Tradewater US – ODS - #4

April 5, 2024

Tradewater, LLC

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A. PROJECT OVERVIEW

A1. PROJECT TITLE

Tradewater US – ODS - #4 (hereinafter referred to as “Project”).

A2. PROJECT TYPE

Ozone Depleting Substances

A3. NON-TECHNICAL EXECUTIVE SUMMARY OF PROJECT

The project activity is the destruction of eligible ODS refrigerant, mainly R-22 and R-115, for which ownership was transferred to Tradewater for the purpose of destruction. The ODS was acquired from a variety of sources and included the following 43 states: AL, AR, AZ, CA, CO, CT, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MT, NC, ND, NE, NH, NJ, NV, NY, OH, OK, OR, PA, RI, SC, TN, TX, UT, VA, WA, WI, WV, and WY.

All ODS refrigerant in this project was sourced either through recovery from units such as decommissioned building chillers, from disposable cylinders or drums containing virgin material, or from stockpiles of used or virgin material. In the case of a small government stockpile, the refrigerant is not required or mandated to be destroyed.

In the case of the recoveries, the material was previously recovered by another party or by the source themselves. Under business-as-usual, the refrigerant would either remain in storage until use (in the case of stockpiles) or used in chiller systems still utilizing older refrigerant, like R-22. In either case, the ODS will eventually vent, either through leakage resulting from corrosion of the storage container or through inefficiencies, break- downs, or mishandling of equipment. The refrigerants included in this project were no longer needed for use, and their risk of venting is thereby mitigated by destruction at A-Gas, an eligible destruction facility.

The project activity consisted of three destruction events: 16,530 lbs of mixed R-22 and R-502; 1,283 lbs of R-11 solvent, and 2,970 lbs of R-502.

A4. PROJECT ACTION

Description of Prior Physical Conditions

In the business-as-usual scenario, ODS refrigerants are recovered from old equipment and sold or exchanged for continued use by owners of this antiquated equipment, or left in storage until a use can be determined. Under either scenario, ODS refrigerant will ultimately leak into the atmosphere – either because the containers in which they are held degrade or slowly leak, or the equipment that contains the refrigerant suffer from accidental release during handling and transfer.

Description of how the Project will Achieve GHG Reductions

This Project achieves emissions reductions through the destruction of ODS refrigerant instead of allowing the refrigerant to be redeployed into equipment or systems or held in containers at risk of eventual leakage or release. This Project measures the amount of assumed emissions if the ODS were vented under business-as-usual scenario against the emissions prevented by the destruction of the same material. Plainly, destruction yields significantly lower net emissions than the business-as-usual scenario.

Description of Project Technologies, Products, Services, and Expected Level of Activity

After the ODS refrigerant is recovered from equipment or aggregated from various storage situations, they are consolidated into half-ton cylinders at the Tradewater facility. From there, the cylinders are consolidated into a single ISO tank or the half ton cylinders are determined to be the final vessel prior to sending for destruction. For this project, Tradewater sent one ISO tank containing a mixture of R-22 and R-115, three half-ton cylinders of R-502, and one half-ton cylinder and one smaller cylinder of R-11 solvent.

Upon delivery at A-Gas, the refrigerant is pumped out of its containers into A-Gas' feed tanks when then aid in destroying the ODS via the plasma arc destruction technology.

Tradewater anticipates future ODS refrigerant projects for as long as the recovery, reclamation, and eventual retirement of ODS refrigerant remains business as usual.

A5. PROOF OF PROJECT ELIGIBILITY

The project is eligible under "The Methodology for the Quantification, Monitoring, Reporting, and Verification of Greenhouse Gas Emissions Reductions and Removals from the Destruction of Ozone Depleting Substances and High-GWP Foam, Version 2.0." Additional eligibility requirements as noted in the ACR Standard, Version 8.0 are included below.

Table 1: Applicability Requirements from the Methodology sections 2.2.1 and 3.

Criterion	Requirement	Proof of Project Eligibility
Location	Project is located in the United States, Canada, or their territories.	Destruction occurred at A-Gas, located in Bowling Green, OH, United States.

ODS Material	Only the destruction of eligible ODS refrigerants CFC-11, CFC-12, CFC-13, CFC-113, CFC-114, CFC-115, HCFC-123 and HCFC-22 are eligible under this Methodology.	The only ODS included for crediting are eligible refrigerants.
Stockpile Limitation	Any refrigerants obtained from a government stockpile or inventory are eligible only if they are not required to be destroyed or converted.	Refrigerants originating from a government stockpile are not required to be destroyed.
Start Date	Project start date is defined as the date on which the earliest destruction activity of a project commences, documented on a Certificate of Destruction.	The project start date and destruction commencement date are the same date as documented on the included Certificate of Destruction (Appendix D).
Reporting Periods	Reporting period must not exceed 12 consecutive months. Project reporting period begins on the project start date.	Project reporting period begins on the project start date and does not exceed 12 months.
Crediting Periods	Project crediting period is the same as the reporting period.	The project crediting period is the same as the reporting period as indicated on the Monitoring Report.

Table 2: Applicability Requirements from the ACR Standard version 8.0, Chapter 3 (not already covered in the Methodology)

Criterion	Requirement	Proof of Project Eligibility
Minimum Project Term	The duration of the Minimum Project Term for specific project types is defined in the relevant ACR sector requirements and/or methodology. Project types with no risk of reversal after crediting have no required Minimum Project Term.	There is no risk of reversal for this project, so the minimum project term is not applicable.
Real	GHG reduction and removals shall result from an emission mitigation activity that has been conducted in accordance with an approved ACR methodology and is verifiable. Credits will not be issued on an ex-ante basis.	The GHG reductions occurred after the ODS was destroyed, and prior to the verification process and credit issuance.
Title	The Project Proponent shall provide documentation and attestation of undisputed title to all carbon credits prior to registration. Title to credits shall be clear, unique, and uncontested.	Tradewater, LLC has provided documentation of undisputed title to all offsets. Title to offsets is clear, unique, and uncontested. No offsets have been sold in the past.
Additional	Every GHG project shall demonstrate they either: Meet an ACR-approved performance standard and pass a regulatory surplus test, as detailed in the applicable methodology, or pass a three-pronged test of additionality in which the GHG Project: 1. Exceeds regulatory/legal requirements; 2. Goes beyond common practice; and 3. Overcomes at least one of three implementation barriers: institutional, financial, or technical.	The project passes the ACR-approved performance standard and regulatory surplus test. There is no mandate for the destruction of ODS refrigerant. In the absence of this project, the ODS refrigerant would have been vented or leaked into the atmosphere under business-as-usual scenarios. The project sources meet all other requirements of the Methodology.

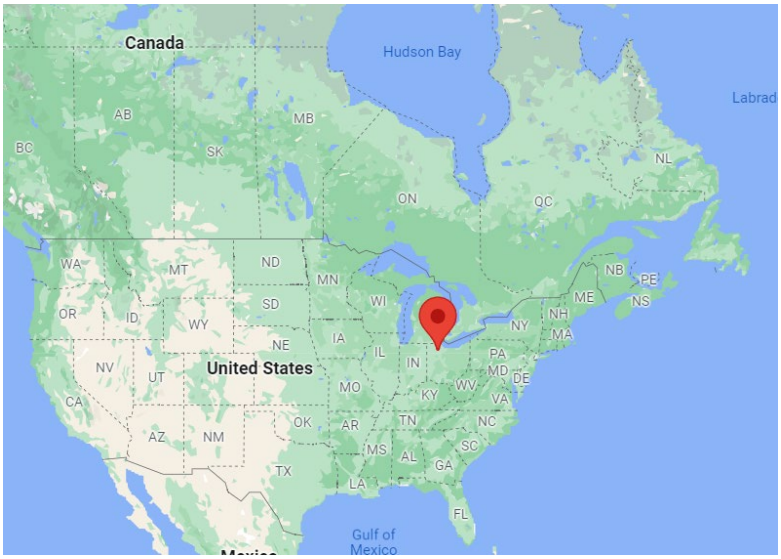
Regulatory Compliance	Projects must maintain material regulatory compliance. To do this, a regulatory body/bodies must deem that a project is not out of compliance at any point during a reporting period.	This project maintains regulatory compliance through the entirety of the reporting period.
Permanent	For projects with a risk of reversal of GHG removal enhancements, Project Proponents shall assess risk using an ACR-approved risk assessment tool.	There is no risk of reversal of GHG removal enhancements for this project type.
Net of Leakage	ACR requires Project Proponents to address, account for, and mitigate certain types of leakage, according to the relevant sector requirements and methodology conditions. Project Proponents must deduct leakage that reduces the GHG emissions reduction and/or removal benefit of a project in excess of any applicable threshold specified in the methodology.	Leakage is not applicable to this project type.
Independently Validated	ACR requires third-party validation of the GHG Project Plan by an accredited, ACR-approved VVB once during each Crediting Period and prior to issuance of ERTs. Validation can be conducted at the same time and by the same VVB as a full verification; however, the deadline for validation is determined by the methodology being implemented and the project Start Date (see above). Governing documents for validation are the ACR Standard, including sector-specific requirements, the relevant methodology, and the ACR Validation and Verification Standard.	This project is validated and verified by a third-party ACR-approved VVB in accordance with the ACR standard.
Independently Verified	Verification must be conducted by an accredited, ACR-approved VVB prior to any issuance of ERTs and at minimum specified intervals. ACR requires verifiers to provide a reasonable, not limited, level of assurance that the GHG assertion is without material discrepancy. ACR's materiality threshold is ±5%.	This project is validated and verified by a third-party ACR-approved VVB in accordance with the ACR standard.

Community and Environmental Impacts	ACR requires that all projects develop and disclose an impact assessment to ensure compliance with environmental and community safeguards best practices. Environmental and community impacts should be net positive, and projects must "do no harm" in terms of violating local, national, or international laws or regulations. Project Proponents must identify in the GHG Project Plan community and environmental impacts of their project(s). Projects shall also disclose and describe positive contributions as aligned with applicable sustainable development goals. Projects must describe the safeguard measures in place to avoid, mitigate, or compensate for potential negative impacts, and how such measures will be monitored, managed, and enforced. ACR does not require that a particular process or tool be used for the impact assessment as long as basic requirements defined by ACR are addressed (See Chapter 8). ACR projects can follow internationally recognized approaches such as The World Bank Safeguard Policies, or can be combined with the Climate Community and Biodiversity Alliance (CCBA) Standard or the Social Carbon Standard for the assessment, monitoring, and reporting of environmental and community impacts.	The Project maintains a net positive impact, as the quantified amount of GHG emissions has been eliminated and serves as an effort against climate change. Upon careful examination, no negative impacts from the project have been identified. Destruction of ODS refrigerant is highly monitored by the destruction facility, and destruction occurred within all applicable regulatory limits for emissions and local environmental impact.

A6. PROJECT LOCATION

All collected ODS refrigerant was destroyed at A-Gas, located at 1100 Haskins Road, Bowling Green, OH 43402, United States of America.

GPS Coordinates:
Latitude: 41.3915524
Longitude: -83.671193



A7. REGULATORY COMPLIANCE

There is no law, statute, or regulation which requires the destruction of ODS in the United States.

Handling and transport of ODS is regulated through US EPA and the Clean Air Act, as well as US Department of Transportation. Tradewater conforms to the regulations by ensuring all employees involved with collection of refrigerant are EPA 609 certified, and all technicians handling any recovery or consolidation of refrigerant are 608 certified. Tradewater maintains a DOT Hazmat license and only utilizes carriers who have a DOT hazmat license.

The destruction facility, A-Gas, uses plasma-arc technology which is TEAP-certified.

A8. PARTIES

Table 3: Parties involved in Project

Entity	*Name*	*Role/Title*	*Contact Info*	*Responsibility*
Tradewater, LLC	Timothy H. Brown	Chief Executive Officer	1550 W. Carroll, Suite 213 Chicago, IL 60607 312-273-5122 x 1000	Project Proponent – coordination of validation and verification of project
	Gabriel Plotkin	Chief Operating Officer	1550 W. Carroll, Suite 213 Chicago, IL 60607 312-273-5122 x 1004	Project Proponent – coordination of project implementation
A-Gas	Zach Babb	Environmental Projects Developer	1100 Haskins Rd Bowling Green, OH 43402 419-704-9151	Destruction Facility

Tradewater, LLC – Project Proponent

Tradewater has been in operation since 2016 and is a mission-driven company. Tradewater's aim is to collect and destroy greenhouse gases while creating economic opportunity. Tradewater engages in this work both in the US and internationally and has a goal of eliminating 3 million tons of CO_2e annually.

A-Gas – Destruction Facility

Tradewater engaged A-Gas for the destruction of the ODS refrigerant. A-Gas was founded in 1993 in the UK and expanded to 14 countries. They are engaged in refrigeration supply and management through reclamation, repurposing, and destruction. A-Gas uses plasma-arc technology which is a TEAP-certified technology.

A9. AGGREGATION AND PROGRAMMATIC DEVELOPMENT APPROACH

Not applicable to this project type.

B. METHODOLOGY

B1. APPROVED METHODOLOGY

The Project uses the Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removal from the Destruction of Ozone Depleting Substances and High-GWP Foam Version 2.0 (hereinafter referred to as "Methodology").

B2. METHODOLOGY JUSTIFICATION

The Project involves the destruction of ODS refrigerant R-22, R-115, R-11, and R-502, with trace amounts of R-12, R-114, R-13, R-113 and R-123. There is no requirement in the U.S. that CFC or HCFC refrigerants be destroyed. Because these refrigerants have been phased out and there are less impactful substitutes, and their production has been banned, their destruction will not trigger any additional CFC or HCFC refrigerant production.

The Methodology also allows for the destruction of domestic-sourced refrigerant manufactured as solvent, provided that the ODS is virgin. All solvent included in this project is confirmed as in unused and virgin condition, and is not listed as a hazardous waste by the EPA.

B3. PROJECT BOUNDARIES

The geographic boundary of the Project is A-Gas, located at 1100 Haskins Road, Bowling Green, OH 43402. The reporting period 12/04/2023 – 12/27/2023, which is the same as the crediting period.

B4. IDENTIFICATION OF GHG SOURCES, SINKS, AND RESERVOIRS

GHG Source, Sink, or Reservoir (SSR)	Source Description	Gas	Quantification Method
Transport to Destruction Facility	Fossil fuel emissions from the vehicular transport of ODS from aggregation point to final destruction facility.	CO_2	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF) + (Q_{BA} \times EF) + (Q_{intf} \times EF)}$
Destruction	Emissions of ODS from incomplete destruction at destruction facility.	ODS	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF) + (Q_{BA} \times EF) + (Q_{intf} \times EF)}$
Destruction	Emissions from the oxidation of carbon contained in destroyed ODS.	CO_2	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF) + (Q_{BA} \times EF) + (Q_{intf} \times EF)}$

Destruction	Fossil fuel emissions from the destruction of ODS at destruction facility.	CO_2	$\boldsymbol{Tr\&Dest} = (\boldsymbol{Q_{ODS}} \times \boldsymbol{EF}) + (\boldsymbol{Q_{BA}} \times \boldsymbol{EF}) + (\boldsymbol{Q_{intf}} \times \boldsymbol{EF})$
Destruction	Indirect emissions from the use of grid-delivered electricity.	CO_2	$\boldsymbol{Tr\&Dest} = (\boldsymbol{Q_{ODS}} \times \boldsymbol{EF}) + (\boldsymbol{Q_{BA}} \times \boldsymbol{EF}) + (\boldsymbol{Q_{intf}} \times \boldsymbol{EF})$
Recovered ODS Stockpile	Emissions of ODS from recovered ODS stockpiles and EOL equipment (if not sent for destruction)	ODS	$\boldsymbol{BE_{refr}} = \sum_{i} (\boldsymbol{Q_{ref,i}} \times \boldsymbol{GWP_i})$

B5. BASELINE SCENARIO

The baseline scenario selected for the project is the one determined by the Methodology for ODS refrigerant, in which the emissions rate is 100%.

There is no law or regulation mandating the destruction of ODS refrigerant, although the CFC refrigerants have been phased out of production and import since January 1, 1994, with the HCFC refrigerants following suit in 2010. The refrigerants still in use in the United States were manufactured prior to the ban and are either used in existing equipment or in storage until a use can be found. As many systems are modernized to accept currently manufactured refrigerant (HFCs), there is less of a need for CFC and HCFC refrigerants. Many sources are looking for an end solution for stockpiled or otherwise obsolete refrigerant, with destruction being one solution.

Further, excess CFCs and HCFCs without a particular use remain in storage, where they risk leaking. The ultimate fate of these refrigerants is release into the atmosphere, either slowly overtime from leaks in equipment or storage, or in accidental venting during routine maintenance of existing systems. Such use and leaks are accounted for in the emissions rates.

B6. WITH-PROJECT SCENARIO

The project scenario is the destruction of eligible CFC and HCFC refrigerants which would otherwise be removed from decommissioned equipment, reclaimed and used in existing antiquated systems, or stored indefinitely until a use for the refrigerants could be found. With the ban on production for these refrigerants, more and more systems and chillers are being retrofitted or decommissioned and can no longer support the use of these refrigerant types.

B7. GHG EMISSION REDUCTIONS AND REMOVALS

Through this project, greenhouse gas reductions are achieved by preventing the inevitable release of the refrigerant ODS into the atmosphere—either through leakage from degrading systems and storage, or from accidental venting during routine maintenance. The reductions are calculated by baseline emissions minus the project emissions.

B8. PERMANENCE

There is no risk of reversal for these project offsets, as once destroyed the associated GHG reductions are fixed.

C. ADDITIONALITY

C1. BASELINE

We have used the performance standard + regulatory surplus test to demonstrate additionality. The offsets generated by this project yield higher GHG reductions than those generated by a business-as-usual scenario.

C2. PERFORMANCE STANDARD

Refrigerant ODS in a business-as-usual scenario is used only when the existing systems are old enough to still process this type of refrigerant. When this is not the case, ODS refrigerant is either stored in their original disposable containers for possible use, recovered and stored in larger containers for possible use, or recovered from existing systems in the process of decommissioning or retrofitting, thereby requiring an end-of-life solution for that material. All ODS sourced for this project came from the United States, not from any government stockpiles or installations for which the refrigerant was required to be destroyed, and was destroyed at an eligible destruction facility.

ODS	100-year Global Warming Potential (MT CO2e/MT ODS)	10-Year Cumulative Emission Rate (%/10 years)
CFC-11	4,663	100%
CFC-12	10,239	100%
CFC-13	13,893	100%
CFC-113	5,824	100%
CFC-114	8,592	100%
CFC-115	7,665	100%
HCFC-22	1,764	100%
HCFC-123	79	100%

The GWP for each refrigerant species is above. The GHG emissions generated by the project are significantly less than the business-as-usual scenario for all refrigerant types, and the emissions reductions are greater than those in the baseline scenario.

The ODS sourced for this project, along with the project activities, meet the eligibility requirements:

- This material would otherwise eventually be vented into the atmosphere in the business-as- usual scenario
- The material was destroyed via an eligible destruction facility
- Tradewater has monitored the applicable SSRs within the project boundary

- The emissions have been quantified aligned with Chapter 5 of the Methodology, as indicated in section E and shown in the Quantification of Emissions Reductions (Appendix C).

C3. REGULATORY SURPLUS TEST

In order to pass the regulatory surplus test, a project must not be mandated by existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of the start date that directly or indirectly affect the credited offsets. CFC and HCFC refrigerants are regulated under the Clean Air Act, 40 CFR Part 82, Subpart F. Neither these regulations, nor any other existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of December 2023 require the project activity and its associated GHG emission reductions/removal enhancements. Therefore, the project passes the Regulatory Surplus test.

C4. COMMON PRACTICE TEST

Not applicable.

C5. IMPLEMENTATION BARRIERS TEST

Not applicable.

D. GHG MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Data or Parameter Monitored	Legal Requirement Test
Unit of Measurement	N/A
Description	Emissions reductions achieved through this project and methodology must not be required by any existing law or regulation
Data Source	US EPA
Measurement Methodology	N/A
Data Uncertainty	Low
Monitoring Frequency	Once per project
Reporting Procedure	Review of existing laws around ODS refrigerant management
QA/QC Procedure	Regular review of current laws and regulations surrounding ODS refrigerants, particularly CFCs.
Notes	

Data or Parameter Monitored	Mass of ODS mixture in each container
Unit of Measurement	Pounds
Description	The total quantity of ODS refrigerant in a container.
Data Source	Weight tickets taken pre and post destruction for each individual container
Measurement Methodology	Section 5.1 of Methodology
Data Uncertainty	Low
Monitoring Frequency	Once per project
Reporting Procedure	Gross weight of cylinders using calibrated scale, taken before and after destruction
QA/QC Procedure	Scale calibrations performed quarterly; CEMs data confirms destruction and weight throughout process
Notes	

Data or Parameter Monitored	Concentration of ODS mixture in each container
Unit of Measurement	Percent
Description	The distribution of ODS refrigerant in each container (along with any other contaminants, moisture, or HBR)
Data Source	Sample data via lab analysis provided by an AHRI-certified, third party laboratory.
Measurement Methodology	Appendix C of Methodology
Data Uncertainty	Low
Monitoring Frequency	Once per project

Reporting Procedure	Lab analysis report
QA/QC Procedure	Composition and concentration are analyzed at an AHRI-certified laboratory that is not affiliated with the project proponent using the AHRI Standard 700.
Notes	

Data or Parameter Monitored	$Q_{refr,i}$
Unit of Measurement	Pounds
Description	The total weight of ODS refrigerant sent for destruction.
Data Source	Weight tickets taken both pre- and post-destruction coupled with lab analysis
Measurement Methodology	Section 5.1 of Methodology
Data Uncertainty	Low
Monitoring Frequency	Once per project
Reporting Procedure	Net weight of cylinders using calibrated scale
QA/QC Procedure	Scale calibrations performed quarterly; CEMs data confirms destruction; lab analysis confirms mass percentage and identification of ODS refrigerant
Notes	

Data or Parameter Monitored	Q_{ODS}
Unit of Measurement	Pounds
Description	The total quantity of ODS refrigerant sent for destruction.
Data Source	Weight tickets taken both pre- and post-destruction coupled with lab analysis and quantifications
Measurement Methodology	Section 5.2 of Methodology
Data Uncertainty	Low
Monitoring Frequency	Once per project
Reporting Procedure	Net weight of cylinders using calibrated scale; lab analysis
QA/QC Procedure	Scale calibrations performed quarterly; CEMs data confirms destruction; lab analysis confirms mass percentage and identification of ODS refrigerant
Notes	

Data or Parameter Monitored	Q_{sol}
Unit of Measurement	Pounds
Description	The total quantity of solvent ODS sent for destruction.
Data Source	Weight tickets taken both pre- and post-destruction coupled with lab analysis and quantifications

Measurement Methodology	Section 5.1 of Methodology
Data Uncertainty	Low
Monitoring Frequency	Once per project
Reporting Procedure	Net weight of cylinders using calibrated scale; lab Analysis; identification of solvent (R11) in project
QA/QC Procedure	Scale calibrations performed quarterly; CEMs data confirms destruction; lab analysis confirms mass percentage and identification of ODS refrigerant; solvent determined by analysis of container labels
Notes	

E. GHG QUANTIFICATION

E1. BASELINE SCENARIO

The baseline emissions are: 27,851 mtCO_2e. For details, please see Appendix C (Quantification of Emissions Reductions).

Total Baseline Emissions:

$$BE_t = BE_{refr} + BE_{sol}$$

Where		Units
BE_{refr}	Total quantity of project baseline emissions from refrigerant ODS	MT CO_2e
BE_{sol}	Total quantity of project baseline emissions from solvent ODS	MT CO_2e
BE_t	Total quantity of project baseline emissions during the reporting period	MT CO_2e

Total Baseline Emissions from Refrigerant ODS:

$$BE_{refr} = \sum_i (Q_{ref,i} \times GWP_i$$

Where		Units
BE_{refr}	Total quantity of refrigerant project baseline emissions during the reporting period	MT CO_2e
$Q_{ref,i}$	Total quantity of refrigerant ODS sent for destruction by the offset project	MT ODS
GWP_i	Global warming potential of ODS	MT CO_2e / MT ODS

Total Baseline Emissions from Solvent ODS:

$$BE_{sol} = \sum_i (Q_{sol} \times GWP_i$$

Where		Units
BE_{sol}	Total quantity of solvent project baseline emissions during the reporting period	MT CO_2e
Q_{sol}	Total quantity of solvent ODS sent for destruction by the offset project	MT ODS
GWP_i	Global warming potential of ODS	MT CO_2e / MT ODS

E2. AFOLU PROJECT INVENTORY

Not applicable.

E3. WITH-PROJECT SCENARIO

The project emissions are: 70 mtCO_2e. Please see Appendix C for details (Quantification of Emissions Reductions).

Total Project Emissions:

$$PE_t = Rem_f + Tr\&Dest$$

Where		Units
PE_t	Total quantity of project emissions during the reporting period	MT CO_2e
Rem_f	Total GHG emissions from removal of high GWP foam in a non-enclosed equipment de-manufacturing system	MT CO_2e
$Tr\&Dest$	Total GHG emissions from transportation and destruction of ODS and high-GWP insulation foam/blowing agents	MT CO_2e

Project Emissions from Transportation and Destruction Using the Default Emission Factors:

$$Tr\&Dest = (Q_{ODS} \times EF) + (Q_{BA} \times EF) + (Q_{intf} \times EF)$$

Where		Units
$Tr\&Dest$	Total GHG emissions from ODS and high-GWP insulation foam/blowing agent transportation and destruction, as calculated using default emission factors	MT CO_2e
Q_{ODS}	Total quantity of refrigerant, medical aerosol, and/or fire suppressant ODS sent for destruction in the project	MT ODS
Q_{BA}	Total quantity of high-GWP blowing agent extracted from insulation foam and sent for destruction in the project	MT BA
Q_{intf}	Total mass of intact foam with entrained high-GWP blowing agent sent for destruction	MT
EF	Default emission factor for transportation and destruction of ODS or High-GWP Blowing Agent foam (7.5 for refrigerant, medical aerosol, fire suppressant or extracted blowing agent projects, 7.5 for intact high-GWP foam projects)	MT CO_2e/ MT ODS/ MT BA or MT

E4. LEAKAGE

Not applicable.

E5. UNCERTAINTY

Not applicable.

E6. QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

QA/QC is performed at multiple stages from refrigerant collection and aggregation through destruction. Hard copy paperwork including bills of lading, source data, and supplementary documentation are checked by multiple parties to ensure consistency and accuracy against digital entries in Tradewater's electronic database. Container weights are checked

at each stage (acquisition, delivery to warehouse, during consolidation and during filling) for accuracy and those numbers are then reviewed by a second and third party for accuracy. All this is done to ensure that data is accurate and precise at every stage and ensures the ultimate offset calculation is low risk.

Tradewater ensures due diligence efforts are performed on the destruction facility by conducting compliance research prior to destruction.

E7. GHG EMISSION REDUCTIONS AND REMOVALS

The emissions reductions are: 27,780 $mtCO_2e$. The project emissions are quantified using the below equation indicated in the Methodology, and further details are available in Appendix C:

$$ER_t = BE_t - PE_t$$

WHERE		UNITS
ER_t	Total quantity of GHG emission reductions during the reporting period	MT CO_2e
BE_t	Total quantity of project baseline emissions during the reporting period	MT CO_2e
PE_t	Total quantity of project emissions during the reporting period	MT CO_2e

E8. *EX ANTE* CARBON CREDIT PROJECTION

The total GHG emission reduction for the year of 2023 is estimated to be 27,780 mtCO2e. The crediting period is the same as the reporting period.

E9. *EX ANTE* ESTIMATION METHODS

Ex-ante estimation methods are not applicable to this methodology as the emissions reductions for the crediting period are equivalent to the time period and reductions of the reporting period.

F. ENVIRONMENTAL AND SOCIAL IMPACTS

F1. ENVIRONMENTAL AND SOCIAL IMPACT SUMMARY

Environmental and social impacts were assessed via ACR's Environmental and Social Impact Assessment and independently prior to work on the project. Negative impacts were considered but none were identified.

Positive impacts include prevention of air pollution (item 2A of the Assessment) and the release of hazardous materials (item 2C of the Assessment). Additional details can be found in the Assessment, Appendix A. All other environmental impacts are considered neutral.

Social impacts, such as labor rights, involuntary resettlement, and respect for human rights, are not applicable to this project type and the project does not directly or indirectly affect these topics.

F2. SUSTAINABLE DEVELOPMENT GOALS

The following Sustainable Development Goals (SDGs) are relevant to this project as direct impacts:

- SDG 9: Industry, Innovation, and Infrastructure
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action

SDG 9: Industry, Innovation, and Infrastructure: As ODS refrigerants are either destroyed or utilized, innovation is required to replace the refrigerants with a less harmful, yet equally as effective, alternative to support the needs for cooling, refrigeration, and climate controlled transport throughout the world. Directly related to this is the upgrading, retrofitting, and re-imagining within HVAC technologies globally so systems are compatible with newer, more sustainable refrigerant options.

SDG 12: Responsible Consumption and Production: By eliminating harmful CFCs and HCFCs, entities requiring refrigerant for their operations will need to shift to a more sustainable and climate-friendly approach. Consumers will naturally move in the direction of lower impact refrigerants as old systems utilizing CFCs break down or CFC sources become harder to find.

SDG 13: Climate Action: By eliminating ODS refrigerants through destruction, these high GWP and ozone depleting substances will not be released into the atmosphere, whether through accidental release via maintenance or mishandling, or from storage degradation overtime. The reduction of greenhouse gas emissions is a key step to reach the goals of the Paris Agreement, namely keeping global temperature increase under 2 degrees Celsius above pre- industrial levels.

The following SDGs are indirectly impacted by the project:

SDG 3: Good Health: Deterioration of the ozone layer allows for a higher concentration of UV light to reach the earth's surface. UV radiation is a known contributing factor to many human health problems, including skin cancer, eye damage, and immune system problems. Through the destruction of harmful CFCs and HCFCs, additional ozone depleting substances will never make their way into the atmosphere and damage the ozone the layer, giving the layer time to heal and protect the earth's surface from UV radiation.

SDG 14: Life Below Water: Marine animals, both large and small, are affected by increased UVB radiation. UVB radiation is higher energy than other forms of UV radiation, and are known to affect the reproduction of water-dwelling animals as well as the viability of phytoplankton, a key member of aquatic food webs. Increased UVB penetration in the upper water column may result in the destabilization of aquatic water systems. By limiting the presence of harmful CFCs and HCFCs via destruction, additional ozone depleting substances will never make their way into the atmosphere and continue to damage the ozone the layer, giving the layer time to heal and protect the earth's surface – including water systems -- from UVB radiation.

SDG 15: Life on Land: As ACR notes in their SDG Contributions Reporting Tool, there may be co-benefits to terrestrial life with regard to ozone depleting substance management, as decreased UV radiation allows for plant life to be a more effective and higher capacity carbon sink than in the presence of high UV radiation. Again, the preservation of the ozone layer through ODS destruction will aid in the capacity for plants to store carbon.

The full report is included under Appendix B.

F3. STAKEHOLDER COMMENTS AND CONSULTATION

The project did not receive any comments during the public comment period on the ACR website.

G. OWNERSHIP AND TITLE

G1. PROOF OF TITLE

Tradewater, LLC is the Project Proponent. Tradewater possesses the title and rights to all refrigerants destroyed under this Project, which is demonstrated by Refrigerant Purchase Agreements (RPAs) or other similar documentation. Through the purchase of refrigerant, total ownership, including environmental attributes, is transferred to Tradewater. As such, the rights and title to all carbon offset credits created by this Project belong to Tradewater, LLC.

G2. CHAIN OF CUSTODY

Chain of custody is not needed in this project because the offsets have not been bought or sold previously, and the project does not have a forward option contract.

G3. PRIOR APPLICATION

The project proponent has not applied for GHG emission reductions or removal credits for the project through any other GHG emissions trading system or program.

H. PROJECT TIMELINE

H1. START DATE

The Project start date is December 4, 2023-- the date on which the earliest destruction activity of the project commenced. The Project start date determination is consistent with the ACR Standard and Methodology.

H2. PROJECT TIMELINE

Relevant Project Activities	Timeline
Project Listed/Initiation of Project Activities	October 4, 2023
Project Term	N/A
Crediting Period	December 4, 2023 – December 27, 2023
Reporting Period	December 4, 2023 – December 27, 2023
Frequency of Monitoring, Reporting, and Verification	Once per reporting period
Project Kick Off	January 5, 2024
Project Site Visit	January 12, 2024

Appendices

List all appendices referenced throughout the GHG Project Plan in the table below, omitting and providing additional rows as needed. Appendices not provided under separate cover must be included within this document. For submission of the final versions of appendices provided under separate cover, provide exact filenames including the correct version and/or date. Where relevant to the project, the appendices marked with an asterisk (*) must be submitted on the ACR Registry, denoted as a GHG Project Plan document type, and maintained as public. All appendices are subject to validation.

Appendix	**Document Title**	**Provided under separate cover? (Yes/No)**	**Filename** *if provided under separate cover*
A	Environmental and Social Impact Assessment*	Yes	ACR936_Environmental_and_Social_Impact_Report_V.1.1
B	SDG Contributions Report*	Yes	ACR936_SDG_Report_V1
C	Quantification of Emissions Reductions	No	N/A
D	Certificate of Destruction	No	N/A

Attestations

The Project Proponent hereby represents and warrants to the American Carbon Registry, its affiliates and supporting organizations, and any assignee of substantially all of the assets comprising the ACR, that all information contained herein and in all appendices is true, correct, and complete to the best of their knowledge, information, and belief and they further agree to notify ACR promptly in the event that the Project Proponent becomes aware that any representation or warranty set forth above or in any appendix submitted under separate cover was not true when made.

Project Proponent Signature:	
Project Proponent Representative Signature:	
Name:	Timothy H. Brown
Title:	Chief Executive Officer
Organization:	Tradewater, LLC
Date:	April 5, 2024

Environmental and Social Impact Assessment

VERSION 1.0

2023-07-01

Chapter 8 of the *ACR Standard v8.0* requires all Project Proponents to prepare and disclose an environmental and social impact assessment. The use of this template, provided within or as an appendix to the GHG Project Plan, is required. Please respond to the questions below as completely and accurately as possible based on project details.

SECTION I: GENERAL PROJECT DETAILS		
1	**Project Title**	Tradewater US - ODS - #4
2	**ACR Project ID**	ACR936
3	**Provide an overview of the project activity.** The project activity is the destruction of eligible ODS refrigerant, mainly R-22 with additional HCFCs and CFCs, for which ownership was transferred to Tradewater for the purpose of destruction at an eligible destruction facility located in the United States.	
4	**Provide the GHG Project's geographic location.** Bowling Green, OH, United States	
5	**Provide an overview of the GHG Project's relevant stakeholders (i.e., individuals or groups that can potentially affect or be affected by the project activities and who may live within or outside the Project area).** N/A	

SECTION II: ENVIRONMENTAL & SOCIAL RISKS AND IMPACTS

Taking into account the scope and scale of the project activity, provide an assessment of the GHG Project's environmental and social risks and impacts for the project duration for each of the areas below. Categorize each risk/impact as positive, negative, or neutral and substantiate the selected category, noting all defined and defensible assumptions.

When the GHG Project poses risks of negative impacts, describe how impacts will be avoided, reduced, mitigated or compensated, commensurate with the risk, and detail how risks and negative impacts will be monitored, how often, and by whom.

1 BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES

1A Terrestrial and Marine Biodiversity and Ecosystems

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   There is evidence that increased UV rays as a result of deterioration of the ozone has an impact on aquatic ecosystems, specifically phytoplankton and other fauna's reproduction. Therefore, the project indirectly has a positive effect on aquatic biodiversity as the prevention of ODS entering the atmosphere allows the ozone layer to heal, and ultimately reduce harmful UV rays.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1B Habitat of Rare, Threatened, and Endangered Species, Including Areas Needed for Habitat Connectivity

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   No impacts to localized habitats have been identified resulting from the project activity.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1C **Natural Forests, Grasslands, Wetlands, or High Conservation Value Habitats**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   No impacts to natural forests, grasslands, wetlands, or high conservation value habitats have been identified as a result of the project activity.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1D **Soil Degradation and Soil Erosion**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   No impacts to soil have been identified as a result of the project activity.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

1E **Water Consumption and Stress**

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   Impacts to water consumption have not been identified as a result of this project activity.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

2 RESOURCE EFFICIENCY AND POLLUTION PREVENTION

2A Pollutant Emissions to Air

☒Positive ☐Negative ☐Neutral

1. **Describe the reasoning for selection:**
   ODS kept in storage will continue to leak into the atmosphere as the containers are not designed to store the material for long periods of time. By destroying the refrigerant ODS, the negative impact to the ozone layer and the atmosphere is eliminated. Therefore, the net impact is positive.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

2B Pollutant Discharges to Water, Noise, and Vibration

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   No impacts to pollutant discharges to water, noise, or vibration have been identified.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

2C	**Generation of Waste and Release of Hazardous Materials, Chemical Pesticides, and Fertilizers** ☒Positive ☐Negative ☐Neutral 1. **Describe the reasoning for selection:** ODS destruction directly removes the threat of the release of hazardous materials, the ODS itself. Therefore, the destruction has a positive impact on the issue of generation of waste and release of hazardous materials. 2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:** N/A 3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:** N/A
3	**LABOR RIGHTS AND WORKING CONDITIONS**
3A	**Safe And Healthy Working Conditions for Employees** ☐Positive ☐Negative ☒Neutral 1. **Describe the reasoning for selection:** This project activity does not impact working conditions for employees. 2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:** N/A 3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:** N/A
3B	**Fair Treatment of All Employees, Avoiding Discrimination, and Ensuring Equal Opportunities** ☐Positive ☐Negative ☒Neutral 1. **Describe the reasoning for selection:** This project activity does not impact this item. 2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:** N/A 3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:** N/A

3C

Forced Labor, Child Labor, or Trafficked Persons, and Protections for Contracted Workers Employed by Third Parties

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   This project type does not impact this item.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

4 LAND ACQUISITION AND INVOLUNTARY RESETTLEMENT

4A Forced Physical and/or Economic Displacement

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   This project type does not impact this item.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

5 RESPECT FOR HUMAN RIGHTS, STAKEHOLDER ENGAGEMENT

5A Human Rights and Discrimination

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   This project type does not impact this item.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

5B Abidance by the International Bill Of Human Rights[1] and Universal Instruments Ratified by the Host Country

☐Positive ☐Negative ☒Neutral

1. **Describe the reasoning for selection:**
   This project type does not impact this item.
2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:**
   N/A
3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:**
   N/A

[1] https://www.ohchr.org/en/what-are-human-rights/international-bill-human-rights

5C	**Consideration and Response to Local Stakeholders' Views** ☐Positive ☐Negative ☒Neutral 1. **Describe the reasoning for selection:** This project type does not impact this item. 2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:** N/A 3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:** N/A
6	**GENDER EQUALITY**
6A	**Equal Opportunities in the Context of Gender** ☐Positive ☐Negative ☒Neutral 1. **Describe the reasoning for selection:** This project activity does not impact this item. 2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:** N/A 3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:** N/A
6B	**Violence Against Women and Girls** ☐Positive ☐Negative ☒Neutral 1. **Describe the reasoning for selection:** The project activity does not impact this item. 2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:** N/A 3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:** N/A

6C	**Equal Pay for Equal Work** ☐Positive ☐Negative ☒Neutral 1. **Describe the reasoning for selection:** The project activity does not impact this item. 2. **If negative, describe how adverse impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:** N/A 3. **If negative, detail how risks and impacts will be monitored, how often, and by whom:** N/A

SECTION III: COMMUNITY-BASED PROJECTS

1	Community-based projects are those in which project activities engage or otherwise impact one or more communities. A community includes groups of people who live within or adjacent to the project area, including indigenous peoples and other local communities, as well as any groups that derive income, livelihood, or cultural values from the area. **Is the Project a community-based Project? ☐ Yes ☒ No**
2	If the project **IS** a community-based project, include a description of the community(ies), stakeholder engagement, and benefit sharing arrangements below.
2A	**Community and Stakeholder Identification and Consultation** 1. **Describe the process to identify community(ies) affected by the GHG Project:** N/A 2. **Provide detailed information regarding the community stakeholder consultation process undertaken as part of the project design and implementation, including demonstration that the consultations with Indigenous Peoples and local communities were conducted in a manner that is inclusive, culturally appropriate, and respectful of local knowledge:** N/A 3. **Provide documentation of meetings held, attendees, and meeting minutes, as well as stakeholder comments and concerns and how those were addressed. These documents can be provided as attachments with file references stated below:** N/A

2B **Indigenous Peoples, Local Communities, Cultural Heritage, and Free Prior and Informed Consent**

Where the project directly or indirectly impacts Indigenous Peoples and local communities, including livelihoods, ancestral knowledge, and cultural heritage, describe the steps taken to:

1. **Recognize, respect, and promote the protection of the rights of Indigenous Peoples and local communities in line with applicable human rights law, and the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous and Tribal Peoples[2]:**
   N/A
2. **Identify the rights-holders possibly affected (including customary rights of local rights holders):**
   N/A
3. **Avoid eviction or any physical or economic displacement, including through access restrictions to lands, territories, or resources:**
   N/A
4. **Preserve and protect cultural heritage consistent with Indigenous Peoples and local community(ies) protocols/rules/plans on the management of cultural heritage and/or UNESCO Cultural Heritage Conventions:**
   N/A
5. **As applicable, provide evidence of Free, Prior and Informed Consent by describing the process that was conducted to ensure that: consent was sought sufficiently in advance of any project, plan, or action taking place; consent was independently decided upon collectively by the rights-holders without coercion, intimidation, or manipulation; and consent was based on accessible, accurate, timely, and sufficient information provided in a culturally appropriate way:**
   N/A

[2] https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf

2C Relocation or Resettlement

1. Was there/will there be any relocation or resettlement resulting from project design or implementation?
   NA
   a. If yes, describe the circumstances:
      N/A
   b. If yes, was the relocation or resettlement a result of voluntary land transaction(s) between the buyer and seller?
      N/A
   c. If yes, did the relocation or resettlement change the land use of the affected groups or communities?
      N/A
   d. If yes, was relocation or resettlement involuntary (e.g., through eminent domain)?
      N/A

2D Robust Benefit Sharing

1. Describe how a benefit sharing plan (that includes arrangements that are appropriate to the context and consistent with applicable national rules and regulations) was or will be designed and implemented:
   N/A
2. Has a draft or final benefit sharing plan been shared with affected communities in a form, manner, and language understandable to them?
   N/A
3. Has/will the benefit-sharing outcomes be made public (subject to legal restrictions)?
4. N/A

2E Negative Impacts and Mitigation Measures

Identify any risks or claims of negative environmental and/or social impacts other than those listed in Part II:

1. Describe the negative impact, risk, or claim:
   N/A
2. Describe how any negative impacts will be avoided, reduced, mitigated, or compensated commensurate with the risk:
   N/A
3. Detail how negative risks and impacts will be monitored, how often, and by whom:
   N/A

SECTION IV: PREPARER INFORMATION	
Name	Timothy H. Brown
Title	Chief Executive Officer
Organization	Tradewater, LLC
Date	4/5/2024

Sustainable Development Goals (SDGs) Contribution Report

INDUSTRIAL PROJECTS

VERSION 1.0

2023-07-19

This report, as required in the *ACR Standard v8.0* , provides a qualitative assessment of the positive impacts the project is delivering to the United Nations Sustainable Development Goals (SDGs). The identified contributions are based on the standardized *ACR SDG Contributions Reporting Tool* .

ACR Project #:	ACR936
Project Name:	Tradewater US - ODS - #4

1. Select the applicable ACR project type from the drop-down menu below. This will auto populate the UN SDG targets to which project implementation is likely to positively contribute, as conservatively identified in the ACR SDG Contributions Reporting Tool.
2. If your project positively contributes to any additional SDG targets, such as the "conditional" targets identified in the ACR SDG Contributions Reporting Tool, please include those in the extra rows provided.
3. Provide a description of how the project contributes to each of the SDG targets identified.
4. Where the SDG objectives of the host country are relevant and such is feasible, provide information on how the project activity is consistent with the SDG objectives of the host country.
5. Hide any unused rows, save the completed template as a PDF, and upload it to the ACR Registry with the GHG Project Plan.

Project Type:	Destruction of Ozone Depleting Substances (ODS) and High-Global Warming Potential (GWP) Foam

DIRECT POSITIVE IMPACT TO SDG TARGETS	DESCRIPTION OF PROJECT'S CONTRIBUTION(S) TO SDG TARGET
SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.	As ODS refrigerants are either destroyed or utilized, innovation is required to replace the refrigerants with a less harmful, yet equally as effective, alternative to support the needs for cooling, refrigeration, and climate controlled transport throughout the world. Directly related to this is the upgrading, retrofitting, and re-imagining within HVAC technologies globally so systems are compatible with newer, more sustainable refrigerant options.
SDG 12: Ensure sustainable consumption and production patterns 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	By eliminating harmful CFCs and HCFCs, entities requiring refrigerant for their operations will need to shift to a more sustainable and climate-friendly approach. Consumers will naturally move in the direction of lower impact refrigerants as old systems utilizing CFCs break down or CFC sources become harder to find.

SDG 13: Take urgent action to combat climate change and its impacts 13.2 Integrate climate change measures into national policies, strategies and planning	By eliminating ODS refrigerants through destruction, these high GWP and ozone depleting substances will not be released into the atmosphere, whether through accidental release via maintenance or mishandling, or from storage degradation overtime. The reduction of greenhouse gas emissions is a key step to reach the goals of the Paris Agreement, namely keeping global temperature increase under 2 degrees Celsius above pre- industrial levels.

INDIRECT POSITIVE IMPACT TO SDG TARGETS	DESCRIPTION OF PROJECT'S CONTRIBUTION(S) TO SDG TARGET
SDG 3: Ensure healthy lives and promote well-being for all at all ages 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	Deterioration of the ozone layer allows for a higher concentration of UV light to reach the earth's surface. UV radiation is a known contributing factor to many human health problems, including skin cancer, eye damage, and immune system problems. Through the destruction of harmful CFCs and HCFCs, additional ozone depleting substances will never make their way into the atmosphere and damage the ozone the layer, giving the layer time to heal and protect the earth's surface from UV radiation.

SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	Marine animals, both large and small, are affected by increased UVB radiation. UVB radiation is higher energy than other forms of UV radiation, and are known to affect the reproduction of water-dwelling animals as well as the viability of phytoplankton, a key member of aquatic food webs. Increased UVB penetration in the upper water column may result in the destabilization of aquatic water systems. By limiting the presence of harmful CFCs and HCFCs via destruction, additional ozone depleting substances will never make their way into the atmosphere and continue to damage the ozone the layer, giving the layer time to heal and protect the earth's surface – including water systems -- from UVB radiation.
SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.	As ACR notes in their SDG Contributions Reporting Tool, there may be co-benefits to terrestrial life with regard to ozone depleting substance management, as decreased UV radiation allows for plant life to be a more effective and higher capacity carbon sink than in the presence of high UV radiation. Again, the preservation of the ozone layer through ODS destruction will aid in the capacity for plants to store carbon.

INFORMATION ON HOW THE PROJECT ACTIVITY IS CONSISTENT WITH THE SDG OBJECTIVES OF THE HOST COUNTRY, WHERE THE SDG OBJECTIVES ARE RELEVANT, AND SUCH IS FEASIBLE.	The United States has already committed to the SDGs laid out by the 2030 Agenda for Sustainable Development, and as such the project activity is aligned with the effort and spirit for working toward those goals.

Appendix C: Quantification of Emissions Reductions

Reference Values Obtained from ODS Protocol for CFC-12, CFC-11, CFC-113, CFC-114, CFC-115

		CFC-12	CFC-11	CFC-13	CFC-113	CFC-114	CFC-115	HCFC-22	HCFC-123	
CFC-12 10-Year Cumulative Emissions Rate (%/10 Years)	ER	100%	100%	100%	100%	100%	100%	100%	100%	Sec. 5.1.1 (Table 5.2)
Refrigerant Substitute Emissions Factor (tCO2e/tODS)	SE	0	0	0	0	0	0	0	0	Sec 5.2.1 (Table 5.4)
Global Warming Potential (tCO2e/tODS)	GWP	10239	4663	13893	5824	8592	7665	1764	79	Sec. 5.1 (Table 5.1)
Default Emission Factor for Transportation and Destruction of ODS (tCO2e/tODS)	EF	7.5								Sec. 5.2.3

COD		Refrigerant Type	Measured Values		Gross Quantity of Refrigerant Destroyed (lbs)	Moisture Reduction	High Boiling Residue Reduction	Total Eligible Refrigerant Destroyed (lbs)	Quantity of Refrigerant Detroyed (metric tonnes)	GHG Emissions from Substitute Refrigerants	Quantity of ODS Transported to Destruction Facility	Transportation and Destruction Default Emissions Factor (tCO2e)	Total Project Emissions (tCO2e)	Total Project Baseline Emissions (tCO2e)	Total GHG Emissions Reductions (tCO2e)
			Mass of ODS in COD in LBS	Concentration of ODS in Tranche											
			m	c	Q_g	mr	hbr	Q	Q_{ref}	Sub_{ref}	Q_t	Def	PE	BE_{ref}	ER
					$Q_g = m \times c$			$Q = Q_g - (Q_g \times mr) - (Q_g \times hbr)$	Qref = Q x .45359/1000	Sub_{ref} = Qref x SE		Def = Q_t x EF	PE = Sub_{ref} + Def	Be_{ref} =Q_{ref} x ER x GWP	ER = BE_{ref} - PE
Halfton-R11	Halfton-R11	CFC-12	1283.0	0.69%	8.85	0.000007	0.002190	8.83	0.00	0.00	0.58196	4.36	4.36	41.02	2721.73
	Halfton-R11	CFC-11		99.10%	1271.45			1268.66	0.58	0.00				2683.33	
	Halfton-R11	CFC-13		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11	CFC-113		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11	CFC-114		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11	CFC-115		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11	HCFC-22		0.17%	2.18			2.18	0.00	0.00				1.74	
	Halfton-R11	HCFC-123		0.00%	0.00			0.00	0.00	0.00				0.00	
Halfton-R502-A	Halfton-R502-A	CFC-12	2970.0	0.98%	29.11	0.000257	0.0002300	29.09	0.01	0.00	1.34716	10.10	10.10	135.11	6447.35
	Halfton-R502-A	CFC-11		0.03%	0.89			0.89	0.00	0.00				1.88	
	Halfton-R502-A	CFC-13		0.02%	0.59			0.59	0.00	0.00				3.74	
	Halfton-R502-A	CFC-113		0.01%	0.30			0.30	0.00	0.00				0.78	
	Halfton-R502-A	CFC-114		0.05%	1.49			1.48	0.00	0.00				5.78	
	Halfton-R502-A	CFC-115		49.89%	1481.73			1481.01	0.67	0.00				5149.13	
	Halfton-R502-A	HCFC-22		48.88%	1451.74			1451.03	0.66	0.00				1161.02	
	Halfton-R502-A	HCFC-123		0.00%	0.00			0.00	0.00	0.00				0.00	
TMLU925103-1-A	TMLU925103-1-A	CFC-12	16530.0	0.30%	49.59	0.000122	0.006990	49.24	0.02	0.00	7.49784	56.23	56.23	228.67	18713.49
	TMLU925103-1-A	CFC-11		0.23%	38.02			37.75	0.02	0.00				79.84	
	TMLU925103-1-A	CFC-13		0.08%	13.22			13.13	0.01	0.00				82.74	
	TMLU925103-1-A	CFC-113		0.22%	36.37			36.11	0.02	0.00				95.39	
	TMLU925103-1-A	CFC-114		0.02%	3.31			3.28	0.00	0.00				12.79	
	TMLU925103-1-A	CFC-115		12.24%	2023.27			2008.88	0.91	0.00				6984.42	
	TMLU925103-1-A	HCFC-22		85.94%	14205.88			14104.85	6.40	0.00				11285.75	
	TMLU925103-1-A	HCFC-123		0.02%	3.31			3.28	0.00	0.00				0.12	
TMLU925103-1-B	TMLU925103-1-B	CFC-12	16530.0	0.31%	51.24	0.000111	0.013000	50.57	0.02	0.00	7.49784	56.23	56.23	234.87	18611.76
	TMLU925103-1-B	CFC-11		0.27%	44.63			44.05	0.02	0.00				93.16	
	TMLU925103-1-B	CFC-13		0.08%	13.22			13.05	0.01	0.00				82.24	
	TMLU925103-1-B	CFC-113		0.21%	34.71			34.26	0.02	0.00				90.50	
	TMLU925103-1-B	CFC-114		0.03%	4.96			4.89	0.00	0.00				19.07	
	TMLU925103-1-B	CFC-115		12.24%	2023.27			1996.74	0.91	0.00				6942.22	
	TMLU925103-1-B	HCFC-22		85.85%	14191.01			14004.95	6.35	0.00				11205.82	
	TMLU925103-1-B	HCFC-123		0.02%	3.31			3.26	0.00	0.00				0.12	

Quantifications Excluding Oil															
Halfton-R11-NOOIL	Halfton-R11-NOOIL	CFC-12	1283.0	0.69%	8.85	0.000007	0.00000	8.85	0.00	0.00	0.58196	4.36	4.36	41.11	2727.71
	Halfton-R11-NOOIL	CFC-11		99.10%	1271.45			1271.44	0.58	0.00				2689.22	
	Halfton-R11-NOOIL	CFC-13		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11-NOOIL	CFC-113		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11-NOOIL	CFC-114		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11-NOOIL	CFC-115		0.00%	0.00			0.00	0.00	0.00				0.00	
	Halfton-R11-NOOIL	HCFC-22		0.17%	2.18			2.18	0.00	0.00				1.75	
	Halfton-R11-NOOIL	HCFC-123		0.00%	0.00			0.00	0.00	0.00				0.00	
Halfton-R502-A-NOOIL	Halfton-R502-A-NOOIL	CFC-12	2970.0	0.98%	29.11	0.000257	0.00000	29.10	0.01	0.00	1.34716	10.10	10.10	135.14	6448.84
	Halfton-R502-A-NOOIL	CFC-11		0.03%	0.89			0.89	0.00	0.00				1.88	
	Halfton-R502-A-NOOIL	CFC-13		0.02%	0.59			0.59	0.00	0.00				3.74	
	Halfton-R502-A-NOOIL	CFC-113		0.01%	0.30			0.30	0.00	0.00				0.78	
	Halfton-R502-A-NOOIL	CFC-114		0.05%	1.49			1.48	0.00	0.00				5.79	
	Halfton-R502-A-NOOIL	CFC-115		49.89%	1481.73			1481.35	0.67	0.00				5150.32	
	Halfton-R502-A-NOOIL	HCFC-22		48.88%	1451.74			1451.36	0.66	0.00				1161.28	
	Halfton-R502-A-NOOIL	HCFC-123		0.00%	0.00			0.00	0.00	0.00				0.00	
TMLU925103-1-A-NOOIL	TMLU925103-1-A-NOOIL	CFC-12	16530.0	0.30%	49.59	0.000122	0.00000	49.58	0.02	0.00	7.49784	56.23	56.23	230.28	18845.63
	TMLU925103-1-A-NOOIL	CFC-11		0.23%	38.02			38.01	0.02	0.00				80.40	
	TMLU925103-1-A-NOOIL	CFC-13		0.08%	13.22			13.22	0.01	0.00				83.32	
	TMLU925103-1-A-NOOIL	CFC-113		0.22%	36.37			36.36	0.02	0.00				96.06	
	TMLU925103-1-A-NOOIL	CFC-114		0.02%	3.31			3.31	0.00	0.00				12.88	
	TMLU925103-1-A-NOOIL	CFC-115		12.24%	2023.27			2023.03	0.92	0.00				7033.59	
	TMLU925103-1-A-NOOIL	HCFC-22		85.94%	14205.88			14204.15	6.44	0.00				11365.20	
	TMLU925103-1-A-NOOIL	HCFC-123		0.02%	3.31			3.31	0.00	0.00				0.12	
TMLU925103-1-B-NOOIL	TMLU925103-1-B-NOOIL	CFC-12	16530.0	0.31%	51.24	0.000111	0.00000	51.24	0.02	0.00	7.49784	56.23	56.23	237.96	18857.67
	TMLU925103-1-B-NOOIL	CFC-11		0.27%	44.63			44.63	0.02	0.00				94.39	
	TMLU925103-1-B-NOOIL	CFC-13		0.08%	13.22			13.22	0.01	0.00				83.32	
	TMLU925103-1-B-NOOIL	CFC-113		0.21%	34.71			34.71	0.02	0.00				91.69	
	TMLU925103-1-B-NOOIL	CFC-114		0.03%	4.96			4.96	0.00	0.00				19.32	
	TMLU925103-1-B-NOOIL	CFC-115		12.24%	2023.27			2023.05	0.92	0.00				7033.67	
	TMLU925103-1-B-NOOIL	HCFC-22		85.85%	14191.01			14189.43	6.44	0.00				11353.43	
	TMLU925103-1-B-NOOIL	HCFC-123		0.02%	3.31			3.31	0.00	0.00				0.12	
													70.70	27851.54	27780.00

Sampling Information						Purity											
Cylinder Number	Date of Sample	Time of Sample	Technician Taking Sample	Sampling Company	Ambient Air Temperature (degrees F)	R12 Purity (%) of ODS	R11 Purity (%) of ODS	R-13 Purity (%) of ODS	R113 Purity (%) of ODS	R114 Purity (%) of ODS	R115 Purity (%) of ODS	R22 Purity (%) of ODS	R123 Purity (%) of ODS	Moisture Level (PPM)	High Boiling Residue (%)	Laboratory Analysis	Descriptor and Plas ID
Halfton-R11	11/21/2023	7:46AM	Nick Alsip	A-Gas	72.3	0.69	99.1	0	0	0	0	0.17	0	7	0.219	Sampling Packet	R-11 Non-mixed; Plas-1226
Halfton-R502-A	11/21/2023	8:12AM	Josh Benner	A-Gas	71.3	0.98	0.03	0.02	0.01	0.05	49.89	48.88	0	257	0.023	Sampling Packet	R-502 Non-mixed; Plas-1227
TMLU925103-1-A	11/27/2023	1:19PM	Josh Benner	A-Gas	74.1	0.3	0.23	0.08	0.22	0.02	12.24	85.94	0.02	122	0.699	Sampling Packet	R-22/R502 Mixed Sample 1, Plas-1228
TMLU925103-1-B						0.31	0.27	0.08	0.21	0.03	12.24	85.85	0.02	111	1.3		R-22/R502 Mixed Sample 2, Plas-1228

Sampling Information with oil removed						Purity										
Cylinder Number	Date of Sample	Time of Sample	Technician Taking Sample	Sampling Company	Ambient Air Temperature (degrees F)	R12 Purity (%) of ODS	R11 Purity (%) of ODS	R-13 Purity (%) of ODS	R113 Purity (%) of ODS	R114 Purity (%) of ODS	R115 Purity (%) of ODS	R22 Purity (%) of ODS	R123 Purity (%) of ODS	Moisture Level (PPM)	High Boiling Residue (%)
Halfton-R11-NOOIL	11/21/2023	7:46AM	Nick Alsip	A-Gas	72.3	0.69	99.1	0	0	0	0	0.17	0	7	0
Halfton-R502-A-NOOIL	11/21/2023	8:12AM	Josh Benner	A-Gas	71.3	0.98	0.03	0.02	0.01	0.05	49.89	48.88	0	257	0
TMLU925103-1-A-NOOIL	11/27/2023	1:19PM	Josh Benner	A-Gas	74.1	0.3	0.23	0.08	0.22	0.02	12.24	85.94	0.02	122	0
TMLU925103-1-B-NOOIL				A-Gas		0.31	0.27	0.08	0.21	0.03	12.24	85.85	0.02	111	0

Destruction Information

Batch Identifier	Weight of Material Destroyed (lbs)	Destruction Start Date	Destruction Facility	Certificate of Destruction Link:	End Date of Destruction
Halfton-R11	1,283	12/4/2023	A-Gas	Plas-1226 COD	12/6/2023
Halfton-R502-A	2,970	12/7/2023	A-Gas	Plas-1227 COD (Not mixed)	12/11/2023
TMLU925103-1-A	16,530	12/12/2023	A-Gas	Plas-1228 COD	12/27/2023
TMLU925103-1-B	16,530				

Start Weight (lbs)	Weight of Residue (lbs)	Heel Weight (lbs)
1893	0	610
3000	0	30
16660	0	130
16660	0	130

Destruction Information Exclusive of Residue

Certificate of Destruction ID Number	Weight of Material Destroyed (lbs)	Destruction Start Date	Destruction Facility		End Date of Destruction	Start Weight of Material Destroyed
Halfton-R11-NOOIL	1283	12/4/2023	A-Gas		12/6/2023	1283
Halfton-R502-A-NOOIL	2,970	12/7/2023	A-Gas		12/11/2023	2970
TMLU925103-1-A-NOOIL	16530	12/12/2023	A-Gas		12/27/2023	16530
TMLU925103-1-B-NOOIL	16530					16530

Appendix D: Certificates of Destruction

A-GAS®
TOGETHER WE CAN

1100 Haskins Road, Bowling Green, OH 43402 419-867-8990

CERTIFICATE OF DESTRUCTION

Developer of ODS Destroyed	Tradewater	Generator	Tradewater
	650 Morse Ave	Name	N/A
	Elk Grove Village IL,60007		
Certificate ID/PO#:	Plas- 1226	Manifest #:	N/A
		Destruction Unit :	PDU 1
Generator EPA ID:	N/A	Container ID#:	\A872589MA

The following Quantity of mixed Ozone Depleting Substances were destroyed:

Profile ID/Description:	Tradewater		
Batch Number:	Plas- 1226		
Date started:	12/4/23	Starting Batch Weight:	1,893.0 lbs
Date Complete	12/6/23	Ending Batch Weight:	610.0 lbs
		Residue / Oil Weight:	0.0 lbs*
		Total weight destroyed:	1,283.0 lbs.

*Product not destroyed by Plascon
To be disposed of separately

I certify that A-Gas is in possession of and operates a licensed plasma arc destruction facility, and it operates in accordance with the Destruction and Removal Efficiency and emission guidelines set forth in the Montreal Protocol Technology Assessment Panel (TEAP), Task Force for Destruction Technologies, final report dated April 2002. Based upon testing of the technology in April 12,2022 and April 13, 2022 the destruction guidelines achieved are certified to be met or exceed TEAP requirements:

The sample was analyzed by GC/MS to identify the compounds present. The sample was analyzed by GC/FID to quantify the amount of each compound present. The sample contains R-11: 99.10%, R-12: 0.69%, R-22: 0.17%, R-10: 0.01%, R-134a: 0.01%.

I certify that to the best of my knowledge, the above described material was destroyed in compliance with all applicable laws, regulations, permits, and licenses during the period listed above.

Signature: Zachary Babb Date: 12/6/2023

A-GAS
TOGETHER WE CAN

1100 Haskins Road, Bowling Green, OH 43402 419-867-8990

CERTIFICATE OF DESTRUCTION

Developer of ODS Destroyed	Tradewater	Generator	Tradewater
	650 Morse Ave	Name	N/A
	Elk Grove Village IL,60007		
Certificate ID/PO#:	Plas- 1227	Manifest #:	N/A
		Destruction Unit :	PDU 1
Generator EPA ID:	N/A	Container ID#:	5008

The following Quantity of mixed Ozone Depleting Substances were destroyed:

Profile ID/Description:	Tradewater		
Batch Number:	Plas- 1227		
Date started:	12/7/23	Starting Batch Weight:	3,000.0 lbs
Date Complete	12/11/23	Ending Batch Weight:	30.0 lbs
		Residue / Oil Weight:	0.0 lbs*
		Total weight destroyed:	2,970.0 lbs.

*Product not destroyed by Plascon
To be disposed of separately

I certify that A-Gas is in possession of and operates a licensed plasma arc destruction facility, and it operates in accordance with the Destruction and Removal Efficiency and emission guidelines set forth in the Montreal Protocol Technology Assessment Panel (TEAP), Task Force for Destruction Technologies, final report dated April 2002. Based upon testing of the technology in April 12,2022 and April 13, 2022 the destruction guidelines achieved are certified to be met or exceed TEAP requirements:

The sample was analyzed by GC/MS to identify the compounds present. The sample was analyzed by GC/FID to quantify the amount of each compound present. The sample contains R-22: 48.88%, R-115: 49.89%, R-12: 0.98%, R-152a: 0.06%, R-114: 0.05%, R-134a: 0.03%, R-11: 0.03%, R-125: 0.03%, R-13: 0.02%, R-113: 0.01%, R-124: 00.1%, R-23: 0.01%.

I certify that to the best of my knowledge, the above described material was destroyed in compliance with all applicable laws, regulations, permits, and licenses during the period listed above.

Signature: Zachary Babb Date: 12/11/2023

A-GAS
TOGETHER WE CAN

1100 Haskins Road, Bowling Green, OH 43402 419-867-8990

CERTIFICATE OF DESTRUCTION

Developer of ODS Destroyed	Tradewater	Generator	Tradewater
	650 Morse Ave	Name	N/A
	Elk Grove Village IL,60007		
Certificate ID/PO#:	Plas- 1228	Manifest #:	N/A
		Destruction Unit :	PDU 1
Generator EPA ID:	N/A	Container ID#:	5001

The following Quantity of mixed Ozone Depleting Substances were destroyed:

Profile ID/Description:	Tradewater		
Batch Number:	Plas- 1228		
Date started:	12/12/23	Starting Batch Weight:	16,660.0 lbs
Date Complete	12/27/23	Ending Batch Weight:	130.0 lbs
		Residue / Oil Weight:	0.0 lbs*
		Total weight destroyed:	16,530.0 lbs.

*Product not destroyed by Plascon
To be disposed of separately

I certify that A-Gas is in possession of and operates a licensed plasma arc destruction facility, and it operates in accordance with the Destruction and Removal Efficiency and emission guidelines set forth in the Montreal Protocol Technology Assessment Panel (TEAP), Task Force for Destruction Technologies, final report dated April 2002. Based upon testing of the technology in April 12,2022 and April 13, 2022 the destruction guidelines achieved are certified to be met or exceed TEAP requirements:

The sample was analyzed by GC/MS to identify the compounds present. The sample was analyzed by GC/FID to quantify the amount of each compound present. The sample contains R-22: 85.94%, R-115: 12.24%, R-12: 0.30%, R-125: 0.27%, R-124: 0.24%, R-11: 0.23%, R-113: 0.22%, R-134a: 0.18%, R-23: 0.14%, R-13: 0.08%, R-142b: 0.06%, R-152a: 0.05%, R-123: 0.02%, R-114: 0.02%.

I certify that to the best of my knowledge, the above described material was destroyed in compliance with all applicable laws, regulations, permits, and licenses during the period listed above.

Signature: Zachary Babb Date: 12/27/2023