
TO: GENERAL COMMITTEE

SUBJECT: 2010 WATER OPERATIONS BRANCH ANNUAL REPORT, SUMMARY REPORT AND MANAGEMENT REVIEWS

PREPARED BY AND KEY CONTACT: S. BRUNET, B.SC., MANAGER OF WATER OPERATIONS EXTENSION 4866 *SB*

SUBMITTED BY: J. THOMPSON, P.ENG., DIRECTOR OF OPERATIONS *JT 11-02-04*

GENERAL MANAGER APPROVAL: JIM SALES, GENERAL MANAGER OF COMMUNITY OPERATIONS *JS*

CHIEF ADMINISTRATIVE OFFICER APPROVAL: JON M. BABULIC, CHIEF ADMINISTRATIVE OFFICER *JMB*

RECOMMENDED MOTION

1. That Staff Report OPR002-11 concerning the 2010 Municipal Summary Report and Annual Drinking Water System Report regarding the City of Barrie's Drinking Water system be received for information purposes.
2. That the Water Operations Branch Annual Report for 2010 be received for information purposes.
3. That the Water Operations Branch Management Reviews, dated November 18th, 2010 and December 2nd, 2010 be received for information purposes.

PURPOSE & BACKGROUND

4. The purpose of this Staff Report is to apprise Council of the operational and compliance status for the 2010 reporting year of the City of Barrie Drinking Water System and to solicit from Council an acknowledgement of their receipt and understanding of this Report.
5. There are 2 specific reporting requirements related to the Drinking Water Systems Regulation (O.Reg. 170/03) under the Safe Drinking Water Act (SDWA).
 - a) Section 11 requires an annual report be prepared not later than February 28th of each year. This Report provides a brief description of: the drinking water system; chemicals used; a breakdown of monetary expenses related to required equipment; a summary of all test results; and a summary of adverse reports and corrective actions taken. In addition, this Report entitled '2010 Drinking Water System Report' must be available to the public upon request and be posted on the City of Barrie website.
 - b) Schedule 22 requires a Municipal Summary Report be prepared not later than March 31st of each year and a copy forwarded to members of Municipal Council. This Report lists the non-compliances in respect to the SDWA, the Drinking Water System Regulation, the Municipal Drinking Water License/Certificate of Approval and orders applicable to the drinking water system received and the corrective measures that were taken in respect to the non-compliances. In addition, it summarizes the quantities and flow rates of the water supplied during the reporting year, including monthly average and maximum daily flows along with a comparison to rated capacities. In November 2009, the authority and conditions for the operation and maintenance of the City of Barrie Drinking Water System defined in the former Certificate of Approval were transferred to the Municipal Drinking Water License. The description of the drinking water system and the authority for

alterations also defined in the former Certificate of Approval were transferred to the Drinking Water Works Permit. This was done as a result of and in full conformance with the Part V of the SDWA.

6. Under the Drinking Water Quality Management Standard, there is an obligation of the Operating Authority to communicate the results of Management Reviews, the adequacy of the infrastructure necessary to operate and maintain the drinking water system, and infrastructure maintenance programs to the Owner.
7. The Municipal Summary Report and Annual Drinking Water System Report, and details regarding Management Review, infrastructure adequacy and maintenance programs are components of a larger more comprehensive report entitled the Water Operations Branch Annual Report, a copy of which can be found in the Councilors' Lounge for review. A copy of the Executive Summary found in the Water Operations Branch Annual Report is attached as Appendix A of this staff report.

ANALYSIS

8. Barrie has 14 wells (2 of which are currently non-operational), 3 ground level reservoirs, 3 elevated reservoirs and 6 booster stations in 5 pressure zones throughout the City of Barrie. Water is supplied from wells drilled into a deep aquifer that is not under the direct influence of surface water. The total annual production volume for 2010 was 14,682,613 m³ with an average day flow of 40,195 m³ and a maximum day flow of 64,452 m³ in May. The only treatment currently required is the addition of chlorine for disinfection, and sodium silicate for sequestering iron for aesthetic purposes in some wells. Once the new Surface Water Treatment Plant (SWTP) becomes fully operational and provides water to Barrie's south end, its regulatory approved treatment process will employ screening, enhanced coagulation prior to ultra-membrane filtration and carbon contact filtration followed by chlorine disinfection. The two systems will be effectively operated as separate entities with provision for emergency backup augmentation.
9. The Ministry of the Environment (MOE) inspection, conducted yearly, is being conducted in January 2011 for the 2010 operational year. An Inspection Report is expected to be submitted to the CAO and Operating Authority by approximately mid February/March 2011. One of the items reviewed by the MOE Compliance Inspector is whether the information which is the subject of this Staff Report has indeed be provided to the owner (Council) as information in the requisite time frame for the year subject to the compliance inspection review.
10. Associated with this inspection is a final inspection rating for the drinking water system which will be reported with the Inspection Report. The inspection protocol for municipal residential drinking water systems consists of a series of regulatory questions to determine compliance with provincial regulations. The risk-based inspection rating process resulting from the inspection allows inspection results to be quantified. The 2009 Inspection Rating for the City of Barrie was 96.63%.
11. Copies of the Ontario Regulation 170/03; the Municipal Drinking Water License, the Permit to Take Water, the 2010 Annual Drinking Water System Report, 2010 Municipal Summary Report and Water Operations Branch Management Reviews; a copy of this Staff Report have been attached as Appendices to the Water Operations Branch Annual Report to be presented to Council for information purposes.

ENVIRONMENTAL MATTERS

12. There are no environmental matters related to the recommendation other than regulatory compliance.

ALTERNATIVES

13. As this Report is being presented for information purposes only, no alternatives are presented.

FINANCIAL

14. There are no direct financial implications associated with the recommended motions.

LINKAGE TO COUNCIL STRATEGIC PRIORITIES

15. The recommendation included in this Staff Report is not specifically related to any of City Council's Strategic Priorities but is a requirement of ongoing service delivery.

Appendix A
Executive Summary

Although 2010 was a demanding year for the Water Operations Branch, there were a number of achievements that assisted in further ensuring a supply of safe drinking water that protects public health and the environment for the residents of the City of Barrie.

A compliment of 60 fulltime staff operate and maintain 14 wells (2 not online), 2 reservoirs, 3 water towers and 6 booster stations that provide treatment, storage and pressures for firefighting; 625 km of water main that deliver water through 5 pressure zones in the City of Barrie to the 42,500 customers whose consumption is monitored by water meters. With the construction of the Harvie Road Booster Station, the removal of 2 wells off-line and the commissioning of 25 km of transmission and water main, preventative maintenance programs were adjusted. Distribution crews repaired 34 main breaks at an average cost of \$4350 per main break and to protect against subsurface infrastructure damage in 2010, 7221 locates were performed representing an increase of 2.3% from 2009. In 2010, the maintenance of water consumption meters was performed and tracked to ensure accurate readings for revenue generation. Staff completed 3816 service calls representing a 15.9% decrease from 2009.

Preparations for the commissioning of the Surface Water Treatment Plant continued in 2010 with the implementation of swabbing and leak detection programs. These programs served to prepare the distribution system in the south end of Barrie for the change over from ground water to surface water.

In November 2010, the Water Operations Branch underwent its **First Year Surveillance ('desk') Audit** as an accredited Operating Authority. Reaccreditation was awarded based on the September 2010 submission of the Operational Plan. There is an expectation that the next round of audits will include the auditing of the Surface Water Treatment Plant. Staff are currently working at ensuring that the incorporation of the plant into the Operational Plan is complete and ready for the next audit. Staff have dedicated a significant amount of time and effort into achieving this higher level of standard and are well prepared to handle the challenges ahead in maintaining and continually improving upon this standard. Part of the Quality Management System continual improvement process is the requirement to conduct a Management Review in which deficiencies are identified and action plans are established. The Water Operations Branch Management Team is responsible for ensuring that a Management Review is conducted at least once every twelve months. In 2010 the Management Reviews were conducted in November and December.

At the time of the writing of this report, the annual Ministry of the Environment (MOE) inspection was being conducted and hence the final inspection rating for 2010 will not be made until March of this year. The final inspecting rating for the City of Barrie Drinking Water System in 2009 was 96.63%.

In 2010, there were 10 water quality non-compliances centered around the consequences of equipment failures, procedures and process breakdown, notification requirements and SCADA communications failures. All were resolved with process changes implemented to assist in decreasing the chance of a reoccurrence.

In 2010, the total annual water production amounted to 14,682,613 m³, a negligible increase from 2009 with the average daily flow of 40,195 m³ and a peak day flow of 64,452 m³ occurring in the month of May. The cost to operate the City of Barrie Municipal Drinking Water System was approximately \$609.00/ML (\$210.00/service excluding debenture costs) with 95% of the projected budget being spent and 108% of the projected rate revenues being collected; 18% more than 2009. This allowed for the transfer of approximately \$9,103,230.54 to the Water Rate Reserve Fund.**

Five Water Operations Branch priorities drive the development, implementation and continual improvement of processes and projects within the Branch.

1. In 2010, ***to ensure the delivery of safe drinking water that meets or exceeds regulatory requirements***, regulated as well as non-regulated manual sampling and automated sampling methods were utilized to monitor water quality. Approximately 3000 samples were taken for analysis and used to assess system performance and develop corrective actions. 99.9% of all samples met regulatory compliance. Ten (10) non-compliances were logged for 2010 that were centered around the consequences of equipment failures, procedures and process breakdown, notification requirements and SCADA communications failures. The 2010 Surveillance Audit of our Operational Plan yielded one Major Non-Conformance and 5 NCR's that were minor in nature. Quality Management System processes and procedures were revised to address this Major Non-Conformance that were approved by the Auditor.
2. The continued implementation of the Outreach Program, the refinement of the Customer Complaint Management Process and the flushing of dead end water mains all assisted in ***ensuring the delivery of safe drinking water that meets or exceeds expectations and promotes customer confidence***.
3. To improve upon ***the employment and retention of a respectful, competent, motivated and adaptive workforce that is dedicated to teamwork, continual learning and improvement for the long term***, a staffing model was developed that, together with the cross training program clearly identified the path that Water Operations was taking with respect to training, staff development and succession planning. Communications is a priority for the Branch and as such the year was characterized with monthly General Staff Meetings. In addition, the Branch established a Health and Safety sub-committee to provide staff with a more effective method of identifying and addressing health and safety concerns.
4. There are a number of approaches to ***continually improve operational performance in a timely, sustainable and cost effective manner***. In 2010, infrastructure maintenance included 8,204 preventative maintenance checks and 636 unscheduled maintenance tasks completed under our Preventative Maintenance Program. A larger than normal main break in the third quarter provided the opportunity to test our emergency processes. Linear infrastructure maintenance included the swabbing and leak detection of more than 32 km of water main, the repair and replacement of valves and 34 main break repairs. The Automated Meter Reading Project kicked off in the last quarter with 10,000 units installed by year end. 2010 also saw staff time allocated to the development and implementation of a Work Order Management System to be completed in 2011.
5. To ***maintain an effective balance between expenditures and revenues*** the total budget management approach was utilized in the review and analysis of budget variances throughout the year. In 2010 the Water Operations Branch came within approximately 95% of the forecasted budget. This number does not include the Surface Water Supply budget as, due to the delays in commissioning, approximately only 33% of the forecasted budget was spent.**
In June of 2010, to complete the regulatory requirements for the Municipal Drinking Water License, the Municipal Drinking Water System Financial Plan was submitted to the Ministry of Municipal Affairs and Housing.

The 2010 operational year will be a challenging year for the Water Operations Branch as we continue to strive towards further optimizing the drinking water system while commissioning the new Surface Water Treatment Plant, implementing an Automated Meter Reading System, upgrading the system's communications system (SCADA) and implementing a Work Order Management System. We look forward to the challenges that face us in the year to come as they will assist us in the growth and development of the Branch and prepare us for what lies ahead in the years to come.

****References to budget are approximations due to the fact that as of the date of print the 2010 budget was not yet finalized.**