

VERIFICATION REPORT FOR THE CLINTON LANDFILL #2 GAS COLLECTION AND COMBUSTION PROJECT



Document Prepared By Ruby Canyon Engineering

743 Horizon Ct. Suite 385
Grand Junction, Colorado 81506
(970) 241-9298

Project Title	Clinton Landfill #2 Gas Collection and Combustion Project
Version	2.1
Report ID	2016_RCE_VCS_5

Report Title	Verification Report for the Clinton Landfill #2 Gas Collection and Combustion Project
Client	Origin Climate, Inc.
Pages	16
Date of Issue	29 July 2016
Prepared By	Ruby Canyon Engineering
Contact	743 Horizon Ct. Suite 385 Grand Junction, Colorado 81506 1-970-241-9298 www.rubycanyoneng.com
Approved By	Nina Pinette
Work Carried Out By	Samantha Phillips

Summary:

The Clinton Landfill #2 Gas Collection and Combustion Project (Project) consists of the collection and destruction of landfill gas (LFG) that would otherwise have been released to the atmosphere. Through an active landfill gas collection system coupled with two generators and two back-up flares, the Project results in the reduction of greenhouse gases through avoided emissions of methane (CH₄).

On 15 April 2016, Origin Climate, Inc. (Origin Climate) contracted with Ruby Canyon Engineering (RCE) to perform the verification of the monitoring period 1 November 2014 – 30 April 2016. RCE performed a site visit in June 2016 and subsequently completed a detailed document review of relevant Project information.

The purpose of the verification is to ensure that the project activity was implemented according to the monitoring plan, the emission reduction assertion submitted by Origin Climate is materially correct and free of errors and omissions, and that the Project meets all criteria requirements. Specifically, RCE assessed the Project against the requirements of the Clean Development Mechanism methodology ACM0001 (version 10). RCE assessed the Project's Monitoring Report—which also includes the Project's monitoring plan—based on the above criteria as well as relevant criteria and VCS guidance documents.

During the verification process, RCE completed a desk review of the Monitoring Report and associated documents to confirm that the project activity was implemented as stated in the VCS Project Description (PD) including a review of data and information control systems, interviews with key personnel, and visual inspection of monitoring equipment. RCE issued requests for corrective action, additional documentation, and clarification. During the course of verification activities, Origin Climate provided adequate responses to six Corrective Action Requests, six Additional Documentation Requests, and three Clarification Requests.

RCE concludes, to a reasonable level of assurance, that the Project's GHG assertion of 102,962 metric tonnes of CO₂ equivalent emissions for the period of 1 November 2014 – 30 April 2016 is fairly stated.

Table of Contents

1	Introduction	4
1.1	Objective	4
1.2	Scope and Criteria	4
1.3	Level of Assurance.....	4
1.4	Summary Description of the Project	4
2	Verification Process	5
2.1	Method and Criteria.....	5
2.2	Document Review	6
2.3	Interviews	6
2.4	Site Inspections	7
2.5	Resolution of Findings.....	7
2.5.1	Forward Action Requests.....	7
2.6	Eligibility for Validation Activities	7
3	Validation Findings.....	7
3.1	Participation under Other GHG Programs	7
3.2	Methodology Deviations.....	7
3.3	Project Description Deviations	8
3.4	Grouped Project	8
4	Verification Findings.....	8
4.1	Project Implementation Status	8
4.2	Accuracy of GHG Emission Reduction and Removal Calculations	11
4.3	Quality of Evidence to Determine GHG Emission Reductions and Removals	12
4.4	Non-Permanence Risk Analysis.....	12
5	Verification conclusion	13
6	Lead Auditor Signature	13
7	Internal Reviewer Signature	13
	APPENDIX A: Verification Findings	14

1 INTRODUCTION

1.1 Objective

The objective of the verification is to ensure that the GHG emission assertion made by Origin Climate is materially correct and that the data provided are accurate, complete, and transparent. Additionally, RCE ensured that the Project is in conformance with the criteria as stated in Section 1.2.

1.2 Scope and Criteria

The scope of the Project includes the organizational boundaries of Clinton Landfill #2 and all components of the gas collection and control system. The GHGs included in the scope of the project are CO₂ & CH₄.

RCE conducted the verification based upon the following criteria:

- Verified Carbon Standard version 3.5 (25 March 2015);
- VCS Program Guide Version 3.5 (8 October 2013);
- Clean Development Mechanism methodology ACM0001, Consolidated baseline and monitoring methodology for landfill gas project activities, Version 10;
- Validated VCS Project Description, version 1.51 (12 November 2009);
- VCS Validation and Verification Manual, Version 3.1 (8 October 2013); and
- ISO 14064-3 “Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions”.

Additionally, RCE reviewed the Project’s monitoring period-specific Monitoring Report Version 2.1, dated 20 July 2016, including the monitoring plan, during verification activities.

1.3 Level of Assurance

RCE conducted the verification to a reasonable level of assurance.

Materiality was defined as errors, omissions, or discrepancies resulting in misstatement of greater than five percent of the Project’s GHG assertion. Additionally, RCE considered qualitative non-conformances with criteria requirements as material during the verification process.

1.4 Summary Description of the Project

The Project activity consists of the collection and destruction of LFG from Clinton Landfill #2 in Clinton, Illinois. The Project is located at latitude: 40°6’51.411” N and longitude: 88°57’28.7994” W. The Project includes a landfill gas collection system which conveys LFG to two power generation engines or an open candlestick flare. The monitoring period under verification is 1 November 2014 to 30 April 2016.

Emission reductions are achieved by the Project through the collection and combustion of methane in the flares and engines. The Project reduces the quantity of methane released to the atmosphere from the decomposition of waste in the closed landfill. In the absence of the Project, the majority of methane collected would have been vented to the atmosphere. Note that pre-Project, landfill gas collection and combustion system destroyed LFG from the landfill in a flare. The fraction of LFG and methane that would have been collected in the initial system is deducted from final emission reduction calculations.

Starting in October 2015, LFG from Clinton Landfill #3 is conveyed to the project destruction devices. The LFG destroyed from Clinton Landfill #3 is monitored and deducted from the final emission reduction calculations.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process involved the following independent and objective activities:

- Select a Verification Team;
- Perform a Conflict of Interest Review;
- Conduct a kick-off meeting with Origin Climate;
- Review the validated Project Description (PD);
- Review the Validation Report;
- Review the previous Verification Report;
- Review the current Monitoring Report Version 2.1, dated 20 July 2016;
- Develop a verification plan and risk-based sampling plan;
- Conduct a site visit to the Project;
- Review the Project information control systems and quality control procedures;
- Review the Project's emission reduction calculations;
- Issue corrective action, additional documentation, and clarification requests as necessary;
- Issue a verification report and verification representation; and
- Conduct an exit meeting with Origin Climate.

RCE selected the verification team according to its GHG Verification Policies & Procedures to ensure team members are qualified to perform verification activities pertaining to the Project. The Verification team consisted of the following individuals:

Lead Verifier: Samantha Phillips

Internal Reviewer: Nina Pinette

Team Member: Phillip Cunningham

Prior to verification activities, RCE performed a Conflict of Interest Assessment to determine whether any potential conflicts exist with the project developer. No issues were discovered that would affect the impartiality or independence of the verification team.

RCE held a kick-off call with Origin Climate on 17 May 2016. The purpose of the kick-off call was to introduce the Origin Climate personnel and the RCE verification team, review the verification objectives and process, review the VCS requirements, and to confirm the verification schedule.

RCE developed a verification plan and sampling plan that were used throughout the verification of the Project. The plan was created after reviewing the Project Monitoring Report, validated Project Description, and the VCS Standard (Version 3.5). RCE performed a risk assessment based upon the criteria listed above and evidence provided to RCE by Origin Climate for the current monitoring period.

RCE used the verification plan throughout the monitoring period as a basis for assessing the completeness, consistency, accuracy, and transparency of the Project's GHG emission reductions. RCE conducted a site visit at the Project location in Clinton, Illinois on 28 June 2016 as described in Section 2.4.

2.2 Document Review

RCE performed a risk-based analysis of the Project and document sampling in order to verify that the Project is in conformance with all criteria requirements and that the stated emission reductions are materially correct. RCE reviewed the following documents:

- Validated Project Description,
- Validation report,
- Previous verification report,
- Calculation spreadsheet,
- Monitoring report (dated 20 July 2016)
- Carbon Credit Management Services Agreement which defines ownership of the emission reductions,
- Meter calibrations and maintenance,
- Flow and methane concentration data,
- Evidence of engine operations, and
- Electric invoices.

2.3 Interviews

RCE held discussions with the following personnel during the verification process including discussions during the site visit:

- Nick Facciola, Origin Climate: Nick is responsible for development and maintenance of the Project Monitoring Report and emission reductions calculations. He was the primary contact during the verification and addressed all Corrective Action Requests (CARs), Clarification Requests (CRs), and Additional Documentation Requests (ADRs)
- Andrew Whelpley, Program Manager for PDC Technical Services, Inc.: Andrew is responsible for oversight of the landfill environmental compliance and reporting.
- Kyle Martin, Compliance Specialist for Clinton Landfill, Inc.: Kyle is responsible for operating and maintaining the Project. He manages the LFG collection wells, schedules calibrations, performs methane readings, and helps with GHG data collection.
- Logan Hamlin, Alterfor Cat: Logan is responsible for operation and maintenance of the power plant.

During the site visit, Andrew and Kyle provided a tour of Project equipment and described the processes for maintaining the Project including data collection, equipment calibration checks, and other quality assurance/ quality control procedures.

2.4 Site Inspections

RCE conducted a site visit at the Project location in Clinton, Illinois on 28 June 2016. The site visit activities included a physical inspection of the Project operations and a review of the Project's information control systems, data handling, QA/QC activities, and equipment calibration schedules. RCE viewed all Project LFG destruction devices: two open candlestick flares and two power generators. During the site visit, RCE discussed the day-to-day operation of equipment, data aggregation and compilation, and emission reductions quantification.

2.5 Resolution of Findings

During the verification process, RCE issued requests for six corrective actions, three clarifications, and six additional documentations. These requests were documented through RCE's list of findings. Origin Climate sufficiently addressed all requests as documented in Appendix A.

2.5.1 Forward Action Requests

There are no forward action requests issued during this verification.

2.6 Eligibility for Validation Activities

RCE did not perform validation activities as part of the verification process.

3 VALIDATION FINDINGS

No validation activities took place during the verification of this monitoring period.

3.1 Participation under Other GHG Programs

The Project does not participate in any other GHG programs.

3.2 Methodology Deviations

Origin Climate identified and appropriately justified one methodology deviation for this monitoring period. RCE approved this methodology deviation for the Project during this monitoring period.

The methodology default destruction efficiency for flares is 50%. However, a destruction efficiency of 96% is being applied to Flare 2, which was installed during project construction. RCE approved this deviation because it is a widely-accepted representation and is a more accurate representation of flare destruction efficiency for LFG offset project equipment and conditions in the United States. Additionally, calculation of emission reductions is limited to times when there is LFG flow to the flare during periods when the flare is hotter than 500°F, ensuring combustion of the LFG. This methodology provides increased accuracy to the emission reduction calculations.

3.3 Project Description Deviations

Origin Climate identified and appropriately justified three new project description deviations in the Monitoring Report. RCE approved these project description deviations for the Project during this monitoring period.

The validated Project Description states that DeWitt Energy is the owner of the Clinton Landfill power plant. DeWitt Energy transferred ownership of the power plant to Wabash Valley on October 13, 2014. No changes were made to the onsite destruction equipment or monitoring equipment. RCE approved this deviation because it does not impact the applicability of the methodology, or additionality, or appropriateness of the baseline scenario.

The validated Project Description is only applicable to destruction of LFG collected from the closed Clinton Landfill #2. On October 13, 2015 the landfill gas collection system from Clinton #3 was connected to the project landfill gas collection system. The project developer is not seeking reduction credits from destruction of Clinton #3 LFG and imported gas is being subtracted from $MD_{project,y}$. The flow is measured by a flow meter which is maintained according to the same QA/QC procedures for the Project flow meters as documented in the Project Description. Total methane destroyed from Clinton #3 is conservatively calculated by applying the highest methane concentration recorded at the power plant to the flow. Because the volume of gas from Clinton #3 is being measured and the volume destroyed is being excluded from the Project, this deviation does not affect applicability of the methodology, additionality, or appropriateness of the baseline scenario.

The validated Project Description states that a destruction efficiency of 50% will be applied when calculating emissions from an open flare. As described in Section 3.2, a destruction efficiency of 96% is being applied to Flare 2, increasing the accuracy of emission reduction calculations. Because the destruction efficiency of 50% is still being applied to the pre-project flare in the project scenario, the deviation does not impact the appropriateness of the baseline scenario. This deviation does not impact the projects additionality.

RCE approved these deviations and the project remains in compliance with VCS rules.

3.4 Grouped Project

The Project is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The Project start date is 24 January 2007, and the crediting period is for ten years starting on 1 July 2009 and ending on 30 June 2019. RCE found that the Project was implemented in conformance with the validated Project Description. RCE confirmed that the Project continues to meet the requirements of the VCS Standard version 3.5.

RCE confirmed that there were no changes to the project proponent for this monitoring period. However, there was a change in ownership of the power plant. DeWitt Energy transferred ownership of the power plant to Wabash Valley Power. Origin Climate is identified as the Project Proponent while Wabash Valley power and Peoria Disposal Company are identified as Entities Involved. During verification activities, RCE confirmed that ownership of all emission reduction credits generated by the Project is transferred to Origin Climate.

RCE searched other prominent GHG program registries for listings of the Project at any time prior to or during this monitoring period. RCE found no evidence to suggest the project was or is registered with any other GHG program.

The data parameters that are recorded in order to calculate emission reductions are included and described in the Monitoring Report and monitoring plan. Landfill gas conveyed to the power plant, the two flares, and from Clinton Landfill #3 is monitored continuously using four Rosemount flow meters. Each flow meter is calibrated by a factory-authorized technician annually, in accordance with the validated Project Description. The flow meters to the power plant and flares were calibrated on 19 June 2014 and 6 August 2015. The flow meter from Clinton #3 was first used on 13 October 2015 and was last calibrated on 6 August 2015.

Landfill gas conveyed to the flares is monitored continuously by two Siemens Ultramat gas analyzers. Peoria Disposal Company performed quarterly accuracy checks on the Siemens gas analyzers. The analyzer at Flare 1 had periods of drift greater than 5%, however no LFG was destroyed during these periods. The analyzer to Flare 2 was found to be within 5% accuracy during each check. The LFG to the power plant is measured using a portable handheld GEM5000 gas analyzer. The analyzer is field calibrated before each use and factory calibrated annually. The 9 July 2014 factory calibration for the GEM5000 indicated “as received” conditions outside of the 5% accuracy threshold; however, Origin Climate did not apply these drifts to methane concentrations as the field calibrations prior to each use ensured that the instrument was calibrated.

Three Yokogawa units are installed at the power plant and two flares. Each Yokogawa records instantaneous and totalized LFG flow every two minutes. The Yokogawa units at the flares records average methane concentration of the LFG and flare temperature in addition to flow every two minutes. RCE observed no discrepancies between the monitoring system operations and the validated monitoring plan in the Project Description, except as described in the project description deviations below.

RCE approved the following project description deviations which had been assessed and approved by the Project’s previous verification body/bodies and still apply to this monitoring period. RCE also confirmed that these deviations are appropriately described in the Monitoring Report:

- The PD describes a web-based reporting tool that would aggregate monitored parameters for the engines. Instead, the project manually records methane measurements at the engine skid taken with a handheld methane analyzer.
- The PD states that the total electricity generated by the project is monitored directly from the electricity meters; however, the electricity is actually tracked through monthly electricity bills from the power company’s metering efforts, rather than from the meters themselves.

- The PD states that engine operating hours are monitored hourly and tracked daily; however, the collection frequency from the totalizers was only monthly. Operating clock hours are tracked showing monthly totalizer readings, which are used to demonstrate consistent operation by comparing against monthly gas flow and monthly power generation. This deviation does not affect the applicability of the methodology, the additionality, or the appropriateness of the baseline scenario.
- The PD states that the standard temperature and pressure of the LFG flow measurements for all flow meters is 68°F and 1 atmosphere (14.696 psi) of pressure. The actual flow measurements are taken for the power plant and Flare 1 at 60°F and 1 atmosphere. The actual flow measurement is taken for Flare 2 at 60°F and 14.73 psi. Finally, the actual flow measurement is taken for Clinton 3# at 59°F and 1 atmosphere. The calculation of emission reductions utilizes the correct methane density that corresponds to the flow meter standard conditions. This does not affect the applicability of the methodology, the additionality, or the appropriateness of the baseline scenario.
- The landfill staff has replaced the portable methane analyzer equipment used onsite. Rather than the Landtec GEM-2000 or Elkins Earthworks Envision noted in the PD to be used to capture methane concentration data at the power plant, the Project now owns and operates a Landtec GEM-5000. Rather than the handheld gas analyzer used at the flares, the Project installed a Siemens Ultramat 23 continuous gas analyzer on each flare skid. This does not affect the applicability of the methodology, the additionality, or the appropriateness of the baseline scenario.
- The PD notes that the electricity meter, which monitors the net electricity generation, will be subject to regular maintenance and testing to ensure accuracy. Because the meter is owned and maintained by the utility purchasing the power, Origin Climate is unable to obtain evidence of maintenance activities for purposes of carbon credits. This does not affect the applicability of the methodology, the additionality, or the appropriateness of the baseline scenario. Furthermore, as the power generation data is not used for project data, this will not have any impact on the accuracy or the results of the GHG Emission Reductions calculations.
- The PD indicates TerraPass Inc. as the project proponent. As indicated in the Appendix, TerraPass changed its name and is now Origin Climate Inc. and continues to manage the verification of the credits and represent them for sale. This administrative change does not affect the applicability of the methodology, the additionality, or the appropriateness of the baseline scenario.
- The project deviated from the PD in that the continuous gas analyzer installed at Flare 1 was found to be outside of the five percent accuracy threshold twice during previous monitoring periods and three times during this monitoring period.

On May 29, 2014 the Siemens Ultramat 23 was field checked for calibration accuracy and was found to be under-reporting by 6% and was recalibrated. Because the readings were low, Origin Climate considered these to be conservative by using the readings as-is. On December 12, 2014 the same device received its quarterly planned field check and was found to be over-reporting by 6%. It was recalibrated, and to keep the emission reductions from being overstated, Origin

Climate adjusted the flow readings down by 6% back to the last successful field check on August 18, 2014.

While Flare 1 is rarely used, its continuous gas analyzer was out of calibration two more times during this monitoring period. It may be due to the fact that there was no gas flowing to the skid at the time, But Origin Climate applied drift adjustments to the periods in which the device was over-reporting, from the beginning of the monitoring period through December 12, 2014 by 6%, and from March 31, 2015 through June 24, 2015 by 8%. For the period preceding March 30, 2015 when the device was found under-reporting by 5.4% no adjustments were made, in order to be conservative. As no flow was recorded during the times of drift adjustment, this does not affect the applicability of the methodology, the additionality, or the appropriateness of the baseline scenario.

- The project deviated from the PD by including propane as an emissions source in the Project activity. The PD states that because the flare was also used in the baseline scenario, the propane would not be monitored and would not be included in the emission reduction calculations. During this monitoring period and previous periods, propane consumption is tracked through supplier invoices and accounted for as a project emission. This is more conservative and does not affect the applicability of the methodology, the additionality, or the appropriateness of the baseline scenario.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

Origin Climate calculates the Project's emissions reductions in accordance with the equations in ACM001. RCE sampled the Project's raw data excel files with data collected during the monitoring period to ensure the accuracy of reported data and to ensure that there were no transcription errors between data sets. RCE reviewed Origin Climate's GHG assertion spreadsheet to ensure the accuracy of the formulas, emission factors applied, and functionality of the spreadsheet.

The primary Project data includes the LFG flow to the power plant and both flares, imported LFG flow from Clinton #3, and the methane content of the LFG. Origin Climate uses these parameters to calculate the amount of methane destroyed by the Project. The flow meters adjust LFG flow for temperature and pressure based on reference conditions of 60°F and 1atm or 14.73 psi (as discussed above). RCE verified that the appropriate density of methane at these conditions, as reported in the Monitoring Report, was applied in the calculation spreadsheet.

RCE confirmed engine and flare operation during the monitoring period to ensure that any flow to the power plant and flares was destroyed. If engine operation was recorded (via operating hour totalizer), then LFG was assumed to be destroyed, and if the recorded flare temperatures were greater than 500°F, then LFG was assumed to be destroyed. RCE reviewed the checks built into the calculation spreadsheet to exclude periods when the flares were not operating. A default destruction efficiency of 50% was applied to the pre-project flare, Flare 1, and a destruction efficiency of 96% was applied to the new flare, Flare 2.

RCE confirmed that imported LFG flow from Clinton #3 was deducted from the total methane destroyed. Methane from Clinton #3 was assumed to take the most conservative path, which would be destruction in the engines. Additionally, the maximum methane concentration was used to calculate methane from Clinton #3.

Pre-project destruction of LFG in the baseline scenario was deducted from the methane destroyed in the project scenario. RCE confirmed that the appropriate adjustment factor was applied in the calculation spreadsheet.

Project emissions from purchased electricity and propane were deducted from the baseline emissions calculated for the monitoring period. The quantity of the propane combusted by the flare is not metered, and Origin Climate uses billing records to determine the quantity of propane consumed. Emissions from electricity used by the Project are calculated using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”, which accounts for the quantity of electricity consumed and average technical transmission and distribution losses for providing the electricity. RCE confirmed that project emissions were appropriately calculated using default values as stated in the Project Description.

RCE recalculated the emission reductions for the entire monitoring period and found the GHG emission reduction calculations to be in conformance with the ACM0001 methodology and the validated Project Description and free of material misstatements.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

Origin Climate provided adequate documentation for the emission reduction calculations as well as its information control systems and data management processes. RCE reviewed the Project’s Monitoring Report, instrumentation calibration documentation, raw data, and all emission reduction calculations. Additionally, RCE interviewed Project personnel during the site visit to assess their understanding of the Project equipment and data outputs including data management.

Metered data is collected and recorded by the SCADA system which creates Yokogawa .dad files that contain the two-minute recordings of LFG flows, methane contents, and temperature output. The files are converted to Excel files for assessment and calculation. GEM5000 data is downloaded into excel files for assessment and calculation. RCE reviewed samples of Excel files as well as aggregated daily summaries.

RCE found the information provided to be transparently documented and in accordance with the validated Project Description and requirements of ACM0001 with the exceptions of the deviations noted in Section 3.2 and 3.3 above.

4.4 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

RCE conducted a risk-based analysis of the Clinton Landfill #2 Gas Collection and Combustion Project including a strategic review of the Project data, documentation, and emission reduction calculations. RCE concludes to a reasonable level of assurance that the GHG assertion is free of material misstatement. The emission reductions resulting from avoided emissions of methane for the monitoring period 1 November 2014 to 30 April 2016 can be considered in conformance with the:

- Verified Carbon Standard version 3.5 (25 March 2015),
- Clean Development Mechanism methodology ACM0001, Consolidated baseline and monitoring methodology for landfill gas project activities, Version 10, and
- Validated VCS Project Description, 12 November 2009

Verification period: From 1 November 2014 to 30 April 2016

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2014 (Nov-Dec)	12,204	91	-	12,113
2015	73,275	226	-	73,049
2016 (Jan-Apr)	17,944	144	-	17,800
Total	103,423	461	-	102,962

6 LEAD AUDITOR SIGNATURE



Samantha Phillips
Staff Environmental Scientist

7 INTERNAL REVIEWER SIGNATURE



Nina Pinette
Staff Environmental Scientist

APPENDIX A: VERIFICATION FINDINGS

Corrective Action (CAR), Clarification (CR) and Additional Documentation Requests (ADR)		
ID #	Action Item	Resolution
CAR 1	Please include a statement in the monitoring report about how long project files are kept by Origin Climate.	20 July 2016: Document and record storage practices have been included in the data generation and storage section of the monitoring report.
CAR 2	Please include a description deviation in the monitoring report detailing the actions taken to adjust for Flare 1's gas analyzer drifts.	20 July 2016: Adjustment for Flare 1 gas analyzer drifter was described in the monitoring report.
CAR 3	The data inputs for the flow from Clinton #3 are using totalizer reading data on the wrong dates.	20 July 2016: The flow tube readings from Clinton #3 were adjusted.
CAR 4	The application of the flare destruction efficiencies in the calculation of emission reductions is inconsistent with the validated PD, and there are no PD deviations defined and justified related to the adjustment factor. Thus the current calculations are not appropriately justified or conservative.	20 July 2016: The 96% flare destruction efficiency for Flare 2 is now noted in the PD deviations as well as in the Methodology Deviations sections of the monitoring report.
CAR 5	Located in the Output Tables of the calculation spreadsheet, the flow to the generators for 2016 is not linked to the correct cells in the Flow Data, Power Plant tab.	20 July 2016: An updated calculation spreadsheet was provided with corrections to the Output Tables tab.
CAR 6	Electric consumption of the engines is included in December when there was none.	20 July 2016: The electric consumption on the engines was removed for December.
ADR 1	Please provide ownership evidence of flare emission reductions (i.e. a contract between the Landfill and Origin Climate (TerraPass)).	20 July 2016: Both the contracted gas quantity for use at the power plant and the excess gas which is flared at Clinton Landfill #2 are both called out in the contract between the landfill and WVPA.
ADR 2	Please provide a signed statement that the project is only registered with VCS and no other emissions trading scheme.	20 July 2016: Signed attestation that the project is only registered with VCS was provided.
ADR 3	Please provide evidence that the LFG from Clinton #3 was first sent to the project destruction devices on 13 October 2015.	20 July 2016: The maintenance and repair log shows that the installation of the flow tube from Clinton #3 was completed on 12 October 2015.
ADR 4	Please provide evidence that the Clinton #3 flow meter is recording at 59°F.	20 July 2016: The Veris Verabar calculation sheet shows that 59°F is the programmed reference temperature.

ADR 5	Please provide the daily flow spreadsheet for the engine if available.	20 July 2016: There is no spreadsheet with the daily flows to the engine. To obtain daily flows, raw data was filtered to display totalizer readings at 00:00:00 of each day.
ADR 6	Please provide the flare station data logs with the totalizer reading for the missing flow tube data from: - Beginning of November, and 2/1/16	20 July 2016: The flow station data log was provided for 2/1/16. The data logs from the beginning of November do not contain the flow totalizer information and the maximum flow from the month before and after the gap is being applied.
ADR 7	Please provide evidence that the flow meters to Flare 1 and the power plant are standardized to 60F and 14.696 psi, that the flow meter to Flare 2 is standardized to 60F and 14.73 psi, and that the flow tube flow meter is standardized to 59F and 14.696 psi.	28 July 2016: Documentation of what temperature and pressure each flow is being recorded at was provided.
CR 1	Why does the PD indicate a 9 year crediting period?	20 July 2016: It appears this confusion began during the validation and has been propagated throughout the past several years. The project crediting period should in fact be a full ten years, as is indicated throughout the PD and the Validation Report with the exception of the incorrect date of the tenth year being written as June 30, 2018.
CR 2	What is the EX-5100 LEL Monitor on the Quarterly LFG & LEL Monitor Calibration forms?	20 July 2016: The EX-5100 LEL Monitor is not directly part of the offset project monitoring equipment. It is a safety device used for the detection of dangerous levels of combustible gas (lower explosive limit) within the cabinet of the gas skid monitoring equipment.
CR 3	How does the use of the updated flare destruction efficiency affect the adjustment factor in calculating pre-project destruction? Please demonstrate how this does not negatively impact the conservativeness of quantifying emission reductions.	20 July 2016: Origin Climate revised the calculations such that the flare destruction efficiency in the baseline is maintained through the project scenario calculations by keeping 50% as the destruction efficiency associated with the pre-project flare, Flare 1. This prevents any effect on the adjustment factor that was validated. The flare destruction efficiency of the project flare, Flare 2, is 96% and is acceptable as this is a value widely used in landfill gas offset projects when the evidence of flame combustion can be shown (i.e. 500°F).

CR 4	Why is the as found condition of the GEM5000 (SMG500309) on the 7-9-15 accuracy check off by so much and is this an accurate representation of the drift? It seems strange that is was over reporting at low levels and under reporting at high levels. The calibration report is attached.	28 July 2016: There was no indication of such drift in the LFG Monitoring Field Report notes leading up to that factory calibration and no large differences in the data collected. field calibrations prior to each use ensured that the instrument was calibrated.
------	---	--