ACR844

Tradewater – Thailand 3

June 22nd, 2023

Tradewater LLC

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A.
PROJECT OVERVIEW

A1. PROJECT TITLE

Tradewater – Thailand 3 (hereinafter referred to as "Project").

A2. PROJECT TYPE

Ozone Depleting Substances

A3. 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 from International Sources, Version 1.0." Additional eligibility requirements as noted in the ACR Standard, Version 7.0, are included below.

Table 1: Eligibility Requirement from the Methodology, sections 2.2.1 and 3.

Criterion	Requirement	Proof of Project Eligibility
ODS Material	Only the destruction of eligible ODS refrigerants CFC-11, CFC-12, CFC-13, CFC-113, CFC-114 and CFC-115 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.	The refrigerants in this project originate from a government stockpile that is not required to be destroyed or converted.
Location	Project located outside of the United States and its territories.	Destruction occurred at WMS (BPEC), Samutprakarn, Thailand.
Additionality	Eligible offsets must be generated by projects that yield additional GHG reductions that exceed any GHG reductions otherwise required by law or regulation or any GHG reductions that would otherwise occur in a conservative business-as-usual.	There is no mandate for the destruction of ODS CFC refrigerant under Customs Supervision in the country of origin (Thailand). 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.
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 (ACR844_SuplDoc.pdf).
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. The reporting period corresponds to April 27th, 2023 to May 30th, 2023.
Crediting Periods	Project crediting period is ten years and begins on the project start date.	Project crediting period begins on the project start date and will be ten years.

		The crediting period is provided in the included Monitoring Report. The crediting period corresponds to April 27th , 2023 to April 26th , 2033.
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.

Table 2: Applicability Requirements from ACR Standard version 7.0, 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.
Emission or Removal Origin	For projects reducing or removing direct emissions, the following requirement applies: The Project Proponent shall own, have control over, or document that effective control exists over the GHG sources and/or sinks from which the emissions reductions or removals originate.	Tradewater LLC (hereinafter referred to as "Tradewater") is the project proponent and owns the ODS obtained for this project.
Offset Title	Project Proponent shall provide documentation and attestation of undisputed title to all offsets prior to registration, including chain of custody documentation if offsets have ever been sold in the past. Title to offsets shall be clear, unique, and uncontested.	Tradewater 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 project shall use either an ACR-approved performance standard and pass a regulatory surplus test, as detailed in the Methodology, or pass	The Project fulfills the performance standard set in the Methodology and passes a regulatory surplus test, ensuring that the GHG emission reductions are additional of those that would have

	a three-pronged test of additionality in which the project must: 1. Exceed regulatory/legal requirements; 2. Go beyond common practice; and 3. Overcome at least one of three implementation barriers: institutional, financial, or technical.	occurred in the advance of the Project Activity and under a business-as-usual scenario.
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.

<u>Eligibility of destruction facility</u>

WMS MEETS TEAP requirements, based on the results of the Report of the Incineration test of Fluorocarbon. Although not an RCRA facility, WMS meets the TEAP requirements which are formally required for RCRA facilities. TEAP criteria includes the following:

- DRE of 99.99% or greater.
- Emissions limitations as described in the chart below. The pollutant concentration limits are at 11% O_2 and 0°C which correspond to the TEAP Standard Criteria.

- Technical capability through demonstrated destruction of a refractory chlorinated organic compound or ODS itself, at a rate no lower than 1.0kg/hr.

Performance Qualification	Units	Concentrated Sources (ODS)
DRE	%	99.99
PCDDs/PCDFs	ng-ITEQ/Nm^3	0.2
HCl/Cl_2	mg/Nm^3	100
HF	mg/Nm^3	5
HBr/Br_2	mg/Nm^3	5
Particulates	mg/Nm^3	50
CO	mg/Nm^3	100

As described in the Report of the Incineration test of Fluorocarbons, the DRE result for WMS is 99.99% efficiency. Therefore, the facility exceeds the TEAP requirement.

The emissions results from testing, taking the highest value during the reading, are as follows:

Performance Qualification	Limit (Concentrated)	Emissions at 25° C and 7% O_2	Emissions at 0° C and 11% O_2
PCDDs/PCDFs	0.2 ng-ITEQ/Nm^3	0.25 ng-ITEQ/Nm^3	0.19 ng-ITEQ/Nm^3
HCl/Cl_2	100 mg/Nm^3	0.68 mg/Nm^3	0.53 mg/Nm^3
HF	5 mg/Nm^3	0.192 mg/Nm^3	0.15 mg/Nm^3
HBr/Br_2	5 mg/Nm^3	<0.001 mg/Nm^3	<0.001 mg/Nm^3
Particulates	50 mg/Nm^3	1.12 mg/Nm^3	0.87 mg/Nm^3
CO	100 mg/Nm^3	0.1 mg/Nm^3	0.08 mg/Nm^3

As a note, when adjusting the PCDDs/PCDFs to the standard measurements (11% O2), the results is 0.19 TEQ/Nm3, which is below the limit in the TEAP report. Therefore, WMS meets the TEAP requirements on all emissions. Finally, a flow rate of 25 kg/hr. was achieved. As such, WMS has demonstrated that the last piece of the TEAP requirement is also complied with.

A4. LOCATION

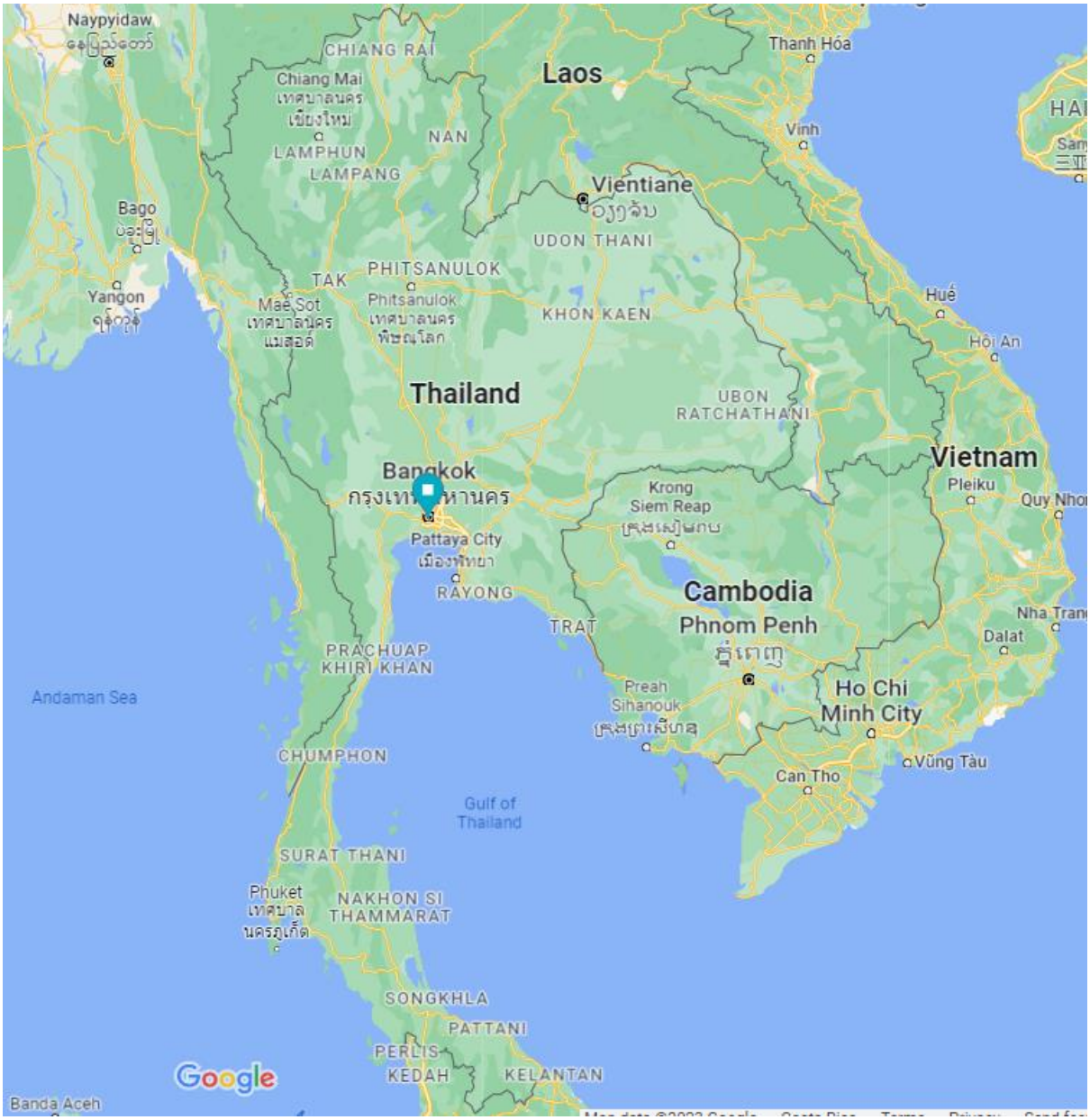
The project location is Thailand, in that all ODS material is acquired, collected, and destroyed in Thailand. Waste Management Siam LTD (WMS) had original custody of the ODS material, which was acquired from the Thai Customs Department, and WMS is also the location of the consolidation activities. The material was destroyed at a WMS facility, located in the Samutprakarn province, in Bangpoo Environmental Complex Col. Ltd (BPEC). WMS transferred ownership of the ODS material to Tradewater, including its environmental attributes.

The address and GPS coordinates for the WMS destruction facility are:

965 Moo 2 Soi 3B Bangpoo Industrial Estate, Sukhumvit Rd Bangpoo Mai, Muang Samutprakarn, Samutprakarn, 10280 Thailand

Latitude: 13.537435

Longitude: 100.655553



A5. BRIEF SUMMARY OF PROJECT

Description of project activity

The project activity is the destruction of eligible ODS refrigerant, specifically CFC-12, which derives from a government stockpile in the custody of Thailand's Customs Department on or before 2007. The Thai government had no mandate to destroy or convert this material but also had no access to funding to dispose of the ODS refrigerant.

The Customs Department transferred ownership of the material to WMS and established WMS as the party responsible for transporting the refrigerant from the Customs Department facilities to the WMS warehouse for consolidation and later disposal. Upon receipt of the material at the WMS warehouse, WMS transferred ownership of the cylinders, including ownership of any carbon offset credits that result from destruction, to Tradewater. Tradewater's role is to provide financial and logistical support to ensure the material is destroyed following all the Montreal Protocol and ACR requirements.

Under business-as-usual, the ODS refrigerant would remain in storage, as the Customs Department did not have the means to dispose of the material. The stored refrigerant, which is contained in disposable cylinders, will gradually vent over time, through corrosion and deterioration. The risk of venting is mitigated by destruction at WMS, a destruction facility that meets the Montreal Protocol's TEAP standards provided in the *Report of the Task Force on Destruction Technologies*.

Background information

Refrigerants such as CFC-12 were historically used for industrial refrigeration and in air conditioners for automobiles and trucks since the 1930s. CFC-12 was fully banned from production under the Montreal Protocol in 2010 because of their adverse impacts on the ozone layer. Although production was banned by the Montreal Protocol, their continued usage was not.

In Thailand, ODS material was stockpiled by the Government, through the Customs Department, over many years, in and before 2007. These stockpiles of virgin CFC-12 require an end-of-life solution, one of which is destruction. However, there is currently no law, rule or regulation requiring the destruction of ODS while in Customs' custody, and no financial or logistical infrastructure to ensure the material is destroyed safely and consistent with the requirements of the Montreal Protocol. As a result, the ODS material in Thailand risks continual release into the atmosphere overtime because it simply remains in stockpiles with no future use.

Project Purpose and Objectives

The purpose of this project is to offset the emissions that would have been released by the stockpiled ODS refrigerants. These refrigerants have no future use, and therefore will eventually be fully leaked.

A6. PROJECT ACTION

Description of Prior Physical Conditions

In the business-as-usual scenario, ODS refrigerants are stockpiled and stored in various parts of the country in disposable containers that are not designed to store refrigerant for extended periods of time. Under this scenario, ODS refrigerant will leak into the atmosphere, because the containers in which they are held degrade overtime or slowly leak.

Description of how the Project will Achieve GHG Reductions

This project achieves emission reductions through the destruction of ODS refrigerant, instead of holding it 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 stockpiles were transferred to Tradewater's ownership, the disposable cylinders were counted, weighed, and consolidated into an ISO tank at the WMS warehouse located in Samutprakarn, Thailand, and from there, the ISO tank was transported to the WMS destruction facility and destroyed.

As part of the monitoring activities, the destruction facility monitors and registers the relevant parameters in their CEMs data system in real time and then records these parameters every hour. Pressure and flow rate are monitored continuously on a separate stage of the furnace for gaseous substances such as ODS and collected every half hour.

The samples were taken by trained WMS technicians at the WMS warehouse, where the inventory and filling also took place. Destruction took place at the main WMS facility. The sample was sent to a third-party qualified laboratory for analysis.

A7. *EX ANTE* OFFSET PROJECTION

The ex-ante offset projection is not applicable to this methodology, as emissions reductions are calculated for the 10-year crediting period in the first reporting period. The total emissions reduction for this reporting period are 192,051 tCO_2e.

Project	Location	Vintage	Total ERTs

Tradewater – Thailand 3	Thailand (Origin and Destruction)	2023	192,051 tCO_2e.

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 Mob. +1 3122735122*	*Project Proponent*
Tradewater LLC	*Maria Gutierrez Murray*	*Senior Director of International Projects.*	*1550 W. Carroll, Suite 213 Chicago, IL 60607 Mob. +506 83342002*	*Business development*
Waste Management Siam LTD	*Sutthida Fakkum*	*Senior Compliance & EHS Manager*	*965 Moo 2 Soi 3B Bangpoo Industrial Estate, Sukhumvit Rd Bangpoo Mai, Muang Samutprakarn, Samutprakarn, 10280 Thailand Mob. +66 899201042*	*Destruction Facility*

Tradewater LLC – Project Proponent

Tradewater LLC has operated since 2016 and is a mission-driven company. Tradewater's subsidiary, Tradewater International SRL, operates around the world in support of Tradewater LLC's project efforts. Any mention of Tradewater International is self-same as Tradewater LLC.

Tradewater's aim is to collect and destroy greenhouse gases found around the world while creating economic opportunity. Tradewater as a whole has a goal of eliminating 3 million tons of CO_2 equivalent annually.

Waste Management Siam LTD – Destruction Facility

WMS is located in Bangpoo Environmental Complex (BPEC) and constructively utilizes factory waste to produce steam and electricity advanced clean air technologies, via a Fluidized Bed Incinerator. WMS is part of DOWA Holdings CO, LTD.

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 from International Sources Version 1.0 (hereinafter referred to as "Methodology").

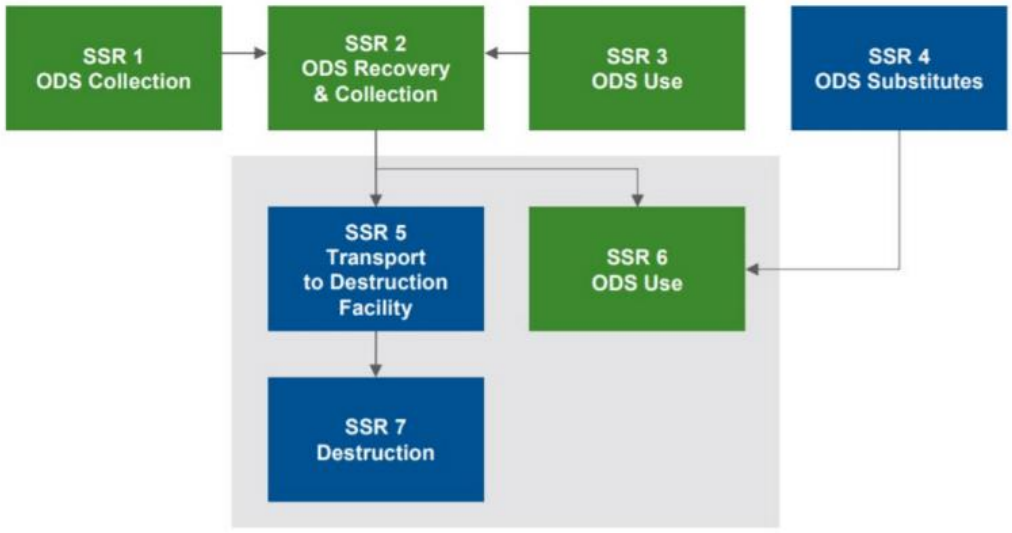
B2. METHODOLOGY JUSTIFICATION

The Project involves the destruction of ODS refrigerant CFC-12. Thailand does not have a law requiring destruction of refrigerants under the Montreal Protocol nor is there a rule or law requiring government stockpiled ODS refrigerants to be destroyed or converted. Because these refrigerants have been phased out worldwide and there are less impactful substitutes, their destruction will not trigger any additional CFC refrigerant production. Additionally, the Customs Department has kept the material in stockpiles since 2007 and neither this Department nor any other government authority has been able to manage the stockpile due to economic factors.

B3. PROJECT BOUNDARIES

The geographic boundary of the Project is the WMS facility, located at 965 Moo 2 Soi 3B Bangpoo Industrial Estate, Sukhumvit Rd Bangpoo Mai, Muang Samutprakarn, Samutprakarn, 10280 Thailand. The reporting period is April 27, 2023 to May 30, 2023, and the crediting period is April 27, 2023 to April 26, 2033.

SSRs within the project boundaries are ODS use, Transport to Destruction Facility, and Destruction.



B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Table 4: Greenhouse Gases and Sources (source: Methodology)			
GHG Source, Sink, or Reservoir (SSR)	Source Description	Gas	Quantification Method
SSR 5. Transport to Destruction Facility	Fossil fuel emissions from the vehicular transport of ODS from aggregation point to final destruction facility.	CO_2	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF)}$
SSR 6. ODS Use	Emissions of ODS from use, leaks, and servicing through continued operation of equipment.	ODS	$\boldsymbol{BE_{refr} = \sum_i (Q_{ref,i} \times ER_{refr,i} \times GWP_i)}$
SSR 6. ODS Use	Emissions of substitute from use, leaks, and servicing through continued operation of equipment.	CO_2e	$\boldsymbol{Sub_{refr} = \sum_i (Q_{ref,i} \times SE_i)}$
SSR 7. Destruction	Emissions of ODS from incomplete destruction at destruction facility.	ODS	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF)}$
SSR 7. Destruction	Emissions from the oxidation of carbon contained in destroyed ODS.	CO_2	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF)}$
SSR 7. Destruction	Fossil fuel emissions from the destruction of ODS at destruction facility.	CO_2	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF)}$
SSR 7. Destruction	Indirect emissions from the use of grid-delivered electricity.	CO_2	$\boldsymbol{Tr\&Dest = (Q_{ODS} \times EF)}$

B5. BASELINE

The baseline scenario selected for the project related to ODS refrigerant, in which the following emissions rates are assumed under business-as-usual:

Table 5 Parameters for ODS Refrigerants (source: Methodology, Appendix A)			
ODS	100 years global warming potential (MT CO_2E/MT ODS)	10-year cumulative emission rate (%/10 years)	Substitute Emissions (MT CO_2/MT ODS)
CFC-11	4,750	89%	223
CFC-12	10,900	95%	686
CFC-13	14,400	61%	7,144
CFC-113	6,130	89%	220
CFC-114	10,000	78%	659
CFC-115	7,370	61%	1,139

In this Project, the CFC-12 material was originally stored in various locations in Thailand under Customs Department custody and supervision. The material was transferred to WMS and then Tradewater, and finally destroyed at WMS, a local destruction facility. WMS was responsible for the movement of the material from the Customs storage locations to the WMS warehouse at Samutprakarn. As explained below in the "Regulatory Surplus" section, there is no mandate to destroy the ODS refrigerant from the government stockpile.

All ODS sat in deteriorating cylinders with no alternative use. Without particular intended or viable use, these cylinders would remain in storage, where they risked leaking or release into the atmosphere.

B6. PROJECT SCENARIO

The project scenario is the destruction of CFC-12 which otherwise would remain in storage indefinitely until a management option could be financed.

The project abides with all applicable rules and regulations. The ODS refrigerant in this particular case is subject to the Customs Act, which grants the Customs Department broad authority to manage seized materials as a "national item." For this reason, the arrangement between the Customs Department and WMS required that the Customs Department supervise the transportation of the ODS refrigerant to WMS, the storage of the ODS refrigerant at WMS, the filling of the ODS refrigerant, and the destruction process.

The ODS was destroyed in compliance with all relevant and applicable laws and regulations. This includes environmental and health and safety regulations that apply to the WMS facility.

B7. REDUCTIONS AND ENHANCED 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 the movement of the cylinders. The reductions are calculated by baseline emissions minus the project emissions.

B8. PERMANENCE

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

C.
ADDITIONALITY

C1. 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 of the project that directly or indirectly affect the credited offsets.

The ODS refrigerant destroyed in this project is considered a "national item" under Customs Law because it was seized and stockpiled by the Thai Customs Department. As such, it is exempt from other Thai regulations, including the Hazardous Substance Act B.E. 2535, which indicates in Clause 15 that a specific law (e.g., the Customs Law), takes precedence over the general law and requirements of B.E. 2535.

The lack of a mandate to destroy a "national item" was confirmed in a meeting on April 5, 2022 (reference *Guidelines for the destruction of refrigerants under the supervision of the Customs Department*). Thai Customs and the department of Industrial Works affirmed that no law applicable to Thai Customs required the destruction of refrigerants listed under the Montreal Protocol.

Per the September 8, 2022 letter to WMS titled "*Handling over the refrigerants seized under the Customs Department for destruction at Bangpoo Environmental Complex Co., Ltd*" and issued by Thai Customs Enforcement Division, Customs "can handle the property in dispute under the Customs regulations and referring to the regulations in the chapter of criteria, methods and conditions for the distribution of the property in dispute B.E 2563 (2020)."

In conclusion, neither the Customs Act, nor any existing laws, regulations, statutes, legal rulings, or other regulatory frameworks in effect as of February 7, 2023, require the destruction of the ODS refrigerant in this project. Therefore, the project passes the regulatory surplus test.

C2. COMMON PRACTICE TEST

Not applicable.

C3. IMPLEMENTATION BARRIERS TEST

Not applicable.

C4. PERFORMANCE STANDARD TEST

Refrigerant ODS in a business-as-usual scenario are 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 or 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. Additionally, the material for this project was seized by Customs Department in or before 2007, and therefore it cannot be used in the commercial sphere. The material is secured in a stockpile because the Thai governmental authorities do not possess the necessary financing to destroy the material. All ODS sources for this project

came from Thailand and were destroyed in a destruction facility that meets the Montreal Protocol's TEAP standards provided in the *Report of the Task Force on Destruction Technologies.*

The GWPs of CFC-12 are above, in Table 5. 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 CFC 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.
- Point of Origin and Chain of Custody for this material is outlined in the supporting documents.
- Tradewater has monitored the applicable SSRs within the project boundary.
- The emissions have been quantified and align with Chapter 5 of the Methodology, as indicated in section E, and as shown in the Project Assertion Spreadsheet (included in the document "ACR844_SuplDoc.pdf").

D.
MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Parameters in this section, other than the Legal Requirement Test, only include the measured monitoring parameters, tagged as "Measured" within the ACR ODS Methodology table 6.4.

Data or Parameter Monitored	Regulatory Surplus 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	Thailand Customs Department and The National Ozone Protection Division from the Department of Industrial Works (DIW)
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	Kilograms
Description	The total quantity of ODS refrigerant in a container.
Data Source	Manual 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 Tradewater received a deviation from the procedure for containers weighed with the transportation vehicle included, when the vehicle utilized is the same when weighing before destruction and after destruction, following the procedure detailed below. Before destruction: • Weigh the truck attached to the full ISO tank when arriving to the destruction facility (Inbound weight). • Weigh the truck immediately after detaching the full ISO tank to obtain the tare truck weight (inbound tare weight).

	After destruction: • Weigh the truck when it arrives at the destruction facility, immediately before attaching the empty ISO tank to obtain the tare weight (outbound tare weight). • Weigh the truck attached to the empty ISO tank (outbound weight). With this information, the amount of ODS destroyed will be calculated as follows: ODS destroyed = (Inbound weight – inbound tare weight) – (outbound weight – outbound tare weight).
QA/QC Procedure	Scale calibrations, CEMs data confirms destruction parameter 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 ISO 17025 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 ISO 17025-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	MT
Description	The total weight of ODS refrigerant sent for destruction (baseline).
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. Tradewater received a deviation from the procedure for containers weighed with the

	transportation vehicle included, when the vehicle utilized is the same when weighing before destruction and after destruction, following the procedure detailed below. Before destruction: • Weigh the truck attached to the full ISO tank when arriving at the destruction facility (Inbound weight). • Weigh the truck immediately after detaching the full ISO tank to obtain the tare truck weight (inbound tare weight) After destruction: • Weigh the truck when it arrives at the destruction facility, immediately before attaching the empty ISO tank to obtain the tare weight (outbound tare weight). • Weigh the truck attached to the empty ISO tank (outbound weight). With this information, the amount of ODS destroyed will be calculated as follows: ODS destroyed = (Inbound weight – inbound tare weight) – (outbound weight – outbound tare weight).
QA/QC Procedure	Scale calibrations; CEMs data confirms destruction; lab analysis confirms mass percentage and identification of ODS refrigerant
Notes	

Data or Parameter Monitored	Q_{ODS}
Unit of Measurement	MT
Description	The total quantity of ODS refrigerant (including HBR, moisture, etc.) transported to the destruction facility.
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; CEMs data confirms destruction; lab analysis confirms mass percentage and identification of ODS refrigerant
Notes	

E.
QUANTIFICATION

E1. BASELINE

The baseline emissions are approximately 205,837 tCO_2eq: For details, please see the Project Assertion Emissions document ("ACR844_SuplDoc.pdf").

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

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
$ER_{refr,i}$	10-year cumulative emission rate of refrigerant ODS	%
GWP_i	Global warming potential of ODS	MT CO_2e / MT ODS

E2. PROJECT SCENARIO

The project emissions are approximately 13,786 tCO_2eq: For details, please see the Project Assertion Emissions document ("ACR844_SuplDoc.pdf").

Total Project Emissions

$$PE_t = Sub_{refr} + Tr\&Dest$$

Where		Units
PE_T	Total quantity of project emissions during the reporting period	MT CO_2e
Sub_{refr}	Total GHG emissions from substitute refrigerant	MT CO_2e
$Tr\&Dest$	Total GHG emissions from transportation and destruction of ODS	MT CO_2e

Project Emissions from the Use of Non-ODS Refrigerants

$$Sub_{refr} = \sum_i (Q_{ref,i} \times SE_i)$$

Where		Units
Sub_{refr}	Total quantity of refrigerant substitute emissions	MT CO_2e
$Q_{ref,i}$	Total quantity of refrigerant i sent for destruction	MT ODS
SE_i	Emission factor for substitute(s) for refrigerant i, per Table 3	MT CO_2e/ MT ODS destroyed

Project emissions from Transportation and Destruction using the Default Emissions Factors

$$\boldsymbol{Tr\&Dest} = (\boldsymbol{Q_{ODS}} \times \boldsymbol{EF})$$

Where		Units
$\boldsymbol{Tr\&Dest}$	Total GHG emissions from ODS transportation and destruction, as calculated using default emissions factors.	MT CO_2e
$\boldsymbol{Q_{ODS}}$	Total quantity of ODS sent for destruction in project.	MT ODS
$\boldsymbol{EF}$	Default emission factor for transportation and destruction of ODS (7.5)	MT CO_2e/ MT ODS

E3. LEAKAGE

As defined by the ACR Standard V 7.0, leakage is a term that refers to secondary effects where the GHG emissions reductions of a project may be negated by shifts in market activity or shifts in materials, infrastructure, or physical assets associated with the project. Projects involving the destruction of CFC refrigerant would not encourage the increase of CFC production. Therefore, for this Methodology, "leakage" is not applicable.

E4. UNCERTAINTY

Calculating uncertainty is not applicable because the methodology as written does not require statistical sampling, nor is it a requirement within the quantifications.

E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

The emission reductions are 192,051 tCO_2eq. The project emissions are quantified using the below equation indicated in the Methodology, and further details are available in the Project Assertion Emissions document.

$$\boldsymbol{ER_t} = \boldsymbol{BE_t} - \boldsymbol{PE_t}$$

Where		Units
$\boldsymbol{ER_t}$	Total quantity of GHG emission reduction the reporting period	MT CO_2e
$\boldsymbol{BE_t}$	Total quantity of project baseline emissions during the reporting period	MT CO_2e
$\boldsymbol{PE_t}$	Total quantity of project emissions during the reporting period	MT CO_2e

E6. EX-ANTE ESTIMATION METHODS

Ex-ante estimation methods are not applicable to this methodology, as the emissions reductions for the 10-year crediting period are determined in the first reporting period.

F.
COMMUNITY & ENVIRONMENTAL IMPACTS

F1. NET POSITIVE IMPACTS

Tradewater is unaware of any potential negative environmental or socio-economic impacts from this Project. Thailand is part of the 1993 Montreal Protocol and has been engaged in efforts to eliminate substances that affect the ozone layer in recent years. Since there is currently no financial and logistical infrastructure to responsibly manage and destroy ODS in Thailand, the Tradewater project creates a solution to this problem.

The net positive impacts from the project include the reduction of inevitable emissions of stockpiled CFC refrigerants via leaks, testing, and accidental venting, or from container degradation. This destruction will not trigger any additional production due to the complete phase-out of CFCs worldwide. The project further encourages innovation and development of more sustainable refrigeration and cooling technologies, as well as encouraging the entire sector to develop technologies that are more responsible and aligned with climate goals. Finally, the emissions reductions resulting from this project help to achieve climate goals by eliminating additional contributors to climate change and global warming.

SDG statement

Direct positive impact: The Project has direct positive impact to United Nations sustainable development goals (SDG) 9 (Industry innovation and infrastructure), 12 (Responsible Consumption and Production), and 13 (Climate Action).

- **SGD 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*.
  This project works in support of the Montreal Protocol, which promotes sustainable industrialization by upgrading industries through the transfer of clean and environmentally sound technologies that allow for the phase-out of ODS and higher-GHG fuels while increasing resource-use efficiency. Innovation is required to replace the refrigerants with less harmful, yet equally as effective, alternative to meet the needs of cooling, refrigeration, and climate-controlled transport throughout the world.
- **SDG 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.*
  The Project supports the collection and destruction of one of the most powerful greenhouse gases in the world, paving the way to the development and use of safer and more environmentally friendly alternatives.
- **SDG 13.2** *Integrate climate change measures into national policies, strategies, and planning.*
  The phase-out to date of most ODS has not only led to the regeneration of the ozone layer but also to significant reductions in greenhouse gas emissions (GHG), as most ODS are also

powerful GHGs. Tradewater has the objective to prevent the release of ODS gases into the atmosphere. By identifying, collecting, managing, and destroying refrigerant gases in an appropriate manner, Tradewater aims to prevent ozone depletion, negative environmental impacts, and climate change.

Indirect Positive Impact: The Project has indirect positive impact to United Nations sustainable development goals (SDG) 3 (Good health), 14 (Life Below Water), and 15 (Life on land).

- **SDG 3.9** *By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.*
  Ozone layer depletion allows more UV radiation to reach the earth's surface, a contributing factor to melanoma skin cancer. Increases in UV radiation also cause other health concerns, including eye damage (e.g., cataracts), suppression of the immune system and premature skin aging. The destruction of ODS before it leaks contributes to reducing the number of deaths and illnesses from a thinning ozone layer.
- **SDG 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.*
  The destruction of ODS protects the bodies of water and its species as the thinning of the ozone layer increases the UVB radiation, which can have negative in survival rate, early developmental stages, and population numbers in different marine species/
- **SDG 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 Ozone Depleting Substances are potent greenhouse gases, their destruction contributes to climate change mitigation efforts as it avoids these gases to leak to the atmosphere, and as they prevents the thinning of the ozone layer it also protects the terrestrial biosphere and its capacity as carbon sink.

F2. STAKEHOLDER COMMENTS

Stakeholders as defined by the ACR Standard are not applicable to this Methodology.

G.
OWNERSHIP AND TITLE

G1. PROOF OF TITLE

Tradewater LLC is the Project Proponent. Tradewater LLC possesses the title and rights to all refrigerants destroyed under this Project, which is demonstrated by the transfer of ownership documentation, signed Consolidation Report or other similar documentation. As such, the rights and title to all carbon offset credits created by this Project belong to Tradewater LLC. Waste Management Siam LTD (WMS) had original custody of the ODS material, which was acquired from the Thai Customs Department, and then transferred ownership to Tradewater.

G2. CHAIN OF CUSTODY

The offsets have not been bought or sold previously, and the project does not have a forward option contract.

G3. PRIOR APPLICATION

The project has not applied to any other Voluntary Carbon program.

H.
PROJECT TIMELINE

H1. START DATE

The Project start date is April 27, 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	February 20, 2023
Project Term	N/A
Crediting Period	April 27, 2023 to April 26, 2033
Reporting Period	April 27, 2023 to May 30, 2023
Frequency of Monitoring, Reporting, and Verification	Once per reporting period