



Verification Report for

EOS Climate, Inc.
San Francisco, CA USA
EOS-JA-09-01, Fourth Reporting Period

Climate Action Reserve

U.S. Ozone Depleting Substances
Project Protocol, Version 1.0

28 September 2010

Report Prepared for

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Report Prepared by

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Summary

EOS Climate engaged NSF International Strategic Registrations (NSF-ISR) to verify its destruction of ozone depleting substances from a project defined in accordance with the requirements of the Climate Action Reserve U.S. Ozone Depleting Substances Project Protocol, Version 1.0. In this fourth reporting period, EOS Climate destroyed a batch of mixed refrigerants sourced from stockpiles held by a refrigerant reclaiming facility located in Champaign, IL. The refrigerants were destroyed at the Clean Harbors Environmental Services's hazardous waste incinerator in El Dorado, AR. The destruction facility is a permitted U.S. EPA hazardous waste combustor (HWC) described by the NAICS code 562211.

The project reporting period consisted of one destruction event conducted that began on 2010-08-20 and was completed on 2010-08-26. The event destroyed 23,800 pounds of refrigerant comprised mostly of R-114 and R-11 that was entirely sourced within the United States of America. The project reduced future emissions into the atmosphere of 61,775 metric tons of CO₂-e.

1. Introduction

1.1 Objective

The objective of this verification audit was to determine, with reasonable assurance, that EOS Climate had quantified, monitored, and fairly reported to the Climate Action Reserve its emission reductions from the destruction of U.S.-sourced mixed refrigerants (R-114, R-11, R-12, R-115) and to confirm the project's ongoing eligibility.

1.2 Scope

The scope of the engagement included verification of the quantification, monitoring and reporting of greenhouse gas emission reductions from the project. It also included verification of the project's ongoing eligibility and the calculation of project emissions associated with substitute emissions from replacement refrigerants over a ten-year period and transportation and destruction-related emissions incurred by the project.

1.3 Criteria

NSF-ISR verified the reported project emission reductions against criteria in the Climate Action Reserve U.S. Ozone Depleting Project Protocol, Version 1.0, including the Errata and Clarifications issued by the Climate Action Reserve on 2010-05-07. The project also was verified against applicable requirements of the Climate Action Reserve's Program Manual (March 16, 2010). The verification methodology conformed to requirements in Climate Action Reserve Project Verification Manual (June 17, 2009), and ISO 14064:2006 Part 3, *Greenhouse gases – Specification with guidance for the validation and verification of greenhouse gas assertions*.

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1.4 Materiality

In accordance with the Climate Action Reserve Project Verification Manual, emission reduction reports were considered fairly stated if they varied by no more than 5% from a complete statement of the project's emission reductions. Thresholds of materiality defined by the Project Verification Manual allowed verifiers of emission reduction reports to consider as immaterial discrepancies of 5% or less.

1.5 Level of Assurance

This engagement was performed at the reasonable level of assurance.

2. Verification Approach

2.1 Team Appointment and COI Review

This verification was performed by John Shideler, NSF-ISR Lead Verifier, and reviewed by Simone Robson, NSF-ISR Senior Internal Reviewer. Conflict of Interest inquiries were completed for NSF-ISR and for the verification team and a finding of low COI risk was confirmed by the Climate Action Reserve.

2.2 Document Review

The verification team conducted a document review to inform the planning process in advance of performing verification activities. Documents and records reviewed included were provided by EOS Climate, by Hudson Technologies, and by Clean Harbors Environmental Service's destruction facility.

2.3 Planning

NSF's verification approach is risk-based. It draws upon our understanding of risks to fair statement of reported emissions and the operation of controls to reduce such risks. As a result of the document review and correspondence with project management personnel at EOS Climate and a representative of the Clean Harbors destruction facility, a verification plan and a sampling plan were developed for this engagement.

2.4 Verification Activities

As this is the fourth reporting period in project EOS-JA-09-01, and NSF-ISR has once visited in previous reporting periods Hudson Technologies' reclamation facility in Champaign, IL, and three times visited the Clean Harbors destruction facility in El Dorado, AR, NSF-ISR determined that no site visits for this reporting period were necessary. Consequently, this report is based upon the examination of documented evidence and in some cases confirming interviews with persons having responsibility for various aspects of the project. Verification activities included:

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- Confirmation of the project start date, eligibility, ownership of ODS, and quantification of project emission reductions;
- Verification of the controls on the custody and traceability of the ODS from shipment at Hudson Technologies facility to receiving and destruction at Clean Harbors.
- Review, on a sampling basis, of compliance to relevant environmental regulatory requirements at the Clean Harbors destruction facility. The primary focus of inquiry with personnel at the destruction facility was compliance with Resource Conservation and Recovery Act (RCRA) regulations for Hazardous Waste Combustors and compliance with Clean Air Act requirements. Additional inquiries concerned compliance with Department of Transportation requirements associated with the shipment of hazardous material.
- Review of one Certificate of Destruction issued by the Clean Harbors destruction facility in El Dorado, AR;
- Review of recent scale certification records;
- Verification that Clean Harbors' monitoring program and data management system addressed and recorded Protocol and Title V Operating Permit required monitoring parameters continuously during the period of destruction; and
- Verification that operating conditions during the entire destruction event at the Clean Harbors facility complied with performance standards established in the facility's Title V Operating Permit.

We relied on work conducted by NSF-ISR during earlier reporting periods of the same EOS project for evidence to demonstrate the adequacy of the following:

- The control environment, information management systems and monitoring plans of EOS Climate, Hudson Technologies, and Clean Harbors Environmental Services;
- The controls on the sourcing and traceability of ODS at the reclamation facility operated by Hudson Technologies;
- The controls to assure compliance with relevant environmental regulatory requirements at the reclamation facility operated by Hudson Technologies; and
- The records management system implemented at EOS Climate for acquisition and retention of all Protocol required information.

3. Verification Findings

3.1 Project Description

This verification report covers the fourth reporting period of EOS Climate's ozone depleting substances project. In this reporting period EOS Climate acquired from stockpiles maintained by Hudson Technologies mixed refrigerants (R-114, R11, R-12, R115) which was shipped in one ISO container from Champaign, IL, to the Clean Harbors Environmental Services destruction facility in El Dorado, AR. At El Dorado the refrigerant was incinerated at high temperatures to achieve the required minimum destruction and removal efficiency of 99.99 percent.

3.2 Eligibility and Title

Project Definition. EOS Climate planned its ODS destruction project to include multiple destruction events of eligible ODS at a single destruction facility located in the United States spanning a period of time not to exceed 12 months. The start date of the project, defined by the project protocol as the date on which destruction activities commence, was 2 March 2010 for the first reporting period. EOS Climate's Project 604 "EOS-JA-09-01" was submitted for listing on 19 February 2010, which was prior to the project start date. The fourth reporting period of this project included one destruction event in which eligible ODS (CFC-114, CFC-11, CFC-12, and CFC-115) were destroyed at a single qualifying destruction facility. Destruction of the ODS occurred over seven days from August 20, 2010 through August 26, 2010. One Certificate of Destruction was issued by Clean Harbors Environmental Services (Certificate ID: 1221572-8-26-10).

Project Developer and Ownership. EOS Climate, Inc., of San Francisco, CA, is the project developer. For this reporting period EOS Climate attested to their ownership of the emission reductions through a signed Attestation of Title which NSF-ISR reviewed. The Attestation of Title appeared free from defect. NSF-ISR also relied on its earlier review during this project (April 2010) of an executed agreement between EOS Climate and Hudson Technologies, the reclaiming facility and stockpile location, to confirm that title to the ODS transferred to EOS Climate upon shipment of the refrigerant to Clean Harbors. From this evidence NSF-ISR concludes that EOS Climate is the legal owner of the ODS destroyed during this reporting period.

Qualifying Destruction Facility. The ODS in this fourth reporting period was destroyed at a RCRA-permitted HWC, Clean Harbors Environmental Services, in El Dorado, AR. RCRA-permitted HWCs are considered to meet the project protocol's requirements by default.

Single Application of Certificates of Destruction. The Attestation of Title obligated EOS Climate to report emission reductions from the fourth reporting period that is the subject of this verification report to the Climate Action Reserve and to no other registry, and not to sell or transfer the project reductions other than by permitted transfers under the terms of its agreement with the Climate Action Reserve. During the first reporting period NSF-ISR interviewed the president and chief financial officer of EOS Climate and believes on the basis of their statements

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that EOS Climate will not seek to report their ODS emission reductions for this reporting period to any other registry.

3.3 Additionality

Performance Standard Test. EOS Climate met the Performance Standard Test because it destroyed ODS that did not originate with U.S. federal government installations or stockpiles, and it utilized for destruction a RCRA-permitted HWC, Clean Harbors Environmental Services of El Dorado, AR. NSF-ISR verified that the ODS destroyed in this project was privately managed by reviewing data and attestations that demonstrated that the source of the refrigerants was Hudson Technologies stockpiles. NSF-ISR verified from records that the ODS was destroyed at the Clean Harbors permitted facility in El Dorado, AR.

Legal Requirement Test. NSF-ISR reviewed the Attestation of Voluntary Implementation submitted by EOS Climate for this fourth reporting period. In addition, NSF-ISR reviewed internal records generated by EOS Climate as part of its project monitoring to determine, on a periodic basis, whether applicable international, federal, state or local regulations had recently been modified to require ODS destruction. EOS Climate found no such modified regulations on websites maintained by the Montreal Protocol, the US Environmental Protection Agency, the California Air Resources Board, or the Illinois Environmental Protection Agency. From this evidence NSF-ISR concluded that no changes had occurred in applicable law that would require ODS destruction.

Regulatory Compliance. NSF-ISR reviewed the Attestation of Regulatory Compliance completed by EOS Climate. In addition, NSF-ISR obtained, via written correspondence, current information from personnel with knowledge of the regulatory compliance status of the Clean Harbors destruction facility. This information supported the conclusion that the Clean Harbors HWC facility remained in material compliance with applicable environmental and safety laws and regulations during the destruction period. NSF-ISR also examined operating parameters and reviewed performance during the destruction event against the permit performance requirements. NSF-ISR reviewed documentation related to the transportation of ODS from Hudson Technologies to Clean Harbors, and found no deficiencies to the requirements of the U.S. Department of Transportation. With respect to the hazardous waste combustion facility operated by Clean Harbors, NSF-ISR re-verified that its Title V, RCRA and NPDES permits were current, that monitoring required by the Title V permit and Section 6.7 of the Protocol was conducted for the entire period of the destruction event and that performance remained within prescribed limits, and that there were no outstanding NOV's from regulatory agencies for environmental or safety deficiencies. In previous reporting periods in this project NSF-ISR verified that the facility has performed the required Combustion Performance Test (CPT) demonstrating a DRE in excess of 99.99% with a material less combustible than the destroyed ODS. With respect to the Hudson Technologies reclaiming facility, NSF-ISR has previously verified procedures that assure refrigerant handling according to the requirements of 40 CFR 82 Subpart F.

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3.4 Project Boundaries and Emission Sources

Sources, Sinks and Reservoirs. NSF-ISR has verified that for this project reporting period, the relevant sources, sinks and reservoirs (SSRs) were SSR 2, SSR 4, SSR 5, SSR 6, and SSR 7, as these sources, sinks and reservoirs are defined in the US ODS Project Protocol.

3.5 Performance Against Project Protocol/Methodology

Monitoring and Operations Plan. In accordance with protocol requirements, EOS Climate had established a monitoring and operations plan entitled “EOS Climate ODS Destruction Monitoring and Operations Plan for Project EOS-JA-09-01.” This document, which was reviewed at version 8/30/10, Revision 15, addressed monitoring, operations and reporting and described how relevant parameters required by the protocol in Table 6.2 were to be collected and reported.

Reserve Project Data Base. NSF-ISR verified that EOS Climate had made entries in the Reserve project data base prior to verification. For the fourth reporting period, Clean Harbors Environmental Services issued one certificate of destruction dated 8-26-2010. The certificate of destruction included the information required by section 6.1 of the US ODS project protocol.

Point of Origin Documentation. NSF-ISR verified, through records, that the refrigerant destroyed in the fourth reporting period had originated from stockpiles maintained by Hudson Technologies in Champaign, IL. The point of origin is defined in the US ODS Project Protocol as the “location of the stockpile” for refrigerant ODS “stockpiled prior to the adoption date of this protocol and destroyed within twelve months of the adoption date of this protocol.” To establish the location of the stockpiled ODS, NSF-ISR reviewed a certification letter issued on September 1, 2010, by Hudson Technologies stating that it owned, prior to February 1, 2010, all of the ODS delivered to EOS Climate, and describing the containers (holding tanks 29 and 37, and numerous DOT containers) in Champaign, IL, from which 24,340 pounds of the refrigerant were drawn. NSF-ISR reviewed Hudson Technologies’ most recent annual report to the Securities and Exchange Commission (“Form 10-K”) and noted that the company reported “refrigerant and cylinders” in inventory as of December 31, 2009, valued at \$6,485,000. NSF-ISR has concluded from this information that the refrigerant shipped for destruction was stockpiled by Hudson Technologies prior to the adoption of the protocol and that it was destroyed within twelve months of the adoption of the protocol. For these reasons NSF-ISR concludes that the refrigerant destroyed was eligible and that documentation of its point of origin was adequate.

Custody and Ownership. The refrigerant that EOS Climate purchased from Hudson Technologies was entirely sourced within the United States of America. NSF-ISR previously (March 2010) verified that EOS Climate retained title of the refrigerant from the date that refrigerant shipped from Hudson Technologies until it was received by the Clean Harbors Environmental Services’ destruction facility in El Dorado, AR. At that point ownership of the refrigerant transferred to Clean Harbors for the purposes of destruction. Title to the emission reductions that resulted from destruction remained with EOS Climate. NSF-ISR verified the status of ODS ownership and the ownership of ODS destruction credits by reviewing the

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Refrigerant Lease Agreement between Hudson Technologies and EOS Climate, bills of lading from Hudson Technologies to Clean Harbors on behalf of EOS Climate, and an agreement between EOS Climate and Clean Harbors. NSF-ISR has concluded from these documents that EOS Climate is the owner of the greenhouse gas emission reduction credits associated with this ODS destruction project.

Concentrated ODS Composition and Quantity Analysis Requirements. Eligible ODS obtained from Hudson Technologies was shipped in one bulk ISO container to the Clean Harbors facility in El Dorado, AR. Upon arrival at Clean Harbors the ISO container was weighed, and weigh tickets were retained to establish pre- and post-destruction weight. A single, 120,000 lb. Fairbanks scale was used at Clean Harbors for the weighings. On July 26, 2010, Clean Harbors submitted a “Placed in Service Report” to the Arkansas Bureau of Standards for a new Model 2500 F1 Fairbanks Indicating Element (serial number 101800100055) and a new Model FP 6010 Load-Receiving Element (serial number 2632Q). On the same date Fairbanks Scales issued an “Official Annual Scale Test Report” on behalf of the Arkansas Bureau of Standards for these new elements, showing zero deviation from test weights of 4,000, 8,000, 12,000 16,000 and 20,000 pounds. These records demonstrate that within 30 days of the beginning of the destruction event, the weigh scales had been tested for accuracy and found to be without deviation from national standards. Time limits for weighings pre- and post-destruction according to the protocol were respected, with the full container weighed at 12:47 p.m. on the date the destruction event began, and the empty container weighed at 9:03 a.m. on the day the destruction event ended. Samples were drawn from the containers by DOT trained Clean Harbors laboratory technicians and shipped off-site to an independent laboratory for analysis by gas chromatography. The laboratory performing the ODS testing was AHRI-700-2006 certified. All sampling requirements of the protocol were found by NSF-ISR to have been met and appropriate records retained. The analysis of the samples drawn from the shipping container demonstrated that the refrigerant held a mixture of R-114 and R-11, with small amounts of R-12 and R-115.

Analysis of Mixed ODS. The ODS destroyed during the fourth reporting period was a mixture of refrigerants, primarily R-114 and R-11, with small amounts of R-12 and R-15. The circulation and sampling activities were performed by Hudson Technologies at their EPA certified reclaim facility located in Champaign, IL. EOS Climate’s Monitoring and Operations Plan (Rev. 15) included procedures for ODS analysis of mixed refrigerants as required by the ODS project protocol. NSF-ISR reviewed a detailed checklist completed by Hudson Technologies technicians to determine that the circulation of the mixed ODS and sampling was completed in accordance with the requirements of section 6.6.1 of the ODS project protocol. Samples drawn from the mixing tank were sent for analysis to an AHRI certified laboratory for analysis. NSF-ISR reviewed the ODS Sampling Certificates and Fedex shipping records for two samples sent to NRI for analysis from Hudson Technologies. From this evidence NSF-ISR has concluded that the required procedures for mixing and sampling the mixed ODS were performed.

Results of Mixed ODS Analysis. The ODS project protocol stipulates that the composition and concentration of the mixed ODS shall be equal to the lesser of the two GWP-weighted concentrations. EOS Climate selected calculated emission reductions based on the percentages of the mixed refrigerants from each of two samples and retained for their project emission reductions the sampled concentrations that resulted in the lower total emissions. NSF-ISR

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compared the concentration of refrigerants from sampling done immediately after refrigerant mixing at Hudson Technologies with three samples drawn from the tank after it had been shipped to Clean Harbors. We found the following comparative data:

Refrigerant	CFC-11	CFC-12	CFC-114	CFC-115
Sample 1, HT	37.59	3.83	56.17	0.01
Sample 2, HT*	38.19	4.82	53.82	0.01
Sample 1, CH	52.41	5.05	39.79	0.01
Sample 2, CH	42.99	5.38	48.65	0.01
Sample 3, CH	42.68	6.16	48.08	0.01

* The sample indicated by **bold face** in the table above is the one EOS Climate used for calculating emission reductions.

NSF-ISR considered the information from the five sample analyses reported from National Refrigerants, Inc., the independent certified third-party laboratory contracted by both Hudson Technologies and Clean Harbors, and concluded that there was no reason to believe, on the basis of the data provided, that the mixed ODS was not the same that was shipped from Hudson Technologies. NSF-ISR based this conclusion on the fact that variation should be expected when mixed ODS have the opportunity to re-stratify after mixing. NSF-ISR has also concluded that the shipping documentation and procedures employed at Clean Harbors to receive, inventory, track and identify containers and incineration feedstock provide adequate assurance that individual shipments of received refrigerant are properly handled to ensure identification and traceability.

Destruction Facility Requirements. The Clean Harbors destruction facility in El Dorado, AR, is a RCRA-permitted HWC. According to the protocol, RCRA-permitted HWCs are considered to meet the TEAP requirements by default, and no further testing for TEAP compliance is required. NSF-ISR verified both the regulatory compliance of the destruction facility and its conformity with the requirements of the Reserve's ODS protocol. NSF-ISR had reviewed Clean Harbors' destruction equipment monitoring and control system, its current Title V and RCRA permits in three prior site visits associated with the EOS Climate project earlier in 2010 (April, May, and June). At those site visits NSF-ISR compared performance parameters recorded during the reporting period destruction events with permit limits, confirmed required monitoring equipment was used and determined that calibration of monitoring equipment was current and within Protocol allowances. NSF-ISR also interviewed operating personnel on use of the monitoring data base and controls and reviewed printouts from the data monitoring system generated at NSF's request during the verification for the specific reporting period destruction for all parameters required by the Protocol and Title V permit. For the fourth reporting period NSF-ISR obtained written confirmations from Clean Harbors that confirmed to our satisfaction that the facility continued to meet the protocol's requirements as a "qualifying destruction facility." NSF-ISR also reviewed Continuous Emissions Monitoring System data for the days that the destruction event took place and found no excursions below the minimum operating temperature and no missing data in the records provided.

Monitoring Parameters. NSF-ISR verified that EOS Climate had carried out the monitoring required by the ODS protocol. The requirements were summarized in EOS Climate's "EOS Climate ODS Destruction Monitoring and Operations Plan for Project EOS-JA-09-01," as described above in an earlier paragraph.

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3.6 Project Management System

Management System. NSF-ISR had previously verified the EOS Climate management system and relied in part upon that evidence obtained at company headquarters in San Francisco for this fourth reporting period. Further evidence was obtained through NSF's document review conducted for this reporting period.

Project Documentation. NSF-ISR verified that the required documents for the project's fourth reporting period had been completed and submitted to the Reserve. These included the Project Submittal form, the signed Attestation of Title form, the signed Attestation of Regulatory Compliance form, and the signed Attestation of Voluntary Implementation form.

3.7 Calculation of GHG Emission Reductions

NSF-ISR separately calculated project emission reductions from information on the independent laboratory analysis reports and the certificates of destruction, and found EOS Climate's claimed emission reductions varied from ours by approximately 0.09 percent.

3.8 Corrective Action Requests/Recommendations

NSF-ISR issued no corrective action requests during the fourth reporting period.

3.9 Approved Variances or Deviations

There were no applications by EOS Climate for variances from any protocol requirements for the fourth reporting period of this project.

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4. Verification Results

4.1 Verification Team Recommendation

Based on the verification activities described above, the verification team has concluded that the EOS Climate ODS project, in its fourth reporting period, has achieved the following emission reductions:

Reductions/Removals During This Reporting Period	Metric tons CO ₂ -e
Project baseline	67,474
- Project emissions	5,699
- Project adjustments (explain)	N/A
= Net project emission reductions/removals	61,775

4.2 Verification Audit Summary

Project Developer	EOS Climate, Inc. 71 Stevenson St., Suite 400 San Francisco, CA 94105 USA
Project Location	Clean Harbors Environmental Services 309 American Circle El Dorado, AR 71730
Project Type	Destruction of Ozone Depleting Substances
Project Period	20-26 August 2010
Protocol/Methodology	Climate Action Reserve, US Ozone Depleting Substances Project Protocol, v. 1
Emissions/Removals Verified	Vintage 2010: 61,775 metric tons CO ₂ -e
Verification Conclusion	Based upon the verification activities described above, NSF-ISR has concluded that EOS Climate's reported 2010 vintage emission reductions of 61,775 metric tons CO ₂ -e reported to the Climate Action Reserve for the period 20-26 August 2010, are, in all material respects, fairly stated.
Lead Verifier	 John C. Shideler, 28 September 2010
Internal Reviewer	 Simone Robson, October 12, 2010

This verification statement is valid when signed and dated by an NSF-ISR internal reviewer.