

Verification Report for Sustainable Energy Solutions, LLC Eagle Point Landfill

Climate Action Reserve

March 2010

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1. Introduction

This report is provided to Sustainable Energy Solutions, LLC (SES) as a deliverable of the Climate Action Reserve (CAR) project verification process. This report covers the verification of the Eagle Point Landfill (the Project) for the period from October 1, 2009 through December 31, 2009. First Environment, Inc. (First Environment) conducted the verification from September 2009 through March 2010.

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 discussed in Section 4 of this report; and
- the data reported are accurate, complete, consistent, transparent, and free of material error or omission.

3. Verification Scope

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

Geographic Boundaries	Eagle Point Landfill
Project Boundaries, Emission Sources, and Greenhouse Gases Verified	Emissions reductions (expressed in units of Carbon Dioxide equivalents (CO ₂ -e) resulting from methane destruction; Project emissions of CO ₂ from purchased electricity and fossil fuel combustion.
Reporting Period	October 1, 2009 – December 31, 2009
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 Landfill Project Reporting Protocol, Version 2.0, November 2008
Verification Process	Climate Action Reserve Landfill Verification Protocol, Version 2.0, November 18, 2008; Climate Action Reserve Project Verification Manual, June 2009
Level of Assurance	Reasonable assurance
Materiality	Misstatements greater than five percent of the Project's emission reductions assertion are considered material; qualitative non-conformities with the verification criteria are also considered material.

5. Overview of the Verification Process

To review the Project's GHG information, the following verification process was used:

- conflict of interest review;
- selection of Audit Team;
- initial interaction and kickoff meeting with primary SES contact;
- development of the verification plan;
- site visit;
- review and evaluation of raw data and calculations for period under review;
- follow-up interaction with SES contact for corrective action or supplemental data as needed; and
- final statement and report development.

The verification process was utilized to gain an understanding of the Project's 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.

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 also received determination of a low risk of conflict of interest from CAR in a notification dated September 8, 2009.

Audit Team

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

Lead Verifiers - Michael Carim
Verifier – Ellen Reid, Greg Kozak
Internal Reviewer - Jay Wintergreen

Audit Kick-off

The verification audit was initiated with a kick-off meeting on September 28, 2009 with the primary SES contact. The meeting focused on confirming the scope, schedule, and data required for verification.

Development of the Verification Plan

The team formally documented its verification plan as well as determined the data-sampling plan. The verification plan was developed based on the discussion of key elements of the project verification process during the kick-off meeting. SES was afforded the opportunity to comment on the key elements of the plan for verification. Based on items discussed and agreed upon with the SES, the plan identified the First Environment project team members, project level of assurance, materiality threshold, and standards of evaluation and reporting for the verification. It also provided an outline of the verification process, established project

deliverables, and presented a data-sampling plan designed to review all project elements in areas of potentially high risk of inaccuracy or non-conformance.

Site Visit

Ms. Ellen Reid conducted a site visit on January 21, 2010 to assess the Project's data management systems and interview personnel relevant to the project.

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.

Corrective Actions and Supplemental Information

The team made corrective action requests during the verification process. SES provided sufficient response to the corrective action request. No requests for supplemental information were necessary.

Verification Reporting

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

6. Site's Conformance with Verification Criteria

Project Description

The Eagle Point Landfill is an active municipal landfill located at 8880 Old Federal Road, Ball Ground, Georgia. The landfill started accepting waste in 2002 and currently consists of the following cells:

- MSW Cells: Cells 1A, 1B, 2A, 2B, 5, 6, and 7
- C & D Cells: Cells 3A, 3B, and 4

In the future, the landfill will be expanded into Cells 8 through 16.

The project collects and combusts landfill gas in an open flare. No combustion devices existed on site prior to the initiation of the project activity.

Eligibility

The Eagle Point Landfill meets the eligibility requirements set forth in the Landfill Gas Reporting Protocol, Version 2.0. The project is located within the United States and has a project date after January 1, 2001. The project start date of the project was October 1, 2009. The commissioning report for the flare was reviewed during the verification process to confirm the project's start date.

SES has also completed the CAR Attestation of Voluntary Implementation. First Environment reviewed this document during the verification process and confirmed that it was completed in accordance with CAR requirements.

Proof of Title

A review of ownership of emission reduction credits was conducted regarding the legal rights to any emission reduction credits to be issued by the Climate Action Reserve. First Environment reviewed the emission reduction purchase agreement between SES and the landfill, which indicated that SES has legal rights to the emission reduction credits to be issued.

The CAR Attestation of Title has been completed by SES for the reporting period and is on file with CAR. First Environment reviewed the Attestation of Title during the verification process and confirmed that it was completed in accordance with CAR requirements.

Additionality

The project consists of a voluntarily installed landfill gas collection and combustion system and therefore exceeds the performance standard defined by the CAR protocol.

First Environment reviewed the Attestation of Regulatory Compliance during the verification process and confirmed that it was completed correctly.

Additionally, First Environment reviewed the applicable air and solid waste permits for the Eagle Point Landfill. This cursory review of permits and other applicable regulatory documents indicated that the site was in compliance and no violations of permits occurred during the reporting period. The Eagle Point Landfill is also subject to NSPS regulation requiring the facility to conduct Non-Methane Organic Compound (NMOC) emission rate testing. The most recent Tier II Test was conducted on May 28, 2009, with the NMOC emission rate results calculated to be 32.9 Mg/yr, below the 50 Mg/yr threshold that would require the installation of a gas collection and control system.

Project Performance Against CAR Protocol and Project Management System

The project was implemented in conformity with the CAR Landfill Project Reporting Protocol, Version 2.0.

The Eagle Point Landfill monitoring system consists of a flow meter, gas analyzer, and a thermocouple. A Rosemount Mass ProBar flow meter continuously measures differential pressure, temperature, and pressure of the gas stream and standardizes gas flow from ambient conditions. The flow meter undergoes quarterly calibrations checks and is recalibrated as deemed necessary. A Siemens Ultramat 23 Continuous Gas Analyzer measures gas composition for methane, oxygen, and carbon dioxide content. The gas analyzer autocalibrates every 24 hours with any drifts and alarms recorded. The candlestick flare incorporates a Pyromation thermocouple that is designed to shutdown the flare when the flare temperature drops below the set point of 400°F. First Environment determined the monitoring system to meet the protocol requirements based upon observations made during the site visit and review of relevant project documentation.

SES developed and implemented a monitoring plan to track relevant project parameters and data sources. The Monitoring Plan was reviewed to determine compliance with the protocol requirements. First Environment found the monitoring plan to meet the requirements set forth by the CAR Protocol.

Emissions Reduction Calculation Assessment

As part of the emissions reduction calculation assessment, the Project's assumptions and calculations were reviewed. The baseline scenario, defined as the partial or total release of LFG to the atmosphere, was confirmed during the review of facility air permits.

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 they were consistent with the calculation methodology described in the CAR Protocol. Because the landfill is still receiving waste and is not capped, a 10 percent oxidation factor was applied to account for methane oxidation in the cover soil. A 96 percent destruction efficiency is assigned to the project's open flare. The destruction efficiency is applied accordingly in emission reduction calculations.

The amount of methane destroyed was calculated from metered data for landfill gas collected. Totalized flow was calculated from data obtained in approximately 30-second intervals from the PLC system, which continuously records the flow rate in units of scfm corrected for temperature, pressure, and specific gravity of the LFG. Total flow in a given interval was computed by multiplying the flow rate by the length of the interval.

The fraction of methane in landfill gas during a given interval was calculated from data obtained in approximately 30-second intervals. The methane concentration was recorded in the DAQ Standard Data Acquisition software and on the Yokogawa digital chart recorder. Total volume of gas flow during a given interval metered by the Rosemount Mass Probar flow meter was corrected to one atmosphere of pressure at 60°F. The total volume of methane destroyed by the Project is computed in daily intervals and converted to a mass flow using the density of methane at 60°F and one atmosphere of pressure.

Project emissions of CO₂ were subtracted from total volume of methane destroyed. Emission sources consisted of stationary combustion of propane and purchased electricity. Project emissions were calculated by multiplying activity data by an appropriate emission factor.

For data control and quality purposes, any measurements when flare temperature was recorded below 400°F were excluded from emission reduction calculations.

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

Approved Variance or Deviations

SES did not request any variances or deviations from the protocol for the verification period.

7. Audit Results

SES provided good documentation for its emissions estimates, as well as its procedures surrounding the data collection process. To complete the verification process, First Environment requested corrective action from SES. The responses given by SES were sufficient to resolve the issues raised by the Audit Team.

Verified results show 30,027 metric tonnes of CO₂e from Vintage 2009 from the project reporting period of October 1, 2009 to December 31, 2009 eligible for registration with the Climate Action Reserve.

8. Verification Conclusion

Based on the assessments performed and the evidence collected, First Environment concludes that the Project GHG emissions reductions, due to the capture and combustion of methane gas for the period October 1, 2009 to December 31, 2009, can be considered with a reasonable level of assurance:

- consistent with the Project Methodology,
- without material discrepancy, and
- meeting the minimum level of accuracy of at least 95 percent.

Verified results show:

Reporting Period:	Total
Baseline Emissions (tCO ₂ e)	30,060
Project Emissions (tCO ₂ e)	33
Emissions Reductions (tCO ₂ e)	30,027

*as measured and calculated in accordance with the Project Methodology

9. Lead Verifier Signature



Michael M. Carim
Senior Environmental Specialist

10. Independent Internal Review Signature



James T. Wintergreen
Senior Associate