



Validation and Verification Report

ACR937 Tradewater Thailand 6

February 22, 2024

TÜV SÜD America, Inc. – Ruby Canyon
743 Horizon Ct. Suite 385
Grand Junction, Colorado 81506
(970) 241-9298
www.rubycanyonenv.com

TABLE OF CONTENTS

1	Introduction	3
1.1	Objectives.....	3
1.2	Project Background.....	3
1.3	Responsible Party.....	4
1.4	Validation and Verification Team.....	4
1.5	Validation and Verification Criteria.....	4
1.5.1	Validation and Verification Standards, Guidelines, and Tools.....	4
1.5.2	Level of Assurance	4
1.5.3	Materiality.....	4
2	Validation and Verification Process	4
3	Validation and Verification Findings	5
3.1	Project Boundary and Activities.....	5
3.2	GHG Sources Sinks, and Reservoirs.....	6
3.3	Eligibility.....	6
3.3.1	ACR Eligibility	6
3.3.2	Methodology Eligibility	7
3.4	Additionality.....	7
3.4.1	Regulatory Additionality Test.....	7
3.4.2	Practiced-Based Performance Standard Test	7
3.5	Permanence	7
3.6	Social and Environmental Impacts.....	7
3.7	Local Stakeholder Consultation	8
3.8	Point of Origin Determination	8
3.9	Chain of Custody	9
3.10	ODS Composition and Quantity Analysis	9
3.10.1	Scales.....	9
3.10.2	Composition Sampling	9
3.11	Destruction Facility Requirements.....	10
3.11.1	Monitoring Parameters.....	10
3.11.2	Certificate of Destruction.....	10
3.12	Baseline Scenario	11
3.13	Data Management System and Monitoring Plan.....	11
3.14	Project Data and GHG Emissions Reduction Assertion.....	11
3.14.1	Baseline Emissions	11
3.14.2	Project Emissions	12
3.14.3	Emissions Reductions.....	12
3.15	Deviations	12
4	Validation and Verification Results.....	12
5	Validation and Verification Opinion.....	13
6	Appendix A—Documents Reviewed	14
7	Appendix B—List of Findings.....	15

1 INTRODUCTION

Tradewater LLC (Tradewater) contracted with TÜV SÜD America, Inc. – Ruby Canyon to perform the validation and verification of the ACR937 Tradewater Thailand 6 (Project) for the reporting period of October 4, 2023 through November 15, 2023 and a crediting period of October 4, 2023 to October 3, 2033 under the ACR program. Ruby Canyon Environmental, Inc. (RCE) was acquired by TÜV SÜD America, Inc. (TÜV SÜD) in 2023. RCE will be used throughout this report. This report is documentation of validation and verification activities that RCE performed for the Project located in Samutprakarn, Thailand. For the validation, RCE reviewed the project information as described in the Project Plan “Tradewater – Thailand 6” dated February 13, 2024. For the verification, RCE ensured that the GHG assertion was materially correct, that the data provided to RCE was well documented, and that if Tradewater made any material errors, that these errors were corrected.

1.1 OBJECTIVES

The objectives of the validation are to evaluate:

- Conformance to the ACR Standard and the approved ACR Methodology for The Destruction of Ozone Depleting Substances from International Sources, Version 1.0, April 2021 (Methodology);
- GHG emissions reduction project planning information and documentation in accordance with the applicable ACR-approved Methodology, including the project description, baseline, eligibility criteria, monitoring and reporting procedures, and quality assurance/quality control (QA/QC) procedures;
- Reported GHG baseline, ex ante estimated project emissions and emissions reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

The objectives of the verification are to evaluate:

- The emissions reductions and to ensure that the assertion is materially correct;
- The data provided to RCE can be documented and if errors or omissions are detected, they be corrected.

RCE retains all data and documents for seven years after the end of the project reporting period or for the duration required by the GHG program, whichever is longer.

1.2 PROJECT BACKGROUND

The Project destroys R-12 that was seized by Thailand Customs Department. The R-12 was seized from sources located throughout Thailand. The ODS was then purchased by Waste Management Siam LTD (WMS) and stockpiled in a warehouse until Tradewater purchased the ODS from WMS and began the destruction process. The destroyed ODS ensures that it will no longer be used or stockpiled and ensures that the ODS cannot leak into the atmosphere. Tradewater utilized the Bangpoo Environmental Complex (BPEC), which is operated by WMS as the destruction facility. BPEC-WMS operates a fluidized bed incinerator which destroys ODS between 850 – 1,200 degrees Celsius. This process ensures a 99.99% destruction efficiency.

1.3 RESPONSIBLE PARTY

Project Proponent

Tradewater LLC
1550 West Carroll Avenue, Suite 213
Chicago, IL 60607

Destruction Facility

Bangpoo Environmental Complex – Waste Management Siam Ltd.
965 Moo 2 Soi 3B Bangpoo Industrial Estate, Sukhumvit Rd Bangpoo Mai,
Muang Samutprakarn, Samutprakarn, 10280 Thailand

Tradewater is responsible for the preparation and fair presentation of the GHG statement in accordance with the criteria listed below in Section 1.5.1.

1.4 VALIDATION AND VERIFICATION TEAM

RCE is responsible for expressing an opinion on the GHG statement based on the verification. The RCE verification team consisted of the following individuals who were selected based upon verification experience and knowledge of reporting GHG emissions sources.

Lead Validator and Verifier: Garrett Heidrick
Team Members: Masury Lynch, Jessica Stavole, Issaí Medellín
Internal Reviewer: Zach Eyler

1.5 VALIDATION AND VERIFICATION CRITERIA

1.5.1 Validation and Verification Standards, Guidelines, and Tools

- ACR Standard, Version 8.0 (July 2023)
- ACR Validation and Verification Standard Version 1.1 (May 2018)
- The Destruction of Ozone Depleting Substances from International Sources, Version 1.0 (April 2021) (Methodology)
- Methodology Errata and Clarifications (January 2024)
- ISO 14064-3:2019 “Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas statements”

1.5.2 Level of Assurance

The verification was conducted to a reasonable level of assurance.

1.5.3 Materiality

The verification was conducted to ACR’s required materiality threshold of ±5% of the GHG project’s emissions reductions or removal enhancements.

2 VALIDATION AND VERIFICATION PROCESS

As the first step in validation/verification activities, the Lead Validator/Verifier developed a Validation/Verification Plan to be followed throughout the validation and verification. The plan included the following activities:

- RCE completed a COI form on October 18, 2023 to identify any potential conflict of interest with the Project, Project Proponent, or Project Developer. The COI form was approved by ACR on November 3, 2023.
- RCE and Tradewater held a validation/verification kick-off meeting on November 14, 2023. During the kick-off meeting RCE reviewed the validation/verification objectives and process, reviewed the schedule, and submitted an initial document request.
- RCE performed a strategic review and risk assessment of the received data and support documents to understand the scope and areas of potential risk in the GHG emissions reduction.
- RCE developed a risk-based sampling plan based upon the strategic review and risk assessment. The validation/verification plan and sampling plan were used throughout the process and were revised as needed based upon additional risk assessments.
- RCE conducted a site visit to WMS-BPEC located in Samutprakarn, Thailand on December 7, 2023. During the site visit RCE observed the weighing in, mixing, and destruction processes as well as onsite GHG management systems and data gathering, monitoring, and handling practices. RCE interviewed key personnel involved in the destruction and aggregation processes.
RCE met with the following personnel during the site visit:
 - Panjamas Thaengthonglang – Southeast Asia and Pacific Program Manager, Tradewater
 - Prin Hanthanon – Engineer, WMS
 - Sutthida Fakkum – Senior Compliance and EHS Manager, WMS
- RCE performed a risk-based desktop review of the submitted validation/verification documents. The desktop review included an assessment of the GHG calculation methods and inputs, source data completeness, GHG management and monitoring systems and eligibility documentation.
- RCE submitted requests for corrective actions, non-material findings, additional documentation, and clarifications as necessary to Tradewater throughout the validation/verification.
- RCE's internal reviewer conducted a review of the validation/verification sampling, report, and statement.
- RCE issued a final validation/verification report, verification statement, and List of Findings.
- RCE held an exit meeting with Tradewater.

3 VALIDATION AND VERIFICATION FINDINGS

3.1 PROJECT BOUNDARY AND ACTIVITIES

RCE reviewed the project boundary and activities and confirmed that both were appropriately identified and described in the Project Plan. For the Project, Thailand's Customs Department seized ODS from multiple locations across Thailand. The ODS was stored in warehouses until WMS purchased and consolidated the ODS in one location where it remained stockpiled until Tradewater purchased the ODS from WMS and began the destruction process. The Project destroyed the R-12 at WMS' facility in Samutprakarn, Thailand.

Each individual container that was purchased from Thai Customs was sampled and weighed by WMS staff members. Cylinders were then separated by ODS species. For this Project, only cylinders identified as R-12 were included. The individual cylinders were then downloaded into an ISO tank. Once the ISO tank was full, it was sent to WMS for weigh in, sampling, and destruction (see section 3.15 for weigh-in and weigh-out procedures deviation).

The Project's temporal boundary is the reporting period from October 4, 2023 – November 15, 2023.

3.2 GHG SOURCES SINKS, AND RESERVOIRS

Table 1 shows the GHG emission sources included in the project boundary based on the Methodology. RCE confirmed that the Project Plan appropriately identifies the offset project boundary and includes all relevant SSRs.

Table 1. GHG Emissions Sources

Source	GHG	Description
SSR 5	CO ₂	Fossil fuel emissions from the vehicular transport of ODS from aggregation point to final destruction facility.
SSR 6	CO ₂ e	Emissions of ODS from use, leaks, and servicing through continued operation of equipment. Emissions of substitute from use, leaks, and servicing through continued operation of equipment.
SSR 7	ODS and CO ₂	Emissions of ODS from incomplete destruction at destruction facility. Emissions from the oxidation of carbon contained in destroyed ODS. Fossil fuel emissions from the destruction of ODS at destruction facility. Indirect emissions from the use of grid-delivered electricity.

3.3 ELIGIBILITY

3.3.1 ACR Eligibility

RCE confirmed the following ACR eligibility criteria listed in the ACR Standard, Version 8.0 by reviewing the project proponent’s Project Plan, Monitoring Report, and calculations as well as other supporting documentation described throughout this report (a full list of documents reviewed is in Appendix A).

- Start Date: The project start date is October 4, 2023.
- Crediting Period: The crediting period is ten years as specified by the Methodology, October 4, 2023 – October 3, 2033.
- Minimum Project Term: Projects with no risk of reversal subsequent to crediting have no required minimum project term.
- Offset Title: RCE confirmed that the project proponent has undisputed title to all offsets. The project proponent purchased refrigerant from WMS stockpiles and then destroyed the refrigerant at an eligible facility. All refrigerant transactions are described by Tradewater’s Transfer of Ownership documentation. Tradewater retains all legal claims to the environmental attributes and GHG benefits of its processes and the avoidance of future leaks into the atmosphere.
- Additional: RCE confirmed that the project is additional as described in Section 3.4.
- Permanent: In the absence of the project, the ODS would have been stored in stockpiles. The ODS will eventually leak into the atmosphere from the degradation of the storage vessel. By destroying the refrigerant, Tradewater ensures that there will be no future leaks into the atmosphere. The project will generate emission reductions that are permanent and have no risk of reversal.
- Net of Leakage: The Methodology specifies that leakage does not need to be considered as it is unlikely that any emissions would occur outside the project boundary.
- Independently Validated and Verified: RCE is a third-party validation and verification body that the project proponent has contracted to validate the project.

- Social & Environmental Impacts: RCE reviewed project impacts as described in section 3.6 of this report and in the *Social and Environmental Impact Assessment Report* and *Sustainable Development Goals (SDG) Contributions Report* uploaded to ACR.

3.3.2 Methodology Eligibility

RCE reviewed the Project against the ACR Methodology eligibility requirements and confirmed the following:

- The Project occurs in Thailand.
- The destruction facility is located at 965 Moo 2 Soi 3B Bangpoo Industrial Estate, Sukhumvit Rd Bangpoo Mai, Muang Samutprakarn, Samutprakarn, 10280 Thailand. GPS coordinates 13.537435, 100.655553.
- WMS meets the requirements of the Montreal Protocol TEAP standards with an ODS destruction efficiency of 99.99%.
- The refrigerant meets the definition of eligible refrigerant sources, which must originate from equipment, systems, or other supplies outside of the United States.
- The destroyed ODS are eligible species; CFC-11, CFC-12, CFC-13, CFC-113, CFC-114, or CFC-115.

3.4 ADDITIONALITY

The Project meets the requirements for the demonstration of additionality specified by the ACR Standard by exceeding the approved performance standard defined in the Methodology and demonstrating surplus to regulations.

3.4.1 Regulatory Additionality Test

No existing laws or regulations mandate the Project activity. During 2023, there were no requirements to destroy refrigerants in Thailand. RCE reviewed Thai government and customs' requirements for facilities who manage refrigerants and found no evidence that refrigerants are required to be destroyed. The Project passes the regulatory additionality test.

3.4.2 Practiced-Based Performance Standard Test

Per the Methodology, in the Business as Usual (BAU) scenario, the ODS would be used to recharge equipment and be released to the atmosphere due to equipment leaks or the refrigerant would be stored in containers for possible use. Either way, the refrigerant would eventually leak into the atmosphere. By destroying the gas, Tradewater is going beyond the BAU scenario. The Project passes the performance standard test.

3.5 PERMANENCE

The emissions reductions from the destruction of ODS can be deemed as permanent because they are destroyed to a 99.99% efficiency.

3.6 SOCIAL AND ENVIRONMENTAL IMPACTS

The Project Plan, *SDG Contributions Report*, and *Social and Environmental Impacts Assessment Report* include a comprehensive summary of the Project activity's net positive environmental impacts. Destroying ODS avoids the future leakage of the ODS into the atmosphere. There are no negative community or environmental impacts for the Project. The Project Plan and *SDG Contributions Report* identify contributions as aligned with relevant SDGs including:

Direct Positive Impact to SDG Targets

- SDG 9.4 Industry Innovation and Infrastructure: As ODS refrigerants are either destroyed or utilized, innovation is required to replace the refrigerants with less harmful, yet equally as effective, alternatives to meet the needs of cooling, refrigeration, and climate-controlled transport throughout the world.
- SDG 12.4 Responsible Consumption and Production: 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 Climate Action: 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.

Indirect Positive Impact to SDG Targets

- SDG 3.9 Good Health: 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 Life Below Water: 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 impacts on survival rate, early developmental stages, and population numbers in different marine species.
- SDG 15.1 Life on Land: 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 prevent the thinning of the ozone layer it also protects the terrestrial biosphere and its capacity as carbon sink.

Furthermore, the *Environmental and Social Impact Assessment Report* identifies any positive or negative environmental or social impacts, including positive impacts for:

- Resource Efficiency and Pollution Prevention
 - Pollutant Emissions to Air: By destroying the ODS, the negative impacts to the ozone layer and atmosphere are eliminated.
 - Generation of Waste and Release of Hazardous Materials: ODS are considered a hazardous waste in Thailand. By destroying them, the project guarantees that the hazardous waste is disposed of safely and in accordance with Thai legislation and the Montreal Protocol.

The validation team confirmed that the project activity will not promote significant negative environmental impacts.

3.7 LOCAL STAKEHOLDER CONSULTATION

The Project had a 30-day public comment period where the Project Listing Form and project information were made available. No comments were received.

3.8 POINT OF ORIGIN DETERMINATION

RCE verified that the point of origin was a WMS warehouse located at 884/3 Moo 7 Tambon Bangpoo Mai, Muang Samutprakarn District, Samutprakarn 10280, Thailand.

3.9 CHAIN OF CUSTODY

RCE verified the Chain of Custody (CoC) for the shipment from WMS' warehouse to WMS' destruction facility during the site visit. WMS shipped one ISO container to BPEC-WMS. There was no bill of lading from the WMS warehouse to the WMS destruction facility as the trucks used were permitted under WMS and they were delivering from one WMS site to another.

3.10 ODS COMPOSITION AND QUANTITY ANALYSIS

3.10.1 Scales

RCE confirmed that BPEC-WMS used calibrated scales to measure the weight of the ISO containers. The destruction facility measures the incoming weight of the ISO tank and the attached semi-truck. The ISO container is then detached and the semi-truck is weighed separately to obtain the semi-truck's tare weight. The gross weight (ISO plus semi-truck) is then subtracted from the semi-truck's weight to determine the net weight of the ISO container. This same procedure is conducted for the weigh out requirements. This procedure does not meet the requirements of the Methodology and is further discussed in Section 3.15 Deviations.

RCE verified that all scales were calibrated quarterly according to the Methodology requirements.

3.10.2 Composition Sampling

RCE confirmed the procedures for the sampling of the non-mixed ODS for the destruction event met the requirements of the Methodology by reviewing the documentation provided by Tradewater. A third party, WMS, was used for all sampling.

RCE also confirmed that the Bureau Veritas laboratory used for composition and concentration analysis is a certified ISO IEC 17025 laboratory.

For sampling, RCE confirmed the following:

- The samples must be taken while ODS is in the possession of the company that will destroy the ODS
 - RCE confirmed that the samples were taken at the WMS facility.
- Samples must be taken by a technician unaffiliated with the project proponent
 - RCE confirmed that the samples were taken by Ampol Ruttanasang WMS.
- Samples must be taken with a clean, fully evacuated sample bottle that meets applicable U.S. Department of Transportation requirements with a minimum capacity of one pound
 - RCE confirmed through the ODS SOPs provided by WMS.
- Each sample must be taken in liquid state
 - RCE confirmed through the ODS SOPs provided by WMS.
- A minimum sample size of one pound must be drawn for each sample
 - RCE confirmed through the ODS Sampling Certificate signed by Ampol Ruttanasang of WMS.
- Each sample must be individually labeled and tracked according to the container from which it was taken, and the following information recorded: time and date of sample, name of project proponent, name of technician taking sample, employer of technician taking sample, volume of container from which sample was extracted, and the ambient air temperature at time of sampling
 - RCE confirmed through the ODS Sampling Certificate signed by Ampol Ruttanasang of WMS.

- Chain of custody for each sample from the point of sampling to the laboratory must be documented by paper bills of lading or electronic, third-party tracking that includes proof of delivery
 - RCE confirmed through the Chain of Custody form.

Refrigerant Analysis Reports

RCE reviewed the Refrigerant Analysis Reports provided by Bureau Veritas for the destruction event. RCE confirmed that the analysis demonstrates that the ODS met all the requirements as outlined in Appendix C of the Methodology. The analysis provided:

- Identification of the refrigerant
- Purity of the ODS mixture by weight
- Moisture level in mg/kg, which is functionally equivalent to parts per million, demonstrating a moisture content of less than 75 percent of the saturation point of the ODS species with the lowest saturation point that is at least 10 percent of the mixture by mass
- Analysis of high boiling residue (HBR) indicating less than 10 percent by mass
- Analysis of other ODS

3.11 DESTRUCTION FACILITY REQUIREMENTS

RCE confirmed that the WMS destruction facility meets the TEAP requirements in the Methodology. RCE reviewed the most recent CFC DRE test from February 2020, which was approved by the Industrial Estate Authority of Thailand. The Destruction Removal Efficiency (DRE) of the system using CFCs as the testing material showed a 99.99% removal efficiency.

3.11.1 Monitoring Parameters

WMS provided an excel file download of the real-time monitoring parameters data for the reporting period as defined in Section 6.1 of the Methodology. The lead verifier also reviewed the data with WMS personnel during the site visit. The CEMS parameters are monitored continuously, recorded every 30 minutes, and downloaded to excel on an as-needed basis. The following information was tracked during the destruction event:

- Date and time
- ODS feed rate (lbs/hr)
- Fluidized bed incinerator temperature (°C)
- Fluidized bed incinerator pressure (bar)
- Total hydrocarbons in stack (ppm)
- CO flow rate (ppm)

The pH level is not required to be tracked in the CEMS data according to their permits and is not applicable to the Methodology requirements.

RCE confirmed that the fluidized bed incinerator unit operated within the parameters recorded during DRE testing or the parameters specified within their hazardous waste permit, and if the fluidized bed incinerator unit fell outside of these parameters, that the proper Startups, Shutdowns, or Malfunctions Plans (SSMPs) were used. There were multiple instances where the fluidized bed incinerator unit shut down for maintenance needs, however, there were no shutdowns that were related to permit exceedances. Each instance was noted in the CEMS data.

3.11.2 Certificate of Destruction

RCE confirmed that the Certificates of Destruction contained Methodology required parameters.

- Project Proponent or Project Developer
- Destruction facility
- Certificate of Destruction ID number
- Serial, tracking, or ID number of all containers for which ODS destruction occurred
- Weight and type of material destroyed from each container
- Destruction Start Date
- Destruction End Date

3.12 BASELINE SCENARIO

The baseline determines the emissions that would occur in the absence of the project. The project activity is the destruction of ODS to avoid future leakage into the atmosphere. GHG emissions are avoided because in the baseline scenario, the ODS would have been stored in collection tanks causing CO₂e emissions to be released. Instead, the ODS are purchased from stockpiles, aggregated, and destroyed, thus avoiding those emissions. The Methodology establishes the baseline scenario as the continued use or storage for future use of ODS. RCE confirmed that the Project Plan appropriately identifies the baseline scenario.

3.13 DATA MANAGEMENT SYSTEM AND MONITORING PLAN

RCE reviewed WMS and Tradewater’s processes for data collection and management and determined that they were sufficient to meet all ACR and Methodology requirements. The validation/verification team gained an understanding of the controls put in place to account for the ODS received, mixing and sampling, and destruction through interviews with key personnel, the site visit, and the review of all documentation provided by Tradewater. WMS monitors the amount of ODS that are purchased, bulked for destruction, and sampled. WMS also monitors the weight of ODS sent for destruction and the destruction process. WMS’ scales are calibrated quarterly. This activity is completed by Super Scales & Systems Co., Ltd. The ODS sent for destruction are analyzed by Bureau Veritas.

Tradewater’s Project Plan includes a Monitoring Plan that identifies all monitored data and parameters. RCE confirmed that the monitoring parameters and approaches conform to the methods required by the Methodology. The plan includes all relevant data parameters and appropriately identifies units of measurements, data sources, methodologies, uncertainty, monitoring frequency and procedures, and QA/QC procedures. After discussions with Tradewater and reviews of project documents, RCE determined that the Monitoring Plan accurately reflects how Project data is monitored and recorded. There is one deviation relevant to the Project activity against the requirements of the Methodology (see Section 3.15 Deviations). Tradewater implemented the monitoring plan as stated in the Project Plan during Project activities.

3.14 PROJECT DATA AND GHG EMISSIONS REDUCTION ASSERTION

RCE reviewed the Project Plan, Project data, and calculations to ensure that appropriate equations were used in calculating baseline emissions, project emissions, and emissions reductions.

3.14.1 Baseline Emissions

Baseline emissions include the emissions that would have occurred had the ODS been stored and leaked. RCE used the total amount of ODS destroyed as found on the COD provided by WMS and then removed the amount of high boiling residue (HBR) and moisture determined by the lab analysis provided by Bureau Veritas. The remaining weight was multiplied by the percent composition of eligible refrigerants in the material destroyed.

The weight of eligible materials was then converted from pounds to metric tons to calculate Q_{refr_i} for each eligible refrigerant. Q_{refr_i} was then multiplied by the appropriate 10-year cumulative emission rate and GWPs for each refrigerant to determine $BE_{refr,i}$. Due to rounding, some values might not equate to the final values claimed by Tradewater.

3.14.2 Project Emissions

RCE calculated project emissions for the destruction event. RCE calculated the project emissions from substitute refrigerants by multiplying the quantities of eligible ODS by the appropriate refrigerant substitute emission factors. RCE calculated the project emissions from transportation and destruction by multiplying the total weight of all ODS destroyed in the COD by the appropriate default emission factor. RCE then added these values together to determine total project emissions. Due to rounding, some values might not equate to the final values claimed by Tradewater.

3.14.3 Emissions Reductions

RCE verified that Tradewater calculated emissions reductions according to relevant Methodology equations and that the methods are included in the Project Plan.

RCE calculated emissions reductions for the reporting period according to the equations defined in the Methodology and the Project Plan and found the assertion to be free of material misstatement. RCE's calculated ERTs are shown in Table 2.

Table 2. RCE-calculated ERTs

Reporting Period	RCE ERTs (MTCO ₂ e)	Tradewater ERTs (MTCO ₂ e)
October 4, 2023 – November 15, 2023	157,691	157,691

3.15 DEVIATIONS

The Project applied for one deviation related to weighing requirements in Appendix B. WMS diverges from the methodology during the weigh in and weigh out requirements. During the weigh in, WMS weighs the full ISO container with the transportation vehicle to obtain a gross weight, detaches the full ISO container from the transportation vehicle, weighs the transportation vehicle to obtain a tare weight, and subtracts the gross weight minus the tare weight to calculate the net full ISO weight.

During the weigh out, WMS weighs the transportation vehicle to obtain the tare weight, attaches the empty ISO container, weighs the transportation vehicle and the empty ISO container to obtain the gross weight, and subtracts the gross weight minus the tare weight to calculate the net empty ISO weight.

Finally, the net full weight and the net empty weight are subtracted to obtain the weight of ODS destroyed.

ACR accepted this deviation on 12/5/2023.

4 VALIDATION AND VERIFICATION RESULTS

RCE developed one List of Findings for the validation and verification, notifying Tradewater of corrective action requests (CARs), additional documentation requests (ADRs), and clarification requests (CRs). Tradewater appropriately responded to all items in the List of Findings. The List of Findings is provided as Appendix B.

5 VALIDATION AND VERIFICATION OPINION

RCE conducted a risk-based validation and verification of the Tradewater Thailand 6 project that included a strategic review of the project data, documentation, and emissions reduction calculations. The objective of the validation activities was to assess the project design, baseline scenario, and monitoring plan and to ensure compliance of the Project Plan to the assessment criteria defined in Section 1.5.1. The objective of this verification was to ensure that the GHG statement is materially correct and conforms to all relevant criteria. The GHG statement is the responsibility of Tradewater. A summary of the GHG statement is as follows:

- GHG-related activity: Ozone depleting substances destruction in Samutprakarn, Thailand
- GHG statement: October 4, 2023 – November 15, 2023
- Criteria:
 - ACR Standard, Version 8.0 (July 2023)
 - ACR Validation and Verification Standard Version 1.1 (May 2018)
 - The Destruction of Ozone Depleting Substances from International Sources, Version 1.0 (April 2021) (Methodology)
 - Methodology Errata and Clarifications (January 2024)

The data and information supporting the GHG statement were historical in nature.

Based upon RCE’s review, the GHG statement does not meet all requirements of the criteria including Methodology requirements for containers weighed with the transportation vehicle (Appendix B I.B.iii). The missed requirements are allowable via deviations from ACR.

RCE has ensured Tradewater Thailand 6’s effective use of controls related to the GHG statement. RCE concludes that there is sufficient and appropriate evidence to support Tradewater Thailand 6’s GHG statement and is issuing a Modified Opinion.

RCE confirms that the GHG statement has been prepared:

- Without material discrepancy,
- In accordance with all applicable criteria, except for those listed above, and
- Verified to a reasonable level of assurance.

Table 3 provides a summary of the emissions reductions.

Table 3. Emissions Reductions

Vintage	Baseline Emissions (MTCO ₂ e)	Project Emissions (MTCO ₂ e)	Emissions Reductions (MTCO ₂ e)
2023	172,205	14,514	157,691

Note: Totals may not sum due to rounding

Lead Validator and Verifier

Garrett Heidrick

Internal Reviewer

Zach Eyles

6 APPENDIX A—DOCUMENTS REVIEWED

1. Chain of Custody documentation
2. CEMS data report
3. Environmental reports for WMS
4. Compliance documents and/or statements for Thai facilities
5. GHG assertion spreadsheet
6. All relevant permits
7. Weight tickets
8. Refrigerant analysis
9. SOPs
10. Scale calibrations
11. BPEC-WMS DRE testing
12. Tradewater regulatory compliance attestation
13. Tradewater Project Plan
14. Tradewater Monitoring Report
15. Tradewater Listing Form
16. Certificate of Destruction
17. Destruction process overview
18. All applicable hazardous waste permits
19. SSMPs
20. Ownership of environmental benefits
21. Deviation request
22. Training documents
23. Truck permits
24. Bureau Veritas ISO accreditation
25. Customs Law
26. Discussion minutes between WMS, Department of Industrial Works, and Thai Customs

7 APPENDIX B—LIST OF FINDINGS

Includes Corrective Action Requests (CAR), Additional Documentation Requests (ADR), and Clarification Requests (CR)

#	Finding and Date	Section of Methodology or Program Document	Project Developer Response and Date	RCE response and Date	Additional Project Developer Response and Date	Additional RCE Response and Date	Open or Closed
Corrective Action Request (CAR), Non-Material Finding (NMF), Additional Documentation Request (ADR), or Clarification Request (CR) #							
CAR 1	<p>11/27/2023: Please correct the following in the Project Plan:</p> <p>1) Add more description to the "Description of Project Technologies, Products, Services, and Expected Level of Activity" in section A4. There is no information regarding the destruction process or what is used to destroy the ODS.</p> <p>2) Section A5 is referencing the incorrect version of the ACR standard.</p> <p>3) Update the start date and crediting period in Table 1, Section B3, and Section H of the project plan.</p> <p>4) Update Section E with calculated values.</p> <p>5) CoD states that 10/4/2023 was the start date, please update all beginning dates to match CoD.</p>	Project Plan Instructions	Corrected in document found in path Validation\GHG plan	<p>12/20/2023:</p> <p>1) Updated. Now references destruction device.</p> <p>2) Updated.</p> <p>3) Table 1 not updated. All other areas updated.</p> <p>4) Section E7: Typo in Ers. All other areas updated.</p> <p>5) Updated.</p> <p>6) Please update the date of the document to it's most recent revision date. Title page states October 4, 2023 as the most recent date.</p>	Corrected in document found in path Validation\GHG plan	1/15/2023: All updated.	Closed
CAR 2	<p>11/28/2023: According to Section 6.2, the scales are required to be calibrated quarterly. In the Project Plan it is stated that they are calibrated every two years. Please submit a deviation request for missing the requirements of Section 6.2. And please provide evidence that the scales are required to be calibrated every two years.</p>	Methodology 6.2	Scales are also calibrated every quarter by a private company. Calibration report can be found in route Verification\Compliance\WMS Documentation\Scale Calibration	<p>12/20/2023: Only 1 scale calibration was provided. Please provide additional scale calibrations that show quarterly calibrations are taking place.</p>	12/22/2023: scale calibrations for 2023 Qs have been provided in path Verification\Compliance\WMS Documentation\Scale Calibration	1/15/2024: Provided.	Closed

CAR 3	11/30/2023: Tradewater is using the incorrect GWP's for ODS according to Table 3 in the Methodology. Methodology states that CFC-12 is 10,900. This causes a 6% difference in emission reductions.	Methodology Appendix A	As per errata shared previously, ACR has indicated that projects should use GWP values corresponding to AR5	12/20/2023: Updated according to E&C. 0% difference in ERs.			Closed
CAR 4	11/30/2023: Please provide an attestations for the following: 1) That the project and ODS meet the requirements of Section 2.2.1 of the Methodology. 2) That the ODS was not required to be destroyed by the Thai government.	Methodology 2.2.1 and Methodology 6.1.IV	1) All cylinders where seized in packaging that indicated there were unused ODS destined to refrigeration. Photos has been provided in path Validation\References\Photos 2) The attestation that the ODS wasnot required to be destroyed by the Thai government can be found in the document <i>Guidelines for the destruction of refrigerants under the supervision of Customs Department - Eng.pdf</i> in the path Validation\References	12/20/2023: Closed.			Closed
CAR 5	11/30/2023: Section 6.1.III.B, requires that the mass of ODS be tracked at each transaction. The transfer of ownership forms only contain the refrigerant and number of cylinders exchanged. Please provide evidence of the mass. Was <i>all</i> of the ODS purchased from Thai customs at once? Because the "Handling over the refrigerants seized under the Customs Department - English.pdf" states the total weight of ODS of all cylinders.	Methodology Section 6.1.III.B	The mass of the cylinders was tracked in the consolidation report, with the following note signed by WMS: " <i>Data in this consolidation report conveys the material transferred from WMS to Tradewater LLC for the purposes of Project 6</i> ". Signed consolidation report can be found in the path Verification\Chain of Custody\Transfer of Ownership	12/20/2023: Closed.			Closed
CAR 6	11/30/2023: The fuel of the truck must be recorded in increments of 1/8 of the fuel tank capacity. Fuel is given in percentages. Please submit a deviation for missing this requirement.	Methodology Appendix B 1.B.iii.e	The calculated level of fuel that complies with the requirement can be found in the Assertion Spreadsheet in the path Verification\Quantification	12/20/2023: This does not meet the requirements of the Methodology. The fuel must be tracked in increments of 1/8 of the fuel tank capacity, not in percentages. Please contact ACR regarding this requirement.	Addressed in email	1/15/2024: Deviation supersedes requirement.	Closed

CAR 7	11/30/2023: Moisture saturation is measured in mg/kg not ppm. Please provide a conversion from mg/kg to ppm. Also, please provide the moisture saturation of R-12 at 30 degrees C.	Methodology Appendix B 1.D.iii	Moisture saturation in ppm can be found in the Assertion Spreadsheet in the path Verification\Quantification .	12/20/2023: So is mg/kg the same as ppm? The moisture saturation from the sampling document shows 4 mg/kg and the calculator shows 4 ppm. The assertion spreadsheet is not evidence of meeting Methodology requirements for sampling. Please provide evidence that mg/kg and ppm are functionally equivalent or provide the conversion from mg/kg to ppm. Please provide the moisture saturation of R-12 at 30 degrees C. This must be provided to meet Appendix B 1.D.iii requirements.	Parts per million (ppm) is mathematically equivalent to mg/kg, which is shown by the following dimensional analysis: mg/kg = 1 mg / 1 kg = 1 mg / 1000000 mg = 1/1000000 = ppm Moisture saturation chart in Verification\Destruction\Sampling	1/15/2024: Closed.	Closed
ADR 1	11/28/2023: Please provide the documentation that shows the facility meets, or exceeds, TEAP requirements. I think this was provided in the "Stack Testing" folder, but I am unsure. Also, the DRE 6th Report is in Thai, can this be converted to English?	Methodology 2.1 I.B	The documents found in the patch Verification\Compliance\WMS Compliance Documentation\Stack testing show that the facility meets or exceeds TEAP requirements. The document in Thai has comments in english pointing to the specific parameters for TEAP compliance. Please confirm if this is enough or a full translation is necessary.	12/7/2023: Reviewed on site. DRE 6th report shows a DRE of 99.99%.			Closed
ADR 2	11/28/2023: Can Tradewater provide Thailand's definition of a "national item?"	Methodology 3.7	Customs Law defines National items or State items as: Goods seized by the court according to Customs Law	12/7/2023: From site visit: National item of Thailand means that it is the government's responsibility to handle the "item" in the best possible manner. For ODS, the best practice available was storage.			Closed
ADR 3	11/28/2023: Please provide the Customs Law/Act.	Methodology 3.7	Document can be found in path Validation\References	12/20/2023: Provided.			Closed
ADR 4	11/30/2023: Please proof of WMS/BPEC qualifications to handle the refrigerant. Does Thailand provide refrigerant handling certificates?	Methodology 3.7	Thailand does not provide refrigerant handling certificates. The technicians handling the material were trained by TW staff, which are EPA certified.	12/7/2023: From site visit: WMS/BPEC employees can handle ODS under the facilities hazardous waste permit.			Closed

ADR 5	11/30/2023: Can Tradewater provide evidence of regulatory compliance? Is there a way to check if any violations were given to WMS/BPEC during the destruction event?	Methodology 3.7	No audits were performed during the Reporting Period as no outstanding issues were identified. This was address at the site visit	12/7/2023: At the site visit they stated that the facility receives environmental impact assessments twice a year. Can these be provided?	Provided in folder Verification\Compliance\WMS Compliance Documentation\Environmental reports.	1/15/2024: Provided.	Closed
ADR 6	11/30/2023: Where was the ODS stored prior to WMS purchasing it? Thai Customs was holding onto the refrigerant since 2007, please provide the address for where the ODS was being held prior to it being moved to 884/3 Moo 7 Tambon Bangpoo Mai, Muang Samutprakarn District, Samutprakarn 10280, Thailand.	Methodology 6.1 III.A	The materias was stored in different Customs locations around Thailand. These addresses where not provide as the WMS warehouse is considered the Point of Origin of the project.	12/20/2023: This might need a deviation request. Please reach out to ACR to see what they say as the Methodology requires addresses from all locations purchased from. Since all the material was purchased from the Thai government, I am not sure if Thailand's Customs Office could be used as the original point of origin. Please ask ACR for their determination.	Addressed in email	1/15/2024: WMS was the onwer prior to Tradewater. So the address for the ODS is WMS.	Closed
ADR 7	11/30/2023: Please provide the transportation company's certification to transport hazardous material.	Methodology 3.7	Permits can be found in path Verification\Compliance\WMS Compliance Documentation\Trucks permits	12/20/2023: Provided. Will ask Pan to review with me due to permits being in Thai.			Closed
CR 1	11/28/2023: Why aren't Proof of Title and Chain of Custody included as appendices in the Project Plan? Aren't these required to be included?	Project Plan Instructions	Both proof of title and chain of custody are provided under separate cover which allows to not submit them to the public platform	12/20/2023: Closed.			Closed
CR 2	11/28/2023: How do you know what the refrigerant came from? How do you know that it wasn't used as a solvent? The "Handling over the refrigerants seized under the Customs Department - English.pdf" states that 10,080 tanks were seized but doesn't note their origin.	N/A	All cylinders where seized in packaging that indicated there were unused ODS destined to refrigeration. Photos has been provided in path Validation\References\Photos	12/20/2023: Closed.			Closed
CR 3	11/30/2023: Does the fluidized bed incinerator discharge water?	Methodology 6.1 VI.C	The fluizeded bed incinerator does not discahrge water	12/7/2023: At the site visit, they stated that the incinerator discharges water, but it is reused in their system or sent to a waste water treatment facility. None of the water is discharged underground or into nearby water ways. They are also not required to monitor water or its pH.			Closed

CR 4	11/30/2023: There were multiple shutdowns that occurred during the destruction. Can WMS provide what caused the shutdowns and how they manage these shutdowns?		Shutdown are labeled by the destruction facility as technical or maintenance shutdowns. A SOP with the facility's shutdown process can be found in the path Verification\Compliance\WMS Compliance Documentation	12/7/2023: During the site visit they stated these are for maintenance or to remove fly ash.			Closed
CR 5	11/30/2023: Please provide the operational limits for the destruction device. For example, what does their CO need to remain under? Or what does the temperature have to be?	Methodology 6.1 VI	Document found in path Verification\Compliance\WMS Compliance Documentation\ACR937_AirEmissionLimitation_2023-12-19.pdf Limit for flow rate is in pg. 5 and emissions limits are in pg. 11	12/7/2023: Reviewed on site visit.			Closed
CR 6	11/30/2023: Please confirm that the driver and all passengers are not in the vehicle when the truck's mass is weighed, and please confirm that all accessories (spare tires/chains) are included for the pre and post destruction weights.	Methodology Appendix B I.B.iii.a-b	An SOP with the weighing procedure can be found in the path Verification\Compliance\WMS Compliance Documentation\Training , where is stated that the driver and all passengers are not in the vehicle when the truck's mass is weighed, and please confirm that all accessories (spare tires/chains) are included for the pre and post destruction weights. A Tradewater representative is also present in the weighing events to ensure that said is followed as needed.	12/20/2023: SOPs provided with detail on how the truck and ISO should be weighed.			Closed
CR 7	11/30/2023: The refrigerant analysis states that there was <0.1% of R-11. Is Tradewater not including R-11 since the percentage was not exact?	N/A	As the analysis results does not identify an specific amount of R-11, Tradewater takes the more conservative approach and takes the value as 0.	12/20/2023: Closed.			Closed