

Verification Report – Moccasin Mike Landfill Landfill– CAR406 Superior, Wisconsin

August 2025

Prepared for:

City of Superior

Prepared by:

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1. Introduction

This report is provided to the Project Developer, The City of Superior (the City) as a deliverable of the Climate Action Reserve (CAR) project verification process. This report covers the verification of the Moccasin Mike Landfill Gas Project – CAR406 (the Project) for the period of January 1, 2024 through December 31, 2024.

During the verification process Anew Environmental, LLC (Anew) acted as the Project advisor for the Project developer, the City of Superior. The City and Anew are the parties responsible for the GHG statement under verification. Anew 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	Moccasin Mike Landfill, Superior, Wisconsin
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, 2024 through December 31, 2024
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 three 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 Anew
- 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 the project developer and Anew 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, 2025.

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 – Polo Gaputan

Senior Internal Reviewer – Michael Carim

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 13, 2025 with Anew. 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. Anew 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 May 21, 2024 as part of the verification process for the previous reporting period. During the previous site visit the Project's data management systems, and monitoring processes were reviewed. Interviews were conducted with personnel relevant to Project implementation. Consistent with the requirements of Section 7.3.3 of the Protocol and because it was confirmed that no significant changes in data management, equipment or personnel have occurred since the previous site visit, a site visit for the current reporting period was not conducted.

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 and clarification requests during the verification process. Anew provided sufficient responses to all corrective action and clarification 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 Anew, 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 Moccasin Mike Landfill is located in Superior, Wisconsin and is owned and operated by the City of Superior. The landfill has actively received municipal solid waste since 1976 and consists of Cells 1 through 5.

In 2008, the City of Superior began construction of the active gas collection system. The gas collection system consists of vertical and horizontal wells. The Project consists of the voluntary collection of landfill gas and its subsequent destruction in an open flare. No combustion devices existed on site prior to the initiation of the Project activity.

The baseline scenario is defined as the installation of a new qualifying destruction device at an eligible landfill where landfill gas is currently collected and vented, but has never been destroyed in any manner prior to the project start date.

6.2 Eligibility

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

6.2.1 Ownership and Title

The City of Superior is the owner and operator of the landfill and as such, holds title to the associated emission reduction credits. First Environment reviewed several permits held by the City of Superior, including the air pollution control construction permit, to confirm that the City of Superior is the owner of the Project and consequently owns the rights to any emission reduction credits generated by it. The ownership status was also confirmed at the previous site visit.

Anew Environmental, LLC (Anew) is a responsible party for the GHG statement under verification. However, it was confirmed through review of associated contracts that Anew does not hold title to the associated emission reduction credits.

Additionally, First Environment relied on the Attestation of Title completed by the City of Superior 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 April 28, 2009, which was confirmed during the initial verification through review of site documentation and official notifications sent to local and state environmental agencies notifying the agencies of flare start up.

The Project is currently within its second crediting period which spans from April 28, 2019 through April 27, 2029.

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 2 from the list provided in Section 3.4.1 of the CAR Protocol. In 2004, the City

of Superior installed five passive vents to help prevent the migration of landfill gas. These passive vents were converted to active gas collection wells in 2008. Because gas has been previously collected but never destroyed prior to the Project start date the Project exceeds the performance standard defined by the CAR Protocol, specifically Scenario 2 from the list provided in Section 3.4.1 of the CAR Protocol.

It was also confirmed at the 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. Therefore, there is no stacking of credits relevant to Project activity during the current reporting period.

6.2.3.3 Legal Requirements Test

The landfill has a permitted capacity above the 2.5 million cubic meter threshold of municipal solid waste that triggers New Source Performance Standard (NSPS) requirements. As such, the City of Superior conducted non-methane organic compounds (NMOC) emissions rate testing on August 1, 2019, as documented in the most recent NMOC Emissions Rate Report dated August 26, 2019. The results of this test indicated that the NMOC emission rate was estimated to be 12.6 megagrams (Mg) per year in 2024, which is below the 34 Mg per year threshold. Therefore, the landfill is not required to operate an active collection system under NSPS requirements.

Additionally, First Environment relied on the Attestation of Voluntary Implementation completed by the City of Superior 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 current Title V permit, Solid Waste Operating permit, NPDES Permit, and generated a compliance report on May 15, 2025 from the Environmental Protection Agency's (EPA) Enforcement and Compliance History Online (ECHO) database. The ECHO database search did not identify any issues during the current reporting period.

Additionally, First Environment relied on the Attestation of Regulatory Compliance completed by the City for the current reporting 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. Anew 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 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 have 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 a Rosemount model 3051SMV mass flow meter and transmitted to a Yokogawa datalogger that electronically archives all flow data. Flow data are automatically corrected from ambient conditions to a standard temperature and pressure of 60°F and one atmosphere, respectively. The data is exported to Microsoft Excel for review and quantification.

A Landtec Ecotec continuous gas analyzer was installed along with a SCADA system to allow for remote telemetry to the data logger. The data is exported to Microsoft Excel for review and quantification. The City of Superior also maintains a Siemens Ultramat 23 continuous gas analyzer. Both gas analyzers are operational. However, only the Ecotec gas analyzer is used for the purpose of emission reduction quantification.

Both methane content of the landfill gas and landfill gas flow is recorded by both the Yokogawa datalogger and SCADA system. The Yokogawa system is redundant to the SCADA and is used as a backup if needed.

Both gas flow rates and methane concentration are measured on the same relative moisture basis.

Flare temperature is continuously monitored by dual thermocouples and recorded by the Yokogawa datalogger and SCADA system. The data is also exported to Microsoft Excel for review and quantification.

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 MultiVariable Mass Flow Transmitter (s/n: 434191)	Continuous	At least every 15 minutes	Yokogawa digital chart recorder / SCADA System
Methane Concentration	EcoTec FAU-TDL Continuous Analyzer (s/n: 1303)	Continuous	At least every 15 minutes	Yokogawa digital chart recorder / SCADA System

TABLE 1: Monitoring Equipment

Parameter	Monitoring Equipment	Frequency of Measurement	Frequency of Recording	Recording Device
Operation of Destruction Device	Thermocouple	Continuous	At least every 15 minutes	Yokogawa digital chart recorder / SCADA System

6.3.2 Instrument Quality Assurance/Quality Control

The City of Superior's instrument quality assurance/quality control (QA/QC) plan for the Project's monitoring equipment complies with CAR Protocol's requirements.

The Rosemount mass flow meter is inspected and cleaned on at least a quarterly basis with as-found/as-left conditions documented. The meter is field checked throughout the reporting period including once within two months of the end of the reporting period by a third-party technician (Aspect Electrical Engineering & Services, LLC) with as-found/as-left conditions and a percent drift documented. First Environment reviewed documentation of all field accuracy checks, all of which indicated that the flow meter was operating within the required five percent accuracy range. The manufacturer of the flow meter recommends calibrations every 3 years. The Project flow meter was last calibrated on 4/4/2022; therefore, the flow meter did not require calibration this reporting period.

The EcoTec continuous gas analyzer is inspected and cleaned annually during routine calibration. The manufacturer recommends a calibration frequency of 24 months after being placed into service, or 36 months from the date of the last calibration. The continuous gas analyzer is manufacturer calibrated more frequently than the recommended calibration interval, including at least once within two months of the end of the reporting period. First Environment reviewed all calibration and field check records to confirm that the gas analyzer was operating within the five percent accuracy range required by the CAR Protocol.

The flow meter and gas analyzer were calibrated to a range of conditions corresponding to the range of conditions as expected at the landfill.

Additionally, First Environment confirmed that the UEI digital manometer used to perform the third-party field calibration accuracy checks of the flow meter was calibrated and maintained per the manufacturers' requirements.

Table 2 shows the dates when instrument QA/QC was performed.

TABLE 2: Instrument QA/QC

Monitoring Equipment	Dates of Use	Inspected/ Cleaned	Field Accuracy Check	Calibration
Rosemount Model 3051MV Mass Flow Meter (s/n: 434191)	1/1/2024 – 12/31/2024	2/24/2024 ; 6/13/2024 9/6/2024 ; 11/25/2024	2/24/2024 ; 6/13/2024 9/6/2024 ; 11/25/2024	4/4/2022

TABLE 2: Instrument QA/QC

Monitoring Equipment	Dates of Use	Inspected/ Cleaned	Field Accuracy Check	Calibration
EcoTec FAU-TDL Continuous Analyzer (s/n: 1303)	1/1/2024 – 12/31/2024	12/18/2023 ; 1/23/2025	12/18/2023 * 1/23/2025 *	12/18/2023 ; 1/23/2025

* Manufacturer calibration conducted in lieu of a 3rd party field accuracy check.

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	Meter readings
Propane consumption	Purchase Invoices or estimated

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 basis. Metered gas flow volumes are recorded at standard conditions of one atmosphere of pressure and a temperature of 60°F by the Rosemount flow meter. The total volume of methane destroyed by the Project was computed in daily intervals by multiplying the daily gas flow to the flare 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 summed over the reporting period to obtain the total baseline emissions.

Project emissions were calculated by multiplying activity data by an appropriate emission factor. The total emission reductions were determined by subtracting the project emissions from the baseline emissions. Project emissions from propane consumption account for the entire purchase amount at the time of purchase. It was confirmed that no propane purchases occurred during the current reporting period.

No data substitution was performed during the current reporting period.

No sources of leakage emissions are relevant under the Landfill Protocol.

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 monthly from metered data, recorded at 60°F and one atmosphere of pressure
PR _{CH4,t}	Methane content	Continuously and averaged monthly
DE _i	Default destruction efficiency	96% (Open Flare)
OX	Oxidation Factor	10%
Flare Temperature Cut-off	Metered data below corresponding temperature cut-off are excluded from calculations.	500°F
EF _{EL}	Purchased electricity emission factor	920 lb. CO2/MWh
GWP _{CH4}	Global Warming Potential of Methane	28 (IPCC 5th Assessment Report)

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

TABLE 5: Results of Data Checks Conducted and GHG Assertion Comparison				
Vintage Year	Anew's emission reduction assertion (tCO2e)	First Environment's estimated emission reduction assertion (tCO2e)	Applicable Threshold	%Error
2024	43,952	44,322	3%	0.83%
$\%Error = abs \left(\frac{Stated\ reductions - Verified\ reductions}{Verified\ reductions} \right) \times 100$				

First Environment found the emission reduction calculations to be free of material misstatement. Immaterial differences remain as a result of decimal truncation, rounding, and/or interpretative differences in data aggregation.

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, 2024 through December 31, 2024:

- Can be considered in conformance with the verification criteria,
- Without material discrepancy, and

therefore, have been verified *without qualification* which results in an *Unmodified Opinion*.

Verified results show:

January 1, 2024 to December 31, 2024	Total
Baseline Emissions (tCO ₂ e)	43,990
Project Emissions (tCO ₂ e)	38
Emissions Reductions (tCO ₂ e)	43,952

8. Lead Verifier Signature



Jeff Daley
Senior Associate

9. Senior Internal Reviewer Signature



Michael Carim
Senior Associate