

November 23rd, 2020

Dear Clarington Council Members, Amy and Faye,

You are considering correspondence from Dillon tonight at Clarington Council. I am writing regarding this correspondence. Below is a short summary, followed by my supporting information.

Summary

Dillon's reporting was based on a **unit error** in a Golder report done for the incinerator. The Golder report (Appendix C) showed a dioxin/furan emission rate of 2.6×10^{-3} g/s instead of the correct value of 2.6×10^{-9} g/s resulting in a discrepancy factor of **1,000,000** (one million).

This accounts for Dillon's assertion that the incinerator was one million times worse than St Marys for dioxin/furan emissions. Correct calculations show that **St Marys emissions are actually worse.**

In addition, the comparison was not worst-case to worst-case with both facilities operating at their operational limit. Dillon's comparisons favour St Marys in this regard.

It is imperative that the review of the application considers correct information.

I urge Clarington Council to address this issue tonight and take appropriate corrective actions.

Supporting Information

Dillon presented Slide 13 below to Clarington Council on November 2nd, 2020 to compare St Marys dioxin/furan emissions against the incinerator.

Dioxins and Furans		
	SMC (Ref: Cumulative Effects Assessment)	Durham York Energy Centre (Ref: 2019 ESDM Report)
Emission Rate	$\sim 3 \times 10^{-9}$ g/s	$\sim 3 \times 10^{-3}$ g/s
POI Concentration (excluding background)	$\sim 2 \times 10^{-9}$ µg/m ³	$\sim 2.3 \times 10^{-3}$ µg/m ³

According to this slide the DYEC incinerator's emission rate is higher than the St Marys rate by a factor of one million and that point was also made by the consultant during their presentation.

I wrote to you on November 12th, 2020 regarding the discrepancy I found between the emission rate for the incinerator found in the 2019 DYEC ESDM report done for the fall compliance testing and what Dillon reported to Council. The rate Dillon reported was about 28.3 million times greater than the incinerator rate shown in that DYEC 2019 ESDM compliance report.

Dillon was made aware of my concern and responded by email on November 13th, 2020 which you are considering as correspondence tonight. They responded that "*the data shown for SMC and DYEC both represent reasonable worst-case scenarios from ESDM reports for each site*". In short, they stood by their original slide.

I called Amy as I could not determine where Dillon was getting their numbers from. She advised that the 2019 data they were using was from *Appendix C* in the *Technical Memorandum* prepared by Golder for Durham Region, dated February 19th 2019, to support their proposal to move from 140,000 TPA to 160,000 TPA.

The Golder Report can be found at https://www.durhamyorkwaste.ca/en/facility-approvals/resources/Documents/AppendixB_GolderTechnicalMemorandum.pdf .

There is a unit error in Appendix C of the Golder report used by Dillon. Golder stated the emission rate using incorrect units. The emission rate was shown as being in g/s (grams per second), but it should have been in $\mu\text{g/s}$ (micrograms per second) so the rate shown was a million times more than what should have been used. Golder showed the wrong units in Appendix C and then Dillon, in turn, used Golder's incorrect rate.

***Appendix A - Emissions Calculation by Scenario* of the same Golder report states the emission rate with the correct units, and that rate is a million times lower than what Dillon reported.** It should also be noted that Golder also used incorrect units for the 160,000 TPA scenario in *Appendix B. Appendix C Comparison of Predicted Concentrations* was a comparison analysis between 140k TPA and 160k TPA and was not the source of the emission rate calculation so it is unclear why Dillon used Appendix C.

I have pasted in a table I have made showing the various dioxin/furan emission rates from various noted sources as well as the emission rates reported for St Marys. I have circled the rates that are incorrect (i.e. using incorrect units that differ from Appendix A) in red.

Facility	Pollutant	Dioxin and Furans		
	ESDM Document	Emission Rate g/s	Maximum POI Concentration pg/m3	Maximum POI Conc + Background pg/m3
Incinerator	ECA Application March 2011 Scenario A: Two Units at 110% MCR	2.49 E-09	0.0024 pg/m3	0.026 pg/m3
	ECA Application March 2011 Scenario H: Two Units at 110% MCR + Silo Filling, Diesel Generator	2.49 E-09	0.0024 pg/m3	0.026 pg/m3
	Golder Memo 140k-160k Feb 2019 Appendix A 110% MCR at 2', 160 TPA	2.6 E-09	Appendix A determined emission rates only	Appendix A determined emission rates only
	Golder Memo 140k to 160k February 2019 Appendix A 110% MCR at 1', 160 TPA	2.7 E-09	Appendix A determined emission rates only	Appendix A determined emission rates only
	Golder Memo 140k to 160k February 2019 Appendix B 140,000 TPA	2.6 E-09	0.0025 pg/m3	0.0262 pg/m3
	Golder Memo 140k to 160k February 2019 Appendix B 160,000 TPA	2.68 E-03	0.0023 pg/m3	0.026 pg/m3
	Golder Memo 140k to 160k February 2019 Appendix C 140,000 TPA	2.56 E-03	2150 pg/m3	26,200 pg/m3
	Golder Memo 140k to 160k February 2019 Appendix C 160,000 TPA	2.68 E-03	2310 pg/m3	26,000 pg/m3
	Dillon Presentation to Clarington Council Slide 13	~ 3 E-03	~2300 pg/m3	did not include
St Marys	St Marys Cement ESDM March 2020	2.88 E-09	0.0043 pg/m3	did not include
	Dillon Presentation to Clarington Council Slide 13	~ 3 E-09	~ 0.002 pg/m3	did not include

The Golder dioxin/furan emission rate (140,000 TPA), with correct units, is 2.6×10^{-9} g/s.

The St Marys dioxin/furan emission rate is 2.88×10^{-9} g/s.

St Marys' dioxin/furan emission rate is higher. This information is the extreme opposite of the information you were told about the incinerator emissions being a million times worse.

Had Council known this information, it would have affected the comments Clarington Council sent to the MECP. Council needs to address this issue immediately.

If Clarington had known that the St Marys emission rate for dioxin and furans was higher, and considered that St Marys present ECA stack limit for dioxins and furans is $80 \frac{pcg}{m^3}$ while the ECA

limit for the incinerator is $60 \frac{pcg}{m^3}$, Clarington Council could have, and, in my opinion, should have asked the MECP to lower the stack limit for St Marys significantly.

Ambient air monitoring for dioxins and furans in addition to the requested PM2.5 ambient monitoring should also have been strongly considered. There are many implications.

The Dillon consultants have been working on the false premise that St Marys emissions for dioxins and furans are a million times lower than the incinerator. That likely affected their level of analysis and recommendations to you.

In addition to the above errors, there is another major problem as well with the Dillon analysis and with their response dated November 13th.

In their November 13th response, Dillon stated that

- *“the data shown for SMC and DYEC both represent reasonable worst-case scenarios from ESDM reports for each site”*
- *“The numbers from the DYEC source test report quoted in the community member’s letter are actual operating conditions for DYEC – not the worst-case emissions, and therefore not the worst-case potential impact.”*
- *“When applying for an air permit a facility is required to document the worst-case scenario, such that the Ministry can approve an operation based on it’s predictable worst-case impact.”*

The problem is that the St Marys and incinerator emissions are not being compared on the same “worst-case” basis.

The **DYEC incinerator dioxin/furan emission rates** in the Golder report were based on the **ECA stack emission operating limit** for dioxins/furans of $60 \frac{pg}{m^3}$.

The **St Marys dioxin/furan emission rate**, however, is **not based on St Marys operating limit**. Instead, their maximum emission rate was based on *actual operating conditions – source tests* – for the four demonstration scenarios (baseline (conventional fuel only), LCF fuel + conventional, ALCF + conventional, post-base (conventional only)). St Marys took the maximum of the four

emission rates found during their demonstration stack tests and used it to calculate their emission rate.

The Executive Summary of the St Marys ESDM, the *Emission Summary and Dispersion Modelling Report in Support of an Alternative Low-Carbon Fuel Application under Ontario Regulation 79/15 to amend and Environmental Compliance Approval (Air) with Limited Operational Flexibility*, BCX Environmental Consulting, March 2020, states so below:

Emissions of both primary and trace contaminants were estimated using a combination of published emission factors, stack test results, mass balance, and manufacturer's performance specifications. With respect to the kiln stack emissions, the highest emission rate from the use of conventional fuel, clean wood/LCF and ALCF-2019 was very conservatively assumed for the maximum emissions scenario.

In short, the St Marys - DYEC incinerator emission rate comparison provided by Dillon was not an apples-to-apples comparison.

Comparing the St. Marys maximum scenario emission rate, which was based on actual stack test results, to actual 2019 stack test results from the incinerator is a fairer comparison. I gave you that comparison in my last letter. **That comparison showed St Marys emission rate was 28.6 times higher than the incinerator.**

Further, all of the above raises further critical questions. Did the St Marys application properly represent a worst-case scenario in their ESDM which supports their application? Should they have calculated the emission rates used in their ESDM based on their current ECA stack limits instead of using demonstration stack test results?

All of the above needs to be addressed immediately. The MECP reviewer for the St Marys application has already received Clarington comments that were based on incorrect information.

It is imperative that the review of the application considers correct information.

I urge Clarington Council to address this issue tonight and take appropriate corrective actions.

Sincerely, Wendy Bracken