

## Talking points for CRWI – OIRA meeting

Our meeting is on November 28 at 10:30 EST

### Introduce CRWI

CRWI is a trade organization

- 9 companies that own or operate hazardous waste combustors (incinerators, solid fuel-fired boilers, liquid-fired boilers, and halogen acid furnaces)
- 3 companies that generate hazardous waste but do not operate combustors
- 17 companies that provide goods and services to the hazardous waste combustion industry
- 11 Academic members
- [www.crw.org](http://www.crw.org)

### Introduction

#### Raise five points

1. EPA and industry have data to prove hazardous waste incinerators can destroy PFAS compounds
2. We believe the guidance should not dictate operating conditions but should tell facilities what the requirements are and allow them to find methods to meet those requirements
3. Products of incomplete destruction (PID)
4. We believe all destruction technologies should be judged on the same basis
5. Some of the information previously provided to OIRA is either incorrect or misleading?

#### 1. There is data available showing HWCs can destroy PFAS compounds

- This data has been generated by both EPA and industry
  - EPA research data on a laboratory scale – Rainbow furnace
    - EPA has published several papers describing these experiments and sharing results showing destruction of PFAS compounds
    - Also made several presentations at conferences describing this research
    - We are sure EPA will be willing to share those papers and presentations with you.
  - Industry has also developed data from operational scale units showing destruction
    - Chemours data – West Virginia and North Carolina
    - Clean Harbor's data – Aragonite
    - EPA has this data

## 2. Guidance should not dictate operating conditions

- Specifically, it should not dictate temperature and residence times
- Other factors such as turbulence, firing conditions, feed rates, oxygen concentrations, hydrogen concentrations, and others will also impact destruction efficiency
- All of these parameters are inter-related to some degree
  - Each can be manipulated to ensure desired destruction level
- EPA recognized this in the 1980's and created destruction removal efficiency (DRE) requirement for hazardous organic compounds
  - Codified in 40 CFR Part 264 Subpart O and 40 CFR Part 63 Subpart EEE
  - Facilities are required to show either 99.99% or 99.9999% destruction depending upon which pollutants are being destroyed
  - Facilities use those test conditions to set operating parameter limits to demonstrate continuous compliance
- While the C-F bond is more difficult to break than other carbon bonds, the process for determining destruction is the same and already in place
- What the Agency should do is designate a DRE for PFAS compounds and let the facilities use the current methods to show they meet that requirement.

## 3. Products of incomplete destruction

- There has been considerable discussion over products of incomplete destruction
- EPA faced this same problem in the 1980's
  - Concluded that good combustion practices as measured by carbon monoxide (CO) or total hydrocarbon (THC) were the best indications that few PIDs were left at the end of the destruction process
  - Recent EPA research at the Rainbow Furnace indicated the same results for PFAS compounds
    - Under certain operating conditions – no measurable levels of PIDs were detected and CO seems to be a good indicator of where that point is
- Driving force for PIDs is toxicity
  - Having estimates of which PIDs are released and how much is released is useless unless that information is associated with risk
  - You cannot estimate risk without a measure of toxicity
  - Toxicity should drive the PIDs discussion
  - CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub> – two of the PIDs often mentioned – are non-toxic
    - CF<sub>4</sub> – R-14, one of the early refrigerants
    - C<sub>2</sub>F<sub>6</sub> has been used during eye surgery
  - EPA is lacking toxicity data on other possible PIDs
- No approved methodology to measure fluorinated PIDs
  - Without this – no one knows what fluorinated PIDs are there and what their concentration are

- When released, OTM-50 should help this – right now covers approximately 30 compounds – this will likely expand in the future
  - “Promising new technologies” to destroy PFAS have the same problems – no ability to measure PIDs and no toxicity data
4. All destruction methods should be judged on the same basis
- All should have the same destruction efficiency requirements
    - If thermal treatment is required to have 99.99% destruction efficiency for the materials fed, all other destruction methods should have the same requirement
  - All should have the same PID emission requirements
    - If one destruction method is required to measure PID emissions, all should have the same requirement
  - Agency should not be picking winners and losers – should be based on each method’s demonstrated ability to destroy the original compounds and minimize PIDs
5. In the few minutes remaining, we would like to point out some of the errors in a previously submitted document
- a. The Sierra Club memo states that “Incineration is not proven to safely destroy per- and polyfluoroalkyl substances (PFAS). Commercial incinerators do not, and often cannot, measure their PFAS releases, and the limited laboratory testing that has been conducted does not reflect real-world incineration conditions.”

Not correct. EPA and DoD has extensive research showing that the initial PFAS compounds can be destroyed under certain conditions and that PIDs can be minimized. Chemours has extensive data on PFAS destruction that has been shared with the Agency. Clean Harbors conducted a test at their Aragonite facility showing 99.9999% destruction of the original compounds. This has also been shared with the Agency. OTM-45 can measure stack gas emissions for polar, semi-volatile PFAS compounds and OTM-50 will be able to measure volatile PFAS compounds.

- b. The Sierra Club memo states that “Thermal breakdown of PFAS can form a range of harmful breakdown products.”

This is a misleading statement. No data was provided to support the statement that incineration units are depositing harmful breakdown products from the destruction of PFAS waste or any hazardous wastes. In fact, hazardous waste incineration units have passed Human Health Risk Assessments as part of their RCRA permitting process which demonstrate that the risks from emissions are within scientifically established acceptable acute and chronic levels of exposure. In addition, this process is overseen by EPA and authorized state agencies.

Dioxins and furans – Misleading. Dioxins and furans are chlorinated organics – not fluorinated organics – should not be in this list.

- c. Pages 6 -8 – all the examples of “exceedances” are from records that mislead. For example, the Kimball facility is a significant RCRA non complier only because the state and EPA take years to finalize an inspection. Clean Harbors correct the issues at that facility the same day or within a week if something needs to be purchased (i.e., a sign)
- d. Paper on the soil concentrations of PFAS around East Liverpool. The paper also states the following as part of its conclusions:

*“ . . . we cannot directly link the observed PFAS levels in our study to the hazardous waste incinerator.”*

*“We detected even higher PFOS concentrations at 7 of our sampling locations. . . Interestingly, each of these sites is upwind of the incinerator making it unlikely to have stemmed from the incinerator.”*

Thus, the paper cited does not support the conclusions presented.

We will supply details for these and others to the docket.

#### Summary – Guidance should

- Make it clear that the requirements for all destruction methods are the same
- Give clear guidance on what the destruction criteria are
- PIDs
  - Give clear guidance on what PIDs to measure
  - Release methods to measure those PIDs
  - Give clear guidance on the levels of PID releases that are acceptable
- Leave it to the facilities to prove destruction and level of PID emissions based on the criteria in the guidance
- All destruction methods should be judged on the same basis