

Carbon project:

# ODS Destruction, Tradewater US #10, Virginia → Ohio

American Carbon Registry **ACR 1124**

## A Cool Effect onsite report

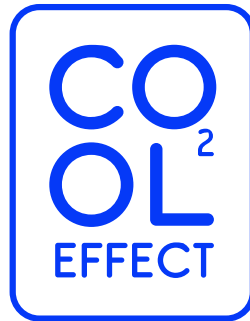
August 2023



As part of Carbon Done Correctly, Cool Effect conducts a site visit after completing scientific due diligence and ensuring the GHG integrity of each project we represent. Sometimes visits take place before we purchase credits and sometimes after.

The site visit is intended to see operations of the project firsthand, gather information on any outstanding questions, meet the project management team, see them in action and assess project interactions with the local community.

Our team also focuses on gathering details on how revenue from the sale of carbon credits is being used. We look for evidence of how income from previous years has been applied and we discuss funding for future expansion.



# Project Specifications

Name of project:

Tradewater US #10

Project ID:

ACR 1124

ODS Source Location:

Richmond, Virginia

ODS Destruction Location:

East Liverpool, Ohio

Project type:

ODS Destruction

Standard:

American Carbon Registry

Methodology:

ACR Destruction of Ozone Depleting Substances and High-GWP Foam, v2.0

AAA  
Calyx Global 



Total issuance:

198,196 tCO<sub>2</sub>e

Crediting period:

1 Month

Date of Destruction Event:

Feb 22, 2025 – Mar 17, 2025

Around the world, aging refrigeration and cooling equipment holds vast stockpiles of CFCs and other ozone-depleting refrigerants. These “superpollutants” are thousands of times more potent than CO<sub>2</sub>, and because their destruction isn’t required, they slowly leak into the atmosphere through corrosion, mishandling, or equipment breakdown.

Tradewater set out to solve this problem. By locating, collecting, and permanently destroying these gases before they can escape, the company addresses an ozone problem and a climate problem at the same time. Each cylinder is destroyed at high temperatures under continuous monitoring, ensuring over 99.99% of the material is eliminated for good.



## What is Tradewater?

**Tradewater, LLC** is a mission-driven company dedicated to the collection and permanent destruction of ozone-depleting refrigerants and other high-potency greenhouse gases around the world. Each cylinder of gas removed from circulation prevents the eventual leakage of these superpollutants into the atmosphere, protecting the ozone layer and averting emissions thousands of times more potent than CO<sub>2</sub>.

CFC Refrigerants are

**10,900x**

more potent than CO<sub>2</sub> in terms of their warming impact. There are an estimated

**11 billion**

tonnes of CO<sub>2</sub>e still sitting in existing CFC stockpiles worldwide.

Cool Effect visited Tradewater's ODS operations to see the destruction process firsthand and to verify the chain of custody that gives these credits their integrity.

# Objectives of this site visit

## The Team

### Jodi Manning

Chief Executive Officer,  
*Cool Effect*

### Nicholas Cade

Senior Director of Supply Team  
Partnerships, *Tradewater*

### Victor Molina

Operations Manager,  
*Tradewater*

- Observe Tradewater's collection, sampling, and aggregation process firsthand, and see how each cylinder's contents are identified and documented
- Verify the chain of custody that traces refrigerant from source to permanent destruction
- Meet the operations team and understand how carbon revenue sustains continued ODS collection



# The Context

The Montreal Protocol on Substances that Deplete the Ozone Layer entered into force in 1989, phasing out production and import of ozone-depleting substances on a set schedule. While successful in banning CFCs and phasing out their production, the Montreal Protocol did nothing to address the enormous supply of CFCs already in circulation. Most of these stockpiles are still sitting in warehouses around the globe.

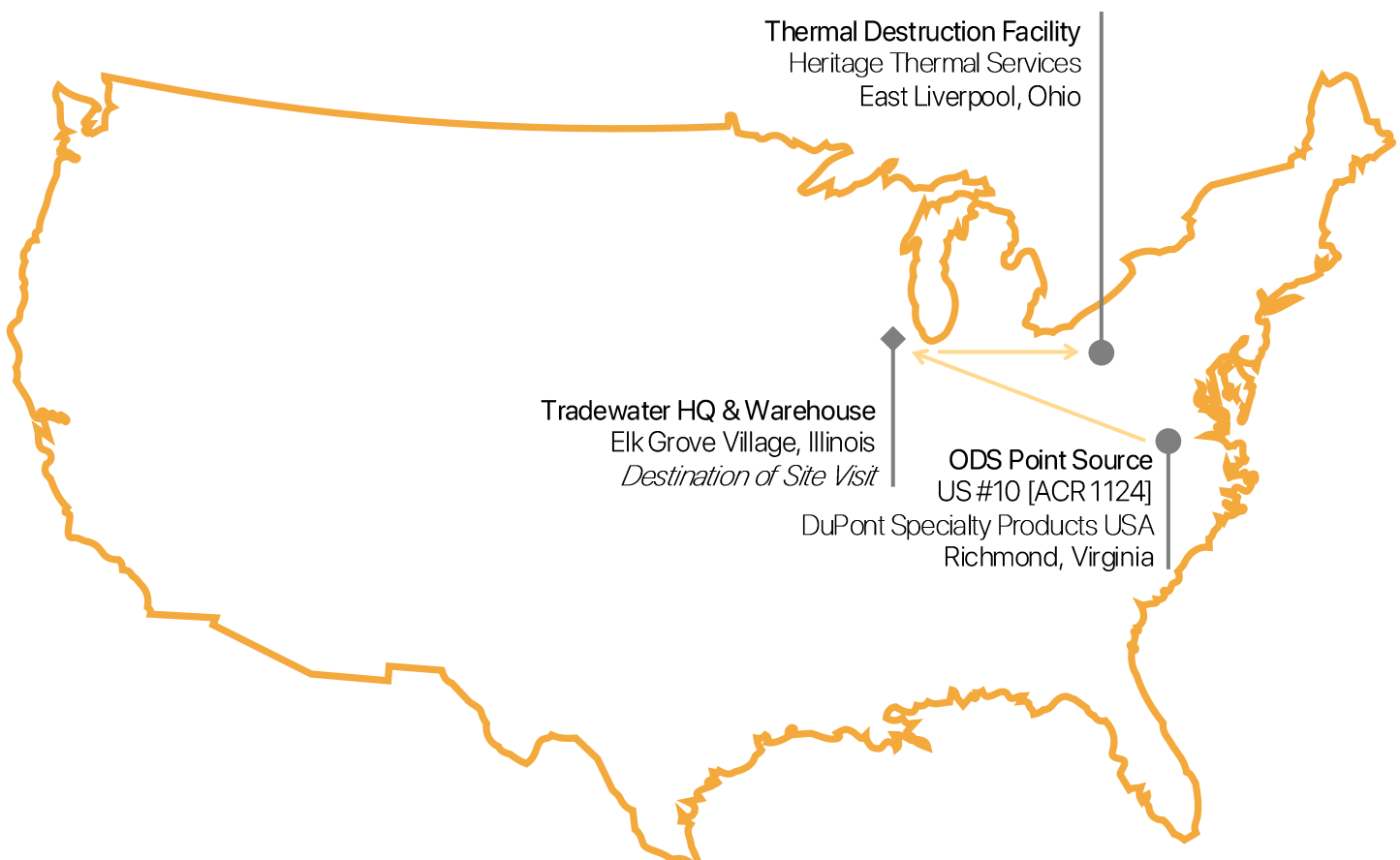
Destroying CFCs is expensive, requiring specialized machinery and proper permitting. Without laws mandating it, the rational thing for businesses to do with their ODS is forget about it.

Tradewater was founded when Tim Brown attended a conference session about the future climate damages to be caused by the vast, dispersed stockpiles of potent gases left with nobody responsible for destroying them. He recognized both a climate problem and an opportunity.

What started with Tim's eBay purchase of a single refrigerant canister has now grown into an international logistics operation.

Tradewater sources ODS from all around the world and partners with the nearest suitable thermal facilities for destruction. These facilities are few and far between; Tradewater destroys all its US-origin ODS at two plants, both in the state of Ohio.

For US #10, Tradewater sourced the ODS from a single DuPont facility in Richmond, Virginia. The gas was transported to Tradewater's main aggregation warehouse in Elk Grove, Illinois, before being transported to East Liverpool, Ohio for destruction.



# Chain of Custody

The integrity of an ODS credit rests entirely on documentation at every transfer, and this is where the project's rigor begins.

From the moment refrigerant is collected, Tradewater records its point of origin, the container serial numbers, the mass of material at each transaction, and every party that handles it, an unbroken chain from source to destruction. This traceability is required by the ACR

methodology and is checked independently during verification.

Because ODS is a regulated hazardous material, it moves only under the appropriate handling and transport protocols, carried by licensed hazardous-waste transporters to a qualifying destruction facility. Nothing about the process is left to trust alone; each link is weighed, sampled, and recorded.



## 1. Collection & Aggregation

Tradewater sources refrigerant from stockpiles and aging equipment, then consolidates many small quantities into ISO tanks at its Elk Grove Village facility.



## 2. Third-Party Weighing

Every container is weighed on regularly calibrated scales by an independent third party, establishing the exact mass of material before anything else happens.



## 3. Third-Party Sampling & Lab Analysis

An independent third party draws a sample from each container, which is then analyzed by an accredited refrigerant laboratory to confirm its precise species and purity.



## 4. Transport under Hazardous Waste Protocols

As a regulated hazardous material, the refrigerant moves only via licensed transporters under strict handling rules, all the way to the destruction facility.



## 5. Controlled Destruction

The refrigerant is incinerated at roughly 1,200°C in a permitted rotary kiln, with continuous emissions monitoring confirming that at least 99.99% is destroyed.

# Collection & Aggregation

The hardest part of destroying these superpollutants isn't the destruction itself, but rather the logistics involved in finding and aggregating the gas in the first place. Decades of banned refrigerants and fire suppressants sit scattered across the world in small, forgotten quantities. Tradewater's model is to gather thousands of these small sources, one at a time, and consolidate them into certified containers built for permanent destruction.

Some gas is pulled from equipment still in service, like decommissioned building chillers. Some stockpiles sit unused, classified as 'virgin material.' These were usually manufactured before the bans and left stranded, never opened or utilized.

Individually, none of these containers is meant to last. Disposable cans rust, storage containers corrode, and all will inevitably leak if left alone.

One 12-ounce can of R-12 has the same  
100-year global warming potential as

**3.7 tCO<sub>2</sub>**



## CFC Refrigerants

First-generation chlorofluorocarbons such as R-11 and R-12, up to 10,900× more potent than CO<sub>2</sub> and among the most ozone-destructive gases

## HCFC Refrigerants

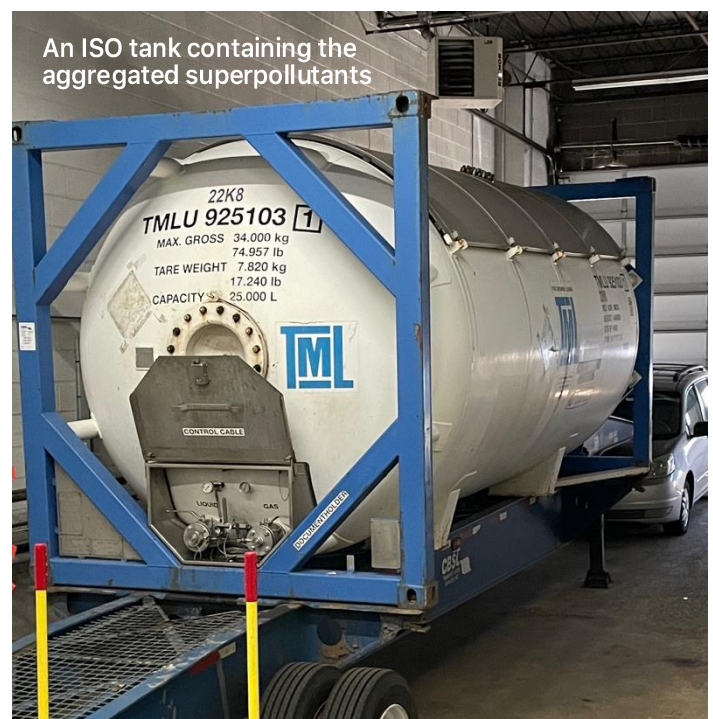
The transitional refrigerants (e.g., R-22) that replaced CFCs, up to 2,300× more potent than CO<sub>2</sub>.

## Halons

Fire-suppression agents from old extinguishers and flooding systems, up to ~6,900× more potent than CO<sub>2</sub>.

## Seized Stores

In some countries, customs authorities intercept illegally imported CFCs; Tradewater partners with governments to destroy what they've confiscated.



# Additionality & Permanence

There is no law, subsidy, or market mechanism that requires or incentivizes the destruction of legacy ODS. Collecting, transporting, and destroying it is expensive and time-consuming, and international carbon accounting frameworks (SBTi, the GHG protocol) don't even require companies to track these gases. In short: if a company like Tradewater doesn't go out of its way to destroy this material, nobody will.

Every destruction event eliminates more than

# 99.99%

of the gas, permanently.

Because of the permanent destruction of ODS, this project has zero risk of reversal. Once the R-11 is incinerated, the reduction is permanent. This means no buffer pool, no monitoring period, and no uncertainty.



Collected containers range in size from individual handheld cans to industrial stockpiles like these.

# Looking Forward

At Tradewater, carbon offset credits play a crucial role in their fight against catastrophic climate change. ODS destruction is expensive, requiring specialized machinery and the complex logistics that go into sourcing and aggregation.

By selling high-quality offsets, Tradewater can leverage the climate impact from one project to fund the procurement of gases for the next. In this way, Tradewater credits not only pay for the destruction that took place but catalyze the next generation of ODS destruction as well.

By tackling the most potent super pollutants,  
Tradewater has eliminated the equivalent of

**11.08 million**

Tons of CO<sub>2</sub>, with a target of

**30 million**

tCO<sub>2</sub>e by 2030.

