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TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON SEPTEMBER 10, 2012
FROM:	JOHN BRAAM, P. ENG. MANAGING DIRECTOR - ENGINEERING AND CITY ENGINEER
SUBJECT:	ANNUAL MINISTRY OF ENVIRONMENT INSPECTION OF THE CITY WATER DISTRIBUTION SYSTEM

RECOMMENDATION

That on the recommendation of the Managing Director –Engineering and City Engineer, the following report for the Annual Ministry of Environment Inspection of the City Water Distribution System **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

The following two Reports can be found on the City of London’s website at <http://www.london.ca/d.aspx?s=/Meetings/Default/meetingpackages.htm>

- “*City of London Water Supply and Distribution System 2010 Compliance Report*”, presented to Built and Natural Environment Committee on March 28, 2011, Agenda Item #18;
- “*Annual Ministry of Environment Inspection of the City Water Distribution System*”, presented to Environmental & Transportation Committee, May 10, 2010, Agenda Item #11.

BACKGROUND

Purpose:

The City operates and maintains a water distribution system which consists of approximately 1,560 kilometers of watermain piping (of various sizes, up to 1350 mm diameter), seven pumping stations, three reservoirs, and seven emergency standby wells. The Ministry of the Environment (MOE) routinely inspects all drinking water systems in Ontario and issues a Drinking Water System Inspection Report. This report outlines the results of the recent MOE Inspection undertaken on January 18, 2012.

Context:

The MOE has a rigorous and comprehensive inspection program for municipal residential drinking water systems. The objective is to determine whether municipal residential drinking water systems are being operated in accordance with the requirements of the *Safe Drinking Water Act, 2002*, associated regulations, and MOE Drinking Water Works Permit (DWWP). It is the responsibility of each municipal residential drinking water system owner to ensure that their drinking water system is being operated in compliance with all applicable legal requirements.

Inspection:

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The MOE commenced an inspection of the City of London's water system on January 18, 2012. Operational and water quality records from December 1, 2010 through to December 31, 2011 were requested from staff and were made available to the MOE Inspector. The inspection included a review of operational procedures, records of water sample analyses, and a review of the status of the certification and training for all of the City's Water Operations staff. The Inspector spent several days inspecting the system facilities, reviewing records, and interviewing staff.

As part of the annual Drinking Water System Inspection, a *Ministry of the Environment Drinking Water System Inspection Rating Record* is created. Each year these rating records (or "report cards") for drinking water systems across Ontario are compiled and made available to the public. The rating record was developed to encourage continuous improvement by drinking water system operators. Summarizing London's ratings:

- For 2006, the City of London achieved a Final Inspection Rating of 95.38%.
- For 2007, the City of London achieved a Final Inspection Rating of 98.19%.
- For 2008, the City of London achieved a Final Inspection Rating of 100.00%.
- For 2009, the City of London achieved a Final Inspection Rating of 100.00%.
- For 2010, the City of London achieved a Final Inspection Rating of 100.00%.
- For 2011, the City of London achieved a Final Inspection Rating of 94.39%

The *Inspection Summary Rating Record* is attached as Appendix 'A'. The *Drinking Water System Inspection Report* can be found at: <http://www.london.ca/d.aspx?s=/Water/default.htm>.

Inspection Results:

The inspection determined that the water system was being operated in accordance with applicable regulations. All operators possessed the appropriate Drinking Water Operator Certificates. Water quality sampling during the inspection period of December 10, 2010 through to December 31, 2011 were in compliance with the Drinking Water Quality Standards. All required reports to the MOE were submitted.

The inspection found two occurrences of non-compliance requiring action by the City of London.

Inspection Finding 1:

"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 not disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit."

The City recognizes and generally follows practices for disinfecting watermains after repairs have been performed, as stipulated by the American Water Works Association (AWWA) Standards. Specifically, Standard C-651 contains the instruction to take bacteriological samples after the repair has been completed, or utilize an equivalent procedure. In years past, our previous Inspection Reports had identified the taking of bacteriological samples after repairing watermain breaks as a "Recommendation"; therefore, deeming it not to be a specific, mandatory requirement. Chlorine availability and testing is always performed to ensure adequate disinfection is established. In 2009, staff again contacted the MOE seeking clarification on the AWWA C-651 Standard, specifically regarding whether or not bacteriological testing was a requirement. At that time, the MOE response reconfirmed that it was not a mandatory requirement.

When the MOE introduced the new Drinking Water Works Permit (DWWP) in 2010, the following wording was included:

"All parts of the drinking water system in contact with drinking water which are taken out of service for inspection, repair or other activities that may lead to contamination, shall be

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disinfected before being put into service in accordance with the provisions of the AWWA C651 – Standard for Disinfecting Water Mains... or an equivalent procedure.”

Noting that the wording is virtually identical to the AWWA C-651 Standard, to which City staff previously received confirmation from the MOE that the sampling was not a mandatory requirement, the water distribution system continued to be operated as it had in the past.

From the MOE inspection in January, 2012, staff was advised that taking bacteriological samples after repairing watermain breaks has become a mandatory requirement with the new DWWP. Immediately upon becoming aware of this mandatory requirement, staff expeditiously developed an appropriate working protocol, provided training to all Water Operations operators, and promptly implemented it to comply with the MOE’s directive.

The MOE Inspector also recognized the City’s corrective efforts in the report but our rating unfortunately reflected the inspector’s findings.

Inspection Finding 2:

“The operations and maintenance manuals did not meet the requirements of the Permit and Licence or Approval issued under Part V of the SDWA.”

The MOE Inspector noted that the City’s Operations and Maintenance Manual did not contain an inspection and maintenance schedule for all air and vacuum relief chambers that form part of the drinking water system. Through introduction of the new DWWP, this became a mandatory condition. This finding does not imply that maintenance was being ignored for air and vacuum relief chambers, rather that the Operations and Maintenance Manual had no formal inspection and maintenance schedule and procedure in place, and documentation of the work undertaken has not been summarized or made readily available.

Prior to the MOE inspection, City staff had retained an engineering Consultant and completed a thorough inspection, detailed survey, and condition assessment – including documentation - of all air and vacuum release chambers within our distribution system. There are approximately 275 sites identified throughout the City’s boundaries.

The purpose of this assignment was to identify chambers that required remedial work due to their condition, identify chambers of higher risk, and establish a prioritized listing to act upon. This information is also currently being analyzed to determine if any of these chambers can be eliminated from our system, which will eliminate risk and reduce operating costs,

To note, as part of the Capital Works program to install fibre optic lines for acoustic monitoring on large diameter concrete pressure pipe, as well as other various other Capital Works projects, all air and vacuum relief chambers encountered to date have been inspected and assessed. Maintenance and remedial activities have been performed, including replacement of air relief valves where required. Approximately 30 sites had been fully addressed prior to the MOE Inspection taking place, albeit formal documentation had not been compiled.

A maintenance procedure and schedule for all air and vacuum relief chambers that form part of the drinking water system has been developed. The procedure has been incorporated into the City of London Distribution System Operations & Maintenance Manual. Water Operations crews have been deployed to perform and document their inspection and maintenance activities, following the prescribed procedure and schedule.

The MOE Inspector also required that the City submit its written procedure to the MOE prior to June 29, 2012. Staff has fully complied with the order.

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Conclusion:

Remedial actions by staff has promptly rectified all issues associated with the non-compliance findings by the MOE Inspector, including procedural activities associated with watermain break repairs, and development and implementation of a maintenance procedure and schedule for all air and vacuum relief chambers that form part of the drinking water system. All activities have also been communicated to the MOE in order to fulfill their requests.

Furthermore, a number of Service Areas, including Water, Wastewater, Transportation, and Parks, are currently working on developing a Computerized Maintenance Management System (CMMS) which will be used to track, schedule, and document all maintenance efforts, work orders, costs, etc. Once implemented, the CMMS will greatly assist in implementing, monitoring, assessing, summarizing, documenting, and scheduling of operational and maintenance activities for numerous Water Operations programs, according to their prescribed schedules; thus, aiding to ensure compliance to the requirements of our DWWP. A call for Request for Qualifications for the CMMS project is planned to be released in September of this year.

Acknowledgements:

This report has been prepared with input from Scott Koshowski, P. Eng., Environmental Services Engineer, Water Operations Division and Dan Huggins, Water Quality Manager.

PREPARED BY:	RECOMMENDED BY:
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August 30, 2012
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Attach: Appendix 'A' – Drinking Water Inspection Summary Sections

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Appendix 'A'
Inspection Summary Rating Record

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2011-2012)

DWS Name: CITY OF LONDON DISTRIBUTION SYSTEM DWS Number: 260004917 DWS Owner: London, City Of Municipal Location: London

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Standalone
Inspection Date: January 18, 2012
Ministry Office: London District

Maximum Question Rating: 624

Inspection Module	Non-Compliance Rating
Capacity Assessment	0 / 42
Treatment Processes	0 / 88
Distribution System	21 / 29
Operations Manuals	14 / 42
Logbooks	0 / 46
Contingency/Emergency Planning	0 / 31
Consumer Relations	0 / 12
Certification and Training	0 / 65
Water Quality Monitoring	0 / 165
Reporting & Corrective Actions	0 / 104
TOTAL	35 / 624

Inspection Risk Rating	5.61%
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FINAL INSPECTION RATING:	94.39%
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Appendix 'A'
Inspection Summary Rating Record

Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2011-2012)

DWS Name: CITY OF LONDON DISTRIBUTION SYSTEM DWS Number: 260004917 DWS Owner: London, City Of Municipal Location: London

Regulation: O.REG 170/03
Category: Large Municipal Residential System
Type Of Inspection: Standalone
Inspection Date: January 18, 2012
Ministry Office: London District

Non-compliant Question(s)	Question Rating
Distribution System	
Are existing parts of the distribution system that are taken out of service for inspection, repair or other activities that may lead to contamination, and all new parts of the distribution system that come in contact with drinking water, disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit?	21
Operations Manuals	
If applicable, do the operations and maintenance manuals meet the requirements of the Permit and Licence or Approval issued under Part V of the SDWA?	14
TOTAL QUESTION RATING	35

Maximum Question Rating: 624

Inspection Risk Rating	5.61%
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FINAL INSPECTION RATING:	94.39%
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