

For Information

DATE: February 13, 2012

 REPORT TITLE: **WATER TREATMENT AND QUALITY**
2011 ANNUAL SUMMARY REPORT: MUNICIPAL WATER SUPPLIES

FROM: Dan Labrecque, Commissioner of Public Works

OBJECTIVE

To provide the members of the municipal Council with a 2011 Annual Summary Report, in compliance with the Ontario Drinking-Water System Regulation (O.Reg.170/03) under the *Safe Drinking Water Act, 2002*.

REPORT HIGHLIGHTS

- Schedule 22 of the Ontario Drinking-Water System Regulation (O.Reg.170/03) under the *Safe Drinking Water Act, 2002* requires drinking water system owners to prepare a Summary Report for Municipalities.
- The Summary Report must be made available by March of each year and presented to the municipal Council.
- Implementation of Drinking Water Quality Management System at Peel helps reduce non-compliance events by 40 percent from the previous year.
- The Region of Peel complied with the requirements of the *Safe Drinking Water Act* and the regulations, and the terms and conditions of all Approvals and Permits for the municipal groundwater and surface water systems, with the exception of eight operational conditions. These requirements were not associated with the safety of drinking water.

DISCUSSION**1. Background**

The municipal drinking water systems in Ontario are governed by the *Safe Drinking Water Act, 2002*, and its regulations. The Ontario Drinking-Water Systems Regulation (O.Reg.170/03) prescribes stringent and mandatory requirements to monitor, test and report drinking water quality. Under Schedule 22 of the O.Reg.170/03, the owner of a drinking water system must prepare a summary report and present it to the municipal Council by March 31 of each year.

The drinking water system owners must regularly review compliance with the terms and conditions of their Approvals, Permits and the requirements of the *Safe Drinking Water Act* and its regulations. The regulatory requirements that the drinking water system failed to meet must be summarized in a report and the actions taken to correct these failures described. The report must also include a summary of the quantities and flow rates of water supplied during the period

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from January 1 to December 31, 2011, counting monthly average and maximum daily flows for all municipal drinking water systems.

2. Findings

Statement of Compliance with Terms and Conditions

The development and implementation of the Drinking Water Quality Management System at Peel and introduction of a more robust preventative maintenance program have enhanced the practices, procedures and communication protocols, and fostered a continual improvement approach in the management of the water system operations. This success was measured by a significant reduction in the occurrences of non-compliance with the legislation. Peel staff reports that the number of these events was reduced by 40 percent from the previous year.

In the year 2011, the Region of Peel complied with the terms and conditions of all Approvals, Permits and the *Safe Drinking Water Act* and its regulations with the exception of eight operational events summarized below. These occurrences, mostly caused by a combination of operational and automation equipment anomalies and communication disruptions, were found non-compliant with the conditions of the Ontario drinking water regulations and supplementary legislative documents; however, not associated with the safety of drinking water supplied to Peel consumers.

The Region initiated the replacement of the Supervisory Control and Data Acquisition (SCADA) Infrastructure for the municipal groundwater and surface water systems including the process controllers as a direct consequence of the existing equipment manufacturer no longer supporting their legacy product. The transition resulted in instances when the operational data was not captured through the automation system. Once this one-time change-over is complete, staff anticipates consistent recording of all continuous monitoring results.

a) Municipal Groundwater Systems (Town of Caledon)

Caledon Village – Alton Drinking Water System

Inglewood Drinking Water System

Palgrave – Caledon East Drinking Water System

Cheltenham Drinking Water System

Ontario Drinking-Water Regulation 170/03, Schedule 6, Section 6-5

A record must be made of the date, time, location, and result of the test for every required operational test parameter and every required sample.

A review of the 2011 continuous monitoring data showed compliance with this requirement, except on occasions during which extended communication disruption was experienced due to severe weather. The loss of communication resulted in continuous monitoring of data not being recorded in the required format; however, water quality parameters and treatment equipment were monitored and the necessary alarm systems operated properly.

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b) Municipal Surface Water Systems (South Peel)

Lakeview Water Treatment Plant (WTP)

Ontario Drinking-Water Regulation 170/03, Schedule 6, Section 6-10

A record must be made of the date, time, location, name of the person conducting the test and result of the test for every required operational test and every required sample.

All 2011 continuous monitoring data was in compliance with this requirement, except on July 20, from 00:00 to 23:59, when the free chlorine residual and filter turbidity data record at the Lakeview Water Treatment Plant was lost due to an unexpected database error. During this 24 hour period, the plant was in operation and daily logs indicate that treatment and water quality continuous monitoring equipment, as well as the necessary alarm systems, were operating properly and the integrity of finished water quality was not compromised.

Municipal Drinking Water Licence No. 009-101, Schedule B, Section 10.1

Water systems must not discharge a contaminant into the natural environment that causes, or is likely to cause, an adverse effect.

- i) On May 30, 2011, due to a miscalculation of the sludge transfer pump speed setting, approximately 300 litres of filter backwash sludge from the Lakeview WTP residue management facility was discharged, via wastewater chamber, into the parking lot of the plant administration building. Approximately 40 litres of sludge may have entered Lake Ontario.

The immediate action taken included shutting down of the pumps and retaining the services of an external company to clean up the spill. In an effort to prevent any future spills, the sludge transfer pump speed was adjusted and as a secondary control measure, it is planned to install floats in the wastewater chamber, to automatically shut down the pumps if a maximum sludge level is reached.

- ii) On September 29, 2011, due to an oversight, the Snelgrove Elevated Tank discharged potable water directly to the storm water sewer for a period of 37 minutes. The discharge was stopped by shutting down the water supplying pumps and to prevent a reoccurrence, the computer display in the Lakeview WTP control room was enhanced and the Snelgrove Elevated Tank data added to the overview screen to improve system monitoring.

Lorne Park Water Treatment Plant & Western Transmission System

Ontario Drinking-Water Regulation 170/03, Schedule 6, Section 6-5

All continuous monitoring equipment that is being used to fulfill O.Reg.170/03 requirements must record data in the prescribed format.

Although the chlorine residual analyzers are testing water at the required frequency, on occasion, hourly records were not available for three water storage facilities within the distribution system. This was seen on occasion at the Herridge, Streetsville and

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Meadowvale water reservoirs. The main reason for the missing records was loss of data trending during a planned switch from the legacy Bristol Babcock process controllers to the new Allen Bradley process controllers. Other available documentation shows compliance respecting the chlorine residuals for these time periods at the abovementioned facilities.

Municipal Drinking Water Licence No. 009-101, Schedule B, Section 10.1

Water systems must not discharge a contaminant into the natural environment that causes, or is likely, to cause an adverse effect.

- i) On April 7, 2011, the Lorne Park WTP discharged water discoloured by inert Granular Activated Carbon (GAC) fines into Lake Ontario. These inert fines were released during the initial backwash of new GAC contactors. The fines were not detectable to the on-line turbidity analyzer monitoring supernatant discharge, which remained within compliance throughout the event. Action taken included shutting down of the backwash water holding tank transfer pumps, and diversion of holding tank and clarifier contents to the sanitary sewer. Diversion of the discharge water from the new GAC contactors continued until backwash water ran clear of carbon fines.
- ii) On May 21, 2011, potable water was discharged from the Herridge Reservoir due to instrumentation malfunction and the reservoir water pressure indicator transmitter understating the value. Immediate action was taken to stop the discharge by turning off pumps feeding the reservoir. To prevent the reoccurrences of the overflow, remediation of the instrumentation will be conducted in alignment with the refurbishing work of the old reservoir and completed prior to the reservoir being placed in service.
- iii) On December 16, 2011, in preparation for repairs of a water main drain valve, potable water spilled from the Streetsville transmission main, via isolated but leaking valves onto Erin Mills Parkway. Immediate action was taken to stop the discharge by closing the upstream and downstream valves to isolate the leak. Although the discharge of potable water from municipal water mains is exempted from spill reporting requirements according to O.Reg.675/98, this event was reported to the Ministry of the Environment (MOE) Spills Action Centre for due diligence.

CONCLUSION

The Region of Peel complied with the terms and conditions of all Approvals, Permits and the *Safe Drinking Water Act* and its regulations with the exception of the non-health related operational conditions summarized above. These oversights never compromised the integrity of the drinking water supply or public health. Also, immediate action was taken and control measures put in place to prevent reoccurrence of the events.

The number of operational events reported for 2011 has reduced by 40 percent from last year, owing to the implementation of the Quality Management at Peel and enhancing the water system operations and maintenance programs.

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