

Verification Report for CAR 495 Greenville County Landfill Gas Utilization Project Greer, South Carolina

Climate Action Reserve

December 2009

Prepared by: **First Environment, Inc.**
91 Fulton Street
Boonton, New Jersey 07005



1. Introduction

This report is provided to Greenville Gas Producers, LLC (GGP) as a deliverable of the Climate Action Reserve (CAR) project verification process. This report covers the verification of emission reductions from the capture and destruction of landfill gas (LFG) for the period of March 20, 2009 through September 19, 2009 at the Greenville County Landfill Gas Utilization Project (the Project) in Greer, South Carolina. First Environment, Inc. (First Environment) completed the verification in December 2009.

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 Boundary	Enoree Landfill, Greer, South Carolina
Greenhouse Gases Verified	Emissions reductions (expressed in units of Carbon Dioxide equivalents (CO ₂ -e) resulting from methane destruction
Reporting Period	March 20, 2009 through September 19, 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 18, 2008 (CAR Protocol)
Verification Process	Climate Action Reserve Landfill Verification Protocol, Version 2.0, November 18, 2008
Level of Assurance	Reasonable assurance
Materiality	Mis-statements greater than five percent of the emissions reductions assertion are 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;
- interaction with GGP's Carbon Advisor contact;
- development of the verification and sampling plan;
- site audit;
- review and evaluation of raw data and calculations for period under review;
- follow-up interaction with GGP's Carbon Advisor 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 (including the risk for leakage), 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.

EcoSecurities Group PLC, GGP's "Carbon Advisor," provided technical assistance to GGP in the development of the Project.

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 a determination of a low potential for conflict of interest from CAR prior to initiating verification activities.

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 Verifier - Greg Kozak
Verifiers - Iris Caldwell and Mary Pat Campbell
Internal Reviewer - Jay Wintergreen

Audit Kick-off

The verification audit was initiated with an exchange of emails between First Environment and GGP's Carbon Advisor contact. The communication focused on confirming the scope and schedule and identifying the data required for the verification. A kickoff meeting was held on October 5, 2009.

Development of the Verification Plan

The team formally documented its verification plan as well as determined the data-sampling plan. The Audit Team reviewed the project monitoring plan along with information gleaned from the project kickoff call as a basis for developing the verification and data-sampling plan. The verification plan identified the First Environment verification team members, level of assurance, materiality threshold, and standards of reporting and verification. It also provided an outline of the verification process, established project deliverables, and presented a data-sampling plan designed to review areas with the greatest potential for material misstatements or non-conformance.

Site Visit

Greg Kozak of First Environment conducted a site visit during this verification period on October 7, 2009 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 requested supplemental information, clarifications, and requested corrective actions during the verification process. GGP was given the opportunity to respond to each request.

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 GGP and a list of findings and verification statement to be submitted to the Climate Action Reserve.

6. Site's Conformance with Verification Criteria

Site Overview

The Greenville County Landfill Gas Utilization Project is built, owned, and operated by Greenville Gas Producers, LLC. This Project was implemented at the Enoree landfill in Greer, South Carolina. The Enoree landfill is a municipal solid waste landfill owned and operated by Greenville County.

The landfill started accepting waste in 1996 and was closed in February 2007 with 2,573,786 tons of municipal solid waste. The landfill covers an area of approximately 28.3 hectares and is 40 feet deep on average. The landfill's design capacity is larger than 2.5 million megagrams (roughly 2,600,000 megagrams) and is therefore subject to NSPS regulations. Tier II testing in November 2006 showed non-methane organic compounds (NMOC) emission rate to be below

the 50 megagrams threshold that would mandate gas collection and control at the landfill. First Environment reviewed evidence of Tier II testing results during the verification process and confirms that a gas collection and control at the landfill is not mandated.

In addition to reviewing documents pertaining to the site's NSPS status, First Environment performed a cursory review of the landfill's permits and found no evidence that the site was out of compliance with any of its operating permits. First Environment also relied on the Attestation of Regulatory Compliance. The attestation is provided as Attachment A to this report. First Environment verified that an executive-level representative formally attested to compliance with the Regulatory Test to conform with CAR requirements.

The Project is a landfill gas to energy project where landfill gas is converted to electrical power and excess landfill gas is directed to a flare for destruction. The LFG gas collection system and flare were originally tested in early April 2007, but the project start date - the date on which gas was first continually combusted in the system - is August 1, 2007, which corresponds to the date on which GGP notified the South Carolina Department of Health and Environmental Control (SCDHEC) of the successful installation and operation of the flare system and requested a new operating permit for the landfill. First Environment reviewed evidence to confirm the Project's start date and the start of the reporting period during the verification process. The evidence was sufficient in meeting the Reserve's project start date requirements.

The LFG collection system consists of 51 vertical gas wells and a gas collection pipe network connecting the wells to a manifold. The manifold is then connected to the main header pipe delivering gas to the flare and engines. Blowers are used to draw the gas from the pipes and deliver it to the flare and engines. The flare system consists of a modular candlestick gas flare consisting of pipe work, valves, blower, stack with burners, and a thermocouple for flame detection. The candlestick flare is designed and installed to ensure compliance with the U.S. EPA's guidelines for destruction of non-methane organic compounds (NMOC's) by non-assisted flares.

The electricity component included an installed capacity of 3.2 Megawatts. Electrical power is generated via combustion in two Caterpillar G3520C (1600 kilowatts at 1200 RPM, 60 Hz) generator sets. The flare is used to combust gas when one or both of the gensets are offline.

GGP has acquired full title and right of ownership of the LFG from Greenville County. Evidence attesting to the ownership of all environmental attributes associated with the LFG was reviewed and an attestation of title is provided in Attachment B.

It should be noted that this project was originally validated and verified to the Voluntary Carbon Standard in May 2008. Carbon credits from 2007, 2008, and part of 2009 have been issued as VCUs. The project has been transferred from VCS to the Reserve such that no credits issued as VCUs will also be issued as CRTs (no double-counting). A "Project Transfer Form" was submitted by GGP.

Data Collection and Monitoring Processes

The Audit Team discussed the following topics with site staff during the site visit on October 7, 2009 and confirmed the information during this verification process:

- the data collection process; and
- internal documents and protocols that set guidelines for the data collection process.

Information gathered during these discussions was used to assess the Project's GHG information system and its controls for sources of potential errors and omissions.

Total landfill gas flow (LFG_{total}) and flow fed to the flare (LFG_{flared}) and generator sets ($LFG_{electricity}$) is monitored continuously with three separate differential pressure flow meters. LFG_{total} and $LFG_{electricity}$ are measured separately using a Lambda Square Venturi 2350 flow meter, and LFG_{flared} is measured using a Veris Veribar Model V100/110 differential flow sensor. The Venturi meters standardize flow readings to a pressure of one atmosphere and a temperature of 60°F. The Veris Veribar meter standardizes flow readings to a pressure of one atmosphere and a temperature of 59°F¹. The flow meters are located downstream of the blowers and upstream of the flare/engines, sufficiently placed to ensure laminar flow at the point of measurement.

No specific manufacturer recommendations for flow meter calibration frequency exist. However, the flow meter pressure transmitters (Rosemount 1151) are calibrated quarterly by an outside consultant (Cooper Electrical Construction). During this verification period, the pressure transmitters were calibrated on April 8 and July 30, 2009. The third-party calibration reports showed the meters to be within the allowable five percent margin of error. As such, no adjustments to gas flow totals are required during the current reporting period.

Methane content is monitored continuously by a Siemens ULTRAMAT 23 gas analyzer. The gas analyzer was calibrated quarterly by Cooper Electrical Construction during flow meter pressure transmitter calibration events (April 8 and July 30, 2009). As an added precaution, the gas analyzer is field calibrated using calibration gas on an as-needed basis (i.e., if the methane content reading is outside of typical/expected operating limits). Additionally, the system has an alarm that will shut off gas flow to the flare if methane content falls below 25 percent.

A thermocouple is used to monitor the temperature within the flare shroud in order to detect flame presence and determine operating hours of the flare. The thermocouple was calibrated during the April and July third-party quarterly calibration events. A threshold temperature of 200°F is used to determine whether a flame is present. The system automatically shuts down and gas is prevented from flowing to the flare if the flame remains extinguished. This was corroborated through interviews with site personnel and review of the raw SCADA data files.

All evidence supporting instrument calibration was reviewed and found to be sufficient in meeting the Reserve's monitoring requirements.

Monitoring data is recorded by both an electronic chart recorder (Yokagowa) and a SCADA system. The electronic chart recorder records the flow to each component (LFG_{total} , LFG_{flare} , $LFG_{electricity}$), methane content, and thermocouple temperature every two seconds. A computer program was written to average five minutes worth of sequential two-second data to arrive at a five-minute data set. In the calculations, only the minimum flow data set is used to be conservative; the maximum flow data is ignored. The SCADA system records the same

¹ Veris Veribar readings are corrected to 1 atm, 60° F in the emission reduction calculations.

monitoring parameters every five minutes. The SCADA system data is used preferentially over the chart recorder data. However, if the SCADA system fails (power outage, computer error, etc.), the chart recorder data is used as backup. On a weekly basis, the site operator transfers the SCADA data files to the site Operations Manager, who in turn sends the files to GGP's Carbon Advisor. From the SCADA data files, GGP's Carbon Advisor exports the five-minute data into an MS Excel file format. Using this raw measured data, the MS Excel spreadsheet calculates the number of offsets generated.

There are two sources of project emissions identified within the project boundaries. Indirect emissions of CO₂ occur from purchased electricity used to power project equipment. As discussed above, the Project consumes grid-supplied electricity but also exports electricity to the grid. Electricity supplied to and from the grid is measured continuously using an electricity meter (No. 52267865). Activity data is obtained from monthly utility invoices. Additionally, the site uses a 100-pound propane tank to assist in igniting the flare should it become extinguished. Based on conversations with site personnel and review of SCADA data, the flare was used very rarely during this verification period, and as such, very little propane was used. For monitoring purposes, the project keeps track of propane purchases and submits these for verification when propane is purchased. No propane was purchased during the verification period. Given that propane was not purchased during this verification period, the flare was rarely used, and the emissions from one propane tank are immaterial, it is acceptable to set the project emissions from fossil fuel use to zero.

GGP maintains a back-up server which archives information monthly. All data are kept for 10 years after the information is generated or 7 years after the last verification.

The project's operating system has several alarms and an auto-dialer that alerts field personnel if an alarm is triggered. The system automatically shuts down if an alarm is triggered. System downtime is shown on the operator logs.

GGP also developed and implemented a project monitoring plan to track relevant project parameters and data sources and provide assurance that proper monitoring was implemented. The final monitoring plan submitted during the verification process was found to fully comply with the requirements of the CAR protocol.

Emissions Reduction Calculation Assessment

As part of the emissions reduction calculation assessment, the Project's assumptions and calculations were reviewed. Because no pre-existing combustion devices existed at the site, per the CAR protocol, the baseline scenario is defined as the total release of LFG to the atmosphere.

Emission reduction calculations (summarized in Attachment C) 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. In accordance with the protocol, a 96 percent and 93.6 percent destruction efficiency were assigned to the project's open flare and engines, respectively, and applied accordingly in emission reduction calculations. Because the landfill has a synthetic cap, a 10 percent discount is not applied to the baseline scenario for bacterial oxidation of methane under the cap.

Project monitoring data for landfill gas collected and destroyed by the project (LFG_{elec} , LFG_{flare}) and methane fraction (PR_{CH_4}) are used to calculate the amount of methane destroyed by the Project activity (CH_4Dest). Two sets of monitoring data are used in the emission reduction calculation: chart recorder data and SCADA system data. Approximately 83 percent of the CRTs generated from flaring LFG and electricity generation are calculated using SCADA data; the remainder from chart recorder data.

For the periods March 20th to April 14th; April 27th to July 20th; July 26th to August 25th; August 30th to September 8th, 2009; September 13th to September 14th, continuous SCADA system data are used to calculate CRTs generated from flaring LFG and electricity generation. For the periods April 14th to April 27th; July 20th to July 25th; August 25th to August 29th; September 8th to September 12th; September 14th to September 19th, continuous chart recorder data are used to calculate CRTs generated from flaring LFG and electricity generation. For periods when neither SCADA system data nor chart recorder data is available for more than 15 minutes, no emissions reductions are claimed.

A problem was identified during the verification period with communication between the continuous gas analyzer and the recording equipment. The gas analyzer was measuring and displaying methane content values within normal operating limits on the built-in display panel, but due to an intermittent signal connection issue, no value was being sent to the SCADA system or chart recorder. Therefore, during periods when this problem occurred, both the SCADA and chart recorder would record zero for methane concentration. Data gaps occurring within continuous² periods were filled using the data substitution guidelines provided in Landfill Project Protocol v 3.0. For days falling within discontinuous³ periods, the weekly average of the non-zero PR_{CH_4} measurements, less the 10 percent discount factor (calculated in "Greenville CH4 substitution MAR-SEP 2009"), are applied for the entire day.

As per CAR's data substitution memo (July 21, 2009), project developers can put forth original data substitution methodologies (until the release of version 2.1) and the Reserve would defer to Verifier professional judgment to assess the validity of the method. Version 2.1 was released after the end of the current Greenville verification period. Based on review of GGP's alternative data substitution methodology, First Environment determined that the new data substitution approach is acceptable as it reduces uncertainty and results in conservative estimates of missing methane readings. As such, additional discounts were not necessary.

The flare flame presence is monitored using thermocouple temperature. No emissions reductions were claimed during periods when the thermocouple temperature dropped below 200°F. Similarly, emissions reductions are also not claimed during periods when the methane fraction readings are recorded outside of the normal operating range (i.e., 60 percent or greater).

On-site project emissions from electricity use are deducted from the overall emission reductions created by the project. Electricity invoices are used to determine the amount of electricity used

² Continuous is defined as a day containing at least 75% measured data, or a week-long period containing at least 75% measured data.

³ Discontinuous is defined as a day containing less than 75% measured data within a week-long period containing less than 75% measured data.

by the project (EL_{PR}). Electricity data and an appropriate carbon emission factor of 0.515 tCO₂/MWh (eGRID2007 v1.1, SRVC subregion) were used to determine the emissions produced by the project.

The emission reduction calculations, summarized in Attachment C, were reviewed to ensure accuracy in the formulas used and the raw data used as input. The formulas were tested to ensure they were consistent with the calculations outlined in the CAR protocol. All utility bills and calculations were reviewed for the entire verification period. Additionally, representative raw data samples including the SCADA data files for flow, methane content, and flare temperature were compared with the data used in the final calculations and tested for transcription errors to ensure data was properly exported into the MS Excel calculation workbook. No transcription errors were encountered. Recalculation showed well below a five percent mis-statement of emissions reductions.

7. Audit Results

GGP provided good documentation for their emissions estimates as well as its procedures surrounding the data collection process. The verification process focused on verifying the data and quantification methodology that was used by GGP to calculate the emissions reductions, as summarized on the spreadsheets in Attachment C.

To complete the verification process, First Environment requested clarification or supplemental document requests as well as several corrective action requests. All responses were found to be sufficient to address the requests made.

Verified results show 53,345 metric tonnes of CO₂e for this reporting period (March 20, 2009 through September 19, 2009) eligible for registration with CAR.

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 of March 20, 2009 through September 19, 2009, can be considered to 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: March 20, 2009 through September 19, 2009	
Baseline Emissions (tCO ₂)	53,596
Project Emissions (tCO ₂)	251
Emissions Reductions (tCO ₂)	53,345

*as measured and calculated in accordance with the Project Methodology.

As per CAR requirements, only a CAR-approved verifier can provide an independent assessment of projects applying for approval under the CAR Landfill Project Reporting Protocol. First Environment currently has accreditation from CAR.

9. Lead Verifier Signature



Greg Kozak
Senior Environmental Engineer

10. Independent Internal Review Signature



James T. Wintergreen
Senior Associate

ATTACHMENT A

Project Developer's Regulatory Attestation

Reference is made to the Terms of Use (the "Terms of Use") by and between [Greenville Gas Producers, LLC], a [LFG project developer] (the "Project Developer"), and the Climate Action Reserve, a California nonprofit public benefit corporation (the "Reserve"), with respect to [Greenville County Landfill Gas Utilization Project] (the "Project") located at [Enoree Landfill, Greer, SC] (the "Property"). The undersigned, [William P. Brinker], in [his/her] capacity as an officer of the Project Developer, in the name and on behalf of the Project Developer, hereby attests, certifies, represents and warrants to the Reserve, as of the date set forth below, as follows:

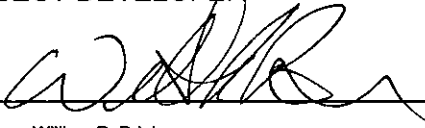
1. The Project was implemented and established voluntarily and, at all times thereafter, has been operated and conducted voluntarily. None of such implementation, establishment, operation or conduct of the Project are or at any time have been required by any law, statute, rule, regulation, ordinance, court order, governmental agency action, enforcement action, or other legally binding mandate, including without limitation any of the foregoing issued, enacted or otherwise rendered effective by any federal, state, local or foreign governmental or regulatory agency, commission, department, board, court or other authority having jurisdiction over the Project ("Law").
2. Except as otherwise expressly permitted under the protocol developed by the Reserve that applies to the Project, the Project was not established or implemented and has not at any time been operated or conducted in anticipation of, or to avoid or satisfy the anticipated requirements of, any Law that would require or would have required the Project Developer to use the Property in the manner contemplated by the Project.
3. The Project is in material compliance with all Laws.
4. The Project Developer has disclosed to the Project Verifiers in writing any and all instances of non-compliance of the Project with any Law. For purposes hereof, "Project Verifiers" shall mean any and all third party verifiers approved by the Reserve and assigned to the Project.
5. The undersigned is the duly elected, qualified and acting [Operations Manager] of the Project Developer and is authorized to execute and deliver this Attestation in the name and on behalf of the Project Developer, thereby rendering this Attestation binding on the Project Developer.

The Project Developer recognizes, acknowledges and agrees that (i) this Attestation may be relied upon by the Reserve and/or any user of the Climate Action Reserve program of the Reserve (the "Program"), and each of their successors and assigns (including, without limitation, reliance in connection with the issuance and transfer of CRTs (as defined in the Terms of Use) in respect of the Project); (ii) the statements set forth in paragraphs 1 through 5 hereof shall, for all purposes of the Terms of Use, be deemed to be additional representations and warranties made thereunder by the Project Developer to the Program; (iii) in the event of any breach of any of paragraphs 1 through 5 hereof, the Reserve shall be entitled to pursue any rights and remedies available at law or in equity (including, without limitation, rights to indemnification pursuant to the Terms of Use) in any court of competent jurisdiction; and (iv) if at any time the Reserve determines, in its sole discretion, that any such breach has occurred, the Reserve shall have the right to immediately close the Project Developer's account on the Program.

[Signatures on Next Page]

IN WITNESS WHEREOF, the undersigned, in the name and on behalf of the Project Developer, has executed this Attestation this 21st day of August, 2009.

PROJECT DEVELOPER¹

By: 

Name: William P. Brinker

Title: Operations Manager

Address: 10801 Monroe Rd, Suite F, Matthews, NC 28105

¹ If the Project Developer is a corporation, partnership or other legal entity, this Attestation must be executed by an officer of the Project Developer. If the Project Developer is an individual, this Attestation must be executed by the individual and revised accordingly.

ATTACHMENT B

Project Developer's Attestation of Title

The undersigned, on behalf of Greenville Gas Producers, LLC, (the "Project Developer"), represents and warrants to the Climate Action Reserve (the "Reserve"), as of the date set forth below, and throughout the period during which the Climate Reserve Tonnes ("CRTs") related to Greenville County Landfill Gas Utilization Project (the "Project") are posted on the Climate Action Reserve program of the Reserve (the "Program") that:

1. it is the owner of full, unencumbered legal and beneficial title to CRTs registered in its name;
2. it has the right to sell and shall convey good title to the CRTs and will transfer the CRTs to a buyer via the Program only;
3. it agrees that all emission reductions related to the Project that are submitted for registration on the Program will be independently verified by a Reserve accredited third party verification body ("Verifier"), and will meet all the Reserve's requirements and protocols;
4. it has not made or provided knowingly false, fraudulent or misleading statements or information to the Verifier or the Reserve;
5. the Project has not been implemented and maintained as the result of any law, statute, regulation, court order, or other preexisting legally binding mandate;
6. for all vintage years that the Project is registered with the Program by the Project Developer, any CRTs issued by the Reserve for the Project, or the greenhouse gas emission reductions or removals associated with the CRTs issued for the Project, have not been, nor will be, registered with or claimed by other registries or under a different project title or location or previously sold to any third party prior to registration with the Program; and
7. for all vintage years that the Project is registered with the Program by the Project Developer, it has not, and will not in the future, retire, sell, claim, represent elsewhere, or use to satisfy obligations outside of the Program any of the CRTs issued by the Reserve for the Project or the greenhouse gas emission reductions or removals associated with the CRTs issued for the Project that would create the relevant CRTs unless retired through the Program for that purpose.

The following attestations apply to projects that: (a) have previously been registered with other registries, registry entities or similar systems; or (b) have generated emission reductions that were previously sold to a third party:

8. it will complete and sign the Project Transfer Form.
9. it agrees that the Project and all emission reductions must be verified by a Verifier per the relevant Reserve project protocol in order to be registered on the Program.

I declare that all statements contained herein are true and correct, to the best of my knowledge, and are made with full knowledge that the Reserve and all users of the Reserve rely upon the truth of the statements contained in this attestation. I am authorized to make this declaration on behalf of Project Developer. I understand and acknowledge that if any of the above representations made by or on behalf of the Project Developer in or pursuant to this Attestation of Title is false in any material respect when made or deemed repeated upon the making of each request for the CRTs to be issued for the Project or posted on the Reserve, Project Developer may be subject to penalties and potential indemnification damages under the Terms of Use, and that the Reserve would have the right to close Project Developer's account on the Reserve.

PROJECT DEVELOPER¹

Signature: 

Name: William P. Brinker

Title: Operations Manager

Address: 10801 Monroe Rd, Suite F, Matthews, NC 28105

Date: August 21, 2009

¹ If Project Developer is a corporation, partnership or other legal entity, this Consent must be executed by a company officer of the Project Developer. If Project Developer is an individual, this Consent must be executed by the individual.

ATTACHMENT C

Equation 5.1: Project GHG Emission Reductions		
CH ₄ DEST _{PR}	2,552	tCH ₄ /yr
GWP	21	-
OX	0.0	%
PRE _{discount}	0	ft ³ CH ₄ /ft ³ LFG
Discount Factor (DF)	0.0	-
Fossil Fuel Emissions (FFCO ₂)	0	tCO ₂ /yr
Total Fossil Fuel Consumed (FF _{PR})	0	vol/yr
Fuel Emission Factor (EF _{FF})	0	kgCO ₂ /vol
Electricity Emissions (ELCO ₂)	251	tCO ₂ /yr
Annual Electricity Consumption (EL _{PR})	488	MWh
Emission Factor for Electricity (EF _{EL})	0.515	tCO ₂ /MWh
Emission Reductions (ER_y)	53,345	tCO₂e/yr

Data Source
From Equation 5.2
IPCC, 1996
Synthetic cap
No pre-existing collection
Continuous Data
No fossil fuel used
N/A
N/A
Calculated
Electricity Invoices
eGRID2007 v1.1: SRVC
Calculated

Equation 5.2: Total Annual Methane Emissions Destroyed		
Flare		
Total Quantity of Gas (LFG _{flare})	18,858,759	ft ³
Ave Methane Fraction (PR _{CH4})	50.16%	ft ³ CH ₄ /ft ³ LFG
Total quantity of landfill methane sent to flare (Q _{flare})	9,460,433	ft ³
Destruction Efficiency (DE)	0.96	%
Incomplete Combustion (FFCH ₄)	0	tCH ₄ /yr
Density of Methane (D _{CH4})	0.000019	tCH ₄ /ft ³ CH ₄
CH₄DEST_{flare}	174	tCH₄/yr
Electricity		
Total Quantity of Gas (LFG _{electricity})	264,000,770	ft ³
Ave Methane Fraction (PR _{CH4})	50.11%	ft ³ CH ₄ /ft ³ LFG
Total quantity of landfill methane sent to engines (Q _{electricity})	132,283,020	ft ³
Destruction Efficiency (DE)	0.936	%
Incomplete Combustion (FFCH ₄)	0	ft ³ CH ₄ /yr
Density of Methane (D _{CH4})	0.000019	tCH ₄ /ft ³ CH ₄
CH₄DEST_{electricity}	2,378	tCH₄/yr
Thermal		
Total Quantity of Gas (LFG _{thermal})	0	ft ³
Destruction Efficiency (DE)	0.98	%
CH₄DEST_{thermal}	0	tCH₄/yr
Upgrade		
Total Quantity of Gas (LFG _{upgrade})	0	ft ³
Ave Methane Fraction (PR _{CH4upgrade})	0.00%	ft ³ CH ₄ /ft ³ LFG
Destruction Efficiency (DE)	0.98	%
Incomplete Combustion (FFCH ₄)	0	tCH ₄ /yr
CH₄DEST_{upgrade}	0	tCH₄/yr
Total Project		
CH ₄ DEST _{flare}	174	tCH ₄ /yr
CH ₄ DEST _{electricity}	2,378	tCH ₄ /yr
CH ₄ DEST _{thermal}	0	tCH ₄ /yr
CH ₄ DEST _{upgrade}	0	tCH ₄ /yr
CH₄DEST_{PR}	2,552	tCH₄/yr

Data Source
Continuous Monitoring
Continuous Monitoring
Calculated
CAR Protocol, V2.0
No supplemental gas
CAR Protocol, V2.0
Calculated
Continuous Monitoring
Continuous Monitoring
Calculated
CAR Protocol, V2.0
No supplemental gas
CAR Protocol, V2.0
Calculated
N/A
N/A
Calculated
Continuous Monitoring
Continuous Monitoring
CAR Protocol, V.0
N/A
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