACTERIA INCLUDING ESCHERICHIA COLI IN DRINKING WATER BY THE PRESENCE-ABSENCE PROCEDURE	ROUTINE	Method has been fully validated, is deemed fit for purpose and has the associated Uncertainty information available upon request
E3226A	THE DETECTION OF COLIFORM BACTERIA INCLUDING ESCHERICHIA COLI IN DRINKING WATER BY THE PRESENCE-ABSENCE PROCEDURE	ROUTINE	Method has been fully validated, is deemed fit for purpose and has the associated Uncertainty information available upon request

*** End of Report ***



APPENDIX C
INSPECTION RATING RECORD

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2013-2014)

DWS Name: MARKHAM DISTRIBUTION SYSTEM
DWS Number: 220004162
DWS Owner: Markham, The Corporation Of The City Of
Municipal Location: Markham

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Adhoc
Inspection Date: May 7, 2013
Ministry Office: York-Durham District

Maximum Question Rating: 241

Inspection Module	Non-Compliance Rating
Treatment Processes	0 / 39
Distribution System	0 / 21
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 14
Water Quality Monitoring	12 / 55
Reporting & Corrective Actions	21 / 49
Treatment Process Monitoring	0 / 21
TOTAL	33 / 241

Inspection Risk Rating	13.69%
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FINAL INSPECTION RATING:	86.31%
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2013-2014)

DWS Name: MARKHAM DISTRIBUTION SYSTEM
DWS Number: 220004162
DWS Owner: Markham, The Corporation Of The City Of
Municipal Location: Markham

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Adhoc
Inspection Date: May 7, 2013
Ministry Office: York-Durham District

Non-compliant Question(s)	Question Rating
Reporting & Corrective Actions	
Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?	21
Water Quality Monitoring	
Are all water quality monitoring requirements imposed by the Licence and Permit, or Approval issued under Part V of the SDWA being met?	12
TOTAL QUESTION RATING	33

Maximum Question Rating: 241

Inspection Risk Rating | 13.69%

FINAL INSPECTION RATING: 86.31%

