

Delegation to Works Committee
June 5, 2024

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DYEC 2023 Q3 and Q4 AMESA Reports

Long-term Sampling Results of Dioxins and Furans

AMESA Issues Need to Be Addressed Now

- An UPDATE report is essential before ECA application to BURN MORE GARBAGE

DYEC 2023 Q3 Results Show AMESA Results Can Vary Widely and how Dioxins/Furans Emissions Can Vary Widely

https://www.durhamyorkwaste.ca/en/environmental-monitoring/resources/Documents/AirEmissions/2023/20240223_RPT_DYEC_LTSS_2023_Q3_FNL_%20ACC.pdf

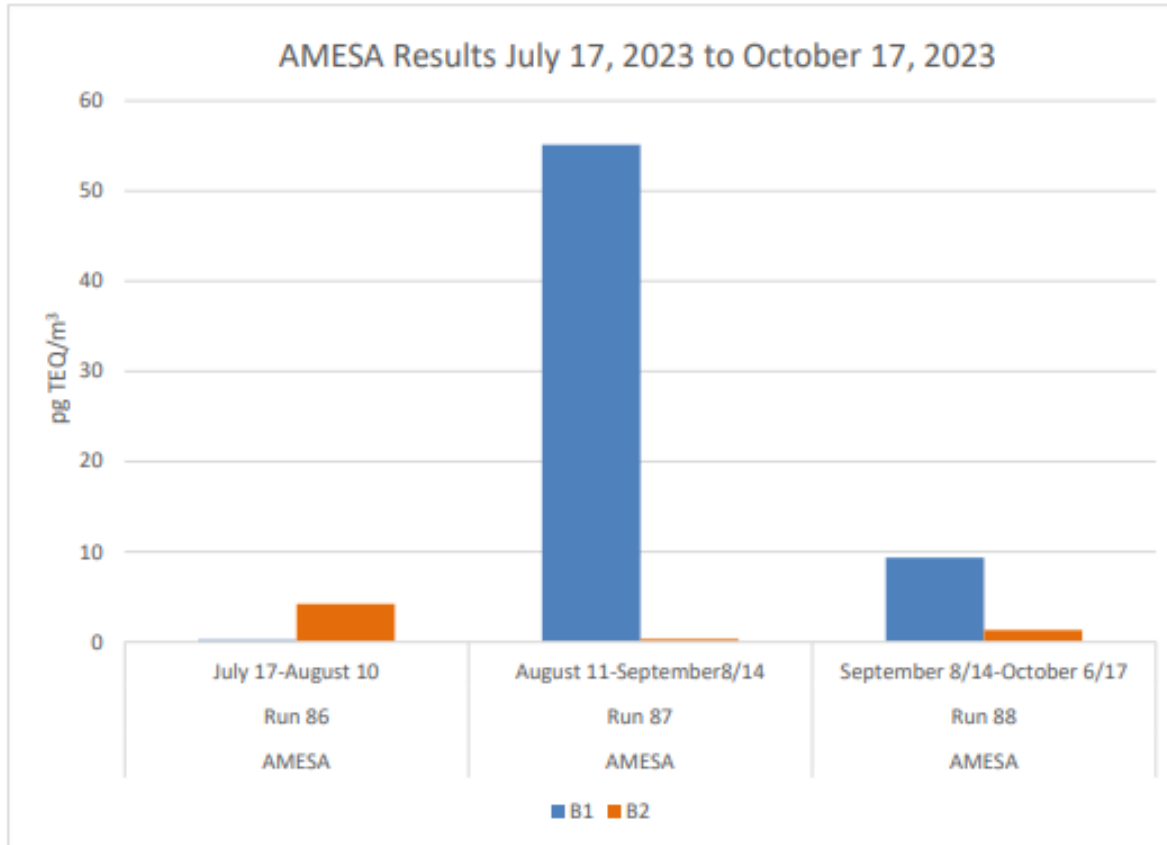


Figure 1: AMESA Results July 17 to October 17, 2023

Explanation Doesn't Make Sense

Elevation occurred in Run 87, Run 88 no issues

“However, given the anomalous value, the AMESA checklist was undertaken as a due diligence exercise to investigate the result received for boiler unit #1, Run 87, due to the elevated sample result. The investigation found no unusual operational events which may have led to the elevated sample result. However, it is noteworthy that subsequent to the sample being completed, for Boiler #1, Run 88, the AMESA unit experienced a failure and required a number of components to be repaired or replaced. This suggests that the AMESA system may have been experiencing operational issues during this period.”

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The AMESA results are presented in Figure 2 to show how the Q3 calculated values compare to the most current source testing results. The source test compliance limit for dioxins and furans is 60 pgTEQ/m³. The chart below shows the AMESA Q3, 2023 results as compared to the 2023 September source test results. Results from the September source test also indicated the dioxins and furans result is below the regulatory compliance limit.

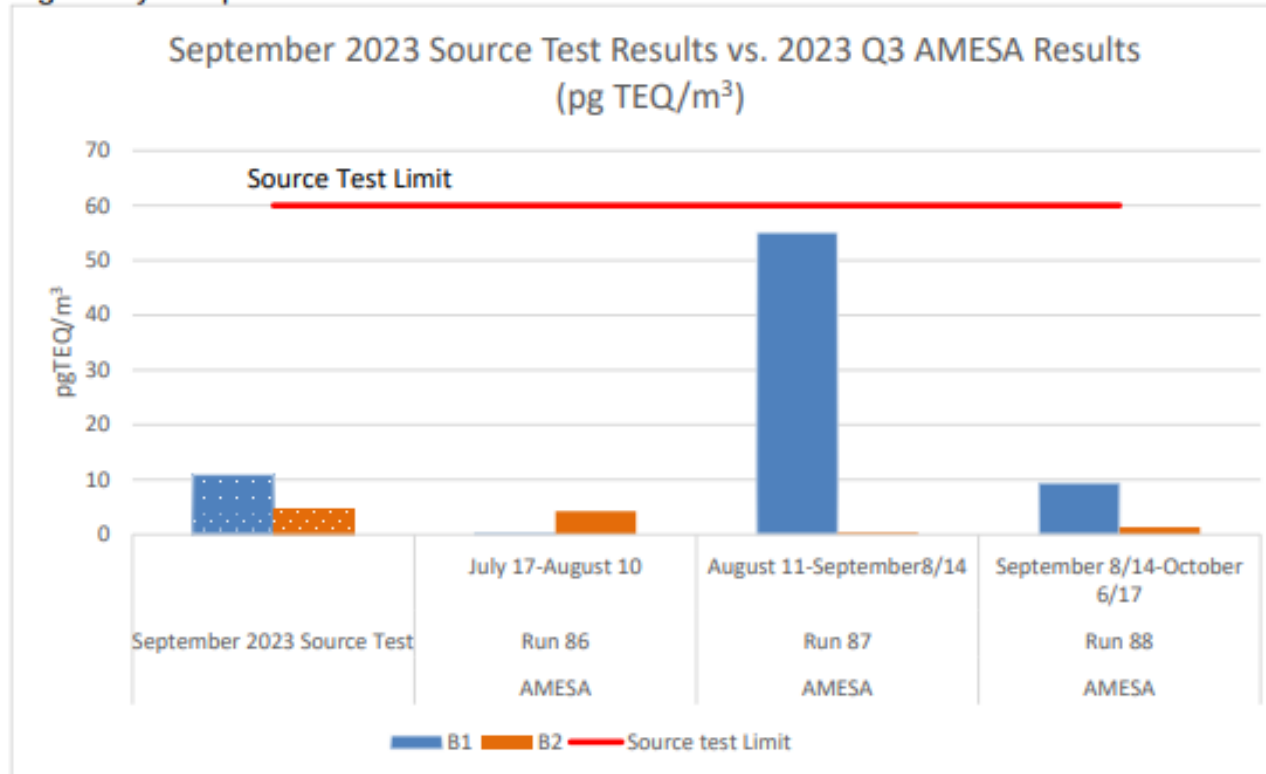


Figure 2: September 2023 Source Test Results vs. 2023 Q3 AMESA Results (pg TEQ/m³)

Q3 Ambient Air Results, page 8

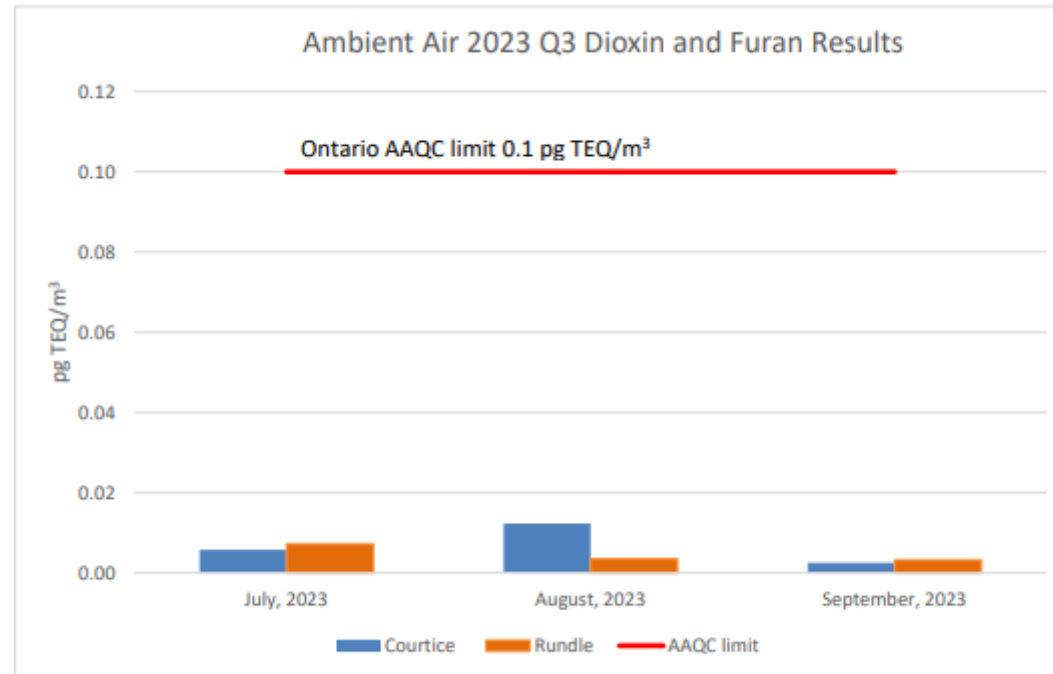


Figure 3: Ambient Air 2023 Q3 Dioxin and Furan Results

DYEC 2023 Q4 AMESA Report page 4

No data for Boiler 1 From Nov. 3 on

Table 1: AMESA Cartridge Replacement Schedule

Unit #	Run #	Start Date	End Date	Duration (days)
1	89	6-Oct-23	3-Nov-23	21
2	89	17-Oct-23	3-Nov-23	11
1	90*			
2	90	27-Nov-23	15-Dec-23	16
1	91*			
2	91	18-Dec-23	23-Jan-24	26

Note 1:The cartridge duration times may differ even though the start and end dates are the same for both boiler units.

*** Note 2:** There is no result for boiler unit #1 for Runs #90 and 91 due to malfunction of AMESA unit #1.

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7.1 Investigation

During the fourth quarter (Q4) of 2023, the AMESA Investigation Checklist did not yield any formal triggers, as outlined in the AMESA workplan. However, AMESA system errors were noted on November 27, 2023 on Boiler #1 . Ultimately on-site manufacturer support was required with several system components being serviced and or replaced to restore function.

MORE and ONGOING 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/RM³** (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: INVALIDATED	AMESA malfunctions
2021 Q1	Feb 10 – Feb 26	B1: No result	Repair of defective AMESA pump
2021 Q3	Aug 18- Sept 23	B1: INVALIDATED	Failed economizer tube (outage revealed accumulated ash reducing gas flow)
2021 Q4	Oct 13 – Nov 10	B1: INVALIDATED	“Several incidents” identified including plugged economizer hopper with potential to lead to creation of dioxins/furans
2022 Q2	Apr 26 – May 25	B1: Not Shown	Sample compromised at lab
2022 Q3	June 24 – July 25	B2: INVALIDATED	“burner reliability issue”
2022 Q3	July 25 – Aug 26	B1: INVALIDATED	Plugged economizer
2023 Q4	Nov. 4 to end Q4	B1: No results	Malfunction of AMESA Unit 1

Posting notification of 2023 Q3, Q4: May 8, 2024

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

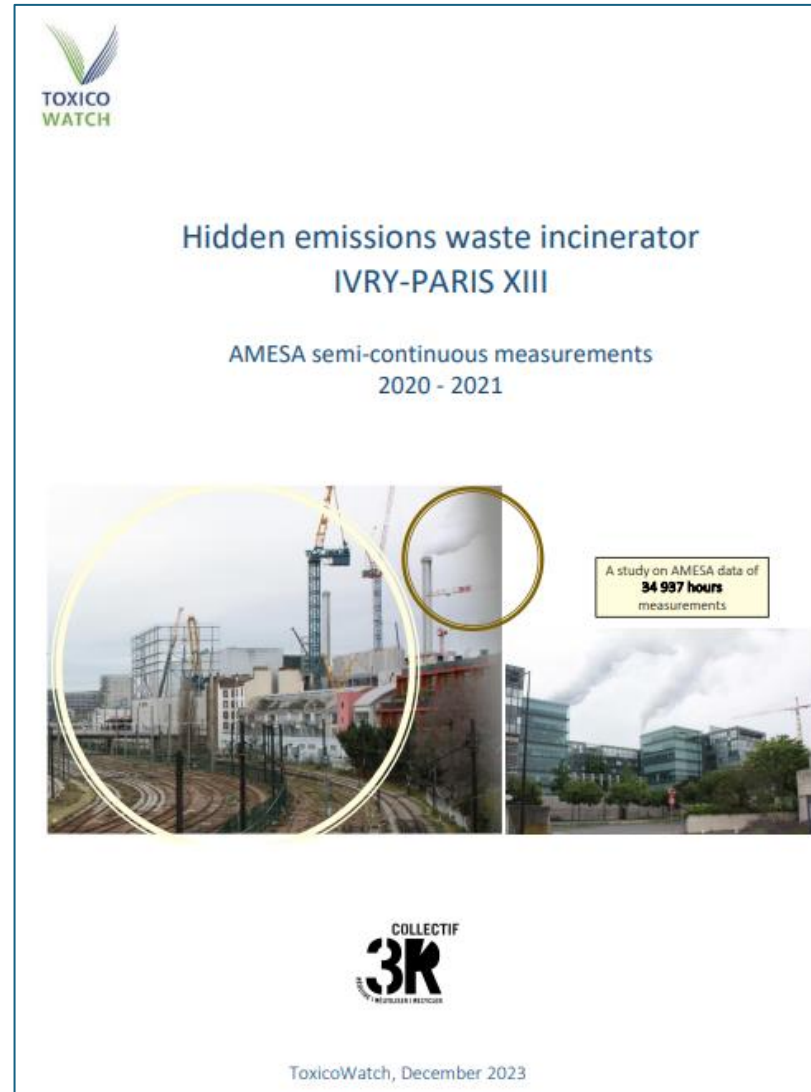


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The total PCDD/F emissions from incinerators are sometimes underestimated by short-term measurements normally conducted during stable operation. However, during the start-up and unstable combustion periods, even state-of-the-art incinerators emit PCDD/Fs 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].

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6224007/pdf/12302_2018_Article_166.pdf

https://www.toxicowatch.org/_files/ugd/8b2c54_f4aa1e85442f4ef18d12fa56e0fb5dbf.pdf



From page 10, Toxicowatch Report

1.2 French regulatory framework and IVRY-PARIS XIII Incinerator

In the French national regulation, the limit value for dioxins (PCDD/F) in France of 0.1 ng TEQ/Nm³ has been in force since 2002.⁵

Article 10 of this regulation lays down the maximum duration of stops, breakdowns, or technical failures of semi-continuous measurement devices. During a year, the cumulative downtime of a semi-continuous measurement device shall not exceed 15% of the plant's operating time.

The Environmental Authorization of the current IVRY-PARIS XIII Incinerator states that "*permanent measurement of dioxins and furans*" is mandatory as part of self-monitoring to calculate the concentration of dioxins and furans throughout max. 1 month, as well as monthly emissions.⁶

In the document Environmental Authorization of the future IVRY-PARIS XIII incinerator, the limit values of dioxins (PCDD/F) are as follows:⁷⁸ (Chapter 3.2.6.5)

- 0,05 ng TEQ/Nm³ for measurements with a duration between 6 and 8 hours
- 0,08 ng TEQ/Nm³ for semi-continuous measurements
- 0.000231 g TEQ/day for the total average daily average

From page 11, Toxicowatch Report

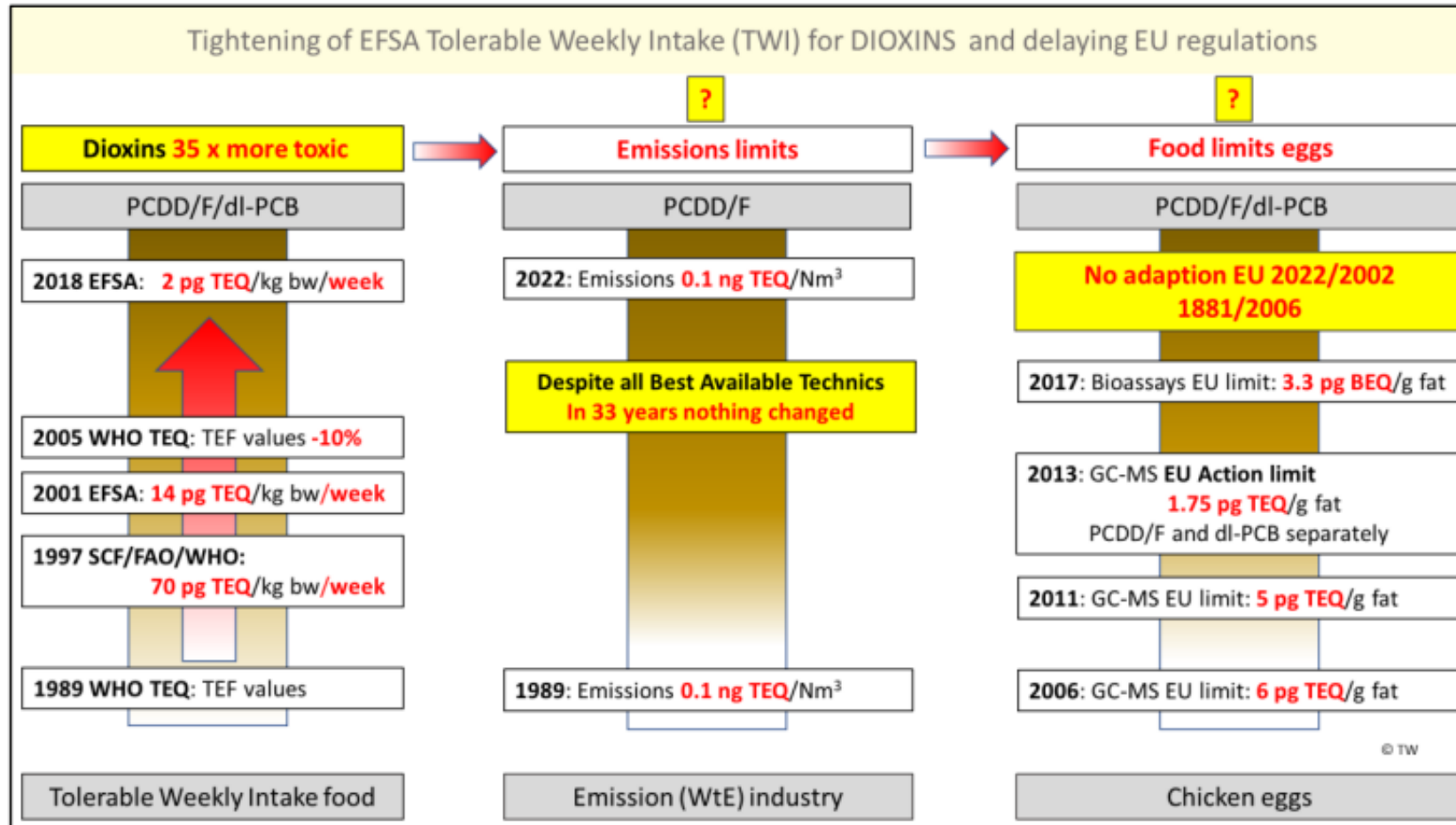


Figure 6: Tightening of EFSA Tolerable Weekly Intake (TWI) for dioxins (PCDD/F/dl-PCB) and delaying EU regulations.

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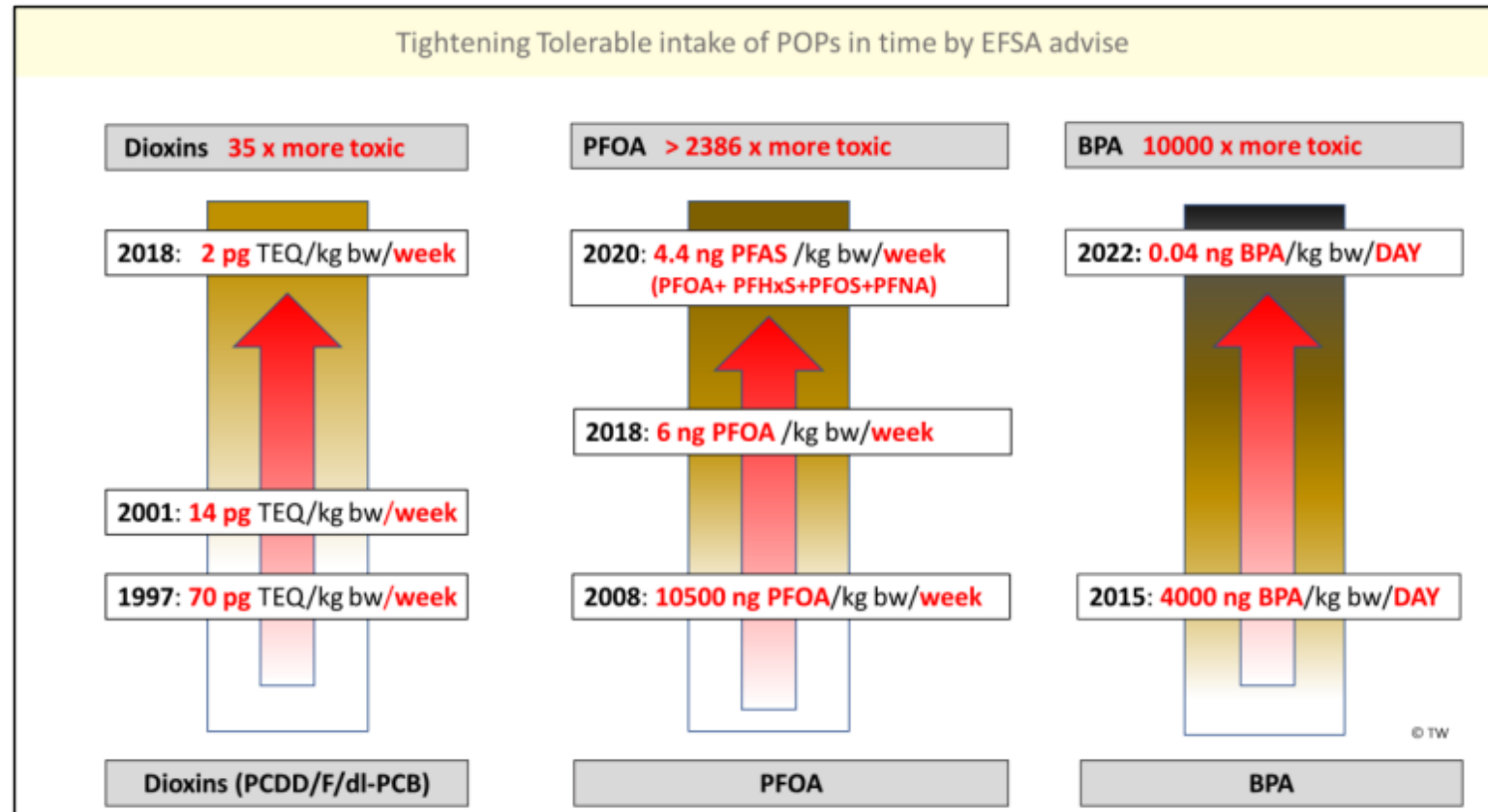


Figure 9: Tightening Tolerable intake of POPs in time by European Food and Safety Authority (EFSA).

The Public Has a Right to All Durham AMESA 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
- Respect Clarington and public requests to the Region to provide all the AMESA results 2015-2019, all supporting underlying documents for AMESA quarterly reports, and provide detailed rationale for their invalidation protocol