

## American Carbon Registry Monitoring Report

**Instructions:** The American Carbon Registry (ACR) requires that a Project Monitoring Report be provided to the verification body at each Project verification. To facilitate this requirement, use of this monitoring report template is required. Please follow all instructions found within each section and provide all requested information. If a field is not applicable, mark it as “N/A”. Please sign and save this Monitoring Report as a PDF prior to uploading to the Project page within the ACR registry system. This form must be completed and executed by a duly authorized representative of the Project Proponent.

Section I: Report Completed By		
1	Name	Timothy H. Brown
2	Title	Chief Executive Officer
3	Organization	Tradewater, LLC
4	Phone	312-273-5122
5	Email	tbrown@tradewater.us
Section II: Project Information		
1	Project name	Tradewater US – ODS - #2
2	ACR Project ID#	ACR 758
3	ACR account holder	Tradewater, LLC
4	Project Proponent	Tradewater, LLC
5	Current reporting period (MM/DD/YYYY–MM/DD/YYYY)	05/23/2022 – 05/24/2022
6	Project start date (MM/DD/YYYY)	05/23/2022
7	Current crediting period (MM/DD/YYYY–MM/DD/YYYY)	05/23/2022 – 05/22/2032 (V1.2); 05/23/2022—5/24/2022 (V2.0)
8	ACR Standard version applied at validation	ACR Standard Version 7.0
9	Relevant ACR Sector Standard(s) and version(s), if any	N/A
10	ACR-Approved Methodology title and version applied at validation	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 1.2; Revised quantification based on Version 2.0
Section III: Project Details		
1	<b>Project Description</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>• Provide a brief project description</li> <li>• State the total GHG reductions and/or removals during the reporting period covered by this monitoring report</li> </ul> <p>The Project is the destruction of ODS refrigerant, primarily R11, from multiple sources for which ownership was transferred to Tradewater for the purpose of destruction. The ODS was recovered through the decommissioning process of large building chillers and other equipment, or from stockpiles intended for recharging equipment that is no longer in use. The ODS would either remain in storage until they could be used in an existing system, or eventually vented through leakage over time. The ODS was destroyed at Heritage Thermal Services in East Liverpool, Ohio. The GHG removal during</p>	

	the reporting period is 20,952 tCO <sub>2</sub> e under version 1.2 of the Methodology, and 24,294 tCO <sub>2</sub> e under Version 2.0 of the Methodology.
<b>2</b>	<b>Programmatic Development Approach (PDA) Implementation</b> <i>Instructions (if applicable):</i> <ul style="list-style-type: none"> <li>For a PDA, describe any new cohort(s) added during the reporting period</li> <li>State whether the sites included in additional cohort(s) conform to the project boundaries and baseline criteria established in the initial GHG Project Plan</li> <li>Provide the implementation dates and crediting period dates for the sites in the additional cohort(s)</li> <li>Define the roles and responsibilities for all personnel involved in the inclusion of the new cohort(s)</li> <li>Describe procedures to avoid double counting as described in the ACR Standard</li> <li>Provide all necessary information as stipulated in the validated GHG Project Plan to ensure that leakage, additionality, baseline establishment, baseline emissions, and eligibility requirements are met by the additional cohort(s)</li> <li>Provide a map of each new site added during the reporting period</li> </ul> n/a – No additional cohorts have been added to the project
<b>3</b>	<b>Project Deviations</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>ACR may permit project-specific deviations to an existing approved methodology where they do not negatively impact the conservativeness of an approved methodology's approach to the quantification of GHG emissions reductions and removal enhancements. For instance, where alternate monitoring or measurement regimes are proposed, ACR may permit these changes provided they are conservative. ACR will not permit, on a project-specific basis, changes to requirements related to additionality assessment or baseline establishment.</li> <li>State any deviation(s) affecting this reporting period and rationale for the deviation(s); in the rationale, provide both the necessity of the deviation(s) and demonstration that it/they is/are conservative (i.e. will underestimate net GHG reductions/removals).</li> <li>State whether ACR has formally approved the deviation(s).</li> </ul> n/a – No project deviations
<b>4</b>	<b>Environmental and Community Impacts</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>In their GHG Project Plan Projects must prepare and disclose an assessment of its environmental and community risks and impacts (per 8.A of the ACR Standard).</li> <li>The assessment must describe the safeguard measures in place to avoid, reduce, mitigate, or compensate for potential negative impacts, and how such impacts will be reported, monitored and enforced. The assessment <u>must</u> identify and describe the Sustainable Development Goals (SDG) to which the impacts are aligned and positively contribute.</li> <li>Please provide confirmations and/or updates, as applicable, to the original assessment including the SDG goals to which the impacts are aligned and positively contribute.</li> <li>Projects Proponents are required to disclose at each verification any negative environmental and/or community impacts or claims of negative environmental and/or community impacts and the appropriate mitigation measure applied.</li> <li>Please provide the required environmental and community impact disclosures below, as applicable.</li> </ul> <p>Negative impacts related to the project were considered, yet none were found to exist. The main positive environmental and community impact is elimination of the threat to global climate change. The project supports the UN's Sustainable Development Goals (SDG) described below:</p> <ul style="list-style-type: none"> <li>SDG 9: Industry, Innovation, and Infrastructure</li> </ul>

	<ul style="list-style-type: none"> <li>SDG 12: Responsible Consumption and Production</li> <li>SDG 13: Climate Action</li> </ul> <p>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 meet the needs for cooling, refrigeration, and climate controlled transport throughout the world.</p> <p>SDG 12: Responsible Consumption and Production: By eliminating harmful CFCs, 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.</p> <p>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..</p>															
<b>Section IV: AFOLU Projects Only</b>																
<b>1</b>	<b>Reversals (Please note that reversals must be reported to ACR as soon as they are discovered per the ACR Risk Mitigation Agreement)</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>State whether there have been any intentional or unintentional reversals during the reporting period</li> <li>If a reversal has occurred, describe the reversal in this section</li> <li>Describe the status of compensation for the reversal</li> </ul> n/a															
<b>2</b>	<b>Project Area</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>Provide the total acreage for the end of the reporting period; if the project is stratified, provide the total acreage for each stratum.</li> <li>If the project area changed since the previous verification, please describe the change and explain why it was necessary.</li> </ul> n/a															
<b>3</b>	<b>Carbon Pools</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>Populate the below table with the total tCO<sub>2</sub>e for each applicable carbon pool (adding rows as needed for additional relevant carbon pools)</li> </ul> <table border="1"> <thead> <tr> <th>Carbon Pool</th><th>Start of Reporting Period (total tCO<sub>2</sub>e)</th><th>End of Reporting Period (total tCO<sub>2</sub>e)</th></tr> </thead> <tbody> <tr> <td>Live Biomass</td><td>n/a</td><td>n/a</td></tr> <tr> <td>Dead Biomass</td><td>n/a</td><td>n/a</td></tr> <tr> <td>Soil</td><td>n/a</td><td>n/a</td></tr> <tr> <td>Harvested Wood Products (current reporting period)</td><td></td><td>n/a</td></tr> </tbody> </table>	Carbon Pool	Start of Reporting Period (total tCO <sub>2</sub> e)	End of Reporting Period (total tCO <sub>2</sub> e)	Live Biomass	n/a	n/a	Dead Biomass	n/a	n/a	Soil	n/a	n/a	Harvested Wood Products (current reporting period)		n/a
Carbon Pool	Start of Reporting Period (total tCO <sub>2</sub> e)	End of Reporting Period (total tCO <sub>2</sub> e)														
Live Biomass	n/a	n/a														
Dead Biomass	n/a	n/a														
Soil	n/a	n/a														
Harvested Wood Products (current reporting period)		n/a														
<b>4</b>	<b>Inventory</b> <i>Instructions:</i>															

	<ul style="list-style-type: none"> <li>• State whether the project is using the original inventory. If this is the first Monitoring Report, describe the original inventory.</li> <li>• Describe any changes to the original inventory methodology since the last verification, if applicable</li> <li>• For new inventory plots that were re-measured, list the updated confidence statistic and deduction percentage, if applicable</li> <li>• If new plots were added to inventory, please provide an updated map showing plot locations and describe how plot locations were determined.</li> <li>• Provide an estimate of the total with-project on-site stocks at the end of the reporting period.</li> </ul> <p>n/a</p>
<b>Section V: Project Monitoring</b>	
<b>1</b>	<b>Parameters Monitored/Modeled</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>• Populate the table below with each parameter monitored during the reporting period (attaching tables for each parameter as necessary). Validated modeled parameters should also be reported using the below table.</li> </ul>

Parameter	Legal Requirement Test
Units	N/A
Description	Emissions reductions achieved through this project and methodology must not be required by any existing law or regulation.
Methodology Section	Section 3.3.1
Equation #(s)	N/A
Source of Data	US EPA
Measurement	Determined once for each project

Parameter	Mass of ODS mixture in each container
Units	Pounds
Description	The total quantity of ODS refrigerant in a container.
Methodology Section	Section 5.1
Equation #(s)	N/A
Source of Data	Weight tickets taken pre and post destruction for ISO tank
Measurement	Determined once for each project

Parameter	Concentration of ODS mixture in each container
Units	Percent
Description	The distribution of CFC refrigerants in each container (along with any other contaminants, moisture, or HBR)
Methodology Section	Appendix C
Equation #(s)	N/A
Source of Data	Lab analysis report
Measurement	Determined once for each project

Parameter	$Q_{\text{refr},i}$
Units	Pounds
Description	The total weight of ODS refrigerant sent for destruction
Methodology Section	Section 5.1
Equation #(s)	3
Source of Data	Weight tickets from destruction facility taken pre-destruction and post-destruction
Measurement	Determined once for each project

Parameter	$Q_{\text{ODS}}$
Units	Pounds
Description	The total quantity of refrigerant ODS sent for destruction
Methodology Section	Section 5.2 of Methodology
Equation #(s)	13, V1.2; 11 V2.0
Source of Data	Weight tickets from destruction facility taken pre-destruction and post-destruction
Measurement	Determined once for each project

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## Monitoring Plan

### *Instructions:*

- Provide the personnel names and roles/responsibilities for each party involved in monitoring the offset project
- Provide a description of the GHG management system employed including:
  - The location and recordkeeping/retention requirements for all stored data
  - Methods used to generate data
  - Transfer points and methods of non-automated transfer of data
- If applicable, describe any calibration procedures and the frequency with which calibration and other maintenance requirements are performed
- Describe the internal audit and other quality assurance/quality control procedures
- Sampling methods utilized and performed during the reporting period

### ***Personnel names and roles/responsibilities:***

Tim Brown – CEO, Tradewater – Project Proponent

Steve Lorah – Materials Processing Manager, Heritage Thermal Services – Destruction Facility

John Higgins – Product Management Coordinator, Heritage Thermal Services – Destruction Facility

### ***Description of GHG management system:***

The destruction facility, Heritage Thermal Services, has a retention requirement of minimum of five years, up to lifetime of facility. All documents are stored electronically and backed up.

The project proponent, Tradewater, LLC has a retention policy of 15 years. Documents are stored on third-party cloud system that is backed up on a regular basis, with hard copies saved on-site wherever possible.

Continuous Emissions Monitors (CEMs) data from the destruction process is uploaded onto Heritage's database. Data for each reporting period is exported by a Heritage employee to an Excel file for Project Proponent and Verification Body to evaluate. Personnel on-site live monitor all incineration activities to prevent errors, exceedances, or other impacts to the project.

### ***Calibration procedures and frequency of calibration:***

The scales used to determine the mass of ODS is inspected and properly calibrated monthly. Most recent calibration is included in the documentation.

### ***Internal audit and quality assurance/quality control procedures:***

Heritage Thermal Services undergoes annual procedure reviews and required readings. Qualified technicians are constantly monitoring the emission levels during burns and any deviation is recorded or acted upon as needed. Total hydrocarbon emission exceedances are reviewed and reported to the EPA. Tradewater reviews all paperwork to ensure that it satisfies protocol requirements.

### ***Sampling methods utilized and performed during reporting period:***

Sampling is conducted by the destruction facility, Heritage Thermal Services, prior to the destruction process per the requirements laid out in the protocol. The destruction facility technician is unaffiliated with the project proponent and is trained in sampling process. A sample is taken with a clean, fully evacuated sample bottle that meets applicable DOT requirements and is over one pound at liquid state. The sample is individually labeled, tracked, and the following information is recorded on the ODS Sampling Certificate:

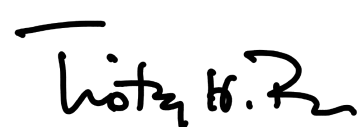
- Time and date of sample;
- Name of project proponent;
- Name of technician taking sample;
- Employer of technician taking sample;

	<ul style="list-style-type: none"> <li>• Volume of container from which sample was extracted; and</li> <li>• Ambient air temperature at time of sampling; and</li> <li>• Chain of custody for each sample from the point of sampling to the AHRI-certified lab by proof of delivery.</li> </ul> <p>Samples are sent to National Refrigerants, Inc. Analytical Laboratory, an AHRI-certified lab where project samples are analyzed using AHRI 700 to confirm the mass percentage and identification of each component of the sample.</p>
<b>Section VI: GHG Emission Reductions and Removals</b>	
<b>1</b>	<b>Baseline Emissions</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>• Provide the total baseline emissions or stock change for the reporting period; attach as an appendix, a spreadsheet documenting baseline emissions quantification</li> </ul> <p>22,130 tCO<sub>2</sub>e for reporting period under Methodology V.1.2  24,333 tCO<sub>2</sub>e for reporting period under Methodology V.2.0  Please see Appendix titled “Quantification of Emissions Reductions” for a summary of this calculation.</p>
<b>2</b>	<b>Project Emissions</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>• Provide the total project emissions or stock change for the reporting period; attach as an appendix, a spreadsheet documenting project emissions quantification</li> </ul> <p>1,178 tCO<sub>2</sub>e for reporting period under Methodology V.1.2  39 tCO<sub>2</sub>e for reporting period under Methodology V.2.0  Please see Appendix titled “Quantification of Emissions Reductions” for a summary of this calculation...</p>
<b>3</b>	<b>Leakage Emissions</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>• If applicable, provide a summary calculation of total leakage emissions for the reporting period; attach as an appendix, a spreadsheet documenting leakage emissions quantification</li> </ul> <p>n/a</p>
<b>4</b>	<b>Buffer Pool Contribution (For AFOLU and other sequestration projects only)</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>• Provide a summary calculation of the total buffer pool calculation for the reporting period; provide the allocation of buffer pool contributions to vintages, if applicable; attach as an appendix, a spreadsheet documenting buffer pool quantification</li> </ul> <p>n/a</p>
<b>5</b>	<b>Net GHG Emission Reductions/Removals</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>• State the net GHG emission reductions/removals for the reporting period; provide the allocation of net GHG emission reductions/removals contributions to vintages, if applicable; provide a summary calculation showing the net GHG emission reduction/removal calculation as required by the relevant methodology</li> </ul> <p>20,952 tCO<sub>2</sub>e for reporting period under Methodology V.1.2  24,294 tCO<sub>2</sub>e for reporting period under Methodology V.2.0  Outstanding Emissions Reductions: 3,342 tCO<sub>2</sub>e.</p>



	Please see Appendix titled “Quantification of Emissions Reductions” for a summary of this calculation.
<b>6</b>	<b>Removals</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>If calculating removals according to an approved methodology as a separate issuance record, state the total removals for the reporting period; provide the allocation of removals to vintages, if applicable; provide a summary calculation showing the removal calculation as required by the relevant methodology</li> </ul> n/a
<b>Section VII: Previous Reporting</b>	
<b>1</b>	<b>Updates to previous reporting periods</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>State whether there are any details and/or data that needs to be clarified from a previous reporting period</li> <li>Describe the revision(s)</li> </ul> n/a
<b>Section VIII: Verification</b>	
<b>1</b>	<b>Verification</b> <i>Instructions:</i> <ul style="list-style-type: none"> <li>State whether the project is undergoing a full site visit verification or a desk review</li> <li>State the date of the last full site visit verification</li> <li>Provide the name of the verification body for this reporting period</li> <li>State the number of consecutive years the verification body has verified the project</li> </ul> The project is undergoing a full site visit verification. The site visit was conducted virtually via Microsoft Teams on July 22, 2022. Ruby Canyon Environmental is the verification body for this reporting period and this is the first year that the verification body is verifying this project. This is the third site visit attended by this VVB for similar projects between 2021 and present.
<b>Section IX: Required Attestations</b>	
<b>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:</b>	
<b>1</b>	The project maintained regulatory compliance by completing all regulatory requirements at required intervals – answer YES or NO: Yes <i>If No, all violations or other instances of noncompliance with laws, regulations, or other legally binding mandates directly related to project activities are listed below, along with a statement of whether all regulatory requirements were completed at required intervals:</i>
<b>2</b>	At no time during or since the development of the Project have there been any undisclosed or unmitigated adverse environmental or community impacts as a result of the development, construction, operation and/or maintenance of the Project
<b>3</b>	Any comments that were received from stakeholders regarding environmental or community impacts during the development, construction, operation and/or maintenance of the Project have been addressed, and when necessary, response actions have been implemented by the Project Proponent, and a true and accurate summary of any and all such communications/actions is attached hereto (as available).
<b>4</b>	The ACR Account Holder under which the project is listed is authorized to register and transact the verified emissions reductions (“VERs”) generated or to be generated by the Project, and to the best knowledge of the representing party, there are no competing claims to such authority.



5 THB	Neither such VERs nor any underlying emissions reductions/removals and/or greenhouse gas attributes to be registered on the ACR have been serialized, registered or retired or otherwise transacted on another registry and/or under another standard or program.
6 THB	Neither such VERs nor any underlying emissions reductions/removals and/or greenhouse gas attributes to be registered on the ACR have been transferred, retired or otherwise used or disposed of prior to the date hereof, other than as duly recorded in the ACR.
7 THB	All information and attestations provided in this Monitoring Report are accurate to the best of their knowledge, 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 was not true when made.
<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <div style="display: flex; align-items: center;"> <span style="font-size: 2em; margin-right: 10px;">X</span>  </div> <div style="border-top: 1px solid black; margin-top: 5px; padding-top: 5px;">             Project Proponent signature           </div> </div> <div style="margin-top: 10px;"> <p>Name: Timothy H. Brown</p> <p>Title: Chief Executive Officer</p> <p>Date: 05/01/2023</p> </div>	

# Quantification of Emissions Reductions

## V.1.2 of Methodology

	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
TMU224222 - 8 - T159743	5/4/2022	11:00am	John Higgins	Heritage	64	0.01	90.87	0	7.98
R114 Purity (%) of ODS						R115 Purity (%) of ODS		Moisture Level (PPM)	
0						0		41	
								0.303	

# Version 2.0 of Methodology

Reference Values Obtained from ODS Protocol

		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. 3.8
Refrigerant Substitute Emissions Factor (tCO <sub>2</sub> e/tODS)	SE	0	0	0	0	0	0	0	0	N/A under V.2.0
Global Warming Potential (tCO <sub>2</sub> e/tODS)	GWP	10239	4663	13893	5824	8592	7665	1764	79	Appendix A (Table 4)
Default Emission Factor for Transportation and Destruction of ODS (tCO <sub>2</sub> e/tODS)	EF	7.5								Sec. 6.5

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 Destroyed (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 <sub>g</sub>	mr	hbr	Q	Q <sub>ref</sub>	Sub <sub>ref</sub>	Q <sub>t</sub>	Def	PE	BE <sub>ref</sub>	ER
			Q <sub>g</sub> = m x c			Q = Q <sub>g</sub> - (Q <sub>g</sub> x mr) · (Q <sub>g</sub> x hbr)			Q <sub>ref</sub> = Q x .45359/1000	Sub <sub>ref</sub> = Q <sub>ref</sub> x SE	Def = Q <sub>t</sub> x EF		PE = Sub <sub>ref</sub> + Def	BE <sub>ref</sub> =Q <sub>ref</sub> x ER x GWP	ER = BE <sub>ref</sub> - PE
TMLU224 222 - 8 - T159743	TMLU224222 - 8 - T159743	CFC-12	11440.0	0.01%	1.14	0.000041	0.00303	1.14	0.00	0.00	5.18907	38.92	39	5.30	24294
	TMLU224222 - 8 - T159743	CFC-11		90.87%	10395.53			10363.60	4.70	0.00				21920	
	TMLU224222 - 8 - T159743	CFC-13		0.00%	0.00			0.00	0.00	0.00				0	
	TMLU224222 - 8 - T159743	CFC-113		7.98%	912.91			910.11	0.41	0.00				2404	
	TMLU224222 - 8 - T159743	CFC-114		0.00%	0.00			0.00	0.00	0.00				0	
	TMLU224222 - 8 - T159743	CFC-115		0.00%	0.00			0.00	0.00	0.00				0	
	TMLU224222 - 8 - T159743	HCFC-22		0.00%	0.00			0.00	0.00	0.00				0	
	TMLU224222 - 8 - T159743	HCFC-123		0.94%	107.54			107.21	0.05	0.00				4	
														39	