

Verification Report – Gaston County Landfill Gas Destruction Project– CAR475

Dallas, NC

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Prepared for:

Gaston County

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Contents

1. Introduction	4
2. Objectives	4
3. Verification Scope	4
4. Standards Used to Verify Emissions (Criteria).....	4
5. Overview of the Verification Process	5
5.1 Conflict of Interest Review	5
5.2 Audit Team Selection.....	6
5.3 Strategic Analysis and Verification Preparations	6
5.4 Audit Kick-off.....	6
5.5 Development of the Verification and Evidence-Gathering Plan	6
5.6 Execution of Evidence Gathering Activities	6
5.7 Site Visit.....	6
5.8 Emissions Reduction Data and Calculation Assessment	6
5.9 Corrective Actions and Supplemental Information.....	7
5.10 Independent Review	7
5.11 Verification Reporting and Opinion Issuance.....	7
6. Conformance with Verification Criteria	7
6.1 Project Description.....	7
6.2 Eligibility.....	7
6.2.1 Ownership and Title	7
6.2.2 Project Start Date.....	7
6.2.3 Additionality	8
6.2.4 Regulatory Compliance	8
6.3 Project Performance Against CAR Protocol and Projects Management System.....	9
6.3.1 Project Monitoring	9
6.3.2 Instrument Quality Assurance/Quality Control	10
6.3.3 Project Emissions	11
6.4 Emissions Reduction Calculation Assessment.....	11
6.5 Approved Variance or Deviations.....	13
7. Verification Results	13

Tables

Table 1 – Monitoring Equipment	10
Table 2 – Instrument QA/QC.....	11
Table 3 – Project Emissions.....	11
Table 4 – Input Parameters.....	12
Table 5 – Results of Data Checks Conducted and GHG Assertion Comparison	13

1. Introduction

This report is provided to the Project Developer, Gaston County Solid Waste and Recycling (Gaston County) as a deliverable of the Climate Action Reserve (CAR) project verification process. This report covers the verification of the Gaston County Landfill Gas Destruction Project – CAR475 (the Project) for the verification period of January 1, 2025 through December 31, 2025.

Gaston County is the party responsible for the GHG statement under verification. First Environment primarily communicated with Gaston County who was responsible for the preparation and fair presentation of the GHG statement. First Environment is responsible for expressing the opinion below on the GHG statement based on the outcome of the verification process.

2. Objectives

The purpose of this verification was, through review of appropriate evidence, to establish that:

- The Project conforms to the requirements of the verification criteria, including all eligibility requirements, discussed in Section 4 of this report.
- The data reported are accurate, complete, consistent, transparent, and free of material error or omission.

Verification objectives also included reaching a conclusion about the accuracy of the GHG statement and the conformity of the statement with criteria.

3. Verification Scope

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

Geographic Boundaries	Gaston County Landfill, Dallas, North Carolina
Emission Reduction Sources, Project Emissions, and Greenhouse Gases	Emissions reductions (expressed in units of Carbon Dioxide equivalents (CO ₂ e)) resulting from methane destruction; Project emissions of CO ₂ from fossil fuel combustion and purchased electricity.
Reporting Periods	January 1, 2025 through December 31, 2025
Data Sources	Metered Data and Emissions Reduction Calculations

4. Standards Used to Verify Emissions (Criteria)

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

Standard of Verification	• Climate Action Reserve U.S. Landfill Project Protocol, Version 6.0, June 2022 (CAR Protocol) • U.S. Landfill Project Protocol, Version 6.0 Errata and Clarifications, April 13, 2023 • Reserve Offset Program Manual (April 2024, v9.2) • Applicable Climate Action Reserve Policy Memos
Verification Process	• Section 8 of the CAR Protocol, Version 6.0 • Climate Action Reserve Verification Program Manual, February 3, 2021 • ISO 14064-3: Specification with guidance for the verification and validation of greenhouse gas statements, 2019
Level of Assurance	• Reasonable Level of Assurance
Materiality	• Misstatements greater than one percent of the Project's emission reductions assertion are considered material. • Qualitative non-conformities with the CAR Protocol are also considered material.

5. Overview of the Verification Process

The verification process was utilized to gain an understanding of the Project's emission sources and reductions, and 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.

The following verification process was used:

- Conflict of interest review
- Selection of audit team
- Verification preparations
- Initial interaction and kickoff meeting with Gaston County
- Development of the verification and evidence gathering plan
- Execution
- Site visit
- Assessment of raw data and calculations for period under review
- Follow-up interaction with Gaston County for corrective action, clarification, or supplemental data as needed
- Independent review
- Final opinion and report submittal

5.1 Conflict of Interest Review

Prior to beginning any verification project, First Environment conducts an evaluation to identify any potential conflicts of interest associated with the Project. No potential conflicts were found for this Project. First Environment received authorization to proceed with verification activities for the project developer from CAR in a notification dated May 7, 2026.

5.2 Audit Team Selection

First Environment's Verification Team consisted of the following individuals who were selected based on their verification experience, as well as familiarity with landfill operations.

Lead Verifier – Jeff Daley

Verifier – Maya Wisotzki

Senior Internal Reviewer – Jay Wintergreen

5.3 Strategic Analysis and Verification Preparations

First Environment performed pre-engagement activities to confirm the type of engagement, level of assurance, materiality thresholds, the objectives, criteria, and scope for verification activities.

First Environment also performed a strategic analysis to understand the activities and complexity of the project and to determine the nature and extent of the verification activities required. The strategic analysis was also used to develop sufficient understanding of the GHG-related activity and its relevant sector information to plan and conduct the verification.

5.4 Audit Kick-off

The verification was initiated with a kick-off meeting on May 18, 2026 with Gaston County. The meeting focused on confirming the scope, schedule, and data required for verification.

5.5 Development of the Verification and Evidence-Gathering Plan

The Audit Team formally documented the verification plan as well as determined the evidence gathering plan. The verification plan was informed by the kick-off meeting where key elements of the verification scope 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 verification processes and established project deliverables. Gaston County was afforded the opportunity to comment on the key elements of the plan for verification. A separate evidence gathering plan was designed to review all project elements in areas of potentially high risk of inaccuracy or non-conformance.

5.6 Execution of Evidence Gathering Activities

The Audit Team executed the evidence-gathering activities. The verification was conducted according to the verification plan and the evidence-gathering activities according to the evidence-gathering plan.

5.7 Site Visit

Mr. Jeff Daley conducted a site visit on July 30, 2026 to assess the Project's data management systems and interview personnel relevant to the Project as part of the verification process.

5.8 Emissions Reduction Data and Calculation Assessment

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

5.9 Corrective Actions and Supplemental Information

The team issued corrective action requests during the verification process. Gaston County provided sufficient responses to all requests.

5.10 Independent Review

Before verification reporting is released to the client, a First Environment lead verifier, who has not participated in the verification activities, conducts an independent review to confirm that all verification activities have been completed and provide the agreed upon level of assurance.

5.11 Verification Reporting and Opinion Issuance

Verification reporting, represented by this report, documents the verification process and identifies its findings and results. Verification reporting consists of this report for Gaston County, a verification opinion, and a list of findings, all to be submitted to the Climate Action Reserve.

6. Conformance with Verification Criteria

6.1 Project Description

The Gaston County Landfill is located in Dallas, North Carolina and is owned and operated by Gaston County.

The Project consists of the voluntary collection and destruction of landfill gas in two open flares and three GE Jenbacher 420 internal combustion engine generators. Gaston County completed installation of a landfill gas (LFG) well field and active gas collection and control system in 2008. Prior to this system, LFG was not collected at the landfill. The Project destroys landfill gas that otherwise would be vented to the atmosphere, resulting in a net reduction of CO₂-equivalents.

No combustion devices existed on site prior to the implementation of the Project activity. The baseline scenario is defined as the total release of landfill gas to the atmosphere.

6.2 Eligibility

The Project meets the eligibility requirements set forth in the CAR Protocol as described below.

6.2.1 Ownership and Title

Gaston County is the owner and operator of the landfill and, as such, holds title to the associated emission reduction credits. The landfill Permit to Operate identifies that the Gaston County NC Register of Deeds lists Gaston County as the legal property owner. Additionally, the relevant Air Permits identify Gaston County as the entity with authority to construct and operate the destruction devices. Purchase records for the flares and the engine generator sets were also reviewed, which all identified that Gaston County is the owner of the Project equipment. Power produced by the engine generator sets is sold by Gaston County to Duke Energy Carolinas, LLC by way of a Power Purchase Agreement (PPA). Relevant sections of the

PPA and an ownership representation from the Gaston County Attorney's office were provided to confirm that Gaston County retains ownership of the associated carbon offset credits. The ownership status was also confirmed at the site visit through interviews conducted with Project personnel.

Additionally, First Environment relied on the Attestation of Title completed by Gaston County for the current reporting period. The Attestation is on file with CAR and was reviewed to confirm that it was completed correctly.

6.2.2 Project Start Date

First Environment confirmed that the Project meets CAR's start date requirements. The Project start date is November 18, 2008, which was confirmed during the initial verification through review of the landfill's daily activity logbook and flare skid logbook records.

The project is currently within its second crediting period which spans from November 18, 2018 through November 17, 2028.

6.2.3 Additionality

The Project passes both the Performance Standard Test and the Legal Requirements Test, as described below.

6.2.3.1 Performance Standard Test

The Project consists of the installation of a landfill gas collection and control system and therefore exceeds the performance standard defined by the CAR Protocol, specifically Scenario 1 from the list provided in Section 3.4.1 of the CAR Protocol, because landfill gas has never been collected and destroyed prior to the project start date. It was also confirmed during the previous site visit that the landfill is not a bioreactor.

6.2.3.2 Limits on Credit Stacking

The project is not claiming any other credits or incentives for methane destruction activities and did not upgrade landfill gas into high-Btu fuel during the current reporting period. The project activity generates Renewable Energy Certificates (RECs). However, carbon dioxide emission reductions associated with displacement or offsetting of fossil generated electricity are excluded from the GHG assessment boundaries of the CAR Protocol, and therefore, there is no stacking of credits relevant to Project activity during the current reporting period.

6.2.3.3 Legal Requirements Test

The most recent non-methane organic compounds (NMOC) emissions rate testing occurred on August 18-19, 2025. The estimated Tier II NMOC Emission Rate was 23.27 Mg/yr for 2025 as identified in the October 2025 Tier II NMOC Emission Rate Report. This NMOC emissions rate is below the 34 Mg per year threshold established by 40 CFR 62, Subpart OOO. Therefore, the landfill is not required to operate an active collection system under NSPS requirements.

First Environment reviewed the facility's Solid Waste Operating permit and Title V permit to confirm that no other requirements for an active landfill gas collection and control system existed. Overall, this cursory review of permits, laws, and regulations indicated the voluntary nature of the Project.

Additionally, First Environment relied on the Attestation of Voluntary Implementation completed by Gaston County for the current reporting period. The Attestation is on file with CAR and was reviewed to confirm that it was completed correctly.

6.2.4 Regulatory Compliance

First Environment reviewed the landfill's Solid Waste Operating Permit and Title V Permit to inform regulatory compliance. Additionally, First Environment generated a compliance report on June 26, 2026 using the Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) database. No issues were identified in the ECHO report. Additionally, a routine inspection was conducted by the NC Department of Environmental Quality on July 17, 2025 which found the facility to be in compliance.

Additionally, First Environment relied on the Attestation of Regulatory Compliance completed by Gaston County for the current verification period. The Attestation is on file with CAR and was reviewed to confirm that it was completed correctly.

6.3 Project Performance Against CAR Protocol and Projects Management System

The Project was implemented in conformity with the CAR Protocol. Gaston County developed and implemented a Monitoring Plan to track relevant Project parameters and data sources. The Monitoring Plan, including the Project Diagram, was reviewed to determine compliance with the protocol requirements. Based on observations made during the previous site visit and review of relevant Project documentation, First Environment found the Monitoring Plan and Project Diagram to meet the requirements set forth by the CAR Protocol, the monitoring personnel were sufficiently competent, and the Project to be implemented in accordance with the Monitoring Plan.

First Environment reviewed the Project Data Report (PDR) to confirm that the form was filled out correctly and the information contained within was accurate. Additionally, First Environment confirmed that the Environmental and Social Safeguards Assessment Form and Project Contributions to Sustainable Development Goals Reporting Tool has been completed, and the information contained within is reasonable in the context of the Project activity.

6.3.1 Project Monitoring

Landfill gas flow is continuously monitored using three flow meters. Flow to each flare is measured independently with dedicated flow meters, while total flow to the engines is measured with one flow meter located on the main gas header line located at the engine facility. Flow data to all destruction devices are recorded at standard conditions of 60°F and one atmosphere, respectively. The data are exported to Microsoft Excel for review and quantification.

The methane concentration of the landfill gas is continuously measured with a Siemens Ultramat 23 methane analyzer. Methane content of the landfill gas is recorded by the Yokogawa data logger. The data are exported to Microsoft Excel for review and quantification.

Both gas flow rates and methane concentration are measured on the same relative moisture basis relative to the flares. Gas flow to the engines is measured on a dry basis while associated methane concentration is measured on a wet basis (this arrangement is acceptable as per Section 6.1 of the Protocol).

Engine kilowatt hour production is measured continuously and recorded every minute to confirm destruction device operability. Additionally, the engine is equipped with a safety shut-off valve that prevents biogas flow to the engine when it is not operational.

Table 1 summarizes the Project monitoring system parameters and monitoring equipment employed by the Project.

TABLE 1: Monitoring Equipment				
Parameter	Monitoring Equipment	Frequency of Measurement	Frequency of Recording	Recording Device
Landfill gas flow	Rosemount Flow Meters	Continuous	Every 10 minutes	Yokogawa digital chart recorder
Methane Concentration	Siemens Ultramat 23	Continuous	Every 10 minutes	Yokogawa digital chart recorder
Operation of Flares	Thermocouple	Continuous	Every 10 minutes	Yokogawa digital chart recorder
Operation of Engines	Electricity meter	Continuous	Every 10 minutes	PLC digital chart recorder

6.3.2 Instrument Quality Assurance/Quality Control

Gaston County's instrument quality assurance/quality control (QA/QC) plan for the Project's monitoring equipment complies with CAR Protocol's requirements.

Each flow meter is cleaned and inspected, at a minimum, quarterly with as-found/as-left conditions documented. Each flow meter is also field checked for calibration accuracy on a routine basis, including at least once within two months prior to the end of the reporting period by a third party (Process Automation Service Solutions II, LLC). First Environment reviewed all third-party field calibration checks performed during the current reporting period which indicated that all flow meters were operating within the required five percent accuracy range. The manufacturer recommended calibration frequency is greater than once every five years; therefore, the Protocol default frequency of once every five years applies. All Project flow meters are calibrated in-situ multiple times per year, which is more frequent than manufacturer recommendations and the Protocol's default frequency of once every five years.

The continuous gas analyzer is cleaned and inspected at a minimum quarterly with as-found/as-left conditions documented. The analyzer is also field checked for calibration accuracy on a routine basis, including at least once within two months prior to the end of the reporting period by a third party (Process Automation Service Solutions II, LLC). First Environment reviewed all third-party field calibration checks performed during the current reporting period which indicated that the analyzer was operating within the required five percent accuracy range. The manufacturer does not recommend a specific interval to perform calibrations on an ongoing basis; however, the gas analyzer undergoes routine calibrations multiple times per year.

First Environment confirmed that the equipment used to perform the third-party field calibration accuracy checks and calibrations of the Project flow meters was calibrated and maintained per manufacturer's requirements. Additionally, First Environment reviewed the calibration gas certificates for the calibration gas used to calibrate the Project methane analyzer to confirm that the calibration gas was within its recommended lifespan.

Table 2 shows the dates during the current reporting period when instrument QA/QC was performed.

TABLE 2: Instrument QA/QC

Monitoring Equipment	Dates of Use	Calibration	Field Checked	Inspected/ Cleaned
Rosemount flow meter. (s/n 36913, Flare #1)	3/18/2025 – 9/3/25	3/18/2025; 6/18/2025	3/18/2025; 6/18/2025 *	3/18/2025; 6/18/2025
Rosemount flow meter. (s/n 24SHPC254550, Flare #1)	1/1/2025 - 3/18/2025; 9/3/2025 - 12/31/25	12/19/2024; 9/3/2025; 12/2/2025	12/19/2024; 9/3/2025; 12/2/2025	12/19/2024; 9/3/2025; 12/2/2025
Rosemount flow meter. (s/n 36914, Flare #2)	1/1/2025 - 12/2/2025	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025 *	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025
Rosemount flow meter. (s/n 48729, Flare #2)	12/2/2025 - 12/31/2025	12/2/2025	12/2/2025	12/2/2025
Rosemount flow meter. (s/n 45406, Engines)	Entire reporting period.	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025; 12/2/2025	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025; 12/2/2025	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025; 12/2/2025
Siemens Ultramat 23 Gas Analyzer (s/n F -Nr.NI-AN-463)	Entire reporting period.	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025; 12/2/2025	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025; 12/2/2025	12/19/2024; 3/18/2025; 6/18/2025; 9/3/2025; 12/2/2025

* Because these meters were in use for more than sixty days, were removed and not reinstalled, Errata and Clarification #1 (April 13, 2023) applies. Meters were calibrated no more than twelve months prior to use.

6.3.3 Project Emissions

Project emissions sources and the associated monitoring methodology are summarized in Table 3.

TABLE 3: Project Emissions	
Project Emissions Source	Monitoring
Consumption of Purchased Electricity to power the Project equipment	Monthly utility invoices
Consumption of Fossil Fuels (diesel and propane)	Purchase Receipts and facility usage records

6.4 Emissions Reduction Calculation Assessment

The emission reduction calculations were reviewed to ensure accuracy in the formulas used and the raw data used as inputs. The formulas were tested to ensure consistency with the calculation methodology described in the CAR Protocol.

Total landfill gas flow is computed by multiplying the average landfill gas flow rate in a given interval by the length of the interval. Flow totals are aggregated on a daily and monthly basis. Metered gas flow volumes were measured at standard conditions at one atmosphere of pressure and a temperature of 60°F by all of the flow meters. The total volume of methane destroyed by the Project was computed in daily intervals by multiplying the daily gas flow to the flares and engines by the daily average of methane concentration measurements and is converted to a mass flow using the density of methane at 60°F and one atmosphere of pressure. The total quantity of methane destroyed by the Project is aggregated monthly and summed over the reporting period to obtain the total baseline emissions. Project emissions were calculated by multiplying activity data by appropriate emission factors.

Because one flow meter is monitoring flow to all three engines, it was confirmed through review of the raw flow data that during any intervals when one or more engines was not operational, the remaining engines had the available capacity to destroy all of the available landfill gas. Additionally, it was confirmed during the site visit that the engines are designed in such a manner that it is physically impossible for gas to pass through while the engines are non-operational and that each engine is equipped with an automatic safety shut-off valve.

No data substitution was performed during the current reporting period.

The total emission reductions were determined by subtracting the Project emissions from the baseline emissions.

Table 4 summarizes the input parameters used in the emission reduction calculations.

TABLE 4: Input Parameters		
Input Parameter	Name	Description/ Value
$LFG_{i,t}$	Total quantity of LFG	Aggregated daily from metered data, recorded at 60°F and one atmosphere of pressure
$PR_{CH_4,t}$	Methane content	Averaged daily from continuously recorded data
DE_i	Default destruction efficiency	93.6% - Lean Burn Engine 96.0% - Open Flare
OX	Oxidation Factor	10%
Flare Temperature Cut-off	Metered data below corresponding temperature cut-off are excluded from calculations.	500°F
DF	Discount Factor	0 – Not applicable for current reporting period
EF_{EL}	Purchased electricity emission factor	637.44 lb. CO ₂ /MWh (SRVC Subregion: Per May 14, 2026 CAR Policy Memo / Cornerstone eGrid2024 Dataset)

TABLE 4: Input Parameters		
EF _{FF,Diesel}	Fuel specific emission factor	10.206 kg CO2/gal
EF _{FF,propane}	Fuel specific emission factor	5.721 kg CO2/gal
GWP _{CH4}	Global Warming Potential of Methane	28 (IPCC 5th Assessment Report)

Copies of the raw data used in the calculations, including flow data, methane content data, and utility invoices, were compared with the data used in the final calculations and tested for transcription or mathematical errors. Raw data sources and calculations over the entire verification period were reviewed. First Environment performed recalculations of emission reductions for the reporting period to assess whether they were free of material misstatement.

Table 5 below contains a detailed comparison of the Gaston County's reported emission reductions, and First Environment's recalculation based on the data and documentation reviewed during the verification process.

TABLE 5: Results of Data Checks Conducted and GHG Assertion Comparison				
Vintage Year	Gaston County's emission reduction assertion (tCO2e)	First Environment's estimated emission reduction assertion (tCO2e)	Applicable Threshold	%Error
2025	107,123	107,174	1%	-0.05
$\%Error = abs \left(\frac{Stated\ reductions - Verified\ reductions}{Verified\ reductions} \right) \times 100$				

First Environment found the emission reduction calculations to be free of material misstatement.

6.5 Approved Variance or Deviations

No variances or deviations were obtained for the Project in this verification period.

7. Verification Results

Based on the historical evidence collected and the assessments performed, First Environment concludes that the Project's GHG emissions reductions achieved through the collection and combustion of landfill gas for the reporting period of January 1, 2025 through December 31, 2025, can be considered with a reasonable level of assurance:

- In conformance with the verification criteria

- Without material discrepancy

Verified results show:

January 1, 2025 to December 31, 2025	Total
Baseline Emissions (tCO ₂ e)	107,544
Project Emissions (tCO ₂ e)	421
Emissions Reductions (tCO ₂ e) *	107,123

8. Lead Verifier Signature



Jeff Daley
Senior Associate

9. Senior Internal Reviewer Signature



Jay Wintergreen
Senior Associate