



Verification Report

CAR403 Black Warrior Solid Waste Facility

Reporting Period: January 1, 2023 – December 31, 2023

Prepared for:

Anew Environmental, LLC.

December 6, 2024

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1.0 Introduction

Anew Environmental, LLC. (Anew) contracted TÜV SÜD America, Inc. (TÜV SÜD), to perform the verification of the CAR403 Black Warrior Solid Waste Facility project (Project) for the reporting period spanning January 1, 2023 to December 31, 2023 to the Climate Action Reserve (Reserve) U.S. Landfill Project Protocol Version 6.0 (Protocol). The Project involves greenhouse gas (GHG) emission reductions from the capture and destruction of landfill gas (LFG) in Coker, Alabama at the Black Warrior Landfill (Landfill). The Project is currently in its second crediting period, spanning from January 14, 2019 to January 13, 2029.

1.1 Project Background & Site Description

The Landfill was opened in 1978 by the City of Tuscaloosa. Ownership of the Landfill was transferred to the Black Warrior Solid Waste Authority (BWSWA) in 1994. The landfill consists of 8 cells, and LFG is collected via 55 vertical wells. No new wells have been drilled since 2016. BWSWA owns and operates the gas collection and control system. The Project consists of the collection of landfill gas (LFG) from the Landfill and its subsequent destruction by combustion in one open flare.

1.2 Responsible Parties

Project Developer: Anew Environmental, LLC. (Anew)
3200 Southwest Freeway, Suite 1310
Houston, TX 77027

Landfill and Gas Collection and Control System Owner: Black Warrior Solid Waste Authority
3301 Landfill Drive
Coker, Alabama 35452

Anew is responsible for the preparation and fair presentation of the GHG statement in accordance with the criteria listed below in Table 1.

1.3 Verification Team

TÜV SÜD is responsible for expressing an opinion on the GHG statement based on the verification. The TÜV SÜD verification team consisted of the following individuals who were selected based upon verification experience and knowledge of landfill gas destruction projects.

Lead Verifier: Masury Lynch
Team Members: Pilar Gutierrez, Ashley Emery, and Brian Deegan
Senior Internal Reviewer: Garrett Heidrick

1.4 Objectives

The goal of the verification activities was to ensure that the claimed GHG emission reductions were complete, consistent, accurate, transparent, and permanent and that the Project was in compliance with the Reserve's project additionality, monitoring, and reporting requirements. Furthermore, the verification activities ensure that the data provided to TÜV SÜD is well documented and free of any material errors or omissions.

1.5 Scope

The scope of the verification consisted of the following independent and objective activities:

- Review the reporting period's Project Monitoring Plan;
- Review the Project data acquisition and quality control procedures;
- Review the Project's baseline emissions and confirm the baseline and Project boundaries;
- Review the Project's evidence of environmental and regulatory requirements to ensure that the Project is additional;
- Review the Project's emission reduction calculations;
- Review the Project documents and data against the criteria listed in Table 1;
- Issue requests for additional documentation, clarifications, and corrective actions as necessary; and
- Issue a verification report, verification opinion, and list of findings to Anew and the Reserve.

1.6 Verification Criteria

Table 1 – Summary of Verification Criteria

Criteria	Details
Standard of Verification	• Climate Action Reserve Landfill Project Protocol Version 6.0 (June 2022) • Errata and Clarifications to US Landfill Protocol Version 6.0 (April 2023) • The Reserve Verification Program Manual (February 2021) • The Reserve Offset Program Manual (April 2024) • Policy Memo: Use of Global Warming Potential Values for All Offset Protocols (July 2022)
Verification Process	The Reserve Verification Program Manual and ISO 14064-3:2019: Specification with guidance for the validation and verification of greenhouse gas assertions
Level of Assurance	Reasonable assurance
Materiality	97% accuracy level (less than 3% error) because total annual emission reductions are between 25,000 and 100,000 tCO ₂ e.

2.0 Verification Activities Summary

The Verification process consisted of the following activities as outlined in the verification plan:

- TÜV SÜD completed a NOVA/COI form to identify any potential conflict of interest with the Project, Anew, or technical consultants. The NOVA/COI form was submitted to the Reserve and the COI assessment revealed no conflicts of interest and was approved by the Reserve on August 12, 2024.
- TÜV SÜD held a verification kick-off meeting with Anew on September 12, 2024. During the kick-off meeting TÜV SÜD reviewed the verification objectives and process, reviewed the verification schedule, and requested the verification background documents.
- TÜV SÜD performed a strategic review and risk assessment of the received data and support documents in order to understand the scope and areas of potential risk in the GHG emissions reductions.
- TÜV SÜD developed a risk-based sampling plan based upon the strategic review and risk assessment. The verification plan and sampling plan were used throughout the verification and were revised as needed based upon additional risk assessments.
- A site visit was not conducted as part of the verification because TÜV SÜD conducted a site visit for the verification of the previous reporting period (January 1, 2022 to December 31, 2022) on July 12, 2023. During the site visit TÜV SÜD performed key personnel interviews; inspected the Project

equipment; and observed the onsite GHG management systems and data gathering, monitoring, and handling practices.

- TÜV SÜD performed a risk-based desktop review of the submitted verification documents. The desktop review included an assessment of the GHG calculation methods and inputs, source data completeness, GHG management and monitoring systems, evidence of regulatory compliance, and record retention practices.
- TÜV SÜD submitted requests for additional documentation, clarifications, non-material findings, and material corrective actions, as applicable, to Anew throughout the verification.
- TÜV SÜD's senior internal reviewer conducted an independent review of the verification sampling, report, and statement.
- TÜV SÜD issued a final verification report, verification statement, and list of findings.
- TÜV SÜD held an exit meeting with Anew.

3.0 Verification Findings

3.1 Assessment of the GHG Emission Reductions Project Operations

The Project currently collects landfill gas from the Landfill and destroys it via one open flare. The LFG is pulled from 8 cells at the landfill and passes through a clean-out that removes condensate which is transferred to the landfill's condensate collection system. TÜV SÜD confirmed that the open flare can combust all landfill gas produced.

TÜV SÜD confirmed that the landfill is not a bioreactor and does not re-circulate leachate nor add any liquid other than leachate in a controlled fashion to accelerate or enhance the anaerobic biodegradation of the waste.

3.2 GHG Project Boundary (sources, sinks and/or reservoirs)

The Protocol designates that carbon dioxide (CO₂) and methane (CH₄) are the only GHGs included in the Project boundary from both the baseline and Project activities. Project emissions must be deducted from baseline emissions to calculate GHG emission reductions. These GHG sources include CH₄ consumed by soil bacteria through natural oxidation, incomplete combustion of CH₄ in the flare, electricity use, and supplemental propane combustion. The sources of GHG emissions reviewed during the verification of the Project are listed below in Table 2.

Table 2 – Summary of the Project GHG Sources, Sinks and Reservoirs

Activity	GHG Sources, Sinks & Reservoirs
Baseline	• SSR 4 – CH₄ emissions from waste breakdown in landfill
Project	• SSR 5 – CO₂ emissions from the gas collection system (resulting from the consumption of purchased electricity) • SSR 6 – CO₂ emissions from supplemental fuel (resulting from the combustion of supplemental propane) • SSR 9 – CH₄ emissions from Project LFG flare destruction (incomplete combustion of LFG)

3.3 Project Eligibility Criteria

The Protocol specifies five eligibility rules that a project must meet to register emission reductions with the Reserve: Location, Project Start Date, Project Crediting Period, Additionality, and Regulatory Compliance. Below is a summary of the Reserve eligibility requirements and the Project's compliance to each requirement.

Eligibility Rule 1: Location

The Project is a US-based landfill located in the town of Coker, AL. The Project therefore meets this eligibility requirement. TÜV SÜD confirmed this information during the previous site visit conducted for the reporting period 2022 verification.

Eligibility Rule 2: Project Start Date

The Landfill Project Protocol states a project start date is the date when CH₄ was first continuously destroyed in a qualifying destruction device at the site. TÜV SÜD reviewed the initial calibration dates provided by CDG Engineers & Associates, Inc. to confirm that the Project first began continuous CH₄ destruction on January 14, 2009. The Project submittal form was completed on September 19, 2008 and submitted to the Reserve on December 11, 2008. The Project completed a second project submittal form on September 21, 2021 and submitted it to the Reserve on September 21, 2021.

Eligibility Rule 3: Project Crediting Period

The Project's first crediting period started on January 14, 2009 and ended on January 13, 2019. The Project applied for a second crediting period from January 14, 2019 to January 13, 2029, which was approved by the Reserve. The Project took a zero-credit reporting period from January 1, 2014 through December 31, 2019.

Eligibility Rule 4: Additionality

Performance Standard Test

Prior to the Project activity, the Landfill was neither collecting nor destroying gas. TÜV SÜD confirmed this through time-stamped satellite imagery prior to the project start date and with landfill staff during the previous site visit conducted for the reporting period 2022 verification. TÜV SÜD also observed no evidence of a previous landfill gas collection system while on site.

Thus, the Project passes the Performance Standard Test Number 1 since it involves:

"Installation of a landfill gas collection system and a new qualifying destruction device at an eligible landfill where landfill gas has never been collected and destroyed prior to the project start date."

Limits on Credit Stacking

There is no evidence of crediting stacking at the project area: that the landfill is receiving any type of mitigation credit other than offsets.

Legal Requirement Test

TÜV SÜD confirmed that there are currently no laws or ordinances requiring the Landfill to collect and destroy LFG. The Landfill is a municipal solid waste (MSW) landfill that exceeds the design capacity of 2.5 million megagrams (Mg) or 2.5 million cubic meters as specified in the New Source Performance Standards (NSPS) codified in Title 40 of the Code of Federal Regulations (CFR) Part 60, Subpart WWW. The landfill is therefore subject to the requirements of the NSPS for MSW landfills.

TÜV SÜD reviewed the NMOC modeling results for the landfill. The estimated NMOC emission rate for 2023 of 19.61 Mg/year is below the 34 Mg/year threshold for a required gas collection and combustion system.

TÜV SÜD also reviewed the Project's Monitoring Plan which defines how the Project continues to exceed the Legal Requirement Test. Landfill personnel review local, state, and federal regulations prior to each verification period in order to confirm that there are no new requirements or laws that mandate the GCCS to

be in place. The Attestation of Voluntary Implementation form was also signed after the end of the reporting period and uploaded to the Reserve registry which states that the project was implemented and established voluntarily.

During the review of the supporting evidence, TÜV SÜD did not observe any indication that the Landfill was mandated to destroy LFG. Additionally, there are no local, state, or federal requirements for the installation of a GCCS at the Landfill. Therefore, the results of the review indicated that Anew is following its Monitoring Plan procedures to assure that it passes the Legal Requirement Test.

Eligibility Rule 5: Regulatory Compliance

TÜV SÜD reviewed the procedures described in Anew's monitoring plan to ensure that the Project remains in compliance with all applicable local, state, and federal requirements. TÜV SÜD searched the Environmental Protection Agency's Enforcement & Compliance History Online (ECHO) database and found no evidence of noncompliance during the reporting period. Email correspondence with Alabama Department of Environmental Management confirmed that the Landfill had no instance of noncompliance during the reporting period. TÜV SÜD also reviewed the Landfill's environmental and operating permits including the Landfill's Title V Major Source Operating Permit, Solid Waste Facility Disposal Permit, and NPDES Permit. All permits were in effect for the entirety of the reporting period.

During TÜV SÜD's review there was no evidence of noncompliance found, and the procedures for ensuring regulatory compliance in the Monitoring Plan were being properly followed. Finally, TÜV SÜD confirmed signature of the Attestation of Regulatory Compliance, after the end of the reporting period, which was uploaded to the Reserve.

3.4 Ownership of Generated Emission Reductions

TÜV SÜD reviewed the completed Attestation of Title which states that BWSWA owns and operates the flare and Anew owns the emission reduction credits generated by the Project. TÜV SÜD also reviewed the Carbon Credit Purchase and Sale Agreement between the Landfill and Element Markets, LLC to confirm ownership. Element Markets, LLC has since been acquired by Anew. TÜV SÜD confirmed with Anew that an updated agreement is not required, and the original agreement still applies to Anew despite the name change.

3.5 GHG Monitoring and Management Systems

TÜV SÜD reviewed the data management systems during the desktop review, as well as during the previous site visit conducted for the reporting period 2022 verification. TÜV SÜD completed the majority of the GHG management systems review during the site visit by observing the onsite procedures and interviewing the personnel responsible for the Project. The onsite review included an assessment of the Project data collection, processing and handling procedures, recordkeeping and data storage, quality control and assurance procedures, record retention systems, and a field tour of the Project equipment. The desktop review included a detailed review of the Project monitoring plan and its conformance to Protocol requirements. TÜV SÜD also confirmed that the Project was implemented according to the Monitoring Plan.

The primary project data includes the LFG flow to the flare and CH₄ content of the LFG. The LFG flow is continuously measured by one Thermal Instrument Company flow meter (SN 2008455). During the site visit, TÜV SÜD observed that the position of the flow meter allowed for laminar flow of landfill gas. The flow meter internally corrects for temperature and pressure at 60°F and 1 atm. The CH₄ content of the LFG was measured weekly by a Landtec GEM2000 (SN GM11409) from the beginning of the reporting period until the end of March 2023. TÜV SÜD confirmed that the project was deducting 10% as required by the Protocol for weekly CH₄ measurements. On March 22, 2023, the Landfill installed a continuous Ecotec methane analyzer (SN

1211), which was used for the rest of the reporting period. All continuously monitored data is recorded continuously by a SCADA PLC system as well as a chart recorder.

During the desktop review, TÜV SÜD reviewed the data storage and retention policies of BWSWA and Anew and verified they were in conformance with the Protocol requirements and documented in the Monitoring Plan. All data is kept for a period of ten years after the information is generated or seven years after the last verification.

3.6 Variances

A variance was submitted to the Reserve and a determination letter issued on December 1, 2024. The variance allowed the Project to utilize data from the flow meter despite the meter not being calibrated every 18 months per manufacturer's recommendation. More discussion on QA/QC requirements of monitoring instruments is provided below in Section 3.7. TÜV SÜD ensured that the following conditions of the variance were met:

- The calibration for the flow meter (SN:2008455) performed on November 28, 2023 has "as found" and "as left" conditions within the +/-5% accuracy threshold;
- The monitoring plan is updated to ensure that all QA/QC requirements are met in the future; and
- The verifier confirms that all other QA/QC requirements are met.

3.7 Instrument QA/QC

TÜV SÜD reviewed evidence that the flow meter and methane analyzers met instrument QA/QC requirements as outlined in the Protocol for cleaning, inspection, and calibration. The Project Monitoring Plan describes the procedures for instrument field checks and calibrations. These procedures in the Monitoring Plan are in compliance with the Protocol requirements. Landfill staff performed monthly checks on the entire gas collection system, which includes the flow meter and methane analyzers. These monthly checks ensure that all pieces of equipment are functioning properly and equipment is fixed or calibrated in a timely manner, if necessary.

TÜV SÜD reviewed calibration and accuracy check documentation for the flow meter and methane analyzers. The flow meter was checked for calibration accuracy by a third-party technician (Thermal Instrument Company) on November 28, 2023, which is within 2 months of the end of the reporting period. The Ecotec methane analyzer was checked for calibration accuracy by a third-party technician (Ecotec) on February 7, 2024, which is within 2 months of the end of the reporting period. Both the flow meter and Ecotec accuracy checks were found to be within the Protocol required +/-5% accuracy threshold. No accuracy check was required for the GEM methane analyzer because it is a handheld unit and, therefore, not subject to the accuracy check requirement.

The manufacturer-recommended calibration frequency for the flow meter is every 18 months. The flow meter was calibrated on February 23, 2022 and November 28, 2023 by Thermal Instrument Company. A variance was submitted and approved by the Reserve because these calibrations occurred more than 18 months apart. Refer to Section 3.6 above regarding the variance.

The manufacturer-recommended calibration frequency for the Ecotec methane analyzer is 24 months after installation and every 36 months after that. The Ecotec methane analyzer was calibrated on March 3, 2023, installed on March 22, 2023, and calibrated again on February 7, 2024. Therefore, the Ecotec methane analyzer was calibrated according to manufacturer's guidance.

The Protocol requires all handheld methane analyzers to be calibrated per manufacturer's guidance or annually, whichever is more frequent. The GEM2000 Operation Manual does not specify a calibration frequency, so the GEM is calibrated annually in accordance with Protocol requirements. The GEM was

calibrated by QED on May 3, 2022 and November 29, 2022 with percent drift documented. All calibration records show the GEM to be within the Protocol required 5% accuracy threshold. No calibration was necessary in November 2023 because the GEM was not used after March 2023. Therefore, the Ecotec methane analyzer was calibrated according to manufacturer's guidance. Because it is a handheld unit, the GEM was also field calibrated prior to each use.

3.8 Assessment of GHG Emission Reductions Calculations

The emission reduction calculation assessment included a review of Project assumptions, raw data inputs, and accuracy of calculations. TÜV SÜD assessed the completeness of the raw data and how the data are transferred to the calculation spreadsheet. TÜV SÜD reviewed the formulas and raw data inputs for accuracy and compliance with Protocol requirements.

The Project data consisted of raw data in the form of spreadsheets of continuous flare flow, continuous LFG concentration, flare temperature, GEM measurements, and the calculation workbooks. TÜV SÜD compared raw data in the spreadsheets to the respective daily sums, then compared those data and the CH₄ readings to the calculation workbooks. TÜV SÜD confirmed operational activity of the flare using temperature data supplied in the raw data. TÜV SÜD confirmed that a 10% discount was applied for weekly CH₄ readings. TÜV SÜD confirmed that a 96% destruction efficiency was assigned to the Project's open flare.

TÜV SÜD reviewed source documentation for Project emissions from purchased electricity and propane consumption, confirmed that appropriate emission and conversion factors were used, and reviewed the use of Protocol equations for Project emissions in Anew's calculation workbook.

TÜV SÜD verified the use of missing data substitution methods during the reporting period, which were applied for missing weekly CH₄ concentration data one time during the reporting period.

TÜV SÜD independently recalculated project emissions, baseline emissions, and overall GHG emission reductions using electricity and propane consumption documentation and raw flow and CH₄ concentration data provided by Anew. TÜV SÜD compared their results to Anew's results to determine if the reported GHG emission reductions were materially correct. TÜV SÜD found no material misstatement in the final Project GHG emission reductions calculations. Materiality was calculated according to the equation for calculating percent error in the Reserve's Verification Program Manual: $\text{abs} ((\text{stated reductions} - \text{verified reductions}) / \text{verified reductions}) * 100$. TÜV SÜD determined that the Project's percent error for GHG emission reductions was 0.001%, calculated as follows: $\text{abs} ((47,945.63 - 47,946.00) / 47,945.63) * 100$. Therefore, percent error was below the materiality threshold of 3%.

4.0 Verification Results

Anew provided sufficient evidence and documentation of its emission reductions, data collection procedures, and monitoring and quality control procedures. The verification process focused on verifying the emission reduction calculations and the source data used to quantify the emission reductions in accordance with the Reserve Landfill Project Protocol 6.0. The following is a summary of the verification results.

The Project reported emission reductions of 47,946 metric tons of CO₂e from January 1, 2023 to December 31, 2023. During final review, TÜV SÜD identified no material misstatements in the data or emission reductions calculations. Table 3 defines the emission reductions verified for the reporting period. During the verification process, TÜV SÜD made requests for material findings, non-material findings, additional documentation, and clarifications to complete the verification. Anew sufficiently addressed all requests. The details of these requests are documented in TÜV SÜD's List of Findings provided to the Reserve and Anew.

5.0 Verification Opinion

TÜV SÜD conducted the verification of CAR403 Black Warrior Solid Waste Facility according to the requirements found in ISO 14064-3:2019. 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 Anew. A summary of the GHG statement is as follows:

- GHG-related activity: Methane destruction at the Black Warrior Landfill
- GHG statement: January 1, 2023 to December 31, 2023
- Criteria:
 - Reserve Offset Program Manual (April 2024)
 - Reserve Verification Program Manual (February 2021)
 - Reserve U.S. Landfill Project Protocol Version 6.0 (June 2022)
 - Errata and Clarifications to US Landfill Protocol Version 6.0 (April 2023)
 - Policy Memo: Use of Global Warming Potential Values for All Offset Protocols (July 2022)

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

Based upon TÜV SÜD's review, the GHG statement does not meet all requirements of the criteria including the Protocol's calibration requirements for the flow meter. A variance was submitted to the Reserve, and TÜV SÜD ensured that all conditions of the variance were met.

TÜV SÜD has ensured Anew's effective use of controls related to the GHG statement. TÜV SÜD concludes that there is sufficient and appropriate evidence to support Anew's GHG statement and is issuing a Modified Opinion.

TÜV SÜD confirms that the GHG statement has been prepared:

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

The verified emission reductions are listed in Table 3.

Table 3 - Emission Reductions Verified for January 1, 2023 – December 31, 2023

Vintage	Baseline Emissions CO ₂ e (tonnes)	Project Emissions CO ₂ e (tonnes)	Emission Reductions CO ₂ e (tonnes)
2023	48,039	93	47,946

Note: Due to rounding, individual values might not equal totals and values are not representative of raw data used in the emission reductions calculation.

Lead Verifier Signature



Masury Lynch

Senior Internal Reviewer Signature



Garrett Heidrick