

Delegation to Works Committee  
May 8, 2024

W. Bracken

**AMESA Monitoring and Reporting of  
Dioxins/Furans at the Durham York Incinerator**

# Stack Test Results Cannot Accurately Represent Annual Emissions

- Pre-arranged, conducted under ideal (steady state) conditions
- For example, **stack source testing for dioxins and furans** is done in Durham only twice a year (or **less than 0.5% of the operating time**). Short-term stack concentrations are unknown for the remaining 99.5% of the time.
- Durham's facility exceeded the dioxin/furan limit during source stack tests in both 2015 and 2016. The May 2016 stack tests found dioxin/furan emissions at 13 x their allowable limit. This event showed that the very limited list of continuously monitored pollutants and parameters cannot ensure public safety.

*ORTECH, Covanta Durham York Renewable Energy Limited Partnership Durham York Energy Centre 2022 Compliance Emission Testing in Accordance with Amended Environmental Compliance Approval (ECA) No. 7306-8FDKNX, Date: March 1, 2023, Section 4.4, page 19, states each dioxins/furans test lasts 240 minutes =4 hours and Section 4.1 states triplicate tests are done for dioxins/furans and other SVOCs, 3 tests x 4 hours/test = 12 hours. DYEC has two source tests per year, 2 tests/year x 12 hours/test = 24 hours/year; operating hours per year is estimated using Hours/year – Outage Hours in 2022 Annual Report page 44 = 8760 hours – 635 hours=8125 hours, 24 hours/8125 hours=0.3%<0.5%*

# Much Higher Emissions Risk During Other Than Normal Conditions (OTNOC) - Startups, Shutdowns, Malfunctions

Weber et al. *Environ Sci Eur* (2018) 30:42  
<https://doi.org/10.1186/s12302-018-0166-9>


 Environmental Sciences Europe

REVIEW

Open Access

## Reviewing the relevance of dioxin and PCB sources for food from animal origin and the need for their inventory, control and management



Roland Weber<sup>1\*</sup> , Christine Herold<sup>1</sup>, Henner Hollert<sup>2</sup>, Josef Kamphues<sup>3</sup>, Markus Blepp<sup>4</sup> and Karlheinz Ballschmiter<sup>5</sup>

The total PCDD/F emissions from incinerators are sometimes underestimated by short-term measurements normally conducted during stable operation. However, during the start-up and unstable combustion periods, even state-of-the-art incinerators emit PCDD/Fs in stack gases at concentrations that are up to 1000 times higher than under normal operation [205–207]. Therefore, incinerators and other continuous sources with variation in PCDD/F release into air are better assessed and controlled by long-term sampling [206].

# Hidden emissions: A story from the Netherlands

## *Case Study*

November 2018 – ToxicoWatch

Arkenbout, A. (2018). *Hidden Emissions: A story from the Netherlands, a case study*; Zero Waste Europe

[https://www.toxicowatch.org/\\_files/ugd/8b2c54\\_a4360271e0a945f88a8d9b25ffe121f5.pdf](https://www.toxicowatch.org/_files/ugd/8b2c54_a4360271e0a945f88a8d9b25ffe121f5.pdf)

Figure 3 shows the results of a **20,139** hours long-term sampling of dioxins (PCDD/Fs) from August 2015 until December 2017, revealing that excess emissions (“outlier events”) are not exceptional, but rather constitute a regular feature of the REC incineration operation. The results of long-term sampling clearly show the shortcomings of regulatory short-term measurements<sup>14</sup>.

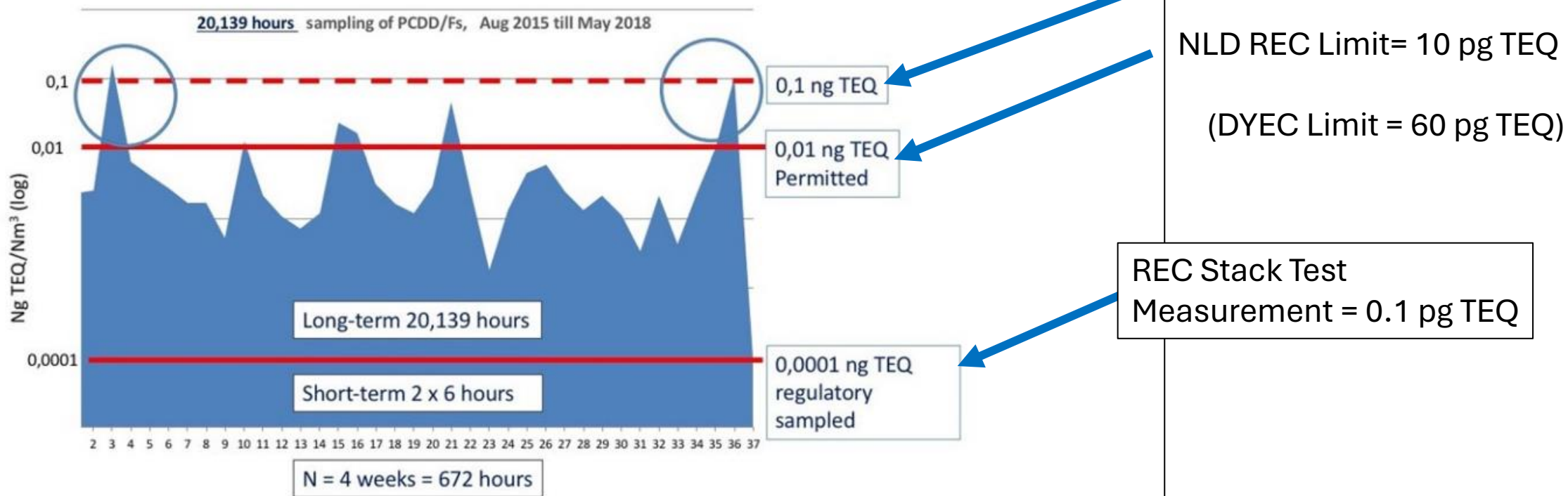
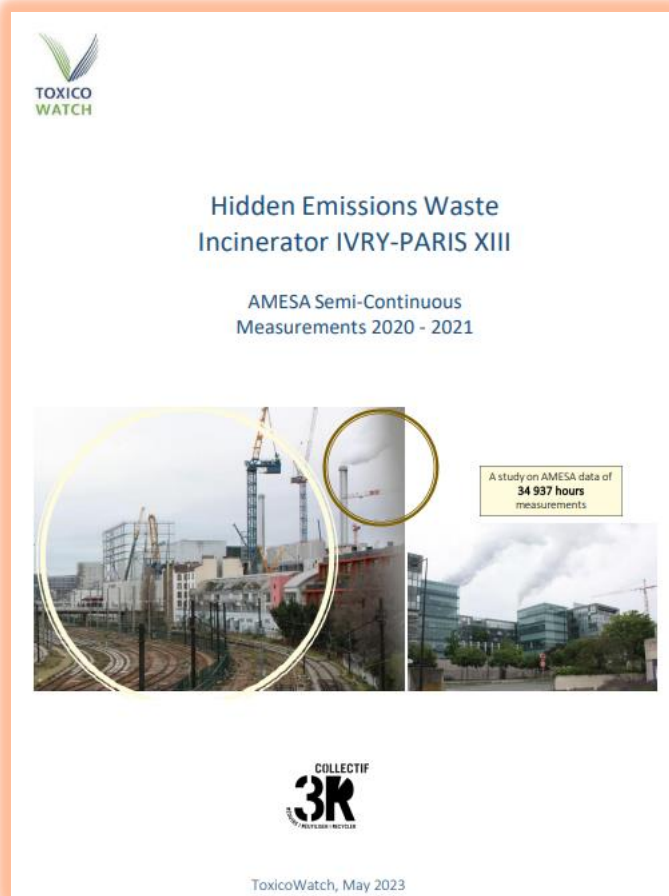


Figure 3: Results of 20,139 hours AMESA long-term sampling PCDD/Fs, REC Harlingen

Arkenbout, A. (2018). *Hidden Emissions: A story from the Netherlands, a case study*; Zero Waste Europe, page 4/11

[https://www.toxicowatch.org/\\_files/ugd/8b2c54\\_a4360271e0a945f88a8d9b25ffe121f5.pdf](https://www.toxicowatch.org/_files/ugd/8b2c54_a4360271e0a945f88a8d9b25ffe121f5.pdf)

# ToxicoWatch Study of Paris Incinerator; French Government Warns Millions Not to Eat Backyard Chicken Eggs



*“The emissions data show that the waste incineration process is extremely vulnerable to disturbances...the AMESA was found to be out of service for more than 3,000 hours per furnace, i.e. 125 days or 4 months over 2 years.”<sup>10</sup>*



*“OTNOC is directly correlated with the possibility of high dioxin emissions, as research on OTNOC events has shown.”<sup>11</sup>*

**Millions in France warned not to eat eggs from backyard chickens due to forever chemical pollution**



More Issues at the DYEC With Dioxins/Furans:

**Long-Term (monthly) sampling of Dioxins/Furans reporting is very incomplete, and it is neither traceable nor transparent.**



The public advocated for this monitoring and pays for it yet,

- **Regions have withheld the monthly AMESA data for years 2015 to 2019**
- **For 2020 onward** some data provided, however, **many months of data have been invalidated or unavailable** and underlying lab reports, documents have not been provided
- **Monthly results that have exceeded 64 pg TEQ/RM<sup>3</sup>** (the stack test ECA limit is 60) **have been invalidated according to protocol established by Covanta and the Regions**
- Reasons cited include operational issues known to have potential to produce high dioxin/furan emissions

# Many Hours and Months of Dioxin/Furan AMESA Data Invalidated/Omitted/Missing From 2020 to 2023

<https://www.durhamyorkwaste.ca/en/environmental-monitoring/air-emissions.aspx#Reports>

2020 Q4	October	B1: <b>INVALIDATED</b>	AMESA malfunctions
2021 Q1	Feb 10 – Feb 26	B1: <b>No result</b>	Repair of defective AMESA pump
2021 Q3	Aug 18- Sept 23	B1: <b>INVALIDATED</b>	Failed economizer tube  (outage revealed accumulated ash reducing gas flow)
2021 Q4	Oct 13 – Nov 10	B1: <b>INVALIDATED</b>	“Several incidents” <u>identified</u> including plugged economizer hopper with potential to lead to creation of dioxins/furans
2022 Q2	Apr 26 – May 25	B1: <b>Not Shown</b>	Sample compromised at <u>lab</u>
2022 Q3	June 24 – July 25	B2: <b>INVALIDATED</b>	“burner reliability issue”
2022 Q3	July 25 – Aug 26	B1: <b>INVALIDATED</b>	Plugged economizer

Note: As of March 1<sup>st</sup>, 2024, Last posted AMESA Report was 2023 Q2

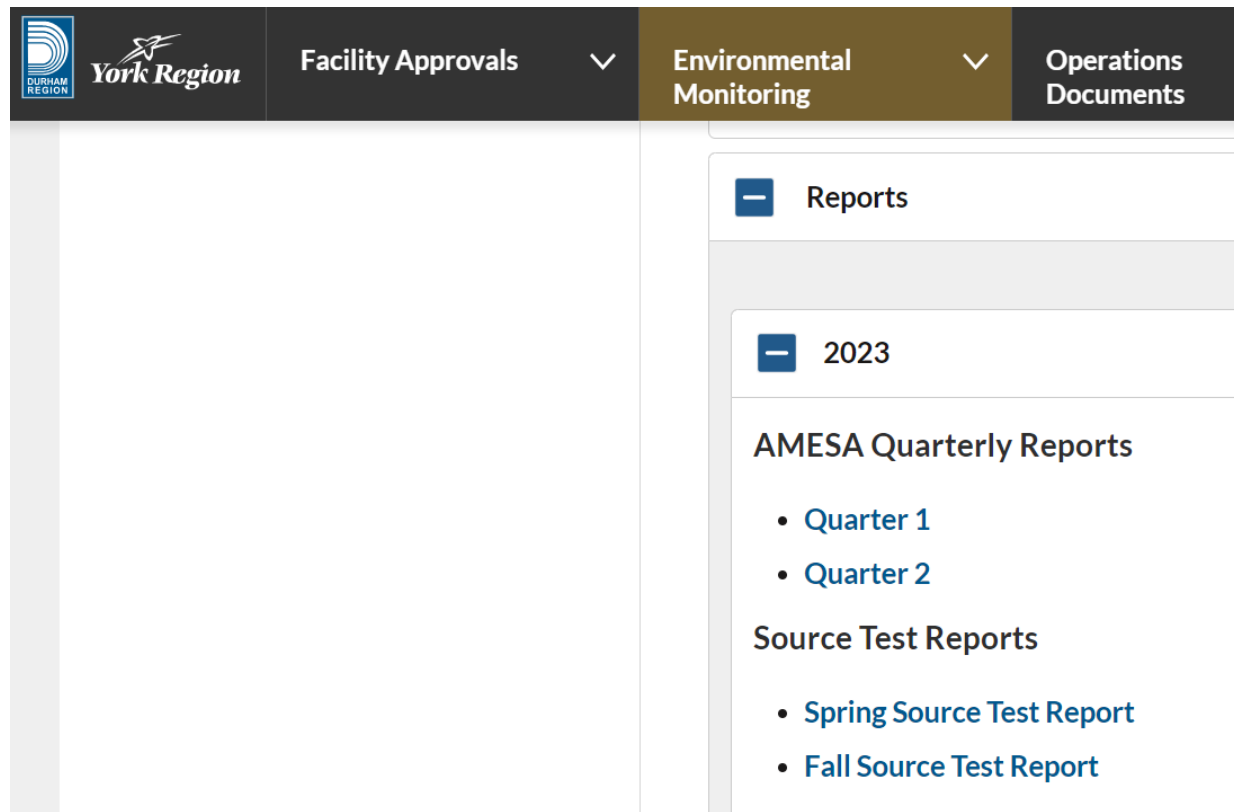


# Screenshot May 2, 2024

## 2023 Q2 is Last Report Posted

### 10+ Months of AMESA Data is Not Posted!

- <https://www.durhamyorkwaste.ca/en/environmental-monitoring/air-emissions.aspx#2023>



The screenshot shows the top navigation bar of the York Region website. The 'Environmental Monitoring' menu is expanded, showing a list of reports for the year 2023. The reports are categorized into 'AMESA Quarterly Reports' and 'Source Test Reports'. The 'AMESA Quarterly Reports' section lists 'Quarter 1' and 'Quarter 2'. The 'Source Test Reports' section lists 'Spring Source Test Report' and 'Fall Source Test Report'. The 'Quarter 2' report is highlighted, indicating it is the most recent report posted.

**York Region**

Facility Approvals

**Environmental Monitoring**

Operations Documents

Reports

2023

AMESA Quarterly Reports

- Quarter 1
- Quarter 2

Source Test Reports

- Spring Source Test Report
- Fall Source Test Report

# The Public Has a Right to This Data

## The Region Needs to Be Transparent

- Release 2015 to 2019 AMESA data
- Independent Scientific Review of AMESA Protocol and AMESA Reporting
- Invalidating entire months of data when events occur is unacceptable
- AMESA Reports must be posted in a timely manner; current status unacceptable