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CANADA-WIDE STRATEGY FOR THE MANAGEMENT OF MUNICIPAL WASTEWATER EFFLUENT

The Environmental Services Committee recommends the adoption of the recommendation contained in the following report dated March 24, 2010, from the Commissioner of Environmental Services.

1. RECOMMENDATION

It is recommended that:

1. The Regional Clerk circulate this report to the Clerks of the nine local municipalities.

2. PURPOSE

This report updates Council on potential impacts to York Region's Water Pollution Control Plants from the *Canada-wide Strategy for the Management of Municipal Wastewater Effluent (hereafter 'the Strategy')* endorsed by the Canadian Council of Ministers of the Environment.

3. BACKGROUND

Canadian Council of Ministers of the Environment (CCME) is comprised of the environmental ministers from the federal, provincial and territorial governments who seek to achieve positive environmental results, focusing on issues that are national in scope and that require collective attention by a number of governments. CCME aims to assist its members with meeting their mandate of protecting Canada's environment and serves as a principal forum for members to develop strategies, and guidelines that each environment ministry across the country can use.

Ministers of the Environment agreed on implementing the Canada-wide Strategy for Management of Municipal Wastewater Effluent

In 2003, the CCME agreed to engage in the development of a Canada-wide Strategy for Municipal Wastewater Effluent. Following the Ministers' approval of the concept of a national strategy, a Development Committee was established. This committee conducted information exchange sessions with stakeholders during the Spring/Summer of 2005 regarding fundamental principles of the strategy and ultimately developed the draft strategy in June 2007. Between October 2007 and January 2008, consultation sessions on the draft Strategy were conducted throughout participating jurisdictions. Finally, on February 17, 2009, the Strategy was endorsed by 11 jurisdictions of the CCME Council

of Ministers, including Ontario. Signatory jurisdictions are now in the process of implementing the Strategy, which will occur over time. Most implementation timelines start once a jurisdiction has endorsed the Strategy. However, implementation timelines will ultimately be determined by each jurisdiction separately. As a result, implementation may occur at different times in different jurisdictions.

Strategy focuses on municipal wastewater facilities leading to potential operating and financial impacts for York Region's Water Pollution Control Plants

The Strategy addresses municipal wastewater facilities discharging effluent into surface water, including combined and sanitary sewer overflows. It aims to ensure that owners will have regulatory clarity in managing municipal wastewater effluent under a harmonized framework that is protective of human health and the environment. To achieve this goal, the Strategy focuses on two outcomes:

1. Improved human health and environmental protection.
2. Improved clarity about the way Municipal Wastewater Effluent is managed and regulated.

Requirements in the strategy are considered to be a minimum. Jurisdictions that have endorsed the strategy may impose additional requirements and/or more stringent requirements for existing, upgraded and new facilities.

York Region owns and operates six Water Pollution Control Plants (WPCPs) in Mount Albert, Sutton, Kleinberg, Keswick, Holland Landing, and Schomberg. A new facility servicing the community of Nobleton is scheduled to be completed in spring 2010. York Region also participates in service contracts with the Regional Municipalities of Peel and Durham for additional wastewater treatment capacity with an 85 percent stake ownership in the Duffin Creek WPCP in Durham Region. Certain elements of the Strategy, once implemented, may incur financial commitments and impacts for York Region's WPCPs as well as those of our service partners.

4. ANALYSIS AND OPTIONS

Federal and Provincial Governments must develop implementation plans within three years

Within three years, federal, territorial and provincial governments must incorporate requirements into their respective regulatory frameworks and develop implementation plans. A federal-provincial agreement must also be established by jurisdictions within three years. The first step in this process was realized in February 2010 when Environment Canada released draft regulations for municipal wastewater effluent for public consultation. The objectives of the draft regulations are to establish national effluent standards and provide regulatory clarity for rules on reporting for owners of

municipal, community, federal and Aboriginal wastewater systems across Canada. Staff are currently reviewing the draft material for ultimate impacts (if any) to York Region.

Every five years, the CCME will assess implementation and review the Strategy. Federal, and provincial governments will regularly report progress towards meeting requirements of the Strategy to the CCME, Ministers and Canadians.

Strategy proposes National Performance Standards be met within the next 10 to 30 years

The proposed strategy outlines National Performance Standards for Carbonaceous Biochemical Oxygen Demand, Total Suspended Solids, and Total Residual Chlorine. These standards will represent the minimum performance requirement for municipal wastewater discharges to surface water.

Implementation of the National Performance Standards will be based on risk criteria and financial sustainability of communities. New and upgraded facilities will be required to meet or exceed these Standards when they are commissioned. Consequently the new Nobleton plant and upgraded Keswick WPCP will be subject to these Standards once they are operational.

For existing facilities that do not meet the National Performance Standards, the provincial jurisdiction will determine the risk level and the corresponding timeline required to implement these Standards. Facilities that belong to high-risk, medium-risk and low-risks should meet the National Performance Standard within 10, 20 and 30 years, respectively. Within seven years, facilities will submit action plans where prioritization of actions is required.

It is expected that most Ontario WPCPs should currently perform well within the standard since Ontario wastewater effluent requirements are currently more stringent than those outlined in the Strategy. At this time, the Duffin Creek WPCP and all York Region WPCPs are well within the proposed National Performance Standards (Table 1), with the exception of the Keswick WPCP for chlorine residual. The Keswick WPCP is currently undergoing facility upgrades to eliminate final effluent chlorination through the use of UV disinfection, which will be completed prior to the new standards coming into effect. Currently, the Duffin Creek WPCP has no effluent requirement limit for total residual chlorine. New Certificate of Approval conditions may become effective as early as mid-2011. These conditions may include new chlorine residual effluent limits of 0.01 mg/L.

Table 1
York Region WPCP Effluent Performance (2009)

National Performance Standards	Annual Average Monitoring Results (mg/L)						
	Keswick	Sutton	Holland Landing	Mount Albert	Schomberg	Kleinburg	Duffin Creek (Durham Region)
CBOD <u>25 mg/L</u>	0.79	0.48	2.68	0.40	0.82	0.80	8.10
Suspended Solids <u>25 mg/L</u>	3.30	6.16	4.75	3.75	3.36	3.91	17.40
Total Residual Chlorine <u>0.02 mg/L</u>	0.13	NA	NA	NA	NA	NA	0.10

Site specific Environmental Risk Assessments will be required for all wastewater facilities

Under the Strategy, within eight years, every wastewater facility must conduct a site-specific environmental risk assessment, which includes completion of a one-year initial characterization of the quality of effluent discharged. Concurrently, assessments of the receiving environments will be conducted by the relevant provincial jurisdiction. Jurisdictions will utilize the results of the one-year initial characterizations of WPCP effluent in combination with findings of the receiving environments to determine whether or not the need for the development of site-specific Effluent Discharge Objectives (EDOs) may be established for particular substances deemed not protective of human health or the environment. The resulting EDOs may relate to more stringent limits for the National Performance Standards or for additional substances of concern. Based on the results of the environmental risk assessment and compliance monitoring requirements, York Region's WPCPs may have to comply with reduced effluent loadings of existing parameters, monitor more parameters or increase the monitoring frequency of existing parameters.

A watershed-based Environmental Risk Assessment is recommended, especially in managing nutrients

The Strategy describes a watershed approach to the environmental risk assessment, where warranted, to consider conditions of the entire watershed and address the diverse sources within it, not just individual point source discharges. Five of York Region's six

operational WPCPs are located within the Lake Simcoe watershed. Considering the recent finalization of the Lake Simcoe Protection Plan, and its efforts to reduce the discharge of phosphorus to the Lake, it is likely that WPCPs within the Lake Simcoe watershed will be required to conduct a watershed approach to the environmental risk assessment. Elements of the Lake Simcoe Protection Plan will develop and complete subwatershed evaluations for priority subwatersheds in relation to, at a minimum: the phosphorus reduction strategy, stormwater management master plans, water budgets, instream flow targets, and natural heritage restoration and enhancement.

Within five years, a mechanism will be developed under CCME for jurisdictions to monitor the receiving environment at a watershed level. At this point, it is unclear as to what York Region's role may be in terms of monitoring at the watershed level.

The CCME Strategy for Municipal Wastewater Effluent also addresses reduction of point source contaminants from industrial, commercial, and institutional sources

As part of this Strategy, reduction at source focuses on elimination or reduction of pollutants entering the wastewater sewer system from households and industrial, commercial and institutional sources. Establishment of a sewer use bylaw is an essential component of every wastewater source control program. The Strategy includes a model sewer use by-law which serves as a tool to support municipalities' efforts to implement their own by-law and provides guidance to facility owners in developing a by-law that suits their own needs.

Most of the components in the model sewer use by-law are already included in *York Region's Sewer Use By-law No.S-0064-2005-009*. The model by-law specifies requirements for installation and operation of food-related and vehicle service oil and grease, and sediment interceptors. Although these requirements are already regulated by the Plumbing Code which is enforced at the local municipal level, York Region's current Sewer Use By-law does not include such requirements. However, it is anticipated that the Region's Sewer Use By-law will be updated to incorporate these and other requirements by the end of 2010.

All York Region WPCPs must conduct whole effluent testing

The CCME Strategy will require facilities categorized as medium to very large facilities, or very small and small facilities with industrial input, to conduct acute and chronic toxicity tests on an ongoing basis. The first year of toxicity testing may occur during the initial characterization phase.

The results of these tests will determine the need for increased monitoring, evaluations and action plans as required.

York Region's proactive approach to reducing inflow and infiltration likely to satisfy requirements for reduction of sanitary sewer overflows

Under the Strategy, within seven years, jurisdictions will have to comply with the following national overflow standards:

- Sanitary sewer overflow frequencies will not increase due to development or redevelopment
- Sanitary sewer overflows will not occur during dry weather, except during spring thaw and emergencies

In 2008, York Region proactively initiated the Inflow and Infiltration (I/I) reduction program to reduce extraneous flows to the collection system, which plays an important role in reducing the need for capital expansion and providing additional system capacity or security. A sanitary sewer evaluation study was started in the summer of 2009 to narrow down the high potential sources and potential remedies for Inflow and Infiltration. Details of this project can be found in Clause No. 2 of Report No. 6 of the Transportation and Works Committee report dated June 25, 2009 outlining short and long-term solutions to address Inflow and Infiltration. In this respect, York Region continues to rely on the commitment of our local area municipal partners to provide adequate funding and resources to implement critical programs to reduce (I/I):

- Within existing local and private systems, and
- Within new development areas by adopting a series of new Region-wide sewer design and commissioning standards being developed in partnership with local staff.

5. FINANCIAL IMPLICATIONS

Initial costs for Effluent Characterization and Testing are approximately \$280,000

To comply with the proposed Strategy, York Region will incur costs for sampling and analysis associated with effluent characterization, monitoring, and toxicity testing. The Strategy outlines sampling frequency based on the assessed risk level of each location. Table 2 details estimated costs for the initial wastewater effluent characterization and additional monitoring required within the first year of implementation of the Strategy as well as study costs for York Region WPCP sites. Table 3 details anticipated ongoing costs associated with additional parameter monitoring and increased frequency, which will be a new annual requirement for all York Region WPCPs. As the Strategy is implemented, these cost estimates will be adjusted as required and budgeted when needed. In the interim, the approved 2010 Budget included sufficient funds to complete the initial characterization, monitoring and risk assessment activities. Operational budgets for future budget cycles will be amended to incorporate expected cost increases associated with increased sampling requirements.

Table 2
Estimated Costs for Initial Characterization and Toxicity Monitoring (One Year)

Proposed Activity	Cost
Monitoring for York Region WPCPs	\$ 128,000
Monitoring for Duffin Creek WPCP (50% share)	\$ 52,000
Environmental Risk Assessment	\$ 100,000
Total	\$ 280,000

Table 3
Estimated Costs for Ongoing Compliance Monitoring (Annual)

Proposed Activity	Cost
Compliance monitoring – York Region WPCPs	\$ 76,000
Compliance monitoring – Duffin Creek WPCP (50% share)	\$ 17,000
Total	\$ 93,000

Results of the initial characterization and watershed or receiving environment assessments may eventually result in increased monitoring parameters or frequencies at York Region facilities, which may increase costs beyond those detailed in Table 2. Long-term implications will be determined based on the initial characterization and assessment work.

Currently no new capital improvements are required at any York Region WPCP to comply with the Strategy since current effluent monitoring results are well within proposed compliance parameters of the Strategy (Table 1). Duffin Creek WPCP meets the National Performance Standard requirement and is in conformance with the Pollution Prevention plan for total residual chlorine and ammonia as required under the Strategy.

The Strategy includes an economic plan that identifies a number of potential funding principles and mechanisms. Staff will continue to review and monitor these proposals and pursue any relevant funding mechanism, if and when it is appropriate. Based on the information provided through the Strategy, no significant impact to rates is anticipated at this time.

6. LOCAL MUNICIPAL IMPACT

All WPCPs located within the Region are owned and operated by York Region. Point Source Contaminant control monitoring programs, such as the Sewer Use By-law Enforcement Program, is being administered by the Region and coordinated with the local municipalities as well as Toronto, Peel, and Durham Regions. Furthermore, local municipalities will be informed of all necessary information related to requirements and

potential impacts from this Canada-wide Strategy for the Management of Municipal Wastewater Effluent.

7. CONCLUSION

Ontario, a signatory province to the CCME Strategy, is now in the process of implementing the Strategy. Requirements stated in this Strategy are considered a minimum to be adhered to. The Province may impose more stringent requirements or may include additional requirements for existing, upgraded and new facilities.

Environmental Services staff will coordinate activities to monitor and prepare for requirements of this Strategy including facilitating meetings and coordinating activities with our local municipalities, engaging in Municipal Enforcement Sewer Use Group (MESUG) activities and meetings, and consulting with MOE during implementation. This Strategy will also provide guidance in the amendment of the Sewer Use By-law to control what is discharged to wastewater systems.

For more information on this report, please contact Laura McDowell, Director, Environmental Promotion and Protection Branch, Environmental Services Department at (905) 830-4444, ext. 5077.

The Senior Management Group has reviewed this report.