

Validation and Verification Report for Foam Blowing Agent Project 001

American Carbon Registry

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1. Introduction

This report is provided to Foam Supplies, Inc. (FSI) as a deliverable of the American Carbon Registry (ACR) project validation and verification process. It covers the validation and verification of the following Projects and reporting periods:

Project Name	ACR Project ID	Reporting Period
Foam Blowing Agent Project 001E	ACR457	1/1/2009 – 12/31/2009
Foam Blowing Agent Project 001F	ACR462	1/1/2010 – 12/31/2010
Foam Blowing Agent Project 001G	ACR463	1/1/2011 – 12/31/2011
Foam Blowing Agent Project 001H	ACR464	1/1/2012 – 12/31/2012
Foam Blowing Agent Project 001I	ACR465	1/1/2013 – 12/31/2013
Foam Blowing Agent Project 001J	ACR466	1/1/2014 – 12/31/2014

Each Project reports emission reductions for a single 10-year crediting period beginning on January 1 of the reporting year.

During the validation/verification process, Dentons US LLP (Dentons) acted as the project advisor for the project developer, FSI. As such, First Environment communicated directly with Dentons regarding most validation/verification activities.

First Environment, Inc. (First Environment) conducted validation and verification activities from the date of the kickoff meeting through October 28, 2019.

2. Objectives

The purpose of the validation and verification was, through review of appropriate evidence, to establish that:

- the objectives of the ACR Validation and Verification Guideline Chapters 1.B and 8.B are met;
- the Project conforms to the requirements of the criteria discussed in Section 3 of this report; and
- the data reported are accurate, complete, consistent, transparent, and free of material error or omission.

Validation activities also include an assessment of the likelihood that implementation of the projects will result in the emission reductions as stated by Foam Supplies in the GHG Project Plan.

3. Verification Scope & Criteria

Specific scope metrics for the verification are outlined in the table below:

Geographic Boundaries	Foam Supplies system house facilities in Earth City, Missouri and Lewisville, TX End-user facilities listed in Appendix A
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Greenhouse Gases Verified	Emissions reductions (expressed in units of Carbon Dioxide equivalents (CO ₂ -e) resulting from blowing agent replacement; Project emissions from use of eligible BA (Ecomate ¹)
Reporting Periods	January 1, 2009 to December 31, 2009 January 1, 2010 to December 31, 2010 January 1, 2011 to December 31, 2011 January 1, 2012 to December 31, 2012 January 1, 2013 to December 31, 2013 January 1, 2014 to December 31, 2014
Data Sources	Historical FSI accounting and operational records; FSI blowing agent product specifications
Level of Assurance	Reasonable assurance
Definition of Materiality	Misstatements greater than five percent of the Projects' emission reductions assertion were considered material. Qualitative non-conformities with and discrepancies in the GHG Project Plan and Monitoring Report between the validation and verification criteria were also considered material.

The following outlines the guidance and protocols used to conduct the validation and verification:

Standards of Validation/Verification	<ul style="list-style-type: none"> • ACR Standard, Version 5.1, July 2018 (ACR Standard) • Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use, Version 2.0 (the Methodology)
Validation/Verification Process	<ul style="list-style-type: none"> • ACR Validation and Verification Guideline, Version 1.1, May 2018 • ISO 14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions, 2006

The GHG Project Plan was also used to inform the verification process.

4. Project Description

FSI is a system's house with facilities in Earth City, Missouri and Lewisville, Texas that manufactures foam systems with Ecomate, an eligible foam blowing agent (BA) under the Methodology. FSI supplies the A- and B-side chemicals, which include the Ecomate BA, to its customers for the production of rigid polyurethane (PU) injected foams. Ecomate replaces BAs with a higher global warming potential (GWP), resulting in a net reduction in greenhouse gas (GHG) emissions during the foam blowing process and lifetime of manufactured foam materials.

The GHG Project Plan provides additional details about the Projects.

5. Overview of the Validation and Verification Process

To review the Projects' GHG information, the following validation and verification process was used:

¹ The chemical name for Ecomate is methyl formate, the eligible BA listed in Table 9 of the Methodology.

- conflict of interest review;
- selection of Audit Team;
- initial interaction and kickoff meeting with primary FSI contacts;
- development of the validation/verification plans and sampling plan;
- review and evaluation of GHG information systems and data;
- follow-up interaction with FSI contacts for corrective action or supplemental data as needed; and
- final statement and report development.

The process was utilized to gain an understanding of the Projects' emission sources and reductions, to evaluate and verify the collection and handling of data, the calculations that lead to the results, and the means for reporting the associated data and results.

5.1 Conflict of Interest Review

Prior to beginning any third-party assessment, First Environment conducts an evaluation to identify any potential conflicts of interest associated with the Projects. No potential conflicts were found for these Projects. A project-specific conflict of interest form for each Project was filed with the ACR on April 28, 2019.

5.2 Audit Team

First Environment's Audit Team consisted of the following individuals who were selected based on their validation and verification experience, as well as familiarity with industrial gas operations.

Lead Assessor – Michael Carim

Validation/Verification Team – Luca Nencetti, Jeff Daley, Lindsey Shanks, Emily Saul

Internal Reviewer – James Wintergreen

5.3 Audit Kick-off

The audit process was initiated with a kick-off meeting on May 28, 2019 with the primary FSI contacts. The meeting focused on confirming the scope, schedule, and data required for validation.

5.4 Development of the Validation & Verification Plans

The Audit Team formally documented the validation/verification plan as well as determined the data sampling plan. The validation/verification plan was informed by the kick-off meeting where key elements of the validation and verification scopes were discussed including project team members, project level of assurance, materiality threshold, and standards of reporting and evaluation. It also provided an outline of the validation and verification processes and established project deliverables. FSI was afforded the opportunity to comment on the key elements of the plans for validation and verification. Separate data-sampling plans were designed to review all project elements in areas of potentially high risk of inaccuracy or non-conformance.

5.5 Site Visit

Mr. Michael Carim conducted a site visit between June 10 and June 14, 2019 at FSI headquarters in Earth City, Missouri and on September 12, 2019 at FSI's Lewisville, Texas facility. On-site verification activities were performed to assess GHG project boundaries, site operations, data collection processes, and information management systems, as well as to conduct interviews with key project personnel. Meetings in Earth City, Missouri also included a review of all FSI foam system formulations used within the scope of the project activity.

5.6 Emissions Reduction Data and Calculation Assessment

This assessment used information and insights gained during the previous steps to evaluate the collected data and the reported emissions reduction quantities, and identify if either contained material or immaterial misstatements.

5.7 Corrective Actions and Supplemental Information

The team made requests for corrective action during the validation and verification processes. FSI provided sufficient responses to all requests. These requests and FSI's responses are described in Appendix B of this report.

5.8 Validation & Verification Reporting

Validation and verification reporting, represented by this report, documents the validation and verification processes and identifies their findings and results. Validation and verification reporting consists of this report for FSI, along with a validation/verification statement. Both the report and statement are submitted to ACR as part of the validation/verification reporting process.

6. Validation Results

6.1 Project Boundary

The Project boundary is defined as emissions from Foam Manufacture (SSR 3) and Foam Usage (SSR 5). Fugitive emissions of BAs occur in the baseline and project scenarios during foam blowing and throughout the lifetime of manufactured foam products. Emission reductions occur from the replacement of a high-GWP BA with a low-GWP BA.

The Audit Team assessed the source, sink, and reservoir (SSR) determination included in the GHG Project Plan through observations and interviews during the site inspection and found the justification accurate and in accordance with the applied methodology.

Overall, FSI provided an accurate description of the Project boundary and a comprehensive justification for the project SSRs.

6.2 Baseline Scenario

The baseline scenario is defined as the continued use of the baseline BA in the production of rigid PU injected foam at end-user manufacturing facilities.

For end-user facilities that transitioned to Ecomate from a hydrofluorocarbon (i.e., HFC-134a or HFC-245fa), FSI business development and/or service records were provided to demonstrate

the baseline BA was used at the customer foam blowing application for more than two years prior to the transition to Ecomate.

For end-user facilities that transitioned to Ecomate from a hydrochlorofluorocarbon (i.e., HCFC-141b or HCFC-22) that is no longer eligible for use in the specified foam blowing applications due to regulatory requirements, FSI provided sufficient analysis to demonstrate that HFC-134a was the most likely blowing agent that would have been adopted.

6.3 Emission reduction quantification methodologies and calculations

Emission reductions are quantified in accordance with the procedures described in the Methodology and the ACR Standard. The equations are correctly identified and the calculation of GHG emission reductions is presented in a transparent manner, incorporating all relevant GHG sources, sinks, and reservoirs.

Baseline emissions are quantified according to Equations 1 and 2 in the Methodology based on the quantity of eligible BA consumed and the Blowing Agent Ratio, the latter of which is used to determine the equivalent quantity of baseline BA that is required to produce a foam with equivalent thermal performance.

Project emissions are quantified directly from the quantity of eligible BA consumed according to Equation 3 in the Methodology.

The Project Activity does not result in the equipment used in the baseline being transferred to another location or activity in which a BA with a GWP greater than 30 is used; therefore, activity-shifting leakage emissions are not considered. FSI service records related to BA transition were used to confirm that no activity-shifting leakage emissions occurred as a result of Project implementation.

Total net emission reductions are determined according to Equation 5 in the Methodology by subtracting project emissions from baseline emissions.

After reviewing the quantification procedure and supporting evidence, the Audit team concluded that the methodologies and the applicable tools have been applied correctly to calculate baseline emissions, project emissions, leakage, and net GHG emission reductions and removals.

6.4 Data Monitoring and Management System

The monitoring plan described within the GHG Project Plan includes all relevant data and parameters required to obtain a reliable result of generated emission reductions and meets the requirements of the Methodology. The primary variables monitored in order to determine and account for emission reductions are presented in Table 1 below.

TABLE 1: Monitoring Parameters

Monitoring Parameter	Method of Estimation	Frequency of Measurement	Unit of Measurement	Frequency of Recording
Blowing Agent Ratio (BAR)	Calculated	Once at validation	Dimensionless	N/A
Quantity of eligible BA used in the project (Q _{EBA})	Weigh scales	Each shipment of A- and B-side materials	Pounds	As shipped throughout reporting period

The GHG Project Plan includes a complete description of the frequency, responsibility, and procedures for recording, storing, monitoring, and measuring all project data. All requirements in Sections 5.1 and 5.2 of the Methodology are addressed by the monitoring plan contained with the GHG Project Plan.

The adequacy of the data management systems described in the monitoring plan was assessed during the site visits by reviewing system controls with FSI personnel and during the desktop assessment through tracing data back to its origin.

The monitoring plan also addresses all requirements in the Methodology for system houses that supply the A- and B-side chemicals to foam manufacturing facilities.

6.5 QA/QC Procedures

The GHG Project Plan includes QA/QC procedures for data that meet the requirements of the methodology.

Weigh scales used to determine the quantity of eligible BA consumed are inspected and their accuracy is certified annually by the State of Missouri's Department of Agriculture – Division of Weights and Measures or the Texas Department of Agriculture for commercial use. Further, data collected from weigh scales serves as the basis for FSI's customer billing and are subject to accounting controls and procedures, providing an additional layer of quality assurance. Due to weigh scales' use in financial transactions with FSI customers, First Environment concluded that QA/QC activities are adequate for the purposes of emission reduction reporting.

Due to the strong QA/QC procedures surrounding weigh scale measurements and the precision required by the end-user manufacturing processes relative to the ratios in which BAs are dispensed during foam fabrication, minimal data uncertainty is foreseen.

6.6 Project-specific conformance to ACR eligibility criteria, including additionality

The Project meets the eligibility requirements set forth in the ACR Standard as described below.

TABLE 2: ACR Eligibility Criteria

Eligibility Requirement	Conformance Details	Validation Conclusion
Start Date	The start dates are: January 1, 2009 – ACR457 January 1, 2010 – ACR462 January 1, 2011 – ACR463 January 1, 2012 – ACR464 January 1, 2013 – ACR465 January 1, 2014 – ACR466	Consistent with requirement.

Eligibility Requirement	Conformance Details	Validation Conclusion
Minimum Project Term	N/A – project type does not contain risk of emission reduction reversal.	N/A
Crediting Period	Ten years – January 1, 2009 through December 31, 2018 (ACR457) January 1, 2010 through December 31, 2019 (ACR462) January 1, 2011 through December 31, 2020 (ACR463) January 1, 2012 through December 31, 2021 (ACR464) January 1, 2013 through December 31, 2022 (ACR465) January 1, 2014 through December 31, 2023 (ACR466)	Consistent with requirement.
Real	N/A – ACR has issued an exemption to its forward crediting policy for the approved methodology applied by the Project. ²	N/A
Emission or Removal Origin	The project proponent reduces non-energy direct emissions at end user facilities that utilize foam blowing agents.	Consistent with requirement. FSI retains control of and exclusively claims emission reductions via contractual agreements with end users.
Offset Title	FSI retains rights to GHG emission reductions associated with the BA transition through the terms and conditions agreed upon with end-user facilities.	Consistent with requirement. FSI retains ownership of emission reductions via contractual agreements with end users. It was also confirmed that FSI is not claiming emission reductions for the same project and reporting period on any other GHG registry or platform.
Land Title	N/A – not applicable to project type.	N/A
Additional	Project satisfies additionality test in approved methodology and Regulatory Test in ACR Standard.	Project conforms to ACR additionality criteria. See Section 6.7 below for conformance details.
Regulatory Compliance	FSI and end-user facilities were in compliance with regulatory requirements relative to foam blowing during the reporting period.	An attestation was provided to First Environment by FSI to confirm regulatory compliance throughout the reporting period relative to foam manufacturing processes.

² ACR guidance on the methodology states: “In order to quantify avoided emissions associated with the transition to an advanced formulation blowing agent, it is necessary to utilize modeled emission rates over a 10-year crediting period. These avoided emissions are quantified during the project’s reporting period and Emission Reduction Tonnes (ERTs) are granted for the full 10 years of avoided emissions.”

Eligibility Requirement	Conformance Details	Validation Conclusion
Permanent	N/A – project type does not contain risk of emission reduction reversal.	N/A
Net of Leakage	Potential for leakage emissions is accounted for under project monitoring plan and emission reduction quantification equations.	First Environment confirmed that the project has implemented sufficient mechanisms to track any potential leakage emissions.
Independently Validated or Verified	The Project Proponent contracted First Environment, Inc. to provide independent, trustworthy, and objective third-party validation and verification services to the Project.	First Environment is an ANSI-accredited and ACR-approved validation/verification body. Audit activities were performed independently and in accordance with all ACR requirements.
Community & Environmental Impacts	No negative community or environmental impacts are identified. Net positive impact due to improvements in air quality.	Consistent with requirement. Project occurs in foam blowing manufacturing processes at private industrial facilities. No external environmental or community impacts are created from the blowing agent transition.

The Project activity complies with the applicability requirements of the Methodology. The table below lists the relevant applicability requirements and identifies how the Project meets them.

TABLE 3: Methodology Criteria

Eligibility Requirement	Conformance Details	Validation Conclusion
Location	All end user facilities are located within North America.	Consistent with requirement.
Foam Application	Small Retail Food Refrigeration Large Retail Food Refrigeration	Consistent with requirement. Both foam applications fall within scope of the methodology, specifically the allowed sub-applications within the rigid PU injected foam category.
Start Date	See Table 2 above	
Minimum two years of usage of a BA with GWP > 30 prior to the project activity	Two years of usage of HFC-134a of HFC-245fa prior to transition demonstrated.	Consistent with requirement. HFC-134a and HFC-245fa have GWPs of 1430 and 1030, respectively.

The Projects do not participate in any other GHG emission trading or compliance programme and have not previously been rejected by another GHG programme.

6.7 Additionality

The Projects satisfy the requirements for the demonstration of additionality specified by the ACR Standard by passing an approved practice-based performance standard and a regulatory surplus test.

The Projects consist of use of an eligible BA in the rigid PU injected foam application, which is an Eligible Foam Application listed in the Methodology; therefore, the project satisfies the performance standard specified by the Methodology.

No existing laws mandate the use of a low-GWP blowing agent in foam manufacture. FSI provided an analysis of existing laws and regulations as well as a signed management attestation to confirm the Projects' voluntary implementation.

6.8 Approved Deviations

The Projects obtained two approved deviations from ACR during the validation process.

The Projects were not listed within six months of the publication date of version 2.0 of the Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use. A deviation was approved for the Projects to allow Projects with start dates within 10 years of the methodology publication date.

Evidence was unavailable to demonstrate two years of usage of a high-GWP blowing agent for two end user facilities that transitioned to Ecomate. A deviation was approved to allow the baseline BA assigned to these end users. The baseline BA selected was confirmed from FSI records related to the transition to Ecomate.

7. Verification Results

During the verification process, First Environment reviewed the Projects' Monitoring Reports, GHG emission reduction assertion, and supporting documentation for the current verification period to ensure consistency with the GHG Project Plan and the Methodology. Discrepancies between Project documentation and the verification criteria were considered material and identified for corrective action. Additionally, First Environment assessed the GHG emission reduction assertion and underlying monitoring data to determine if either contained material or immaterial misstatements. The results of these reviews are discussed in greater detail below.

7.1 GHG Information Verified

Emission reduction calculations were reviewed to ensure accuracy in the formulas used and the raw data used as inputs. Formulae were tested to ensure they were consistent with the calculation methodology described in the Methodology and GHG Project Plan. Total baseline emissions for each end-user facility were quantified in accordance with Equations 1 and 2 from the Methodology.

The amount of BA replaced was calculated from measured data for the quantity of Ecomate shipped in each reporting year to each end user. Each full tank containing foam blowing agent is weighed at FSI prior to shipment to the end user and again upon return to FSI. All weigh scales were calibrated according to the requirements specified in the GHG Project Plan. Measured weights are recorded in FSI Ratio Return Reports and an associated database where data for each end user is aggregated into annual totals. Several customers receive Ecomate

foam systems in totes that are not returned to FSI. For tote customers, data for the amount of Ecomate shipped is obtained from FSI customer invoices and billing records. Totes are weighed on the same scales as tanks. Due to the manner in which a tote is incorporated into the foam blowing system, nearly all isocyanate and resin in the foam system is expected to be consumed and any heel to be negligible. The fraction of eligible blowing agent in the A- and B-side chemicals in the baseline and project scenarios is determined from specifications for the foam systems. FSI records of baseline and project foam systems formulations were provided to support the values used in calculations.

A blowing agent ratio (BAR) was calculated for each end user based on the formulations of the baseline and project A- and B-side foam blowing systems employed at the respective facilities. The BAR is based on the quantities of baseline and project BAs required to manufacture the same quantity of PU foam, given the proportions of A- and B-side inputs. These quantities were determined from FSI specifications for Ecomate foam systems and their corresponding baseline foam systems that use a high-GWP BA.

Project emissions associated with foam manufacturing and the remaining years of foam use were quantified using Equation 3 from the Methodology. Project emissions are calculated based on the measured quantity of Eligible BA that is used in the project scenario.

No foam blowing equipment used in the baseline scenario was transferred to different foam blowing applications and/or facilities using a high-GWP blowing agent; therefore, there is no activity-shifting leakage associated with the Project and these emissions are assigned a value of zero in Equation 4 from the Methodology. Market-shifting leakage is not applicable to the Methodology.

Total emission reductions were computed using Equation 5 from the Methodology. All emission sources within the project boundary are properly accounted for in calculations.

7.2 Verification Assessment Techniques and Processes Employed

Copies of the raw data used in the calculations, including the quantities of A- and B-side chemical shipped and blowing agent compositional information contained in FSI Product Information Sheets, were compared with the data used in the final calculations and tested for transcription or mathematical errors. First Environment sampled all areas identified as being of high risk of inaccuracy, uncertainty, or misstatement and reviewed evidence such as weigh scales QA/QC and certification records and performed other data checks in order to assess whether the project sufficiently mitigated data uncertainty. In particular, First Environment identified a sub-sample of Ratio Return Reports for which annual foam system volumes were recalculated for individual customers for comparison to totals used in emission reduction calculations. First Environment further identified a sample of customer transactions during each reporting period year for review of tank fill tickets, customer invoices, and shipping bills of lading. This assessment compared the quantities on transaction supporting documents to those on Ratio Return Reports to assess the accuracy of data flow in FSI's internal data management systems.

The assessments performed on this data, as described above, confirmed the reliability of the evidence provided and verified the accuracy of the information flow. Additionally, First Environment performed recalculations for a risk-based subsample of reported emission reductions over the reporting periods to assess whether they were free of material misstatement. First Environment found the emission reduction calculations to be free of material misstatement.

The evidence provided was consistent with the requirements of the Methodology and the validated GHG Project Plan and meets generally accepted evidentiary standards for best practices in GHG accounting.

8. Audit Findings

FSI provided good documentation for its emissions estimates as well as its procedures surrounding the data collection process. To complete the validation and verification processes, First Environment issued corrective action requests. Through communications with the Audit Team, FSI was able to resolve all requests made by First Environment during the validation and verification processes.

The findings issued, as well as FSI's responses, are summarized in Appendix B.

9. Validation & Verification Conclusion

First Environment was retained to provide validation and verification services to Foam Supplies, Inc. for the Projects' GHG emission reductions assertion based on the following fundamentals:

- *Level of assurance:* Reasonable assurance.
- *Objectives of verification:* To assure project conformance with the validation/verification criteria and that the requirements of the ACR Validation and Verification Guideline, Chapters 1.B and 8.B are met. Validation objectives also include an assessment of the likelihood that implementation of the project will result in the emission reductions stated in the GHG Project Plan.
- *Validation/Verification criteria:* American Carbon Registry Standard, Version 5.1, July 2018; Emission Reduction Measurement and Monitoring Methodology for the Transition to Advanced Formulation Blowing Agents in Foam Manufacturing and Use, Version 2.0.
- *Definition of materiality:* Misstatements of greater than five percent of the GHG reduction assertion and qualitative non-conformities with validation and/or verification criteria are considered material.
- *Scope, including:*
 - *Boundaries of the assertion:* End-user facilities where foam manufacture occurs and use phase of the manufactured foam product.
 - *The physical infrastructure, facilities, and activities within the assertion:* foam blowing equipment used in various end-user foam applications.
 - *GHG sources, sinks, and reservoirs included within the assertion:* Emissions reductions (expressed in units of Carbon Dioxide equivalents (CO₂-e) resulting from blowing agent replacement in foam manufacturing and remaining years of foam use; Project emissions from use of eligible BA (Ecomate).
 - *The time period for the assertions:* January 1 to December 31, 2009; January 1 to December 31, 2010; January 1 to December 31, 2011; January 1 to December 31, 2012; January 1 to December 31, 2013; January 1 to December 31, 2014.

Based on the assessments performed and the historical evidence collected, First Environment concludes that the GHG Project Plan is in conformance with the specified validation criteria and the Project GHG emissions reductions, due to the transitions to a low-GWP BA at end-user

facilities for the 2009, 2010, 2011, 2012, 2013, and 2014 reporting periods, can be considered with a reasonable level of assurance:

- consistent with the GHG Project Plan and identified verification criteria,
- without material discrepancy, and
- meeting the minimum level of accuracy of at least 95 percent.

Verified results show:

January 1 to December 31, 2009	Total
Baseline Emissions (tCO ₂ e)	46,907
Project Emissions (tCO ₂ e)	38
Emissions Reductions (tCO ₂ e)*	46,868

January 1 to December 31, 2010	Total
Baseline Emissions (tCO ₂ e)	60,705
Project Emissions (tCO ₂ e)	50
Emissions Reductions (tCO ₂ e)*	60,655

January 1 to December 31, 2011	Total
Baseline Emissions (tCO ₂ e)	63,831
Project Emissions (tCO ₂ e)	53
Emissions Reductions (tCO ₂ e)*	63,778

January 1 to December 31, 2012	Total
Baseline Emissions (tCO ₂ e)	66,327
Project Emissions (tCO ₂ e)	54
Emissions Reductions (tCO ₂ e)*	66,273

January 1 to December 31, 2013	Total
Baseline Emissions (tCO ₂ e)	67,146
Project Emissions (tCO ₂ e)	53
Emissions Reductions (tCO ₂ e)*	67,092

January 1 to December 31, 2014	Total
Baseline Emissions (tCO ₂ e)	68,997
Project Emissions (tCO ₂ e)	54
Emissions Reductions (tCO ₂ e)*	68,943

*As measured and calculated in accordance with the Project Methodology
Totals may not sum due to decimal truncation

9. Lead Verifier Signature



Michael M. Carim
Senior Associate

10. Independent Internal Reviewer Signature

A handwritten signature in black ink, appearing to read "James Wintergreen". The signature is fluid and cursive, with a large initial "J" and a long, sweeping underline.

James Wintergreen
Senior Associate

APPENDIX A – END USER FACILITIES

Customer	Location
[REDACTED]	Clifton Park, NY
[REDACTED]	Lawrence, MI
[REDACTED]	Stoney Creek, ON
[REDACTED]	Covington, TN
[REDACTED]	Mt. Pleasant, MI
[REDACTED]	Sedalia, MO
[REDACTED]	Mesquite, TX
[REDACTED]	Philadelphia, PA
[REDACTED]	Louisville, KY
[REDACTED]	Guanajuato, MX
[REDACTED]	Milwaukee, WI
[REDACTED]	Bessemer, AL
[REDACTED]	Muskegon, MI
[REDACTED]	O'Fallon, MO
[REDACTED]	Bowling Green, MO
[REDACTED]	Mexico, MO
[REDACTED]	O'Fallon, MO
[REDACTED]	Pacific, MO
[REDACTED]	Pacific, MO

APPENDIX B – VALIDATION/VERIFICATION FINDINGS

ID	Corrective Action Request	Summary of Participant Response	Validation Conclusion
1	The second Q_{BBA} term in Equation 1 is not determined correctly in baseline calculations for 2010 – 2014 because the formula omits the BAR parameter.	The calculation spreadsheet was revised to resolve the issue in the baseline emissions formula.	Response is acceptable.
2	The first Q_{EBA} term in Equation 3 is not determined correctly in project emissions calculations for 2009 – 2014 because the formula includes the BAR parameter.	The calculation spreadsheet was revised to resolve the issue in the project emissions formula.	Response is acceptable.
3	Foam system consumption for [REDACTED] in 2010 appears to be double counted in the calculation spreadsheet.	The calculation spreadsheet was revised to resolve the double counting issue.	Response is acceptable.
4	Verification evidence provided suggests the baseline BA for [REDACTED] was HFC-245fa.	Baseline emission calculations for the end user facility were revised to employ HFC-245fa as the BA in the baseline foam system instead of HFC-134a.	Response is acceptable.
5	<p>The following sections of the Monitoring Report do not address all requirements stated in the ACR Monitoring Report Template:</p> <ul style="list-style-type: none"> Section III: Project Details, 2 Program of Activities Project Implementation <ul style="list-style-type: none"> This section is not applicable to this project Section III: Project Details, 3 Project Deviations <ul style="list-style-type: none"> State whether the ACR has formally approved the deviation Section V: Project Monitoring, Monitoring Boxes <ul style="list-style-type: none"> Boxes are missing the <i>Equation</i> #(s) row Section VII: Verification, 1 Verification <ul style="list-style-type: none"> Missing discussion of September 2019 site visit at Lewisville, TX 	<p>The Monitoring Reports were revised to address all issues cited.</p>	Response is acceptable.
6	Emission reductions for True Manufacturing Overland Bldg. 1 are incorrectly included after 2009.	Emission reductions for True Manufacturing Overland Bldg. 1 were removed from the emission reduction assertion to resolve the issue.	Response is acceptable.
7	Justify the need not to account for leakage emissions associated with BA transition at [REDACTED]. See [REDACTED]	The [REDACTED] facility was removed from the scope of the GHG emission reduction assertion.	Response is acceptable.
8	The BAR calculation for the following facilities assume an incorrect baseline foam system: [REDACTED]	The BAR calculations for the cited Ecomate foam systems were revised to be consistent with the formulations of the corresponding baseline foam system (HFC-134a or HFC-245fa), as identified by FSI	Response is acceptable.

ID	Corrective Action Request	Summary of Participant Response	Validation Conclusion
	<p>[REDACTED]</p> <ul style="list-style-type: none"> • [REDACTED] 	personnel.	
9	Reported foam system consumption does not net out the heel remaining in tanks that are returned to FSI by end users. As a result, system consumption is overstated.	Calculations were revised to use data from FSI's Ratio Return Report database, which accounts for the amount of material remaining as heel in returned tanks.	Response is acceptable.

ID	Clarification Request	Summary of Participant Response	Verification Conclusion
<i>No request for clarification were issued during the verification process</i>			