



**STAFF REPORT
INFORMATION ONLY**

**Supplementary Report to Highland Creek Treatment
Plant Biosolids Environmental Assessment**

Date:	April 15, 2016
To:	City Council
From:	General Manager, Toronto Water
Wards:	All Wards
Reference Number:	P:\2016\Cluster BTW\PW116007

SUMMARY

This Staff Report is intended to supplement the Staff Report titled "Highland Creek Treatment Plant (HCTP) Biosolids Environmental Assessment" and provide clarity on the significance of the 2001 Stockholm Convention on the selection of a preferred biosolids management strategy for the HCTP.

The emissions currently generated from the existing old incinerators at HCTP are compliant with the standards as set out in the Stockholm Convention, the Canada Wide Standards (CWS) and the Ontario Air Standards. The predicted future emissions of Persistent Organic Pollutants (POPs) from a new Fluidized Bed Incinerator as proposed for HCTP (Alternative 1) will be significantly lower than the old incinerators at HCTP. In addition, the new Fluidized Bed Incinerator will greatly exceed the compliance standards and all measures specified in Article 5 of the Stockholm Convention, including the use of Best Available Technology and Best Environmental Practices.

The Stockholm Convention was signed in 2001 and came into effect in 2004. Canada was a signatory to the Convention.

Canada established the CWS in keeping with the Stockholm Convention, and the Province of Ontario, which regulates new incinerators, defines emission requirements that are consistent with the CWS and Stockholm Convention.

Financial Impact

There is no financial impact resulting from this report.

DECISION HISTORY

City Council at its meeting on March 31 and April 1, 2016 deferred a Staff Report from the Public Works and Infrastructure (PWI) Committee meeting on March 1, 2016, titled "Highland Creek Wastewater Treatment Plant - Biosolids Class Environmental Assessment."

The original PWI Committee Decision Document can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.PW11.4>

ISSUE BACKGROUND

The "Highland Creek Treatment Plant Biosolids Environmental Assessment" Staff Report was to be considered by Council at its meeting of March 31 and April 1, 2016, but was deferred to the May 3, 4 and 5, 2016 Council meeting. The Staff Report seeks Council approval of the recommendations from a Schedule B Class Environmental Assessment (EA) that identifies the future long-term biosolids management strategy for the Highland Creek Treatment Plant (HCTP).

The EA study provides a detailed assessment of human health, environmental, community and cost impacts of three short listed biosolids management alternatives and recommends the replacement of the existing 40-year old incinerators at the HCTP with current state of the art incinerators and emissions scrubbing technology. The recommendations were supported by detailed technical studies, including a Human Health Risk Assessment, a Health Impact Assessment, an Air Quality Impact Assessment and a number of Technical Memoranda. The Staff Report summarizes the information contained in these documents and recommends the Fluidized Bed Incinerator alternative.

In the days following the release of the above Staff Report, inquiries were received regarding the applicability and relevance of the Stockholm Convention on Persistent Organic Pollutants (POPs), as related to the EA recommendation for new Fluidized Bed Incinerators at the HTCP.

The Stockholm Convention is an international environmental treaty which was adopted in 2001 and came into force in 2004. Canada was the first country to sign and ratify the Convention in 2001.

COMMENTS

The Stockholm Convention on Persistent Organic Pollutants (POPs) is a global treaty established to protect human health and the environment from chemicals that remain present in the environment for long periods of time, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

Signatories to the Convention were required to implement measures to reduce or eliminate POPs releases as called for in the Convention. In doing so, they were to develop a plan for the implementation of their obligations under the Convention, report on the measures taken to do so and could also nominate chemicals for addition to the Convention. For the POPs (relevant to this EA), it required governments to take steps to reduce the releases of Dioxins, Furans, Hexachlorobenzene, and PCBs as by-products of combustion or industrial processes, with the goal to minimize and, where feasible, ultimately eliminate the production of these POPs.

Waste incinerators, including those used for municipal solid waste, hazardous waste and sewage sludge (or biosolids), are covered in Stockholm Convention Article 5, Annex C, and Section V. The chemicals of relevance for sewage sludge incinerators are the group of Dioxins and Furans.

Article 5 of the Convention requires that each party develop Action Plans with implementation schedules within two (2) years after entry into force; inventory current and projected releases; evaluate laws and policies; and develop/promote strategies and review these every five (5) years.

Specifically for new or existing potential sources, the Convention promotes use of:

- Best Available Techniques (BAT) and associated performance levels
- Best Environmental Practices (BEP).

From the Stockholm Convention, Section V Guidance/Guidelines for Waste Incinerators, BAT is the use of modern equipment for incineration and emissions scrubbing. BEP includes the implementation of good operating practices. The proposed new Fluidized Bed Incineration alternative for the HCTP complies with the Section V Guidelines, and the intent of the Stockholm Convention for BAT and BEP.

As a signatory of the Convention, Canada established its National Action Plan (NAP) on Unintentionally Produced Persistent Organic Pollutants (UPOPs). The NAP identifies Canada's plans for meeting the obligations outlined in the Convention. The Plan presents information on current releases, laws and policies, and the strategies that Canada has adopted in its domestic programs to reduce and virtually eliminate these unintentionally produced POPs.

As part of the NAP, Canada-wide Standards (CWS) for Dioxins and Furans emissions were established for five priority source sectors, including incinerators used for municipal waste, hazardous waste, medical waste, and sewage sludge. These standards include emission limits or activity phase-out, implementation timelines, and reporting mechanisms. The CWS (endorsed by the Canadian Council of Ministers of the Environment) sets stricter Dioxin and Furan targets of 80 pg I-TEQ/Nm³ (at 11% O₂) for new sewage sludge incinerators (compared to the Stockholm Convention value of 100).

Requirements for BAT have also been incorporated through existing provincial and territorial approvals processes, such as the adoption of the CWS by the Province of Ontario as a benchmark for air quality. New sewage sludge incinerators in Ontario have a regulatory emission Dioxin and Furan criterion of 80 pg I-TEQ/Nm³ (at 11% O₂), equivalent to the CWS. It should be noted that the data from new sewage sludge fluidized bed incineration facilities using BAT, including those operating in the Ontario and U.S., consistently demonstrates emission quality for Dioxins and Furans below 15 pg I-TEQ/Nm³ (at 11% O₂).

Figure 1 compares Dioxin and Furan limits under the Stockholm Convention, Canada and Ontario standards, maximum levels actually reported by Ontario and U.S. sewage sludge fluidized bed incineration facilities, and the performance currently achieved by the existing HCTP incinerators. The recommended new fluidized bed incineration process is expected to achieve equal or better performance than the existing HCTP incinerators.

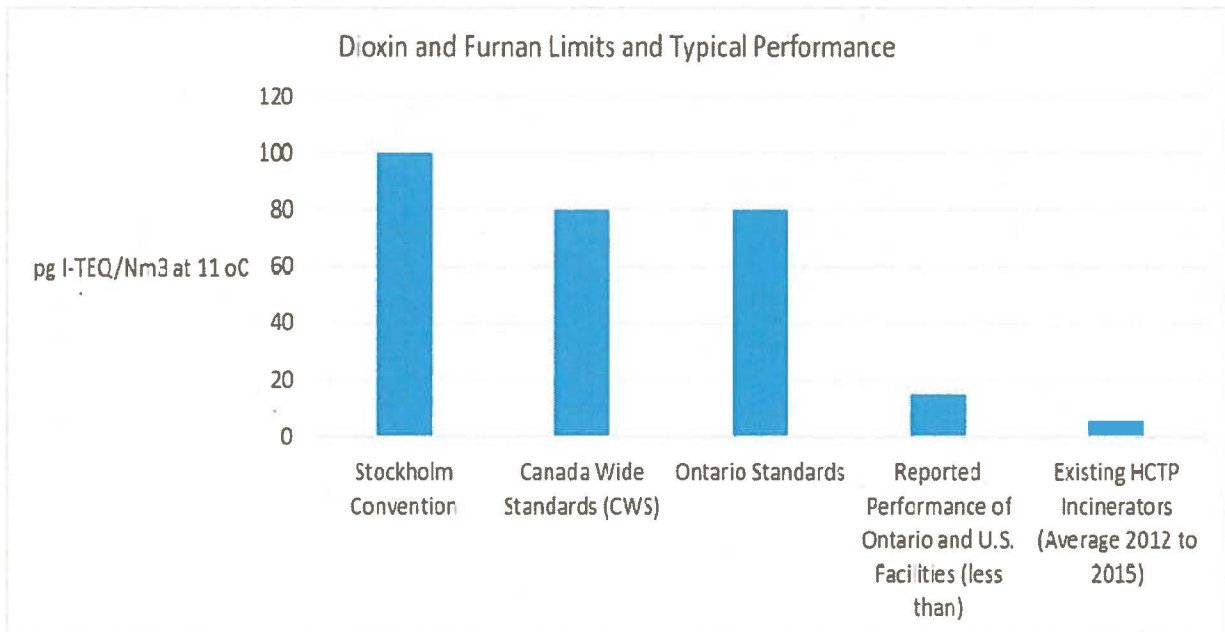


Figure 1: Dioxin and Furan regulatory limits and expected performance

Stockholm Convention and Canadian and Ontario standards have resulted in significant reduction in Dioxin and Furans releases from municipal incinerators. The Canadian National Pollutant Release Inventory (NPRI) reports that 2014 releases from municipal incineration (including solid waste and sewage sludge) were 98.6% less than the 2005 levels, and represent less than 1% of the total reported releases in Canada in 2014. By comparison, Dioxin and Furans reported to be released by heavy duty diesel vehicles has increased by almost 40% since 2005 and accounts for more than 12% of the Canadian total.

Incineration is a common waste disposal approach across most European countries, all of whom are signatories to the Stockholm Convention. As with Canada, these countries also strive to use BAT to reduce emissions of POPs from their facilities, in compliance with the objectives of the Convention.

In conclusion, the recommended solution for the HCTP complies with the Stockholm Convention, the Canada-Wide Standards, and the regulatory requirements of the Province of Ontario.

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