



# INFORMATION REPORT

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	April 1, 2019
<b>SUBJECT/REPORT NO:</b>	Sewer Use By-law Proposed Amendments Report (PW19029) (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
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<b>SIGNATURE:</b>	

## COUNCIL DIRECTION

Not Applicable

## INFORMATION

The City of Hamilton's (City) Sewer Use By-law (SUB) No. 14-090 regulates discharges to the City's sanitary, combined and storm sewers from industrial, commercial & institutional (IC&I) facilities, and residential units. It also regulates the conveyance and disposal of hauled sewage. It establishes limits for common pollutants and prohibited substances, and details requirements that users need to meet to discharge to the City's sewer infrastructure.

The environmental impacts would be significant without regulating dischargers through enforcement of the SUB. Examples include:

- Clogged or damaged sewers and pipes;
- Risk of impairment of the sewage treatment processes;
- High nutrients contributing to eutrophication of water bodies through algal blooms;
- Heavy metals and emerging contaminants that are toxic and can bioaccumulate in the food chain;
- Biosolids may not meet strict provincial guidelines for land application.

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OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

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The administration and enforcement of the SUB is conducted by the Environmental Monitoring and Enforcement (EME) team in the Hamilton Water Division of Public Works. Their mandate, through the provisions of the SUB, is to protect the City's sewer infrastructure, sewage treatment facilities and the natural environment. The current by-law was approved at Public Works Committee on April 7, 2014 (PW13061a) and was essentially an administrative re-write from the City's original 1988 SUB, with no changes to the parameters or limits.

Since the province released the original 1988 model SUB many factors have triggered the incentive to re-evaluate discharge limits for specific SUB parameters. In 2017 a consultant was hired to conduct a review to confirm whether changes to Hamilton's SUB are justifiable and practical to implement. The consultant assessed the City's sewage treatment plant influent data, as well as IC&I discharge sampling data, Sewer Discharge Permits and historical IC&I exceedances of the SUB. Comparator municipalities were consulted regarding their limits and challenges. Research literature and Provincial and Federal Regulations including the Canadian Council of the Ministers of Environment (CCME) Model By-law were used as references. Current enforcement challenges and historic conditions unique to Hamilton were also considered in the review.

The purpose of this Information Report is to advise Committee on proposed amendments to some of the parameter limits outlined in the SUB that are listed in Appendix "A" to Report PW19029, and to inform Committee of staffs' intent to hold Public Information Centres regarding the outcome of the consultant's review in Q2 2019.

#### Methodology of Consultant Study

The consultant reviewed all the current parameters in the SUB and recommended whether changes were required. Their recommendations were based on City of Hamilton sampling data, conditions of infrastructure, environmental regulations, research papers and discussions with comparator municipalities. Philosophies for decreasing a limit were based on whether the parameter has potential for sewer damage or an impact on the treatment processes, the natural environment, IC&I dischargers or biosolids. Limits were not changed if there was no scientific justification or if enforcement is not viable. The increase or addition of a parameter is recommended as a form of due diligence based on current industry standards, treatment practices and is in line with the SUBs of comparator municipalities.

#### Review of Limits for Sanitary Sewer/Combined Sewer Discharges (SUB Schedule B)

If a discharger cannot meet the requirements of the SUB for parameters that are considered treatable by our City's sewage treatment plant, which includes BOD, TSS, phosphorus, TKN and Oil & Grease (animal/vegetable), they can opt to pay the City for the conveyance and treatment via an Overstrength Discharge Permit. The consultant

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concluded that the current SUB limits for treatable parameters align well with the CCME Model SUB and the SUBs of comparator municipalities. The current parameters are easily enforced and have little to no impact on sewer infrastructure, treatment processes, the natural environment or biosolids and therefore there is no recommendation to change any of the limits for any of the treatable parameters.

For parameters that are not treatable a discharger can have controlled exemptions to the SUB via a Compliance Discharge Permit, for a limited time, to plan and implement private treatment works that will bring their discharge into compliance. The non-treatable parameters were reviewed by the consultant with the following recommendations:

#### pH Upper Limit

The current pH range in the SUB is 5.5 – 9.5; recommendations are to amend the range to 6-11. Non-compliance with the SUB for pH is a common issue in Hamilton and can be industry specific. Discharging of detergents and cleaning products can result in SUB violations. The current upper pH limit is 9.5, and historically laundry facilities have had difficulty meeting this limit. Enforcement has been in the form of issuing violation notices and requiring offenders to implement controls. Recommendations are to raise the upper pH limit to 11 to be in line with most comparator municipalities and the CCME model SUB. Increasing the upper pH limit would resolve most of the compliance issues for IC&I dischargers and is not anticipated to negatively impact the sewer infrastructure, treatment works, natural environment or biosolids.

#### pH Lower Limit

The purpose of a lower pH limit is to protect corrosion in the City sewer infrastructure. The characteristics of sewage are sufficient to cause corrosion via microbial and chemical attack on most types of pipe. Studies have shown that at pH value of 6 and over minimize corrosion in sewer system. Many other municipalities, including those with significant industrial contributors maintain a minimum pH of 6. Changing the lower pH limit from 5.5 to 6 is not anticipated to negatively impact IC&I dischargers, sewer infrastructure, treatment works, natural environment or biosolids.

#### Temperature

The maximum temperature in the City's SUB is 65 degrees Celsius, and recommendations are to lower it to 60 degrees Celsius. Impacts to IC&I dischargers are not anticipated and this change puts Hamilton in line with majority of comparator municipalities. High temperature combined with low pH causes deterioration of sewer infrastructure; lowering the temperature will reduce impact to sewer infrastructure, treatment works. The natural environment and biosolids are not impacted by high temperature discharges.

### Sulphate Limit & Sulphide Limit

The current SUB limit for Sulphate is 1500 mg/l. Although most comparator municipalities maintain the same limit, the CCME model SUB does not have a Sulphate limit. There is evidence that Sulphate can attack concrete, therefore no change to the limit of 1500mg/L is recommended. While not currently in the SUB the addition of Sulphide is being recommended. Based on literature, Sulphides are responsible for sewer corrosion via chemical and biological processes. The recommendation is to follow the CCME model SUB with a Sulphide limit of 1 mg/l. The addition of sulphide to the parameter list is not anticipated to negatively impact current IC&I dischargers.

### Metals

SUB limits for various metals are essential for the success of the biosolids management plan. Ontario's Nutrient Management Act (2002) regulates the agriculture land application of biosolids. The metals limits were compared to the CCME Model SUB and comparator municipality limits, and then compared with the Canadian Food Inspection Agency (CFIA) limits. 3 of the 11 metals monitored were over 40% of the CFIA limit (molybdenum, selenium, zinc). The City's current SUB sanitary and combined sewer discharge limit for zinc is 3 mg/l, which is higher than the CCME Model SUB of 2 mg/l. There is a recommendation to change the limit for zinc since there has been an increase in the average zinc concentration in the Woodward Avenue sewage treatment plant biosolids. Molybdenum and selenium are not recommended to change, however EME will increase monitoring and work closely with IC&I dischargers.

### Phthalates

This group of compounds is commonly found in plasticizers and dissolving agents. They are used in hundreds of products such as vinyl flooring, adhesives, lubricating oil, automotive plastics, sports equipment, electric cable, food packaging material, coated textiles, plastic based clothing, and personal care products such as shampoos, soaps and nail polishes. The current SUB has limits for dibutylphthalate (DBP) and Bis (2-ethylhexyl) phthalate) (DEHP). The CCME model SUB does not include a limit for either of these 2 parameters and not all municipalities include them. It is recommended to keep DBP the same, however increase DEHP from 0.012 mg/l to 0.28 mg/l because it is very challenging to control such a commonly discharged parameter and is an administrative burden to enforce such a ubiquitous substance.

### Review of Limits for Storm Sewer Discharges (SUB Schedule C)

Schedule C of the City's current SUB outlines the parameters and their limits in mg/l for discharges to the storm sewer. Information used for this review included several regulations, comparator municipalities, policies and guidelines relevant to the City's

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storm sewer requirements. The recommendation is to reduce the limits for 6 metals based on the CCME model SUB limits and comparator municipalities, which are highlighted in Appendix "A" to Report PW19029. Phosphorous (TP) has been added as a new parameter. The CCME Model SUB does not include a storm sewer discharge limit on TP, however, 10 out of 12 comparator municipalities do impose a limit for TP. It is recommended that the City include a TP limit of 0.4 mg/l as due diligence and to demonstrate it is in line with the objectives of the Hamilton Harbour Remedial Action Plan (HHRAP) recommendations. Additionally, inclusion of TP can be used by the City to promote the adoption of low impact development (LID) practices to reduce phosphorus loading in storm water. TP is also a useful indicator of cross connections between storm and sanitary sewers, since TP levels in sewage and process wastewater from most facilities is typically well above the recommended limit of 0.4 mg/l.

#### Next Steps

City Staff plan to hold Public Information Centres to share the outcomes of the consultant's review in Q2 of 2019 in order to seek input from stakeholders. Based on the outcome of the feedback, proposed amendments to SUB 14-090 will be presented to Council for approval in Q3 2019.

#### Appendices and Schedules Attached

Appendix "A" - Summary of Proposed Amendments to SUB 14-090